NEW YORK CITY
DEPARTMENT OF TRANSPORTATION

DIVISION OF BRIDGES

P.I.N. 84107BXBR171

Contract No. HBX1123

ENGINEERING REQUIREMENTS

DESIGN / BUILD
BRUCKNER EXPRESSWAY BRIDGES (N/B & S/B)
OVER AMTRAK & CSXT RAILROADS
BIN 2075352
BIN 2075351

Together With All Work Incidental Thereto
BOROUGH OF BRONX

TABLE OF CONTENTS
BOOK 2
Engineering Requirements

		Page No.
EXHIBIT A -	**Engineering Support Data**	**iii**
EXHIBIT B -	**Technical Specifications**	**248**
EXHIBIT C -	**Progress Payment Schedule**	**262**
EXHIBIT D -	**Design Deliverables Submission**	**267**
EXHIBIT E -	**Scope of Work**	**269**
EXHIBIT F -	**Maintenance & Protection of Traffic Stipulations**	**278**
EXHIBIT G -	**Public Utilities/Entities Requirements**	**282**
EXHIBIT H -	**Private Utilities Requirements**	**286**
EXHIBIT I -	**Railroad Requirements - Amtrak**	**294**
EXHIBIT J -	**Railroad Requirements - CSXT**	**336**
EXHIBIT K -	**Special Provisions**	**412**
EXHIBIT L -	**Bridge Painting Requirements**	**467**

EXHIBIT A
ENGINEERING SUPPORT DATA

Proposers must use the design criteria as listed in Exhibit A, Item 5.0 Main Line & Service Road Design Criteria. Proposers are free to propose an alternate that may further improve design features. The manual to be followed is the NYSDOT Highway Design Manual.

Proposers who are not able to adhere to the design criteria must clearly explain in their Proposal why it would not be feasible to do so.

TABLE OF CONTENTS

		Page No.
1	**Background**	**1**
2	**Description of Existing Bridges**	**2**
3	**Inspection Report**	**2**
4	**Emergency Inspection of BIN 2-07535-2**	**4**
5	**Design Criteria**	**5**
6	**ULURP Considerations**	**7**
7	**Soil Investigation**	**7**
8	**Utility Investigation**	**7**
9	**Traffic Data**	**7**
	Appendix A – Existing Plans & Inspection Reports	**8**
	Appendix B – Preliminary Plans	**176**
	Appendix C – Public Utility Plans	**197**
	Appendix D – Survey Data	**206**
	Appendix E – ROW Plans	**211**
	Appendix F – Boring Logs	**216**
	Appendix G – Traffic Data	**219**

1. Background

Bruckner Expressway over Amtrak & CSXT Railroads

The Bruckner Expressway, Interstate Route I-278 is a major connecting link, in the Bronx, from the Triborough Bridge/Major Deegan Expressway (I-87) to the New England Thruway (I-95) as well as the Whitestone and Throgs Neck Bridges.

BIN 2-07535-1 and BIN 2-07535-2 originally carried Eastern Boulevard over the now defunct New York, New Haven, and Harlem Railroad. A limited amount of as-built information is available. It is known that a bridge was constructed prior to 1946. However it is not known if the crossing consisted of one bridge or the current configuration of two bridges. BIN 2-07535-2 was modified under Contract FIBE 60-1 by the NYS Department of Public Works. The modifications were limited to the deck joints and median.

There are four railroad tracks below the bridge. The first two tracks (from the west abutment) are operated by Amtrak (Track Nos. 1 and 2) and have catenaries above; the other two tracks (Track Nos. 5 and 6) are operated by CSXT.

In October 2005, an oil tanker truck fire on BIN 2-07535-2 caused a downward deflection of portions of the bridge. This deflection reduced the clearance above the CSXT tracks by several inches, resulting in a limitation of operations by the railroad due to the reduced clearance and potential for trains to hit the bridge. In addition, the fire induced distortion resulted in separations between the concrete deck slab and girders.

According to NYCDOT, the fire caused several girders to become permanently deflected downward, over the CSXT trackage, by approximately 6" or more and distorted several diaphragms. This deflection has compromised the clearance above the CSXT tracks. It has been reported by CSXT that their trains, at times, have come in contact with the girders. There have been no reported clearance problems involving the Amtrak trackage. It has also been reported recently that portions of the deck have separated from the girders by as much as 1½ inches.

	Pre-Fire Clearances (Feet)	
Location	BIN 2075351	BIN 2075352
Track 1	18.07	18.14
Track 2	16.56	17.15
Track 5	17.39	17.38
Track 6	17.15	17.91

Clearances obtained from Biennial Bridge Inspection Reports, included in the RFP.

There have been no reported clearance problems involving the Amtrak trains. The high voltage catenary lines are supported by structures independently of the bridge superstructure; the clearance is sufficient for railroad traffic.

2. Description of Existing Bridges

Superstructures:

BIN 2-07535-1 is a single span structure consisting of three thru-trusses. The expansion end of each truss is supported by roller-type bearings. The opposite end is supported by a pin-type shoe. The bridge is supporting a reinforced concrete deck; it is not known if the deck acts compositely with the steel framing. The thickness of the concrete deck and asphalt overlay is unknown. The structure is approximately 123' long and 94'-6"' wide, skewed 41 degrees. It carries two lanes of Bruckner Expressway S/B (I278) and a service road (Bruckner Boulevard).

BIN 2-07535-2 is a single span structure consisting of 14 riveted plate girders supported by high, rocker-type bearings. The girders are supporting a non-composite reinforced concrete deck. Cores obtained after the fire indicate that the concrete deck is approximately 8" thick with asphalt overly approximately 4" to 6" thick. The structure is approximately 123' long and 88' wide, skewed 41 degrees. It carries two lanes of Bruckner Expressway N/B (I278) and a service road (Bruckner Boulevard).

Substructures:

The abutments for both bridges are believed to be gravity type founded on rock. Numerous areas are spalled and in need of repair.

Approaches:

The service road approaches are assumed to be a minimum 3" asphalt overlay on 6" concrete pavement. The mainline approaches are assumed to be a minimum 3" asphalt overlay on 9" concrete pavement. This information was obtained from Field Change Sheets for Contract FIBE 66-1, New York State Department of Public Works. These drawings are included on the CD as part of Exhibit A, Appendix A.

3. Inspection Report:

The following summary of the bridge conditions is based upon a review of the Bridge Inspection and Condition Reports conducted by NYCDOT on July 18, 2002 for both bridges and an inspection of BIN 2-07535-2 conducted by NYCDOT on September 8, 2006 and September 11, 2006. Presently, both bridges are monitored by NYCDOT on a biennial basis. Clearances above CSXT Track 5 below BIN 2-07535-2 are monitored by NYCDOT on a weekly basis, since November 6, 2006.

Superstructure:

BIN 2-07535-1: Approximately 40% of jack arch deck exhibits longitudinal cracks up to 1/8" wide with efflorescence and hollow sounding areas. Roadway wearing surface exhibits full width transverse cracks. The left roadway wearing surface also exhibits spalls that have been unevenly patched with asphalt.

Generally, most of the three truss members on top of deck are in good condition with minor corrosion and localized section loss. Below deck, most of the exposed bottom flanges exhibit severe corrosion with up to 20% section loss in localized areas. In addition, some rivet heads show deterioration with up to 60% section loss. Below deck, most of the exposed primary members steel surface exhibits paint peel, surface corrosion throughout with minor section losses in localized areas. Above deck, Paint on truss members is in fair condition.

BIN 2-07535-2: Portions of the concrete haunches and adjacent underdeck concrete areas are cracked, hollow, delaminated, and loose. A timber shield has been installed over most of the area to prevent loose concrete pieces from falling onto Amtrak and CSX trains below. Over 30% of the remaining deck area exhibits moderate scaling, map cracking with efflorescence.

All end diaphragms over begin and end abutments exhibit moderate corrosion with up to 10% over all section loss. In addition to the fire-related distortions, the girders exhibit minor bottom of web and bottom flange pitting with less than 5% section loss. All superstructure members exhibit minor section loss in localized areas with paint peel and deterioration.

Substructure:

BIN 2-07535-1: The entire begin abutment bridge seat area is covered with heavy accumulation of moist dirt and debris. All bearings exhibit significant corrosion with up to 15% section loss of the plates and up to 40% section loss of anchor bolt nuts. Approximately 90% of the Begin Backwall is hidden behind end diaphragms and is not visible. The visible bottom portion exhibits several horizontal cracks and dampness. Also, top of backwall at the left end is cracked and slightly pushed inward by approximately 1 inch.

Approximately 20% of the Begin Left Wingwall exhibits fine vertical and up to 1/8 inch wide horizontal cracks filled with efflorescence and heavy scaling. However, wingwall concrete sounded solid.

BIN 2-07535-2: At the Begin Abutment all bearings assembly exhibit heavy corrosion with up to 15% section loss. Also, most of the anchor bolt nuts show up to 50% section loss. The bearings are in expansion mode; the bearings appear to be frozen. The abutment seat area exhibits numerous horizontal cracks and spalls. However, no significant bearing area loss was noted. At both abutments, there is heavy accumulation of dirt and wet debris at isolated seat locations. Approximately 35% of stem exhibits heavy scaling, water stains, map cracking with efflorescence, several full height vertical cracks

Begin Right Wingwall exhibits several vertical and horizontal u cracks with efflorescence, water staining.

The overall rating for each bridge is as follows:

- BIN 2-07535-1 - Poor condition; Rating of 3.719.
- BIN 2-07535-2 - Poor condition; Rating of 3.547.

4. Emergency Inspection of BIN 2-07535-2:

Earth Tech performed a visual inspection of the bridge on October 20, 2006 and November 1, 2006. The purpose of the inspection was to obtain sufficient data in order to design the temporary rehabilitation to correct the deficiencies. The inspection was limited to the immediate area of the abutments due to the railroad constraints. Access to the underside of the deck was limited due to timber planking that was installed to prevent spalled concrete from the deck falling on the tracks.

Earth Tech obtained measurements and photographs in order to detail replacement of diaphragms, bearing if necessary and correct the separation between the concrete deck and plate girders.

The underside of the deck is generally in poor condition. It exhibits spalling and exposed reinforcement in several bays. Other deficiencies of the underside of the deck include moderate efflorescence, cracking and concrete deterioration.

The girders were in fair condition; several were distorted by the fire. There were no visible signs of corrosion or section loss. The long term condition of steel is compromised by the worn off protective paint layer. Rivet heads at Girders No. 4 through 8 over Track No. 5 were damaged by CSX trains brushing against the underside of the girders. Bottom flanges of these girders exhibit scrape marks and gouging.

Expansion rocker bearings at the West Abutment (Begin Abutment per NYSDOT BIIS) are over-extended and rotated towards the abutment backwall. All bearings at both abutments exhibit moderate corrosion. The bridge seats at both abutments are covered by dirt and debris. Debris covering the East Abutment's bridge seat appears to be contaminated with petroleum fuel.

5. Design Criteria:

BIN 2-07535-1 Southbound Bruckner Expressway & Service Road				
Feature	Standard NYSDOT HDM Chapter 2 Freeways	Existing Conditions - Mainline	Standard NYSDOT HDM Chapter 2 Urban Collector	Existing Conditions - Service Road
Design Speed	70 mph	50 mph (Posted) – East Approach 25 mph (Posted) – West Approach	62 mph	35 mph (Posted)
Lane Width	12'-0"	12'-0"	11'-0"	11'-0"
Shoulders	4'-0" (L) ; 10'-0" (R)	1'-0" (L) ; 1'-0" (R)	0' Min. (L) 0' Min (R) w/ No Accommodations 5' Min. (R) For Bicycle Accommodations 6' Min. (R) For Breakdown Accommodations	2'-8" (L), 2'-8"(R)
Bridge Roadway Width	Full Approach Width	27'-8"	Full Approach Width	27'-8"
Grade	3% Max.	G1 = 0.08%, G2 = -2.22%	6% Max.	-0.21%
Horizontal Curvature	1838'	250'	1614'	113'
Superelevation Rate	6% Max	2%	4% Max	2%
Stopping Sight Distance (Horiz.)	722'	595'	607'	546'
Lateral Clearance	4'-0" Minimum	1'-0"	0' with Barrier 1'-8" w/o Barrier	2'-8"
Pavement Cross Slope	1.5% Min., 2% Max.	2%	1.5% Min., 2% Max	2%
Rollover between lanes at edge of traveled way	4% max. Travel Lane, 8% max. Shoulder	4%	4% max. Travel Lane, 8% max. Shoulder	4%
Control of Access	Full Approach Width	unknown	N/A	Partial
Pedestrian Accommodations	N/A	Full	N/A	Sidewalk
Median Width	10' Minimum	N/A	N/A	4'-0" (between service and mainline)
Vertical Clearance Above Railroads	22'-0" (Bridge Manual)	Maintain Existing Clearances above Amtrak & CSXT		
Structural Capacity	HS-25	unknown	HS-25	unknown

BIN 2-07535-2 Northbound Bruckner Expressway & Service Road				
Feature	Standard NYSDOT HDM Chapter 2 Freeways	Existing Conditions - Mainline	Standard NYSDOT HDM Chapter 2 Urban Collector	Existing Conditions - Service Road
Design Speed	70 mph	50 mph (Posted) – East Approach 25 mph (Posted) – West Approach	62 mph	35 mph (Posted)
Lane Width	12'-0"	12'-0"	11'-0"	11'-0"
Shoulders	4'-0" (L) ; 10'-0" (R)	1'-0" (L) ; 1'-0" (R)	0' Min. (L) 0' Min (R) w/ No Accommodations 5' Min. (R) For Bicycle Accommodations 6' Min. (R) For Breakdown Accommodations	5'-0" (L), 5'-0"(R)
Bridge Roadway Width	Full Approach Width	27'-2 1/2"	Full Approach Width	33'-9 1/2"
Grade	3% Max.	G1 = 2.5%, G2 = -3.3%	6% Max.	G1 = 2.45%, G2 = -3.3%
Horizontal Curvature	1838'	250'	1615'	200'
Superelevation Rate	6% Max	2%	4% Max	2%
Stopping Sight Distance (Horiz.)	722'	271'	607'	271'
Lateral Clearance	4'-0" Minimum	1'-0"	0' with Barrier 1'-8" w/o Barrier	2'-8"
Pavement Cross Slope	1.5% Min., 2% Max.	2%	1.5% Min., 2% Max	2%
Rollover between lanes at edge of traveled way	4% max. Travel Lane, 8% max. Shoulder	4%	4% max. Travel Lane, 8% max. Shoulder	4%
Control of Access	Full Approach Width	unknown	N/A	Partial
Pedestrian Accommodations	N/A	Full	N/A	Sidewalk
Median Width	10' Minimum	13'-0"	N/A	13'-0"
Vertical Clearance Above Railroads	22'-0" (Bridge Manual)	Provide Minimum Clearance of 18'-10" above CSXT		
Structural Capacity	HS-25	unknown	HS-25	unknown

6. ULURP Considerations:

Property information was obtained from the Bronx Borough President, Bureau of Topography and is listed in Appendix E.

7. Soil Investigation:

Three soil borings were obtained along the West Abutments, at track level, in 1991 under Contract HBX622 (Rehabilitation of Longwood Avenue Bridge and Rehabilitation of Tiffany Street Bridge over Railroad (Amtrak & Conrail)) and are shown in the Appendix F.

8. Utility Investigation:

All utility companies have been informed of the upcoming bridge rehabilitation. Utility information is provided in Appendix C of Exhibit A and Exhibits G & H.

9. Traffic Data:

Mainline traffic data was obtained from NYSDOT. This can be found in Appendix A, Exhibit G

A limited number of local street traffic counts obtained during the period of May 4, 2007 to May 11, 2007 can be found in Appendix A, Exhibit G.

Appendix A
Existing Plans & Inspection Report

APPENDIX A - TABLE OF CONTENTS

			Page No.
1	**Inspection Report – BIN 2-07535-1**		**10**
2	**Inspection Report – BIN 2-07535-2, including coring report**		**60**
3	**Original Contract Drawings – BIN 2-07535-1**	**(See Note 1)**	**150**
4	**Existing Drawings – BIN 2-07535-2**	**(See Note 2)**	
5	**Plan & Profile – Structure 65H-1A to 68H**	**(See Note 3)**	
6	**Contract Drawings – Contract FIBE 60-1**	**(See Note 4)**	
7	**Contract Drawings – Contract FIBE 66-1**	**(See Note 4)**	
8	**Contract Drawings – Contract FIBEM 74-1**	**(See Note 4)**	
9	**Contract Drawings – Contract FITNEM 74-1**	**(See Note 4)**	
10	**Contract Drawings – Contract FIASEM 74-2**	**(See Note 4)**	
11	**Contract Drawings – Contract FABRPM 74-1**	**(See Note 4)**	

Note 1: A limited number of original contract drawings are included in this appendix. The New York City Department of Transportation makes no guarantee as to their accuracy. The entire set of original contract drawings will be included on a technical reference CD in PDF format to be provided to the short-listed Proposers.

Note 2: No original drawings for this bridge are available. Existing Drawings for BIN 2-07535-2 were developed from field survey (high density laser scanning) measurements taken during the preparation of this RFP and existing information in the NYSDOT Bridge Inventory & Inspection System (BIIS). The drawings can be found in Appendix B.

Note 3: Catenary plan and profile, dated 8-1-91; taken from NYCDOT Contract HBX622.

Note 4: The technical reference CD will contain drawings from various contracts for the construction of the Bruckner Expressway by the New York State Department of Public Works and subsequent improvements by the New York State Department of Transportation. These drawings will be provided for information only. The New York City Department of Transportation makes no guarantee as to their accuracy.

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Bridge Ratings

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Inspection Agency: 13 - Consultant Type of Inspection: 1 - BIENNIAL
GTMS: 310 -- Steel - Truss - Thru
POSTED: VC On: No Entry VC Under: No Entry Load: No Entry
Further Investigation Needed: No
State Highway Number: 000000 Milepoint: 5102.43 AADT/Yr: 99774 / 2000
Orientation: 3 - East Political Unit: 2034 - City of New York Year Built: 1960
Total Spans: 1 Ramp Bridge Attached To Span: NA BIN: NA
General Recommendation: 4 Computed Condition Rating: 3.719

Abutment Ratings:	Beg Abut	End Abut
Joint with Deck	2	2
Bearings, Bolts, Pads	3	3
Seats and Pedestals	3	3
Backwall	4	5
Stem (Breastwall)	5	5
Erosion or Scour	5	5
Footings	9	9
Piles	9	9
Recommendation	3	3

Wingwall Ratings:	Beg Abut	End Abut
Walls	4	4
Footings	9	9
Erosion or Scour	5	5
Piles	9	9

Channel Ratings:	Channel
Stream Alignment	8
Erosion and Scour	8
Waterway Opening	8
Bank Protection	8

Approach Ratings:	Approaches
Drainage	5
Embankment	5
Settlement	5
Erosion	5
Pavement	4
Guide Railing	5

Number of Flags Issued:

RED: 0 Yellow: 0 Safety: 1

Vulnerability Reviews Recommended: 1=Yes, 2=No, 3=NA, X=NotActive

Hydraulic: 3 Overload: X Steel: X
Collision: X Concrete: X Seismic: X

Inspector's Signature: CheckValue: 2,005,967,366 Date: 7/18/2002

Garen Apanosian,PE () (Inspector ID:11100025)

Reviewed By: Date: 12/6/2002

Stelios N. Bertos,PE () (QC ID:11100023)

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Span Ratings

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Deck Element Ratings:	001
Wearing Surface	4
Curbs	5
Sidewalks, Fascias	2
Railings, Parapets	2
Scuppers	8
Gratings	8
Median	5
Mono Deck Surface	4

Superstructure Ratings:	001
Structural Deck	3
Primary Members	4
Secondary Members	5
Paint	2
Joints	8
Recommendation	4

Pier Ratings:	001
Bearings, Bolts, Pads	8
Pedestals	8
Top of Cap or Beam	8
Stem Solid Pier	8
Cap Beam	8
Pier Columns	8
Footings	8
Erosion or Scour	8
Piles	8
Recommendation	8

Utility Ratings:	001
Lighting	5
Sign Structure	3
Utilities and Support	3

Field Notes:

Field Date	Arrival	Departure	Temp (C)	Temp (F)	Weather Conditions
6/12/2002	8:35:00 AM	11:58:00 AM		88	Sunny
6/13/2002	8:40:00 AM	12:05:00 PM		73	Cloudy
7/18/2002	9:00:00 AM	1:20:00 PM		94	Sunny

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Notes

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Note ID: NF024537

Beg Abut -- Abutment: Joint with Deck -- Rated 2, Was 2
Referenced Photos: "1", "2", "7"
Above deck, top of begin abutment joint has been paved over with asphalt. The asphalt overlay is uneven and deteriorated. Hence, causing a bumpy ride.
Below deck, water is leaking through the cracked and deteriorated joint and is causing serious deterioration of the members below.

Note ID: NF02444C

Beg Abut -- Abutment: Bearings, Bolts, Pads -- Rated 3, Was 3
Referenced Photos: "4", "6"
Due to surrounding accumulated moist dirt, all bearings exhibit significant corrosion with up to 15% section loss of the plates and up to 40% section loss of anchor bolt nuts.

Note ID: NF02444B

Beg Abut -- Abutment: Seats and Pedestals -- Rated 3, Was 3
Referenced Photos: "2", "5"
The entire begin abutment bridge seat area is covered with heavy accumulation of moist dirt and debris. The moist dirt is surrounding most of the bearings and causing significant deterioration of the bearing assembly. Also, the steel stool pedestal under left fascia exhibits severe corrosion with up to 20% section loss of the bottom flange plates and holes up to 60mm in diameter in the both end stiffeners.

Note ID: NF02444A

Beg Abut -- Abutment: Backwall -- Rated 4, Was 4
Referenced Photos: "7"
About 90% of the begin backwall is hidden behind end diaphragms and is not visible. The visible bottom portion exhibits several horizontal cracks and dampness. Also, top of backwall at the left end is cracked and slightly pushed inward by approx. 25mm.

Note ID: NF024449

Beg Abut -- Wingwalls: Walls -- Rated 4, Was 4
Referenced Photos: "8"
Approximately 20% of the begin left wingwall exhibits fine vertical and up to 3mm wide horizontal cracks filled with efflorescence and heavy scaling. However, wingwall concrete sounded solid. Note: There is no right wingwall since begin abutment is continues on the right side and connects to the begin abutment of the adjacent bridge (BIN 2075352).

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Notes

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Note ID: NF024536

Approaches: Pavement -- Rated 4, Was 4
Referenced Photos: "1", "10"
Both begin and end approach right side roadway asphalt pavement along the join is unevenly paved and exhibits wheel path rutting of approximately 50mm. Ride is bumpy. Both begin and end approach left side roadway pavement is in good condition.

Note ID: NF024539

Span 001 -- Deck Elements: Wearing Surface -- Rated 4, Was 4
Referenced Photos: "11", "12"
Both right and left side roadway concrete wearing surface exhibits several up to 3mm wide by full roadway width transverse cracks. The left roadway wearing surface also exhibits several uneven asphalt patches. The ride quality is affected.

Note ID: NF02453B

Span 001 -- Deck Elements: Sidewalks, Fascias -- Rated 2, Was 2
Referenced Photos: "13", "14"
Below deck, approximately 40% of jack arch deck under both sidewalk shows longitudinal cracks up to 3mm wide with efflorescence ns and hollow sounding areas. Above deck, right sidewalk has several up to 10m long longitudinal cracks. Note: The right sidewalk is closed to pedestrians traffic. Also, the large amount of construction debris on top of the right sidewalk has been removed since the last inspection and safety flag #00-0319 was removed by others. Top of the left sidewalk is in good condition.

Note ID: NF02453F

Span 001 -- Deck Elements: Railings, Parapets -- Rated 2, Was 2
Referenced Photos: "15", "16"
Approximately 18m long section of the right side Two-Rail continuous steel box railing near begin abutment has detached from four consecutive supporting posts due to impact damage. Both horizontal rails are sagging by up to 75mm. In addition, the bottom rail is protruding out by approximately 100mm towards the roadway. The condition causes a safety hazard to the motorist traveling on the left lane of Bruckner Exp. Southbound roadway. Therefore, a safety reflag #02-356 was issued. Note: The above condition was safety flagged in the last inspection report flag #00-0318.

Note ID: NF02453A

Span 001 -- Deck Elements: Mono Deck Surface -- Rated 4, Was 4
Referenced Photos: "12"
Both right and left side roadway concrete wearing surface exhibits several up to 3mm wide by full roadway width transverse cracks. The left roadway wearing surface also exhibits several up to 0.3m in diameter spalls which have been unevenly patched with asphalt.

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Notes

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Note ID: NF024448

Span 001 -- Superstructure: Structural Deck -- Rated 3, Was 3
Referenced Photos: "17"
Approximately 40% of underside of concrete jack arch exhibits longitudinal cracks up to 3mm wide filled with efflorescence, stalactites, mapcracking, dampness, hollow and small spalls with exposed rebars. See sketch.

Note ID: NF024447

Span 001 -- Superstructure: Primary Members -- Rated 4, Was 4
Referenced Photos: "17", "18", "19", "21"
Above deck, three vertical members of the right truss near begin abutment has sustained minor impact damage to their flanges with one slightly bending inward. Generally, most of the three truss members on top of deck are in good condition with minor corrosion and localized section loss. Below deck, most of the exposed bottom flanges of primary members exhibit severe corrosion with up to 20% section loss in localized areas. In addition, riveted heads show deterioration with up to 60% section loss.

Note ID: NF024446

Span 001 -- Superstructure: Paint -- Rated 2, Was 2
Referenced Photos: "17", "18", "19", "21"
Below deck, most of the exposed primary members steel surface exhibits paint peeling, surface corrosion throughout with minor section losses in localized areas. Above deck, Paint on truss members is in fair condition.

Note ID: NF02453C

Span 001 -- Utilities: Lighting -- Rated 5, Was 4
Referenced Photos: "20"
Both begin and end approach light standards are in good condition. Up grade the rating to 5.

Note ID: NF02453D

Span 001 -- Utilities: Sign Structure -- Rated 3, Was 8
Referenced Photos: "22"
The warning sign panel located at the median is covered with graffiti but still legible. Change the rating to 3.

Note ID: NF02453E

Span 001 -- Utilities: Utilities and Support -- Rated 3, Was 3
Referenced Photos: "23"
Below deck, supporting precast concrete utility pipes steel beams are severely deteriorated with up to 50% localized bottom flange section loss.

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Notes

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Note ID: NF024538

End Abut -- Abutment: Joint with Deck -- Rated 2, Was 2
Referenced Photos: "1", "3"
Above deck, top of end abutment joint has been paved over with asphalt. The asphalt overlay is uneven and deteriorated. Hence, causing a bumpy ride.
Below deck, water is leaking through the cracked and deteriorated joint and is causing serious deterioration of the members below.

Note ID: NF024453

End Abut -- Abutment: Bearings, Bolts, Pads -- Rated 3, Was 3
Referenced Photos: "3", "6"
All three roller nest truss bearings are in expansion mode and appear to be frozen since the anchor bolts are bent toward backwall and the condition of the bearings has not changed since the last inspection.
In addition, due to surrounding accumulated moist dirt, all bearings exhibit significant corrosion with up to 15% section loss of the plates and up to 40% section loss of anchor bolt nuts.

Note ID: NF024452

End Abut -- Abutment: Seats and Pedestals -- Rated 3, Was 3
Referenced Photos: "6"
The entire end abutment bridge seat area is covered with heavy accumulation of moist dirt and debris. The moist dirt is surrounding most of the bearings and causing significant deterioration of the bearing assembly. Also, the steel stool pedestal under left fascia exhibits severe corrosion with up to 20% section loss of the bottom flange plates and holes up to 60mm in diameter in the both end stiffeners.

Note ID: NF024451

End Abut -- Wingwalls: Walls -- Rated 4, Was 4
Referenced Photos: "9"
Top half of the end left wingwall exhibits several fine vertical and up to 3mm wide horizontal cracks filled with efflorescence and heavy scaling. However, wingwall concrete sounded solid. Note: There is no right wingwall since end abutment is continues on the right side and connects to the end abutment of the adjacent bridge (BIN 2075352).

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 1 **Photo Filename: 02DCP_5745.JPG**

Location: End approach pavement right side roadway, near end abutment joint, looking right and back (Typ.).

Assignments:

Beg Abut -- Abutment: Joint with Deck -- Rated 2, Was 2
Approaches: Pavement -- Rated 4, Was 4
End Abut -- Abutment: Joint with Deck -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 2 **Photo Filename: 02DCP_5159.JPG**

Location: Begin abutment seat
near left truss, looking back.

Assignments:

Beg Abut -- Abutment: Joint with Deck -- Rated 2, Was 2
Beg Abut -- Abutment: Seats and Pedestals -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 3 **Photo Filename: 02DCP_5200.JPG**

Location: End abutment left truss bearing, looking ahead.

Assignments:

End Abut -- Abutment: Joint with Deck -- Rated 2, Was 2
End Abut -- Abutment: Bearings, Bolts, Pads -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 4 **Photo Filename: 02DCP_5162.JPG**

Location: Begin abutment right truss bearing, looking back.

Assignments:

Beg Abut -- Abutment: Bearings, Bolts, Pads -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 5 **Photo Filename: 02DCP_5157.JPG**

Location: Begin abutment left fascia stool pedestal, looking back and right.

Assignments:

Beg Abut -- Abutment: Seats and Pedestals -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 6 **Photo Filename: 02DCP_5158.JPG**

Location: Begin abutment left
truss bearing, looking back (Typ.).

Assignments:

Beg Abut -- Abutment: Bearings, Bolts, Pads -- Rated 3, Was 3
End Abut -- Abutment: Bearings, Bolts, Pads -- Rated 3, Was 3
End Abut -- Abutment: Seats and Pedestals -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 7 **Photo Filename: 02DCP_5160.JPG**

Location: Begin abutment backwall
near left truss, looking back.

Assignments:

Beg Abut -- Abutment: Joint with Deck -- Rated 2, Was 2
Beg Abut -- Abutment: Backwall -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 8 **Photo Filename: 02DCP_5154.JPG**

Location: Begin left wingwall, looking back.

Assignments:

Beg Abut -- Wingwalls: Walls -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 9 **Photo Filename: 02DCP_5203.JPG**

Location: End left wingwall, looking ahead.

Assignments:

End Abut -- Wingwalls: Walls -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 10 **Photo Filename: 02DCP_5748.JPG**

Location: End approach right side roadway pavement, looking back and right.

Assignments:

Approaches: Pavement -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 11 **Photo Filename: 02DCP_5753.JPG**

Location: Wearing surface right side roadway, looking right.

Assignments:

Span 001 -- Deck Elements: Wearing Surface -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 12 **Photo Filename: 02DCP_5747.JPG**

Location: Wearing surface, left side roadway, looking back.

Assignments:

Span 001 -- Deck Elements: Wearing Surface -- Rated 4, Was 4
Span 001 -- Deck Elements: Mono Deck Surface -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 13 **Photo Filename: 02DCP_5163.JPG**

Location: Under right sidewalk near begin abutment, looking up and ahead.

Assignments:

Span 001 -- Deck Elements: Sidewalks, Fascias -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 14 **Photo Filename: 02DCP_5760.JPG**

Location: Top of right sidewalk, looking back.

Assignments:

Span 001 -- Deck Elements: Sidewalks, Fascias -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 15 **Photo Filename: 02DCP_5764.JPG**

Location: Right side roadway, looking ahead.

Assignments:

Span 001 -- Deck Elements: Railings, Parapets -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 16 **Photo Filename: 02DCP_5759.JPG**

Location: Right side roadway, looking right.

Assignments:

Span 001 -- Deck Elements: Railings, Parapets -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 17 **Photo Filename: 02DCP_5155.JPG**

Location: Underdeck near begin abutment, looking up and ahead.

Assignments:

Span 001 -- Superstructure: Structural Deck -- Rated 3, Was 3
Span 001 -- Superstructure: Primary Members -- Rated 4, Was 4
Span 001 -- Superstructure: Paint -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 18 **Photo Filename: 02DCP_5161.JPG**

Location: Underdeck near center truss and end abutment, looking up and right.

Assignments:

Span 001 -- Superstructure: Primary Members -- Rated 4, Was 4
Span 001 -- Superstructure: Paint -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 19 **Photo Filename: 02DCP_5761.JPG**

Location: Top of deck right truss,
looking ahead.

Assignments:

Span 001 -- Superstructure: Primary Members -- Rated 4, Was 4
Span 001 -- Superstructure: Paint -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 20 **Photo Filename: 02DCP_5755.JPG**

Location: Begin approach left sidewalk, looking ahead.

Assignments:

Span 001 -- Utilities: Lighting -- Rated 5, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 21 **Photo Filename: 02DCP_5756.JPG**

Location: Top of truss, looking back.

Assignments:

Span 001 -- Superstructure: Primary Members -- Rated 4, Was 4
Span 001 -- Superstructure: Paint -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 22 **Photo Filename: 02DCP_5744.JPG**

Location: Sign structure at end approach median, looking back.

Assignments:

Span 001 -- Utilities: Sign Structure -- Rated 3, Was 8

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Photos in Photo Number Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,96

Photo Number: 23 **Photo Filename: 02Dcp_5799.jpg**

Location: Underdeck near right fascia and end abutment, looking up and ahead.

Assignments:

Span 001 -- Utilities: Utilities and Support -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

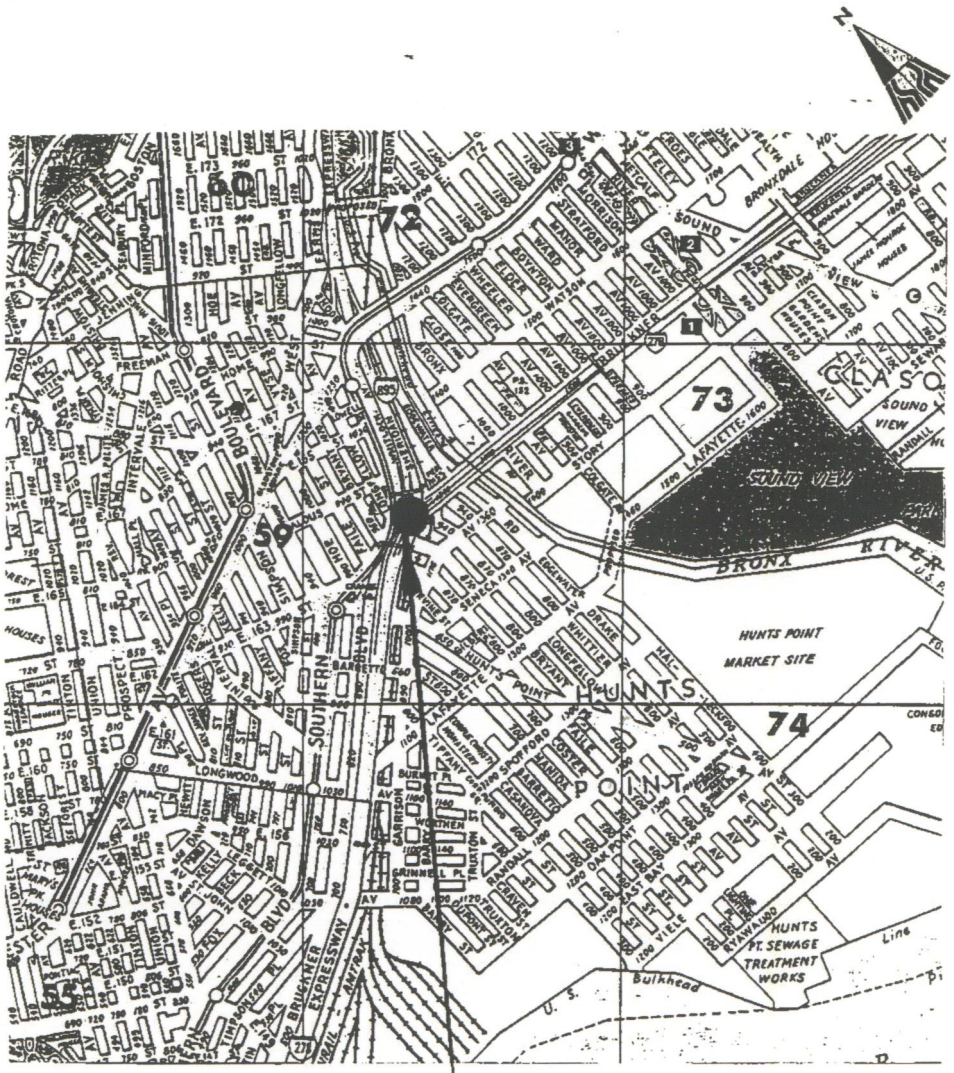
Sketch ID: NF0243FC Sketch Filename: 02locmap.tif

General Sketch for Bridge

Referenced Photos:

LOCATION MAP

N.Y.S. DEPT.OF TRANSPORTATION
BRIDGE INSPECTION REPORT



Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Sketch ID: NF0243FD Sketch Filename: 02photoloc.tif

General Sketch for Bridge

Referenced Photos:

BD 188 (1/96)

BIN 2075351

NYS DEPT. OF TRANSPORTATION
BRIDGE INSPECTION REPORT
SHEET 1 OF 1

TEAM LEADER: G. APANOSIAN ASST. TEAM LEADER: M. SURIEL DATE 7/18/02

Feature Carried: BRUCKNER EXPWY (27 I278IX1M54024)

Feature Crossed: AMTRAK / CSXT

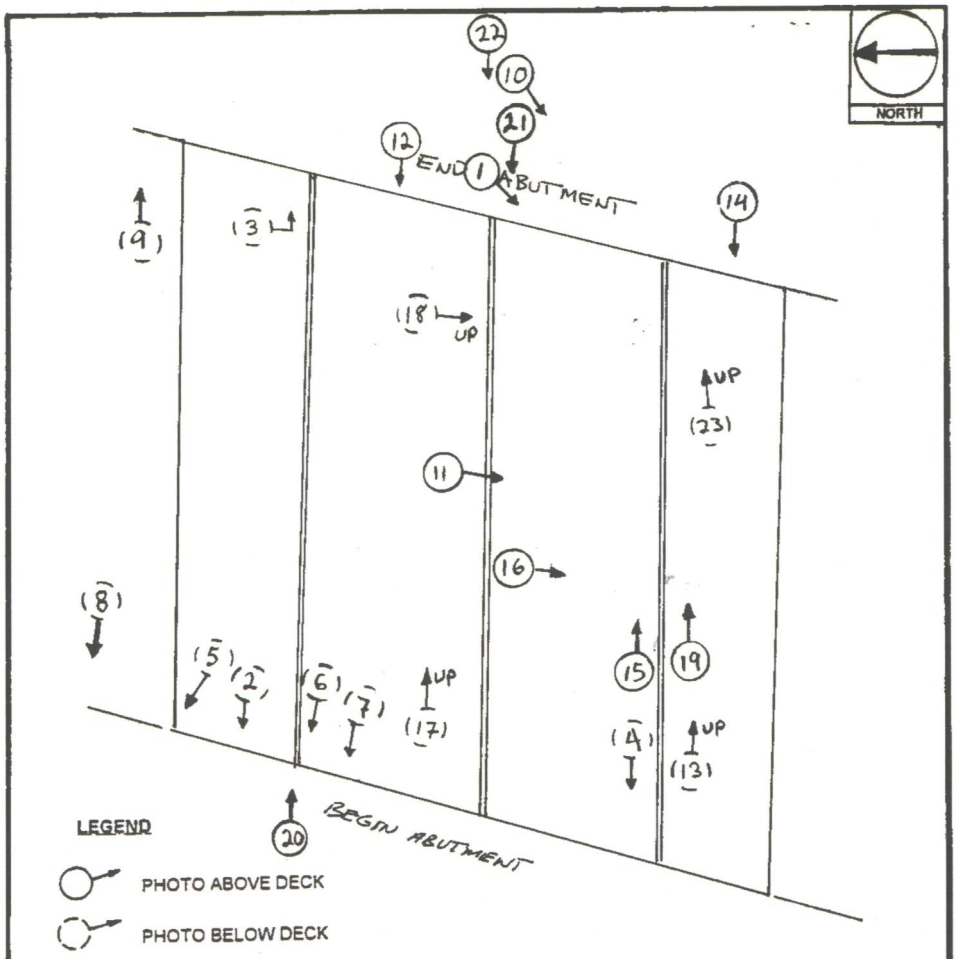


PHOTO LOCATION PLAN

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Sketch ID: NF0243FE **Sketch Filename: 02clearance.tif**

General Sketch for Bridge

Referenced Photos:

BD 188 (1/96)

BIN 2075351

NYS DEPT. OF TRANSPORTATION
BRIDGE INSPECTION REPORT
SHEET 1 OF 1

TEAM LEADER: G. APANOSIAN

ASST. TEAM LEADER: M. SURIEL

DATE 7/18/02

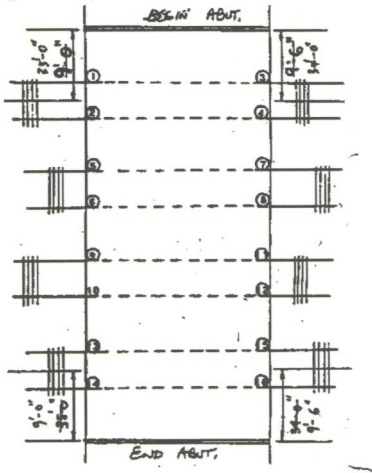
Feature Carried: BRUCKNER EXPWY (278I 278IX1M54024)

Feature Crossed: AMTRAK / CSXT

NORTH

DATE / POINT	2/13/90	12/17/93	11/16/94	11/14/95	07/09/96	08/23/99	07/14/00	7/18/02
1	17'-11"	18'-2"	18'-2"	18'-2"	18'-1"	[illegible]	5.51m	*
2	18'-0"	17'-6"	17'-6"	17'-6"	17'-9"	[illegible]	5.41m	*
3	17'-7½"	17'-7½"	17'-8"	17'-8"	18'-6"	18'-6"	5.64m	*
4	17'-8"	17'-5"	17'-5"	17'-5"	18'-1"	18'-1"	5.51m	*
5	17'-5"	17'-1"	17'-1"	17'-1"	17'-1"	17'-1"	5.21m	*
6	17'-6½"	16'-8½"	16'-9"	16'-9"	16'-8"	16'-7"	5.05m	*
7	17'-2½"	17'-5"	17'-5"	17'-5"	17'-4"	17'-4	5.28m	*
8	17'-3½"	17'-3"	17'-3"	17'-3"	17'-0"	17'-1"	5.21m	*
9	17'-1"	17'-4"	17'-4"	17'-4"	17'-2"	17'-2"	5.23m	5.32m
10	17'-6"	17'-0"	17'-0"	17'-0"	17'-0"	17'-1"	5.21m	5.30m
11	16'-8½"	17'-2½"	17'-3"	17'-3"	17'-2"	17'-2"	5.23m	5.40m
12	17'-2"	17'-5½"	17'-6"	17'-3"	17'-2"	17'-2"	5.23m	5.42m
13	18'-1"	17'-8"	17'-8"	17'-8"	17'-8"	17'-8"	5.38m	5.33m
14	18'-6½"	17'-8½"	17'-9"	17'-9"	17'-9"	17'-9"	5.41m	5.32m
15	17'-9½"	18'-0"	18'-0"	18'-0"	18'-0"	18'-0	5.48m	5.23m
16	18'-1½"	17'-10"	17'-10"	17'-10"	17'-10"	17'-10"	5.43m	5.23m

SPAN # 1



* - NO CLEARANCES TAKEN DUE TO AMTRAK OVERHEAD HIGH VOLTAGE WIRES.

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

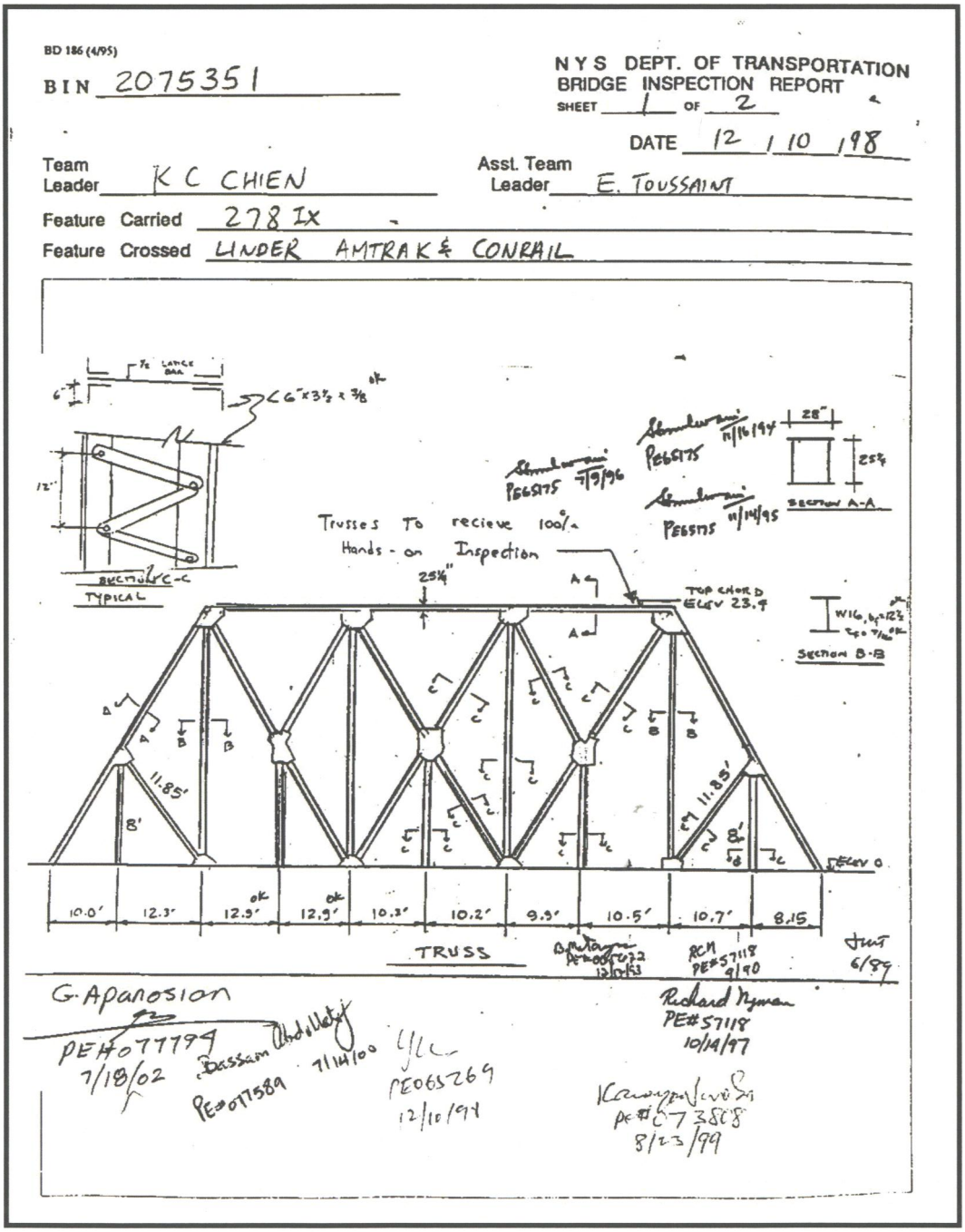
Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Sketch ID: NF0243FF Sketch Filename: 02specialemphasis1.tif

General Sketch for Bridge

Referenced Photos:



Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Sketch ID: NF024400 **Sketch Filename: 02specialemphasis2.tif**

General Sketch for Bridge

Referenced Photos:

BD 186 (4/95)

BIN 2075351

NYS DEPT. OF TRANSPORTATION
BRIDGE INSPECTION REPORT
SHEET 2 OF 2

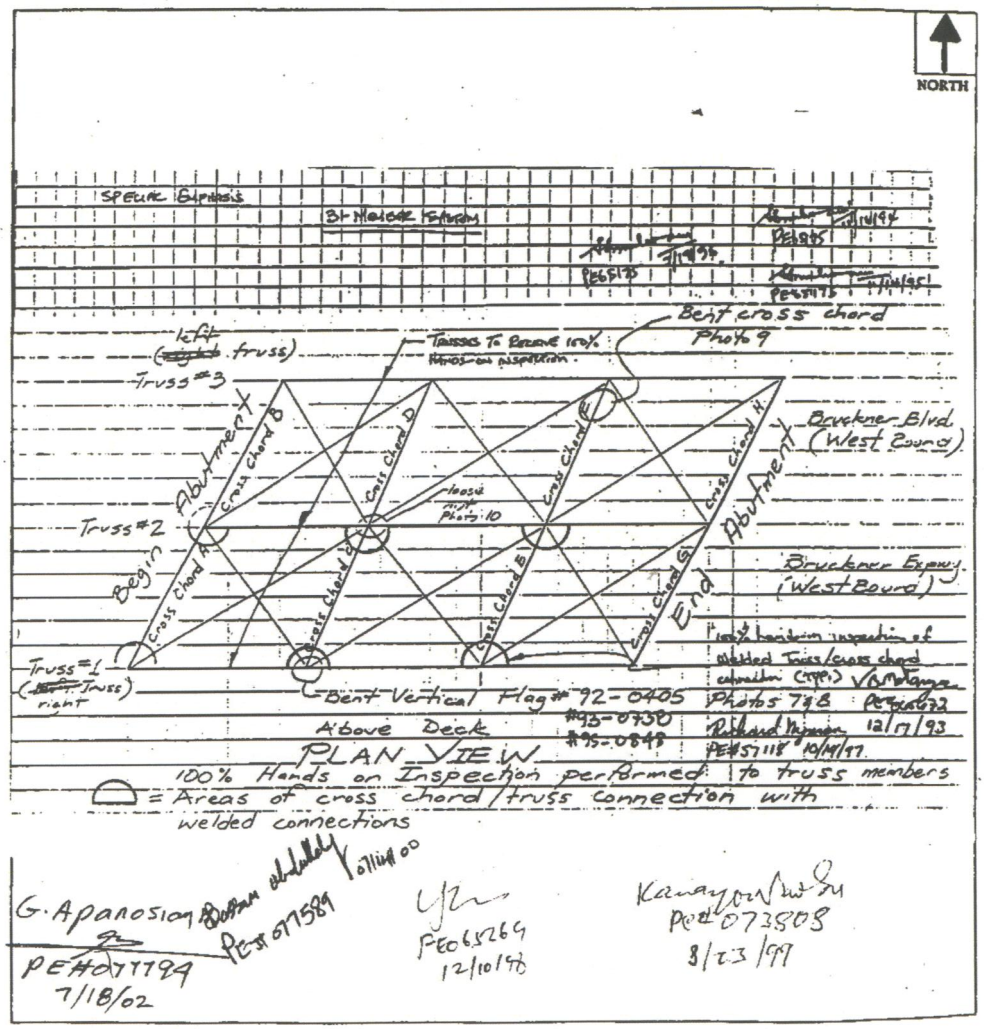
DATE 12 / 10 / 98

Team Leader K C CHIEN

Asst. Team Leader E. TOUSSAINT

Feature Carried 278IX

Feature Crossed UNDER AMTRAK & CONRAIL



Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Sketch ID: NF024401 Sketch Filename: 02underdeck.tif

Span 001 -- Superstructure: Structural Deck -- Rated 3, Was 3
Referenced Photos: "17"

BD 186 (4/95)

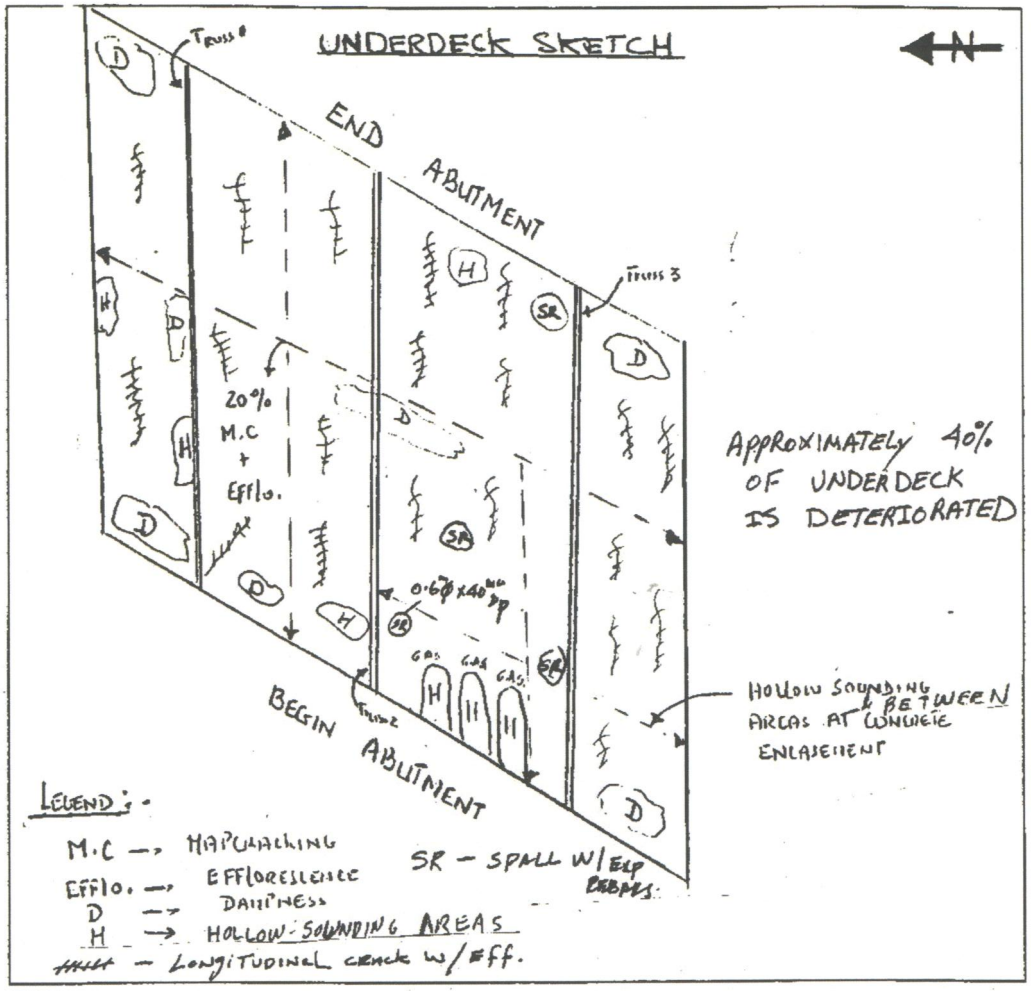
BIN 2075351

NYS DEPT. OF TRANSPORTATION
BRIDGE INSPECTION REPORT
SHEET 1 OF 1

TEAM LEADER: G. APANOSIAN ASST. TEAM LEADER: M. SURIEL DATE 7/18/02

Feature Carried: BRUCKNER EXPWAY (278I278IX1M54024)

Feature Crossed: AMTRAK / CSXT



Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Gen. Rec., Postings, Federal Ratings, etc.

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Overall Condition:

GENERAL RECOMMENDATION: 4

Computed Condition Rating: 3.719

Problems Requiring Action:

NO Further Investigation Needed

SAFETY Flag(s) Issued

POSTINGS:

Posted Vertical Clearance ON the bridge is: No Posting
Posted Vertical Clearance UNDER the bridge is: No Posting
No Load Restriction is posted on this bridge

Overloads Observed:

NO Overload Vehicles were observed on this bridge

FEDERAL RATINGS:

NBI Deck Condition: 4
NBI Superstruct Condition: 5
NBI Substruct Condition: 5
NBI Channel Condition: N
NBI Culvert Condition: N

Diving Inspection Needs:

Diving Inspection Required? No Date of Last Diving Inspection: No Date

Inventory Problems:

Inventory Problems Exist? No

Miscellaneous:

Time Required to Inspect Bridge: 11.5 Hours

Lane Closure Needs: By Contract for 4 Hours

Railroad Flagging is Required for 7.0 Hours

No Pedestrian Fence

No Snow Fence

The BIN Plate is in OK condition

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Gen. Rec., Postings, Federal Ratings, etc.

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Special Emphasis Inspection Required:

Non-Redundant/Fracture Critical Members - Yes
Pin and Hangers - No
Fatigue-Prone Welds - No
Non-Categorized Fatigue-Prone Details - No
Other (Specified in Text) - No

Special Emphasis Details:

Span 1: All three trusses.

General Notes To the Next Inspector:

This is a Biennial inspection. BIN plate is located at the center of the begin abutment stem. Entire underdeck was visually inspected and approximately 20% sounded. No loose concrete area was found during this inspection.

Improvements Observed:

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Review Progress and Personnel Present at Inspection

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Inspection Submission Status:

Submitted to QC Engineer on: 12/6/2002
QC Submission Number: F7122704

QC Review Completed: 12/6/2002
QC Engineer: Stelios N. Bertos

Submitted to Liaison Engineer on: 12/6/2002
Liaison Submission Number: 71214

Liaison Review Completed: 1/9/2003
Liaison Engineer: ID: 1000027

Submitted for BIIS Processing on: 1/9/2003
BIIS Submission Number: .kp1

Current Status: Keypunched, Sent to BIIS
Check Value: 2,005,967,366

Personnel Present During Inspection:

Garen Apanosian - Team Leader
Miguel Suriel - Assistant Team Leader

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Flags Issued

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Safety Flag 02-356

Safety Flag 02-356 - Flagged Bridge Report

Prompt Interim Action Recommended: No

Inspector: Apanosian, Garen
Flag Number: 02-356

Date Discovered: 7/18/2002
Supersedes Flag Number: 00-0318

Bridge Description:
BIN: 2075351 Carried: 278I278IX1M54024 Crossed: AMTRAK/CSX TRANS

Region: N - New York City County: 1 - Bronx
Political Unit: 2034 - City of New York
Primary Owner: 42 - City
Secondary Owner: 99 - One Agency - Listed in first subfield
Primary Maintenance: 42 - City
Secondary Maintenance: 99 - One Agency - Listed in first subfield
Year Built: 1960 Not Posted For Load

Number of Spans by Type: Num Type Description
001 - 118 - Steel - Truss, Thru (Overhead Bracing)

Description of Flagged Condition:
TP 350 [22] Railing & Parapets - Span 1: Rated 2

Approximately 18m long section of the right side Two-Rail continuous steel box railing near begin abutment has detached from four consecutive supporting posts due to impact damage. Both horizontal rails are sagging by up to 75mm. In addition, the bottom rail is protruding out by approximately 100mm towards the roadway. The condition causes a safety hazard to the motorist traveling on the left lane of Bruckner Exp. Southbound roadway.

1 Photos Attached

Verbal Notifications: (For RED Flags and Safety Flags with PIA only)

To: Tom McAndrews of Regional Office on 7/18/2002 at 1:40:00 PM
To: _____ (Responsible Party) on _____ at _____
By: _____

Signature:
Flagged Bridge Report Completed By: Apanosian, Garen on 7/18/2002
Flagged Bridge Report Signed By: _____ on _____
Apanosian, Garen

Inspection Date: 7/18/2002 **RC: N1 BIN: 2075351**

Flag Attachment

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

02DCP_5759.JPG - Attached to Safety Flag 02-356

Inspection Date: 7/18/2002	RC: N1 BIN: 2075351

Flag Attachment

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

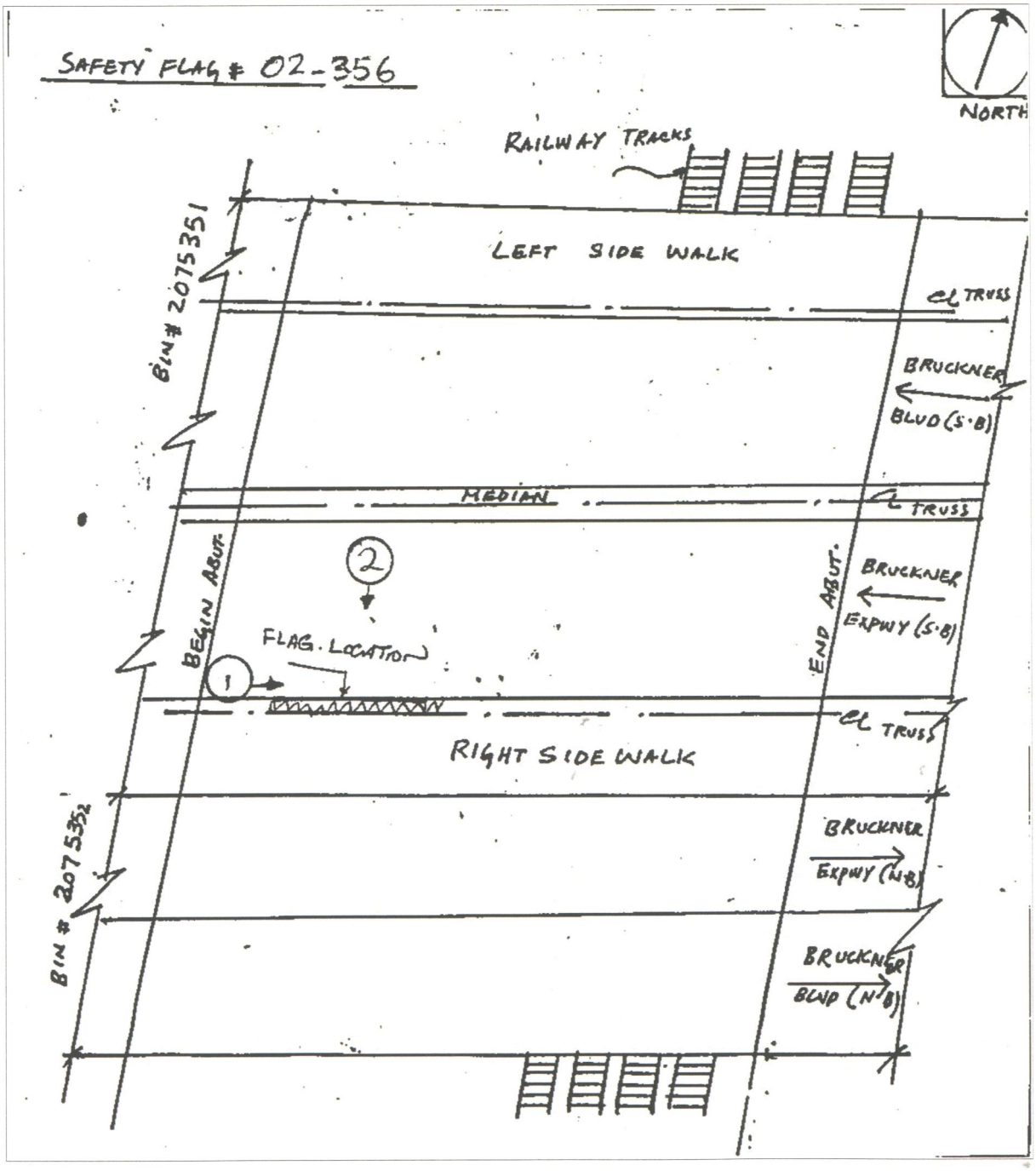
02DCP_5764.JPG - Attached to Safety Flag 02-356

Inspection Date: 7/18/2002	RC: N1 BIN: 2075351

Flag Attachment

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

02flag#02-356.tif - Attached to Safety Flag 02-356



Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Inspection Access Requirements

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Equipment Required for Inspection

Access Requirement Changes WERE Noted During This Inspection.
This Listing is from the Inspection.

ACCESS CATEGORIES FOR ENTIRE BRIDGE
Required: Walking, Extension Ladder, Small Lift, Railroad Flagman
Required: Railroad Electrical, Shadow Vehicle

ACCESS CATEGORIES FOR SPAN 1
Required: Walking, Extension Ladder, Small Lift, Railroad Flagman
Required: Railroad Electrical, Shadow Vehicle

Inspection Date: 7/18/2002 RC: N1 BIN: 2075351

Culvert Measurements

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,005,967,366

Culvert Measurements

NO CULVERT DATA FOR BIN 2075351

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W

AbutmentEnd.JPG

ApproachBegin.JPG

Standard Photos RC: N1 BIN: 2075351

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W

ApproachEnd.JPG

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W

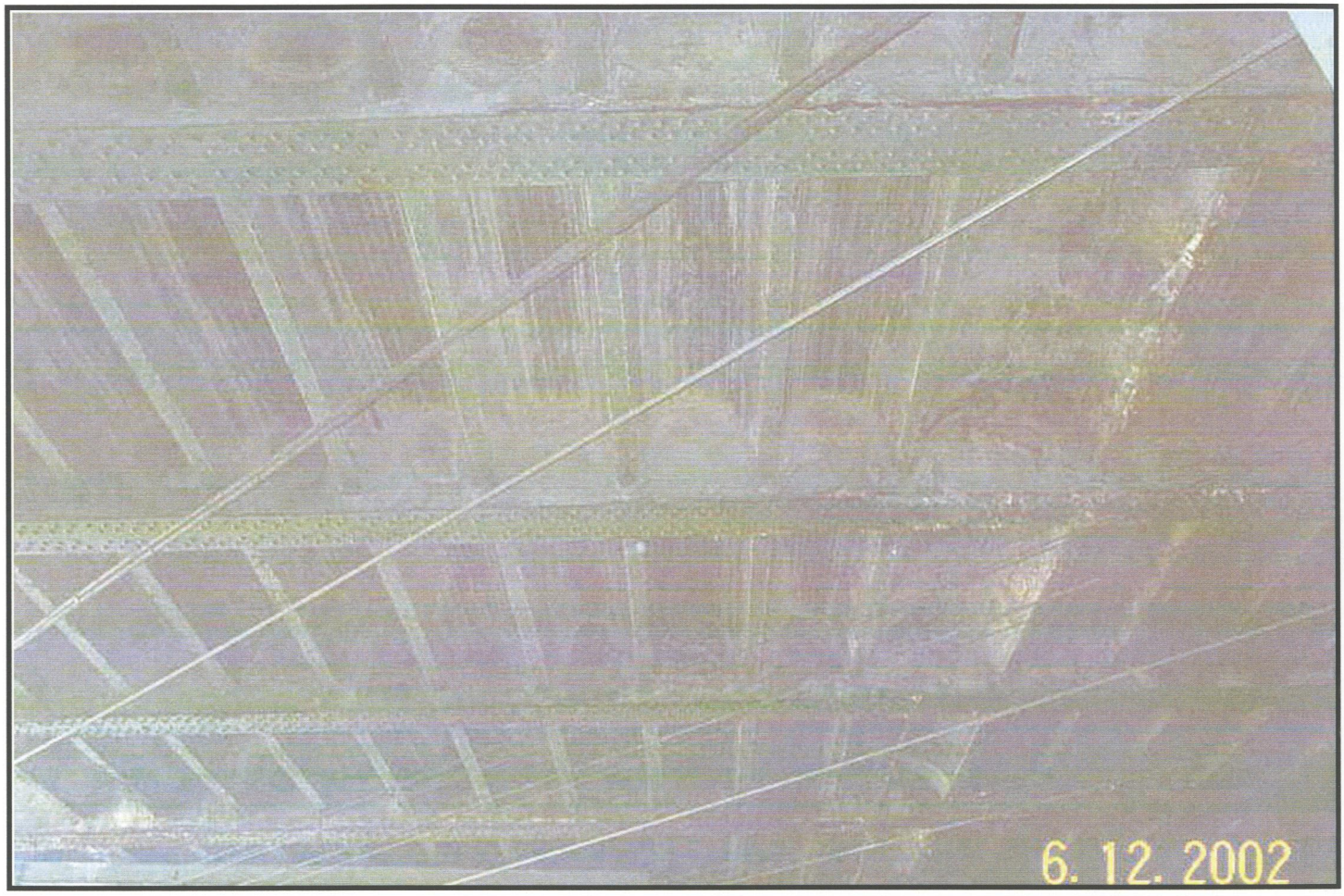
ElevationSpan1Left.JPG

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W

F2CrossedSpan1Left.JPG

Carried: 278I278IX1M54024 Crossed: AMTRAK/CSXT/P&W

FramingSpan1.JPG



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Bridge Ratings

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Inspection Agency: 13 - Consultant Type of Inspection: 1 - BIENNIAL
GTMS: 302 -- Steel - Stringer/Multi-Beam or Girder
POSTED: VC On: No Entry VC Under: No Entry Load: No Entry
Further Investigation Needed: No
State Highway Number: 000000 Milepoint: 5102.43 AADT/Yr: 99774 / 2000
Orientation: 3 - East Political Unit: 2034 - City of New York Year Built: 1960
Total Spans: 1 Ramp Bridge Attached To Span: NA BIN: NA
General Recommendation: 4 Computed Condition Rating: 3.547

Abutment Ratings:	**Beg Abut**	**End Abut**
Joint with Deck	1	1
Bearings, Bolts, Pads	2	2
Seats and Pedestals	2	2
Backwall	3	3
Stem (Breastwall)	4	4
Erosion or Scour	5	5
Footings	9	9
Piles	9	9
Recommendation	3	3

Wingwall Ratings:	**Beg Abut**	**End Abut**
Walls	4	4
Footings	9	9
Erosion or Scour	5	5
Piles	9	9

Channel Ratings:	**Channel**
Stream Alignment	8
Erosion and Scour	8
Waterway Opening	8
Bank Protection	8

Approach Ratings:	**Approaches**
Drainage	5
Embankment	8
Settlement	5
Erosion	8
Pavement	4
Guide Railing	4

Number of Flags Issued:

RED: 0 Yellow: 0 Safety: 1

Vulnerability Reviews Recommended: 1=Yes, 2=No, 3=NA, X=NotActive

Hydraulic: 3	Overload: X	Steel: X
Collision: X	Concrete: X	Seismic: X

Inspector's Signature: CheckValue: 2,006,128,874 Date: 7/18/2002

Garen Apanosian,PE () (Inspector ID:11100025)

Reviewed By: Date: 12/6/2002

Stelios N. Bertos,PE () (QC ID:11100023)

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Span Ratings

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Deck Element Ratings:	001
Wearing Surface	5
Curbs	5
Sidewalks, Fascias	5
Railings, Parapets	3
Scuppers	8
Gratings	8
Median	3
Mono Deck Surface	8

Superstructure Ratings:	001
Structural Deck	4
Primary Members	4
Secondary Members	5
Paint	3
Joints	8
Recommendation	4

Pier Ratings:	001
Bearings, Bolts, Pads	8
Pedestals	8
Top of Cap or Beam	8
Stem Solid Pier	8
Cap Beam	8
Pier Columns	8
Footings	8
Erosion or Scour	8
Piles	8
Recommendation	8

Utility Ratings:	001
Lighting	5
Sign Structure	8
Utilities and Support	4

Field Notes:

Field Date	Arrival	Departure	Temp (C)	Temp (F)	Weather Conditions
6/12/2002	11:58:00 AM	4:15:00 PM		88	Sunny
6/13/2002	12:05:00 PM	3:45:00 PM		73	Cloudy
6/26/2002	10:45:00 AM	11:50:00 PM		92	P.Sunny
7/18/2002	1:20:00 PM	3:35:00 PM		94	Sunny

Inspection Notes

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Note ID: NF024B45

Beg Abut -- Abutment: Joint with Deck -- Rated 1, Was 1
Referenced Photos: "1", "3"
Above deck, entire length of begin abutment joint on the left roadway is covered with steel plates and is paved over with asphalt. The asphalt pavement over the joint is cracked and uneven. Hence, affecting the ride quality. Below deck, there is sign of heavy water leakage from the joint causing serious deterioration to the members.

Note ID: NF024B62

Beg Abut -- Abutment: Bearings, Bolts, Pads -- Rated 2, Was 2
Referenced Photos: "4", "5", "6"
Generally, all bearings assembly exhibit heavy corrosion with up to 15% section loss. Also, most of the anchor bolt nuts show up to 50% section loss. In addition, all of the bearings are in expansion mode by up to 10 degrees at 88 "F". This condition has not changed since the last inspection and the bearings appear to be frozen. Note: Initially due to heavy accumulation of wet dirt and debris on the left side of abutment seat area, it was not possible to evaluate the condition of G1 and G2 bearings. NYSDOT was notified and arranged for personnel from N.Y.C.D.O.T maintainance department to remove the debris. Hence, upon returning to the site after cleanup, these bearings were inspected and included under this rating.

Note ID: NF024B64

Beg Abut -- Abutment: Seats and Pedestals -- Rated 2, Was 2
Referenced Photos: "5", "8", "30"
The abutment seat area exhibits numerous up to 5mm wide horizontal cracks and spalls up to 0.3m deep by up to 300mm long and by full width of the seat. However, no significant bearing area loss was noted. Additionally, there is heavy accumulation of dirt and wet debris at isolated seat locations. Note: Initially due to heavy accumulation of wet dirt and debris on the left side of abutment seat area, it was not possible to evaluate the condition of this area. NYSDOT was notified and arranged for personnel from N.Y.C.D.O.T maintainance department to remove the debris. Hence, upon returning to the site after cleanup, the left side of the seat area was inspected and included under this rating.

Note ID: NF024B66

Beg Abut -- Abutment: Backwall -- Rated 3, Was 3
Referenced Photos: "10", "11"
Begin abutment backwall between G8 and G12 exhibit heavy water stains and numerous up to 5mm wide horizontal cracks filled with efflorescence. No sign of displacement around the cracks were noted. In addition, backwall between G6 to G10 exhibits several spalls up to 50mm deep with exposed rusted rebars and hollow sounding concrete areas.

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Notes

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Note ID: NF024A5B

Beg Abut -- Abutment: Stem (Breastwall) -- Rated 4, Was 4
Referenced Photos: "14", "15"
Approximately 35% of stem exhibits heavy scaling, water stains, mapcracking with efflorescence, several full hight vertical cracks up to 5mm wide and spalls. See sketch for more detail.

Note ID: NF024A58

Beg Abut -- Wingwalls: Walls -- Rated 4, Was 4
Referenced Photos: "16"
Right wingwall shows several vertical and horizontal up to 3mm wide cracks with efflorescence, water staining and up to 1m wide by 1.5m long by up to 50mm deep spall. See sketch. Note: There is no left wingwall since begin abutment is continues on the left side and connects to the begin abutment of the adjacent bridge (BIN 2075351).

Note ID: NF024B41

Approaches: Pavement -- Rated 4, Was 4
Referenced Photos: "1", "18"
Begin approach right side roadway asphalt pavement exhibits several scattered up to 5mm wide cracks and small potholes. In addition, the manhole cover approximately 10m from begin abutment joint is slightly depressed. Also, the asphalt pavement over both abutment joint on the left roadway is cracked and uneven. The ride quality is affected. End approach right side roadway pavement is in good condition.

Note ID: NF024B40

Approaches: Guide Railing -- Rated 4, Was 4
Referenced Photos: "19"
Approximately 10m length of begin right side approach W-section guide railing has sustained impact damage with two consecutive post bent backwards and one disconnected. However, the guide railing system is still intact.

Note ID: NF024B42

Span 001 -- Deck Elements: Sidewalks, Fascias -- Rated 5, Was 3
Referenced Photos: "19", "20", "21"
Since the last inspection, entire end approach right sidewalk has been replaced and settled portion of the begin approach right sidewalk has been repaired. Up grade the rating to 5. Both fascias and right bridge sidewalks are in good condition.

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Notes

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Note ID: NF024B43

Span 001 -- Deck Elements: Railings, Parapets -- Rated 3, Was 3
Referenced Photos: "22"
Right side steel railing on top of parapet is corroded with minor section loss and has total of eight posts, at various locations, cracked and disconnected. However, steel railing is still secure and concrete parapet is in fair condition. Remaining bridge parapets and railings are in good condition.

Note ID: NF024B44

Span 001 -- Deck Elements: Median -- Rated 3, Was 3
Referenced Photos: "23", "24", "25"
Approximately 0.8m length of the median steel curb facing at the midspan left side is missing. Also, the chain link fence on top of the median wall near begin abutment has two cosecutive post bent due to impact damage. Note: The damaged chain link fence on top of the median wall at the end approach has been repaired since the last inspection.

Note ID: NF024A57

Span 001 -- Superstructure: Structural Deck -- Rated 4, Was 4
Referenced Photos: "26", "27", "28"
Portions of concrete haunches along S2, S5, S7, S8 & S12 and adjacent underdeck concrete areas are cracked, sound hollow, delaminated and loose. Loose concrete pieces may fall onto Amtrack or CSX trains below. Therefore, safety flag #02-280 was issued. Remaining underdeck over 30% of the area exhibits moderate scaling, mapcracking with efflorescence. See sketch.

Note ID: NF024A56

Span 001 -- Superstructure: Primary Members -- Rated 4, Was 4
Referenced Photos: "13", "29"
Generally, all end diaphragms over begin and end abutments exhibit moderate corrosion with up to 10% over all section loss. The two most severely corroded end diaphragms are in bay #11 over either abutment which show several rusted thru holes in the web up to 70mm in diameter with up to 70% over all section loss. Note: As per BIM end diaphragms should be rated with this item. Overall, all girders are in good condition with minor bottom of web and bottom flange pitting with less than 5% section loss.

Note ID: NF024A55

Span 001 -- Superstructure: Paint -- Rated 3, Was 3
Referenced Photos: "29"
Generally, all superstructure members exhibit minor section loss in localized areas with paint peeling and deterioration.

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Notes

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Note ID: NF024A54

Span 001 -- Utilities: Utilities and Support -- Rated 4, Was 4
Referenced Photos: "30"
Protecting utility concrete encasement in bay #12 near begin abutment exhibits 0.45m long by full width by up to 35mm deep spall with exposed rebar. No utility pipe in this area was visible.

Note ID: NF024B46

End Abut -- Abutment: Joint with Deck -- Rated 1, Was 1
Referenced Photos: "1", "2", "3", "12"
Above deck, entire length of end abutment joint on the left roadway is covered with steel plates and is paved over with asphalt. The asphalt pavement over the joint is cracked and uneven. Hence, affecting the ride quality. Also, approximately 200mm length of the end abutment joint angle of the right side roadway near median is broken and missing. The remaining portion of the joint angle is secure and intact. Below deck, there is sign of heavy water leakage from the joint causing serious deterioration to the members.

Note ID: NF024B63

End Abut -- Abutment: Bearings, Bolts, Pads -- Rated 2, Was 2
Referenced Photos: "7"
Generally, all bearings assembly exhibit heavy corrosion with up to 15% section loss. Also, most of the anchor bolt nuts show up to 60% section loss.

Note ID: NF024B65

End Abut -- Abutment: Seats and Pedestals -- Rated 2, Was 2
Referenced Photos: "8", "9"
The abutment seat area exhibits numerous up to 5mm wide horizontal cracks and spalls up to 0.3m deep by up to 300mm long and by full width of the seat. However, no significant bearing area loss was noted. Additionally, there is heavy accumulation of dirt and wet debris at isolated seat locations.

Note ID: NF024B67

End Abut -- Abutment: Backwall -- Rated 3, Was 3
Referenced Photos: "12", "13"
Entire end abutment backwall exhibit moderate to heavy water stains and numerous up to 5mm wide horizontal cracks filled with efflorescence. No sign of displacement was noted around the cracks. In addition, backwall between G6 and G7 as well as G11 and G12 exhibit large spall up to 50mm deep with exposed rusted rebars and hollow sounding concrete area.

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Notes

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Note ID: NF024A5A

End Abut -- Abutment: Stem (Breastwall) -- Rated 4, Was 4
Referenced Photos: "15"
Approximately 35% of stem exhibits heavy scaling, water stains, mapcracking with efflorescence and several full hight vertical spalls up to 75mm deep. In addition, there is a 1.4m high by 0.9m wide by up to 75mm deep spall and hollow area near the right side at the bottom. See sketch for more detail.

Note ID: NF024A59

End Abut -- Wingwalls: Walls -- Rated 4, Was 4
Referenced Photos: "17"
There are two large spalls up to 60mm deep with exposed rebars and a hollow sounding area near the end of right wingwall. In addition, there is a 3mm wide diagonal crack filled with efflorescence for the entire width of the wingwall. The area around crack sounded solid. See sketch. There is no left wingwall since end abutment is continues on the left side and connects to the end abutment of the adjacent bridge (BIN 2075351).

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 1 **Photo Filename: 02DCP_5769.JPG**

Location: Begin abutment joint left side roadway, looking right (Typ.).

Assignments:

Beg Abut -- Abutment: Joint with Deck -- Rated 1, Was 1
Approaches: Pavement -- Rated 4, Was 4
End Abut -- Abutment: Joint with Deck -- Rated 1, Was 1

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 2 **Photo Filename: 02DCP_5775.JPG**

Location: End abutment joint
right side roadway, looking left.

Assignments:

End Abut -- Abutment: Joint with Deck -- Rated 1, Was 1

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

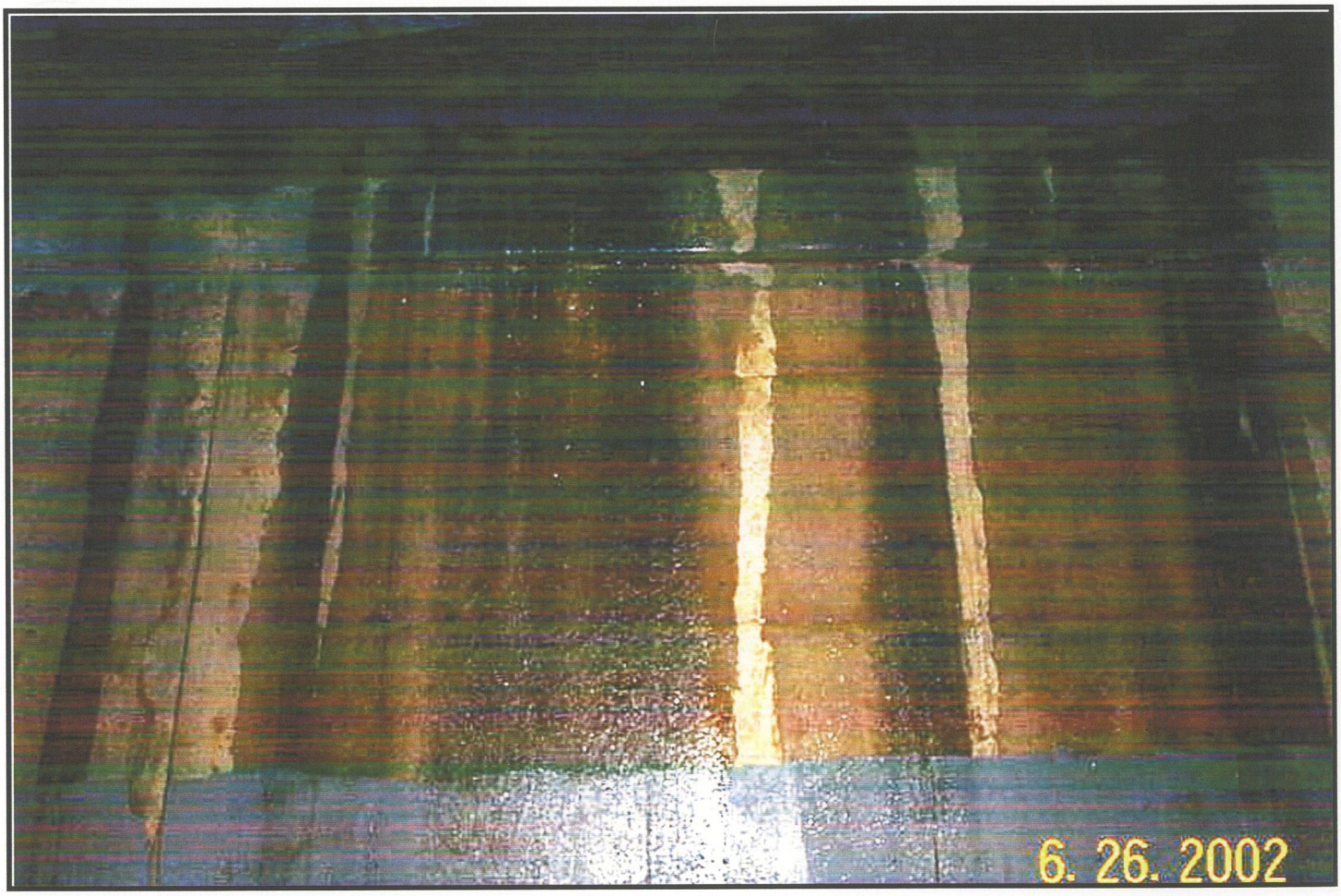
Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 3 **Photo Filename: 02DCP_5341.JPG**

Location: End abutment stem
right side, looking ahead (Typ.).

Assignments:

Beg Abut -- Abutment: Joint with Deck -- Rated 1, Was 1
End Abut -- Abutment: Joint with Deck -- Rated 1, Was 1



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 4 **Photo Filename: 02DCP_5181.JPG**

Location: Begin abutment G9 bearing, looking left.

Assignments:

Beg Abut -- Abutment: Bearings, Bolts, Pads -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

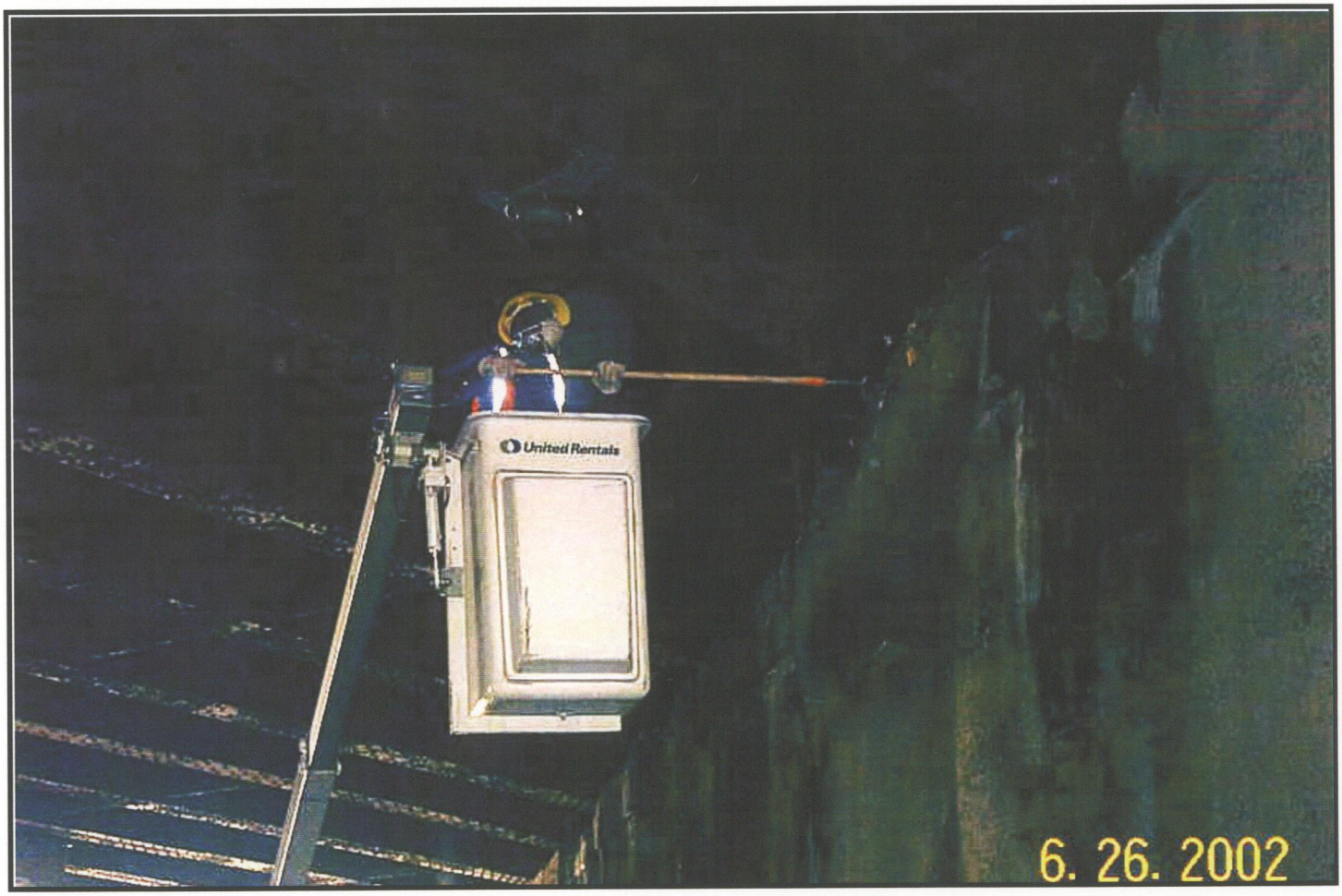
Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 5 **Photo Filename: 02DCP_5329.JPG**

Location: Underdeck near begin abutment left side, looking up and right.

Assignments:

Beg Abut -- Abutment: Bearings, Bolts, Pads -- Rated 2, Was 2
Beg Abut -- Abutment: Seats and Pedestals -- Rated 2, Was 2



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 6 **Photo Filename: 02DCP_5340.JPG**

Location: Begin abutment G1 bearing, looking back and left.

Assignments:

Beg Abut -- Abutment: Bearings, Bolts, Pads -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 7 **Photo Filename: 02DCP_5216.JPG**

Location: End abutment G11
bearing, looking ahead and right.

Assignments:

End Abut -- Abutment: Bearings, Bolts, Pads -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 8 **Photo Filename: 02DCP_5172.JPG**

Location: Begin abutment seat at bay #6, looking back (Typ.).

Assignments:

Beg Abut -- Abutment: Seats and Pedestals -- Rated 2, Was 2
End Abut -- Abutment: Seats and Pedestals -- Rated 2, Was 2

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

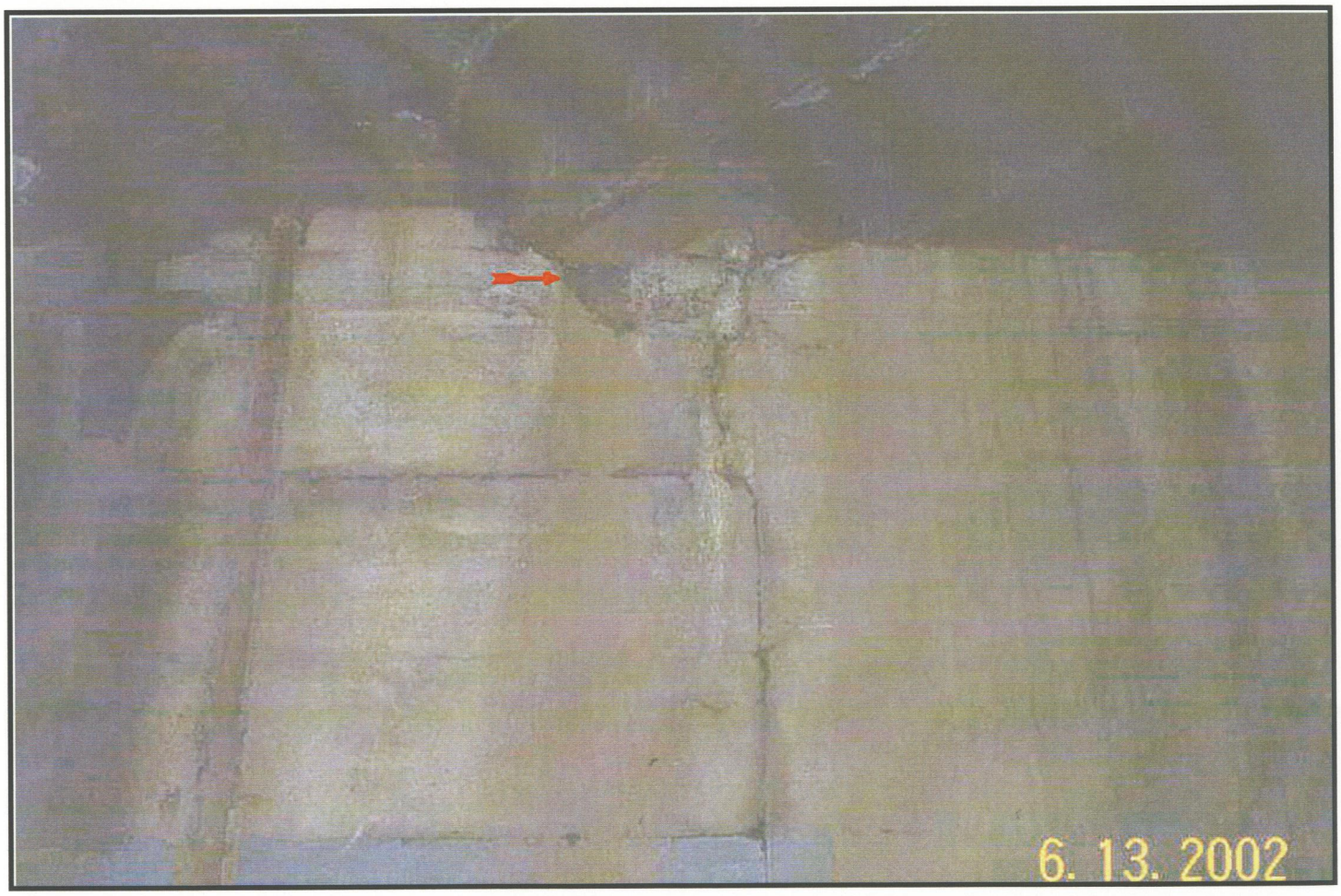
Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 9 **Photo Filename: 02DCP_5206.JPG**

Location: End abutment under G2 girder, looking ahead.

Assignments:

End Abut -- Abutment: Seats and Pedestals -- Rated 2, Was 2



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 10 **Photo Filename: 02DCP_5175.JPG**

Location: Begin abutment backwall at bay #6, looking back.

Assignments:

Beg Abut -- Abutment: Backwall -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 11 **Photo Filename: 02DCP_5179.JPG**

Location: Begin abutment
backwall at bay #8, looking back.

Assignments:

Beg Abut -- Abutment: Backwall -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 12 **Photo Filename: 02DCP_5214.JPG**

Location: End abutment backwall
at bay #6, looking up and right.

Assignments:

End Abut -- Abutment: Joint with Deck -- Rated 1, Was 1
End Abut -- Abutment: Backwall -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 13 **Photo Filename: 02DCP_5217.JPG**

Location: End abutment backwall
at bay #11, looking up and ahead.

Assignments:

Span 001 -- Superstructure: Primary Members -- Rated 4, Was 4
End Abut -- Abutment: Backwall -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 14 **Photo Filename: 02DCP_5182.JPG**

Location: Begin abutment stem
near right wingwall, looking back.

Assignments:

Beg Abut -- Abutment: Stem (Breastwall) -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 15 **Photo Filename: 02DCP_5168.JPG**

Location: End abutment between
bay #4 and #6, looking ahead (Typ.).

Assignments:

Beg Abut -- Abutment: Stem (Breastwall) -- Rated 4, Was 4
End Abut -- Abutment: Stem (Breastwall) -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 16 **Photo Filename: 02DCP_5183.JPG**

Location: Begin right wingwall, looking back.

Assignments:

Beg Abut -- Wingwalls: Walls -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 17 **Photo Filename: 02DCP_5220.JPG**

Location: End right wingwall,
looking up and ahead.

Assignments:

End Abut -- Wingwalls: Walls -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 18 **Photo Filename: 02DCP_5785.JPG**

Location: Begin approach right side roadway, looking ahead.

Assignments:

Approaches: Pavement -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 19 **Photo Filename: 02DCP_5796.JPG**

Location: Begin approach right sidewalk, looking back.

Assignments:

Approaches: Guide Railing -- Rated 4, Was 4
Span 001 -- Deck Elements: Sidewalks, Fascias -- Rated 5, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 20 **Photo Filename: 02DCP_5784.JPG**

Location: Begin approach right sidewalk, looking back.

Assignments:

Span 001 -- Deck Elements: Sidewalks, Fascias -- Rated 5, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 21 **Photo Filename: 02DCP_5793.JPG**

Location: End approach right sidewalk, looking back.

Assignments:

Span 001 -- Deck Elements: Sidewalks, Fascias -- Rated 5, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 22 **Photo Filename: 02DCP_5783.JPG**

Location: Right side bridge railing, looking ahead.

Assignments:

Span 001 -- Deck Elements: Railings, Parapets -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 23 **Photo Filename: 02DCP_5781.JPG**

Location: Median fence near begin, looking left.

Assignments:

Span 001 -- Deck Elements: Median -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 24 **Photo Filename: 02DCP_5770.JPG**

Location: Median curb at midspan,
looking right.

Assignments:

Span 001 -- Deck Elements: Median -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 25 **Photo Filename: 02DCP_5795.JPG**

Location: Begin approach,
looking ahead.

Assignments:

Span 001 -- Deck Elements: Median -- Rated 3, Was 3

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 26 **Photo Filename: 02Dcp_5180.jpg**

Location: Underdeck at bay #7 near begin abutment, looking up and ahead.

Assignments:

Span 001 -- Superstructure: Structural Deck -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 27 **Photo Filename: 02Dcp_5174.jpg**

Location: Underdeck @ bay #6 near begin abutment, looking up and ahead.

Assignments:

Span 001 -- Superstructure: Structural Deck -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

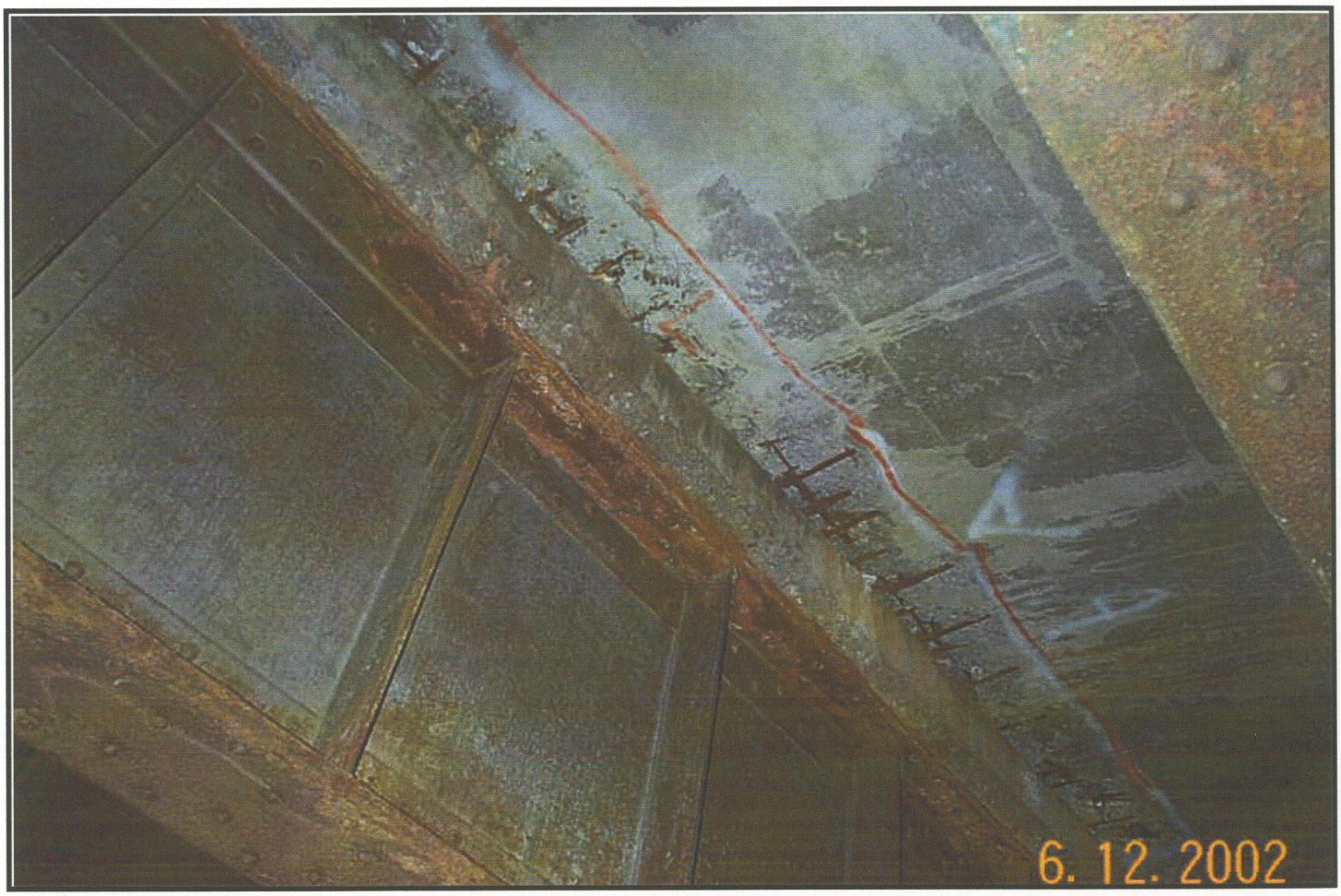
Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 28 **Photo Filename: 02DCP_5173.JPG**

Location: Underdeck @ bay #6,
looking up and back.

Assignments:

Span 001 -- Superstructure: Structural Deck -- Rated 4, Was 4



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

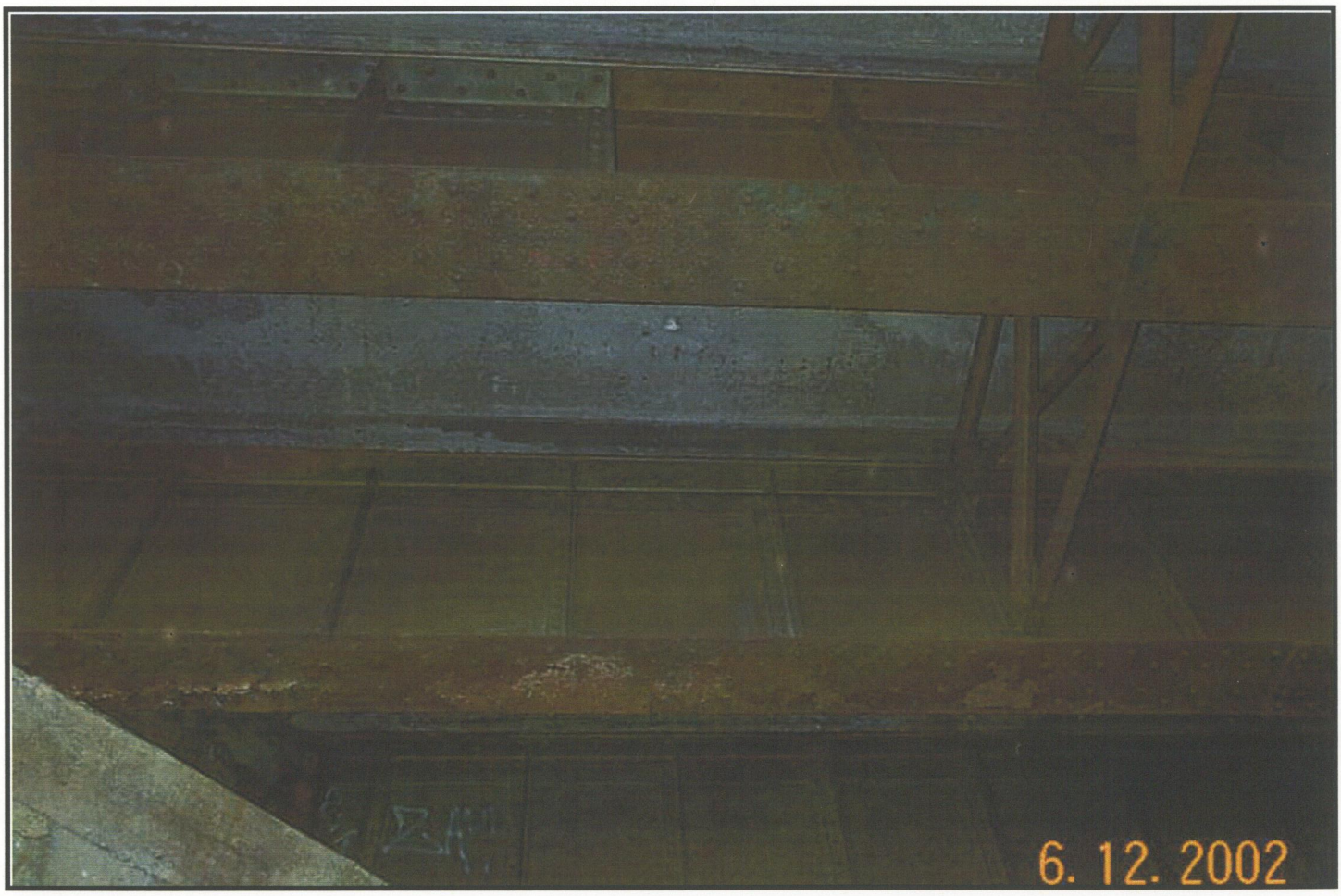
Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 29 **Photo Filename: 02DCP_5176.JPG**

Location: Underdeck at G6 and G7, near begin abutment , looking up and left.

Assignments:

Span 001 -- Superstructure: Primary Members -- Rated 4, Was 4
Span 001 -- Superstructure: Paint -- Rated 3, Was 3



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Photos in Photo Number Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,12

Photo Number: 30 **Photo Filename: 02DCP_5222.JPG**

Location: Bay #12 at begin abutment,
looking back and right.

Assignments:

Beg Abut -- Abutment: Seats and Pedestals -- Rated 2, Was 2
Span 001 -- Utilities: Utilities and Support -- Rated 4, Was 4

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

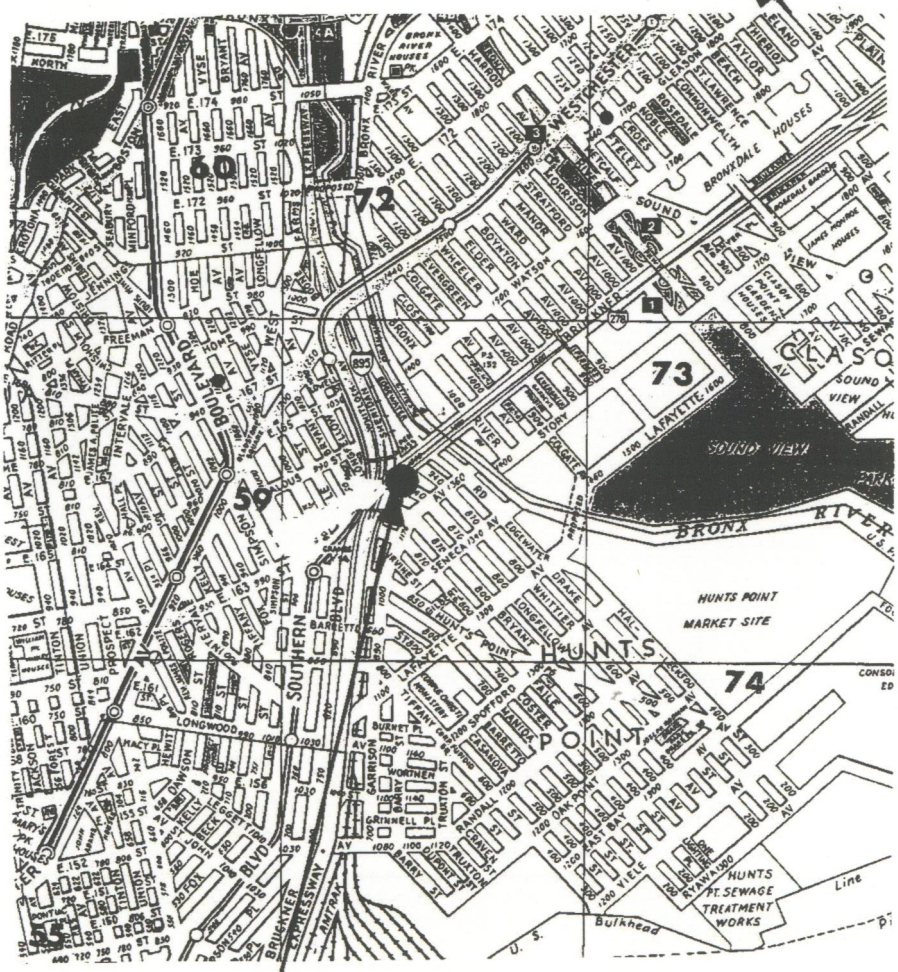
Sketch ID: NF024A0F **Sketch Filename: 02locmap.tif**

General Sketch for Bridge

Referenced Photos:

LOCATION MAP

N.Y.S. DEPT.OF TRANSPORTATION
BRIDGE INSPECTION REPORT



BIN: 2075352

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Sketch ID: NF024A10 Sketch Filename: 02lphotoloc.tif

General Sketch for Bridge

Referenced Photos:

BD 188 (1/96)

BIN 2075352

NYS DEPT. OF TRANSPORTATION
BRIDGE INSPECTION REPORT
SHEET 1 OF 1

TEAM LEADER: G. APANOSIAN ASST. TEAM LEADER: M. SURIEL DATE 7/18/02

Feature Carried: BRUCKNER EXPWY (278I278IX1M3024)

Feature Crossed: AMTRAK / CSXT

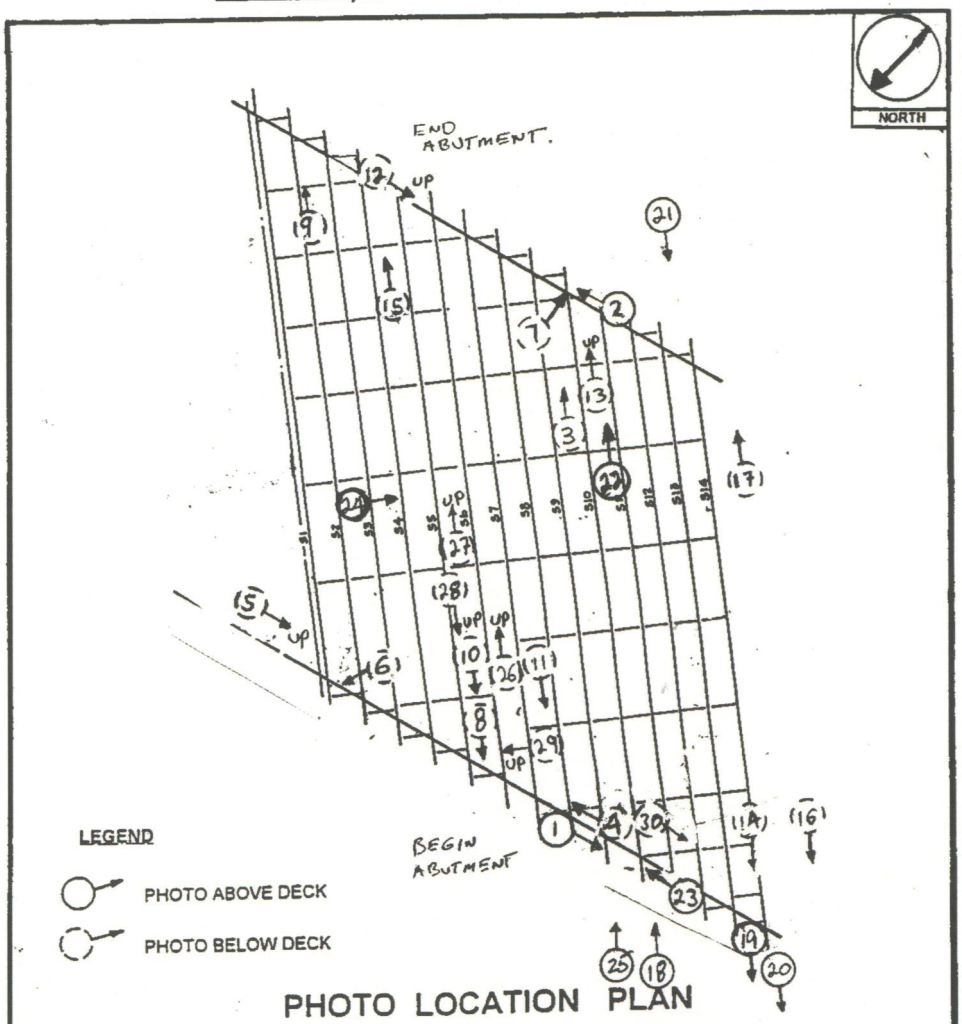


PHOTO LOCATION PLAN

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Sketch ID: NF024A11 Sketch Filename: 02clearence.tif

General Sketch for Bridge

Referenced Photos:

BD 186 (4/95)

BIN 2075352

NYS DEPT. OF TRANSPORTATION
BRIDGE INSPECTION REPORT
SHEET 1 OF 1

TEAM LEADER: G. APANOSIAN ASST. TEAM LEADER: M. SURIEL DATE 7/18/02

Feature Carried: BRUCKNER EXPWAY. (278I 278IX1M53024)

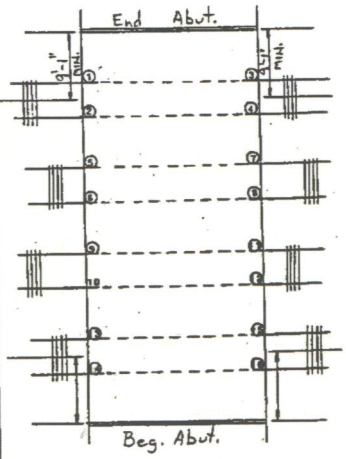
Feature Crossed: AMTRAK / CSXT

NORTH

RAILROAD UNDERCLEARANCES

DATE / POINT	9/8/90	11/4/92	11/16/94	6/28/96	07/12/00	7/18/02
1	18'-0½"	18'-2'	18'-2"	18'-2"	5.53m	5.54M
2	18'-4"	18'-3"	18'-3"	18'-3"	5.56m	5.55M
3	17'-11½"	18'-0"	18'-0"	18'-0"	5.48m	5.46M
4	18'-1½"	18'-1"	18'-1"	18'-1"	5.51m	5.47M
5	17'-11"	18'-0"	18'-0"	18'-0"	5.48m	5.44M
6	17'-11"	17'-11"	18'-0"	18'-0"	5.48m	5.43M
7	17'-7"	17'-6"	17'-6"	17'-6"	5.33m	5.30M
8	17'-7½"	17'-6"	17'-6"	17'-6"	5.33m	5.32M
9	17'-5"	17'-6"	17'-6"	17'-4"	5.28m	*
10	17'-9½"	17'-8"	17'-8"	17'-10"	5.43m	*
11	17'-2"	17'-3"	17'-3"	17'-2"	5.23m	*
12	17'-7½"	17'-7"	17-7"	17'-7"	5.35m	*
13	18'-5"	18'-5"	18'-5"	18'-4"	5.58m	*
14	18'-10"	18'-10"	18'-10"	18'-10"	5.74m	*
15	18'-1"	18'-1"	18'-1"	18'-2"	5.53m	*
16	18'-7½"	18'-7"	18'-7"	18'-7"	5.66m	*

SPAN # 1



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Sketch ID: NF024A12 Sketch Filename: Bd240.02

General Sketch for Bridge

Referenced Photos:

BD 240 - modified

NYSDOT BRIDGE INSPECTION REPORT
SHEET 1 OF 2

Debris Accumulation

Span No:	1

Carried:	278I278IX1M53024		BIN:	2075352
Crossed:	AMTRAK & CSX		Insp. Date:	06/12/2002
ATL:	Suriel, Miguel		Inspector:	Apanosian, Garen

MOST CRITICAL Priority Rating (Put an X next to the appropriate Priority)		
	X	H - High Priority (Photos Required)
		M - Medium Priority
		L - Low Priority
		N - No Debris or Land Use

(X)	Debris/Land Use Categories	Remarks (Optional)
	01 - Containers, Marked	
	02 - Containers, Unmarked	
	03 - Non-Containerized	
	04 - Wood, Dwellings	
	05 - Wood, Heavy	
	06 - Wood, Light	
	07 - Metal	
	08 - Rubber, Plastics, Synthetics	
	09 - Asbestos Supposition	
X	10 - General Trash	Dirt & Debris
	20 - Buildings, Ind./Comm. Fuel Storage	
	21 - Buildings, Ind./Comm. Non-Fuel Storage	
	22 - Buildings, Other	
	23 - Buildings, Parking Facilities	
	24 - Buildings, Electrical Facilities	
	25 - Attachments/Supports	

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Sketch ID: NF024A12 Sketch Filename: Bd240.02

General Sketch for Bridge

Referenced Photos:

SHEET 2 OF 2

Photo 1 - Accumulated dirt and debris around G1 and G2 girder bearings at the begin abutment.

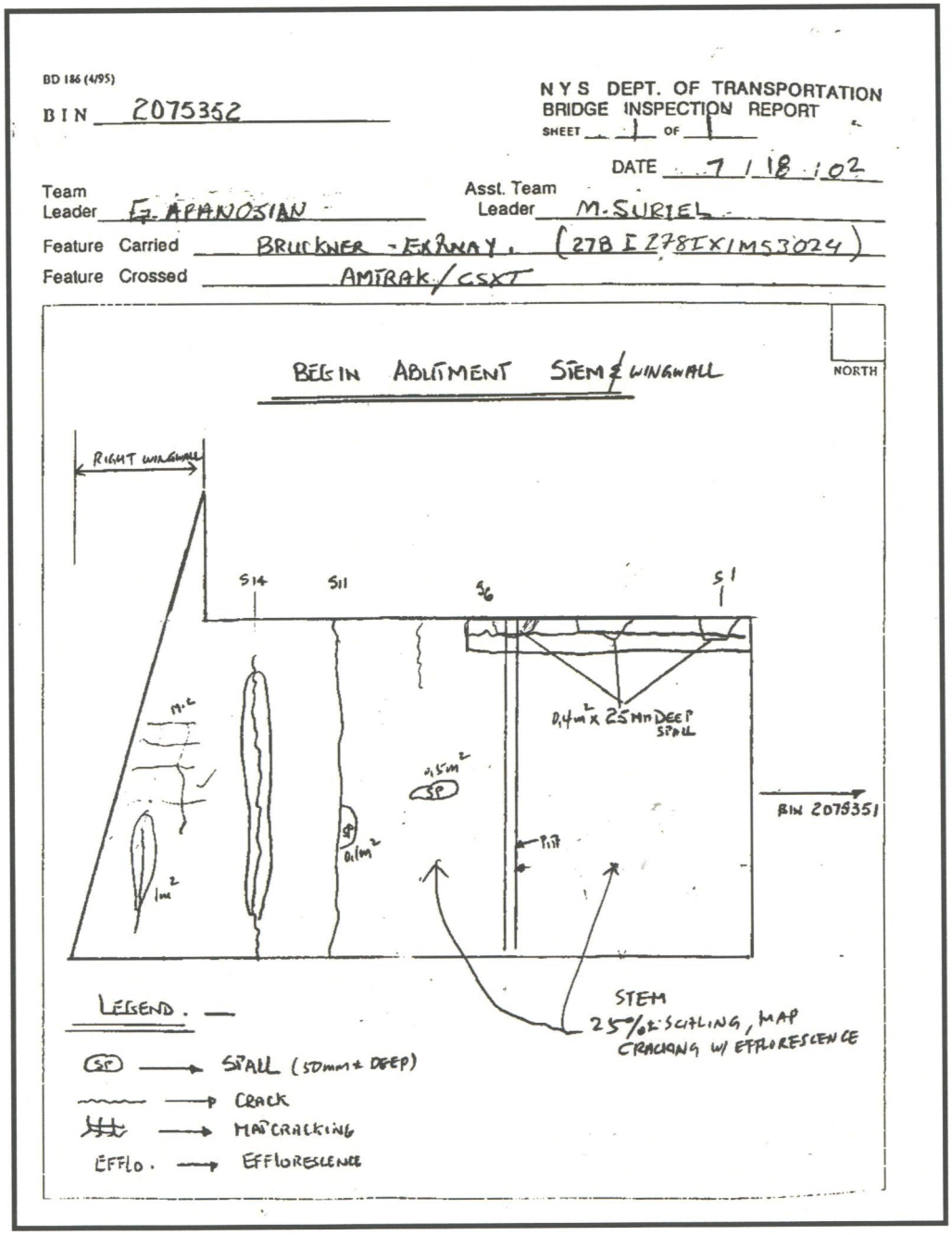
Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Sketch ID: NF024A13 Sketch Filename: 02beginabut.tif

Beg Abut -- Abutment: Stem (Breastwall) -- Rated 4, Was 4
Beg Abut -- Wingwalls: Walls -- Rated 4, Was 4
Referenced Photos: "14", "15", "16"



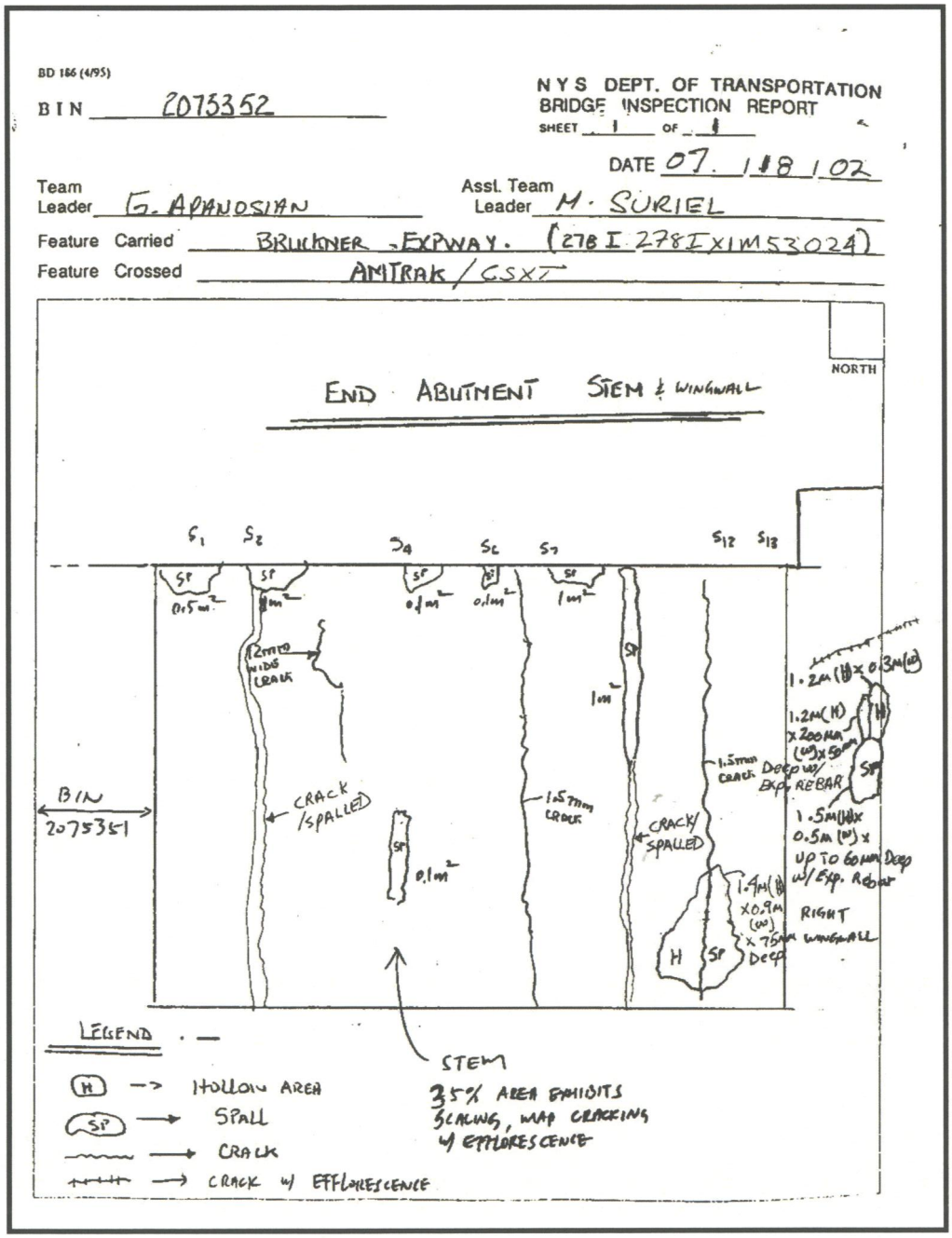
Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Sketch ID: NF024A14 Sketch Filename: 02endabut.tif

End Abut -- Abutment: Stem (Breastwall) -- Rated 4, Was 4
End Abut -- Wingwalls: Walls -- Rated 4, Was 4
Referenced Photos: "15", "17"



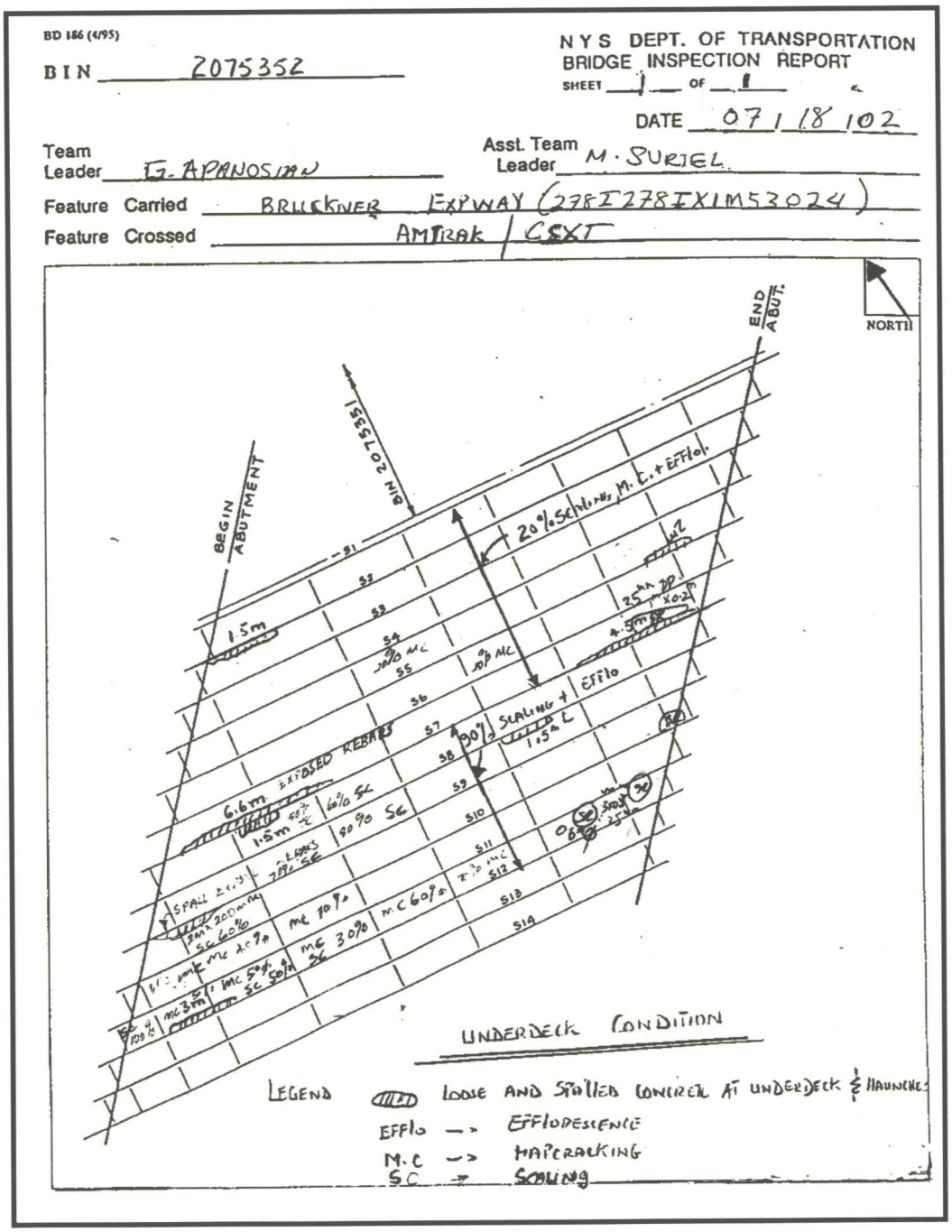
Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Sketch ID: NF024A15 Sketch Filename: 02underdeck.tif

Span 001 -- Superstructure: Structural Deck -- Rated 4, Was 4
Referenced Photos: "26", "27", "28"



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Sketch ID: NF024A16 **Sketch Filename: 02specialemphasis.tif**

General Sketch for Bridge

Referenced Photos:

BD 186 (4/95)

BIN 2075352

NYS DEPT. OF TRANSPORTATION
BRIDGE INSPECTION REPORT
SHEET 1 OF 1

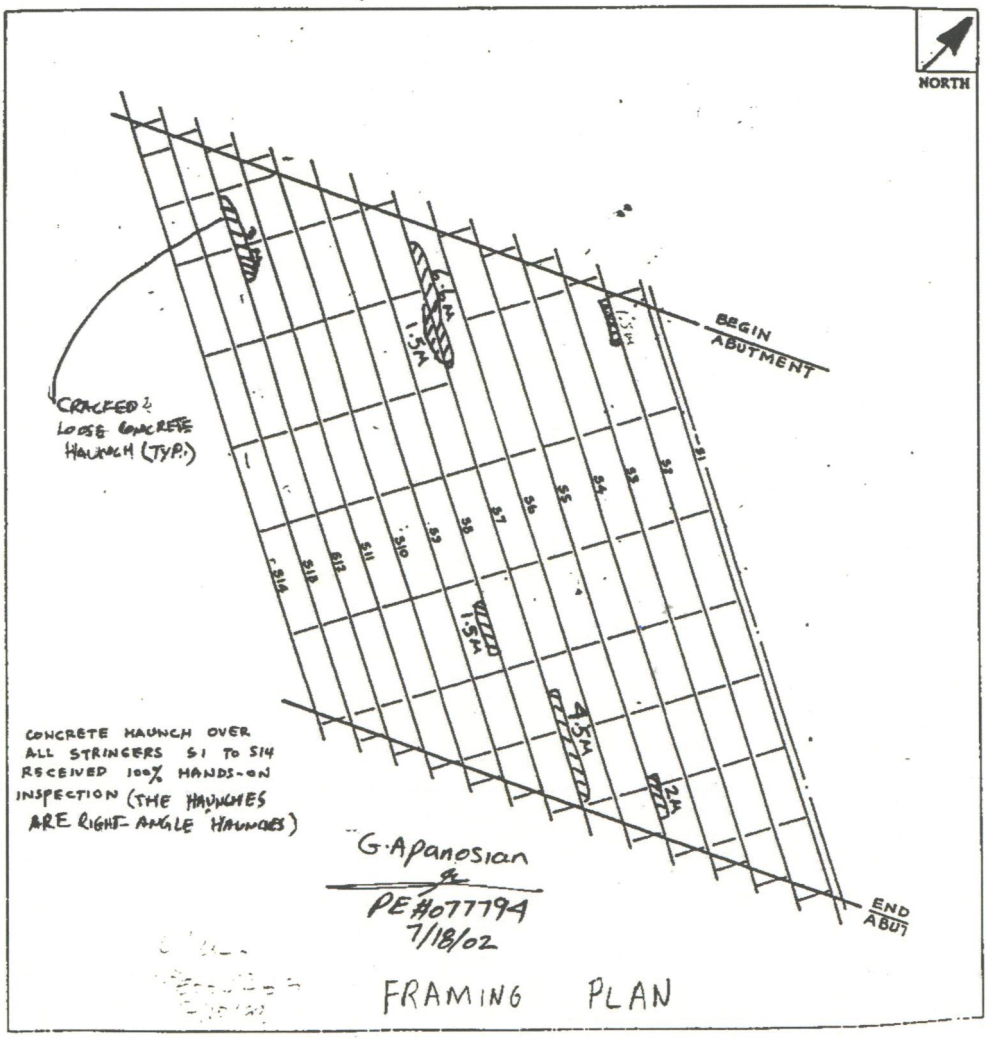
DATE 12/10/98

Team Leader K.C. CHIEN

Asst. Team Leader EMMANUEL TOUSSAINT

Feature Carried BRUCKNER EXPWY.

Feature Crossed AMTRACK / CONRAIL



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Sketches in Sketch SysID Order

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Sketch ID: NF024A17 **Sketch Filename: 02bd210a.tif**

General Sketch for Bridge

Referenced Photos:

BD 210a

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN AND CONSTRUCTION DIVISION
BRIDGE DATA SYSTEMS

BRIDGE INVENTORY FORM RECORD CODE 21

REQUIRED		
REG	8	BRIDGE IDENT. NUMBER
1	2	3 8
N	1	2075352

ACTION		
	☐ Preliminary Original	Contract
	☐ Preliminary Copy	Letting Date
	☒ Final Original	Opening Date
TYPE INVENTORY	☐ New	Prepared By / Date
	☐ Replacement	M. Suriel 7/18/02
	☒ Rehabilitation	Reviewed By / Date
	☐ Update	G. Apanoskin 7/18/02

WORK HISTORY TRANSACTION

REQUIRED				
MONTH	YEAR	CONTRACT NUMBER	TYPE	MONEY VALUE
17	19	33 42	43	44 53
07	02			

REQUIRED		
CONT. CODE	REC. CODE	TX CD
116	118	120
A1	21	3

REQ TYPE WORK (13 15)	COMMMENTS (60 105)
H63	REPAIR BEGIN APPROACH RIGHT SIDEWALK
082	REPLACE END APPROACH RIGHT SIDEWALK

BD 210a — PINK

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Gen. Rec., Postings, Federal Ratings, etc.

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Overall Condition:

GENERAL RECOMMENDATION: 4

Computed Condition Rating: 3.547

Problems Requiring Action:

NO Further Investigation Needed

SAFETY Flag(s) Issued

POSTINGS:

Posted Vertical Clearance ON the bridge is: No Posting
Posted Vertical Clearance UNDER the bridge is: No Posting
No Load Restriction is posted on this bridge

Overloads Observed:

NO Overload Vehicles were observed on this bridge

FEDERAL RATINGS:

NBI Deck Condition: 5
NBI Superstruct Condition: 5
NBI Substruct Condition: 4
NBI Channel Condition: N
NBI Culvert Condition: N

Diving Inspection Needs:

Diving Inspection Required? No Date of Last Diving Inspection: No Date

Inventory Problems:

Inventory Problems Exist? No

Miscellaneous:

Time Required to Inspect Bridge: 11 Hours

Lane Closure Needs: By Contract for 2.5 Hours

Railroad Flagging is Required for 8.0 Hours

No Pedestrian Fence

No Snow Fence

The BIN Plate is MISSING

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Gen. Rec., Postings, Federal Ratings, etc.

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Special Emphasis Inspection Required:

Non-Redundant/Fracture Critical Members - No
Pin and Hangers - No
Fatigue-Prone Welds - No
Non-Categorized Fatigue-Prone Details - No
Other (Specified in Text) - Yes

Special Emphasis Details:

Span 1: All Concrete Haunches

General Notes To the Next Inspector:

This is a Biennial inspection. No BIN plate was found. Entire underdeck area was visually inspected and approximately 20% sounded. No loose concrete area was found.

Improvements Observed:

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Review Progress and Personnel Present at Inspection

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Inspection Submission Status:

Submitted to QC Engineer on: 12/6/2002
QC Submission Number: F7122805

QC Review Completed: 12/6/2002
QC Engineer: Stelios N. Bertos

Submitted to Liaison Engineer on: 12/6/2002
Liaison Submission Number: 71214

Liaison Review Completed: 1/9/2003
Liaison Engineer: ID: 1000027

Submitted for BIIS Processing on: 1/9/2003
BIIS Submission Number: .kp1

Current Status: Keypunched, Sent to BIIS
Check Value: 2,006,128,874

Personnel Present During Inspection:

Garen Apanosian - Team Leader
Miguel Suriel - Assistant Team Leader

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Flags Issued

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Safety Flag 02-280

Safety Flag 02-280 - Flagged Bridge Report

Prompt Interim Action Recommended: No

Inspector: Apanosian, Garen
Flag Number: 02-280

Date Discovered: 6/12/2002
Supersedes Flag Number: 00-0303

Bridge Description:
BIN: 2075352 Carried: 278I278IX1M53024 Crossed: AMTRAK & CSX

Region: N - New York City County: 1 - Bronx
Political Unit: 2034 - City of New York
Primary Owner: 42 - City
Secondary Owner: 99 - One Agency - Listed in first subfield
Primary Maintenance: 42 - City
Secondary Maintenance: 99 - One Agency - Listed in first subfield
Year Built: 1960 Not Posted For Load

Number of Spans by Type: Num Type Description
001 - 113 - Steel - Plate Girder, Multi-Girder

Description of Flagged Condition:
TP 350[27] Deck structural, Span 1, Rated 4

Portions of concrete haunches along S2, S5, S7, S8 & S12 and adjacent underdeck concrete areas are cracked, sound hollow, delaminated and loose. Loose concrete pieces may fall onto Amtrack or CSX trains below. See attached sketch for locations.

3 Photos Attached

Verbal Notifications: (For RED Flags and Safety Flags with PIA only)

To: Ash Hoque of Regional Office on 6/12/2002 at 2:30:00 PM
To: _____ (Responsible Party) on _____ at _____
By: _____

Signature:
Flagged Bridge Report Completed By: Apanosian, Garen on 6/12/2002
Flagged Bridge Report Signed By: _____ on _____
Apanosian, Garen

Inspection Date: 7/18/2002	RC: N1 BIN: 2075352

Flag Attachment

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

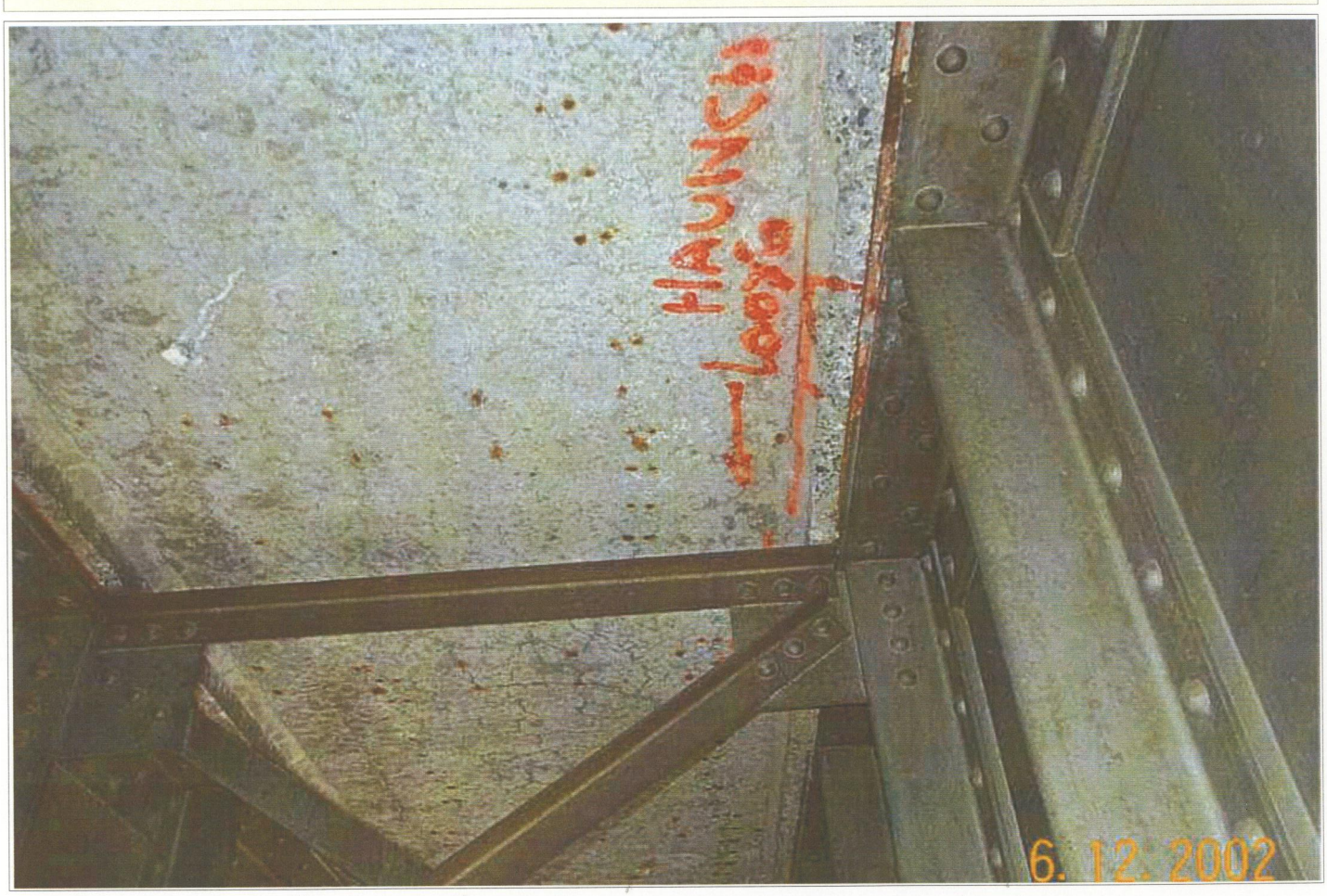
02Dcp_5174.jpg - Attached to Safety Flag 02-280

Inspection Date: 7/18/2002 **RC: N1 BIN: 2075352**

Flag Attachment

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

02Dcp_5180.jpg - Attached to Safety Flag 02-280



Flag Attachment

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

flag#02-280.tif - Attached to Safety Flag 02-280

BD 186 (4/95)

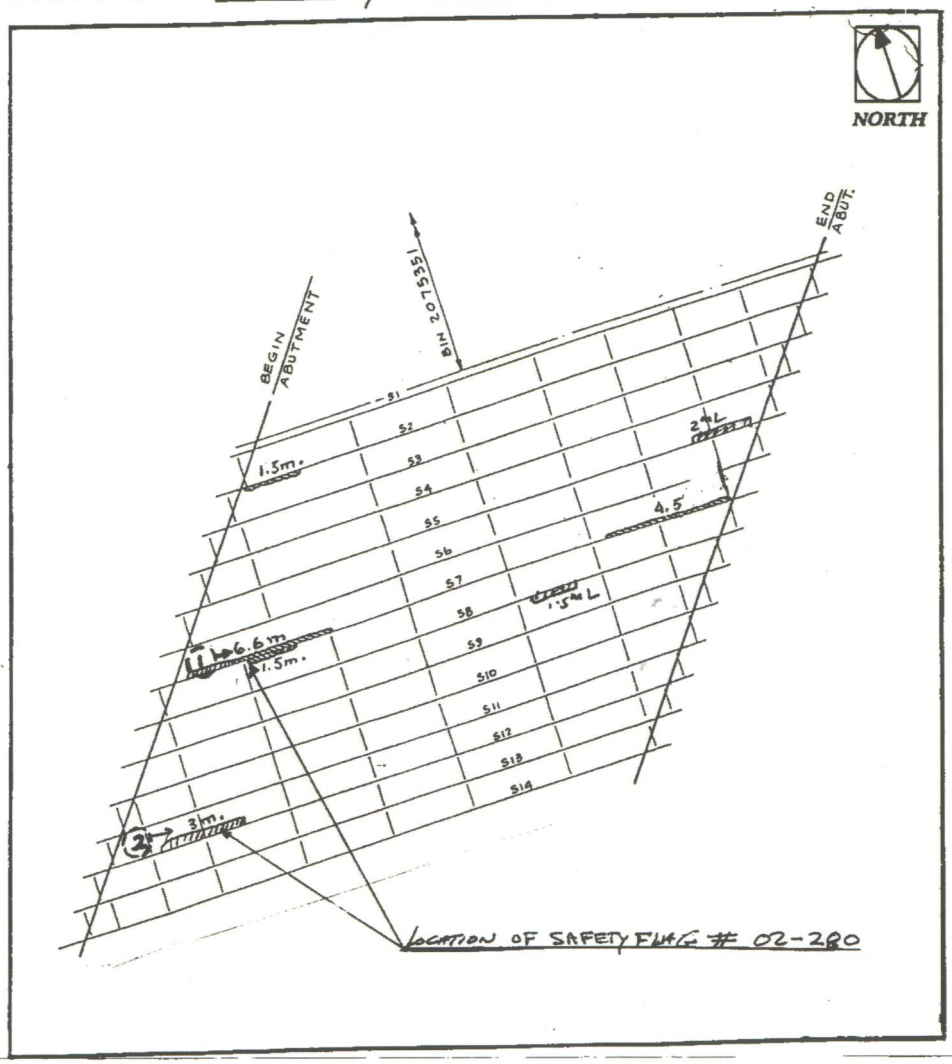
BIN 2075352

NYS DEPT. OF TRANSPORTATION
BRIDGE INSPECTION REPORT
SHEET 2 OF 3

TEAM LEADER: G. APANOSIAN ASST. TEAM LEADER: M. SURIEL DATE 6/12/2002

Feature Carried: BRUCKNER EXPWY (278I278IX1M53024)

Feature Crossed: AMTRAK / CSXT



Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Inspection Access Requirements

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Equipment Required for Inspection

Access Requirement Changes WERE Noted During This Inspection.
This Listing is from the Inspection.

ACCESS CATEGORIES FOR ENTIRE BRIDGE
Required: Walking, Extension Ladder, Small Lift, Railroad Flagman
Required: Railroad Electrical, Shadow Vehicle

ACCESS CATEGORIES FOR SPAN 1
Required: Walking, Extension Ladder, Small Lift, Railroad Flagman
Required: Railroad Electrical, Shadow Vehicle

Inspection Date: 7/18/2002 RC: N1 BIN: 2075352

Culvert Measurements

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W CheckValue: 2,006,128,874

Culvert Measurements

NO CULVERT DATA FOR BIN 2075352

Standard Photos RC: N1 BIN: 2075352

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W

AbutmentEnd.JPG

Standard Photos RC: N1 BIN: 2075352

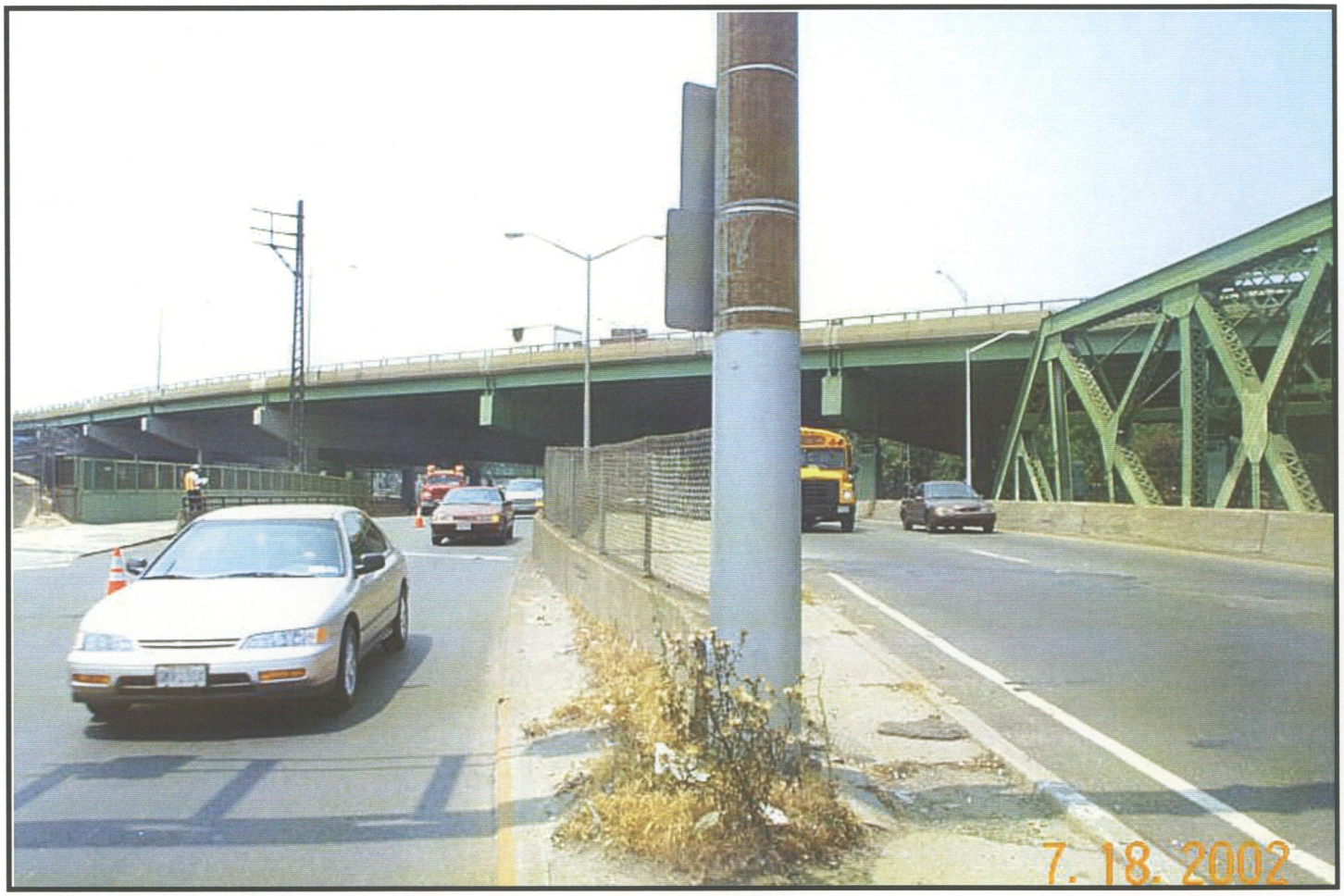
Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W

ApproachBegin.JPG

Standard Photos RC: N1 BIN: 2075352

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W

ApproachEnd.JPG



Standard Photos RC: N1 BIN: 2075352

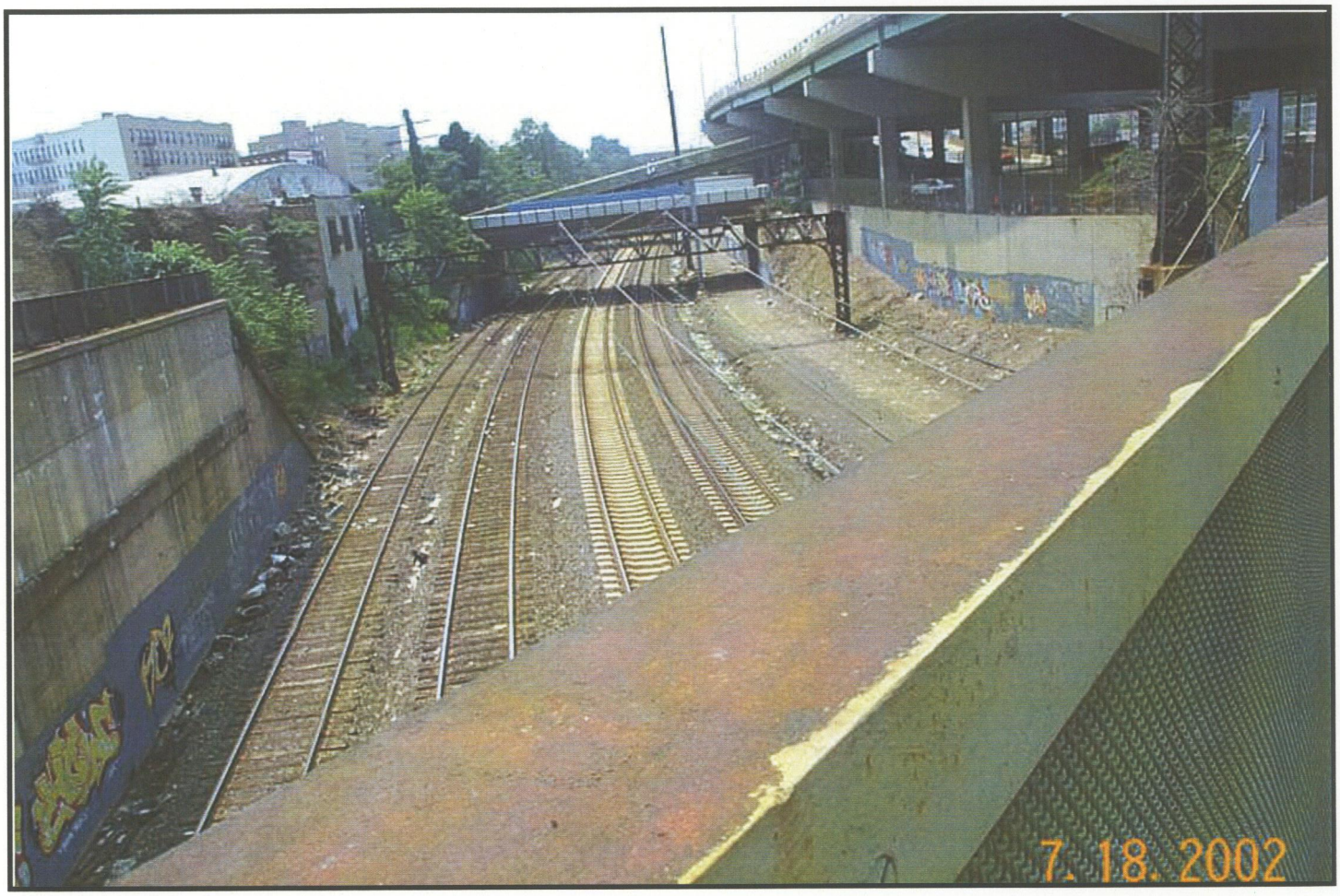
Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W

ElevationSpan1Right.JPG

Standard Photos RC: N1 BIN: 2075352

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W

F2CrossedSpan1Right.JPG



Standard Photos RC: N1 BIN: 2075352

Carried: 278I278IX1M53024 Crossed: AMTRAK/CSXT/P&W

FramingSpan1.JPG

HNTB Corporation
The HNTB Companies
Engineers Architects Planners

5 Penn Plaza
6th Floor
New York, NY 10001-1810

Telephone (212) 594-9717
Facsimile (212) 947-4030
www.hntb.com

September 14, 2006

Norik Tatevossian, P.E.
Director of Structures
New York State Department of Transportation
One Hunters Point Plaza, 5th Floor
47-40, 21st Street
Long Island City, NY 11101

HNTB

Attn: Jay Patel, P.E.

Re: 2005–2006 General Bridge Inspection
NYSDOT Region 11, Bronx County
Contract: D015460, PIN: XB05.02
BIN 2075352

Dear Mr. Tatevossian:

Please find attached the report of the inspection of the above referenced bridge which took place on September 8 and 11, 2006, the railroad vertical clearance tabulation and labor associated with the inspection effort.
Please note that the above BIN has received the biennial inspection on August 4, 2006 and the attached findings are recently developed.

We anticipate that a Yellow Structural Flag will be issued after the measurements over the AMTRAK tracks will be completed on September 19, 2006.

Since there is no instructions as to how a railroad bridge is to be posted for vertical clearance and the above noted bridge has been hit recently by a train, future measures should be taken to eliminate this safety condition.

As a result of our investigations, we recommend that in order to monitor downward stringers' deflection, the vertical clearance measurements above tracks to be taken at regular interval of time.

If you have any questions, please contact me at (212) 594-9717.

Very truly yours,
HNTB Engineering & Architecture, PC

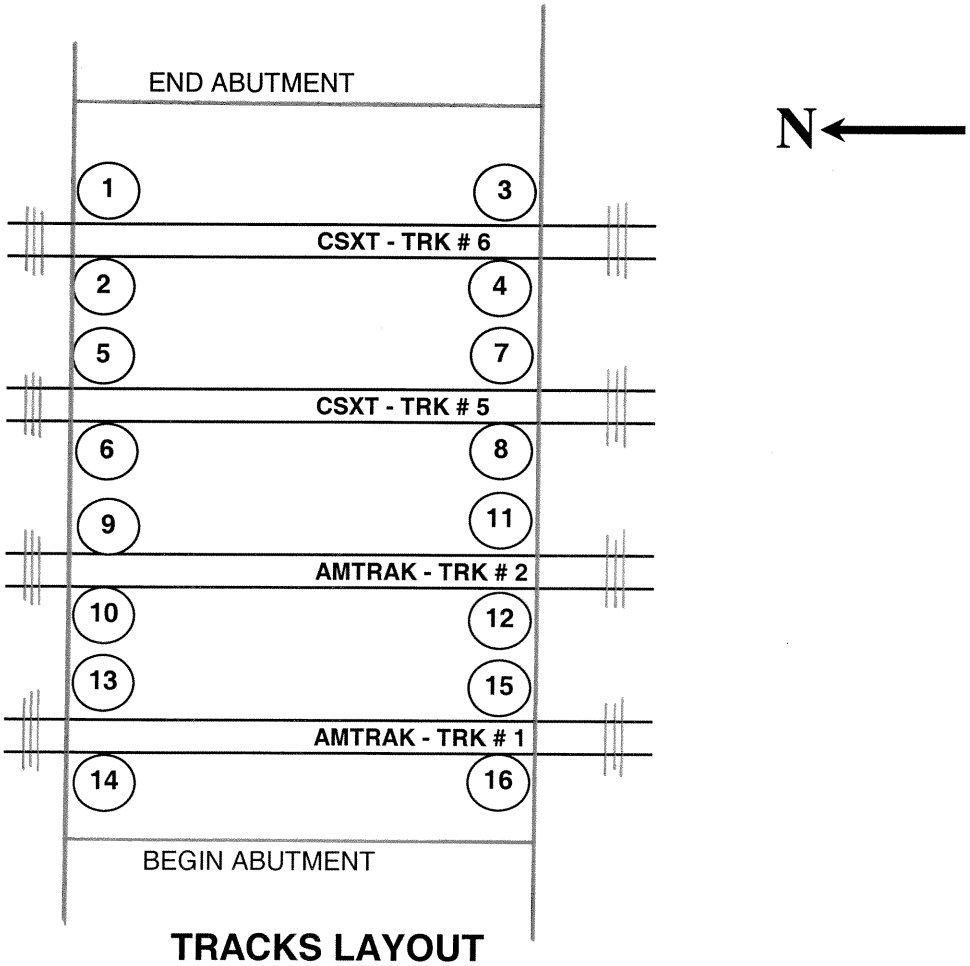
Nicolae Simionescu

Nick Simionescu, PE
Project Manager

cc: Mr. Peter C. McCowan, attn: Francois Ghanem, NYSDOT, M.O.

RAILROAD VERTICAL CLEARANCE

Date	8/4/2006		9/8/2006	
Point	Stringer S1	Stringer S14	Stringer S1	Stringer S14
1	18'-4"		18'-1 1/2"	
2	18'-4"		18'-1 5/8"	
3		17'-11"		17'-10 5/8"
4		17'-11"		17'-10 5/8"
5	17'-9"		17'-8 3/8"	
6	17'-9"		17'-8 1/4"	
7		17'-5"		17'-5 3/8"
8		17'-5"		17'-5"
9	18'-2"			
10	18'-4"			
11		17'-8"		
12		18'-1"		
13	18'-5"			
14	18'-9"			
15		18'-0"		
16		18'-5"		



TRACKS LAYOUT

2005–2006 General Bridge Inspection
NYSDOT Region 11, Bronx County
Contract: D015460, PIN: XB05.02

BIN 2075352 278l (Bruckner Expwy-EB) over AMTRAK & CSXT

Labor associated with the inspection:

	9/8/06	**9/11/06**	**9/12/06**	**Total**
Team Leader	8 hrs	8 hrs	3 hrs	19 hrs
Assistant Team Leader	8 hrs	8 hrs	3 hrs	19 hrs
ATL Trainee	8 hrs	8 hrs		16 hrs
			TOTAL	**54 hrs**

Team Leader: Harry Shah ATL: P. Kadakia ATL Trainee: D. Flores

BIN 2075352 278I (BRUCKNER EXPWY- EB) OVER AMTRAK,CSXT

There are fourteen(14) riveted steel stringers with concrete deck.. The following observation were made during inspection of subject bridge portion above CSX tracks #5 and #6 in vicinity of End Abutment on 9/8/06 and 9/11/06.

1) Vertical under clearances were measured for stringer #1 to #14 above CSX tracks #5 and #6. The result is tabulated and attached here. The minimum clearance observed was 16' 10 3/8" under stringer #6. Note: Vertical under clearances over the AMTRAK track #1 and #2 will be measured later date with catenary power outage obtained from AMTRAK authority.

2) Underside of deck and stringers were inspected by climbing above timber plank shielding. The gap between stringers top flange and deck bottom were measured along both faces of stringer #1 to #11 and #12 left face above CSX track area only. The gap measurements were tabulated and are attached here. The maximum gap observed is 30mm above stringer #5 top flange. Note : There are enclosed utility bays between stringers #12 to #14. No gap measurements were done in these bays because of access limitations. Stringer #14 top flange right face is hidden behind fascia plate and is not accessible for gap measurements.

3) Under side of deck in several bays exhibit spalling up to 25mm deep with exposed rebars, and other bays exhibit moderate to severe scaling with transverse cracking with efflorescence and occasional exposed rebars. The transverse cracking is due to concrete deterioration and they are not stress related cracking. Top of roadway asphalt wearing surface is in good condition with no longitudinal or transverse cracking. Also sidewalk along the median and right sidewalk on the span exhibit no cracking. At right sidewalk, right side railing plate panels (4.80m long) exhibits gap from 0mm to 35mm maximum between supports. See attached photos.

4) Stringers condition : All stringers exhibit web warping along the diagonal direction between stiffeners. More pronounced warping is visible at stringers #5, 6 and 7. The rivets of the all stringers are intact and in fair condition except at stringer #6 bottom flange, where one rivet head is sliced off due to scraping by box cars train and at stringer #6 to #10 bottom flange, some rivet heads are slightly deformed due to scraping action. The paint system has failed due to heat from fire occurrence and weathering effect.

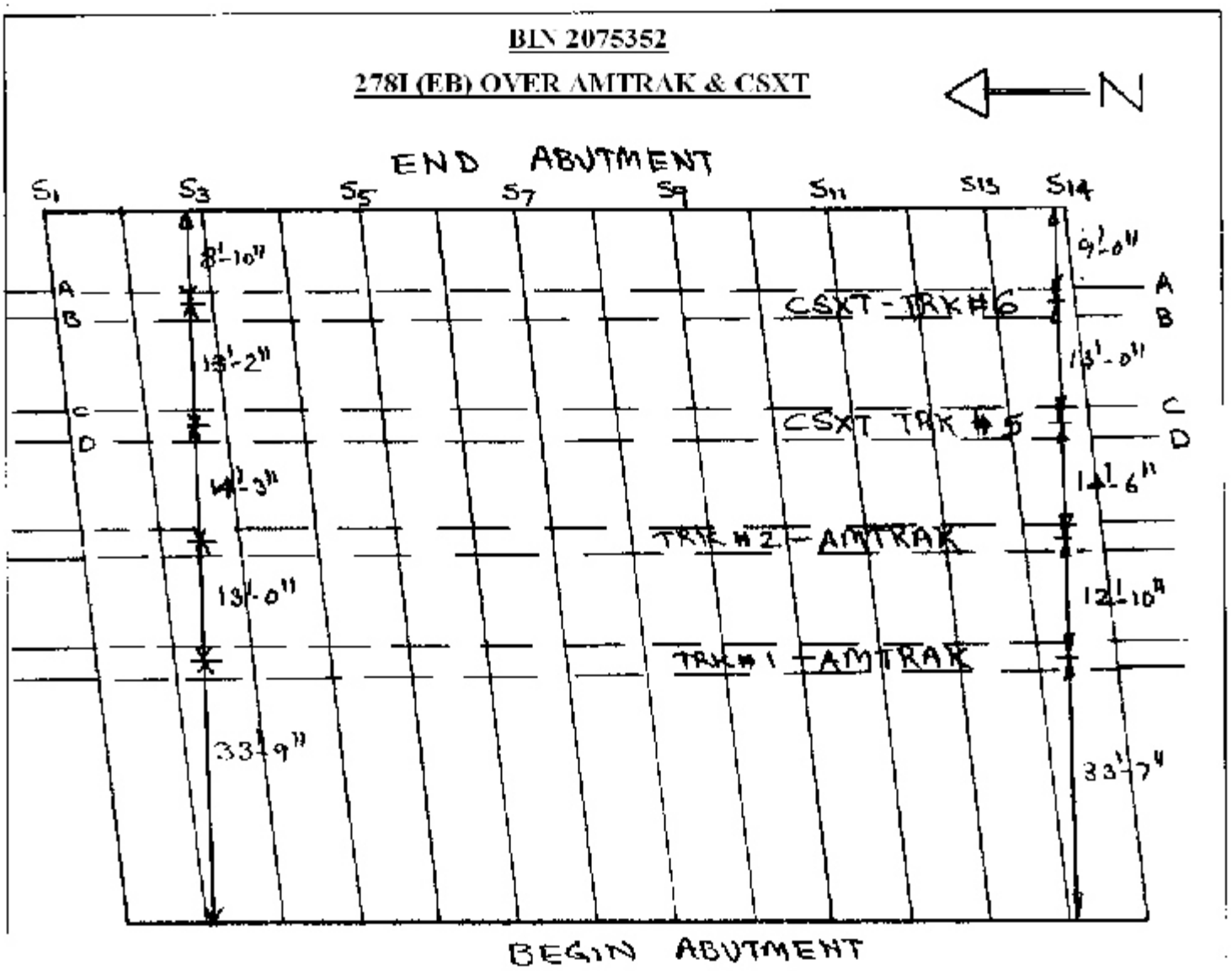
5) At begin abutment stringer #7 bearing exhibits, shifting of stringer by 12mm towards left with respect to rocker bearing. The bearing and stringer are stable.

Note: We anticipate to issue yellow structural flag after investigation/measurements are completed over AMTRAK area.

Recommendation : Vertical Under clearance measurements above tracks at regular interval is recommended to monitor downward deflection(sagging) of stringers.

Team Leader: Harry Shah ATL: P. Kadakia ATL Trainee: D. Flores

BIN 2075352 278I (BRUCKNER EXPWY- EB) OVER AMTRAK,CSXT



TRACKS LAYOUTS

Team Leader: Harry Shah ATL: P. Kadakia ATL Trainee: D. Flores

BIN 2075352 278I (BRUCKNER EXPWY- EB) OVER AMTRAK,CSXT

BIN 2075352
BRUCKNER EXPWY-EB OVER AMTRAK,CSXT

9/8/2006

	CSX TRK#6		CSX TRK#5		AMTRAK TRK#2		AMTRAK TRK#1	
SPAN #	A	B	C	D	E	F	G	H
1	18'-1 1/2"	18'-1 5/8"	17'-8 3/8"	17'-9 1/4"				
2	17'-11 1/2"	17'-11 1/2"	17'-5 5/8"	17'-5 7/8"				
3	17'-10 1/4"	17'-9 3/8"	17'-3 1/4"	17'-2 3/8"				
4	17'-9 1/8"	17'-6 1/8"	17'-0 5/8"	17'-0 1/8"				
5	17'-7 1/2"	17'-5 1/8"	16'-11"	16'-10 5/8"				
6	17'-7 1/4"	17'-5"	16'-10 1/2"	16'-10 3/8"				
7	17'-4 1/4"	17'-6 3/4"	16'-11 7/8"	16'-11 5/8"				
8	17'-9 5/8"	17'-7 1/8"	17'-1 3/8"	17'-0 5/8"				
9	17'-9 5/8"	17'-7 3/8"	17'-2 1/8"	17'-1 3/8"				
10	17'-9 3/4"	17'-8 5/8"	17'-3 1/2"	17'-3 1/8"				
11	17'-9 3/4"	17'-9 5/8"	17'-4 1/2"	17'-4 1/4"				
12	17'-10 5/8"	17'-10 5/8"	17'-5 1/2"	17'-4 3/4"				
13	17'-11 1/8"	17'-11 1/8"	17'-6"	17'-5 7/8"				
14	17'-10 5/8"	17'-10 5/8"	17'-5 7/8"	17'-5"				

RAILROAD VERTICAL CLEARANCES OVER AMTRAK AND CSX TRACKS

Team Leader: Harry Shah ATL: P. Kadakia ATL Trainee: D. Flores

BIN 2075352 278I (BRUCKNER EXPWY- EB) OVER AMTRAK,CSXT

BIN 2075352 278I (BRUCKNER EXPWY- EB) OVER AMTARK & CSX				
STRINGER #	GAP BETWEEN DECK & GIRDER TOP FLANGE (MM)		DISTANCE STARTING FROM END ABUTMENT (M)	TOTAL LENGTH OF GAP (M)
	RIGHT FACE	LEFT FACE		
1	3	3	0	4.50
2	10	10	0	15.25
3	5 TO 12	10	0	15.25
4	10 TO 16	20	0	12.00
5	10 TO 30	20	0	12.00
6	20	8 TO 20	4.0	7.30
7	10	5	4.0	12.00
8	10	5	0	12.00
9	12	5	0	3.70
10	5 TO 10	0	0	6.00
11	5 TO 12	5	0	6.00
12	——	5	0	6.00
13	NOT ACCESSIBLE DUE TO ENCLOSED UTILITY BAY			
14	NOT ACCESSIBLE DUE TO ENCLOSED UTILITY BAY			

Photo 1 : Scrape marks at stringer #6,7,8,9 and 10 above CSX track #5, looking up, back and right.

Photo 2 : Stringer #5 right face: 30mm gap between top flange and deck concrete, looking left.

Photo 3 : Stringer #5 right face : Warped web between stiffeners. Looking left

Photo 4 : Bay 5, between stringer #5 and #6, 2nd cross bracing from end abutment, looking back and left.

Photo 5 : Under side of deck between Stringer #10 and #11, looking back.

Photo 6 : Begin Abutment, bearing #7 : Stringer shifted 12mm towards left, looking back.

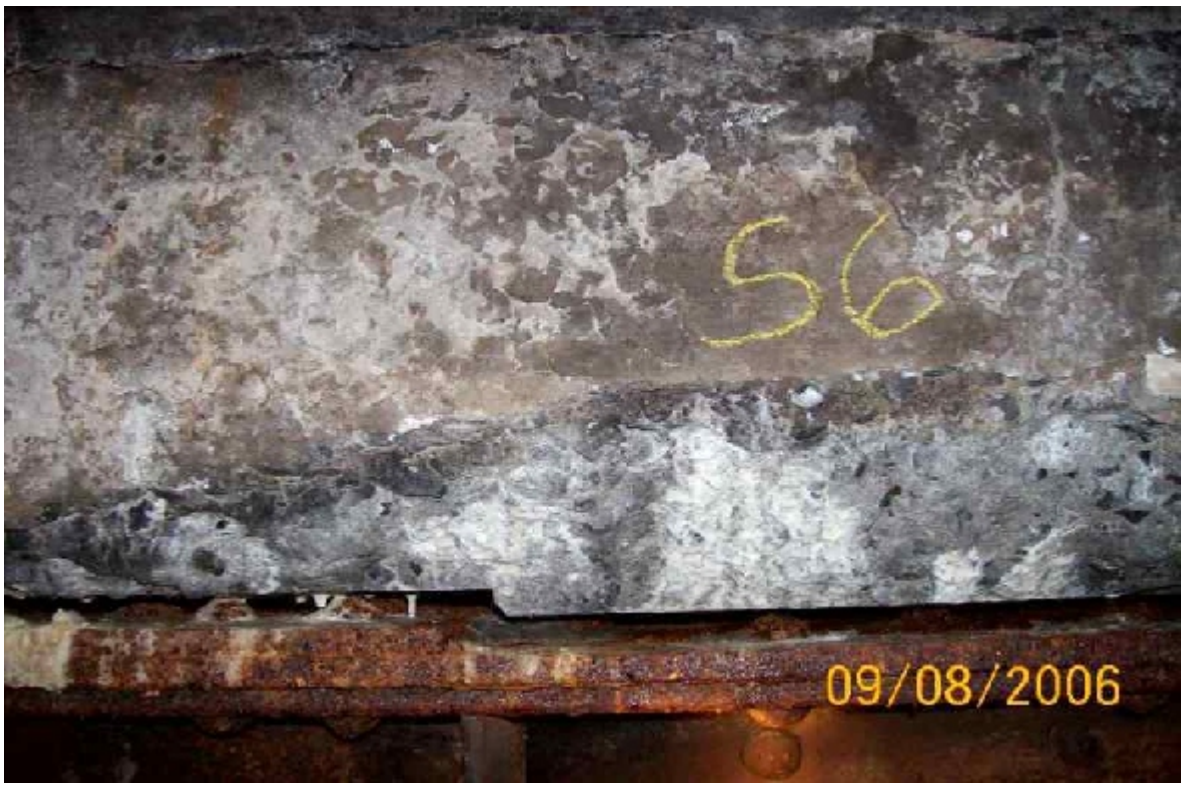


Photo 7 : Stringer #6 left face : 20mm gap between top flange and deck haunch, looking right.

Photo 8 : Stringer #4 right face : 18mm gap between top flange and deck, looking left.

Photo 9: Top of deck at Bruckner Expwy east bound, looking left and ahead.

Photo 10: Right sidewalk and railing, looking ahead

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www.materials-testing.com

MT Group
MATERIALS TESTING

LETTER OF TRANSMITTAL

Date: October 6, 2005

To: NYCDOT
2 Rector Street, 5th Floor
New York, NY 10006

Attention: Ravi Soni

Reference: Bruckner Expressway

WE ARE SENDING YOU: X Attached ____ Under separate cover via ____ The following items:

____ Approval of Supplier/Fabricator		____ Photographs	____ Specifications
____ Shop Drawings	____ Order on Contract	____ IAST Report	____ Copy of Letter
X MBR Forms	____ Concrete Mix Design	____ Asphalt Mix Design	____ Others

COPIES	DESCRIPTION OF ITEM
	Enclosed you will find copies of the compressive strength reports, Visual Petrographic Analysis and a location diagram for the above referenced project.

THESE ARE TRANSMITTED as checked below:

____ Approved	____ As Requested
____ Approved as Noted	____ For Your Action
____ Disapproved (See Mark Up)	____ For Your Information
____ Revise and Resubmit	

REMARKS:

COPY:

SIGNED: _____
Thomas S. Kalb
Project Manager/Engineering

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Client: NYCDOT - Bureau of Bridges
2 Rector Street, 5th floor
New York, NY 10006

Report #: 05DOT-001
Report Date: 10/05/05
Test Date: 10/05/05

Project: Bruckner Blvd. Bridge
Sample: Concrete Cores
Test: **Compressive Strength**
Method: **ASTM C39**
Sampled By: MTL **On** **10/05/05** **Delivered By:** MTL

Core #	Dia. in.	Height (inches)	Height Capped (inches)	Area (sq. in)	Max. Load (lbs.)	PSI	Corr. Factor	Compr. Strength (PSI)
1	3.79	7.00	4.52	11.28	81870	7257	0.91	6626
2	3.80	7.25	5.76	11.34	63430	5593	0.96	5347
3	3.79	12.25	5.67	11.28	81560	7230	0.96	6911
6	3.79	7.25	5.18	11.28	51550	4569	0.94	4309

Strength Req.: N/A

Reported To: --

Lab #7252

Submitted By: **Materials Testing Lab, Inc.**

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FIELD INVESTIGATION REPORT

Client:	NYCDOT - Bureau of Bridges 2 Rector Street, 5th floor New York, NY 10006	**Report #:** **Date:**	05DOT-001 10/05/05	**Page 1 of 1**
Project:	Bruckner Blvd. Bridge			
Test:	Coring			
Tech. Name:	Jeff Roden			

Core #1
18' from expansion joint
16' from main road north & south bound divider on main roadway north bound
TOTAL – 15.00

Core #2
15' from expansion joint
21' from main road north & south bound divider on main roadway north bound
TOTAL – 15.25

Core #3
28' from expansion joint
7' from sidewalk curb line on service road north bound
TOTAL – 17.00

Core #4
23' 6" from expansion joint
1' from sidewalk curb line on service road north bound
TOTAL –13.00

Core #5
9' from expansion joint
11' from center divider (main road & service road divider) on service road north bound
TOTAL -11.75

Core #6
23' from expansion joint
3' 6" from center divider (main road & service road divider)
TOTAL – 12.00

Reported To: -
Submitted By: **Materials Testing Lab, Inc.**

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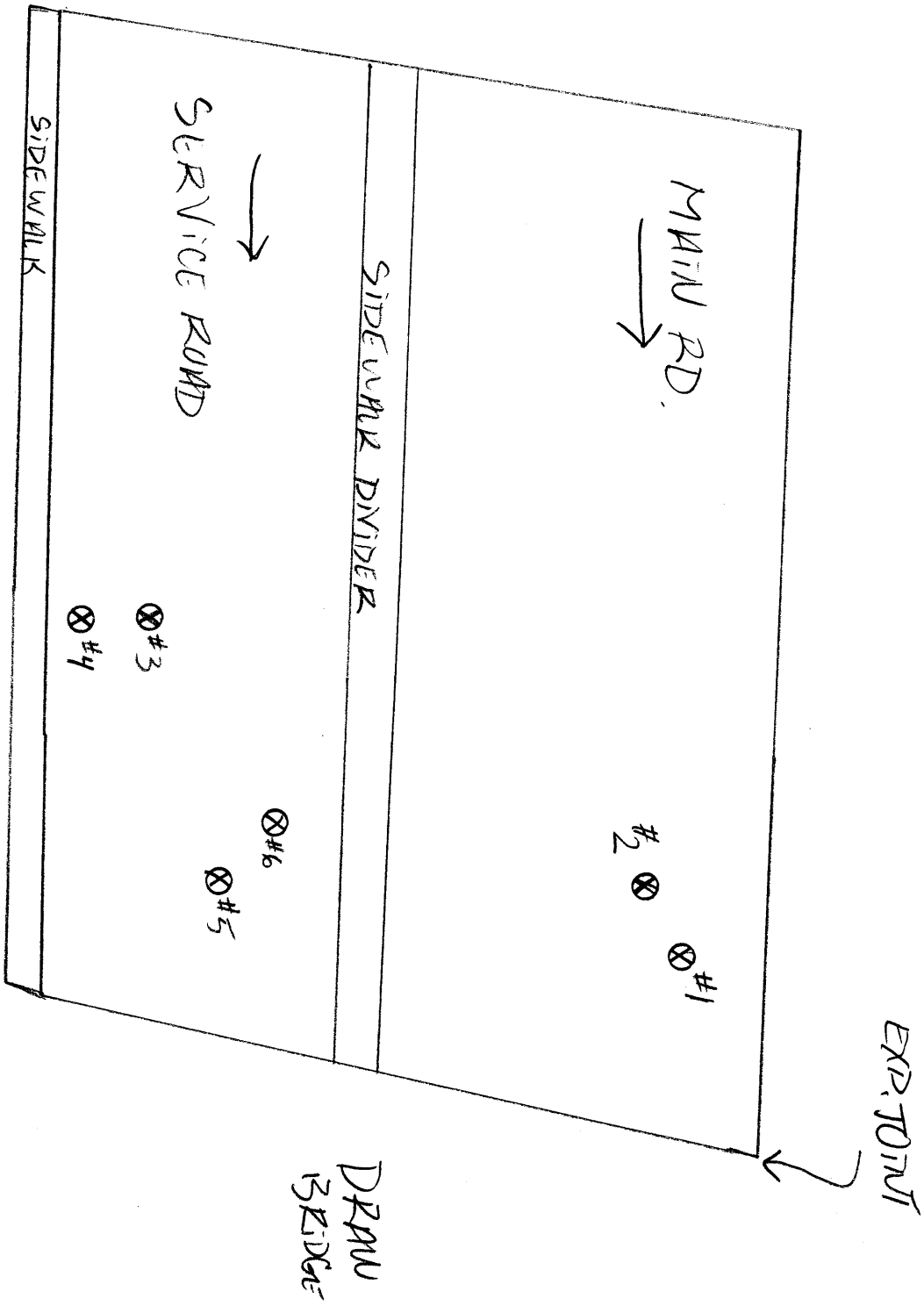

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MATERIALS TESTING

CLIENT: NYCDOT DATE: 10/05/05

PROJECT: Bruckner Blvd. Bridge REPORT #:001

CORE # 1

TOTAL LENGTH: 15.0" (4 ¾" ASPHALT, 7" CONCRETE, 3 ¼" LOOSE MATERIALS)

REBAR SIZE, LOCATION, AND CONDITION: #5, ¾" FROM BOTTOM, GOOD
#5, 4 ½" FROM BOTTOM, GOOD

FRACTURES AND CRACKS (LOCATION, AND DISTRIBUTION): NONE

WATER PROOFING MEMBRANE: THICKNESS: 1/8" CONDITION: FAIR

ASPHALT LAYER:

THICKNESS: 4 ¾"

TYPE OF AGGREGATES: GRADED CRUSHED STONE
SIZE RANGE : ½"

CONDITION OF ASPHALT LAYER: FAIR

CONCRETE LAYER:

TYPE OF COARSE AGGREGATES: GRADED CRUSHED STONE

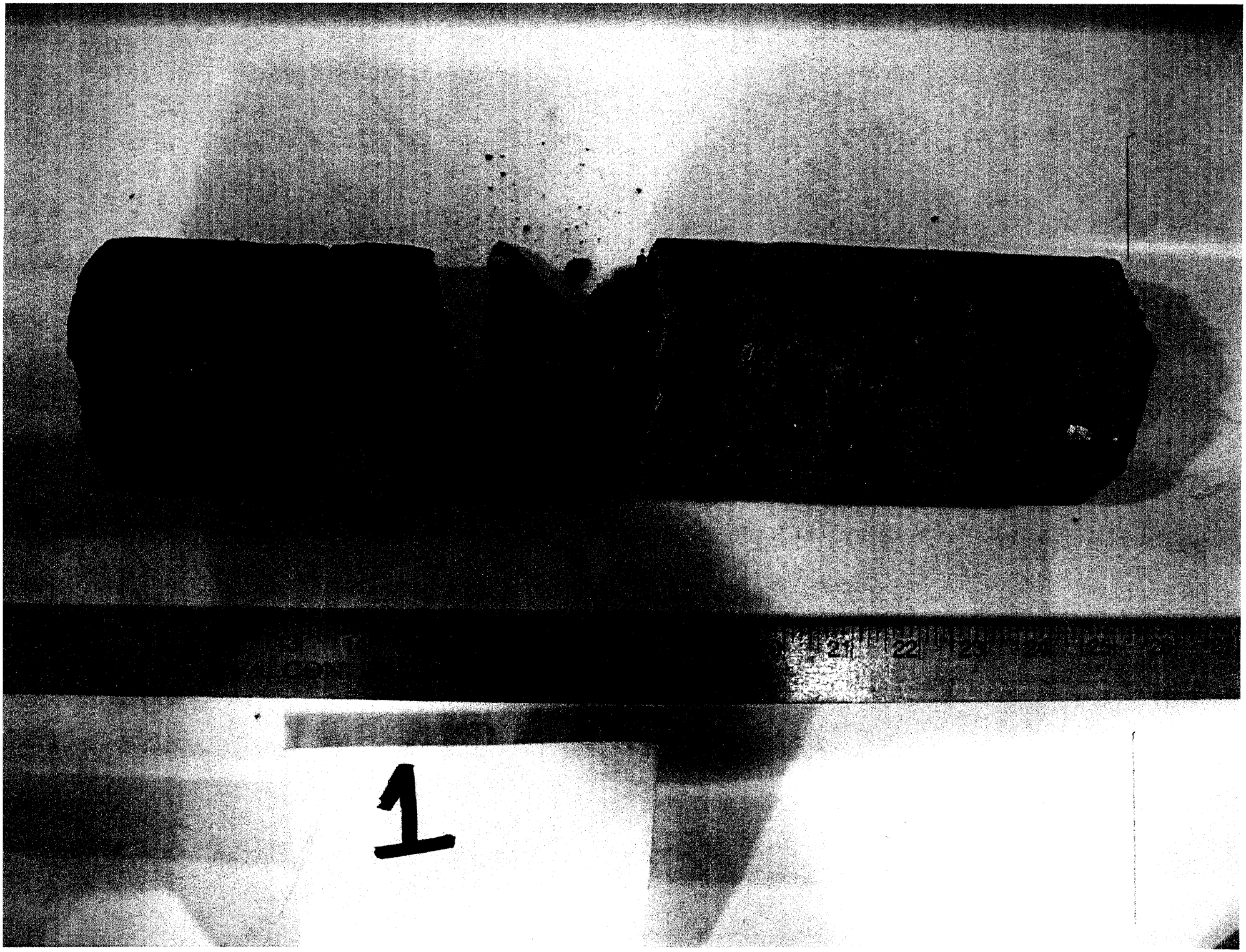
COLOR OF COARSE AGGREGATES: DARK GRAY

SIZE OF AGGREGATE: MAX. SIZE 1"

ADHESION BETWEEN COARSE AGGREGATES AND MORTAR: GOOD

COLOR OF MORTAR: LIGHT GRAY

AIR VOIDS AND TYPE: ENTRAINED, ENTRAPPED, BOUNDARY, VOIDS


1

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MT Group
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CLIENT: NYCDOT DATE: 10/05/05

PROJECT: Bruckner Blvd. Bridge REPORT #:001

CORE # 2

TOTAL LENGTH: 15.25" (4" ASPHALT, 7 ¼" CONCRETE, 4" LOOSE MATERIALS)

REBAR SIZE, LOCATION, AND CONDITION: NONE

FRACTURES AND CRACKS (LOCATION, AND DISTRIBUTION): NONE

WATER PROOFING MEMBRANE: THICKNESS: 1/8" CONDITION: FAIR

ASPHALT LAYER:

THICKNESS: 4"

TYPE OF AGGREGATES: GRADED CRUSHED STONE
SIZE RANGE: ½"

CONDITION OF ASPHALT LAYER: FAIR

CONCRETE LAYER:

TYPE OF COARSE AGGREGATES: GRADED CRUSHED STONE

COLOR OF COARSE AGGREGATES: DARK GRAY

SIZE OF AGGREGATE: MAX. SIZE ¾"

ADHESION BETWEEN COARSE AGGREGATES AND MORTAR: GOOD

COLOR OF MORTAR: DARK GRAY

APPROX. VOL % OF COARSE AGGREGATE: 75

AIR VOIDS AND TYPE: ENTRAINED, ENTRAPPED, BOUNDARY

2

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CLIENT: NYCDOT

DATE: 10/05/05

PROJECT: Bruckner Blvd. Bridge

REPORT #:001

CORE # 3

TOTAL LENGTH: 17" (4 ½" ASPHALT, 12 ½" CONCRETE)

REBAR SIZE, LOCATION, AND CONDITION: #5, 4.5" FROM BOTTOM, GOOD

FRACTURES AND CRACKS (LOCATION, AND DISTRIBUTION): NONE

WATER PROOFING MEMBRANE: THICKNESS: 1/8" CONDITION GOOD

ASPHALT LAYER:

THICKNESS: 4 ½"

TYPE OF AGGREGATES: GRADED CRUSHED STONE
SIZE RANGE: ½"

CONDITION OF ASPHALT LAYER: GOOD

CONCRETE LAYER:

TYPE OF COARSE AGGREGATES: GRADED CRUSHED STONE

COLOR OF COARSE AGGREGATES: DARK GRAY

SIZE OF AGGREGATE: MAX. SIZE 1"

ADHESION BETWEEN COARSE AGGREGATES AND MORTAR: GOOD

COLOR OF MORTAR: DARK GRAY

APPROX. VOL % OF COARSE AGGREGATE: 75

AIR VOIDS AND TYPE: ENTRAINED, ENTRAPPED, BOUNDARY, VOIDS

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CLIENT: NYCDOT DATE: 10/05/05

PROJECT: Bruckner Blvd. Bridge REPORT #:001

CORE # 4

TOTAL LENGTH: 13" (4 ½" ASPHALT, 8 ½" CONCRETE)

REBAR SIZE, LOCATION, AND CONDITION: #4, 3 ½" FROM BOTTOM, CORRODED

FRACTURES AND CRACKS (LOCATION, AND DISTRIBUTION):
FRACTURE AROUND REBAR AND AGGREGATE

WATER PROOFING MEMBRANE: THICKNESS: 1/8" CONDITION FAIR

ASPHALT LAYER:

THICKNESS: 4 ½"

TYPE OF AGGREGATES: GRADED CRUSHED STONE
SIZE RANGE: ½"

CONDITION OF ASPHALT LAYER: GOOD

CONCRETE LAYER:

TYPE OF COARSE AGGREGATES: GRADED CRUSHED STONE

COLOR OF COARSE AGGREGATES: DARK GRAY

SIZE OF AGGREGATE: MAX. SIZE 1"

ADHESION BETWEEN COARSE AGGREGATES AND MORTAR: POOR

COLOR OF MORTAR: DARK GRAY

APPROX. VOL % OF COARSE AGGREGATE: 75

AIR VOIDS AND TYPE: VOIDS

FALCON
4

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MT Group
MATERIALS TESTING

CLIENT: NYCDOT DATE: 10/05/05

PROJECT: Bruckner Blvd. Bridge REPORT #:001

CORE # 5

TOTAL LENGTH: 11 ¾" (4 ¾" ASPHALT, 7" CONCRETE)

REBAR SIZE, LOCATION, AND CONDITION: #4, 3" FROM BOTTOM, GOOD

FRACTURES AND CRACKS (LOCATION, AND DISTRIBUTION):
FRACTURE THROUGH AND AROUND AGGREGATE

WATER PROOFING MEMBRANE : NONE

ASPHALT LAYER:

THICKNESS: 4 ½"

TYPE OF AGGREGATES: GRADED CRUSHED STONE
SIZE RANGE: ½"

CONDITION OF ASPHALT LAYER: FAIR

CONCRETE LAYER:

TYPE OF COARSE AGGREGATES: GRADED CRUSHED STONE

COLOR OF COARSE AGGREGATES: DARK GRAY

SIZE OF AGGREGATE: MAX. SIZE 1"

ADHESION BETWEEN COARSE AGGREGATES AND MORTAR: FAIR

COLOR OF MORTAR: DARK GRAY

APPROX. VOL % OF COARSE AGGREGATE: 75

AIR VOIDS AND TYPE: ENTRAINED, ENTRAPPED, BOUNDARY

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FALCON
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CLIENT: NYCDOT

DATE: 10/05/05

PROJECT: Bruckner Blvd. Bridge

REPORT #:001

CORE # 6

TOTAL LENGTH: 12" (4 ¾" ASPHALT, 7 ¼" CONCRETE)

REBAR SIZE, LOCATION, AND CONDITION: #5, 1 ½" FROM BOTTOM, FAIR
#5, 5 ¼" FROM BOTTOM, FAIR

FRACTURES AND CRACKS (LOCATION, AND DISTRIBUTION):
VERTICAL CRACK AROUND AGGREGATE 1 ½" LONG

WATER PROOFING MEMBRANE NONE

ASPHALT LAYER:

THICKNESS: 4 ¾"

TYPE OF AGGREGATES, SIZE RANGE
GRADED CRUSHED STONE ½"

CONDITION OF ASPHALT LAYER: GOOD

CONCRETE LAYER:

TYPE OF COARSE AGGREGATES: GRADED CRUSHED STONE

COLOR OF COARSE AGGREGATES: DARK GRAY

SIZE OF AGGREGATE: MAX. SIZE 1"

ADHESION BETWEEN COARSE AGGREGATES AND MORTAR: GOOD

COLOR OF MORTAR: DARK GRAY

APPROX. VOL % OF COARSE AGGREGATE: 75

AIR VOIDS AND TYPE: ENTRAINED, ENTRAPPED, BOUNDARY, VOIDS

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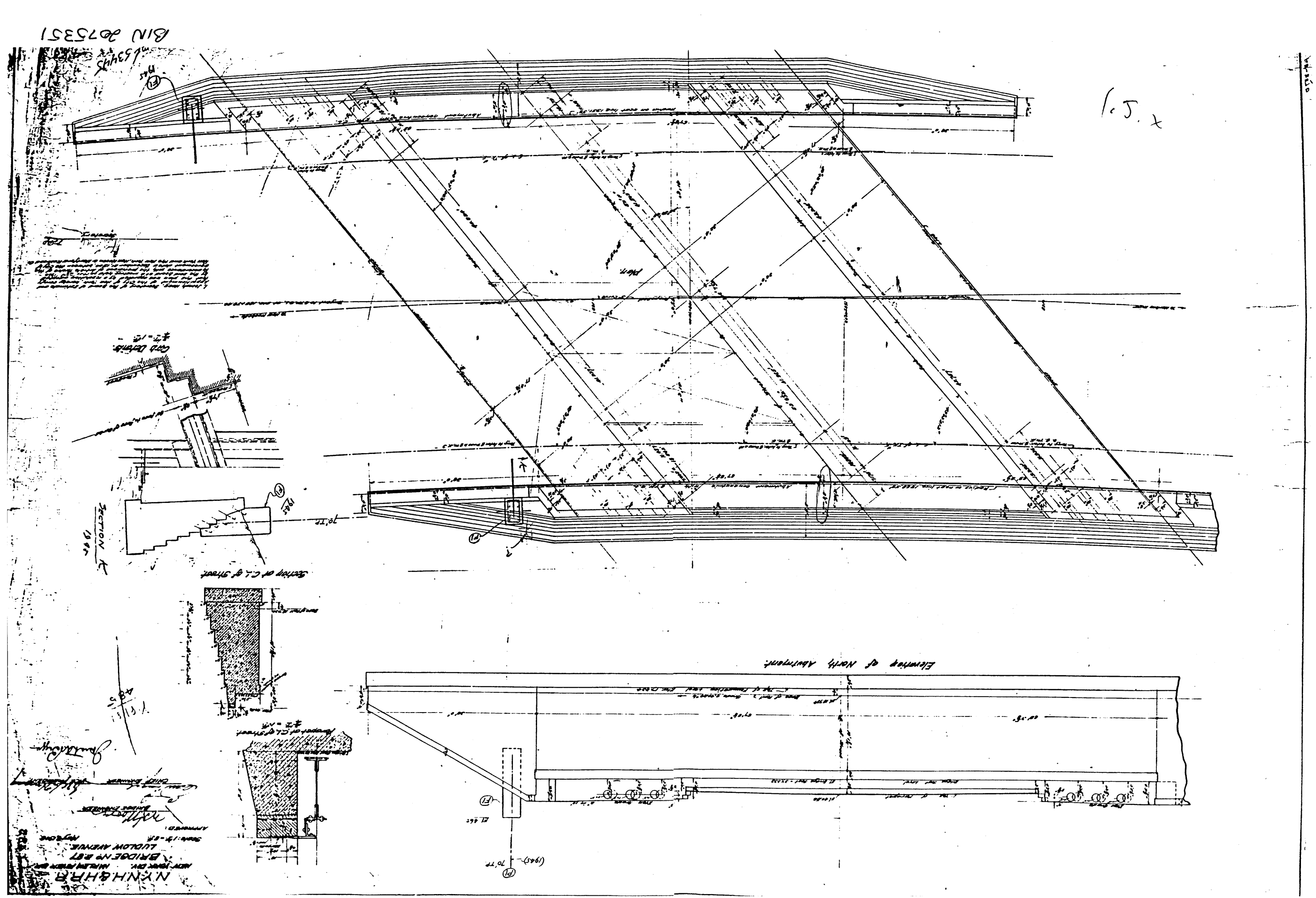
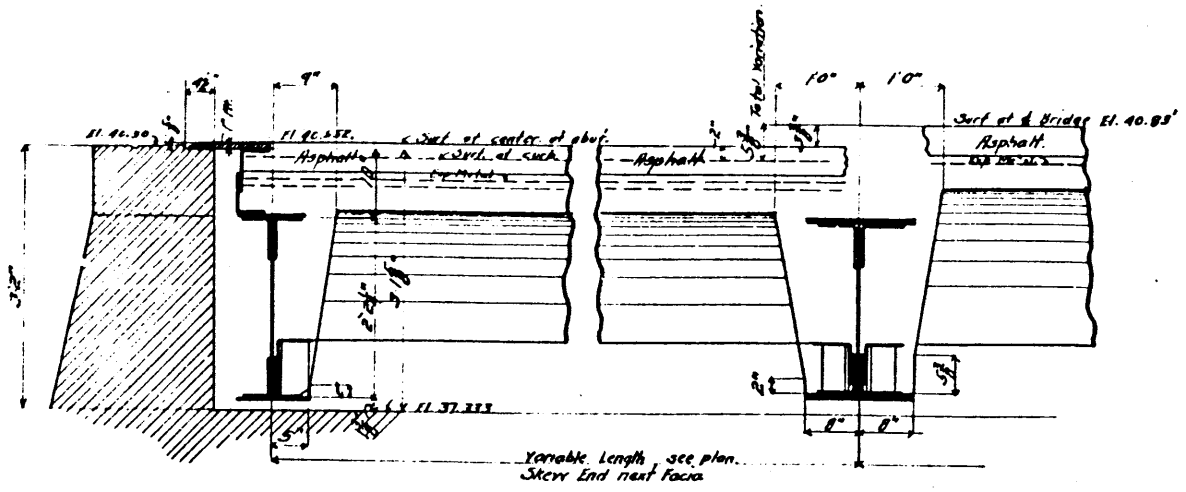
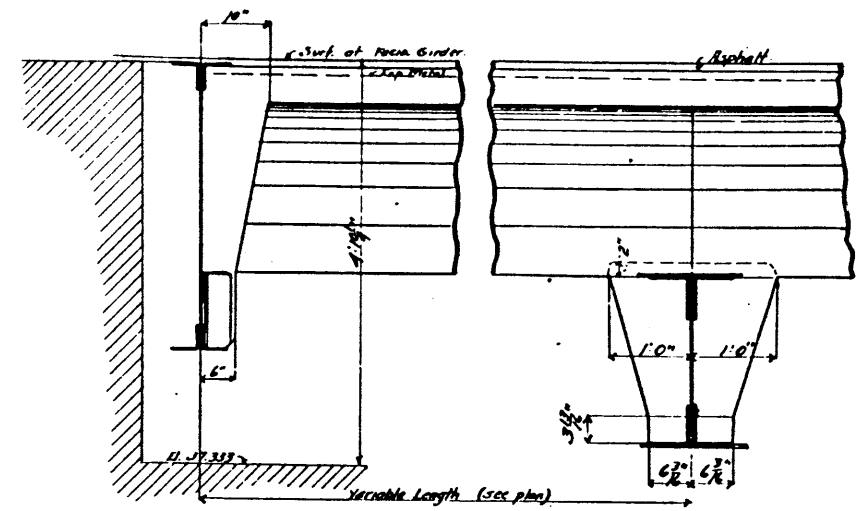

Section at C.L. of Street
Elevation of North Abutment
SECTION K
NINHAHR
BRIDGE No 287
LULOW AVENUE

N.Y.N.H & H.R.R.
NEW YORK DIV. HARLEM RIV. BRANCH.
DETAILS FOR CONCRETE CENTERS
BRIDGE #2.87
LUDLOW AV. NEW YORK N.Y.
Scale 3/4" = 1'-0" Sept. 1908
Approved: W.H. Moore
Bridge Engr. Chief Engr.
Approved:
Vice-President.



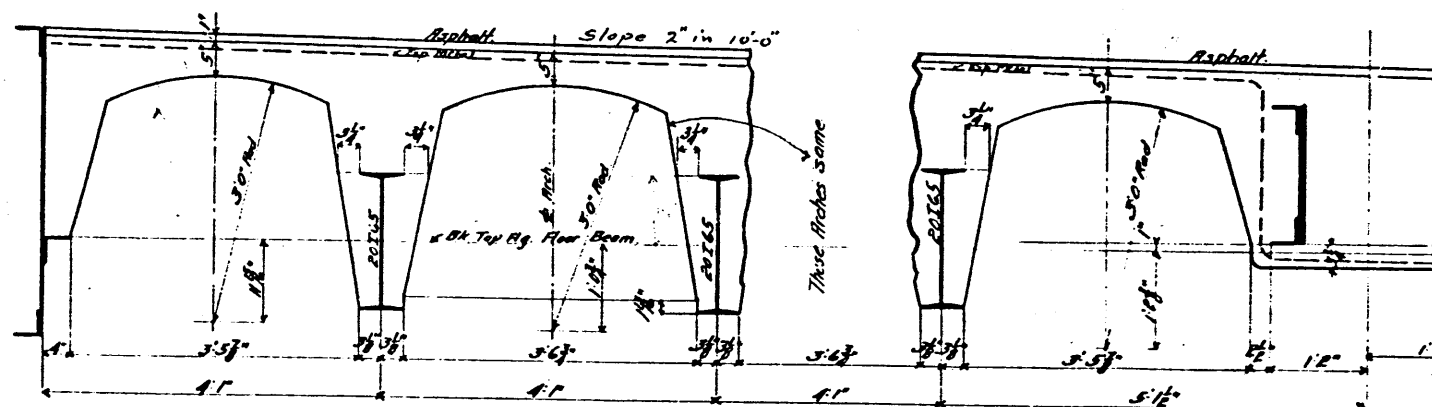
Roadway Centers



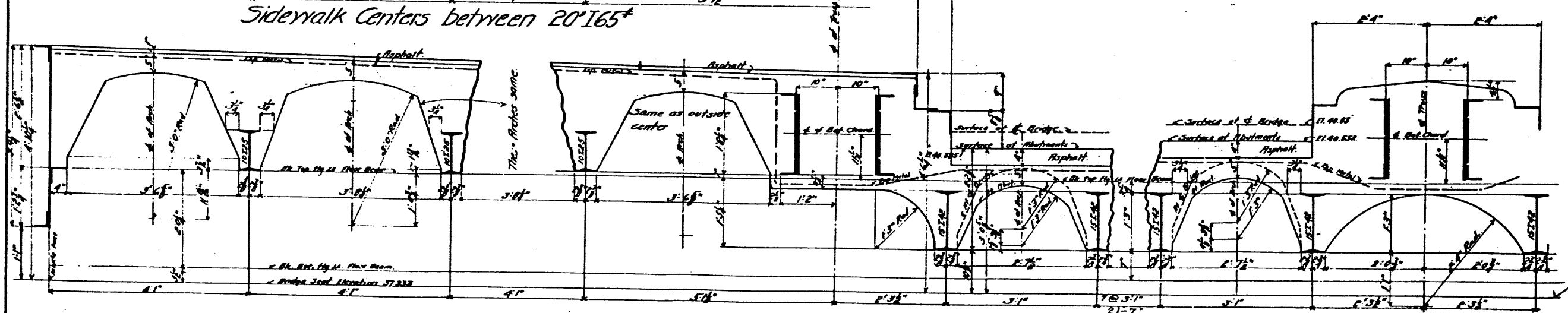
Sidewalk Centers

Length of Centers and form of ends should be verified from finished steel work and modified as required to facilitate entering and removing during concreting.
All steel dimensions are for finished steel work and proper clearances must be allowed for entering centers.

All Expanded Metal 3/4" mesh. #13 Gage.
Concrete - Mixture 1-2-4 Portland.



Sidewalk Centers between 20"I65#

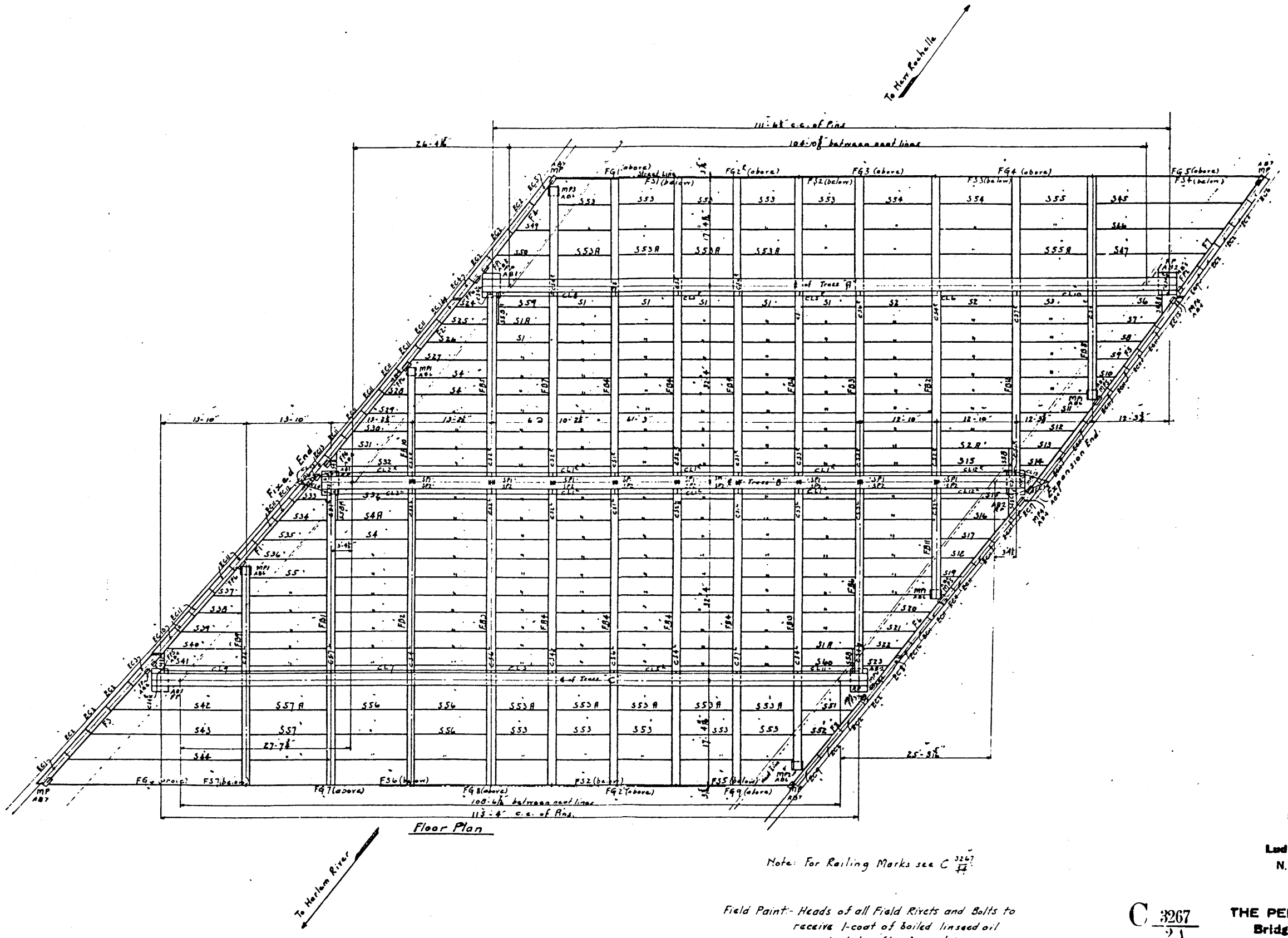


Sidewalk Centers between 10"I25#

Roadway Centers

Made by NBH.
Checked by J.S.M.

BIN 2075357 Inf 53399



Note: For Railing Marks see C 3267/11

Field Paint:- Heads of all Field Rivets and Bolts to receive 1-coat of boiled linseed oil immediately after being driven.

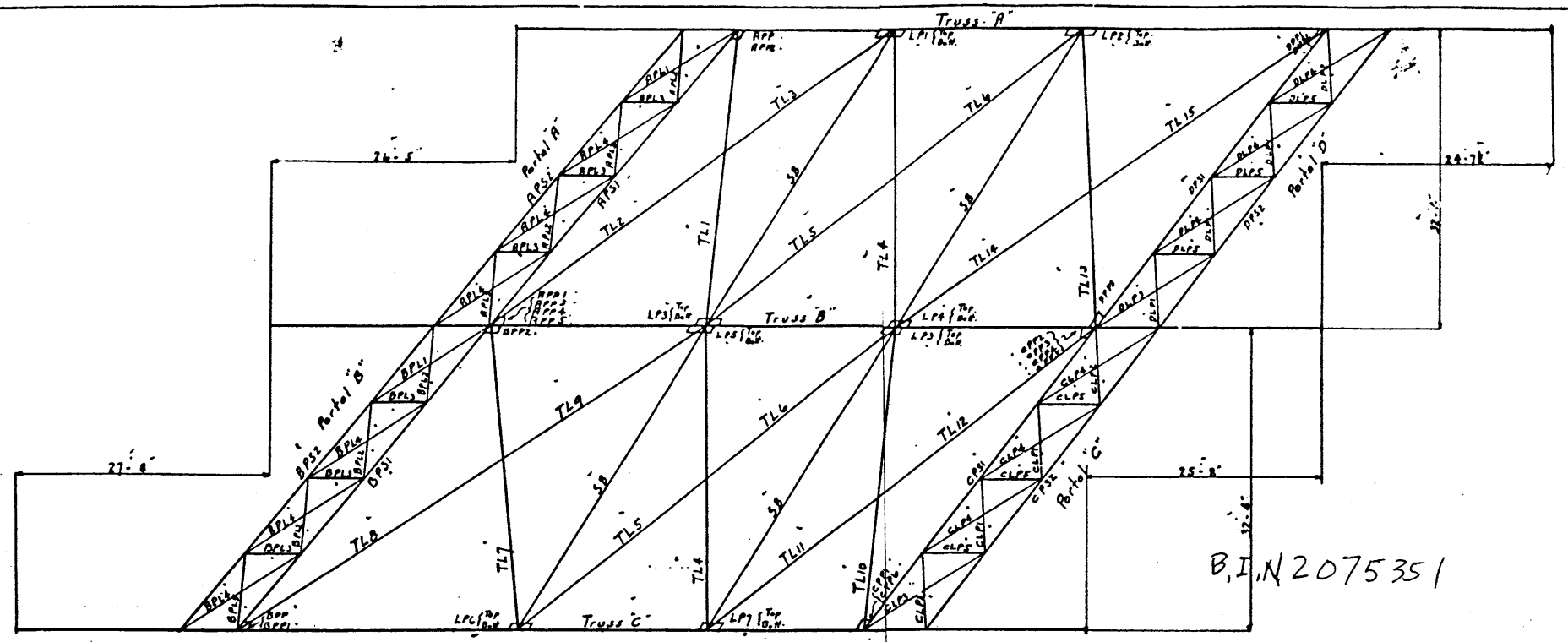
Erection Diagram Floor
Bridge No. 2.87
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't.
Steelton, Pa.

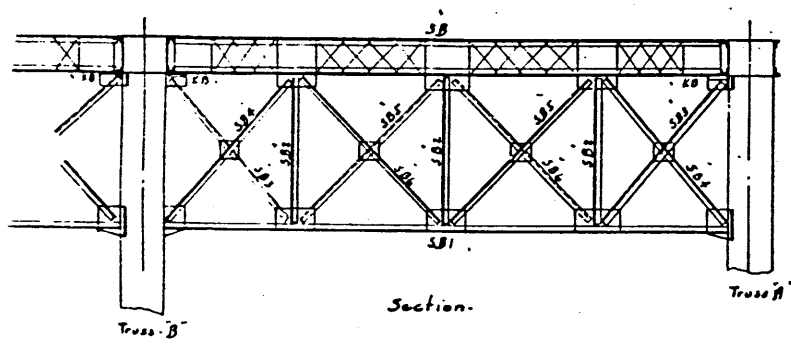
C 3267/2.1

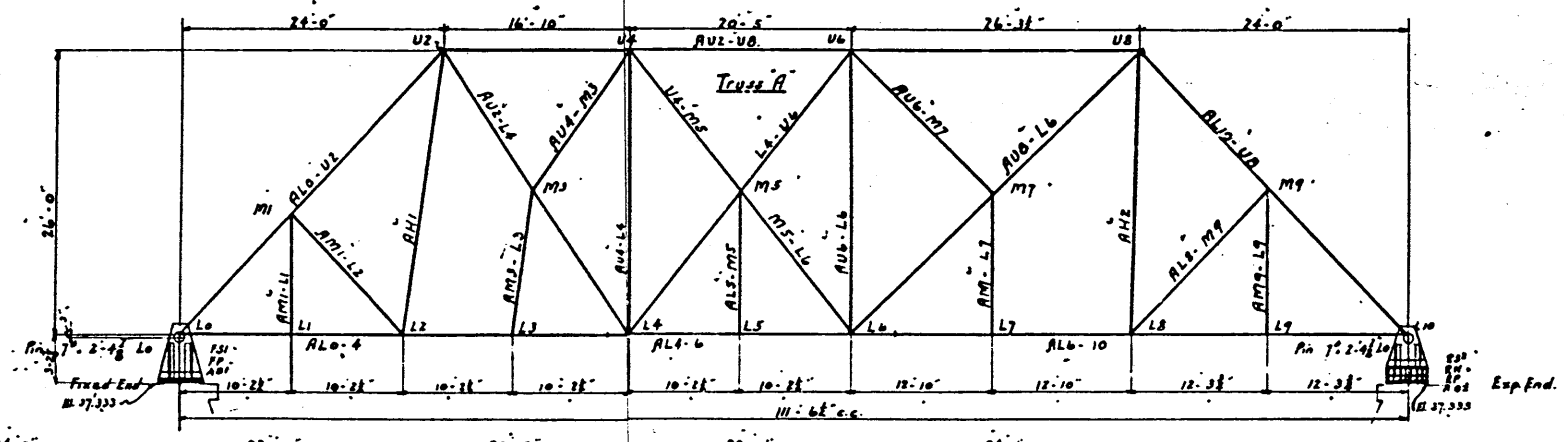
Scale in. ft. Aug. 1906
Made by
Traced by
Checked by
In Charge
Bill Sheets

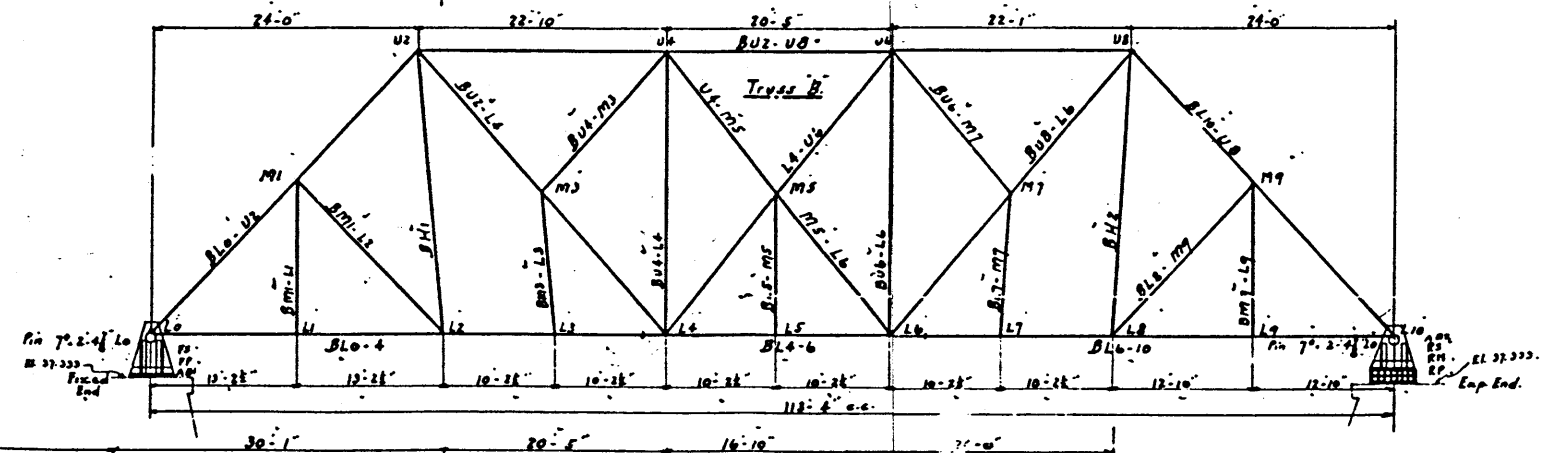
BIN 2075351

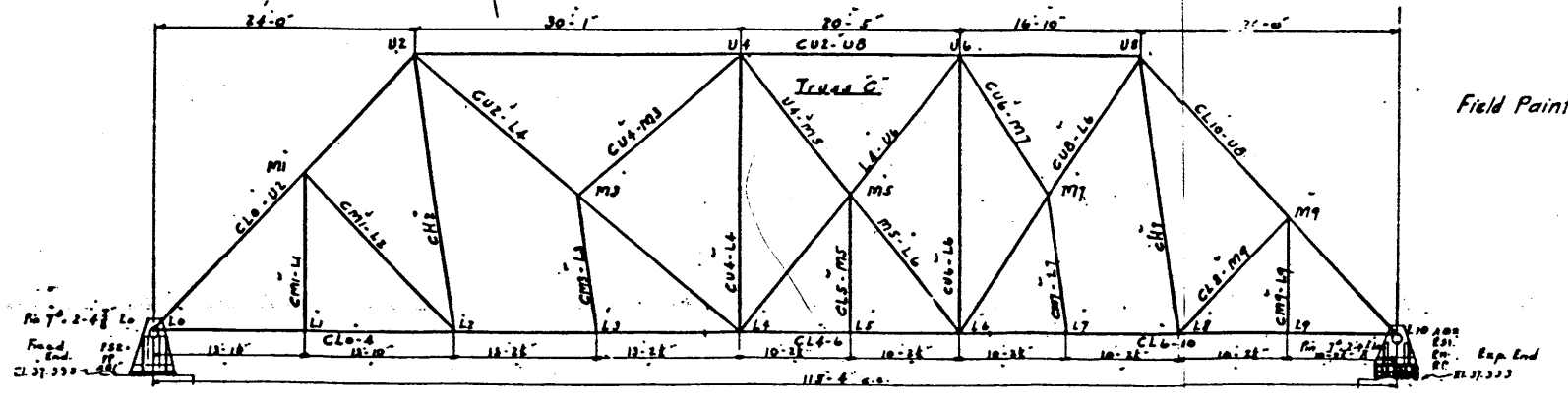
MF 53404











List of Drawings.	
2376	Erection Diagram
3858	Portal
4648	"
5858	"
6868	"
7	Floorbeams
8	" "
9	" "
10	" "
11	Stringers
12	" "
13	Fascia "
14	Bottom Chords
15	" "
16	" "
17	" "
18	" "
19	Sway Bracing
20	Top Laterals
21	Diagonals
22	"
23	Shoes
24	" "
25	Top Chords
26	" "
27	" "
28	Sub-Diagonals
29	Diagonals
30	Posts
31	Hangers
32	"
33	Sub-Diagonals
34	End Posts
35	" "
36	Top Laterals
37	" "
38	End Post
39	End Floorbeams
40	" " "
41	" " "
42	" " "
43	Fascia Girders
44	Railing
45	Curbs
46	Checkered Pls.
47	Curbs
48	Stringers
F1	Pins
F2	Anchor Bolts

Field Paint:- Heads of all Field Rivets and Bolts to receive 1-coat of Boiled linseed oil immediately after being driven.

BIN 2075351

C 3267/2

Erection Diagram Trusses
Bridge No. 287
Lod Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't,
Steelton, Pa.

Made by W.P.D.
Traced by
Checked by W.R.J. 7-27-08
In Charge J. D.G.
Rev. 11/1/08.

N.Y.N.H.& H.R.R.
NEW YORK DIVISION - HARLEM RIVER BR.
BRIDGE No. 2.87
LUDLOW AVENUE NEW YORK N.Y.

Scale 1/8" = 1'-0" April 1908

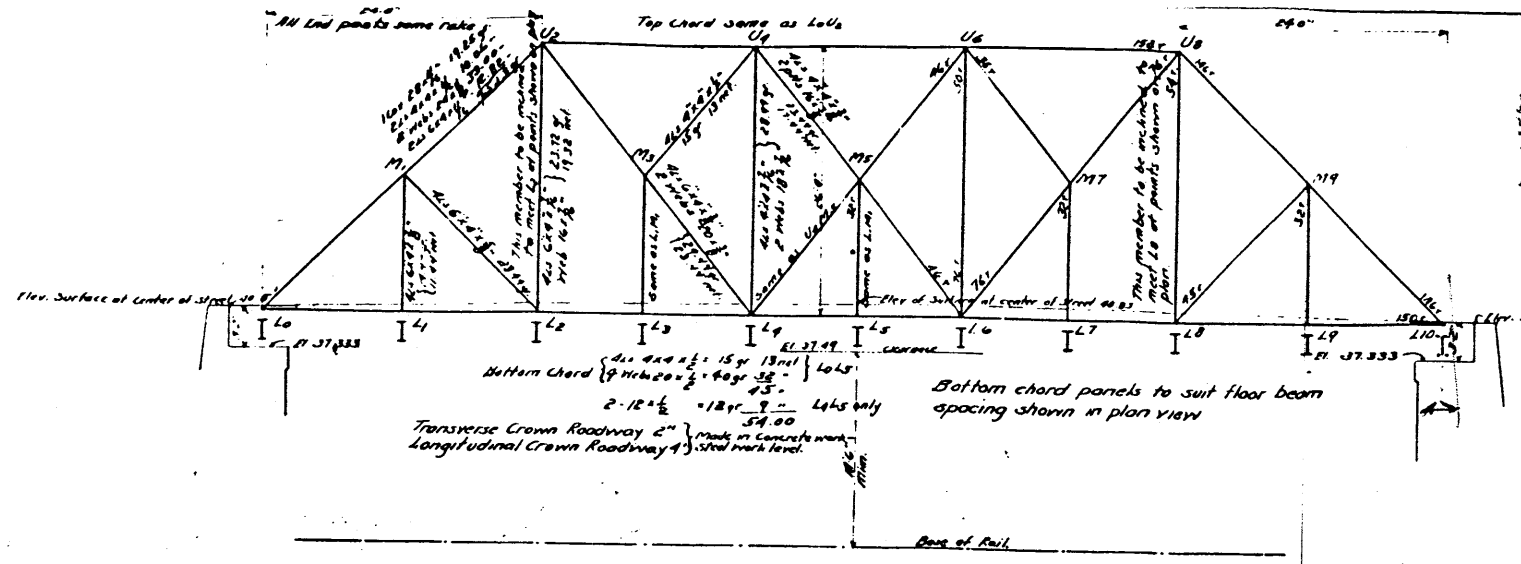
Approved _____ Bridge Engr. _____ Chief Engr.

Approved: _____ Vice President

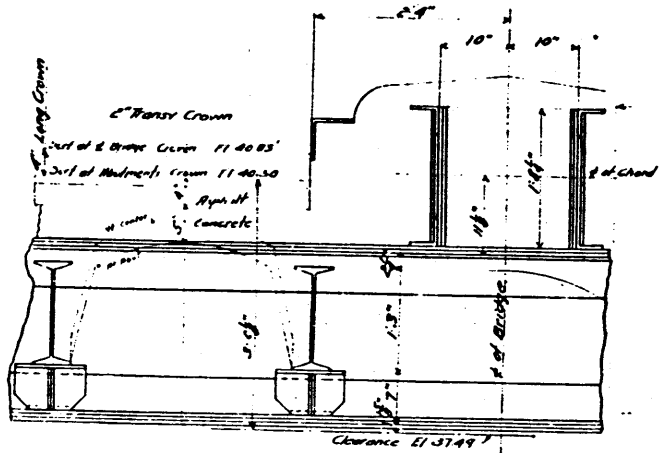
Revised Aug 5. 1908

I, Joseph Haug, Secretary of the Board of Estimate and Apportionment of the City of New York, hereby certify that this plan was approved by a resolution adopted by the said Board at a meeting held on May 8, 1908 in accordance with the provisions of Article Twelve of the Agreement dated December 21, 1904 between the city of New York and the New York, New Haven and Hartford Railroad Company.

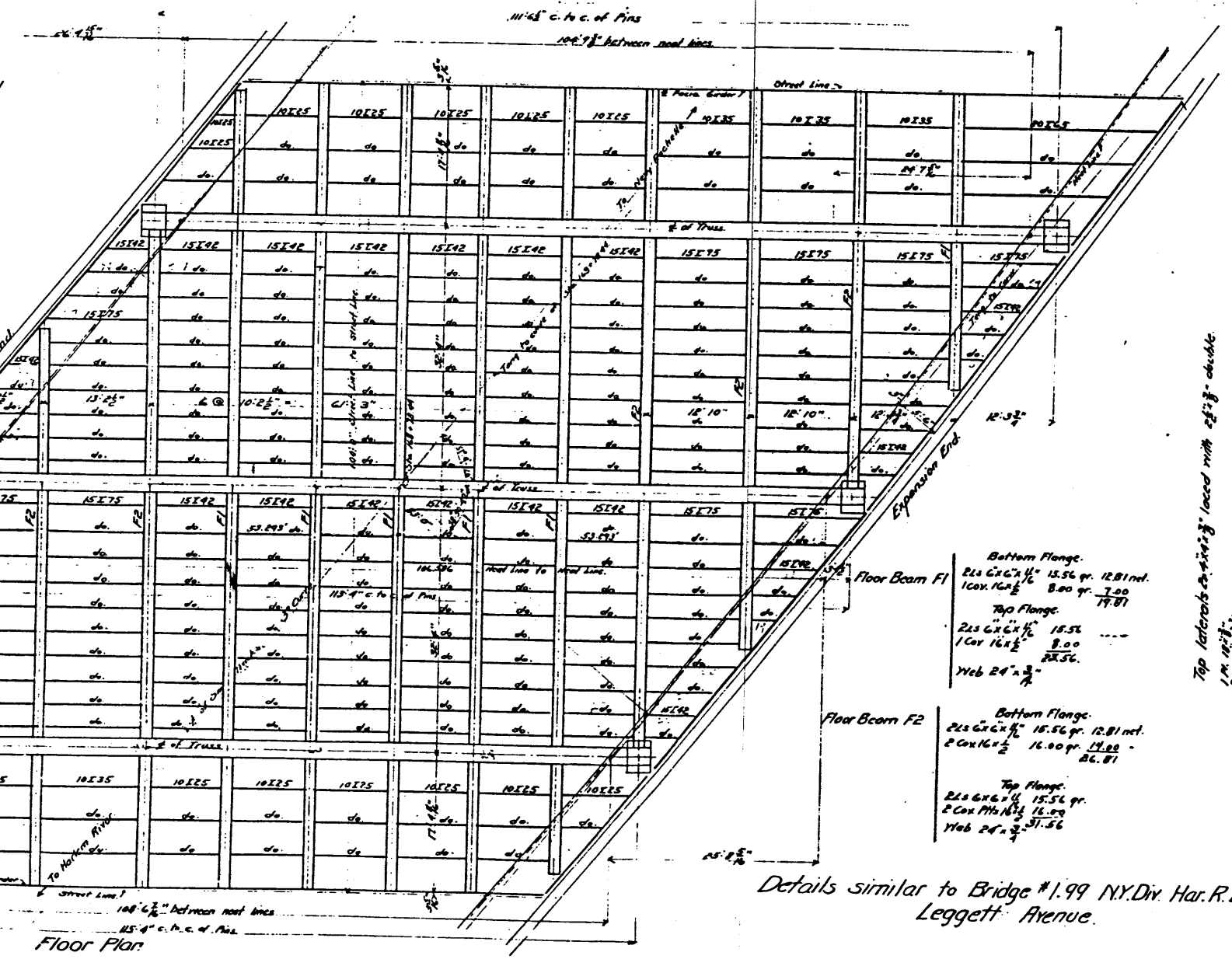
_____ Secretary.



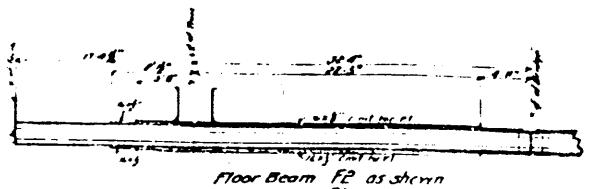
Elevation of Center Truss
Sections of all Trusses alike.



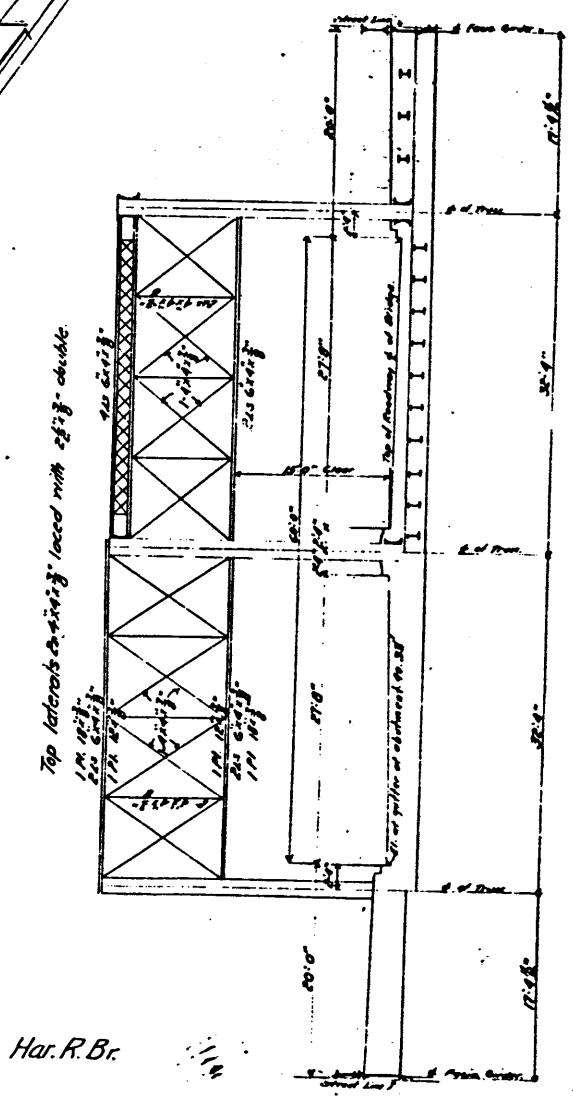
Detail showing relation of bottom chord of Truss to Floor Beam & to Surface of Roadway



Floor Plan



Floor Beam F2 as shown
" " F1 as shown & noted
Floor Beams having same marks are of same sections
Details may or may not be the same.

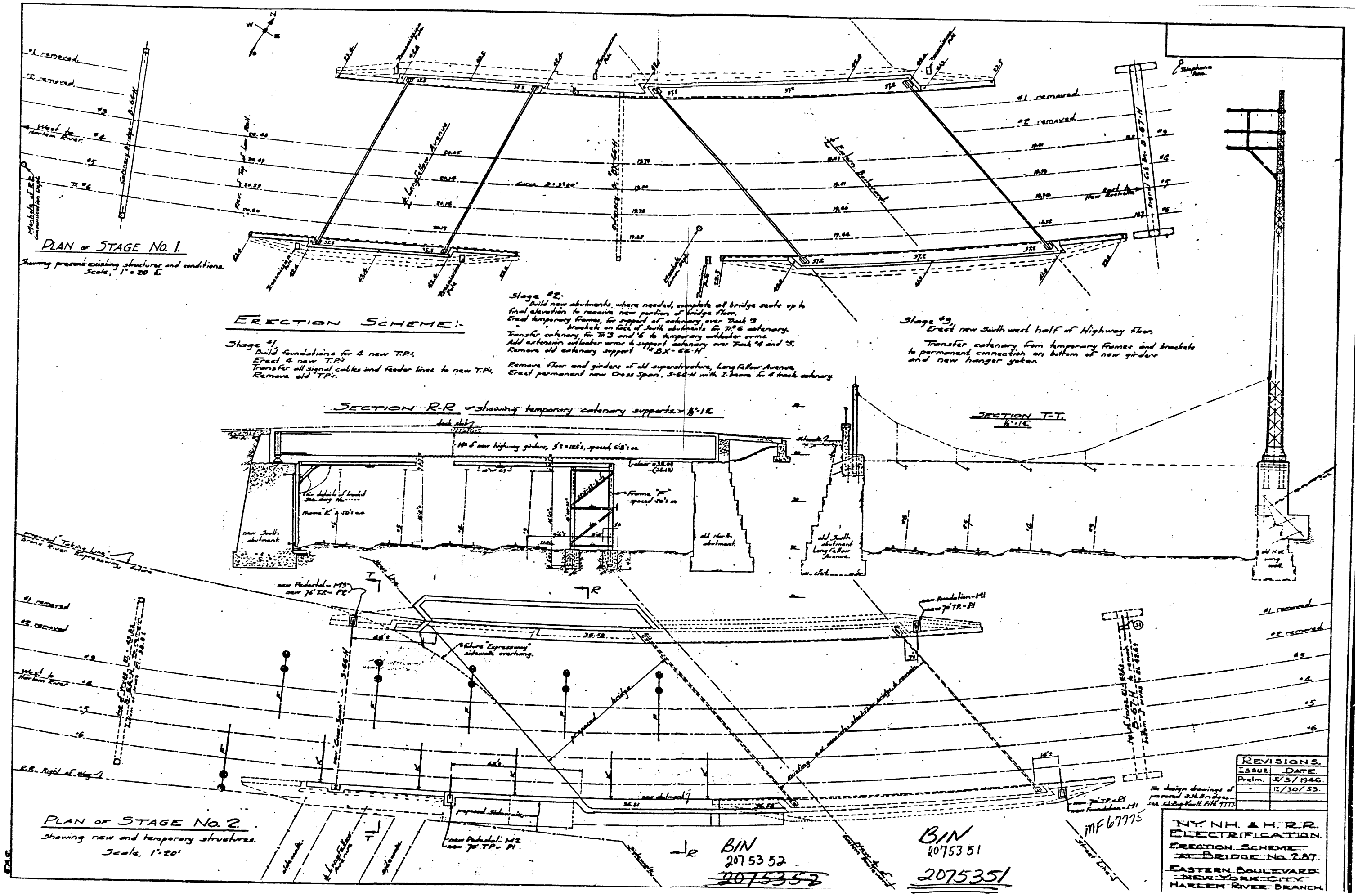


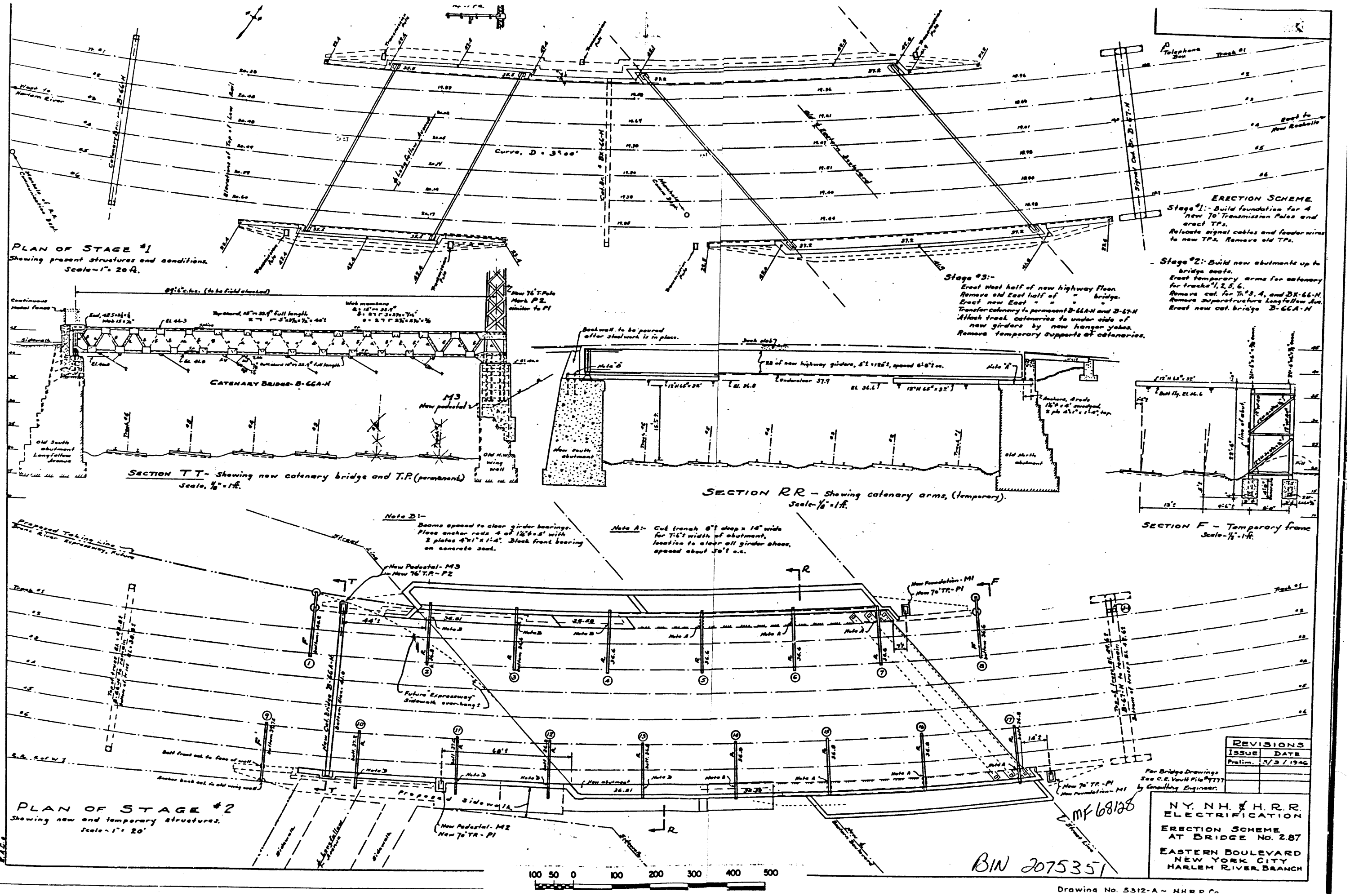
½ Section.

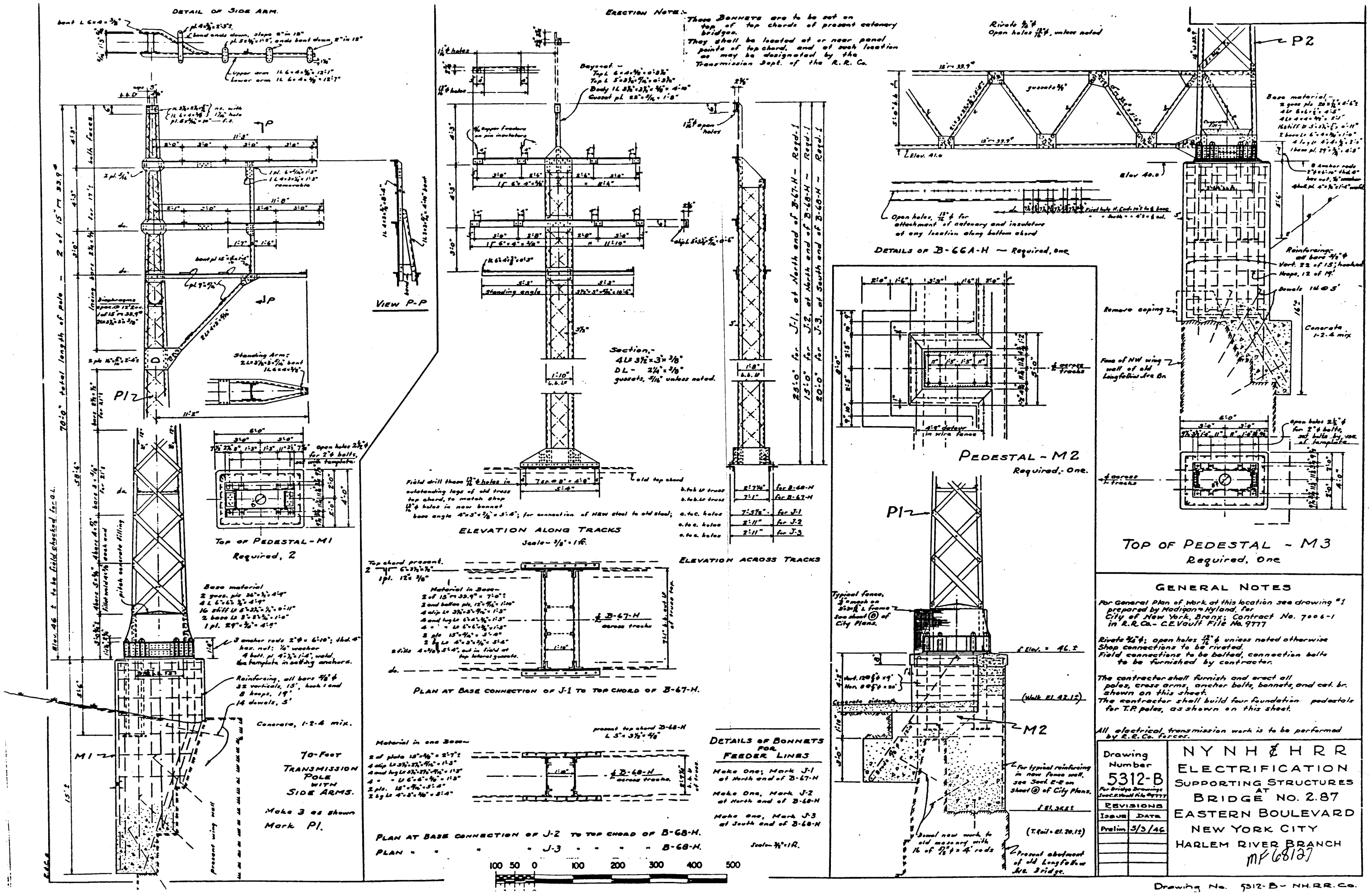
½ End View

Made by HBH.

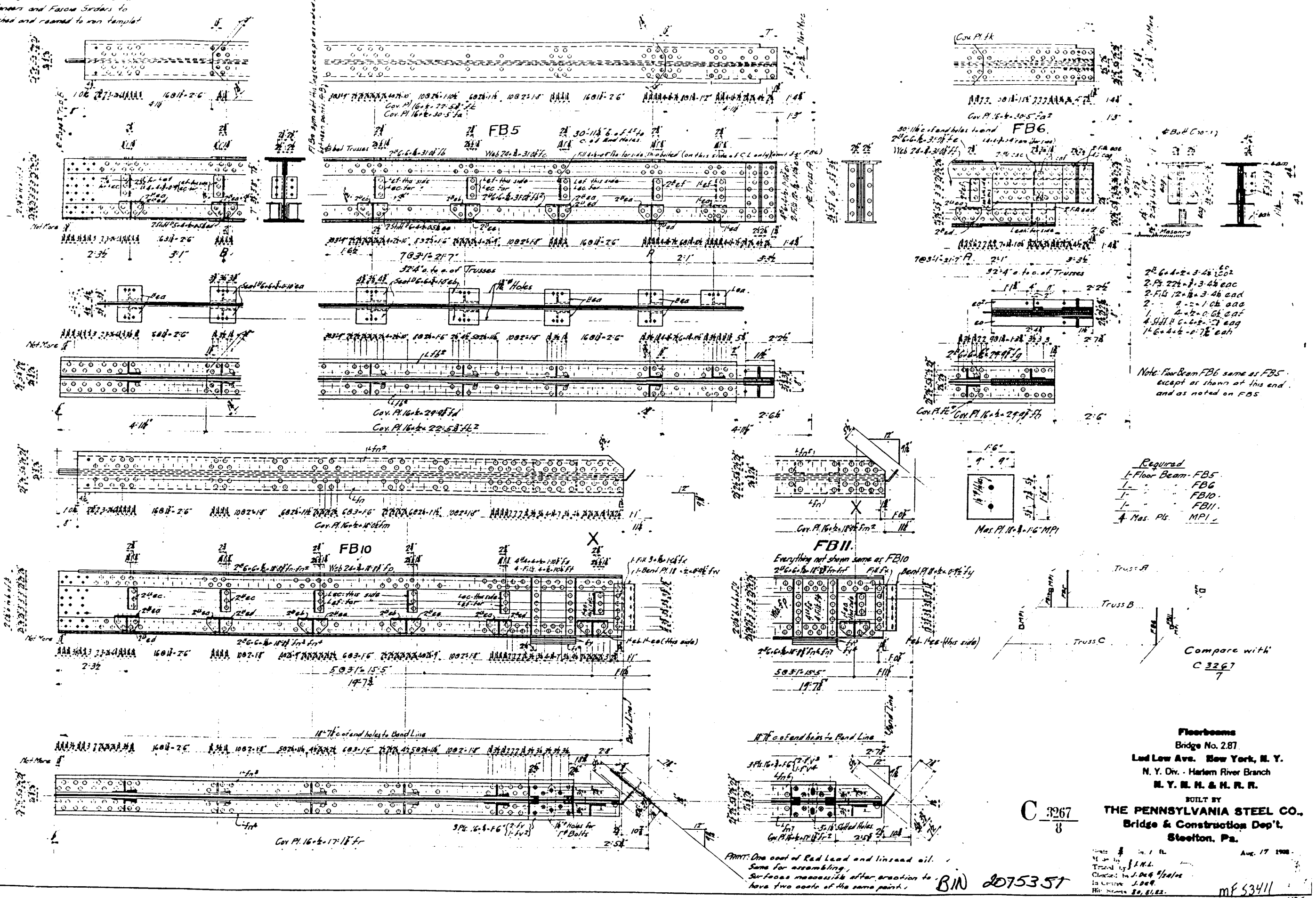
#35453
BIN 2075351


PLAN OF STAGE No. 1.
Showing present existing structures and conditions.
Scale, 1" = 20 ft.
ERECTION SCHEME:-
Stage #1.
Build foundations for 4 new T.P.'s.
Erect 4 new T.P.'s.
Transfer all signal cables and feeder lines to new T.P.'s.
Remove old T.P.'s.
Stage #2.
Build new abutments, where needed, complete all bridge seats up to final elevation to receive new portion of bridge floor.
Erect temporary frames, for support of catenary, over Track #3
" " brackets on face of South abutments for Tr.'s 4 & 5 catenary.
Transfer catenary for Tr.'s 3 and 6 to temporary outlooker arms.
Add extension outlooker arms to support catenary over Track #4 and 5.
Remove old catenary support 1/16 BX-66-H.
Remove floor and girders of old superstructure, Long Fellow Avenue.
Erect permanent new Cross Span, 3-66-H with I-beam for 4 track catenary.
Stage #3.
Erect new South west half of Highway floor.
Transfer catenary from temporary frames and brackets to permanent connection on bottom of new girders and new hanger yokes.
SECTION R-R showing temporary catenary supports.
SECTION T-T.
PLAN OF STAGE No. 2.
Showing new and temporary structures.
Scale, 1" = 20'
BIN 2075352
BIN 2075351
REVISIONS.
ISSUE | DATE
Prelim. | 5/3/1946.
12/30/53.
N.Y. N.H. & H. R.R.
ELECTRIFICATION.
ERECTION SCHEME
AT BRIDGE No. 287.
EASTERN BOULEVARD.
NEW YORK CITY.
HARLEM RIVER BRANCH.

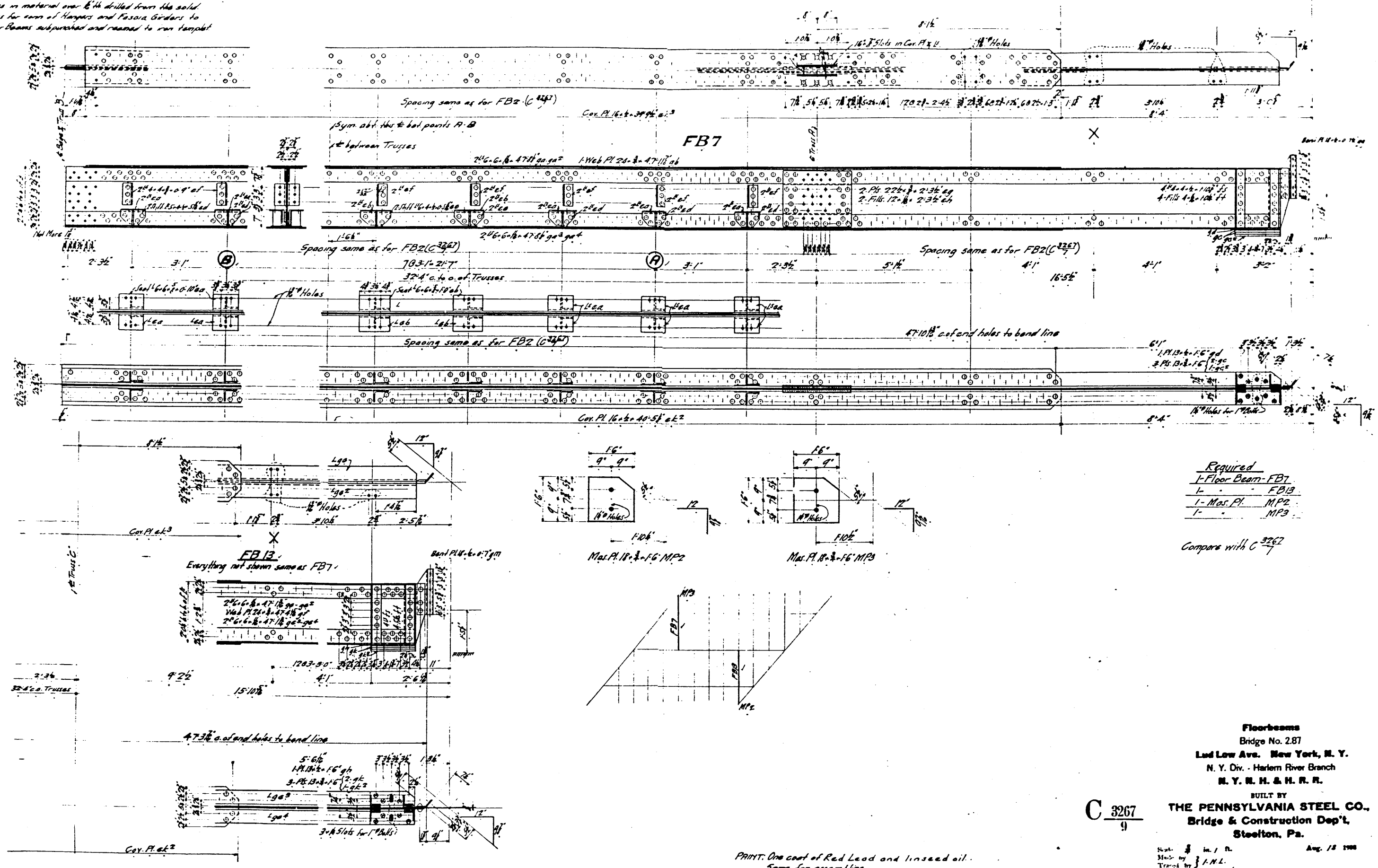

PLAN OF STAGE #1
Showing present structures and conditions.
Scale-1" = 20 ft.
Curve, D = 3°00'
Telephone Box
Track #1
West to Harlem River
East to New Rochelle
Catenary Bridge B-66-H
Signal Cat. Br. B-67-H
Cat. Br. B-66-H
Stairs to Top of Low Wall
Manhole Cover Sign
Transmission Pole
Stairway Backfill
ERECTION SCHEME
Stage #1:- Build foundation for 4 new 70' Transmission Poles and erect TPs.
Relocate signal cables and feeder wires to new TPs. Remove old TPs.
Stage #2:- Build new abutments up to bridge seats.
Erect temporary arms for catenary for tracks #1, 2, 5, 6.
Remove cat. for Tr. #3, 4, and BX-66-H.
Remove superstructure Longfellow Ave.
Erect new cat. bridge B-66A-H
Stage #3:-
Erect West half of new highway floor.
Remove old East half of " bridge.
Erect new East " " " "
Transfer catenary to permanent B-66A-H and B-67-H
Attach track catenaries to under side of new girders by new hanger yokes.
Remove temporary supports of catenaries.
Continuous metal fence
Sidewalk
Web members & 18"m 35.4#
Top chord, 18"m 35.4# full length
Splice
Web members 18"m 35.4# full length
EL 66.3
EL 44.0
EL 40.0
New 76' T.Pole Mark P2, similar to P1
M3 New pedestal
Old South abutment Longfellow Avenue
Old N.W. wing wall
CATENARY BRIDGE-B-66A-H
SECTION TT - Showing new catenary bridge and T.P. (permanent)
Scale, 1/8" = 1 ft.
Back wall, to be poured after steelwork is in place.
Back slab
Note "B"
Note "A"
Underclear 37.9
EL 36.6
EL 34.8
New south abutment
Old North abutment
Anchors, 4 rods 1½" x 4' anchored, 2 pls 4"x1" x 1'-4" top.
SECTION RR - Showing catenary arms, (temporary).
Scale-1/8" = 1 ft.
Bolt fly, EL 34.6
Line of abut.
SECTION F - Temporary frame
Scale-1/8" = 1 ft.
Note B:-
Booms spaced to clear girder bearings. Place anchor rods 4 of 1½"ø x 8' with 2 plates 4"x1" x 1'-4". Block front bearing on concrete seat.
Note A:- Cut trench 8" deep x 14" wide for 7'-6" width of abutment, location to clear all girder shoes, spaced about 30'-0" o.c.
Proposed Taking Line Harlem River Expressway, Future
Street Line
New Pedestal - M3
New 76' T.P. - P2
New Foundation - M1
New 70' T.P. - P1
New Cat. Bridge B-66A-H
Future "Expressway" Sidewalk over-hang
Proposed Sidewalk
New abutment
New Pedestal - M2
New 70' T.P. - P1
Bolt front out to face of wall
Anchor back out in old wing wall
Sidewalk
Longfellow Avenue
PLAN OF STAGE #2
Showing new and temporary structures.
Scale-1" = 20'
100 50 0 100 200 300 400 500
For Bridge Drawings See C.E. Vault File No. 7777 by Consulting Engineer.
MF 68126
BIN 2075351
REVISIONS
Issue Date
Prelim. 4/3/1946
N.Y. N.H. & H.R.R.
ELECTRIFICATION
ERECTION SCHEME
AT BRIDGE No. 2.87
EASTERN BOULEVARD
NEW YORK CITY
HARLEM RIVER BRANCH
Drawing No. 5312-A ~ N.H.R.R. Co.


DETAIL OF SIDE ARM.
VIEW P-P
70'-0" total length of pole — 2 of 15" ⌀ 33.9#
Standing Arm
P1
Top of Pedestal - M1
Required, 2
Base material
3 anchor rods 2"⌀ = 6'-10"; thd. 4" hex. nut; ½" washer
Reinforcing, all bars ⅝"⌀
32 verticals, 15', hook 1 end
8 hoops, 19"
14 dowels, 5'
Concrete, 1-2-4 mix.
70-Foot Transmission Pole with Side Arms.
Make 3 as shown Mark P1.
ERECTION NOTE:
These Bonnets are to be set on top of top chords of present catenary bridges.
They shall be located at or near panel points of top chord, and at such location as may be designated by the Transmission Dept. of the R.R. Co.
Section,-
4 Ls 3½" × 3" × ⅜"
D.L. - 2¼" × ⅜"
gussets, ⅜" unless noted.
ELEVATION ALONG TRACKS
Scale - ⅜" = 1 ft.
ELEVATION ACROSS TRACKS
PLAN AT BASE CONNECTION OF J-1 TO TOP CHORD OF B-67-H.
PLAN AT BASE CONNECTION OF J-2 TO TOP CHORD OF B-68-H.
PLAN " " " " J-3 " " " B-68-H.
DETAILS OF BONNETS FOR FEEDER LINES
Make One; Mark J-1 at North end of B-67-H
Make One, Mark J-2 at North end of B-68-H
Make one, Mark J-3 at South end of B-68-H
Scale - ⅜" = 1 ft.
DETAILS OF B-66A-H — Required, one
PEDESTAL - M2
Required, One.
TOP OF PEDESTAL - M3
Required, One
GENERAL NOTES
For General Plan of Work at this location see drawing "1 prepared by Madison & Hyland, for City of New York, Bronx; Contract No. 7006-1 in R.R.Co.- C.E. Vault File No. 9777
Rivets ⅝"⌀; open holes 15/16"⌀ unless noted otherwise
Shop connections to be riveted.
Field connections to be bolted, connection bolts to be furnished by contractor.
The contractor shall furnish and erect all poles, cross arms, anchor bolts, bonnets, and cat. br. shown on this sheet.
The contractor shall build four foundation pedestals for T.P. poles, as shown on this sheet.
All electrical transmission work is to be performed by R.E.Co. forces.
Drawing Number 5312-B
REVISIONS
Issue Date
Prelim 5/3/46
NYNH & HRR
ELECTRIFICATION
SUPPORTING STRUCTURES AT
BRIDGE NO. 2.87
EASTERN BOULEVARD
NEW YORK CITY
HARLEM RIVER BRANCH
Drawing No. 5312-B - NH.R.R.Co.
BIN 2075351

Rivets ⅞ dia.
Open holes ⅞ dia except as noted.
Holes in material over ⅞ th drilled from the solid.
Holes in cover of Hangers and Fascia Girders to Floor Beams subpunched and reamed to non templet.



Rivets ⅞" dia.
Open holes ⅞" dia except as noted.
Holes in material over ⅝" th drilled from the solid.
Holes for conn. of Hangers and Fascia Girders to Floor Beams subpunched and reamed to iron templet.



Required
1-Floor Beam-FB7
1- " " FB13
1-Mas. Pl. MP2
1- " MP3

Compare with C 3267/7

Floorbeams
Bridge No. 2.87
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't,
Steelton, Pa.

C 3267/9

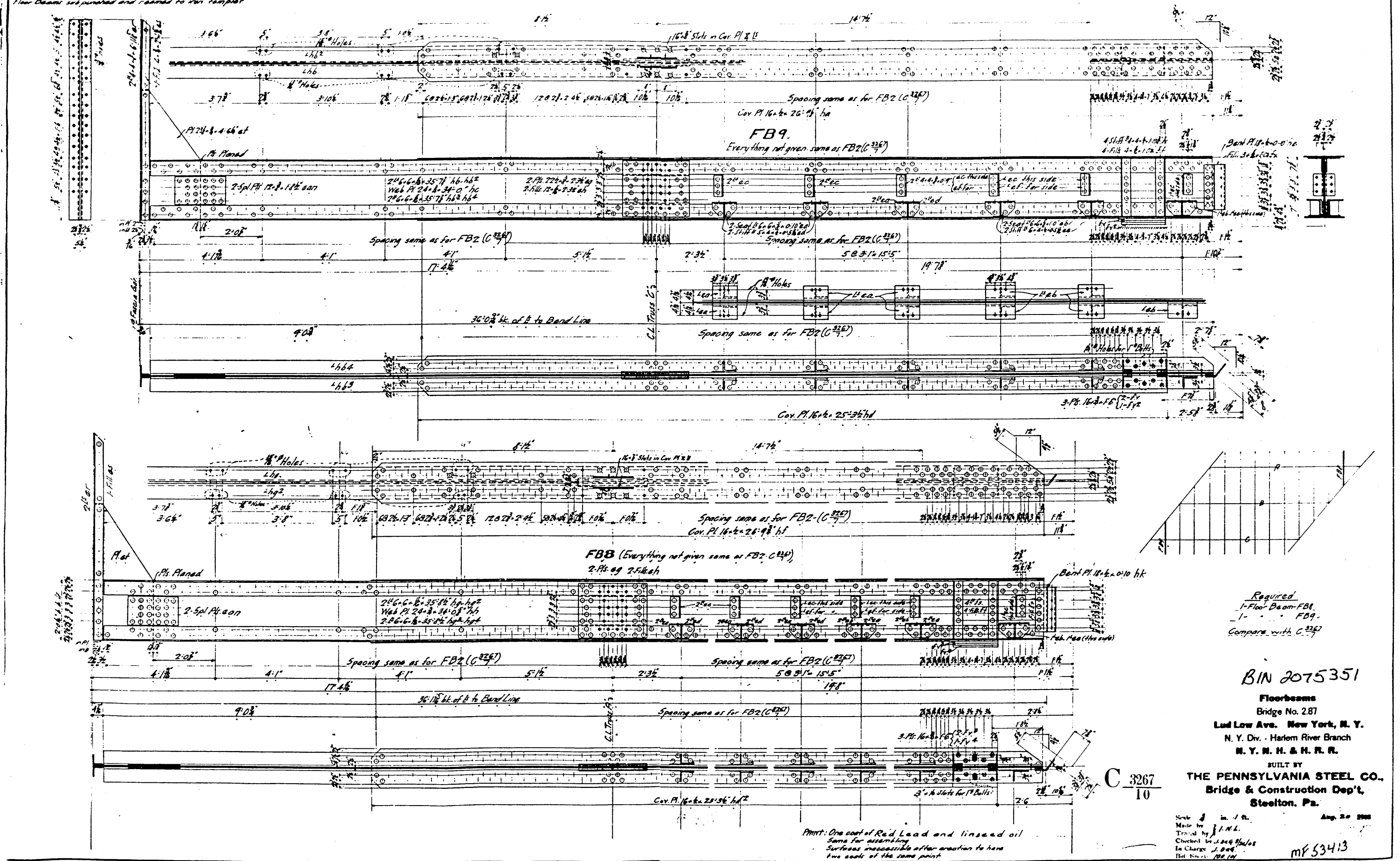
Scale ⅜ in. / ft. Aug. 13 1908
Made by J.N.L.
Traced by J.N.L.
Checked by J. D. G. 8/24/08.
In Charge J. D. G.
Bill Sheets 70, 71.

PAINT: One coat of Red Lead and linseed oil.
Same for assembling.
Surfaces inaccessible after erection to have two coats of the same paint.

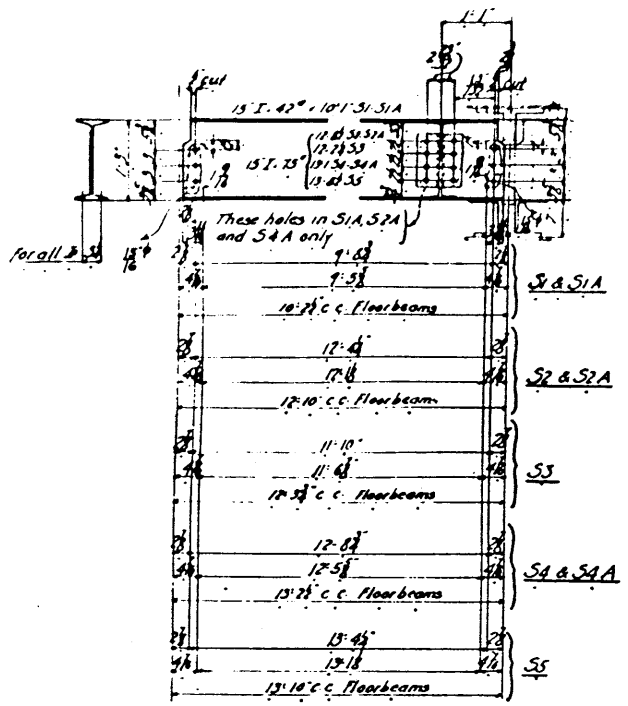
BIN 2075351

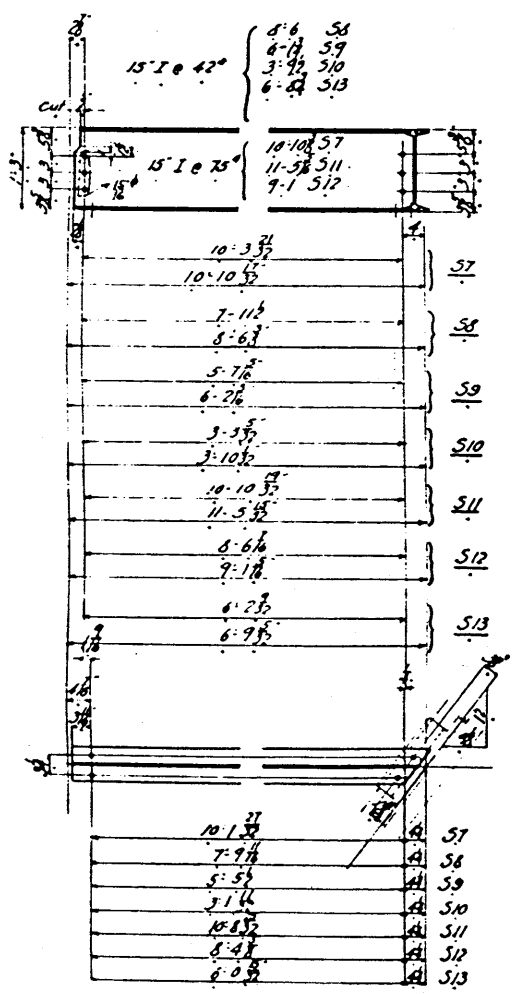
HF53412

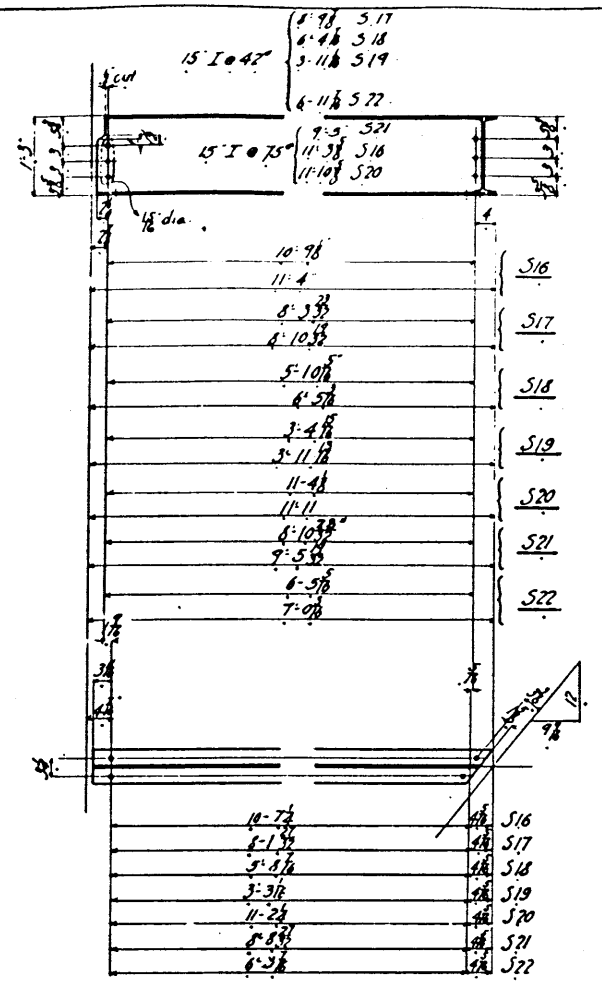
Rivets ⅞" dia
Open holes 15/16" dia except as noted
Holes in material over ⅝" th drilled from the solid
Holes for conn of Hangers and Fascia & Fence Girders to Floor Beams sub punched and reamed to iron templet

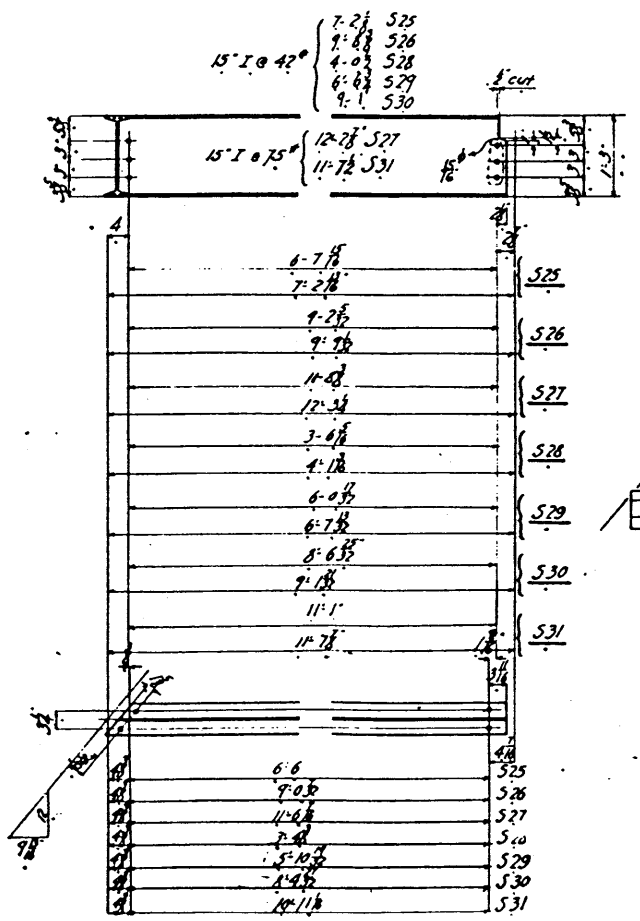


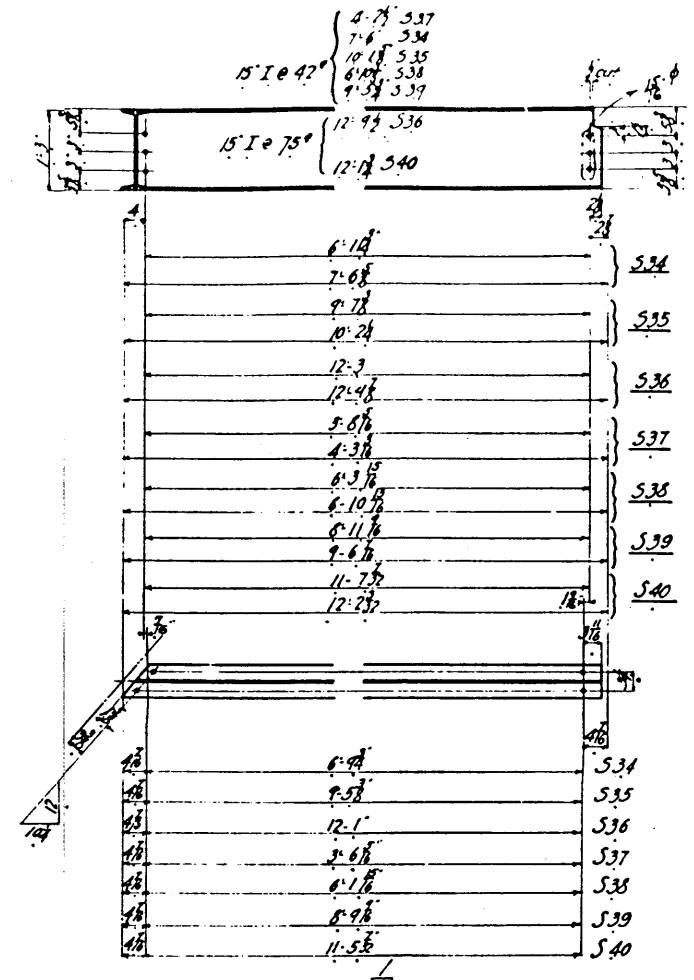
Rivets 7/8" diam.
Open Holes 15/16" diam except as noted.





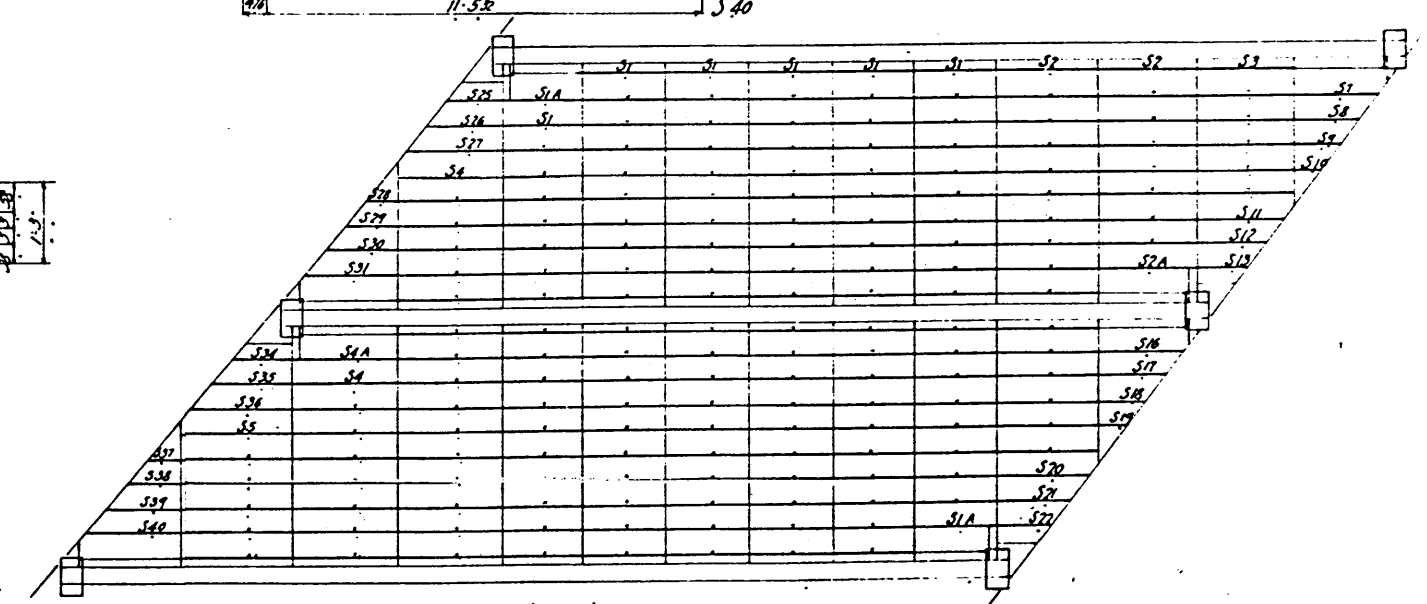






REQUIRED.

No.	Description	Mark
116	Stringers	S1
2	"	S1A
24	"	S2
1	"	S2A
6	"	S3
24	"	S4
1	"	S4A
6	"	S5
1	"	S7
1	"	S8
1	"	S9
1	"	S10
1	"	S11
1	"	S12
1	"	S13
1	"	S16
1	"	S17
1	"	S18
1	"	S19
1	"	S20
1	"	S21
1	"	S22
1	"	S25
1	"	S26
1	"	S27
1	"	S28
1	"	S29
1	"	S30
1	"	S31
1	"	S34
1	"	S35
1	"	S36
1	"	S37
1	"	S38
1	"	S39
1	"	S40



Marking Diagram

PAINT: One coat of Red Lead and linseed oil. Same for assembling.
Surfaces inaccessible after erection to receive two coats of same paint.

Stringers
Bridge No. 287
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't,
Steelton, Pa.

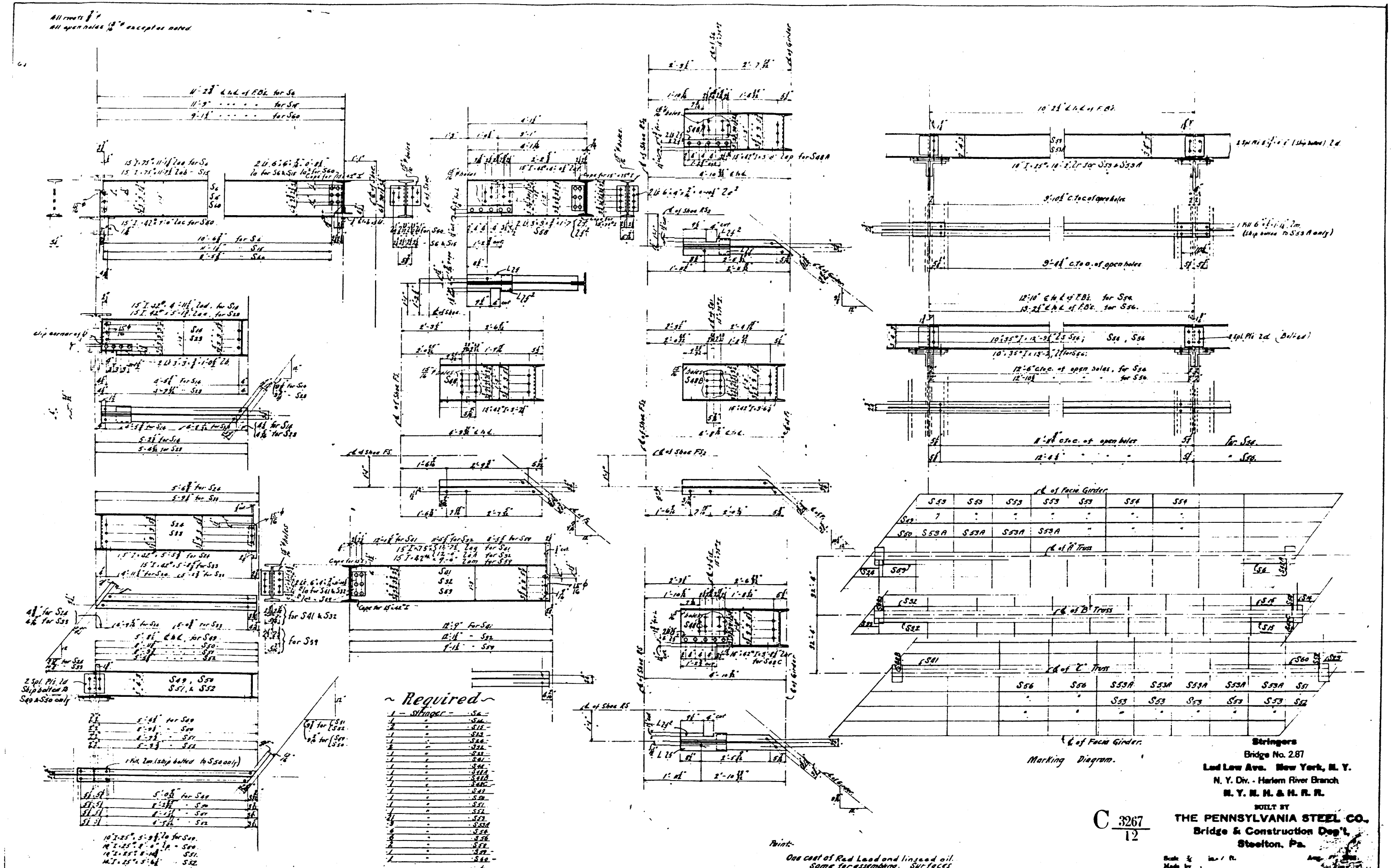
C 5267/11

Scale 1/4 in. = 1 ft. Aug. 18 1906
Made by J.L.S.
Traced by J.D.G. 8/8/06
Checked by J.D.G.
Design J.D.G.

m/53414

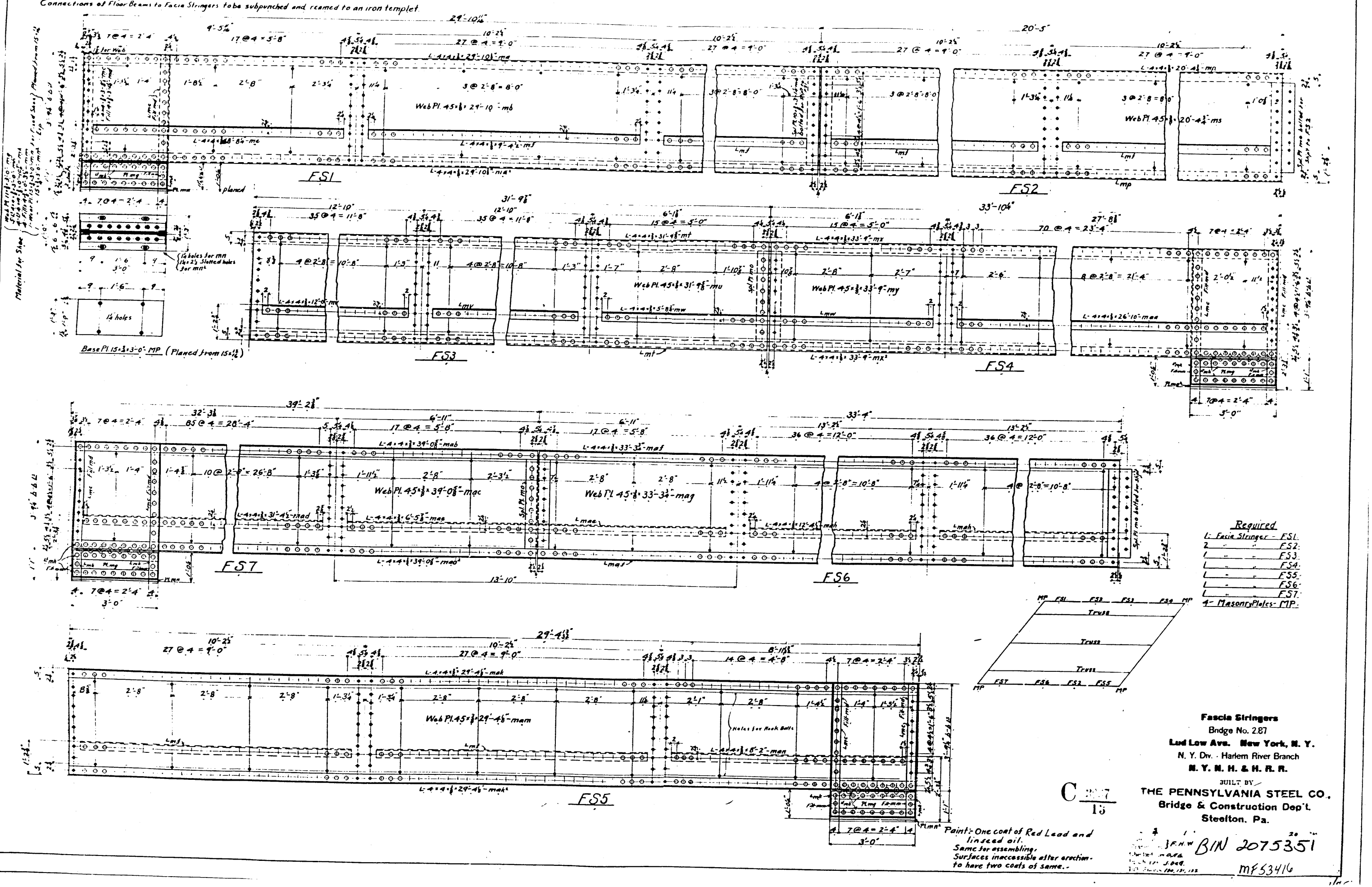
BIN 2075351

All rivets $\frac{7}{8}$"
All open holes $\frac{13}{16}$" except as noted.



BIN 2075351

Note - Rivets ⅞" Diam
Holes 15/16" - except as noted
Connections of Floor Beams to Facia Stringers to be subpunched and reamed to an iron templet.



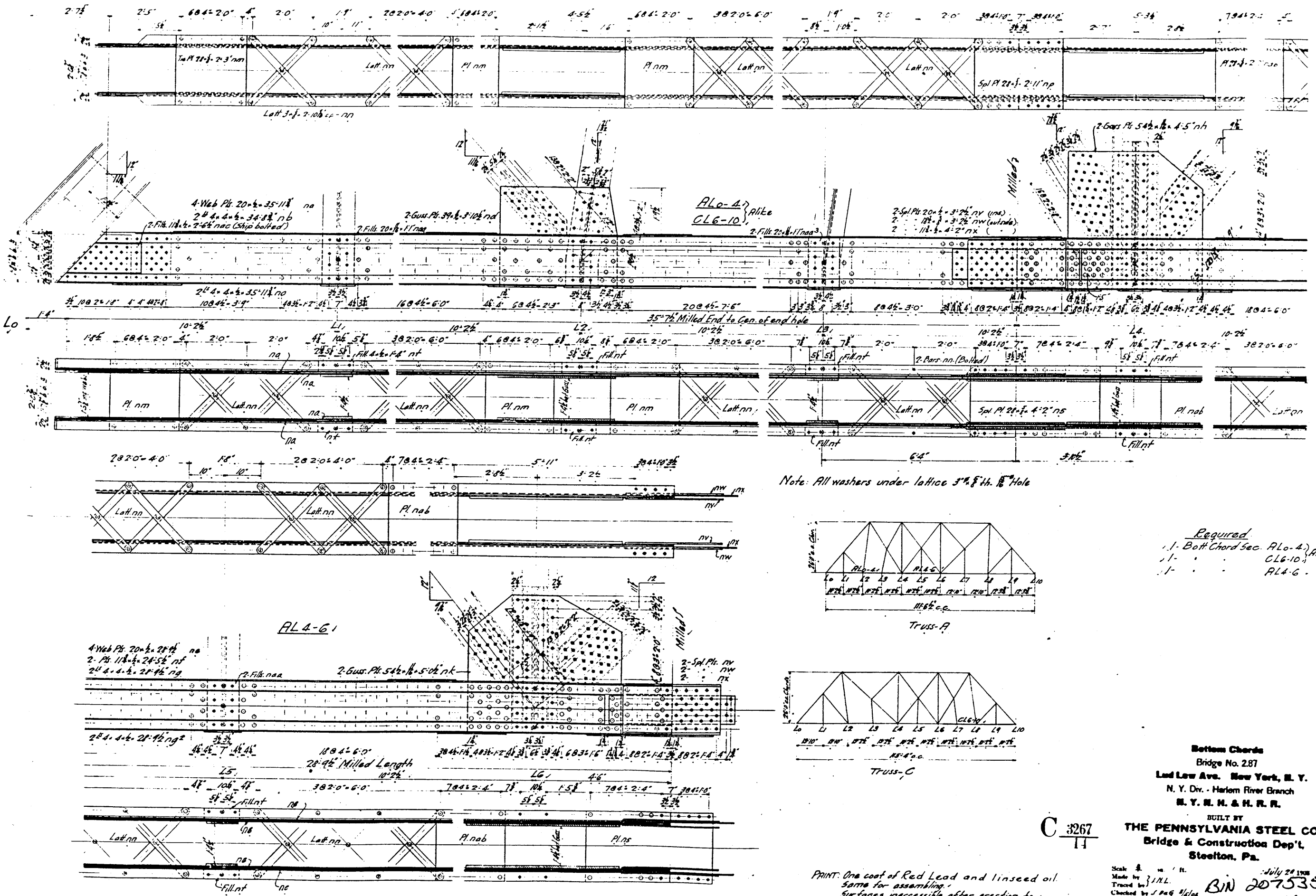
Fascia Stringers
Bridge No. 287
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't.
Steelton, Pa.

C 287 / 15

BIN 2075351

MF53416

Rivets 7/8" dia
All open holes for truss connections to be subpunched and reamed to metal template or assembled and match-marked



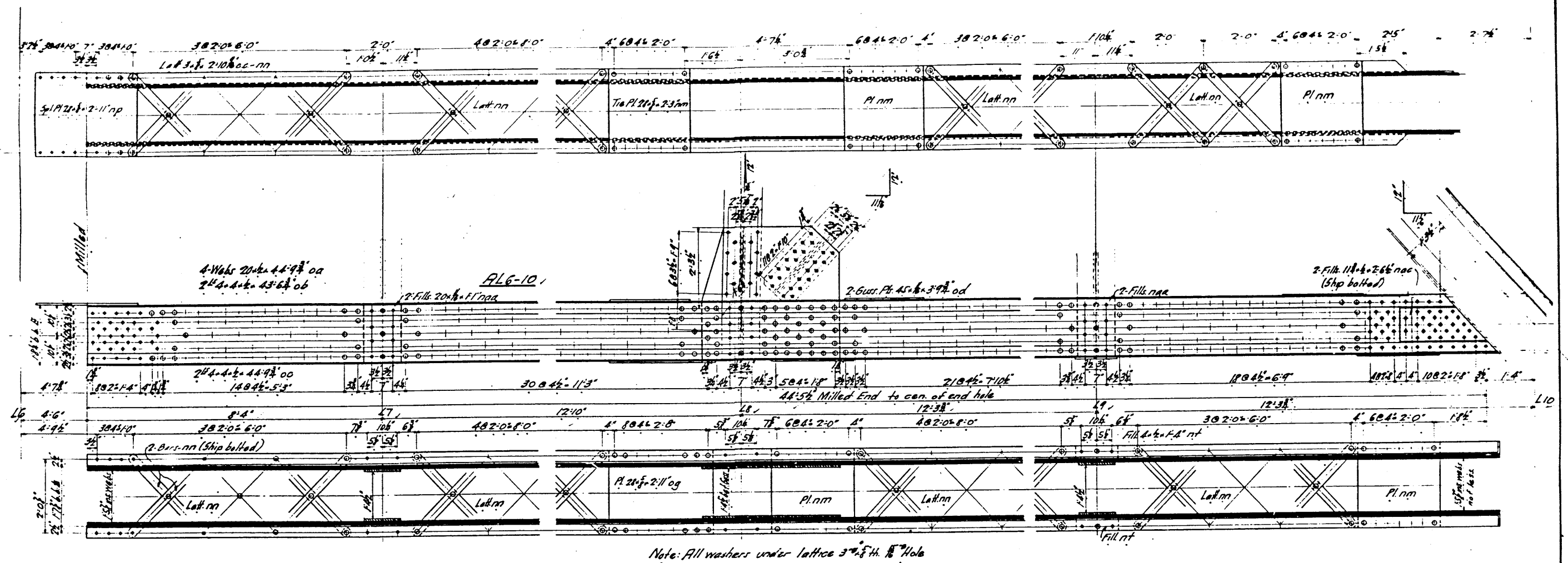
PAINT: One coat of Red Lead and linseed oil. Same for assembling. Surfaces inaccessible after erection to have two coats of same paint.

Bottom Chords
Bridge No. 287
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't,
Steelton, Pa.

C 3267/14

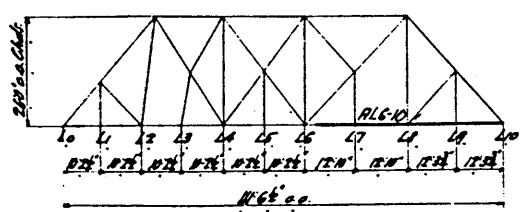
Scale 1/4 in. = 1 ft.
Made by J.H.L.
Traced by
Checked by J.D.G. 8/2/08
In Charge J.D.G.
Bill Sheets 140.
July 24 1908

BIN 2075351
MF 53417



Required.
1-Bott. Chord Sec. AL6-10.

Compare templets with C 3267/14



Truss-A

PAINT: One coat of Red Lead and linseed oil.
Same for assembling.
Surfaces inaccessible after erection to have two coats of same paint.

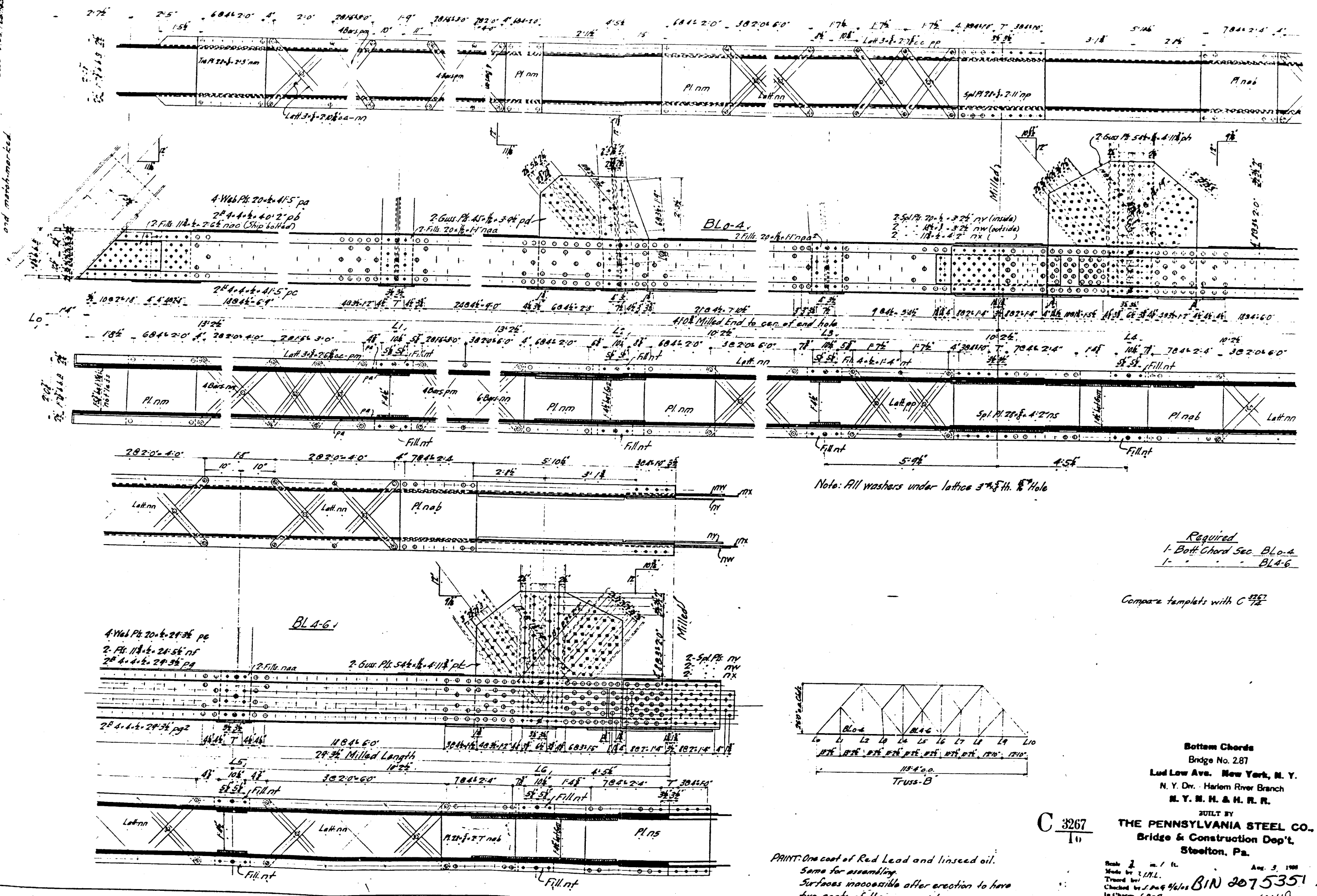
Bottom Chords
Bridge No. 287
Lod Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't.
Steelton, Pa.

C 3267/15

Scale ¼ in. / ft. July 24, 1908
Made by
Traced by J.H.L.
Checked by J.P.C. 9/1/08
In Charge J.P.C.
Bill sheets 150

BIN 2075351
111F53418

Rivets 7/8 in. Open holes thus.
Shop open holes for rivets connections to be subpunched and reamed to metal template or assembled and match-marked.



Required
1- Bott. Chord Sec. BL0-4
1- " " " BL4-6

Compare templets with C 3267/12

C 3267/10

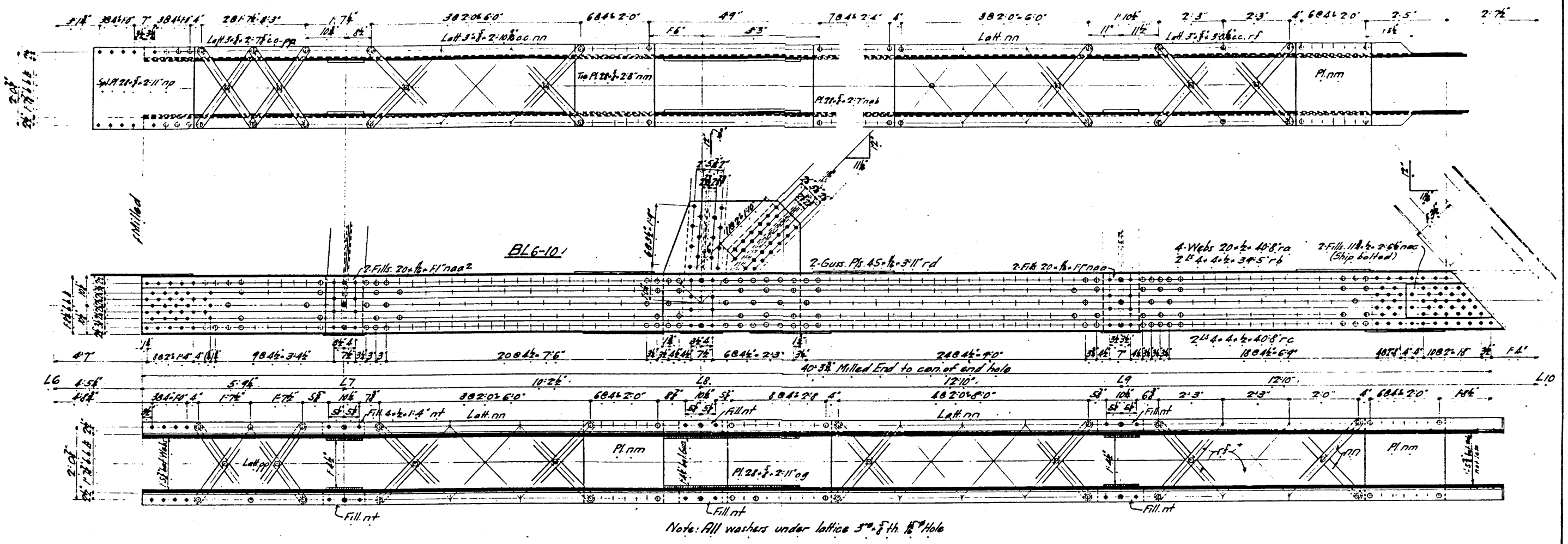
Bottom Chords
Bridge No. 2.87
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't.
Steelton, Pa.

Scale ¾ in. / ft. Aug. 3, 1900
Made by J.M.L.
Traced by
Checked by J.D.G. 8/6/00
In Charge J.D.G.
Total Sheets 160.

BIN 2075351
MF 53419

PAINT: One coat of Red Lead and linseed oil.
Same for assembling.
Surfaces inaccessible after erection to have two coats of the same paint.

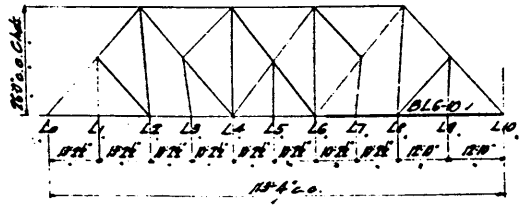
Rivets ⅞" dia. Open holes 15/16" dia.
All open holes for truss-connections to be sub-punched and reamed to metal templet, or assembled, reamed and match-marked.



Note: All washers under lattice 3" o. ⅞" th. 15/16" Hole

Required -
1-Bott. Chord Sec. BL6-10 -

Compare templets with C 3267/7d



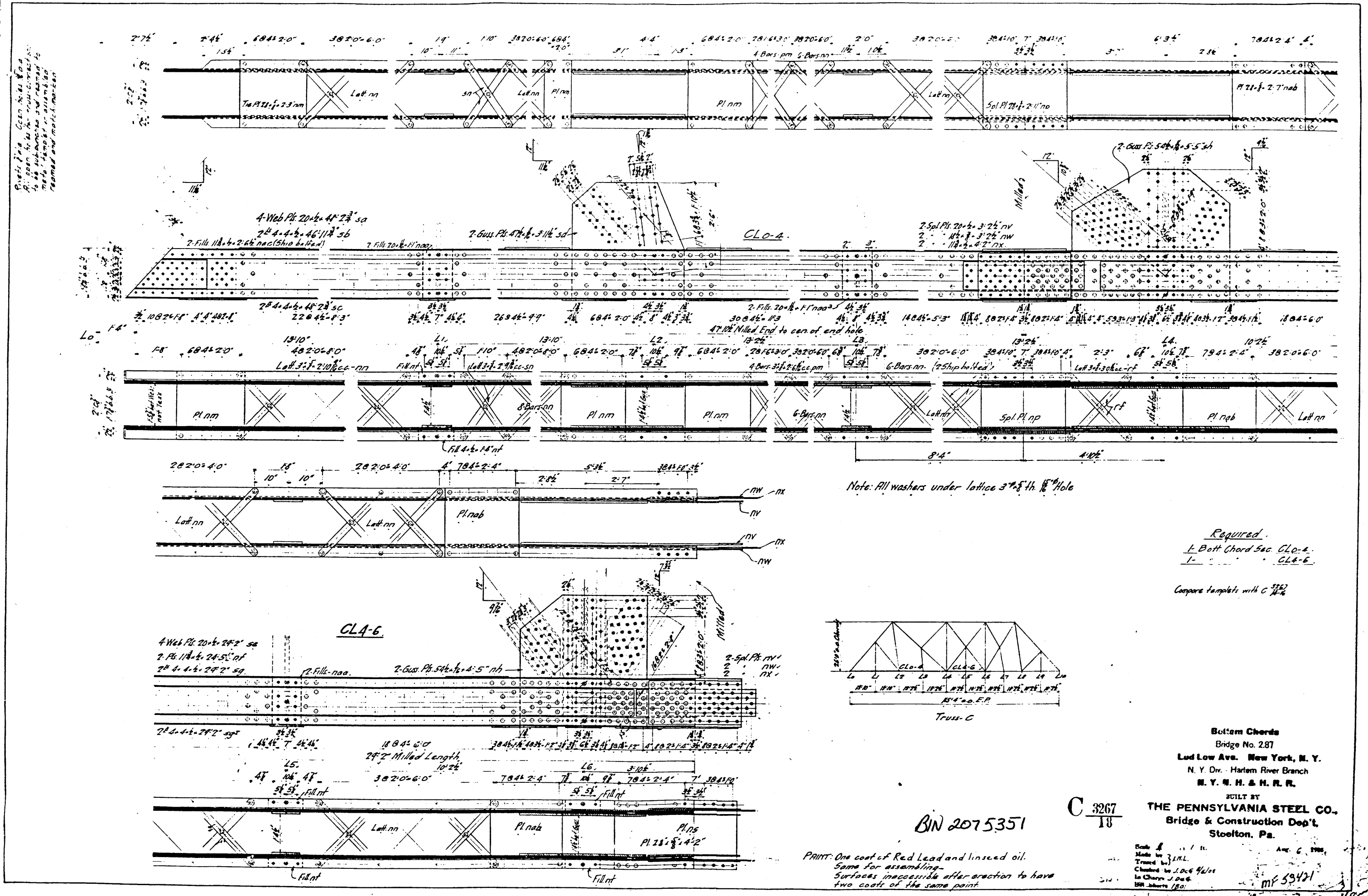
PAINT: One coat of Red Lead and linseed oil.
Same for assembling.
Surfaces inaccessible after erection to have two coats of the same paint.

Bottom Chords
Bridge No. 287
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't,
Steelton, Pa.

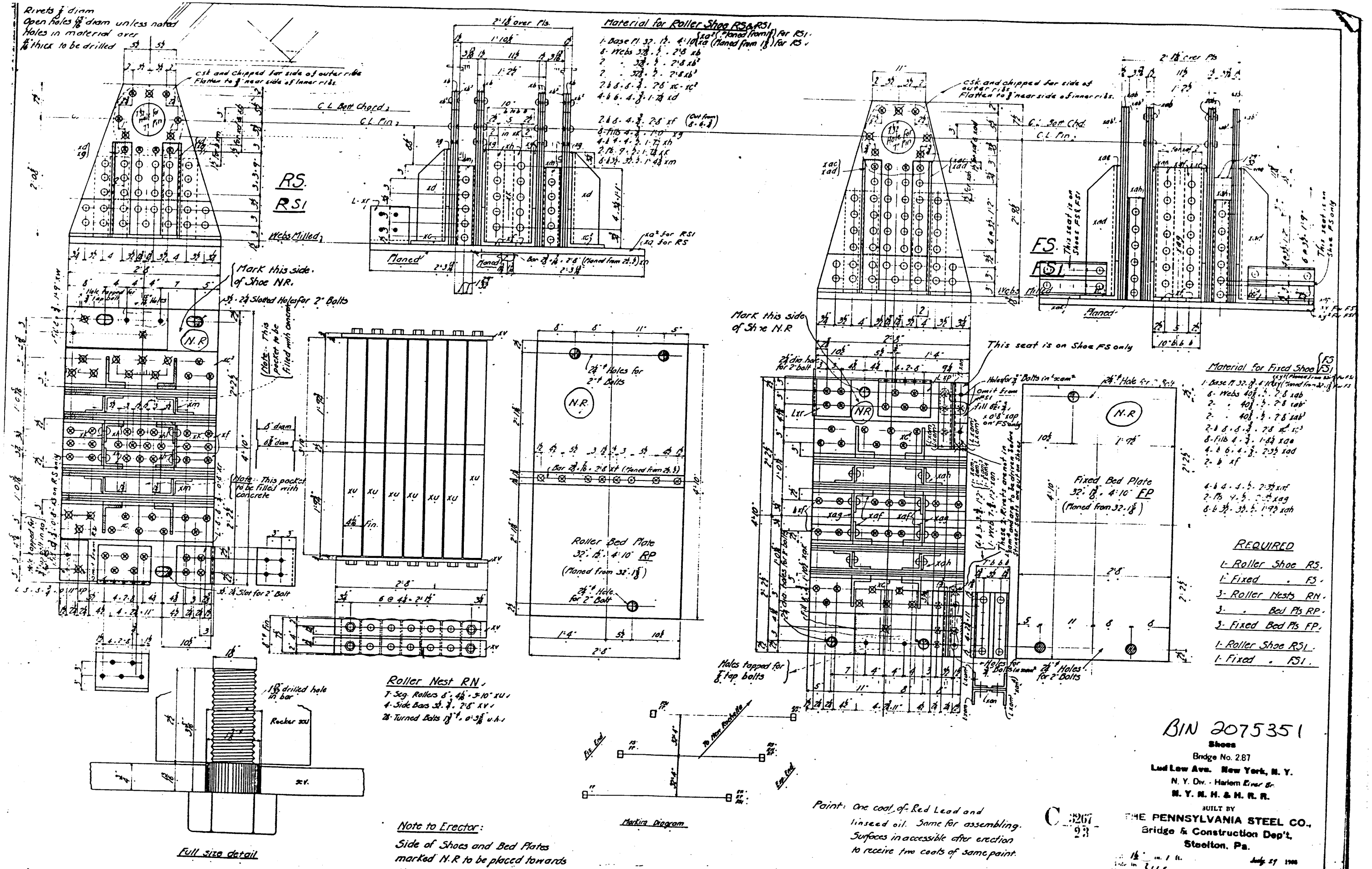
C 3267/17

Scale ¼ in. / ft. Aug. 4, 1908
Made by } J.H.L.
Traced by }
Checked by J. Dec. 8/6/08
In Charge J. Dec.
Kill Sheets 170

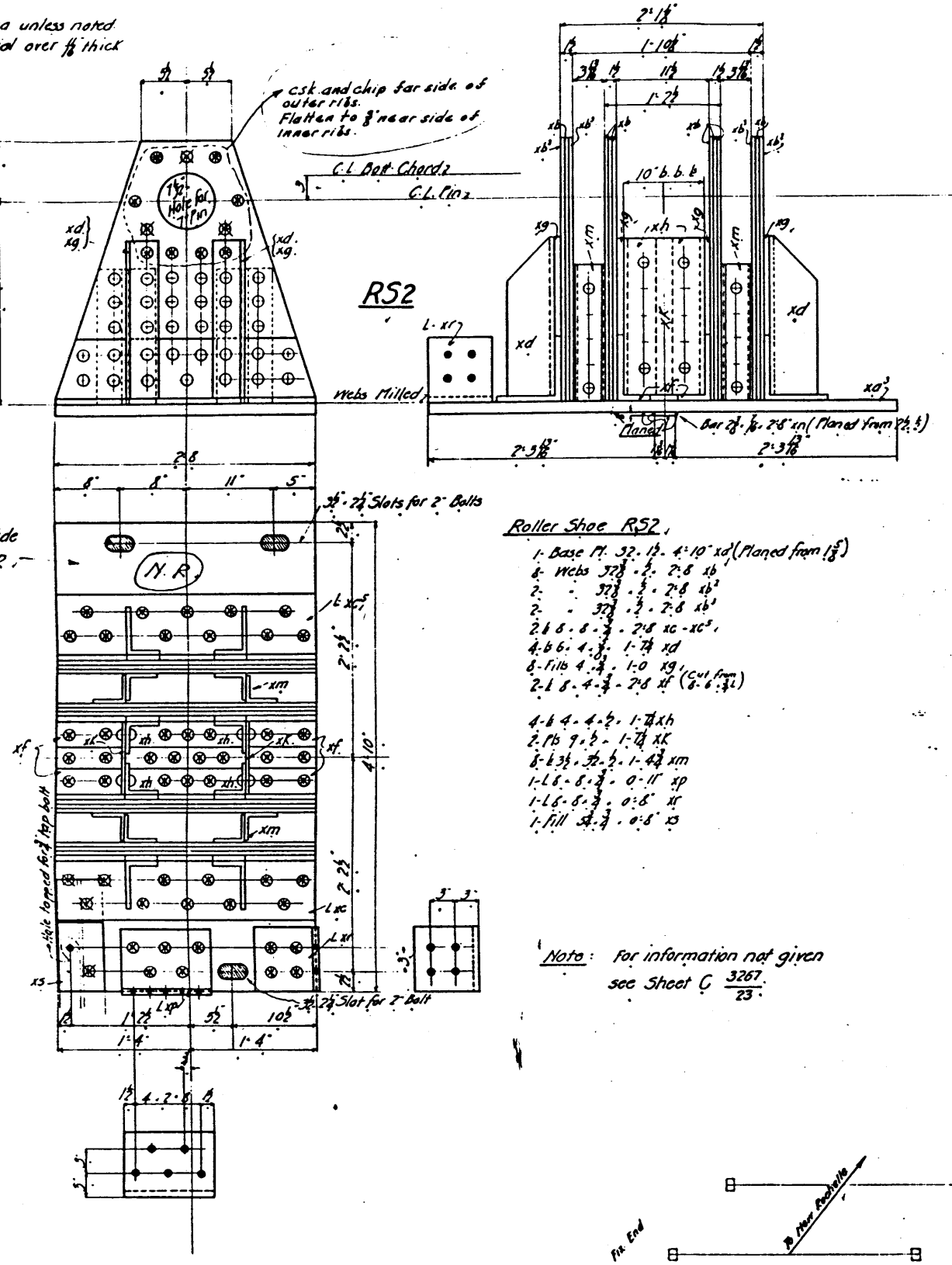
BIN 20753511
MF 53420


CL0-4
CL4-6
Note: All washers under lattice 3"x5/8" th. 15/16" Hole
Required.
1 Bott Chord Sec. CL0-4.
1 " " " CL4-6.
Compare templets with C 3267/14-16
Truss-C
Bottom Chords
Bridge No. 287
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't.
Steelton, Pa.
C 3267/18
BIN 2075351
PAINT: One coat of Red Lead and linseed oil.
Same for assembling.
Surfaces inaccessible after erection to have two coats of the same paint.
mf 59421

Rivets ⅞" diam
Open holes 15/16" diam unless noted
Holes in material over 11/16" thick to be drilled



Rivets 7/8" dia
Conn holes 15/16" dia unless noted.
Holes in material over 5/16" thick to be drilled.

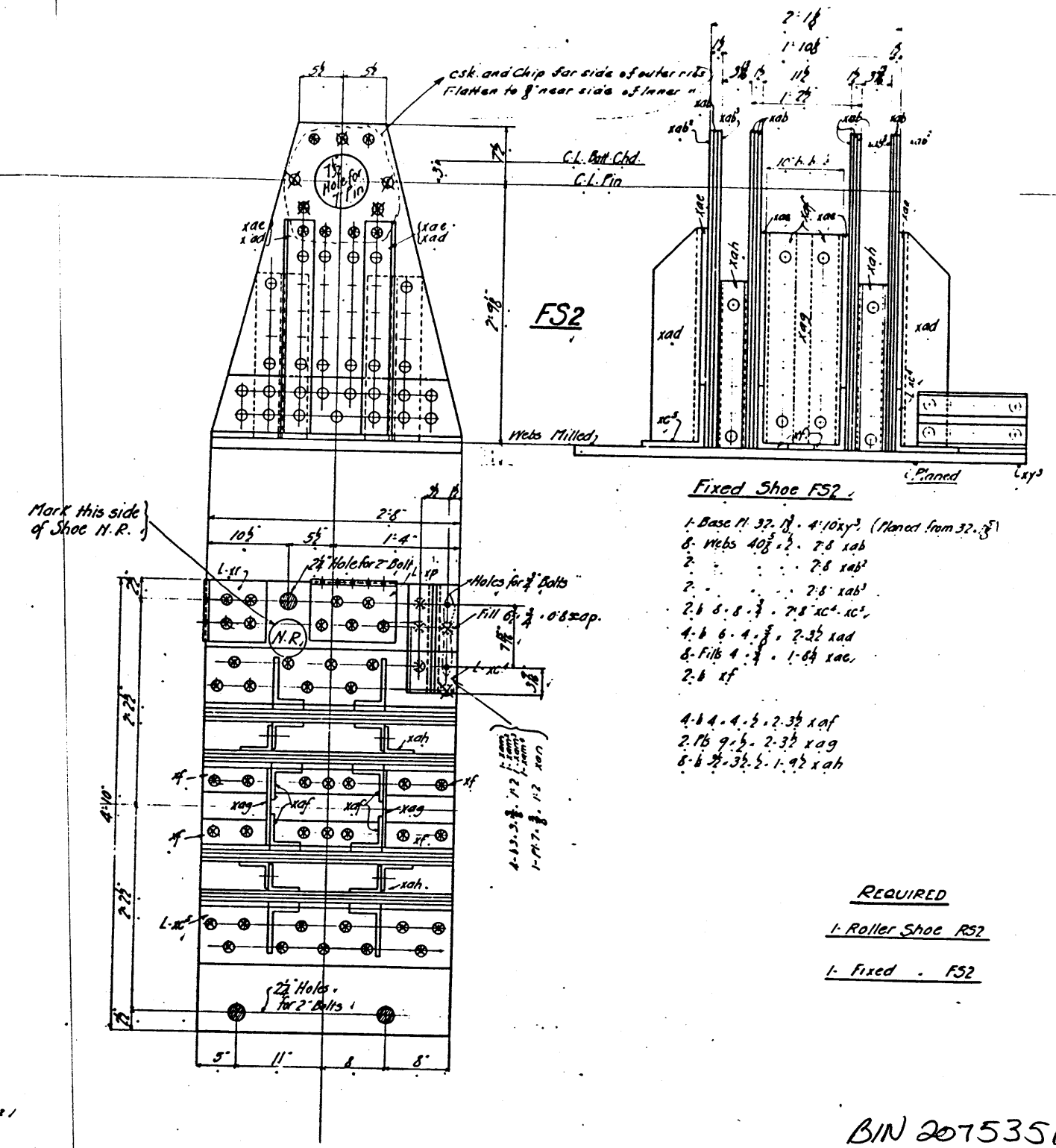


Roller Shoe RS2.

1- Base Pl. 32- 1⅛ - 4'-10" xd³ (Planed from 1⅝")
8- Webs 32⅞ - ½ - 7'-8 xb
2- " 32⅞ - ½ - 7'-8 xb²
2- " 32⅞ - ½ - 7'-8 xb³
2-L 6 - 6 - ⅜ - 7'-8 xc - xc⁵
4-L 6 - 4 - ⅜ - 1'-7¼ xd
8- Fills 4 - ⅜ - 1'-0 xg
2-L 8 - 4 - ⅜ - 7'-8 xf (Cut from 8 - 6 - ⅜ L)

4-L 4 - 4 - ½ - 1'-7¼ xh
2-Pl 9 - ½ - 1'-7¼ xk
8-L 3½ - 3½ - ½ - 1'-4¾ xm
1-L 8 - 8 - ⅜ - 0'-11" xp
1-L 8 - 8 - ⅜ - 0'-8" xr
1-Fill 8 - ⅜ - 0'-8" xs

Note: For information not given see Sheet C 3267/23.



Fixed Shoe FS2.

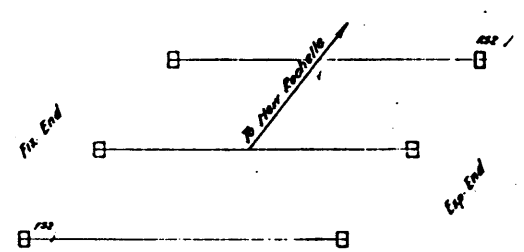
1- Base Pl. 32- 1⅛ - 4'-10" xy³ (Planed from 32 - 1⅝)
8- Webs 40⅝ - ½ - 7'-8 xab
2- " " " 7'-8 xab²
2- " " " 7'-8 xab³
2-L 8 - 8 - ⅜ - 7'-8 xc⁴ - xc⁵
4-L 6 - 4 - ⅜ - 2'-3½ xad
8- Fills 4 - ⅜ - 1'-6½ xae
2-L xf

4-L 4 - 4 - ½ - 2'-3½ xaf
2-Pl 9 - ½ - 2'-3½ xag
8-L 3½ - 3½ - ½ - 1'-9½ xah

REQUIRED

1- Roller Shoe RS2

1- Fixed " FS2



Marking Diagram.

Note to Erector:
Side of Shoes marked N.R. to be placed towards New Rochelle.

Paint: One coat of Red Lead and linseed oil. Same for assembling surfaces inaccessible after erection to receive two coats of same paint.

BIN 2075351

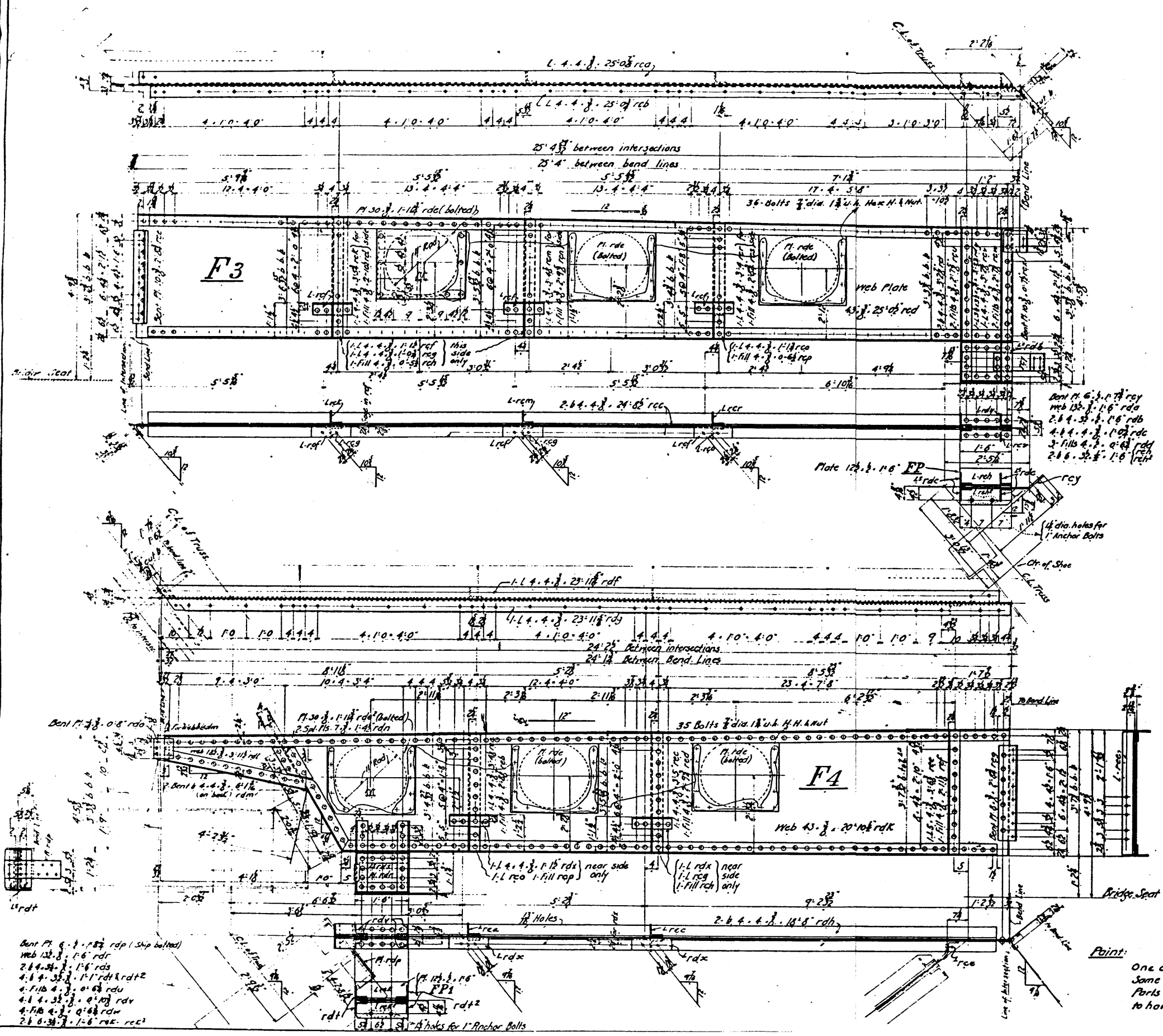
Shoes
Bridge No. 287
Lod Low Ave. New York, N. Y.
N. Y. Div. - Harlem Repair Sh.
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't.
Steelton, Pa.

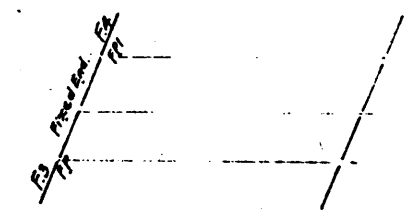
C 3267/24

Scale 1½ in. = 1 ft.
Made by
Traced by
Checked by
In Charge
Hill Sheets

MF 53448

Rivets ⅞" dia
Open holes ⅞" dia unless noted.





-REQUIRED-

1- FLOORBEAM F3
1- " F4

1- PLATE FP1
1- " FP

Template Maker: Save Templets

BIN 2075351

End Floorbeams
Bridge No. 2.87
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.
Bridge & Construction Dep't.
Stoughton, Pa.

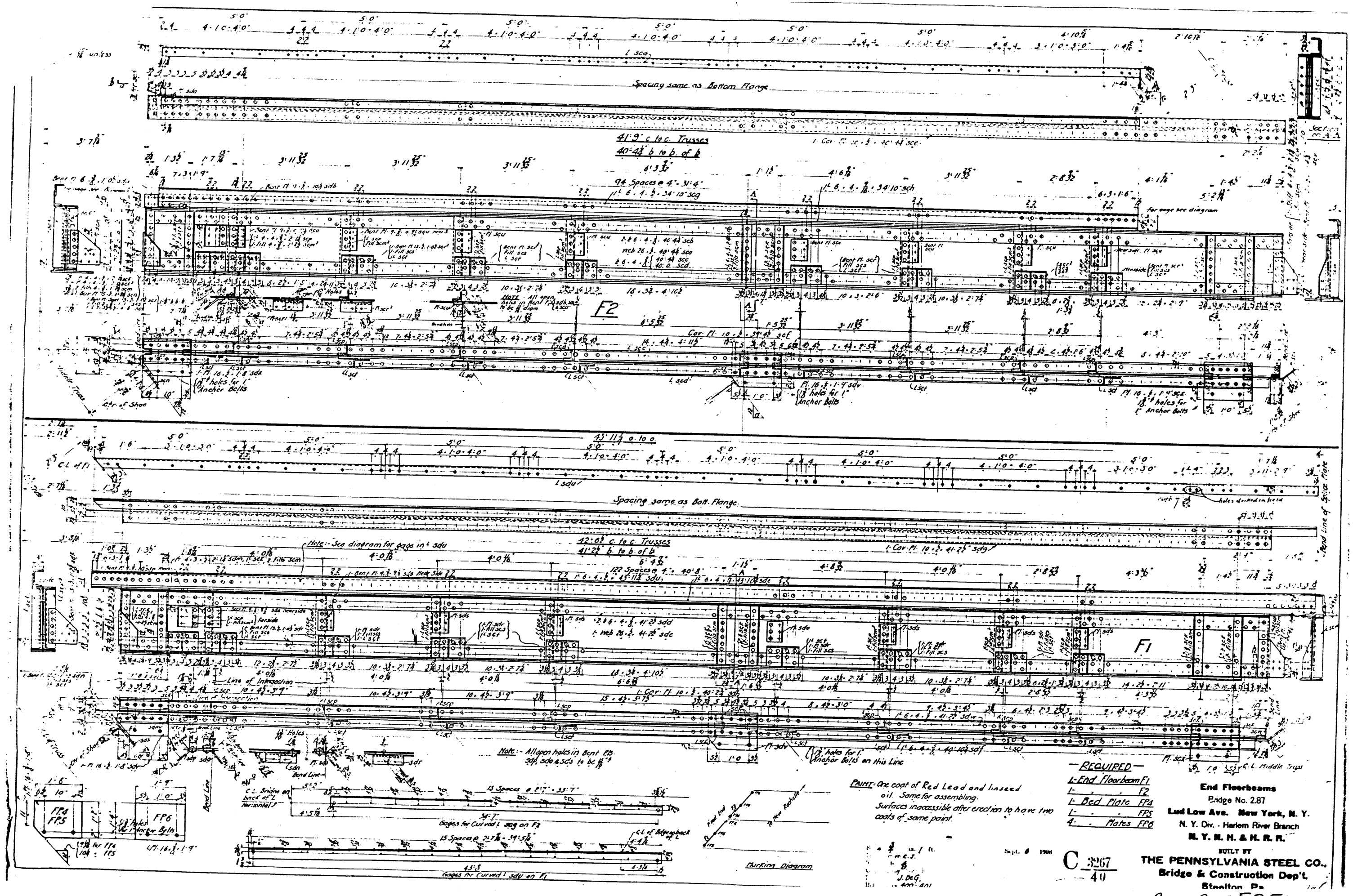
C 3267/39

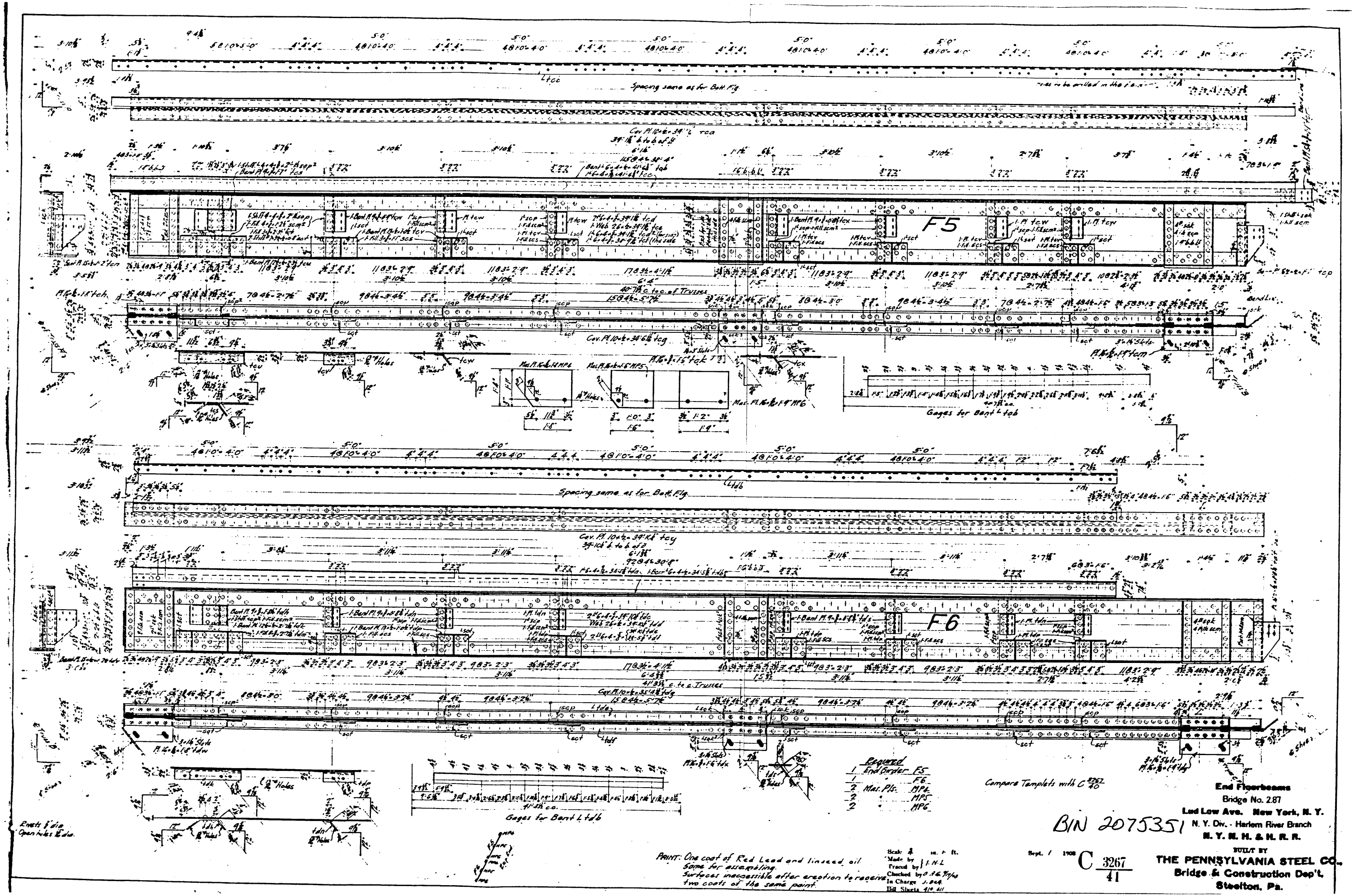
Scale ⅜ in. / ft.
Made by E.L.C.
Traced by J.L.S.
Checked by O.A.G. Fyke
In Charge J. DeG.
DR Sheets 370-391

Aug. 22 1904
Rev. Oct 23-15

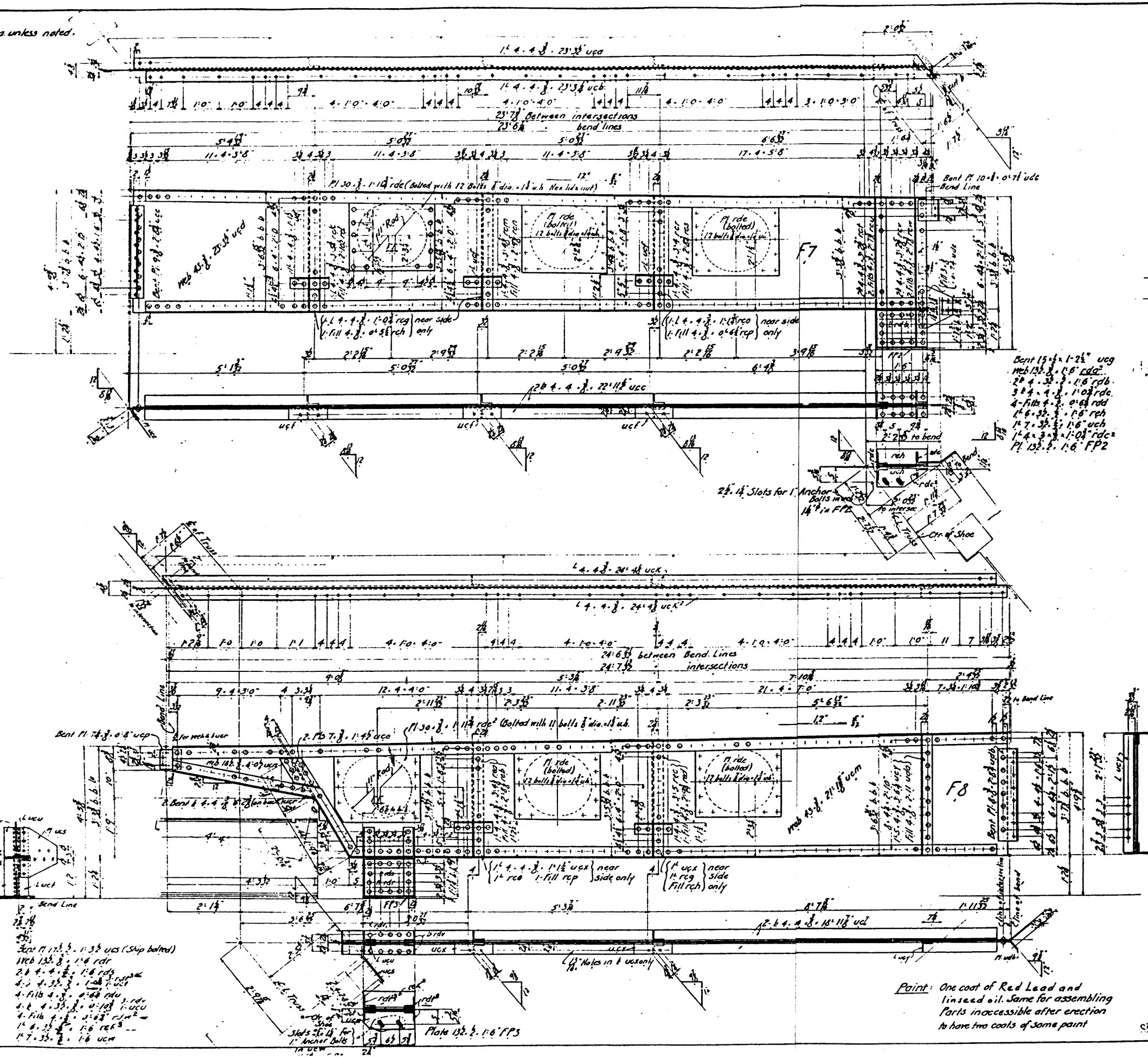
MF 53450

Paint:
One coat of Red Lead and linseed oil.
Same for assembling.
Parts inaccessible after erection
to have two coats of same paint.


Spacing same as Bottom Flange
41'-9" c. to c. Trusses
40'-4½" b. to b. of ⌐
94 Spaces @ 4" = 31'-4"
F2
Note: All open holes in Bent Pls. sdf, sdo & sds to be 11/16"
Anchor Bolts
Spacing same as Bott. Flange
42'-6½" c. to c. Trusses
41'-2½" b. to b. of ⌐
122 Spaces @ 4" = 40'-8"
F1
Line of Intersection
Note:- Allopen holes in Bent Pls. sdf, sdo & sds to be 11/16"
Anchor Bolts on this Line
Gages for Curved L sdu on F2
Gages for Curved L sdu on F1
Parkin Diagram
PAINT: One coat of Red Lead and linseed oil. Same for assembling.
Surfaces inaccessible after erection to have two coats of same paint.
REQUIRED
1-End Floorbeam F1
1- " " F2
1-Bed Plate FP4
1- " " FP5
4- " Plates FP6
End Floorbeams
Bridge No. 287
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't.
Steelton Pa.
C 3267/40
BIN 2075351


F5
F6
Spacing same as for Bott. Flg.
Gages for Bent L tdb
Compare Templets with C 3267/40
Required
1 End Girder F5
1 " F6
2 Mat. Pls. MP4
2 " MP5
2 " MP6
PAINT: One coat of Red Lead and linseed oil
Same for assembling.
Surfaces inaccessible after erection to receive
two coats of the same paint.
Scale 1/4 in. = 1 ft.
Made by J. N. L.
Traced by
Checked by
In Charge J. B. B.
Bill Sheets 410 411
Sept. 1 1908
C 3267/41
End Floorbeams
Bridge No. 287
Lud Low Ave. New York, N. Y.
N. Y. Div. - Harlem River Branch
N. Y. N. H. & H. R. R.
BUILT BY
THE PENNSYLVANIA STEEL CO.
Bridge & Construction Dep't.
Steelton, Pa.
BIN 2075351

Rivets 7/8" dia.
Open holes 15/16" dia unless noted.



Starting Diagram

REQUIRED

1- Floorbeam F7
1 . F8

1- Plate FP2
1- . FP3

Compare templets with C 3267/39

BIN 2075351

End Floorbeams

Bridge No. 2.87

Lod Low Ave. New York, N. Y.

N. Y. Div. - Harlem River Branch

N. Y. N. H. & H. R. R.

BUILT BY

THE PENNSYLVANIA STEEL CO.,
Bridge & Construction Dep't.
Steelton, Pa.

C 3267/42

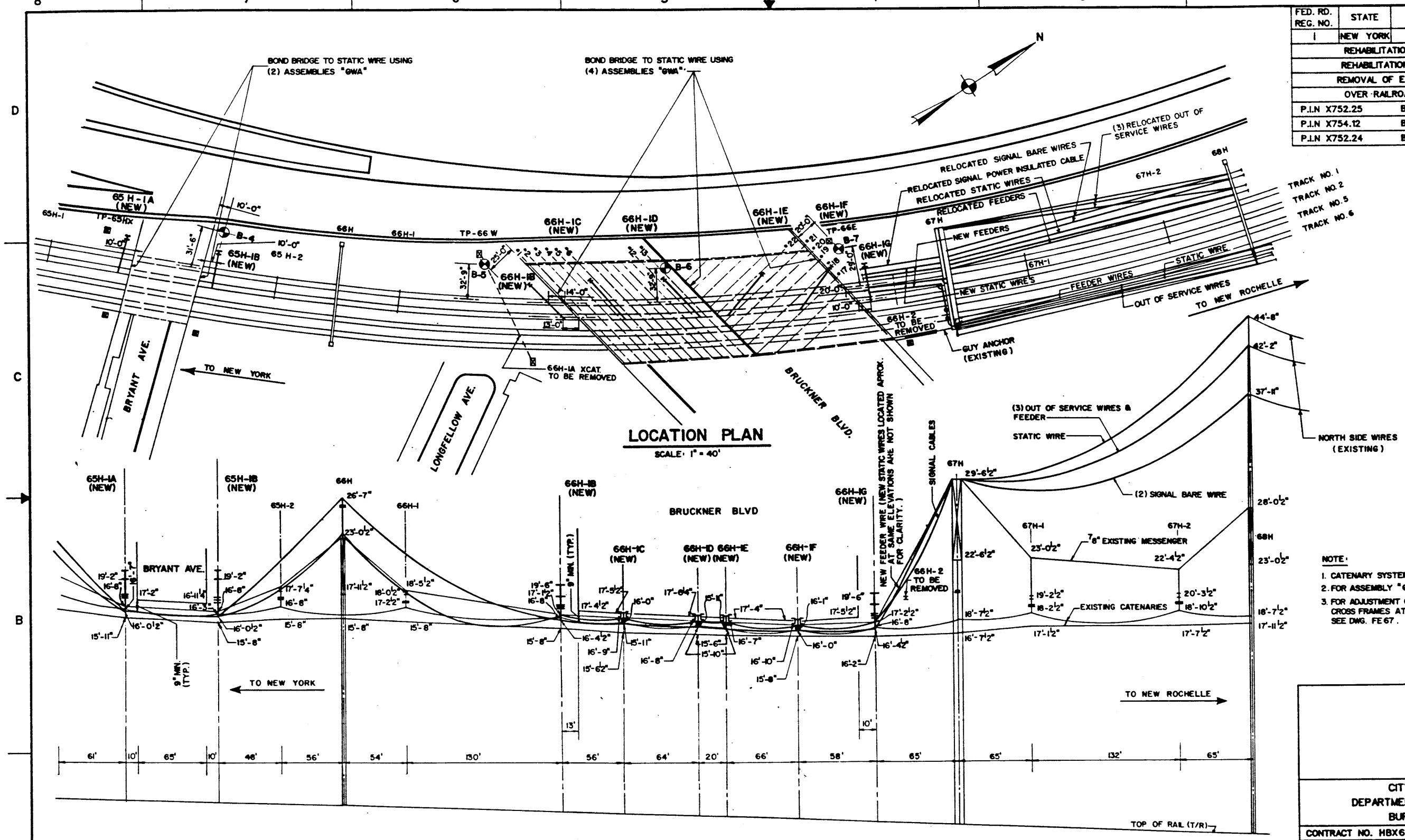
Scale 3/4 in. / ft. Aug. 1908
Made by E.L.C. Rev. Oct 23-08.
Traced by
Checked by
In Charge J.R.
Bill Sheets 820, 821

M 53447

FED. RD. REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	NEW YORK		19	224

REHABILITATION OF LONGWOOD AVENUE,
REHABILITATION OF TIFFANY STREET AND
REMOVAL OF EAST 156TH STREET BRIDGES
OVER RAILROAD (AMTRAK AND CONRAIL)

P.I.N X752.25	BRONX COUNTY	B.I.N 2-24115-9
P.I.N X754.12	BRONX COUNTY	B.I.N 2-24117-0
P.I.N X752.24	BRONX COUNTY	B.I.N 2-24114-0



NOTE:
1. CATENARY SYSTEM IS SHOWN FOR REFERENCE ONLY
2. FOR ASSEMBLY "6WA" SEE DWG. FE 75
3. FOR ADJUSTMENT OF BRUCKNER BLVD. BRIDGE OF CROSS FRAMES AT STRUCTURES 66H-1C AND 66H-1D SEE DWG. FE 67.

PROFILE TRACK NO. 2
SCALE: 1" = 40' HOR.
1" = 4' VERT.

N.Y.C. D.O.T. MICROFILM IDENTIFICATION NUMBER		
BIN 2-24115	ROLL B82	FRAME 019
BIN 2-24117	ROLL D33	FRAME 019
BIN 2-24114	ROLL B81	FRAME

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES

CONTRACT NO. HBX622

ELECTRIFICATION MODIFICATIONS
B.I.N. 2-24115-9 B.I.N. 2-24117-0 B.I.N. 2-24114-0

PLAN AND PROFILE
STRUCTURE 65H-1A TO 68H

DWG. NO.	SCALE	DATE	SHEET
FE 8	AS SHOWN	8-1-91	19

PAVLO ENGINEERING CO. P.C.
500 EIGHTH AVENUE, NEW YORK, N.Y.

ROSS-CLARKE ASSOCIATES
76 SOUTH BAYLES AVENUE
PORT WASHINGTON, NEW YORK

PREPARED BY ROSS-CLARKE ASSOCIATES
IN CHARGE H.M. DRAFTER E.C.
DESIGNER Y.S. CHECKER E.C.

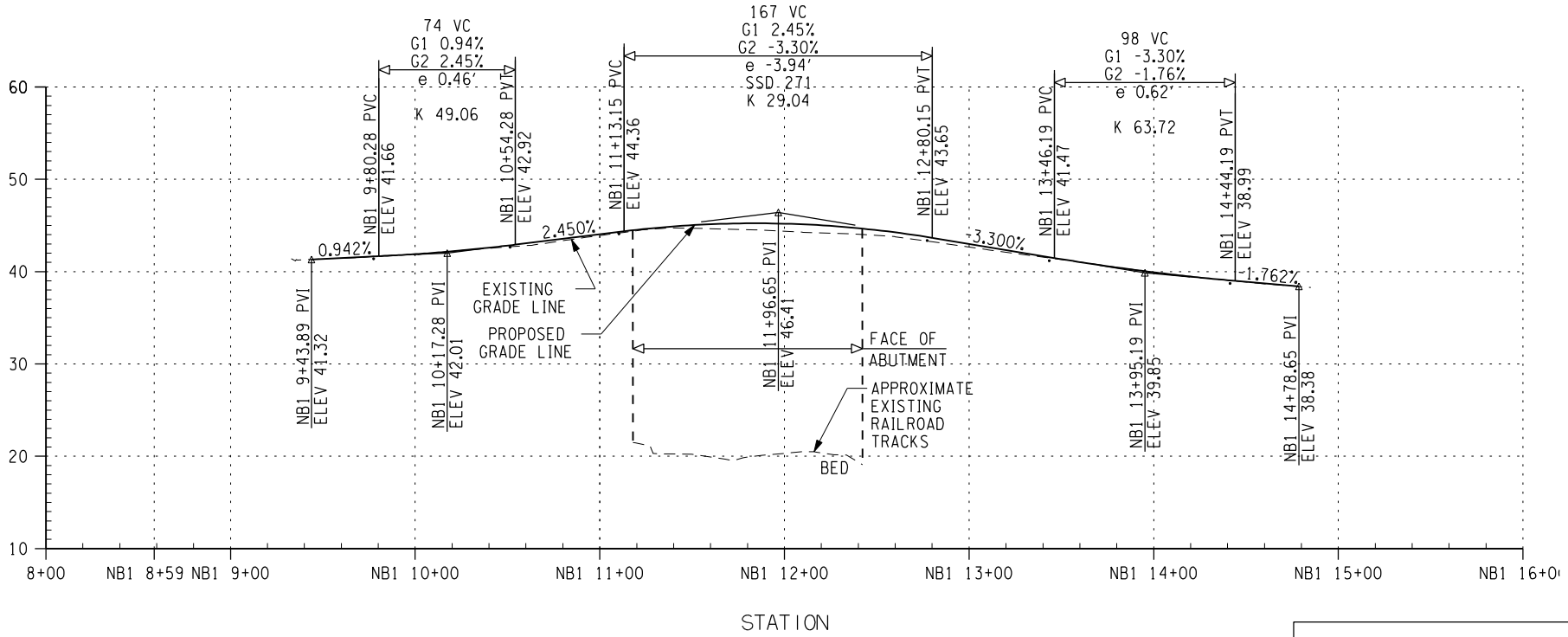
0 1 2 3 4
ORIGINAL SIZE IN INCHES

Appendix B
Preliminary Plans

APPENDIX B- TABLE OF CONTENTS

Dwg. No.	Description
P1	Existing & Proposed Profiles – Northbound Service Road
P2	Existing & Proposed Profiles – Northbound Mainline
P3	Existing & Proposed Profiles – Southbound Mainline
P4	Existing & Proposed Profiles – Southbound Service Road
R1	Roadway General Plan
R2	Existing Roadway Sections
AB-1	Existing Abutments
AB -2	Abutment Sections
S-1	Existing Section – BIN 2075351
S-2	Existing Elevation – BIN 2075351
S-3	Existing Framing Plan – BIN 2075351
S-4	Existing Section – BIN 2075352
S-5	Existing Elevation – BIN 2075352
S-6	Existing Framing Plan – BIN 2075352
	Alignment Data - NB1
	Alignment Data - NB2
	Alignment Data - SB1
	Alignment Data - SB2

BRUCKNER EXPRESSWAY
NORTHBOUND SERVICE ROAD



CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBESA00D

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

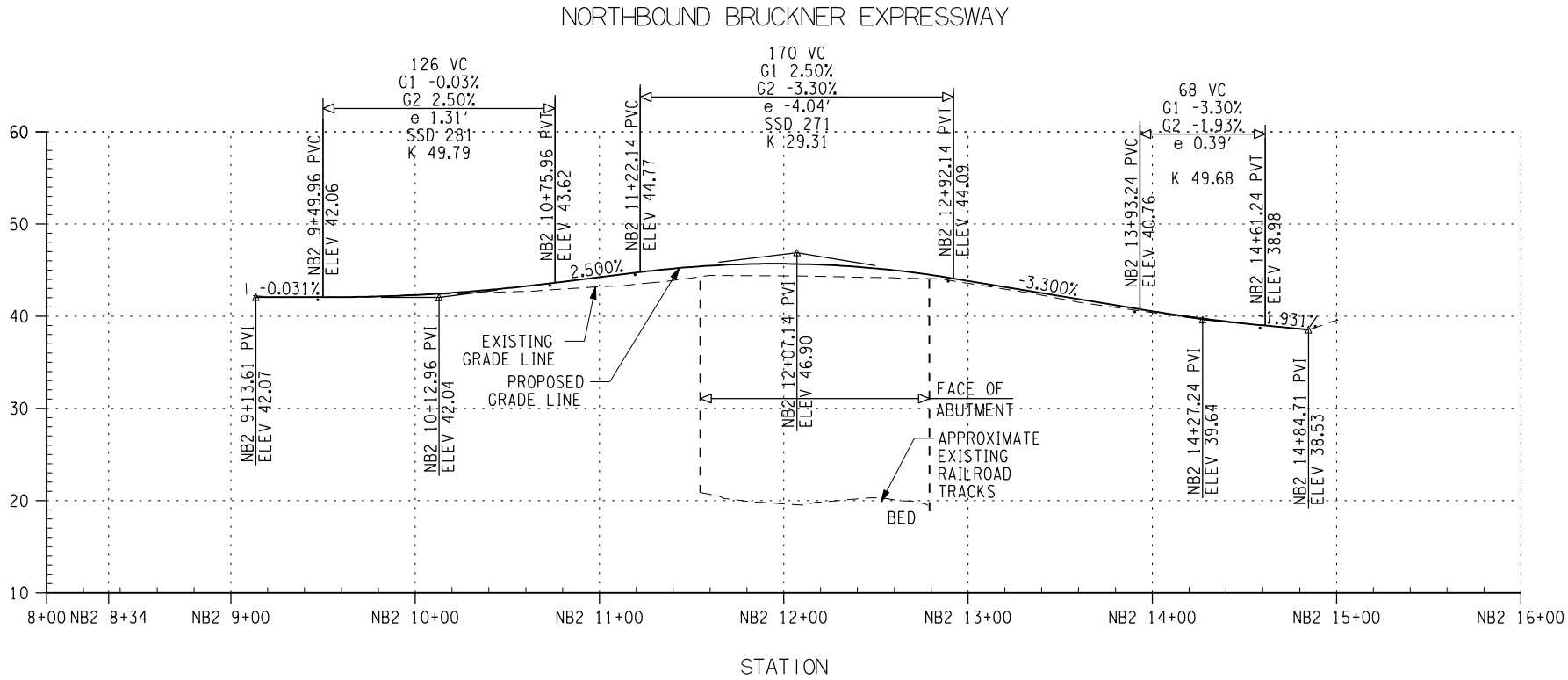
EXISTING AND PROPOSED PROFILES
NORTHBOUND SERVICE ROAD

DWG. NO.	SCALE:	DATE:	SHEET NO.
P1		APRIL 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: ____ DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME



CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBESA00D

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING AND PROPOSED PROFILES
NORTHBOUND MAINLINE

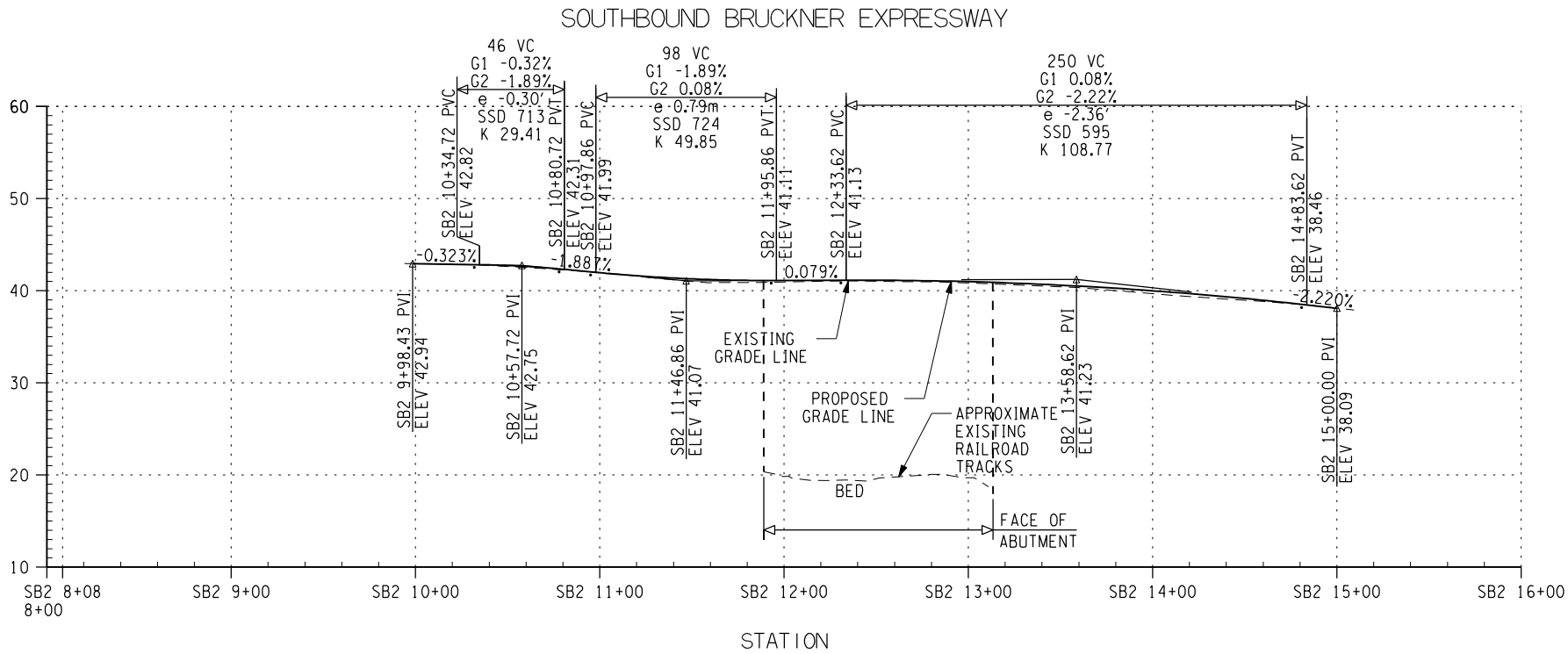
DWG. NO.	SCALE:	DATE:	SHEET NO.
P2		APRIL 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: ____ DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

FILE: Bigtown,"Segment,"Bigtown,"Segment"
TIME: Bedtime,Bigtown,detail,HAMMadjgm
DATE: Bedtime,Bigtown,detail,MON 02:YYYY:1



CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBESA00D

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING AND PROPOSED PROFILES
SOUTHBOUND MAINLINE

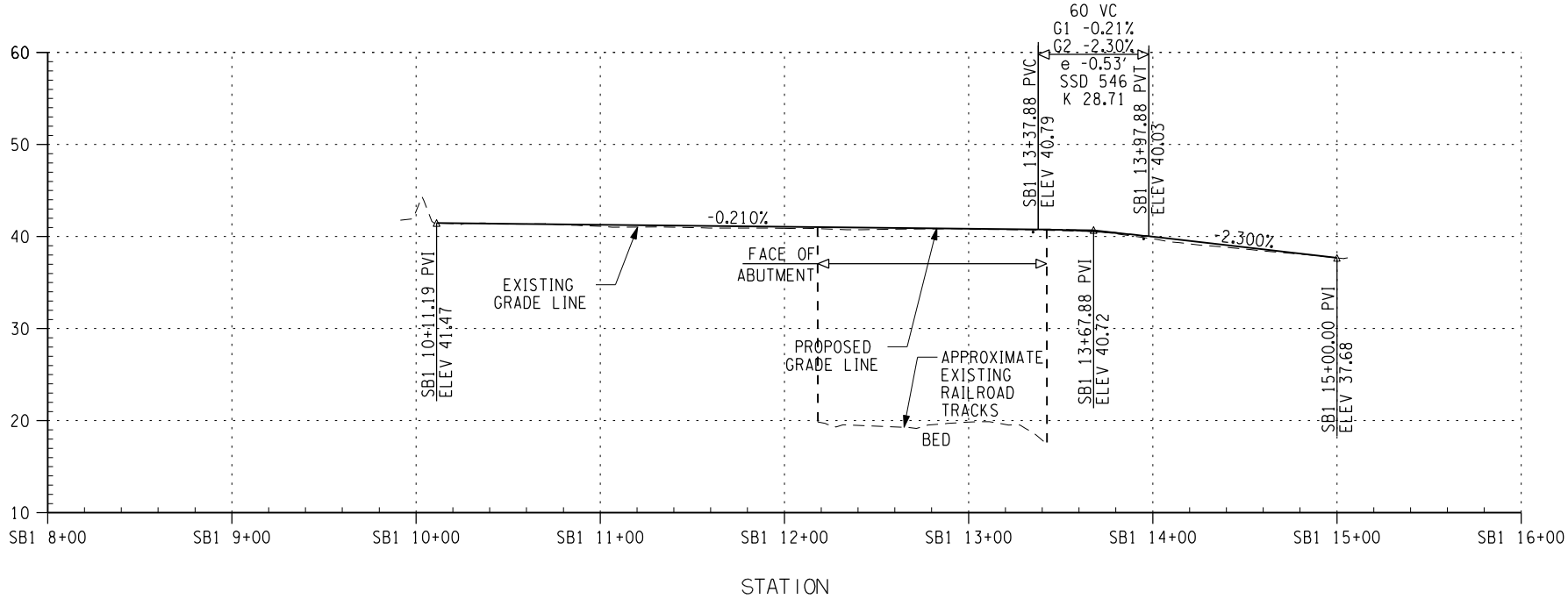
DWG. NO.	SCALE:	DATE:	SHEET NO.
P3		APRIL 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: ____ DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-1 ROLL XXX FRAME

BRUCKNER EXPRESSWAY
SOUTHBOUND SERVICE ROAD



CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBESA00D

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING AND PROPOSED PROFILES
SOUTHBOUND SERVICE ROAD

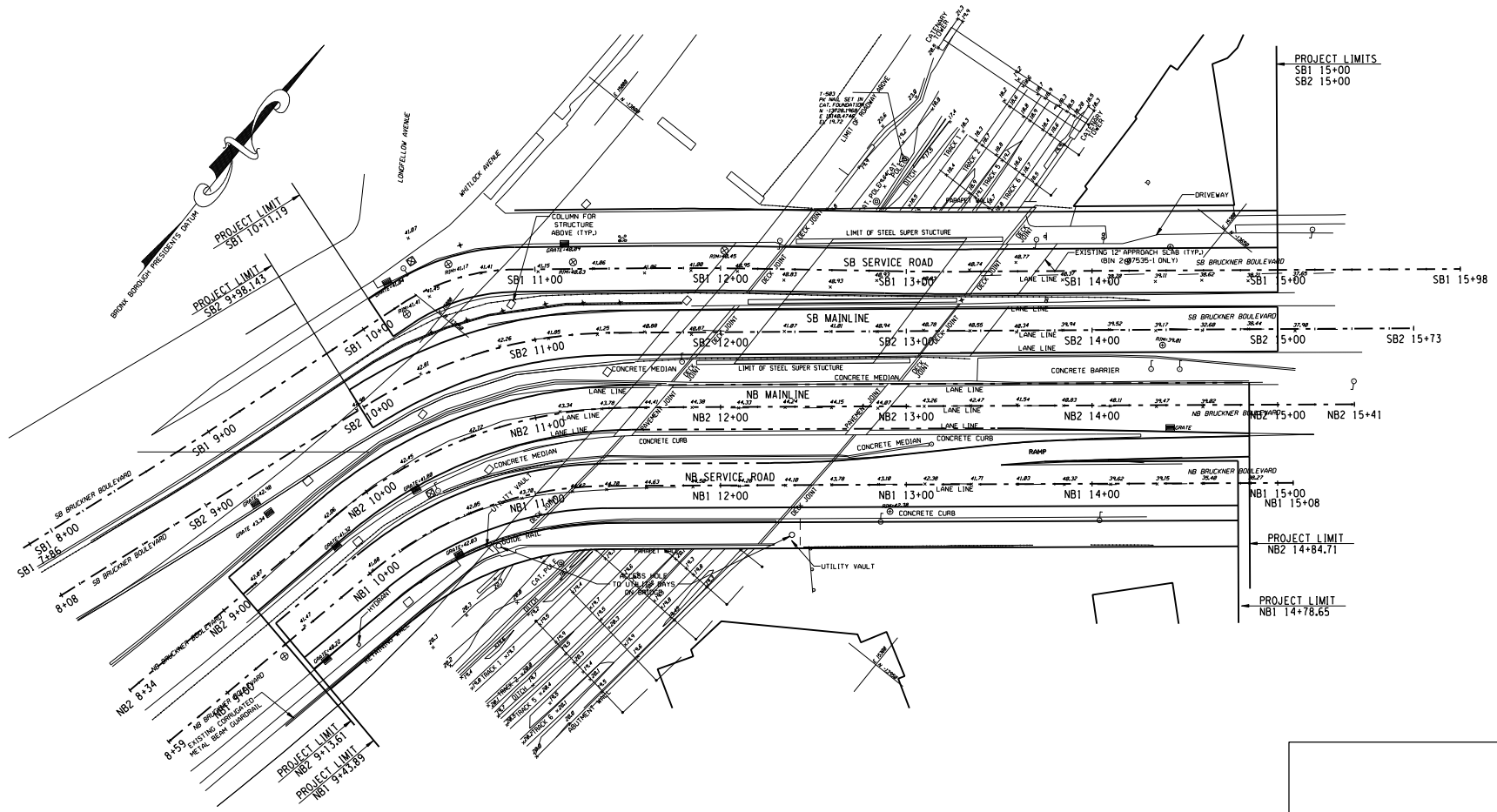
DWG. NO.	SCALE:	DATE:	SHEET NO.
P4		APRIL 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: ____ DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-1 ROLL XXX FRAME

FILE: Bigstuv,'Segpro1,'%Bigstuv,'Segpro%'
TIME: Bmstuma,Bigstuv,dstal JAMMdd@ga)
DATE: Bmstuma,Bigstuv,dosal,MON DD,'YYYY',1



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1" = 30'

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBESA00D

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

ROADWAY GENERAL PLAN

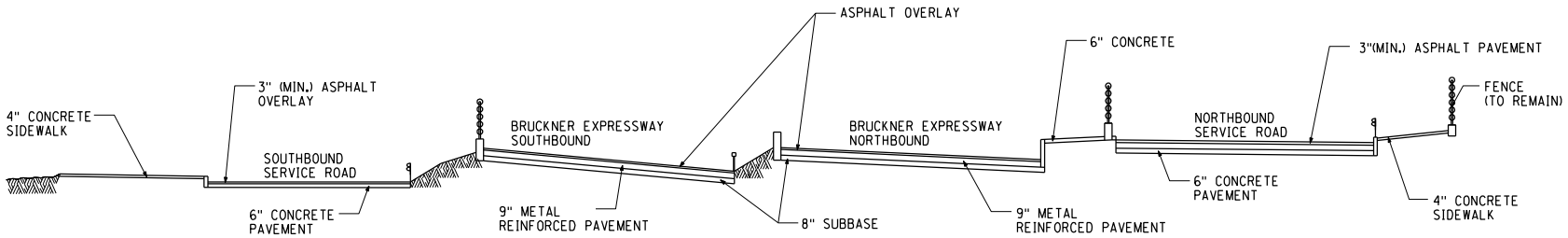
DWG. NO.	SCALE:	DATE:	SHEET NO.
R-1		APRIL 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: ____ DRAFTER: ____
DESIGNER: ____ CHECKER: ____

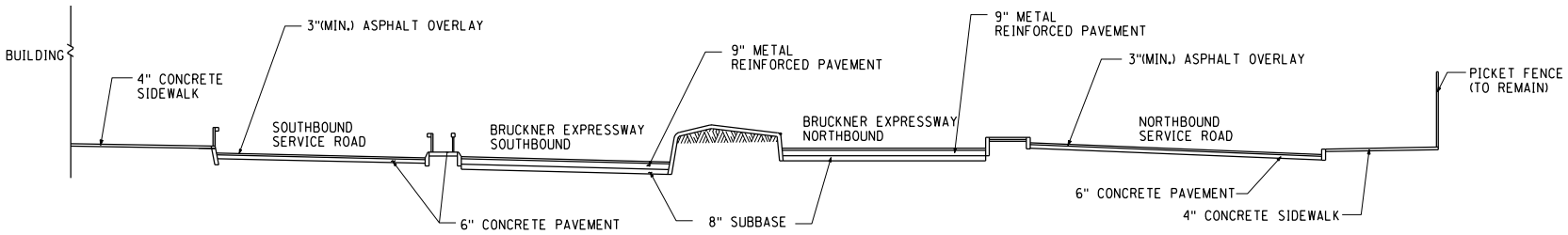
NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

FILE: $Signature, "$Segrefi:"$Signature, "$segname"
TIME: $Realtime, $Signature, date) $AMPM
DATE: $Realtime, $Signature, date) MON DD,'YYYY



EXISTING SECTION (STA. 10+90)

LOOKING EAST



EXISTING SECTION (STA. 13+50)

LOOKING EAST

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBESA00D

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING ROADWAY SECTIONS

DWG. NO.	SCALE:	DATE:	SHEET NO.
R2	1" = 16'-0"	APRIL 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: ____ DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN ROLL XXX FRAME

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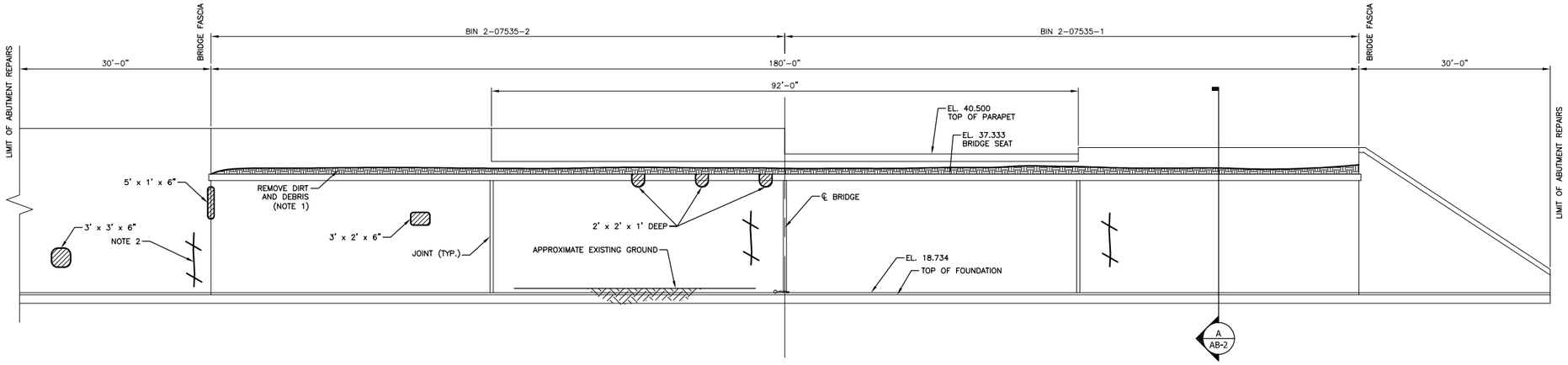
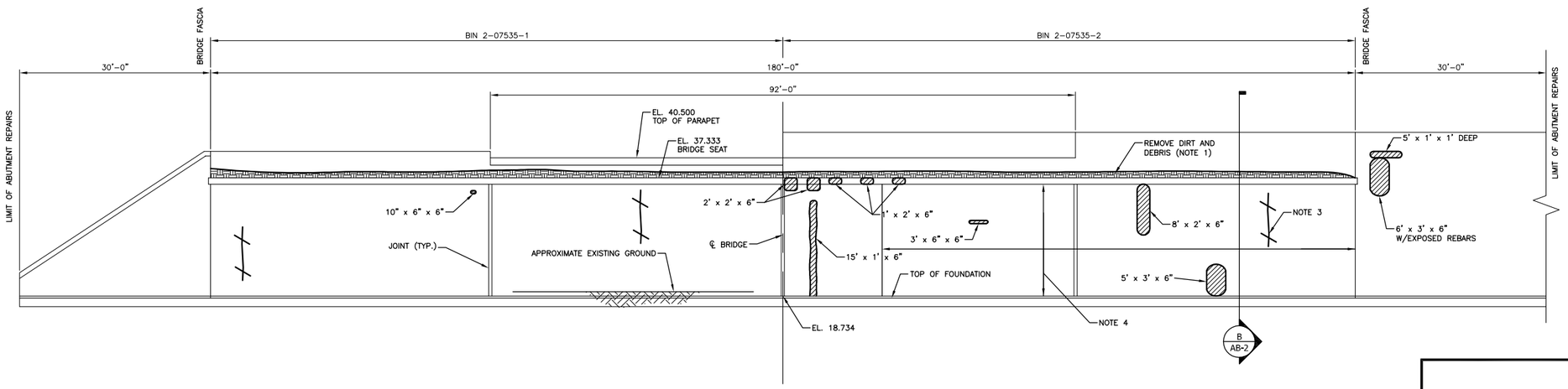
TIME: $$logetsw,$logetsw,date) $$HM$$gm
DATE: $$logetsw,$logetsw,date) MON DD,YYYY



1 WEST (BEGIN) ABUTMENT (LOOKING WEST)
Scale: 1" = 10'



2 EAST (END) ABUTMENT (LOOKING EAST)
Scale: 1" = 10'

NOTES:

1. REFER TO BOOK 2. EXHIBIT E – "SUBSTRUCTURE" FOR CONCRETE REPAIR QUANTITIES AND DISPOSAL OF CONTAMINATED EXCESS EXCAVATION QUANTITIES.
2. BEGIN ABUTMENT – ASSUME 100 LF OF CRACKS UP TO 1/4" WIDE.
3. END ABUTMENT – ASSUME 100 LF OF CRACKS TO TO 1/8" WIDE.
4. REPAIR END ABUTMENT STEM. ASSUME 1800 SF, 4" DEEP.

LEGEND

CRACKS

SPALLS

THIS DRAWING SUPERSEDES DRAWING AB-1

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBX1123

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING ABUTMENTS

DWG. NO.	SCALE:	DATE:	SHEET NO.
AB-1R	1"=10'	AUGUST 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

0 10 20
SCALE IN FEET

PREPARED BY
IN CHARGE OF: XX DRAFTER:
DESIGNER: CHECKER:

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

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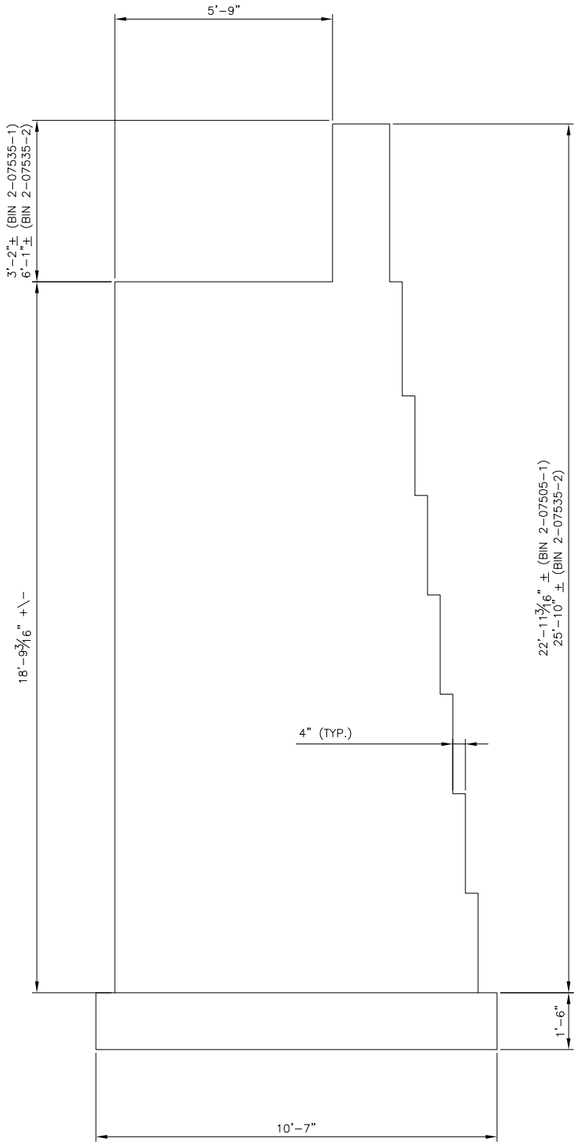
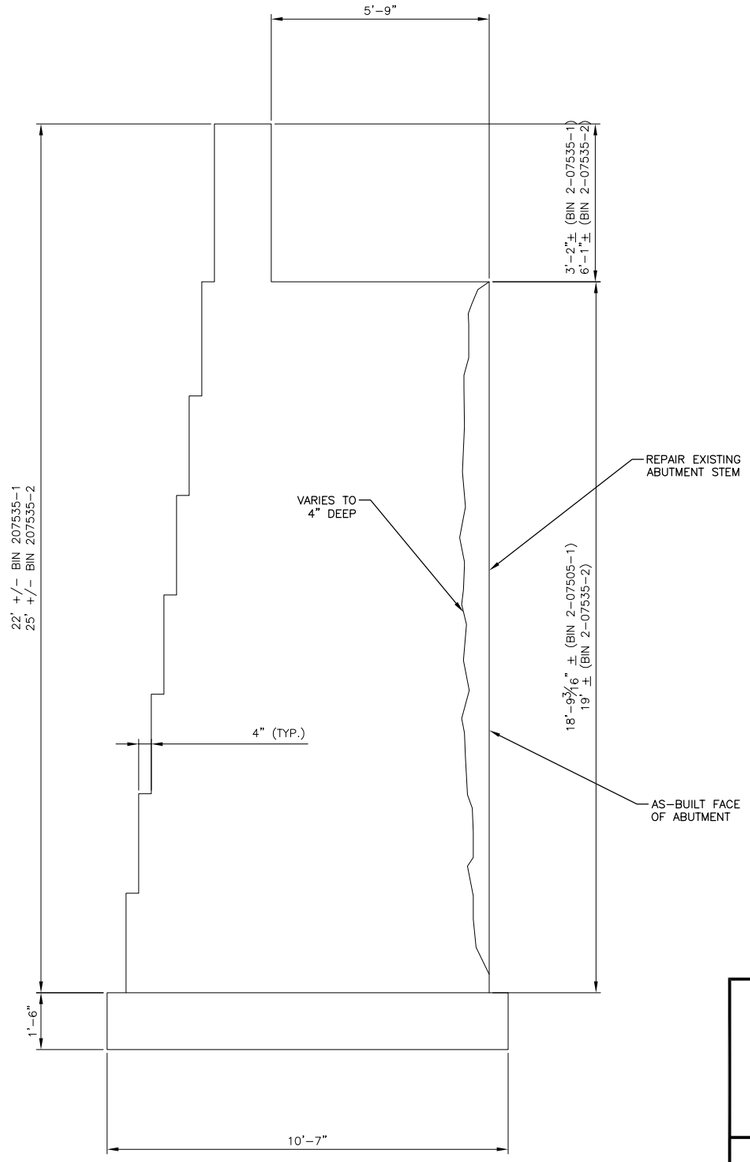
DATE: Aug 21, 2007, TIME: 11:11am



A SECTION
Scale: 1/2" = 1'-0"



B SECTION
Scale: 1/2" = 1'-0"

THIS DRAWING SUPERCEDES
DRAWING AB-2

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBX1123

REHABILITATION OF N/B & S/B BRUCKNER
EXPRESSWAY BRIDGES OVER AMTRAK
AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

ABUTMENT SECTIONS

DWG. NO.	SCALE:	DATE:	SHEET NO.
AB-2R	1/2" = 1'-0"	AUGUST 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

0 2 4
SCALE IN FEET

PREPARED BY
IN CHARGE OF: _ _XX_ _ DRAFTER: _ _ _ _
DESIGNER: _ _ _ _ CHECKER: _ _ _ _

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

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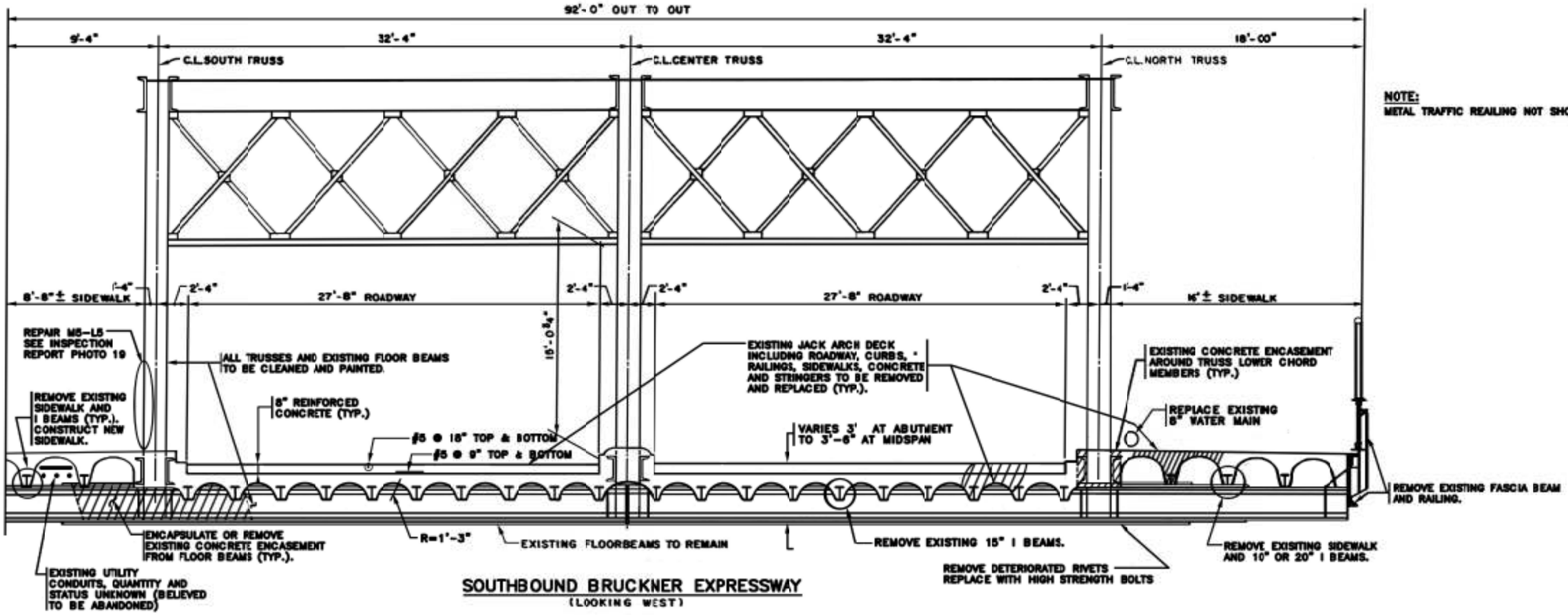

SOUTHBOUND BRUCKNER EXPRESSWAY
(LOOKING WEST)

NOTE:
METAL TRAFFIC REAILING NOT SHOWN.

THIS DRAWING SUPERSEDES DRAWINGS S-1

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBX1123

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING SECTION

DWG. NO.	SCALE:	DATE:	SHEET NO.
S-1R	NOT TO SCALE	AUGUST 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: XX DRAFTER:
DESIGNER: CHECKER:

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-1 ROLL XXX FRAME

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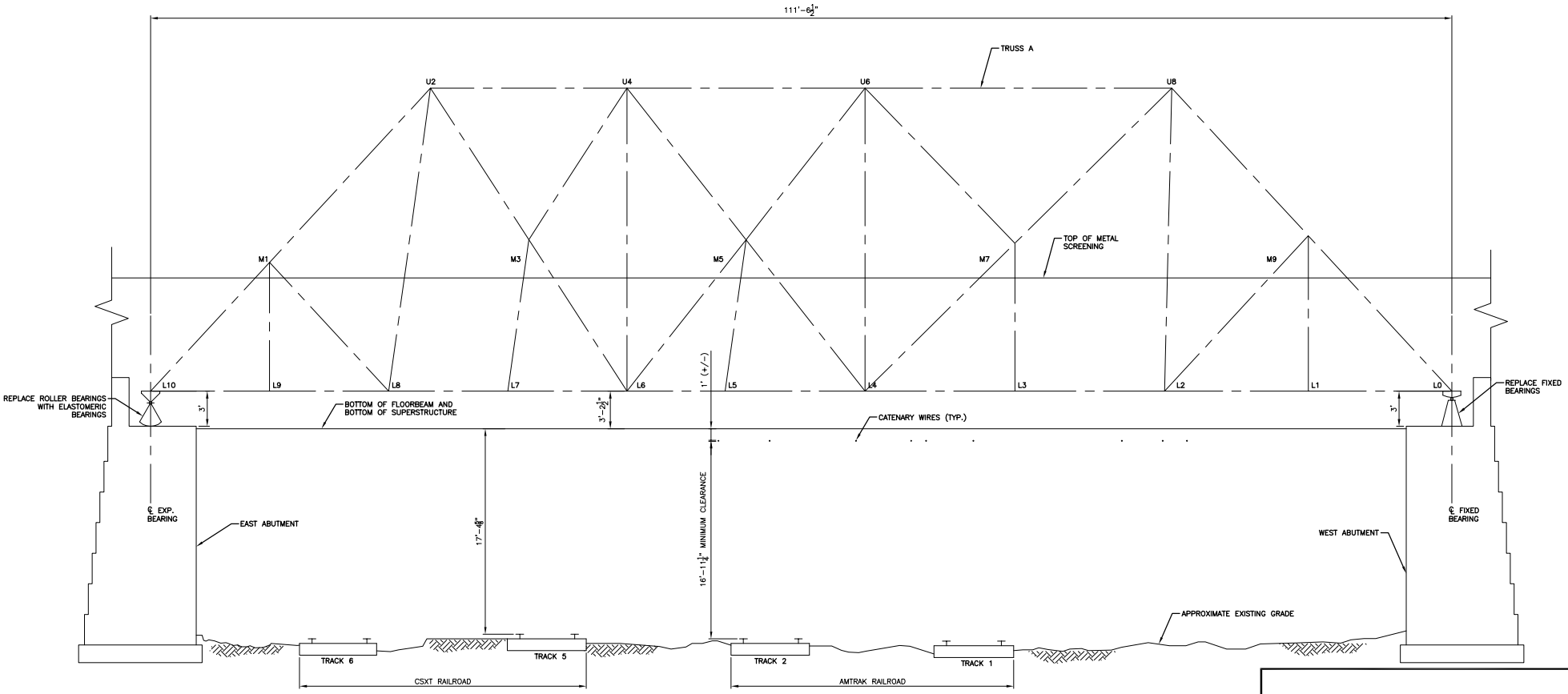
DATE: Aug 21, 2007, TIME: 11:15am



1 LOOKING SOUTH
Scale: 1:50

NOTES:
1. ONLY ℄ OF TRUSS MEMBERS SHOWN.
2. PANEL POINT DESIGNATIONS ARE PER THE ORIGINAL CONTRACT DRAWINGS.

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBX1123

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING ELEVATION

DWG. NO.	SCALE:	DATE:	SHEET NO.
S-2	1"=50'	APRIL 2007	

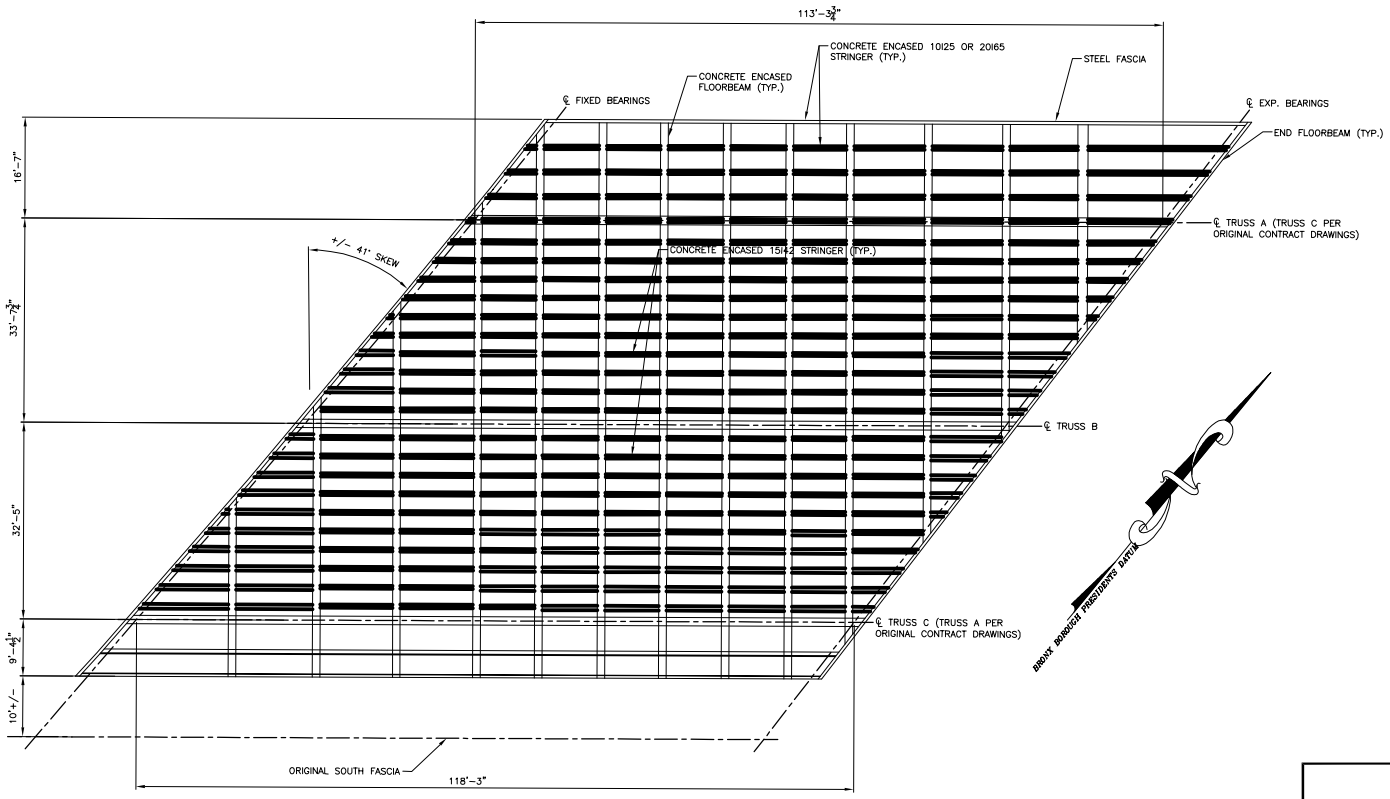
EARTH TECH
200 Liberty Street
New York, NY 10281

0 50 100
SCALE IN FEET

PREPARED BY
IN CHARGE OF: XX DRAFTER:
DESIGNER: CHECKER:

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-1 ROLL XXX FRAME

FILE: L:\work\38783\Cadd\Work\S\April 2007\Northbound Elevation.dwg
DATE: Jun 05, 2007, TIME: 11:13am



CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBX1123

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING FRAMING PLAN

DWG. NO.	SCALE:	DATE:	SHEET NO.
S-3	1:10	APRIL 2007	

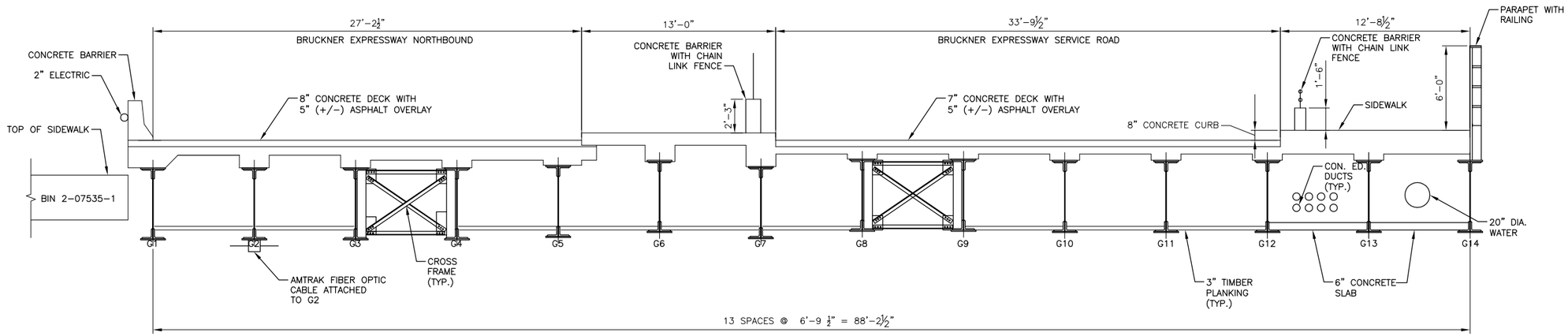
EARTH TECH
200 Liberty Street
New York, NY 10281

0 10 20
SCALE IN FEET

PREPARED BY
IN CHARGE OF: XX DRAFTER:
DESIGNER: CHECKER:

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-1 ROLL XXX FRAME

FILE: L:\work\39783\Cadd\Work\Sj\Meeting March 2007\KRS ALTERNATIONS\FRAMING PLAN SOUTH BOUND.dwg
DATE: Jun 05, 2007, TIME: 11:10am



LOOKING EAST
Scale: 1:4

NOTE:
HAUNCH HEIGHTS VARY.

THIS DRAWING SUPERSEDES DRAWING S-4

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBX1123

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING SECTION

DWG. NO.	SCALE:	DATE:	SHEET NO.
S-4R	3" = 1'-0"	AUGUST 2007	

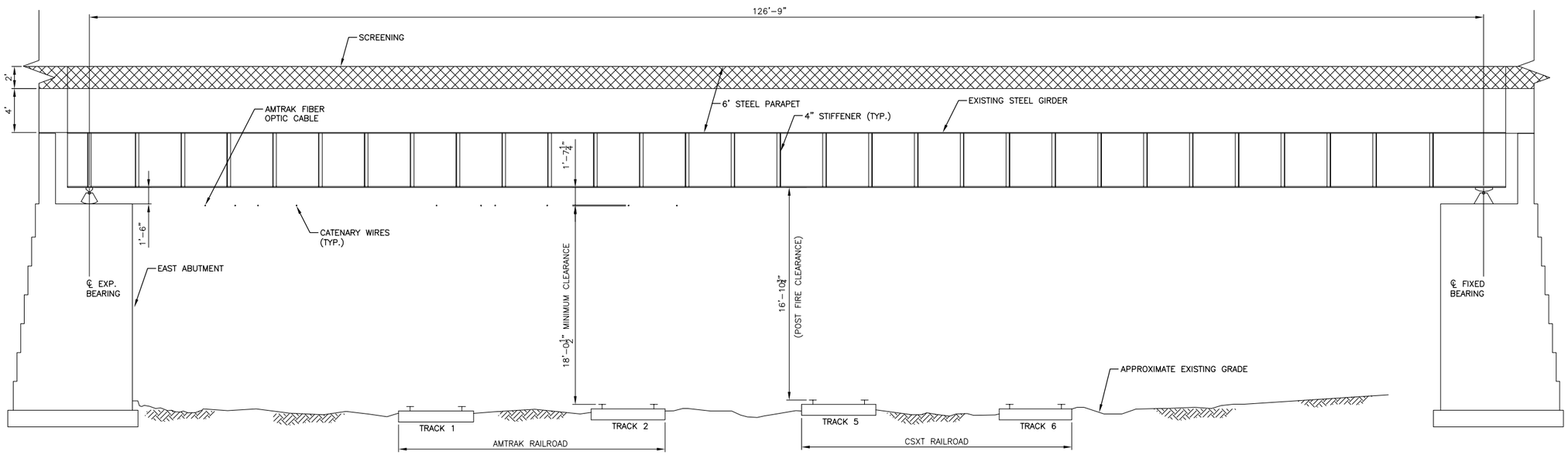
EARTH TECH
200 Liberty Street
New York, NY 10281

0 .25 .5 1
SCALE IN FEET

PREPARED BY
IN CHARGE OF: _ XX _ DRAFTER: _ _ _ _
DESIGNER: _ _ _ _ CHECKER: _ _ _ _

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

FILE: L:\work\96783\Cadd\Work\St\August 2007\Developed Section.dwg
DATE: Aug 21, 2007, TIME: 10:57am



1 LOOKING NORTH
Scale: 3/16" = 1'-0"

THIS DRAWING SUPERSEDES DRAWING S-5

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBX1123

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING ELEVATION

DWG. NO.	SCALE:	DATE:	SHEET NO.
S-5R	3/16" = 1'-0"	AUGUST 2007	

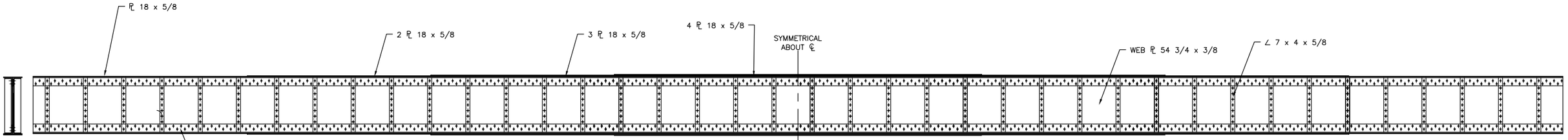
EARTH TECH
200 Liberty Street
New York, NY 10281

0 6 12
SCALE IN FEET

PREPARED BY
IN CHARGE OF: XX DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

FILE: L:\work\36783\Cadd\Work\S1\August 2007\Southbound Elevation.dwg
DATE: Aug 21, 2007, TIME: 11:12am

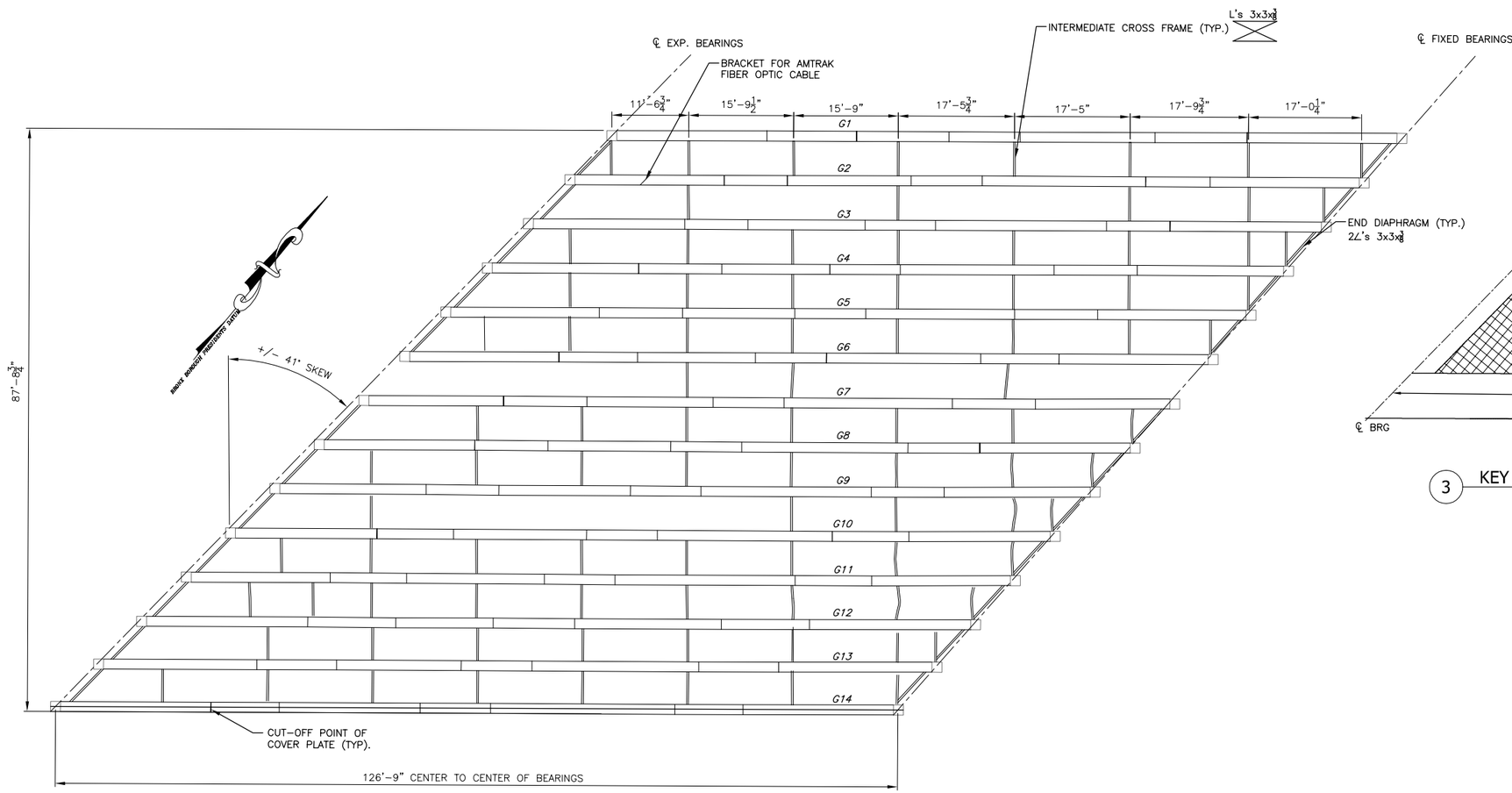


2 TYPICAL GIRDER ELEVATION

Scale: 1" = 4'

0 4 8

SCALE IN FEET

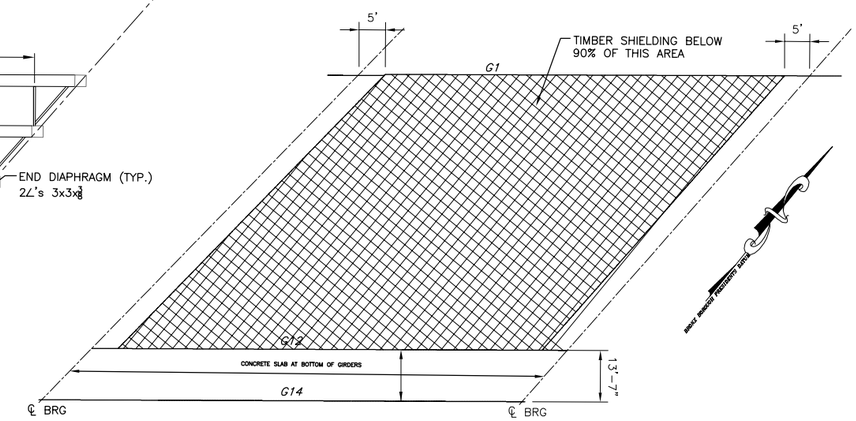


1 FRAMING PLAN - NORTHBOUND BRUCKNER EXPRESSWAY

Scale: 1" = 10'

0 10 20

SCALE IN FEET



3 KEY PLAN - TIMBER SHIELDING

Scale: 1" = 20'

0 20 40

SCALE IN FEET

THIS DRAWING SUPERSEDES DRAWING S-6

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBX1123

REHABILITATION OF N/B & S/B BRUCKNER EXPRESSWAY BRIDGES OVER AMTRAK AND CSXT RAILROADS

BOROUGH OF BRONX B.I.N. 2-07535-1 & 2

EXISTING FRAMING PLAN

DWG. NO.	SCALE:	DATE:	SHEET NO.
S-6R	AS SHOWN	AUGUST 2007	

EARTH TECH
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: XX DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

FILE: L:\work\96783\Codd\Work\SN\August 2007\FRAMING PLAN NORTH BOUND.dwg
DATE: Aug 21, 2007, TIME: 11:14am

```
            Project Name: bruckner
             Description:
Horizontal Alignment Name: NB1_BRUCKNER
             Description: 04-09-07
                   Style: default
                                          STATION      NORTHING       EASTING

Element: Linear
             POB (        )            8+58.650   -14221.0589    15029.2858
           EQNBK (        )            8+58.650   -14221.0589    15029.2858
          EQNAHD (        )        NB1 8+58.650   -14221.0589    15029.2858
              PC (        )       NB1 10+01.042   -14081.4297    15057.1994
         Tangent Direction:       N 11^18'18" E
            Tangent Length:             142.392

Element: Circular
              PC (        )       NB1 10+01.042   -14081.4297    15057.1994
              PI (        )       NB1 10+73.138   -14010.7330    15071.3326
              CC (        )                       -14120.6364    15253.3189
              PT (        )       NB1 11+39.433   -13965.3142    15127.3228
                     Radius:             200.000
                      Delta:           39^38'46" Right
  Degree of Curvature(Arc):           28^38'52"
                     Length:             138.391
                    Tangent:              72.096
                      Chord:             135.647
           Middle Ordinate:              11.851
                   External:             12.598
         Tangent Direction:       N 11^18'18" E
          Radial Direction:       S 78^41'42" E
           Chord Direction:       N 31^07'42" E
          Radial Direction:       S 39^02'55" E
         Tangent Direction:       N 50^57'05" E

Element: Linear
              PT (        )       NB1 11+39.433   -13965.3142    15127.3228
             POE (        )       NB1 15+08.292   -13732.9407    15413.7823
         Tangent Direction:       N 50^57'05" E
            Tangent Length:             368.858
```

```
            Project Name: bruckner
             Description:
Horizontal Alignment Name: NB2_BRUCKNER
             Description: 04-09-07
                   Style: default
                                          STATION      NORTHING       EASTING

Element: Linear
            POB (        )        NB2 8+33.606   -14212.4819    14995.6690
          EQNBK (        )            8+33.606   -14212.4819    14995.6690
         EQNAHD (        )        NB2 8+33.606   -14212.4819    14995.6690
             PC (        )        NB2 9+76.959   -14071.6832    15022.6072
        Tangent Direction:       N 10^49'52" E
           Tangent Length:             143.353

Element: Circular
             PC (        )        NB2 9+76.959   -14071.6832    15022.6072
             PI (        )       NB2 10+68.248   -13982.0200    15039.7620
             CC (        )                       -14118.6622    15268.1535
             PT (        )       NB2 11+52.016   -13924.5094    15110.6584
                   Radius:             250.000
                    Delta:           40^07'13" Right
  Degree of Curvature(Arc):          22^55'06"
                   Length:             175.057
                  Tangent:              91.290
                    Chord:             171.503
          Middle Ordinate:              15.167
                 External:              16.146
        Tangent Direction:       N 10^49'52" E
         Radial Direction:       S 79^10'08" E
          Chord Direction:       N 30^53'29" E
         Radial Direction:       S 39^02'55" E
        Tangent Direction:       N 50^57'05" E

Element: Linear
             PT (        )       NB2 11+52.016   -13924.5094    15110.6584
            POE (        )       NB2 15+41.346   -13679.2388    15413.0169
        Tangent Direction:       N 50^57'05" E
           Tangent Length:             389.331
```

```
            Project Name: bruckner
             Description:
Horizontal Alignment Name: SB1_BRUCKNER
             Description: 04-13-07
                   Style: default
                                          STATION      NORTHING       EASTING

Element: Linear
            POB (        )        SB1 7+86.195   -14184.8468    14904.1603
          EQNBK (        )            7+86.195   -14184.8468    14904.1603
         EQNAHD (        )        SB1 7+86.195   -14184.8468    14904.1603
             PC (        )        SB1 8+55.537   -14119.4181    14927.1240
        Tangent Direction:       N 19^20'23" E
           Tangent Length:              69.342

Element: Circular
             PC (        )        SB1 8+55.537   -14119.4181    14927.1240
             PI (        )        SB1 8+84.484   -14092.1037    14936.7106
             CC (        )                       -13457.0832    13039.9800
             PT (        )        SB1 9+13.428   -14064.5232    14945.5026
                   Radius:            2000.000
                    Delta:            1^39'31" Left
  Degree of Curvature(Arc):           2^51'53"
                   Length:              57.892
                  Tangent:              28.948
                    Chord:              57.890
          Middle Ordinate:               0.209
                 External:               0.209
        Tangent Direction:       N 19^20'23" E
         Radial Direction:       S 70^39'37" E
          Chord Direction:       N 18^30'37" E
         Radial Direction:       S 72^19'08" E
        Tangent Direction:       N 17^40'52" E

Element: Linear
             PT (        )        SB1 9+13.428   -14064.5232    14945.5026
             PC (        )       SB1 10+24.194   -13958.9901    14979.1443
        Tangent Direction:       N 17^40'52" E
           Tangent Length:             110.765

Element: Circular
             PC (        )       SB1 10+24.194   -13958.9901    14979.1443
             PI (        )       SB1 10+57.651   -13927.1138    14989.3058
             CC (        )                       -13993.3105    15086.8064
             PT (        )       SB1 10+89.249   -13905.9079    15015.1839
                   Radius:             113.000
                    Delta:           32^59'09" Right
  Degree of Curvature(Arc):          50^42'15"
                   Length:              65.055
                  Tangent:              33.457
                    Chord:              64.161
          Middle Ordinate:               4.649
                 External:               4.849
        Tangent Direction:       N 17^40'52" E
         Radial Direction:       S 72^19'08" E
          Chord Direction:       N 34^10'27" E
         Radial Direction:       S 39^19'59" E
        Tangent Direction:       N 50^40'01" E

Element: Linear
             PT (        )       SB1 10+89.249   -13905.9079    15015.1839
             PC (        )       SB1 11+63.444   -13858.8810    15072.5719
        Tangent Direction:       N 50^40'01" E
           Tangent Length:              74.195

Element: Circular
             PC (        )       SB1 11+63.444   -13858.8810    15072.5719
             PI (        )       SB1 11+90.820   -13841.5293    15093.7466
             CC (        )                       -15405.8298    16340.2269
             PT (        )       SB1 12+18.193   -13824.7637    15115.3882
                   Radius:            2000.000
                    Delta:            1^34'06" Right
  Degree of Curvature(Arc):           2^51'53"
                   Length:              54.749
                  Tangent:              27.376
                    Chord:              54.747
```

```
          Middle Ordinate:              0.187
                 External:              0.187
        Tangent Direction:      N 50^40'01" E
         Radial Direction:      S 39^19'59" E
          Chord Direction:      N 51^27'04" E
         Radial Direction:      S 37^45'53" E
        Tangent Direction:      N 52^14'07" E

Element: Linear
             PT (        )      SB1 12+18.193   -13824.7637    15115.3882
             PC (        )      SB1 12+88.525   -13781.6906    15170.9885
        Tangent Direction:      N 52^14'07" E
           Tangent Length:             70.333

Element: Circular
             PC (        )      SB1 12+88.525   -13781.6906    15170.9885
             PI (        )      SB1 13+12.072   -13767.2702    15189.6028
             CC (        )                      -12200.6245    13946.1498
             PT (        )      SB1 13+35.616   -13752.4156    15207.8726
                     Radius:           2000.000
                      Delta:           1^20'57" Left
  Degree of Curvature(Arc):           2^51'53"
                     Length:             47.091
                    Tangent:             23.547
                      Chord:             47.090
          Middle Ordinate:              0.139
                 External:              0.139
        Tangent Direction:      N 52^14'07" E
         Radial Direction:      S 37^45'53" E
          Chord Direction:      N 51^33'39" E
         Radial Direction:      S 39^06'49" E
        Tangent Direction:      N 50^53'11" E

Element: Linear
             PT (        )      SB1 13+35.616   -13752.4156    15207.8726
            POE (        )      SB1 15+98.313   -13586.6903    15411.6979
        Tangent Direction:      N 50^53'11" E
           Tangent Length:            262.697
```

```
            Project Name: bruckner
             Description:
Horizontal Alignment Name: SB2_BRUCKNER
             Description: 04-13-07
                   Style: default
                                          STATION      NORTHING       EASTING

Element: Linear
            POB (        )            8+08.435   -14195.5816    14934.7463
          EQNBK (        )            8+08.435   -14195.5816    14934.7463
         EQNAHD (        )        SB2 8+08.435   -14195.5816    14934.7463
             PC (        )       SB2 10+04.743   -14010.3505    14999.7572
        Tangent Direction:       N 19^20'23" E
           Tangent Length:             196.308

Element: Circular
             PC (        )       SB2 10+04.743   -14010.3505    14999.7572
             PI (        )       SB2 10+75.361   -13943.7181    15023.1434
             CC (        )                       -14093.1423    15235.6502
             PT (        )       SB2 11+42.392   -13899.1684    15077.9349
                   Radius:             250.000
                    Delta:           31^32'48" Right
  Degree of Curvature(Arc):          22^55'06"
                   Length:             137.648
                  Tangent:              70.617
                    Chord:             135.916
          Middle Ordinate:               9.414
                 External:               9.782
        Tangent Direction:       N 19^20'23" E
         Radial Direction:       S 70^39'37" E
          Chord Direction:       N 35^06'47" E
         Radial Direction:       S 39^06'49" E
        Tangent Direction:       N 50^53'11" E

Element: Linear
             PT (        )       SB2 11+42.392   -13899.1684    15077.9349
            POE (        )       SB2 15+73.303   -13627.3232    15412.2770
        Tangent Direction:       N 50^53'11" E
           Tangent Length:             430.911
```

Appendix C
Public Utility Plans

APPENDIX C- TABLE OF CONTENTS

1 Letter from NYCDEP dated February 1, 2007
2 Letter from NYCDEP dated April 5, 2007
3 Letter from NYCDEP dated April 18, 2007
4 NYCDEP Water Map
5 NYCDEP Sewer Map
6 Electrical Distribution Plan – See Note 1

Note: The drawings in Appendix C will be included on the technical reference CD to be provided to short-listed Proposers. The drawings can be reprinted at a larger scale. The NYCDEP Water Map can be printed in color.

Note 1 – This drawing was taken from NYS Department of Public Works Contract FIBE 66-1 and is provided for information only. The New York City Department of Transportation makes no guarantee as its accuracy. Additional drawings from Consolidated Edison Company of New York Inc. can be found in Exhibit G.

The City of New York

DEPARTMENT OF ENVIRONMENTAL PROTECTION
59-17 Junction Boulevard
Flushing, New York 11373

Emily Lloyd
Commissioner
Tel. (718) 595-6565
Fax (718) 595-3525
elloyd@dep.nyc.gov

James J. Roberts, P.E.
Acting Deputy Commissioner

Bureau of Water and Sewer Operations

Tel (718) 595-5330
Fax (718) 595-5342
jroberts@dep.nyc.gov

February 1, 2007

Mr. Joseph Matarazzo
Earth Tech
1 World Financial Center
New York, N.Y. 10381

Dear Mr. Matarazzo:

We are in receipt of your fax/letter of January 30, 2007 requesting utility information at the location(s) listed below in the borough of the Bronx.

STREET	FROM	TO
Bruckner Expwy. (Service Rd.)	Longfellow Ave.	Whittier St.

Enclosed are the water map(s) for the above requested location(s)

These maps are based on the best information available for the water mains and appurtenances in the streets contiguous to this area. Please be advised that water mains are normally installed at depths ranging from 42" to 48".

Requests for information can be mailed to the above-mentioned address or faxed to (718) 595-5781. Please make sure you clarify specific street limits or forward a clear site plan. It is advisable that requests for information are submitted to this office at least two (2) weeks before the beginning of any work. Requests for sewer as builts will not be processed through this office. If information is needed in relation to sewer as built drawings, locations of sewers, water/sewer permits and connections contact the Bronx borough office at 1932 Arthur Avenue. Bronx, N.Y. 10457. The telephone number is (718) 579-6989.

Vincent J. Soriano, Chief
BW&SO Central Mapping/Records

xc: File
ct/ B538

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP
www.nyc.gov/dep
DIAL 311 Government Information and Services for NYC

The City of New York

DEPARTMENT OF ENVIRONMENTAL PROTECTION

59-17 Junction Boulevard
Flushing, New York 11373

Emily Lloyd
Commissioner

James J. Roberts, P. E.,
Deputy Commissioner

Bureau of Water and Sewer Operations

Tel (718)-595-5329
Fax (718)-595-5342
jroberts@dep.nyc.gov

April 5, 2007

NYC Department of Transportation
Division of Bridges
2 Rector Street- 5th Floor
New York, NY 10006

Attn: Dukens Celestin, P.E
Project Manager

RE: Contract No: HBX 1123
Bridge Rehabilitation-BIN 2-07535-1 & 2
Bruckner Expressway and Service Roads over Amtrak & CSXT Railroads
Borough of the Bronx

Dear Mr. Celestin:

Reference is made to the Design/Build Contract for the referenced project submitted to this office with your letter of transmittal dated February 21, 2007. Please be advised of the following request made by our System Operations Division:

There are 20" and 8"dia. existing water mains within the project limits. The existing 20"dia. water main shall be replaced in kind and the existing 8"dia. water main shall be replaced with a new 12"dia pipe.

All future submission and correspondence must be addressed to Kailash C. Sharma, P.E., Chief, Division of Review and Construction Compliance, Bureau of Water and Sewer Operations. 59-17 Junction Boulevard, 3rd Floor- Low Rise, Flushing, NY 11373-5108

Very truly yours,

Irina Veytsman, P.E.
Chief, Plan Review Section

XC: Sharma, Veytsman, Kuchynsky, Opendik, Rahman, File, MR: mr

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP
www.nyc.gov/dep
DIAL 311 Government Information and Services for NYC

The City of New York

DEPARTMENT OF ENVIRONMENTAL PROTECTION

59-17 Junction Boulevard
Flushing, New York 11373

Emily Lloyd
Commissioner

Tel. (718) 595-6565
Fax (718) 595-3525
elloyd@dep.nyc.gov

James J. Roberts, P.E.,
Deputy Commissioner

Bureau of Water and Sewer Operations

Tel (718)-595-5329
Fax (718)-595-5342
jroberts@dep.nyc.gov

April 18, 2007

NYC Department of Transportation
Division of Bridges
2-Rector Street, 5TH Floor
New York, NY 10006

Attn: Dukens Celestin, P.E.

RE: Contact No. HBX 1123
Bridge Rehabilitation BIN 2-07535-1 & 2
Bruckner Expressway and Service Roads over Amtrak and CSXT Railroads

Dear Mr. Celestin,

Your submittal of Plans for above referenced project has been transferred to Engineering and Planning Unit on February 27, 2007 and their comments are as follows:

1. In the South side of Bruckner Boulevard, between Whittier Street and Bryant Avenue, there is a 20-inch water main (1939/1958) that is of appropriate size and should be replaced-in-kind. This main is subject to the summer shutdown embargo, i.e. it must be in service between May 15 and September 15. Other shutdown restrictions may be imposed at the time of construction, depending on the status of other active projects in the area.

2. In the North side of Bruckner Boulevard, between Whittier Street and Whitlock Avenue, there is an 8-inch water main (1923/1926/1931) that should be upgraded to a new 12-inch water main. On the West side of the bridge, this new main should connect to the existing 12-inch main on the West side of Whitlock Avenue at the intersection of Longfellow Avenue. The existing 8-inch mains, as well as 12-inch main on the East side of Whitlock Avenue between Bruckner Boulevard and Aldus Street, currently have a one-way feed from the East. The 8-inch main across the bridge cannot be taken out of service for an extended time period without providing an alternate feed.

3. In the East side of Whitlock Avenue, between Bruckner Boulevard and Aldus Street there is a 12-inch water main (1923/1931) that should be abandoned in place. Any active services should be transferred to the existing 12-inch main on the West side of Whitlock Avenue.

4. In Bruckner Boulevard, in the intersection of Whittier Street, there is a 12-inch main (1923/1931/1939) across the boulevard and perpendicular to the bridge that is of appropriate size and should be replaced-in-kind. The existing 12-inch main, as well as the 12-inch main on the North side of Bruckner Boulevard, currently out of service for an extended time period without providing an alternate feed.

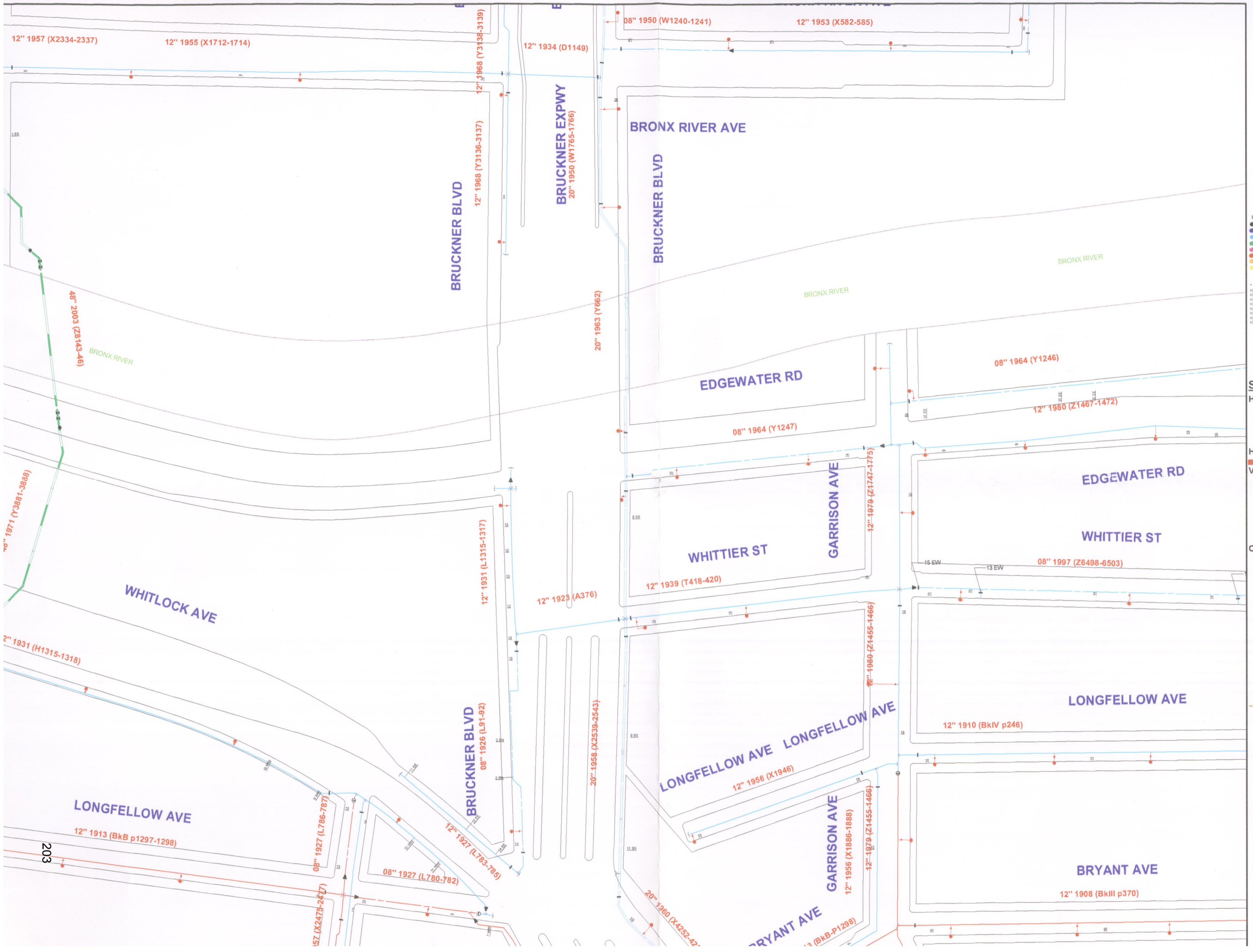
NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP
www.nyc.gov/dep
DIAL 311 Government Information and Services for NYC

If you have any questions regarding this project, please call Vladimir Opendik P.E. at (718) 595-4232 or Victor Shevchenko at (718) 595-7671.
Address all submissions and correspondence to Kailash C. Sharma, P.E., Chief, Division of Review and Construction Compliance, NYC DEP, Bureau of Water and Sewer Operations, 59-17 Junction Boulevard, 3rd Floor, Low-Rise, Flushing, New York 11373-5108

Very truly yours,

Irina Veytsman, P.E.,
Chief, Plan Review Section

xc: Sharma, Veytsman, Opendik, Shevchenko, VS:vs



WATER MAIN DISTRIBUTION MAP
from GDS Geodatabase (JWS excluded)

LEGEND MAIN SIZE DIAMETER

2	14	36
4	16	42
6	18	48
8	20	54
10	24	60
12	30	72
		96

MAINS WITH C, S REFER TO MATERIAL OF CONCREETE , STEEL RESPECTIVELY

12" 1994 (1324)[RED111] **Pipe text refers to water main data. Size, year installed,record source,and contract respectively. Year installed "1850" is used as a default for water mains with an unknown year or no record of installation. When multiple mains exist ,text 'STACKED' above one another means the top text belongs to the top most main**

Perpendicular Distance main is from parallel curb. In this case 12'

COLOR	*PRESSURE GRADIENTS	MATERIAL	YEAR
	Q07,R05	UNKNOWN	PRIOR TO 1900
	K01,M03,Q02,X07	LCP(LINED CAST)	1901-1939
	K05,M01,Q09,R03,R04,R07,X01	PVC(PLASTIC)	1940-1989
	K06,M05,Q05,R09,X06	STL(STEEL)	1991-1990
	M07,Q06,Q08,R06,X04	DIP(DUCTILE IRON)	1991-1999
	K03,M02,M04,Q03,Q04,R08,X03	CIP(CAST IRON)	2000 TO PRESENT
		RCP(CONCRETE)	
		XXX(OTHER)	UNKNOWN

the above color schemes apply to one of 3 symbology themes. See the catalog tree for the layer(s) you have 'checked' visible. By default the color is by Pressure gradient only.

K02 regulated low
K03 regulated intermediate
K05 unregulated high
K06 pump low
K02 regulated low
K03 regulated intermediate
K05 unregulated high
K06 pump low

M01 low
M02 south intermediate
M03 middle intermediate
M04 north intermediate
M06 unregulated high
M07 tower

Q02 regulated low
Q03 regulated intermediate
Q04 boosted pumped
Q05 regulated high
Q06 regulated very high
Q07 pumped low
Q08 pumped intermediate
Q09 unregulated

R03 regulated intermediate
R04 regulated high
R05 gravity
R06 booster pumped(annadale)
R07 pumped low
R08 pumped intermediate
R09 pumped high

X01 low
X03 intermediate
X04 marble hill intermediate
X06 unregulated high
X07 boosted high rosedale p.s.

SYMBOLS

HYDRANTS
- BREAKAWAY
- STANDARD
- UNKNOWN

HYDRANT VALVE

VALVE
- Closed or Boundary butterfly
- Open Butterfly
- Open Check
- Closed or Boundary or Gate
- Open Gate

Connections
- GAUG, <Null>
- CAP
- PLUG
- 3WAY
- 4WAY
- VENTURI
- REDUCER
- AIR VENT
- EXPANSION JOINT
- MANHOLE
- TRANSFORMER
- UPDATED mains CENTERLINE

CHECK VALVE LOCATION — Along boundaries valve prior to check is generally closed.

#1234 - Valve ID #
12 SN - 12' south of North curb
15 EW - 15' east of west curb

HYDRANT DIMENSIONS

R20-0123 denotes GDS # from previous maps

#1234 - Hydrant ID #
2 - Distance between hyd appertenacnces

Hydrant valve box may not be shown in its true relation to the hydrant branch
Refer to dimensions when available

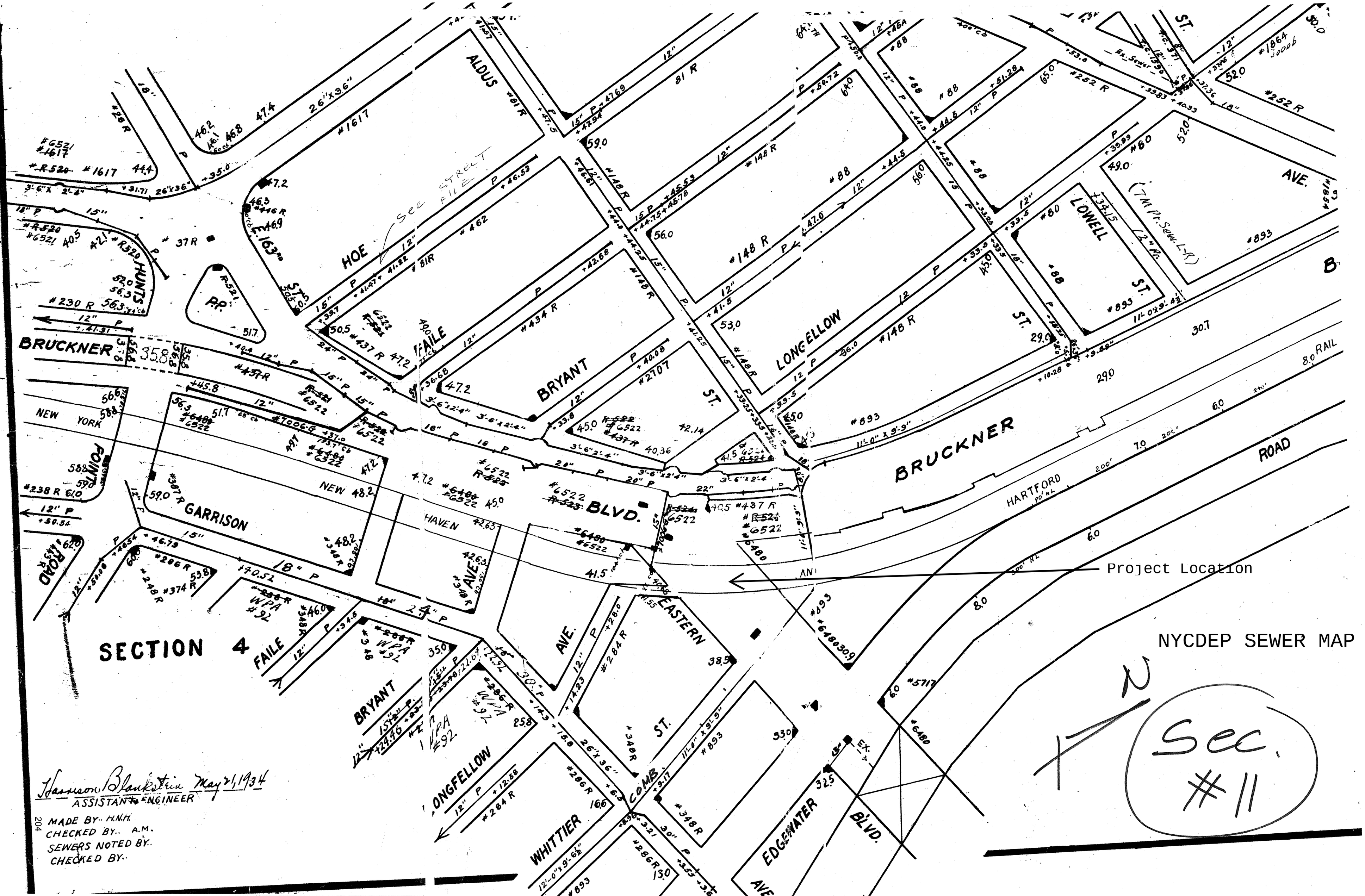
Not Updated See Record FC 1234

new mains installed which are not revised on this map.
See latest records. 'Fc' denotes field card # . 'In SVC' denotes in-service sheet

Omissions, additions and corrections should be brought to the immediate attention of BWSO Mapping
This map was created from the GDS database and was transformed into a seamless GIS database.
Original information comes from the latest PLOTTED GDS maps.
The topographical basemap does NOT match that of the citywide planemetric.

THIS MAP WAS CREATED FROM INFORMATION CREATED IN GDS, PLOTTED IN THE START OF YEAR 2006.

CHECK WITH BWS MAPPING FOR LATEST CHANGES.


ALDUS
HOE
FAILE
BRYANT
LONGFELLOW
LOWELL
BRUCKNER
BLVD.
HARTFORD
ROAD
GARRISON
HUNTS
POINT
NEW YORK
HAVEN
AVE.
EASTERN
COMB
WHITTIER
EDGEWATER
SECTION 4
WPA #92
Project Location
NYCDEP SEWER MAP
Sec. #11
Harrison Blankstein May 21, 1934
ASSISTANT ENGINEER
MADE BY H.N.H.
CHECKED BY A.M.
SEWERS NOTED BY
CHECKED BY

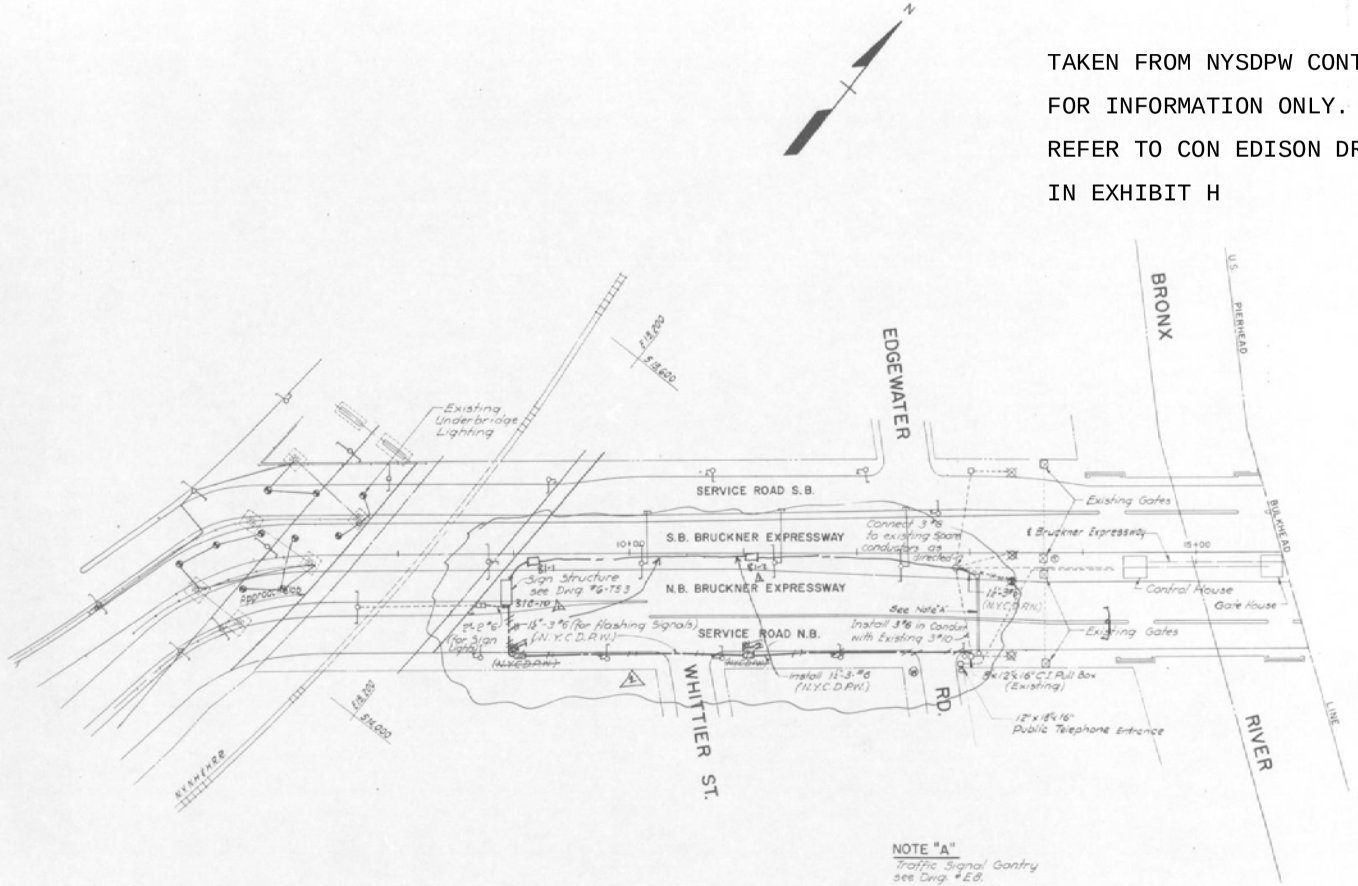
CONTRACT 6				
FED. RD. REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	NEW YORK		73R1	
GRADING, DRAINAGE, PAVING, STRUCTURES, ETC. BRYANT AVENUE TO WHITE PLAINS ROAD				

TAKEN FROM NYSDPW CONTRACT FIBE66-01

FOR INFORMATION ONLY.

REFER TO CON EDISON DRAWINGS

IN EXHIBIT H



As Built Revisions
Added Electrical Identification Nos.
Revised Electrical Run

BRUCKNER EXPRESSWAY SECTION 2			
ELECTRICAL DISTRIBUTION PLAN			
DRAWING NO. E-1A	SCALE 1"=50'	DATE 12-29-65	SHEET NO. 73R1
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS NEW YORK KANSAS CITY			

Revised By

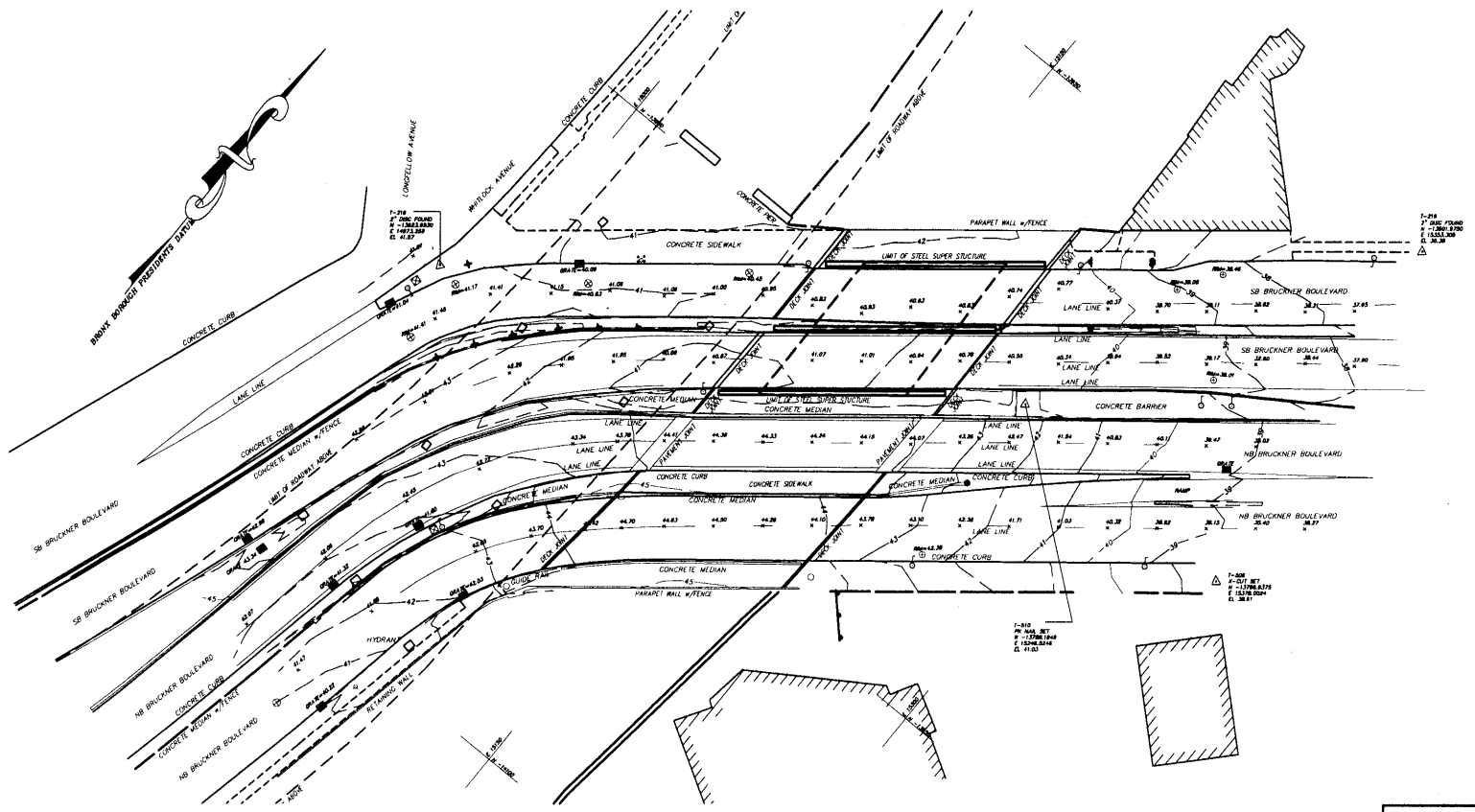
205

Appendix D
Survey Data

This is an existing survey. The Company must verify accuracy of this data.

APPENDIX D- TABLE OF CONTENTS

1 Plan – Existing Conditions
2 Underdeck – Existing Conditions
3 Track Level – Existing Conditions



NOTES / REFERENCES

1. SURVEY DATUM IS THE BRONX BOROUGH PRESIDENTS DATUM.

2. INFORMATION SHOWN HEREON BASED ON FIELD INSTRUMENT SURVEY (HIGH DEFINITION 3-D LASER SCANNING) PERFORMED DURING NOVEMBER 2006, BY MEDINA CONSULTANTS.

3. SURFACE CONTOURS DEVELOPED FROM "POINT CLOUD MODEL", RESULTS OF REFERENCES NO. 2

LEGEND

GUIDE RAIL
SIDEWALK
BUILDING
CHAIN LINK FENCE
MAJOR CONTOUR INTERVAL
MINOR CONTOUR INTERVAL
SURVEY CONTROL POSITION
SPOT ELEVATION
DRAINAGE STRUCTURE
UTILITY MANHOLE
UTILITY, LIGHTING, POLE
POST (BOLLARD)
HYDRANT
SIGN, POST
SIGN POST
SIGN POST
CONCRETE PIER

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

James F.Steere III
NY PROFESSIONAL LAND SURVEYOR NO. 050167-1

PLAN

EXISTING CONDITIONS

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBESA00D

EMERGENCY REPAIRS FOR THE
BRUCKNER EXPRESSWAY OVER AMTRAK & CSX

BOROUGH OF BRONX B.I.N. 2-07535-2

MEDINA CONSULTANTS
One Edgeview Drive
Hackettstown, NJ 07840
Tel: (908)850-3366

DWG. NO.	SCALE:	DATE:	SHEET NO.
		Dec 2006	

TAMS , AN EARTH TECH COMPANY
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: ____ DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

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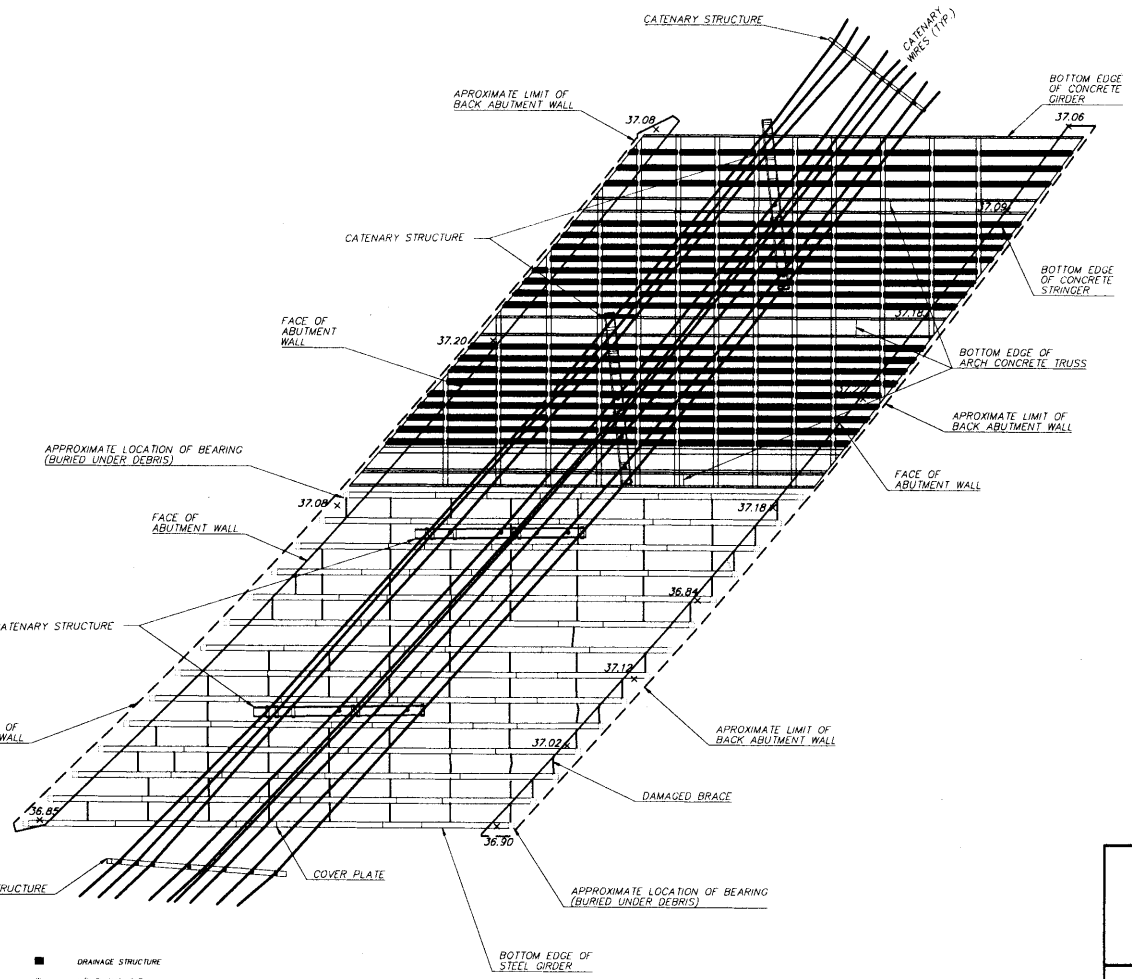
DATE: May 18, 2007.



NOTES / REFERENCES

1. SURVEY DATUM IS THE BRONX BOROUGH PRESIDENTS DATUM.
2. INFORMATION SHOWN HEREON BASED ON FIELD INSTRUMENT SURVEY (HIGH DEFINITION 3-D LASER SCANNING) PERFORMED DURING NOVEMBER 2006, BY MEDINA CONSULTANTS.
3. SURFACE CONTOURS DEVELOPED FROM "POINT CLOUD MODEL", RESULTS OF REFERENCES NO. 2

LEGEND

GUIDE RAIL
SIDEWALK
BUILDING
CHAIN LINK FENCE
MAJOR CONTOUR INTERVAL
MINOR CONTOUR INTERVAL
SURVEY CONTROL POSITION
SPOT ELEVATION
DRAINAGE STRUCTURE
UTILITY MANHOLE
UTILITY, LIGHTING, POLE
POST (BOLLARD)
HYDRANT
SIGN, POST
SIGN POST
SIGN POST
CONCRETE PIER

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 16 ft.

James F.Steere III
NY PROFESSIONAL LAND SURVEYOR NO. 050161-1

UNDER DECK
EXISTING CONDITIONS

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBESA00D

EMERGENCY REPAIRS FOR THE BRUCKNER EXPRESSWAY OVER AMTRAK & CSX

BOROUGH OF BRONX B.I.N. 2-07535-2

MEDINA CONSULTANTS
One Edgeview Drive
Hackettstown, NJ 07840
Tel: (908)850-3366

DWG. NO.	SCALE:	DATE:	SHEET NO.
		Dec 2006	

TAMS, AN EARTH TECH COMPANY
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: ____ DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

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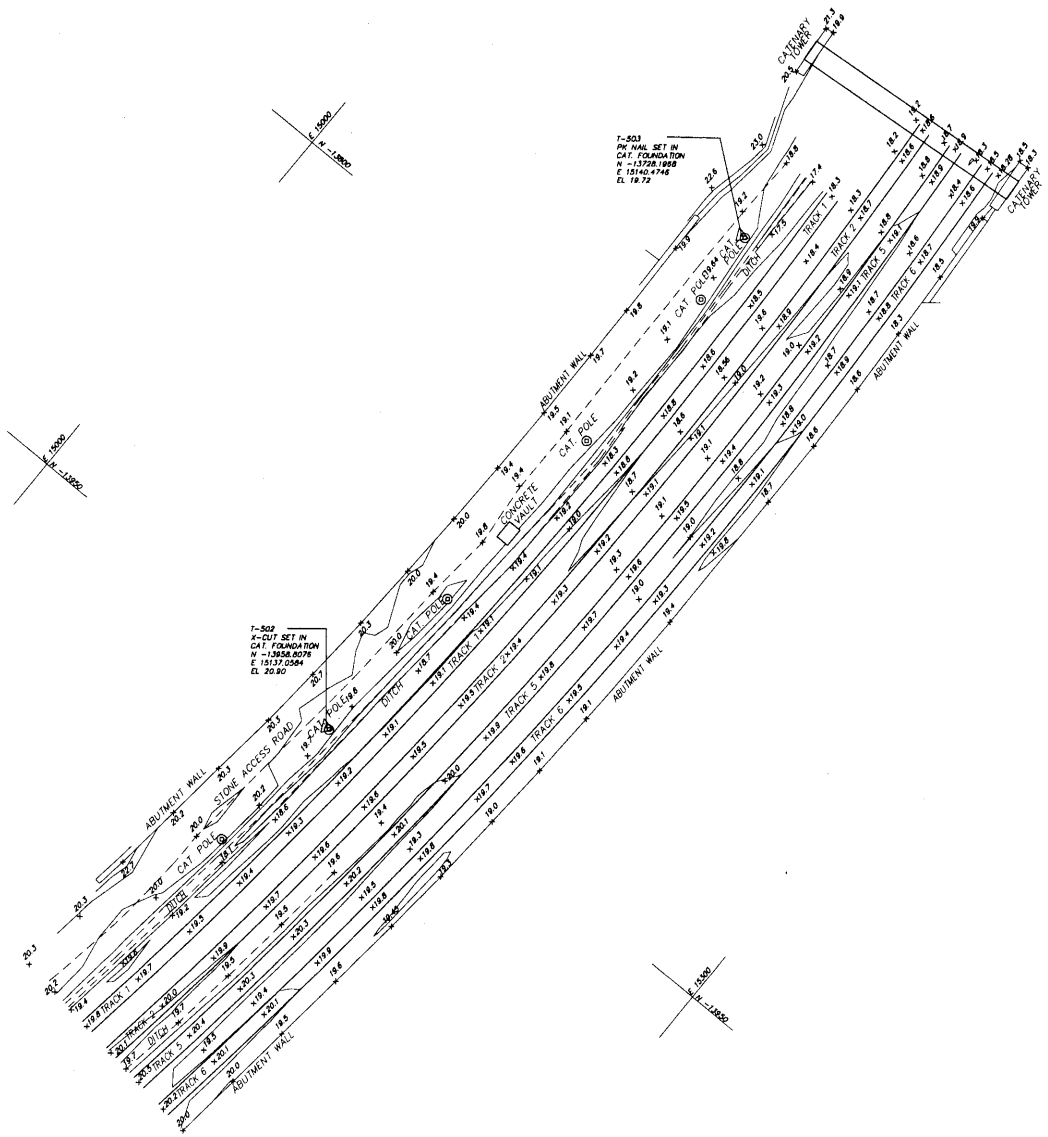
DATE: May 18, 2007



NOTES / REFERENCES

1. SURVEY DATUM IS THE BRONX BOROUGH PRESIDENTS DATUM.

2. INFORMATION SHOWN HEREON BASED ON FIELD INSTRUMENT SURVEY (HIGH DEFINTION 3-D LASER SCANNING) PERFORMED DURING NOVEMBER 2006, BY MEDINA CONSULTANTS.

3. SURFACE CONTOURS DEVELOPED FROM 'POINT CLOUD MODEL', RESULTS OF REFERENCES NO. 2

LEGEND

GUIDE RAIL
SIDEWALK
BUILDING
CHAIN LINK FENCE
MAJOR CONTOUR INTERVAL
MINOR CONTOUR INTERVAL
SURVEY CONTROL POSITION
40.55 SPOT ELEVATION
DRAINAGE STRUCTURE
UTILITY MANHOLE
UTILITY, LIGHTING, POLE
POST (BOLLARD)
HYDRANT
SIGN POST
SIGN POST
SIGN POST
CONCRETE PIER

James F.Steere III
NY PROFESSIONAL LAND SURVEYOR NO. 050167-1

TRACK LEVEL
EXISTING CONDITIONS

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES

CONTRACT NO. HBESA00D

EMERGENCY REPAIRS FOR THE
BRUCKNER EXPRESSWAY OVER AMTRAK & CSX

BOROUGH OF BRONX B.I.N. 2-07535-2

MEDINA CONSULTANTS
One Edgeview Drive
Hackettstown, NJ 07840
Tel: (908)850-3366

DWG. NO.	SCALE:	DATE:	SHEET NO.
	N.T.S.	Dec 2006	

TAMS, AN EARTH TECH COMPANY
200 Liberty Street
New York, NY 10281

PREPARED BY
IN CHARGE OF: ____ DRAFTER: ____
DESIGNER: ____ CHECKER: ____

NYCDOT MICROFILM IDENTIFICATION NUMBER
BIN 2-07535-2 ROLL XXX FRAME

FILE: L:\year\96783\Cadd\Bronx\SI\Medina March 2007\06112_TRACK PLAN_3d.dwg
TIME: 10:47am
DATE: May 18, 2007.

Appendix E
Right-of Way (ROW) Plan & Section Map

The drawings shown in this Appendix were obtained from the Bronx Borough President's Office, Topographic Bureau, located at:

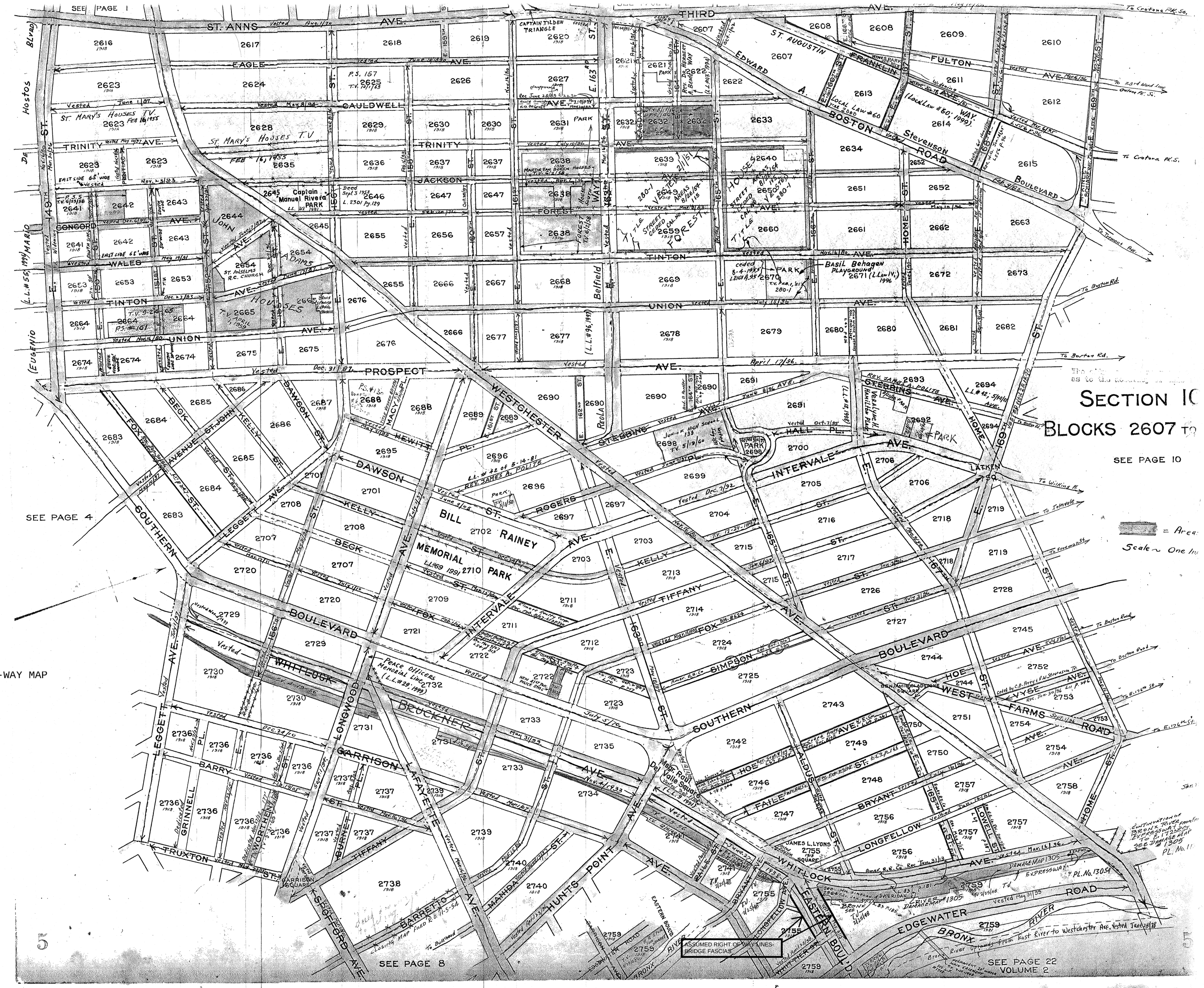
198 East 161st Street, 2nd Floor
Bronx, NY
Office Hours: 9:30 AM to 1:30 PM

Note that on the Right-of-Way drawing Bruckner Expressway & Service Roads are identified as Eastern Boulevard.

NOTICE TO BIDDERS:
NYCDOT'S ROW STOPS AT THE FASCIA GIRDERS. ANY PROPOSALS THAT MAY CONSIDER ERECTION OF STRUCTURES OUTSIDE NYCDOT'S ROW AND OVER THE RAILROAD ROW WILL BE CONSIDERED NON-RESPONSIVE.

APPENDIX E- TABLE OF CONTENTS

1 Section Map (Right of Way)
2 Final Map – Section II, Last Revision August 8, 2001 (Legal Grades)
3 Alteration Map 291-2



RIGHT-OF-WAY MAP

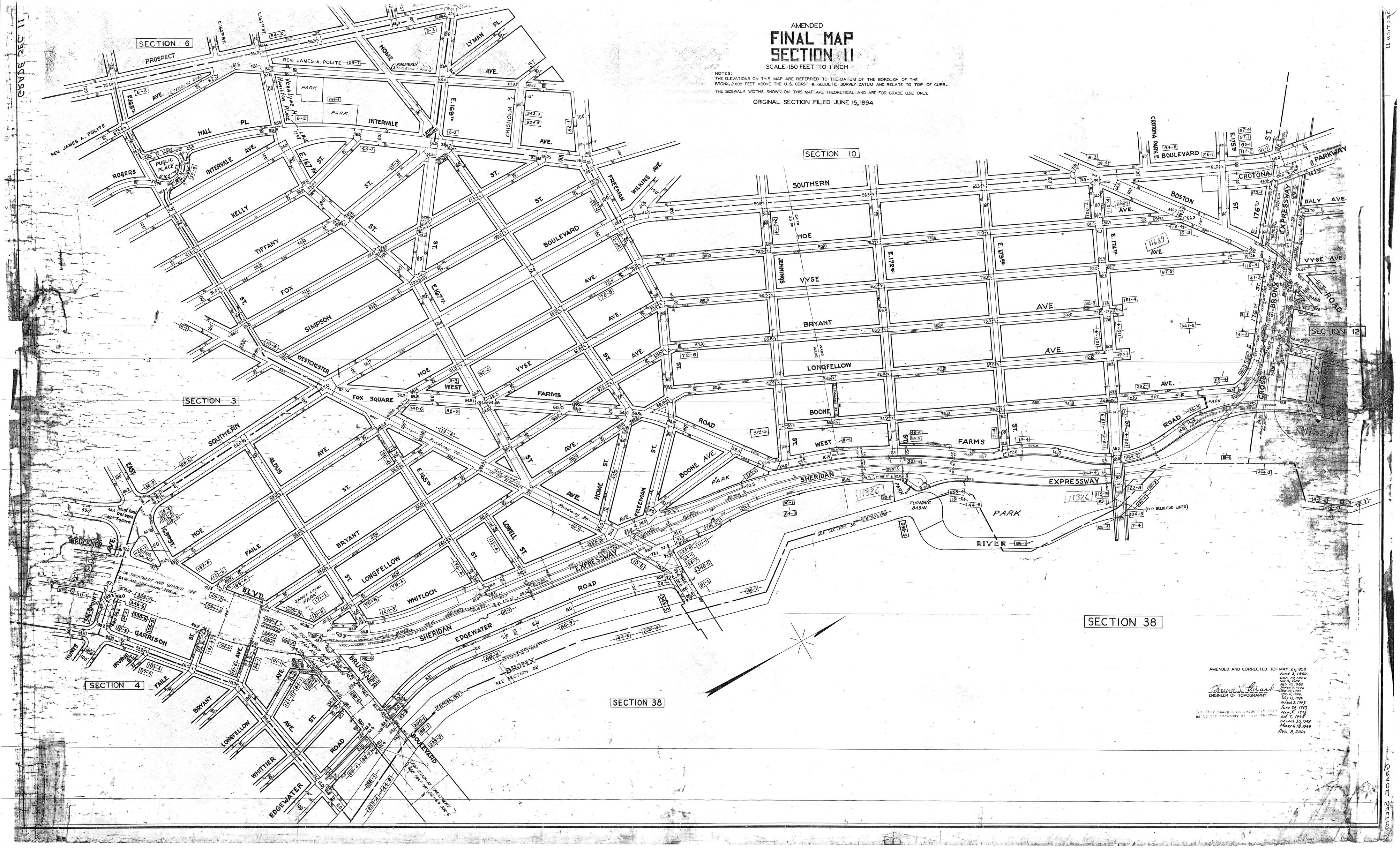
AMENDED

FINAL MAP
SECTION 11

SCALE: 150 FEET TO 1 INCH

NOTES:
THE ELEVATIONS ON THIS MAP ARE REFERRED TO THE DATUM OF THE BOROUGH OF THE BRONX, 2.608 FEET ABOVE THE U.S. COAST & GEODETIC SURVEY DATUM AND RELATE TO TOP OF CURB.
THE SIDEWALK WIDTHS SHOWN ON THIS MAP ARE THEORETICAL AND ARE FOR GRADE USE ONLY.

ORIGINAL SECTION FILED JUNE 15, 1894



AMENDED AND CORRECTED TO: MAY 27, 1958
June 3, 1960
Oct. 13, 1960
Nov. 3, 1962
Feb. 16, 1970
March 2, 1976
Nov. 29, 1977
Jan. 11, 1989
July 13, 1999
March 3, 1993
June 22, 1995
May 5, 1995
Oct. 7, 1998
December 30, 1998
March 18, 1999
Aug. 8, 2001

Thomas J. Gerard
ENGINEER OF TOPOGRAPHY

The City accepts no responsibility as to the accuracy of this reproduction.

CITY OF NEW YORK
OFFICE OF THE PRESIDENT OF THE BOROUGH OF THE BRONX
ENGINEERING BUREAU

MAP

SHOWING THE CHANGES OF GRADES
AND ROADWAY TREATMENT
IN

BRUCKNER BOULEVARD

FROM FAILE ST. TO WHITTIER ST.

AMENDMENT TO SECTION II

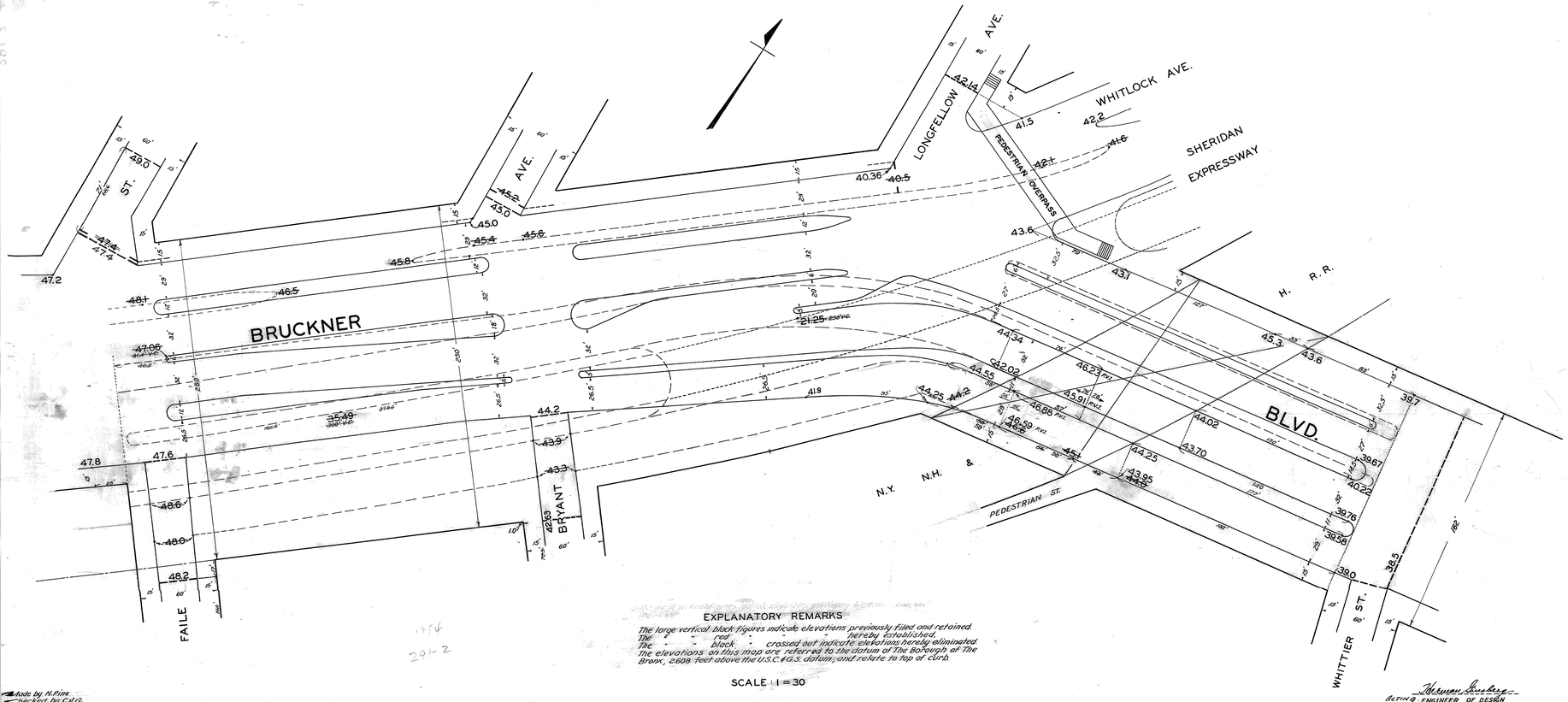
PLAN NO. 11430

DATED: NEW YORK, JULY 26, 1954

I, RUTH W. WHALEY, SECRETARY OF THE BOARD OF ESTIMATE OF THE CITY OF NEW YORK, DO HEREBY CERTIFY THAT THIS MAP IS ONE OF FOUR SIMILAR MAPS ADOPTED BY THE SAID BOARD OF ESTIMATE ON THE 29 DAY OF OCTOBER, 1954.

SECRETARY, BOARD OF ESTIMATE

ALTERATION MAP 291-2



EXPLANATORY REMARKS

The large vertical black figures indicate elevations previously filed and retained.
The " " red " " hereby established.
The " " black " " crossed out indicate elevations hereby eliminated.
The elevations on this map are referred to the datum of The Borough of The Bronx, 2.668 feet above the U.S.C. & G.S. datum, and relate to top of curb.

SCALE: 1 = 30

Made by N. Pine
Checked by C.J.G.
Date Aug. 18, 1954
F. P. #

Edward J. Flanagan
Acting CHIEF ENGINEER

Acting PRESIDENT OF THE BOROUGH OF THE BRONX

Acting ENGINEER OF DESIGN

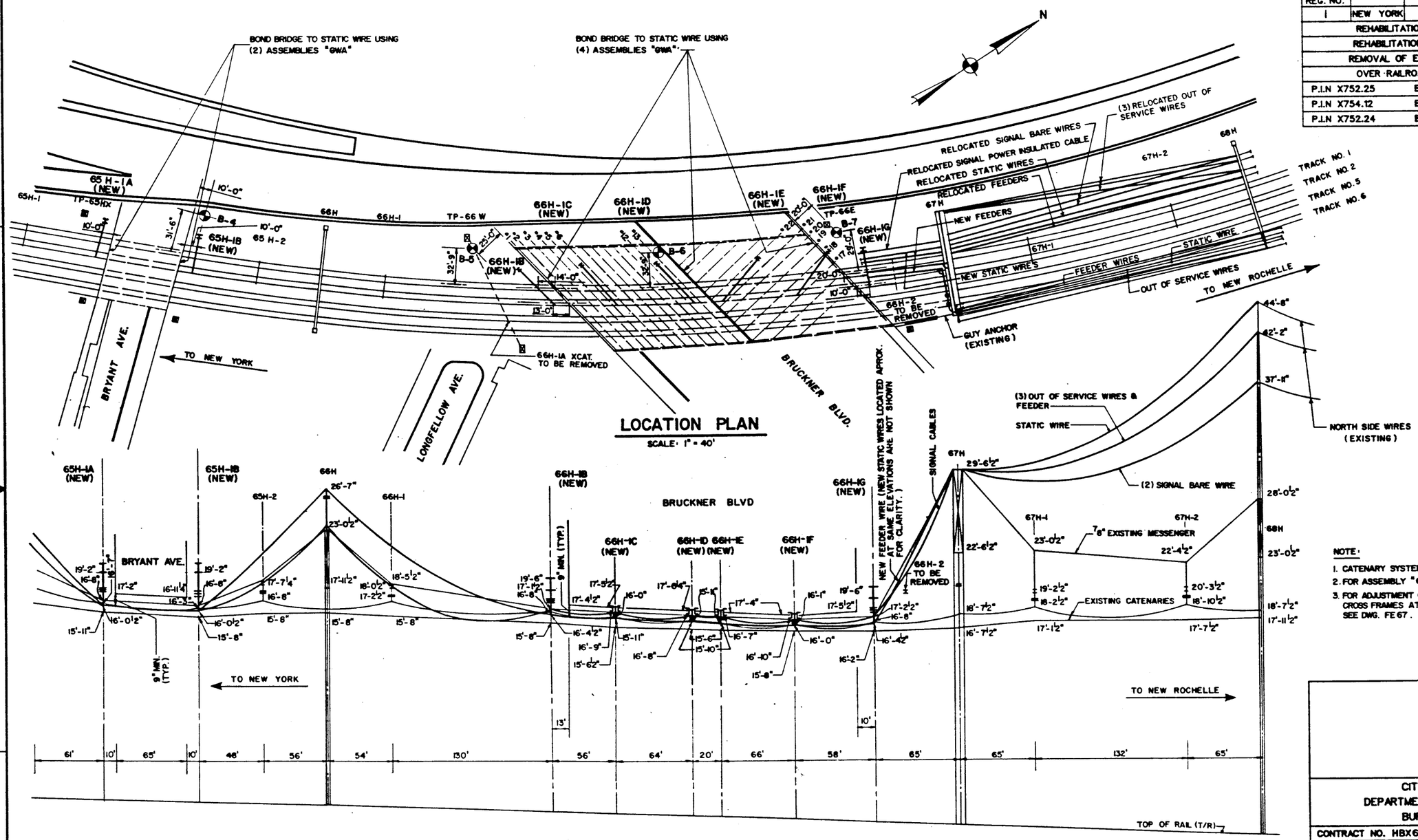
1154
291-2

Appendix F
Boring Logs

FED. RD. REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	NEW YORK		19	224

REHABILITATION OF LONGWOOD AVENUE,
REHABILITATION OF TIFFANY STREET AND
REMOVAL OF EAST 156TH STREET BRIDGES
OVER RAILROAD (AMTRAK AND CONRAIL)

P.I.N X752.25	BRONX COUNTY	B.I.N 2-24115-9
P.I.N X754.12	BRONX COUNTY	B.I.N 2-24117-0
P.I.N X752.24	BRONX COUNTY	B.I.N 2-24114-0



NOTE:
1. CATENARY SYSTEM IS SHOWN FOR REFERENCE ONLY
2. FOR ASSEMBLY "6WA" SEE DWG. FE 75
3. FOR ADJUSTMENT OF BRUCKNER BLVD. BRIDGE OF CROSS FRAMES AT STRUCTURES 66H-1C AND 66H-1D SEE DWG. FE 67.

PROFILE TRACK NO. 2
SCALE: 1" = 40' HOR.
1" = 4' VERT.

N.Y.C. D.O.T. MICROFILM IDENTIFICATION NUMBER		
BIN 2-24115	ROLL B82	FRAME 019
BIN 2-24117	ROLL D33	FRAME 019
BIN 2-24114	ROLL B81	FRAME

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES

CONTRACT NO. HBX622

ELECTRIFICATION MODIFICATIONS
B.I.N. 2-24115-9 B.I.N. 2-24117-0 B.I.N. 2-24114-0

PLAN AND PROFILE
STRUCTURE 65H-1A TO 68H

DWG. NO.	SCALE	DATE	SHEET
FE 8	AS SHOWN	8-1-91	19

PAVLO ENGINEERING CO. P.C.
500 EIGHTH AVENUE, NEW YORK, N.Y.

ROSS-CLARKE ASSOCIATES
76 SOUTH BAYLES AVENUE
PORT WASHINGTON, NEW YORK

PREPARED BY ROSS-CLARKE ASSOCIATES
IN CHARGE H.M. DRAFTER E.C.
DESIGNER Y.S. CHECKER E.C.

0 1 2 3 4
ORIGINAL SIZE IN INCHES

FED. RD. REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	NEW YORK		92	224

REHABILITATION OF LONGWOOD AVENUE,
REHABILITATION OF TIFFANY STREET AND
REMOVAL OF EAST 156TH STREET BRIDGES
OVER RAILROAD (AMTRAK AND CONRAIL)

P.I.N X752.25	BRONX COUNTY	B.I.N 2-24115-9
P.I.N X754.12	BRONX COUNTY	B.I.N 2-24117-0
P.I.N X752.24	BRONX COUNTY	B.I.N 2-24114-0

JERSEY BORING & DRILLING CO., INC. — TEST BORING LOG — BORING NO. B1

PROJECT E. 156th St. Removal - Longwood Ave. Br. Rehab., Bronx, NY
CLIENT Pavlo Engineering Co. P.C.
LOCATION Established by the client
GROUND WATER

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
4-9-91	pm	2'6"		DTA	4" ID			
				WT.	300#			
				FALL	24"			

SHT. NO. 1 OF 1
JOB NO. BR5632
ELEVATION 14.8
PERMIT NO.
DATE START 4-9-91
DATE FINISH 4-9-91
DRILLER RF & AF
INSPECTOR PZ

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1–3					0" to 40" large ballast & soil cinder fill	Note: Hand excavated from 0" to 40"
4	116 blows for 3'4" to 4'6"	R1			Diamond core drilled from 4'6" to 9'6". Gray bed rock, recovery 41%, RQD = 0, 3-65	
10–11		R2			Diamond core drilled from 9'6" to 14'6". Gray bed rock, recovery 96%, RQD = 20	

JERSEY BORING & DRILLING CO., INC. — TEST BORING LOG — BORING NO. B2

PROJECT E. 156th St. Removal - Longwood Ave. Br. Rehab., Bronx, NY
CLIENT Pavlo Engineering Co. P.C.
LOCATION Established by the client
GROUND WATER

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
4-9-91	am	36"		DTA	4" ID			
				WT.	300#			
				FALL	24"			

SHT. NO. 1 OF 1
JOB NO. BR5632
ELEVATION 24.5
PERMIT NO.
DATE START 4-8-91
DATE FINISH 4-9-91
DRILLER RF & AF
INSPECTOR PZ

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1–3					0" to 40" large ballast and soil cinder fill	Note: Hand excavated from 0" to 42"
4	92/14"	R1			Diamond core drilled from 4'6" to 9'6". Gray bed rock recovery 73%, RQD = 13, 3-65	

JERSEY BORING & DRILLING CO., INC. — TEST BORING LOG — BORING NO. B3

PROJECT E. 156th St. Removal - Longwood Ave. Br. Rehab., Bronx, NY
CLIENT Pavlo Engineering Co. P.C.
LOCATION Established by the client
GROUND WATER

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
4-9-91	am	25"	5'	DTA	4" ID			
				WT.	300#			
				FALL	24"			

SHT. NO. 1 OF 1
JOB NO. BR5632
ELEVATION 24.9
PERMIT NO.
DATE START 4-9-91
DATE FINISH 4-9-91
DRILLER RF & AF
INSPECTOR PZ

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1–3					0" to 40" large ballast and soil cinder fill	Note: Hand excavated from 0" to 40"
4	42/8"					
5	140	R1			Diamond core drilled from 5' to 10'. Gray bed rock, recovery 100%, RQD = 33, 3-65	

JERSEY BORING & DRILLING CO., INC. — TEST BORING LOG — BORING NO. B4

PROJECT E. 156th St. Removal - Longwood Ave. Br. Rehab., Bronx, NY
CLIENT Pavlo Engineering Co. P.C.
LOCATION Established by the client
GROUND WATER

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
4-9-91	am	24"		DTA	4" ID			
				WT.	300#			
				FALL	24"			

SHT. NO. 1 OF 1
JOB NO. BR5632
ELEVATION 22.4
PERMIT NO.
DATE START 4-9-91
DATE FINISH 4-9-91
DRILLER RF & AF
INSPECTOR PZ

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1–2					0" to 39" large ballast and soil cinder fill very little soil between ballast.	Note: Hand excavated from 0" to 39"
3–4	100/3"	R1			Diamond core drilled from 3'6" to 8'6". Gray bed rock, recovery 95%, RQD = 85, 3-65	
9					Bottom of boring is 8'6".	

JERSEY BORING & DRILLING CO., INC. — TEST BORING LOG — BORING NO. B5

PROJECT E. 156th St. Removal - Longwood Ave. Br. Rehab., Bronx, NY
CLIENT Pavlo Engineering Co. P.C.
LOCATION Established by the client
GROUND WATER

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
4-9-91	am	13"	3'	DTA	4"			
				WT.	300#			
				FALL	24"			

SHT. NO. 1 OF 1
JOB NO. BR5632
ELEVATION 20.3
PERMIT NO.
DATE START 4-9-91
DATE FINISH 4-9-91
DRILLER RF & AF
INSPECTOR PZ

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1–2					0" to 36" large ballast and soil cinder fill	Note: Hand excavated from 0" to 36"
3	112/0"	R1			Refusal. Diamond core drilled from 3' to 8'. Gray bed rock, recovery 90%, RQD = 26, 3-65	

JERSEY BORING & DRILLING CO., INC. — TEST BORING LOG — BORING NO. B6

PROJECT E. 156th St. Removal - Longwood Ave. Br. Rehab., Bronx, NY
CLIENT Pavlo Engineering Co. P.C.
LOCATION Established by the client
GROUND WATER

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
4-9-91	am	16"		DTA	4" ID			
				WT.	300#			
				FALL	24"			

SHT. NO. 1 OF 1
JOB NO. BR5632
ELEVATION 19.9
PERMIT NO.
DATE START 4-9-91
DATE FINISH 4-9-91
DRILLER RF & AF
INSPECTOR PZ

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1–3					0" to 40" large ballast and soil cinder fill very little soil between ballast.	Note: Hand excavated from 0" to 40"
4	175/14"	R1			Diamond core drilled from 4'6" to 9'6". Gray bedrock, recovery 80%, RQD = 10, 3-65	
9–10		R2			Diamond core drilled from 9'6" to 14'6". Gray bed rock, recovery 95%, RQD = 38, 3-65	

JERSEY BORING & DRILLING CO., INC. — TEST BORING LOG — BORING NO. B-7

PROJECT E. 156th St. Removal - Longwood Ave. Br. Rehab., Bronx, NY
CLIENT: Pavlo Engineering Co. P.C.
LOCATION Established by the client
GROUND WATER

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
4-11-91	am	3'8"	5'	DTA	4" ID			
				WT.	300#			
				FALL	24"			

SHT. NO. 1 OF 1
JOB NO. BR5632
ELEVATION 19.3
PERMIT NO.
DATE START 4-11-91
DATE FINISH 4-11-91
DRILLER RF & AF
INSPECTOR PZ

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1–3					0" to 40" large ballast & Soil cinder fill	Note: Hand excavated from 0" to 40"
3–4	12/8"					
5	56	R1			Diamond core drilled from 5' to 10'. Gray weathered rock, recovery 20% RQD = 0 4-65	
10–11		R2			Diamond core drilled from 10' to 15'. Gray bed rock, recovery 70%, RQD = 6, 3-65	

CITY OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES

CONTRACT NO. HBX622

ELECTRIFICATION MODIFICATIONS

B.I.N. 2-24115-9 B.I.N. 2-24117-0 B.I.N. 2-24114-0

BORING LOG - SHEET 3

N.Y.C. D.O.T. MICROFILM IDENTIFICATION NUMBER		
BIN 2-24115	ROLL B82	FRAME 092
BIN 2-24117	ROLL D33	FRAME 092
BIN 2-24114	ROLL B81	FRAME

DWG. NO.	SCALE	DATE	SHEET
FEB1	NONE	8-1-91	92

PAVLO ENGINEERING CO. P.C.
500 EIGHTH AVENUE, NEW YORK, N.Y.

ROSS-CLARKE ASSOCIATES
76 SOUTH BAYLES AVENUE
PORT WASHINGTON, NEW YORK

PREPARED BY ROSS-CLARKE ASSOCIATES
IN CHARGE H.M. DRAFTER G.M.
DESIGNER E.C. CHECKER Y.S.

0 1 2 3 4
ORIGINAL SIZE IN INCHES

Appendix G
Traffic Data

Mainline Traffic data was obtained from NYSDOT Region 11.

PROJECT: Bruckner-Sheridan Expressway

LOCATION: **WB Bruckner Expressway Mainline at Elder Avenue**
URS Number **105**
DATES: **05/27/03** **to** **06/13/03**

Hour Begins	Tue 5/27/03	Wed 5/28/03	Thu 5/29/03	Fri 5/30/03	Sat 5/31/03	Sun 6/1/03	Mon 6/2/03	Tue 6/3/03	Wed 6/4/03	Thu 6/5/03	Fri 6/6/03	Sat 6/7/03	Sun 6/8/03	Mon 6/9/03	Tue 6/10/03	Wed 6/11/03	Thu 6/12/03
2400	0	1144	1332	1451	2222	2048	1147	1247	1083	1254	1596	2433	2077	1268	1233	1306	1296
0100	0	680	771	945	1617	1333	750	762	718	819	931	1606	1394	755	719	697	816
0200	0	481	527	672	1140	903	492	528	553	480	733	1192	946	569	561	506	621
0300	0	516	537	626	873	728	484	555	514	541	608	938	702	552	536	554	534
0400	0	935	994	1019	887	707	975	975	877	929	1033	988	785	975	927	950	916
0500	0	2636	2791	2733	1496	829	2649	2619	2547	2661	2849	1453	888	2637	2745	2748	2633
0600	0	5511	4972	5556	2349	1330	5624	5712	5048	5646	5558	2349	1389	4950	4797	5822	5433
0700	0	5803	6127	6039	2813	1726	5967	5762	5389	5491	5656	2895	1880	5367	5276	6060	5523
0800	0	5730	5628	5733	3048	1773	5554	5761	5221	5235	4574	3185	2045	5609	5779	5585	5297
0900	0	4986	5116	5070	3536	2341	4835	4893	4581	5005	4835	3391	2797	4530	5111	4966	4987
1000	0	4578	4640	4454	3568	3003	4030	4216	4111	4221	4144	3634	3715	3498	3970	3955	4557
1100	0	4268	4893	4354	3887	3328	3686	3883	3803	3978	4114	3877	3803	3638	3966	3847	3921
1200	0	3861	4607	4833	4041	3347	3619	3771	3774	3803	4091	3998	3660	3928	3886	3615	3378
1300	0	3768	4553	4652	3830	3571	3725	3944	4203	3872	4257	4137	3898	4204	3958	3804	2992
1400	0	4236	4425	4465	4140	3918	3718	4353	4121	3294	4619	4371	4287	4530	4178	4324	3006
1500	4474	4283	4692	4429	4343	4147	3962	4447	4195	4370	4545	4127	4348	4477	4261	4259	2707
1600	4385	4030	4378	4004	4107	4003	3735	4151	4057	4083	4293	3948	4240	4224	4334	4080	2520
1700	4384	3841	3785	4174	3969	3869	3917	4156	3856	3995	4349	3763	4177	4340	4215	4183	2983
1800	4307	4066	3842	4135	4026	3919	2857	3973	3530	4009	4429	3633	4398	3727	4461	3970	2422
1900	3171	3451	3538	3902	3669	3620	3340	3474	2956	3397	4432	3601	4182	3189	4065	2940	2331
2000	2735	2599	2901	2648	2978	3169	2641	2535	2420	2907	4264	3029	3770	2752	2909	2746	1872
2100	2407	2521	2739	3181	2985	2940	2536	2282	2304	2849	4086	2976	3490	2563	2666	2536	1841
2200	2405	2514	2847	2856	3087	2614	2393	2631	2334	2778	4390	3014	2837	2431	2756	2558	1795
2300	1903	2023	2275	2971	2789	1869	1988	2011	1966	2440	3453	2712	2198	1956	2338	2069	576
DAY TOTAL	30171	78465	82907	84904	71401	61037	74624	78641	74159	78058	87840	71249	67906	76667	79646	78079	64958
					Average							Average					Average

					Weekday						Weekday					Weekday
0600-1000	0	22031	21843	22398	22091	21980	22127	20240	21378	20622	21269	20455	20962	22433	21240	21273
1500-1900	17551	16221	16696	16742	16803	14471	16727	15637	16458	17617	16182	16768	17270	16491	10632	15291

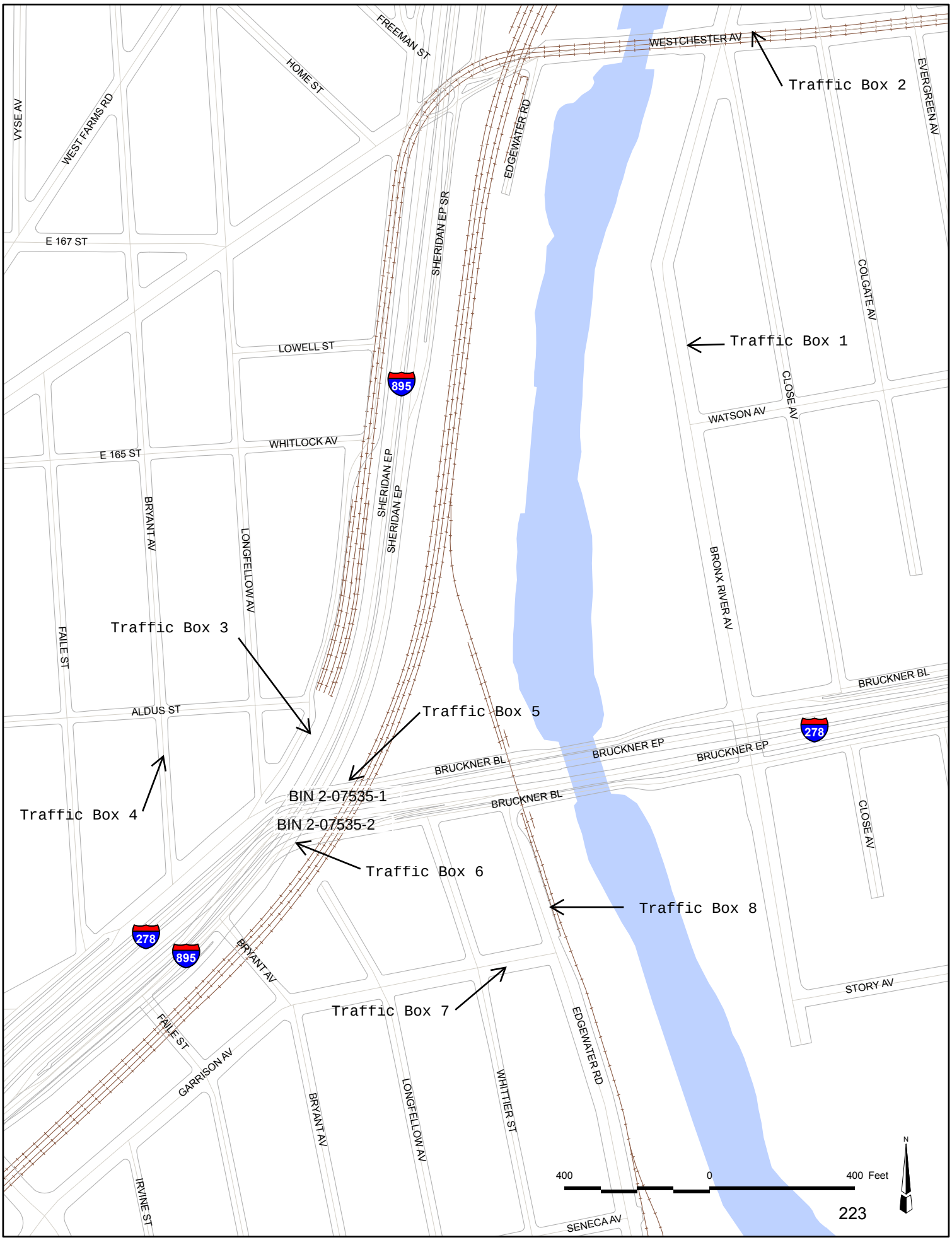
					Average Weekday
22127	20240	21378	20622	20455	20964
16727	15637	16458	17617	16768	16641

PROJECT: Bruckner-Sheridan Expressway

LOCATION: **Eastbound Bruckner Expressway Mainline at Elder Avenue**
URS Number **106**
DATES: **05/27/03** **to** **06/13/03**

Hour Begins	Tue 5/27/03	Wed 5/28/03	Thu 5/29/03	Fri 5/30/03	Sat 5/31/03	Sun 6/1/03	Mon 6/2/03	Tue 6/3/03	Wed 6/4/03	Thu 6/5/03	Fri 6/6/03	Sat 6/7/03	Sun 6/8/03	Mon 6/9/03	Tue 6/10/03	Wed 6/11/03	Thu 6/12/03
2400	0	1829	1955	2249	2928	2261	1588	1808	1773	1741	2309	2938	2321	1798	1832	2188	2170
0100	0	968	1004	1240	2074	1517	878	946	909	1039	1255	2140	1638	968	983	1195	1225
0200	0	611	750	919	1542	1132	534	669	709	621	887	1605	1189	626	679	697	797
0300	0	578	589	726	1321	973	521	556	589	521	771	1410	1020	617	568	644	647
0400	0	599	724	774	1040	963	631	691	587	673	835	1219	1073	783	664	652	683
0500	0	1150	1273	1331	1163	753	1296	1234	1078	1246	1281	1134	833	1231	1210	1233	1339
0600	0	2504	2570	2741	1508	811	2588	2652	2413	2723	2686	1531	911	2609	2763	2644	2787
0700	0	3623	3763	3770	2154	1154	3731	3729	3585	3958	3904	2293	1394	3823	3790	3949	3993
0800	0	3999	4085	4113	2701	1473	4081	4039	3812	4508	4050	2742	1685	4028	4287	4317	4418
0900	0	3326	3215	3594	2918	1508	3426	3426	3054	3736	3639	2910	1908	3333	3638	3344	3777
1000	0	3138	3229	3611	3299	2124	3244	3040	2946	3235	3560	3213	2628	3126	3606	3304	3575
1100	0	3308	3788	4068	3666	2704	3235	3573	3134	3405	4162	3502	3165	3847	3975	3528	3880
1200	0	3846	4243	3982	3691	2959	3580	3774	3455	3615	4590	3869	3300	4085	4103	3711	4013
1300	0	4112	4498	4245	3834	3258	3906	3830	3756	4026	4990	3818	3593	3889	4168	4223	4382
1400	4810	5121	5282	5418	3827	3710	4746	4742	4841	4517	5416	4049	3829	4935	5237	5111	5371
1500	4590	3686	5501	5410	4170	3994	5388	5552	5284	5464	5719	4131	4258	5789	5980	5631	5867

1600	5639	5637	5877	5477	4395	3936	5804	5642	5473	5775	5515	4241	4335	5907	6007	5825	6026	
1700	5803	5291	5243	5774	4539	3984	5704	5150	5438	5707	4134	4113	4307	6068	5937	6070	5960	
1800	4970	5490	5362	5598	4058	3715	4568	4949	4985	5633	4738	3726	4028	5495	5640	5485	5922	
1900	4546	4628	4980	5090	3616	3516	4424	4445	4286	5133	5271	3502	4047	4376	4613	4653	5070	
2000	4091	3786	4154	4318	3188	3351	3870	3992	3692	4349	4521	3302	3292	3698	4222	4110	4416	
2100	3482	3694	3596	3857	2956	2786	3367	3375	3191	3896	4238	2872	3400	3194	3943	3846	3898	
2200	3657	3631	3656	3752	2752	2368	2916	3396	2886	3440	3801	2816	2801	2906	4062	3759	3223	
2300	2476	2667	2981	3582	2788	2059	2435	2599	2442	2534	3641	2696	2349	2531	2930	2896	2992	
DAY TOTAL	44064	77222	82316	85639	70126	57008	76461	77809	74318	81495	85915	69771	63303	79663	84838	83014	86429	
					Average Weekday							Average Weekday						Average Weekday
0600-1000	0	13452	13632	14217	13767		13826	13845	12865	14926	14279	13948		13794	14479	14254	14975	14375
1500-1900	21002	20104	21983	22260	21337		21464	21293	21179	22580	20107	21324		23258	23564	23011	23774	23402



LOCATION MAP

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 30 1995 08:53:01) Copyright 1990-1993 Mitron

Location ..... 1. Bronx River Ave.NB, No. of Watson Ave
Location Code 1
Jurisdiction ..... Bronx
Recorder Set 05/04/07 14:55
Recording Start ... 05/04/ 7 15:15
Recording End 05/11/ 7 14:30
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 111
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

05/04/ 7 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
455	663	724	607	566	445	392	274	208	4334															
176	199	153	136	111	86	73	49																	
157	166	175	157	149	114	105	82	52																
143	147	186	163	157	119	106	63	65																
155	174	164	134	124	101	95	56	42																

AM Peak Hour ..... N/A
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... 16:45 to 17:45 (734 vehicles)
PM Peak Hour Factor 92.2%

05/05/07 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
163	92	62	58	55	64	123	155	239	377	462	476	588	574	513	485	492	486	456	420	362	339	285	190	7516
52	26	16	18	15	16	24	25	63	92	102	101	137	158	122	94	123	128	114	98	91	85	79	57	
49	25	17	9	11	13	26	37	52	87	110	130	146	154	135	129	115	126	123	119	96	99	74	42	
36	23	19	15	15	19	30	44	56	105	129	123	155	132	126	122	113	125	115	101	93	80	71	38	
26	18	10	16	14	16	43	49	68	93	121	122	150	130	130	140	141	107	104	102	82	75	61	53	

AM Peak Hour ..... 10:30 to 11:30 (481 vehicles)
AM Peak Hour Factor 92.5%
PM Peak Hour ..... 12:30 to 13:30 (617 vehicles)
PM Peak Hour Factor 97.6%

Sunday 05/06/07 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 179  173  116   91   61   63   62   82  109  200  272  318  335  409  427
470  535  471  478  341  290  263  200  122   6067

  40   61   28   34   14   13   12   12   23   52   56   80   71  105  104
153  139  112  117   90   86   74   58   40
  25   42   30   15   15   17   16   21   23   49   70   67   85  104  114
114  134  107  143   96   82   72   35   33
  58   39   27   19   14   16   13   21   26   46   73   83   86   97  101
86  126  126  116   79   70   61   60   28
  56   31   31   23   18   17   21   28   37   53   73   88   93  103  108
117  136  126  102   76   52   56   47   21

AM Peak Hour ..................... 11:00 to 12:00 (318 vehicles)
AM Peak Hour Factor .............. 90.3%
PM Peak Hour ..................... 16:00 to 17:00 (535 vehicles)
PM Peak Hour Factor .............. 96.2%

Monday    05/07/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  92   62   42   11    9    9   19   41   56   15   23   16  146  464  528
571  593  572  461  353  292  208  150  101   4834

  31   10   18   11    1    2    3   16   20    5    7    2    0  121  141
131  166  150  136   91   83   55   40   30
  20   22    4    0    0    0    5    8    9    2    4    9    0  109  127
148  148  136  107   94   72   58   37   21
  20   15   10    0    8    3    9    7   21    1    9    5   31  129  123
158  134  164  106   82   70   57   37   28
  21   15   10    0    0    4    2   10    6    7    3    0  115  105  137
134  145  122  112   86   67   38   36   22

AM Peak Hour ..................... 00:00 to 01:00 (92 vehicles)
AM Peak Hour Factor .............. 74.2%
PM Peak Hour ..................... 15:15 to 16:15 (606 vehicles)
PM Peak Hour Factor .............. 91.3%

Tuesday   05/08/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  75   51   23   31   50   95  252  411  462  432  351  429  507  443  463
522  668  579  477  416  300  244  150  122   7553

  24   19    7    9    6   16   43   93  116  116   92   97  124  126  132
109  159  143  131  108  100   59   41   44
  16   10    5    6    7   15   57  115  111  110   86  106  162  101  112
143  165  164  115  100   59   61   52   24
  20    6    3    5   23   35   62   90  120  110   86  115  134  118  107
134  177  125  121  109   73   61   23   38
  15   16    8   11   14   29   90  113  115   96   87  111   87   98  112
136  167  147  110   99   68   63   34   16

AM Peak Hour ..................... 08:00 to 09:00 (462 vehicles)
AM Peak Hour Factor .............. 96.3%
PM Peak Hour ..................... 16:00 to 17:00 (668 vehicles)
PM Peak Hour Factor .............. 94.4%

Wednesday 05/09/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
```

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  77   33   27   32   49   91  256  453  420  453  409  488  477  518  454
491  536  550  493  386  313  229  180  101   7516

  21   18    4    3    5   17   40  112  112  114  109  114  114  136  111
127  133  156  142   95   92   71   54   25
  18    6    7   14   14   22   70  111  104  134   90  128  132  128  108
106  140  135  126  111   68   62   37   33
  19    5   10    7   13   21   68  113   86  102   96  114  113  119  117
125  137  140  110   83   79   51   49   25
  19    4    6    8   17   31   78  117  118  103  114  132  118  135  118
133  126  119  115   97   74   45   40   18

AM Peak Hour ..................... 11:00 to 12:00 (488 vehicles)
AM Peak Hour Factor ............. 92.4%
PM Peak Hour ..................... 16:15 to 17:15 (559 vehicles)
PM Peak Hour Factor ............. 89.6%

Thursday  05/10/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  79   50   45   29   54  103  241  410  480  436  459  511  455  430  492
527  617  602  582  420  317  258  223  143   7963

  25   14    8    9   12   19   41   83  105  129  110  132  109   97  121
127  148  152  137  114   80   83   68   40
  17   14   13    7   14   26   54  107  109  109  111  129  105   97  114
120  157  138  158  114   91   65   54   38
  23    7   16    7   15   19   67  103  128   97  118  123  136  122  129
139  136  168  166  101   73   53   51   34
  14   15    8    6   13   39   79  117  138  101  120  127  105  114  128
141  176  144  121   91   73   57   50   31

AM Peak Hour ..................... 11:00 to 12:00 (511 vehicles)
AM Peak Hour Factor ............. 96.8%
PM Peak Hour ..................... 16:45 to 17:45 (634 vehicles)
PM Peak Hour Factor ............. 90.1%

Friday    05/11/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  98   55   37   35   44  107  232  387  443  425  383  508  484  564  283
                                                4085

  30   23   17    9   10   19   44  100  110  103   85  120  124  171  132

  25    8    8    9   15   18   39   91  121  122   78  135  125  132  151

  25    8    5    7    8   34   73  103   95  101  116  129  127  123

  18   16    7   10   11   36   76   93  117   99  104  124  108  138


AM Peak Hour ..................... 11:00 to 12:00 (508 vehicles)
AM Peak Hour Factor ............. 94.1%
PM Peak Hour ..................... 13:00 to 14:00 (564 vehicles)
PM Peak Hour Factor ............. 82.5%
```

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 30 1995 08:53:01) Copyright 1990-1993 Mitron

Location ..... 2. Westchester Ave WB, E. of Bx River Av
Location Code 2
Jurisdiction ..... Bronx
Recorder Set 05/04/07 13:08
Recording Start ... 05/11/ 7 14:00
Recording End 05/18/ 7 14:45
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 11
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

Friday 05/11/ 7 Channel: 1 Direction: W

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
787	868	942	829	813	701	651	489	431																7261
203	211	278	208	199	199	143	139	100																750
211	240	224	223	215	166	171	126	100																189
189	192	225	205	215	167	145	119	135																185
184	225	215	193	184	169	192	105	96																170
																								206

AM Peak Hour ..... N/A
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... 16:45 to 17:45 (952 vehicles)
PM Peak Hour Factor 85.6%

Saturday 05/12/07 Channel: 1 Direction: W

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
352	254	202	157	175	151	231	305	443	554	618	683	820	789	741	763	728	697	721	678	687	605	513	426	12293
106	73	64	39	40	34	44	52	110	135	152	163	181	205	171	183	172	183	174	165	166	155	112	103	
100	62	42	31	55	38	56	68	99	129	144	166	199	189	173	177	160	187	189	173	180	179	130	111	
74	61	51	40	43	45	54	95	117	137	180	182	220	205	183	206	194	171	181	177	170	143	131	111	
72	58	45	47	37	34	77	90	117	153	142	172	220	190	214	197	202	156	177	163	171	128	140	101	

AM Peak Hour ..... 11:00 to 12:00 (683 vehicles)
AM Peak Hour Factor 93.8%
PM Peak Hour ..... 12:15 to 13:15 (844 vehicles)
PM Peak Hour Factor 95.9%

Sunday 05/13/07 Channel: 1 Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 383  414  318  243  192  172  137  182  234  339  451  503  552  571  576
717  686  775  703  571  521  469  392  254  10355

  89  134   71   77   45   45   38   36   62   69  117  123  126  156  135
216  151  180  203  137  141  131  116   70
  64   95   71   58   46   52   30   50   51   95   98  106  152  140  151
178  190  158  170  162  154  119   87   64
 120  102   94   60   55   33   29   48   49   84  111  133  136  135  143
156  174  211  174  131  128  114  104   72
 110   83   82   48   46   42   40   48   72   91  125  141  138  140  147
167  171  226  156  141   98  105   85   48

AM Peak Hour ..................... 11:00 to 12:00 (503 vehicles)
AM Peak Hour Factor .............. 89.2%
PM Peak Hour ..................... 17:30 to 18:30 (810 vehicles)
PM Peak Hour Factor .............. 89.6%

Monday    05/14/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 212  131  119   79  104  176  465  966  826  600  560  621  564  667  729
873  836  788  711  578  496  389  290  255  12035

  75   38   36   14   22   31   72  218  215  174  165  155  137  153  204
198  225  199  196  147  135  102   73   66
  47   29   30   19   33   40   99  243  200  146  141  144  137  176  182
233  210  204  171  160  124  104   73   67
  50   31   28   25   23   40  121  229  211  141  122  157  142  175  185
226  198  193  163  135  120   92   71   61
  40   33   25   21   26   65  173  276  200  139  132  165  148  163  158
216  203  192  181  136  117   91   73   61

AM Peak Hour ..................... 07:00 to 08:00 (966 vehicles)
AM Peak Hour Factor .............. 87.5%
PM Peak Hour ..................... 15:15 to 16:15 (900 vehicles)
PM Peak Hour Factor .............. 96.6%

Tuesday   05/15/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 161  110   64   65   92  177  466  944  910  663  552  607  616  657  675
769  784  755  703  648  496  437  304  235  11890

  49   37   21   17   20   31   75  188  245  194  143  152  161  170  199
192  211  210  169  159  160  116   85   62
  39   30   13   16   19   21   97  247  235  178  127  157  153  167  142
171  222  202  190  159  113  100   93   55
  41   20   18   14   27   57  123  247  211  145  136  145  173  155  176
223  185  171  171  159  112  100   62   73
  32   23   12   18   26   68  171  262  219  146  146  153  129  165  158
183  166  172  173  171  111  121   64   45

AM Peak Hour ..................... 07:15 to 08:15 (1001 vehicles)
AM Peak Hour Factor .............. 95.5%
PM Peak Hour ..................... 15:30 to 16:30 (839 vehicles)
PM Peak Hour Factor .............. 94.1%

Wednesday 05/16/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
```

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 167  119   85   65   79  160  462  967  881  667  633  695  688  668  687
733  766  736  702  633  509  437  341  265  12145

  46   44   26   17   18   27   67  212  247  172  161  172  168  176  198
200  184  188  191  154  110  126   87   74
  42   35   20   16   20   35   98  223  222  187  136  174  180  180  161
167  195  191  181  164  134  105   82   79
  44   24   20   18   16   43  128  266  204  170  166  155  168  162  185
182  197  199  178  161  134  101   93   54
  35   16   19   14   25   55  169  266  208  138  170  194  172  150  143
184  190  158  152  154  131  105   79   58

AM Peak Hour ..................... 07:15 to 08:15 (1002 vehicles)
AM Peak Hour Factor ............. 94.2%
PM Peak Hour ..................... 16:15 to 17:15 (770 vehicles)
PM Peak Hour Factor ............. 97.7%

Thursday  05/17/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 195  139   91   65   84  185  486  964  996  690  600  667  635  658  709
719  787  823  724  636  543  488  417  314  12615

  58   47   22   16   21   28   90  218  232  137  162  162  153  183  161
175  197  221  173  130  140  147  126   93
  55   33   19   16   16   36   87  235  234  225  129  172  167  148  189
167  192  217  190  184  126  133  107   71
  44   41   31   18   23   53  147  239  268  156  155  162  154  160  180
187  185  210  186  162  138  100   94   74
  38   18   19   15   24   68  162  272  262  172  154  171  161  167  179
190  213  175  175  160  139  108   90   76

AM Peak Hour ..................... 07:45 to 08:45 (1006 vehicles)
AM Peak Hour Factor ............. 92.5%
PM Peak Hour ..................... 16:45 to 17:45 (861 vehicles)
PM Peak Hour Factor ............. 97.4%

Friday    05/18/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 198  139  111   91  105  206  480 1021 1067  722  594  646  689  712  565
                                          7346

  42   47   37   23   24   33   68  225  277  205  128  168  165  181  184

  63   23   20   18   36   38   95  235  267  206  135  158  177  181  192

  53   35   20   19   24   62  133  261  259  153  172  161  172  165  189

  40   34   34   31   21   73  184  300  264  158  159  159  175  185


AM Peak Hour ..................... 07:30 to 08:30 (1105 vehicles)
AM Peak Hour Factor ............. 92.1%
PM Peak Hour ..................... 13:45 to 14:45 (750 vehicles)
PM Peak Hour Factor ............. 97.7%
```

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 30 1995 08:53:01) Copyright 1990-1993 Mitron

Location ..... 3. Whitlock Ave. SB, South of Aldus St.
Location Code 3
Jurisdiction ..... Bronx
Recorder Set 05/04/07 13:41
Recording Start ... 05/04/ 7 14:00
Recording End 05/11/ 7 14:45
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 163
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

05/04/ 7 Channel: 1 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
764	645	641	540	496	543	504	460	309	5583															
201	175	169	144	123	144	133	107	79																
195	155	159	129	126	135	135	114	77																
178	152	162	145	114	144	109	120	86																
190	163	151	122	133	120	127	119	67																

AM Peak Hour ..... N/A
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... 15:00 to 16:00 (764 vehicles)
PM Peak Hour Factor 95.0%

05/05/07 Channel: 1 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
331	254	208	179	243	277	388	465	583	576	636	632	666	598	623	647	493	517	446	462	514	487	454	351	11030
88	64	73	40	57	65	94	96	118	130	151	157	159	142	152	156	137	129	108	120	126	103	109	97	
86	55	42	33	76	61	74	104	142	158	166	145	176	132	139	165	118	142	131	117	118	149	126	84	
82	69	39	46	53	74	109	115	145	149	159	161	170	159	178	162	129	133	106	118	130	115	118	105	
75	66	54	60	57	77	111	150	178	139	160	169	161	165	154	164	109	113	101	107	140	120	101	65	

AM Peak Hour ..... 10:15 to 11:15 (642 vehicles)
AM Peak Hour Factor 96.7%
PM Peak Hour ..... 12:00 to 13:00 (666 vehicles)
PM Peak Hour Factor 94.6%

Sunday 05/06/07 Channel: 1 Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 303  436  353  328  272  215  185  230  273  319  382  458  464  410  413
476  464  466  426  488  528  451  463  411   9214

  63  131  101  115   99   50   41   50   64   62   95  118  117  117  110
136  112  110  121  117  138  110  143  133
  46  112   81   67   73   70   47   56   65   93   78  118  100   94  100
120  134  117  104  138  137  102   99   76
  74  121   85   78   50   48   56   56   78   73   95  129  123   92  124
120   90  127   96  112  133  121  106   91
 120   72   86   68   50   47   41   68   66   91  114   93  124  107   79
100  128  112  105  121  120  118  115  111

AM Peak Hour ..................... 00:45 to 01:45 (484 vehicles)
AM Peak Hour Factor ............. 92.4%
PM Peak Hour ..................... 19:45 to 20:45 (529 vehicles)
PM Peak Hour Factor ............. 95.8%

Monday    05/07/07   Channel: 1   Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 349  305  232  341  548  691  743  929  880  751  727  769  738  684  680
710  674  557  552  576  504  478  357  276  14051

  91   65   60   56  127  161  203  218  221  223  186  219  193  160  174
176  147  151  142  152  127  115   95   86
  87   89   49   75  134  126  203  223  220  180  160  174  196  128  191
165  153  144  143  138  132  140   94   80
  73   74   64   84  130  176  130  248  227  181  169  226  167  189  160
176  174  150  141  146  123   97   93   45
  98   77   59  126  157  228  207  240  212  167  212  150  182  207  155
193  200  112  126  140  122  126   75   65

AM Peak Hour ..................... 07:15 to 08:15 (932 vehicles)
AM Peak Hour Factor ............. 94.0%
PM Peak Hour ..................... 13:30 to 14:30 (761 vehicles)
PM Peak Hour Factor ............. 91.9%

Tuesday   05/08/07   Channel: 1   Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 273  268  165    0    0    0    0    0    0    0    0    0    0  548  734
789  524  530  564  522  436  484  407  323   6567

  45   60   73    0    0    0    0    0    0    0    0    0    0    0  166
227  142  124  131  139   86  122  105   85
  79   68   48    0    0    0    0    0    0    0    0    0    0  191  189
200  140  164  134  130  100  128  103   81
  62   76   44    0    0    0    0    0    0    0    0    0    0  188  196
202  138  125  148  126  104  118  101   88
  87   64    0    0    0    0    0    0    0    0    0    0    0  169  183
160  104  117  151  127  146  116   98   69

AM Peak Hour ..................... 00:45 to 01:45 (291 vehicles)
AM Peak Hour Factor ............. 83.6%
PM Peak Hour ..................... 14:45 to 15:45 (812 vehicles)
PM Peak Hour Factor ............. 89.4%

Wednesday 05/09/07   Channel: 1   Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
```

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 305  255  199  271  460  738  928  859  939  791  715  809  805  738  765
760  675  563  566  603  516  514  442  385  14601

  78   65   59   61  109   82  241  214  250  225  181  212  191  179  165
178  158  140  145  146  121  126  109   78
  68   50   58   62  100  173  184  219  257  178  155  216  192  187  198
204  193  149  151  135  139  147  103   93
  70   77   41   72  111  215  244  184  233  198  191  198  232  200  201
192  172  160  140  161  128  105  128  108
  89   63   41   76  140  268  259  242  199  190  188  183  190  172  201
186  152  114  130  161  128  136  102  106

AM Peak Hour ..................... 07:45 to 08:45 (982 vehicles)
AM Peak Hour Factor ............. 95.5%
PM Peak Hour ..................... 12:00 to 13:00 (805 vehicles)
PM Peak Hour Factor ............. 86.7%

Thursday  05/10/07   Channel: 1   Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 275  297  258  329  543  762  995 1011  988  703  629  501  436  554  736
733  633  602  498  604  544  481  480  350  13942

  62   52   74   64  104  147  262  227  262  113  173  136  113  111  182
182  170  162  119  158  132  115  149   89
  78   90   54   44  131  130  232  254  236  175  183  139  117  150  187
194  156  160  143  135  128  124  123   77
  70   84   82   98  135  205  274  255  245  223  143  111  108  135  193
166  165  152  111  166  128  119  104   85
  65   71   48  123  173  280  227  275  245  192  130  115   98  158  174
191  142  128  125  145  156  123  104   99

AM Peak Hour ..................... 05:45 to 06:45 (1048 vehicles)
AM Peak Hour Factor ............. 93.6%
PM Peak Hour ..................... 14:30 to 15:30 (743 vehicles)
PM Peak Hour Factor ............. 95.7%

Friday    05/11/07   Channel: 1   Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 280  278  298  324  618  757  903  959 1088  777  755  716  758  736  572
                                          9819

  75   62   56   79  143  185  201  218  298  222  181  194  196  196  179

  82   77   60   81  153  153  224  235  276  199  182  161  170  194  199

  67   87   98   62  130  204  258  239  265  202  183  171  190  171  194

  56   52   84  102  192  215  220  267  249  154  209  190  202  175


AM Peak Hour ..................... 07:45 to 08:45 (1106 vehicles)
AM Peak Hour Factor ............. 92.8%
PM Peak Hour ..................... 12:30 to 13:30 (782 vehicles)
PM Peak Hour Factor ............. 96.8%
```

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 30 1995 08:53:01) Copyright 1990-1993 Mitron

Location ..... 4. Bryant Ave. SB, South of Aldus St.
Location Code 4
Jurisdiction ..... Bronx
Recorder Set 05/04/07 13:28
Recording Start ... 05/04/ 7 14:00
Recording End 05/11/ 7 15:00
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 46
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

05/04/ 7 Channel: 1 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
																								137
138	128	166	164	119	116	82	88	60	1198															
																								22
27	30	46	39	38	29	20	23	18																
																								39
36	33	30	42	30	22	10	25	18																
																								32
41	28	50	41	31	46	30	20	12																
																								44
34	37	40	42	20	19	22	20	12																

AM Peak Hour ..... N/A
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... 17:30 to 18:30 (171 vehicles)
PM Peak Hour Factor 85.5%

05/05/07 Channel: 1 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
62	43	26	26	32	24	36	44	57	77	94	111	121	104	140	114	116	138	135	111	127	118	66	73	1995
15	11	6	2	8	4	8	8	8	20	25	25	27	19	45	37	34	42	22	34	33	27	14	15	
18	13	7	6	10	8	7	11	12	16	29	24	32	33	38	28	28	25	34	24	25	30	23	24	
20	7	7	6	11	5	13	13	21	22	18	26	29	29	29	35	23	33	37	29	40	38	17	14	
9	12	6	12	3	7	8	12	16	19	22	36	33	23	28	14	31	38	42	24	29	23	12	20	

AM Peak Hour ..... 11:00 to 12:00 (111 vehicles)
AM Peak Hour Factor 77.1%
PM Peak Hour ..... 18:15 to 19:15 (147 vehicles)
PM Peak Hour Factor 87.5%

Sunday 05/06/07 Channel: 1 Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  70   79   56   52   60   27   34   34   36   56   49   74   73   90  105
101   79   89   83   68   89   64   81   39   1588

   6   27   20   16   27    9    8    7   11   13   14   17   20   13   26
25   26   14   17   17   18   22   18   12
  13   19   18   14   17    3    9    8    7    9    8   15   17   25   24
30   15   23   22   19   27   20   22   10
  25   23   12   14   11    6    4    9    8   17   18   24   14   25   33
24   15   24   17   14   20   10   25   13
  26   10    6    8    5    9   13   10   10   17    9   18   22   27   22
22   23   28   27   18   24   12   16    4

AM Peak Hour ..................... 00:30 to 01:30 (97 vehicles)
AM Peak Hour Factor ............. 89.8%
PM Peak Hour ..................... 13:45 to 14:45 (110 vehicles)
PM Peak Hour Factor ............. 83.3%

Monday    05/07/07   Channel: 1   Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  23   22   16    4   13   32   58  145  153   90   80   66   97  107  126
144  131  151  131  105   80   71   70   47   1962

   7    9    3    0    1    5   11   20   47   25   20   18   23   34   31
36   30   25   32   30   18   14   22   15
   7    6    2    2    4    5   16   33   42   27   22   13   27   25   25
33   26   53   44   25   19   14   13   12
   4    6    5    0    5   13   13   36   36   15   19   22   26   24   25
26   30   45   30   28   25   24   10    9
   5    1    6    2    3    9   18   56   28   23   19   13   21   24   45
49   45   28   25   22   18   19   25   11

AM Peak Hour ..................... 07:30 to 08:30 (181 vehicles)
AM Peak Hour Factor ............. 80.8%
PM Peak Hour ..................... 16:45 to 17:45 (168 vehicles)
PM Peak Hour Factor ............. 79.2%

Tuesday   05/08/07   Channel: 1   Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  25   20   18   13   13   31   61   97  114   55   71   83   82  111  127
165  140  186  127   98   82   72   67   46   1904

  12    5   10    5    1    8   18   21   35   15   18   15   17   31   31
43   42   32   42   29   17   17   19   16
   2    5    2    3    2    3   20   17   27   18   17   21   29   23   38
44   32   65   25   24   17   10   20   12
   7    7    2    3    6   11   11   19   30   14   13   18   13   37   24
48   32   42   33   20   33   17   13    7
   4    3    4    2    4    9   12   40   22    8   23   29   23   20   34
30   34   47   27   25   15   28   15   11

AM Peak Hour ..................... 07:45 to 08:45 (132 vehicles)
AM Peak Hour Factor ............. 82.5%
PM Peak Hour ..................... 17:15 to 18:15 (196 vehicles)
PM Peak Hour Factor ............. 75.4%

Wednesday 05/09/07   Channel: 1   Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
```

1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

28 15 17 3 18 38 55 111 113 87 77 91 72 93 119
161 123 147 146 114 101 69 49 57 1904

5 4 8 1 5 6 17 19 29 23 15 24 18 16 21
40 38 35 45 32 29 13 11 15
6 4 3 0 4 6 17 18 41 21 24 19 20 24 28
35 29 40 38 24 26 22 18 9
11 4 3 1 7 17 11 38 26 17 17 25 14 29 23
46 26 33 24 32 25 23 10 18
6 3 3 1 2 9 10 36 17 26 21 23 20 24 47
40 30 39 39 26 21 11 10 15

AM Peak Hour ..... 07:30 to 08:30 (144 vehicles)
AM Peak Hour Factor 87.8%
PM Peak Hour ..... 14:45 to 15:45 (168 vehicles)
PM Peak Hour Factor 89.4%

Thursday 05/10/07 Channel: 1 Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

19 23 10 11 19 41 60 135 176 94 75 75 89 103 156
157 116 143 145 95 84 65 63 54 2008

5 5 2 4 3 6 6 25 64 19 20 11 14 26 30
50 28 42 46 22 17 21 15 8
6 7 3 2 4 6 16 24 48 33 16 22 20 28 31
33 26 31 42 17 31 19 14 15
5 6 0 2 7 16 22 37 38 21 15 19 26 25 38
42 34 37 31 27 21 15 17 13
3 5 5 3 5 13 16 49 26 21 24 23 29 24 57
32 28 33 26 29 15 10 17 18

AM Peak Hour ..... 07:45 to 08:45 (199 vehicles)
AM Peak Hour Factor 77.7%
PM Peak Hour ..... 14:45 to 15:45 (182 vehicles)
PM Peak Hour Factor 79.8%

Friday 05/11/07 Channel: 1 Direction: S
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

37 32 13 13 29 35 47 104 114 65 85 88 76 107 130
975

9 6 4 1 5 4 9 16 45 17 21 25 28 25 27

12 12 2 2 5 7 16 18 17 20 21 23 19 21 33

11 6 2 7 6 16 12 26 31 13 23 19 17 32 26

5 8 5 3 13 8 10 44 21 15 20 21 12 29 44

AM Peak Hour ..... 07:45 to 08:45 (137 vehicles)
AM Peak Hour Factor 76.1%
PM Peak Hour ..... 14:00 to 15:00 (130 vehicles)
PM Peak Hour Factor 73.9%

Volume Count Report
Generated by MSC3000 Version 2.02l Alpha(Nov 30 1995 08:53:01) Copyright 1990-1993 Mitron

Location ..... 5. Bruckner Blvd. WB Serv Rd,E.of Bryant
Location Code 5
Jurisdiction ..... Bronx
Recorder Set 05/04/07 13:59
Recording Start ... 05/04/ 7 14:00
Recording End 05/11/ 7 08:45
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 127
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

05/04/ 7 Channel: 1 Direction: W

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
																								1917
2277	2272	2134	1895	1907	1422	1226	1075	852	16977															
																								402
568	516	504	525	508	423	297	265	226																
																								486
612	524	533	505	477	334	330	290	218																
																								478
550	604	567	427	481	345	329	270	212																
																								551
547	628	530	438	441	320	270	250	196																

AM Peak Hour ..... N/A
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... 14:45 to 15:45 (2281 vehicles)
PM Peak Hour Factor 93.2%

05/05/07 Channel: 1 Direction: W

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
632	415	364	348	350	450	748	999	1227	1450	1395	1563	1848	1852	1603	1612	1604	1521	1516	1314	1217	1170	954	668	26820
175	114	98	101	87	88	131	236	288	361	360	384	403	461	368	387	401	382	396	376	299	324	245	197	
150	98	100	68	87	86	167	200	272	343	360	377	445	552	409	356	421	377	334	315	310	271	245	162	
165	110	71	94	80	131	204	257	308	420	345	389	503	436	413	444	370	401	375	308	332	297	250	166	
142	93	95	85	96	145	246	306	359	326	330	413	497	403	413	425	412	361	411	315	276	278	214	143	

AM Peak Hour ..... 11:00 to 12:00 (1563 vehicles)
AM Peak Hour Factor 94.6%
PM Peak Hour ..... 12:30 to 13:30 (2013 vehicles)
PM Peak Hour Factor 91.2%

Sunday 05/06/07 Channel: 1 Direction: W

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 662  807  528  328  690  255  320  458  487  770  973  989 1135 1282 1297
1331 1812 2434 1537 1214 1130  960  749  610  22758

 148  237  138   93   85   74   74  109  115  186  220  259  247  313  310
333  357  559  544  278  310  276  204  172
 118  192  141   82  199   57   71  117  106  178  220  219  299  317  373
372  471  640  383  327  266  261  201  151
 154  189  128   84  199   67   95   99  117  218  250  247  305  297  302
324  482  603  318  289  273  241  179  160
 242  189  121   69  207   57   80  133  149  188  283  264  284  355  312
302  502  632  292  320  281  182  165  127

AM Peak Hour ..................... 10:15 to 11:15 (1012 vehicles)
AM Peak Hour Factor ............. 89.4%
PM Peak Hour ..................... 17:00 to 18:00 (2434 vehicles)
PM Peak Hour Factor ............. 95.1%

Monday    05/07/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 476  335  270  400  640 1193 2511 3556 3357 2293 1865 1676 1909 1603 1880
2345 2226 1815 1788 1216 1011  874  736  526  36501

 128   95   72   74  110  208  466  875  834  730  458  406  499  419  454
535  561  486  464  316  296  230  208  165
 103   97   54   77  141  216  654  915  786  591  494  396  519  367  434
598  559  452  527  296  229  202  199  135
 131   71   64  119  188  354  584  929  877  513  458  470  470  391  477
573  531  387  442  335  248  230  180  112
 114   72   80  130  201  415  807  837  860  459  455  404  421  426  515
639  575  490  355  269  238  212  149  114

AM Peak Hour ..................... 07:00 to 08:00 (3556 vehicles)
AM Peak Hour Factor ............. 95.7%
PM Peak Hour ..................... 15:15 to 16:15 (2371 vehicles)
PM Peak Hour Factor ............. 92.8%

Tuesday   05/08/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 422  321  254  319  556 1152 2355 3096 2899 2162 1551 1413 1640 1603 1623
2139 2181 1777 1827 1340 1111  914  709  559  33923

  97   74   60   73  107  185  464  703  766  673  436  344  402  395  387
425  536  496  391  365  327  242  192  161
 105   86   58   76  125  223  528  752  719  599  376  330  405  402  429
580  529  459  439  325  259  209  174  117
 115   84   72   81  140  315  638  785  716  481  363  375  383  417  399
586  573  403  496  318  269  250  182  146
 105   77   64   89  184  429  725  856  698  409  376  364  450  389  408
548  543  419  501  332  256  213  161  135

AM Peak Hour ..................... 07:15 to 08:15 (3159 vehicles)
AM Peak Hour Factor ............. 92.3%
PM Peak Hour ..................... 15:15 to 16:15 (2250 vehicles)
PM Peak Hour Factor ............. 96.0%

Wednesday 05/09/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
```

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 446  284  290  346  560 1073 2319 3063 2925 2248 1679 1787 1738 1614 1759
1915 1798 1710 1553 1349 1158  993  834  658  34099

 133   85   66   57   94  169  471  748  778  681  423  432  452  410  416
462  437  430  419  349  335  293  231  193
  95   65   64   78  122  201  522  747  751  598  446  434  437  407  459
494  458  448  389  323  255  238  210  160
 102   69   72   91  138  336  578  758  677  490  408  452  423  370  440
475  449  396  372  349  300  204  202  159
 116   65   88  120  206  367  748  810  719  479  402  469  426  427  444
484  454  436  373  328  268  258  191  146

AM Peak Hour ..................... 07:30 to 08:30 (3097 vehicles)
AM Peak Hour Factor ............. 95.6%
PM Peak Hour ..................... 15:00 to 16:00 (1915 vehicles)
PM Peak Hour Factor ............. 96.9%

Thursday  05/10/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 545  299  330  363  611 1189 2430 3079 2661 2352 1775 1804 1632 1645 2092
2179 1872 1831 1471 1398 1125 1029  939  663  35314

 147   74   87   85  116  207  450  745  725  754  430  430  404  374  483
499  458  464  392  321  317  249  268  185
 134   72   82   86  138  232  548  750  762  650  451  463  378  416  555
544  494  509  370  367  269  294  229  164
 142   90   83   86  154  330  654  796  587  498  445  453  428  424  525
526  455  455  346  375  276  254  234  165
 122   63   78  106  203  420  778  788  587  450  449  458  422  431  529
610  465  403  363  335  263  232  208  149

AM Peak Hour ..................... 07:00 to 08:00 (3079 vehicles)
AM Peak Hour Factor ............. 96.7%
PM Peak Hour ..................... 15:00 to 16:00 (2179 vehicles)
PM Peak Hour Factor ............. 89.3%

Friday    05/11/07   Channel: 1   Direction: W
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 549  376  331  418  690 1165 2023 3301 1590
                                          10443

 154   91   74   98  148  206  429  812  835

 131  105   79   93  147  223  504  798  755

 128   94  102  111  188  317  457  796    0

 136   86   76  116  207  419  633  895


AM Peak Hour ..................... 07:15 to 08:15 (3324 vehicles)
AM Peak Hour Factor ............. 92.8%
PM Peak Hour ..................... N/A
PM Peak Hour Factor ............. N/A
```

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 30 1995 08:53:01) Copyright 1990-1993 Mitron

Location ..... 6. Bruckner Blvd EB Serv.Rd, E.of Bryant
Location Code 6
Jurisdiction ..... Bronx
Recorder Set 05/04/07 14:19
Recording Start ... 05/04/ 7 15:00
Recording End 05/11/ 7 08:30
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 143
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

05/04/ 7 Channel: 1 Direction: E

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500
1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals					
2916	3084	2975	2912	2182	1561	1232	1071	862	18795					
670	734	762	726	639	435	315	305	231						
718	760	735	719	543	378	297	221	213						
753	788	752	747	505	361	328	288	225						
775	802	726	720	495	387	292	257	193						

AM Peak Hour ..... N/A
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... 16:15 to 17:15 (3112 vehicles)
PM Peak Hour Factor 97.0%

05/05/07 Channel: 1 Direction: E

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500
1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals					
642	409	307	296	311	338	463	740	832	1046	1163	1255	1447	1501	1476
1603	1608	1441	1341	1348	1248	1046	809	587	23257					
192	122	92	69	84	82	101	172	188	239	250	311	309	390	382
385	422	364	336	345	344	293	228	177						
157	106	61	63	68	72	84	180	175	250	271	301	361	349	395
379	415	390	369	378	313	267	196	137						
157	88	84	81	77	103	150	192	222	268	332	310	357	376	367
425	398	348	333	325	323	254	219	152						
136	93	70	83	82	81	128	196	247	289	310	333	420	386	332
414	373	339	303	300	268	232	166	121						

AM Peak Hour ..... 11:00 to 12:00 (1255 vehicles)
AM Peak Hour Factor 94.2%
PM Peak Hour ..... 15:30 to 16:30 (1676 vehicles)
PM Peak Hour Factor 98.6%

Sunday 05/06/07 Channel: 1 Direction: E

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 671  719  462  361  361  229  267  325  409  537  719 1034 1159 1212 1216
1233 1280 1317 1240 1065  901  837  618  450  18622

 135  231  170   93   92   70   59   69  100  140  175  244  286  292  303
299  317  330  329  285  227  221  175  114
 108  174   94  117   95   57   52   64   92  120  168  246  283  307  286
299  339  290  324  276  207  219  167  130
 167  181  100   85   89   55   74   92  103  144  184  272  303  325  337
305  313  335  303  273  240  194  151  108
 261  133   98   66   85   47   82  100  114  133  192  272  287  288  290
330  311  362  284  231  227  203  125   98

AM Peak Hour ..................... 11:00 to 12:00 (1034 vehicles)
AM Peak Hour Factor ............. 95.0%
PM Peak Hour ..................... 17:30 to 18:30 (1350 vehicles)
PM Peak Hour Factor ............. 93.2%

Monday    05/07/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 324  233  164  174  259  543 1042 1325 1465 1237 1172 1321 1335 1530 1785
2886 2988 2807 1983 1472  937  740  718  417  28857

  98   82   45   60   56   71  235  353  386  335  282  352  367  402  410
687  787  721  496  430  289  177  220  118
  65   38   38   30   46  121  250  282  368  312  284  339  325  364  426
670  750  757  500  381  243  181  188   91
  91   61   39   49   80  158  270  346  388  322  320  334  326  390  435
766  726  707  490  341  238  203  181  119
  70   52   42   35   77  193  287  344  323  268  286  296  317  374  514
763  725  622  497  320  167  179  129   89

AM Peak Hour ..................... 07:45 to 08:45 (1486 vehicles)
AM Peak Hour Factor ............. 95.7%
PM Peak Hour ..................... 15:30 to 16:30 (3066 vehicles)
PM Peak Hour Factor ............. 97.4%

Tuesday   05/08/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 320  211  179  191  250  537 1022 1296 1546 1246 1162 1268 1376 1484 1740
2430 2700 2908 2169 1423 1058  842  746  507  28611

 109   65   47   54   55  110  212  306  413  352  276  298  358  337  410
546  651  701  602  429  308  226  218  149
  92   43   33   51   59  109  242  303  372  312  285  306  332  398  412
562  662  742  582  364  265  227  181  135
  67   52   51   46   75  141  279  328  430  291  317  353  362  358  442
659  711  725  531  316  253  202  181  108
  52   51   48   40   61  177  289  359  331  291  284  311  324  391  476
663  676  740  454  314  232  187  166  115

AM Peak Hour ..................... 07:45 to 08:45 (1574 vehicles)
AM Peak Hour Factor ............. 91.5%
PM Peak Hour ..................... 17:00 to 18:00 (2908 vehicles)
PM Peak Hour Factor ............. 98.0%

Wednesday 05/09/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
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```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 321  226  182  192  248  504 1018 1321  864   47   53   49 1350 1532 1718
2431 2630 2742 2393 1482 1061  853  804  522  24543

 105   51   34   45   49   85  254  311  340   16   10   14  350  394  423
520  649  691  688  429  288  218  234  159
  78   69   48   43   52  111  211  295  407   11   18   12  350  364  422
574  637  683  650  378  256  217  190  129
  72   49   56   55   73  136  273  366  112    9   16    9  335  394  424
679  655  670  574  341  265  203  216  131
  66   57   44   49   74  172  280  349    5   11    9   14  315  380  449
658  689  698  481  334  252  215  164  103

AM Peak Hour ..................... 07:30 to 08:30 (1462 vehicles)
AM Peak Hour Factor .............. 89.8%
PM Peak Hour ..................... 17:00 to 18:00 (2742 vehicles)
PM Peak Hour Factor .............. 98.2%

Thursday  05/10/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 400  224  195  208  280  495 1023 1307 1481 1349 1190 1264 1431 1476 1765
2459 2473 2380 2707 2238 1264  875  732  525  29741

 118   73   51   47   58  101  234  297  382  358  290  337  343  336  399
564  635  602  691  688  351  251  214  142
 102   66   45   54   55   99  226  335  415  322  282  303  323  378  401
598  606  580  673  637  309  220  164  123
  99   43   53   47   93  122  262  332  310  354  331  306  346  376  477
663  622  597  670  459  335  199  191  127
  81   42   46   60   74  173  301  343  374  315  287  318  419  386  488
634  610  601  673  454  269  205  163  133

AM Peak Hour ..................... 08:00 to 09:00 (1481 vehicles)
AM Peak Hour Factor .............. 89.2%
PM Peak Hour ..................... 18:00 to 19:00 (2707 vehicles)
PM Peak Hour Factor .............. 97.9%

Friday    05/11/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

 409  241  225  244  288  549  979 1334  796
                                          5065

 135   79   53   51   50   82  250  325  428

  96   56   41   61   68  137  195  330  368

  94   51   63   70   85  150  231  340

  84   55   68   62   85  180  303  339


AM Peak Hour ..................... 07:30 to 08:30 (1475 vehicles)
AM Peak Hour Factor .............. 86.2%
PM Peak Hour ..................... N/A
PM Peak Hour Factor .............. N/A
```

Volume Count Report
Generated by MSC3000 Version 2.021 Alpha(Nov 30 1995 08:53:01) Copyright 1990-1993 Mitron

Location ..... 7. Garrison Ave EB, West of Edgewater Rd
Location Code 7
Jurisdiction ..... Bronx
Recorder Set 05/04/07 14:51
Recording Start ... 05/04/ 7 15:00
Recording End 05/11/ 7 15:15
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 66
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

05/04/ 7 Channel: 1 Direction: E

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
150	168	159	120	64	39	29	35	17																781
25	33	40	32	20	9	5	4	5																
51	40	33	34	15	9	4	8	3																
30	46	34	32	12	10	11	10	2																
44	49	52	22	17	11	9	13	7																

AM Peak Hour ..... N/A
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... 16:15 to 17:15 (175 vehicles)
PM Peak Hour Factor 89.3%

05/05/07 Channel: 1 Direction: E

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
28	18	23	19	24	38	77	50	75	57	93	97	88	113	82	72	69	55	45	33	26	25	13	13	1233
9	4	5	5	3	3	16	17	13	6	36	21	20	28	22	24	15	12	13	5	9	8	1	4	
6	3	6	4	6	7	23	8	24	7	21	21	26	35	19	20	16	18	11	9	9	2	3	4	
4	5	7	4	7	15	15	16	22	20	20	25	21	31	17	12	20	17	15	9	4	7	5	2	
9	6	5	6	8	13	23	9	16	24	16	30	21	19	24	16	18	8	6	10	4	8	4	3	

AM Peak Hour ..... 09:30 to 10:30 (101 vehicles)
AM Peak Hour Factor 70.1%
PM Peak Hour ..... 12:45 to 13:45 (115 vehicles)
PM Peak Hour Factor 82.1%

Sunday 05/06/07 Channel: 1 Direction: E

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  18   15    8   20   11   40   32   42   29   24   36   40   50   51   76
61   71   81   72  116   93   79   63   55   1183

   2    3    1    2    0    5    6    7    6    4    4    5   14    9   18
15   16   15   16   27   22   23   17   16
   3    5    2    7    5   13    7   13    4    8    7   11   10   11   17
22   18   22   21   28   25   12   12   15
   1    4    4    7    2   14   11   10    7    3   10    8   18   16   16
10   14   27   20   24   23   24   15   13
  12    3    1    4    4    8    8   12   12    9   15   16    8   15   25
14   23   17   15   37   23   20   19   11

AM Peak Hour ..................... 07:00 to 08:00 (42 vehicles)
AM Peak Hour Factor ............. 80.8%
PM Peak Hour ..................... 19:00 to 20:00 (116 vehicles)
PM Peak Hour Factor ............. 78.4%

Monday    05/07/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  56   78   71  114  161  237  232  169  143  160  122  128  122  139  129
139  164  139  103  111   98   84   81   65   3045

   7   23   17   19   31   58   62   43   20   51   29   41   30   35   29
34   33   32   19   29   17   24   18   21
  12   18   22   28   30   48   60   38   33   34   24   36   10   38   26
36   42   36   33   22   20   15   28   13
  12   12   16   25   43   64   65   45   55   39   29   20   43   37   30
27   59   44   27   19   24   25   17   17
  25   25   16   42   57   67   45   43   35   36   40   31   39   29   44
42   30   27   24   41   37   20   18   14

AM Peak Hour ..................... 05:45 to 06:45 (254 vehicles)
AM Peak Hour Factor ............. 94.8%
PM Peak Hour ..................... 15:45 to 16:45 (176 vehicles)
PM Peak Hour Factor ............. 74.6%

Tuesday   05/08/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  57   74   68   97  136  230  305  172  182  156  122  127  121  115  131
138  139  135   92  127   89  109   90   68   3080

   9    9   19   18   27   49   80   37   53   41   36   29   20   23   36
44   38   33   25   38   17   27   21   14
  10   20   19   24   24   53   72   34   40   44   18   37   38   14   26
30   30   38   22   22   13   25   21   16
  17   17    8   26   36   57   89   46   48   37   34   28   33   43   29
37   36   27   24   32   33   25   25   21
  21   28   22   29   49   71   64   55   41   34   34   33   30   35   40
27   35   37   21   35   26   32   23   17

AM Peak Hour ..................... 05:45 to 06:45 (312 vehicles)
AM Peak Hour Factor ............. 87.6%
PM Peak Hour ..................... 14:45 to 15:45 (151 vehicles)
PM Peak Hour Factor ............. 85.8%

Wednesday 05/09/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
```

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  60   66   71   97  148  222  227  164  189  163  161  127  116  122  116
129  142  150  102  123   95   92   92   81   3055

  11   18   11   14   31   45   33   43   44   44   35   19   36   26   20
34   39   35   33   34   14   29   27   19
  16   16   23   24   25   48   48   28   59   46   47   32   30   39   28
31   30   39   22   23   14   27   26   14
  11   17   15   19   35   59   77   48   44   28   34   34   30   30   42
22   38   38   24   33   34   18   14   21
  22   15   22   40   57   70   69   45   42   45   45   42   20   27   26
42   35   38   23   33   33   18   25   27

AM Peak Hour ..................... 06:15 to 07:15 (237 vehicles)
AM Peak Hour Factor ............. 76.9%
PM Peak Hour ..................... 17:00 to 18:00 (150 vehicles)
PM Peak Hour Factor ............. 96.2%

Thursday  05/10/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  84   67   74  110  147  236  213  175  189  167  151  131  138  150  145
139  233  299  253  154  101  108   88   69   3621

  23   11   20   22   35   65   19   46   53   42   43   32   47   34   26
41   39   81   67   57   20   38   20   20
  18   18   22   17   26   47   45   35   40   47   42   27   26   50   37
34   59   77   63   34   21   28   20   20
  12   16   16   24   38   48   72   45   42   46   33   40   22   27   30
32   74   69   67   25   27   19   27   18
  31   22   16   47   48   76   77   49   54   32   33   32   43   39   52
32   61   72   56   38   33   23   21   11

AM Peak Hour ..................... 06:15 to 07:15 (240 vehicles)
AM Peak Hour Factor ............. 77.9%
PM Peak Hour ..................... 17:00 to 18:00 (299 vehicles)
PM Peak Hour Factor ............. 92.3%

Friday    05/11/07   Channel: 1   Direction: E
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  76   73   72   92  168  245  250  175  187  171  164  126  135  152  125
47                                            2258

  20   15   18   19   36   47   65   54   38   34   45   25   30   43   22
47
  17   16   18   27   33   58   49   30   63   50   37   40   53   33   48

  15   19   17   14   40   66   58   39   47   44   36   30   27   36   25

  24   23   19   32   59   74   78   52   39   43   46   31   25   40   30


AM Peak Hour ..................... 05:15 to 06:15 (263 vehicles)
AM Peak Hour Factor ............. 88.9%
PM Peak Hour ..................... 13:00 to 14:00 (152 vehicles)
PM Peak Hour Factor ............. 88.4%
```

Volume Count Report
Generated by MSC3000 Version 2.02l Alpha(Nov 30 1995 08:53:01) Copyright 1990-1993 Mitron

Location ..... 8. Edgewater Rd NB, So. of Bruckner Blvd
Location Code 8
Jurisdiction ..... Bronx
Recorder Set 05/04/07 14:53
Recording Start ... 05/04/ 7 15:00
Recording End 05/11/ 7 06:00
Sample Time ..... 15 Minutes
Operator Number ...
Machine Number 36
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... No

05/04/ 7 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
706	820	761	472	330	181	133	131	96	3630															
129	208	217	150	96	59	36	33	21																
178	199	200	114	68	46	33	34	20																
220	199	165	132	80	36	29	36	23																
179	214	179	76	86	40	35	28	32																

AM Peak Hour ..... N/A
AM Peak Hour Factor ..... N/A
PM Peak Hour ..... 16:30 to 17:30 (830 vehicles)
PM Peak Hour Factor 95.6%

05/05/07 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
72	65	44	54	56	73	125	164	190	223	259	296	328	316	306	363	304	230	175	143	95	92	64	75	4112
26	14	10	22	13	15	29	37	44	62	61	64	94	86	77	84	83	64	41	36	26	24	18	19	
21	17	11	10	14	15	29	37	33	56	51	86	89	78	76	100	81	58	54	39	22	13	15	19	
12	17	13	11	16	20	36	43	49	53	70	76	72	75	80	87	63	59	49	27	21	25	13	21	
13	17	10	11	13	23	31	47	64	52	77	70	73	77	73	92	77	49	31	41	26	30	18	16	

AM Peak Hour ..... 10:45 to 11:45 (303 vehicles)
AM Peak Hour Factor 88.1%
PM Peak Hour ..... 15:00 to 16:00 (363 vehicles)
PM Peak Hour Factor 90.8%

Sunday 05/06/07 Channel: 1 Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  57   51   41   49   45   32   36   49   65  110   94  120  131  149  195
165  187  144  181  164  144   98   92   88  2487

  10   18   11   13   14    7    8   13   16   24   14   24   26   44   56
33   46   39   61   58   32   22   22   34
   4   11    6   15   15   12    2    8   18   31   21   32   40   30   41
37   49   30   40   34   36   29   23   20
  21   13   12   10    8    7   10   10   13   24   24   34   20   37   47
56   50   44   45   32   39   28   27   16
  22    9   12   11    8    6   16   18   18   31   35   30   45   38   51
39   42   31   35   40   37   19   20   18

AM Peak Hour ..................... 10:45 to 11:45 (125 vehicles)
AM Peak Hour Factor ............. 89.3%
PM Peak Hour ..................... 14:00 to 15:00 (195 vehicles)
PM Peak Hour Factor ............. 87.1%

Monday    05/07/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  52   54   57   72  104  223  387  393  422  460  453  465  475  534  618
749  797  716  424  216  131   90  102   89  8083

  18   16   15   11   23   44   82  111   97  106  110  113  116  132  130
185  217  222  133   53   38   34   28   20
  16   12   15   20   33   58   92   95  112  103  107  122  129  124  174
180  193  191  104   55   37   24   23   17
   9   13    9   26   27   43  111   88  112  100  105  120  109  148  157
199  233  170   99   54   37   13   27   28
   9   13   18   15   21   78  102   99  101  151  131  110  121  130  157
185  154  133   88   54   19   19   24   24

AM Peak Hour ..................... 10:45 to 11:45 (486 vehicles)
AM Peak Hour Factor ............. 92.7%
PM Peak Hour ..................... 15:45 to 16:45 (828 vehicles)
PM Peak Hour Factor ............. 88.8%

Tuesday   05/08/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  57   60   80   74  127  200  374  389  378  448  353  409  500  529  632
698  768  684  385  236  134  104   98  109  7826

  11   16   19   18   24   43   82  114  102  107   83   97  126  128  158
170  221  194  122   77   43   28   27   24
  18   18   23   25   29   45   82   95  100  113   79   83  125  112  159
203  162  190  103   55   33   31   26   31
  14   18   14   18   44   59   96   96   91  124   98  112  131  139  145
175  223  166   86   54   32   23   28   27
  14    8   24   13   30   53  114   84   85  104   93  117  118  150  170
150  162  134   74   50   26   22   17   27

AM Peak Hour ..................... 09:00 to 10:00 (448 vehicles)
AM Peak Hour Factor ............. 90.3%
PM Peak Hour ..................... 16:30 to 17:30 (769 vehicles)
PM Peak Hour Factor ............. 86.2%

Wednesday 05/09/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
```

```
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  70   63   60   88  125  187  386  421  395  391  443  446  501  535  572
687  745  704  408  207  156  142   99  109   7940

  18   28   12   17   23   51   74  106   92   99  113  134  140  113  146
176  218  204  141   61   40   40   26   21
  18   16   14   29   30   44   98   98   93  104   91  108  112  141  136
188  171  179  104   60   45   39   22   30
  10    6   13   22   29   36  104  119  106   82  135   89  130  139  155
185  193  189   96   48   35   31   35   25
  24   13   21   20   43   56  110   98  104  106  104  115  119  142  135
138  163  132   67   38   36   32   16   33

AM Peak Hour ..................... 10:30 to 11:30 (481 vehicles)
AM Peak Hour Factor .............. 89.1%
PM Peak Hour ..................... 16:00 to 17:00 (745 vehicles)
PM Peak Hour Factor .............. 85.4%

Thursday  05/10/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  76   58   88  104  139  220  416  409  404  389  427  498  484  537  630
770  871  819  707  342  182  124  119  121   8934

  21   16   21   29   32   49  101  110  101  100  110  135  125  131  127
214  219  238  201  113   55   22   28   36
  27   17   34   28   37   41  102  105   98  108   98  104  112  140  180
212  221  199  181   93   40   37   27   32
  17   10   17   27   32   64  103   98   97   93  112  124  116  112  155
182  232  199  179   68   44   34   36   33
  11   15   16   20   38   66  110   96  108   88  107  135  131  154  168
162  199  183  146   68   43   31   28   20

AM Peak Hour ..................... 11:00 to 12:00 (498 vehicles)
AM Peak Hour Factor .............. 92.2%
PM Peak Hour ..................... 16:15 to 17:15 (890 vehicles)
PM Peak Hour Factor .............. 93.5%

Friday    05/11/07   Channel: 1   Direction: N
0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500
1600 1700 1800 1900 2000 2100 2200 2300 2400 Totals

  75   79   83  105  137  211
                                                690

  25   25   25   32   35   38

  15   16   18   28   26   44

  17   13   15   22   29   69

  18   25   25   23   47   60


AM Peak Hour ..................... 05:00 to 06:00 (211 vehicles)
AM Peak Hour Factor .............. 76.4%
PM Peak Hour ..................... N/A
PM Peak Hour Factor .............. N/A
```

EXHIBIT B
TECHNICAL SPECIFICATIONS

Table of Contents

1.0 APPLICABLE CODES AND STANDARDS
2.0 CONSTRUCTION SPECIFICATIONS
- Design Survey
- Maintenance and Protection of Traffic
- Geotechnical Engineering
- Private Utility Work
- Public Utility Work
- Railroad Contacts
- Design Drawings
- Substandard Features
- Sidewalk
- Staging Area

3.0 DESIGN SPECIFICATIONS
- Design Loading
- Load Combinations
- Concrete Structures Or Components
- Structural Steel Components
- Asphalt

4.0 SECTION NOT USED
5.0 CLEARANCES
6.0 RIGHT-OF-WAY
7.0 UTILITY INSTALLATION
8.0 ULURP REQUIREMENTS
9.0 ENVIRONMENTAL ISSUES
- Noise Control
- Asbestos Removal
- Dust Control
- Water Quality Protection
- Air Quality Protection

10.0 SEISMIC DESIGN CRITERIA
11.0 ADDITIONAL REQUIREMENTS
- Clearance Monitoring – BIN 2-07535-2
- Bridge Inventory and Load Rating Forms
- English to Metric Conversion

TECHNICAL SPECIFICATIONS

1.0 APPLICABLE CODES AND STANDARDS

The Company's Engineer shall obtain, and become familiar with, all applicable Departmental Design Directives, Standard Details, Administrative Procedural Bulletins and guidelines for the prosecution of the work/services under the various elements of the project. These shall include, but not be limited to, the latest editions including all amendments, of the following New York State Department of Transportation (NYSDOT) and New York City Department of Transportation (NYCDOT) documents, and American Association of State Highway and Transportation Officials (AASHTO) and Federal Highway Administration (FHWA) manuals:

NYCDOT Procedures for Bridge Reconstruction Projects (revised 2/95) including:
- Appendix A: BRPR Format and Requirements
- Appendix B: Substandard Features Checklist
- Appendix C: Presentation of Ratings
- Appendix D: In-Depth Inspection Form and Bridge Inspection & Condition Report
- Appendix E: Preliminary Plan Review Checklist
- Appendix F: Field Survey Requirements

NYCDOT Specifications for the preparation of Record Drawings, Indexes and Microfilms, September 1997.
NYCDOT Street Lighting Standards
NYC Uniform Land Use Review Procedure
NYC Specifications for Title Examinations and Reports on Street/Railroad Intersections
NYC Specifications for Title Examinations and Reports on Privately-Owned Tax Lots
NYCDEP Water Supply and Sewer Standards
NYCDOT Specification for Painting, Section 831, April 1999
NYCDOT Specification for Lead Pain Removal, Section 832, April 1999
Electric Code of the City of New York
National Fire Protection Association National Electric Code, 2005 with all provisions in effect as of the date of Notice to proceed.
NYSDOT Engineering Bulletins and Engineering Instructions issued as of the date of Notice to Proceed
NYSDOT Highway Design Manual, Volumes 1 and 2 with revisions in effect as of the date of Notice to Proceed
NYSDOT Standard Specifications for Highway Bridges (Blue Pages) with all provisions in effect as of July 2002
NYSDOT Standard Specifications, Construction and Materials, May 4, 2006, with current additions and modifications in effects as of the date of Notice to Proceed
NYSDOT Steel Construction Manual, November 1981, including Addendum 1, April 1984, with current additions in effect as of the date of Notice to Proceed
NYSDOT Geometric Design Policy for Bridges
NYSDOT Bridge Manual, 4th Edition, issued April 2006
NYSDOT Comprehensive Pavement Design Manual, June 2000, with revisions up to the date of Notice to Proceed.

NYSDOT Murk Manuals
NYSDOT Prestressed Concrete Construction Manual, September 2000 with current additions and modifications in effect as of the date of Notice to Proceed
NYSDOT Manual of Uniform Traffic Control Devices
NYSDOT Uniform Code of Bridge Inspection
NYSDOT Bridge Inspection Manual
NYSDOT Bridge Inventory and Inspection System Manual, April 2004
NYSDOT Specifications for In-Depth Bridge Inspection
NYSDOT Engineering Instructions for Load Ratings
NYSDOT Bridge Deck Evaluation Procedure Manual, May 1992
NYSDOT Standard Detail for Highway Bridges, Bridge Design Data Sheets and Guideline Drawings in effect as of the date of Notice to Proceed
NYSDOT Right of Way Mapping Procedure Manual
NYSDOT Manual of Administrative Procedure
AASHTO Policy on Geometric Design of Highways and Streets, 5th Edition as modified by NYSDOT, Bridge Manual.
AASHTO Division I-A, Seismic Design Standard Specifications, 17th Edition 2002 including all interim specifications and NYSDOT Standard Specifications for Highway Bridges with all provisions in effect as of 2002 (EB 02-038) and as modified by NYCDOT (see Paragraph 10.0).
AASHTO Standard Specifications for Highway Bridges, as amended by NYSDOT
AASHTO Roadside Design Guide, 3rd Edition, with 2006 update
AASHTO/American Welding Society (AWS) *Bridge Welding Code* (ANSI/AASHTO/AWS D1.5)
AASHTO Manual for Condition Evaluation of Bridges, 2nd Edition with 2003 Interim Revisions
AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signs, 4th edition 2001 with 2002 and 2003 Interims
AASHTO Guide for the Development of Bicycle Facilities
ASTM Standard Specifications
FHWA Seismic Retrofitting Manual for Highway Bridges, May 1995
FHWA- RD-75-114 Safety & Location for Bicycle Facilities
Federal Register, Proposed Rules, December 21, 1992
Americans with Disability Act Guidelines (ADAG)

2.0 CONSTRUCTION SPECIFICATIONS

2.1 Design Survey:
The existing survey data/plans are located in Exhibit A. The Company shall update the survey data/plans, as required, prior to rehabilitating the bridge and its approaches. NYCDOT is not responsible for any errors in the existing survey data/plans.

2.2 Maintenance and Protection of Traffic:
The Company shall prepare the Maintenance and Protection of traffic plans and shall submit to NYCDOT OCMC office for review and approval. The Company shall also

be required to make presentation to the community board(s) as necessary (Refer to Exhibit F). The Company's proposedscheme must adhere to the traffic stipulations and all other provisions outlined in Exhibit F. Proposals that do not do so will be considered non-responsive.

2.3 Geotechnical Engineering:

Three soil borings were obtained along the West Abutments, at track level, in 1991 under Contract HBX622 (Rehabilitation of Longwood Avenue Bridge and Rehabilitation of Tiffany Street Bridge over Railroad (Amtrak & Conrail)) and are provided in the Engineering Support Data.

The Company shall take additional borings during design, if necessary. The Company will be fully responsible for the geotechnical data used for the foundation design. The Company shall submit boring plans to the Director of Design-Build/Emergency Contracts for approval prior to taking borings.

2.4 Private Utility Work:

All private utilities under and over the bridge shall be temporarily supported, relocated and/or upgraded during the rehabilitation of bridges. The Company will contact all private utility companies for their specific requirements on this bridge rehabilitation project. Some utility companies may provide design drawings for re-construction (See Schedule U). These must be verified by contacting the appropriate utility companies which are:

Mr. Robert Mata
Consolidated Edison Co. of New York, Inc.
118-29 Queens Blvd
Forest Hills, New York 11375
Attn: Jackson Koo
(718)275-4078

2.5 Public Utility Work:

All public utilities under and over the bridge shall be temporarily supported, relocated and/or upgraded during the rehabilitation of bridges. The Company will contact all public utility companies for their specific requirements on this bridge rehabilitation project. Some utility companies may provide design drawings for re-construction. Utility plans provided in Exhibit G show existing utilities. These must be verified by contacting the appropriate utility companies which are:

Ms. Marguerite Riskalla
Section Engineer – Bureau of Street Lighting
NYC Department of Transportation
34-02 Queens Blvd, 2nd Floor.
L.I.C., NY 11101
(718)-786-4617

Mr. Mohammed Talas
Traffic Management Center
NYC Department of Transportation
28-11 Queens Plaza North
L.I.C., NY 11101
(718)-786-2008

Mr. Alan Borock
Director of Traffic Signal Operations
Traffic Engineering & Planning
NYC Department of Transportation
34-02 Queens Blvd, 2nd Floor
L.I.C., NY 11101
Attn: Mike Lefosse
(718)-786-2236

Mr. David Spektor
NYCDEP- Bureau of Sewers
Bronx Sewer & Water Tapping Section
1932 Arthur Avenue, Room 607
Bronx, N.Y. 10457
(718)-579-6988

Mr. Kailash Sharma, P.E.
Chief Review & Construction Compliance
Bureau of Water Supply & Wastewater Collection
59-17 Junction Boulevard
Low Rise, 3rd Floor
Corona NY 11368
Attn: Irina Veytsman, P.E.
(718)-595-5191

2.6 New York City Transit:

This project will have an impact on the operations of New York City Transit's surface route Bx5. The Company shall contact NYCT and address their concerns. The contact person is:

Karl Stricker
Superintendent, Special Operations
MTA New York City transit
130 Livingston Street
Brooklyn, N.Y. 11201
(718)-694-3655

2.7 Railroad Contacts;

(a) Earl Watson, Project Development Officer
National Rail Passenger Corporation (Amtrak)
Engineering Department, 4th Floor, Box 64
30th & Market Streets 19104
Philadelphia PA
(215)- 349-1393

NOTE: The Company will be required to reimburse AMTRAK for all costs associated with review of the Company's design work. See Exhibit C – Progress Payment Schedule.

(b) Mr. Jeffrey Konrad, Principal Engineer
DMJM Harris (Representatives for CSXT)
260 S. Broad Street
Suite 1500
Philadelphia, PA 19102
(215) 966-4873

NOTE: The Company will be required to reimburse CSXT for all costs associated with review of the Company's design work. See Exhibit C – Progress Payment Schedule.

2.8 Design Drawings and Shop Drawings:

The Company shall prepare and submit for review and approval design drawings as outlined in the Agreement. Construction work for any component prior to final plan approval of that component shall not be allowed. All drawings shall be prepared using AutoCAD. All drawings shall be submitted in DWG and PDF formats. Final approved design drawings and shop drawings shall be microfilmed in accordance with NYC Department of Transportation Specifications "Requirements for the Microfilming of Engineering Drawings & Documents", dated January 2007.

2.9 Non-Conforming (Substandard) Features:

All existing non-conforming (substandard) features based on the NYSDOT Highway Design Manual design standards shall be eliminated or improved. If any substandard

features are to be retained, approvals must be obtained from the offices of: Director of Design-Build Emergency Contracts, NYCDOT, New York, NY

2.10 Sidewalk:

Sidewalk cross slope to be 1/4 inch per foot or less and conform to American with Disabilities Act Guidelines (ADAG).

2. 11 Staging Area:

It shall be the Company's responsibility to locate a site that can be used as a staging area for construction.

3.0 DESIGN SPECIFICATIONS

All design work must meet the approval of NYCDOT.

3.0.1 Bridge Design Specifications
Design shall be in accordance with the AASHTO Standard Specifications for Highway Bridges as amended by NYSDOT (Blue Pages). If a proposed design is not covered by AASHTO and NYSDOT Specifications, the bidder may propose other specifications, provided they have been proven adequate by previous use on similar structures. Such specifications shall be included with the Technical Proposal, with proper explanation regarding their use in the project.

3.0.2 Design Method
(a) Superstructure & substructure shall be designed by the Service Load Design Method (Allowable Stress Design).

(b) Design details shall be in accordance with the Applicable Codes and Standards listed above. English format shall be used for design drawings and for as-built drawings.

3.1 DESIGN LOADING

3.1.1 Dead Load:
(a) Unit Weight for all reinforced and prestressed concrete, including reinforcing steel: 150pcf
(b) Additional wearing surface: 30 psf
(c) Corrugated metal stay in place forms: 5 psf
(d) Structural steel: 90 pcf

3.1.2 Live Load:
HS-25 loading.

3.1.3 Impact:
Impact shall be in accordance with AASHTO Subsection 3.8.

3.1.4 Pedestrian/Bicycle live load:
Pedestrian/Bicycle live load applied per square foot of sidewalk area shall be as follows:
(a) Span lengths 0 to 25 feet .....85 lb. /ft^2
(b) Span lengths over 25 feet ..... 60 lb. /ft^2
Span length is the loaded length of sidewalk.

3.1.5 Wind Load:
Wind loads shall be in accordance with AASHTO Subsection 3.15 using a reduction of 10% up to 30 feet in height and no reduction over 30 feet.

3.1.6 Sidewalk, Curb, and Railing Loading:
In accordance with AASHTO Section 3.14

3.1.7 Thermal Forces:
Normal Temperature: 680 F.
Range of temperature variation shall be in accordance with AASHTO Subsection 3.16.

3.1.9 Design Speed:
60 mph – Bruckner Expressway Mainline
35 mph – Bruckner Expressway Service Roads

3.1.10 Minimum Design Requirements:
All members must be designed to meet the minimum inventory load requirements for HS-25.

3.1.11 Load Ratings
Load ratings of the reconstructed structure(s) shall be calculated for the vehicle type listed below, and a summary table shall be provided on the plans. The load rating of all members of the structure shall be in accordance with current NYSDOT requirements for Level One load rating. Each member shall be rated for both inventory and operating conditions using each the following loading in all cases: HS-25.

3.2 LOAD COMBINATIONS

AASHTO Standard Specifications Section 3, as amended by NYSDOT Blue Pages.

3.3 CONCRETE STRUCTURES OR COMPONENTS

3.3.1 Concrete Classifications:
As per NYSDOT Standard Specifications unless noted otherwise.

Concrete compressive strength at 28 days (for design purposes only)

Location	Concrete Class	28 Day Strength
Decks & Approach slabs	HP	3000 psi
Parapets and Median Barriers on Structure	HP (if cast-in-place or precast) or J (if slip formed)	3000 psi
Pier Caps & Pedestals	HP	3000 psi
Footings	A or HP	3000 psi
Concrete Barriers on Grade	HP (if cast in place or precast) or I (if slipformed)	3000 psi
Concrete Repairs (Substructures)	D*	3000 PSI

* Alternate Concrete Class may be used as approved by the Engineer.

3.3.2 Reinforcing Steel:

All reinforcing steel shall be epoxy coated, conforming the requirements of ASTM A615, Grade 60, $F_y = 60$ ksi for deformed billet steel bars or ASTM 996 Grade 60, $F_y = 60$ ksi for deformed rail steel bars.

3.3.3 Design Method:

Working Stress Design, in accordance with the applicable provisions of the AASHTO Specifications, shall be used for the deck slab, beams, bent caps and columns. For the design of pile supported foundations, the number of piles and their pattern shall be in accordance with the applicable AASHTO Specifications as modified by NYSDOT Blue Pages for the Service Load Method.

3.3.4 Prestressed or non-prestressed concrete components:

The Design of prestressed components shall comply with the current AASHTO Specifications for Highway Bridges, including Interim Specifications as modified by NYSDOT Blue Pages.

3.3.5 Concrete Deck:

Composite action of precast concrete forms with the cast-in-place concrete slab shall not be permitted.

3.4 STRUCTURAL STEEL COMPONENTS

3.4.1 Materials:

Structural steel shall conform to the requirements of ASTM A709, Grade 50.

All structural steel shall have atmospheric corrosion resistance (weathering steel). The first five (5) feet of each girder shall be painted a similar color in accordance with the NYSDOT Standard Specifications.

Steel Rolled Shapes: See AISC tables.

Minimum Material Properties for Pins, Rollers, and Rockers per AASHTO Standards (if applicable).

High Strength Bolts-ASTM A325

Anchor Bolts- In accordance with Section 723.60 of the NYSDOT Standard Specifications.

3.5 ASPHALT

The material for the new wearing surfaces shall be Superpave Series 50, and must conform to the latest NYS Department of Transportation Standard Specifications.

4.0 SECTION NOT USED

5.0 CLEARANCES

The minimum vertical clearance under BIN 2-07535-2 shall be 18'-10" above CSXT. The existing vertical clearance above Amtrak shall not be decreased.

The existing minimum vertical clearances under BIN 2-07535-1 shall be maintained. See Exhibit A.

6.0 RIGHT-OF-WAY

The project shall be built within the existing right-of-way. The erection of any structures, temporary or not, outside of the NYCDOT Right-Of-Way will not be permitted.

7.0 UTILITY INSTALLATION

It is NYCDOT policy to locate all utilities under the sidewalk area of the bridge deck. These utilities are to be supported by their own support bracket properly attached to superstructure. Any deviation from above will need special approval from Director of Design-Build Emergency Contracts, NYCDOT.

8.0 ULURP Requirements

It is expected that most of the bridges will have insignificant changes in their legal grades and no permanent acquisition of property is required. If the alternatives pursued by the Company result in significant changes in the grades or permanent acquisition of property, it shall be the responsibility of the Company to obtain all permits and file damage and acquisition maps to Department of City Planning after obtaining their approval. Coordination and plan submission shall be made through:

Land Use Coordination Unit
40 Worth Street
New York, NY
212-442-6770

9.0 ENVIRONMENTAL ISSUES

The existing bridge seats contain oil-contaminated soil. The electrical ducts on BIN 2-07535-2 are made from Transite (asbestos containing material). There are also chances of encountering hazardous materials in the project. It shall be the responsibility of the Company to identify them, remove them and safely dispose of them. All permits required for the purpose shall be the responsibility of the Company and should indemnify the City of New York from all consequences of their actions.

9.1 Noise Control:

The Company is directed to Title 24, Chapter of the Administrative Code of the City of New York, known as the "New York City Noise Code" by the Department of Environmental Protection. The provisions of this code and its most recent additions and revisions shall apply to this Contract.

9.2 Asbestos Removal:

Removal of asbestos containing material shall be in accordance with NYSDOT Standard Specifications Section 210 and revisions in effect as of Notice to Proceed.

9.3 Dust Control:

Refer to Section 619-3.01 Paragraph C of the NYSDOT Standard Specifications.

9.4 Water Quality Protection:

The requirements of Section 107-12 of the NYSDOT Standard Specifications shall apply.

9.5 Air Quality Protection:

The requirements of Section 107-15 of the NYSDOT Standard Specifications shall apply.

10.0 SEISMIC DESIGN CRITERIA

The required performance of a bridge is determined according to its importance rank.

Seismic Design shall be in accordance with AASHTO Standard Specifications for Highway Bridges, Division I-A, Seismic Performance Category C; for this project the designer shall provide an adequate bridge seat and bearing connection per the NYSDOT Blue Pages.

11.0 ADDITIONAL REQUIREMENTS

The following agencies have been contacted for their requirements. These can be found in Exhibit G:

- NYCDOT Division of Street Lighting
- NYCDEP Bureau of Water and Sewer Operations

11.1 Clearance Monitoring – BIN 2-07535-2:

The Company will monitor the existing vertical clearances at all 14 girders above CSXT Tracks 5 and 6 on a weekly basis to ensure that no significant vertical deflections are taking place. The monitoring will continue until the existing girders are rehabilitated.

11.2 Bridge Inventory and Load Rating Forms:

Concurrent with the design completion, the Company shall complete and provide NYCDOT with:

(a) Penciled originals of Inventory Update forms (blank forms can be obtained from NYCDOT), per the current NYSDOT *Bridge Inventory Manual for Bridge Inventory and Inspection System*, reflecting all physical changes resulting from construction.

(b) Level 1 and 2 Load Ratings for the reconstructed bridges.

11.3 English to Metric Conversion:

All work shall be performed in English units.

The Company is alerted to the fact that the plans for this RFP were produced in English units. However, the NYSDOT Standard Specifications included herein are in Metric units. The table found in the front cover of Volume I of the NYSDOT Standard Specifications – Construction and Materials – should be used to convert between English and Metric units in the event that NYSDOT Standard Specifications are not yet available in English units.

In addition, all the Engineering Instructions issued by the date the Request for Proposal is being advertised should be taken into consideration and incorporated in the Company's Technical and Price Proposal.

EXHIBIT C
PROGRESS PAYMENT SCHEDULE

PROGRESS PAYMENT SCHEDULE

BRUCKNER EXPRESSWAY BRIDGES N/B & S/B OVER AMTRAK & CSXT RAILROADS

Company name: _____

The Department shall make Progress Payments to the Company in accordance with the following Schedule or Milestones. The Company may add or eliminate Milestones in accordance with its Rehabilitation. Dollar values are to be filled in for each structure and cumulative totals.

Milestone for BIN 2-07535-1	**Dollar Amount**	**Total**
Design/Bridge/Roadways		
Maintenance and Protection of Traffic (approved)		
Demolition Plans (approved)		
Substructure Rehabilitation Plans (approved)		
Superstructure Framing Plans (approved)		
Superstructure Deck Plans (approved)		
Roadway Design (approved)		
Signing & Striping Design (approved)		
Watermain Design (approved)		
Street Lighting Design (approved)		
Bridge Painting Plans (approved)		
Railroad Coordination (design approved)		
Allowance - CSXT Force Account – Design Review & Flagging Services	$1,250,000	$1,250,000
Allowance Amtrak Force Account - Design Review & Flagging Services	$2,000,000	$2,000,000
Community Coordination		

PROGRESS PAYMENT SCHEDULE for BIN 2-07535-1 continues on the next page.

PROGRESS PAYMENT SCHEDULE for BIN 2-07535-1 Continued

Milestone for BIN 2-07535-1	**Dollar Amount**	**Total**
Construction Support Services		
Construction		
Bridge Demolition		
Hauling and Disposal of Contaminated Excess Excavation/Concrete Demo Material (Non-Hazardous, Non-Petroleum Industrial Waste)		
Hauling and Disposal of Contaminated Excess Excavation/Concrete Demo Material (Non-Hazardous, Petroleum Contaminated Waste)		
Hauling and Disposal of Contaminated Excess Excavation/Concrete Demo Material (Hazardous Waste)		
Substructure Rehabilitation		
Superstructure (including Deck) Replacement		
Maintenance and Protection of Traffic		
Associated Roadway Work		
Bridge Painting		
Railroad Coordination		
Punchlist Completion		
Final Acceptance		
Contingency During Construction	$750,000	$750,000
Public Utility Work		
Water Main		
Street Lighting		
TOTAL BIN 2-07535-1		

PROGRESS PAYMENT SCHEDULE for BIN 2-07535-2

Milestone for BIN 2-07535-2	Dollar Amount	Total
Design/Bridge/Roadways		
Maintenance and Protection of Traffic (approved)		
Demolition Plans (approved)		
Substructure Plans (approved)		
Superstructure (including Deck) Plans (approved)		
Roadway Design (approved)		
Signing & Striping Design (approved)		
Watermain Design (approved)		
Street Lighting Design (approved)		
Bridge Clearance Monitoring*		
Railroad Coordination (design approved)		
Allowance - CSXT Force Account – Design Review & Flagging Services	$1,250,000	$1,250,000
Allowance Amtrak Force Account - Design Review & Flagging Services	$2,000,000	$2,000,000
Community Coordination		
Construction Support Services		
Construction		
Bridge Demolition		
Hauling and Disposal of Contaminated Excess Excavation/Concrete Demo Material (Non-Hazardous, Non-Petroleum Industrial Waste)		
Hauling and Disposal of Contaminated Excess Excavation/Concrete Demo Material (Non-Hazardous, Petroleum Contaminated Waste)		

PROGRESS PAYMENT SCHEDULE for BIN 2-07535-2 continues on the next page.

PROGRESS PAYMENT SCHEDULE for BIN 2-07535-2 Continued

Milestone for BIN 2-07535-2	**Dollar Amount**	**Total**
Hauling and Disposal of Contaminated Excess Excavation/Concrete Demo Material (Hazardous Waste)		
Substructure Rehabilitation		
Superstructure (including Deck) Replacement		
Maintenance and Protection of Traffic		
Associated Roadway Work		
Railroad Coordination		
Punchlist Completion		
Final Acceptance		
Contingency During Construction	$750,000	$750,000
Public Utility Work		
Water Main		
Street Lighting		
TOTAL – BIN 2-07535-2		

Note: All costs for Private Utility work will be paid to the Company through NYCDOT and paid under the conditions set forth by the negotiated agreement between the Private Utility Companies and the Company.

*Clearances above CSXT Tracks 5 and 6 to be monitored from Notice-To-Proceed until the existing girders have been removed.

EXHIBIT D
DESIGN DELIVERABLES SUBMISSION

DESIGN DELIVERABLES SUBMISSION

		CALENDAR DAYS	
	ITEM	**EARLIEST**	**LATEST**
1	"Notice to Proceed" Date		
	BIN 2-07535-1		
2	Maintenance & Protection of Traffic		
3	Demolition Drawings		
4	Substructure Rehabilitation		
5	Superstructure Drawings		
6	Deck Structure		
7	Roadway Design Drawings		
8	Signing & Striping Design Drawings		
9	Utilities		
	BIN 2-07535-2		
10	Maintenance & Protection of Traffic		
11	Demolition Drawings		
12	Substructure Rehabilitation		
13	Superstructure Drawings		
14	Deck Structure		
15	Roadway Design Drawings		
16	Signing & Striping Design Drawings		
17	Utilities		

* Numbers are to indicate the earliest submission and the latest submission. Turn-around times are not included in this schedule.

Design drawings shall be of sufficient quantity and quality so that the contractor is able to prepare shop drawings from them.

EXHIBIT E
SCOPE OF WORK

NOTE:
NYCDOT'S ROW STOPS AT THE FASCIA GIRDERS. ANY PROPOSALS THAT MAY CONSIDER ERECTION OF STRUCTURES OUTSIDE NYCDOT'S ROW AND OVER THE RAILROAD ROW WILL BE CONSIDERED NON-RESPONSIVE.

TABLE OF CONTENTS

	Page No.
Contract Limits	**271**
Main Construction Activities	**271**
Superstructure BIN 2075351	**271**
Superstructure BIN 2075352	**271**
Substructure	**272**
Roadway Work	**272**
Public Utilities	**272**
Private Utilities	**272**
Bridge Clearance Monitoring - BIN 2075352	**273**
Traffic Stipulations	**273**
Railroad Coordination	**273**
Community Outreach	**273**
Tow Truck Service	**273**
Design-Build Requirements	**273**
Appendix A – Area Map & Location Map	**274**

SCOPE OF WORK
Bruckner Expressway (BE) & Service Road over Amtrak & CSXT Railroads
BINs 2-07535-1 and 2-07535-2

Contract Limits: Along Bruckner Expressway and service road the contract limits are approximately 200 feet west of the deck joint at the Begin Abutment (west abutment) to approximately 200 feet east of the deck joint at the End Abutment (east abutment). The contract limits along Amtrak & CSXT Railroads are 25 feet north of the north fascia of BIN 2-07535-1 (southbound Bruckner Expressway & Service Road) to 25 feet south of the south fascia of BIN 2-07535-2 (northbound Bruckner Expressway & Service Road). The exact contract limits are shown in Exhibit A, Appendix B, Book 2. These limits shall apply for all bridge and roadway related work. An Area Map and a Location Map are included at the end of this Exhibit.

Main Construction Activities: Work shall include the demolition of the existing northbound bridge superstructure and construction of a new bridge superstructure of similar length and width, and highway reconstruction within the project limits. Work also includes demolition of the deck and stringers for the southbound bridge superstructure and construction of a new bridge deck. Conceptual mainline profiles for the Bruckner Expressway and Service Roads are included in Exhibit A (Appendix B), Book 2. If any conflict exists between the proposed features as these features are shown in the drawings and Exhibit A Item 5.0 Main Line & Service Road Design Criteria the features shown in Exhibit A Item 5.0 Main Line Design Criteria will govern.

Superstructure BIN 2075351: The existing trusses shall remain. Remove existing asphalt overlays, concrete approach slab if necessary, concrete deck, concrete encased steel stringers, concrete encasement from floorbeams and exterior surfaces of truss bottom chords, concrete safety walks, concrete sidewalks, concrete malls, concrete parapets, railing, steel roadway plates (See Exhibit K -Special Provisions for Construction, Paragraph 50), lighting, sign structures, lead-based paint, and other superstructure framing as required. Design and construct rehabilitated superstructure, concrete slab, roadway, asphalt overlays, concrete approach slabs, concrete parapets, lighting, and signage; replace existing bearings; repair impact damage at South Truss Member M_5L_5; replace deteriorated rivets with bolts (Assume 400 rivets to be replaced with bolts); replace existing 8-inch diameter water main with a 12-inch water main (See Exhibit G); and paint existing structural steel. All design work shall comply with the Technical Specifications presented in Exhibit B, Book 2.

Note: Proposers should include in their bid the cost for inspecting the steel floorbeams after the encasement has been removed. If any repairs, other than removal of rivets and replacement with high strength bolts, are required, the cost for this work will be paid from the contingency item.

Superstructure BIN 2075352: Remove existing superstructure including asphalt overlays, concrete safety walks, concrete sidewalks, concrete malls, concrete parapets, railing, steel roadway plates (See Exhibit K -Special Provisions for Construction, Paragraph 50), girders, bearings, lighting, sign structures and other appurtenances; modify substructure as required . Design and construct new superstructure, concrete slab, roadway asphalt overlays, concrete approach slabs, concrete parapets, lighting, and signage; replace existing 20-inch water main with a 20-inch water main (See Exhibit G); and replace existing Con Edison ducts (See Exhibit H). All design work shall comply with the Technical Specifications presented in Exhibit B, Book 2.

Substructures (both bridges): Rehabilitate the existing abutments and retaining walls; replace abutment backwalls for BIN 2-07535-2; replace or modify the backwalls of BIN 2-07535-1 as required to accommodate the proposed rehabilitation. Design and construct substructure rehabilitation in accordance with Technical Specifications presented in Exhibit B. Existing inspection data can be found in Exhibit A, Appendix A.

For price proposal purposes, Proposers are to assume 55 CF of spall repairs (6" deep), 20 CF of spall repairs (12" deep), 1,800 SF of surface repairs (4' deep) at the end abutment of BIN 2-07535-2, 100 LF of crack repairs, up to 1/8 inch wide, and 100 LF of crack repairs, >1/8 inch wide but <1/4 inch wide. Repair quantities do not include backwalls of either bridge. Refer to Drawing AB-1 for locations of each repair type.

Remove soil from the bridgeseats of both structures. For price proposal purposes, Proposers are to assume:

Item	BIN 2-07535-1	BIN 2-07535-2
Hauling and Disposal of Contaminated Excess Excavation/Concrete Demo Material (Non-Hazardous, Non-Petroleum Industrial Waste)	34 CY	5 CY
Hauling and Disposal of Contaminated Excess Excavation/Concrete Demo Material (Non-Hazardous, Petroleum Contaminated Waste)	4 CY	40 CY
Hauling and Disposal of Contaminated Excess Excavation/Concrete Demo Material (Hazardous Waste)	2 CY	15 CY
Total	40 CY	60 CY

Roadway Work: Remove existing asphaltic wearing surface course, concrete roadway pavement, sidewalks, curbs, subbase material, signs, lighting, and pavement markings within the contract limits. Design and construct the new portion of Bruckner Expressway and Service Roads to comply with Design Requirements and conceptual plans and profiles, See Exhibit A Appendix B. All roadway items shall be as per the latest NYC agency standard specifications. In addition, all utility hardware shall be adjusted to meet the proposed grades.

Public Utilities: All catch basins, fire & police signals, street lighting & signals, and hydrants, within the project limits, shall be replaced as per the latest NYC agency standard specifications. Also refer to Exhibit G – Public Utility Requirements – Book 2.

Private Utilities: The Company shall refer to Exhibit H, Book 2 for all private utility work required. All work associated with private utilities presented in Appendix H will be negotiated separately with the various private utility companies. The selected Company must provide proof that it has entered into or is about to enter into such an Agreement with the utility company(s) prior to the award of the Design/Build Contract.

Bridge Clearance Monitoring – BIN 2-075351 The Company will monitor the existing vertical clearances at all 14 girders above CSXT Tracks 5 and 6 on a weekly basis to ensure that no significant vertical deflections are taking place. The monitoring will continue until the existing girders are rehabilitated.

Traffic Stipulations: See Exhibit F, Book 2

Railroad Coordination: The Company is to enter into Agreements with Amtrak and CSXT regarding all railroad issues, requests for outages, flaggers, review and approval of drawings, etc. NYCDOT has set a project allowance to cover Force Account costs. Actual force account costs will be paid on a monthly basis based on actual costs incurred and the amount will be drawn from the railroad force account contingency the project has allocated.

Amtrak and CSXT have not provided a schedule with specific outages but they are committed to work with the Company to accommodate construction in a way that does not adversely impact Amtrak and CSXT operations.

Although the hours and all provisions regarding outages will need to be worked out between the Company and the Railroads after Notice-To-Proceed, for proposal purposes it is reasonable to expect the following outages:

Railroad	1 Track Outage	2 Track Outage
Amtrak	1:00 AM to 5:00 AM	Foul Time Between 2:00 AM to 5:00 AM
CSXT	1:00 AM to 5:00 AM	Foul Time Between 2:00 AM to 5:00 AM

Proposers are to clearly state the number of outages and flagger occasions they are going to need to execute their proposed work based on the above track availability. In the event, the assumed availability fails to materialize, NYCDOT will review the schedule and actual operations and issue a time extension as may be necessary.

Community Outreach:

The Company shall have a dedicated Community Liaison person to provide services as outlined in the Agreement Section of Book 1. The Community Liaison is to identify, contact, and keep informed on a regular basis all affected Community Boards, Neighborhood and Civic Organizations, including the Hunt's Point Market, Community Services, schools, hospitals, emergency services, (including EMS, Police Department, and Fire Department) and mass transit services. Extensive outreach effort must be done during the design stage of the project when presentations to the Community Board(s) will be scheduled and also at least one (1) month before any existing roadway is impacted. This effort is to include meetings, presentations, phone calls, brochures, newsletters, etc. The Company will be deemed to have taken all the above into consideration and all associated costs will be deemed incorporated in its price.

Tow Truck Service:

Tow Truck Service shall be provided during times when the number of travel lanes are restricted or reduced and shall be included in the price bid for Maintenance and Protection of Traffic. The service shall also be available when the Company is implementing changes to the traffic pattern.

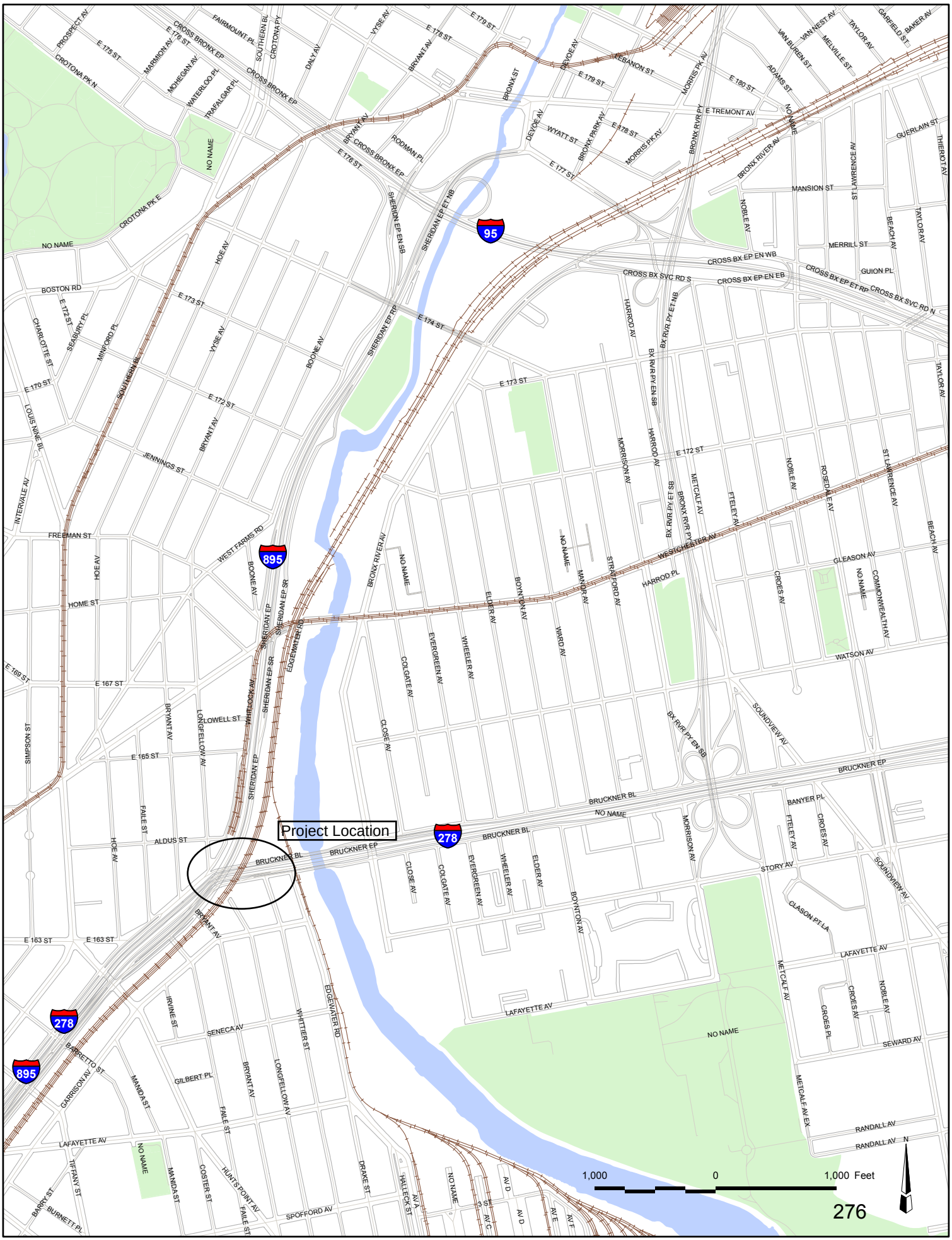
Design-Build Requirements: The following requirements are considered critical for the smooth operation of a design build contract of this magnitude, complexity, and time constraints:

- The construction project manager and the engineer responsible for all technical issues will dedicate 100% of their time to this project throughout the duration of their services to the project.
- The design and CSS project manager(s) will dedicate at least 50% of his/her/their time to this project throughout the duration of his/her/their services to the project.
- The Engineer responsible for all project technical (design & CSS) issues will be located at the field office once the contractor mobilizes at the site. Appropriate space, compute station, and necessary resources must be made available to accommodate this working situation.

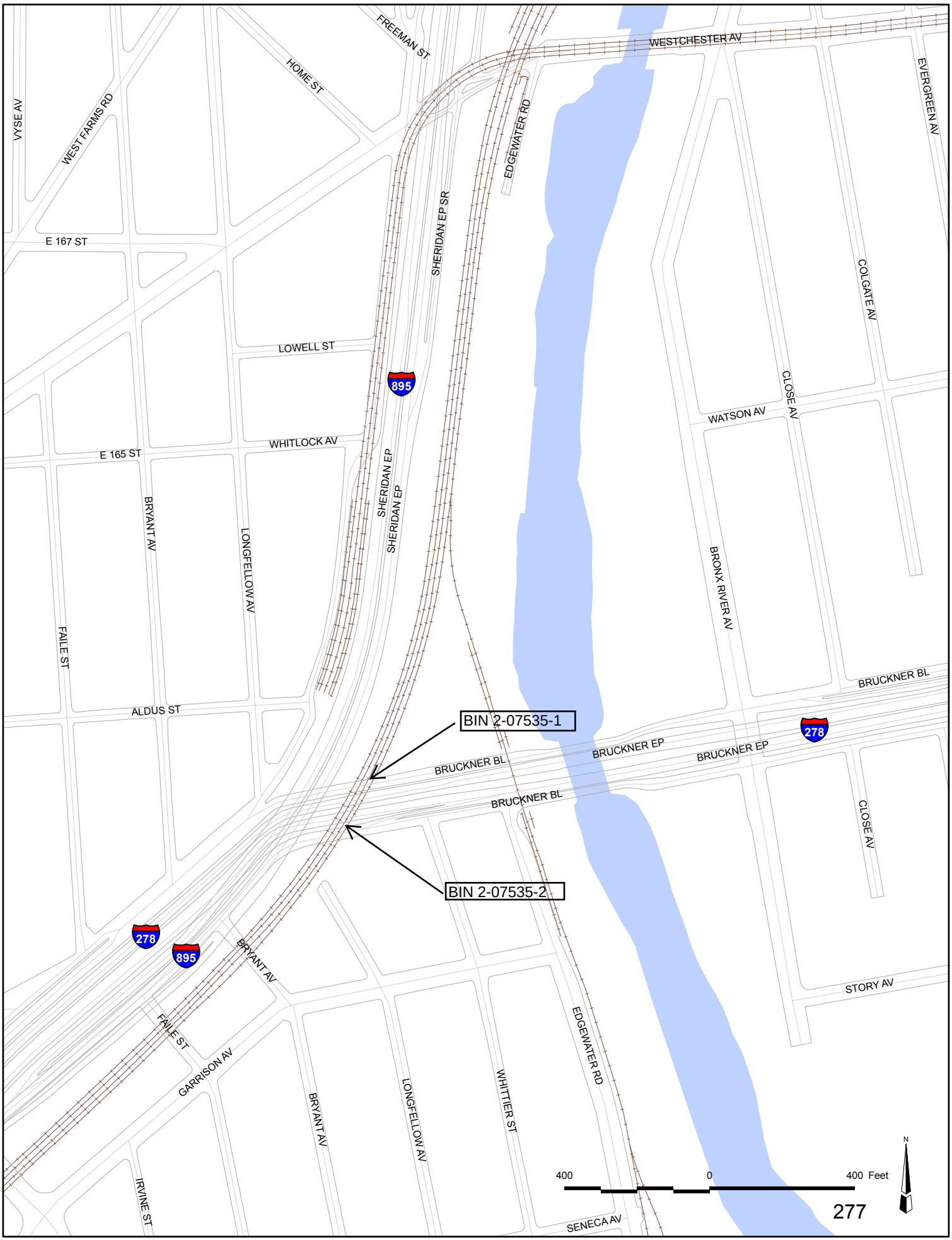
The Company will be deemed to have taken all of the above into consideration and all associated costs will be deemed incorporated in its price proposal. In the event the Company awarded this contract does not comply with the above requirements commencing the day the Notice to Proceed and up to substantial completion of the project, it will be deemed as reduced Scope of Work and it will entitle the City to an appropriate credit.

APPENDIX A - TABLE OF CONTENTS

1 Area Map
2 Location Map



AREA MAP



LOCATION MAP

EXHIBIT F
Maintenance & Protection of Traffic Stipulations

NOTICE TO BIDDERS:

PROPOSALS ARE TO BE BASED UPON THE TRAFFIC STIPULATIONS SHOWN HEREIN OTHERWISE THE PROPOSAL WILL BE DEEMED NON-RESPONSIVE.

UPON AWARD OF THE CONTRACT, THE WINNING BIDDER IS FREE TO PURSUE ALTERNATIVE TRAFFIC STIPULATIONS THROUGH NYCDOT-OCMC AT HIS/HER RISK.

New York City Department of Transportation

Office of Construction Mitigation and Coordination - Highways
44 Worth Street, Mezzanine
New York, New York 10013
Tel: 212 442-9839 Fax: 212–513-1146

Janette Sadik-Khan, Commissioner

Web: www.nyc.gov/dot

NYC Dept. of Transportation
Division of Bridges, Design-Build Contracts
2 Rector Street, 7th Floor, New York 10006

THIS IS NOT A WORK PERMIT

Attn: Mr. Richard Solomon, P.E.
Project Manager
Tel.: (212) 442-7346

Re: Contract No. HBX1123
Reconstruction of the Bruckner Expwy
Bridges Over Amtrak/Conrail
Borough of the Bronx

CONTRACT STIPULATIONS

Stipulations are hereby given to the New York City Dept. of Transportation's Bureau of Bridges and its duly authorized representatives to enter upon and restrict the flow of traffic according to the times and schedules as stipulated herein on the Bruckner Expressway Bridges over Amtrak/CSX for the purpose of reconstructing the bridge deck, together with all work incidental thereto, subject to the following stipulations:

1. The authorized representative of the Bureau of Bridges is required to secure a permit insofar as it affects the Bruckner Expressway at the location noted above. The issuance of such permit will be subject to the posting of the proper insurance and bonds in accordance with the rules, regulations, and requirements of the New York City Department of Transportation.

2. A) **Bruckner Expressway Mainline and Service Roads**

The Permittee shall maintain uninterrupted traffic flow on the mainline and service roads during peak hours and may close one lane on the Bruckner Expressway or service roads during off-peak hours in either direction, in accordance with the following schedule:

ROADWAY	ONE LANE CLOSURE		
	Weeknights	Saturday	Sunday
Bruckner Expwy/Service Road (Southbound)	8pm-5am	11pmFri-8am -	8pmSat-12pm
Bruckner Expwy/Service Road (Northbound)	11pm-6am	12:01amFri-9am	9pmSat-12:01pm 10pmSun-6am

B) **Appropriate Advance Signing:**
Significant lane closures of Arterial Highways where at any time two-thirds (2/3) of the number of roadway lanes are closed between 1:00 A.M. and 6:00 A.M. or fifty percent (50%) or more of the roadway lanes are closed at other times, notification shall be given to the public via the placement of Variable Message Signs (VMS) seven (7) days prior to the actual closure.

C) **Local Streets:**
To reserve a lane or roadway closure on a primary, secondary and local street, the Permittee must obtain a separate permit from OCMC – Highways. OCMC – Highway's will facilitate obtaining these "No Fee" Permits. Permits for Emergency and Non-Emergency work may be obtained by phone and facsimile to expedite the work. The Permittee or State representative must contact this office at least one business day prior to request and reserve a lane or street closure. This will

reserve the street segment(s) for your activities and facilitate the issuance of the appropriate permits. The original permits may be picked up and signed within “seventy-two” hours.

3. You must coordinate your activities with the New York State Department of Transportation at all times.

4. **This document must be present on site when the approved work is being performed.**

5. **This permit is not valid unless it is signed by both the New York City Department of Transportation representative and the authorized representative of the Permittee.**

6. The Office of Construction Mitigation and Coordination (OCMC) has the right to modify or revoke stipulations if the construction activity related to this project does not commence within 1 year of the date of this draft permit.

7. Section 24 - 224, Administrative Code Variance, is hereby granted for hours and days stipulated above.

8. A “Holiday Construction Embargo” will be in effect on Gridlock Alert Days from mid - November (the exact dates will be published each year in the New York City Department of Transportation’s OCMC yearly Holiday Embargo release, there are approximately ten (10)) to January 2nd. During this period, no lane or ramp closings will be permitted from 6:00 AM to Midnight except by written permission from the OCMC. This stipulation supersedes all others in this permit.

9. The New York City Department of Transportation’s OCMC-Highways hereby authorizes the staging and/or storage of materials and/or equipment at the location(s) and limits shown on drawing # _____. No other sites are authorized or will be permitted unless approved in writing by the New York City Department of Transportation’s Division of Arterial Maintenance and/or the New York City Department of Parks and Recreation (if park land is involved). Changes in the site or limits can only be made by an amendment to this permit. A detailed drawing must be submitted and will become an attachment to the amendment. A DPR Permit shall constitute written approval from the Parks Dept.

10. The Permittee agrees to assume all responsibility for injury or damages to private and/or City property caused through the operations of the permit and to save and hold harmless the City of New York and the New York City Department of Transportation from all claims and suits which may arise therefrom.

11. The Permittee shall notify in writing, the New York City Department of Transportation, OCMC - Highways ten (10) working days prior to any proposed lane or ramp closures and prior to commencing work operations. Four (4) weeks notice is required when it is anticipated that temporary traffic signals and/or signal timing adjustments will be needed.

12. The Permittee shall be responsible to provide notification to the local Community Board and Borough President's Office prior to the commencement of work. Additionally notification shall be made to the local Councilman's office. Proof of notification must be filed with the OCMC prior to the commencement of work.

13. The Permittee shall notify the New York City Dept. of Transportation’s Situation Room at (718-433-3340), the NYPD Traffic Management Center at (718 706-6062), the Chief of Emergency Medical Services at (718 422-7395) and the local fire house **two (2) hours** prior to his/her proposed traffic lane reductions or street closings for any purpose. The Permittee shall also **immediately** notify the Situation Room upon reopening and in the event of an emergency condition.

14. In the event, a full highway closure greater than fifteen (15) minutes is permitted, the Permittee must notify all those parties listed in the prior three stipulations at least two weeks in

advance. Additionally the Permittee must prepare a press release for the TV, Radio and Newspaper Media at least one week prior to the closure.

15. The Permittee shall adhere to all pertinent rules and regulations of the New York City Department of Transportation relative to the use and occupancy of street space, the provisions of his agreement and the performance of his work.

16. The Permittee shall adhere to the **NYCDOT Bureau of Bridges' Special Provisions for Landscape Protection, Maintenance and Restoration, items 1.18.15 through 1.18.19,** whenever and wherever any of the Permittee's activities occur within a limited access arterial highway right - of - way. Copies of these provisions may be obtained from the New York City Department of Transportation's Director of Arterial Maintenance at 212 - 487 - 6837.

17. This Authorization is limited to activity performed in conformance with this agreement with the New York City Department of Transportation and does not permit any other activities, which could be a hazard or distraction to the roadway user.

18. No deviation or departure from these stipulations will be permitted without the prior written approval of the New York City Department of Transportation. Requests for such modifications shall be submitted to the OCMC a minimum of ten (10) days in advance for consideration.

19. To ensure a traffic flow at all times, storage of materials and equipment shall not be permitted within the traveled way of the highway. Storage areas shall be separated from the traveled way by a clear space of 30 feet minimum width, unless such storage is placed behind concrete barrier or permanently installed bridge railing.

20. The Permittee shall insure that construction materials and/or excavated soil and rocks temporarily stored on slopes are secured by hay bales or other effective means to prevent their movement into the travel way and clear zone (recovery zone) area.

21. When work is performed in or adjacent to sidewalk areas, a safe pedestrian walkway having a minimum width of five (5) feet shall be provided at all times by the Permittee.

22. Any commercial vehicles required by the Permittee's operations shall enter the Grand Central Parkway at the nearest entrance to an individual work site and leave the Grand Central Parkway at the nearest exit thereafter. This Authorization shall constitute permission by the Commissioner of the Department of Transportation for the operation of a commercial vehicle "on a parkway" for construction purposes. The Permittee is advised that there may be **HEIGHT** and/or **WEIGHT** restrictions for structures on the Parkway/Drive. The Permittee shall assure that his/her vehicles do not exceed these restrictions.

23. Concurrent with construction work of this contract, if other projects on this and/or adjacent highways are under construction then the Permittee is to become familiar with the scheduling of those projects and schedule his activities accordingly. To facilitate the flow of traffic, the permissible work hours may be modified as deemed necessary by the New York City Department of Transportation.

24. In order to provide an adequate transition for the safe flow of traffic, when the Permittee's (or another Permittee's) work sites are in two (2) different lanes in the same direction, those work sites shall be separated by a distance of at least two (2) miles.

25. Warning signs and traffic safety devices shall be provided, installed, maintained and removed by the Permittee in accordance with the New York State Department of Transportation's "Manual of Uniform Traffic Control Devices". The Permittee shall provide the appropriate channelization for traffic approaching and leaving his/her worksite. The Permittee shall provide flagpersons, cones, barricades, etc. as required for public safety. The Permittee is responsible for the adequacy of the safety devices.

26. When water is being used at the work site for any purpose (i.e. concrete curing, saw cutting, etc.), the Permittee is required to insure, through any and all appropriate measures, that the water does not freeze on the roadway or sidewalks. The Permittee will be responsible to maintain a clear and safe travel path.

27. During the time a lane closure is permitted, the Permittee may intermittently stop traffic on the adjacent lane(s) of the same roadway for periods not to exceed five (5) minutes in duration for the purpose of transporting or securing equipment that may extend beyond the closed lane(s). A minimum of one (1) hour, or until the traffic queue is relieved, whichever period is shorter, is required between any two such closures.

28. Operation of a crane, derrick, shovel or other similar equipment for any and all work within the streets shall be carried out by the Permittee in accordance with the Rules, Regulations and Requirements of the New York City Department of Transportation and the New York City Department of Buildings and shall comply with all provisions of the New York City Noise Control Code. In addition, if this equipment is to be placed so that any part of the load will be superimposed on the sidewalk or roadway, the Permittee must file, with the New York City Department of Transportation, Office of Construction Mitigation and Coordination, a statement by a Professional Engineer, licensed by the State of New York, certifying the following;

(a) That the sidewalk or roadway area and the supporting subgrade can safely bear the crane load. Should the condition of the sidewalk or roadway area require that the crane load be distributed over a larger area than afforded by the elements of the crane, the engineer shall furnish the full dimensioned details of the load distribution;

(b) That the Engineer has taken all necessary measures to ascertain that there is no vault or subway tunnel underneath the sidewalk area or that if a vault or subway tunnel does exist its roof is sufficiently strong to support the load to be superimposed thereof;

(c) That the sheeting or retaining walls supporting any excavations adjoining the sidewalk or roadway area required to carry a load have been examined by the Engineer and have been found to be sufficiently strong to support the area carrying the crane load. Should the crane be employed making any excavation adjacent to the crane, the Engineer shall specify the sheeting or retaining wall reinforcement required to support the crane.

29. When a holiday falls or is observed on the day before or after a weekend, the Permittee will not be allowed to close any lanes or ramps in either direction on any Highway from noon on the last business day to 6 AM on the following business day at which time the original stipulations are once again in effect. The holidays included under this restriction are as follows:

New Year's Day, Memorial Day, Independence Day, Labor Day
Christmas Day and Thanksgiving Day (for this holiday the restriction begins on Wednesday noon and extends to Monday at 6 AM)

30. When a holiday falls midweek (Tues., Wed. or Thur.) or on a Sunday (and is observed on that day), Permittee will not be allowed to close any lanes or ramps in either direction on any Highway from noon on the prior business day to 6 AM on the following business day at which time the original stipulations are once again in effect. The holidays included under this restriction are as follows:

New Year's Day, Independence Day, Christmas Day, Mother's Day

31. When events occur at Yankee Stadium, no lane or ramp closures will be permitted as noted below:

<u>FOR YANKEE STADIUM:</u>

a. From two hours before the event begins until one hour after the event begins, no lane or ramp closures permitted on:

- Bruckner Expy. - westbound

32. Boring holes shall be back-filled with sand and compacted. In sidewalks, the last six (6) inches of the holes shall be restored with concrete. In paved areas the last six (6) inches shall be restored with concrete and/or asphalt to match the existing. On structural decks, holes shall be restored in kind.

33. The Permittee shall comply with the Industrial Code of the State of New York Part (Rule No.) 53 relating to Construction, Excavation and Demolition Operations at or near underground facilities. Additionally, the Permittee shall similarly notify the owners of overhead cables or other electrical or street lighting equipment in the area covered by the Permit.

34. The Permittee is reminded that the appropriate Rules and Regulations that apply to the cleaning and painting of structural steel must be rigidly followed, as specified by NYSDOT Special Specifications.

35. All pavement restoration must be performed by a paving contractor approved by the New York City Department of Transportation. The contractor's name shall be submitted to this office ten (10) days in advance of his/her restoration operation.

36. When a contractor performs work at night, the work site shall be illuminated to the satisfaction of the Engineer-In-Charge (EIC). The EIC shall be the sole judge of when illumination is required.

37. The contractor shall be responsible for identifying his/her construction signage. The identification shall include the contracting agency, the contractors name and the contract number. This identification shall be placed on the back of all signs.

38. The Permittee shall, at it's own expense, be under absolute obligation to determine the location of and provide protection from damage or loss for all subsurface facilities and overhead structures in the permit area. In the event of any damage or loss to such subsurface facilities and overhead structures, the Permittee shall promptly replace or repair such facilities and structures, as directed by the New York City Department of Transportation or other City agency having jurisdiction thereof or by the owner thereof.

39. The City makes no representation as to the character of the fill in the streets, and voids therein, or the condition of the sidewalks. The Permittee accepts full responsibility and liability for any disturbance or damage which may be caused to adjoining pavements, sidewalks or structures by or in connection with the permit activity. All damaged sidewalk or roadway pavements shall be restored (to the nearest full flag for sidewalks) in conformance with the Standard Specifications of the New York (City/State) Department of Transportation.

40. The Permittee shall furnish and install tarpaulins enclosing the immediate site of his cleaning and painting operations to insure complete protection of the general public and property, both on and below the roadway against possible damage from scraping, paint drippings, wind blown paint, dust, concrete, etc. This permit does not constitute approval of either painting or paint removal methodology. All signs and signals shall be protected daily with clean and transparent coverings.

41. The washing of concrete truck drums within the Arterial Highway or city street right - of - way is strictly prohibited.

42. The Permittee's vehicles shall not exceed the posted weight and/or height restrictions for any street, highway, bridge or viaduct section that he/she must travel upon.

43. During the snow season, the contractor shall be required to post “LIFT PLOW” signs at all locations (in both directions if necessary) where they have installed steel plates.

44. Roads used for the hauling of materials shall be kept free from debris and maintained by the Permittee and left in a condition satisfactory to the engineer-in- charge (EIC).

45. On roadways/streets where rush-hour parking and/or standing regulations are posted, the Permittee shall modify his schedule to conform to those (rush hour) restrictions.

46. The Permittee shall not park his equipment or store material overnight where it is deemed to be a safety hazard to the traveling public.

47. The Permittee shall not obstruct fire hydrants, crosswalks, pedestrian ramps, fire alarm boxes, bus stops or any public utility while performing his/her work. The Permittee may not move or remove “Bus Stop” signs without prior written approval from both the New York City Department of Transportation and the New York City Transit.

48. This is not a parking permit. The Permittee shall obey all traffic laws and regulations.

49. This Work Authorization may be amended to cover new or unforeseen conditions at the discretion of the New York City Department of Transportation, after consultation with the Permittee. The New York City Department of Transportation reserves the right to cancel this Authorization at any time for any valid reason.

50. This Work Authorization shall expire upon termination of the work permit issued by the Borough Office.

Very truly yours,

_____

JAY JABER, P.E.
Assistant Commissioner
Office of Construction Mitigation and Coordination

SH:sh 7-18-07

CC: A/C Jaber, E/E Dagher, Noto, Campbell, Moran, Palmieri, Ardito, Chen, Maniscalco, Hasan, , Situation Room, Police Dept. (Traffic Division) - Sharpe, Valles, Fire Department, Litigation Support, HIQA – Highway Unit 16 Court St. Room 825, CC file, Project file, Ref. # J- 13260, HBX1123draft@BEoverAmtrak.doc.

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EXHIBIT G
Public Utilities/Entities Requirements

All Street lighting within the project limits shall be replaced per the latest agency standards.

Lighting Criterion

Roadways

Average Maintained Illuminance (E_{avg})	
Major Roadways	1.1 to 1.6
Collector Roadways	0.7 to 1.1
Local Roadways	0.6 to 0.8
Illuminance Uniformity (E_{avg} / E_{min})	
Major Roadways	3:1
Collector Roadways	4:1
Local Roadways	6:1
Veiling Luminance Ration (L_{vmax} / L_{avg})	
Major Roadways	0.3
Collector Roadways and Local Roadways	0.4
Total Depreciation (Loss) Factor	
High Pressure Sodium	0.58

Intersections

Average Maintained Illuminance (E_{avg})	
Major/Major	2.2 to 3.2
Major/Collector	1.9 to 2.7
Major/Local	1.7 to 2.4
Collector/Collector	1.5 to 2.2
Collector/Local	1.3 to 1.9
Local/Local	1.1 to 1.7
Illuminance Uniformity (E_{avg} / E_{min})	
Major/Major, Major/Collector, Major/Local	3:1
Collector/Collector, Collector/Local, Local/Local	4:1

Walkways and Bikeways

Average Maintained Illuminance (E_{avg})	0.5 to 1.0
Illuminance Uniformity (E_{avg} / E_{min})	4:1

Illuminance levels are given in foot-candles.

Luminaires

Type	
Standard	Cobra head – 100W, 150W, and 250W HPS
Initial Lumens	
100W HPS	9,600 Lumens
150W HPS	16, 00 Lumens
250W HPS	27,500 Lumens
Mounting Height	
Standard (Cobra head)	30 feet

Photometric Reference

100W & 150 W Cobra head	Crouse Hinds Test #765026
	American Electric Test #33538
250W Cobra head	Crouse Hinds Test #763715
	American Electric Test #33467

ELECTRICAL NOTES

During replacement of the existing lighting system, the Company shall provide a temporary lighting system as required.

The Company shall be responsible for the maintenance of the existing lighting systems that are affected by the proposed work shown on the plans. Maintenance shall also include circuits within lighting distribution control units that are not affected by the proposed work.

The Company shall supply lighting calculations in support of any roadway, sign or underbridge light manufacturer not already specified in the contract.

Pole-mounted Closed Circuit TV Cameras at the east approach to the bridges to be temporarily supported as required. Contact:

Raj Amin
New York State Department of Transportation – Region 11
Traffic/ITS
718-482-4734

REPLACEMENT OF WATERMAINS

Refer to the letter from NYC Department of Environmental Protection to NYC Department of Transportation, dated April 5, 2007, found in Exhibit A Appendix C. The existing 8-inch diameter water main shall be replaced with a 12-inch diameter water main, and the existing 20-inch water main shall be replaced with a 20-inch water main.

Refer to the letter from NYC Department of Environmental Protection to NYC Department of Transportation, dated April 18, 2007, found in Exhibit A Appendix C for additional requirements.

STEEL WATERMAIN COATING NOTES

For underground installations a Tape Coating is a preferred method of exterior coating of steel water main.

For steel watermains suspended from the bridge structure, however, the tape coating is not acceptable. For bridge supported steel watermains apply Epoxy and Polyurethane coating per NYCDEP Standard Specifications for Steel Pipes and Appurtenances.

EXHIBIT H
Private Utilities Requirements

REPLACEMENT OF CON EDISON DUCTS

The eight (8) 5-inch asbestos (transite) conduits and cables along the northbound Bruckner Service Road and beneath the sidewalk of BIN 2-07535-2 shall be replaced within the project limits (from Manhole M22192 to Manhole 3407) . Steel conduits shall be installed.

The following Con Edison utility plates are included:

	Plate	Plate No./Date	Page No.
1	Conduit Plate	11-L (07/20/2004)	
2	Low Tension Service Plates	11-L (03/23/2007)	
3	Gas Mains and Service Plates	11-L (02/08/2007	

Design criteria for electrical conduits on bridges

Linear weight for each 5" steel electrical conduit is: ~15 lbs / ft (without cable) and ~35 lbs / ft (with cable).

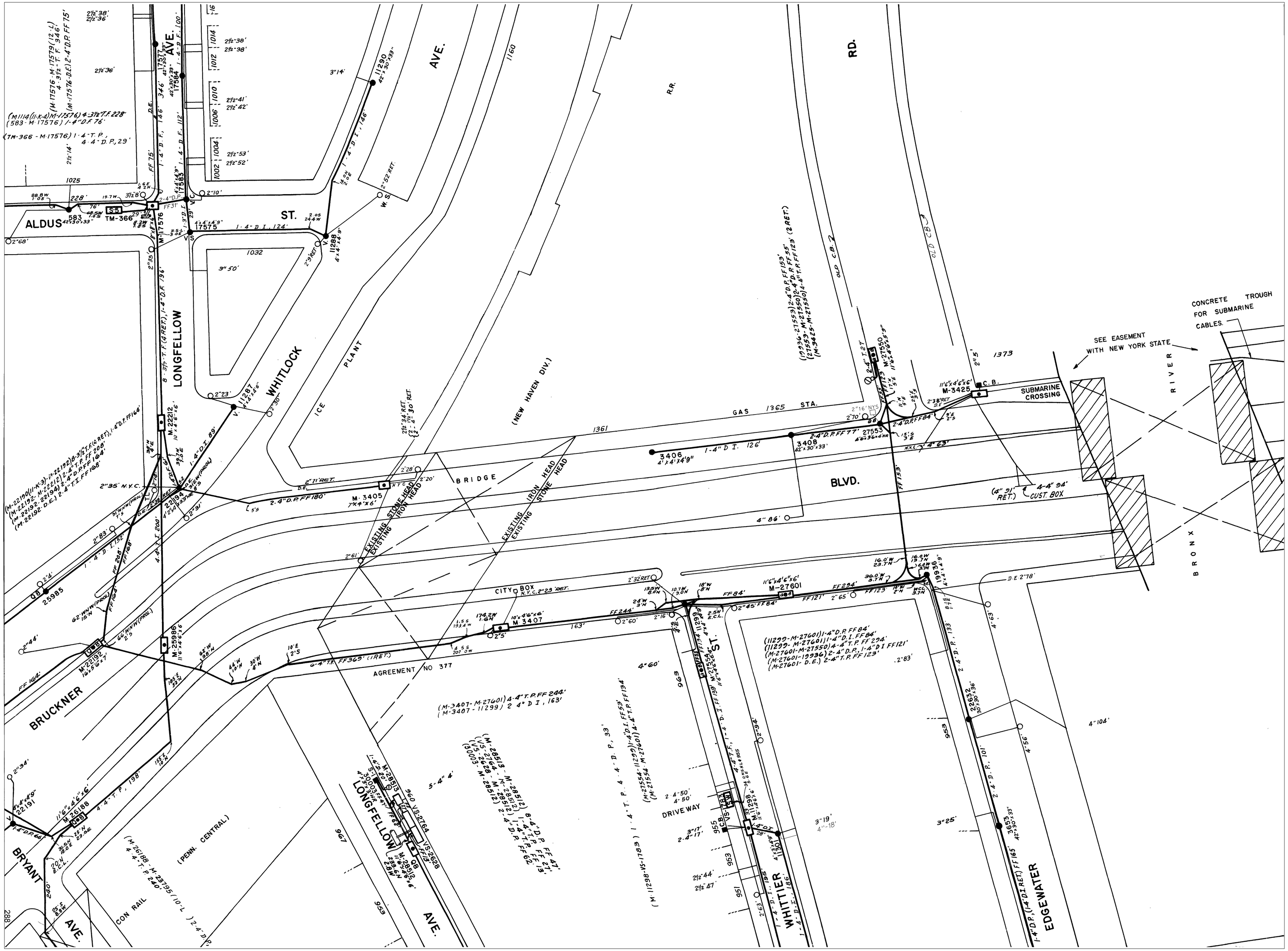
Maximum support spacing is every 15 feet.

The following drawings are included:

	Drawing	Page No.
1	Drawing. No. U2-6, Installation of Con Edison Electric & Gas Facilities, Sections & Details (I), dated 11/03	
2	EO-9217-C Bridge Supports for Conduits Under Bridges, dated 10/28/97	
3	EO-12171-D Expansion Joint for Steel Pipe Conduit in Bridge Structures, dated 8/1/97	

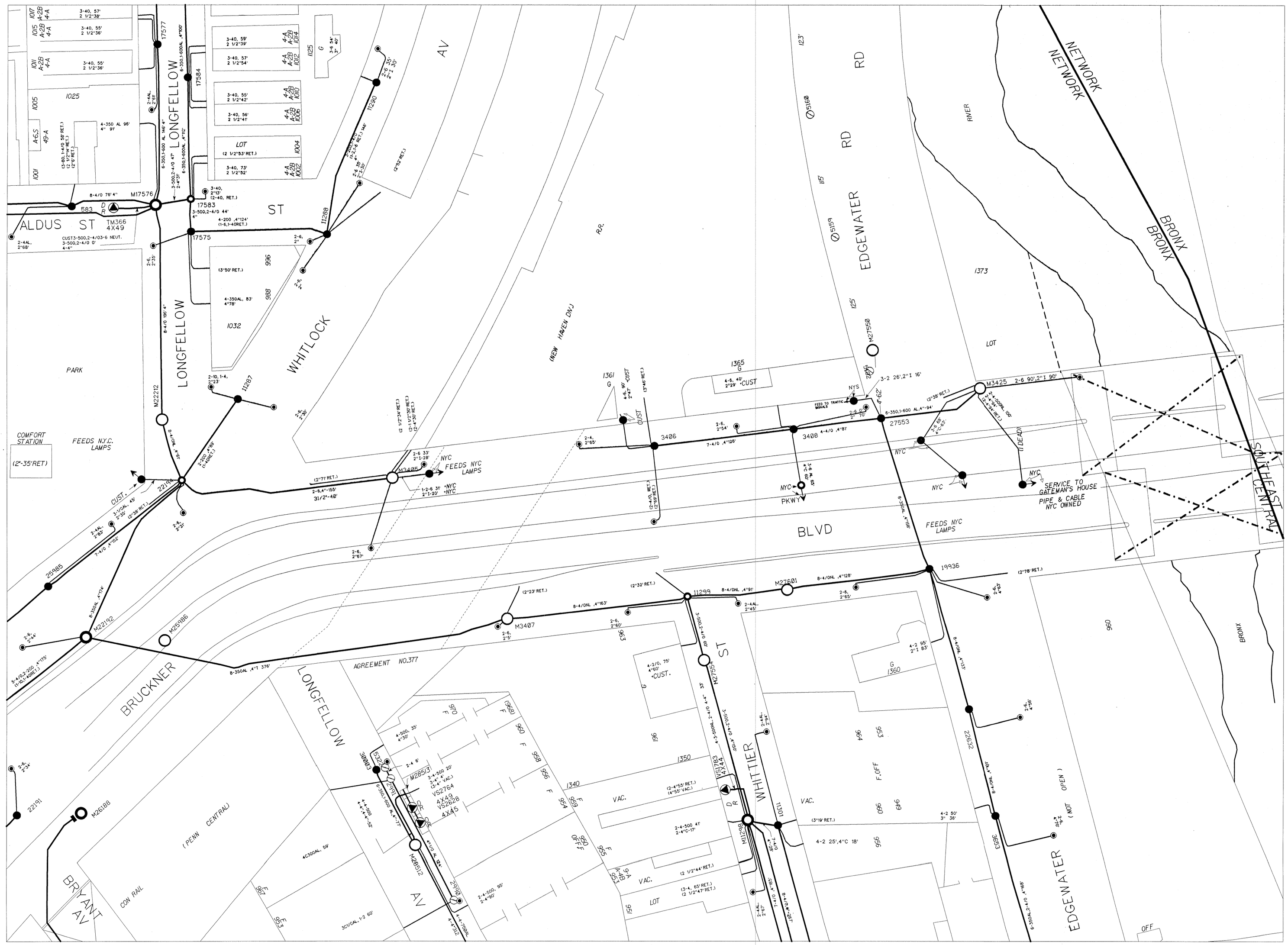
CONDUIT PLATE

NOTE - SERVICE INFORMATION NOT MAINTAINED



LOW TENSION MAINS AND SERVICE PLATE

PLOTTED ON 03/23/2007



CONSOLIDATED EDISON CO. OF N.Y. INC. - BRONX

MAPS & RECORDS BUREAU

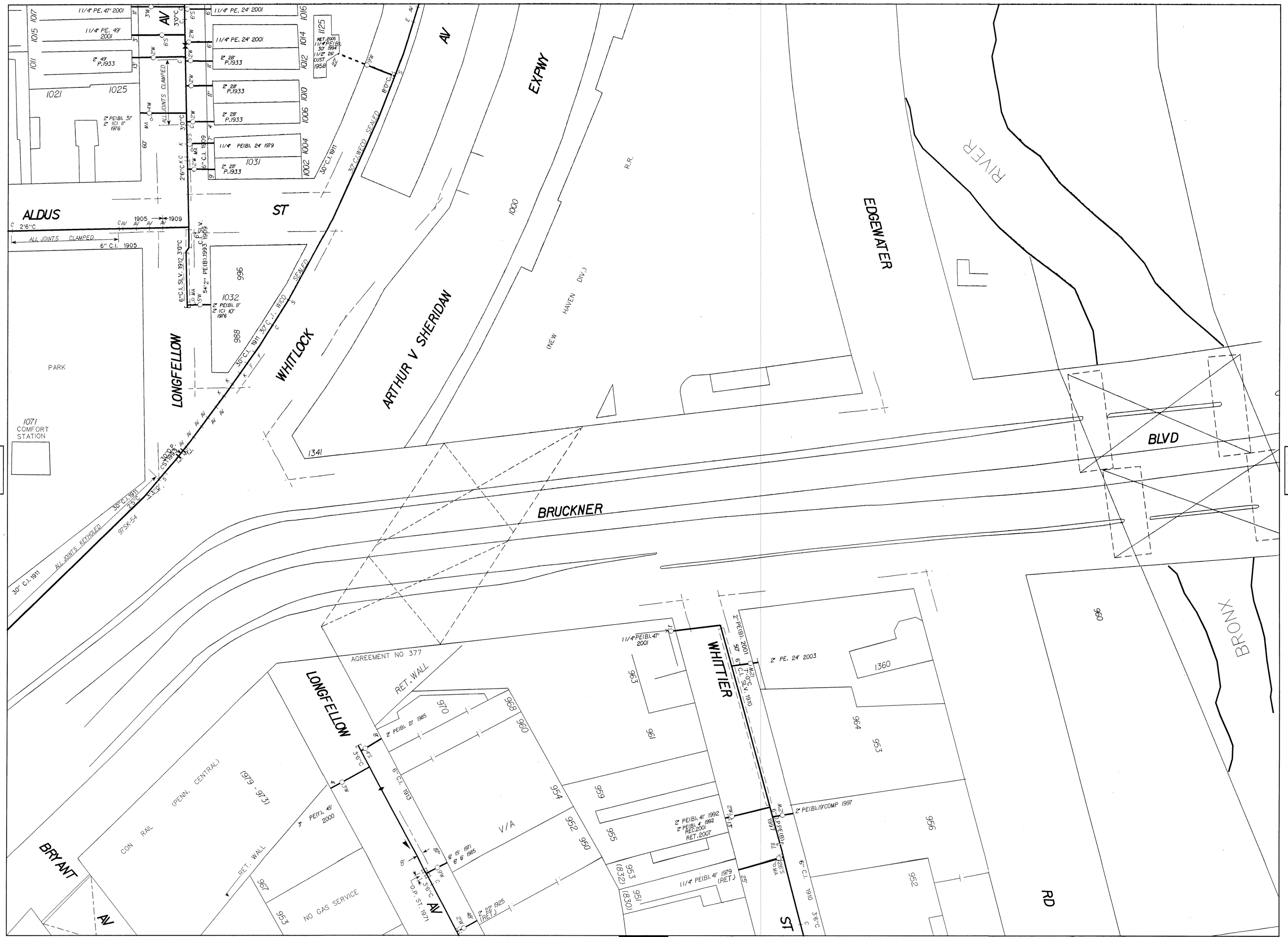
SCALE 1"= 50' LAST MODIFIED ON 03/23/2007 PLATE NO. 11-L

P.M. 11-L

GAS MAINS AND SERVICE PLATE

PLOTTED ON 20070210

12-L



CONSOLIDATED EDISON CO. OF N.Y. - BRONX

10-L

MAPS & RECORDS BUREAU

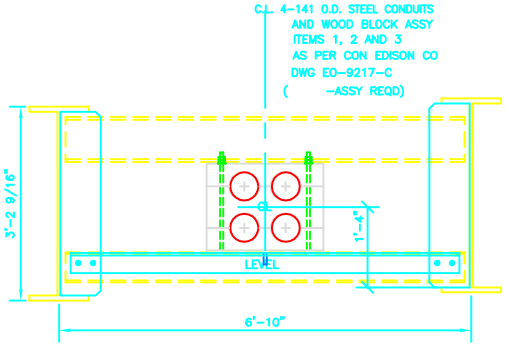
SCALE 1"=50'

LAST MODIFIED ON 20070208

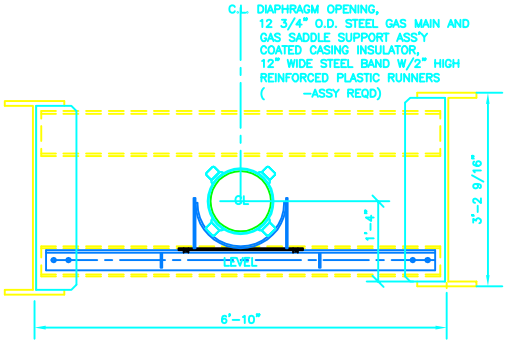
PLATE NO. 11-L

G.G. 9-P

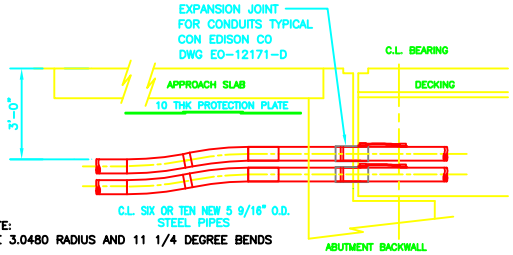
FED ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
				-



TYPICAL CROSS SECTION

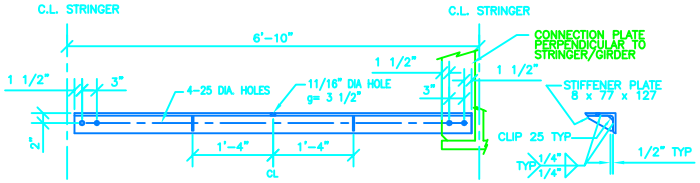


TYPICAL CROSS SECTION

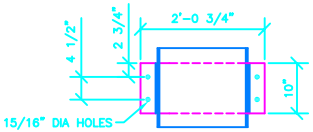


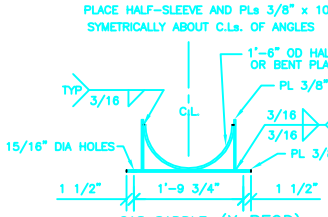
NOTE:
USE 3.0480 RADIUS AND 11 1/4 DEGREE BENDS

ELECTRIC

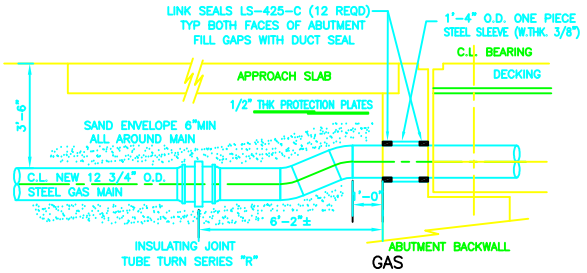


ELECTRIC SUPPORT ANGLE ASSEMBLY
(ASSYS REQUIRED)
1-ANGLE 6" x 4" x 1/2" (LENGTH DETERMINED IN SHOP)
4-STIFF PLs 5/16" x 3" x 3"
2-CONN. PLs 1/2" x 8"
4-M7/8" x 3" LG HEX HD BOLTS (F/ATT TO CONN PLs)
W/NUTS AND 2 WASH EA
SCALE 1"=1'-0"





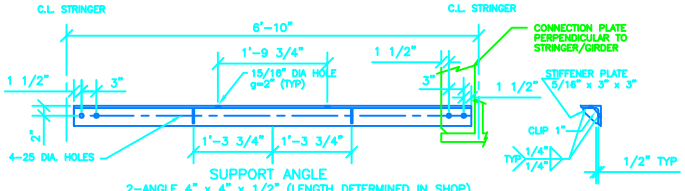
GAS SADDLE (X REQD)
1-1'-6" OD x 3/8" W.THK. x 1'-4" LG PIPE HALF-SLEEVE OR BENT PL
2-PLs 3/8" x 10" x 10" LG
1-PL 3/8" x 10" x 2'-0 3/4" LG
SCALE 1"=1'-0"



GAS

TYPICAL SECTIONS THROUGH ABUTMENT
SCALE 1/2"=1'-0"

ALL STEEL TO MATCH
BRIDGE STEEL



SUPPORT ANGLE
2-ANGLE 4" x 4" x 1/2" (LENGTH DETERMINED IN SHOP)
4-STIFF PLs 5/16" x 3" x 3"
2-CONN. PLs 1/2" x 8"
4-M7/8" x 3" LG HEX HD BOLTS (F/ATT TO CONN PLs)
W/NUTS AND 2 WASH EA
4-M7/8" x 2 1/2" LG HEX HD BOLTS (F/ATT TO ANGLES)
W/NUTS AND 2 WASH EA

GAS SADDLE SUPPORT ASSEMBLY
(ASSYS REQUIRED)
SCALE 1"=1'-0"

AS BUILT REVISIONS

SIGNATURE DATE

INSTALLATION OF CON EDISON
ELECTRIC AND GAS FACILITIES
SECTIONS AND DETAILS (I)

FILENAME	REGION	DATE	
	11	11/6/03	U2-6

DESIGN SUPERVISOR V.T. JOB MANAGER R.M. DESIGNED BY J.P. CHECKED BY R.M. ESTIMATED BY DRAFTED BY CHECKED BY

291

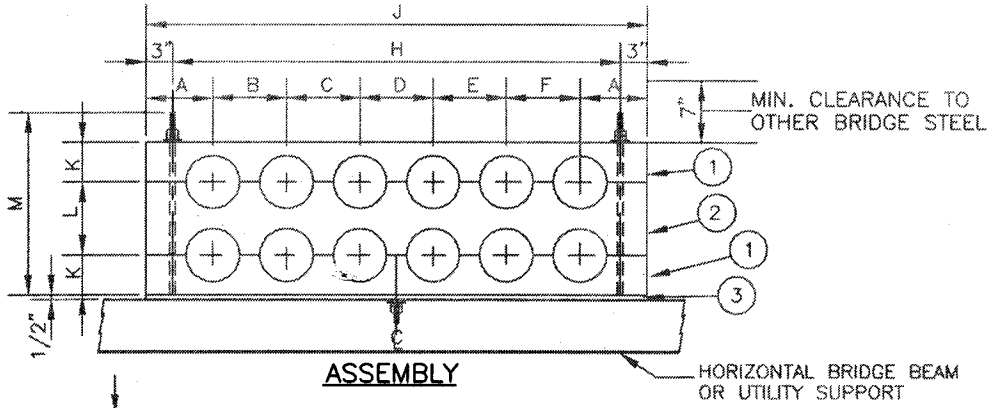
11-25-03

EO-9217-C

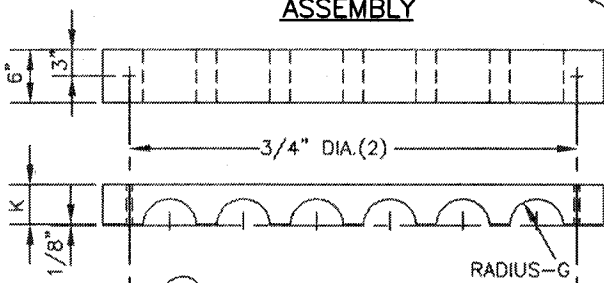
REVISIONS

6

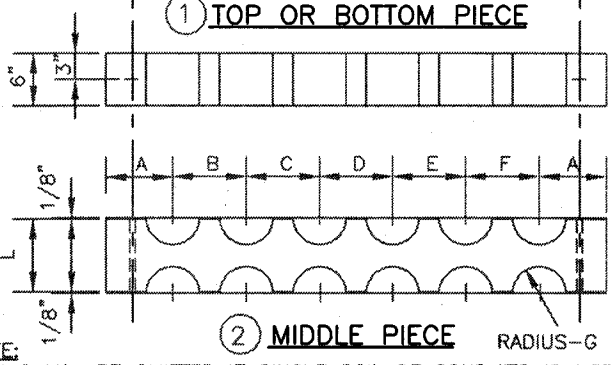
REDRAW TO AUTOCAD
REMOVED REF. TO ASBESTOS
UPDATED SPECS. NOTES AND FILING INFORMATION.
V.D. 10-28-97



ASSEMBLY

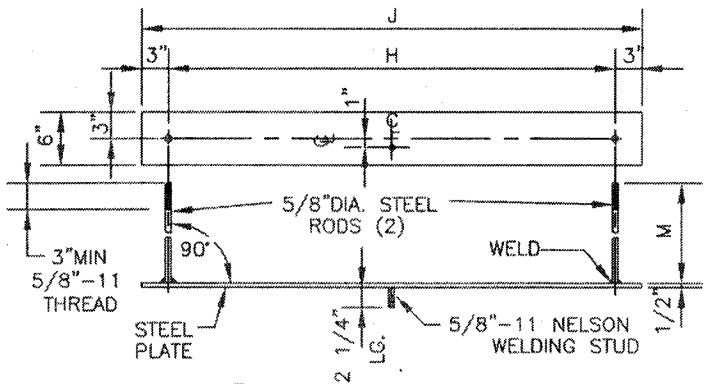


1 TOP OR BOTTOM PIECE



2 MIDDLE PIECE

NOTE:
ITEM 2 MAY BE OMITTED IF SINGLE ROW OF CONDUITS IS USED



3 BOTTOM PLATE

SPECIFICATIONS:

ITEMS 1 AND 2 SHALL BE YELLOW PINE, TREATED AFTER FABRICATION IN ACCORDANCE WITH CON EDISON SPEC. EO-1053.
STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH A.S.T.M. SPEC. DES. A36.
PROVIDE ST. HEX. NUTS AND FLAT WASH., GALV. AS PER ASTM SPEC. DES. A153.
EDGES OF ALL HOLES IN ITEMS 1 AND 2 SHALL HAVE 1/4"-45° BEVEL.
GALVANIZE ITEM 3 AS PER ASTM SPEC. DES. A-123 PROTECT THREADS. AFTER TIGHTENING NUTS, PEEN STUD ENDS.

APPLICATION:

SUPPORTS SHALL BE PLACED AT THE DIRECTION OF CON EDISONS ENGINEER.

REFERENCE DWGS:

SUPPORT FOR CONDUITS ON HANGERS UNDER BRIDGES DWG. EO-10184-C

EXPANSION JOINTS FOR CONDUITS ON BRIDGES DWG. EO-12171-D

SIZE	NO. OF COND.	DIMENSIONS IN INCHES											
		A	B	C	D	E	F	G	H	J	K	L	M
4"	4	7	7 1/4					2 1/2	15 1/4	21 1/4	4	7 1/4	17 1/2
	6	7	7 1/4	7 1/4				2 1/2	22 1/2	28 1/2	4	7 1/4	17 1/2
	8	7	7 1/4	7 1/4	7 1/4			2 1/2	29 3/4	35 3/4	4	7 1/4	17 1/2
	12	7	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	2 1/2	44 1/4	50 1/4	4	7 1/4	17 1/2
5"	4	7 1/2	8 1/4					3	17 1/4	23 1/4	4 1/2	8 1/4	19 1/2
	6	7 1/2	8 1/4	8 1/4				3	25 1/2	31 1/2	4 1/2	8 1/4	19 1/2
	8	7 1/2	8 1/4	8 1/4	8 1/4			3	33 3/4	39 3/4	4 1/2	8 1/4	19 1/2
	12	7 1/2	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	3	50 1/4	56 1/4	4 1/2	8 1/4	19 1/2

FIELD MANUAL NO.11 SUBWAY CONSTRUCTION SECTION: 2 DUCT ARRANGEMENTS
FIELD MANUAL NO. 17 SURVEY SECTION: 2 SUBWAY

CONSTRUCTION STD'S. MANUAL NO.3 SECTION: 37 SUBWAY

THIS DWG. SUPERSEDES DWG. ------- EO-7101-D

BEAM SUPPORTS FOR CONDUITS UNDER BRIDGES

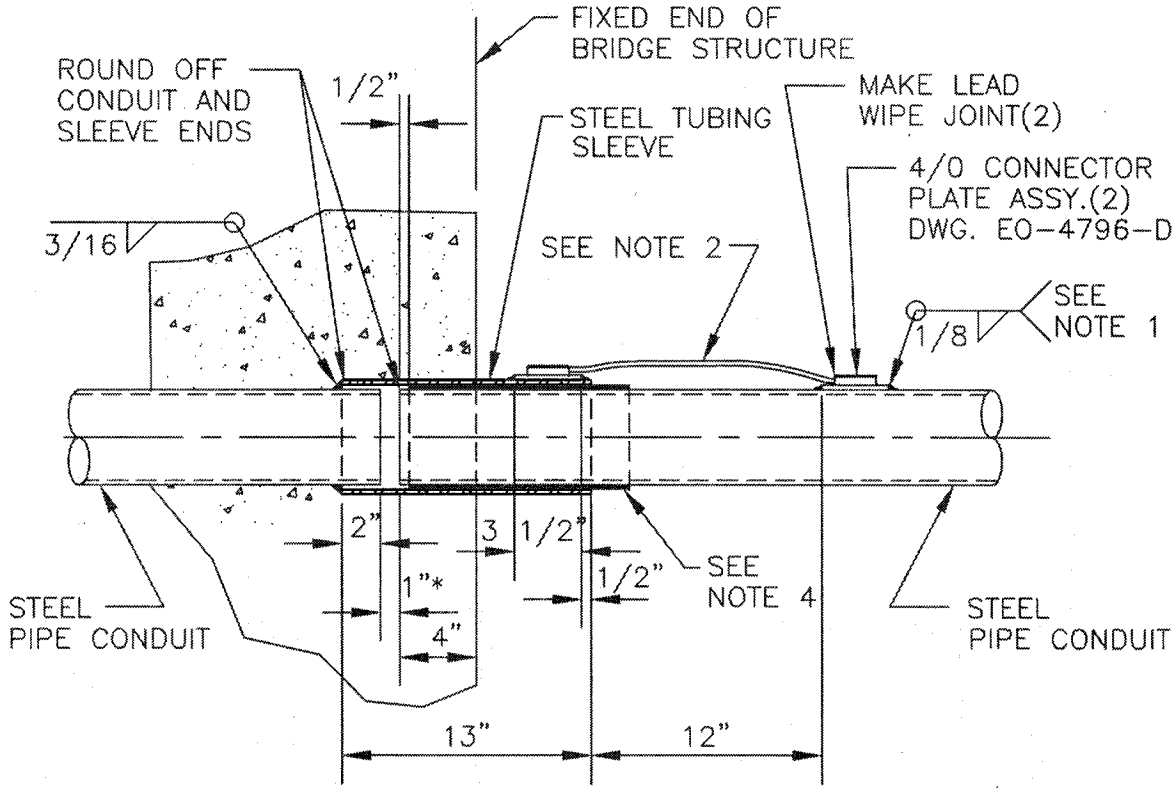
CONSOLIDATED EDISON COMPANY OF N.Y., INC.
DISTRIBUTION ENGINEERING DEPT

DATE 7-14-59
LAST REV. 10-28-97

DWG. NO. EO-9217-C REV. 6

EO-12171-D

REVISIONS	
J.MARTIN 8/1/97	4
REDRAWN TO AUTOCAD. UPDATED WELD SPEC. AND FILING INFORMATION ADDED STOCK NO. FOR 5" CONDUIT & NOTE 6. G.D. 8/1/97	



CONDUIT SIZE	STEEL TUBING SLEEVE	STOCK NO.
4"	5" O.D. X 3/16" W.T.	———
5"	6" O.D. X 3/16" W.T.	004-9213

NOTES:

1. WELD CONNECTOR PLATE ASSEMBLY TO STEEL TUBING AND TO STEEL PIPE CONDUIT.
2. 4/0 BOND CABLE 21" LONG, SPEC. EO-607-1
3. WELDING SHALL BE IN ACCORDANCE WITH SPEC. G-1064.
4. CENTER STEEL PIPE CONDUIT IN SLEEVE WITH ANHYDROUS TAPE WRAPPED AROUND CONDUIT.
5. CONDUIT EXPANSION JOINT TO BE PLACED AT OR NEAR AS POSSIBLE TO ALL BRIDGE EXPANSION JOINTS (* FOR EXPANSION GREATER THAN 1", CONSULT DISTRIBUTION ENGINEERING DEPARTMENT.)
6. SLEEVE ASSEMBLY TO CONSIST OF STEEL TUBING SLEEVE WITH CONNECTOR PLATE WELDED TO TUBING. BOND CABLE ATTACHED TO 2-4/0 CONNECTOR PLATES WITH LEAD WIPE.

FIELD MANUAL NO.11:SUBWAY CONSTRUCTION SUPVRS MAN. SECT.:2 DUCT ARRGMTS.

CONST. STDS MANUAL NO.3 SECT.: 37 SUBWAY

EXPANSION JOINT FOR STEEL PIPE CONDUIT IN BRIDGE STRUCTURES

CONSOLIDATED EDISON COMPANY OF N.Y., INC.
DISTRIBUTION ENGINEERING DEPT

DATE 7/1/64
LAST REV. 8/1/97

DWG. NO. EO-12171-D REV. 4

EXHIBIT I
Railroad Requirements - Amtrak

TABLE OF CONTENTS

1 Amtrak Specification –AED-1 (Design of Electrification Facilities)
2 Qualified Consultants for Electrification Design
3 Excerpts from AREMA – Page 8-2-6
4 Excerpts from AREMA – Page 8-2-65 & 8-2-66
5 Amtrak Engineering Practices - Design & Construction Criteria for Overhead Bridges, dated 3/26/02
6 Amtrak Engineering Practices – Storm Water Drainage & Discharge from Adjacent Property onto Amtrak Right-of-Way, dated 4/27/01
7 Section 01520A – Requirements for Temporary Protection Shields for Demolition and Construction of Overhead Bridges and Other Structures, dated 08/07/01
8 Drawing ET-1447-D – Electrified Territory O.H. Bridges Temporary Protection Shield & Barrier, dated 01/13/00
9 Drawing ET-1446-D (Sheets 1 of 2 and 2 of 2)- Electrified Territory O.H. Bridges Typical Protection Barrier, dated 05/07/99
10 Dwg. No. SP3002 – Curved Protective Fence, dated 04-27-98
11 Dwg. No. AM700500 – Minimum Roadway Clearances, dated 5-11-99
12 Attachment A – Temporary Permit to Enter Upon Property, Specifications Regarding Safety and Protection of Railroad Traffic and Property (Revised 2/3/06)
13 Attachment B – Temporary Permit to Enter Upon Property, Insurance Requirements (Revised February 2005)

Notes:

Amtrak requires that the Company retain a qualified electrification consultant to design any modifications to Amtrak's overhead catenary system and the bonding and grounding required for the new bridge.

Any third party seeking permission to enter Amtrak property in furtherance of the Project must execute Amtrak's then current standard Temporary Permit to Enter Upon Property form and comply with all requirements thereto prior to any entry upon Amtrak property. All requests for a Temporary Permit should be directed to the person indicated below.

Amtrak and the Company must enter into a Preliminary Engineering Agreement prior to Amtrak's review of any project plans. All requests relative to City-Railroad Agreements should be directed to person indicated below.

Earl Watson III
Project Development Officer
National Railroad Passenger Corporation
Engineering Department
30th Street Station, 4th Floor South Tower
2955 Market Street, Mail Box 64, 4S-032
Philadelphia, PA 19104
Voice: 215-349-1393, Fax: 215-349-4373
watsone@amtrak.com

AMTRAK SPECIFICATION - AED-1

PROCEDURES AND DESIGN CRITERIA TO BE

EMPLOYED BY ELECTRIFICATION CONSULTANTS

ENGAGED IN THE DESIGN OF

ELECTRIFICATION FACILITIES

ON THE

NATIONAL RAILROAD PASSENGER CORPORATION

PREPARED BY:
AMTRAK - OFFICE OF THE DEPUTY CHIEF ENGINEER - ET
PHILADELPHIA, PA
(REVISED Nov. 2006)

TABLE OF CONTENTS

	CONTENTS	PAGE#
I.	QUALIFIED CONSULTANTS LIST	3
II.	PROCEDURES	3
III.	DESIGN DRAWINGS	5
IV.	STRUCTURAL DESIGN CRITERIA	7
V.	ELECTRICAL DESIGN CRITERIA	9
VI.	CONSTRUCTION RELATED SERVICES	9
VII.	RECORD TRACINGS	10
VIII.	APPROVALS	11

I. QUALIFIED CONSULTANTS LIST

A. Amtrak maintains a list of "Qualified Electrification Consultants" for its own convenience and to facilitate the process of selecting firms to perform electrification design on Amtrak property. Consulting firms are included on Amtrak's "Qualified" list based on the experience and knowledge of their key personnel, their past performance on electrification projects in general, and past performance on specific Amtrak projects.

B. A Consultant may be removed from Amtrak's "Qualified" List if it is determined the he no longer meets the requirements for inclusion as specified in paragraph "A" above.

C. Application for inclusion on Amtrak's "Qualified Electrification Consultants" list shall be submitted to:

R. G. Verrelle
Director - ET Design & Standards
National Railroad Passenger Corporation 30th Street Station, 4th Floor - South Tower
Philadelphia, PA 19104

Applications shall be the in form of a letter of interest and shall have attached the following information:

1. Key Personnel and their qualifications.
2. Past and current electrification projects (other than Amtrak) with the names and telephone numbers of their clients.
3. Past and current Amtrak electrification projects.

D. A Consultant may be included on the "Qualified" list on a probationary basis pending performance on an Amtrak Electrification Project.

E. Consultants must re-apply for inclusion on Amtrak's Qualified List each calendar year. Submissions must be made prior to October 1st of the preceding year in order to be considered.

II. PROCEDURES

A. Whenever the Term "Engineer" is used in this specification, it shall mean the Deputy Chief Engineer, ET of Amtrak or an authorized representative.

B. Upon receipt of notice to proceed with design work, the Electrification Consultant shall so inform the Director of Design - Electric Traction of Amtrak, and shall also provide the name of the Consultants Personnel responsible for the project management. Any changes in the Electrification Consultant's key personnel shall be approved by the Director - ET Design

C. Consultant's personnel, before entering Railroad property, shall execute an Amtrak "Permit to Enter Upon Property", and attend Amtrak's Contractor's Safety Class.

D. Prior to proceeding with the final design, the Consultant shall submit to Amtrak, for review and discussion, preliminary conceptual plans for the proposed electrification modifications. This is especially important in work involving changes to the catenary configuration, sectionalizing,

transmission lines, and signal power lines. The plans shall indicate the preliminary design concepts in sufficient detail for Amtrak design personnel to provide definitive direction in which to proceed with the design.

In conjunction with the conceptual submission, a field meeting shall be held between representatives of the Electrification Consultant and Amtrak's ET Design and Construction Departments to evaluate alternatives and establish an acceptable conceptual plan.

Following approval of the conceptual plans, submissions at the 30%, 60%, 90%, and final level, shall be provided for Amtrak's review and comment per the agreed upon schedule of submissions. Design calculations shall be submitted at all levels of submissions. The Electrification Consultant shall also provide an electrification cost breakdown at the 60% level and upon submission of final plans. Unless otherwise directed, submittals shall be sent to the attention of the Engineer.

E. It shall be the responsibility of the Consultant to verify the information contained on Amtrak record drawings pertaining to the project work by on-site inspection.

F. It shall be the responsibility of the Electrification Consultant to perform exploratory trenching to establish all underground Amtrak facilities such as ducts, pipes, and footings in all areas that excavation is required by the design. Hand dug exploratory trenches shall be as described in Section IV of this specification.

G. Final drawings, specifications and calculations shall be submitted to Amtrak for approval prior to being issued for bidding or construction. Each drawing shall bear the stamp of a Professional Engineer, registered in the state in which the work will be performed.

H. When it is necessary to revise existing Amtrak bonding and grounding plans, and sectionalizing plans, these Amtrak plans showing the revisions shall be submitted to the railroad upon completion of construction.

I. Unless otherwise instructed, the Consultant shall utilize the current standard Amtrak structural, catenary, and electrical details and materials in the design of the project.

J. The project sponsor (if other than Amtrak) shall be responsible for all liaison and coordination between all agencies and utilities that may be involved in the project work.

K. The Electrification Consultant shall be responsible for review of all shop and manufacturers drawings for all structures, catenary material or electrical equipment designed or specified by him in connection with the project.

III. DESIGN DRAWNGS

The design drawings prepared by the Consultant for the proposed electrification system modifications shall include, but not be limited to the following, and shall be arranged as described below.

A. The first drawing of the design set shall be a location plan sheet. The drawing shall contain, in addition to a plan of construction limits (scale not less than 1" = 100') the following information:

1) General notes - steel, concrete, excavation, etc.

2) List of abbreviations used.

3) Division of work and material supply legend.

4) List of reference drawings.

5) List of design drawings in set.

6) Construction sequence.

B. The next plan sheet shall be a profile drawing indicating the modifications to existing overhead lines (other than catenary) if required, and the relationship of the proposed construction to existing facilities. This profile drawing shall be drawn to a vertical scale 1" = 20' and a horizontal scale of 1" = 100'.

C. The next plan sheets shall be wiring plan drawings indicating all existing and new information pertaining to the catenary system, its supporting structures and ancillary conductors. These wiring plan drawings shall be drawn to a scale 1" = 20', 1"=30' or 1"=40' (depending upon project size).

D. The next plan sheets shall be the catenary profile drawings indicating the new and/or modifications to existing catenary wires and (if required) the relationship of the proposed construction to existing facilities. These profile drawings shall be drawn to a vertical scale 1" = 4' and a horizontal scale of 1" = 40'.

E. The next group of design drawings shall present erection diagrams for all new permanent and temporary structures and existing modified structures. Erection diagrams shall be drawn to a scale of 1" = 10, and shall be accompanied by a structure loading diagram (on the same drawing) drawn to a scale of 1" = 20, indicating all design loads (vertical, wind, side pull) applied to the structure. Erection diagrams shall also be presented to indicate the total or partial removal of existing structures and steps that may be required to accomplish the removal. Each erection diagram sheet shall contain a bill of material listing assembled items required per structure such as poles, crossbeams, sag braces, cross arms, insulator assemblies, guy anchors and foundation types. All listed items shall be marked and the drawings showing those details shall also be listed. Modified structures must have erection diagrams that have all of the information from the original document transposed onto them. These drawings will supercede the original drawings. The drawings must be drawn so that existing and new material can be differentiated.

F. Erection diagram sheets shall be followed by:

1) Structural steel design detail drawings.

2) Foundation and guy anchor design detail drawings.

3) Hardware and insulator assembly details which shall have bills of material identifying the various assembly components, including the manufacturers' name, and Amtrak AMMS number.

4) Wire sags and tension charts, as required.

5) Miscellaneous details as required.

6) Underground duct relocation plan, profile and detail drawings if required.

7) Electrical design drawings.

8) Master Bill of Material indicating mark number, Amtrak reference drawing number, AMMS number, description, manufacturer, unit of measurement, and ordering totals of the material being used.

G. On overhead bridge projects, drawings shall be prepared in accordance with Amtrak standard drawings ET1120-C, ET-1446-D, and ET-1447-D. These drawings shall indicate the temporary and permanent bonding and grounding of the bridge and shall contain a plan of the bridge crossing and all necessary details, clearances and elevations required to clearly show all of the work involved. Warning signs shall also be indicated and shall conform to current Amtrak standards as to location, size, and type used. An itemized bill of material (including Amtrak AMMS number) shall be included for all Railroad work.

H. Existing Amtrak structure bonding and ground plans, sectionalizing plans, and other related drawings shall be revised (where applicable) to indicate modifications and submitted in accordance with Section II of this specification.

I. Final structural and catenary drawings shall be accompanied by a suggested construction procedure outlining a step-by-step sequence to be followed to accomplish the project. This suggested procedure will be prepared to minimize electrical outages, track occupations, and interruptions to Railroad traffic and to maintain the safety of the workmen and the integrity of the transmission, catenary and signal systems during the proposed construction. All construction activities related to the project shall be integrated into the sequence of construction.

J. Unless otherwise directed, plan submissions prior to the final plan submittal shall consist of (1) CD ROM containing all pertinent design documents in PDF file format. All submittals are to be sent to the Director – ET Design.

K. Unless otherwise directed, after final plans are accepted and released for construction and material purchase, submit five (5) half-size sets of plans and (1) CD ROM containing all drawings in AutoCAD format. Submit material list and specifications, in their original file formats. Submittals shall be sent to the Director – ET Design.

IV. STRUCTURAL DESIGN CRITERIA

A. All structural design shall be in accordance with the current Amtrak specifications for the Design of Catenary Supporting Structures with the following amendments:

1) Current AISC specifications shall be used for the design fabrication and the erection of structural steel, except that allowable stresses shall not be increased one-third above stress values given in specifications when produced by wind loading unless specifically approved by Amtrak.

2) Current ACI Building Code Requirements for Reinforced Concrete shall be used for the design and construction of reinforced concrete structural elements of any structure.

3) Soil boring information including location of borings shall be provided on the design drawings, preferably on the foundation drawings if possible. A soil boring shall be taken at each new foundation location of any modified or proposed new structure. When the number of foundations makes it impracticable to provide a boring for every foundation, a proposed boring plan must be submitted to the Engineer for approval. Foundations shall be designed in accordance with allowable soil bearing values of materials encountered.

4) All design drawings shall be done under the supervision of a Professional Engineer, registered in the state where the work will be performed, who shall seal drawings submitted for final approval.

B. The Consultant is advised that the following criteria is to be included in the design and construction of all permanent and temporary facilities adjacent to Amtrak tracks:

1) On electrification projects involving modifications to existing facilities, a minimum of 12'-0" (plus curvature allowance) is to be maintained from centerline of track to face any new pole or guy strand.

2) On new electrification extensions or independent pole transmission lines a clearance of 18'-0" from centerline of track to face of pole or guy is required.

3) New anchors and foundations shall be located and designed so that any temporary sheeting required for their construction will not be closer than toe of slope shown for standard track section (7'-5" is dimension from gage of rail to toe of ballast slope for tangent track; see dimension on Standard Plan No. 70003B for dimensions on curved track).

Note: Minimum clearances less than those stated above must be approved by the Chief Engineer ET of Amtrak.

4) Exploratory trenches (3) three feet deep and fifteen (15) inches wide in the form of an “H” with outside dimensions matching the outside sheeting dimensions, are to be hand dug to determine the presence of any underground installation. The design drawings shall show an outline of the exploratory trenches. All work must be done in accordance with Amtrak requirements for temporary sheeting and shoring to support Amtrak’s facilities.

5) The following should be included in the general notes on all drawings for temporary sheeting, shoring and excavation to be performed adjacent to Amtrak's tracks:

   a) The Contractor (if applicable) is to provide a schedule of each operation and obtain approval of Amtrak so that it may be property supervised by Amtrak personnel.

   b) Exploratory trenches are to be hand dug to determine the presence of any underground installation. Before proceeding, these trenches are to be back filled and immediately compacted. This work must be done in the presence of a railroad inspector.

   c) Absolute use of track is required while driving sheeting adjacent to running track.

   d) Cavities created by driving of sheet piling shall be filled with sand and any disturbed ballast should be restored and tamped immediately.

   e) Sheet piling shall be cut off at top of tie during construction and then, after construction, shall be cut off eighteen (1 8) inches below existing ground line or grade and left in place.

   f) The excavation should be covered and ramped each night and barricades and warning lights provided as directed by Amtrak.

   g) Final back filling shall be as required by specifications.

   h) When support of track or tracks is necessary during construction of above-mentioned facilities, interlocking steel sheeting adequately braced and designed to carry E-80 live load plus 50% impact is required. Soldier piles and lagging will be permitted for supporting adjacent track or tracks <u>only</u> when required penetration of steel sheet piling cannot be obtained or when in the opinion of the Engineer, steel sheet piling would be impracticable to place.

6) All drawings for temporary sheeting and shoring shall be prepared and stamped by a Professional Engineer and shall be accompanied by complete design computations when submitted for approval. The need for a Consultant to include details of temporary sheeting on design drawings will be determined when reviewing drawings submitted to Amtrak for structural approval.

7) Particular care shall be taken to avoid erosion or filling of Railroad's drainage facilities. Erosion and sediment control in the vicinity of the Railroad shall be as approved by the Engineer and the Railroad. Disrupted Railroad drainage facilities shall be corrected promptly as directed by the Engineer at the Contractor's sole expense.

V. ELECTRICAL DESIGN CRITERIA

A. Electrical Clearances shall be in accordance with applicable, current Amtrak and AREMA specifications. Any deviation from the established Railroad standards must be approved by Amtrak. Vertical clearances between overhead electrical transmission lines and roadways must also meet state and local municipal requirements.

B. The catenary gradient should be designed not to exceed the value 1/(5 x Speed) where practicable.As an alternate the catenary gradients specified in Chapter 33 of the AREMA Manual may be considered.

VI. CONSTRUCTION RELATED SERVICES

A. The A/E shall provide a qualified on-site (E.T.) inspector for the duration of the construction of the project. The E.T. inspector shall be responsible for the following:

1) Responding to Contractor's requests for information (R.F.I.'s).
2) Evaluating Contractor's submittals.
3) Reviewing shop drawings, calculations, and technical requirements.
4) Preparing as-built drawings.
5) Providing technical assistance during construction, testing and turnover.
6) Attending project meetings.
7) Participating in on-site inspections.
8) Preparing revised design documents to clarify or modify drawings during construction.
9) Assisting with preparation and resolution of punch list items.
10) Other Construction Related Services as required.

The Inspector shall keep the Director E.T. Design or his representative apprised of all transactions related to the above Construction Related Services.

VII. RECORD TRACINGS

A. Upon completion of the construction, the Consultant shall provide Amtrak with "as-built" or record drawings. This work will include the following.

1) Revisions to existing Amtrak tracings as required. These tracings include, but are not limited to, erection diagrams, overhead bridge drawings, track maps, bonding and grounding plans, catenary sectionalizing plans, impedance diagrams, and transmission profiles.

2) Four (4) mil Mylar tracings shall be prepared for all new permanent facilities such as catenary structures at overhead bridges. These drawings shall be prepared on appropriate standard Amtrak tracings – four (4) mil Mylar. Permanent drawing numbers shall be obtained from Amtrak.

3) One (1) CD ROM containing all electronic documents (except plans) in their original file format. Plans shall be submitted in AutoCAD format.

4) Unless otherwise directed, final "as-built" documents are to be sent to the following address:

R. G. Verrelle

Director ET Design & Standards

National Railroad Passenger Corporation

30th Street Station, 4th Floor South Tower- Box 41

Philadelphia, Pa 19104

VIII. APPROVALS

M. D. Insogna
Technical Director Electric Traction Design

2/10/06
DATE

R. J. Verhelle
Deputy Chief Engineer Electric Traction

2/10/06
DATE

NATIONAL RAILROAD PASSENGER CORPORATION
ELECTRIC TRACTION DEPARTMENT
30th. AND MARKET STREETS, 4th. FLOOR SOUTH, BOX 41
PHILADELPHIA, PA 19104

QUALIFIED CONSULTANTS FOR ELECTRIFICATION DESIGN - 2005

* Edwards & Kelcey, Inc
30 South 15th. St.
Suite 1100
Philadelphia, PA 19102
Attn: James W. Adams ,Vice President
Voice:215-569-0100

* Parsons Transportation
Ten East Baltimore St., Suite 801
Baltimore, MD 21202
ATTN: John Grantham,P.E.
Voice: 410-223-2741

* SYSTRA Consulting, Inc.
1601 Market St., Suite1720
Philadelphia, PA 19103
Attn: Peter Gaffer, Vice President
Voice: 215-568-4448

* HNTB Rail Systems Group
One Burlington Woods
Burlington, MA 01803
Attn: Steven P. McElligot
Voice: 781-565-5929

** STV Incorporated
1818 Market St., Suite 1410
Philadelphia, PA 19103
ATTN: Carl Mazeika
Voice: 215-832-3510

** LTK Engineering Services
100 West Butler Ave.
Ambler, PA 19002
Attn: Tristan Kneschke
Voice: 215-641-8821

* DMJM+ HARRIS
The Atlantic Bldg.
260 South Broad St, Suite 1500
Philadelphia, PA 19102
Attn: Robert Fisher
Voice: 215-735-0832

* Gannett Fleming Transit and Rail
P.O. Box 80795
Valley Forge, PA 19484
ATTN: Terry Shantz, P.E., Vice President
Voice: 610-650-7730

** Parsons Brinckerhoff
Two Gateway Center, Suite 1800
Newark, NJ 07102 – 5098
Attn: Herbert Zwilling, Vice President
Voice: 973-565-4840

** Urban Engineers, Inc.
530 Walnut Street, 14th Floor
Phila., PA 19106 – 3685
Attn: Andrew J. Scott, Vice President
Voice: 215 – 922 – 8080

* Washington Group International
1 Penn Plaza, 32nd Floor
New York, NY 10119-2901
ATTN: Steven R. Strauss
Voice: 212-268-5030
Fax:212-268-5032

* Consultant is pre – qualified for all Amtrak electrification design projects

** Consultant must be approved on a " job – specific " basis

Revised 12/22/05

2.1.3 HIGHWAY BRIDGES (1994)

Unless otherwise specified by highway authority, all highway bridges shall be designed in accordance with the latest Standard Specifications for Highway Bridges adopted by the American Association of State Highway and Transportation Officials.

2.1.4 BUILDINGS (1994)

Unless otherwise specified by local governing ordinances or state codes, all railway buildings shall be designed in accordance with the latest "Building Code Requirements for Reinforced Concrete (ACI 318)" of the American Concrete Institute, subject to design loads conforming to railway requirements.

2.1.5 PIER PROTECTION (1994)

2.1.5.1 Adjacent to Railroad Tracks[1]

a. To limit damage by the redirection and deflection of railroad equipment, piers supporting bridges over railways and with a clear distance of less than 25 feet from the centerline of a railroad track shall be of heavy construction (defined below) or shall be protected by a reinforced concrete crash wall. Crash walls for piers from 12 to 25 feet clear from the centerline of track shall have a minimum height of 6 feet above the top of rail. Piers less than 12 feet clear from the centerline of track shall have a minimum crash wall height of 12 feet above the top of rail.

b. The crash wall shall be at least 2′-6″ thick and at least 12 feet long. When two or more columns compose a pier, the crash wall shall connect the columns and extend at least 1 foot beyond the outermost columns parallel to the track. The crash wall shall be anchored to the footings and columns, if applicable, with adequate reinforcing steel and shall extend to at least 4 feet below the lowest surrounding grade.

c. Piers shall be considered of heavy construction if they have a cross-sectional area equal to or greater than that required for the crash wall and the larger of its dimensions is parallel to the track.

d. Consideration may be given to providing protection for bridge piers over 25 feet from the centerline of track as conditions warrant. In making this determination, account shall be taken of such factors as horizontal and vertical alignment of the track, embankment height, and an assessment of the consequences of serious damage in the case of a collision.

2.1.5.2 Over Navigable Streams

Piers located adjacent to channels of navigable waterways shall have a protection system in accordance with Part 23, Pier Protection Systems at Spans Over Navigable Streams.

[1] See Commentary

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SECTION 2.40 CONTROL OF DEFLECTIONS

2.40.1 GENERAL (1992)

Flexural members of bridge structures shall be designed to have adequate stiffness to limit deflections or any deformations which may adversely affect the strength or serviceability of the structure at service load.

2.40.2 SUPERSTRUCTURE DEPTH LIMITATIONS (1992)

The minimum thicknesses stipulated in Table 2-8 are recommended unless computation of deflection indicates that lesser thickness may be used without adverse effects.

C - COMMENTARY

The purpose of this part is to furnish the technical explanation of various paragraphs in Part 2, Reinforced Concrete Design. In the numbering of paragraphs of this section, the numbers after the "C-" correspond to the section/paragraph being explained.

C - SECTION 2.1, GENERAL

C - 2.1.5, PIER PROTECTION (1994)

C - 2.1.5.1, Adjacent to Railroad Tracks

a. The provisions of this section are not intended to create a structure that will resist the full impact of a direct collision by a loaded train at high speed. Rather, the intent is to reduce the damage caused by shifted loads or derailed equipment. This is accomplished by: deflecting or redirecting the force from the pier; providing a smooth face; providing resisting mass; and distributing the collisions forces over several columns.

b. Research by the National Transportation Safety Board found no clear break point in the distribution of the distance traveled from the centerline of the track by derailed equipment. It was therefore decided to retain the existing 25 feet distance within which collision protection is required. In addition, it is recognized that the distance traveled by equipment in a derailment is related to the speed of the train, the weight of the equipment, whether the side slopes tend to restrain or distribute the equipment and the alignment of the track. In cases where these factors would cause the equipment to travel farther than normal in a derailment, the required distance should be increased. Structures not otherwise requiring protection under this section along the railroad right-of-way may also warrant protection by using crash walls or earthen berms.

c. Where the risk of serious damage to the overhead structure is estimated to be higher than normal in case of an impact, this distance should also be increased. Among the factors to be considered in this evaluation are: the height of the pier, bearing type, redundancy of the structure, length of the span and consequences of loss of use of the structure.

d. Examples of crash walls and pier protection for tracks on one side of piers are shown in Figure C-2-1. Where tracks are on both sides of the pier the wall shall protect both sides.

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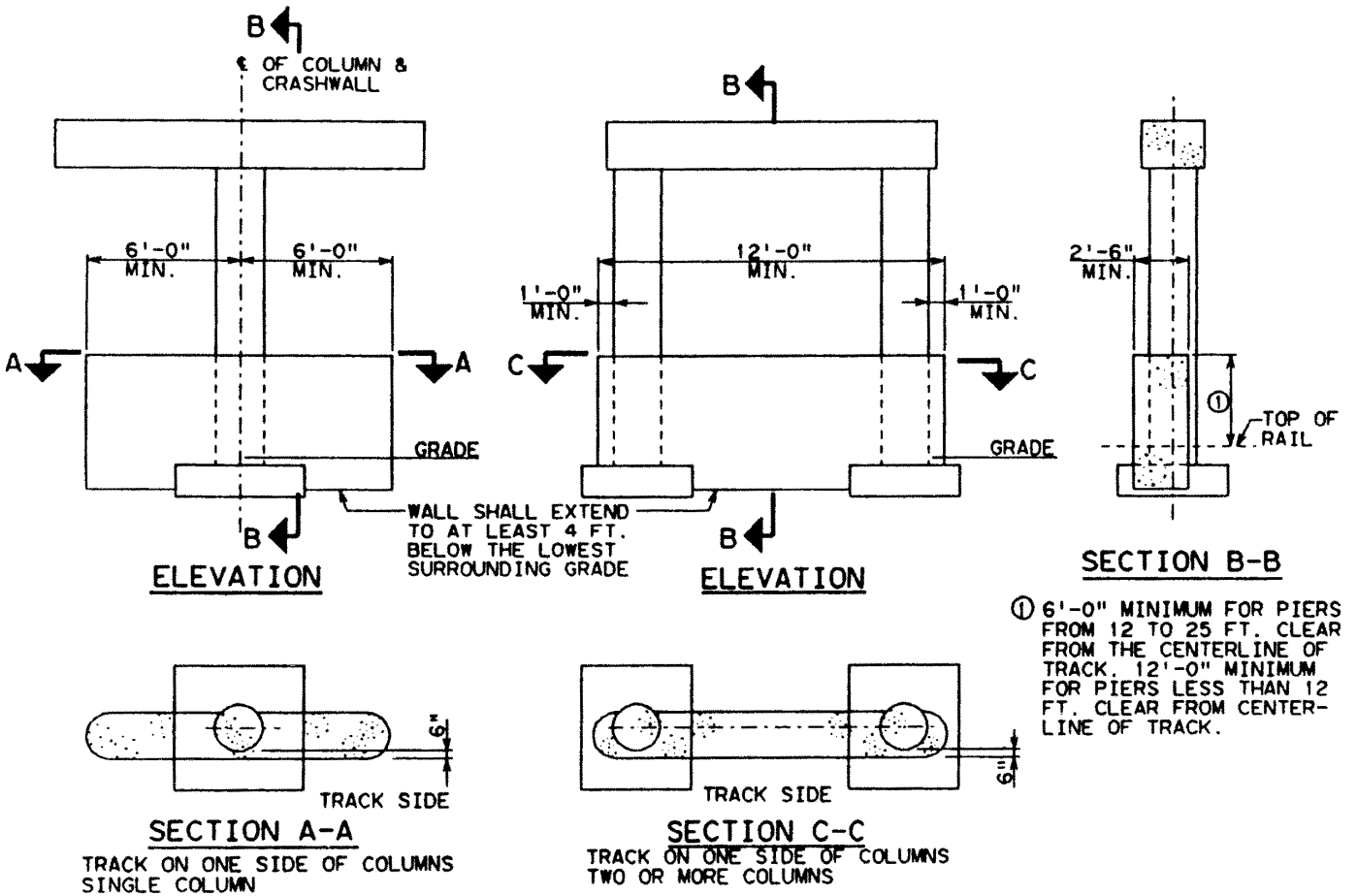

Figure C-2-1. Pier Protection: Minimum Crash Wall Requirements (Not To Scale)

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SCOPE AND NATURE

To establish uniform requirements for the design and construction of overhead bridges by outside agencies.

SPECIAL REFERENCE

Standard Track Plan AM70050

ET Standard Plan ET1446-D

ET Standard Plan ET 1447-D

Engineering Practice 3003

Engineering Practice 3014 Section 02261

Engineering Practice 3014 Section 01520

Engineering Practice 3014 Section 01142

Engineering Practice 1604

AED-1 Procedures and Design Criteria to be Employed by Electrification Consultants Engaged in the Design of Electrification Facilities on the National Railroad Passenger Corporation

AREMA Manual for Railway Engineering – Chapter 8, Article 2.1.5

SPECIAL MATERIALS

N/A

PROCEDURE

DESIGN AND CONSTRUCTION CRITERIA FOR OVERHEAD BRIDGES

New or reconstructed bridges over Amtrak Railroad tracks shall meet the following requirements:

I. CLEARANCES

a. Horizontal and Vertical Clearances shall be in accordance with the current Standard Track Plan AM70050 – "Minimum Roadway Clearances". When replacing existing bridges that have substandard clearances, every effort shall be made to improve the clearances.

b. Temporary Construction clearances may be less if approved by Amtrak.

c. Amtrak shall be furnished as-built drawings showing actual clearances as constructed.

d. Horizontal clearances may need to be increased if a maintenance roadway is required by Amtrak.

e. Clearances shall be adjusted to provide for any planned changes in the trackage, including the change in track centers and raising of the tracks. Amtrak shall be contacted to obtain information on planned track changes. If the track is in a sag at the proposed overhead crossing location, it should be anticipated that the track may be raised to improve the condition. Clearances shall be increased to provide for this track raise.

II. CRASH WALLS

AREMA Manual for Railway Engineering, Chapter 8, Article 2.1.5 Pier Protection, describes the requirements for the crash walls. Crash walls are required when face of the pier is closer than 25'-0" from centerline of the nearest track, measured perpendicular to the track, unless the size of the pier satisfies the criteria for piers of heavy construction as listed in Article II (d).

Crash walls shall meet the following requirements:

a. Crash walls for piers from 12 feet to 25 feet clear from the centerline of the track shall have a minimum height of 6 feet above the top of rail. Piers less than 12 feet clear from the centerline of the track shall have a minimum crash wall height of 12 feet above the top of rail. Crash walls shall be at least 2'-6" thick and at least 12 feet long.

b. For multi-column piers, the crash wall shall connect the columns and extend at least 1 foot beyond the outermost columns parallel to the track.

c. Crash walls shall be anchored to the footings and columns as applicable and shall extend to at least four feet below the lowest surrounding grade.

d. A pier shall be considered of heavy construction if it has a cross-sectional area equal to or greater than that required for the crash wall and the larger of its dimensions is parallel to the track.

e. Consideration may be given to providing protection for bridge piers located more than 25 feet from the centerline of track as conditions warrant. In making this determination, account shall be taken of such factors as horizontal and vertical alignment of the track, embankment height, and an assessment of the consequences of serious damage in the case of a collision.

III. BARRIERS

a. In the territory where there is railroad electrification, barriers shall be designed and constructed on both faces of the bridge in conformance with the current ET Standard Plan ET-1446-D "Electrified Territory OH Bridge Typical Protection Barrier".

b. In non-electrified territory, chain-link fence with 1" mesh fabric may be substituted for the solid barrier.

IV. ELECTRIFICATION SYSTEMS.

a. In electrified territory the agency responsible for the project shall be required to comply with AED-1 "Procedures and Design Criteria to be Employed by Electrification Consultants Engaged in the Design of Electrification Facilities on the National Railroad Passenger Corporation".

V. DRAINAGE

It is essential to maintain good drainage of railroad right-of-way during construction and provide for good drainage after construction of the overhead crossing. The following guidelines shall be followed:

a. Piers and end slopes shall be located such that they do not interfere with railroad drainage system, including, but not limited to, ditches, pipes, catch basins and detention basins.

b. Drainage from the section of the bridge above railroad right-of-way shall be collected with drain pipes and drained away from the railroad right-of-way. No open scuppers are permitted on the portion of the bridge over the railroad right of way. Drainage from any scuppers shall be drained away from the railroad right-of-way.

c. After completion of construction, railroad drainage ditches shall be cleaned of all debris to the satisfaction of Amtrak representatives.

d. During construction, silt fences shall be provided to prevent silting of the ditches. All drainage from the construction site must be collected and directed away from railroad property.

e. If the project will alter drainage characteristics at the site of the crossing at any time during or after completion of the project, three sets of the drainage calculations and plans shall be submitted to Amtrak for approval. Approval of the drainage plans shall not relieve the submitting agency of responsibility for the drainage design.

f. All disturbed areas on the railroad right-of-way shall be properly seeded and mulched to the satisfaction of Amtrak.

VI. STRUCTURE EXCAVATION AND SHORING

Shoring or sheeting protection shall be provided in conformance with the current Engineering Practice 3014 Section 02261 – "Requirements for Temporary Sheeting and Shoring to Support Amtrak Tracks". Blasting is restricted and if required shall be in conformance with Engineering Practice 3003- "Blasting Procedures".

a. A construction procedure for temporary shoring shall be shown on the drawing.

b. Safety railing meeting OSHA requirements shall be installed when temporary shoring is within 12 feet of track. When shoring is further than 12 feet from centerline of track, railing shall be provided if necessary for safety of workers and railroad personnel.

VII. GENERAL REQUIREMENTS

a. The distance from the nearest milepost at intersection of centerline of the track and centerline of the bridge shall be shown on the General Plan.

b. Horizontal and vertical clearances shall be marked clearly on the General Plan and Elevation.

c. Soil parameters used in designing the shoring shall be based on soil and rock data obtained from test borings performed for the design of the proposed structure.

d. It is the designer's responsibility to ensure that a constructability analysis is performed to confirm that the structure, as designed, can be constructed in the applicable railroad environment.

e. Piers, abutments and columns located within the railroad right-of-way shall have an anti-graffiti coating consisting of a three-coat system. Each of the three coats shall be a clear, two component, polyester type, aliphatic urethane. Each coat shall be applied at a minimum 2 mils DFT.

VIII. DEMOLITION OF EXISTING STRUCTURES

Railroad tracks shall be protected from damage during demolition of existing structure or replacement of deck slab. Either of the following methods may be used:

a. During demolition of the decks, a protection shield shall be erected over the right-of-way to catch falling debris. The shield shall be designed and constructed in

conformance with the current Engineering Practice 3014 Section 01520 – "Requirements for Temporary Protection Shields for Demolition and Construction of Overhead Bridges and Other Structures".

b. On light traffic density lines or when overhead protection shield cannot be installed due to limited clearance or type of superstructure, track may be protected by timber mats placed over the track structure, subject to approval by Amtrak. Timber mats shall be made in sections such that they may be lifted in and out quickly. Mats shall not rest on ties or rails.

Geo-fabric or canvas shall be placed over the track structure to keep the ballast clean.

The contractor shall submit detailed plans of the protection shield or the timber mats to the Project Engineer for approval prior to the start of demolition. The plans shall be prepared by a Registered Professional Engineer and shall bear his seal and signature.

Blasting will not be permitted to demolish a structure over or within the railroad right-of-way.

IX. ERECTION PROCEDURE

The contractor shall submit a detailed procedure for erecting the spans over railroad right of way. The procedure shall be in conformance with the current Engineering Practice 3014 Section 01142 – "Submission Documentation Required for Amtrak Review and Approval of Plans for Bridge Erection, Demolition, and Other Crane/Hoisting Operations over Railroad Right-Of-Way".

X. PIPELINES

All pipelines occupying the bridge shall be designed and constructed in accordance with Engineering Practice 1604 Pipeline Occupancy – Requirements and Specifications.

XI. CROSSING DATA

Plans submitted for review by Amtrak shall contain, at the minimum, the following information:

- Roadway name or route number
- Amtrak bridge number
- Skew angle to the railroad center line
- Proposed foundation type and elevation of bottom of footing
- Pile type and depth (if applicable)
- Top of rail elevation for all tracks
- Drainage modifications
- Elevation and cross sections of existing and proposed structure

- North arrow
- Railroad clearance information with dimensions in English units

The following "Overhead Bridge Crossing Data" sheet shall be completed and submitted, by the agency responsible for the project, with both the Preliminary and Final Plan submission to Amtrak.

OVERHEAD BRIDGE CROSSING DATA

1. LOCATION: _____ _____ _____
   CITY COUNTY STATE

2. Distance from nearest Mile Post to Centerline of Bridge: _____
3. DOT Crossing Number: _____
4. State Project Number: _____
5. Description of Project:
   _____
   _____
   _____
   _____
   _____

6. Minimum Horizontal Clearance from Centerline of nearest Track:
   A. Proposed: _____ B. Existing (if applicable): _____
7. Minimum Vertical Clearance above top of high rail:
   A. Proposed: _____ B. Existing (if applicable): _____
8. List piers where crashwalls are provided:

Pier:	Distance from centerline of track:
_____	_____
_____	_____

9. Describe how drainage from bridge is handled:
   _____
   _____
   _____
   _____

10. List piers where shoring is required to protect track:
    _____
    _____

11. Plan Submittal: Preliminary: _____ Final: _____

REPORTING

As detailed in procedure.

RESPONSIBILITY

Amtrak I&C Staff	Comply with Procedure
Director I&C	Assure Compliance
Amtrak Design Staff	Comply with Procedure
Amtrak Construction Staff	Comply with Procedure
Sr. Director Construction	Assure Compliance

SCOPE AND NATURE

There are many areas along the railroad corridor that are receiving storm water from adjacent property that results in flooding during the smallest of storms. Increased storm water flow to the railroad property increases deposits of excessive amounts of sedimentation and could cause fouling of the track structure. With the introduction of the High Speed Rail Trains, passenger safety is of the utmost importance. Diminished track support from flooding and sedimentation will not be allowed.

It is Amtrak's policy to limit the resultant discharge and drainage of storm water from the development of adjacent properties to no more than pre-existing conditions, as demonstrated by engineering analyses through governmental regulatory processes.

It is Amtrak's policy to protect the railroad right-of-way from sediment, erosion and excess runoff during all stages of construction activities on adjacent properties, as demonstrated by engineering analyses through governmental regulatory processes.

SPECIAL REFERENCE

The following policy is to augment Specification 02861 of EP3005, Pipeline Occupancy Requirements and Specifications, and other Amtrak I&C, design and construction standards.

SPECIAL MATERIALS

N/A

PROCEDURE

The discharge of storm water onto railroad property will be prohibited for all construction projects on or adjacent to Railroad property, unless the applicant can demonstrate that there will be a "zero net runoff" result in the peak flow and total volume based on a 100 Year Storm event, <u>and</u> that receiving waters downstream will not be impacted.

Computations indicating this design and suitable topographic plans, prepared by a Professional Engineer, licensed in the state in which the work will be performed, shall be submitted to the Chief Engineer for approval at least 60 days in advance of construction. If the drainage is to discharge into an existing drainage channel on or under the Railroad Right of Way, a hydraulic analysis of the existing structures must be included.

Formal approval of the proposed design, by the appropriate governmental agency or agencies, must be submitted with the computations. Control of soil erosion and sedimentation must be demonstrated on the design plans in accordance with the appropriate state and local regulations.

The Contractor shall be responsible for control of the site and protection of railroad property during the entire construction project, through completion. The design of sedimentation, erosion and runoff control during construction shall accommodate conditions of every phase of construction.

Review, monitoring and approval process:

1. The Contractor shall conform to this Amtrak policy, and demonstrate conformance by standard Amtrak review submissions and approvals, as noted above.

2. Amtrak I&C shall assure that agencies and other third parties proposing construction on or adjacent to Amtrak Right-of-Way conform to Amtrak policy detailed herein.

3. Amtrak Design and Construction shall review the Contractor's proposed design and construction procedures for conformance with Amtrak policy, as demonstrated through appropriate engineering analyses and the government regulatory process.

4. Amtrak Construction shall monitor the activities of the Contractor on-site to assure compliance/ adherence to approved procedures throughout the construction period.

REPORTING

N/A

RESPONSIBILITY

Amtrak I&C Staff	Comply with Procedure
Director I&C	Assure Compliance
Amtrak Design Staff	Comply with Procedure
Director Structures Design	Assure Compliance
Amtrak Construction Staff	Comply with Procedure
Sr. Director Construction	Assure compliance

SECTION 01520A – REQUIREMENTS FOR TEMPORARY PROTECTION SHIELDS FOR DEMOLITION AND CONSTRUCTION OF OVERHEAD BRIDGES AND OTHER STRUCTURES

PART 1 - GENERAL

1.1 SCOPE

A. This engineering practice describes items to be included in the design and construction of temporary protection shields for construction overhead and near to Amtrak tracks.

B. Use of this specification is as required by Amtrak, as described in Amtrak Engineering Practice EP3014.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.3 DEFINITIONS

A. CHIEF ENGINEER: Amtrak Vice President, Chief Engineer

B. RAILROAD: National Railroad Passenger Corporation (Amtrak), and/or the duly authorized representative

C. ENGINEERING PRACTICE: Amtrak Engineering Practices establish a system of uniform practices, notices and instructions for the Amtrak Engineering Department, providing current, permanent and temporary, departmental procedures and policies.

1.4 SUBMISSION REQUIREMENTS

A. Unless otherwise directed in the Contract, the Contractor shall submit five sets of plans and calculations to the authorized representative of the Chief Engineer, Structures, whose name and address will be provided at the project pre-construction meeting.

B. Submitted calculations and plans shall be signed and sealed by a Professional Engineer, registered in the State in which the work will be performed.

C. The Contractor shall revise and resubmit plans and calculations as many times as necessary, until a complete and correct site-specific work plan for crane/ hoisting operations has been approved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONTRACTORS WORKING ON OVERHEAD OR NEARBY DEMOLITION AND/OR CONSTRUCTION ADJACENT TO AMTRAK TRACKS, SHALL CONFORM TO THE FOLLOWING

DESIGN AND CONSTRUCTION REQUIREMENTS FOR TEMPORARY PROTECTION SHIELDING:

A. The Contractor shall maintain a specified level of protection to railroad facilities, during demolition and construction activities that occur overhead and nearby Amtrak tracks, as shown on the Contract Plans, as detailed in the Contract Specifications, and as described below.

B. Prior to the start of construction, the Contractor shall submit to Amtrak for review and approval, detailed, site specific plans for temporary protection shields. The plans will be reviewed as to the methods of erection, and as to whether or not the proposed installation will provide the required level of protection. No construction shall proceed until the Contractor has received written approval of the Contractor's complete, site specific plans, from Amtrak.

C. The Contractor shall design the protection shields to conform to all applicable and governing federal, state and local laws and regulations.

D. Drawings for the proposed temporary protection shields shall be signed and sealed by a Licensed Professional Engineer. Complete design calculations, clearly referenced to the drawings, and easy to review, shall be provided with submission of drawings.

E. Protection shields shall be designed for the following, minimum load and size criteria.
   1. The horizontal shield design liveload on horizontal surfaces shall be the greater of a minimum of 100 pounds per square foot (psf) [5000 Pascals] or the anticipated liveload to be produced by the Contractor's anticipated operations. When determining the appropriate design live load, the designer shall consider factors such as the physical capacity of proposed debris-catching platforms to retain materials, and the type of equipment the platforms might support. Positive means of demolition and construction controls shall be provided to assure that debris that may collect on the shield will not exceed the design live load. The horizontal protection shield, in plan view, shall cover no less than the area directly over the tracks plus ten feet minimum beyond the centerline of the outermost tracks.
   2. The vertical shield shall be designed to carry a minimum 30 psf [1500 Pascals] allowance for wind load. The vertical shield shall extend a minimum of 6'-6" [1950 millimeters] above the top of the adjacent surface, such as curb or sidewalk. Anti-climb wings shall be installed at each end, as necessary, to restrict access to the railroad property.

F. The vertical and horizontal clearance envelopes required for maintenance of railroad operations, shall be indicated on the site specific work plans. These clearances are subject to review and approval by Amtrak. If applicable, both temporary and permanent envelopes shall be indicated on the plans. The temporary protection shields shall be installed outside the limits of these minimum vertical and horizontal clearances shown on the site specific work plans.

G. In electrified territory, temporary protection shields shall be bonded and grounded.

H. Temporary protection shields shall be designed and constructed to prevent dust, debris, concrete, formwork, paint, tools, or anything else from falling onto the railroad property below.

I. The temporary protection shields shall be attached to the structure in accordance with site specific work plans submitted by the Contractor and approved by Amtrak. Drilling in structural members and welding will generally not be permitted in members that are scheduled to remain in place in the reconstructed structure. For existing members scheduled for demolition or for later reconstruction, any proposed attachment shall be designed with consideration of potential existing, deteriorated conditions.

J. The Contractor shall provide the Amtrak on-site representative, for review and approval prior to any construction activity in the effected area, a proposed construction schedule for the installation, maintenance and removal of the temporary protection shields.

K. The temporary protection shields shall be installed prior to the start of any other work over the railroad in the effected areas. No construction shall proceed until the Amtrak on-site representative reviews and approves the Contractor's installed protection. Before proceeding with the work, Amtrak must be satisfied, in its sole judgment, that sufficient protection has been provided to proceed with the work.

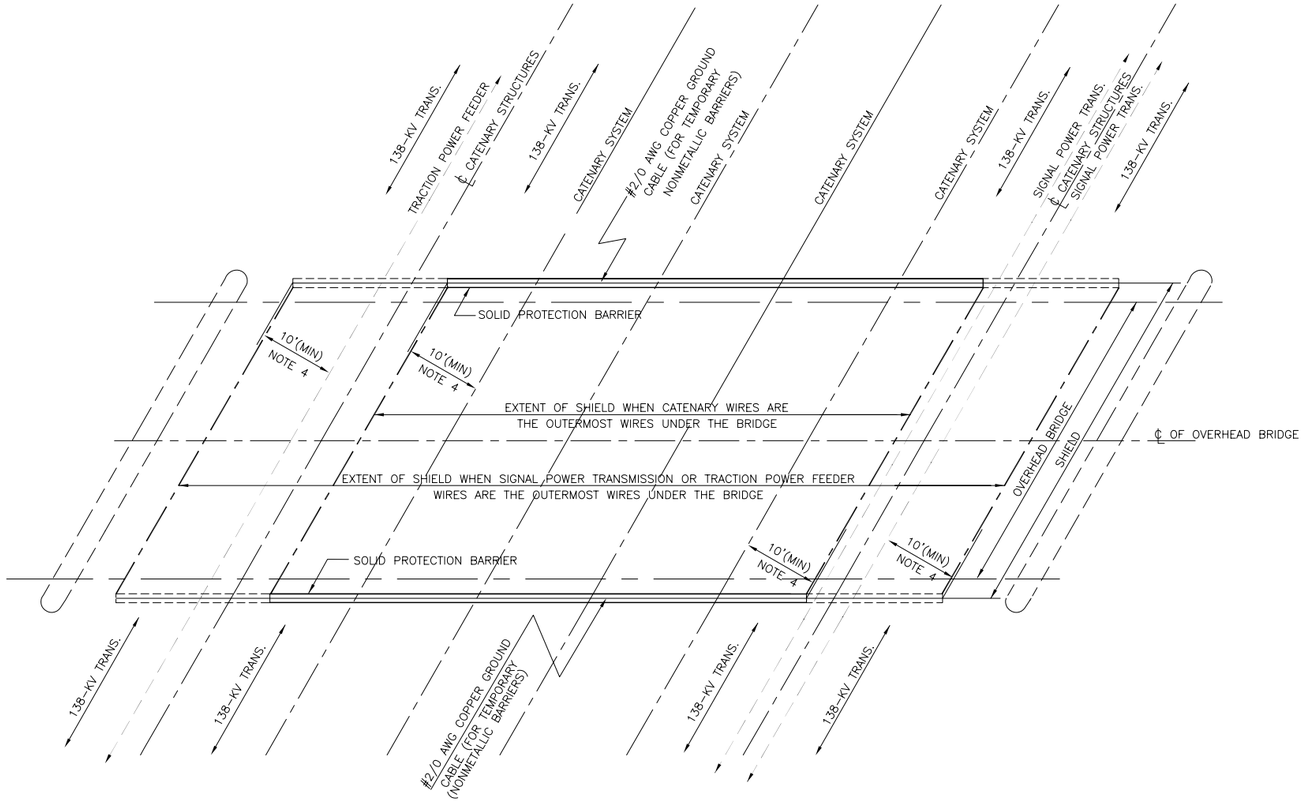
L. The Contractor shall install and remove temporary protection shields only when an Amtrak representative is on-site.

M. The Contractor shall not install or remove temporary protection shields during train operations.

N. Temporary protection shields shall remain in place for the duration of construction activities over and nearby the railroad in the effected areas. The Contractor may remove temporary construction only after approved by Amtrak on-site representatives.

O. Where site specific conditions impose insurmountable restrictions to the design of temporary construction conforming to the limitations listed above, the design of temporary construction shall be developed in close coordination with Amtrak design review personnel. The Chief Engineer, Structures shall provide final approval of temporary construction that does not conform to the above limitations.

END OF SECTION 01520A



PLAN

SCALE: 1"=10'-0"

GENERAL NOTES:

1 – TEMPORARY PROTECTION SHIELDS SHALL BE USED, WITH CERTAIN EXCEPTIONS, DURING DEMOLITION OF EXISTING BRIDGES OR ERECTION OF NEW BRIDGES IN ORDER THAT WORK ON THE BRIDGE STRUCTURE CAN PROCEED OVER THE ELECTRIFICATION FACILITIES WITHOUT REQUIRING DEENERGIZATION OF THE WIRES. ELECTRIFICATION FACILITIES SHALL BE DEENERGIZED DURING THE TIME THE STRUCTURAL FRAME AND THE TEMPORARY PROTECTION SHIELD ARE BEING ERECTED OVER OR NEAR THE WIRES. THE ABOVE WORK SHALL BE DONE UNDER THE DIRECTION OF A QUALIFIED RAILROAD EMPLOYEE.

IN CASES WHERE THERE IS INSUFFICIENT ELECTRICAL CLEARANCE BETWEEN THE WIRES AND THE BRIDGE STRUCTURE FOR ERECTION OF A SHIELD, ALL WORK OVER THE WIRES SHALL BE PERFORMED WITH THE WIRES DEENERGIZED AND UNDER THE PROTECTION OF A QUALIFIED RAILROAD EMPLOYEE.

IN CASES WHERE PRESTRESSED BEAMS ARE USED OR WHERE METALLIC FORMS BECOME A PART OF THE PERMANENT BRIDGE STRUCTURE, ERECTION MAY BE ABLE TO PROCEED WITHOUT A SHIELD, IN WHICH CASE ALL WORK OVER THE WIRES DURING ERECTION SHALL BE DONE WITH THE WIRES DEENERGIZED AND UNDER THE PROTECTION OF A QUALIFIED RAILROAD EMPLOYEE.

THE TEMPORARY BARRIER SHALL BE INSTALLED WHETHER OR NOT A TEMPORARY SHIELD IS USED.

2 – DETAILS OF ANY PROPOSED SHIELD AND BARRIER SHALL BE SUBMITTED TO THE RAILROAD FOR APPROVAL, AND WORK ON ANY SHIELD OR BARRIER SHALL NOT BE STARTED BEFORE SUCH APPROVAL IS OBTAINED.

3 – THE TEMPORARY PROTECTION SHIELDS SHALL BE OF SOLID CONSTRUCTION (TONGUE AND GROOVE OR EQUAL) AND SHALL BE PROVIDED WITH A SOLID PROTECTION BARRIER HAVING A MINIMUM HEIGHT OF 6'–6" ABOVE THE SURFACE OF THE SIDEWALK OR CURB OF THE BRIDGE TO PROTECT WORKMEN AGAINST CONTACT WITH RAILROAD WIRES PASSING UNDER THE BRIDGE AND TO PREVENT DAMAGE TO THE WIRES.

4 – THE TEMPORARY PROTECTION SHIELD AND BARRIER SHALL EXTEND NOT LESS THAN 10 FEET BEYOND THE OUTERMOST RAILROAD WIRE PASSING UNDER THE BRIDGE MEASURED IN A HORIZONTAL PLANE AND NORMAL TO THE WIRE, AND SHALL PREVENT MATERIALS, AND DEBRIS, FROM FALLING ON OR CONTACTING THE WIRES.

5 – THE PROTECTION SHIELD SHALL BE DESIGNED FOR A MINIMUM LIVE LOAD OF 100 LBS. PER SQUARE FOOT. IF THE SHIELD IS TO SERVE AS A FORM OR IS TO CARRY ANY PART OF THE OVERHEAD STRUCTURE DURING ERECTION, IT SHALL BE DESIGNED FOR THE SUPERIMPOSED LOADS. IF THE SHIELD IS TO BE USED FOR PROTECTION DURING DEMOLITION OF AN OVERHEAD STRUCTURE, IT SHALL BE DESIGNED FOR A MINIMUM LIVE LOAD OF 100 LBS. PER SQUARE FOOT, OR A CONCENTRATED LIVE LOAD AT ANY POINT OF NOT LESS THAN 2,000 POUNDS.

6 – NONMETALLIC TEMPORARY PROTECTION BARRIERS SHALL BE PROVIDED WITH 2/0 AWG SIZE COPPER GROUND CABLE CONNECTED TO THE RAILROAD GROUND SYSTEM PER DETAIL "Y", THIS DRAWING. METALLIC BARRIERS SHALL BE BONDED AND GROUNDED BY A METHOD AND WITH MATERIALS APPROVED BY THE ELECTRIC TRACTION DEPARTMENT. THE RAILROAD SHALL INSTALL ALL GROUNDING MATERIALS.

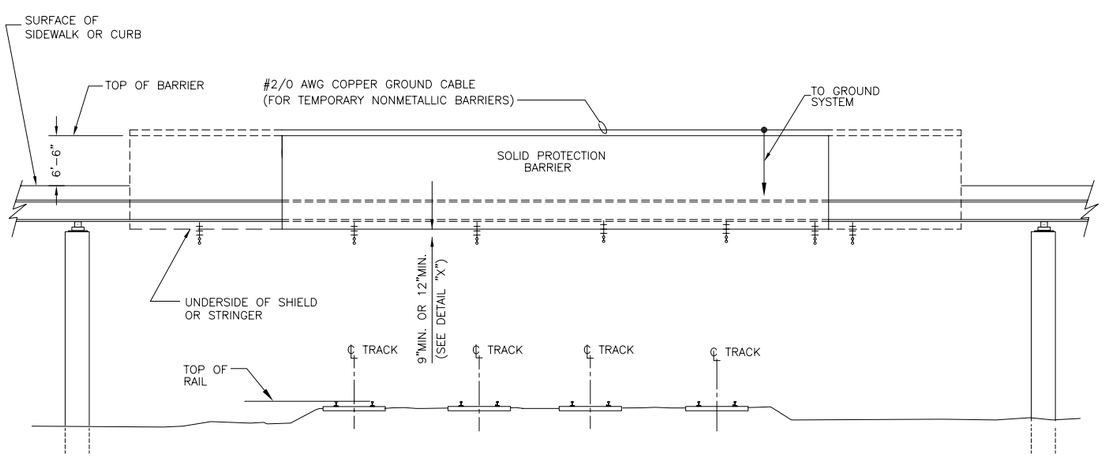
7 – TEMPORARY PROTECTION SHIELDS OF TIMBER CONSTRUCTION SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 12 INCHES TO THE RAILROAD WIRES. THE CORRESPONDING CLEARANCE TO STEEL CONSTRUCTION SHALL BE 9 INCHES.

8 – WHERE STRINGERS TRANSVERSE TO THE BRIDGE ARE USED, THE MINIMUM HORIZONTAL CLEARANCE BETWEEN STRINGERS AND RAILROAD WIRES SHALL BE 4 FEET AS SHOWN IN DETAIL "X".

9 – TEMPORARY PROTECTION BARRIERS SHALL REMAIN IN PLACE AT LEAST UNTIL PERMANENT PROTECTION BARRIERS AND GROUNDING ARE COMPLETED.

10 – WHERE REQUIRED BY LOCAL CONDITIONS, THE ELECTRICAL CLEARANCES SHOWN ON THIS DRAWING MAY BE INCREASED BY THE ELECTRIC TRACTION DEPARTMENT.

11 – ANY MODIFICATION OF THE ELECTRICAL REQUIREMENTS SHOWN ON THIS DRAWING SHALL BE SUBMITTED TO THE ELECTRIC TRACTION DEPARTMENT FOR APPROVAL.



ELEVATION

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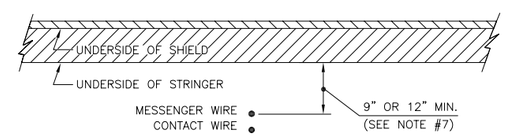
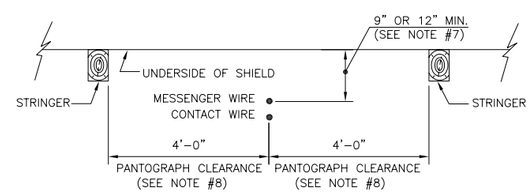


DETAIL "X"

STRINGERS LONGITUDINAL TO THE BRIDGE

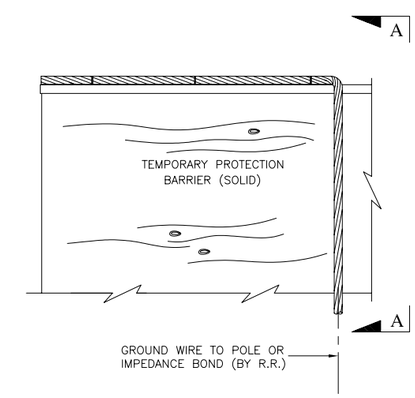
NO SCALE



DETAIL "X"

STRINGERS TRANSVERSE TO THE BRIDGE

NO SCALE

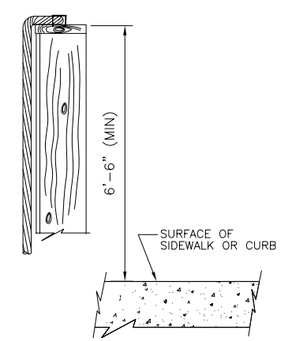


DETAIL "Y"

APPLICATION OF GROUND CABLE

TO TEMPORARY PROTECTION BARRIER

NO SCALE



SECTION "A–A"

NO SCALE

THIS DRAWING SUPERSEDES P.R.R. DRAWING ET–1447–D–2

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No	Revisions	Date	By

AMTRAK

OFFICE OF
V.P., Chief Engineer
Engineering
National Railroad Passenger Corporation
30TH Street Station–Philadelphia, Pennsylvania 19104

Approved	Date
Chief Engineer Electric Traction – R. J. Verhelle	1/18/00
/S/	
Director Electric Traction Design – M. D. Insogna	1/18/00
/S/	

1" 0" 10" 20"

Scale: 1"= 10'–0"

E. T. STANDARD

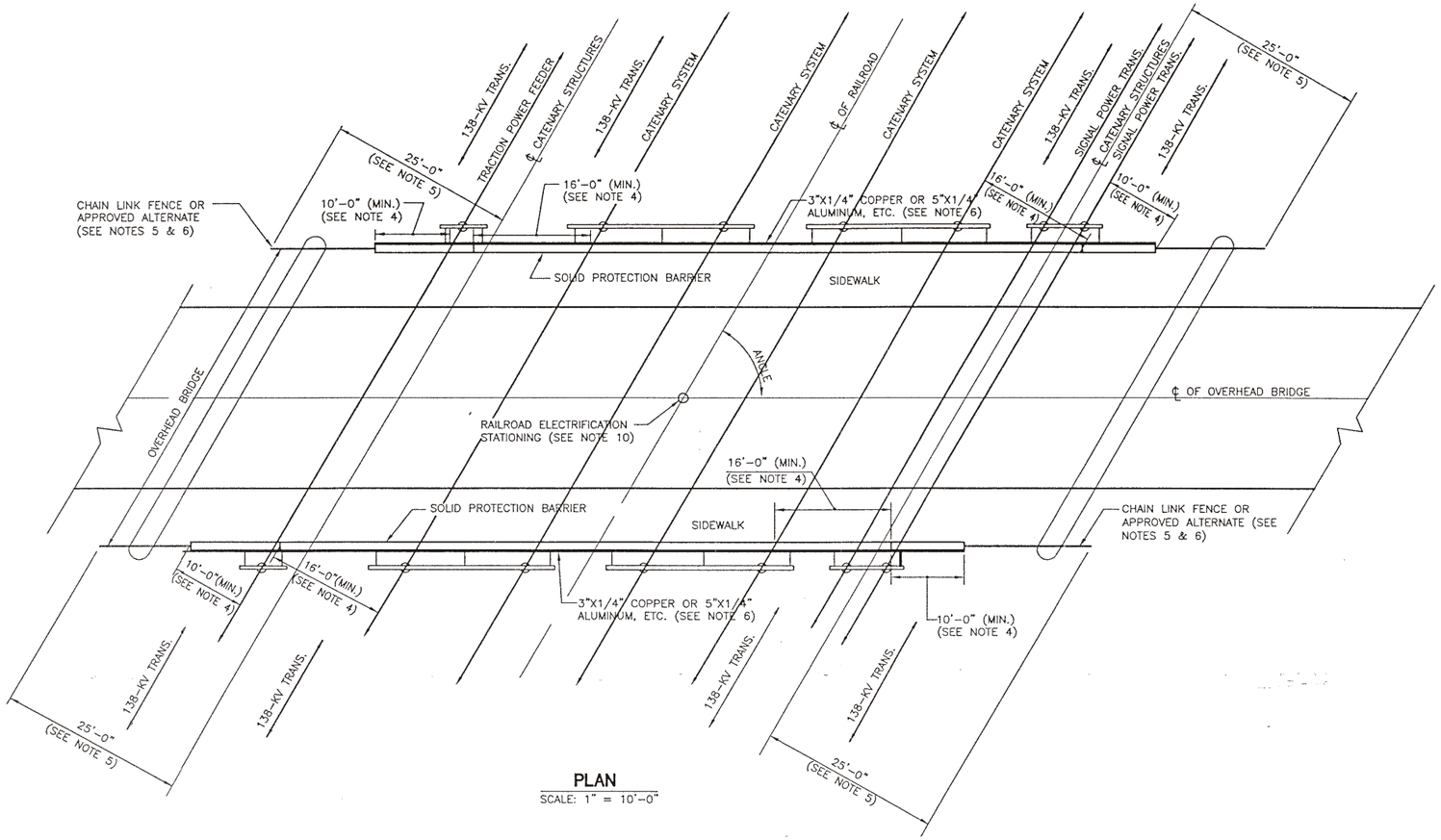
ELECTRIFIED TERRITORY O.H. BRIDGES

TEMPORARY PROTECTION SHIELD & BARRIERS

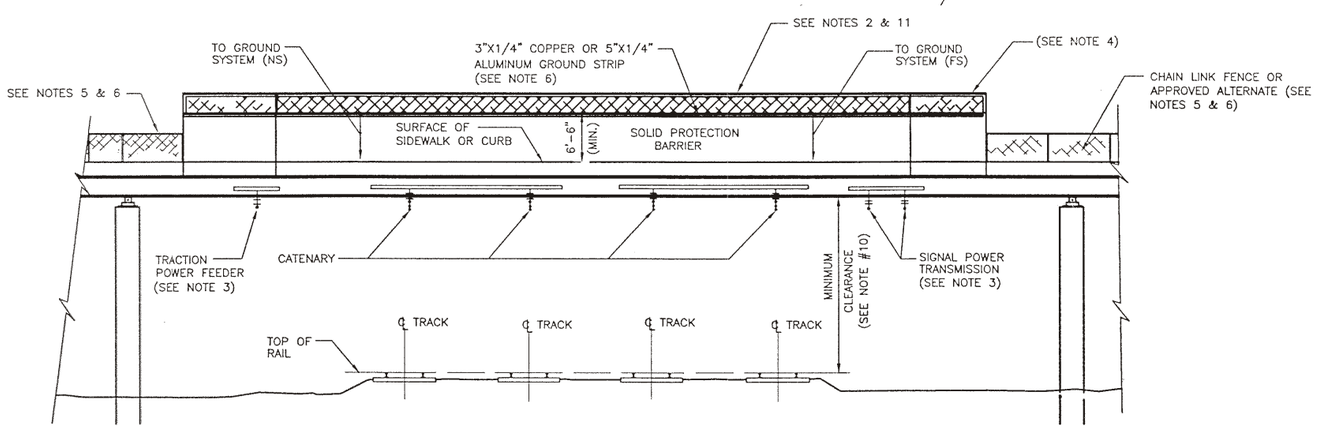
File No.:	3FF3B
Ref. No.:	ET–1447–D–2
Sheet No:	1 of 1

ET–1447–D

Designed: DPT | Drawn: BJT | Checked: MDI | Date: 01–13–00



PLAN
SCALE: 1" = 10'-0"



ELEVATION
SCALE: 1" = 10'-0"

GENERAL NOTES:

1. ANY MODIFICATION OF THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL BE SUBMITTED TO THE ELECTRIC TRACTION DEPARTMENT FOR APPROVAL.

2. OVERHEAD BRIDGES SHALL BE PROVIDED WITH 6'-6" HIGH SOLID PROTECTION BARRIERS ABOVE THE SURFACE OF THE SIDEWALK OR CURB TO PROTECT PEDESTRIANS AGAINST CONTACT WITH RAILROAD WIRES PASSING UNDER THE BRIDGE AND TO PREVENT DAMAGE TO THE WIRES. WHERE A WALKWAY EXISTS ON THE BRIDGE A CURVED FENCE SHALL BE INSTALLED ON TOP OF THE SOLID BARRIER OVER IT'S ENTIRE LENGTH. WHERE NO WALKWAY EXISTS THE FENCE SHALL BE STRAIGHT, (SEE SHEET 2 OF 2).

3. NORMALLY THE SIGNAL POWER TRANSMISSION WIRES AND THE TRACTION POWER FEEDER WIRES ARE LOCATED ABOVE THE BRIDGE. FOR THE ALTERNATE POSITION OF THESE WIRES UNDER THE BRIDGE, THE PROTECTIVE BARRIER SHALL EXTEND AS SPECIFIED IN NOTE NO.4.

4. THE PROTECTION BARRIER SHALL EXTEND AT LEAST 16 FEET BEYOND THE POINT AT WHICH ANY CATENARY WIRE PASSES UNDER THE BRIDGE; HOWEVER, THE MINIMUM DISTANCE FROM THE END OF THE PROTECTION BARRIER MEASURED TO A POINT OUTSIDE THE BRIDGE AND NORMAL TO THE WIRE SHALL BE 16 FEET.
THE PROTECTION BARRIER SHALL EXTEND AT LEAST TEN (10) FEET BEYOND THE POINT AT WHICH A SIGNAL POWER OR TRACTION POWER FEEDER WIRE PASSES UNDER THE BRIDGE; THE MINIMUM DISTANCE FROM THE END OF THE PROTECTION BARRIER MEASURED TO A POINT OUTSIDE THE BRIDGE AND NORMAL TO THE WIRE SHALL BE TEN (10) FEET.

5. WHERE HIGH VOLTAGE WIRES PASS OVER THE BRIDGE, A CHAIN LINK FENCE OR SUITABLE ALTERNATIVE, CAPABLE OF BEING ELECTRICALLY BONDED TO THE BARRIER AND RAIL RETURN SYSTEM, SHALL EXTEND FROM THE END OF THE SOLID BARRIER TO A POINT 25 FEET BEYOND AND NORMAL TO THE CENTERLINE OF THE STRUCTURES SUPPORTING THE WIRES ON EITHER SIDE OF THE BRIDGE.

6. NONMETALLIC BARRIERS SHALL BE PROVIDED WITH GROUND STRIPS, EITHER 3" X 1/4" COPPER OR 5" X 1/4" ALUMINUM. OTHER MATERIALS MAY BE USED SUBJECT TO THE APPROVAL OF THE ELECTRIC TRACTION DEPARTMENT. METALLIC BARRIERS SHALL BE BONDED AND GROUNDED BY A METHOD AND WITH MATERIALS APPROVED BY THE ELECTRIC TRACTION DEPARTMENT.

7. PROTECTION BARRIERS SHALL BE GROUNDED IN ACCORDANCE WITH DRAWING ET-1120-C, TYPICAL DETAILS FOR POWER BONDING OF STRUCTURES.

8. OVERHEAD BRIDGES WITH OPEN-FLOOR CONSTRUCTION REQUIRE SPECIAL PROTECTION. THE DESIGN OF THE PROPOSED PROTECTION SHALL BE SUBMITTED TO THE ELECTRIC TRACTION DEPARTMENT FOR APPROVAL.

9. WHERE LOCAL CONDITIONS WARRANT, THE DIMENSIONS SHOWN ON THIS DRAWING MAY BE MODIFIED WITH THE APPROVAL OF THE ELECTRIC TRACTION DEPARTMENT.

10. DESIGN DRAWINGS OF THE OVERHEAD BRIDGE SHALL SHOW MINIMUM CLEARANCE, ANGLE, AND RAILROAD ELECTRIFICATION STATIONING AS INDICATED ON THIS DRAWING.

11. (a) EXISTING PROTECTION BARRIERS ON BRIDGES OVER ELECTRIFIED TRACKS IN CLASS EIGHT (8) TERRITORY (GREATER THAN 125 MPH) WHERE THERE'S A DEMONSTRATED NEED SHALL BE RETROFITTED WITH THE CURVED OR STRAIGHT FENCE OVER THEIR ENTIRE LENGTH.

(b) A 9'-6" HIGH CHAIN LINK FENCE SHALL EXTEND FROM THE END OF THE SOLID PROTECTION BARRIER TO A POINT 16 FEET BEYOND THE CENTERLINE OF THE OUTERMOST ELECTRIFIED TRACK AS SPECIFIED IN NOTE FOUR (4) ABOVE. THE FENCE SHALL BE CURVED OR STRAIGHT PER NOTE (2).

THIS DRAWING SUPERSEDES P.R.R. DRAWING ET-1446-D-4

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No	Revisions	Date	By

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OFFICE OF
V.P., Chief Engineer
Engineering
National Railroad Passenger Corporation
30TH Street Station-Philadelphia, Pennsylvania 19104

Approved	Date
Chief Engineer Electric Traction - R. J. Verhelle /S/	6/7/99
Director Electric Traction Design - M. D. Insogna /S/	6/7/99

10" 0" 10" 20"
Scale: 1"= 10'-0"

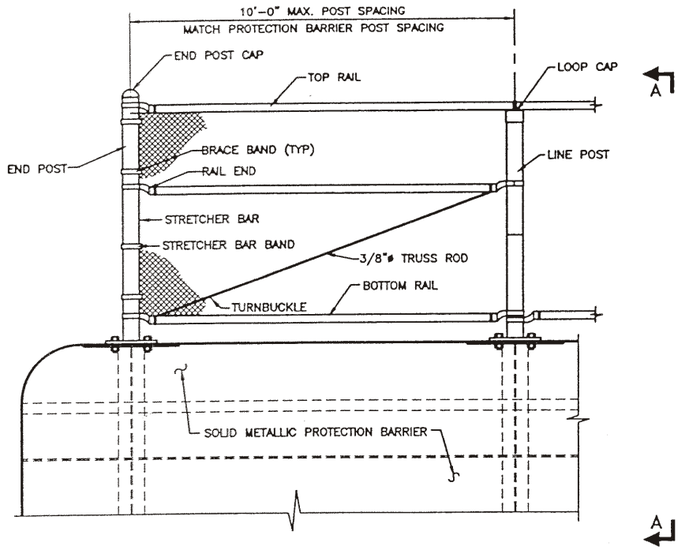
E.T. STANDARD
ELECTRIFIED TERRITORY O.H. BRIDGES TYPICAL PROTECTION BARRIER

Designed: MDI	Drawn: BJT	Checked: MDI	Date: 05-07-99

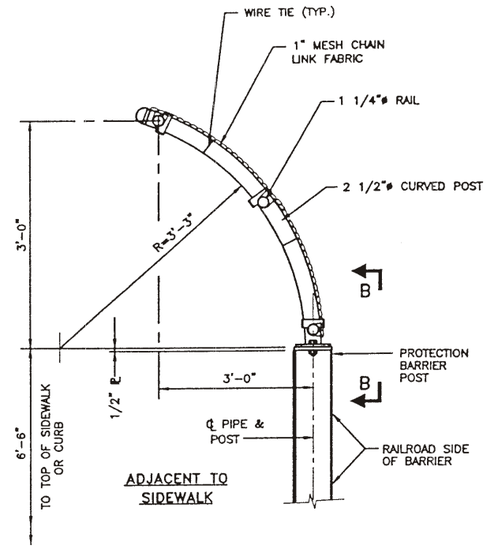
File No.:	3FF3B
Ref. No.:	ET-1446-D-4
Sheet No:	1 of 2

326
ET-1446-D

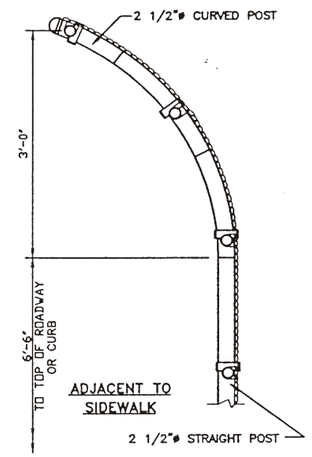
AMTRAK-ET-1446-D-S1.dwg SH 1 OF 2 - BJT - Plot ⊙ 1:120



ELEVATION VIEW OF CURVED FENCE ATTACHMENT
NO SCALE



SECTION A-A
NO SCALE

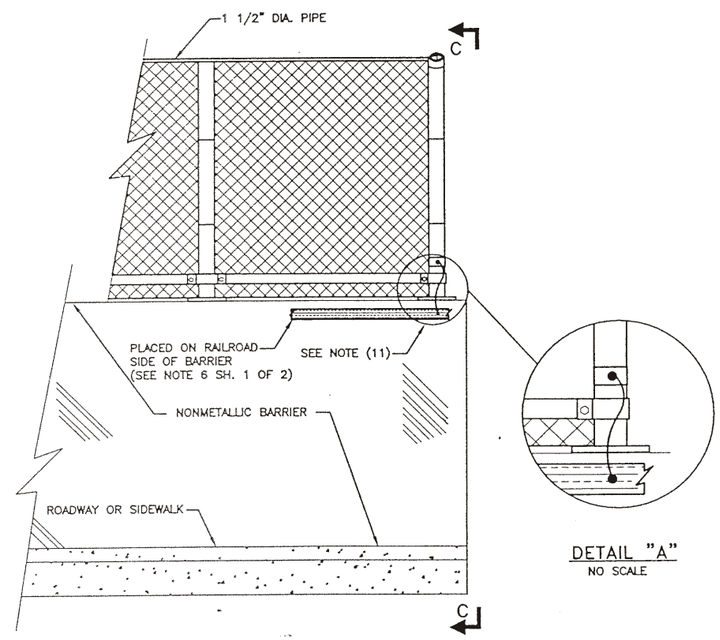


FENCING BEYOND BARRIER
(SEE NOTE 11b SH. 1 OF 2)
NO SCALE

WALKWAY SIDE OF BRIDGE

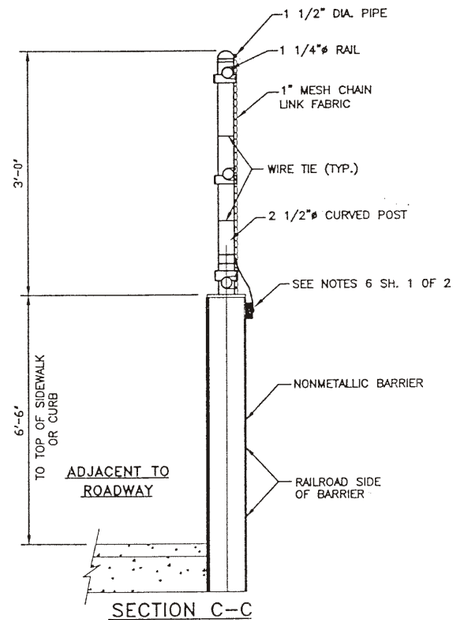
GENERAL NOTES:

1. BASE PLATE MATERIAL SHALL CONFORM TO ASTM SPECIFICATION A709, GRADE 36, LATEST ISSUE. (GALVANIZED)
2. POSTS SHALL BE 2 1/2"ø STANDARD WEIGHT PIPE. (GALVANIZED)
3. RAILS SHALL BE 1 1/4"ø STANDARD WEIGHT PIPE. (GALVANIZED)
4. CHAIN-LINK FENCE FABRIC SHALL BE NUMBER NINE (9) GAUGE ALUMINUM COATED, ONE (1) INCH MESH SIZE, DIAMOND SHAPED.
5. WIRE TIES SHALL BE STANDARD NUMBER NINE (9) GAUGE WIRE FOR RAILS AND NUMBER SIX (6) GAUGE WIRE FOR POSTS. (ALUMINUM COATED)
6. BOLTS SHALL BE 5/8"ø STAINLESS STEEL CONFORMING TO ASTM SPECIFICATION A325, LATEST ISSUE.
7. MATERIAL BASED ON PENN DOT. BC-701.
8. ALL WELDING SHALL CONFORM TO STRUCTURAL WELDING CODE WAS D1.5, LATEST EDITION. ALL WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED.
9. ALL GALVANIZING SHALL CONFORM TO ASTM SPECIFICATION A123, LATEST ISSUE.
10. THIS DRAWING CONFORMS TO STANDARD STRUCTURE PLAN SP3002. ALTERNATES SHALL BE SUBMITTED TO AMTRAK FOR APPROVAL.
11. NONMETALLIC SOLID PROTECTION BARRIERS WILL REQUIRE ADDITIONAL BONDING AND GROUNDING IN ACCORDANCE WITH AMTRAK STANDARDS. SEE DETAIL "A" BELOW. DETAILS SHALL BE FURNISHED BY THE ELECTRIFICATION CONSULTANT.
12. THE REQUIREMENTS FOR FENCING SHOWN ON THIS DRAWING, (ET-1446-D) SHEET 2 OF 2 ARE INTENDED TO DETER VANDALISM TO AMTRAK PROPERTY AND TO PREVENT INJURY TO AMTRAK EMPLOYEES AND PASSENGERS.
13. DETAILS OTHER THAN THOSE SHOWN ON THIS DRAWING SHALL BE PROVIDED BY THE A/E.



ELEVATION VIEW OF STRAIGHT FENCE ATTACHMENT
NO SCALE

DETAIL "A"
NO SCALE



SECTION C-C
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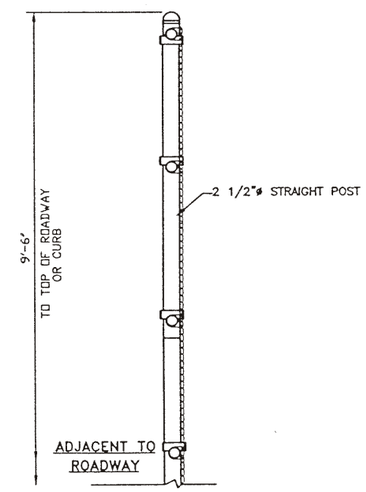
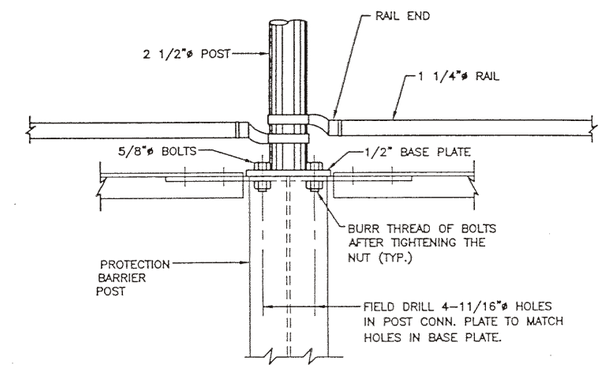
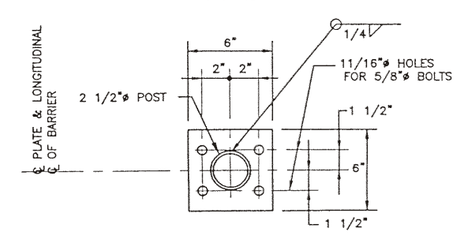


FENCING BEYOND BARRIER
(SEE NOTE 11b SHEET 1 OF 2)
NO SCALE



SECTION B-B
TYPICAL FOR METALLIC BARRIERS
NO SCALE



BASE PLATE DETAIL (TYPICAL)
NO SCALE

ROADWAY SIDE OF BRIDGE

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No	Revisions	Date	By

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OFFICE OF
V.P., Chief Engineer
Engineering
National Railroad Passenger Corporation
30TH Street Station-Philadelphia, Pennsylvania 19104

Approved	Date
Chief Engineer Electric Traction - R. J. Verhelle	6/7/99
S/S	
Director Electric Traction Design - M. D. Insogna	6/7/99
S/S	

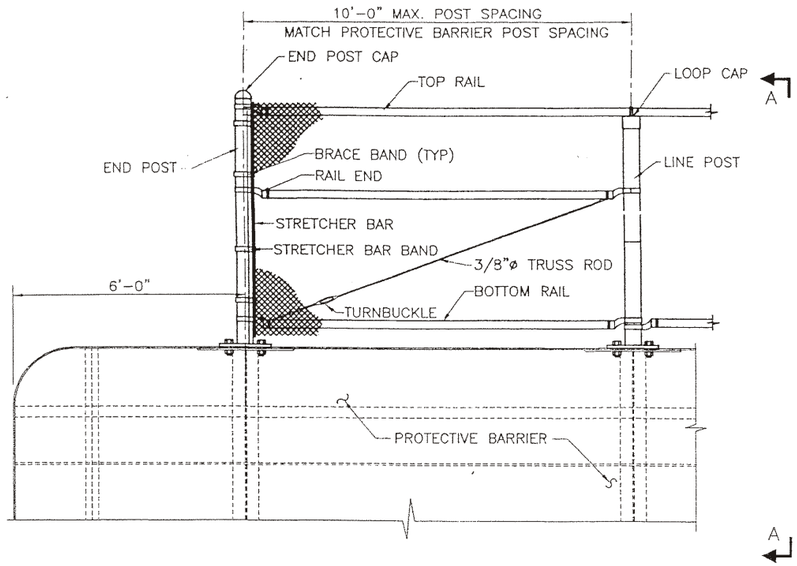
E. T. STANDARD
ELECTRIFIED TERRITORY O.H. BRIDGES
TYPICAL PROTECTION BARRIER

Designed: MDI | Drawn: BJT | Checked: MDI | Date: 05-07-99

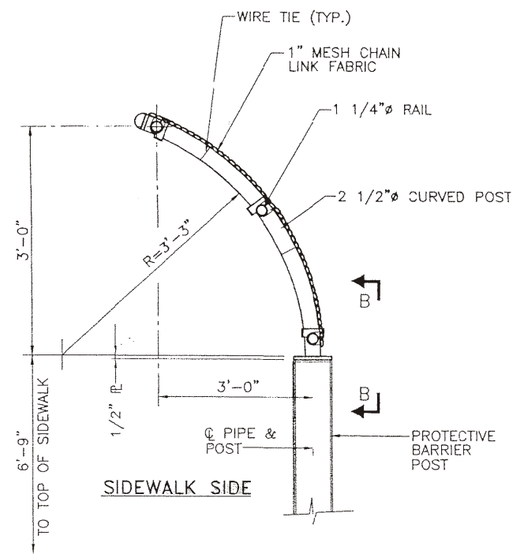
File No.:	3FF38
Ref. No.:	None
Sheet No:	2 of 2

ET-1446-D

File: ET-1446-D-S2.dwg (SH. 2 of 2) Plot @ 1:48



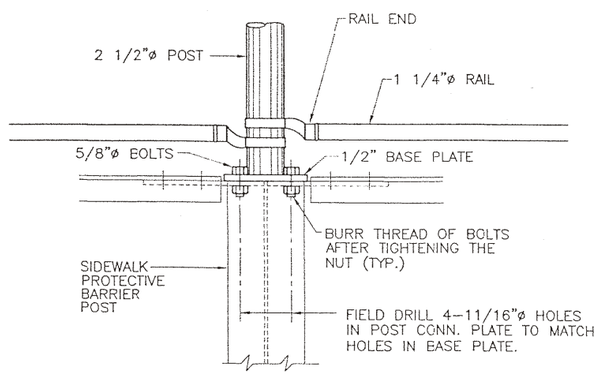
ELEVATION VIEW OF FENCE ATTACHMENT
NO SCALE



SECTION A-A
NO SCALE

NOTE

- BASE PLATE MATERIAL SHALL CONFORM TO ASTM SPECIFICATION A709, GRADE 36, LATEST ISSUE. (GALVANIZED)
- POST SHALL BE 2 1/2"ø STANDARD WEIGHT PIPE. (GALVANIZED)
- RAIL SHALL BE 1 1/4"ø STANDARD WEIGHT PIPE. (GALVANIZED)
- CHAIN-LINK FENCE FABRIC SHALL BE NO. 9 GAGE, ALUMINUM COATED, 1" MESH SIZE, DIAMOND SHAPED.
- WIRE TIES SHALL BE STANDARD NO. 9 GAGE WIRE FOR RAILS & NO. 6 GAGE WIRE FOR POSTS. (ALUMINUM COATED)
- BOLTS SHALL BE 5/8"ø STAINLESS STEEL CONFORMING TO ASTM SPECIFICATION A325, LATEST SSUE.
- MATERIAL BASED ON PADOT EC-701.
- ALL WELDING SHALL CONFORM TO STRUCTURAL WELDING CODE AWS D1.5, LATEST EDITION. ALL WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. ALL WELDERS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS STRUCTURAL WELDING CODE.
- ALL GALVANIZING SHALL CONFORM TO ASTM SPECIFICATION A123, LATEST ISSUE.



SECTION B-B
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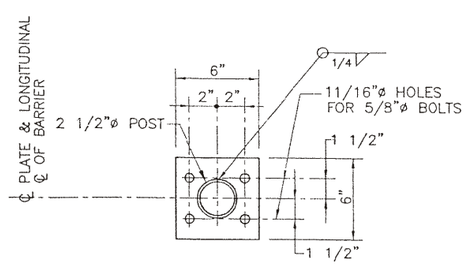

BASE PLATE DETAIL
NO SCALE

SP3002.DWG

Plot Scale: 1/4"

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Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Phila., PA | Date: 4/3/00 | Approved: J.J. Rudolph

No.	Revisions	Date	By

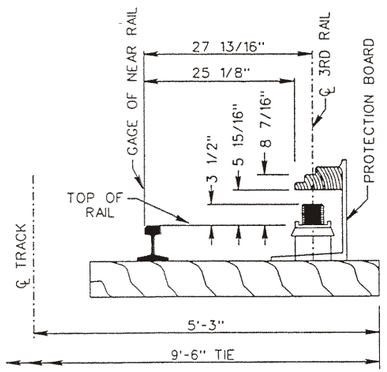
STANDARD STRUCTURES PLAN

CURVED PROTECTIVE FENCE

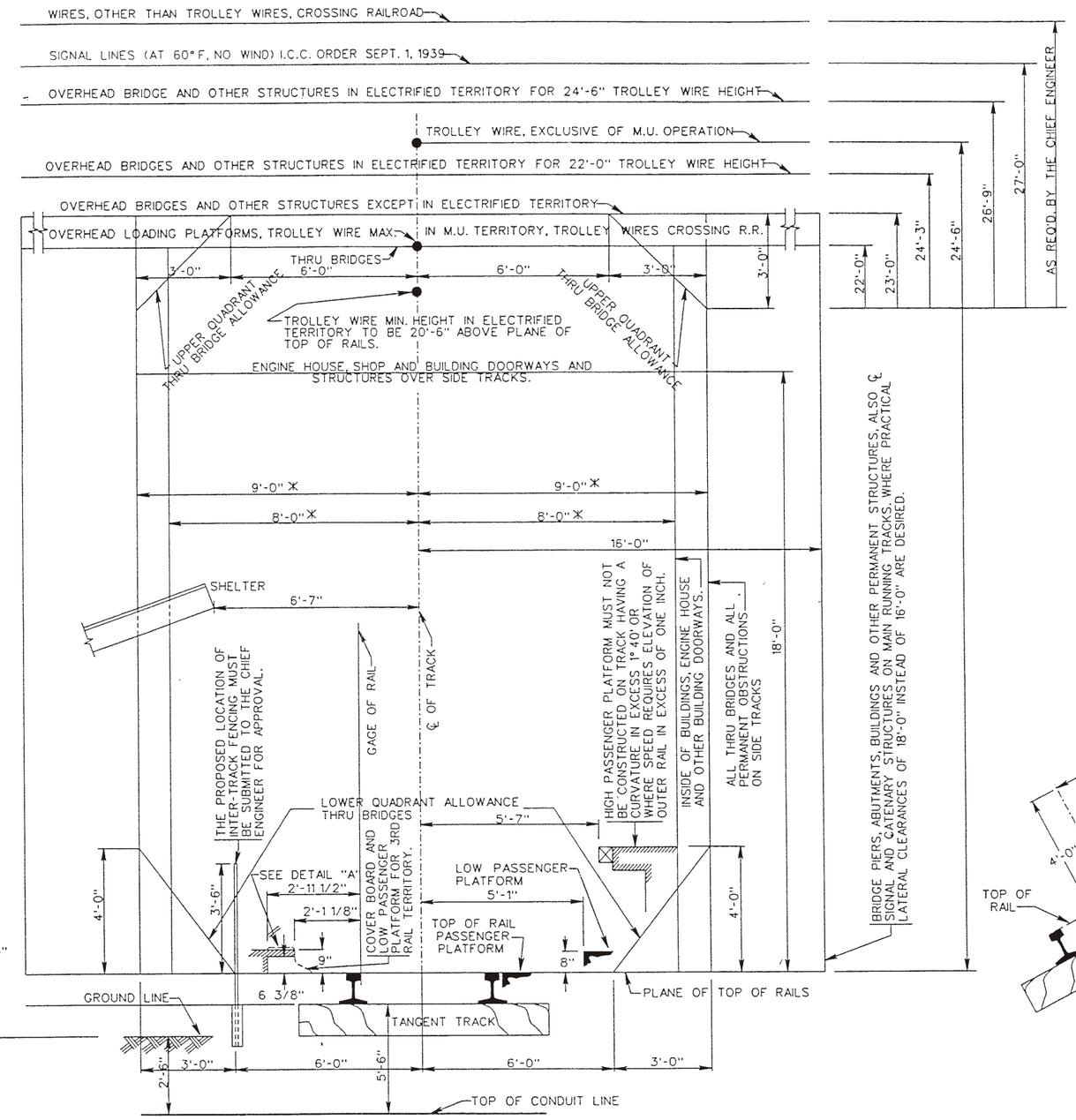
Designed: VMK | Drawn: JLM | Checked: VMK | Date: 04-27-98

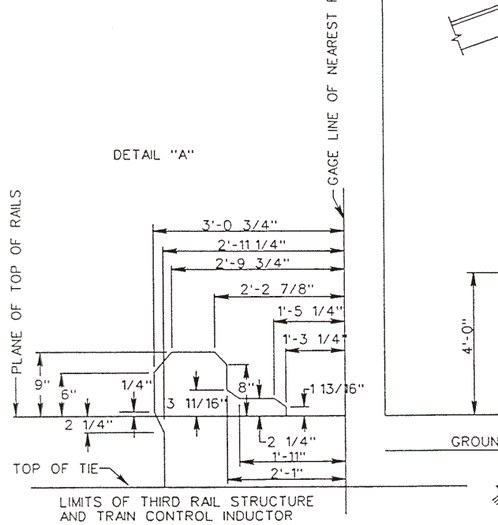
Dwg. No. 328 SP3002

Sheet No. 1 OF 1



LOCATION OF OVER-RUNNING 3RD. RAIL, BRACKET AND PROTECTION BOARD.





NOTES:

CLEARANCE REQUIREMENTS SHOWN ON THIS PLAN APPLY ONLY TO NEW CONSTRUCTION OR RECONSTRUCTION. EXISTING STRUCTURES AND TRACKS MAY BE MAINTAINED AND EXTENDED AT PRESENT CLEARANCES. UNLESS OTHERWISE REQUIRED BY LOCAL OR STATE AUTHORITIES.

STRUCTURES MUST NOT BE LOCATED NEARER TO THE TRACK THAN THE MINIMUM CLEARANCE LIMITS SHOWN ON THIS PLAN AND THESE DISTANCES SHOULD BE EXCEEDED WHERE POSSIBLE. CONSIDERATION SHOULD BE GIVEN TO THE PROBABILITY OF INCREASED DISTANCE BETWEEN TRACK CENTER LINES, WIDENING ROADBED SHOULDERS AND WIDENING AND DEEPENING DITCHES, AND THE STRUCTURES SHOULD BE LOCATED ACCORDINGLY.

FOR STANDARD DISTANCES BETWEEN TRACK CENTER LINES AND THE SPACING OF TRACKS WHERE INTERTRACK CLEARANCE - LIMITING OBJECTS ARE LOCATED, SEE MW-1000 SPECIFICATIONS FOR INSPECTION, CONSTRUCTION AND MAINTENANCE OF TRACK

WHERE PHYSICAL CONDITIONS IMPOSE INSURMOUNTABLE RESTRICTIONS, NECESSITATING CLEARANCES CLOSER THAN THOSE SPECIFIED. THE MATTER MUST BE SUBMITTED TO THE CHIEF ENGINEER FOR ANY MODIFICATIONS, AND ALSO TO THE LOCAL OR STATE AUTHORITIES IF NECESSARY.

MINIMUM CLEARANCES SHOWN ON THIS PLAN ARE FOR TANGENT LEVEL TRACK.

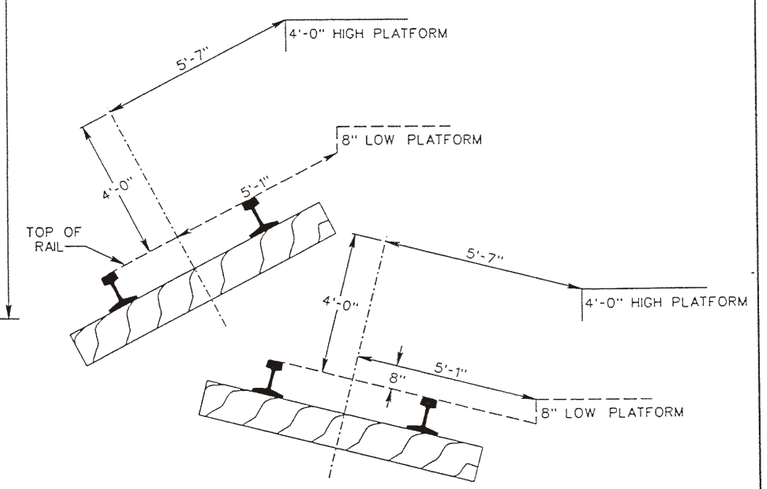
FOR CURVED TRACK THE FOLLOWING PROVISIONS APPLY.

VERTICAL - MEASURED VERTICALLY ABOVE HIGH RAIL EXCEPT FOR PASSENGER AND FREIGHT PLATFORMS WHICH ARE MEASURED PERPENDICULAR TO THE PLANE OF TOP OF RAIL.

LATERAL - OUTSIDE AND INSIDE CLEARANCES SHALL BE MEASURED RADIALLY AND (EXCEPT FOR LOW PASSENGER PLATFORMS ON CURVES 13° OR LESS) HORIZONTALLY AND INCREASED BY 1 1/2 INCHES PER DEGREE OF CURVATURE OVER THAT SHOWN FOR TANGENT TRACK (EXCEPT LOW PASSENGER PLATFORMS ON CURVES 13° OR LESS). IN ADDITION, THE INSIDE CLEARANCE FOR SUPER ELEVATED TRACK SHALL BE FURTHER INCREASED BY 1 INCH FOR EACH 1 INCH OF SUPERELEVATION FOR EACH 5 FEET OF HEIGHT ABOVE TOP OF LOW RAIL.

LOW PASSENGER PLATFORMS WILL NOT BE COMPENSATED FOR CURVATURE UP TO 8°.

FOR CUVATURE IN EXCESS OF 8°, LOW PLATFORM SHOULD BE DESIGNED AT TOP OF RAIL ELEVATION AND EXTENDED TO THE FIELD SIDE OF THE NEAR RAIL.



VERTICAL MEASUREMENT ON CURVED TRACK

* FOR STATE CLEARANCE REQUIREMENTS, SEE A.R.E.M.A. MANUAL, CHAPTER 28, SECTION 3.6, LEGAL CLEARANCE REQUIREMENTS BY STATES.

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OFFICE OF THE
CHIEF ENGINEER OF TRACK

Philo., PA Date: April 20, 2000 Approved:

No.	Revisions	Date	By

STANDARD TRACK PLAN
MINIMUM ROADWAY CLEARANCES

Designed: Amtrak | Drawn: TDI-SLC | Checked: NJS | Date: 5-11-99

Dwg. No. AM70050G

Sheet No. 1 of 1

ATTACHMENT A
Temporary Permit to Enter Upon Property

SPECIFICATIONS REGARDING SAFETY AND PROTECTION OF RAILROAD TRAFFIC AND PROPERTY (Revised 2/3/06)

National Railroad Passenger Corporation (Railroad)

In the following Specifications, "Railroad" shall mean the National Railroad Passenger Corporation; "Chief Engineer" shall mean Railroad's Chief Engineer and/or his duly authorized representative; "Permittee" shall mean the party so identified in the Temporary Permit to Enter Upon Property; and "Contractor" shall mean the entity retained by the Permittee or the entity with whom Railroad has contracted in a Preliminary Engineering Agreement or Force Account Agreement, as applicable.

(1) Pre-Entry Meeting: Before entry of Permittee and/or Contractors onto Railroad's property, a pre-entry meeting shall be held at which time Permittee and/or Contractors shall submit for written approval of the Chief Engineer, plans, computations and a detailed description of proposed methods for accomplishing the work, including methods for protecting Railroad's traffic. Any such written approval shall not relieve Permittee and/or Contractor of their complete responsibility for the adequacy and safety of their operations.

(2) Rules, Regulations and Requirements: Railroad traffic shall be maintained at all times with safety and continuity, and Permittee and/or Contractors shall conduct their operations in compliance with all rules, regulations, and requirements of Railroad (including these Specifications) with respect to any work performed on, over, under, within or adjacent to Railroad's property. Permittee and/or Contractors shall be responsible for acquainting themselves with such rules, regulations and requirements. Any violation of Railroad's safety rules, regulations, or requirements shall be grounds for the immediate suspension of Permittee and/or Contractor work, and the re-training of all personnel, at Permittee's expense.

(3) Maintenance of Safe Conditions: If tracks or other property of Railroad are endangered during the work, Permittee and/or Contractor shall immediately take such steps as may be directed by Railroad to restore safe conditions, and upon failure of Permittee and/or Contractor to immediately carry out such direction, Railroad may take whatever steps are reasonably necessary to restore safe conditions. All costs and expenses of restoring safe conditions, and of repairing any damage to Railroad's trains, tracks, right-of-way or other property caused by the operations of Permittee and/or Contractors, shall be paid by Permittee.

(4) Protection in General: Permittee and/or Contractors shall consult with the Chief Engineer to determine the type and extent of protection required to ensure safety and continuity of railroad traffic. Any Inspectors, Track Foremen, Track Watchmen, Flagmen, Signalmen, Electric Traction Linemen, or other employees deemed necessary by Railroad, at its sole discretion, for protective services shall be obtained from Railroad by Permittee and/or Contractors. The cost of same shall be paid directly to Railroad by Permittee. The provision of such employees by Railroad, and any other precautionary measures taken by Railroad, shall not relieve Permittee and/or Contractors from their complete responsibility for the adequacy and safety of their operations.

(5) Protection for Work Near Electrified Track or Wire: Whenever work is performed in the vicinity of electrified tracks and/or high voltage wires, particular care must be exercised, and Railroad's requirements regarding clearance to be maintained between equipment and tracks and/or energized wires, and otherwise regarding work in the vicinity of electrified tracks, must be strictly observed. No employees or equipment will be permitted to work near overhead wires, except when protected by a Class A employee of Railroad. Permittee and/or Contractors must supply an adequate length of grounding cable (4/0 copper with approved clamps) for each piece of equipment working near or adjacent to any

overhead wire.

(6) Fouling of Track or Wire: No work will be permitted within twenty-five (25) feet of the centerline of track or the energized wire or have potential of getting within twenty-five (25) feet of track wire without the approval of the Chief Engineer's representative. Permittee and/or Contractors shall conduct their work so that no part of any equipment or material shall foul an active track or overhead wire without the written permission of the Chief Engineer's representative. When Permittee and/or Contractors desire to foul an active track, they must provide the Chief Engineer's representative with their site-specific work plan a minimum of twenty-one (21) working days in advance, so that, if approved, arrangements may be made for proper protection of Railroad. Any equipment shall be considered to be fouling a track or overhead wire when located (a) within fifteen (15) feet from the centerline of the track or within fifteen (15) feet from the wire, or (b) in such a position that failure of same, with or without a load, would bring it within fifteen (15) feet from the centerline of the track or within fifteen (15) feet from the wire and requires the presence of the proper Railroad protection personnel.

If acceptable to the Chief Engineer's representative, a safety barrier (approved temporary fence or barricade) may be installed at fifteen (15) feet from centerline of track or overhead wire to afford the Permittee and/or Contractor with a work area that is not considered fouling. Nevertheless, protection personnel may be required at the discretion of the Chief Engineer's representative.

(7) Track Outages: Permittee and/or Contractors shall verify the time and schedule of track outages from Railroad before scheduling any of their work on, over, under, within, or adjacent to Railroad's right-of-way. Railroad does not guarantee the availability of any track outage at any particular time. Permittee and/or Contractors shall schedule all work to be performed in such a manner as not to interfere with Railroad operations. Permittee and/or Contractors shall use all necessary care and precaution to avoid accidents, delay or interference with Railroad's trains or other property.

(8) Demolition: During any demolition, Contractor must provide horizontal and vertical shields, designed by a Professional Engineer registered in the state in which the work takes place. These shields shall be designed in accordance with the Railroad's specifications and approved by the Railroad, so as to prevent any debris from falling onto the Railroad's right-of-way or other property. A grounded temporary vertical protective barrier must be provided if an existing vertical protective barrier is removed during demolition. In addition, if any openings are left in an existing bridge deck, a protective fence must be erected at both ends of the bridge to prohibit unauthorized persons from entering onto the bridge.

Ballasted track structure shall be kept free of all construction and demolition debris.

(9) Equipment Condition: All equipment to be used in the vicinity of operating tracks shall be in "certified" first-class condition so as to prevent failures that might cause delay to trains or damage to Railroad's property. No equipment shall be placed or put into operation near or adjacent to operating tracks without first obtaining permission from the Chief Engineer's representative. Under no circumstances shall any equipment or materials be placed or stored within twenty-five (25) feet from the centerline of an outside track, except as approved by the Site Specific Safety Work Plan. To ensure compliance with this requirement, Permittee and/or Contractors must establish a twenty-five (25) foot foul line prior to the start of work by either driving stakes, taping off or erecting a temporary fence, or providing an alternate method as approved by the Chief Engineer's representative. Permittee and/or Contractors will be issued warning stickers which must be placed in the operating cabs of all equipment as a constant reminder of the twenty-five (25) foot clearance envelope.

(10) Storage of Materials and Equipment: No material or equipment shall be stored on Railroad's property without first having obtained permission from the Chief Engineer. Any such storage will be on the condition that Railroad will not be liable for loss of or damage to such materials or equipment from any cause.

If permission is granted for the storage of compressed gas cylinders on Railroad property, they shall be stored a minimum of 25 feet from the nearest track in an approved lockable enclosure. The enclosure shall be locked when the Permittee and/or Contractor is not on the project site.

(11) Condition of Railroad's Property: Permittee and/or Contractors shall keep Railroad's property clear of all refuse and debris from its operations. Upon completion of the work, Permittee and/or Contractors shall remove from Railroad's property all machinery, equipment, surplus materials, falsework, rubbish, temporary structures, and other property of Permittee and/or Contractors and shall leave Railroad's property in a condition satisfactory to the Chief Engineer.

(12) Safety Training: All individuals, including representatives and employees of Permittee and/or Contractors, before entering onto Railroad's property or coming within twenty-five (25) feet of the centerline of the track or energized wire shall first attend Railroad's Safety Orientation Class. The Safety Orientation Class will be provided by Railroad's Safety Representative at Permittee's expense. A photo I.D. will be issued and must be worn/displayed while on Railroad property. All costs of complying with Railroad's safety training shall be at the sole expense of Permittee. Permittee and/or Contractors shall appoint a qualified person as their Safety Representative. He/she shall continuously ensure that all individuals comply with Railroad's safety requirements. All safety training records shall be maintained with the site specific work plan.

(13) No Charges to Railroad: It is expressly understood that neither these Specifications, nor any document to which they are attached, include any work for which Railroad is to be billed by Permittee and/or Contractors, unless Railroad gives a written request that such work be performed at Railroad's expense.

ATTACHMENT B
Temporary Permit to Enter Upon Property

INSURANCE REQUIREMENTS
NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK)
CHICAGO UNION STATION COMPANY (CUSCO)
WASHINGTON TERMINAL COMPANY (WTC)
Revised as of February 2005

DEFINITIONS

In these Insurance Requirements "Railroad" or "Amtrak" shall mean National Railroad Passenger Corporation and as appropriate, its subsidiaries Chicago Union Station Company ("CUSCO") and Washington Terminal Company ("WTC"). "Contractor" shall mean the party identified as "Permittee" in the Temporary Permit to Enter Upon Property Agreement or the party with whom Amtrak has contracted in the Preliminary Engineering Agreement or Force Account Agreement, as well as its officers, employees, agents, servants, contractors, subcontractors, or any other person acting for or by permission of Permittee or Contractor. "Operations" shall mean activities of or work performed by Contractor. "Agreement" shall mean the Temporary Permit to Enter Upon Property Agreement, Preliminary Engineering Agreement, or Force Account Agreement, as applicable.

INSURANCE

Contractor shall procure and maintain, at its sole cost and expense, the types of insurance specified below. Contractor shall evidence such coverage by submitting to Amtrak the original Railroad Protective Liability Policy and certificates of insurance evidencing the other required insurance, prior to commencement of Operations. All insurance shall be procured from insurers authorized to do business in the jurisdiction(s) where the Operations are to be performed. Contractor shall require all subcontractors to carry the insurance required herein, or Contractor may, at its option, provide the coverage for any or all subcontractors, provided the evidence of insurance submitted by Contractor to Amtrak so stipulates. The insurance shall provide for thirty (30) days prior written notice to Amtrak in the event coverage is substantially changed, canceled or non-renewed. All insurance shall remain in force until all Operations are satisfactorily completed (unless otherwise noted below), all Contractor personnel and equipment have been removed from Railroad property, and any work has been formally accepted. Contractor's failure to comply with the insurance requirements set forth herein shall constitute a violation of the Agreement.

Workers' Compensation Insurance complying with the requirements of the statutes of the jurisdiction(s) in which the Operations will be performed, covering all employees of Contractor. Employer's Liability coverage with limits of not less than $1 million each accident or illness shall be included.

In the event the Operations are to be performed on or over navigable waterways, a Longshoremen and Harbor Workers' Compensation Act Endorsement and a Maritime Coverage Endorsement are to be added, including coverage for wages, transportation, maintenance and cure.

Commercial General Liability Insurance covering liability of Contractor with respect to all operations to be performed and all obligations assumed by Contractor under the terms of the Agreement. Products-completed operations, independent contractors and contractual liability coverages are to be included, with the contractual exclusion related to construction/demolition activity within fifty (50) feet of the railroad and any Explosion/Collapse/Underground (X-C-U) exclusions deleted. The policy shall name National Railroad Passenger Corporation, as appropriate CUSCO or WTC, and all commuter agencies and railroads that operate over the property or tracks at issue as additional insureds with respect to the operations to be performed. Coverage under this policy shall have limits of liability of not less than $2

million each occurrence, combined single limit, for bodily injury (including disease or death), personal injury and property damage (including loss of use) liability.

Automobile Liability Insurance covering the liability of Contractor arising out of the use of any vehicles which bear, or are required to bear, license plates according to the laws of the jurisdiction in which they are to be operated, and which are not covered under Contractor's Commercial General Liability insurance. The policy shall name National Railroad Passenger Corporation, as appropriate CUSCO or WTC, and all commuter agencies and railroads that operate over the property or tracks at issue as additional insureds with respect to the operations to be performed. Coverage under this policy shall have limits of liability of not less than $1 million each occurrence, combined single limit, for bodily injury and property damage (including loss of use) liability.

In the event Contractor or any subcontractor will be transporting and/or disposing of any hazardous material or waste off of the jobsite, a MCS-90 Endorsement is to be added to this policy and the limits of liability are to be increased to $5 million each occurrence.

Railroad Protective Liability (RRP) Insurance covering the Operations performed by Contractor or any subcontractor within fifty (50) feet vertically or horizontally of railroad tracks. The current ISO Occurrence Form (claims-made forms are unacceptable) in the name of the National Railroad Passenger Corporation (and as appropriate CUSCO or WTC, and all commuter agencies and railroads that operate over the property or tracks at issue) shall have limits of liability of not less than $2 million each occurrence, combined single limit, for Coverages A and B, for losses arising out of injury to or death of all persons, and for physical loss or damage to or destruction of property, including the loss of use thereof. A $6 million annual aggregate shall apply. Additionally, Policy Endorsement CG 28 31 - Pollution Exclusion Amendment, is required to be endorsed onto the policy. Further, "Physical Damage to Property" as defined in the policy is to be deleted and replaced by the following endorsement:

> "It is agreed that ‘Physical Damage to Property’ means direct and accidental loss of or damage to all property owned by any named insured and all property in any named insured’s care, custody and control arising out of the acts or omissions of the contractor named on the Declarations.”

The original RRP Liability Insurance Policy must be submitted to Amtrak prior to commencement of Operations.

In the alternative, and upon Amtrak’s approval, Contractor may elect to have Amtrak insure the Operations under its Blanket RRP Liability Insurance Program. The premium, which shall be determined by the rate schedule promulgated by the insurer in effect as of the effective date of the Agreement, shall be prepaid by Contractor. In the event Contractor and Amtrak agree to insure the Operations under Amtrak’s RRP Program, Contractor shall include the RRP premium of $_____ in addition to the Permit Fee, and send its check made payable to National Railroad Passenger Corporation to the individual set forth below prior to commencement of Operations.

All Risk Property Insurance covering physical loss or damage to all property used in the performance of the Operations. The policy shall have limits of liability adequate to cover all property of Contractor (including personal property of others in Contractor's care, custody or control) and shall include a waiver of subrogation against Amtrak, as appropriate CUSCO or WTC, and all commuter agencies and railroads that operate over the property or tracks at issue.

Contractor’s Pollution Liability Insurance covering the liability of Contractor arising out of any sudden and/or non-sudden pollution or impairment of the environment, including clean-up costs and defense, that arise from the Operations of Contractor with National Railroad Passenger Corporation, as appropriate CUSCO or WTC, and all commuter agencies and railroads that operate over the property or tracks at issue named as additional insureds. Coverage under this policy shall have limits of liability of not less than $2 million each occurrence with no sunset clause.

Pollution Legal Liability Insurance is required if any hazardous material or waste is to be transported or disposed of off of the jobsite. Contractor, its subcontractor or transporter, as well as the disposal site operator, shall maintain this insurance. Contractor shall designate the disposal site, and must provide a certificate of insurance from the disposal facility to Amtrak. The policy shall name National Railroad Passenger Corporation, as appropriate CUSCO or WTC, and all commuter agencies and railroads that operate over the property or tracks at issue as additional insureds, with limits of liability of not less than $2 million per claim.

Further, any additional insurance coverages, permits, licenses and other forms of documentation required by the United States Department of Transportation, the Environmental Protection Agency and/or related state and local laws, rules and regulations shall be obtained by Contractor.

Professional Liability Insurance covering the liability of Contractor for any and all errors or omissions committed by Contractor in the performance of the Operations, regardless of the type of damages. The coverage shall be maintained during the term of the Operations, and for at least three (3) years following completion thereof. The policy shall have limits of liability of not less than $2 million per claim and in the annual aggregate. The policy may contain a deductible of a maximum of two hundred fifty thousand dollars ($250,000), but in such case the deductible is the sole responsibility of Contractor, and no portion of such deductible is the responsibility of Amtrak.

Contractor may elect to satisfy this requirement through the addition of endorsement CG2279 "Incidental Professional Liability" to its CGL policy.

Claims-Made Insurance - If any liability insurance specified above shall be provided on a claims-made basis, then in addition to coverage requirements above, such policy shall provide that:

1. The retroactive date shall coincide with or precede Contractor's start of Operations (including subsequent policies purchased as renewals or replacements);

2. The policy shall allow for the reporting of circumstances or incidents that might give rise to future claims;

3. Contractor will use its best efforts to maintain similar insurance under the same terms and conditions that describe each type of policy listed above (e.g., Commercial General Liability, Professional Liability) for at least three (3) years following completion of the Operations; and

4. If insurance is terminated for any reason, Contractor will purchase an extended reporting provision of at least two (2) years to report claims arising from Operations.

Contractor shall furnish evidence of insurance as specified above at least fifteen (15) days prior to commencing Operations. THESE DOCUMENTS SHALL INCLUDE A DESCRIPTION OF THE PROJECT AND THE LOCATION ALONG THE RAILROAD RIGHT-OF-WAY (typically given by milepost designation) IN ORDER TO FACILITATE PROCESSING. The fifteen (15) day advance notice of coverage may be waived by Amtrak in situations where such waiver will benefit Amtrak, but under no circumstances will Contractor begin Operations without providing satisfactory evidence of insurance as approved by Amtrak. Such evidence of insurance coverage shall be sent to:

Director Project Initiation & Development
National Railroad Passenger Corporation
30th Street Station, Mail Box 64
Philadelphia, PA 19104-2817

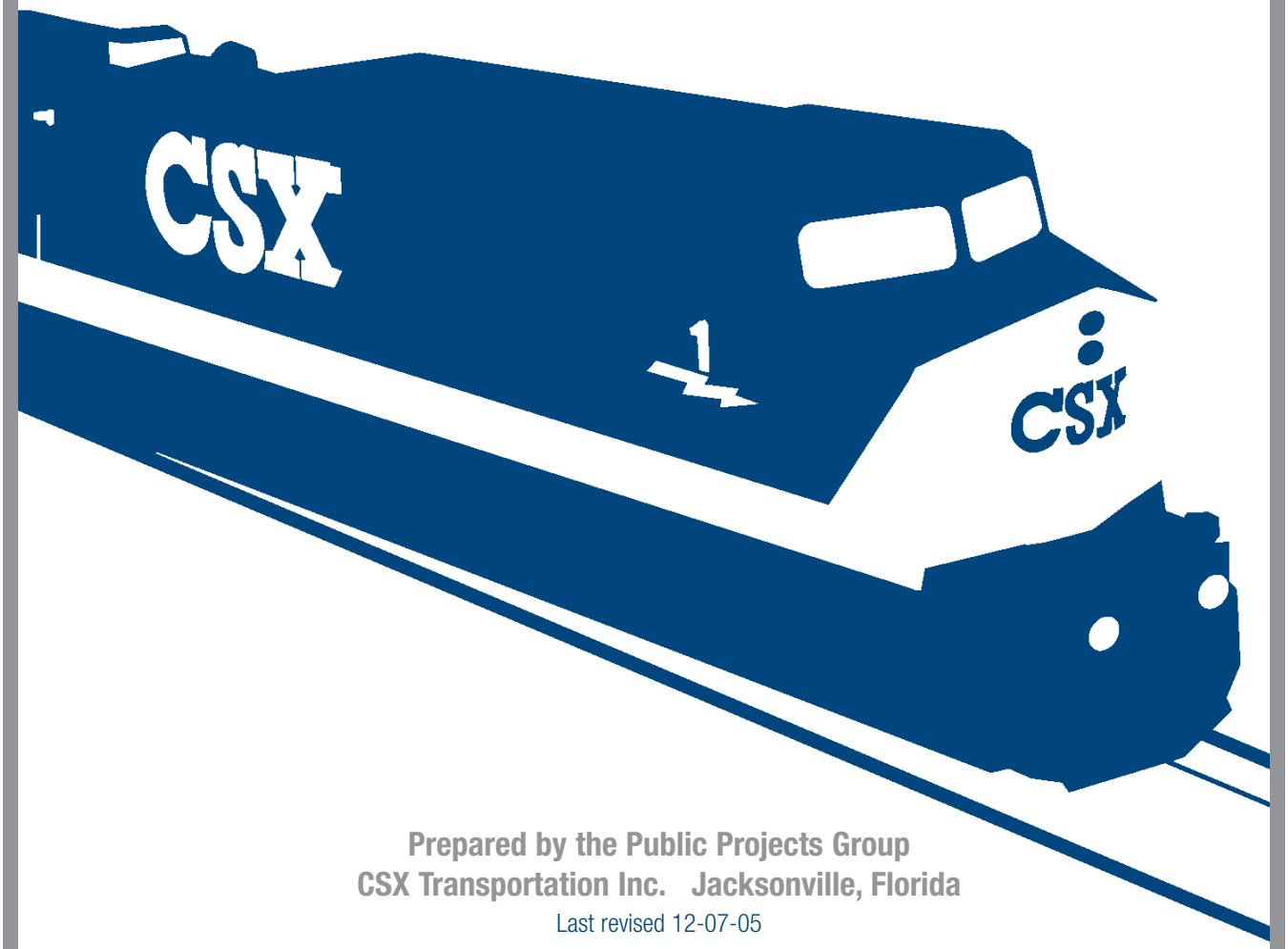
EXHIBIT J
Railroad Requirements - CSXT

CSX TRANSPORTATION

Public Project Information

For Construction and Improvement Projects

That May Involve the Railroad



Prepared by the Public Projects Group
CSX Transportation Inc. Jacksonville, Florida

Last revised 12-07-05

To the Communities, Businesses and Government Agencies We Serve:

CSX Corporation and its business units CSX Transportation (CSXT) and CSX Intermodal (CSXI) provide rail and intermodal service in 23 states, the District of Columbia and two Canadian Provinces. CSXT operates more than 1,200 trains daily, over 21,000 miles of track, helping America maintain the strongest and most productive transportation system in the world.

In addition to CSXT's vitally important customer service responsibilities, the company wants to be a good neighbor in the states and communities where we operate. That is why we have prepared this information and companion Internet web pages (the Public Projects Internet Toolkit at: www.csx.com.) We want to make it easier for communities to work with us when they have construction and improvement projects that may involve the CSXT railroad.

CSXT's Public Projects team is involved in a wide variety of projects initiated by government agencies, local businesses and others. Accurate and timely communication of information between CSXT and these parties improves planning, relationships and successful completion of projects.

The information in this manual and the companion Internet web pages is intended to improve communication and cooperation on construction and improvement projects that may involve the CSXT rail property. These tools explain important steps CSXT must follow including information required in connection with any public project proposal.

CSXT places the highest priority on safety – for its employees and for the public. Because CSXT is a business and its shareholders ultimately own its rail system, the company must also give careful consideration to anything that could adversely affect customer service, compensation for use of railroad property, and risk to railroad operation.

The Principal Engineers Public Projects are the initial contact for CSXT and are assigned territories by State. Please contact them directly about public projects using the information provided. General Engineering Consultants (GEC) provide additional engineering services to assist CSXT in managing public projects.

CSXT hopes the information and procedures provided here will make it easier for us to work together.

Eric G. Peterson, P. E.
Assistant Chief Engineer
Public Projects

CSXT Public Project
Policy Information

Table of Contents

		Revision Date
Information Covered in this Manual	2	06-23-05
CSXT Public Projects Group Contacts	3	07-22-05
Additional CSXT Resources and Contacts	4	12-07-05
CSXT Staff Engineers and Division Map	5	12-07-05
Requirements for Preliminary Engineering	7	06-23-05
Payment of CSXTs Cost and Expenses	9	06-23-05
Entry onto CSXT Property	10	06-23-05
Public Road Crossing Openings and Closures	12	06-23-05
Parallel Road Construction	14	06-23-05
Highway-Rail Grade Crossing Warning Devices Selection	15	06-23-05
Quiet Zone Proposals	17	06-23-05
Bicycle/Pedestrian Pathways and Crossings	20	06-23-05
Painting CSXT Bridges to Improve Appearance	21	06-23-05
Painting and Cleaning of Bridges	23	06-23-05
Overhead and Undergrade Bridge Criteria	24	06-23-05
Insurance Requirements for Public Projects	25	07-21-05
Construction Monitoring Requirements	27	06-23-05
Flagging for Activities near Railroad Property and Tracks	28	06-23-05
Highway-Rail Grade Crossing Surface Maintenance and Replacement	30	06-23-05

Appendix

Standard Preliminary Engineering Agreement	06-23-05
Standard Construction Agreement	06-23-05
Special Provisions for Construction near CSXT property	06-23-05
Overhead Bridge Criteria	
Undergrade Bridge Criteria Including Ballast Decks	

Additional information can be obtained by contacting the following:

- American Railway Engineering and Maintenance of Way Association, (301) 459-3200, or www.arema.org.
- U.S. Department of Transportation, Manual of Uniform Traffic Control Devices, http://mutcd.fhwa.dot.gov/

Information In This Manual

This information is intended to help communities plan and implement construction and improvement projects that may involve the CSXT rail property. Examples of such projects include:

- **Highway-Rail Grade Crossings:** Closure, removal, installation and alterations of public highway-rail grade crossings. CSX's Property Services department manages private crossings. (See contact information on page 4.).
- **Bridges Over CSXT:** Construction, reconstruction, rehabilitation, repair, removal, and maintenance of bridges over the railroad by outside parties.
- **Bridges Carrying CSXT:** Construction, reconstruction, rehabilitation, repair, removal, and maintenance of bridges carrying CSXT over highways and other public properties initiated by outside parties.
- **Parallel Roads/Facilities:** Construction, reconstruction, modification, removal, and maintenance of parallel roads or other public facilities affecting CSXT property or operations.
- **U. S. Army Corps of Engineers Projects:** Any project undertaken by the Corps of Engineers that involves CSXT property or operations.
- **Other Projects Involving CSXT Rail Corridors:** Publicly sponsored projects involving or altering CSXT facilities or its property, including highway construction, drainage improvements or other activities that require access to CSXT right of way or property.

Important note: This information is intended to be a tool for communities to assist them in dealing with public projects that may involve CSXT property. All of the statements in this manual involve current policies and are intended to be for broad use. Naturally, any specific project will be subject to analysis of all factors leading to formal agreements between all parties.

Safety of railroad operations and on railroad property will always be of paramount importance.

Any or all of this document or the appendices are subject to revision without prior notification.

CSX Transportation Public Projects Staff

Initial contacts with CSXT for projects should be directed to the Principal Engineer or Manager for the state that includes the project location.

Office Address:
500 Water Street (J-301)
Jacksonville, Florida 32202

Illinois, Indiana, Kentucky, Michigan, Ontario

Hal A. Gibson
Principal Engineer Public Projects
(904) 359-1048 • fax (904) 366-4042
Email: Hal_Gibson@csx.com

Alabama, Louisiana, Mississippi North Carolina, Tennessee

Shelby L. Stevenson
Principal Engineer Public Projects
(904) 359-1177 • fax (904) 366-4042
Email: Shelby_Stevenson@csx.com

Ohio, Virginia, West Virginia

Mel R. McNichols
Principal Engineer Public Projects
(904) 359-1158 • fax (904) 366-4042
Email: Mel_McNichols@csx.com

Georgia, Florida, South Carolina

Leslie L. Scherr
Principal Manager Public Projects
(904) 366-3057 • fax (904) 366-4042
Email: Leslie_Scherr@csx.com

Connecticut, Delaware, District of Columbia, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, Quebec

Carl A. Roe, Jr., P.E.
Principal Engineer Public Projects
(904) 359-1036 • fax (904) 366-4042
Email: Carl_Roe@csx.com

Curtis E. Parker
Public Project Operations Supervisor
(904) 359-1176 • fax (904) 366-4042
Email: Curtis_Parker@csx.com

Khristi Viktoriany
Public Projects Engineer
(904) 359-1182 • fax (904) 366-4042
Email: Khristi_Viktoriany@csx.com

Lacoya N. Greggley
Public Projects Engineer
(904) 359-2234 • fax (904) 366-4042
Email: Lacoya_Greggley@csx.com

Eric G. Peterson
Asst. Chief Engineer, Public Projects
(904) 359-1245 • fax (904) 366-4042
Email: Eric_Peterson@csx.com

CSX Transportation

Additional CSX Resources and Contacts

Many areas of community interest are outside the scope of this manual. The following is a list of contacts within CSXT that may be helpful on other community matters:

- **Emergencies:** Emergencies and suspicious situations should be reported immediately to the CSX Police Communications Center, (800) 232-0144.

- **Corporate Communications and Public Affairs:** News media information, public affairs, state and community relations. Contact: (904) 366-2949.

- **Industrial Development:** New industry site locations, track proposals. Contact: John Milton (904) 359-1617.

- **Insurance:** Review and approve insurance required for projects. Contact: Janet Ganske with Harden & Associates (904) 354-3785.

- **Property Services:** Right-of-entry, wire line and pipeline crossings, private highway-rail grade crossings, compliance with codes relating to right-of-way conditions. Contact: Adama Harris (800) 332-4697.

- **Public Safety:** Non-emergency highway-rail crossing safety policies, general safety matters. Contact: Director - Public Safety (904) 366-2949.

- **Railroad Division Engineers:** Track maintenance, drainage maintenance, maintenance of highway-rail grade crossings surfaces. Contact: The Staff Engineer on each division is the primary initial contact.

- **Real Estate Lease or Purchase:** Contact: Adama Harris (904) 633-4568.

- **Signals and Communications:** Maintenance of highway-rail grade crossing warning systems. Contact: CSXT Signal Control Center (888) 999-1725.

- **Structures and Bridges:** Maintenance of bridges that are CSXT's responsibility. Contact: Richard Garro (904) 359-1104.

- **Passenger & Joint Facilities Contracts:** Amtrak, passenger train proposals, commuter train proposals, light rail corridors, joint facility agreements with other railroads. Contact: Jay Westbrook (904) 359-3568.

- **Rails to Trails:** Conversion of unused rail lines to trails. Contact: Adama Harris (904) 633-4568.

CSXT Railroad Division and Staff Engineers Office

Division	Name/Title	Office Telephone	Address		
Albany CT, MA, NJ, NY, PA, QE	Spatafore, Dick *Division Engineer* Lorensen, Chris *Staff Engineer*	(518) 767-6077	One Bell Crossing Rd	Selkirk NY	12158
Appalachian KY, NC, SC, TN, VA	Echler, Tod *Division Engineer* Clarkson, Dick *Staff Engineer*	(423) 743-2793	229 Nolichucky Ave	Erwin TN	37650
Atlanta AL, FL, GA, LA, SC, TN	Bossone, Mike *Division Engineer* White, Larry *Staff Engineer*	(404) 350-5274	1590 Marietta Blvd NW	Atlanta GA	30318
Baltimore DC, DE,MD, NJ, PA, VA, WV	Ramsey, Martin *Division Engineer* Fullen, Terry *Staff Engineer*	(410) 525-8291	4724 Hollins Ferry Rd	Baltimore MD	21227
C&O KY, MD, OH, VA, and WV	Wilson, Ken *Division Engineer* Buckley, Jim *Staff Engineer*	(304) 522-5122	935 7th Avenue	Huntington WV	25701
Western IL, IN, MD, MI, OH, ON,PA	Thoburn, Tom *Division Engineer* Ludwig, Marty *Staff Engineer*	(440) 239-3602	14955 Sprague Rd.	Strongsville OH	44136
Florence GA, NC, SC, VA	Bruce Fowler *Division Engineer* Copeland, Richard *Staff Engineer*	(843) 629-2717	100 Oakland Ave	Florence SC	29506
Jacksonville AL, FL, GA	Foster, Ron *Division Engineer* Seavy, Carey *Staff Engineer*	(904) 279-6770	CSXI Bldg. 6735 Southpoint Dr. S. Jacksonville FL 32216		
Midwest AL, IL, IN, KY, OH, TN	Mellish, Greg *Division Engineer* Smith, Buford *Staff Engineer*	(502) 815-1944	11492 Bluegrass Pkwy.	Louisville KY	40299

CSXT Division Map

Requirements for Preliminary Engineering Review

Key Points and Procedures

- Starting CSXT Preliminary Engineering early lowers project costs and shortens the time required for CSXT review and approval
- Using standard agreements lowers costs and saves time
- Complete Preliminary Engineering agreement
- Arrange payment for expenses as specified in the agreement
- Start initial review with conceptual plans
- CSXT prepares estimate for railroad work and flagging required
- If approved for construction, complete Construction agreement
- Preliminary Engineering typically costs $8,000 to $25,000

Overview

Any proposals that communities, businesses and others outside CSXT make that may affect or be near the CSXT right-of-way must be evaluated in advance by CSXT to ensure the safety of the public and CSXT employees, maintain quality rail service to CSXT customers and protect CSXT assets. This section provides guidance on the purpose, content, expense and timing of the Preliminary Engineering process that is used to complete these reviews and approvals.

Definitions

- Parties proposing projects are referred to as "Project Sponsors."
- The Preliminary Engineering for a project is referred to as the "PE."
- General Engineering Consultants (GECs) provide engineering services to support and represent CSXT's interest in public projects. GECs perform preliminary engineering, construction inspection, and monitoring under the direction of the CSXT Engineering personnel. GEC personnel also do day-to-day administration of certain types of projects.

Purpose

The purpose of the PE is to identify issues related to safety, engineering, customer service, operations, legal and regulatory matters, expense, risk and other considerations specific to any proposed project. CSXT review of plans is only to determine that the plans and improvements constructed in accordance with the plans satisfy CSXT's requirements.

Process Steps To Be Taken

- Notify CSXT Public Projects Group or designated GEC of the project location and provide initial project information.
- Review and complete a standard PE agreement.
- Provide project information; attend meetings (as needed), review site with CSXT or GEC personnel.
- Submit initial plans to CSXT or designated GEC for review.
- Respond to CSXT or designated GEC concerns and adjust design if necessary.
- Submit final design for CSXT or designated GEC review.
- CSXT will complete final review to ensure compliance with railroad requirements.
- CSXT will estimate the cost of the work to be done by CSXT and required flagging.
- When the project sponsor and CSXT approve the project for construction, a standard construction agreement will be prepared by CSXT for execution.

Costs and Expenses

These matters are covered in more detail in the section that follows ("Payment of CSXT's Costs and Expenses.") For the reasons described in that section, CSXT generally seeks payment for its costs and expenses of reviewing and handling the PE. In addition, all expenses of the party seeking the review will be borne by that party, including expenses for CSXT employees or GEC personnel attending meetings, reviewing plans, preparing correspondence and other activities to support the review of the project.

Timing

It is in the interest of all parties to complete the PE review before commitments are made or construction steps begin. CSXT will work to be responsive, with timing depending upon the complexity of the project. CSXT and its GEC will work with the project sponsor to schedule PE and construction to meet project schedule objectives whenever possible, considering available resources. PE for a grade crossing project typically takes 4 to 5 months depending on the complexity of the design.

Standard Documents

CSXT executes hundreds of agreements each year for preliminary engineering and construction of projects. Standard agreements can be executed by CSXT without additional legal review. Non-standard agreements or terms will require additional legal review and CSXT may request reimbursement for the additional expense. There are variations in standard documents used with some states and agencies. Sample Standard documents are available in the Appendix:

- Preliminary Engineering Agreement
- Construction Agreement
- Special Provisions for Work on CSXT Right of Way

Payment of CSXT's Costs and Expenses

Key Points and Procedures

- Preliminary Engineering (PE) costs are usually paid in advance, but other arrangements can be made, if necessary.
- A deposit is generally required to cover CSXT reimbursable expenses expected to be incurred as part of the Construction agreement.
- If CSXT's actual expenses are less than the sum of any deposits the difference will be refunded after final cost accounting.

Overview

Because CSXT's shareholders ultimately own CSXT's assets, fair compensation for their use and for the company's resources is necessary and reasonable. Moreover, the types of projects being addressed in this manual usually do not directly benefit and, in some cases, create hurdles for, CSXT's core business of providing transportation service vital to its customers and the American economy. For these reasons, CSXT seeks payment for its costs and expenses incurred in connection with project review or construction.

Preliminary Engineering Agreement

To initiate a construction or improvement project, a Preliminary Engineering (PE) agreement is required to identify the sponsor, the project, define the tasks to be accomplished and specify the payment schedule. Advance payment at the time of the execution of a standard PE agreement is the easiest and fastest way to enable CSXT to proceed with PE, but CSXT also understands that on occasion there will be mitigating circumstances requiring alternative accommodations. If the project sponsor qualifies for a method of payment other than advance payment in full, terms of payment are expected to ensure that CSXT is always working from the sponsor's funds.

Construction Agreement

When a project is approved, CSXT will work with the project sponsor to complete a Construction agreement. The project sponsor will be expected to make a deposit with CSXT for the total estimated reimbursable expenses, as detailed by the estimate. In the event that CSXT anticipates it may incur reimbursable expenses in excess of the deposited amounts, it will request that the project sponsor submit an additional deposit to cover the remaining balance of the reimbursable expenses, as shown in a revised estimate. If the actual reimbursable expenses are less than the deposit made, CSXT will refund the overpayment.

Entry onto CSXT Property

Key Points and Procedures

- Permission is required for all parties entering CSXT right-of-way.
- Temporary right of entry agreements can be used for limited purposes.
- Preliminary Engineering agreements and Construction Agreements may also authorize entry onto CSXT property.
- All parties must adhere to CSXT Safety procedures as outlined in the entry document..
- Advance payment of the $750 preparation fee is required for right-of-entry agreements.
- Appropriate insurance is required and not included in the preparation fee.
- Allow four-to-six weeks to process a Right-of-Entry agreement.

Overview

To maintain efficient customer service and to ensure the safety of CSX employees and of those parties requesting access to CSXT property, CSXT requires all parties accessing its right-of-way for investigative activities or for the performance of construction work to have a written agreement with CSXT fully detailing each party's responsibilities. Activities by others with the potential to affect rail operations without actually entering CSXT property must also be reviewed with CSXT and appropriate arrangements and agreements completed.

The process by which an appropriate agreement covering entry and/or the other necessary conditions or requirements can be developed and implemented is typically dependent upon the scope of the activities proposed by an outside party or agency. Although the type of agreement may vary, most agreements include insurance and liability provisions, work procedures and conditions and reimbursement provisions relating to payment to CSXT for costs it may incur in relation to the entry or work. The following summarizes the various types of CSXT agreements and contacts most frequently utilized to accommodate the requested entry and the proposed work activities.

Temporary Right-of-Entry Agreement

A Temporary Right-of-Entry agreement is utilized by CSXT primarily in situations where outside parties or agencies desire to undertake investigative work such as performing survey work, taking borings, performing bridge inspections or undertaking other activities requiring only access to CSXT property and not construction work activities. Different agreements are used for temporary private crossings.

Because these types of activities generally do not provide benefit to CSXT, the requesting party will be responsible for reimbursing CSXT for its costs associated with preparation and handling of the Temporary Right-of-Entry agreement as well as any other expenses including field expenses for flagging and protective services. Depending on conditions or circumstances, advance payment for CSXT costs may be required under the terms of a Temporary Right-of-Entry Agreement.

Applicants should expect between four and six weeks will be required to process the necessary applications and agreements.

Additionally, the outside party or agency will be required to have the appropriate Commercial General Liability and Railroad Protective Liability insurance when appropriate. Typically, activities performed under a Temporary Right of Entry agreement may only be performed under the direct supervision of the assigned CSXT flagman. The cost of flagman is considered a project cost and will be covered by required advanced deposit of funds. CSXT will provide guidance to applicants in outlining both the process by which these services may be obtained as well as how the applicant's activities can best and safely be coordinated with CSXT's flag personnel and rail operations.

Applications for Temporary Right-of-Entry agreements for investigative and non-construction work activities (including movement of off-highway or oversized loads at grade crossings) within CSXT's right-of-way can be obtained by contacting CSXT Property Services department at (800) 322-4697 or via CSX's web site at www.csx.com.

Entry for Construction Work

Right-of-Entry to undertake construction work (not exclusively associated with utility work) within CSXT right-of-way that could impact CSXT facilities or operation, or requiring access to CSXT property in connection with that work (such as reconstruction of bridges, roadway construction or other highway improvements, grading and/or drainage work) often requires a more detailed review and evaluation as to possible effects to CSXT's property, operations and facilities. Should a need exist for entry by an outside party or agency to prepare plans or other documents necessary to describe the scope of the work proposed, such entry for the initial data collection and investigative activities can be handled via the use of a Temporary Right-of-Entry agreement between the party or its agents and CSXT, as covered in the section above. Entry may also be authorized as part of a Preliminary Engineering Agreement.

When the construction work relating to CSXT is approved, entry for the actual construction work planned by an outside party or agency or that is to be performed by their agents is most often covered within a formal Construction Agreement developed between the outside party or agency and CSXT, including all other appropriate provisions related to the performance of the planned work.

CSXT's Public Projects Group is responsible for the development and handling of agreements for construction work. The Public Projects Group may refer some projects to others if they are sponsored by rail passenger agencies.

Entry For Other Purposes

CSXT may use other forms of agreements covering entry by outside parties or agencies depending on work scope or other factors. The process to obtain right-of-entry for these purposes as listed below may also be initiated through CSXT's Property Services department. Information also is available by visiting www.csx.com

Environmental Right-of-Entry

- Utility Permit/License Agreement for pipeline and wire line construction – both for specifications and applications.
- Land Lease applications.
- Movement of oversized loads across CSXT tracks at private or public highway-rail grade crossings.
- Movement of off highway construction equipment across CSXT tracks at private or public highway-rail grade crossings.

Public Road Crossing Openings and Closures

Key Points and Procedures

- CSXT considers safety of those using highway-rail grade crossings to be of great importance and believes the addition of crossings increases the potential for highway-rail collisions.
- Grade separations are the best alternative to add new roads or additional highway capacity.
- CSXT and state and federal agencies have worked with many communities to develop and implement projects that improve highway traffic flow and close public and private highway-rail grade crossings.
- CSXT and state and federal agencies encourage communities to consider all alternatives before planning to create new grade crossings and encourage closure of existing crossings where possible.
- The highway authority seeking a change in crossings will be asked to prepare a written request for such a change and CSXT will promptly respond with its decision.
- CSX will provide incentive payments for crossing closures.

Overview

No issue is of greater importance to CSXT than the safety of those who utilize highway-rail grade crossings and the employees of CSXT who operate the trains that cross them. At the same time, CSXT understands the importance of highway grade crossings and their relevance to such priorities as economic development, emergency vehicle access and other growth opportunities in the communities through which we operate.

Crossing Closure Incentive Program

Closing crossings and reducing the frequency of crossing accidents is a goal of CSXT, states and the FRA. Closing adjacent crossings simplifies the design, installation and operation of highway-rail grade crossing warning systems. To help ensure the success of this effort, CSXT will provide incentive payments for the closure of public crossings.

Considerations for Crossing Openings and Closures

The addition of any grade crossing brings the potential for incidents involving CSXT trains and motor vehicles. Recognizing this, in 1991 The Federal Railroad Administration (FRA) set a goal to reduce the number of public highway-rail grade crossings in the nation by 25 percent. The 2004 Secretary of Transportation Action Plan for Highway-Rail Crossing Safety and Trespass Prevention again has supported efforts to close crossings and limit the creation of new crossings except where the public interest clearly provides justification. CSXT, other railroads, the FRA and most states also encourage communities to carefully consider all alternatives, including grade separations (crossings that go over or under railroad tracks), as opposed to the creation of new at-grade crossings. CSXT and other railroads believe the cost of a grade separation should not outweigh the enhanced safety it would provide for motorists.

CSXT, the FRA and other railroads actively participate in programs such as Operation Lifesaver, an initiative dedicated to educating the public on the importance of practicing safe driving procedures at grade crossings.

To comply with and support the federal initiative to reduce crossings, CSXT has a practice of requesting that multiple redundant public crossings be consolidated before agreeing to the establishment of a new crossing. CSXT expects communities to engage in a study with the purpose of identifying existing redundant public crossings for closure.

Proposals for establishing a new public crossing or converting a private crossing to a public crossing are approved when they include the closure of three or more other active public crossings unless there are specific engineering or rail operation considerations at the specific location.

Public crossings closed within the last two years, (2003 and 2004) and in the future will be counted toward future new crossing proposals. This is viewed as an incentive to close public crossings when an opportunity is

identified.

CSXT's goal, outlined in the following policies and procedures, is to create an environment throughout the CSXT system where it is safe for the public to travel across its railroad tracks and for our rail operations to effectively and safely serve CSXT customers.

Policies and Procedures To Guide Crossing Requests:

The highway authority requesting a new crossing or seeking to convert a private crossing to a public crossing will be asked to prepare a written request, presenting the following information:

1. A description of the proposed highway project, including proposed passive or active traffic control devices, and the need for preemption and/or interconnection with traffic signals, together with a scale drawing or sketch of the proposed highway and vicinity.

2. A detailed explanation of the necessity of the crossing. CSXT will look more favorably upon requests for new crossings when proposals also identify crossings in the immediate area that qualify for closure.

3. The terms on which the highway authority proposes that the crossing shall be constructed and subsequently maintained.

4. The determination by the highway or regulatory authority of the need for passive or active traffic control devices and other safety treatments (i.e., signage, roadway medians, etc.), as selected by the highway authority consistent with applicable federal and state MUTCD guidelines and requirements.

5. A plan to satisfy any appropriate regulatory authority's requirements, procedures and approval.

6. The highway authority's willingness to pay CSXT for its Preliminary Engineering to review the crossing request (whether or not is approved), design and construction expenses, and for the ongoing maintenance of the crossing and related grade crossing warning devices.

7. The State Transportation department should also be asked to assist with identification of possible crossing closures. CSXT will look to the highway authority to pay the cost of the closures, unless the closure qualifies for voluntary contribution by CSXT as a part of our grade crossing closure and consolidation program.

CSXT will promptly advise the highway authority of its decision, with appropriate explanation, after its review of the submitted request.

Locations Where Crossings are Not Approved

As a matter of operational efficiency, some locations will not be approved for crossings because of railroad engineering and operating considerations such as passing sidings, tracks used for switching, special track work, sharp curves and other considerations.

Parallel Road Construction

Key Points and Procedures

- Parallel public roads should be located off CSXT property when possible.
- Safety at existing at highway-rail grade crossings must be considered and not adversely impacted.
- Drainage for the road and railroad must be considered.
- Access for CSXT equipment to its right of way must be permitted.
- Construction may result in the need for alterations to crossing warning systems or facilities.

Overview

The design of highways, highway intersection, and configuration of highway-rail grade crossings is the responsibility of the highway agency.

General Guidelines

In the interest of public safety, parallel public roads should be located off CSXT property wherever possible. Parallel roads involving intersections with existing or proposed highways where public or private crossings are present should be aligned to provide sufficient distance from the crossing for the largest vehicle permitted to use the road to stop between the railroad and the parallel road traffic control signs, markings, and warning devices without interfering with railroad operations, obstructing or preventing the operation of traffic control devices or obstructing the crossing in any manner.

Drainage for highway runoff, the railroad corridor, and adjacent property must be designed to prevent standing water and potential erosion.

Access for CSXT equipment to the railroad right-of-way, structures, and track cannot be restricted or prevented.

Federal and State design manuals, the Manual of Uniform Traffic Control Devices (MUTCD) and additional recommended practices available in American Railway Engineering and Maintenance of Way Association manuals (AREMA) provide design information to be considered by the highway agency responsible for the project engineering. The appendix to this policy has additional information on the MUTCD and AREMA manuals and information.

Highway-Rail Grade Crossing Warning Devices Selection

Key Points and Procedures

- Any alterations to highway-rail grade crossings and/or warning systems must adhere to all applicable laws, regulations and national standards.
- Preliminary Engineering agreements are used to define the project scope and prepare design and estimate information for each project.
- The requesting highway agency will be responsible for payment for engineering, design and installation of warning devices.
- The coordination of traffic intersection signals with warning devices will be determined by the highway agency or regulatory agency.
- Construction agreements are used to implement the projects.

Overview

The Public Projects Group will process all projects proposing alterations to highway-rail grade crossings and/or warning systems. Included will be projects for opening new crossings, closing existing crossings, modifying or widening of existing crossings, installation of new surface treatments, installing new warning systems, removing and/or relocating existing warning systems and modifying/upgrading existing warning systems.

Identification of the Crossing and Location

Each crossing has a unique DOT inventory identification number posted at the crossing. There is often more than one crossing on the same road. The crossing number (such as 123456A) must be used to identify the specific crossing in all communications with the railroad to reduce possible confusion about the specific location.

Processing Project Requests

The Public Projects Group will ensure adherence to all applicable Federal and State standards and regulations, and local policies, laws and ordinances as well as CSXT practices. Compliance with State regulations also ensures that the highway agency or other governmental agency responsible for making system and equipment determinations selects appropriate vehicular traffic control signs and/or devices for a specific public highway. CSXT and its employees and contractors do not have the authority or expertise to determine the level or configuration of warning devices for a crossing for the highway agency. However, CSXT will contribute information that can be used by the highway agency in its decision.

The design of highways, highway intersections, and configuration of the highway-rail grade crossings is the responsibility of the highway agency. Recommended practices and additional information are available in American Railway Engineering and Maintenance of Way Association (AREMA) manuals and the Manual on Uniform Traffic Control Devices (MUTCD).

Engineering, Cost Estimation, Installation

CSXT and CSXT Signal Engineering Consultants (SEC) will provide engineering, design, and cost estimates for the installation of highway-rail grade crossing warning devices at the expense of the requesting highway agency as part of the Preliminary Engineering for a project. Changes to highway-rail grade crossing may also require engineering and estimating by CSXT General Engineering Consultants (GEC).

Coordination of Traffic Signals with Warning System

The highway agency will determine if preemption is required and the appropriate timing for the traffic signals and highway-rail grade crossing warning devices. Preemption of the cycle of traffic signals at highway intersections near highway-rail grade crossings requires careful review by highway traffic engineers to determine the appropriate

timing and sequence for both the traffic signal and the highway-rail grade crossing warning system. Preemption for the traffic signal may be Simultaneous with, or in Advance of the warning system activation.

Operation of Highway-Rail Grade Crossing Warning Devices

Highway-rail grade crossing warning systems are designed to activate at least a designed minimum amount of warning time before a train enters the crossing. Trains speeding up or slowing down within the approach distance may cause the warning system to activate longer than the minimum warning time specified for the crossing prior to a train entering the crossing. Trains stopping or making forward and reverse movements within the approach distance for the crossing may cause the warning system to activate and then clear after an appropriate time without a train entering the crossing.

Quiet Zone Proposals

Key Points and Procedures

- This section was developed as a guideline for communities that approach CSXT in regards to the implementation of a Quiet Zone under the Federal Railroad Administration's ("FRA") final rule on the use of locomotive horns at public highway-rail grade crossings (the "Rule"), and to ensure CSXT's full compliance and cooperation with respect to the Rule.
- According to the FRA's commentary on the Rule, implementation of Quiet Zones – without appropriate safeguards and equipment – increases the risk of accidents at highway-rail grade crossings. In this context, CSXT encourages communities considering whether to implement Quiet Zones to take into account the installation of appropriate Supplemental Safety Measures ("SSMs"), as defined in the Rule, as well as the consolidation and/or closing of adjacent crossings, all of which will act as a safeguard to potentially reduce the risk of accidents at each crossing below the risk level that existed prior to the implementation of the Quiet Zone.
- Communities that wish to implement Quiet Zones will be required to strictly comply with the Rule.
- Pursuant to the Rule, notifications and/or applications to implement or continue Quiet Zones are to be made to the FRA and involve relevant state and local agencies, CSXT, and other rail carriers operating in the area.
- CSXT will seek to be reimbursed for work performed to design, implement, and maintain railroad facilities within Quiet Zones.
- CSXT desires to be a good corporate citizen. CSXT also places importance on the quality and timeliness of service to its customers and the communities it serves. As such, consistent with the Rule, CSXT will seek to encourage communities requesting Quiet Zones to implement solutions and SSMs that optimally achieve safety while minimizing the impact on railroad operations.

Overview

CSXT will fully comply with the Rule, which provides requirements for the sounding of locomotive horns when approaching public highway-rail grade crossings. The Rule also will provide guidance for conditions under which Public Authorities may apply for and establish Quiet Zones. A Quiet Zone is a section of a rail line that contains one or more consecutive public crossings at which locomotive horns are not routinely sounded. (For full details on the rules, CSXT recommends that communities either visit the FRA web site at www.fra.dot.gov. or contact the FRA's Office of Safety at 202-493-6299.)

Policy on Quiet Zones

The Rule clearly defines requirements that must be satisfied by the Public Authority requesting that a Quiet Zone be established or continued. CSXT will expect the Public Authority to strictly comply with these requirements.

Identification of the Crossing and Location

Each crossing has a unique DOT inventory identification number posted at the crossing. There is often more than one crossing on the same road. The crossing number (such as 123456A) must be used to identify the specific crossing in all communications with the railroad to reduce possible confusion about the specific location.

Preliminary Planning for Quiet Zones

Preliminary work by CSXT personnel and/or its consultants is likely to be required in connection with the proposed new or continued Quiet Zone, including, but not limited to: updating crossing inventory information; attending meetings; participating, to the extent feasible, in diagnostic reviews of the public, private and pedestrian crossings in a proposed Quiet Zone; preparing and processing estimates covering the cost of work to be performed by CSXT, if applicable; and processing necessary agreements. CSXT will coordinate preliminary planning activities with each Public Authority pursuant to an initial agreement that will also provide for payment to CSXT for services

provided during development of Quiet Zones.

Getting Started: Process for Pursuing a Quiet Zone

1. Groups or individuals interested in Quiet Zones should first contact the Public Authority responsible for the highway where the Quiet Zone would be located. Public Authorities should then contact the FRA for additional information on Quiet Zone requirements and procedures.

2. The Public Authority should direct initial CSXT contact relating to possible Quiet Zones to: Director of Public Safety, 500 Water Street (C205), Jacksonville, Florida 32202. Those making this contact will be furnished with the Quiet Zone policy and advised of the appropriate contact within the CSXT Public Projects Group for the initial planning activities with CSXT.

3. If the Public Authority decides to proceed with preliminary planning for a Quiet Zone CSXT will assist by providing, when required, DOT inventory information and attending diagnostic review meetings, to the extent schedules permit. CSXT resources to attend these meetings are limited and thus CSXT will seek flexibility in establishing meeting dates and times in order to permit CSXT representatives to attend.

4. The Preliminary Planning for a Quiet Zone project should include a review of the following principles:
    a. CSXT will cooperate and work in good faith with local communities and the appropriate Public Authority to provide all possible assistance in a manner that protects the safety of local citizens and their communities as well as CSXT's employees. Communities should keep in mind that, because of the anticipated large volume of Quiet Zone applications and the demands placed on CSXT resources by other transportation and safety projects, it is difficult at this time to estimate how long the planning and implementation process will take.

    b. In accordance with the Rule, CSXT's support of a Quiet Zone proposal will require the plan to meet very specific FRA measures and requirements, which, in some cases, may be subject to FRA review, approval and on-going oversight. Accordingly, CSXT retains the right to review and comment on the requests.

    c. CSXT expects the involvement of the state DOT, FRA, and/or state regulatory authority in any diagnostic review of a public, private and pedestrian crossing in the Quiet Zone corridor being proposed.

    d. As discussed above, the appropriate Public Authority will be expected to reimburse CSXT for its cost of installation and future maintenance of Quiet Zones, including, but not limited to, its installation of Supplemental Safety Measures (SSMs) and Alternative Safety Measures (ASMs). As an example, CSXT installs and maintains active warning systems at Highway-Rail Grade Crossings that may be modified or expanded for a Quiet Zone. Curbs, medians, pavement markings and other traffic control signs such as advance warning signs are installed and maintained by Public Authorities. The specific responsibilities are expected to be resolved during the Preliminary Planning for a Quiet Zone.

    e. If one or more SSMs or ASMs selected to be installed require work by CSXT, a separate standard Preliminary Engineering Agreement will be required to cover CSXT's engineering, review, handling, and estimate preparation connected with the proposed work. A separate Construction Agreement will be used for implementation of the projects. The cost of this work will be the responsibility of the requesting Public Authority.

f. SSMs or ASMs installed and maintained by the Public Authority as described above are important parts of traffic control at each crossing. The Public Authority is responsible for periodic inspection and repair of these items.

5. Standard CSXT Public Projects Group design and estimating procedures will be used for projects related to Quiet Zones.

Bicycle/Pedestrian Pathways and Crossings

Key Points and Procedures

- Private or public parallel at-grade paths are not permitted on active CSXT right of way.
- CSXT will oppose condemnation proceedings aimed at recreational use of trackside property.
- The public agency or private landowner that establishes bike/pedestrian path usage of trackside property must provide unqualified indemnity and adequate insurance to protect CSXT as well as safety measures necessary to eliminate safety risks.
- Bicycle/pedestrian pathways cannot cross tracks at grade.

Overview

CSXT recognizes that communities often wish to establish recreational paths in areas adjacent to active railroad lines. Understanding the importance of these activities to local communities, CSXT will cooperate in establishment of such paths, recognizing that important requirements must be met and safety precautions taken to protect those who use the pathways.

CSXT's pathway policy is a reflection of its longstanding commitment to employee and public safety and its concern for the risks associated with pedestrian, bike or motor vehicle traffic moving on or adjacent to its railroad right-of-way.

CSXT Policy on Pathways Parallel to CSXT Tracks and Right of Way

At CSXT safety is paramount. Because of the risks associated with pedestrian, bicycle, and other recreational traffic moving parallel to active rail lines, CSXT's policy is not to permit private or public parallel at-grade paths that come within the railroad's right-of-way (generally 50 feet from the centerline of the track on both sides). In the interest of public safety, in the rare event that circumstances exist that an exception is made, CSXT will insist upon safety measures such as fencing and signage where such pathways or parks are established parallel to the railroad's right-of-way. The cost of installing, inspection and future maintenance must be clearly assigned to and carried out by an appropriate agency or person other than CSXT.

Also in the interest of public safety, CSXT will oppose any attempt to impose recreational usage of trackside property through condemnation. In the event public authorities or private landowners succeed in establishing such usage, CSXT requires, as a condition of access to its property, an unqualified indemnity by the public agency or private landowner responsible for such usage, and insurance coverage adequate to cover the increased risk by such usage. CSXT also requires the public agency or private landowner to bear the cost of any safety measures that may be necessary to eliminate or lessen such risks.

Pathways Crossing CSXT Tracks and Right-of-Way

For obvious safety reasons, bicycle/pedestrian pathway crossing railroad tracks will not be permitted at grade. Establishing pathways over or under the railroad track and right of way, with appropriate safeguards, will then require pathway-rail grade separations.

Bicycle/pedestrian pathway-rail crossings at existing public highway-rail grade crossings will be permitted when they are within a highway easement across CSXT right-of-way and a determination of the appropriate signs and warning system is made by the appropriate highway and/or regulatory agency.

The cost of pathway-rail crossings, signs, and warning systems will be paid by the requesting party or government agency, including the initial installation and maintenance.

As a matter of practice, CSXT prosecutes trespassers upon its property and every precaution must be taken to ensure that the public remains clear of CSXT's right-of-way.

Painting CSXT Bridges to Improve Appearance

Key Points and Procedures

- CSXT's priority is bridge safety, as reflected in its budget allocations.
- A lengthy waiting list exists for bridge painting projects.
- CSXT will permit others to paint CSXT bridges.
- A written request should be submitted to CSXT's Public Projects Group to initiate consideration of such projects.

Overview

CSXT operates 21,000 miles of track throughout the eastern United States with over 16,000 bridges. Requests are occasionally made by outside parties for various beautification projects, including painting of overhead and undergrade bridges.These requests are considered on a case-by-case basis by CSXT.

Consideration of Bridge Painting Projects

CSXT places a high priority on bridge safety and this is strongly reflected in its allocations within the CSXT bridge maintenance budget. A separate limited budget is available for non-structural aesthetic work on bridges. CSXT will record the requests for such work, but communities should note that there is a lengthy waiting list for such projects.

Advancing Bridge Painting Projects

There is a process in place to advance bridge-painting projects more expeditiously and many communities have chosen to pursue this avenue. Costs are associated with any such work, and CSXT can get more bridges painted and maximize the use of funds available if funding partnerships are formed between the railroad and the community. It must be understood that the safety and structural integrity of CSXT's operating infrastructure are the company's principal priorities. Other funding sources may be available to local communities that can be applied to such projects and CSXT encourages local communities to seek such assistance.

If outside parties wish to undertake a project to beautify CSXT's right-of-way or bridges, CSXT will make every effort to cooperate, consistent with maintaining the safety of the public and the safe operation of the railroad.

A written request by the outside party wishing to undertake such projects should be forwarded to CSXT's Public Projects Group for prompt handling.

Considerations for Submission of Beautification Requests

- The outside party should check the agreement covering the structure for maintenance responsibility. Some agreements assign maintenance responsibility to an outside agency.
- In cooperation with the CSXT Bridge Department, the outside agency requesting the beautification project will be given an answer concerning its request.
- The request should provide information on types of paint and painting methodologies proposed for the beautification project.
- CSXT Considerations for Approving and Undertaking a Bridge Beautification Project
- Completion of an appropriate specification and agreement with CSXT for the work
- Work site safety considerations including keeping all personnel away from the tracks or use of a railroad flagman to control train movements
- The safety of the contractor employees doing the work including fall protection and health considerations during the work
- Maintenance of railway traffic
- Qualifications and experience of the painting contractor
- Liability and insurance requirements

- Clean up and disposal of all paint and other material removed from the bridge
- Application of paint according to the manufacturer's requirements
- Control of paint overspray and vapors during application

Painting and Cleaning of Bridges

Key Points and Procedures

- Cleaning and painting bridges over CSXT property require an agreement with CSXT.
- Work must be evaluated in terms of engineering standards at the outside party's expense
- A construction agreement is required to accommodate engineering, review of plans, flagging, right-of-entry and payment of CSXT incurred costs.

Overview

Cleaning and painting bridges over CSXT right-of-way and tracks require an agreement with CSXT to ensure compliance with applicable safety, environmental and other laws, regulations or ordinances

Requirements for Initiating and Implementing Bridge Cleaning and Painting

A Preliminary Engineering agreement may be required to cover CSXT's review of the project and prepare a cost estimate and agreement.

To ensure safety, a railroad employee flagman must be present to control railroad operations in the area during the planned work.

Also to ensure the safety of the public and CSXT employees, provide for quality service for CSXT customers and to protect CSXT assets, it is necessary that all work by outside parties within or adjacent to the CSXT right-of-way be evaluated in terms of engineering standards at the outside party's expense

During the preliminary engineering phase, standards, operations, and safety will be defined and must be addressed. When the project work has been approved by CSXT, a force account estimate(s) will be provided and a construction agreement prepared for the project.

A construction agreement will be required covering payment to CSXT for engineering, review, flagging, right-of-entry, work coordination, safety, and insurance. (see Section "Payment of CSXT's Cost and Expenses")

Overhead and Undergrade Bridge Criteria

Key Points and Procedures

CSXT's policies and standards for overhead and undergrade bridge areas are available for bridge projects and are furnished upon request.

Overview

The following listed exhibits in the appendix are CSXT's overhead and undergrade (ballast deck) bridge policy and standards. These standards were created and are maintained by CSXT's Bridge Department. They are available for bridge projects and will be furnished when requested.

- Compliance with these policies and standards will be reviewed during preliminary engineering for a project.
- Overhead (with reference to the railroad) Bridge Criteria
- Undergrade (with reference to the railroad) Bridge Criteria including ballasted decks.

Insurance Requirements for Public Projects

Key Points and Procedures

- Outside parties performing work on CSXT property or that may impact railroad operations must have insurance that protects CSXT.
- The types of insurance required are Commercial General Liability, Statutory Worker's Compensation and Employer's Liability, Commercial Automobile Liability, and Railroad Protective Liability.
- CSXT must be provided copies and notices of required insurance coverage.

This section applies only to Public Projects

Insurance Policies

Any agency, contractor or outside party performing work on or about CSXT's property shall procure and maintain appropriate insurance policies to protect CSXT against the exposure to liability.

A. Commercial General Liability coverage at their sole cost and expense with limits of not less than $5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional named insured.

B. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than $1,000,000. The insurance must contain a waiver of subrogation against CSXT and its affiliates.

C. Commercial automobile liability insurance with limits of not less than $500,000 combined single limit for bodily injury and/or property damage per occurrence. Such policies shall designate CSXT as an additional named insured.

D. Railroad protective liability insurance with limits of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of $10,000,000. The insurance shall satisfy the following additional requirements:

1. The insurer must be financially stable and rated B+ or better in Best's Insurance Reports.
2. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance - Insurance Services Office (ISO) Form CG 00 35.
3. CSX Transportation must be the named insured on the Railroad Protective Insurance Policy.
4. Name and address of contractor and agency must be shown on the Declarations page.
5. Description of operations must appear on the Declarations page and must match the project description, including project or contract identification numbers.
6. Authorized endorsements must include the Pollution Exclusion Amendment CG 28 31—unless using form CG 00 35 version 96 and later.
7. Authorized endorsements may include:
   a. Broad Form Nuclear Exclusion - IL 00 21
   b. 30-day Advance Notice of Non-renewal or cancellation
   c. Required State Cancellation Endorsement
   d. Quick Reference or Index - CL/IL 240
8. Authorized endorsements may not include:
   a. A Pollution Exclusion Endorsement except CG 28 31
   b. A Punitive or Exemplary Damages Exclusion
   c. A "Common Policy Conditions" Endorsement
   d. Any endorsement that is not named in Section D, 6 or 7 above
   e. Policies that contain any type of deductible

E. Such additional or different insurance as CSXT may require.

Additional Terms

A. Contractor must submit its original insurance policies and two copies and all notices and correspondence regarding the insurance policies to:

Manager-Insurance
CSX Transportation, Inc.
500 Water Street, J150
Jacksonville, FL 32202

B. Neither agency nor contractor may begin work on the project until it has received CSXT's written approval of the required insurance policies.

Insurance for Other Activities

CSXT has different insurance requirements for other activities such as passenger train operation.

Construction Monitoring Requirements

Key Points and Procedures

- Construction work by outside parties affecting CSXT will be monitored by CSXT at the outside party's expense.
- Construction monitoring is in addition to flagging or other protective services.

Overview

To ensure the safety of the public and CSXT employees, maintain quality rail service to CSXT customers and to protect CSXT assets, construction monitoring of all outside party construction work within, over or that may in any manner affect CSXT will be conducted by CSXT or its General Engineering Consultant (GEC) personnel.

Monitoring Costs, Personnel, Safety Considerations

The following outlines procedures for the monitoring of construction work on or near CSXT property and steps that must be taken to ensure the safety of all personnel involved and for the efficient operation of CSXT's trains.

- Monitoring may include visits to the site or being continuously on-site during construction activity that could be hazardous to the public or CSXT employees.
- The construction project sponsor, owner, or agency in charge will pay for the cost of construction monitoring. Construction monitoring will be specified, and the estimated cost will be included in the construction agreement for the project.
- Construction monitoring is in addition to railroad employee flagging to control train operation in the work area.
- Overhead bridge demolition and erection will require review by CSXT of all contractor work plans, calculation which bear the seal of a Professional Engineer, and CSXT construction monitoring.
- Signal Engineering Consultants (SEC) also may be used to review and monitor work by outside parties related to signal systems and electrical interference.
- Safety of the outside party or property, outside party contractors, and outside party employees is the responsibility of the outside party. CSXT as part of its construction monitoring will review the work site for activities that could interfere with safe operation of the railroad. CSXT and its GEC and SEC are not responsible for monitoring the general work activities under the direction of the outside party for compliance with safety regulation. Any observed unsafe acts or conditions will be reported immediately to the outside party or contractor representative.

Railroad Construction Site Flagging for Activities Near Railroad Property and Track

Key Points and Procedures

- Flagging services are required when projects are within close proximity to active rail lines.
- Flagging services can only be performed by qualified CSXT personnel.
- Arrangements for flagging services may take 45 days to schedule a qualified employee for a continuing assignment.

Overview

CSXT employees strongly believe that safety is a way of life. To protect public safety and the safety of employees and property, CSXT will work cooperatively with agencies, consultants, contractors and others who need to access railroad property when work brings them in close proximity to active railroad tracks to determine the appropriate flagging services needed and to make arrangements for those services.

Conditions When CSXT Flagging Services Are Required:

- When an agency, consultant or contractor, is working on, near or adjacent to active railroad tracks.
- When an outside party is using railroad property or performing operations that may affect railroad property or facilities. This includes occasions when a party has been given express permission from CSXT to enter railroad property or perform such operations under the terms of a Construction agreement, Temporary Right-of-Entry agreement or other appropriate documentation.
- When work off railroad property could impact CSXT property or operations.
- When off-highway construction equipment is crossing the railroad at a private or public crossing.
- When oversized equipment or highway vehicles are to cross the railroad at a private or public crossing.

Qualified Flagging Personnel

CSXT flagging services may only be performed by qualified CSXT employees who are trained in the proper procedures related to rail operations and safety requirements, familiar with rail operations and procedures in a project area and able to communicate directly with CSXT dispatching personnel and train crews.

Arrangements for CSXT Flagging Services

- Arrangements for CSXT flagging services related to planned work by an outside party under the terms of a temporary right-of-entry agreement, construction agreement, environmental license agreement or other mutually acceptable arrangements will be performed by CSXT.
- According to the specific arrangements outlined in the agency's, consultant's or contractor's agreement or other documentation with CSXT, advance notice must be provided to secure CSXT flagging services. The level of advance notice may vary from site to site or project to project or if CSXT determines, under the provisions of its labor agreements with its union forces, that flagging services can only be provided as a result of the flagging position being bid and awarded to qualified CSXT personnel. Arrangements to start flagging services may take 45 days, depending on the availability of personnel.

Responsibility for Costs and Expenses

- All costs and expenses associated with CSXT providing flagging services in connection with work that might affect railroad property or facilities are the sole responsibility of the agency, consultant or contractor.
- The outside party typically will be provided with an estimate (by CSXT) describing its initial anticipated costs prior to the start of the project work or its assignment of flagging personnel.
- Costs for flagging or other required services provided by CSXT are billable to the agency, consultant or contractor based upon actual costs and expenses as incurred by CSXT.

- Once flagging personnel are formally assigned by CSXT to a specific work location, the period of assignment can only be changed with appropriate advanced arrangements.
- Charges for providing flagging services beyond a normal weekday eight-hour day are calculated and billed at an overtime rate.

Examples of Costs and Expenses

Charges billed by CSXT to the agency, consultant or contractor may include, but are not limited to:

- Employee Salary
  - Hourly employee charges are based on the time an employee departs and returns to his or her headquarters location. As such, the charges can be expected to exceed the level actually incurred during the assigned coverage period or while the flagman is present at the specific work location.
  - This period also includes the time required for flagging personnel to perform the required preparations and termination procedures associated with flagging services at a location.
- Overhead Costs
  - These charges are assessed against the hourly employee charges and determined in accordance with standard accounting procedures or as mandated by State and/or Federal regulations.
- Employee Expenses or Per Diem Rate
  - This amount is calculated based on an employee's actual expenses or on a per diem rate according to the terms of applicable collective bargaining agreements between CSXT and its assigned union flagging employees.
  - The amount includes the cost for a leased, rented, CSXT, or personal vehicle to be used for transportation.
- Administrative, Accounting, and Billing Services
  - This amount is related to the time associated with setting up the agreement, arranging for and supervising the employee, billing and collection of costs, and other expenses associated with CSXT providing flagging services.
  - Typical flagging cost are $600 to $800 per day.

Highway-Rail Grade Crossing— Crossing Surface Maintenance and Replacement

Key Points and Procedures

- Highway-Rail Grade Crossings are intersections between highways and railroads.
- Coordination is required for work near crossings.
- Highways must be closed for crossing replacement or major maintenance work.
- Agreements are required for crossing work and work near crossings.
- CSXT will use crossing surfaces that meet criteria set by CSXT's Engineering Standards.
- For identification purposes, each crossing has a distinct DOT inventory number (such as 123456A) posted at the crossing and the railroad milepost.

Crossing Surface Purpose and Design

The crossing surface provides a path for highway vehicles to cross railroad tracks. The crossing surface must include flangeways next to the rail for railroad wheel flanges to pass through the crossing. The objective is to provide a safe, smooth, and cost effective crossing for highway and railroad traffic.

Safety During Work Near Crossings

Highway and railroad maintenance work in the vicinity of highway-rail grade crossings must consider safety concerns for both highway and railroad traffic before, during, and after the time the work is implemented.

Identification of the Crossing and Location

Each crossing has a unique DOT inventory identification number posted at the crossing. There is often more than one crossing on the same road. The crossing number (such as 123456A) must be used to identify the specific crossing in all communications with the railroad to reduce possible confusion about the specific location.

Two Types of Highway-Rail Grade Crossings

- Public highway-rail grade crossings are for public roads crossing railroad tracks.
- Private highway-rail grade crossings are for the use of private property owners, their invitees, or their customers. The responsibilities at private crossings are defined by private crossing agreements with CSXT or property documents.

Crossing Construction

Railroad track is continuous through the crossing and includes railroad ties, rail and fasteners below the surface of the crossing. The crossing surface for highway traffic can be made of several different materials. Drainage is required for all four quadrants at a crossing.

Crossing Surface Types and Selection

Crossing surface material and construction methods are selected for each crossing based on the type of highway and railroad traffic, past experience and funding available from highway agencies for individual projects.

Standard types of CSXT approved crossings using wood ties are:

- Heavy Duty Highway Crossings (Concrete)
- Normal Duty Highway Crossings (Rubber/Asphalt/Timber)
- Normal Duty Highway Crossings (Timber/Asphalt)
- Light Duty Highway Crossings (Rubber/Asphalt)
- Farm/Residential Crossings (Rubber/Asphalt)
- Farm/Residential Crossings (Timber/Asphalt)

The CSXT Director of Fixed Plant Engineering must approve non-standard crossing material. Projects funded by

outside parties may be constructed with approved concrete slab or full depth rubber if specified by the outside party. Modular "Tub" type crossings may be considered for use at locations with slow rail operations of 15 MPH or less and high road vehicle count and/or heavy vehicles.

Crossing Maintenance and Replacement Responsibilities

Crossing maintenance, replacement of the track, and crossing surface is generally undertaken by railroad personnel or railroad contractors and may be billable to an outside party or highway authority as specified in an agreement. The responsibility for the maintenance of public crossing approach pavement varies by state and is specified in some individual crossing agreements or orders.

Crossing Maintenance and Replacement Work

Crossing work requires closing the entire highway-rail grade crossing to both highway and railroad traffic to assure the work can be performed safely and to provide as high a quality surface as possible when completed.

Replacement of track components through a crossing requires removal of the crossing surface, replacement of track ballast, and surfacing the track through the crossing prior to replacement of the crossing surface. If the subgrade needs to be improved, the application of a hot mixed asphalt underlayment should be considered. Drainage will be reestablished for all four quadrants. After the crossing surface is replaced, the highway approach paving is completed and then the road is opened to highway traffic. Replacement of the track and crossing surface usually requires that the highway be closed for several days. The track is usually returned to service for train operation the same day the track replacement is started to compact the track sub-structure. Additional work to complete the crossing surface replacement and approach paving is completed within the next several days.

Crossing surfaces are also removed and replaced when track maintenance work is performed through a crossing such as rail replacement, tie replacement, and track surfacing (smoothing). Each crossing has the surface removed and replaced after the work has been completed. Crossings are usually closed for 2 days or more during this maintenance work.

Reporting Problems and Requesting Crossing Surface Maintenance

Railroad personnel working for the CSXT Roadmaster do crossing surface repair work. The Roadmaster is in charge of a specific railroad territory. Roadmasters are usually in the field with their personnel. Requests for road crossing maintenance should be made to the Staff Engineer for the specific CSXT division. The Staff Engineer works in the division office and communicates with the Roadmasters on a regular basis. They are listed by Division.

The CSXT Track Inspector or the Roadmaster will inspect the crossing and the planned corrective action will be communicated to the agency or individual.

Scheduling Crossing Maintenance and Replacement Work

Scheduling crossing replacement work requires advanced planning with the railroad and the highway authority for the specific crossing. Specialized traveling railroad teams do most railroad track maintenance and crossing work. Each team has a schedule that is prepared each year and adjusted based on actual progress during the construction season.

Crossing work is scheduled based on review of the field conditions and recommendations by the CSXT Roadmaster and the highway authority responsible for the highway.

Requesting Crossing Surface Replacement or Upgrades

Requests for replacement of crossing surfaces should be made to the CSXT Principal Engineer Public Projects. The request for the work and the recommended surface will be reviewed and approved by CSXT. The Principal

Engineer Public Projects will prepare a standard agreement and include the cost estimate for the project. Projects that require CSXT funding for some of the project expense require internal approval before the agreement is executed and the project scheduled.

Initiating a highway project in the vicinity of a Highway-Rail Grade Crossing

Highway work at or near highway-rail grade crossings must be planned to avoid conflicts with railroad traffic. Work such as highway paving or other work that may use equipment near a crossing requires a CSXT construction agreement, railroad protective insurance, and a railroad flagman. For these types of projects, please contact the Principal Engineer Public Projects to arrange for a Preliminary Engineering and Construction agreement.

SUPPLEMENT A

APPENDIX

CSX Transportation

PRELIMINARY ENGINEERING AGREEMENT

Office of Structural Engineering
Jacksonville, FL
Date Issued: October 1, 1999

PRELIMINARY ENGINEERING AGREEMENT

This Preliminary Engineering Agreement ("Agreement") is made as of _____, 20___, by and between CSX TRANSPORTATION, INC., a Virginia corporation with its principal place of business in Jacksonville, Florida ("CSXT"), and [PUBLIC AGENCY], a body corporate and political subdivision of the State of _____ ("Agency").

EXPLANATORY STATEMENT:

1. Agency wishes to facilitate the development of the proposed [PROJECT DESCRIPTION] (the "Project").
2. Agency has requested that CSXT proceed with certain necessary engineering and/or design services for the Project to facilitate the parties' consideration of the Project.
3. Subject to the approval of CSXT, which approval may be withheld for any reason, the Project is to be constructed, if at all, at no cost to CSXT, under a separate construction agreement to be executed by the parties at a future date.

NOW, THEREFORE, for and in consideration of the foregoing Explanatory Statement, and other good and valuable consideration, the receipt and sufficiency of which are acknowledged by the parties, the parties agree as follows:

1. Scope of Work

Generally. The work to be done by CSXT under this Agreement shall consist of: (1) the preparation or review and approval of preliminary and final engineering and design plans, specifications and drawings for the Project, (2) the preparation of cost estimates for CSXT's work in connection with the Project, and (3) the review of construction cost estimates, site surveys, assessments, studies and related construction contract documents submitted to CSXT by Agency for the Project ("Engineering Work"). Engineering Work shall also include, as necessary or appropriate, office reviews, field reviews, attendance at hearings and meetings, and preparation of correspondence, reports, and other documentation in connection with the Engineering Work. Nothing contained in this Agreement shall oblige CSXT to perform work which, in CSXT's opinion, is not relevant to CSXT's participation in the Project.

1.2 Effect of CSXT Approval or Preparation of Documents. By its review, approval or preparation of plans, specifications, drawings or other documents pursuant to this Agreement (collectively referred to as "Documents"), CSXT signifies only that the Documents and improvements constructed in accordance therewith satisfy CSXT's requirements. CSXT expressly disclaims all other representations and warranties in connection with the Documents, including, but not limited to, the integrity, the suitability or fitness for the purposes of Agency or any other persons of such Documents or improvements constructed in accordance therewith.

2. Reimbursement of CSXT Expenses

2.1 Reimbursable Expenses. Agency shall reimburse CSXT all costs and expenses incurred by CSXT in connection with the Engineering Work, including, without limitation, all out of pocket expenses, travel and lodging expenses, telephone, facsimile, and mailing expenses, costs for equipment, tools, materials and supplies, sums paid to consultants and subcontractors by CSXT and CSXT labor, together with CSXT labor overhead percentages established by CSXT pursuant to applicable law (collectively, "Reimbursable Expenses").

2.2 Estimate. CSXT has estimated the total Reimbursable Expenses for the Project to be approximately $_____ (the "Initial Estimate", as amended or revised, the "Estimate"). In the event CSXT anticipates that actual Reimbursable Expenses may exceed such Estimate, it shall provide Agency with the revised estimate of total Reimbursable Expenses for Agency's approval and confirmation that sufficient funds have been appropriated to cover the total Reimbursable Expenses of such revised Estimate. CSXT may elect, by delivery of notice to Agency, to immediately cease all further Engineering Work, unless and until Agency provides such approval and confirmation.

2.3 Payment Terms. It is the intent of the parties that CSXT obtain payment in advance of its incurrence of Reimbursable Expenses. Accordingly, the parties agree as follows:

2.3.1 Agency shall pay CSXT for Reimbursable Expenses in the amounts and timeframes set forth in the

Payment Schedule attached to this Agreement as Exhibit A (the "Payment Schedule"). CSXT agrees to submit invoices to Agency for Reimbursable Expenses, if requested or required by Exhibit A.

2.3.2 In the event that Agency fails to pay CSXT any sums due CSXT under this Agreement: (i) Agency shall pay CSXT interest at the lesser of 1.0% per month or the maximum rate of interest permitted by applicable law on the delinquent amount until paid in full; and (ii) CSXT may elect, by delivery of notice to Agency: (A) to immediately cease all further work on the Project, unless and until Agency pays the entire delinquent sum, together with accrued interest; and/or (B) to terminate this Agreement.

2.3.3 All invoices from CSXT shall be delivered to Agency in accordance with Section 6 of this Agreement. All payments by Agency to CSXT shall be made by certified check and mailed to the following address or such other address as designated by CSXT's notice to Agency:

CSX Transportation, Inc.
P. O. Box 116551
Atlanta. GA 30368-6651

2.4 Effect of Termination. If this Agreement is terminated for any reason, all obligations and liabilities of the parties under this Agreement shall terminate, other than Agency's obligation to pay CSXT Reimbursable Expenses through the effective date of the Agreement's termination in accordance with Section 2.

3. Appropriations

Agency represents to CSXT that: (i) Agency has obtained appropriations sufficient to reimburse CSXT for the Reimbursable Expenses encompassed by the Initial Estimate; (ii) Agency shall use its best efforts to obtain appropriations necessary to cover Reimbursable Expenses encompassed by subsequent Estimates approved by Agency; and (iii) Agency shall promptly notify CSXT in the event that Agency is unable to obtain such additional appropriations.

4. Termination by Agency

Agency may terminate this Agreement, for any reason, by delivery of notice to CSXT. Such termination shall become effective upon the expiration of fifteen (15) calendar days following delivery of notice to CSXT or such later date designated by the notice. CSXT shall remain entitled to payment of Reimbursable Expenses incurred through the effective date of termination. Agency further agrees that, in the event of any actual or purported default by CSXT under this Agreement, Agency's sole remedy shall be to terminate this Agreement and to recover from CSXT any amounts paid by Agency for Engineering Work in excess of Reimbursable Expenses incurred by CSXT through the effective date of such termination.

5. Subcontracts

CSXT shall be permitted to engage consultants and subcontractors to perform all or any portion of the Engineering Work encompassed by this Agreement.

6. Notices

All notices, consents and approvals required or permitted by this Agreement shall be in writing and shall be deemed delivered upon personal delivery, upon the expiration of three (3) days following mailing by first class U.S. mail, or upon the next business day following mailing by a nationally recognized overnight carrier, to the parties at the addresses set forth below, or such other addresses as either party may designate by delivery of prior notice to the other party:

If to CSXT:

If to Agency:

7. Project Construction

Nothing contained in this Agreement shall be deemed to constitute CSXT's approval of or consent to the construction of the Project.

8. Entire Agreement

This Agreement embodies the entire understanding of the parties, may not be waived or modified except in a writing signed by authorized representatives of both parties, and supersedes all prior or contemporaneous written or oral understandings, agreements or negotiations regarding its subject matter.

9. Waiver

If either party fails to enforce its respective rights under this Agreement, or fails to insist upon the performance of the other party's obligations hereunder, such failure shall not be construed as a permanent waiver of any rights or obligations in this Agreement.

10. Assignment

CSXT may assign this Agreement and all rights and obligations herein to a successor in interest, parent company, affiliate, or future affiliate. Upon assignment of this Agreement by CSXT and the assumption of CSXT's assignee of CSXT's obligations under this Agreement, CSXT shall have no further obligation under this Agreement. Agency shall not assign its rights or obligations under this Agreement without CSXT's prior written approval, which approval may be withheld for any reason.

11. Applicable Law

This Agreement shall be governed by the laws of the State of _____, exclusive of its choice of law rules. The parties further agree that the venue of all legal and equitable proceedings related to disputes under this Agreement shall be situated in Duval County, Florida, and the parties agree to submit to the personal jurisdiction of any State or Federal court situated in Duval County, Florida.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed in duplicate, each by its duly authorized officers, as of the date of this Agreement.

[PUBLIC AGENCY]

By _____

Print Name_____

Title _____

CSX TRANSPORTATION, INC.

By _____

Print Name_____

Title _____

EXHIBIT A

PAYMENT SCHEDULE

Advance Payment in Full

Upon execution and delivery of this Agreement by Agency, Agency will deposit with CSXT a sum equal to the Reimbursable Expenses, as shown by the Initial Estimate. If CSXT anticipates that it may incur Reimbursable Expenses in excess of the deposited amount, CSXT will request an additional deposit equal to the then remaining Reimbursable Expenses which CSXT then estimates that it will incur. CSXT shall request such additional deposit by delivery of invoices to Agency. Agency shall make such additional deposit within 30 days following delivery of an invoice to Agency. If said additional deposit is not received within 30 days, CSXT shall have the right to discontinue its work under this Agreement.

Following the completion of all Engineering Work, CSXT shall submit to Agency a final invoice that shall reconcile the total actual Reimbursable Expenses incurred by CSXT against the total payments received from Agency under this Agreement. Agency shall pay to CSXT the amount by which actual Reimbursable Expenses exceed total payments, as shown by the final invoice, within thirty (30) days following delivery to Agency of the final invoice. CSXT will provide a refund of any unused deposits if the deposit exceeds the incurred Reimbursable Expenses for the project.

[NOTE: ALTERNATE PAYMENT PROVISIONS MAY BE ABLE TO BE CONSIDERED BY CSXT IF DEEMED ACCEPTABLE AND ARE SUBJECT TO NEGOTIATION BETWEEN CSXT AND AGENCY]

SUPPLEMENT B

APPENDIX

CSX Transportation

CONSTRUCTION AGREEMENT

Office of Structural Engineering
Jacksonville, FL
Date Issued: October 1, 1999

CONSTRUCTION AGREEMENT

This Construction Agreement ("**Agreement**") is made as of _____, 20____, by and between CSX TRANSPORTATION, INC., a Virginia corporation with its principal place of business in Jacksonville, Florida ("**CSXT**"), and **[PUBLIC AGENCY]**, a body corporate and political subdivision of the State of _____ ("**Agency**").

EXPLANATORY STATEMENT

1. Agency has proposed to construct, or to cause to be constructed, **[PROJECT DESCRIPTION]** (the "Project").
2. Agency has obtained, or will obtain, all authorizations, permits and approvals from all local, state and federal agencies (including Agency), and their respective governing bodies and regulatory agencies, necessary to proceed with the Project and to appropriate all funds necessary to construct the Project.
3. Agency acknowledges that: (i) by entering into this Agreement, CSXT will provide services and accommodations to promote public interest in this Project, without profit or other economic inducement typical of other Agency contractors; (ii) neither CSXT nor its affiliates (including their respective directors, officers, employees or agents) will incur any costs, expenses, losses or liabilities in excess of payments made to CSXT, by or on behalf of Agency or its contractors, pursuant to this Agreement; and (iii) CSXT retains the paramount right to regulate all activities affecting its property and operations.
4. It is the purpose of this Agreement to provide for the terms and conditions upon which the Project may proceed.

NOW, THEREFORE, in consideration of the foregoing Explanatory Statement and other good and valuable consideration, the receipt and sufficiency of which are acknowledged by the parties, the parties agree as follows:

1. Project Plans and Specifications

Preparation and Approval. Pursuant to Exhibit A of this Agreement, all plans, specifications, drawings and other documents necessary or appropriate to the design and construction of the Project shall be prepared, at Agency's sole cost and expense, by Agency or CSXT or their respective contractors. Project plans, specifications and drawings prepared by or on behalf of Agency shall be subject, at CSXT's election, to the review and approval of CSXT. Such plans, specifications and drawings, as prepared or approved by CSXT, are referred to as the "**Plans**", and shall be incorporated and deemed a part of this Agreement. Plans prepared or submitted to and approved by CSXT as of the date of this Agreement are set forth in Exhibit B to this Agreement.

Effect of CSXT Approval or Preparation of Plans. By its review, approval or preparation of Plans pursuant to this Agreement, CSXT signifies only that such Plans and improvements constructed in accordance with such Plans and improvements constructed in accordance with such Plans satisfy CSXT's requirements. CSXT expressly disclaims all other representations and warranties in connection with the Plans, including, but not limited to, the integrity, suitability or fitness for the purposes of Agency or any other persons of the Plans or improvements constructed in accordance with the Plans.

Compliance with Plans. The Project shall be constructed in accordance with the Plans.

Allocation and Conduct of Work

Work in connection with the Project shall be allocated and conducted as follows:

2.1 CSXT Work. Subject to timely payment of Reimbursable Expenses as provided by Section 4, CSXT shall provide, or cause to be provided, the services as set forth by Exhibit A to this Agreement. Agency agrees that CSXT shall provide all services that CSXT deems necessary or appropriate (whether or not specified by Exhibit A) to preserve and maintain its property and operations, without impairment or exposure to liability of any kind and in compliance with all applicable federal, state and local regulations and CSXT's contractual obligations, including, but not limited to, CSXT's existing or proposed third party agreements and collective bargaining agreements.

2.2 Agency Work. Agency shall perform, or cause to be performed, all work as set forth by Exhibit A, at Agency's sole cost and expense.

2.3 Conduct of Work. CSXT shall commence its work under this Agreement following: (i) delivery to CSXT of notice to

proceed from Agency; (ii) payment of Reimbursable Expenses (as provided by Section 4.1) as required by CSXT prior to the commencement of work by CSXT; (iii) issuance of all permits, approvals and authorizations necessary or appropriate for such work; and (iv) delivery of proof of insurance acceptable to CSXT, as required by Section 9. The initiation of any services by CSXT pursuant to this Agreement, including, but not limited to, the issuance of purchase orders or bids for materials or services, shall constitute commencement of work for the purposes of this Section. The parties intend that all work by CSXT or on CSXT property shall conclude no later than **[INSERT DATE]**, unless the parties mutually agree to extend such date.

3. Special Provisions.

Agency shall observe and abide by, and shall require its contractors ("**Contractors**") to observe and abide by the terms, conditions and provisions set forth in Exhibit C to this Agreement (the "Special Provisions"). To the extent that Agency performs Project work itself, Agency shall be deemed a Contractor for purposes of this Agreement. Agency further agrees that, prior to the commencement of Project work by any third party Contractor, such Contractor shall execute and deliver to CSXT Schedule I to this Agreement to acknowledge Contractor's agreement to observe and abide by the terms and conditions of this Agreement.

4. Cost of Project and Reimbursement Procedures

4.1 Reimbursable Expenses. Agency shall reimburse CSXT for all costs and expenses incurred by CSXT in connection with the Project, including, without limitation: (1) all out of pocket expenses, (2) travel and lodging expenses, (3) telephone, facsimile, and mailing expenses, (4) costs for equipment, tools, materials and supplies, (5) sums paid to CSXT's consultants and subcontractors, and (6) CSXT labor in connection with the Project, together with CSXT labor overhead percentages established by CSXT pursuant to applicable law (collectively, "**Reimbursable Expenses**"). Reimbursable Expenses shall also include expenses incurred by CSXT prior to the date of this Agreement to the extent identified by the Estimate provided pursuant to Section 4.2.

4.2 Estimate. CSXT has estimated the total Reimbursable Expenses for the Project as shown on Exhibit D (the "**Estimate**", as amended or revised). In the event CSXT anticipates that actual Reimbursable Expenses for the Project may exceed such Estimate, it shall provide Agency with the revised Estimate of the total Reimbursable Expenses, together with a revised Payment Schedule (as defined by Section 4.3.1), for Agency's approval and confirmation that sufficient funds have been appropriated to cover the total Reimbursable Expenses of such revised Estimate. CSXT may elect, by delivery of notice to Agency, to immediately cease all further work on the Project, unless and until Agency provides such approval and confirmation.

4.3 Payment Terms.

4.3.1 Agency shall pay CSXT for Reimbursable Expenses in the amounts and on the dates set forth in the Payment Schedule as shown on Exhibit E (the "Payment Schedule", as revised pursuant to Section 4.2). CSXT agrees to submit invoices to Agency for such amounts and Agency shall remit payment to CSXT at the later of thirty (30) days following delivery of each such invoice to Agency or, the payment date (if any) set forth in the Payment Schedule.

4.3.2 Following completion of the Project, CSXT shall submit to Agency a final invoice that reconciles the total Reimbursable Expenses incurred by CSXT against the total payments received from Agency. Agency shall pay to CSXT the amount by which Reimbursable Expenses exceed total payments as shown by the final invoice, within thirty (30) days following delivery of such invoice to Agency. In the event that the payments received by CSXT from Agency exceed the Reimbursable Expenses, CSXT shall remit such excess to Agency.

4.3.3 In the event that Agency fails to pay CSXT any sums due CSXT under this Agreement: (i) Agency shall pay CSXT interest at the lesser of 1.0% per month or the maximum rate of interest permitted by applicable law on the delinquent amount until paid in full; and (ii) CSXT may elect, by delivery of notice to Agency: (A) to immediately cease all further work on the Project, unless and until Agency pays the entire delinquent sum, together with accrued interest; and/or (B) to terminate this Agreement.

4.3.4 All invoices from CSXT shall be delivered to Agency in accordance with Section 16 of this Agreement. All payments by Agency to CSXT shall be made by certified check and mailed to the following address or such other address as designated by CSXT's notice to Agency:

CSX Transportation, Inc.
P. O. Box 116551
Atlanta. GA 30368-6651

4.4 Effect of Termination. Agency's obligation to pay to CSXT Reimbursable Expenses in accordance with Section 4 shall survive termination of this Agreement for any reason.

5. Appropriations

Agency represents to CSXT that: (i) Agency has appropriated funds sufficient to reimburse CSXT for the Reimbursable Expenses encompassed by the Estimate attached as Exhibit D; (ii) Agency shall use its best efforts to obtain appropriations necessary to cover Reimbursable Expenses encompassed by subsequent Estimates approved by Agency; and (iii) Agency shall promptly notify CSXT in the event that Agency is unable to obtain such appropriations.

6. Easements and Licenses

6.1 Agency Obligation. Agency shall acquire all necessary licenses, permits and easements required for the Project.

6.2 Temporary Construction Licenses. Insofar as it has the right to do so, CSXT hereby grants Agency a nonexclusive license to access and cross CSXT's property, to the extent necessary for the construction of the Project (excluding ingress or egress over public grade crossings), along such routes and upon such terms as may be defined and imposed by CSXT and such temporary construction easements as may be designated on the Plans approved by CSXT.

Permanent Easements. Insofar as it has the right to do so, CSXT shall grant, without warranty to Agency, easements for the use and maintenance of the Project wholly or partly on CSXT property as shown on the Plans approved by CSXT, if any, on terms and conditions and at a price acceptable to the parties. Upon request by CSXT, Agency shall furnish to CSXT descriptions and plat plans for the easements.

7. Permits

At its sole cost and expense, Agency shall procure all permits and approvals required by any federal, state, or local governments or governmental agencies for the construction, maintenance and use of the Project, copies of which shall be provided to CSXT.

8. Termination

By Agency. For any reason, Agency may, as its sole remedy, terminate this Agreement by delivery of notice to CSXT. Agency shall not be entitled to otherwise pursue claims for consequential, direct, indirect or incidental damages or lost profits as a consequence of CSXT's default or termination of this Agreement or Work on the Project by either party.

8.2 By CSXT. In addition to the other rights and remedies available to CSXT under this Agreement, CSXT may terminate this Agreement by delivery of notice to Agency in the event Agency or its Contractors fail to observe the terms or conditions of this Agreement and such failure continues more than ten (10) business days following delivery of notice of such failure by CSXT to Agency.

8.3 Consequences of Termination. If the Agreement is terminated by either party pursuant to this Section or any other provision of this Agreement, the parties understand that it may be impractical for them to immediately stop the Work. Accordingly, they agree that, in such instance a party may continue to perform Work until it has reached a point where it may reasonably and safely suspend the Work. Agency shall reimburse CSXT pursuant to this Agreement for the Work performed, plus all costs reasonably incurred by CSXT to discontinue the Work and protect the Work upon full suspension of the same, the cost of returning CSXT's property to its former condition, and all other costs of CSXT incurred as a result of the Project up to the time of full suspension of the Work. Termination of this Agreement or Work on the Project, for any reason, shall not diminish or reduce Agency's obligation to pay CSXT for Reimbursable Expenses incurred in accordance with this Agreement. In the event of the termination of this Agreement or the Work for any reason, CSXT's only remaining obligation to Agency shall be to refund to Agency payments made to CSXT in excess of Reimbursable Expenses in accordance with Section 4.

9. Insurance

In addition to the insurance that Agency requires of its Contractor, Agency shall acquire or require its Contractor to purchase and maintain insurance in compliance with CSXT's insurance requirements attached to this Agreement as Exhibit F. Neither Agency nor Contractor shall commence work on the Project until such policy or policies have been submitted to and approved by CSXT's Risk Management Department.

10. Ownership and Maintenance

[CSXT UTILZES VARIOUS LANGUAGE IN COMPLETING THIS SECTION DESCRIBING BOTH

MAINTENANCE RESPONSIBILITIES FOR CSXT AND AGENCY WHICH IS DEPENDENT UPON THE PROJECT WORK SCOPE, PROVISIONS OF LAW OR REGULATORY ORDERS, PROJECT NEGOTIATIONS AND OTHER FACTORS – FINAL LANGUAGE TO BE DETERMINED]

10.1 By Agency.

10.2 By CSXT.

10.3 Alterations. Agency shall not undertake any alteration, modification or expansion of the Project, without the prior written approval of CSXT, which may be withheld for any reason, and the execution of such agreements as CSXT may require.

11. Indemnification

11.1 Generally. To the maximum extent permitted by applicable law, Agency and its Contractors shall indemnify, defend, and hold CSXT and its affiliates harmless from and against all claims, demands, payments, suits, actions, judgments, settlements, and damages of every nature, degree, and kind (including direct, indirect, consequential, incidental, and punitive damages), for any injury to or death to any person(s) (including, but not limited to the employees of CSXT, its affiliates, Agency or its Contractors), for the loss of or damage to any property whatsoever (including but not limited to property owned by or in the care, custody, or control of CSXT, its affiliates, Agency or its Contractors, and environmental damages and any related remediation brought or recovered against CSXT and its affiliates), arising directly or indirectly from the negligence, recklessness or intentional wrongful misconduct of the Contractors, Agency, and their respective agents, employees, invitees, contractors, or its contractors' agents, employees or invitees in the performance of work in connection with the Project or activities incidental thereto, or from their presence on or about CSXT's property. The foregoing indemnification obligation shall not be limited to the insurance coverage required by this Agreement, except to the extent required by law or otherwise expressly provided by this Agreement.

11.2 Compliance with Laws. Agency shall comply, and shall require its Contractors to comply, with any federal, state, or local laws, statutes, codes, ordinances, rules, and regulations applicable to its construction and maintenance of the Project. Agency's Contractors shall indemnify, defend, and hold CSXT and its affiliates harmless with respect to any fines, penalties, liabilities, or other consequences arising from breaches of this Section.

11.3 "CSXT Affiliates". For the purpose of this Section 11, CSXT's affiliates include CSX Corporation and all entities, directly or indirectly, owned or controlled by or under common control of CSXT or CSX Corporation and their respective officers, directors, employees and agents.

11.4 Notice of Incidents. Agency and its Contractor shall notify CSXT promptly of any loss, damage, injury or death arising out of or in connection with the Project work.

11.5 Survival. The provisions of this Section 11 shall survive the termination or expiration of this Agreement.

12. Independent Contractor

The parties agree that neither Agency nor its Contractors shall be deemed either agents or independent contractors of CSXT. Except as otherwise provided by this Agreement, CSXT shall exercise no control whatsoever over the employment, discharge, compensation of, or services rendered by Agency or Agency's Contractors, or the construction practices, procedures, and professional judgment employed by Agency or its Contractor to complete the Project. Notwithstanding the foregoing, this Section 12 shall in no way affect the absolute authority of CSXT to prohibit Agency or its Contractors or anyone from entering CSXT's property, or to require the removal of any person from its property, if it determines, in its sole discretion, that such person is not acting in a safe manner or that actual or potential hazards in, on or about the Project exist.

13. "Entire Agreement"

This Agreement embodies the entire understanding of the parties, may not be waived or modified except in a writing signed by authorized representatives of both parties, and supersedes all prior or contemporaneous written or oral understandings, agreements or negotiations regarding its subject matter. In the event of any inconsistency between this Agreement and the Exhibits, the more specific terms of the Exhibits shall be deemed controlling.

14. Waiver

If either party fails to enforce its respective rights under this Agreement, or fails to insist upon the performance of the other party's obligations hereunder, such failure shall not be construed as a permanent waiver of any rights or obligations in this Agreement.

15. Assignment

CSXT may assign this Agreement and all rights and obligations herein to a successor in interest, parent company, affiliate, or future affiliate. Upon assignment of this Agreement by CSXT and the assumption of CSXT's assignee of CSXT's obligations under this Agreement, CSXT shall have no further obligation under this Agreement. Agency shall not assign its rights or obligations under this Agreement without CSXT's prior consent, which consent may be withheld for any reason.

16. Notices

All notices, consents and approvals required or permitted by this Agreement shall be in writing and shall be deemed delivered upon personal delivery, upon the expiration of three (3) days following mailing by first class U.S. mail, or upon the next business day following mailing by a nationally recognized overnight carrier, to the parties at the addresses set forth below, or such other addresses as either party may designate by delivery of prior notice to the other party:

If to CSXT:

If to Agency:

17. Severability

The parties agree that if any part, term or provision of this Agreement is held to be illegal, unenforceable or in conflict with any applicable federal, state, or local law or regulation, such part, term or provision shall be severable, with the remainder of the Agreement remaining valid and enforceable.

18. Applicable Law

This Agreement shall be governed by the laws of the State of _____, exclusive of its choice of law rules. The parties further agree that the venue of all legal and equitable proceedings related to disputes under this Agreement shall be situated in Duval County, Florida, and the parties agree to submit to the personal jurisdiction of any State or Federal court situated in Duval County, Florida.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed in duplicate, each by its duly authorized officers, as of the date of this Agreement.

[PUBLIC AGENCY]

By _____

Print Name_____

Title _____

CSX TRANSPORTATION, INC.

By _____

Print Name_____

Title _____

EXHIBIT A

ALLOCATION OF WORK

Subject to Section 2.1, work to be performed in connection with the Project is allocated as follows:

A. Agency shall let by contract to its Contractors:

CSXT shall perform or cause to be performed:

EXHIBIT B

PLANS AND SPECIFICATIONS

Plans, Specifications and Drawings:

As of the date of this Agreement, the following plans, specifications and drawings have been submitted by Agency to CSXT for its review and approval:

[INSERT PLAN DESCRIPTION HERE]

EXHIBIT C

CSXT SPECIAL PROVISIONS

EXHIBIT D

INITIAL ESTIMATE

EXHIBIT E

PAYMENT SCHEDULE

Advance Payment in Full

Upon execution and delivery of notice to proceed with the Project, Agency will deposit with CSXT a sum equal to the Reimbursable Expenses, as shown by the Estimate. If CSXT anticipates that it may incur Reimbursable Expenses in excess of the deposited amount, CSXT will request an additional deposit equal to the then remaining Reimbursable Expenses which CSXT estimates that it will incur. CSXT shall request such additional deposit by delivery of invoices to Agency. Agency shall make such additional deposit within 30 days following delivery of such invoice to Agency

[NOTE: ALTERNATE PAYMENT PROVISIONS MAY BE ABLE TO BE CONSIDERED BY CSXT IF DEEMED ACCEPTABLE AND ARE SUBJECT TO NEGOTIATION BETWEEN CSXT AND AGENCY]

EXHIBIT F

INSURANCE REQUIREMENTS

I. Insurance Policies:

Company and Contractor, if and to the extent that either is performing work on or about CSXT's property, shall procure and maintain the following insurance policies:

1. Commercial General Liability coverage at their sole cost and expense with limits of not less than $5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional named insured.

2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than $1,000,000, which insurance must contain a waiver of subrogation against CSXT and its affiliates.

3. Commercial automobile liability insurance with limits of not less than $500,000 combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional named insured.

4. Railroad protective liability insurance with limits of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of $10,000,000, which insurance shall satisfy the following additional requirements:

   a. The insurer must be financially stable and rated B+ or better in Best's Insurance Reports.

   b. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance - Insurance Services Office (ISO) Form CG 00 35.

   c. CSX Transportation must be named as the named insured on the Railroad Protective Insurance Policy.

   d. Name and Address of Contractor and Company must be shown on the Declarations page.

   e. Description of operations must appear on the Declarations page and must match the Project description, including project or contract identification numbers.

   f. Authorized endorsements must include the Pollution Exclusion Amendment - CG 28 31, unless using form CG 00 35 version 96 and later.

   g. Authorized endorsements may include:

      (i). Broad Form Nuclear Exclusion - IL 00 21
      (ii) 30-day Advance Notice of Non-renewal or cancellation
      (iii) Required State Cancellation Endorsement
      (iv) Quick Reference or Index - CL/IL 240

h. Authorized endorsements may not include:

(i) A Pollution Exclusion Endorsement except CG 28 31
(ii) A Punitive or Exemplary Damages Exclusion
(iii) A "Common Policy Conditions" Endorsement
(iv) Any endorsement that is not named in Section 4 (f) or (g) above.
(v) Policies that contain any type of deductible

5. Such additional or different insurance as CSXT may require.

II. Additional Terms

1. Contractor must submit its original insurance policies and two copies and all notices and correspondence regarding the insurance policies to:

Deborah A. Tauro
Risk Manager, Planning & Analysis
CSX Corporation
500 Water Street - C907
Jacksonville, FL 32202
Phone: 904-366-5088
Fax: 904-245-3506

2. Neither Company nor Contractor may begin work on the Project until it has received CSXT's written approval of the required insurance policies.

SCHEDULE I

CONTRACTOR'S ACCEPTANCE

To and for the benefit of CSX Transportation, Inc. ("CSXT") and to induce CSXT to permit Contractor on or about CSXT's property for the purposes of performing work in accordance with the Agreement dated _____, 20__, between **[PUBLIC AGENCY]** and CSXT, Contractor hereby agrees to abide by and perform all applicable terms of the Agreement, including, but not limited to Exhibits C and F to the Agreement, and Sections 3, 9 and 11 of the Agreement.

Contractor: _____

By: _____

Name: _____

Title: _____

Date: _____

SUPPLEMENT C

APPENDIX

CSX Transportation

CSXT SPECIAL PROVISIONS

Office of Structural Engineering
Jacksonville, FL
Date Issued: October 1, 1999

CSXT SPECIAL PROVISIONS

AUTHORITY OF CSXT ENGINEER

The CSXT Representative shall have final authority in all matters affecting the safe maintenance of CSXT operations and CSXT property, and his or her approval shall be obtained by the Agency or its Contractor for methods of construction to avoid interference with CSXT operations and CSXT property and all other matters contemplated by the Agreement and these Special Provisions.

II. INTERFERENCE WITH CSXT OPERATIONS

A. Agency or its Contractor shall arrange and conduct its work so that there will be no interference with CSXT operations, including train, signal, telephone and telegraphic services, or damage to CSXT's property, or to poles, wires, and other facilities of tenants on CSXT's Property or right-of-way. Agency or its Contractor shall store materials so as to prevent trespassers from causing damage to trains, or CSXT Property. Whenever Work is likely to affect the operations or safety of trains, the method of doing such Work shall first be submitted to the CSXT Representative for approval, but such approval shall not relieve Agency or its Contractor from liability in connection with such Work.

B. If conditions arising from or in connection with the Project require that immediate and unusual provisions be made to protect train operation or CSXT's property, Agency or its Contractor shall make such provision. If the CSXT Representative determines that such provision is insufficient, CSXT may, at the expense of Agency or its Contractor, require or provide such provision as may be deemed necessary, or cause the Work to cease immediately.

III. NOTICE OF STARTING WORK. Agency or its Contractor shall not commence any work on CSXT Property or rights-of-way until it has complied with the following conditions:

A. Notify CSXT in writing of the date that it intends to commence Work on the Project. Such notice must be received by CSXT at least ten business days in advance of the date Agency or its Contractor proposes to begin Work on CSXT property. The notice must refer to this Agreement by date. If flagging service is required, such notice shall be submitted at least thirty (30) business days in advance of the date scheduled to commence the Work.

B. Obtain authorization from the CSXT Representative to begin Work on CSXT property, such authorization to include an outline of specific conditions with which it must comply.

C. Obtain from CSXT the names, addresses and telephone numbers of CSXT's personnel who must receive notice under provisions in the Agreement. Where more than one individual is designated, the area of responsibility of each shall be specified.

IV. WORK FOR THE BENEFIT OF THE CONTRACTOR

A. No temporary or permanent changes to wire lines or other facilities (other than third party fiber optic cable transmission systems) on CSXT property that are considered necessary to the Work are anticipated or shown on the Plans. If any such changes are, or become, necessary in the opinion of CSXT or Agency, such changes will be covered by appropriate revisions to the Plans and by preparation of a force account estimate. Such force account estimate may be initiated by either CSXT or Agency, but must be approved by both CSXT and Agency. Agency or Contractor shall be responsible for arranging for the relocation of the third party fiber optic cable transmission systems, at no cost or expense to CSXT.

B. Should Agency or Contractor desire any changes in addition to the above, then it shall make separate arrangements with CSXT for such changes to be accomplished at the Agency or Contractor's expense.

V. HAUL ACROSS RAILROAD

A. If Agency or Contractor desires access across CSXT property or tracks at other than an existing and open public road crossing in or incident to construction of the Project, the Agency or Contractor must first obtain the permission of CSXT and shall execute a license agreement or right of entry satisfactory to CSXT, wherein Agency or Contractor agrees to bear all costs and liabilities related to such access.

B. Agency and Contractor shall not cross CSXT's property and tracks with vehicles or equipment of any kind or character, except at such crossing or crossings as may be permitted pursuant to this section.

VI. COOPERATION AND DELAYS

A. Agency or Contractor shall arrange a schedule with CSXT for accomplishing stage construction involving work by

CSXT. In arranging its schedule, Agency or Contractor shall ascertain, from CSXT, the lead time required for assembling crews and materials and shall make due allowance therefor

B. Agency or Contractor may not charge any costs or submit any claims against CSXT for hindrance or delay caused by railroad traffic; work done by CSXT or other delay incident to or necessary for safe maintenance of railroad traffic; or for any delays due to compliance with these Special Provisions.

C. Agency and Contractor shall cooperate with others participating in the construction of the Project to the end that all work may be carried on to the best advantage.

D. Agency and Contractor understand and agree that CSXT does not assume any responsibility for work performed by others in connection the Project. Agency and Contractor further understand and agree that they shall have no claim whatsoever against CSXT for any inconvenience, delay or additional cost incurred by Agency or Contractor on account of operations by others.

VII. STORAGE OF MATERIALS AND EQUIPMENT

Agency and Contractor shall not store their materials or equipment on CSXT's property or where they may potentially interfere with CSXT's operations, unless Agency or Contractor has received CSXT Representative's prior written permission. Agency and Contractor understand and agree that CSXT will not be liable for any damage to such materials and equipment from any cause and that CSXT may move, or require Agency or Contractor to move, such material and equipment at Agency's or Contractor's sole expense. To minimize the possibility of damage to the railroad tracks resulting from the unauthorized use of equipment, all grading or other construction equipment that is left parked near the tracks unattended by watchmen shall be immobilized to the extent feasible so that it cannot be moved by unauthorized persons.

VIII. CONSTRUCTION PROCEDURES

A. General

1. Construction work on CSXT property shall be subject to CSXT's inspection and approval.

2. Construction work on CSXT property shall be in accord with CSXT's written outline of specific conditions and with these Special Provisions.

3. Contractor shall observe the terms and rules of the CSXT Safe Way manual, which Agency and Contractor shall be required to obtain from CSXT, and in accord with any other instructions furnished by CSXT or CSXT's Representative.

B. Blasting

1. Agency or Contractor shall obtain CSXT Representative's and Agency Representative's prior written approval for use of explosives on or adjacent to CSXT property. If permission for use of explosives is granted, Agency or Contractor must comply with the following:

a. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of Agency or Contractor.

b. Electric detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.

c. No blasting shall be done without the presence of an authorized representative of CSXT. At least 10 days' advance notice to CSXT Representative is required to arrange for the presence of an authorized CSXT representative and any flagging that CSXT may require.

d. Agency or Contractor must have at the Project site adequate equipment, labor and materials, and allow sufficient time, to (i) clean up (at Agency's expense) debris resulting from the blasting without any delay to trains; and (ii) correct (at Agency's expense) any track misalignment or other damage to CSXT's property resulting from the blasting, as directed by CSXT Representative, without delay to trains. If Agency's or Contractor's actions result in delay of any trains, including Amtrak passenger trains, Agency shall bear the entire cost thereof.

e. Agency and Contractor shall not store explosives on CSXT property.

2. CSXT Representative will:

a. Determine the approximate location of trains and advise Agency or Contractor of the approximate amount

of time available for the blasting operation and clean-up.

b. Have the authority to order discontinuance of blasting if, in his or her opinion, blasting is too hazardous or is not in accord with these Special Provisions.

IX. MAINTENANCE OF DITCHES ADJACENT TO CSXT TRACKS

Agency or Contractor shall maintain all ditches and drainage structures free of silt or other obstructions that may result from their operations. Agency or Contractor shall provide erosion control measures during construction and use methods that accord with applicable state standard specifications for road and bridge construction, including either (1) silt fence; (2) hay or straw barrier; (3) berm or temporary ditches; (4) sediment basin; (5) aggregate checks; and (6) channel lining. All such maintenance and repair of damages due to Agency's or Contractor's operations shall be performed at Agency's expense.

X. FLAGGING / INSPECTION SERVICE

A. CSXT has sole authority to determine the need for flagging required to protect its operations and property. In general, flagging protection will be required whenever Agency or Contractor or their equipment are, or are likely to be, working within fifty (50) feet of live track or other track clearances specified by CSXT, or over tracks.

B. Agency shall reimburse CSXT directly for all costs of flagging that is required on account of construction within CSXT property shown in the Plans, or that is covered by an approved plan revision, supplemental agreement or change order.

C. Agency or Contractor shall give a minimum of 10 days' advance notice to CSXT Representative for anticipated need for flagging service. No work shall be undertaken until the flag person(s) is/are at the job site. If it is necessary for CSXT to advertise a flagging job for bid, it may take up to 90-days to obtain this service, and CSXT shall not be liable for the cost of delays attributable to obtaining such service.

D. CSXT shall have the right to assign an individual to the site of the Project to perform inspection service whenever, in the opinion of CSXT Representative, such inspection may be necessary. Agency shall reimburse CSXT for the costs incurred by CSXT for such inspection service. Inspection service shall not relieve Agency or Contractor from liability for its Work.

E. CSXT shall render invoices for, and Agency shall pay for, the actual pay rate of the flagpersons and inspectors used, plus standard additives, whether that amount is above or below the rate provided in the Estimate. If the rate of pay that is to be used for inspector or flagging service is changed before the work is started or during the progress of the work, whether by law or agreement between CSXT and its employees, or if the tax rates on labor are changed, bills will be rendered by CSXT and paid by Agency using the new rates. Agency and Contractor shall perform their operations that require flagging protection or inspection service in such a manner and sequence that the cost of such will be as economical as possible.

XI. UTILITY FACILITIES ON CSXT PROPERTY

Agency shall arrange, upon approval from CSXT, to have any utility facilities on or over CSXT Property changed as may be necessary to provide clearances for the proposed trackage.

XII. CLEAN-UP

Agency or Contractor, upon completion of the Project, shall remove from CSXT's Property any temporary grade crossings, any temporary erosion control measures used to control drainage, all machinery, equipment, surplus materials, falsework, rubbish, or temporary buildings belonging to Agency or Contractor. Agency or Contractor, upon completion of the Project, shall leave CSXT Property in neat condition, satisfactory to CSXT Representative.

XIII. FAILURE TO COMPLY

If Agency or Contractor violate or fail to comply with any of the requirements of these Special Provisions, (a) CSXT may require Agency and/or Contractor to vacate CSXT Property; and (b) CSXT may withhold monies due Agency and/or Contractor; (c) CSXT may require Agency to withhold monies due Contractor; and (d) CSXT may cure such failure and the Agency shall reimburse CSXT for the cost of curing such failure.

SUPPLEMENT D

APPENDIX

CSX Transportation

OVERHEAD BRIDGE CRITERIA

Office of Structural Engineering
Jacksonville, FL
Date Issued: October 1, 1999

CRITERIA FOR OVERHEAD BRIDGES

New or reconstructed bridges over CSX Railroad tracks shall meet the following requirements:

I. CLEARANCES:

A. Horizontal Clearance: Standard horizontal clearance from centerline of the track to the face of the pier or abutment shall be 18'-0", measured perpendicular to the track. On curved track, horizontal clearance shall be increased 1 ½ inch per degree of curvature. When track is superelevated clearances on inside of the curve shall be increased by 3 ½ inch per each 1-inch of superelevation. Edges of footing shall not be closer than 11'-0" from centerline of the track to provide adequate room for sheeting.

B. Vertical Clearance: A standard vertical clearance of 23'-0" shall be provided, measured from top of high rail to lowest point of structure in the horizontal clearance area.

C. Temporary Construction clearances to be used shall be as specified by the Railroad's Division Manager.

D. Railroad shall be furnished as-built drawings showing actual clearances as constructed.

II. CRASHWALLS:

AREMA Specifications, Chapter 8, Article 2.1.5 covers the requirements for crashwalls. Crashwalls are required when face of the pier is closer than 25'-0" from centerline of the track, measured perpendicular to the track, except as noted below.

Crashwalls shall meet the following requirements:

A. Crashwalls for single column piers shall be minimum 2'-6" thick and shall extend minimum 6"-0" above the top of high rail. The wall shall extend minimum 6'-0" beyond the column on each side in the direction parallel to the track.

B. For multi-columns piers, the columns shall be connected with a wall of the same thickness as the columns or 2'-6" whichever is greater. The wall shall extend a minimum of 2'-6" beyond the end of outside columns in a direction parallel to the track.

C. Reinforcing steel to adequately anchor the crashwalls to the column and footing shall be provided.

For piers of heavy construction, crashwalls may be omitted. Solid piers with a minimum thickness of 2'-6" and length of 20'-0", single column piers of minimum 4'-0" X 12'-6" dimensions or any other solid pier sections with equivalent cross sections and minimum 2'-6" thickness are considered as heavy construction.

III. DRAINAGE:

Drainage from the bridge shall be preferably collected with drain pipes and drained away from railroad right-of-way. When open scuppers are provided on the bridge, none shall be closer than 25'-0" of the centerline of nearest track. Flow from the scuppers shall be directed away from the railroad drainage ditches.

After completion of construction, the public agency or its contractor must clear the railroad drainage ditches of all debris to the satisfaction of the railroad representatives.

IV. STRUCTURE EXCAVATION AND SHORING:

Shoring protection shall be provided when excavating adjacent to an active railroad track, except as noted below.

Shoring will not be required if both the following conditions are satisfied:

1. Excavation does not encroach upon a 1 ½ horizontal: 1 vertical theoretical slope line starting 1'-6" below top of rail and at 12'-0" minimum from centerline of the track.

2. Track is on level ground or in a cut section and on stable soil.

When the track is on an embankment, excavating the toe of the embankment without shoring may affect the stability of the embankment. Therefore, excavation of the embankment toe without shoring will not be permitted.

Preferred protection is the cofferdam type that completely encloses the excavation. Where dictated by conditions, partial cofferdams with open sides away from the track may be used. Cofferdams shall be constructed using steel sheet piling or steel soldier beams with timber lagging. Wales and struts shall be provided as needed. The following shall be considered when designing cofferdams:

a. Shoring shall be designed to resist a vertical live load surcharge of 1800 lbs. per square foot, in addition to active earth pressure. The

surcharge shall be assumed to act on a continuous strip, 8'-6" wide. Lateral pressures due to surcharge shall be computed using the strip load formula shown in AREMA Manual for Railway Engineering, Chapter 8, Part 20.

b. Allowable stresses in materials shall be in accordance with AREMA Manual for Railway Engineering, Chapter 7, 8, and 15.

c. A construction procedure for temporary shoring shall be shown on the drawing.

d. Safety railing shall be installed when temporary shoring is within 12 feet of track.

e. A minimum distance of 10 feet from centerline of the track to face of nearest point of shoring shall be maintained.

The contractor shall submit the following drawings and calculations for Railroad review and approval.

1. Three (3) sets of detailed drawings of the shoring systems showing sizes of all structural members, details of connections, and distances form centerline of track to face of shoring. Drawing shall show a section showing height of shoring and track elevation in relation to bottom of excavation.

2. One set of calculations of the shoring design.

   The drawings and calculations shall be prepared by a Registered Professional Engineer in State where shoring is to be constructed and shall bear his seal and signature. Shoring plans shall be approved by Director Structural Engineering.

V. GENERAL REQUIREMENTS:

A. Railroad Valuation Station and the distance from the nearest Mile Post at the intersection of the centerline of the track and the centerline of the bridge shall be shown on the General Plan.

B. Horizontal and vertical clearances shall be marked clearly on the General Plan and Elevation.

C. At least one subsurface exploration boring for each substructure unit adjacent to the track shall be furnished to the Director Structural Engineering. Borings shall provide enough information to design shoring and foundations.

VI. DEMOLITION OF EXISTING STRUCTURE:

Railroad tracks shall be protected from damage during demolition of existing structure or replacement of deck slab. Either of the following methods may be used:

A. During demolition of the deck, a protection shield shall be erected over the track to catch falling debris. The protection shield shall be supported from girders or beams and shall not be lower than allowed temporary clearance. The deck shall be removed by cutting it in section s and lifting out.

Large pieces of deck shall not be allowed to fall on protection shield

B. On light traffic density lines or when overhead protection shield can not be installed due to limited clearance or type of superstructure, track may be protected by timber mats placed over the track structure, subject to approval by Division Manager. Timber mats shall be made in sections such that they may be lifted in and out quickly. Mats shall not rest on ties or rails. Geofabric or canvas shall be placed over the track structure to keep the ballast clean.

C. Blasting will not be permitted to demolish a structure over or within railroad right-of-way.

The Contractor shall submit detailed plans of the protection shield or the timber mats to the Division Manager for approval prior to the start of demolition.

VII. ERECTION PROCEDURE:

The Contractor shall submit a detailed procedure for erecting the spans over Railroad tracks. The procedure shall indicate the capacity of cranes, location of cranes with respect to the tracks and estimated lifting loads. The erection procedure must be approved by the CSX Division Manager.

OVERHEAD BRIDGE CROSSING DATA

1. Location: _____ _____ _____

   City County State

2. Railroad Division: _____

3. Railroad Valuation Station at Centerline of Bridge: _____

4. Distance from nearest Mile Post to Centerline of Bridge: _____

5. DOT Crossing Number: _____

6. State Project Number: _____

7. Description of Project _____

   _____

   _____

8. Minimum Horizontal Clearance form Centerline of nearest Track:

   A. Proposed: _____ B. Existing (if applicable) _____

9. Minimum Vertical Clearance above top of low rail:

   A. Proposed _____ B. Existing (if applicable) _____

10. List piers where crashwalls are provided:

    Pier: _____ Distance from centerline of track:

    _____ _____

    _____ _____

11. Describe how drainage from bridge is handled: _____

    _____

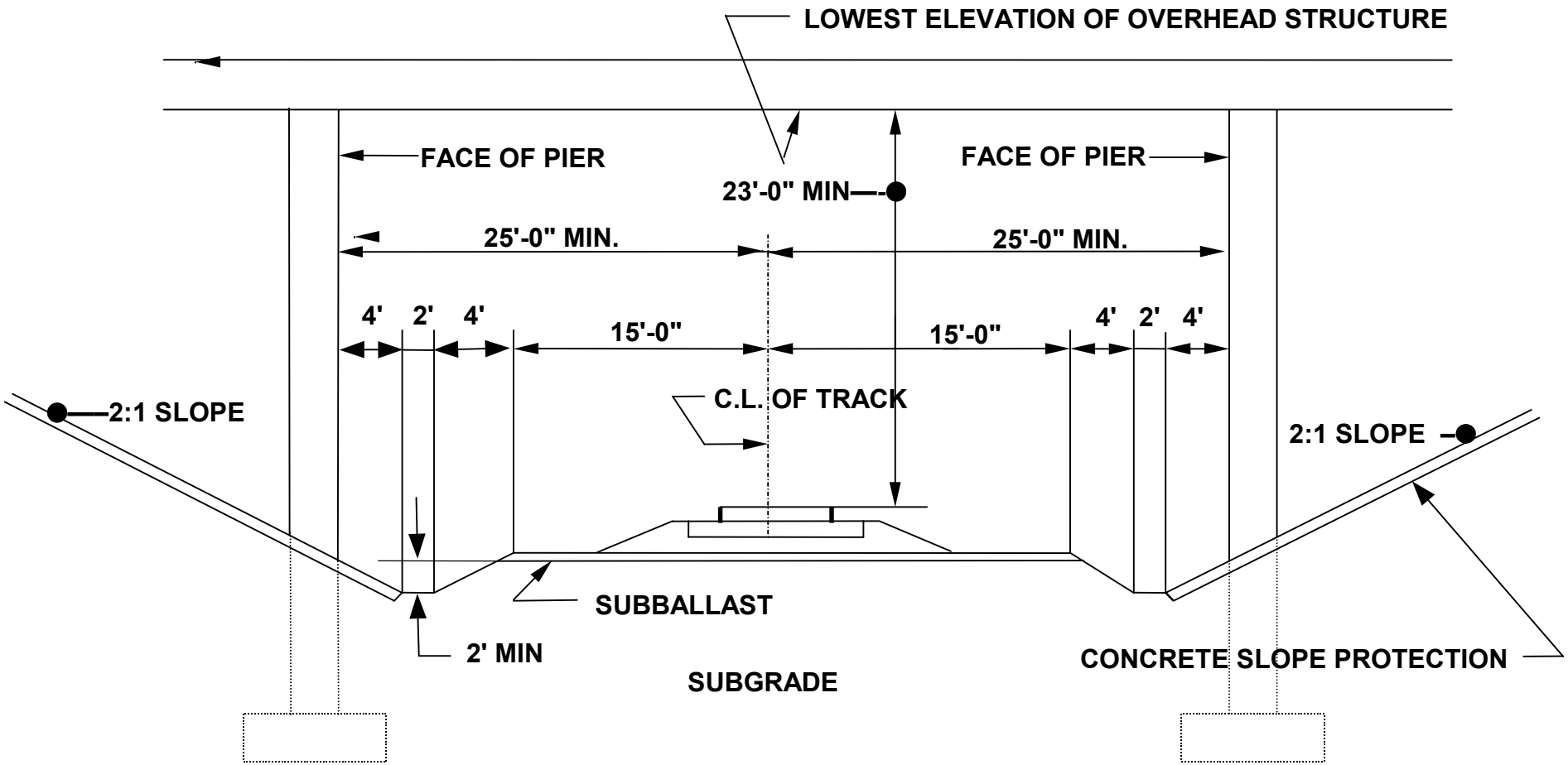
    _____

12. List piers where shoring is required to protect track: _____

    _____

13. Plan Submittal: Preliminary _____ Final _____

NOTE: CSX Criteria for Overhead Bridges apply to items 8 thru 12.



CLEARANCES REQUIRED FOR OVERHEAD STRUCTURES
TYPICAL ROADBED SECTION WITH STANDARD DITCHES

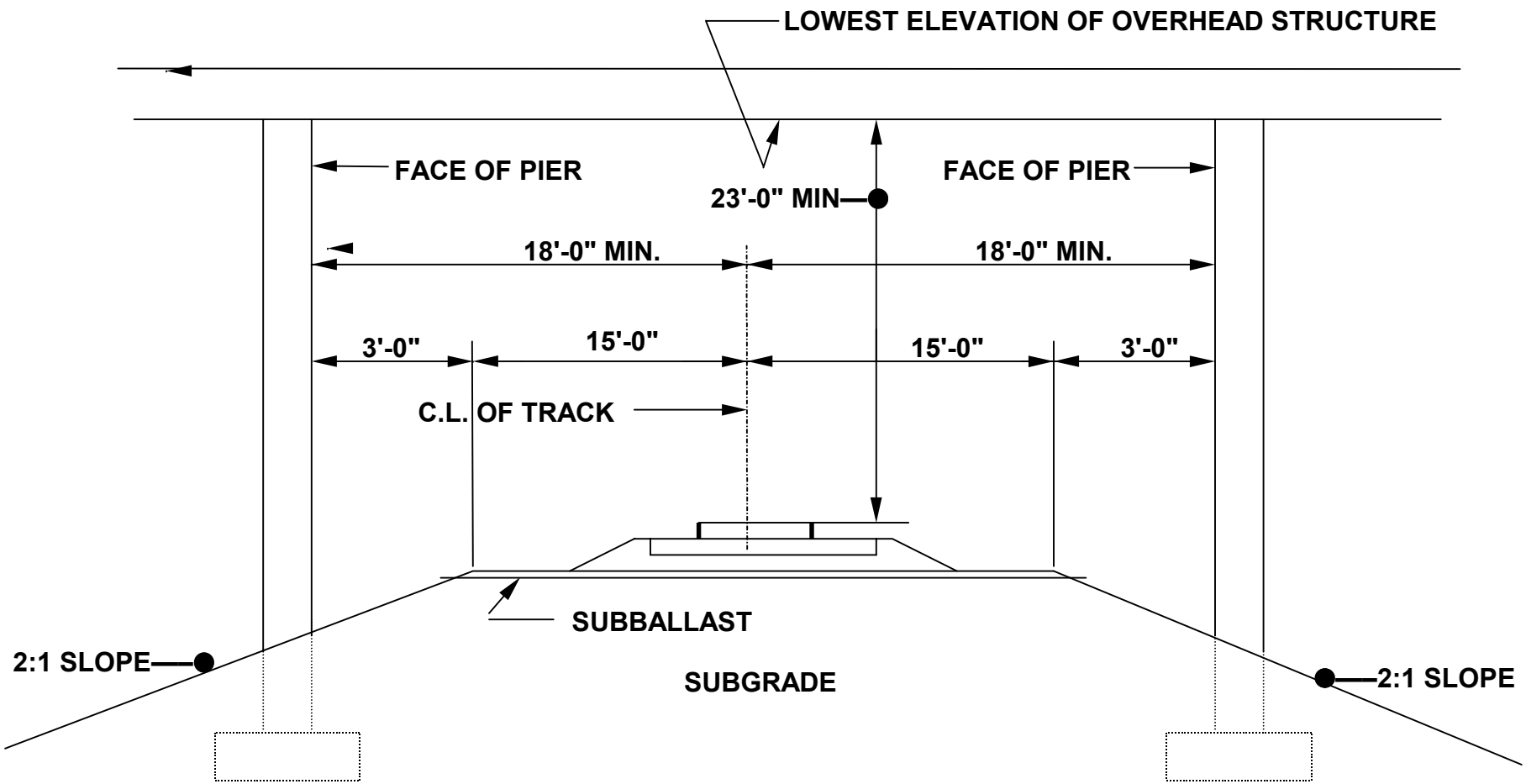
NOTE: FOR MULTIPLE TRACKS, STANDARD TRACK CENTERS IS 15'-0"

CSX TRANSPORTATION
ENGINEERING DEPARTMENT

STANDARD CLEARANCES FOR OVERHEAD STRUCTURES

399

NOVEMBER 1, 1993 SHEET 1 OF 2



CLEARANCES REQUIRED FOR OVERHEAD STRUCTURES
TYPICAL SECTION FOR ROADBED IN FILL

(WHERE NO DEFINED DITCHES ARE NEEDED)

NOTE: **FOR MULTIPLE TRACKS, STANDARD TRACK CENTERS IS 15'-0"**

CSX TRANSPORTATION
ENGINEERING DEPARTMENT

STANDARD CLEARANCES FOR OVERHEAD STRUCTURES

400

NOVEMBER 1, 1993 SHEET 2 OF 2

SUPPLEMENT E

APPENDIX

CSX Transportation

UNDERGRADE BRIDGE CRITERIA INCLUDING BALLAST DECKS

Office of Structural Engineering
Jacksonville, FL
Date Issued: October 1, 1999

CRITERIA FOR BALLAST DECK RAILROAD BRIDGES

PURPOSE AND SCOPE

These criteria modify and supplement the applicable sections of the AREMA Manual of Recommended Practice in connection with the design of ballasted deck railway bridges.

I. SPECIFICATIONS:

A. Design Specifications: American Railway Engineering and Maintenance-of-Way Associations (AREMA) Manual for Railway Engineering, Current Edition.

Chapter 7.	Timber Structures
Chapter 8.	Concrete Structures and Foundations
Chapter 15.	Steel Structures
Chapter 29.	Waterproofing

B. Construction Specifications:

1. Use AREMA Manual recommendations for fabrication and erection of structural steel (Chapter 15).
2. Use AREMA Manual recommendations for Concrete Structures and foundations (Chapter 8).
3. Use AREMA Manual recommendations for dampproofing and deck waterproofing (Chapter 29).
4. CSXT Standard Specifications and Special Specifications shall be used where appropriate. Items not covered by CSXT Standard and Special Specifications should use the Standard Highway Specifications for the State where the bridge is being constructed.

II. BRIDGE LAYOUT

While preparing the initial layout of the bridge the following shall be considered:

A. The layout of the bridge shall show the Railroad Valuation Stations at face of backwalls and at centerline of the bridge. Distance from centerline of the bridge to nearest milepost shall be shown on plan.

B. For bridges on curves, the girders, abutments and piers shall be located with reference to chords.

C. Provide horizontal clearance on the bridge as shown in Figure 1-1, Chapter 15 of the AREMA Manual. For curved track, increase the required clearance 1 ? inches per degree of curvature. On the inside of the curve, the required clearance shall be measured from the centerline of the track projected at right angles to the plane of the superelevation. No reduction in required clearances shall be made on outside of the curve due to superelevation. If State legal clearance requirements exceed Railroad requirements; the State legal requirements shall govern. When bridge is on tangent track but the track is curved within 80 feet of the end of bridge, the lateral clearances in Figure 1-1 shall be increased as mentioned above.

D. Bridges over public roadways shall have walkways on both sides of the track. Preferably bridges shall be made wide enough to accommodate walkways on inside of the bridge girders.

E. For multiple track bridges, the width of the bridge must provide proper clearances measured from centerline of each outside track. In addition adequate room shall be provided for a future 15'- 0" center to center of each track.

F. On ballast deck bridges, timber roadway ties 7" thick, 9" wide and 8' 6" long, spaced at 1' 9" centers shall be used. Alternatively, concrete ties may be used at 2'-0" centers. Minimum ballast depth is 8" measured at the centerline of the low rail.

III. DESIGN LOADS

Railroad Bridges shall be designed for all loads specified in Chapters 8 and 15 of the AREMA Specifications. The following live loads shall be used.

Non Composite Design:	Coopers E-80 loading with full diesel impact and the Alternate Live Load.
Composite Design:	Coopers E-80 loading with full diesel impact and the Alternate Live Load.
	Coopers E-65 with full diesel impact for steel alone.

In computing dead load of structure, include the weight of an additional 6" of ballast. This allows for future track surfacing.

IV. MATERIAL REQUIREMENTS

A. STRUCTURAL STEEL:

1. Structural Steel shall be ASTM A709 Gr36, Gr50 or Gr50W. The toughness shall be T2 for non-fracture critical members or F2 for fracture critical members. Other types of steel may be used if approved by the CSX Director Structural Engineering. Thickness of flange plates shall not exceed 3 inches.

2. The engineer shall call out all fracture critical members on the plans.

3. Structural Steel shall be in accordance with CSX Transportation "Specifications for Structural Steel".

4. Structural Steel shall be painted in accordance with CSX Transportation "Specifications for Painting Structural Steel".

B. CONCRETE: Concrete shall be air entrained. Cement shall be Portland Cement, ASTM-C150, Type I or IA. Concrete shall have a minimum 28-day compressive strength of:

4000 psi – Substructure
5000 psi – Superstructure

Use of Fly Ash in concrete is not acceptable. Concrete admixtures other than air entrainment must be approved by CSX's Director Structural Engineering prior to use.

Concrete shall be in accordance with the current CSX Transportation Specifications for Cast-In-Place Concrete."

C. REINFORCING STEEL: Deformed bars of billet steel conforming to ASTM 615, Grade 60 shall be used.

V. SUPERSTRUCTURE

A. GENERAL

1. The thickness of steel deck plate shall be as follows:

Plate Thickness	Max. Clear Distance Between Beams
?"	1' - 6"
5/8"	2' - 0"
?"	2' - 4"

2. The steel deck plates shall be shop welded with a pair of 5/16" continuous fillet welds to each floorbeam or deck beam. Deck units shall be shop assembled with two or three beams per unit. Deck plates are not permitted to overhang the beam when these units are fabricated.

3. The closing deck plate between adjacent deck units shall be fillet welded to the beams with continuous 5/16" fillet weld at each beam. After deck plates are welded to beam, fill space between deck plates at joint with bituminous mastic.

4. For welded plate girders no more than two flange section transitions will be permitted without special permission. A full penetration groove weld shall be used for flange to web connection.

5. Intermediate stiffeners shall consist of two angles, one on each side of the web, and shall be bolted to the web. End bearing stiffeners may be plates or angles, welded or bolted.

6. Provide ?" thick, 31 ply, preformed elastomeric shock pads (MIL-C-882C specifications) between bearings and masonry.

7. Superstructures for multiple track bridges, constructed without detour tracks, shall be designed such that the superstructure can be rolled into place in segments while the temporary structure for at least one track remains intact.

8. The bottom lateral bracing system, if required by the AREMA Manual recommendations, shall be bolted to the girders.

9. Continuous spans will not be permitted.

B. The following criteria apply to through plate girder bridges with steel deck plates and closely spaced floorbeams:

1. Floorbeam brackets (or knee braces) shall be weldments that are bolted to the top flange of the floorbeams and to vertical stiffeners on the girder. The slope of the bracket shall be 4 inches in 12 inches where possible.

2. End floorbeams shall frame into the end stiffeners. An additional connection angle shall be provided where welded stiffener plates are used. End floorbeams and connections shall be designed such that the bridge can be jacked up by placing jacks under the end floorbeams. Jacking stiffeners shall be provided at points of jacking.

3. Intermediate floorbeams shall frame into the girder web using double connection angles and high strength steel bolts. At brackets or at other locations where there is an intermediate stiffener, the stiffener on the inside of the girder shall be terminated 1" minimum above the top of the floorbeam.

4. Through plate girder spans are limited to single and double track bridges only.

C. The following criteria apply to bridges with multiple deck girders with steel deck plates.

1. Provide a welded field splice in the deck plates at or near the centerline of bearing of the girders. Provide a closing deck plate from the abutment to this field splice that is normal to the girders and normal to the long direction of the main deck plates. This will avoid splicing deck plates over the backwall.

2. Steel fascia girders may be used in addition to the load carrying girders. The depth of fascia girders shall be 1/12 of the span length. The depth shall also be enough to place the top flange 3 inches above the top of high rail when a handrail is placed along the girder or 38 inches above the top of high rail when no handrail is used. The web of the fascia girder shall be 1/170 of the depth with ? inch minimum. The flanges shall be 12"x 1" minimum.

3. If fascia girders are not used, girders shall be spaced such that deck plates will not overhang the flange of the outside girders by more than 2 inches and a concrete parapet wall shall be provided. The wall shall be securely anchored to the deck plate and have a minimum thickness of 12 inches at the top. The height of the wall shall be as specified for fascia girders.

D. The following criteria apply to deck girder bridges with reinforced concrete deck slabs.

1. Minimum thickness of slabs shall be:
   12" for composite design
   8" for non composite design
   The deck slab shall be wide enough to provide room for walkways. This may be accomplished by providing a full width ballast trough or ballast trough with raised concrete walkways.

2. Epoxy coated reinforcing bars shall be used throughout the slab.

3. The outside edge of the slab shall be not more than 1' – 6" from the centerline of the outside girder. Provide a ?" drip bead on the bottom face of slab.

4. Provide a concrete parapet wall on each side of deck slab. Wall to have a minimum thickness of 12" at the top with reinforcing anchored into the slab. Top of wall shall be 3" above top of high rail if a handrail is provided and 38" above top of high rail without handrail.

5. For composite design, the following minimum reinforcing shall be provided in the slab:
   Transverse direction - #5 at 6" c. to c.
   Longitudinal direction - #5 at 9" c. to c.

VI. DECK DRAINAGE

1. Top surface of waterproofing protection shall have a transverse slope of 1" with a crown under centerline of each track. Use an underlayment with a minimum thickness of 3 ?" of portland cement concrete with welded wire fabric or 1 ?" bituminous mastic underlayment to provide required slope on steel decks. Underlayments shall be in accordance with the requirements of AREMA, Chapter 29, Section 2.5 Underlayment. Concrete decks shall be cast to provide desired

slope. Use longitudinal half round deck drains and pans at ballast retainers and between tracks to collect discharge.

2. Top surface of waterproofing protection shall have a minimum longitudinal slope of 0.5%. When the deck is level or slopes less than 0.5%, underlayment be used to provide longitudinal slope also. Concrete decks shall be cast to provide required slope. Use longitudinal half round deck drains and pans at ballast retainers and between tracks.

3. Deck drains and bottom pans shall be 12 gage, galvanized and bituminous coated.

4. For concrete deck bridges where membrane waterproofing is not used, Ductile Iron pipe drains though the deck with Ductile Iron or stainless steel collection system may be used in lieu of the surface drainage system using half round drains.

5. For longer bridges, intermediate drains at the piers may be required. Use six-inch diameter; Schedule 40 steel pipe for these drains. All pipe, connections, hanger and brackets shall be galvanized or stainless steel. Field connections shall be made with Style 77 Victaulic coupling or equal. Each ballast drain shall have a downspout to a collector on the substructure. Provide a one-inch gap between downspouts and the collector piping.

6. Two feet of porous backfill, measured horizontally, shall be provided behind all abutments and wingwalls. Provide perforated pipe drains behind abutment at bottom to remove drainage. Half-round deck drains shall be connected by downspouts to the perforated pipe at the bottom of porous backfill. This pipe and downspouts shall be 8 inch, 16 gage corrugated metal pipe, galvanized and bituminous coated. The perforated pipe shall be connected to a non-perforated 8 inch, 16 gage corrugated metal, galvanized and bituminous-coated pipe prior to exiting from behind abutments. The non-perforated pipe shall be drained away from the bridge with a 1% minimum slope.

VII. DECK WATERPROOFING

A. GENERAL

1. All steel bridge decks shall be waterproofed using membrane waterproofing.

2. Concrete bridge decks shall be waterproofed using membrane waterproofing when the bridge is located in areas subject to frequent freeze and thaw cycles. In areas not subject to frequent freeze and thaw cycles, the deck surface may be dampproofed. Railroad's Director Structural Engineering shall have final authority as to which system will be used.

3. All deck joints between spans shall be watertight.

4. Waterproofing or dampproofing shall be applied to the entire surface of deck and inside faces of parapets or curb plates. Materials and construction to be in accordance with AREMA Manual recommendations, Chapter 29 plus requirements as follows.

B. MEMBRANE WATERPROOFING:

1. Use 3/32" thick Butyl Rubber Membrane waterproofing conforming to the requirements of Article 2.3.5 on the entire deck and ballast retainers.

2. Adhesive must be applied to the entire surface to be waterproofed.

3. No. 3, tongue and groove splice, shown in AREMA Chapter 29, Figure 2-2, shall be used for splicing Butyl Rubber Membrane.

C. WATERPROOFING PROTECTION:

Two layers of asphaltic panels, conforming to AREMA Article 2.4.7, total thickness not less than 1 inch and placed withstaggered joints and set in compatible adhesive, shall be used to protect Buty1 Rubber Membrane on deck and ballast retainers. Ballast shall be placed as soon as practicable following placement of the panels to prevent distortion from sunlight. Edges and protrusions of panels are to be coated in accordance with Article 2.9.4.6. (A).

VIII. SUBSTRUCTURE:

A. ABUTMENT:

1. The abutment shall be designed in accordance with requirements of Chapter 8 of the AREMA Manual

2. The abutment shall be wide enough to provide for a 15' – 0" shoulder measured from the centerline at the nearest track, on each side. In case of multiple track bridges, the abutment width shall be sufficient to provide for standard 15' – 0" shoulder on both sides and future 15' – 0" center to center between tracks. Wingwalls shall be designed to support 2 horizontal : 1 vertical embankment slope.

3. Provide four inches minimum clearance between end of structural steel and face of backwall.

4. Use front face of backwall and centerline of track as reference for abutment layout.

5. Provide waterstops of all construction joints. Waterstops shall be PVC 9" X 3/8" Hollow Bulb (Bulb ?" I. D., 1 ?" O. D.) continuous across joint.

6. Provide minimum edge distance of six inches from edge of masonry plate or shoe to edge of abutment.

B. PIER:

1. Provide a minimum edge distance of six inches from the front edge or back edge of masonry plate or shoe. In addition, provide a minimum edge distance of six inches from the corner of masonry plate or shoe

2. Provide four inches minimum clear between ends of structural steel.

3. Provide a minimum of eighteen inches beyond the outside edge of the masonry plate or shoe to the end of the pier.

4. Length of pier shall be sufficient to provide for future 15'-0" center to center of tracks, when multiple tracks are supported on one pier.

5. Thickness of pier shall be minimum 4'-0" width measured at the stem.

IX. MAINTENANCE OF RAILROAD TRAFFIC

A. GENERAL

1. It is essential that the construction be performed with a minimum interference with rail traffic. Continuity of safe rail operations will be required for the duration of the project.

2. The Design Engineer should contact Railroad's Division manager in the preliminary design stage to determine Railroad Operational requirements.

3. The most effective method of maintaining traffic is to temporarily reroute traffic around the construction site using detour tracks. Detour tracks will be required where feasible. Railroad's Chief Engineer Design and Construction, will furnish design requirements.

4. If detour tracks cannot be provided, the new superstructure shall be constructed adjacent to final location and rolled into place. Temporary bridges will be required to maintain traffic. Construction plans shall show complete details of temporary bridges and roll-in structure.

5. A detailed construction procedure for maintaining traffic shall be shown on the plans. When construction requires total interruption of rail traffic, an estimate of the time required will be shown in the procedure. This interval must be within the approved time frame furnished by Railroad's Division Manager.

6. Prior to the start of construction, written approval from the Railroad for the procedure of construction must be secured.

X. PLAN PREPARATION AND SUBMITTAL

A. PRELIMINARY PLANS

Provide four (4) sets of type, size and location (T.S.&L.) plans to Railroad for approval. The T.S.&L. plan shall show plan view, elevation and typical cross section of the proposed structure. Furnish cross sections or topographic map with contours and soil exploration data along with T.S.&L. plans. Obtain Railroad approval before proceeding with final design. Railroad will assign a bridge designation when T.S.&L. plans are reviewed. This bridge designation shall be shown on all drawings.

B. FINAL PLANS

Provide four (4) sets of detailed final plans and one set of design calculations for Railroad approval. Submit special provisions or special specifications along with final plans for Railroad approval.

After plans are approved and construction contract is awarded, a copy of the contract shall be provided to the Railroad.

Provide one (1) set of original plans or Mylar reproducible tracings (not sepias) of the as built design plans for the Railroad files, after job completion.

C. SHOP DRAWINGS

Provide two (2) complete sets of shop drawings for Railroad review. Welding procedures shall be submitted with the structural steel shop drawings.

After completion of the job, furnish one set of original or Mylar reproducible tracings of the shop drawings for Railroad Files.

D. COFFERDAMS AND SHORING PLANS

During construction of the bridge, shoring may be required to support detour track or cofferdams may be needed to construct abutments and piers. Contractor shall submit detailed plans of the cofferdams and/or shoring, along with the construction procedure and one set of calculations to the Railroad and shall secure approval in writing prior to the start of the construction. Plans shall be prepared by a registered Professional Engineer in the State where the cofferdam or shoring is being constructed and shall bear his seal and signature. All pertinent soil data shall be sent to Railroad along with the plans for the shoring or cofferdam.

Shoring to protect Railroad traffic shall be designed to resist a vertical live load surcharge of 1800 lbs per square foot, in addition to active earth pressure. The surcharge shall be assumed to act on a continuous strip, 8'-6" wide. Lateral pressures due to surcharge shall be computed using the strip load formula shown in AREMA Manual, Chapter 8, part 20.

SUPPLEMENT F

CONSTRUCTION REQUIREMENTS

Prior to contractor selection, it is recommended to include the following information in the project specifications where CSX Transportation (CSXT) coordination is specified.

1. All construction related correspondence will be directed to DMJM Harris, acting as the Construction Monitoring Representative (CMR) on behalf of CSXT, with the following contact and address:

   Brian V. Harrison
   Manager – Construction Services
   DMJM Harris
   260 S. Broad Street, Suite 1500
   Philadelphia, PA 19102
   (215) 966-4846

   Upon receipt of notification, the CMR will direct the Contractor to the local CSXT construction contact for the project.

2. The Contractor shall submit the following construction procedures. The Contractor shall obtain written acceptance before proceeding with construction.

   a. Means and Methods – The Contractor shall develop a detailed submission indicating the progression of work with specific times when tasks will be performed during the project. This submission will include a walkthrough at which time CSXT personnel will be present. Work will not be permitted to commence until the Contractor has provided CSXT with a satisfactory plan that the project will be undertaken without scheduling, performance or safety related issues. Provide a listing of the anticipated equipment to be used, the location of all equipment to be used and insure a contingency plan of action is in place should a primary piece of equipment malfunction. All work in the vicinity of CSXT property that has the potential of affecting CSXT train operations must be submitted and approved by CSXT prior to work being performed. This submission will also include a detailed narrative discussing the coordination of project safety issues between the sponsor, contractor, CSXT and the CMR. The narrative shall address project level coordination and day to day, specific work operations including, but not limited to, crane operations, demolition plans, erection plans and temporary works.

   b. Demolition Shield – Submittals must include a plan showing the details of the shield, a written installation and removal procedure and design calculations verifying the capacity of the shield. The shield should be a deck level shield designed for a minimum load of fifty (50) pounds per square foot plus the weight of the equipment, debris and any other load to be carried. Track level shields are not permitted. A registered Professional Engineer in the State of New York must seal all demolition shield plans, calculations and procedures.

   c. Demolition Plans – Submittals must include detailed plans and procedures for all demolition activities. The submission shall indicate the location and capacity of any proposed cranes, the estimated lifting loads and the connection devices (i.e. slings, shackles, etc.) All lifting equipment and connection devices shall have capacity for 150% of the actual lifting load. The factor of safety provided by the manufacturer in the lifting capacity charts shall not be considered in the 150% factor of safety. A registered Professional Engineer in the State of New York must seal all demolition plans, calculations and procedures.

d. Erection Plans – Submittals must include detailed plans and procedures for all erection activities. The submission shall indicate the location and capacity of any proposed cranes, the estimated lifting loads and the connection devices (i.e. slings, shackles, etc.) All lifting equipment and connection devices shall have capacity for 150% of the actual lifting load. The factor of safety provided by the manufacturer in the lifting capacity charts shall not be considered in the 150% factor of safety. A registered Professional Engineer in the State of New York must seal all erection plans, calculations and procedures.

e. Ballast Protection – The proposed ballast protection system shall use filter fabric and indicate the anchorage system. The ballast protection is to extend 25' beyond the proposed limit of work and be continuously maintained to prevent all contaminants from entering the ballast section of all tracks for the entire duration of the project.

f. Construction Schedule – Submit a detailed construction schedule for the duration of the project clearly indicating the time periods while working on and around CSXT right-of-way. As the work progresses, this schedule shall be updated and resubmitted as necessary to reflect changes in work sequence, duration and method, etc.

g. Insurance – Submit all required insurance information in accordance with the current CSXT Insurance Standards for approval. The complete original policies should be submitted to:

Deborah A. Tauro
Risk Manager, Planning & Analysis
CSX Corporation
500 Water Street – C907
Jacksonville, FL 32202
Phone: 904-366-5088
Fax: 904-245-3506

with a copy to the Construction Monitoring Representative. The insurance policies will be required to be in place and approved prior to any work commencing on or that could potentially impact CSXT right-of-way.

3. Up to thirty (30) days will be required to review all construction submissions. Up to an additional thirty (30) days will be required to review any subsequent submissions returned not approved.

4. The contractor must not use CSXT right-of-way for storage of materials or equipment during construction. The CSXT right-of-way must remain clear at all times.

5. The contractor will be required to abide by the provisions of the Agency/Railroad Construction Agreement. Periodically, throughout the project duration, the contractor will be required to meet, discuss and, if necessary, take immediate action at the discretion of CSXT personnel and/or the CMR to comply with provisions of that agreement and these specifications.

6. This project will require extensive use of CSXT Flagmen to protect train operations from project activity in the area of the tracks. While CSXT cannot guarantee the availability of flagmen at all requested times, every accommodation will be extended to the Contractor when forces are available. Flagging requests should be made to Jonathon Heigel, of CSXT at (518) 767-6373 at least thirty (30) days in advance. Termination or cancellation of a flagman requires ten (10) days notice to avoid incurring costs.

7. All crane and equipment operations that could potentially impact CSXT right-of-way must be coordinated with the CSXT Flagman.

8. The Contractor or the Agency shall be responsible to have painted on the structure the DOT Number assigned to the grade separation. This number shall be affixed at a location on either side of the CSXT tracks or property and in a manner such that it can be readily discerned and visible from track level.

9. The Contractor shall execute Schedule I (Contractor's Acceptance) prior to starting work on, over, under or adjacent to CSXT right of way, which is part of the Construction Agreement to be executed between Agency and CSXT.

10. At project completion, submit a set of "As-Built" plans for the proposed bridge construction and any work performed on the CSXT right-of-way. Please forward the plans to:

    Mr. R. P. Garro, Jr.
    Assistant Chief Engineer Structures
    CSX Transportation
    500 Water Street, J350
    Jacksonville, FL 32202

CSX TRANSPORTATION, INC.

500 Water Street
Jacksonville, FL 32202
www.csx.com

EXHIBIT K
SPECIAL PROVISIONS FOR CONSTRUCTION

NOTICE TO PROPOSERS

PROPOSERS ATTENTION IS DRAWN TO ALL REFERENCES OF STANDARD AND SPECIAL SPECIFICATION ITEMS, MADE IN THE PROPOSAL BOOK. THE SPECIFICATIONS SHALL BE USED AS APPLICABLE, IN THEIR ENTIRETY EXCEPT FOR THE SECTIONS OF METHOD OF MEASUREMENT AND BASIS OF PAYMENT, WHICH ARE CONSIDERED DELETED.

PLEASE NOTE THAT ALL REFERENCES TO UNIT ITEM COSTS DO NOT APPLY. ALL COSTS ARE TO BE INCLUDED IN THE LUMP SUM BID FOR THIS PROJECT.

TABLE OF CONTENTS

1. MAINTENANCE AND PROTECTION OF TRAFFIC
2. STANDARD AND LIST OF ITEMS
3. PROGRESS PHOTOGRAPHS
4. PROGRESS VIDEO MOVIE
5. NUMBERS OF GALLONS OF PAINT USED
6. SHOP, WORKING AND RECORD AS-BUILT DRAWINGS, COMPUTERIZED INDEXING AND MICROFILMING
7. HOLIDAY EMBARGO
8. SUPERINTENDENT
9. EXISTING DIMENSION
10. RESPONSIBILITY OF CONTRACTOR FOR PLANT AND METHODS
11. NIGHT WORK
12. RESTORATION OF DAMAGED AREAS
13. DEPARTMENT STANDARD DRAWINGS (NEW YORK CITY)
14. MANUFACTURER'S WARRANTIES
15. STEEL REBAR REINFORCEMENT
16. STIPULATIONS FOR MEETING CONCRETE COMPRESSIVE STRENGTH
17. ACCESS FOR INSPECTION
18. SAFE LOAD ON STRUCTURES
19. PERMITS, LAWS AND NOTICES
20. DUST CONTROL
21. EMERGENCY CONTACT PERSON
22. NOISE CONTROL
23. STREET LIGHTING WORK
24. COORDINATION WITH UTILITIES
25. EXISTING DRAINAGE, WATER AND SEWER FACILITIES AND GAS OR STEAM PIPES
26. ENCROACHMENT
27. STORE
28. ON AND OFF-SITE MATERIAL TESTING
29. CONSTRUCTION SITE SECURITY AND ACCESS
30. SPECIAL CONSTRUCTION SITE SECURITY AND ID CARD REQUIREMENTS
31. VERTICAL CLEARANCE
32. SCHEDULE OF OPERATION
33. NEW YORK CITY REQUIREMENTS TO PREVENT OVERLOADING OF CRANES DURING CONCRETE PLACEMENT OPERATIONS
34. LEGAL LOADS
35. PROJECT SIGNS
36. SHORING OF EXISTING STRUCTURES
37. CONSTRUCTION SIGNS
38. MODIFICATION TO STANDARD SPECIFICATION (January 2, 1995 and Revision dated 10-10-95 - EI 95-034) ITEM 619.02M - CONSTRUCTION SIGNS
39. PARKING OF VEHICLES
40. CONTRACTOR'S NEW YORK CITY TELEPHONE TIE-LINE.

41. WORKER'S COMPENSATION AND TIME/MATERIAL PAYMENTS
42. ENGINEER'S OFFICE/PC SPECIFICATIONS
43. FALL PROTECTION REQUIREMENTS
44. RODENT CONTROL
45. SPECIAL WARNING SIGN
46. CONTRACTOR/SITE MAINTENANCE
47. GRAFFITI REMOVAL AT WORK SITE
48. SECTION NOT USED
49. SECTION NOT USED
50. COMPANY'S RESPONSIBILITY DURING CONSTRUCTION
51. ACCEPTANCE OF COMPLETED WORK
52. DISPOSAL OF MATERIALS
53. ELECTRICAL SAFETY
54. CRITICAL PATH METHOD SCHEDULE
55. ENGINEER'S FIELD OFFICE
56. HOT MIX ASPHALT
57. BRIDGE IDENTIFICATION NUMBER PLATES
58. VARIABLE MESSAGE SIGNS
59. SALVAGE – LIGHTING STANDARDS AND LUMINARIES
60. PEDESTRIAN FENCING
61. STONE CLADDING
62. PROTECTIVE SHIELD
63. LIQUIDATED DAMAGES ASSESSMENTS
64. CONTRACTOR INITIATED VALUED ENGINEERING CHANGE PROPOSALS (CIVEC)
65. PAVEMENT WARRANTY
66. PRICE TO INCLUDE

SPECIAL PROVISIONS FOR CONSTRUCTION

1. MAINTENANCE AND PROTECTION OF TRAFFIC

1. General

Maintenance and protection of traffic shall be provided in accordance with Section 619 of the Standard Specifications, the New York State Manual of Uniform Traffic Control Devices, Manual of Bureau of Traffic NYCDOT and any Provisions contained in the Plans and/or proposal of this contract.

2. Changes to the Traffic Control Plan

Prior to the start of work, the Contractor may submit any proposed changes to the Traffic Control Plan to the Engineer for approval. Any Change which alters the basic concept of the plan must be approved by the NYC Department of Transportation or its designee.

3. Roadway Closure

The Contractor should obtain all required permits and licenses prior to closing any roadway, sidewalk and/or bridge in order to minimize any project delays.

4. VMS Signs

The Contractor must provide a minimum of three portable VMS signs to be placed in locations designated by OCMC.

2. STANDARD AND LIST OF ITEMS

Unless otherwise noted, all Sections, Subsections, Articles or subarticles as referred to herein within these specifications shall be those of the New York State Department of Transportation's current Standard Specifications for Construction and Material Metric Units dated May 4, 2006, and revision to the standard Specifications (A-Pages) included in the Proposal Book. However, this neither implies the State's involvement in any testing and approval of materials, nor in the supervision of construction. All references, therein to the "Department'" Materials Bureau, "Regional Engineer," etc., shall be deemed to mean the "Engineer." Where any reference is made on the plans, specifications, or proposal to the "State" or any of its officials, the Contractor shall substitute the City of New York Department of Transportation or any of its appropriate officials.

3. PROGRESS PHOTOGRAPHS

The Contractor shall furnish an estimated (200) photographs of the construction work in accordance with requirements of Article 1.06.45 of the "General Provisions".

Enlargements shall be delivered to the following locations no later than three (3) days after a photograph is taken:

1. One (1) enlargement of each to the Office of Director of Design-Build/Emergency Services, 2 Rector Street, 8th Floor, New York, NY 10006.

4. PROGRESS VIDEO MOVIE

The Company, in addition to providing Progress Photos as specified above, shall also provide a video, showing the site conditions existing prior to commencement of work, at each stage of construction during the progress of work and conditions after completion of work. The video shall encompass elevation view of both sides of the bridge, view from approaches to bridge and view from bridge to approaches.

Video shall be taken under the supervision and direction of the Resident Engineer.

The commentary shall be recorded on the tape either during filming or after by dubbing. The commentary shall be provided by an Engineering Professional with at least ASCE Grade AIV or equivalent qualification.

The total length of the edited video shall be between 30 to 60 minutes per work location as determined by the Engineer. The Company shall furnish the original and one (1) duplicate of the video with proper identification on the top and sides of the video tapes to the following address:

Office of the Director of Emergency/Design Build Contracts
Division of Bridges
2 Rector Street, 8th Floor
New York, N.Y. 10006

Video shall be taken under proper lighting conditions. The dark areas of the bridge shall be illuminated with either mobile floodlights or with appropriate lighting devices attached to video camera.

The video movie shall be filmed in a DVD format approved by the Engineer.

The Engineer shall evaluate the quality of the video taken at each stage of the construction, based on elements and conditions shot with proper angle and exposure.

5. NUMBERS OF GALLONS OF PAINT USED

At completion (or as directed) of the contract, the contractor shall supply a certified statement to the Director of Painting, Division of Bridges. This statement shall contain the following:

1 Number of coats of paint applied for each paid item.
2 Dry film thickness of each applied coat.
3 Number of liters used for each coat of paint
4 Color of each applied coat

Final payment will not be made until this data has been furnished.

6. SHOP, WORKING AND RECORD AS-BUILT DRAWINGS, COMPUTERIZED INDEXING AND MICROFILMING

The preparation and furnishing of record as-built drawings; computerized indexing and microfilming of all shop, working and record as-built drawings; and a "shop and working drawing indexing sheet" will be performed by the Company.

The Company shall prepare and furnish all shop and working drawings in accordance with this special provision and the following:

1 Articles 1.06.13 of the "General Provisions".

2 Specifications of the City of New York, Department of Transportation, Division of Bridges – Design-Build/Emergency Services, titled:

a) NYCDOT Requirements for the Preparation of Engineering Drawings, Section 1a.
b) NYCDOT Requirements for the Microfilming of Engineering Drawings and Documents, Section 2b and 2c.
c) NYCDOT Detailed Instructions for the Computerized Indexing of Engineering Drawings and Documents for Microfilming, Section 3 and latest revision thereof.

Copies of the NYC Bridge Design Specifications are available at the Department of Transportation, Division of Bridges, Design-Build/Emergency Services, 2 Rector Street, 8th floor, New York, New York 10006.

3. A.N.S.I. (American National Standards Institute) standards latest edition, as listed below: Y1.1-1972 Abbreviations for use of Drawings and in Text (Where Applicable)

Y10.1-1972 Glossary of Terms Concerning Letter Symbols
Y14.1-1980 Drawing Sheet Size and Format
Y14.2M-1979 Line Conventions and Lettering

ANSI Standards may be obtained from American National Standards Institute, 11 West 42nd Street, New York, New York, 10036.

7. HOLIDAY EMBARGO

In order to facilitate the movement of vehicles and pedestrians during the Thanksgiving - Christmas holiday season, the Department reserves the right, without penalty, to modify the Contractor's operations during the period from the Monday of the week preceding the Thanksgiving Day Week to two (2) days after New Year's Day. When directed by the Engineer, the Contractor shall comply with the following requirements.

1 Access shall be provided to all existing facilities within the contract limits.

2 Traffic restrictions which permit the Contractor to work in lanes used during rush hours may be canceled.

All costs incurred in complying with the above requirements will be paid for under the appropriate scheduled item, or will be negotiated with the Contractor if no such items are scheduled.

8. SUPERINTENDENT

The Contractor shall have a fully competent superintendent in charge of the work at the site. Any careless or incompetent superintendent or employee shall be removed forthwith by the Contractor when notified to do so in writing by the Engineer or his designated representative.

9. EXISTING DIMENSION

The Contractor shall verify and shall be responsible for the accuracy of all dimensions and elevations of the existing structure indicated on the plans and shall call the attention of the Engineer to any errors or discrepancies that he may discover therein. The Contractor shall have no claim for damages that may result from following an error concerning the aforementioned dimensions and elevations indicated on the plans.

10 RESPONSIBILITY OF CONTRACTOR FOR PLANT AND METHODS

The plant, equipment, scaffolding, methods, appliances and procedures shall be such as will secure a satisfactory quality of work, safe and adequate means for inspection, and a rate of progress which, in the opinion of the Engineer, will insure the completion of the

work within the time specified. If at any time before the commencement or during the progress of the work, or any part of it, such plant, equipment, scaffolding, methods or appliances appear to the Engineer to be unsafe, inefficient or inadequate for securing the safety of the workers, structure, the quality of work and the rate of progress required, he may order the Contractor to increase their safety and efficiency or to improve their character and the Contractor shall comply with such orders; the failure of the Engineer to make such demands shall not relieve the Contractor from his obligation to secure the safe conduct, and the Contractor alone shall be responsible for the safety, efficiency and adequacy of his plant, equipment, scaffolding, appliances and methods.

11. NIGHT WORK

When the Contractor performs work at night, the work site shall be illuminated to an intensity required by applicable regulations, but not less than 50 lux (5 foot candles). In addition, for the purpose of inspection by the Engineer, the Contractor shall provide satisfactory lighting of an intensity of 500 lux (50-foot candles) over any area designated by the Engineer.

12. RESTORATION OF DAMAGED AREAS

All areas utilized by the Contractor or his employees for any reason shall, where damaged, be restored by necessary paving, backfilling, grading, seeding, mulching, or planting to the satisfaction of the Engineer at no cost to the City.

13. DEPARTMENT STANDARD DRAWINGS (NEW YORK CITY)

Reference is made in the Contract Drawings and these Specifications to certain Standard Drawings of the various New York City Departments. Copies of these Standard Drawings are available at the various City Agencies.

14. MANUFACTURER'S WARRANTIES

A. All manufacturers' warranties or guarantees on equipment, materials, or products purchased for use on the contract which are consistent with those provided as customary trade practice shall be obtained by the Contractor; and upon acceptance of the Contract, the Contractor shall assign to the City of New York, Department of Transportation, or the agency or authority having jurisdiction over the facility, all manufacturers' warranties or guarantees on all such equipment, material, or products furnished for and installed on the contract.

B. The Contractor shall warrant the satisfactory in-service operation of the electrical and mechanical equipment and products and related components. The Warranty shall extend for a period of not less than 6 months following the date of contract acceptance.

15. STEEL REBAR REINFORCEMENT

See Exhibit B – Technical Specifications

16. STIPULATIONS FOR MEETING CONCRETE COMPRESSIVE STRENGTH

The Contractor shall be responsible for meeting the required concrete compressive strength designated on the Contract Drawings, and/or Specifications.

After the Engineer's approval of the mix material sources, no source changes may be made without subsequent approval from the Engineer.

The work shall consist of furnishing Portland Cement concrete in accordance with Standard Specifications section 501 -- Portland Cement Concrete -- General. with the following annexation.

If the Contractor in his judgment is unable to meet the strength requirements using the mix specified, he shall submit either a standard Class-adjusted Concrete Mix Design or a Class-modified Concrete Mix Design, and the source of the proposed mixes to the Engineer for approval. For the purpose of this special provision:

Class-adjusted Mix Design is defined by a design that is computed using basic design criteria as indicated in current Standard Specification Table 501-3, "Concrete Mixtures". The adjustment will consist in lowering water-cement ratio while maintaining the same cement factor and all other proportion requirements with a proper yield. A Water-Reducing agent may be considered to compensate for workability within class specified slump limits. The contractor shall perform a production trial batch test of the newly formulated mixture prior to initial incorporation of the respective class-adjusted mix into the work of the project. The concrete supplier's written certification ascertaining that the proposed Class-adjusted Mix Design provides a concrete product meeting materials proportioning, working properties and quality requirements of Section 501, along with 28-day strength results from the production trial batch, shall accompany the concrete documentation submittal.

Class-modified Mix Design is defined by an original design that yields a concrete product with similar quality substance and working properties as required for different type of construction components in Table 501-3, "Primary Use" column and Table 501-5, "Concrete Placement" column. The proposed Class-modified Mix Design should be accompanied with either field strength test records, if available, or trial-mixture method reported by an accredited laboratory, and the data provided should meet the requirements and limitations of ACI 318 regarding concrete quality section 4.3. It is also required to test the properties of the newly proportioned mixture

in a production trial batch before initial incorporation of substitute mix into the work of the project.

All new proposed concrete mix designs shall be documented with Bureau's standard "Concrete Mix Design Evaluation Form", the companion test reports, and written certifications if applicable. The use of an identifier by labeling for their respectively specified class of concrete is recommended: i.e. Class A -- ADJUSTED Mix Design or Class A -- MODIFIED Mix Design. No additional compensation shall be paid for the use of class-adjusted or class-modified mix, or for any expenses incurred in obtaining the required approval.

The Q.A. Specialist shall be notified at least three days in advance of the batching of any production test mix. Any proportioning or constituent change in the approved mix by the Contractor, will be regarded as a newly proposed design mix.

If concrete below specified 28 day strength is placed, the Contractor shall, at his own expense, take a number of cores, as directed by the Engineer, in the area where below-strength concrete has been place, and have these cores tested for compressive strength by an approved testing laboratory; or the Contractor shall conduct other tests, as ordered by the Engineer, at the Contractor's expense.

If none of the tests proves, to the satisfaction of the Department, that the Concrete meets the requirements of safe structural standards, the Contractor shall be ordered by the Engineer to remove such elements or members of the construction which have been placed with below-strength concrete and replace them with concrete of the specified strength at no cost to the City.

All delays to construction occasioned by the testing, investigation and filing of documents, and obtaining approvals as described above, shall accrue to the total time taken by the Contractor to complete the work and, if in excess of the specified time for this reason or any other reason attributed to the Contractor, shall be subject to Article 21 "Liquidated Damages" of the Agreement.

In addition, when 28-day cylinder tests indicate that concrete below specified strength has been used for a certain pour and, in the opinion of the Engineer, such low value concrete can be used in the structure and therefore, need not be removed or supplemented, the Contractor shall give a credit to the City based on the difference between the value of the low value concrete used in the structure and the value of the concrete specified. The credit shall be determined by the measured low value quantity by the corrective factor (1-f/F); where f is the average test strength of the low value concrete and F is the required specified strength.

17. ACCESS FOR INSPECTION

The Contractor shall provide access for the Engineer to inspect the entire structure to determine the need for additional work and to inspect all work indicated on the plans.

The means of access shall be available for the use of the Engineer for at least six normal working hours prior to the start of the Work at each location to allow the Engineer to make a detailed inspection, with the Contractor, of the existing conditions. For items of work requiring shop drawings, the access shall be provided prior to the submission of the shop drawings. The means of access shall continue to remain available for the use of the Engineer until the completion of final inspection.

18. SAFE LOAD ON STRUCTURES

Prior to commencement of construction of the bridges, the Contractor shall engage and pay for the services of a licensed New York State Professional Engineer to evaluate and study the condition of the existing structure and to determine the type, size, and weight of vehicles and equipment he can place on these structures during construction. He shall submit the findings of the Licensed Professional Engineer to the Engineer for approval.

The Contractor shall obtain the approval of the Engineer before any loads are placed on the existing bridge structures. Approval by the Engineer shall in no way relieve the Contractor of his responsibility to fulfill the above requirements.

19. PERMITS, LAWS AND NOTICES

A. The Contractor shall at his own expense, obtain all necessary permits, issue all required notices, pay all legal fees and comply with all Federal, State and Municipal laws, ordinances, and regulations, required for this Contract, all of which shall be performed or furnished by the Contractor without additional cost to the City. The Contractor shall pay any additional fees or penalty as required by the Agencies due to re-issuance or expiration of permits.

B. Agencies with which the Contractor may be directly or indirectly involved for permits, permissions, notifications and coordination include the following:

1. New York City

   a. Department of Transportation (Signal Engineering Section, Division of Street Lighting, Etc.)
   b. Police Department
   c. Fire Department

d. Office of Construction Mitigation and Coordination
e. Department of Environmental Protection

20. DUST CONTROL

During the progress of the work under this contract, the contractor shall be required to furnish and apply water and/or calcium chloride for the purpose of allaying dust conditions. Materials to be used, area to be covered, and time and rate of application shall be as directed by the Engineer. Equipment used shall be capable of a uniform application over the surface to be covered. There will be no separate measurement or payment for this work but the cost thereof included in the other various items of work.

21. EMERGENCY CONTACT PERSON

The Contractor shall designate someone to be available to respond to emergency calls. The name of the person and the telephone number at which he/she can be reached at any time shall be given to the Engineer, and all police agencies in the area. Such person shall have full authority and capability to mobilize forces promptly as required to respond to an emergency and protect the public.

22. NOISE CONTROL

1. Noise Control Code Provision.

In accordance with the provisions of Section 24-216 Noise Abatement Contract Compliance, of Chapter 2 of Title 24 of the Administrative Code of the City of New York

a. Devices and activities which will be operated, conducted, constructed, or manufactured pursuant to this contract and which are subject to the provisions of the New York City noise control code shall be operated, conducted, constructed, or manufactured without causing a violation of the code.

b. Such devices and activities shall incorporate advances in the art of noise control developed for the kind and level of noise emitted of produced by such devices and activities.

Regulations promulgated pursuant to Section 24-216 after the bid opening of this contract, shall not alter its terms, conditions, and specifications.

2. Pursuant to the provisions of Section 24-224 of the noise control code:

The permissible hours of work under this code shall be on weekdays from 7:00 AM to 6:00 PM.

Where operations require work to be performed other than during the hours specified above, the Contractor shall obtain the necessary variances to the noise control code from the appropriate Department(s) of the City of New York.

3. Prior to submission of his construction timetable and as construction progresses, the Contractor shall consult with the Engineer to ascertain the location and nature of all noise sensitive activities - that is, schools, churches, hospitals - within the contract limits. The Contractor shall then make every reasonable effort to minimize interference with these activities from his operations.

23. STREET LIGHTING WORK

All material to be furnished and all work to be performed shall conform to general specifications and drawings on file with the Department of Transportation, Bureau of Traffic Operations (Street Lighting Division) and shall also conform to the latest NEMA standards and be UL approved. Difference in standards or code requirements shall be resolved as determined by the Engineer.

It shall be the Contractor's responsibility to familiarize himself with the contents of the above mentioned specifications, copies of which are on file in the office of the Division of Street Lighting.

All materials required for Street Lighting facilities work shall be furnished by the Contractor, unless otherwise directed. The Contractor shall obtain all guarantees and warranties from the manufacturer in the name of City of New York, and shall deliver the same to the City. All technical data and samples shall be approved by the Engineer before the Contractor proceeds with the purchase of these items.

In addition, the Contractor shall energize the completed luminaire installation in the presence of Division of Street Lighting Inspection Personnel (24 hour advance notice shall be required) to ensure that all lighting equipment is in operating condition after installation.

The Contractor shall notify the Division of Street Lighting of the Bureau of Traffic at least seventy-two (72) hours prior to the start of work. Telephone (718) 786 - 4715.

24. COORDINATION WITH UTILITIES

All known public and private utility lines within or adjacent to the site of the work are

shown based on the best available information in their existing approximate locations on the Contract plans. The Contractor is cautioned that these locations are neither guaranteed nor is there a guarantee that all such lines in existence have been shown on the plans.

The Contractor shall so conduct his operations as to prevent damage to such facilities. He shall make such explorations as may be necessary to determine the dimensions and locations of lines that may be subject to damage.

Where existing utilities are located within the Contract limits, the Contractor will be required to give the proper bureaus and the various owning companies at least 72 hours notice before doing any work, in accordance with New York State Industrial Code Part (Rule No.) 53, relating to construction, excavation and demolition operations at or near underground facilities.

The Contractor shall satisfy himself as to the exact location of utility lines and shall protect and support in a suitable manner all utilities encountered in his excavating and trenching operations. If the nature of the damage is such as to endanger the satisfactory operations of the utilities and the necessary repairs are not immediately made by the Contractor, the work may be done by the respective owning companies and the cost thereof charged against the Contractor.

If utility relocation becomes necessary during the construction phase as a result of more precise location data or other changes that might develop, these relocations are to be performed by the owner with coordination by the Contractor. Suitable time frames for these additions shall be coordinated between the Contractor and the Utility company. Such time frames are not to be included within previously established time frames.

25. EXISTING DRAINAGE, WATER AND SEWER FACILITIES AND GAS OR STEAM PIPES

All existing drainage structures, or any other structure, to be removed or abandoned, shall be broken up to a depth of at least 24 inches below finished subgrade and filled with thoroughly compacted material except as shown on the Contract Drawings.

All castings from such structures shall become the property of the Contractor and shall be removed from the work site, except where removing and resetting castings or removing and storing castings are specifically called for, or unless otherwise directed by the Engineer.

When any work being done under this contract intercepts or affects any existing drainage, water or sewer pipe or appurtenance that is in use, whether shown on the

plans or not, the Contractor, when directed by the Engineer, shall relocate, extend, reconnect, alter or repair it as necessary to keep it in proper working order. The cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work will be paid for under the appropriate pay items.

If the intercepted or affected drainage, water or sewer pipe or appurtenance is no longer in use, it shall be removed, broken up, disconnected, capped or plugged as ordered by the Engineer.

26. ENCROACHMENT

The Contractor is responsible for all inquires, searches and protective measures associated with any subsurface, surface or overhead lines (water mains sewers, gas mains, electrical lines, fire lines, telephone lines, etc.) in the work area.

27. STORE

Where the phrase "stores on the site" is used in the contract documents, it shall not mean stores on any of the areas within the right-of-way of this project. The Contractor shall rent, lease or purchase a storage area, where removed and stored materials shall be placed. This area shall be properly fenced and protected at the Contractor's expense. Utilization of street property of New York City for storage purpose is not allowed unless written approval is given by the Engineer.

28. ON AND OFF-SITE MATERIAL TESTING

On-Site and Off-Site testing will be performed by the Company unless NYCDOT specifically directs the Contractor to employ a certified laboratory under independent NYCDOT Contracts.

These Contracts will be monitored by NYCDOT-Quality Assurance Section, who can be reached at (212) 788-1833 or 1834. The administration of these contracts will be the responsibility of Design-Build/Emergency Services Contracts, the Director of Design-Build/Emergency Services Contracts who can be reached at (212) 788-2078.

29. CONSTRUCTION SITE SECURITY AND ACCESS

The construction site, where rehabilitation is scheduled to take place, shall be free of any delays causing obstruction of the progress of work and execution of the contract.

Such delays include but are not limited to, strikes against the City, picketing or demonstrations by a coalition group threatening property damage or personal assault, and demonstration by the public seeking jobs on City Construction projects. The

construction site shall therefore be secured by erecting concrete barriers with chain-link fence all around the perimeter of the contract limits, restricting unauthorized entry to anyone, including the site personnel.

To further protect and secure the construction site, the following provisions shall be made:

1. Signs shall be mounted around the fencing perimeter, indicating to convey proper notice to persons seeking to enter upon a City construction site.

Establish a separate entrance designated for access by operating personnel, visitors and other. Each entrance gate shall bear a sign in the following format:

NO TRESPASSING
AUTHORIZED
PERSONNEL
ONLY

2. Each gate shall be kept closed and only be operated by a security guard, paid by the contractor to monitor I.D. cards and signatures by the entering and exiting personnel on legitimate business as set forth.

3. The agency involved at the site, i.e. Division of Bridges, shall designate a Resident Engineer or in-house DOT representative to be present at the site during normal working hours. In the event that no City employee can be assigned, the contractor or the consultant shall be the authorized representative.

   The identity of Contractor's representative shall be made available to local police precinct. Such identity should include name, title, City Agency, Construction location and phone number of the designated complainant.

4. In the event of peaceful picketing by a labor organization or coalition group, the Resident Engineer or DOT representative or the consultant or the contractor's guard shall be responsible to notify the local police precinct for assistance only if the demonstration initiates a threat of property damage or physical assault. Also, the responsible person shall notify the Office of Director of Construction (ODC) Mr. Donald Marshall at 212-788-2502 and the Community Assistance Unit (CAU) at 212-788-7449.

5. The contractor's guards, responsible for the site security shall send a guide person from the work force to the nearest street intersection to assist the police in entering the site and shall identify himself to responding police personnel. The Contractor's people shall also assist police in identifying alleged trespassers and shall be the representative for the purpose of court documents that need to be signed and cooperate with police and prosecutor during all phases of arrests and

court proceedings.

6. If the representative is contractor's person calling for police assistance at Number 911, he shall identify himself, his title and a brief description of the complaint at the referenced site as shown below:

   My name is ..... I am the complaint representative of ..... N.Y.C. Agency and ..... officer at the construction site, located at ..... and nearest intersection of cross streets of ..... and .....

   A coalition group demonstration is in progress, threatening property damage and people's safety. Please send assistance ASAP. The exact address is .....

7. An agreement has been executed between the Police Department and the Department of Transportation regarding the responsibility of Police upon the notification of incident.

30. SPECIAL CONSTRUCTION SITE SECURITY AND ID CARD REQUIREMENTS

After the tragic events of September 11, 2001, it is important that enhanced security measures be implemented to protect certain landmark and major bridge construction sites from acts that threaten to destroy property, obstruct the progress of work and/or interrupt major traffic schemes.

To protect and secure vital areas of the construction site, the Contractor shall be responsible for the following:

1. Vital areas of the construction site, as identified on the contract drawings, shall be made secure restricting unauthorized entry to anyone including Contractor's personnel.

2. Signs shall be mounted with proper notice to persons seeking to enter the gate leading to the designated vital areas which will be operated by the Contractor's security guard.

3. The security guard must be properly trained to identify suspicious activities. In case that a security guard is present only during Contractor's workday, the Contractor shall install additional reliable security alarm system, to be approved by an Engineer, to operate at the construction site after Contractor's business hours.

4. No person shall be permitted on or about the vital areas of construction site without a permanent photo-I.D. badge approved by the Engineer. Each employee or visitor who requires access to the area must announce himself to the Contractor's security guard and display the ID. badge prior to being given authorization to enter.

5. The Contractor shall provide such I.D. badges for bis employees, subcontractors, material men and visitors. I.D. badges shall be worn in a conspicuous and clearly visible position by all persons whenever they are present at the construction site. All I.D. badges shall be returned to the Engineer upon completion of contract work. For D.O.T. employees entering the construction site, D.O.T. I.D. badges shall be acceptable.

   i. I.D. badges issued to the Contractor's employees, subcontractors, material men and visitors shall be approximately 3-inches by 2-inches in size, shall contain an individual serial number, a current photograph and description by height, weight of the employee; his/her name, signature, the Contractor's or Subcontractor's name and address; and the Contract name/number and locations.

      No permanent photo I.D. badge shall be issued to a visitor, he/ she should be provided with the temporary I.D. badge similar to the one described above. It should be accompanied by a valid photo I.D. identifying the visitor, such as Driver License, passport, etc. Copies of all above documents should be submitted to the Engineer.

   ii. I.D. cards shall be laminated and shall incorporate provisions for the attachment to the employee's outer clothing i.e. pin or alligator-clip or equal devices and should be visible at all times.

   iii. Original application and computer file of picture should remain with Contractor and their photocopies shall be submitted to the Engineer.

6. The Contractor shall maintain special logs of each visitor's times of arrival and departure from the worksite.

7. Special identification permits or passes must be obtained from the Engineer for Contractor's vehicles prior to their initially entering the site.

8. When an employee is not to work any longer at the site, each such employee's I.D. badge must be returned to the Engineer.

9. The Contractor shall identify a representative who will be responsible for coordinating security at the construction site. The Contractor's security coordinator shall report in person to the Engineer at the beginning of each work shift. The identity of the Contractor's Security Coordinator shall be made available to the local police precinct. Such identity should include name, title, City Agency, Construction Site location and phone number.

10. The Contractor shall maintain a daily log of employees located at the facility. The log shall indicate the individual's name, company, work location and I.D. badge's serial

number. The log shall be maintained in the Contractor's contract file. The daily log shall also note the following information:

1. The number of persons working
2. The location of the work
3. The duration of the work day

11. Extension of the workday must be reported, in person, to the DOT representative. At the conclusion of the workday, the DOT representative shall be informed, either by telephone or in person, that the work crew has vacated the area.

    The DOT shall designate a City Resident Engineer or other in-house DOT representative to be present at the site during normal working hours. In his/her absence or in the event that no such in-house representative/ DOT employee can be assigned, the designated Contractor or the Consultant employee shall become the DOT authorized representative for this limited purpose of site security.

12. In the event of any attempt of terrorist act or in cases where property damage and/or physical assault are threatened or sustained, the Contractor's security coordinator or a security guard shall be responsible to immediately notify the local police precinct for assistance. Also, the above responsible person shall notify the Office of Director of Construction (ODC) at 646-252-2128 and the Office of Emergency Management (OEM) at 212-422-8700.

    No separate payment will be made for any work associated with the requirements stated herein for special construction site security and I.D. badge requirements. The cost shall be deemed included in the prices bid for the various contract items.

31. VERTICAL CLEARANCE

The Contractor shall verify elevations and clearances from his construction bench marks prior to erecting scaffolding or protective shields in order to insure that the minimum vertical clearance will be maintained.

32. SCHEDULE OF OPERATION

It shall be the Contractor's responsibility to coordinate his work with the other Agencies before any work is commenced.

Scheduling of construction operations is the responsibility of the Contractor. Therefore, the Contractor shall determine the most feasible system of operations commensurate with his abilities, and submit a schedule of operations as required by the general provisions and the Contract Documents. The system selected shall be subject to approval by the Engineer. The requirement for the system is included to assure adequate planning and execution of the work and to assist the Engineer appraising the

reasonableness of the proposed schedule and to evaluate the progress of the work.

The Contractor's schedule shall reflect the most logical time estimate based on the Contractor's ability to complete the project quickly and efficiently. The schedule shall include as a minimum, the following:

A. A sufficient number of detailed construction activity necessary to fully describe the various stages of construction at the bridge site.

B. Construction and administrative activities performed by others which are necessary to support the Contractor's activities shall be shown. This would include activities performed by the various utility companies.

C. Requirements for work to be performed beyond the normal work day and work to be performed on Saturdays, Sundays and holidays.

D. A scheduled time for completion of each stage of construction.

E. Lead time for submittal and approval of samples of materials and shop drawings.

F. Lead time for fabrication of materials.

The Contractor shall update the schedule's changes if field conditions or construction activities warrant, or as ordered by the Engineer or the Commissioner, with updated copies of the schedule which reflect the current status of construction activities and projected activities.

Contractor shall perform the work in accordance with the sequence of construction shown in the Contract Plans, unless Contractor can prove, to the satisfaction of the Commissioner that an alternate sequence of construction can result in an increase in the efficient completion of the work.

33. NEW YORK CITY REQUIREMENTS TO PREVENT OVERLOADING OF CRANES DURING CONCRETE PLACEMENT OPERATIONS

A. Each concrete bucket shall be labeled with a metal tag welded to the bucket which shall indicate the capacity of the bucket in cubic meters and shall also give the combined weight of the bucket and concrete in kilograms when the bucket is filled to capacity.

B Buckets which, when filled to capacity, exceed the allowable load on the crane shall not be permitted to be used.

C. Any concrete placement operations which do not comply with the above requirements shall be issued stop work orders by the Engineer.

34. LEGAL LOADS

These requirements supplement those of Section 104-05 and 105-12 of the Standard Specifications. They are intended to immediately and effectively prohibit the hauling of materials to or from the contract site in hauling units which exceed the legal load limits without proper authorization. This legal load limitation also applies to all hauling units and construction equipment operating within the project limits on any pavement of structure to be retained in the completed work. This Special Provision does not apply to vehicles and construction equipment operating solely within the project limits and which do not operate on structures or pavement courses which are to be retained in the finished work.

All bidders are cautioned to reflect in the bid prices the cost of operating all affected hauling units and construction equipment within the legal load limitations, including the cost of operating presently owned equipment at less than full vehicle capacity as well as the costs involved in mobilizing, leasing, or purchasing new equipment.

No waivers shall be granted for off-site operations or deliveries. This may require the use of existing concrete, blacktop, or aggregate delivery units at less than optimum loading capacity. Such units may be used only to the extent that their partial loading is within the legal load limitations and conforms with other materials specifications requirement.

35. PROJECT SIGNS

Under this Contract two (2) project signs shall be furnished on each site, each to have overall dimensions of 10' - 0" horizontal and 5' - 0" vertical. Signs shall be constructed and installed in accordance with the provisions of Article 1.06.46 of the "General Provisions" and the Bureau of Highway Operation's Standard Drawing. No. H-1000 BB "Standard Project Sign-Type BB".

Two (2) project information signs with the following information shall be furnished.

Sign size, content and graphics will conform to "Project Information Sign" specifications which is available at the Department Permit Offices and also on the Department website. Sign content shall include the following:

(i) the name of the street on which the work is being performed;

(ii) the nature of the work (i.e., major reconstruction project, sewer work, new building, water shaft, or transit work major utility installation);

(iii) a brief description of the work. For building operations, permittees must include: type of work (i.e. new building, major renovation), building use (commercial or residential), size. For street/roadway work information permittees must include: the type of work being performed (i.e. upgrade of water supply, new transit station or transit line, upgrade of existing transit station or transit line, and upgrade of sewer system), roadway reconstruction with added amenities, and the quality of life benefits resulting from project;

(iv) the scheduled completion date of the project;

(v) project name, or if a governmental project, the project identification number;

(vi) contact information for the construction company performing the work, and a telephone number and/or a web site for more information.

Signs shall be kept in readable, good condition.

One sign shall be installed at the east end of the project limits for BIN 2075351. The other shall be installed at the west end of the project limits for BIN 2075352.

36. SHORING OF EXISTING STRUCTURES

No work shall be done on the portion of the existing structure which require shoring until the structure has been shored to carry the loads imposed on it. The method and procedure of shoring and temporary supports required shall be developed by a Licensed Professional Engineer engaged and paid for by the Contractor. Such method and procedure for shoring shall be submitted to the Engineer for review and approval.

37. CONSTRUCTION SIGNS

All construction signs paid for under the Item 619.02M or any other item used shall each have the following identification text placed on the back of the sign unobstructed by the sign support:

The Name of the Contractor
New York City Department of Transportation
Division of Bridges
Contract No.

The lettering shall be in indelible black color, and 3 inches high.

38. MODIFICATION TO STANDARD SPECIFICATION (January 2, 1995 and Revision dated 10-10-95 - EI 95-034) ITEM 619.02M - CONSTRUCTION SIGNS

The Standard Specification Item 619.02M - Construction Signs using fluorescent orange reflective sheeting (Section 730-05 Revised), pertains in its entirety except Method of Measurement (subsection 619-4.02) and Basis of Payment (subsection 619-5.02) which are modified as follows:

METHOD OF MEASUREMENT

Substitute the entire text with the following:

The quantity to be measured for payment will be the sum of the following:

(1) The actual number of square meters of construction signs directed by the Engineer to be mounted on supports, other than portable supports, installed at their initial location; plus,

(2) The actual number of square meter of signs mounted on other than portable supports moved from one ordered location to a subsequent ordered location; plus,

(3) The actual number of square meter of construction signs mounted on portable supports, measured just once, regardless of the number of times and locations to which such signs are redeployed.

Construction signs used to replace construction signs that are damaged, except those damaged by public motor traffic, will not be measured for payment. Signs replacing those damaged by public motor traffic will be measured for payment.

BASIS OF PAYMENT

Substitute the entire text with the following:

The unit price bid shall include all material, equipment, and labor necessary to erect, remove, relocate, protect, maintain, store, or replace any construction signs required to properly sign the contract. The unit price bid shall also include the repair or replacement of reflectorized signs when the Engineer determines the reflective sheeting no longer conforms to the material specifications. This item is to cover payment for all signs which are determined by the engineer to be necessary for the proper performance of the work, regardless of whether or not they are actually shown in the contract plans.

Progress payments will be made for this item as follows:

After installation, payment will be made for sixty (60) percent of Quantity of Construction Signs furnished and erected in accordance with the contract requirement. Twenty (20) percent, retained for relocation, etc. will be paid when certified by the Engineer and twenty (20) percent will be paid upon removal.

Payment will be made under:

Item No.	Item	Unit
619.02 M	Construction Signs	Square Foot

39. PARKING OF VEHICLES

Private vehicles owned by the Contractor or his workers shall not be parked on the pavement or any other areas deemed by the Engineer to be hazardous.

40. CONTRACTOR'S NEW YORK CITY TELEPHONE TIE-LINE.

For the contractor whose main office is located outside New York City, it is required that a tie-line telephone connection to the contractor's main office shall be obtained and maintained throughout the contract duration.

41. WORKER'S COMPENSATION AND TIME/MATERIAL PAYMENTS

In any Time/Material payments to the contractor under this contract, worker's compensation rates shall be reimbursed at the rate actually paid by the contractor, or at the industry average in "Manual Rates" as published by the Worker's Compensation Board, whichever is less.

42. ENGINEER'S OFFICE/PC SPECIFICATIONS

a) In addition to the General Requirement for the engineer's office as specified under its Pay Item, the contractor shall furnish one (1) personal computer (PC) and software in accordance with the attached Specifications. Payment for the computer and software shall be considered included under the pay item for engineer's office.

b) PC and software are to be delivered to the NYC-DOT Division of Bridges & Roadways for initial setup. Advance notification should be made to this unit before the shipment is made. Shipping address is:

NYC Department of Transportation
Attn: Ronald Calixte
40 Worth Street - 11th Floor

New York, NY 10013

When set up is complete, the contractor will be notified to pick up the equipment. A DOT employee will help with the initial set up at the contractor's site.

c) The contractor is responsible for the physical security of all equipment and software.

d) Back up of all data on the Serve (PC) to the Division of Bridges will occur automatically each night. It is therefore the contractor's responsibility to insure that electrical service and phone connections are available at these times. That is, PC is to be on 24 hours each day. If this is a problem, contact G. Kellman at the address above.

43. FALL PROTECTION REQUIREMENTS

This project includes work that may require exposure of workers to risks associated with elevated work locations. By issuance of this Special Note, Contractors are on notice that the provision of fall protection for all workers, in full compliance with OSHA Part 1926, is mandatory on all Department contracts, including this contract. The Contractor is further placed on notice that the proposed procedures to meet the fall protection requirements must be identified in the Project Safety and Health Plan, as required under Section 107-05 of the Standard Specifications.

The requirement of all applicable OSHA regulations notwithstanding, the minimum fall protection requirements on this project shall include the following:

1 All fall protection systems must meet the requirements of Part 1926, Subpart M.

2 For situations where lifelines are interrupted, double lanyards are necessary to ensure that the worker is continuously protected from falling by attaching one lanyard ahead of the discontinuity prior to unhooking the trailing lanyard.

3 Ladders or stairways are required at all points of personnel access where there is a change in elevation of 19 inches (483 mm) or more, and no ramp, runaway, sloped embankment or personnel hoist is provided. These devices must meet the requirements of Part 1926 Subpart X. Climbing on forms, falsework, or the structure to gain access to work areas is expressly prohibited. However, it is not intended to prohibit the use of ladders for access to work areas, provided the operation is in compliance with OSHA Part 1926 Subpart X and other relevant requirements.

4 Where scaffolds are necessary to provide temporary access to work areas, they must be in compliance with Part 1926, Subpart L. Scaffolds must include a top rail, mid rail, and toe board in compliance with Subpart L. When required by 1929.451(g), personal fall arrest systems must meet the criteria of Part 1926 Subpart M. In addition, the provisions included in §1926.451(g) for fall protection during installation and dismantling of scaffold systems shall be observed on this project at all times.

5. Suspended scaffolds may be used for bridge painting or other purposes only if personnel lifts, scaffolds, or other means are not practical, and only if they meet the requirements of Part 1926, Subpart L.

   Specifically, the scaffold must be secured to the suspension cables at all times. All personnel working on a suspended scaffold must be provided fall protection in compliance with Part 1926, Subpart L. The anchorage for any fall protection system must be independent of the suspended scaffold.

6. Fall protection is required for open sides or ends of floors or bridge decks, and for openings in floors or bridge decks, as required in Part 1926 Subpart M. In no case shall a height of fall 6 ft (1829 mm) or greater from the side, end, or opening in a floor or bridge deck remain unprotected.

7. All workers in approved personnel aerial lifts must use a personal fall arrest system meeting the criteria of Part 1926 Subpart M, with lanyard attached to the boom or basket, as required by OSHA § 1926.556.

8. Because falls from structural members constitute a serious and clearly recognizable hazard, fall protection for all steel or concrete beams and other structural elements must be in place prior to erection to provide fall protection for workers involved in the initial erection and in subsequent operations until the deck forms are in place. This fall protection shall consist of personal fall arrest systems, safety nets or other means meeting the requirements of Part 1926 Subpart M. During the initial connection of structural elements, workers exposed to moving members shall be required to tie off only if they are not exposed to a greater risk from the moving member. Initial connection is defined as that period during placement or removal of structural members when the member is supported by a crane or other lifting device.

9. During the installation of bridge deck forms, either wood or stay-in-place corrugated metal (SIP), all workers must be protected from falls 6 ft. (1829 mm) or greater in height by means of personal fall arrest systems, safety nets, guardrail systems, or other means meeting the requirements of Part 1926 Subpart M. If the Contractor can demonstrate that using one of the conventional fall protection systems described in Subpart M would create a greater safety hazard or is infeasible, i.e. impossible to construct or would prevent the performance of the required work, an alternate system may be used. The Contractor must develop and

implement a written fall protection plan meeting the requirements of § 1926.502.

10. Instances in which it is impossible to provide fall protection for workers are rare. Where an individual worker must rig the fall protection system, and it cannot be accomplished from an aerial lift or by tying-off to the existing structure, momentary exposure to a fall hazard may be unavoidable. Likewise, ironworkers making initial connections during steel erection or removal may at times not be able to tie off, or otherwise be protected because they need to remain mobile. It is essential that adequate planning of construction procedures minimize such occurrence of unprotected exposure to fall hazards. It is equally essential that the fall protection systems utilized actually enhance safety, rather than creating a secondary hazard.

    The following list summarizes commonly encountered situations where fall protection is required, heights at which it must be provided and OSHA references for that requirement.

Situation	**Height requiring fall Protection**	**OSHA Reference**
Scaffold	10 ft. (3048 mm)	1926.451(a)(4)
Implement Hazard	Any exposure	1926.20(a)(1); P.L. 91596 §5(a)(1)
Bridge Decks, unprotected sides & edges	6 ft. (1829 mm)	1926.500(b)(1)
Bridge Decks, form Installation	6 ft (1829 mm)	1926 - 500(b)(2)
Steel Bridges - initial connections	10 - 25 ft.	NYSDOT requirement (3048 - 7620 mm)
Steel Bridges - initial connections	above 25 ft. (7620 mm)	1926.501(b)(1);
Formwork and Reinforcing Steel	6 ft (1829 mm)	1926.501(b)(5)
Precast Concrete Erection	6 ft. (1829 mm)	1926.501(b)(12)
Ramps, Walkways, and Runways	6 ft. (1829 mm)	1926.501(b)(7)

Situation	**Height requiring fall Protection**	**OSHA Reference**
Aerial Lifts	All situations	1926.556(b)(2)(v); must satisfy criteria in 1926.502
Ladders	Varies	1926 Subpart X
Holes and Floor Openings	6 ft. (1829 mm)	1926.501(b)(4)
Dangerous Equipment	All situations	1926.501(b)(8)
Any situation with potential for tripping, impalement or other severe hazard	Any height	1926.20(a)(1); 1926.28(a); P.L. 91 - 596 §5(a)(1)

44. RODENT CONTROL

A. The Contractor shall notify, in writing the New York City Department of Health, Bureau of Pest Control, at 1226, 31st Avenue, Astoria, New York 11102, (telephone: 718-956-7103) three (3) weeks prior to the start of construction that will disturb the subsurface areas.

B. The Contractor is required to submit this notification so that pest control measures can be taken to prevent the infestation of the surrounding communities by rodents displaced from these areas by construction activities. The Contractor shall coordinate his operations with the Bureau of Pest Control to ensure that rodent control measures are completed prior to the start of construction activities in the affected areas. The cost for this work shall be included in the various items of the contract.

45. SPECIAL WARNING SIGN

The contractor shall furnish and erect an aluminum panel sign with the following text:

WARNING!

"ATTACHMENT OF ANY SORT TO THIS BRIDGE STRUCTURE SHALL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE DIVISION OF BRIDGES/ROADWAYS NYC DEPARTMENT OF TRANSPORTATION."

Sign panels shall be aluminum alloy 0.100" (2.5 mm) thick meeting the requirements of section 730-01, Aluminum Sign Panels, or fiberglass reinforced plastic 0.135" (3.4 mm) thick meeting the requirements of section 730-23, Fiberglass Reinforced Plastic Sign Panels. The lettering shall be in indelible black color in white background and 3 inches (75 mm) high. For "WARNING", the lettering shall be in indelible red color, and 6 inches (150 mm) high. The sign panels shall be attached to the bridge in a way as approved by the Engineer, and at locations as shown on the drawing or as approved by the Engineer.

This work shall be paid under Item 619.02M, Construction Sign, except that the signs shall be left in place (received items).

46. CONTRACTOR/SITE MAINTENANCE

Refer to Article 1.06.48 Paragraph (F), Remove Surplus Materials, Rubbish, etc., under General Provision. Delete this sub-article 1.06.48(F) in its entirety, and substitute with the following:

F(i) Secure Storage of Hazardous Materials

The Contractor shall be responsible for the secure storage of materials which are known through the ordinary course of business and experience in the trade to be flammable, toxic or otherwise harmful. Further, the Contractor shall exercise due diligence and reasonable care to ensure that such hazardous materials are utilized safely, in a manner consistent with the manufacturers' intended purpose.

F(ii) Site Inspection

The Contractor shall subject the site to routine inspection by persons duly qualified to perform such functions, without prior notice. In relation thereto, the Contractor as regards inspection violations shall at the direction of the Engineer or other such duly authorized person, remedy all conditions said to be in violation. If the violations are not resolved within 24 hours or sooner, as ordered by the Engineer, New York City Department of Transportation (NYCDOT) reserves the right to remedy violations with in-house forces. In the event that NYCDOT incurs expenditures because of the Contractor's failure to remedy known violations, then it shall be understood that NYCDOT shall be entitled to a fee-for-services reimbursement from the Contractor. Said fee-for-services shall be equivalent to 5% of the cost incurred by NYCDOT.

47. GRAFFITI REMOVAL AT WORK SITE

The Contractor is required to keep his work site free of graffiti at all times. The work site shall include but is not limited to: any element of the construction, permanent or temporary; field offices, construction equipment, fences etc., which are visible to the public. Within thirty (30) days of the Notice to Proceed, the Contractor shall clean the existing structure of all graffiti to the satisfaction of the Engineer. Thereafter, all future graffiti shall be removed within forty eight (48) hours of its discovery. If the Contractor fails to remove the graffiti as specified herein, New York City Department of Transportation (NYCDOT) reserves the right to remove the graffiti by either in-house forces or other means, and back-charge the Contractor for all costs incurred by NYCDOT.

48. SECTION NOT USED

49. SECTION NOT USED

50. COMPANY'S RESPONSIBILITY DURING CONSTRUCTION

Snow removal on the traveled roadway within project limits shall be the responsibility of the City of New York. However, the Company shall remove the snow on sidewalks that are opened to the public during the construction period and payment shall be included in the lump sum. The cleaning of the roadway, general maintenance, cleaning scuppers, keeping the drainage system functional, maintaining and protecting street lighting, maintaining existing temporary supports to various structural elements of the bridge including steel plates over deteriorated area of deck as required and directed by the Engineer within project limits up to final acceptance of the project is the responsibility of the Company. Payment shall be included in the lump sum. Removal and Disposal of temporary supports shall be included in the lump sum. All existing steel plates on deck are NYCDOT property. Removal of these plates for storage in a designated area for NYCDOT pick-up shall be included in the lump sum.

51. ACCEPTANCE OF COMPLETED WORK

Whenever the work on one bridge is satisfactorily completed in accordance with the plans, specifications and directions of the Engineer, and is inspected and accepted by the City, the Company shall have no further responsibility and obligation such as damage to the completed work caused by accident, fire, etc. which is no fault of the Company. However, this does not relieve the Company from meeting the requirements of Article 30 "Maintenance and Guaranty" of the Agreement. This Maintenance & Guarantee Period shall remain in effect during the 12 month period subsequent to the date of the final completion of the entire contract.

52 DISPOSAL OF MATERIALS

The Company shall dispose of all waste in a legal and safe manner.

53. ELECTRICAL SAFETY

This proposal insert note contains policy and procedures for working near energized electrical systems. It is based on OSHA standards, the N.Y.S. High Voltage Proximity Act, and Highway Law. It applies to all operations in the contract that could cause employees or the vehicles or equipment they are operating to come into contact with or enter into dangerous proximity to energized electrical systems.

The N.Y.S. High Voltage Proximity Act applies to electrical systems carrying 600 volts or more and requires employers to:

- Ensure employees are not placed in proximity to high voltage. Proximity is defined as within 10 feet for voltages up to 50 kilovolts.

- Inform employees of the hazards and corresponding precautions when working near high voltage.

- Post warning decals on equipment regarding 10 foot minimum clearance.

- Ensure that when an equipment operator is unable to assess clearances a "spotter" observes for clearance and directs the operator.

- Notify the utility at least 5 working days before any work begins which requires the utility to identify voltages and clearances, or de-energize, insulate or relocate lines.

Failure to comply with any of its provisions is a violation of law and a serious breach of Department safety policy and procedure and the Engineer will issue a stop work order pursuant to Art. 105-01 Stopping Work for any operation that is not in compliance.

PROCEDURES

General. Prior to the start of work where contact with energized electrical systems is possible, the Contractor shall identify energized lines or equipment and reference their location to prominent physical features. In addition, the Contractor shall mark the pavement beneath overhead lines with spray paint, survey tape, or with high visibility

markers and shall maintain all markings during the period they are required.

The owners of the utilities shall be called upon to decide the need to de-energize or insulate the lines or for the need to otherwise protect the lines against accidental contact. The actual work of protecting the lines shall be carried out by their owners. Protection provided at the request of the Department, with respect to utility facilities located within the highway right-of-way shall be the sole financial responsibility of the utility. In addition, upon request, the utility at its sole expense shall provide necessary information concerning its high voltage facilities to the Department and its contractors and subcontractors. Protection provided for the benefit or at the request of a contractor or subcontractor of the Department shall be the financial responsibility of that contractor or subcontractor.

The location of electrical lines and the precautions and safeguards to be taken shall be discussed at pre-work safety meetings with all employees on the job. New employees will be informed of electrical hazards and proper procedures at the work site.

The Contractor shall identify and reference all potential electrical hazards and document such actions to the E.I.C. as part of the Safety Plan for the project. Energized electrical lines or equipment shall be conspicuously marked and workers shall be reminded of their locations and the safeguards and precautions to be taken prior to beginning any nearby work that may cause the workers to approach electrical lines. New employees shall be informed of electrical hazards and proper precautions and procedures.

Requirements for specialized work shall be as follows:

1. Paving, Patching, Chip Sealing or Widening. Prior to the start of each workday high visibility markers or other devices approved by the Engineer shall be placed to mark the location of overhead wires. As an alternative, the pavement beneath overhead lines may be marked with spray paint or by other means approved by the Engineer. This requirement shall also apply to off-site areas used for contract purposes. The Contractor shall periodically patrol the worksite to ensure that the markings are in place and shall replace any that are missing and shall maintain all markings in good condition. Supervisors shall discuss electrical safety with appropriate crew members at tailgate safety talks.

Spotters shall be positioned at the paver or widener to direct truck movement and observe for overhead wires. The spotter, drivers, operators, supervisor, and all employees shall be alert for overhead wires.

All trucks operating on the project, delivering materials, or delivering equipment to the site shall display warning decals regarding electrical contact.

Independent truck drivers delivering materials or equipment shall be provided decals. Drivers shall be told about the presence and location of overhead electrical wires before beginning work, how they are marked, and the requirement for spotters. Trucks that have emptied their material shall not leave the paver until the box is in its full down position.

2. **Aerial Lifts, Cranes, Boom Devices.** Where there is potential for proximity or contact with energized lines or equipment, work shall not begin until a safety meeting is conducted and appropriate steps are taken to identify, mark, and warn against accidental contact. The supervisor shall review operations daily to ensure compliance.

Where the operator's visibility is impaired, spotters shall guide the operator. Hand signals shall be used and their meaning clearly understood between operator and spotter. When visual contact between the spotter and the operator is impaired, the spotter and operator shall be in two-way radio contact.

Aerial lifts, cranes, and boom devices shall have appropriate warning decals.

3. **Tree Work.** Wires shall be treated as live and high voltage until verified by the utility. Branches touching wires shall be removed by the utility before work begins. Limbs and branches shall not be dropped onto overhead wires. If limbs or branches fall across electrical wires, all work shall stop immediately and the utility shall be called.

When climbing or working in trees, pruners shall try to position themselves so that the trunk or limbs are between their bodies and electrical wires. Pruners shall not work with their backs toward electrical wires. A bucket truck is the preferred method of pruning when climbing poses a greater electrical contact threat.

Personal protective gear shall have appropriate di-electric characteristics needed for working near electricity.

4. **Traffic Signal Work.** Crews working near electrical lines or electrical equipment shall employ as appropriate the following precautions:

They shall request the utility to determine voltage and take appropriate action to render the work safe, and when working on or around Department electrical systems shall:

- use rubber blankets, mats, gloves and other insulative equipment and tools specifically approved for such work by the EIC or electrical inspector

- use electrical test equipment to determine if equipment to be worked on is energized

- de-energize equipment, when possible, prior to working on the equipment

5. **Building Electrical Work.** Employees working on electrical systems for building shall be knowledgeable about and shall employ when appropriate OSHA Lock-Out/Tag-Out procedures to prevent exposure to unguarded electrical systems.

Underground Electrical Lines and Equipment. Before installation, excavation or subsurface exploration where there exists reasonable possibility of contacting any utility lines or equipment, the Underground Facilities Protective Organization (UFPO) shall be called, and a request made for identifying/marking their location(s).

When UFPO is called, telephone operators will need:

- minimum of 2 working days notice prior to work beginning
- name of County, City, Village or Town
- name and number of street or highway marker
- nearest intersection at work site
- type of work
- date and time work is to begin
- caller's name, contractor/Department name and address
- phone number for contact and special instructions

Utilities that do not belong to UFPO must be contacted separately. UFPO may not have a complete list of utility owners. The Town, City, or County is required to maintain this information and may have to be contacted.

Utilities discovered shall be marked before work begins. Supervisors shall periodically refer their location to all workers who are subject to exposure, including new employees.

Emergency Response. When working near electrical lines or equipment, avoid direct or indirect contact. Direct contact is contact with any part of the body. Indirect contact occurs when part of the body touches or is in dangerous proximity to any object in contact with energized electrical equipment. Two assumptions should always be made: 1) that lines are "live" (energized); and 2) carry high voltage. Electrical lines can only be considered "dead" when verified by the utility.

When there is any question about voltage and safe distance, the owner of the lines or equipment must be called in advance of work. As voltages increase, minimum clearances increase. Through arcing, injuries or fatalities may occur even if actual contact with high voltage lines or equipment is not made. Potential for arcing increases as voltage increases. Weather and contact with conductors such as tools can increase the possibility of becoming

energized without contact.

If an individual becomes energized, DO NOT TOUCH the individual nor anything in contact with the person. Call for emergency medical assistance and the utility immediately. If the person is no longer in contact, CPR, rescue breathing or first aid should be administered immediately, but only by a trained person. It is safe to touch the victim once contact is broken or the source de-energized. If a power line falls:

- Keep everyone at least 10 feet away
- Use flagging to protect motorists from fallen or low wires
- Call the utility, police or fire department immediately
- Place "guards" around the area
- Do not attempt to move the wire(s)
- Do not touch anything that is touching the wire(s)

- Be alert to water or other conductors present

Wires that contact vehicles or equipment will cause arcing, smoke and possibly fire. Occupants should remain in the cab and wait for the utility. If necessary to jump from a vehicle, leap with both feet as far away from the vehicle as possible, without touching the equipment. Jumping free of the vehicle is the last resort.

Crews shall have emergency numbers readily available. These numbers shall include local utility, police/fire and medical assistance.

54. CRITICAL PATH METHOD SCHEDULE

The schedule submitted in accordance with section 108-01 "START AND PROGRESS OF WORK" shall be prepared using the Critical Path Method (CPM). The cost of preparing the CPM schedule shall be included in the total amount bid for all contract items.

The construction of the project shall be planned and recorded with a conventional Critical Path Method (CPM) schedule in the form of an activity on arrow diagram. An activity on node diagram may be used if approved by the Engineer. The schedule shall be used for coordination and monitoring of all work under the contract including all activities of subcontractors, vendors, and suppliers.

The Department will use the schedule to monitor the progress of construction, compared the work performed to the Contract time and phasing requirements, and to assign necessary resources for inspection and administration of the Contract.

A. Schedule Requirements

Within 25 calendar days of Notice to Proceed (NTP), the Contractor shall submit for the Engineer's review a detailed CPM schedule. The schedule will be reviewed to determine whether it meets the requirements under Subsection B below and shall not exceed the Contract time requirements for any milestones or for the entire project.

Following the Engineer's review, revisions to the proposed schedule, if necessary, shall be made by the Contractor. The final proposed schedule must be completed within 40 calendar days of the Notice to Proceed. Failure to provide a final schedule by that date will result in withholding all progress payment estimates pursuant to the contract.

Approval of the schedule by the Commissioner shall not be construed to imply approval of any particular method or sequence of construction or to relieve the Contractor of providing sufficient materials, equipment and labor to guarantee completion of the project in accordance with the contract proposal, plans and specifications. Approval shall not be construed to modify or amend the agreement or the date of completion therein.

Failure by the Contractor to include in the CPM Construction Schedule any element of work required for the performance of the contract shall not excuse the Contractor from completing all work required within the completion date(s) specified in the contract notwithstanding approval of the Schedule by the Engineer.

A 60 calendar day preliminary schedule of proposed activities by the Contractor may be submitted to the Engineer to enable beginning of Contract work preparation such as material orders, preparation of working drawings, and mobilization of equipment while the CPM schedule is being prepared.

No Contract work may be pursued on the project site unless there is a 60 calendar day preliminary schedule or a detailed CPM schedule meeting the Contract requirements.

B. Schedule Requirements

All activity on arrow diagrams shall include:

Activity Nodes
Activity Description
Activity Duration

The activity on arrow diagram shall show the sequence and interdependence of all activities required for complete performance of all items of work under this Contract,

including shop drawing submittals and approvals and fabrication and delivery activities. All network "dummies" are to be shown on the diagram.

No activity duration shall be longer than 15 work days without the Engineer's approval.

The activities are to be described so that the work is readily identifiable and the progress of each activity can be measured. For each activity, the Contractor shall identify the trade or entity performing the work, the duration of the activity in days worked, the resources involved by trade, the equipment involved and the location of the work.

The Contractor shall also provide the work days per week, holidays, number of shifts per day, number of hours per shift, and major equipment to be used for each activity. If requested by the Engineer, the Contractor shall furnish production rates or other information needed to justify the reasonableness of activity time durations.

Expected seasonal weather conditions, such as precipitation and temperature, shall be included by the Contractor in the planning and scheduling of activities.

The Contractor shall not constrain the start or completion of any activity unless specifically required by the contract or approved by the Engineer.

The activity on arrow diagram submitted may either be hand drawn or computer plotted. Regardless of the type of diagram, the network must be legible, readable, and understandable by the Engineer. Network diagrams shall be on standard D size sheets and not a continuous diagram.

All network diagram submissions shall include one reproducible sepia and three copies.

The Contractor shall provide three copies of the following sorts:

I node - J node
Total Float
Early Start

C. <u>List of Submittals</u>

Within forty (40) calendar days of the Notice to Proceed, the Contractor shall provide a list of submittals required under the contract, i.e., shop drawings, required permits, erection/demolition plans, etc. The list shall show a scheduled submission date for each

submittal and identify the earliest activity affected by each of these submittals. This list shall be revised and updated monthly with each schedule submission.

D. Contingency Within the Schedule

Any contingency within the Schedule, i.e., a difference in time between the project's early completion and required contract completion date, and "float" in the Approved CPM Construction Schedule belongs to the project and not to any party to the contract.

E. Float Manipulation Not Permitted

The Contractor shall not sequester "float" through such strategies as calendar manipulation, or extending durations to fill up available float time.

F. Schedule Updating

The Contractor shall update the schedule monthly. Each update shall show actual dates of activities started and completed, the percent of work completed to date on each activity started but not yet completed, the current allocation of staff resources and major equipment and the status of procurement of critical materials. The Contractor also shall provide updated I node J node sorts, total float sorts, a 60 day look ahead bar chart, and a narrative report. The narrative report shall include a description of problem areas, current and anticipated delaying factors, and their estimated impact on performance of other activities and mandated contract dates, and the explanation of corrective action taken or proposed.

The Contractor shall provide a 2-week look ahead schedule at each one of the bi-weekly scheduled meetings.

G. Changes to the Approved Project Schedules

The CPM Construction Schedule shall accurately reflect the manner in which the Contractor intends to proceed with the project and shall incorporate the impact of delays and Orders-on-Contract when these factors can be accurately determined. All changes made to the schedule, i.e., the addition of activities, change in logic or changes in activity durations shall be submitted in writing and are subject to approval by the Engineer before inclusion in the CPM Construction Schedule.

To initiate changes to the approved schedules, the Contractor shall meet with the Engineer and provide the information necessary to prepare a revised (updated) Activity on Arrow Diagram.

No revision to any contract milestones, or contractually mandated schedule provision will be permitted, without written authorization from the Engineer.

H. Compliance with the Schedule

The Contractor shall employ and supply a sufficient force of workers, materials and equipment and shall prosecute the work with such diligence so as to maintain the rate of progress indicated on the approved schedule to prevent work stoppage and ensure completion of the project within the contract time. Any additional or unanticipated costs or expense required to maintain the schedule shall be solely the Contractor's obligation and shall not be charged to the Department unless provided for in other provisions of the contract.

In the event a notice is received of a change to the contract which is likely to cause or is causing delays, the Contractor shall notify the Engineer in writing within 10 calendar days, of the effect, if any, of such change, or extra work, or suspension or other conditions upon the Project Construction Schedule and shall state in what respects, if any, the Approved CPM Construction Schedule should be revised with the reasons therefore. The reasons for these revisions must be succinct, comprehensive, and factual to merit consideration.

If the Contractor fails to comply with the provisions of this special note, the Engineer may withhold approval of all progress payment estimates pursuant to Article 41 of the contract

55. ENGINEER'S FIELD OFFICE

DESCRIPTION:

The Contractor shall provide, furnish and maintain a fully equipped field office for the exclusive use and occupancy by the Department's engineering personnel, Supervising Consultant, and/or Railroad Personnel. The field office shall be a building, store front, or mobile trailer which shall be at a location selected by the Engineer. The Contractor may have facilities in an adjoining area separated by a lockable door, provided such facilities are in a location approved by the Engineer.

If the facilities of an existing building, or storefront, are to be utilized it shall be completely renovated to meet the requirements specified herein. The field office shall be renovated with all new materials and all equipment furnished shall be new.

The contractor shall obtain a Certificate of Occupancy from the Department of Buildings, certifying that the field office structure and occupancy thereof conforms to the requirements of all laws, rules, regulations, and orders applicable to it. A copy of

the Certificate of Occupancy shall be submitted to the Engineer prior to occupancy and use of the field office.

MATERIALS:

A. General Construction: The Engineer's Office shall be an approved and weatherproofed, building or mobile trailer. The structure shall have a minimum ceiling height of 7 feet, provide a minimum floor space of 1,075 square feet and be partitioned to provide three rooms: two small rooms and one large room with adjoining doors. The smaller rooms shall not be less than 100 square feet in area, and shall each contain two windows. Two outside doors and eight windows will be the total required. Shelving shall be provided as ordered by the Engineer. Floor covering shall consist of all new commercial grade carpeting or vinyl tiles or a combination thereof throughout the floor space. All walls shall be covered with sheetrock and newly painted. Ceilings shall be sheetrock or acoustical tile in good condition without any exposed wiring, piping, or duct work.

B. Facilities: The Field Office shall contain or have the following facilities incorporated:

1. Lighting: Electric light, non-glare type luminaires to provide a minimum illumination level of 1000 Lux (100 ft.-candles) at desk height level.

2. Heating and cooling: Adequate equipment to maintain an ambient air temperature from 70 to 75° F.

3. Electrical: Electrical wiring and outlets throughout the entire field office shall be in full conformance with the National Electric Code and local building code.

4. Toilet: A separate enclosed room, properly ventilated and complying with applicable sanitary codes shall contain a lavatory with running hot and cold water and flush-type toilet.

5. Telephone: A minimum of 4 separate phone lines shall be provided for the exclusive use of the Department's personnel. One of those lines shall be provided for use with a computer system and one with a facsimile machine.

6. Potable Water: Potable water supplied from an existing system of 5 gallons capacity water cooler of a type to be approved by the Engineer. Replacement of bottles of water shall be provided by the Contractor, when required.

7. A wood or metal sign shall be affixed on the outside wall of the trailer or building with the following inscription painted in black block lettering on a white background. Paints shall be approved exterior enamels.

CITY OF NEW YORK	**2-1/2"**
DEPARTMENT OF TRANSPORTATION	**3-1/2"**
DIVISION OF BRIDGES	**3-1/2"**
RESIDENT ENGINEER'S OFFICE	**1-1/2"**

All windows and doors shall be weatherproof and each equipped with adequate locking devices. Each window shall have a minimum area of $0.743m^2$ (8 square feet), shall be screened, and of a type that will open and close to provide adequate ventilation. Exterior doors shall be provided with cylinder locks, keyed alike, and three (3) keys shall be furnished for each lock.

C. Equipment: The following equipment shall be furnished and installed in the field office by the Contractor and shall be new or used equipment, in good working condition, satisfactory to the Engineer:

5 - Office desks with drawers, locks and keys

5 - Swivel chairs with arms, for the above

10 - Office chairs, metal, with padded seats and backs, no arms.

1 - Steel supply cabinet (approximate size 72" high by 36" wide by 18" deep), with four adjustable shelves, tumbler lock and 3 keys.

2 - Fire resistant cabinet, 4 drawer, legal size with lock and three (3) keys, meeting the requirements "Filing devices, insulated (36 E9)" Class D label, of the Underwriters' Laboratories, Inc. Specifications

4 - Individual lockers (17" wide by 18" deep by 72" high) with flat key locks and two (2) keys each.

2 - Calculators with answer registered to at least eleven digits.

4 - Waste paper baskets (metal, approximately 12" square by 16" high).

1 - Personal Computer meeting requirements: Pentium III Central Processing Unit(CPU); minimum clock speed of 500 MHz minimum of 128 Mb of Random Access Memory; minimum of 20 GIG of internal hard drive storage with 512K pipeline cache; local bus IDE hard drive interface; DVD and CD ROM drive; 17" high resolution (0.26 DOT) 1024x1200 non-interlaced SVGA color monitor drive; 17" high resolution (0.26 DOT) 1024x1200 non-interlaced SVGA color monitor slots including two VESA local bus; two serial ports, two parallel ports; power supply with built-in surge suppression; 101-key keyboard; 57,000 bps internal fax modem; minimum of internal PS/2 Microsoft Windows NT/98 Intel mouse with system diskettes and operation manuals, math-coprocessor. Internal tape backup system with software (250Mb ZIP DRIVE). 40 x CD-ROM (SC processor. Internal tape backup system with software (250Mb ZIP DRIVE). 40 x CD-ROM (SC SI OR IDE). The Contractor must also provide Internet access.

1 - Set of software for Windows NT/98 or greater, MS Office 2000 for Windows, including CD ROM/diskettes, operations manual and valid software license agreements or approved equal programs.

1 - Detailed network analysis program which shall be directly and fully translatable into "Primavera Project Planner for Windows P4 as licensed by Primavera, Inc.

1 - Color printer with a minimum resolution of 720x720 dpi, minimum color printing speed of 6 pages per minute. The color printer shall be brand new and shall include all software, printer cable and ink cartridges (extra ink cartridges shall be supplied by the contractor as required by the Engineer throughout duration of the construction period.

1 - Digital Camera with the following features: 2.5 inch color LCD Screen, 10xoptical zoom lens, automatic exposure, 3.5 inch 2 HD MS –DOS format (1.44 MB) floppy disk memory, built-in flash, 2 each- lithium ion battery pack with minimum 2 hour power storage at full charge, battery charger, shoulder strap, soft carrying case/bag. The digital camera shall be similar to Sony Mavica Model MVC- FD81 or approved equal. The Contractor shall obtain a replacement warranty for the digital camera throughout the duration of the Contract.

2 - Surge protectors, w/four outlets and circuit breaker control and surge failure indicator light.

1 - 30 minutes battery back-up unit

20 - 200 Mb zip disks

50 - 3-1/2" diskettes and storage container with additional diskettes as needed by engineer

1 - Hewlett Packard or equal color scanner with capability of scanning 11" x 14"
Internet Service for the duration of the project.

1 - Facsimile machine which utilizes plain copy paper. This machine shall be self feeding, transaction confirmation, 20 phone number preset and automatic dial recall.

1 - Concrete Slump testing Equipment Set (cone-rod-base plate-straight edge)

3 - Fire extinguishers, non-toxic dry chemical type meeting Underwriters Laboratories, Inc., approval for Class A, Class B, and Class C fires with a minimum rating of 2A: 10B: 10C.

1 - First Aid Kit kept properly stocked with appropriate first aid supplies at all times.

1 - Electric refrigerator (5 cf minimum capacity)

1 - Microwave (minimum heating volume of 1 cf).

2 - Drafting table 3' x 5' with storage drawers and drafting stool.

1 - Air Entrainment Meter with carrying case including rubber mallet. Themeter shall be capable of producing an accurate test result in approximately five minutes and shall be of a type approved by the Engineer. Meters must be maintained in serviceable condition through the entire contract.

1 - Clothes rack or closet.

1 - Photocopying Machine, desk top, heavy duty, electric, dry process photocopying type with the following features: letter, legal and 11" x 17" copying, enlarging to 156%, reduction to 64% self feeding. The supply of copy paper and toner shall be replenished by the Contractor as required by the Engineer.

1 - Vertical filing plan racks for four sets of 22" x 36" plans each rack.

1 - Pencil Sharpener.

2 - Thermometer. A minimum-maximum thermometer.

1 - Concrete Thermometer.

1 - Asphalt Thermometer.

6 - Safety Harnesses, catalog no. 5454 as manufactured by Triple D-Ring Work and Retrieval Harness Klein Tools Inc., 7300 McCormick Boulevard, Chicago, Ill., 60645, or approved equal, which must conform to all applicable safety standards.

6 - Lanyards, catalog no. 35170, as manufactured by Deceleration Lanyard Klein Tools, Inc., 7200 Mc Cormick Boulevard, Chicago, Ill., 60645, or approved equal which must conform to all applicable safety standards.

1 - Telephone Answering Machine with playback capabilities from another phone and the ability to record 30 incoming messages of 60 second duration.

4 - 2-way radio having controlled squelch and one channel capability in the 150 to 174 MHz band. The unit shall operate on nominal 12 volts DC negative ground. The units shall be at least from one of the manufacturers listed below or as approved by the Engineer.

General Electric Century II CE 5
Motorola Mxar D 33TRA/L243TRB
RCA TAC-300 MFA 02

The contractor shall also provide separate chargers for each of these units.

CONSTRUCTION DETAILS:

The building shall be fully equipped and made available for use and occupancy by the Department's personnel, Supervision Consultant and/or Railroad personnel prior to the start of any contract work. The building shall be maintained in good, clean, and sanitary working condition by the Contractor for the duration of the contract. The Contractor

shall provide daily janitorial services. The Contractor shall also provide and pay all costs for electrical service, telephone service for calls within the regional area, hot and cold water, heat and fuel, and janitor service. In addition, the contractor shall supply such staples as: paper towels, hand soap, toilet paper, and similar supplies as well as provide a one-month supply as a reserve stock.

The office, incorporated facilities, equipment and personal property of the Department's employees shall be protected by the Contractor against loss or damage from fire, theft or other causes, at all hours of the day and night. The Contractor shall provide fire insurance, extended coverage for vandalism, malicious mischief and burglary, and theft insurance coverage in the amount of $25,000 for office equipment of the City of New York in the Engineer's field office and for property of City personnel that is used in the contract work and stored in the office. All insurance coverage shall be written by a company approved by the Commissioner and payable in case of loss to the City of New York.

When directed by the Engineer, the Contractor shall disconnect all services and remove and dispose of all temporary installation from the site, including fencing, surfacing and utilities. The site shall then be cleaned, loamed and seeded if required and left in a neat and acceptable condition. On and after the date of the Engineer's Final Acceptance, the temporary structure and all installed equipment may become property of the Contractor, and if directed by the Engineer shall be disposed of, by him, away from the site of the work. Engineer's Final Acceptance shall be when the Contractor has completed all punch list work and Official Completion Date has been set.

METHOD OF MEASUREMENT:

Payment will be made for each month (to the nearest 1/4 month increment), of availability for occupancy by the Field Engineers during the period of the contract. Payment will begin the first month that the office is fully equipped, serviced as specified, and made available for occupancy. Monthly payments will continue until the date of acceptance of the contract. When directed in writing by the Engineer, payment for each month's occupancy after the date of acceptance will be made as part of the final estimate. Monthly payments may be terminated on a specified date prior to acceptance of the contract by written notification by the Engineer that such office will no longer be required on the contract.

No payment will be made for each calendar day during which there are deficiencies in compliance with the requirements of this specification. The first nonpayment calendar day shall commence twenty-four (24) hours after notice to the contractor of such a deficiency. This non-payment shall be deducted from the contractor's next estimate. The amount of such calendar day non-payment will be determined by dividing the unit price bid per month by 30.

In addition, if the cited deficiencies exceed 72 hours or is permitted to recur, liquidated damages will be assessed at one-fifth (1/5) the rate (20%) shown in Schedule "A" for each subsequent calendar day or part thereof that a cited deficiency resulting in non-payment, as prescribed herein, is not corrected.

BASIS OF PAYMENT

Payment shall include: furnishing all the labor and materials for providing or constructing the field office; making all necessary electrical, water, sewer and other connections required to make the above facilities operative; payment of all rental costs; furnishing and paying for heating fuel, as required; all electrical energy; private telephone service; staples, as specified; and all necessary incidentals to complete the work, all in accordance with the specifications and the directions of the Engineer.

56. HOT MIX ASPHALT

Hot Mix Asphalt shall be Superpave in accordance with Section 400 – "Hot Mix Asphalt" – of the New York State Department of Transportation (NYSDOT) Standard Specifications and as modified by NYSDOT Engineering Instruction EI-002-001. Superpave specifications are found in Section 402 of the Standard Specifications.

The Contractor should be aware that this is a performance-based specification in which the Contractor is responsible for compacting the pavement within a specific density range. In order to successfully compact the pavement to the specified density range, the Contractor must be prepared to select, operate, and to make necessary adjustment (without direction from the Engineer) to achieve the desired results.

A Quantity Adjustment Factor will be applied to majority of the paving to determine the amount of payment. The Contractor is cautioned that the Quantity Adjustment Factor is statistically-based upon both the average of and variation among samples tested.

Written instructions for determining pavement density and Quantity Adjustment Factors are available from the Regional Materials Engineer or the Director, Materials Bureau.

57. BRIDGE IDENTIFICATION NUMBER PLATES

The Company shall locate the Bridge Identification Number (B.I.N.) Plate on B.I.N. 2-07535-1. It is the Company's responsibility to protect the B.I.N. Plates during construction or remove it and remount it after construction is completed. The B.I.N. Plate for B.I.N. 2-07535-2 is missing and shall be replaced by the Company.

58. VARIABLE MESSAGE SIGNS

Unless otherwise specified, all variable message signs and display units used in this contract shall become property of the City of New York at the end of the construction. They shall be carefully removed and stored at the site in a manner acceptable to the Engineer for pick-up by New York City.

59. SALVAGE – LIGHTING STANDARDS AND LUMINARIES

A. Unless otherwise specified, all existing lighting standards, luminaries, and underbridge luminaries scheduled for removal are to be carefully removed from the structure, salvaged, and stored at the site in a manner acceptable to the Engineer for pickup by New York City.

60. PEDESTRIAN FENCING

Pedestrian fencing is required on the portions of pedestrian bridges and pedestrian walkways of vehicular bridges that are over persons or over property that can be damaged by thrown objects. The fencing should be of metallic mesh and the maximum opening size of the mesh used shall be one-inch, except where the bridge is over a railroad and the railroad has more stringent requirements. All chain link fence will be covered with black vinyl coating.

The fencing shall have a minimum height of 8'-0" above top of the sidewalk. The top of the post shall be curved in by 1'-6". In place of curve, an inward bend of 45 to 90 degrees will be acceptable. Exceptions to any of these requirements must be approved by the Chief Bridge Officer. The following are examples of exceptions that *may* be granted by the Chief Bridge Officer as follows.

a) On a bridge over a waterway that is not used by commercial vessels, the mesh may be of maximum 2 inches opening. Under these circumstances, the inward projection may not be required.

b) Exceptions may be made on a bridge that is kept under regular surveillance by law enforcement personnel and where there have not been experiences of people throwing objects.

61. STONE CLADDING

Stone or brick cladding is sometimes used for aesthetic reasons on bridge fascias and other structural surfaces including retaining walls, abutments, piers, wing walls, etc, Stone or brick cladding shall not be used on a surface of any height unless the pin, bolt, or other device that attaches the cladding to the surface can be readily inspected. The only other exception will be if the Chief Bridge Officer concurs that if the attachment to the wail fails, it will not result in a danger to life (i.e.. it is over an area that is closed to the public).

62. PROTECTIVE SHIELD

1. Due to the conditions and activities existing at the location of this contract, the Contractor will be required, in addition to complying with all federal, state, and local laws and regulations and the requirements contained in the proposal and the standard specifications pertaining to the safety and health of individuals and the protection of property, to provide and maintain a specific level of protection in locations as shown or noted on drawings and as described below.

2. The Contractor will be required to provide, maintain, and remove protective shields placed under the structure.

3. The construction of the protective shields will be such as to prevent any dust, debris, concrete, form work, paint, or tools from falling on the areas below the structure.

4. The protective shields shall be erected prior to the start of any work over any particular area. The Engineer-in-Charge will be the sole judge as to whether or not sufficient protection has been provided to perform the work over any particular area.

5. The protective shields shall remain in place until all work over any particular area has been completed and shall be removed only when ordered by the Engineer-in charge. Prior to removal, the devices shall be cleaned to the satisfaction of the Engineer-in-Charge.

6. To minimize the inconvenience to the users of the areas below, the Contractor will be required to complete the actual erection and removal of the protective shields over any particular area within time limits specified in the plans and specifications, and A.O.B.E.

7. The erected protective shields shall not infringe on any legal, minimum vertical clearance shown on the plans or hinder access and egress below the structure. Areas of access to the devices shall be approved by the Engineer-in charge.

8. The Contractor will be required to obtain the approval of the Engineer-in-Charge before commencing any work beneath the protective shields, hi certain areas, depending on the nature of the work, the Engineer-in-Charge may require a specific method of protection.

9. Prior to the start of construction, the Contractor will be required to submit the details of the above noted protections to New York City DOT Construction Engineer, who will review and approve the details only as to the methods of erection and as to whether or not the proposed installations will provide the level of protection required at the various locations. It is the Contractor's responsibility to

design these protections so that they are in conformance with all existing laws, regulations and specifications that govern this type of work.

10. If during the actual construction the Engineer-in-Charge deems that the protection devices are not providing the desired level of protection or that the Contractor has failed to properly maintain the devices, all work at the affected locations shall cease until corrective measures acceptable to the Engineer-in-Charge are instituted.

11. The Contractor shall repair, at no cost to NYC, all damage to the structures resulting from the use of these devices. All repair methods shall be acceptable to the Engineer-in-Charge.

12. The cost of all the above noted work shall be included in the price bid for the various items of the Contract.

13. The protective shield shall be capable of supporting a uniform live load of 100 pounds per square foot (psf) over its entire surface and a concentrated live load of 2000 pounds so placed to produces maximum stresses. The Contractors will not be permitted to stockpile materials or equipment on these shields. The protective shields are to be kept clean and clear of debris as directed by the Engineer.

14. The vertical protective shields shall be designed for 30 psf uniform horizontal load acting on all vertical surfaces.

Amtrak and/or CSXT might impose additional requirements for the protective shield. Refer to Exhibits I & J.

63. LIQUIDATED DAMAGES ASSESSMENTS

The timely execution of this contract is essential to the smooth flow of vehicular traffic, to minimizing the inconvenience to pedestrians, as well as to the Community's quality of life including but not limited to services like schools, hospitals, etc. The following milestones are incorporated in this Contract.

Milestone A shall be site mobilization; Milestone B shall be substantial completion of the work.

The Company will be assessed $4,000.00 per day for each day that Milestone A is not met and assessed $8,000.00 per day for each day that Milestone B is not met. THERE IS NO LIMITED AMOUNT OF LIQUIDATED DAMAGES. Liquidated damages assessment may be made against monies due the Company, and will be assessed beginning the first day the milestone period is exceeded, and up to the date the Company actually substantially completes all contract work.

The NYCDOT Commissioner or his/her duly authorized representative will be the sole

authority in determining when the work for this milestone is complete.

Timely Bruckner Expressway Closures and Openings.

The City will assess liquidated damages to ensure that costs related to traffic delays during traffic peak hours be avoided.

Measures such as maintaining standby equipment should be anticipated to ensure that the Bruckner Expressway lane openings are met on each occasion.

The Company will be assessed $350.00 per minute for each minute of late Bruckner Expressway lane opening or early Bruckner Expressway lane closure from the times identified in the Maintenance and Protection of Traffic Stipulations, Book 2 of 2, Engineering Requirements. THERE IS NO LIMIT ON THE AMOUNT OF LIQUIDATED DAMAGES. A liquidated damage assessment may be made against money due the Company, and will be assessed beginning the first instance the time period is violated.

The NYCDOT Commissioner or his/her duly authorized representative will be the sole authority in determining when the Company is in violation of the Maintenance and Protection of Traffic Stipulations.

64. CONTRACTOR INITIATED VALUED ENGINEERING CHANGE PROPOSALS (CIVEC)

NOTE THE FOLLOWING:

- **CONTRACTOR INITIATED VALUE ENGINEERING CHANGE PROPOSALS ARE DIFFERENT THAN A VALUE ENGINEERING WORKSHOP FUNDED BY THE CITY OF NEW YORK.**

- **ANY COST SAVINGS RESULTING FROM A VALUE ENGINEERING WORKSHOP WILL BE EXCLUSIVELY FOR THE BENEFIT OF THE CITY OF NEW YORK.**

A. Purpose and Scope The term "proposal" as used in this Subsection is construed to mean a Contractor Initiated Value Engineering Change (CIVEC) Proposal submitted by the Contractor for changing the Plans, Specifications, or other requirements of the Contract. The Value Engineering Change Proposal shall conform with the following:

It is the intent of this provision to share with the Contractor any cost savings

which may be generated on this Contract as the result of CIVEC proposals offered by the Contractor and approved by NYCDOT. The purpose is to encourage the use of the Contractor's ingenuity and experience in arriving at an alternative, lower cost with any time-saving construction methods other than those reflected in the Contract Documents, by the sharing of savings resulting there from. The proposals contemplated are those that could produce a savings to the NYCDOT without, in the sole judgment of the Director of Design Build/Emergency Contracts, impairing the essential functions and characteristics of the Project or a portion of the Work involved. They include, but are not limited to: safety, service, life, stage construction, economy of operation, ease of maintenance and desired appearance.

B. Submittal of CIVEC Proposal

The Contractor may submit a CIVEC only after Award of the Contract.

B-1) Submittal of Initial CIVEC Proposal

An initial proposal is required for all CIVEC proposals and shall outline the general technical concepts associated with the proposal and the estimated savings which will result. The initial proposal will be reviewed by NYCDOT and, if found to be conceptually acceptable, approval to submit a Final Proposal will be granted by NYCDOT. A finding of "conceptual acceptability" of the initial proposal however, in no way obligates NYCDOT to approve the final proposal. Further, the Contractor shall have no claim against the City as a result of the rejection of any such initial or final proposal.

B-2) Submittal of Final CIVEC Proposal

At a minimum, the following materials and information shall be submitted with each CIVEC proposal, plus any additional information requested by the NYCDOT.

a) A statement that the CIVEC is submitted as the "Final Value Engineering Change Proposal," as per NYCDOT approval of the Initial CIVEC Proposal.
b) A description of the difference between the existing contract requirements and the proposed change, and the comparative advantages of each, including consideration of service life, economy of operation, ease of maintenance, desired appearance and safety/
c) Complete plans and specifications showing the proposed revisions relative to the original contract features and requirements.

d) A complete cost analysis indicating the Final Estimate costs and quantities to be replaced by the CIVEC proposal, the new costs and quantities generated by the CIVEC proposal, the new costs and quantities generated by the CIVEC proposal, and the cost effects of the proposed changes on operational, maintenance and other considerations.

e) Pursuant to the Agreement, Value Engineering Change Proposals are considered Change orders, therefore, a statement of the time, by which adopting the proposal must be executed so as to obtain the maximum benefit during the reminder of the Contract is required. The date must be selected to allow NYCDOT ample time for review and processing of the Change Order, but without affecting the Contractor's schedule. Should NYCDOT find that insufficient time is available for review and processing, it may reject the CIVEC proposal solely on such basis. If NYCDOT fails to respond by the date specified, the Contractor shall consider the CIVEC proposal rejected unless otherwise notified in writing by NYCDOT; shall in any event have no claims against the City as a result thereof.

f) A statement as to the effect the CIVEC proposal will have on the time for completion of the contract.

g) A description of any previous use or testing of the CIVEC proposal on another NYCDOT project, indicate the date, contract number and the action taken by NYCDOT.

C. Conditions

CIVEC proposals will not be considered in determining the selected proposer. CIVEC proposals will only be considered after award, and only when all of the following conditions are met:

1 The Contractor is cautioned not to base any price proposal on the anticipated approval of the CIVEC proposal and to recognize that such proposal may be rejected and that the Contractor will thus, be required to complete the Contract in accordance with the requirements of the RFP.

2 All CIVEC proposals, whether or not approved by NYCDOT for use in this contract, apply only to the on-going Contract or Contracts referenced in the CIVEC proposal and become the property of NYCDOT without restriction as may otherwise be imposed by the Contractor, on their use and disclosure. NYCDOT shall have the right to use, duplicate and disclose in whole or in part any data necessary for the utilization of the proposal. NYCDOT retains the right to utilize any accepted CIVEC proposal or part thereof, on any subsequent project without any obligation to the Contractor submitting the same.

3 The Contractor shall have no claim against the City for any costs or delays

incidental to NYCDOT's rejection or approval of a CIVEC proposal, including but not limited to development costs, anticipated profits, or increased material and labor costs resulting from delays in the review of such CIVEC proposal.

4 NYCDOT shall be the sole judge as to whether a CIVEC proposal qualifies for consideration and evaluation. It may reject, at will, any CIVEC proposal that requires excessive time or costs for review, evaluation and/or investigations, or which is not consistent with the NYCDOT's design policies and basic design criteria for the project; as such policies and criteria are stated in the Request for Proposal documents, as well as, for any other reason the NYCDOT appropriate.

5 The Commissioner may reject all or any portion of the work performed pursuant to an approved CIVEC proposal if it is believed that unsatisfactory results are being obtained. The commissioner may direct the removal of such rejected work and require the Contractor to proceed in accordance with the original Contract requirements without reimbursement for any work performed under the CIVEC proposal, or for its removal. Where modification to the CIVEC are approved in order to adjust to field or other conditions, reimbursement will be limited to the total amount payable for the work at the Contract bid prices as if it were constructed in accordance with the original Contract requirements. Such rejection or limitation of reimbursement shall not constitute the basis of any claim against the City for delay or for any other costs.

6 The CIVEC proposal shall not be experimental in nature but shall have been proven to the NYCDOT's satisfaction under similar or acceptable conditions on another NYCDOT project or at another location acceptable to NYCDOT.

7 CIVEC Proposals shall be considered only of equivalent options are not already provided in the Contract documents.

8 The savings generated by the CIVEC proposal must be of sufficient significance, in the sole judgment of NYCDOT, to warrant review and processing.

9 A CIVEC proposal changing the types and or thickness of the pavement structure will not be considered.

10 If additional information is deemed necessary by the Commissioner to evaluate the CIVEC proposal, this information must be provided in a timely manner to allow sufficient time for review. Failure to do so will result in rejection of the CIVEC proposal. Such additional information should include but not be limited to design changes, field investigation and survey results, design computations, and field change sheets.

11 No changes to the work shall be considered as CIVEC eligible, if they are the result of design errors or omissions, which would have needed correction not

withstanding any CIVEC provision in the specification; even if the need for such correction is first brought to the Commissioner's attention by the Contractor.

D. Payment

If the CIVEC proposal is accepted by NYCDOT, the changes and payments will be made In accordance with applicable Procurement Policy Board (PPB) Rules. Reimbursement to the Contractor will be made as follows:

1 The changes will be incorporated into the original Contract proposal as submitted by the Contractor via changes in the amounts of lump sum items and new agreed priced items, as appropriate.

2 The cost of the revised work as determined from the aforementioned changes in new items will be paid directly and based on percentage of work completed for each item under consideration on a monthly basis. In addition to such payment, the NYCDOT will pay to the Contractor, 50 percent of the cost savings to NYCDOT as reflected by the difference between the above payment and the cost of the related construction required by the original Contract plans and specifications and submitted by the Contractor with its original price proposal. This cost savings will be released to the Contractor as one lump sum amount at the time of substantial completion of all work affected by the CIVEC proposal.

3 The Contractor's costs for development, design and implementation of the CIVEC proposal are not eligible for reimbursement.

4 The contractor may submit CIVEC proposals for an approved subcontract, provided that reimbursement is made by NYCDOT to the Contractor and that the terms of the pass through to the subcontractor are satisfactorily negotiated and accepted by the Contractor and Subcontractor before the CIVEC proposal is submitted to NYCDOT. Subcontractors may not otherwise submit a CIVEC proposal, except through the prime Contractor.

65. PAVEMENT WARRANTY

§ 17. Paragraph (12) of section 2-11 of Title 34 of the Rules of the City of New York is amended to read as follows:

(12) Wearing Course.

(i) Wearing course material shall conform to the Department's specifications.

(ii) The finished grade of the wearing course shall be flush with surrounding pavement on all sides of the cut; the restored wearing course shall extend for a distance of six inches (6") beyond the edge of the base course. In the event a permanent restoration pavement installed settles more than two inches (2") below the surrounding existing surface during the life of the guarantee period, this shall be deemed a failure of the backfill compaction, in which case, the

permittee shall remove all of the failed backfill, down to the subsurface facility, and install new, properly compacted backfill.

(iii) The minimum thickness of the wearing course on full depth asphalt restoration shall be two inches (2").

(iv) When more than one roadway opening is made against a single permit and the openings are less than three feet apart [and the openings are machine excavated] after the required cutbacks, the existing wearing course between such openings shall be restored integrally with the opening wearing course restoration, in accordance with the current Standard Detail H-1042.

(v) [When openings are made by digging with hand tools or hand held pneumatic tools, the existing wearing course between such openings need not be replaced.

(vi)] When a street opening is twelve inches from the curb, the entire pavement between the opening and the curb shall be excavated and replaced in kind, in accordance with the current Standard Detail H-1042. The pavement base shall be inspected and repaired where necessary and a new wearing course shall be installed from the curb to the street opening. The areas described above shall be included in the permitee's guarantee.

[(vii)](vi) Whenever any street is excavated, the permittee shall restore such street in kind as to material; type, color, finish or distinctive design.

[(viii)](vii) Pavements shall be restored in kind in designated historic districts and on streets constructed with cobblestones or other distinctive pavements, or as directed by the Commissioner.

[(ix)](viii) The wearing course shall be properly sealed completely at the edges of the cut with the liquid asphaltic cement ironed in with a heated smoothing iron or by means of infrared treatment to prevent water seepage into the pavement.

[(x)](ix) [Any] Permittees shall be required to obtain a permit for any changes to, or installation of temporary roadway pavement markings and temporary construction, parking or regulatory signs and supports, including, but not limited to, crosswalks and lane lines. Unless otherwise directed by the Commissioner, all roadway pavement markings, including but not limited to, crosswalks and lane lines, and any parking or regulatory signs or supports shall be replaced in kind to Department specifications. All construction signs and supports and pavement markings shall be removed prior to the expiration of the permit.

[(xi)](x) Final (permanent) restorations shall be completed within ten (10) working days of the expiration of the permit. During winter months, [the Commissioner may vary the above requirement] temporary asphalt and pavement markings shall be placed at the expiration of the permit and maintained until such time as the final restoration may be completed.

[(xii)](xi) For trenches on protected streets, six [(6)] inches (6") of base and six [(6)] inches (6") of the wearing course shall be cut back on both sides of the trench. For trenches on non-protected streets, [(6)] six inches (6") of the wearing course shall be cut back on both sides of the trench, provided, however, that the total cut is a minimum of eighteen [(18)] inches (18") wide.

(xii) Any permittee performing work on a street pursuant to paragraph 3 of subdivision d of this section shall notify the Department within twenty-four (24) hours of the

completion of the work on the same protected street determination form as submitted with the permit application pursuant to such paragraph 3 of subdivision d of this section.

66. PRICE TO INCLUDE

No direct payment will be made for the costs incurred in complying with the foregoing special provisions unless otherwise provided. Said costs shall be deemed to have been included in the price bid.

EXHIBIT L
Bridge Painting Requirements

SECTION 831

SPECIFICATION FOR PAINTING

DECEMBER 2006

TABLE OF CONTENTS

Page

PART 1.0 GENERAL 1

SCOPE 1
GENERAL 1
SHOP AND FIELD PAINTING CONTRACTOR QUALIFICATIONS AND SUPERINTENDENCE 2
REGULATORY COMPLIANCE 3
REFERENCE STANDARDS 3
American Society for Testing and Materials (ASTM) 3
Code of Federal Regulations (CFR) 4
Society for Protective Coatings (SSPC) 6
New York State DOT Specifications 7
City of New York 7
Equipment and Coating Manufacturers' Published Instructions 7

SUBMITTALS – See Appendix A.

PART 2.0 PRODUCTS 8

MATERIALS 8
Abrasives 8
Coatings 8
Caulking 10

FIELD PAINTING CONTAINMENT MATERIALS AND SCAFFOLDING 10
EQUIPMENT 11
Surface Preparation and Painting Equipment 11
Personal Protective Equipment 11
Inspection Equipment 12

WASTE CONTAINERS 13
Hazardous Waste 13
Construction Waste 13
Spent Solvents 13

PART 3.0 EXECUTION 14

SAFETY 14
CONTAINMENT, PROTECTION OF SURFACES, AND RESTITUTION 15
SCAFFOLDING 16
SENSITIVE NATURAL RESOURCES 16
ENDANGERED SPECIES 16
NOISE 17
TECHNICAL REPRESENTATION BY MATERIAL MANUFACTURER 17
LIMITED ACCESS AREAS – FOR CLEANING AND PAINTING 18
SURFACE PREPARATION 18
Pre-Production Field Surface Preparation Test Section 18
Removal of Existing Debris 19
Weld Spatter, Sharp Edges, and Holes 19
Removal of Rust Scale and Pack Rust 20
Steel Defects 20
Compressed Air Cleanliness 20
Surface Cleaning Requirements – New and Previously Painted Steel Substrates 21

Page

Water Washing/Scrubbing of Cables *26*
Surface Cleaning Requirements – Bare and Painted Galvanized Surfaces Other Than Cables *27*
Surface Cleaning Requirements – New and Previously Painted Concrete Surfaces *28*
Cleaning and Pressure Washing Existing Coatings for Overcoating *29*
Fasteners *31*
Feathering *32*
Abrasive Cleanliness *32*
Surface Profile *32*
Chloride Remediation *33*

PAINT STORAGE, MIXING, AND HANDLING 33
Paint Storage *33*
Mixing and Thinning of Coating Material *34*

COATING APPLICATION 35
Painting Plans *35*
Limited Access Areas *35*
Quality of Surface Preparation Prior to Painting *35*
Surface Cleanliness Prior to Painting and Between Coats *35*
Moisture Content Prior to Coating Application *36*
Ambient Condition During Coating Application *36*
Methods of Application *37*
Material Agitation *37*
Recoat Times *37*
Coverage, Continuity, and Stripe Coating *38*
Wet Film Thickness *40*
Dry Film Thickness and Corrective Action for Thickness Deviations *40*
Coating Adhesion *41*
Caulking *41*
Fasteners *41*

REPAIR OF DAMAGE, TOUCH UP, AND UNACCEPTABLE COATINGS 42
Surface Preparation of Localized Areas *42*
Surface Preparation of Extensive Areas of Damage or Unacceptable Coating *42*
Feathering of Edges in Repair Areas *43*
Coating Application in Repair Areas *43*

HOUSEKEEPING AND WASTE DISPOSAL 43
INSPECTION 44
ONE YEAR ANNIVERSARY INSPECTION 44

PART 4.0 MEASUREMENT 46

PART 5.0 PAYMENT 46

APPENDIX A – SUBMITTALS A-1

GENERAL A-1

PRE-CONSTRUCTION SUBMITTALS A-1

Table of Contents - continued

Page

Submittal Schedule and Engineer Acceptance *A-1*
Project Schedule *A-1*
Certifications *A-1*
Contractor Chain of Command *A-1*
Worker Safety Plan *A-2*
Containment and Scaffolding *A-2*
Field Surface Preparation/Painting Plan *A-3*
Shop and Field Painting Quality Control Plan *A-4*
Coating/Caulking Material Documentation for Shop and Field Painting *A-4*
Sensitive Natural Resources and Endangered or Protected Species *A-6*
Field Noise Permits and Noise Mitigation and Monitoring Plan *A-6*

CONSTRUCTION START UP SUBMITTALS A-7
Field Surface Preparation Test Sections *A-7*

CONSTRUCTION PHASE SUBMITTALS AND DOCUMENTATION A-7
Material Manufacturer's Field Site Reports *A-7*
Material Manufacturer's Batch Certifications *A-7*
Abrasive Cleanliness Test Reports *A-7*
Inspection Log *A-7*

APPENDIX B – NYSDOT SAFETY BULLETIN SB-94-4, HISTOPLASMOSIS B-1

APPENDIX C – PAINT SYSTEM TABLES C-1

SECTION 831
SPECIFICATION FOR PAINTING

PART 1.0 - GENERAL

1.01 SCOPE

A. The Special Provisions for the specific project, in conjunction with this Section, establish the project painting requirements. The Special Provisions identify the scope of work for the project, the items to be painted, extent of surface preparation required, the type of coatings to be applied, and unique project requirements. This Section provides the workmanship requirements for conducting the following surface preparation and painting activities:

1. Cleaning and painting of new, bare steel and galvanized steel.

2. Cleaning and painting of new, bare concrete, and previously painted concrete.

3. Field cleaning and finish painting of shop-primed steel.

4. Field partial removal of existing coatings and overcoating (steel, galvanized steel, and concrete substrates).

5. Field total removal of existing coatings followed by repainting (steel, galvanized steel, and concrete substrates).

B. In addition to the requirements of this Section, comply with the instructions provided on any Drawings included with the Contract Documents.

C. Provide all materials, apparatus, and labor necessary to perform the specified scope of work, whether or not the material or apparatus is specifically identified in this Section.

1.02 GENERAL

A. The Contractor is responsible for developing and implementing a project specific Quality Control Plan in accordance with the requirements of Appendix A that ensures the specified level of surface preparation and coating application as indicated on the drawings and in the contract documents.

B. Conduct all surface preparation and painting operations in a workmanlike manner in accordance with industry standards.

C. General painting contractor – attend a pre-job meeting with the Engineer, coatings manufacturer, REI consultant and any other appropriate parties.

D. Shop painting contractor – notify the Engineer, REI consultant, and the Department's inspection agency of the painting schedule and the intended materials to be used at least 20 days prior to performing any painting work. Note that "shop" is defined as an enclosed facility where surface preparation and painting are performed. A lay down area at the project site that is used for cleaning and painting is not a "shop" for the purpose of this specification.

E. Coordinate all painting activities to assure that the prime, intermediate and finish coats of a given system are products of the same paint manufacturer. This includes both shop and field painted steel. Note that when this specification is used for the overcoating of existing paint systems, products produced by the manufacturer of the existing system need not be used unless warranty provisions dictate otherwise.

F. In the event of a conflict between the manufacturer's technical data and the requirements of this Section, advise the Engineer of the discrepancies in writing, and comply with the Engineer's written resolution.

G. When the Special Provisions specify that the existing coating being removed contains lead or other toxic metals, implement controls for the protection of workers, the public, and the environment, and for the handling and disposal of the waste. Comply with the requirements of NYCDOT Section 832, Specification for Lead Paint Removal – Worker/Environmental Protection and Waste Handling.

H. This Section applies to both shop and field painting. "Site, jobsite, project" and similar terms all apply to the shop painting location(s) and/or the field painting location(s).

1.03 SHOP AND FIELD PAINTING CONTRACTOR QUALIFICATIONS AND SUPERINTENDENCE

A. Unless otherwise specified in the Special Provisions, the painting Contractor or subcontractor that is directly performing the field cleaning and painting work shall possess SSPC-QP1 and QP2 certifications at the time of bid and throughout the duration of the project.

B. Unless otherwise specified in the Special Provisions, or exempted by the Department, the shop painting Contractor or subcontractor that is directly

performing the cleaning and painting work shall possess SSPC QP-3 or AISC SPE certifications at the time of bid and throughout the duration of the project.

C. The Contractor is responsible for supervising and directing the painting work efficiently using the best skills and attention.

D. Keep an experienced, full time English-speaking superintendent acceptable to the NYCDOT on the project. The superintendent is the Contractor's representative and must have the authority to act on behalf of the Contractor. All communications given to the superintendent are binding upon the Contractor.

E. Keep trained and experienced quality control person(s) on the project to conduct all of the tests and inspections required to verify and document the quality of all aspects of the Work. Unless otherwise specified in the Special Provisions, the quality control person(s) shall have a minimum qualification of NACE CIP Level 1.

1.04 REGULATORY COMPLIANCE

A. Comply with the requirements of this Section and all applicable Federal, State, and City laws, codes, and regulations, including, but not limited to the regulations of the United States Environmental Protection Agency (USEPA) and Occupational Safety and Health Administration (OSHA), New York State Department of Environmental Conservation (DEC), New York State Department of Health (NYS DOH), New York State Department of Labor (NYS DOL), and the New York City Department of Environmental Protection (NYC DEP). Codes, Rules and Regulations of the State of New York (NYCRR) are administered by the NYS Department of Environmental Conservation, Albany, N.Y. EPA regulations are administered by the US Environmental Protection Agency, Region 2, N.Y., N.Y.

B. Identification of the above items in this specification that are of specific interest to the NYCDOT in no way relieves the Contractor of the responsibility to comply with all applicable legal requirements. Moreover, compliance with Contract specifications does not relieve the Contractor of the obligation to comply with other applicable requirements. If a Federal, State, or City regulation is more restrictive than any of the requirements of this Section, the more restrictive requirements shall apply.

1.05 REFERENCE STANDARDS

A. **Latest Edition** – The latest edition of the following standards and regulations in effect at the time of Contract letting form a part of this Section. In the event of a

conflict, comply with the most restrictive requirements. Maintain at the job site, a copy of all applicable reference standards.

B. **American Society for Testing and Materials (ASTM)**

1. ASTM D1400, Standard Test Method for Non-Destructive Measurement of Dry Film Thickness of Non-Conductive Coatings Applied to a Non-ferrous Metal Base

2. ASTM D3359, Standard Test Methods for Measuring Adhesion by Tape Test

3. ASTM D4138, Standard Test Method for Measurement of Dry Paint Thickness of Protective Coating Systems by Destructive Means

4. ASTM D4214, Standard Test Method for Evaluating Degree of Chalking of Exterior Paint Films

5. ASTM D4258, Standard Practice for Surface Cleaning Concrete for Coating

6. ASTM D4259, Standard Practice for Abrading Concrete

7. ASTM D4263, Standard Method for Indicating Moisture in Concrete by the Plastic Sheet Method

8. ASTM D4285, Standard Test Method for Indicating Oil or Water in Compressed Air

9. ASTM D4414, Standard Practice for Measurement of Wet Film Thickness by Notch Gages

10. ASTM D4417, Standard Test Methods for field Measurement of Surface Profile of Blast Cleaned Steel

11. ASTM D4541, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

12. ASTM D4752, Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub

13. ASTM D6132, Test Method for Non-Destructive Measurement of Dry Film Thickness of Applied Organic Coatings Over Concrete Using an Ultrasonic Gage

14. ASTM D6386, Standard Practice for Preparation of Zinc (Hot-Dip galvanized) Coated Iron and Steel Products and hardware Surfaces for Painting.

C. **Code of Federal Regulations (CFR)**

1. 29 CFR 1910, Occupational Safety and Health Regulations for General Industry
2. 29 CFR 1910.20, Access to Employee Exposure and Medical Records
3. 29 CFR 1910.132, General Requirements for Personal Protective Equipment
4. 29 CFR 1910.133, Eye and Face Protection
5. 29 CFR 1910.134, Respiratory Protection
6. 29 CFR 1910.146, Permit-Required Confined Spaces
7. 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout)
8. 29 CFR 1926, Occupational Safety and Health Regulations for the Construction Industry
9. 29 CFR 1926.16, Rules of Construction
10. 29 CFR 1926.20, General Safety and Health Provisions
11. 29 CFR 1926.21, Safety Training and Education
12. 29 CFR 1926.24, Fire Protection and Prevention
13. 29 CFR 1926.28, Personal Protective Equipment
14. 29 CFR 1926.32, Definition of Competent Person
15. 29 CFR 1926.51, Sanitation

16. 29 CFR 1926.52, Noise Exposure
17. 29 CFR 1926.57, Ventilation
18. 29 CFR 1926.59, Hazard Communication
19. 29 CFR 1926.65, Emergency Response Plan
20. 29 CFR 1926.101, Hearing Protection
21. 29 CFR 1926.104, Safety Belts, Lifelines, and Lanyards
22. 29 CFR 1926.150, Fire Protection
23. 29 CFR 1926.151, Fire Prevention
24. 29 CFR 1926.152, Flammable and Combustible Liquids
25. 29 CFR 1926.154, Temporary Heating Devices
26. 29 CFR 1926.200, Accident Prevention Signs and Tags
27. 29 CFR 1926.400, Electrical Safety
28. 29 CFR 1926.450 - 454, Scaffolding
29. 29 CFR 1926.500 - 503, Fall Protection

D. **Society for Protective Coatings (SSPC)**

1. SSPC-SP 1, Solvent Cleaning
2. SSPC-SP 2, Hand Tool Cleaning
3. SSPC-SP 3, Power Tool Cleaning
4. SSPC-SP 5, White Metal Blast Cleaning
5. SSPC-SP 6, Commercial Blast Cleaning
6. SSPC-SP 7, Brush-Off Blast Cleaning
7. SSPC-SP 10, Near-White Metal Blast Cleaning

8. SSPC-SP 11, Power Tool Cleaning to Bare Metal

9. SSPC-SP 15, Commercial Grade Power Tool Cleaning

10. SSPC-SP 12, Surface Preparation and Cleaning of Steel and Other Hard Materials by High- and Ultrahigh-Pressure Water Jetting Prior to Recoating

11. SSPC-AB 1, Mineral and Slag Abrasives

12. SSPC-AB 2, Specification for Cleanliness of Recycled Ferrous Metallic Abrasives

13. SSPC-PA 2, Measurement of Dry Film Thickness with Magnetic Gages

14. SSPC-Guide 15, Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates

15. SSPC-Guide 6, Guide for Containing Debris Generated During Paint Removal Operations

16. SSPC-VIS 1, Visual Standard for Abrasive Blast Cleaned Steel

17. SSPC-VIS 3, Visual Standard for Hand and Power Tool Cleaned Steel

18. SSPC-VIS 4 Guide and Reference Photographs for Steel Surfaces Prepared by Water Jetting

E. **New York State DOT Specifications**

1. NYSDOT Safety Bulletin SB-94-4, Histoplasmosis

2. NYSDOT Section 107-05, Safety and Health Plan

F. **City of New York**

1. New York City Noise Control Code

2. Noise Control Act of 1972

G. **Equipment and Coating Manufacturers' Published Instructions**

1.06 **SUBMITTALS –** See Appendix A.

PART 2.0 - PRODUCTS

2.01 MATERIALS

A. Abrasives

1. When abrasive blast cleaning is specified, provide abrasives that are dry and free of oil, grease, and corrosion producing, or other deleterious contaminants. Abrasives containing 1% or greater free silica are not permitted. MSDS or other written information from the abrasive supplier must be provided to demonstrate compliance with this requirement.

2. Provide abrasives that are sized to produce a sharp, angular, uniform anchor pattern profile height as required in the Paint System Table(s) for the specified systems). If the requirements of the coating manufacturer differ from the specified range, provide the recommendations in writing, and comply with the manufacturer's recommendations only upon written approval of the Engineer. Measure profile during pre-production field surface preparation tests per 3.09 A., and adjust the abrasive size/mix accordingly.

3. Unless specified otherwise in the Special Provisions, use either expendable or recyclable abrasives. Only bring new abrasive materials to the project. Note that in the case of recyclable abrasives, use steel grit. The sharpness and angularity of the surface profile created by steel shot is not acceptable. Identify the abrasive that will be used in the submittals.

4. Provide the abrasives to the jobsite in original packaging or in bulk, and store in a clean, dry environment.

B. Coatings

1. Provide the type and quantity of coating materials, thinners, and cleaning solvents needed to paint all surfaces that are identified in the Special Provisions. A listing of coating systems is found in the attached Paint System Tables. The specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT.

2. Equivalency can be established through completion of AASHTO NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by NTPEP-tested systems listed in the applicable Paint System Tables. The testing shall have been performed by an AASHTO-approved laboratory, with the results posted to the Structural

Steel Coatings DataMine on the AASHTO website. If the proposed system does not have NTPEP testing/field history, the proposed system shall:

a) Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention,

b) Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1000 gallons minimum for each coat during the past year,

c) Have a minimum of two years successful field exposure on at least two bridge structures in a climate similar to New York City,

d) Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number and contact person of the bridge owner and Contractor who applied them, and

e) Be certified by the manufacturer in writing that the coating will perform comparably to the identified materials when applied in accordance with the requirements of this specification.

3. Use coatings that are compliant with Federal and State and City VOC regulations at the time of application. This includes the use of any required thinners.

4. Do not apply coatings until the coating manufacturer's QA/QC programs have been submitted and reviewed by the Engineer.

5. Provide a written certification from the manufacturer with each batch of material supplied to the jobsite, stating that the batch represents the same material as on the approved list, together with the compositional test results identified in Appendix A (A.03). Supply quart retention samples with each batch of material for possible testing by the Engineer. In the case of multi-component products, supply a quart sample of each component.

6. Use the same manufacturer for all coats of a given system on a structure. Unless approved by the Engineer in writing, only use thinners that are supplied by the same manufacturer.

7. Provide each coat of paint (including stripe coats) in a contrasting color to distinguish it from the blast cleaned substrate and previously applied or

existing coatings. Each coat must completely hide the underlying coat.

8. Stripe coat(s) must be of contrasting color to the underlying coating and the coating that is applied over the stripe coat. Wet-on-wet stripe coats are not permitted.

9. The finish color(s) are identified in the Special Provisions. With the submittals, provide six (6) color samples of the finish coat(s) on 8 ½ inch x 11 inch paper board.

10. Order all paint, thinner, and cleaning materials well in advance of intended use. Maintain an adequate supply of all materials on site at all times so as to not delay the Work.

    Provide all paint materials in sealed, original, containers that are properly marked and labeled to allow verification with applicable material safety data sheets, application precautions, and instructions. Verify that the labeling includes the manufacturer's name, type of material, brand name, color designation, shelf life, contract or order number under which the material has been ordered, lot and batch numbers, and quantity. Immediately remove all damaged paint containers (e.g., dented, leaking containers) from the project site.

11. If the project material does not meet the product specification, at no cost to the NYCDOT, remove the coating from the jobsite and remove and replace any material from the same batch that has already been applied.

12. The Engineer reserves the right to audit the coating manufacturing facility according to the requirements of ANSI/ASQ C1-1996, Specification of General Requirements for a Quality Program. Issues identified by the audit that are not resolved to the satisfaction of the Engineer are cause for removing the coating manufacturer from the project.

C. **Caulking -** Provide and use material that is approved by the coating manufacturer and the Engineer. Caulking shall be tinted by the manufacturer so that the supplied material matches the finish coating color of the project.

2.02 FIELD PAINTING CONTAINMENT MATERIALS AND SCAFFOLDING

A. When removing paints that contain lead or other toxic metals, comply with the containment requirements of NYCDOT Section 832, Specification for Lead Paint Removal – Worker/Environmental Protection and Waste Handling.

B. Supply all materials needed to safely access the steel and to contain paint removal and paint application debris in accordance with the requirements of this Specification and Construction Details. This may include, but is not limited to, ground covers, rigging, scaffolding, planking, containment materials, water booms, boats with skimmers, and all other containment materials that may be needed.

C. Use a portable light meter with a scale of 9 to 50+ foot-candles to verify compliance with the lighting requirements of this specification.

D. Materials shall be fire retardant.

E. Do not use any materials until they have been accepted by the Engineer.

2.03 EQUIPMENT

A. Surface Preparation and Painting Equipment

1. Provide all brushes, discs, wheels, scrapers, descalers, blast cleaning, and other surface preparation equipment, including vacuum-shrouded tools as needed, to conduct the work as specified in this Section and the Special Provisions.

2. Provide equipment and materials that are clean and sized properly to accomplish the work, including the required surface profile and degree of cleanliness as required by this Section.

3. Note that each type of equipment must first be demonstrated on site to the satisfaction of the Engineer, and the Engineer must approve the use of the equipment before beginning work. The Engineer also has the authority to rescind the approval of any single piece of equipment if it is found to be not performing properly. Immediately remove rejected equipment from the job site.

4. Provide paint brushes, rollers, and spray equipment to conduct the work as specified in this Section and the Special Provisions.

5. Properly maintain all field equipment to comply with the New York City Noise Control Code for construction equipment.

B. Personal Protective Equipment

1. At each site, provide all personal protective clothing and equipment (PPE) needed for Contractor workers to assure that the workers are protected

from hazards during all phases of the work. Provide all necessary PPE for NYCDOT employees and NYCDOT Agents (REI Consultants), including proper cleaning and disposal.

2. Repair or replace PPE as required to assure that it continues to provide its intended purpose.

C. **Inspection Equipment**

1. Maintain on site, all of the inspection and testing equipment needed by the Contractor for the quality control of the entire surface preparation and painting process.

2. Make the following available for use by NYCDOT Employees and Agents involved with the inspection of the surface preparation and coating work. The equipment is the property of the Contractor and will be returned upon completion of the project.

   a) SSPC Volume 1, "Good Painting Practice" and Volume 2, "Systems and Specifications" (1 copy)

   b) Sling psychrometer (2 per active site)

   c) Surface temperature thermometer, 0 to 250°F (2 per active site)

   d) US Weather Bureau Tables or psychrometric chart (2 per active site)

   e) SSPC Vis 1 for abrasive blast cleaning projects (2 copies per active site)

   f) SSPC Vis 3 for hand or power-tool cleaning projects (2 copies per active site)

   g) SSPC Vis 4 for water jetting projects (2 copies per active site)

   h) Keane-Tator Surface Profile Comparator with appropriate disc for abrasive blast cleaning projects (2 per active site)

   i) Testex Press-O-Film Replica Tape and spring micrometer for abrasive blast cleaning projects (2 rolls of the appropriate range and 1 micrometer per active site)

j) Chloride test kits (Chlor-Test or Bresle)

k) Wet film thickness gage, notch type of the appropriate range (2 per active site)

l) Electronic dry film thickness gage with calibration standards (2 per active site)

m) Tooke Gage (1 per active site)

n) Portable light meter with a scale of 9 to 50+ foot-candles (1 per active field site)

o) Unless stipulated otherwise in the Special Provisions, provide two-way radios with telephone capability at each active field site (one for each inspector and one each for NYCDOT designated senior personnel).

2.04 WASTE CONTAINERS

A. Hazardous Waste

1. Provide DOT-approved drums, tanks, roll-offs, or other containers of the appropriate size and type in accordance with 49 CFR 178 (e.g., 17H containers in the case of 55 gallon drums) that are suitable for any hazardous waste (liquid and solid) generated on the project. Use containers that are resistant to rust and corrosion (painted, if constructed of steel), that have tight fitting lids or covers, and which are water resistant and leak proof.

2. Assure that the dry volume capacity of the containers, in cubic yards, is clearly marked on all containers, and that they are labeled as required by applicable Federal, State and City regulatory requirements.

B. **Construction Waste -** Provide containers for non-hazardous construction waste. Use containers that are free of loose debris when brought on-site.

C. **Spent Solvents -** Provide appropriate containers for spent solvents. Containers shall be corrosion resistant and non-reactive to the solvents. Review solvent MSDS to ensure compatibility with container materials. Containers shall be labeled in accordance with all applicable federal, state, and City regulations.

PART 3.0 - EXECUTION

3.01 SAFETY

A. Conduct all Work in strict accordance with the relevant OSHA 29 CFR 1910 and 29 CFR 1926 regulations, and the safety and protection requirements stipulated by the equipment and material manufacturers. Develop, implement, and maintain a Safety and Health Plan as required under NYSDOT Section 107-05, including all associated Special Notes (e.g., Fall Protection Requirements).

B. Lockout/Tagout of Existing Electrical Systems

1. Develop, implement, and maintain a Lockout/Tagout plan.

2. De-energize and lockout/tagout existing electrical systems located inside containment enclosures and in other work areas as appropriate.

3. Perform all lockout/tagout in accordance with 29 CFR 1910.147 and 1910.333.

4. Coordinate all lockout/tagout activities with NYCDOT and the utilities.

C. Fire Protection and Prevention, and Emergency Response

1. Develop, implement, and maintain a site-specific Fire Protection and Prevention Plan meeting at a minimum the requirements of 1926.24 and 1926.150.

2. Control all sources of ignition throughout the period of construction and comply at a minimum with the requirements of 1926.151.

3. Store and handle all flammable and combustible in a safe manner and in compliance with the requirements of 1926.152 at a minimum.

4. Develop, implement and maintain a site-specific Emergency Response Plan in accordance with the requirements of 1926.65(q) at a minimum.

D. Electrical Safety

1. Develop, implement and maintain a written site-specific Electrical Safety plan ensuring control of electrical hazards due to installations, safety-related work practices, maintenance and environmental considerations, and/or use of special equipment as outlined in 1926.400 and 1926.403.

2. Implement all applicable provisions of 1926 Subpart K as necessary based upon the hazards present on the jobsite.

E. Smoking is strictly prohibited in or around any areas where flammable materials are stored or used.

F. Field painting contractors shall take special precautions when working in areas where pigeons have nested. Develop and implement a worker protection plan for the inspection and removal of pigeon droppings in accordance with NYSDOT Safety Bulletin SB-94-4 (copy attached as Appendix B). At a minimum, use gloves, whole body protective clothing and a dust respirator while inspecting or removing the debris, followed by through washing of hands, face, and forearms before eating, drinking, or smoking.

G. When removing or disturbing paints containing lead or other toxic metals, comply with the additional specialized measures identified in NYCDOT Section 832, Specification for Lead Paint Removal – Worker/Environmental Protection and Waste Handling.

3.02 CONTAINMENT, PROTECTION OF SURFACES, AND RESTITUTION

A. Contain the surface preparation and painting operations to avoid contamination of surrounding property. Use extreme diligence to assure that vehicles, equipment, hardware, fixtures, and other materials are protected against abrasive impact, paint spillage, overspray, falling objects, and other damage. Make full restitution for damages caused at no additional cost to the NYCDOT.

B. Requirements for containment when removing paints which contain lead or other toxic metals are found in NYCDOT Section 832, Specification for Lead Paint Removal – Worker/Environmental Protection and Waste Handling.

C. Use protective coverings, shields, or masking as necessary to protect surfaces that are not designated to receive surface preparation or coating, including, but not limited to, name plates, electrical equipment, bridge substructure, highway appurtenances, and slope protection.

D. Provide appropriate masking during shop and field painting to prevent the application of the intermediate and finish coats to faying surfaces and to surfaces that will be in contact with poured concrete. Remove all intermediate and finish coat applied to these areas at no cost to the NYCDOT.

E. Special containment restrictions may be invoked when pressure washing bridges that span a public water supply or span sensitive streams (e.g., trout streams).

These restrictions are presented under 3.09 K. 2) b., "Pressure Washing."

F. Maintain all protective coverings during the entire period the work is being performed. Remove protective coverings after the work is completed. Remove the containment after it is cleaned to the satisfaction of the Engineer.

3.03 SCAFFOLDING

A. Erect all scaffolding and staging required for the work in strict accordance with all OSHA regulations.

B. Verify that suspended platforms and related components are designed and constructed to support at least 4 times its maximum intended load without failure, with wire cables capable of supporting at least 6 times their maximum intended load without failure.

C. If the bridge supports the containment or scaffolding system, provide containment drawings, calculations, and assumptions, including ventilation criteria as appropriate, signed and sealed by a Professional Engineer. Do not conduct any work until the drawings, calculations, scaffolding and containment submittals have been reviewed and accepted by the Engineer. Do not load the scaffolding until the installation is certified in writing by the Designer or by a designee working under the direction of the Designer.

D. Exercise extreme care in fastening, bracing, and handling the scaffolding and staging to avoid scratching or damaging bridge surfaces and surrounding property and equipment. Remove all scaffolding and staging materials upon project completion. Repair any damage created to the paint, structure, or surrounding property at no cost to the NYCDOT.

3.04 SENSITIVE NATURAL RESOURCES

A. Sensitive natural resource areas may be located around the project. A sensitive natural resource includes any area capable of providing habitat for plant and animal species or capable of functioning to support environmental systems and maintain the City's environmental balance, such as bays, inlets, and wetlands. These areas also include all federal and state parkland, wetlands, tidal zones or other regulated natural areas.

B. If the project is located in a sensitive natural resource area, develop a site-specific habitat protection plan addressing the steps that will be taken to protect these ecologically sensitive areas from damage.

3.05 ENDANGERED AND PROTECTED SPECIES

A. Peregrine falcons (endangered), barn owls or red-tailed hawks (protected by Federal law) may be nesting on the bridge. Note that although these species may not be present on the bridge at the beginning of the project, they could show up at any time. If present, advise the Engineer and develop a site-specific plan for acceptance by the Engineer, for the sequencing of paint removal operations to avoid disturbing nesting pairs.

B. Federal and State law permits peregrine falcon nests to be moved if the young have already fledged. Before moving any unoccupied nests, advise the Engineer and obtain a Federal USF&WS permit and a NYSDEC depredation permit.

C. Barn owl and red-tailed hawk nests are generally occupied from the beginning of April until the end of July, with eggs laid in April. Peregrine falcon nests are generally occupied from March to July.

3.06 NOISE

A. Field painting contractors shall comply with the New York City Noise Control Code for construction equipment.

B. If field construction activities will be performed outside of normal hours of operation (7AM to 6PM on weekdays), obtain special permits authorizing this activity. Provide a copy of the permit to the Engineer prior to commencing any operations outside of normal hours.

C. Provide a Noise Mitigation and Monitoring Plan for field work, identifying the steps that will be taken to monitor and mitigate noise on the project. Methods of mitigation include, but are not limited to sound suppression devices (mufflers) on compressed gas exhaust orifices and gasoline and diesel power sources, and enclosing noise generating equipment and operations within sound absorption barriers.

3.07 TECHNICAL REPRESENTATION BY MATERIAL MANUFACTURER

A. Arrange for a technical representative of the paint manufacturer(s) to inspect the shop and field Work to verify that the surface preparation and coating application are being performed as specified. Note that the purpose of the manufacturer(s) visits is to confirm that the work is satisfactory for the coating system, and not to recommend a reduction in the level of effort that has been specified.

B. Unless directed otherwise in the Special Provisions, arrange for manufacturer's inspections at project start up, approximately half-way through the project, and

upon completion of the Work. Provide the Engineer with a two (2) day advance notice prior to each manufacturer field visit.

C. Have the manufacturer(s) summarize the results of the inspection in writing, together with recommendations. Provide the report to the Engineer within 1 week after each visit.

3.08 LIMITED ACCESS AREAS – FOR CLEANING AND PAINTING

A. Limited Access is defined as a location where the physical characteristics or configuration of the structure restrict the use of a surface preparation or paint application tool at that location.

B. A location is not considered Limited Access if additional time will allow for the proper cleaning or painting of the area, or if commercially available tools are available to clean or paint the area (e.g., angle nozzles, or short nozzles in place of traditional long nozzles for blast cleaning).

C. If location(s) are believed to be Limited Access, submit a list of the locations to the Engineer. Include photographs, the measured size and a detailed description of each limited access area, together with an explanation as to why alternative tools can not be used. The determination of limited access areas and the degree of surface preparation and painting required in these areas is left to the sole discretion of the Engineer.

3.09 SURFACE PREPARATION

A. Pre-Production Field Surface Preparation Test Section

1. Prior to proceeding with field production surface preparation operations, prepare test sections for each of the types of equipment proposed for use, and for each of the specified degrees of cleaning (e.g., SP 10, SP 11, SP 3, etc.). Select each demonstration site with the approval of the Engineer to represent the unique bridge configurations to be cleaned and the type of material to be removed. Use each of the surface preparation methods and degrees of cleaning in each test area as appropriate. Unless the amount of available steel in the test area does not permit, prepare a minimum of 4 square feet for each method/degree of cleaning.

2. Prepare the surfaces in accordance with the requirements of the Special Provisions, this Section, and the approved Surface Preparation/Painting Plan provided under “Submittals.” Use the same equipment, materials, and procedures for the test section(s) that will be used for the production

operations.

3. Provide safe access for close visual inspection and testing. SSPC-VIS 1, VIS 3, and VIS 4 photographic standards as applicable, may be used as an aid in defining the final surface appearance.

4. Do not use the equipment or proceed with production surface preparation activities until the Engineer agrees that the test section(s) conform with the cleanliness requirements of this Section. As directed by the Engineer, once the production work begins, remove and replace the equipment that is not performing properly.

5. Photograph the test areas and coat them with a clear urethane to preserve the level of cleaning for future reference. Use the approved test sections together with the written surface preparation specifications as the standard of cleaning for the project. In the case of conflict between the written definitions and the test sections, the written definitions prevail.

B. **Removal of Existing Debris -** Remove and properly dispose of accumulated cinders, dirt, and debris from all areas to be prepared and painted prior to undertaking surface cleaning or surface preparation operations. Note that the removal of pigeon droppings requires special considerations as outlined earlier in this Section.

C. **Weld Spatter, Sharp Edges, and Holes**

1. Remove slag, flux deposits, and weld spatter from all steel in the shop and newly installed steel in the field. Grind any resulting burrs smooth, including burrs around holes. For previously painted steel in the field, advise the Engineer if slag or weld spatter are present.

2. Prior to surface preparation in the shop, break the edges of all steel with the exception of rolled edges of angles, channels, and wide flange beams. Prior to surface preparation in the field, break the edges of new, previously unpainted steel, with the exception of rolled edges of angles, channels, and wide flange beams. Break the edges in the shop or field to an approximate 1/16” radius.

3. Remove the surface of flame hardened steel to the extent necessary to achieve the specified profile during subsequent blast cleaning or power tool cleaning.

4. If slivers are observed in the steel either before or after blast cleaning, remediate as follows:

   a) For previously painted steel, remove the slivers by grinding and re-profile the ground area prior to painting.

   b) For new steel in the shop or field, grind the area and advise the Engineer that slivers are present. The Engineer will either allow re-profiling to proceed, or will require weld repair of the area. When welding is required, grind the weld repair areas flush with the surface and re-profile.

   c) Unless prohibited by the Engineer, power tool cleaning in accordance with SSPC-SP11 can be used to re-profile the ground areas, rather than abrasive blast cleaning.

D. **Removal of Rust Scale and Pack Rust**

1. Regardless of the degree of surface preparation specified, remove rust scale and pack rust as follows:

   a) Remove all rust scale (loose and tight).
   b) Remove all loose pack rust.
   c) Unless specific criteria are provided in the Special Provisions, remove all tight pack rust until the highest point is a minimum of 1/8” below the surface of the surrounding sound steel.

2. Exercise extreme care to avoid nicking or gouging the steel during rust scale and pack rust removal. Nicks and gouges are cause for a suspension of activities until appropriate adjustments are made to prevent a reoccurrence.

E. **Steel Defects**

1. Immediately report to the Engineer any cracks or significant metal loss found in the structural steel.

2. Provide the Engineer with access to the suspect areas as needed to conduct an investigation.

F. **Compressed Air Cleanliness**

1. Provide compressed air that is free from moisture and oil contamination.

2. Conduct a white blotter test in accordance with ASTM D4285 to verify the cleanliness of the compressed air. Conduct the test at least once per shift for each compressor system. Sufficient freedom from oil and moisture is confirmed if soiling or discoloration are not visible on the paper.

3. If air contamination is evidenced, change filters, clean traps, add moisture separators or filters, or make other adjustments as necessary to achieve clean, dry air.

G. **Surface Cleaning Requirements – New and Previously Painted Steel Substrates** – The Special Provisions and attached Paint System Tables identify the degree of cleaning required for the coating systems used on the project. The methods below are applicable to the preparation of both new previously unpainted steel and for the spot removal or complete removal of coatings from previously painted steel. Apply the specified degree of cleaning to all designated surfaces. When the existing coating is being overcoated, conduct spot cleaning by the methods identified in this section and overall cleaning of the existing coating by the methods identified in 3.09 K.

If it is believed that the specified degree of cleaning is not possible in an area, follow the requirements outlined in 3.08, Limited Access Areas. Requirements for the specified degree(s) of cleaning are provided below:

1. SSPC-SP 1 Solvent Cleaning

   a) Remove all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from the surface in accordance with SSPC-SP 1.

   b) Only use solvents or detergents that are acceptable to the coating manufacturer and the Engineer. Provide product data and MSD sheets on proposed solvents or detergents for Engineer approval.

2. SSPC-SP 2 Hand Tool Cleaning

   a) Use scrappers, putty knives, wire brushes, chipping hammers and other similar tools to thoroughly clean all surfaces specified in the Special Provisions. Comply with the requirements of SSPC-SP 1 and SP 2 to remove all visible oil, grease, dirt, dust, loose mill scale, loose rust, loose paint, and other loose foreign matter.

   b) All locations of visible corrosion and rust bleed, exposed or lifting mill scale, and lifting or loose paint shall be prepared using the

hand tools.

c) Upon completion of the cleaning, rust, rust bleed, mill scale and surrounding paint are permitted to remain if they can not be lifted using a dull putty knife.

d) SSPC-VIS 3 and the approved surface preparation test section may be used as an aid in determining the quality of cleaning. In the case of conflict between the written definitions and the visual standards or test sections, the written definitions prevail.

3. SSPC-SP 3 Power Tool Cleaning

a) Use power assisted hand tools such as sanding discs or 3M clean and strip discs, wire brushes, needle guns, or similar tools to thoroughly clean all surfaces specified in the Special Provisions. Comply with the requirements of SSPC-SP 1 and SP 3 to remove all visible oil, grease, dirt, dust, loose mill scale, loose rust, loose paint, and other loose foreign matter.

b) All locations of visible corrosion and rust bleed, exposed or lifting mill scale, and lifting or loose paint shall be prepared using the power tools.

c) Upon completion of the cleaning, rust, rust bleed, mill scale and surrounding paint are permitted to remain if they can not be lifted using a dull putty knife.

d) SSPC-VIS 3 and the approved surface preparation test section may be used as an aid in determining the quality of cleaning. In the case of conflict between the written definitions and the visual standards or test sections, the written definitions prevail.

4. SSPC-SP 15 Commercial Grade Power Tool Cleaning

a) Use power assisted hand tools such as needle guns, Roto peening equipment, or similar tools to thoroughly clean all surfaces specified in the Special Provisions. Comply with the requirements of SSPC-SP 1 and SP 15 to remove all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide, corrosion products, and other foreign matter except for staining.

b) Allow random staining to remain on no more than 33 percent of each 58 sq cm (9 sq in.) of surface area. Allowable staining may

consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Surface discoloration is considered to be a residue that must be removed, rather than a stain, if it possesses enough mass or thickness that it can be removed as a powder or in chips when scraped with a pocketknife.

c) Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted.

d) Provide a minimum surface profile of 1 mil on all prepared surfaces. Comply with deeper profile requirements if specified by the Engineer or the coating manufacturer.

e) SSPC-VIS 3 and the approved surface preparation test section may be used as an aid in determining the quality of cleaning. In the case of conflict between the written definitions and the visual standards or test sections, the written definitions prevail.

5. SSPC-SP 11 Power Tool Cleaning to Bare Metal

a) Use power assisted hand tools such as needle guns, Roto peening equipment, or similar tools to thoroughly clean all surfaces specified in the Special Provisions. Comply with the requirements of SSPC-SP 1 and SP 11 to remove all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide, corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted.

b) Provide a minimum surface profile of 1 mil on all prepared surfaces. Comply with deeper profile requirements if specified by the Engineer or the coating manufacturer.

c) SSPC-VIS 3 and the approved surface preparation test section may be used as an aid in determining the quality of cleaning. In the case of conflict between the written definitions and the visual standards or test sections, the written definitions prevail.

6. SSPC-SP 6 Commercial Blast Cleaning

a) Thoroughly blast clean all surfaces specified in the Special Provisions. Comply with the requirements of SSPC-SP 1 and SP 6 to remove all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for

staining.

b) Allow staining to remain on no more than 33 percent of each nine square inch increment of surface area. Acceptable staining is limited to light shadows, slight streaks, or minor discolorations caused by stains of rust, stains of mill scale, or stains of previously applied paint. Surface discoloration is considered to be a residue that must be removed, rather than a stain, if it possesses enough mass or thickness that it can be removed as a powder or in chips when scraped with a pocketknife.

c) The Contractor should anticipate that the existing steel contains intact mill scale beneath the coating. Note that an SP 6 cleanliness requires the removal of **all** mill scale. When removing intact mill scale, the appearance after cleaning may approach SP 10, Near White, or SP 5, White Metal. NYCDOT is not responsible for additional compensation for the Near White or White Metal appearance that may result when removing the mill scale.

d) Unless restricted otherwise by the Engineer or the Special Provisions, accomplish the SP 6 degree of cleaning using any of the following: dry blast cleaning with recyclable or expendable abrasives, wet abrasive blast cleaning, water jetting with abrasive injection, or vacuum blast cleaning. If it is proposed that wet methods of preparation be used, provide a letter from the coating manufacturer which approves the use of the specific method for their coating system. Include written recommendations from the coating manufacturer regarding the type of inhibitor, if any, that should be used to prevent flash rusting of the steel. Allow the surface to thoroughly dry prior to painting, and apply the primer before any visible rusting occurs.

e) SSPC-VIS 1 and the approved surface preparation test section may be used as an aid in determining the quality of cleaning. In the case of conflict between the written definitions and the visual standards or test sections, the written definitions prevail.

7. SSPC-SP 7 Brush-off Blast Cleaning

a) Thoroughly blast clean all surfaces specified in the Special Provisions. Comply with the requirements of SSPC-SP 1 and SP 7 to remove all visible oil, grease, dirt, dust, loose paint, loose rust, loose mill scale, and other foreign matter. Verify that the surfaces have been exposed to the abrasive and that the surfaces are densely

and uniformly roughened.

b) It is not intended that adherent mill scale, rust, and paint be removed by this process. Mill scale, rust, and paint are considered adherent after cleaning, if they cannot be removed by lifting with a dull putty knife. Verify that the edges of old, existing paint are feathered.

c) Unless restricted otherwise by the Engineer or the Special Provisions, accomplish the SP 7 degree of cleaning using any of the following: dry blast cleaning with recyclable or expendable abrasives, wet abrasive blast cleaning, water jetting with abrasive injection, or vacuum blast cleaning. If it is proposed that wet methods of preparation be used, provide a letter from the coating manufacturer which approves the use of the specific method for their coating system. Include written recommendations from the coating manufacturer regarding the type of inhibitor, if any, that should be used to prevent flash rusting of the steel. Allow the surface to thoroughly dry prior to painting, and apply the primer before any visible rusting occurs.

d) SSPC-VIS 1 and the approved surface preparation test section may be used as an aid in determining the quality of cleaning. In the case of conflict between the written definitions and the visual standards or test sections, the written definitions prevail.

8. SSPC-SP 10 Near-White Blast Cleaning

a) Thoroughly blast clean all surfaces specified in the Special Provisions. Comply with the requirements of SSPC-SP 1 and SP 10 to remove all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining.

b) Allow staining to remain on no more than 5 percent of each nine square inch increment of surface area. Acceptable staining is limited to light shadows, slight streaks, or minor discolorations caused by stains of rust, stains of mill scale, or stains of previously applied paint. Surface discoloration is considered to be a residue that must be removed, rather than a stain, if it possesses enough mass or thickness that it can be removed as a powder or in chips when scraped with a pocketknife.

c) Unless restricted otherwise by the Engineer or the Special Provisions, accomplish the SP 10 degree of cleaning using any of

the following: dry blast cleaning with recyclable or expendable abrasives, wet abrasive blast cleaning, water jetting with abrasive injection, or vacuum blast cleaning. If it is proposed that wet methods of preparation be used, provide a letter from the coating manufacturer which approves the use of the specific method for their coating system. Include written recommendations from the coating manufacturer regarding the type of inhibitor, if any, that should be used to prevent flash rusting of the steel. Allow the surface to thoroughly dry prior to painting, and apply the primer before any visible rusting occurs.

d) SSPC-VIS 1 and the approved surface preparation test section may be used as an aid in determining the quality of cleaning. In the case of conflict between the written definitions and the visual standards or test sections, the written definitions prevail.

9. SSPC-SP 5 White Metal Blast Cleaning

a) Thoroughly blast clean all surfaces specified in the Special Provisions. Comply with the requirements of SSPC-SP 1 and SP 5 to remove all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter.

b) Unless restricted otherwise by the Engineer or the Special Provisions, accomplish the SP 5 degree of cleaning using any of the following: dry blast cleaning with recyclable or expendable abrasives, wet abrasive blast cleaning, water jetting with abrasive injection, or vacuum blast cleaning. If it is proposed that wet methods of preparation be used, provide a letter from the coating manufacturer which approves the use of the specific method for their coating system. Include written recommendations from the coating manufacturer regarding the type of inhibitor, if any, that should be used to prevent flash rusting of the steel. Allow the surface to thoroughly dry prior to painting, and apply the primer before any visible rusting occurs.

c) SSPC-VIS 1 and the approved surface preparation test section may be used as an aid in determining the quality of cleaning. In the case of conflict between the written definitions and the visual standards or test sections, the written definitions prevail.

H. **Water Washing/Scrubbing of Cables –** The Special Provisions and attached Paint System Tables identify the degree of cleaning required for the coating systems used on the project. The methods below are applicable to the preparation

of cables. Apply the specified degree of cleaning to all designated surfaces. If it is believed that the specified degree of cleaning is not possible in an area, follow the requirements outlined in 3.08, Limited Access.

1. Use low pressure water (<150psi) and stiff bristled non-metallic scrub brushes to hand clean the exterior of the cables. Provide product data and MSD sheets for Engineer review and approval for any proposed additives that will be used to remove grease, dirt, mildew or other surface matter.

2. Provide a surface, which when viewed without magnification, is free of all visible dirt, chlorides, oil, grease, mildew, chalk, bird droppings, or other foreign matter. Wipe a cloth of contrasting color across the surface at random. Unless otherwise directed by the Engineer, clean the surface until an ASTM D4214 chalk rating of 8 or better is obtained.

3. Comply with the water collection criteria described in 3.09 K.2. under Pressure Washing.

I. **Surface Cleaning Requirements – Bare and Painted Galvanized Surfaces Other than Cables** – The Special Provisions and attached Paint System Tables identify the degree of cleaning required for the coating systems used on the project. The methods below are applicable to the preparation of both new previously unpainted galvanize and for the spot removal or complete removal of coatings from previously painted galvanize. Apply the specified degree of cleaning to all designated surfaces. If it is believed that the specified degree of cleaning is not possible in an area, follow the requirements outlined in 3.08, Limited Access Areas.

1. **Preparation for Overcoating -** When the existing coating is being overcoated, conduct spot cleaning by the methods identified in this section and overall cleaning of the existing coating by the methods identified in 3.09 K.

2. **Preparation for Complete Cleaning or Complete Coating Removal** - If bare galvanizing is being prepared, or if existing coating on galvanized steel is to be completely removed, use waterjetting/pressure washing, abrasive blast cleaning, or power tool cleaning. Requirements for the specified degree(s) of cleaning are provided below:

   a) Remove lubricant or residuals from bare galvanized surfaces by solvent cleaning in accordance with SSPC-SP 1.

   b) For waterjetting or pressure washing:

(1) Clean bare uncoated galvanized steel to a WJ-1 cleanliness in accordance with SSPC-SP12 to remove corrosion and foreign matter.

(2) If the galvanized steel is coated, and coating removal is specified, remove all coatings, corrosion, and foreign matter. Supplement the waterjetting or pressure washing with scraping and power tool cleaning as necessary to remove all material and corrosion.

(3) When using waterjetting or pressure washing, also comply with the requirements of 3.09 K.2.b) (3) for the collection of the water.

(4) After waterjetting or pressure washing, roughen the surface of the galvanizing as required to assure adhesion of the newly applied coating. Roughening can be accomplished by injecting abrasive into the water stream, follow up abrasive blast cleaning, or power tool cleaning.

(5) As an alternative to mechanical roughening, if approved by the Engineer and the coating manufacturer, a chemical pretreatment can be used.

c) For abrasive blast cleaning:

(1) Prepare bare uncoated galvanized steel by sweep blasting to remove corrosion and other foreign matter.

(2) If the galvanized steel is coated, and coating removal is required, remove all coatings, corrosion, and foreign matter by blast cleaning.

(3) In the case of both bare and previously painted galvanized steel, provide a uniform and dense anchor pattern across the entire surface, and exercise extreme care to minimize the amount of galvanizing that is removed.

d) For power tool cleaning:

(1) Prepare bare uncoated galvanized steel with power tools to remove corrosion and other foreign matter. If the galvanize is coated, and coating removal is required, remove all coatings, corrosion, and foreign matter by power tool

cleaning.

(2) In the case of both bare and previously painted galvanized steel, roughen the entire exposed surface with power tools, but exercise extreme care to minimize the amount of galvanizing that is removed.

(3) As an alternative to mechanical roughening, if approved by the Engineer and the coating manufacturer, a chemical pretreatment can be used.

e) Chromate Treatment – for new galvanizing, prior to painting confirm that a chromate treatment is not on the surface. Test methods for detection are included in the Paint System Tables. If chromates are present, remove it by mechanical cleaning.

J. **Surface Cleaning Requirements – New and Previously Painted Concrete Substrates** – The Special Provisions and attached Paint System Tables identify the degree of cleaning required for the coating systems used on the project. The methods below are applicable to the preparation of both new previously unpainted concrete and for the spot removal or complete removal of coatings from previously painted concrete. Apply the specified degree of cleaning to all designated surfaces.

When the existing coating is being overcoated, conduct spot cleaning by the methods identified in this section and overall cleaning of the existing coating by the methods identified in 3.09 K.

If it is believed that the specified degree of cleaning is not possible in an area, follow the requirements outlined in 3.08, Limited Access. Requirements for the specified degree(s) of cleaning are provided below:

1. Remove grease, oil, and similar interference material from bare concrete surfaces by water cleaning, detergent water cleaning, or steam cleaning in accordance with ASTM D4258.

2. Remove laitance, efflorescence, loose concrete, concrete fins, and other surface irregularities. When coatings are present, remove the coatings to the extent specified (loose coatings only or total removal of all coatings). Conduct the cleaning by mechanical abrading (power tool cleaning), water blast cleaning, or abrasive blast cleaning in accordance with ASTM D4259.

3. Remove loose material by broom cleaning, low pressure compressed air blow down, and/or vacuuming in accordance with ASTM D4258.

4. Upon completion of cleaning, verify that the surface is dry and free of loose dust and debris prior to painting.

K. **Cleaning and Pressure Washing Existing Coatings for Overcoating** – Regardless of substrate type, if the existing coatings will be overcoated, comply with the following. Apply the specified degree of cleaning to all designated surfaces.

If it is believed that the specified degree of cleaning is not possible in an area, follow the requirements outlined in 3.08, Limited Access. Requirements for the specified degree(s) of cleaning are provided below:

1. Spot Cleaning – spot clean loose, deteriorated coatings, corrosion, mill scale, galvanize, and concrete by the methods identified for the respective substrate type in 3.09 G (steel), 3.09 I (galvanize), or 3.09 J (concrete).

2. Overall Cleaning

a) SSPC-SP 1 Solvent Cleaning

(1) Remove all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from the surface in accordance with SSPC-SP 1.

(2) Only use solvents or detergents that are acceptable to the coating manufacturer and the Engineer. Provide product data and MSD sheets on proposed solvents or detergents for Engineer approval.

b) Pressure Washing

(1) Use Low Pressure Water Cleaning (LP WC) as defined in SSPC-SP 12 to thoroughly clean all designated surfaces. This involves the use of pressures less than 5,000 psi. Use steam cleaning in lieu of water washing only upon approval of the Engineer. Provide product data and MSD sheets for Engineer review and approval for any proposed additives that will be used to remove grease, dirt, mildew or other surface matter.

(2) Supplement the water or steam cleaning by wiping or scrubbing as needed to provide a surface, which when viewed without magnification, is free of all visible dirt, chlorides, oil, grease, mildew, chalk, bird droppings, or other foreign matter. Wipe a cloth of contrasting color across the surface at random. Unless otherwise directed by the Engineer, clean the surface until an ASTM D4214 chalk rating of 8 or better is obtained.

(3) Wash Water Collection

(a) Collection Required – collect the water if specified in the Special Provisions, or if the structure being cleaned spans a public water supply or is in the watershed area of the New York City water supply. Use a minimum class 3W containment per SSPC Guide 6 to divert, collect, and/or dispose of the water on the adjoining land mass, at a location away from the waters edge. Do not allow the spent water to enter the water supply.

(b) Sensitive Streams - Spent water free of paint chips and debris is allowed to enter sensitive streams at certain times of the year. Sensitive streams are susceptible to thermal shock and pollutants and structures in these areas can only be pressure washed when adequate flow in the stream exists to dilute possible contaminants. Verify the DEC categorization of the stream. For streams categorized as “CT(s),” conduct all washing prior to July 1, otherwise collect all water. For bridges located at DEC yearling trout stocking sites, do not conduct any washing during April.

(c) Collection not required – Collection of the water is not required in all other instances, but use mesh tarpaulins with openings no greater than 25 mils in diameter in accordance with containment class 4W of SSPC Guide 6 to collect paint chips and debris. Remove the collected material once a day, or more frequently if directed by the Engineer, and store for proper disposal.

3. Surface Roughening

a) If the existing coating is glossy, or if otherwise specified in the Paint System Tables or Special Provisions, roughen the surface by abrasive blastcleaning or hand/power tool cleaning.

L. **Fasteners**

1. Thoroughly solvent clean black iron and galvanized fasteners in accordance with SSPC-SP1 to remove torqueing oils and thoroughly power wire brush in accordance with SSPC-SP3.

2. If required by the Special Provisions for black iron fasteners, in lieu of power tool cleaning, solvent clean the fasteners in accordance with SSPC-SP1 and abrasive blast to with SSPC-SP10, Near White.

M. **Feathering**

1. Regardless of the method(s) of preparation utilized, in all areas where existing coating is allowed to remain, feather the transition between the existing coating and adjacent bare substrate. Feather for a distance of 1 to 2 inches to provide a smooth, tapered transition into the existing intact coating.

2. Verify that the edges of the existing coating are tight and intact by probing with a putty knife in accordance with the requirements of SSPC-SP 3. Roughen the existing coating in the feathered area to assure proper adhesion of the newly applied coats.

N. **Abrasive Cleanliness**

1. When abrasive blast cleaning is specified, verify the cleanliness of the abrasive as follows:

a) For disposable abrasives, select a new, unused sample and conduct the water soluble contaminant and oil content tests outlined in SSPC-AB 1 at least one time each week. If the results do not comply with the SSPC criteria, stop using the abrasive and immediately notify the Engineer.

b) For recyclable abrasives, select a sample from each recycling machine in use and conduct the water-soluble contaminant, and oil

content tests outlined in SSPC-AB2 at least one time each week. Conduct the non-abrasive residue and lead content tests as directed by the Engineer. If the results do not comply with the SSPC criteria, notify the Engineer immediately, and remove and replace the abrasive and clean the recycling equipment. Conduct additional tests each day to confirm that the equipment is functioning properly. Return to the weekly testing intervals as directed by the Engineer.

2. Record the results of all abrasive tests in a log book or report form that is maintained at the jobsite. Make the results available for review by the Engineer at any time.

O. **Surface Profile**

1. When abrasive blast cleaning to SP 6, SP 10, or SP 5 is specified, provide the surface profile specified in the Paint System Table(s) unless the requirements of the coating manufacturer differ and are approved by the Engineer in writing. Measure the surface profile using the Keane-Tator Surface Profile Comparator or Testex Replica Tape in accordance with ASTM D4417.

2. When SSPC-SP 11 or SP15 is specified, provide a minimum surface profile of 1.0 mil, or a profile of a greater minimum depth if required by the coating manufacturer or the Engineer. Comply with any maximum profile limitations established by the coating manufacturer. Measure the surface profile using the Testex Replica Tape in accordance with ASTM D4417.

P. **Chloride Remediation**

1. Verify that chloride is remediated to a level of no greater than 7µg/cm^2. Use cell methods of SSPC- Guide 15 to collect the samples and analyze by Kitigawa tube or Quantab strip. Perform chloride tests in areas of pitted steel, both on the substructure and in the splash zone adjacent to the roadway. When existing coatings are being overcoated, conduct additional tests on the remaining coating.

2. Conduct a minimum of 5 tests per containment on bare steel and 2 tests on existing coatings in the case of overcoating, or as otherwise directed by the Engineer. Conduct the tests upon completion of surface preparation and prior to paint application. If unacceptable levels of soluble salt remain, reclean the affected areas until acceptable results are achieved.

3. Methods of chloride removal may include, but are not limited to, steam cleaning or pressure washing and scrubbing before or after initial paint removal, abrasive blast cleaning the steel and allowing it to rust overnight followed by reblasting, blast cleaning with blends of fine and course abrasives, or wet abrasive blast cleaning. Describe the proposed method(s) of chloride remediation in the submitted Surface Preparation/Painting Plan.

3.010 PAINT STORAGE, MIXING, AND HANDLING

A. Paint Storage

1. Store all paint, thinners, and solvents in accordance with OSHA and Fire Department regulations for flammable materials, and in accordance with the requirements of the paint manufacturer. Obtain Engineer approval for all storage locations.

2. Equip the storage facility with temperature control devices to maintain the storage temperature between 40°F and 90°F. If the requirements of the manufacturer are more restrictive, comply with the more restrictive requirements.

3. Provide the size and number of fire extinguishers in proper proportion to the quantity of paint stored.

4. Use explosion-proof lighting fixtures in the storage area.

5. Do not permit smoking in paint storage, mixing, and application areas.

6. Keep all containers of paint unopened until required for use.

7. Replace all damaged or leaking containers of paint at no cost to the NYCDOT.

8. Do not open or mix paints in the storage area.

9. Do not return mixed paints to the storage area.

10. Use Underwriter's Laboratories approved containers for transporting paint to mixing areas.

11. Do not permit the accumulation of empty paint cans, combustibles, and other debris.

12. Maintain MSD Sheets for all materials.

B. **Mixing and Thinning of Coating Materials**

1. Verify that the paint to be mixed has not exceeded its shelf life. Remove from the project site, all paint with an expired shelf life.

2. When required by the manufacturer, warm paints to specified temperatures above 50°F prior to mixing.

3. Utilize proper ventilation in the mixing area to prevent injury to workmen or the accumulation of volatile gases.

4. Mix all coatings in accordance with the requirements of the coating manufacturer. Use mechanical equipment such as a Jiffy mixer when allowed by the manufacturer.

5. Mix only complete kits of multi-component materials. Mixing of partial kits is not allowed.

6. Do not use materials beyond the pot life established by the manufacturer's written instructions.

7. Do not thin any paints unless approved in writing by the paint manufacturer and the Engineer. If thinning is required and authorized, use only those types, brands, and amounts of clean thinner stipulated by the coating manufacturer. Use an approved measuring device to measure the amount of thinner added and thin only in the presence of the Engineer.

8. Strain materials after mixing to remove agglomerations.

3.011 COATING APPLICATION

A. **Painting Plans** – Apply all field coatings in accordance with the requirements of this Section, the coating manufacturer's instructions, and the approved Surface Preparation/Painting Plan provided under "Submittals." Apply all shop coatings in accordance with the requirements of this Section and the coating manufacturer's instructions.

B. **Limited Access Areas** – Submit proposed methods of coating application together with the coating manufacturer's recommendations, for achieving complete coverage in limited access areas (e.g., modified brushes, paint mitts, daubers, etc. as appropriate for the coating system). See 3.08, Limited Access

Areas.

C. **Quality of Surface Preparation Prior to Painting**

1. Verify that the surface exhibits the specified degree of chloride remediation, washing, hand tool cleaning, power tool cleaning, or abrasive blast cleaning, including surface profile requirements, immediately prior to painting.

2. Apply the first coat before rusting or degradation of the surface occurs, but in no case allow the prepared surface to stand more than 12 hours prior to painting. Reclean rusted or degraded surfaces, or those surfaces that have stood over 12 hours prior to painting.

D. **Surface Cleanliness Prior to Painting and Between Coats**

1. When overcoating existing paint or overcoating shop-primer, verify that the coatings have been thoroughly cleaned prior to painting, and that pockets are dry and free of mud, dirt, and other accumulations. In the case of shop coats, verify that the manufacturer's maximum recoat times have not been exceeded.

2. Thoroughly clean the surface of each coat prior to the application of the next to remove spent abrasive, dirt, dust, cement spatter, and other interference material. Comply with the requirements of NYCDOT Section 832, Specification for Lead Paint Removal – Worker/Environmental Protection and Waste Handling for the special restrictions on using compressed air for cleaning when removing paints which contain lead or other toxic metals.

3. If grease or oil have become deposited on the bare substrate or on the surface of any of the applied coats, remove by solvent cleaning in accordance with SSPC-SP1 prior to the application of the next coat.

E. **Moisture Content Prior to Coating Application**

1. Prior to the application of the each coat, verify that the surface is visually dry.

2. For concrete substrates, in addition to the visual assessments, determine if moisture is present within the substrate itself. Use the plastic sheet method in accordance with ASTM D4263. After removal of the plastic sheet, if moisture is evident on the substrate or on the backside of the plastic, allow additional drying before applying the coating. Retest to

confirm that the additional drying is adequate.

3. As an alternative, propose a specific brand and model of moisture meter for consideration by the Engineer. Include a letter from the coating manufacturer indicating the percentage of moisture that is acceptable for the meter being proposed. If approved by the Engineer, the moisture meter can be used in lieu of the plastic sheet method.

F. **Ambient Conditions During Coating Application** – Apply coatings under the following conditions. Do not apply coatings under conditions outside of the ranges specified below without written approval of the coating manufacturer, and specific written authorization from the Engineer.

1. Surface and Air Temperatures – See attached Paint System Tables.

2. Relative Humidity – See attached Paint System Tables.

3. Dew Point – See attached Paint System Tables.

4. Frost/Rain - Do not apply coatings to surfaces containing frost or free standing water, or during rain, fog, or similar detrimental weather conditions.

5. Remove and replace any paint that was applied under unacceptable conditions, or exposed to unacceptable conditions (e.g. rain or dew) prior to adequate curing.

G. **Methods of Application** – Spray apply all coatings in the shop. For field work, unless specified otherwise in the Special Provisions or restricted by the coating manufacturer, apply the coatings by the methods shown below, but note that for spraying, prior approval from the Engineer is required. In order to obtain approval, provide the Engineer with the methods of containment that will be employed and the special precautions that will be taken to control overspray.

1. Brush application – Use round or oval brushes. Use flat brushes only on surfaces such as large plates between connections, and only upon approval of the Engineer. Brush apply the paint using a series of small circles to thoroughly fill in all surface irregularities, and end with a series of parallel strokes to smooth the finish.

2. Roller application – Only use rollers on large surfaces such as plates between connections, and only upon approval of the Engineer. Select a nap size and roller quality that will properly wet the substrate and produce a smooth, uniform film. Apply the coating in a such a manner as to achieve complete and thorough coverage of the surface and all

irregularities. Back-roll the surface after application to create a smooth, uniform finish.

3. Daubers – On surfaces which are inaccessible for paint brushes, use sheepskins or daubers especially constructed for the purpose.

4. Airless or conventional spray application – If conventional spray is approved for use, verify that the compressed air supply is clean and dry as determined by the blotter test in accordance with ASTM D4285. When spraying, use extreme care to avoid contamination of surrounding areas, and strictly follow the containment methods and practices that were approved by the Engineer.

H. **Material Agitation** – Unless prohibited by the manufacturer or when using moisture curing urethanes, keep all paint materials under agitation during application. When using brush, roller, or dauber application, periodically stir the material during use to keep it agitated.

I. **Recoat Times**

1. Apply each coat only after the previous coat has been allowed to dry as required by the manufacturer's written instructions, but as soon as possible to minimize the length of time that the coating is exposed to dust and other contamination. Do not allow any coat to remain exposed for longer than the recoat times provided in the attached Paint System Tables.

2. In the case of shop primer that is overcoated in the field, verify that the recoat window has not been exceeded before overcoating.

3. Unless approved otherwise by the Engineer in writing, remove and replace all coats if the applied coat exceeds the maximum recoat time prior to overcoating, if the shop-applied coat exceeds the manufacturer’s maximum recoat times, or a coat is exposed over the winter months prior to the application of the next.

J. **Coverage, Continuity, and Stripe Coating**

1. Apply each coat in a workmanlike manner to assure thorough wetting of the substrate or underlying coat, and to achieve a smooth, streamline surface relatively free of dryspray, overspray, and orange peel. Shadow-through, pinholes, bubbles, skips, misses, lap marks between applications, or other visible discontinuities in any coat are unacceptable. Runs or sags may be brushed out while the material remains wet.

2. When applying penetrating sealer (Paint Systems B′, C′, and D′), apply the sealer in such a manner that it thoroughly wets the underlying coat or substrate, and wicks into crevices and under the edges of old paint (when used for overcoating). When flowing the sealer into these areas, remove excess material while it remains wet. Do not exceed the maximum dry film thickness for the product as defined in the Paint System tables.

3. Remove dryspray and overspray by sanding or screening prior to the application of the next coat. When present on the finish, remove as directed by the Engineer and apply another coat of finish to the area. Remove all other defective coating to sound material and reapply the appropriate number and type of coatings to repair the coating system.

4. Thoroughly coat all surfaces with special attention to hard-to-reach areas, and irregular surfaces such as lacing bars and rivets. When coating configurations such as bolts, apply the material from multiple directions to assure complete coverage.

5. Unless stipulated otherwise in the Special Provisions, apply a stripe coat of contrasting color as specified in 3.011. J. 8. below. Thoroughly apply the stripe coat to all edges, welds, crevices, rivets, bolt threads, bolt heads, areas of pitted steel and other surface irregularities. Extend the stripe coat approximately 1” from all surface irregularities. Note: when a stripe coat of penetrating sealer is specified, the requirement for contrasting color is waived.

6. Apply the stripe coat by brush or spray. When spraying, supplemental brush application is mandatory to ensure complete and thorough coverage. When brushing organic zinc primers, repeatedly stir the material with the brush during use to prevent settling of the zinc.

7. With the exception of the inorganic zinc primer of System A, wet on wet application of the stripe and full coat is not allowed. For the primer of system A, apply the full coat while the stripe coat is still tacky. For all other coats, when applying the stripe coat prior to the full coat, do not apply the full coat until the stripe coat has dried according to the recoat times in the Paint System Tables. When applying the stripe coat after the full coat, do not apply the stripe coat until the full coat has cured sufficiently to withstand foot traffic. Do not apply the next coat until the stripe coat has cured for the recoat times shown in the Paint System Tables.

8. Apply the following number of coats per system. “Stripe” indicates that a stripe coat as defined above is required. “Full” indicates that a full coat is

required. “Spot” indicates that a spot coat is required. For a given coat, the stripe coat can be applied before or after the full coat.

System	Primer	Sealer	Intermediate	Finish
A	Stripe and Full*	NA	Stripe and Full	Full
A′	Full	NA	Stripe and Full	Full
B	Stripe and Full	NA	Stripe and Full	Full
B′	Stripe and Full	Stripe	Full	Full
B″	Spot	Full	NA	Full
C	Stripe and Full	NA	Stripe and Full	Full
C′	Stripe and Full	Stripe	Full	Full
D	Stripe and Full	NA	Stripe and Full	Full
D′	Stripe and Full	Stripe	Full	Full
E	Spot	NA	Full	Full
F	Full	NA	NA	Full
G	Stripe and Full	NA	Full	Full
I	Apply System B′	Full	NA	Full
J	Stripe and Full	NA	Full	Full
K	Stripe and Full	NA	Stripe and Full	Full
K′	Stripe and Full	Stripe	Full	Full
L	Spot	NA	Stripe and Full	Full
L′	Spot	Full	NA	Full
M	Spot	NA	Stripe and Full	Full
M′	Spot	Full	NA	Full
N	Spot	NA	Stripe and Full	Full
N′	Spot	Full	NA	Full
O	Full	NA	NA	Full

*Apply the stripe coat first, then apply the full coat in a wet-on-wet application. This is the only coat where wet-on-wet application of the stripe coat is required or permitted.

K. **Wet Film Thickness -** Use wet film thickness gages in accordance with ASTM D4414 to monitor the thickness of each coat at the time of application. Note that wet film readings will be the primary method of determining the thickness of coatings applied to concrete substrates.

L. **Dry Film Thickness and Corrective Action for Thickness Deviations**

1. Unless directed otherwise by the Engineer, apply each coat to the thicknesses specified in the attached Paint System Tables.

2. Measure and record the thickness of each coat on carbon steel substrates using nondestructive magnetic dry film thickness gages. Comply with SSPC-PA2 for the calibration and use of the gages, and the frequency of thickness measurements. Spot readings both 20% above and 20% below the specified thicknesses are permitted, provided the average thicknesses are within the specified tolerances.

3. Measure the thickness of each coat applied to non-ferrous metal substrates using nondestructive thickness gages in accordance with ASTM D1400.

4. As directed by the Engineer, measure the thickness of coatings applied to concrete substrates in accordance with ASTM D6132.

5. If there are questions regarding the non-destructive measurements of coating thickness, a Tooke Gage (destructive scratch gage) may be used when authorized by the NYCDOT. Conduct measurements in accordance with ASTM D4138, but limit the use of the gage to a minimum of locations. Mark and repair all damage caused by the destructive testing, whether created by the Engineer or the Contractor. Repair the damage from testing at no cost to the NYCDOT.

6. Apply additional coating of the same type to areas of insufficient thickness. Use care during application to assure that all repairs blend in with the surrounding material.

7. Unless directed otherwise by the Engineer in writing, remove excessive coating thickness and reapply the affected coat(s).

M. **Coating Adhesion**

1. Apply all coats in such a manner to assure that they are well-adherent to each other and to the substrate. If the application of any coat causes lifting of an underlying coat, or there is poor adhesion between coats or to the substrate, remove the coating in the affected area to adjacent sound, adherent, coating, and reapply the material.

2. If adhesion is suspect, conduct adhesion tests in accordance with ASTM D3359 or ASTM D4541 as directed by the Engineer, and repair all test areas. The acceptance criteria for the testing will be established by the Engineer and the coating manufacturer. Replace all defective coating that is revealed by the testing.

N. **Caulking**

1. When specified in the Special Provisions, use caulking to seal crevices, gaps between steel elements exceeding 1/8”, and areas of pack rust that can not be removed.

2. Identify the caulking materials to be used in the pre-project submittals. Use only caulking materials that are acceptable to the paint manufacturer and the Engineer.

3. Unless directed otherwise by the Engineer, apply caulking before the application of the finish coat. Use a caulking that matches the color of the finish coat.

4. Mix and install the caulking in strict accordance with the approved Field Surface Preparation/Painting Plan and the caulking manufacturer's instructions.

O. **Fasteners**

1. Unless directed otherwise in the Special Provisions, field coat black iron and galvanized fasteners as follows:

a) If the fasteners are prepared by solvent cleaning and abrasive blast cleaning, apply all coats of the specified field system.

b) If the fasteners are prepared by solvent cleaning and power tool cleaning:

(1) For systems A and A′; B, B′, and B′′; C and C′; D and D′; and K and K′, apply two coats of intermediate and one coat of finish.

(2) For systems E, F, G, I , and J, apply all coats.

3.012 REPAIR OF DAMAGE, TOUCH UP, AND UNACCEPTABLE COATINGS

A. **Surface Preparation of Localized Areas**

1. The Engineer will define the areas of damage, touch up, corrosion, or unacceptable coatings that are considered to be localized for the purposes of repair. Repair these areas at no additional cost to the NYCDOT.

2. Prepare the surface by solvent cleaning in accordance with SSPC-SP 1 prior to mechanical cleaning.

3. In areas previously blast cleaned, if the damage exposes the substrate, remove all loose material and prepare the steel in accordance with SSPC-SP 11. Follow with solvent cleaning in accordance with SSPC-SP 1 to remove surface contamination.

4. In areas originally prepared by power tool cleaning, or if the substrate is not exposed in those areas previously blast cleaned, remove all loose material and prepare the surface in accordance with SSPC-SP 3. Use SSPC-SP 2 hand tool cleaning for surface preparation only upon written approval of the Engineer. Follow with solvent cleaning in accordance with SSPC-SP 1 to remove surface contamination.

B. **Surface Preparation of Extensive Areas of Damage or Unacceptable Coating**

1. The Engineer will define the areas of damage, corrosion, or unacceptable coatings that are considered to be extensive for the purposes of repair. Repair these areas at no additional cost to the NYCDOT.

2. Remove all coatings in accordance with the originally specified degree of surface preparation.

3. When abrasive blast cleaning is employed, use extreme care to avoid damage to the surrounding coating due to overblast.

C. **Feathering of Edges in Repair Areas**

1. Feather the existing coating surrounding each repair location. Feather for a distance of 1 to 2 inches to provide a smooth, tapered transition into the existing intact coating.

2. Verify that the edges of coating around the periphery of the repair areas is tight and intact by probing with a putty knife in accordance with the requirements of SSPC-SP 3. Roughen the existing coating in the feathered area to assure proper adhesion of the repair coats.

D. **Coating Application in Repair Areas**

1. When the bare substrate is exposed in the repair area, apply all coats of the system to the specified thicknesses.

2. When the bare substrate is not exposed in the repair area, apply only the affected coats.

3. Maintain the thickness of the system in overlap areas within the specified total thickness tolerances.

3.013 HOUSEKEEPPING AND WASTE DISPOSAL

A. Conduct housekeeping daily to maintain the work site in a neat and orderly condition.

B. Unless directed otherwise by the Engineer, at the end of each day at a minimum, haul empty paint cans and other debris to the waste storage area.

C. Remove all paint drips, splashes, and overspray from surfaces not intended to be painted.

D. Upon project completion, remove all equipment and materials, correct any damage caused by the operation, and leave all surfaces in a clean and acceptable condition. Correct any damage created and conduct all necessary project clean up at no additional cost to NYCDOT.

E. Handle, store, transport, and dispose of all hazardous and non-hazardous project waste in strict accordance with the Federal and state regulations.

3.014 INSPECTION

A. The NYCDOT reserves the right to inspect all phases of the Work to verify that it is in accordance with the requirements of this Section.

B. Facilitate shop and field inspections as required, including allowing ample time for the inspections. For field inspections, provide suitable lighting (50 foot candles minimum at the surface), access to the work, and all necessary safety and fall protection equipment.

C. Inspections will include the following minimum hold points to determine specification compliance. Do not proceed with subsequent phases of the Work until the preceding phase has been approved by the Engineer:

1. prior to the start of surface preparation work,

2. immediately following surface preparation,

3. immediately prior to the application of the first coat,

4. prior the application of each additional coat (including stripe coats), and

5. after the final coat is applied and dried.

D. The presence or activity of NYCDOT inspections in no way relieves the Contractor of the responsibility to provide comprehensive quality control inspections of its own to confirm that all work complies with the requirements of this Section, and in the case of field work, complies with the approved Field Surface Preparation/Painting Plan. Report the results of daily Contractor quality control inspections in a log book or report that is maintained at the jobsite or in the painting shop. Recording of quality control inspections must not lag more than one day behind the progression of the Work. Make the log book or report available to the Engineer for review upon request.

E. Furnish, until final acceptance of the coating system, all equipment and instrumentation needed to inspect all phases of the work. The equipment is identified in Part 2.0, Products.

3.015 ONE YEAR ANNIVERSARY INSPECTION

A. A one year anniversary inspection will be conducted approximately twelve months after completion of the field painting project. Participate in this inspection with the Engineer. Arrange for a representative of the coating manufacturer to be present for this inspection.

B. For projects where total coating removal and replacement were performed, repair, at no cost to the NYCDOT, all locations where the coating exhibits disbonding, cracking, rusting, or other such defects.

C. For projects where coating repair and overcoating were performed:

1. Repair, at no cost to the NYCDOT, all locations where the coating exhibits disbonding, cracking, rusting, or other such defects in those areas where the new system was applied to bare substrate.

2. Repair, at no cost to the NYCDOT, all areas where the new coats are not adhering to each other at any location across the structure.

3. The contractor is not responsible for the lifting of the old coating material provided the work was performed in compliance with this Section. Where the work is not in compliance with the requirements of this Section (e.g., excessive dry film thickness), repair the lifting old coating.

D. Perform all repairs in accordance with the requirements of this Section, the coating manufacturer's written instructions, and written repair procedures approved by the Engineer.

4.0 - MEASUREMENT

4.01 Lump Sum for each item. Include in the price bid, the costs for all labor, tools, equipment, paints, materials, scaffolding, supplies, plans, programs, services of the manufacturer's representative, traffic controls, or incidentals to properly perform and complete the Work specified in this Item.

4.02 Caulking – Per lineal foot. Include in the price bid, the costs for all labor, tools, equipment, materials and incidentals needed to properly perform the Work specified in this Item.

5.0 – PAYMENT

5.01 Partial payments will be made. The contract lump sum price will be prorated to establish the amount of each partial payment based on the percentage of the structure that has been painted. Within each area, payments will be made as follows: 50% after satisfactory preparation, priming (and striping if applicable), 25% after satisfactory application of intermediate (including striping if applicable), 15% after satisfactory application of finish, and 10% after completion of final touch up.
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Item No	Item	Pay Unit
831.01.NNNN	System A - all coats applied in shop (SP10/Inorganic Zinc/Epoxy Intermediate/ Urethane Finish)	Lump Sum
831.03.NNNN	System A′ - shop prime - field intermediate/finish (SP10/Inorganic Zinc/Epoxy Intermediate/ Urethane Finish)	Lump Sum
831.05.NNNN	System B - total coating replacement SP10/Epoxy Zinc/Epoxy Intermediate/ Urethane Finish)	Lump Sum
831.07.NNNN	System B′- total coating replacement - sealer used (SP10/Epoxy Zinc/Epoxy Penetrating Sealer/Epoxy Intermediate/Urethane Finish)	Lump Sum
831.08.NNNN	System B″- overcoating – sealer used (SP 15/Spot Epoxy Zinc /Epoxy Penetrating Sealer/ Urethane Finish)	
831.09.NNNN	System C- total coating replacement	Lump Sum

	(SP10/MCU Zinc/MCU Intermediate/MCU Finish)	
831.11.NNNN	System C′ - total coating replacement - sealer used (SP10/MCU Zinc/Sealer/MCU Intermediate/ MCU Finish)	Lump Sum
831.13.NNNN	System D – total coating replacement (SP6/MCU Aluminum/MCU Intermediate/ MCU Finish)	Lump Sum
831.15.NNNN	System D - overcoating (Spot Clean/Wash/MCU Alum/MCU Intermediate/ MCU Finish)	Lump Sum
831.17.NNNN	System D′ - total coating replacement – sealer used (SP6/MCU Aluminum/Sealer/MCU Intermediate/ MCU Finish)	Lump Sum
831.19.NNNN	System D′ - overcoating - sealer used (Spot Clean/Wash/Sealer/MCU Alum/MCU Intermediate/MCU Finish)	Lump Sum
831.21.NNNN	System E - overcoating (Spot Clean/Wash/Alkyd Primer/Alkyd Intermediate Silicone Alkyd Finish)	Lump Sum
831.23.NNNN	System F - overcoating (Spot Clean/Wash/Alkyd Primer/Aluminum Alkyd Finish)	Lump Sum
831.24.NNNN	System G – total coating replacement (SP-6/Aluminum Epoxy Mastic Primer/Epoxy Intermediate/ Urethane Finish	Lump Sum
831.26NNNN	System I – repainting I bars (spot application over I bars repainted with System B′) (SP-10/ Localized Crystalline Calcium Sulfonate Penetrating Sealer/Finish)	Lump Sum
831.27NNNN	System J – total coating replacement (Full Removal/Spot SP-3/Aluminum Epoxy Mastic Primer/Epoxy Intermediate/Urethane Finish	Lump Sum

831.29.NNNN	System K - total coating replacement SP10/Epoxy Zinc/Epoxy Intermediate/ Polysiloxane Finish)	Lump Sum
831.31.NNNN	System K′- total coating replacement - sealer used (SP10/Epoxy Zinc/Epoxy Penetrating Sealer/Epoxy Intermediate/Polysiloxane Finish)	Lump Sum
831.33.NNNN	System L – total coating of bare galvanize (Clean/Spot MCU Zinc/Full MCU Intermediate/Full MCU Finish)	Lump Sum
831.35.NNNN	System L′ – overcoating painted galvanize – sealer used (Clean/Spot MCU Zinc/Full MCU Penetrating Sealer/ Full MCU Finish)	Lump Sum
831.37.NNNN	System M – total coating of bare galvanize (Clean/Spot Epoxy Zinc/Full Epoxy Intermediate/Full Urethane Finish)	Lump Sum
831.39.NNNN	System M′ – overcoating painted galvanize– sealer used (Clean/Spot Epoxy Zinc/Full Epoxy Penetrating Sealer/ Full Urethane Finish)	Lump Sum
831.41.NNNN	System N – total coating of bare galvanize (Clean/Spot Epoxy Zinc/Full Epoxy Intermediate/ Full Polysiloxane Finish)	Lump Sum
831.43.NNNN	System N′ – overcoating painted galvanize- sealer used (Clean/Spot Epoxy Zinc/Full Epoxy Penetrating Sealer/ Full Polysiloxane Finish)	Lump Sum
831.45.NNNN	System O – bare concrete, total replacement, overcoating (Clean/Full Acrylic/Full Acrylic)	Lump Sum
831.50.NNNN	Spot Cleaning/Painting of Black Iron or Galvanized Fasteners (SP1/SP3 or SP10/coating materials applied to surrounding steel)	Lump Sum
831.60.NNNN	Caulking	Lineal Foot

APPENDIX A – SUBMITTALS

A.01 GENERAL

A. This Appendix identifies the plans, programs, and documentation required for shop and field painting: pre-construction, at the start of construction, and during the construction phase.

A.02 PRE-CONSTRUCTION SUBMITTALS

A. **Submittal Schedule and Engineer Acceptance**

1. Submit the following plans and programs to the Engineer for review and acceptance a minimum of 45 days prior to the commencement of shop work or 45 days prior to mobilization for field work. The shop or field Contractor shall not begin any paint removal Work until the Engineer has accepted the submittals.

2. Do not construe Engineer acceptance of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Acceptance of the programs does not relieve the Contractor from the responsibility to conduct the Work in strict accordance with the requirements of Federal, State, or City regulations, this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

B. **Project Schedule** – Provide the Engineer with an initial estimate of the workdays required to complete each phase of the project (e.g., shop cleaning, painting, and shipping; field mobilization, paint removal, paint application, and demobilization).

C. **Certifications** – Unless the requirement for certification is eliminated by the Special Provisions, provide evidence of the following:

1. Shop – current SSPC-QP3 or AISC SPE certifications
2. Field – current SSPC-QP1 and QP2 certifications

D. **Contractor Chain of Command**

1. Submit a listing of key shop and field Contractor personnel, including names and relative positions, addresses, and telephone and pager numbers.

2. Include the names and telephone/pager numbers for contact persons who are available on a 24-hour basis in the event of emergencies.

E. **Worker Safety Plan** – The shop and field contractors shall develop and implement a worker safety plan for the protection of all shop and field workers.

1. The plan must comply with NYSDOT Section 107-05 and all associated Special Notes.

2. Address the protection of workers from all project hazards including but not limited to fall protection, confined space (if applicable), hearing and eye protection, and exposure to hazardous materials or conditions.

3. For field work, include provisions for the inspection and removal of pigeon droppings in accordance with NYSDOT Safety Bulletin SB-94-4.

4. Lockout/Tagout Plan – Provide the procedures in accordance with 29 CFR 1910.147 and 1910.333 that will be followed for lockout/tagout of existing electrical utilities within containment or other work areas as appropriate. Include provisions for coordinating lock-out/tag-out activities with NYCDOT and the Utilities.

5. Fire Protection and Prevention, and Emergency Response – Provide procedures in accordance with the requirements of 29 CFR 1926.24 and 1926.150 for the control, storage and handling of flammable and combustible materials, including a site-specific Emergency Response Plan in accordance with the requirements of 1926.65(q) at a minimum.

6. Electrical Safety – Provide procedures in accordance with 29 CFR 1926.400, 1926.403, and all applicable provisions of 29 CFR 1926, Subpart K.

7. Include as part of the plan, or in a separate submittal, a binder containing MSDS for all materials that will be used on the Project site. If all MSDS are not available at the pre-construction stage, provide the MSDS before using the product on site.

8. A separate worker protection plan addressing exposures to lead and other toxic metals is addressed under Section 832.

F. **Containment and Scaffolding –** If the bridge supports the containment or scaffolding system, provide containment drawings, calculations, and assumptions, including ventilation criteria as appropriate, signed and sealed by a Professional Engineer, as outlined in Section 832.

G. **Field Surface Preparation/Painting Plan**

1. Provide written procedures for conducting the Work of this Section including, but not limited to the following as applicable: the preparation of surfaces; abrasive cleanliness tests; the remediation of chloride and ferrous salts; coating mixing, application, and repair; recoat times and cleaning between coats; and the installation of caulking and sealant materials. Provide specific details for the preparation and painting of limited access areas, and for striping edges, corners, crevices, rivets, bolts, welds and sharp edges. If shop-applied primer is finish coated as a part of the Work, include the procedures that will be followed for the cleaning of the primer prior to field painting.

2. Provide a comprehensive listing of the equipment that will be used for surface preparation and painting. Include a description of equipment repair and replacement capability, including the procedures that will be followed in the event of equipment failure so that lost production time is kept to a minimum.

3. Identify the methods of protection or work isolation procedures that will be followed to protect surrounding structures, equipment, and property from exposure to surface preparation and paint debris.

4. If it is proposed that the coatings be applied by spray, provide the containment methods proposed for use together with any additional precautions that will be taken to control overspray. Spray application can not be used unless approved by the Engineer.

5. Provide the name and chemical composition, product data sheets, and MSD sheets of detergents or solutions that will be used for cleaning the existing coating or for the removal of mildew. Only use detergents which are environmentally safe and which will have no adverse effect on aquatic life are acceptable.

6. If abrasive blast cleaning is specified, identify the type and brand name of the abrasive proposed for use, and provide MSD sheets or other documentation from the supplier which identifies the hazardous materials that are present and confirms that the abrasive contains less than 1% free

silica.

7. If the coating manufacturer recommends a different surface profile for their product than the limits stipulated in the Paint System Tables, provide a letter from the manufacturer stating the recommended surface profile range. Comply with the manufacturer's recommended profile only upon written approval of the Engineer.

8. If wet abrasive blast cleaning is proposed, include a letter from the coating manufacturer which approves the use of the method for their coating and recommends inhibitor(s), if any, that can be used to prevent flash rusting, together with a statement that the inhibitor(s) will not reduce coating performance. Submit application procedures and MSD sheets for the inhibitor that will be used. Use an inhibitor only upon approval of the Engineer.

H. **Shop and Field Painting Quality Control Plan**

1. Provide written procedures for conducting and recording the shop and field quality control inspections of work quality identified in this Section including, but not limited to the following as applicable: the preparation of surfaces; abrasive cleanliness tests; the remediation of chloride and ferrous salts; coating mixing, application, and repair; recoat times and cleaning between coats; and the installation of caulking and sealant materials. If shop-applied primer is finish coated as a part of the Work, include the procedures that will be followed for the inspection of the cleaning of the primer prior to field painting.

2. Provide a comprehensive listing of the inspection equipment that will be used for surface preparation and painting, and the means that will be used to verify that it is properly calibrated during use.

3. If it is proposed that a moisture meter will be used to confirm adequate dryness of concrete prior to application, provide the specific brand and model of moisture meter for consideration by the Engineer. Include a letter from the coating manufacturer indicating the percentage of moisture that is acceptable for the meter being proposed. The moisture meter can be used in lieu of the plastic sheet method only if accepted by the Engineer.

4. Provide samples of the forms that will be completed to document the results of the inspections.

5. Provide proof of the training and experience of the QA/QC personnel who will be conducting the quality control inspections.

I. **Coating/Caulking Material Documentation for Shop and Field Painting**

1. Identify the coating materials to be applied, including all thinners proposed for use. Include the manufacturer's name, product names, and product numbers. Provide material product data sheets, VOC levels, MSD sheets, and written application instructions including mixing requirements, specified thinners, and thinner amounts.

2. Provide a copy of the coating manufacturer's Quality Assurance Program that assures the quality of the products from raw materials to final packaging.

3. Thinners must be provided by the manufacturer. Requests to use reagent-grade generic thinners instead of manufacturer-supplied thinners must be provided to the Engineer in writing, together with a letter from the coating manufacturer that supports the use of the generic thinner. Do not use a generic thinner without written approval from the Engineer.

4. Provide the manufacturer's color designation for the color of the finish coat(s) to be used. Submit six (6) color samples of each finish coat on 8 ½ inch x 11 inch paper board to the Engineer for approval prior to application.

5. Provide the following compositional ranges for each coat (for individual components as applicable, and for the mixed material). Once accepted, these ranges will be used to accept/reject jobsite material based on the test results supplied by the coating manufacturer for each batch (see A.03, Construction Phase Submittals). Include a statement in the plan that one (1) quart retention samples of each batch (each component in the case of multi-component materials) will be provided by the manufacturer for each batch of material sent to the jobsite. The samples will be subjected to laboratory testing as directed by the Engineer. Material that does not comply with one or more of the accepted compositional values is prohibited from use and must be immediately removed from the jobsite. If the non-conforming paint has already been applied, it shall be removed from the structure and replaced at no cost to NYCDOT.

   a) % Total solids by weight, ASTM D 2369
   b) % Pigment by weight, ASTM D 2371
   c) % Metallic zinc by weight of total solids in zinc primers (using a dried film sample), ASTM D521

d) % Total solids by volume, ASTM D 2697
e) Weight per gallon (grams per liter), ASTM D 1475
f) Viscosity (Stormer @ 25°C) KU, ASTM D 562
g) Volatile Organic Compounds (VOC), ASTM D 3960
h) 60° Specular Gloss of finish coat, ASTM D 523
i) Infrared Identification - of individual components and of the mixed coating for 2 component materials. For the individual components, obtain each spectrum by sandwiching a small quantity (i.e., 1-2 drops) of material between 2 potassium bromide plates and obtaining a transmission infrared spectrum. For the mixed and cured material, use a potassium bromide pellet technique.

6. When the use of caulking is specified in the Special Provisions, provide the name, generic type, and MSDS for the proposed material. The caulking must be approved by the coating manufacturer. Include a letter from the coating manufacturer acknowledging acceptance of the caulking for use with the coating system.

7. In the event of a conflict between the manufacturer's technical data and the requirements of this Section, advise the Engineer of the discrepancies in writing, and comply with the Engineer's written resolution.

J. **Sensitive Natural Resources and Endangered or Protected Species**

1. The NYCDOT will stipulate whether sensitive natural resource areas are located around the project. If the project is located in a natural resource area, develop a site-specific Habitat Protection Plan addressing the steps that will be taken to protect these sensitive ecological areas from damage.

2. The NYCDOT will advise whether peregrine falcons, barn owls or red-tailed hawks are nesting on the bridge. If peregrine falcons, barn owls or red-tailed hawks are found to be nesting on the bridge, either before the work begins, or once the work is underway, develop a site-specific plan for the sequencing of paint removal operations to avoid disturbing nesting pairs. Include provisions for obtaining the required Federal USF&WS and NYSDEC permits if it is proposed that unoccupied peregrine falcon nests be moved.

K. **Field Noise Permits and Noise Mitigation and Monitoring Plan**

1. If work will be performed outside of the hours of 7AM to 6PM on weekdays or on weekends, obtain a permit authorizing these activities, and provide the Engineer with a copy.

2. Provide a Noise Mitigation and Monitoring Plan, identifying the steps that will be taken to monitor and mitigate noise on the project. Methods include, but are not limited to sound suppression devices (mufflers) on compressed gas exhaust orifices and gasoline and diesel power sources, and enclosing noise generating equipment and operations (e.g., blast cleaning) within sound absorption barriers.

3. Include the monitoring that will be conducted to assure that noise emissions do not exceed the New York City Noise Control Code for construction equipment.

A.02 CONSTRUCTION START UP SUBMITTALS

A. Field Surface Preparation Test Sections

1. Prior to proceeding with production surface preparation operations in the field, provide a written summary of the results of the surface preparation evaluation. Identify the specific test locations, the equipment used, the quality of cleaning achieved, and whether the test areas were preserved or photographed for future reference.

2. Only use equipment that is approved by the Engineer on the basis of successful use on the test sections.

A.03 CONSTRUCTION PHASE SUBMITTALS AND DOCUMENTATION

A. Material Manufacturer's Field Site Reports

1. Submit to the Engineer, a copy of the field summary reports prepared by the coating manufacturer(s) upon completion of each site visit.

2. Provide each report within 1 week after the visit.

B. **Material Manufacturer's Batch Certifications** – The shop and field contractors shall provide a letter from the material manufacturer with each batch to indicate that the material meets the manufacturer's written product specification. Include the following test results for each batch of material (individual components and the mixed material) at a minimum: solids by volume, solids by weight, weight per gallon, viscosity, and VOC content.

C. **Abrasive Cleanliness Test Reports** – When abrasive blast cleaning is specified, record the results of the weekly abrasive cleanliness tests in a log book or report form that is maintained at the jobsite. Make the results available for review by the Engineer at any time. Notify the Engineer immediately of unacceptable

results.

D. **Inspection Log** – The shop and field contractors shall maintain a daily inspection log or report that itemizes the results of all quality inspections conducted by the Contractor. Recording of quality control inspections must not lag more than one day behind the progression of the Work. Make the reports immediately available for review by the Engineer upon request.

APPENDIX B

HISTOPLASMOSIS

INTRODUCTION

Employees engaged in a variety of tasks are often required to work in areas where pigeons have nested, usually for long periods. Such conditions are often found in bridge structures and cold storage facilities. This nesting results in a substantial build-up of pigeon droppings, a condition which can be harmful to humans if the material is disturbed and made airborne.

Histoplasmosis is a fungal infection resulting from exposure to pigeon droppings. Infectious material enters the body usually by inhalation into the lungs, but in some cases by ingestion through the mouth into the gastrointestinal tract. Pigeons do not carry the organism that causes histoplasmosis. Histoplasmosis is caused by a soil organism that requires the moist, nutrient rich environment that large masses of droppings offer. Areas with small amounts of dried droppings pose minimal hazard.

This Safety Bulletin is intended to alert employees of this potential health hazard and establish common sense precautions to minimize exposure.

PROCEDURES

Prior to work in any area where pigeons nest, a thorough inspection should be made to determine if, and to what extent there is a build-up of material. Inspection itself requires minimum precautions such as the use of personal protective equipment, which may include gloves, rubber boots, rain suit components, goggles and a dust/nuisance respirator. Questions regarding proper equipment for this activity should be directed to the Regional Safety Representative or Employee Safety & Health Section.

If substantial material is found in the immediate work area, cleaning must be performed. Employees engaged in cleaning activity shall wear all of the personal protective equipment specified above. A high powered water hose is an effective means to remove material. If the material is to be scraped away, it must be kept wet during the entire process. Application of a cleaning agent (bleach, for example), before removal may help dissolve the material, and may be applied as a disinfectant upon the affected surfaces after the droppings have been removed. Compressed air shall not be used to remove pigeon droppings because it increases the potential for inhalation and ingestion of airborne particles and the area of potential exposure.

When cleaning has been successfully completed, the personal protective equipment specified above is no longer required. All other personal protective equipment appropriate for the task and/or location shall be used, such as fall protection, hard hat, etc.

Employees engaged in cleaning, or any other activity which involves exposure to pigeon droppings, should observe a high degree of personal hygiene, even if the exposure is casual.

Special care must be taken to wash hands thoroughly before eating or smoking.

HISTOPLASMOSIS (NYS DOT Code: SB-94-4, Date: 1/21/94), Last Update: April 20, 1999

APPENDIX C
PAINT SYSTEM TABLES

Paint System A (new steel)
Inorganic Zinc Primer/Epoxy Intermediate/Urethane Finish (all coats shop applied)

Paint System A′-(new steel)
Inorganic Zinc Primer/Epoxy Intermediate/Urethane Finish (primer shop applied; finish coats field applied)

Paint System B (total coating replacement)
Epoxy Zinc Rich Primer/Epoxy Intermediate/Urethane Finish

Paint System B′ (total coating replacement – with sealer)
Epoxy Zinc Rich Primer/Epoxy Penetrating Sealer/Epoxy Intermediate/Urethane Finish

Paint System B″ (overcoating)
Spot Epoxy Zinc Rich Primer/Epoxy Penetrating Sealer/Urethane Finish

Paint System C (total coating replacement)
MCU Zinc/MCU Intermediate/MCU Finish

Paint System C′ (total coating replacement – with sealer)
MCU Zinc/Sealer/MCU Intermediate/MCU Finish

Paint System D (total coating replacement or overcoating)
MCU Aluminum/MCU Intermediate/MCU Finish

Paint System D′ (total coating replacement or overcoating– with sealer)
MCU Aluminum/Sealer/MCU Intermediate/MCU Finish

Paint System E (overcoating)
Alkyd Primer/Alkyd Intermediate/Silicone Alkyd Finish

Paint System F (overcoating)
Alkyd Primer/Aluminum Alkyd Finish

Paint System G (total coating replacement)
Aluminum Epoxy Mastic Primer/Epoxy Intermediate/Urethane Finish

Paint System I (repainting I bars)
Localized Crystalline Calcium Sulfonate penetrating Sealer/Finish

Paint System J (total coating replacement)

Aluminum Epoxy Mastic Primer/Epoxy Intermediate/Urethane Finish

Paint System K (total coating replacement)
Epoxy Zinc Rich Primer/Epoxy Intermediate/Polysiloxane Finish

Paint System K′ (total coating replacement – with sealer)
Epoxy Zinc Rich Primer/Epoxy Penetrating Sealer/Epoxy Intermediate/Polysiloxane Finish

Paint System L (total coating of bare galvanize)

Spot MCU Zinc Primer/Full MCU Intermediate/Full MCU Finish

Paint System L′ (overcoating painted galvanize – with sealer)

Spot MCU Zinc Primer/Full MCU Penetrating Sealer/Full MCU Finish

Paint System M (total coating of bare galvanize)

Spot Epoxy Zinc Primer/Full Epoxy Intermediate/Full Urethane Finish

Paint System M′ (overcoating painted galvanize – with sealer)

Spot Epoxy Zinc Primer/Full Epoxy Penetrating Sealer/Full Urethane Finish

Paint System N (total coating of bare galvanize)
Spot Epoxy Zinc Primer/Full Epoxy Intermediate/Full Polysiloxane Finish

Paint System N′ (overcoating painted galvanize – with sealer)
Spot Epoxy Zinc Primer/Full Epoxy Penetrating Sealer/ Full Polysiloxane Finish

Paint System O (new concrete, coating replacement, or overcoating)
Acrylic/Acrylic

PAINT SYSTEM A and A′
(NEW STEEL)
INORGANIC ZINC PRIMER / EPOXY INTERMEDIATE / URETHANE FINISH

DESCRIPTION

This system is used for the shop painting of new steel with a coat of inorganic zinc primer (with a wet on wet stripe coat), a stripe and full coat of epoxy intermediate and a full coat of urethane finish. For System A, all coats are applied in the shop followed by touch-up in the field. For System A′, the primer is applied in the shop followed by the application of the intermediate and finish coats in the field. If the inorganic zinc primer requires touch up within 24 hours of the initial application, the inorganic zinc primer is used for the touch up. If the inorganic zinc primer requires touch up longer than 24 hours after initial application, the organic zinc primer of System B is used for the touch up.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The inorganic zinc primer shall be in compliance with SSPC Paint 20 (Type I) with a minimum 80% zinc content in the dry film. The intermediate coat shall be a high build epoxy polyamide intermediate. The finish shall be an aliphatic acrylic urethane with total isocyanate group content (by percentage, pigment free basis) of 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Prepare the surfaces to SSPC-SP 10, Near-White Blast Cleaning, unless stipulated otherwise in the Special Requirements. Provide an angular surface profile of 2.0 to 4.5 mils. When all coats are applied in the shop (System A), mask faying and contact surfaces to prevent the application of the intermediate and finish coats to these areas (only apply the zinc primer). When the primer is applied in the shop followed by field topcoats (System A′), take special care to thoroughly clean the primer of all dirt, debris, grease, and oil in accordance with SSPC-SP1, Solvent Cleaning, prior to applying the field coats. If zinc salts are present, pressure wash the surface to remove the salts prior to topcoating.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 40% to 90%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this paint system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer:	3-4 mils
Intermediate:	3-5 mils
Finish:	2-3 mils

NOTE: For shop measurements, comply with Appendix 4 of SSPC-PA2. When coatings are applied to rolled beam sections and plate girders in the shop, measure the thickness of each coat at the frequencies identified in Appendix A.4.2.1 (Full DFT Determination – Beam/Girder) of SSPC-PA2. For all other steel coated in the shop, measure the thickness in accordance with the frequencies identified in Appendix A.2.2 (Full DFT Determination – Miscellaneous Parts).

For all measurements in the field, comply with the standard frequencies of SSPC-PA2 (not Appendix 4).

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, no maximum (may verify cure prior to application of intermediate coat by solvent rub test according to ASTM D4752)

NOTE: Apply a stripe coat of primer first followed by the full coat of primer while the stripe coat is still tacky.

NOTE: If the primer is too thin or requires repair, the same inorganic zinc material can be used if it is applied within 24 hours of the initial application, and if it is applied in strict accordance with the manufacturer's instructions for coating inorganic zinc with inorganic zinc. If the prime coat has cured more than 24 hours, use the epoxy zinc primer of System B to build thickness or for repair.

Intermediate – 8 hours minimum, 30 days maximum (application of finish coat beyond this time may require additional preparation as specified by the manufacturer)

Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM A and A′*
(NEW STEEL)
INORGANIC ZINC PRIMER / EPOXY INTERMEDIATE / URETHANE FINISH

Manufacturer	**Coat**	**Product**
Ameron	Primer (3-pak)	Dimetcote 9H
	Intermediate	Amercoat 385
	Finish	Amercoat 450 H
Carboline	Primer (3-pak)	Carbozinc 11 HS
	Intermediate	Carboguard 888
	Finish	Carbothane 134 HS
ICI-Devoe Coatings	Primer (3-pak)	Catha-Coat 304V
	Intermediate	Devran 224HS
	Finish	Devthane 359
International	Primer (2-pak)	Interzinc 22HS
	Intermediate	Interseal 670HS
	Finish	Interthane 990HS
Sherwin-Williams	Primer (2-pak)	Zinc-Clad II Plus
	Intermediate	Macropoxy 646
	Finish	Acrolon 218 HS

*****System A involves the application of all coats in the shop.

*System A′ involves the application of the primer in the shop and the intermediate and finish coats in the field. For System A′, before applying the field intermediate coat, thoroughly clean the entire shop-primed surface, spot clean corrosion and damage, and spot prime using the appropriate epoxy zinc primer listed in System B.

PAINT SYSTEM B
(TOTAL COATING REPLACEMENT)
EPOXY ZINC-RICH PRIMER / EPOXY INTERMEDIATE / URETHANE FINISH

DESCRIPTION

This system is used for steel that is completely blast cleaned with all coats applied in the field. Paint System B involves the use of a stripe and full coat of epoxy zinc rich primer/stripe and full coat of epoxy intermediate/and a full coat of urethane finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The epoxy zinc-rich primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The intermediate coat shall be a high build epoxy polyamide. The finish shall be an aliphatic acrylic urethane with total isocyanate group content (by percentage, pigment free basis) of 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Prepare the surfaces to SSPC-SP 10, Near White Blast Cleaning, unless stipulated otherwise in the Special Requirements. Provide an angular surface profile of 2.0 to 4.5 mils. Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer:	3-5 mils
Intermediate:	3-5 mils
Finish:	2-3 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Intermediate - 8 hours minimum, 30 days maximum (application of finish coat beyond this time may require additional preparation as specified by the manufacturer)
Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM B
(TOTAL COATING REPLACEMENT)
EPOXY ZINC RICH PRIMER / EPOXY INTERMEDIATE / URETHANE FINISH

Manufacturer	Coat	Product
Ameron	Primer (3-pak)	Amercoat 68 HS
	Intermediate	Amerlock 399
	Finish	Amercoat 450 H
Carboline	Primer (3-pak)	Carbozinc 859
	Intermediate	Carboguard 888
	Finish	Carbothane 134 HS
ICI-Devoe Coatings	Primer (2-pak)	Cathacoat 313
	Intermediate	Devran 224 HS
	Finish	Devthane 359
MAB	Primer (3-pak)	Ply-Tile Epoxy Organic Zinc Rich Primer
	Intermediate	Ply-Mastic 650
	Finish	Ply-Thane 890HS
Sherwin-Williams	Primer (2-pak)	Zinc Clad III HS
	Intermediate	Macropoxy 646
	Finish	Acrolon 218 HS

PAINT SYSTEM B'
(TOTAL COATING REPLACEMENT – WITH SEALER)
EPOXY ZINC-RICH PRIMER / EPOXY PENETRATING SEALER / EPOXY INTERMEDIATE / URETHANE FINISH

DESCRIPTION

This system is used for steel that is completely blast cleaned with all coats applied in the field. Paint System B' involves the use of a stripe and full coat of epoxy zinc rich primer/stripe coat of epoxy penetrating sealer/full coat of epoxy intermediate/and a full coat of urethane finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The epoxy zinc-rich primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The intermediate coat shall be a high build epoxy polyamide. The finish shall be an aliphatic acrylic urethane with total isocyanate group content (by percentage, pigment free basis) of 2%. The penetrating sealer shall be a high-solids, low viscosity epoxy material. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Prepare the surfaces to SSPC-SP-10, Near-White Blast Cleaning, unless stipulated otherwise in the Special Provisions. Provide an angular surface profile of 2.0 to 4.5 mils. Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this paint system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer:	3-5 mils
Sealer:	1-2 mils
Intermediate:	3-5 mils
Finish:	2-3 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for resolution.

Primer - 24 hours minimum, 30 days maximum
Sealer - 24 hours minimum, 7 days maximum
Intermediate - 8 hours minimum, 30 days maximum (application of finish coat beyond this time may require additional preparation as specified by the manufacturer)
Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application).

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.

- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM B'
(TOTAL COATING REPLACEMENT – WITH SEALER)
EPOXY ZINC-RICH PRIMER / EPOXY PENETRATING SEALER / EPOXY INTERMEDIATE / URETHANE FINISH

Manufacturer	Coat	Product
Ameron	Primer (3-pak)	Amercoat 68HS
	Sealer	Amerlock Sealer
	Intermediate	Amerlock 399
	Finish	Amercoat 450H
Carboline	Primer (3-pak)	Carbozinc 859
	Sealer	Rustbond Series
	Intermediate	Carboguard 888
	Finish	Carbothane 134HS
ICI-Devoe Coatings	Primer (2-pak)	Catha-Coat 313
	Sealer	Pre-Prime 167
	Intermediate	Devran 224HS
	Finish	Devthane 359
MAB	Primer (3-pak)	Ply-Tile Epoxy Organic Zinc Rich Primer
	Sealer	Ply-Tile Rust Seal
	Intermediate	Ply-Mastic 650
	Finish	Ply-Thane 890 HS
Sherwin-Williams	Primer (2-pak)	Zinc Clad III HS
	Sealer	Macropoxy 920
	Intermediate	Macropoxy 646
	Finish	Acrolon 218 HS

PAINT SYSTEM B"
(OVERCOATING)
SPOT EPOXY ZINC-RICH PRIMER / EPOXY PENETRATING SEALER / URETHANE FINISH

DESCRIPTION

This system is used for overcoating existing surfaces as designated. System B" involves the use of a spot coat of an epoxy zinc-rich primer on all areas of bare metal, followed by a full coat of an epoxy penetrating sealer and a full coat of urethane. This system is intended for overcoating existing coatings when the adjacent steel is coated to bare metal with System B or System B′.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The epoxy zinc-rich primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The penetrating sealer shall be a high-solids, low viscosity epoxy material. The finish shall be an aliphatic acrylic urethane finish with total isocyanate group content (by percentage, pigment free basis) of 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Prepare the surfaces designated to be overcoated by low or high pressure water cleaning, supplemented by scrubbing with stiff-bristled, non-metallic scrub brushes to remove all surface debris, chalk, and deteriorated coatings. Supplement the water cleaning with power tool cleaning to SSPC-SP 15, Commercial Grade Power Tool Cleaning in areas of corrosion or damaged coating. Thoroughly and uniformly hand/power sand the existing intact coating to remove the gloss and completely roughen the existing finish. Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown below. The dry film thickness for each coat of this paint system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Spot Primer: 3-5 mils
Sealer: l -2 mils
Finish: 2-3 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75°F and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for resolution.

Spot Primer - 24 hours minimum, 30 days maximum
Sealer - 24 hours minimum, 7 days maximum
Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application).

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM B"
(OVERCOATING)
SPOT EPOXY ZINC-RICH PRIMER / EPOXY PENETRATING SEALER / URETHANE FINISH

Manufacturer	Coat	Product
Ameron	Spot Primer (3-pak)	Amercoat 68HS
	Sealer	Amerlock Sealer
	Finish	Amercoat 450H
Carboline	Spot Primer (3-pak)	Carbozinc 859
	Sealer	Rustbond Series
	Finish	Carbothane 134HS
ICI-Devoe Coatings	Spot Primer (2-pak)	Catha-Coat 313
	Sealer	Pre-Prime 167
	Finish	Devthane 359
MAB	Spot Primer (3-pak)	Ply-Tile Epoxy Organic Zinc Rich Primer
	Sealer	Ply-Tile Rust Seal
	Finish	Ply-Thane 890 HS
Sherwin-Williams	Spot Primer (2-pak)	Zinc Clad III HS
	Sealer	Macropoxy 920
	Finish	Acrolon 218 HS

PAINT SYSTEM C and C′
(TOTAL COATING REPLACEMENT)
MOISTURE-CURE URETHANE (MCU) ZINC PRIMER / MCU INTERMEDIATE / MCU FINISH

DESCRIPTION

This system is used for the repainting of existing steel prepared by abrasive blast cleaning. Paint System C involves the use of a stripe and full coat of moisture cure urethane (MCU) zinc, a stripe and full coat of MCU intermediate, and a full coat of MCU finish.

System C′ involves the use of a stripe and full coat of MCU zinc, a stripe coat of MCU penetrating sealer, a full coat of MCU intermediate, and a full coat of MCU finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The MCU zinc primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The intermediate coat shall be an MCU material with a minimum of 25% natural or synthetic lamellar micaceous iron oxide (MIO), by weight of pigment. The finish coat shall be an aliphatic acrylic MCU material. For System C′, an MCU penetrating sealer coat is used between the prime and intermediate coats. The sealer shall be a high solids, low viscosity MCU material. The total isocyanate group content (by percentage, pigment free basis) shall be as follows: primer 4%, intermediate/sealer 4%, and finish 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Prepare the surfaces to SSPC-SP 10, Near White Blast Cleaning, unless stipulated otherwise in the Special Requirements. Provide an angular surface profile of 2.0 to 4.5 mils. Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 35°F to 100°F
Dew Point - Surface temperature above the dew point and no visible moisture or dew present

Relative Humidity (RH) – 30% to 99%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for this System shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer: 3-4 mils
Sealer*: 1-2 mils
Intermediate: 3-5 mils
Finish: 3-4 mils
*Sealer used for System C′ only.

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Sealer* - 24 hours minimum, 30 days maximum
Intermediate - 24 hours minimum, 30 days maximum
Finish - 24 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

*Sealer used for System C′ only.

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.

- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

PAINT SYSTEM C AND C′
(TOTAL COATING REPLACEMENT)
MOISTURE CURE URETHANE (MCU) ZINC PRIMER /
MCU INTERMEDIATE / MCU FINISH

Manufacturer	**Coat**	**Product**
Sherwin-Williams	Primer	Corothane I GalvaPak B65G10/B69D210
	Sealer*	Corothane I Preprime B65C10
	Intermediate	Corothane I MIO-Aluminum B65S14
	Finish	Corothane I HS B65-50
Wasser	Primer	MC-Zinc
	Sealer*	MC-Prepbond
	Intermediate	MC-Ferox B
	Finish	MC-Luster

*Note: The sealer is used for System C′ only.

PAINT SYSTEM D and D′
(TOTAL COATING REPLACEMENT OR OVERCOATING)
MOISTURE-CURE URETHANE (MCU) ALUMINUM /
MCU INTERMEDIATE / MCU FINISH

DESCRIPTION

This system is used for the repainting of existing steel prepared by abrasive blast cleaning or power tool cleaning. It may also be used for overcoating an existing intact system, including cables. System D involves the use of a stripe and full coat of moisture cure urethane (MCU) aluminum, a stripe and full coat of MCU intermediate, and a full coat of MCU finish.

System D′ involves the use of a stripe and full coat of MCU aluminum, a stripe coat of MCU penetrating sealer, a full coat of MCU intermediate, and a full coat of MCU finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The primer shall be an MCU aluminum material. The intermediate coat shall be an MCU material. The finish coat shall be an aliphatic acrylic MCU material. For System D′, an MCU penetrating sealer coat is used between the prime and intermediate coats (or prior to the primer if stipulated in the Special Requirements). The sealer ~~material~~ shall be a high solids, low viscosity MCU material. Total coating binder solids of polyisocyanate by weight shall be as follows: primer 4%, sealer/intermediate 4%, and finish 2%. The prime and intermediate coats (excluding sealer) shall contain not less than 25% natural or synthetic lamellar micaceous iron oxide (MIO), by weight of pigment. All coatings shall be lead and chromate free.

SURFACE PREPARATION

When completely replacing a coating system, remove all existing paint in accordance with SSPC-SP 6, Commercial Blast Cleaning, unless stipulated otherwise in the Special Requirements. Provide an angular surface profile of 2.0 to 4.5 mils.

When used for overcoating, prepare localized corrosion and deteriorated coating in accordance with SP 6 or SSPC-SP 3, Power Tool Cleaning. Prepare the remaining intact coating by pressure washing.

When used on cables, conduct water washing and scrubbing with stiff bristled non-metallic scrub brushes to remove all surface debris, chalk, and loose deteriorated coatings. Do not use pressurized water in excess of 150 psi. Supplement the water cleaning with hand tools in

accordance with SSPC-SP 2, “Hand Tool Cleaning.” Use power tool cleaning in accordance with SSPC-SP 3, “Power Tool Cleaning” only upon specific approval of the Engineer.

Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 35°F to 100°F
Dew Point - Surface temperature above the dew point and no visible moisture or dew present
Relative Humidity (RH) – 30% to 99%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness shall be as follows (if the selected manufacturer recommends a different thickness range, provide the range to the Engineer in writing for resolution):

Primer:	2-3 mils
Sealer*:	1-2 mils
Intermediate:	3-5 mils
Finish:	3-4 mils

*Sealer used for System D′ only (Note, when specified in the Special Requirements, apply the sealer coat before the application of the primer rather than after).

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 6 hours minimum, 24 hours maximum
Sealer* - 24 hours minimum, 30 days maximum
Intermediate - 24 hours minimum, 30 days maximum
Finish - 24 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

*Sealer used for System D′ only. (Note, when specified in the Special Requirements, apply the seal coat before the application of the primer rather than after).

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

PAINT SYSTEM D and D′
(TOTAL COATING REPLACEMENT OR OVERCOATING)
MOISTURE CURE URETHANE (MCU) ALUMINUM PRIMER /
MCU INTERMEDIATE / MCU FINISH

Manufacturer	**Coat**	**Product**
Sherwin-Williams	Primer	Corothane I MIO-Aluminum B65S14
	Sealer*	Corothane I Preprime B65C10
	Intermediate	Corothane I IronOx B
	Finish	Corothane I HS B65-50
Wasser	Primer	MC-MIO Aluminum
	Sealer*	MC-Prepbond
	Intermediate	Ferrox B
	Finish	MC-Luster

*Sealer used for System D′ only. When specified in the Special Requirements, apply the seal coat prior to the application of the primer.

PAINT SYSTEM E
(OVERCOATING)
ALKYD PRIMER / ALKYD INTERMEDIATE / SILICONE ALKYD FINISH

DESCRIPTION

This system is used for the spot repair and overcoating of existing intact coatings. The silicone alkyd modification in the finish provides a higher degree of color and gloss retention than an unmodified alkyd. System E involves the application of a spot coat of alkyd primer, a full coat of alkyd intermediate, and a full coat of silicone alkyd finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The primer shall be a medium or long oil length alkyd. The intermediate and finish coats shall be medium or long oil length alkyds, with a minimum of 30% silicone modification in the finish. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Prepare localized corrosion and deteriorated coating in accordance with SSPC-SP 6, Commercial Blast Cleaning or SSPC-SP 3, Power Tool Cleaning, unless stipulated otherwise in the Special Requirements. Prepare the remaining intact coating by pressure washing.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) – 30% to 80%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer: 2-3 mils
Intermediate: 3-5 mils

Finish: 3-4 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50%RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Intermediate – 24 hours minimum, 30 days maximum
Finish – 24 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM E
(OVERCOATING)
ALKYD PRIMER / ALKYD INTERMEDIATE / SILICONE ALKYD FINISH

Manufacturer	**Coat**	**Product**
Carboline	Primer	Carbocoat 2900
	Intermediate	Carbocoat 2900
	Finish	Carbocoat 30R
Keeler & Long	Primer	Tri-Polar Primer KL6040 Series
	Intermediate	Tri-Polar Primer KL6040 Series
	Finish	Kolor-Sil Enamel KLF Series
Sherwin-Williams	Primer	Kem Bond HS Universal Metal Primer
	Intermediate	Kem Bond HS Universal Metal Primer
	Finish	Steel Master 9500

PAINT SYSTEM F
(OVERCOATING)
ALKYD PRIMER / ALUMINUM ALKYD FINISH

DESCRIPTION

This system is typically used for the spot repair and overcoating of cables and involves the application of a full coat of alkyd primer and a full coat of aluminum alkyd finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The primer and finish coats shall be medium to long-oil length alkyds. The finish coat shall have leafing aluminum pigments. Refer to NYSDOT Standard Specifications Section 708-08 "Ready Mixed Aluminum Paint" and SSPC Paint Specification No. 102 (Leafing – Type I) for other requirements of this material. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Conduct water washing and scrubbing of the cables with stiff bristled non-metallic scrub brushes to remove all surface debris, chalk, and loose deteriorated coatings in accordance with Section 3.09I. Do not use pressurized water in excess of 150psi. Supplement the water cleaning with hand tools in accordance with SSPC-SP 2, "Hand Tool Cleaning." Use power tool cleaning in accordance with SSPC-SP 3, "Power Tool Cleaning," only upon specific approval of the Engineer.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 30% to 80%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer: 2-4 mils
Finish: 1-1.5 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50%RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Finish – minimum of 24 hours, 30 days maximum

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM F
(OVERCOATING)
ALKYD PRIMER / ALUMINUM ALKYD FINISH

Manufacturer	**Coat**	**Product**
Carboline	Primer	Carbocoat 2900
	Finish	Carbocoat 139 Aluminum
Keeler & Long	Primer	Tri-Polar Primer KL6040 Series
	Finish	B-1 Series 0992 Aluminum
Sherwin-Williams	Primer	Kem Bond HS Universal Metal Primer
	Finish	Silver-Brite Aluminum Paint

PAINT SYSTEM G
(TOTAL COATING REPLACEMENT)
ALUMINUM EPOXY MASTIC PRIMER / EPOXY INTERMEDIATE / URETHANE FINISH

DESCRIPTION

This system is used for steel that is completely blast cleaned with all coats applied in the field. System G involves the application of a stripe and full coat of aluminum epoxy mastic, full coat of epoxy intermediate, and a full coat of urethane finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The primer shall be a surface tolerant aluminum epoxy mastic. The intermediate coat shall be a high build epoxy polyamide. The finish shall be an aliphatic acrylic urethane finish with total isocyanate group content (by percentage, pigment free basis) of 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Prepare the surfaces to SSPC-SP 6, Commercial Blast Cleaning. Provide an angular surface profile of 2.0 to 4.5 mils. Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements, for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 50°F to 100°F
Dew Point - Surface temperature at least 5F above the dew point
Relative Humidity (RH) - less than 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer:	3-5 mils
Intermediate:	3-5 mils
Finish:	2-3 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer - 24 hours minimum, 30 days maximum
Intermediate - 8 hours minimum, 30 days maximum (application of finish coat beyond this time may require additional preparation as specified by the manufacturer)
Finish -8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM G
(TOTAL COATING REPLACEMENT)
ALUMINUM EPOXY MASTIC PRIMER/ EPOXY INTERMEDIATE / URETHANE FINISH

Manufacturer	Coat	Product
Ameron	Primer	Amerlock 2 AL
	Intermediate	Amerlock 2
	Finish	Amercoat 450 H
Carboline	Primer	Carbomastic 90
	Intermediate	Carboguard 888
	Finish	Carbothane 134 HS
Keeler & Long	Primer	Kolormastic II KL1800
	Intermediate	Kolor-Poxy Fast Dry Primer KLC3250 Series
	Finish	Acrythane High Build KLYC650
MAB	Primer	Ply-Mastic Epoxy (044054 Aluminum)
	Intermediate	Ply-Mastic 650
	Finish	Ply-Thane 890 HS
Sherwin-Williams	Primer	Epoxy Mastic Aluminum II
	Intermediate	Macropoxy 646
	Finish	Acrolon 218 HS

PAINT SYSTEM I
(REPAINTING I BARS)
LOCALIZED CRYSTALLINE CALCIUM SULFONATE (CCS) PENETRATING SEALER/FINISH

DESCRIPTION

This system is used for the repainting of existing tensioned steel eye bars and associated structural steel components (eye bar heads, pins, pin collars, pin ends, end caps and nuts). The surfaces are prepared by abrasive blast cleaning and power tool cleaning, followed by application of Paint System B' (Epoxy Zinc-Rich Primer/Epoxy Penetrating Sealer/Epoxy Intermediate/Urethane Finish). Following curing of System B', the two-coat System I shall be applied at pin connection areas and all I-Bar surfaces 5 feet beyond the pin connection. System I is a two-coat crystalline calcium sulfonate (CCS) system consisting of a full coat of penetrating sealer/primer applied as the first coat and a full coat of crystalline calcium sulfonate finish.

PAINT SYSTEM REQUIREMENTS

See Paint System B'for the requirements of that system. The calcium sulfonate coatings shall be VOC-compliant in accordance with the current New York Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <340 grams/liter or 2.8 pounds/gallon). The penetrating sealer/primer shall be a one-component surface tolerant modified crystalline calcium sulfonate coating, applied by spray, brush or roller. The topcoat shall be a one-component surface tolerant modified calcium sulfonate coating applied by spray, brush or roller. All coats shall have a higher affinity for metal than does water, and therefore be able to displace water in tight difficult to coat areas (overlapping plates, joints, etc.). All coats shall be ultraviolet (UV) stable. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Prepare I-bars and associated structural steel components to bare steel in accordance with SSPC-SP 10, Near-White Blast Cleaning. Provide an angular surface profile of 2.0 to 4.5 mils. Prior to blast cleaning, remove pack rust using power tools as specified in Section 3.09, with special attention to areas of limited access (e.g., areas where I-bars converge to the pin connection). Limited access areas are defined in Section 3.08. Any existing coating, corrosion, or mill scale allowed to remain in these areas must be tightly adherent. Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply System B'according to the requirements of that system. Apply the calcium sulfonate coatings of System I under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 110°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity – up to 90%

COATING SYSTEMS AND COATING THICKNESS

See System B′ for the coating materials and requirements of that system. Coating materials for the calcium sulfonate coatings of System I are shown below. The dry film thickness for each coat of System I shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer/Sealer:	3-5 mils general application thickness, but flood steel joints, crevices, cables, back to back angles, etc.
Finish:	3-5 mils

RECOAT TIMES

See System B′ for the requirements of that system. Maintain the following minimum and maximum recoat times for System I. These times are based on approximately 75°F and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer/Sealer – 4 hours minimum, no maximum
Finish – Not applicable

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.

- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM I
(REPAINTING I BARS)
LOCALIZED CRYSTALLINE CALCIUM SULFONATE (CCS) PENETRATING SEALER/FINISH

Manufacturer	Coat	Product
Termarust Technologies	Primer/Sealer	Termarust Series 2200LV Penetrant/Sealer
	Finish	Termarust Series 2100 Self Priming Topcoat
Watson Coatings	Primer/Sealer	Armor-Shield AS-8204 (AI) Penetrant (2.8 lb/gal low VOC version)
	Finish	Armor-Shield 8300 Series

PAINT SYSTEM J
(TOTAL COATING REPLACEMENT)
ALUMINUM EPOXY MASTIC PRIMER / EPOXY INTERMEDIATE / URETHANE FINISH

DESCRIPTION

This system is used for the repainting of steel where all existing coating is removed, but intact mill scale and traces of tightly adherent corrosion are allowed to remain. System J involves the application of a stripe and full coat of aluminum epoxy mastic, full coat of epoxy intermediate, and a full coat of urethane finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <340 grams/liter or 2.8 pounds/gallon). The primer shall be a surface tolerant aluminum epoxy mastic. The intermediate coat shall be a high build epoxy polyamide. The finish coat shall be an aliphatic acrylic urethane with total isocyanate group content (by percentage, pigment free basis) of 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

All existing paint shall be removed, but intact mill scale and traces of tightly adherent corrosion are allowed to remain. For areas with active rusting, remove loose rust and loose mill scale in accordance with SSPC-SP 3, Power Tool Cleaning. One or more of the following surface preparation methods may be used to achieve this end result: hand tool cleaning, power tool cleaning, vacuum-shrouded power tool cleaning, chemical stripping, pressurized water jetting, wet abrasive blasting, dry abrasive blast cleaning and/or vacuum blasting. Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 50°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) – 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this paint system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer: 3-5 mils
Intermediate: 3-5 mils
Finish: 2-3 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Intermediate – 8 hours minimum, 30 days maximum (application of finish coat beyond this time may require additional preparation as specified by the manufacturer)
Finish – 24 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application).

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.

- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Cost associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM J
(TOTAL COATING REPLACEMENT)
ALUMINUM EPOXY MASTIC PRIMER / EPOXY INTERMEDIATE / URETHANE FINISH

Manufacturer	Coat	Product
Ameron	Primer	Amerlock 2 AL
	Intermediate	Amerlock 2
	Finish	Amercoat 450H
Carboline	Primer	Carbomastic 90
	Intermediate	Carboguard 888
	Finish	Carbothane 134HS
Keeler & Long	Primer	Kolormastic II KL1800
	Intermediate	KolorPoxy 3200
	Finish	Acrythane High Build KLYC650
MAB	Primer	Ply-Mastic (044054 Aluminum)
	Intermediate	Ply-Mastic 650
	Finish	Ply-Thane 890HS
Sherwin-Williams	Primer	Epoxy Mastic Aluminum II
	Intermediate	Macropoxy 646
	Finish	Acrolon 218 HS

PAINT SYSTEM K
(TOTAL COATING REPLACEMENT)
EPOXY ZINC-RICH PRIMER / EPOXY INTERMEDIATE / POLYSILOXANE FINISH

DESCRIPTION

This system is used for steel that is completely blast cleaned with all coats applied in the field. Paint System K involves the use of a stripe and full coat of epoxy zinc rich primer/stripe and full coat of epoxy intermediate/and a full coat of polysiloxane finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The epoxy zinc-rich primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The intermediate coat shall be a high build epoxy polyamide. The finish shall be a polysiloxane. All coatings shall be lead, chromate and cadmium free.

SURFACE PREPARATION

Prepare the surfaces to SSPC-SP 10, Near White Blast Cleaning, unless stipulated otherwise in the Special Requirements. Provide an angular surface profile of 2.0 to 4.5 mils. Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials and the dry film thickness for each coat are provided on the last page. If the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution.

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Intermediate - 8 hours minimum, 14 days maximum (application of finish coat beyond this time may require additional preparation as specified by the manufacturer)
Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the primer and intermediate components of the system were used together, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them. Submit a reference list of steel structures where the intermediate and finish components were used together.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Section 831 – Specifications for Painting

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM K
(TOTAL COATING REPLACEMENT)
EPOXY ZINC RICH PRIMER / EPOXY INTERMEDIATE / POLYSILOXANE FINISH

Manufacturer	Coat	Product	Dry Film Thickness
Ameron	Primer (3-pak)	Amercoat 68 HS	3 to 5 mils
	Intermediate	Amerlock 399	3 to 5 mils
	Finish	PSX 700 H	3 to 7 mils
Carboline	Primer (3-pak)	Carbozinc 859	3 to 5 mils
	Intermediate	Carboguard 888	3 to 5 mils
	Finish	Carboxane 2000	3 to 7 mils
International Paints	Primer (2-pak)	Interzinc 52	3 to 5 mils
	Intermediate	Intergard 475HS	3 to 5 mils
	Finish	Interfine 878	2 to 3 mils

PAINT SYSTEM K'
(TOTAL COATING REPLACEMENT – WITH SEALER)
EPOXY ZINC-RICH PRIMER / EPOXY PENETRATING SEALER / EPOXY INTERMEDIATE / POLYSILOXANE FINISH

DESCRIPTION

This system is used for steel that is completely blast cleaned with all coats applied in the field. Paint System K' involves a stripe and full coat of epoxy zinc rich primer/stripe coat of epoxy penetrating sealer/full coat of epoxy intermediate/and a full coat of urethane finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The epoxy zinc-rich primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The intermediate coat shall be a high build epoxy polyamide. The finish shall be a polysiloxane. The penetrating sealer shall be a high-solids, low viscosity epoxy material. All coatings shall be lead, chromate, and cadmium free.

SURFACE PREPARATION

Prepare the surfaces to SSPC-SP-10, Near-White Blast Cleaning, unless stipulated otherwise in the Special Provisions. Provide an angular surface profile of 2.0 to 4.5 mils. Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials and the dry film thickness for each coat are provided on the last page. If the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution.

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for resolution.

Primer - 24 hours minimum, 30 days maximum
Sealer - 24 hours minimum, 7 days maximum
Intermediate - 8 hours minimum, 14 days maximum (application of finish coat beyond this time may require additional preparation as specified by the manufacturer)
Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application).

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the primer and intermediate components of the system were used together, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them. Submit a reference list of steel structures where the intermediate and finish components were used together.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM K'
(TOTAL COATING REPLACEMENT – WITH SEALER)
EPOXY ZINC-RICH PRIMER / EPOXY PENETRATING SEALER / EPOXY INTERMEDIATE / POLYSILOXANE FINISH

Manufacturer	Coat	Product	Dry Film Thickness
Ameron	Primer (3-pak)	Amercoat 68 HS	3 to 5 mils
	Sealer	Amerlock Sealer	1 to 2 mils
	Intermediate	Amerlock 399	3 to 5 mils
	Finish	PSX 700 H	3 to 7 mils
Carboline	Primer (3-pak)	Carbozinc 859	3 to 5 mils
	Sealer	Rustbond Series	1 to 2 mils
	Intermediate	Carboguard 888	3 to 5 mils
	Finish	Carboxane 2000	3 to 7 mils
International Paints	Primer (2-pak)	Interzinc 52	3 to 5 mils
	Sealer	Interbond 600	1 to 2 mils
	Intermediate	Intergard 475HS	3 to 5 mils
	Finish	Interfine 878	2 to 3 mils

PAINT SYSTEM L
(TOTAL COATING OF BARE GALVANIZED STEEL)
SPOT MOISTURE-CURE URETHANE (MCU) ZINC PRIMER / FULL MCU INTERMEDIATE / FULL MCU FINISH

DESCRIPTION

This system is used for painting previously unpainted galvanized steel (new and weathered). Paint System L involves the use of a spot coat of an MCU zinc-rich primer on all areas of bare steel, followed by a stripe and full coat of an MCU intermediate, and a full coat of an MCU finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The spot moisture-cure urethane (MCU) zinc primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The intermediate coat shall be an MCU material with a minimum of 25% natural or synthetic lamellar micaceous iron oxide (MIO), by weight of pigment. The finish shall be an aliphatic acrylic MCU material. Total isocyanate group content (by percentage, pigment free basis) shall be as follows: primer 4%, intermediate 4%, and finish 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan. Prior to surface preparation, use a solution of copper sulfate to confirm that oil, chromate treatment, or other passivator is not present on new galvanizing. An acceptable test procedure is provided after the paint system table. If the test result indicates a passivator is present, prepare the surfaces by Sweep Blasting as described below. Repeat the test with copper sulfate to confirm whether the passivator has been removed. If it is present, continue surface preparation until it is removed.

If a passivator is not present on new galvanizing, or if the galvanizing is weathered, prepare the surfaces by Sweep Blasting or Chemical Cleaning, unless stipulated otherwise in the Special Requirements.

For Sweep Blasting, prepare the surfaces as specified in ASTM D 6386. Provide dense and uniform roughening of the galvanizing, but use abrasives, pressures, and techniques that minimize the amount of galvanizing that is removed. Prepare areas of corrosion (red rust) in accordance with SSPC-SP 6, Commercial Blast Cleaning.

For Chemical Cleaning, initially clean the surfaces by low or high pressure water cleaning. Supplement the water cleaning with power tool cleaning to SSPC-SP 15, Commercial Grade Power Tool Cleaning in rusted areas. Treat all surfaces with pre-paint cleaner applied in accordance with the manufacturer's published instructions. The pre-paint cleaner material shall consist of a water-reducible phosphoric acid and detergent blend formulated to prepare galvanized surfaces for coating. Dilute the pre-paint cleaner with potable water to the strongest concentration as recommended by the manufacturer. Observe the manufacturer's recommended contact times with the galvanized surfaces being cleaned while constantly scrubbing the cleaner over the surface with a moderately aggressive, synthetic abrasive pad. Thoroughly rinse and neutralize the surface with potable water to achieve a neutral pH of 7. If neutral pH is not achieved re-rinse as necessary. Allow thorough drying of the surface prior to painting. Before coating, remove any white powder or other residues that may occur on the cleaned galvanized surfaces by wiping with a clean, dry, cloth.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 35°F to 100°F
Dew Point - Surface temperature above the dew point and no visible moisture or dew present
Relative Humidity (RH) - 30% to 99%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer:	3-4 mils
Intermediate:	3-5 mils
Finish:	3-4 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Intermediate - 24 hours minimum, 30 days maximum
Finish - 24 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM L
(TOTAL COATING OF BARE GALVANIZED STEEL)
SPOT MOISTURE-CURE URETHANE (MCU) ZINC PRIMER / FULL MCU INTERMEDIATE / FULL MCU FINISH

Manufacturer	**Coat**	**Product**
Sherwin-Williams	Spot Primer	Corothane I GalvaPak B65G10/B69D210
	Intermediate	Corothane I MIO-Aluminum B65S14
	Finish	Corothane I HS B65-50
Wasser	Spot Primer	MC-Zinc
	Intermediate	MC-Ferox B
	Finish	MC-Luster

TEST FOR CHROMATE TREATMENT AND OIL

New galvanizing may be treated with oil, hexavalent chromium solution, or other passivating treatment to prevent wet storage stain. These treatments can interfere with the adhesion of coatings if not removed. The presence of oil or a passivating treatment can be determined using a copper sulfate solution. Prepare the solution by dissolving 20 grams of copper sulfate crystals in one liter of deionized water. Mark off three adjacent areas on the galvanized surface. Leave one area untouched, solvent wash the second area, and solvent wash/sand the third area. Saturate a cotton swab with the copper sulfate solution and apply to all areas.

If the first area turns black, no oil or passivator is present. If the first area does not turn black, an interference material is present and the second and third areas need to be examined. If the second and third areas turn black at the same time (and in less than 10 seconds), there is no passivator on the surface, but oil is present on the galvanizing that must be removed. If the second area (unsanded, solvent washed) turns slower than the third, or does not turn at all, a passivator is present and must be removed.

PAINT SYSTEM L'
(OVERCOATING OF PREVIOUSLY PAINTED GALVANIZED STEEL)
SPOT MOISTURE-CURE URETHANE (MCU) ZINC PRIMER / FULL MCU PENETRATING SEALER / FULL MCU FINISH

DESCRIPTION

This system is used for overcoating previously painted galvanized steel. Paint System L' involves the use of a spot coat of an MCU zinc-rich primer on all areas of bare steel, followed by a full coat of MCU penetrating sealer and a full coat of MCU finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The spot moisture-cure urethane (MCU) zinc primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The intermediate sealer shall be a high solids, low viscosity MCU material. The finish shall be an aliphatic acrylic MCU material. Total isocyanate group content (by percentage, pigment free basis) shall be as follows: primer 4%, sealer 4%, and finish 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan. Remove loose coating and prepare the bare galvanized surfaces by pressure washing and power tool cleaning, or Brush-Off Blast Cleaning/Sweep Blasting, unless stipulated otherwise in the Special Requirements.

For pressure washing, use Low Pressure Water Cleaning in accordance with SSPC-SP 12 to remove all loose coating. If loose coating remains after cleaning, increase the pressures until all loose coating is removed. Prepare rusted areas in accordance with SSPC-SP 15, Commercial Grade Power Tool Cleaning. Power tool clean (e.g., power sand) exposed galvanized steel in accordance with SSPC-SP 3 to roughen the surface.

For Brush-Off Blast Cleaning, subject the entire surface to the abrasive blast to locate and remove all loose coating. For exposed galvanized steel, Sweep Blast the surface in accordance with the requirements of ASTM D 6386. Provide dense and uniform roughening of the galvanizing, but use abrasives, pressures, and techniques that minimize the amount of galvanizing that is removed. Prepare areas of corrosion in accordance with SSPC-SP 6, Commercial Blast Cleaning.

For all methods of preparation, feather the edges of remaining coating until a sound, intact perimeter is achieved.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 35°F to 100°F
Dew Point - Surface temperature above the dew point - no visible moisture or dew present
Relative Humidity (RH) - 30% to 99%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer:	3-4 mils
Sealer:	1-2 mils
Finish:	3-4 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Sealer - 24 hours minimum, 30 days maximum
Finish - 24 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

EQUIVALENT SYSTEMS

The following specified products are designated solely as a “standard of quality.” Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM L'
(OVERCOATING OF PREVIOUSLY PAINTED GALVANIZED STEEL)
SPOT MOISTURE-CURE URETHANE (MCU) ZINC PRIMER / FULL MCU PENETRATING SEALER / FULL MCU FINISH

Manufacturer	**Coat**	**Product**
Sherwin-Williams	Spot Primer	Corothane I GalvaPak B65G10/B69D210
	Sealer	Corothane I Preprime B65C10
	Finish	Corothane I HS B65-50
Wasser	Spot Primer	MC-Zinc
	Sealer	MC-Prepbond
	Finish	MC-Luster

PAINT SYSTEM M
(TOTAL COATING OF BARE GALVANIZED STEEL)
SPOT EPOXY ZINC-RICH PRIMER / FULL EPOXY INTERMEDIATE / FULL URETHANE FINISH

DESCRIPTION

This system is used for painting previously unpainted galvanized steel (new and weathered). Paint System M involves the use of a spot coat of epoxy zinc rich primer on areas of bare steel, a stripe and full coat of epoxy intermediate, and a full coat of urethane finish. This system is intended for coating galvanized steel when the adjacent carbon steel is coated with System B or System B′.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The spot epoxy zinc-rich primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The intermediate coat shall be a high build epoxy polyamide. The finish shall be an aliphatic acrylic urethane with total isocyanate group content (by percentage, pigment free basis) of 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan. Prior to surface preparation, use a solution of copper sulfate to confirm that oil, chromate treatment, or other passivator is not present on new galvanizing. An acceptable test procedure is provided after the paint system table. If the test result indicates a passivator is present, prepare the surfaces by Sweep Blasting as described below. Repeat the test with copper sulfate to confirm whether the passivator has been removed. If it is present, continue surface preparation until it is removed.

If a passivator is not present on new galvanizing, or if the galvanizing is weathered, prepare the surfaces by Sweep Blasting or Chemical Cleaning, unless stipulated otherwise in the Special Requirements.

For Sweep Blasting, prepare the surfaces as specified in ASTM D 6386. Provide dense and uniform roughening of the galvanizing, but use abrasives, pressures, and techniques that minimize the amount of galvanizing that is removed. Prepare areas of corrosion (red rust) in accordance with SSPC-SP 6, Commercial Blast Cleaning.

For Chemical Cleaning, initially clean the surfaces by low or high pressure water cleaning. Supplement the water cleaning with power tool cleaning to SSPC-SP 15, Commercial Grade Power Tool Cleaning in rusted areas. Treat all surfaces with pre-paint cleaner applied in accordance with the manufacturer's published instructions. The pre-paint cleaner material shall consist of a water-reducible phosphoric acid and detergent blend formulated to prepare galvanized surfaces for coating. Dilute the pre-paint cleaner with potable water to the strongest concentration as recommended by the manufacturer. Observe the manufacturer's recommended contact times with the galvanized surfaces being cleaned while constantly scrubbing the cleaner over the surface with a moderately aggressive, synthetic abrasive pad. Thoroughly rinse and neutralize the surface with potable water to achieve a neutral pH of 7. If neutral pH is not achieved re-rinse as necessary. Allow thorough drying of the surface prior to painting. Before coating, remove any white powder or other residues that may occur on the cleaned galvanized surfaces by wiping with a clean, dry, cloth.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. The dry film thickness for each coat of this system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer:	3-5 mils
Intermediate:	3-5 mils
Finish:	2-3 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Intermediate - 8 hours minimum, 30 days maximum (application of finish coat beyond this time may require additional preparation as specified by the manufacturer)

Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM M
(TOTAL COATING OF BARE GALVANIZED STEEL)
SPOT EPOXY ZINC-RICH PRIMER / FULL EPOXY INTERMEDIATE / FULL URETHANE FINISH

Manufacturer	Coat	Product
Ameron	Spot Primer (3-pak)	Amercoat 68 HS
	Intermediate	Amerlock 399
	Finish	Amercoat 450 H

Carboline	Spot Primer (3-pak)	Carbozinc 859
	Intermediate	Carboguard 888
	Finish	Carbothane 134 HS
ICI-Devoe Coatings	Spot Primer (2-pak)	Cathacoat 313
	Intermediate	Devran 224 HS
	Finish	Devthane 359
MAB	Spot Primer (3-pak)	Ply-Tile Epoxy Organic Zinc Rich Primer
	Intermediate	Ply-Mastic 650
	Finish	Ply-Thane 890HS
Sherwin-Williams	Spot Primer (2-pak)	Zinc Clad III HS
	Intermediate	Macropoxy 646
	Finish	Acrolon 218 HS

TEST FOR CHROMATE TREATMENT AND OIL

New galvanizing may be treated with oil, hexavalent chromium solution, or other passivating treatment to prevent wet storage stain. These treatments can interfere with the adhesion of coatings if not removed. The presence of oil or a passivating treatment can be determined using a copper sulfate solution. Prepare the solution by dissolving 20 grams of copper sulfate crystals in one liter of deionized water. Mark off three adjacent areas on the galvanized surface. Leave one area untouched, solvent wash the second area, and solvent wash/sand the third area. Saturate a cotton swab with the copper sulfate solution and apply to all areas.

If the first area turns black, no oil or passivator is present. If the first area does not turn black, an interference material is present and the second and third areas need to be examined. If the second and third areas turn black at the same time (and in less than 10 seconds), there is no passivator on the surface, but oil is present on the galvanizing that must be removed. If the second area (unsanded, solvent washed) turns slower than the third, or does not turn at all, a passivator is present and must be removed.

PAINT SYSTEM M'
(OVERCOATING OF PREVIOUSLY PAINTED GALVANIZED STEEL)
SPOT EPOXY ZINC-RICH PRIMER / FULL EPOXY PENETRATING SEALER / FULL URETHANE FINISH

DESCRIPTION

This system is used for overcoating previously painted galvanized steel. Paint System M' involves the use of a spot coat of epoxy zinc-rich primer on all areas of bare steel, followed by a full coat of epoxy penetrating sealer and a full coat of urethane.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The spot epoxy zinc-rich primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The penetrating sealer shall be a high-solids, low viscosity epoxy material. The finish shall be an aliphatic acrylic urethane finish with total isocyanate group content (by percentage, pigment free basis) of 2%. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan. Remove loose coating and prepare the bare galvanized surfaces by pressure washing and power tool cleaning, or Brush-Off Blast Cleaning/Sweep Blasting, unless stipulated otherwise in the Special Requirements.

For pressure washing, use Low Pressure Water Cleaning in accordance with SSPC-SP 12 to remove all loose coating. If loose coating remains after cleaning, increase the pressures until all loose coating is removed. Prepare rusted areas in accordance with SSPC-SP 15, Commercial Grade Power Tool Cleaning. Power tool clean (e.g., power sand) exposed galvanized steel in accordance with SSPC-SP 3 to roughen the surface.

For Brush-Off Blast Cleaning, subject the entire surface to the abrasive blast to locate and remove all loose coating. For exposed galvanized steel, Sweep Blast the surface in accordance with the requirements of ASTM D 6386. Provide dense and uniform roughening of the galvanizing, but use abrasives, pressures, and techniques that minimize the amount of galvanizing that is removed. Prepare areas of corrosion in accordance with SSPC-SP 6, Commercial Blast Cleaning.

For all methods of preparation, feather the edges of remaining coating until a sound, intact perimeter is achieved.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown below. The dry film thickness for each coat of this paint system shall be as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Spot Primer: 3-5 mils
Sealer: l -2 mils
Finish: 2-3 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75°F and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for resolution.

Spot Primer - 24 hours minimum, 30 days maximum
Sealer - 24 hours minimum, 7 days maximum
Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application).

EQUIVALENT SYSTEMS

The following specified products are designated solely as a “standard of quality.” Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.

- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM M'
(OVERCOATING OF PREVIOUSLY PAINTED GALVANIZED STEEL)
SPOT EPOXY ZINC-RICH PRIMER / FULL EPOXY PENETRATING SEALER / FULL URETHANE FINISH

Manufacturer	Coat	Product
Ameron	Spot Primer (3-pak)	Amercoat 68HS
	Sealer	Amerlock Sealer
	Finish	Amercoat 450H
Carboline	Spot Primer (3-pak)	Carbozinc 859
	Sealer	Rustbond Series
	Finish	Carbothane 134HS
ICI-Devoe Coatings	Spot Primer (2-pak)	Catha-Coat 313
	Sealer	Pre-Prime 167
	Finish	Devthane 359
MAB	Spot Primer (3-pak)	Ply-Tile Epoxy Organic Zinc
	Sealer	Ply-Tile Rust Seal
	Finish	Ply-Thane 890 HS
Sherwin-Williams	Spot Primer (2-pak)	Zinc Clad III HS
	Sealer	Macropoxy 920
	Finish	Acrolon 218 HS

PAINT SYSTEM N
(TOTAL COATING OF BARE GALVANIZED STEEL)
SPOT EPOXY ZINC-RICH PRIMER / FULL EPOXY INTERMEDIATE / FULL POLYSILOXANE FINISH

DESCRIPTION

This system is used for painting previously unpainted galvanized steel (new and weathered). It involves the use of a spot coat of epoxy zinc rich primer on areas of bare steel, a stripe and full coat of epoxy intermediate, and a full coat of polysiloxane finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The epoxy zinc-rich primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The intermediate coat shall be a high build epoxy polyamide. The finish shall be a polysiloxane. All coatings shall be lead, chromate and cadmium free.

SURFACE PREPARATION

Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan. Prior to surface preparation, use a solution of copper sulfate to confirm that oil, chromate treatment, or other passivator is not present on new galvanizing. An acceptable test procedure is provided after the paint system table. If the test result indicates a passivator is present, prepare the surfaces by Sweep Blasting as described below. Repeat the test with copper sulfate to confirm whether the passivator has been removed. If it is present, continue surface preparation until it is removed.

If a passivator is not present on new galvanizing, or if the galvanizing is weathered, prepare the surfaces by Sweep Blasting or Chemical Cleaning, unless stipulated otherwise in the Special Requirements.

For Sweep Blasting, prepare the surfaces as specified in ASTM D 6386. Provide dense and uniform roughening of the galvanizing, but use abrasives, pressures, and techniques that minimize the amount of galvanizing that is removed. Prepare areas of corrosion (red rust) in accordance with SSPC-SP 6, Commercial Blast Cleaning.

For Chemical Cleaning, initially clean the surfaces by low or high pressure water cleaning. Supplement the water cleaning with power tool cleaning to SSPC-SP 15, Commercial Grade Power Tool Cleaning in rusted areas. Treat all surfaces with pre-paint cleaner applied in

accordance with the manufacturer's published instructions. The pre-paint cleaner material shall consist of a water-reducible phosphoric acid and detergent blend formulated to prepare galvanized surfaces for coating. Dilute the pre-paint cleaner with potable water to the strongest concentration as recommended by the manufacturer. Observe the manufacturer's recommended contact times with the galvanized surfaces being cleaned while constantly scrubbing the cleaner over the surface with a moderately aggressive, synthetic abrasive pad. Thoroughly rinse and neutralize the surface with potable water to achieve a neutral pH of 7. If neutral pH is not achieved re-rinse as necessary. Allow thorough drying of the surface prior to painting. Before coating, remove any white powder or other residues that may occur on the cleaned galvanized surfaces by wiping with a clean, dry, cloth.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials and the dry film thickness for each coat are provided on the last page. If the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution.

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 24 hours minimum, 30 days maximum
Intermediate - 8 hours minimum, 14 days maximum (application of finish coat beyond this time may require additional preparation as specified by the manufacturer)
Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application)

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through

completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the primer and intermediate components of the system were used together, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them. Submit a reference list of steel structures where the intermediate and finish components were used together.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM N
(TOTAL COATING OF BARE GALVANIZED STEEL)
SPOT EPOXY ZINC RICH PRIMER / FULL EPOXY INTERMEDIATE / FULL POLYSILOXANE FINISH

Manufacturer	Coat	Product	Dry Film Thickness
Ameron	Spot Primer (3-pak)	Amercoat 68 HS	3 to 5 mils (spot coat)
	Intermediate	Amerlock 399	3 to 5 mils (full coat)
	Finish	PSX 700 H	3 to 7 mils (full coat)
Carboline	Spot Primer (3-pak)	Carbozinc 859	3 to 5 mils (spot coat)
	Intermediate	Carboguard 888	3 to 5 mils (full coat)
	Finish	Carboxane 2000	3 to 7 mils (full coat)
International Paints	Spot Primer (2-pak)	Interzinc 52	3 to 5 mils (spot coat)

Intermediate	Intergard 475HS	3 to 5 mils (full coat)
Finish	Interfine 878	2 to 3 mils (full coat)

TEST FOR CHROMATE TREATMENT AND OIL

New galvanizing may be treated with oil, hexavalent chromium solution, or other passivating treatment to prevent wet storage stain. These treatments can interfere with the adhesion of coatings if not removed. The presence of oil or a passivating treatment can be determined using a copper sulfate solution. Prepare the solution by dissolving 20 grams of copper sulfate crystals in one liter of deionized water. Mark off three adjacent areas on the galvanized surface. Leave one area untouched, solvent wash the second area, and solvent wash/sand the third area. Saturate a cotton swab with the copper sulfate solution and apply to all areas.

If the first area turns black, no oil or passivator is present. If the first area does not turn black, an interference material is present and the second and third areas need to be examined. If the second and third areas turn black at the same time (and in less than 10 seconds), there is no passivator on the surface, but oil is present on the galvanizing that must be removed. If the second area (unsanded, solvent washed) turns slower than the third, or does not turn at all, a passivator is present and must be removed.

PAINT SYSTEM N'
(OVERCOATING OF PREVIOUSLY PAINTED GALVANIZED STEEL)
SPOT EPOXY ZINC-RICH PRIMER / FULL EPOXY PENETRATING SEALER / FULL POLYSILOXANE FINISH

DESCRIPTION

This system is used for overcoating previously painted galvanized steel. It involves the use of a spot coat of epoxy zinc rich primer, a full coat of epoxy penetrating sealer, and a full coat of polysiloxane finish.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <500 grams/liter or 4.2 pounds/gallon for metallic pigmented coatings and <340 grams/liter or 2.8 pounds/gallon for industrial maintenance coatings). The epoxy zinc-rich primer shall be in compliance with SSPC Paint 20 (Type II) with a minimum 80% zinc content in the dry film. The penetrating sealer shall be a high-solids, low viscosity epoxy material. The finish shall be a polysiloxane. All coatings shall be lead, chromate, and cadmium free.

SURFACE PREPARATION

Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan. Remove loose coating and prepare the bare galvanized surfaces by pressure washing and power tool cleaning, or Brush-Off Blast Cleaning/Sweep Blasting, unless stipulated otherwise in the Special Requirements.

For pressure washing, use Low Pressure Water Cleaning in accordance with SSPC-SP 12 to remove all loose coating. If loose coating remains after cleaning, increase the pressures until all loose coating is removed. Prepare rusted areas in accordance with SSPC-SP 15, Commercial Grade Power Tool Cleaning. Power tool clean (e.g., power sand) exposed galvanized steel in accordance with SSPC-SP 3 to roughen the surface.

For Brush-Off Blast Cleaning, subject the entire surface to the abrasive blast to locate and remove all loose coating. For exposed galvanized steel, Sweep Blast the surface in accordance with the requirements of ASTM D 6386. Provide dense and uniform roughening of the galvanizing, but use abrasives, pressures, and techniques that minimize the amount of galvanizing that is removed. Prepare areas of corrosion in accordance with SSPC-SP 6, Commercial Blast Cleaning.

For all methods of preparation, feather the edges of remaining coating until a sound, intact perimeter is achieved.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 40°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point
Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials and the dry film thickness for each coat are provided on the last page. If the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution.

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75ºF and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for resolution.

Primer - 24 hours minimum, 30 days maximum
Sealer - 24 hours minimum, 7 days maximum
Finish - 8 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application).

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. Equivalency can be established through completion of NTPEP testing, including the required field history, provided the test results equal or exceed the results achieved by systems in this table that have completed NTPEP testing. If the proposed system does not have appropriate NTPEP testing/field history, the proposed system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.

- Be submitted with product literature and a reference list of bridge painting projects where the primer and intermediate components of the system were used together, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them. Submit a reference list of steel structures where the intermediate and finish components were used together.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Costs associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM N'
(OVERCOATING OF PREVIOUSLY PAINTED GALVANIZED STEEL)
SPOT EPOXY ZINC-RICH PRIMER / FULL EPOXY PENETRATING SEALER / FULL POLYSILOXANE FINISH

Manufacturer	Coat	Product	Dry Film Thickness
Ameron	Spot Primer (3-pak)	Amercoat 68 HS	3 to 5 mils (spot coat)
	Sealer	Amerlock Sealer	1 to 2 mils (full coat)
	Finish	PSX 700 H	3 to 7 mils (full coat)
Carboline	Spot Primer (3-pak)	Carbozinc 859	3 to 5 mils (spot coat)
	Sealer	Rustbond Series	1 to 2 mils (full coat)
	Finish	Carboxane 2000	3 to 7 mils (full coat)
International Paints[1]	Spot Primer (2-pak)	Interzinc 52	3 to 5 mils (spot coat)
	Epoxy	Intergard 870HS	3 to 5 mils (full coat)
	Finish	Interfine 878	2 to 3 mils (full coat)

1 - The International system utilizes a full coat of epoxy rather than penetrating sealer. International does not have testing for a two coat sealer/polysiloxane system (Interbond 600/Interfine 878).

PAINT SYSTEM O
(COATING OF BARE AND PREVIOUSLY PAINTED CONCRETE)
ACRYLIC PRIMER / ACRYLIC FINISH

DESCRIPTION

This system consists of the field Surface Preparation and application of a two-coat waterborne acrylic paint system. This system is typically applied to new or bare unpainted concrete, or to overcoat concrete previously painted with an acrylic system.

PAINT SYSTEM REQUIREMENTS

The paint system shall be VOC-compliant in accordance with the current New York State Department of Environmental Conservation Regulation for Architectural and Industrial Maintenance (AIM) Coatings, 6 NYCRR Part 205 (i.e., <340 grams/liter or 2.8 pounds/gallon). The primer and finish coats shall be waterborne 100% acrylic coatings. All coatings shall be lead and chromate free.

SURFACE PREPARATION

Remove grease, oil, and similar interference material from bare concrete surfaces by water cleaning, detergent water cleaning, or steam cleaning in accordance with ASTM D4258.

When the preparation of uncoated concrete or complete removal of an existing coating is specified, remove all paint, laitance, efflorescence, loose concrete, concrete fins, and other surface irregularities by mechanical abrading (power tool cleaning), water blast cleaning, or abrasive blast cleaning in accordance with ASTM D4259.

When overcoating is specified, remove all loose coating and loose materials by mechanical abrading (power tool cleaning), water blast cleaning, or abrasive blast cleaning in accordance with ASTM D4259. Prepare the remaining intact coating by pressure washing.

Note that heavy deposits of pigeon droppings may be present. Remove any pigeon droppings prior to surface preparation in accordance with the approved Histoplasmosis Plan.

AMBIENT CONDITIONS

Apply the coatings under the following ambient conditions (if the selected manufacturer recommends different requirements for ambient conditions, provide the recommendations to the Engineer in writing for resolution):

Air and Surface Temperature - 50°F to 100°F
Dew Point - Surface temperature at least 5°F above the dew point

Relative Humidity (RH) - 10% to 85%

COATING SYSTEMS AND COATING THICKNESS

Coating materials are shown on the next page. Apply both coats to the entire concrete surface (for bare concrete as well as overcoating). The dry film thickness for each coat is as follows (if the selected manufacturer recommends a different thickness range, provide the recommendation to the Engineer in writing for resolution):

Primer: 2-4 mils
Finish: 2-4 mils

RECOAT TIMES

Maintain the following minimum and maximum recoat times for each coat. These times are based on approximately 75°F and 50% RH. If the selected manufacturer recommends different recoat times, provide the recommendation to the Engineer in writing for a resolution.

Primer – 4 hours minimum, 30 days maximum
Finish – 4 hours minimum, 30 days maximum (additional coats or repairs beyond this time will require abrading by sanding or other means prior to coating application).

EQUIVALENT SYSTEMS

The following specified products are designated solely as a "standard of quality." Equivalent products may be used as approved by NYCDOT. An equivalent system shall:

- Provide comparable or superior corrosion protection, weathering resistance, and color/gloss retention relative to the paint systems listed below.
- Be a standard, regularly-produced product of the manufacturer, having been on the market for at least 4 years, and having a sales level of 1,000 gallons minimum for each coat during the past year.
- Have a minimum of two years successful field exposure on at least two entire bridge structures in a climate similar to New York City.
- Be submitted with product literature and a reference list of bridge painting projects where the system was used, and the name, telephone number, and contact person of the bridge owner and Contractor who applied them.
- Be certified by the manufacturer in writing that the coating will perform comparably to the paint systems listed below when applied in accordance with the requirements of this specification.

Any additional time required to obtain approval for paint systems other than those listed below shall not be a basis for obtaining an extension of time for completion of the project.

Cost associated with obtaining approval, as equal, of paint systems other than those listed below shall be borne by the Contractor if proposed paint system fails to gain NYCDOT approval.

PAINT SYSTEM O
(COATING OF BARE AND PREVIOUSLY PAINTED CONCRETE)
ACRYLIC PRIMER / FINISH

Manufacturer	**Coat**	**Product**
Carboline	Primer	Carbocryl 3358
	Finish	Carbocryl 3359
Sherwin-Williams	Primer	DTM Acrylic Coating
	Finish	DTM Acrylic Coating

NAMES AND ADDRESSES OF COATING MANUFACTURERS

Ameron
1571 Phoenix Blvd. – Suite 5
Atlanta, GA 30349
888-239-4064
Fax: 770-907-1034

Carboline
449 South Ave. East
Westfield, NJ 07090
908-233-3150
Fax: 908-654-0155

DuPont
Wilson Building – Concord Center
Wilmington, DE 19898

ICI-Devoe Coatings
213 Hopkinson Street
South Plainfield, NJ 07080
908-791-9868
Fax: 908-755-7672

International
6001 Antoine
Houston, TX 77210-4806
800-422-1161

Keeler & Long
P.O. Box 460
865 Echo Lake Road
Watertown, CT 06795
860-274-6701
Fax: 860-274-5857

MAB
31 Grand Boulevard
Spotswood, NJ 08884
732-251-1312
Fax: 732-251-9385

Sherwin-Williams
226 Talmadge Road
Edison, NJ 08818
888-975-0697
Fax – 732-370-8650

Sigma Coatings
12 Kirkwood Circle
Brigantine, NJ 08203
800-241-6686

Tnemec
P.O. Box 411749
Kansas City, MO 64141
818-483-3400
Fax: 818-483-3969

Wasser
11 B Rustic Circle
Montvale, NJ 07645
201-573-8121
Fax: 201-573-8121

Xymax
1058 Edgewood Road
New Kensington, PA 15068
724-339-1442
Fax: 724-339-1465

SECTION 832
SPECIFICATION FOR
LEAD PAINT REMOVAL

WORKER/ENVIRONMENTAL PROTECTION
AND WASTE HANDLING

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TABLE OF CONTENTS

Page

PART 1.0 GENERAL 1

PURPOSE 1
GENERAL 1
CONTRACTOR QUALIFICATIONS 2
COMMUNITY NOTIFICATION 2
REGULATORY COMPLIANCE 2
REFERENCE STANDARDS 3
Latest Edition..... 3
American Association of State Highway and Transportation Officials 3
American Industrial Hygiene Association (AIHA) 3
Code of Federal Regulations (CFR) 3
EPA Methods 6
National Institute of Occupational Safety and Health (NIOSH) Methods 6
The Society for Protective Coatings (SSPC) 6
Codes, Rules and Regulations of the State of New York (NYCRR) 7
New York State DOT Specifications 7
City of New York 8
Suppliers (Equipment and Material Manufacturers) Published Instructions 8

SUBMITTALS – See Appendix A.

PART 2.0 PRODUCTS 9

CONTAINMENT MATERIALS AND EQUIPMENT 9
MONITORING AND TESTING EQUIPMENT 9
High Volume Ambient Air Monitoring Equipment 9
Worker Exposure and Regulated Area Monitoring Equipment 10

EMERGENCY RESPONSE EQUIPMENT 10

PERSONAL PROTECTIVE EQUIPMENT AND HYGIENE FACILITIES 10

WASTE CONTAINERS 11
Hazardous Waste 11
Construction Waste 11
Spent Solvents 11

CLEANLINESS OF MATERIALS AND EQUIPMENT 12

PART 3.0 – EXECUTION 13

WORKER PROTECTION 13
General 13
Pigeon Droppings 14
Worker Protection Plan 14
Exposure Monitoring/Initial Assessment 15
Action Level 17
Permissible Exposure Limit (PEL) and Threshold Limit Value (TLV) 18
Respiratory Protection 18
Protective Clothing and Equipment 19

Table of Contents – continued page

Housekeeping ……20

Personal Hygiene Facilities and Equipment.....20
Medical Surveillance and Medical Removal Protection.....21
Employee Training and Information.....22
Signs 22
Parking Areas 23
Recordkeeping 23

ESTABLISHMENT OF REGULATED AREAS.....23

CONTROL AND MONITORING OF RELEASES TO AIR, SOIL AND WATER 25
General 25
Visible Emissions and Releases 26
High Volume Ambient Air Monitoring.....27
Real Time Particulate Monitoring 28
Sensitive Natural Resources.....29
Endangered Species 29

CONTAINMENT 30
General 30
Noise 30
Containment Drawings and Submittals 31
Certification of Containment Installation 31
Containment Flooring System and Additional Collectors.....31
Containment Requirements for Removal Methods.....33
Containment and Ventilation System Components 33
Maintenance of Existing Lighting Systems and Containment Lighting Requirements.....35
Lockout /Tagout of Existing Electrical Systems …… 36
Protection of Drainage Systems.....36
Work Over Water - Containment Restrictions 36
Inclement Weather 37

WASTE CLASSIFICATION, HANDLING, AND DISPOSAL 37
General 37
Items Provided by the Contractor.....38
Waste Sampling 38
Waste Testing 39
Waste Classification 39
Hazardous Waste Classification.....39
Non-hazardous Waste Classification.....40
Laboratory Report 40
Waste Handling, Site Transportation and Spill Containment.....41
Labeling of Containers.....43
Waste Transportation and Disposal 44
Hazardous Waste.....44
Non-Hazardous Municipal/Construction Waste.....45
Special Waste Requirements for Recycled Steel Grit 45
Waste Water Handling and Disposal 45

CLEANING AND CLEARANCE OF MATERIALS, EQUIPMENT, AND SURROUNDING SURFACES 46

Table of Contents - continued

Page

General *46*
Daily Cleaning of Work Site *46*
Cleaning of Containment *47*
Cleaning of Contractor Equipment and Materials *47*
Final Cleaning/Clearance of Surrounding Property and Structures *48*

METHOD OF MEASUREMENT 49
Worker Protection Plan *49*
Environmental Protection and Project Cleanup *49*
Containment System *49*
Disposal of Paint Removal Waste and Waste Water *50*
Community Notification *50*

BASIS OF PAYMENT 50

General *50*
Worker Protection Plan *50*
Environmental Protection and Project Cleanup *52*
Containment System *52*
Disposal of Paint Removal Waste and Waste Water *54*
Community Notification *55*
Pay Items *55*

APPENDIX A – SUBMITTALS A-1

GENERAL A-1

PRE-CONSTRUCTION SUBMITTALS A-1

Submittal Schedule and Engineer Acceptance *A-1*
Project Schedule *A-1*
Qualifications, Experience, and Certifications *A-1*
Contractor Chain of Command *A-3*
Worker Protection Plan *A-4*
Environmental Protection Plan *A-7*
Spill Response Plan *A-9*
Noise Permits *A-10*
Containment Plans and Drawings *A-10*
Emergency Containment Demobilization Plan *A-12*
Lockout/Tagout Plan *A-13*
Waste Management Plan *A-13*
Waste Handling, Storage, and Disposal *A-13*
Hazardous Waste Transportation *A-13*
Hazardous Waste Disposal *A-13*
Waste Water Disposal Information *A-14*
Non-Hazardous Waste Transportation and Disposal Information *A-15*

CONSTRUCTION START UP SUBMITTALS A-15
Worker Protection *A-15*
Certification of Containment Installation *A-16*

CONSTRUCTION PHASE SUBMITTALS A-16

Table of Contents – continued

Page

Competent Person Daily Reports *A-16*
Worker Protection *A-16*
Visible Emissions and Releases *A-18*
Regulated Area Monitoring *A-18*
Containment Scaffolding Inspection Log *A-19*
Temporary Heating Units *A-19*
Waste Management *A-19*
Waste Storage Logs *A-19*
Waste Analysis Reports *A-19*
Waste Manifests and Disposal Documentation *A-19*
Daily and Final Project Clean-up *A-20*

APPENDIX B – TERMS AND DEFINITIONS B-1

APPENDIX C – NYSDOT SAFETY BULLETIN SB-94-4, HISTOPLASMOSIS C-1

List of Tables

Table 1
Containment Criteria for Removal of Paint Containing Lead and Other Toxic Metals

SECTION 832
SPECIFICATION FOR LEAD PAINT REMOVAL - WORKER/ENVIRONMENTAL PROTECTION AND WASTE HANDLING

PART 1.0 GENERAL

1.01 PURPOSE

A. This Specification sets out the requirements for worker protection, containment system design and use, environmental protection, and waste disposal during the removal and disposal of coatings containing lead and other toxic metals from NYCDOT bridges. The purpose is to assure that the public, workers, and the environment are properly protected from potential exposure to toxic metals in these coatings during paint removal operations.

B. The Contractor is responsible and liable for the remediation of all damages caused by the Work, and any required clean up or repair activities.

1.02 GENERAL

A. The Contractor is responsible for compliance with all personal monitoring required under OSHA regulations, and is required to maintain:

1. A competent person at the project site to observe and monitor work activities, and to oversee the implementation of the Worker Protection Plan, Environmental Protection Plan, Waste Handling Plan, and Containment performance. Authorize the competent person to take prompt corrective measures to rectify any observed problems with the control over emissions, protection of workers, and management of the waste streams. The competent person shall be independent of all other responsibilities on the project and shall not serve in a worker or supervisory capacity. The competent person must be SSPC C-3 trained and have OSHA 40 hour HAZWOPER certification plus annual 8 hour refresher training. Qualifications of the competent person are presented in Appendix A.

2. An Industrial Hygienist (IH) to oversee the development of Worker Protection Plans, and to conduct monthly site visits to confirm that the Work is being performed in accordance with the submitted plans. Qualifications of the IH are presented in Appendix A.

B. The NYCDOT or REI will be employing an environmental consultant to monitor the paint removal project and ensure compliance with NYCDOT specifications and applicable regulations. The Contractor shall coordinate project activities with

the environmental consultant, and initiate any action that is necessary to correct specification violations identified by the environmental consultant. The environmental consultant has the authority to halt any operation involving the generation, handling, or disposal of project waste and debris if the operation violates the requirements of this specification, even if the competent person or IH did not observe the violation. In the event of a conflict between observations between the environmental consultant and the Contractor, the findings of the environmental consultant shall prevail. The presence or activities of the environmental consultant do not relieve the Contractor of the responsibility to fully comply with all aspects of this Section.

C. Project submittal requirements are itemized in Appendix A. Terms and definitions are provided in Appendix B.

1.03 CONTRACTOR QUALIFICATIONS

A. Unless otherwise specified in the Special Provisions, the painting Contractor or subcontractor that is directly performing the field cleaning and painting work shall possess SSPC-QP1 and QP2 certifications at the time of bid and throughout the duration of the project.

1.04 COMMUNITY NOTIFICATION

A. As directed by the NYCDOT, perform community notification for abrasive blasting projects. The purpose is to advise the public about the lead-paint removal operations, and plans for maintenance and protection of traffic that will be undertaken on the bridge.

B. The Contractor community notification shall include, but is not limited to providing (preparing and publishing) and distributing pamphlets and color tri-fold brochures describing the operations that will be conducted, and attending meetings with affected community members. The specific scope of work will be defined by the NYCDOT in advance. The community notification list will be provided by the NYCDOT.

1.05 REGULATORY COMPLIANCE

A. Comply with the requirements of this Section and all applicable Federal, State, and City laws, codes, and regulations, including, but not limited to the regulations of the United States Environmental Protection Agency (USEPA) and Occupational Safety and Health Administration (OSHA), New York State Department of Environmental Conservation (DEC), New York State Department of Health (NYS DOH), New York State Department of Labor (NYS DOL), and the New York City Department of Environmental Protection (NYC DEP). Codes, Rules and Regulations of the State of New York (NYCRR) are administered by

the NYS Department of Environmental Conservation, Albany, NY. EPA regulations are administered by the US Environmental Protection Agency, Region 2, NY, NY.

B. Identification of the items in this specification that are of specific interest to the NYCDOT in no way relieves the Contractor of the responsibility to comply with all applicable legal requirements. Moreover, compliance with Contract specifications does not relieve the Contractor of the obligation to comply with other applicable requirements. Contractor is required to comply with the Final Environmental Impact Statement that was prepared by the NYCDOT Division of Bridges. If a Federal, State, or City regulation is more restrictive than any of the requirements of this Section, the more restrictive requirements shall apply.

1.06 REFERENCE STANDARDS

A. **Latest Edition** - the latest edition of the following acts, regulations, guides, and standards form a part of this Specification. In the event of a conflict, comply with the most restrictive requirements. Maintain at the jobsite, a copy of all applicable reference standards.

B. **American Association of State Highway and Transportation Officials (AASHTO)**

1. Standard Specifications for Highway Bridges

2. Manual for Maintenance Inspection of Bridges

C. **American Industrial Hygiene Association (AIHA)**

1. Environmental Lead Laboratory Accreditation Program (ELLAP) - paint, soil, air, dust

2. Industrial Hygiene Accredited Laboratories (IHLAP) – metals

D. **Code of Federal Regulations (CFR)**

1. 29 CFR 1910, Occupational Safety and Health Regulations for General Industry

2. 29 CFR 1910.20, Access to Employee Exposure and Medical Records

3. 29 CFR 1910.132, General Requirements for Personal Protective Equipment

4. 29 CFR 1910.133, Eye and Face Protection

5. 29 CFR 1910.134, Respiratory Protection

6. 29 CFR 1910.146, Permit-Required Confined Spaces

7. 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout)

8. 29 CFR 1910.333, Selection and Use of Work Practices

9. 29 CFR 1910.1000, Air Contaminants

10. 29 CFR 1926, Occupational Safety and Health Regulations for the Construction Industry

11. 29 CFR 1926.16, Rules of Construction

12. 29 CFR 1926.20, General Safety and Health Provisions

13. 29 CFR 1926.21, Safety Training and Education

14. 29 CFR 1926.28, Personal Protective Equipment

15. 29 CFR 1926.32, Definition of Competent Person

16. 29 CFR 1926.51, Sanitation

17. 29 CFR 1926.52, Noise Exposure

18. 29 CFR 1926.55, Gases, Vapors, Fumes, Dusts, and Mists

19. 29 CFR 1926.57, Ventilation

20. 29 CFR 1926.59, Hazard Communication

21. 29 CFR 1926.62, Lead

22. 29 CFR 1926.101, Hearing Protection

23. 29 CFR 1926.104, Safety Belts, Lifelines, and Lanyards

24. 29 CFR 1926.154, Temporary Heating Devices

25. 29 CFR 1926.200, Accident Prevention Signs and Tags

26. 29 CFR 1926.353, Ventilation and Protection in Welding, Cutting and

Heating

27. 29 CFR 1926.354, Welding, Cutting and Heating in Way of Preservative Coatings

28. 29 CFR 1926.450 - 454, Scaffolding

29. 29 CFR 1926.500 - 503, Fall Protection

30. 29 CFR 1926.1118, Inorganic Arsenic

31. 29 CFR 1926.1126, Chromium VI (hexavalent chromium)

32. 29 CFR 1926.1127, Cadmium

33. 40 CFR 50, National Primary and Secondary Ambient Air Quality Standards

34. 40 CFR 58, Ambient Air Quality Surveillance

35. 40 CFR 60, App A, Method 9, Visual Determination of the Opacity of Emissions from Stationary Sources

36. 40 CFR 60, App. A, Method 22, Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Fires

37. 40 CFR 261, Appendix II, Toxicity Characteristic Leaching Procedure

38. 40 CFR 262, Standards Applicable to Generators of Hazardous Waste

39. 40 CFR 263, Standards Applicable to Transporters of Hazardous Waste

40. 40 CFR 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

41. 40 CFR 265, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

42. 40 CFR 265, Subpart C, Preparedness and Prevention

43. 40 CFR 265, Subpart D, Contingency Plan and Emergency Procedures

44. 40 CFR 265.16, Personnel Training

45. 40 CFR 268, Land Disposal Restrictions

46. 40 CFR 302, Designation, Reportable Quantities and Notification

47. 40 CFR 355, Emergency Planning and Notification

48. 49 CFR 171-179, Hazardous Materials Regulations

E. **EPA Methods**

1. SW 846, Test Methods for Evaluating Solid Waste - Physical/Chemical Methods

2. Method 1311, Toxicity Characteristic Leaching Procedure (TCLP)

3. Method 3050, Acid Digestion of Sediment, Sludge, and Soils

F. **National Institute of Occupational Safety and Health (NIOSH) Methods**

1. Method 7048, Cadmium

2. Method 7082, Lead

3. Method 7600, Hexavalent Chromium

4. Method 7900, Arsenic

G. **The Society for Protective Coatings (SSPC)**

1. Guide 6, Guide for Containing Debris Generated During Paint Removal Operations

2. Guide 7, Guide for the Disposal of Lead-Contaminated Surface Preparation Debris

3. Guide 12, Guide for Illumination of Industrial Painting Projects

4. Guide 16, Guide to Specifying and Selecting Dust Collectors

5. SSPC 93-02, Industrial Lead Paint Removal Handbook, 2nd Edition, Volume I

6. SSPC 95-06, Project Design, Industrial Lead Paint Removal Handbook, Volume II

7. SSPC-TU 7, Conducting Ambient Air, Soil, and Water Sampling During

Surface Preparation and Paint Disturbance Activities

8. QP-1, Standard Procedure for Evaluating the Qualifications of Painting Contractors (Field Application to Complex Structures)

9. QP-2, Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint

H. **Codes, Rules and Regulations of the State of New York (NYCRR)**

1. Title 6, Chapter III, Subchapter B, Air Resources

   a) Part 211.2, Air Pollution Prohibited

   b) Part 257, Ambient Air Quality Standards

2. Title 6, Division of Environmental Remediation

   a) Part 595, Releases of Hazardous Substances

   b) Part 597, List of Hazardous Substances

3. Title 6, Chapter X, New York State Pollutant Discharge of Water Resources Elimination System

4. Title 6, Chapter IV, Subchapter B, Solid and Hazardous Waste Law

   a) Part 364, Waste Transporter Permits

   b) Part 370, Hazardous Waste Management

   c) Part 371, Identification and Listing of Hazardous Wastes

   d) Part 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities

   e) Part 373, Treatment, Storage, and Disposal Facilities

I. **New York State DOT Specifications**

1. NYSDOT Standard Specifications for Highway Bridges

2. NYSDOT Safety Bulletin SB-94-4, Histoplasmosis

J. **City of New York**

1. Administrative Code of the City of New York, Section 16, NYC Department of Sanitation Regulations

2. Title 24, Chapter 2, New York City Noise Control Code

3. Noise Control Act of 1972

K. **Suppliers (Equipment and Material Manufacturers) Published Instructions**

1.07 **SUBMITTALS –** See Appendix A.

PART 2.0 PRODUCTS

2.01 CONTAINMENT MATERIALS AND EQUIPMENT

A. Supply all materials needed to contain paint removal debris in accordance with the requirements of this Specification and Construction Details. This may include, but is not limited to, ground covers, rigging, scaffolding, planking, containment materials, tarpaulins, dust collection and ventilation equipment, HEPA vacuums, water booms, boats with skimmers, and all other containment materials that may be needed.

B. Properly maintain all equipment in accordance with the NYC Noise Control Code.

C. Supply the Engineer with (1) portable light meter with a scale of 9 to 50+ foot-candles. The meter will be returned to the Contractor upon completion of the Work.

D. Do not use any materials until they have been accepted by the Engineer.

2.02 MONITORING AND TESTING EQUIPMENT

A. **High Volume Ambient Air Monitoring Equipment**

1. Provide, and maintain in good operating condition, all equipment necessary for the monitoring of airborne emissions in accordance with the provisions of this specification. If site conditions do not permit permanent installation for the duration of the project, install the equipment each day at locations identified by the environmental consultant. The equipment will be calibrated and used by the environmental consultant. Equipment requirements include:

a) High volume air monitoring equipment approved for sampling in accordance with 40 CFR 50, Appendix B, equipped with collection heads for total suspended particulate (TSP). Provide mass flow or volumetric flow controlled units, equipped with a flow event recorder and an adequate supply of flow charts. Provide look up tables for the volumetric controlled units. Verify that the monitors are properly maintained in accordance with the manufacturers' instructions. The environmental consultant will provide the filters.

b) An ample supply of parts or spare units in order to provide up to four (4) fully operational TSP monitors on the project site each day, for each containment location, including all necessary maintenance.

c) One variable resistance calibration kit with a current (within 1 year) calibration certificate and 2 slack-tube water manometers (15-0-15 inches).

d) All equipment (e.g., generators, power cords, fuel, etc.) needed to simultaneously operate the monitors. The monitors will be sited by the environmental consultant adjacent to the bridge or at distances away from the bridge approximately equal to three times the bridge height. Provide enough support equipment to accommodate this entire range of monitor placement.

e) Security and/or secure overnight storage of the equipment (e.g., in jobsite trailers maintained by the Contractor). Note that if the paint removal work is being conducted during evening hours, professional, armed security personnel may be needed since the monitors cannot be placed into secure storage during these times.

B. **Worker Exposure and Regulated Area Monitoring Equipment**

1. Supply the instrumentation needed for the monitoring of worker and regulated area exposures including all equipment needed for its operation (e.g., generators, batteries, power cords, fuel, etc.).

2. Provide all necessary air monitoring cassettes for exposure monitoring. Utilize appropriate air sampling cassettes for monitoring exposure to lead and other toxic metals.

2.03 EMERGENCY RESPONSE EQUIPMENT

A. Provide all necessary personal protective equipment and emergency response equipment needed for the Project as outlined in the Contractor's Spill Response Plan. Emergency spill response kits must be in place at all locations where petroleum or chemical products are being utilized.

2.04 PERSONAL PROTECTIVE EQUIPMENT AND HYGIENE FACILITIES

A. At each site, provide all personal protective clothing and equipment (PPE) needed to protect Contractor workers, NYCDOT employees and NYCDOT Agents (REI Consultants and environmental consultant), from project hazards, including proper cleaning and disposal. Repair or replace PPE as required to assure that it continues to provide its intended purpose.

B. Provide climate-controlled decontamination facilities.

1. Supply the number of facilities as dictated by 29 CFR 1926.51, site conditions, the Contractor's sequence of operations, and as approved by the Contractor's IH and Engineer. Qualifications for the Contractor's IH are presented in Appendix A.

2. Provide facilities which contain a "clean" area where workers can remove and store their street clothing when they arrive on site; a shower room with hot and cold running water, soap and clean towels; and a "dirty" area where workers can remove their work clothing at the end of their work shift. The "clean" area and the "dirty" area shall each have a separate entrance.

C. Provide all potable water required for drinking and hygiene purposes.

2.05 WASTE CONTAINERS

A. Hazardous Waste

1. Provide DOT-approved drums, tanks, roll-offs, or other containers of the appropriate size and type in accordance with 49 CFR 178 (e.g., 17H containers in the case of 55 gallon drums) that are suitable for any hazardous waste (liquid and solid) generated on the project. Use containers that are resistant to rust and corrosion (painted, if constructed of steel), that have tight fitting and locking lids or covers, and which are water resistant and leak proof. All containers must be in new condition, be free of any contamination and have no damage. All hazardous waste must be stored on NYCDOT bridge property.

2. Assure that the dry volume capacity of the containers, in cubic yards, is clearly marked on all containers, and that they are labeled as required by applicable Federal, State and City regulatory requirements.

B. **Construction Waste -** Provide all containers for non-hazardous construction waste. Use containers that are free of loose debris when brought on-site. Non-hazardous waste must be segregated from the storage of hazardous or regulated wastes.

C. **Spent Solvents -** Provide appropriate containers for spent solvents. Containers shall be corrosion resistant and non-reactive to the solvents. Review solvent MSDS to ensure compatibility with container materials. Containers shall be labeled in accordance with all applicable federal, state, and City regulations.

2.06 CLEANLINESS OF MATERIALS AND EQUIPMENT

A. Provide equipment and materials that are free of loose dust and debris when brought onto the bridge site. This includes, but is not limited to, containment and ventilation equipment, scaffolding, planking, metal sheeting, suspended platform materials, personal protective equipment, waste storage containers, trailers, and paint removal and abrasive recycling equipment.

B. Clean the materials and equipment and assure that they are free of loose dust and debris at the end of each shift and upon removal from the Work site. Use HEPA vacuums and/or wet wipe with an approved cleaning solution. Verify proper cleanliness by wiping a cloth across the surface. If dust or debris is dislodged, additional cleaning is required before transporting the materials or equipment off site (See Section 3.06). Settled dust (lead) sampling (wipe sampling) may be performed by the environmental consultant in order to verify cleanliness of all equipment and materials. An acceptance criteria of <400 µg/sq ft will be used. All filters in equipment, including but not limited to, dust collectors, recycling units, and HEPA vacuums, must be removed and replaced prior to equipment leaving the project site.

PART 3.0 - EXECUTION

3.01 WORKER PROTECTION

A. General

1. Conduct the Work in strict accordance with Federal OSHA, State, and City regulations governing worker protection. Develop a comprehensive Worker Protection Plan addressing the protection of the health and safety of workers from jobsite hazards, including but not limited to fall protection, confined space (if applicable), lock out/tag out, hearing and eye protection, and exposure to hazardous materials or conditions.

2. When disturbing paints, institute engineering and work practice controls to reduce worker exposures to lead and other toxic metals to as low as feasible. Work practices that disturb paints consist of, but are not limited to, paint removal activities, cutting, grinding, removal of concrete encasement and power washing. Present the proposed engineering and work practice controls in the Worker Protection Plan for Engineer review.

3. Employ an Industrial Hygienist (IH) on staff or through subcontract to develop the Worker Protection Plan, provide general oversight of the Work, and review all exposure monitoring and medical surveillance results. The IH is also required to conduct a monthly site visit and issue a monthly summary report of activities and monitoring results. See Appendix A for the qualifications of the IH and an itemization of the monthly reporting requirements.

4. In addition to the IH, assign a competent person to the Work site. See Appendix A for the qualifications of the competent person. Have the competent person inspect the Work site on a daily basis for compliance with the requirements of this Section and the approved Worker Protection Plan, and prepare a daily report or daily log of observations made. Maintain the information at the project site and make it available to the Engineer or environmental consultant for review at any time. The competent person shall have no other responsibilities on the project. The competent person can not serve as a supervisor, foreman or worker on the project.

5. Note that all worker protection requirements apply to Contractor and Subcontractor personnel working for the Contractor.

6. The requirements identified in this Section 3.0 regarding exposure to toxic metals are based on 29 CFR 1926.62, but the Contractor must protect the employees from exposure to any of the other toxic metals which may be

present in the paint and/or abrasive, as applicable, in addition to lead.

B. **Pigeon Droppings/Histoplasmosis**

1. In addition to controlling exposures to lead and other toxic metals, take special precautions when working in areas where pigeons have nested.

2. Develop and implement a worker protection plan under the direction of the IH, for the inspection and removal of pigeon droppings in accordance with NYSDOT Safety Bulletin SB-94-4 (copy attached) in Appendix C.

3. At a minimum, use disposable gloves, whole body protective clothing and a respirator while inspecting or removing the debris, followed by thorough washing of hands, face, and forearms before eating, drinking, or smoking. Provide respiratory protection appropriate to the level of exposure for all workers. Verify that all workers involved in cleaning activities involving exposure to pigeon droppings have medical clearance to utilize personal protective equipment such as respiratory protection and have been fit tested.
4. Remove and properly dispose all pigeon droppings located within containment enclosures.

C. **Worker Protection Plan**

1. Develop a written Worker Protection Plan under the direction of an IH to establish and implement practices and procedures for protecting the health and safety of employees from Project hazards in accordance with applicable OSHA requirements.

2. The Worker Protection Plan must include provisions for the protection of workers from toxic metals when exposures to lead or other toxic metals are above the OSHA Action Level. Note that while this specification addresses the protection of employees exposed lead and other toxic metals, the Worker Protection Plan must address the protection of workers from all Project hazards. Requirements for the content of the Worker Protection Plan are presented in Appendix A.

3. Revise and update the program at least every 6 months during the portion(s) of the project which involve the disturbance of toxic metals. Verify that the IH signs off on all reviews and revisions.

4. Establish methods for complying with this specification and any OSHA standards published for the toxic metals present in the paint (e.g., 29 CFR 1926.62 for lead, 29 CFR 1926.1126 for hexavalent chromium, 29 CFR 1926.1127 for cadmium, and 29 CFR 1926.1118 for inorganic arsenic).

Toxic metals may also be present in the paint for which OSHA has not developed a comprehensive health and safety standard. In these cases, include statements that appropriate measures will be taken to assure that the workers will not be exposed above the Permissible Exposure Limit (PEL) or Threshold Limit Value (TLV) established for the metal as identified in 29 CFR 1926.55.

5. Identify the methods of compliance that will be used to reduce worker exposures to toxic metals. Rely on respiratory protection only after feasible engineering and work practice controls have been first implemented to reduce airborne exposures.

D. **Exposure Monitoring/Initial Assessment**

1. Conduct initial personal exposure monitoring unless objective data is available to prove that exposures from a given activity cannot exceed the Action Level for lead or other metals contained in the coating. Provide the objective data to the Engineer in writing, signed by the Contractor's IH. Rely upon this data in lieu of monitoring only upon acceptance by the Engineer and Environmental Consultant.

2. Collect representative personal air samples at the beginning of the lead exposure work (at project start-up) to determine employee exposures to lead and other toxic metals that might be present in the coating. Tasks resulting in the potential exposure to toxic metals include, but are not limited to, paint removal activities, installation of lead paste in cables, work site cleanup, and debris handling operations.

3. Collect full shift (at least 7 hours) air samples for workers in each job classification in each exposure area, and when requested, collect samples on the Engineer and NYCDOT Agents (REI's or environmental consultant personnel). Provide the Engineer and Agents with the results of their analysis within the same five-day notification period required for the employees.

4. When lead is present, provide personal protective equipment for workers during the initial monitoring. Anticipate exposure levels as dictated by 29 CFR 1926.62 and as specified below. A few activities in addition to those identified by OSHA are included. Use the same level of protection when other toxic metals are found in the coating, unless OSHA has developed a comprehensive health standard for that metal (e.g., cadmium, hexavalent chromium, and inorganic arsenic). In those cases, implement the protection requirements of the standard specific to that metal.

a) Assume an exposure of 10 times the PEL (500 µg/m^3): Manual demolition of structures containing lead-containing coatings or paint (e.g., dry wall), manual scraping, manual sanding, heat gun applications, power tool cleaning with dust collection systems, and spray painting with lead paint. Although not identified in 29 CFR 1926.62, include chemical stripping, water washing, centrifugal wheel blasting, and the operation of abrasive grit recovery equipment in this category.

b) Assume an exposure in excess of 500 µg/m^3: Using lead-containing mortar, lead burning, or conducting the following activities where lead-containing coatings or paint are present: rivet busting, power tool cleaning without dust collection systems, cleanup activities where dry expendable abrasives are used, and the movement and removal of abrasive blasting enclosures. Although not identified in 29 CFR 1926.62, include vacuum blasting, water jetting, and wet abrasive blasting removal of paint in this category.

c) Assume an exposure in excess of 2,500 µg/m^3: Activities involving lead containing coatings or paint on structures disturbed by abrasive blasting, welding, cutting, and torch burning.

d) During any of the above activities, provide appropriate respiratory protection, personal protective clothing and equipment, change areas and washing facilities, blood lead and zinc protoporphyrin monitoring, and employee training. Maintain the protection as specified above until the test results are received, then modify the protection measures as necessary.

e) If hexavalent chromium is present in the coating, provide personal protective equipment that prevents contact with the skin or eyes and washing facilities capable of removing chromium from the skin.

5. Collect and analyze all air samples according to the appropriate NIOSH method, or equivalent, for the metal of concern (e.g., Method 7082 for lead, Method 7048 for cadmium, Method 7600 for hexavalent chromium, and Method 7900 for inorganic arsenic). Note that monitoring for hexavalent chromium requires the use of a PVC filter. Only use laboratories that meet the qualification requirements established under Appendix A, and which have been approved by the Engineer.

6. Conduct periodic monitoring of Contractor workers and NYCDOT Agents and provide written employee notifications within five days of receipt of

results in strict accordance with the applicable OSHA standard for the metal of concern (e.g., 29 CFR 1926.62 for lead). At a minimum, this requires monitoring at project start up, and after any changes in work practices are made which could have an effect on airborne exposures. If there is no OSHA standard for the detected metal, conduct the monitoring and employee notification based on the requirements of OSHA 29 CFR 1926.62. Provide the Engineer with the results of any subsequent employee monitoring in the monthly IH report.

7. Maintain an accurate record of all air monitoring. The record should include at least the following information, date of sampling; operation that is being monitored; number, duration and results of samples taken; type of personal protective equipment; name, identification number, and job classification of employees represented by the monitoring.

E. **Action Level**

1. The Action Level for lead is 30 µg/m3 as an eight (8) hour Time Weighted Average (TWA), the Action Level for cadmium is 2.5 µg/m3 as an 8 hour TWA, the Action Level for hexavalent chromium is 2.5 µg/m3 as an 8 hour TWA, and the Action Level for inorganic arsenic is 5 µg/m3 as an 8 hour TWA. For other metals that are found in the coating, and for which no Action Level exists, establish the Action Level at 1/2 of the PEL. If a PEL does not exist, establish the Action Level at 1/2 of the Threshold Limit Value (TLV) found in Appendix A of 29 CFR 1926.55 (e.g., if the TLV is 5 µg/m3, establish the Action Level at 2.5µg/m3).

2. If airborne exposures to toxic metals are detected, but are below the Action Level, provide the worker training required by the OSHA standard for the respective metal, and hand wash facilities

3. If airborne exposures to toxic metals are at or above the Action Level, invoke the following protective measures, as required by the OSHA standard for the respective metal:

   a) Written Worker Protection Plan

   b) Exposure Monitoring

   c) Housekeeping

   d) Employee Medical Surveillance and Medical Removal Protection

   e) Employee Information and Training

f) Signs and Regulated Areas

g) Recordkeeping

F. **Permissible Exposure Limit (PEL) and Threshold Limit Value (TLV)**

1. The PEL for airborne lead exposure is 50 µg/m^3 as an 8 hour TWA. The PEL for cadmium is 5 µg/m^3 as an 8 hour TWA, the PEL for hexavalent chromium is 5 µg/m^3 as an 8 hour TWA, and the PEL for inorganic arsenic is 10 µg/m^3 as an 8 hour TWA. The PEL/TLVs for other metals can be found in 29 CFR 1926.55.

2. In the event that extended work shifts are allowed, use the following formula to adjust the PEL: Adjusted PEL = 8 hr. PEL x (8 ÷ hours worked in a day).

3. In addition to complying with the requirements identified when exceeding the Action Level, invoke the following protective measures when the airborne exposure to a toxic metal found in the coating exceeds the PEL or TLV:

   a) Engineering and Work Practice Controls

   b) Respiratory Protection

   c) Protective Clothing and Equipment

   d) Hygiene Facilities and Practices

G. **Respiratory Protection**

1. After feasible engineering controls and work practices have been implemented, use respiratory protection if necessary to maintain employees' exposures to lead and other toxic metals below the PEL or TLV. Require the use of respirators for all employees, inspectors, observers, or other personnel who enter areas where airborne exposures exceed or are expected to exceed the PEL or TLV, or when entering regulated areas.

2. Develop a written Respiratory Protection Program in compliance with 29 CFR 1910.134 including commitments to provide the necessary medical examinations. When lead is present, include the provisions of 29 CFR 1926.62 in the program. When cadmium is present, include 29 CFR 1926.1127. When hexavalent chromium is present, include 29 CFR 1926.1126. When inorganic arsenic is present, include 29 CFR

1926.1118. Address the selection, use, maintenance and inspection of respirators, and qualifications for respirator users.

3. Treat used respirator cartridges as hazardous waste.

H. **Protective Clothing and Equipment**

1. Provide protective clothing and equipment and ensure they are worn by all employees during the initial assessment and for any employee whose exposures exceed the PEL or TLV.

2. When hexavalent chromium is present in the coating, provide protective clothing for the skin and eyes regardless of the airborne exposures.

3. Do not allow workers to wear street clothing beneath protective clothing in any areas where exposures to toxic metals exceed the PEL or TLV. This includes personal shoes unless they are fully protected by shoe covers, or left on the job site until thoroughly decontaminated.

4. Clean or replace the protective clothing as required by the appropriate OSHA standard for the toxic metal that is present. In the case of lead, clean or replace the clothing weekly if the airborne exposure levels are less than 200 $\mu g/m^3$ as an 8 hour TWA, or daily if the exposure levels are greater than or equal to 200 $\mu g/m^3$. In the case of inorganic arsenic, the threshold for daily versus weekly cleaning is 100 $\mu g/m^3$. In the case of hexavalent chromium, clean, launder, repair and replace all protective clothing and equipment as needed to maintain its effectiveness. Do not use disposable clothing for any longer than one day, and replace the clothing more frequently if it becomes torn or damaged.

5. Do not remove or clean the clothing by any means that reintroduces the toxic metals into the ambient air, or onto an employee's body, such as brushing, shaking, or blowing. Use HEPA vacuums for employee cleaning prior to removing protective clothing.

6. Store the used clothing in labeled, sealed containers.

   a) If the clothing is to be laundered and it has been exposed to lead, label the containers with the following: "CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS." If the clothing has been exposed to cadmium, chromium, inorganic arsenic, or other metals, modify the above

text accordingly, as the precautions they take may vary according to the metal (e.g., skin and eye contact should be avoided if hexavalent chromium is present).

b) If the clothing is disposable, label the containers as clothing contaminated with lead and other toxic metals, if applicable. Declare the waste as hazardous, or test the waste and apply hazardous waste labels as appropriate based on the results.

7. If the clothing is washed on site, provide containers for the collection and retention of the water after filtration. Comply with the specific testing and disposal requirements in Section 3.05.J.

I. **Housekeeping** – Conduct housekeeping and project clean up as specified in section 3.06. The project site, including but not limited to, staging areas, work site, regulated areas and project boundaries, must be properly maintained and free of rubbish and trash throughout the duration of the project.

J. **Personal Hygiene Facilities and Equipment**

1. Provide clean lavatory and hand washing facilities in accordance with OSHA sanitation standard 29 CFR 1926.51. Locate the hand washing facilities outside of the regulated area, but in close proximity to the paint removal operation, in an area that is convenient for washing prior to eating or smoking.

2. Provide showers when exposures exceed the PEL or TLV. Confirm that all employees whose exposures exceed the PEL or TLV shower, including hair, prior to leaving the project site. Clean the decontamination facilities daily during use.

3. Filter and containerize all hygiene water. Comply with the specific testing and disposal requirements in Section 3.05.J.

4. Prohibit eating, drinking, smoking, chewing of food or tobacco products, or the application of cosmetics any time that hexavalent chromium is present, in any area where the exposure to any toxic metal exceeds the PEL or TLV, or within regulated areas. Confirm that workers thoroughly wash hands and face prior to undertaking any of these activities.

5. Provide clean lunch and break areas for use by all employees, and maintain airborne concentrations in these areas below the Action Levels.

6. Provide clean change area(s) for employees whose exposures exceed the PEL or TLV. Equip the change area(s) with separate storage facilities for

street clothing that are adequately segregated to prevent cross-contamination from work clothing. Assure that employees do not leave the project site wearing any clothing that was worn while performing activities where exposures exceeded the PEL or TLV.

K. **Medical Surveillance and Medical Removal Protection**

1. Provide all employees with initial and periodic medical surveillance as required by the published OSHA health and safety standards for the metal of concern, except that the frequency of blood testing in the case of lead is increased. Conduct blood lead and zinc protoporphyrin (ZPP) sampling and analysis prior to exposure to lead and at monthly intervals thereafter. In addition, conduct exit blood tests for each worker within five working days upon completion of his/her Project activities that involve exposure to lead. Conduct the exit tests even if the departure of the employee occurs prior to the completion of the Contractor's work on the project, and at any time that project activities involving lead exposure will be halted for 30 days or more (e.g., winter shut down).

2. Verify that all medical tests are completed by, or conducted under the supervision of, a physician or other licensed health care professional (PLHCP). Verify that the blood analysis is conducted by laboratories which meet the qualification requirements established in Appendix A, and which have been accepted by the Engineer. Provide the specialized medical surveillance and X-rays required by 29 CFR 1926.1118 for employees exposed to inorganic arsenic.

3. Workers with initial blood lead levels of 40 micrograms per deciliter (µg/dl) are not permitted on the project for any work activities involving exposure to lead.

4. Provide for intervention by the IH if a blood lead level >25 µg/dl occurs for two or more workers, or there is an increase of 10 µg/dl or more between consecutive tests for any individual worker. Intervention consists of an on-site investigation by the IH, implementation of corrective action, and notification of the Engineer in the following monthly report.

5. Provide for the temporary removal of employees from exposures above the Action Level for the metal of concern when the blood analysis indicates that unacceptable results are occurring (e.g., 50 µg/dl or above in the case of blood lead). Protect employees' benefits during any period of medical removal and conduct all tests required by the OSHA standard for the metal of concern during the removal period. In the case of lead, return workers to exposures above the PEL only after two consecutive blood

tests are below 40µg/dl.

6. Provide all physical examinations as required by the appropriate OSHA standards for the metal(s) of concern. Include an evaluation and certification that the workers are medically fit to wear respirators. Verify that all examinations are performed by or under the direct supervision of a licensed physician.

7. When hexavalent chromium is present, provide medical examinations initially (within 30 days of initial assignment) and annually thereafter. Verify that the content of the medical examination meets the requirements of 29 CFR 1926.1126(i).

8. Provide all exam information and test results to the employees in writing within five days of receipt. Provide the Engineer with a letter report within 10 calendar days after the completion of each month signed by the IH that summarizes all examination and biological monitoring results.

9. For employees who are offered an examination and biological monitoring but choose not to participate or fail to respond, the Contractor shall provide documentation that the examination and monitoring were offered. This shall be in the form of a written declination signed by the employee or, for employees who are no longer on the payroll, a registered letter to the employee's last known address.

L. **Employee Training and Information**

1. Provide initial and annual refresher training for all employees who will be exposed to toxic metals above the respective Action Levels on any one day in a 12-month period. Include all of the elements of training that are required by the appropriate OSHA standard. If a standard for the metal does not exist, use the training requirements of 29 CFR 1926.62 as the basis of the training program highlighting the differences as appropriate for the other metals of concern.

2. When other contractors or employers are present at the site, notify them of the nature of the hazards of the work such as lead, noise, and solvent vapors. Advise them of the need to remain out of exposure areas, the warning signs and labeling system in effect, and the potential need for them to take measures to protect their employees in accordance with the applicable OSHA regulations.

M. **Signs** – As specified in section 3.02, post warning signs around areas or activities that might generate airborne emissions of toxic metals in excess of the Action

Levels.

N. **Parking Areas** - Provide a parking area for employee cars where they will not be contaminated with lead or other toxic metals. Relocate the parking area as necessary throughout the course of the project. Have the competent person confirm the suitability of the parking areas on a routine basis. Worker vehicles are not permitted in the regulated areas or within 100 feet of the containment enclosures.

O. **Recordkeeping**

1. Retain all records related to training, medical examinations, blood analysis, exposure monitoring, respirator fit testing, inspections by a competent person, and other related project documentation on file at the project site.

2. Provide the Engineer with letter reports signed by the IH which summarize all examination results that are indicative of worker exposures to (or which demonstrate proper protection from) toxic metals. In the case of lead, summarize the blood lead and ZPP results, indicate any observed trends, and identify worker intervention or removal provisions that were invoked based on the results. Provide summary reports of the test results prior to worker exposures to Project activities, periodic surveillance results, and results upon completion of site activities. Provide the Engineer with an original signed copy of each report within 10 calendar days after the end of each month.

3. Retain all records for the duration of employment plus 30 years.

3.02 ESTABLISHMENT OF REGULATED AREAS

A. Establish zones (regulated areas) around project locations or activities that might generate airborne emissions of lead, cadmium, chromium, inorganic arsenic, or other toxic metal in excess of the Action Level (e.g., paint removal and clean-up locations, dust collector staging areas, waste storage areas, etc.).

B. Use ropes, ribbons, tape, or other visible means to define the areas. Prohibit entrance into the regulated areas by unprotected or untrained personnel to ensure that they are not exposed to toxic metals from project activities.

C. Unless objective data is available for establishing the regulated areas, and the data is provided in writing, signed by the Contractor’s IH, and is accepted by the Engineer, conduct instrument monitoring in accordance with PD/Lead Method A3 of SSPC 95-06, to verify the adequacy of the regulated areas. Use a minimum of two low flow pumps at each regulated area location (e.g., one pump upwind and

one pump downwind). Unless otherwise directed by the Engineer, until the monitoring results are available to establish the perimeter of the regulated area, initially establish the boundary a minimum of 15 feet away from any equipment or operations that might generate airborne emissions of toxic metals.

D. Conduct the monitoring according to NIOSH Method 7082, or equivalent method for the other metals of concern, at the pre-established boundaries of the regulated area(s). Collect the samples throughout an entire work shift upon full commencement of the paint removal activities (at project-start-up).

E. If the monitoring confirms that project emissions at the established boundary do not exceed the Action Level as an eight hour TWA, establish the boundary at that location and discontinue monitoring.

F. If the monitoring shows that the emissions exceed the Action Level, modify and improve work practices and containment to provide better controls over the emissions, or reestablish the boundary at a different location if allowed by the Engineer. Repeat the monitoring in either case.

G. After the boundaries have been established through instrument monitoring, additional monitoring is not required unless directed by the Engineer or environmental consultant if suspect visible emissions occur, or there are changes to the work practices or equipment being used within the regulated areas. In these cases, conduct additional monitoring to confirm the adequacy of the control systems in place, and to verify the suitability of the existing boundary of the regulated area(s).

H. Verify that the exposure cassettes are only analyzed by laboratories which meet the qualification requirements established under Appendix A, and which have been approved by the Engineer. The laboratory must provide the results to the Contractor within three days of the field sampling. Provide the test results to the Engineer verbally within one day of receipt, and in writing within five working days thereafter.

I. Post caution signs at the entryways around each regulated area. If there is no regulation for the metal of concern, use the legend for the CAUTION sign as found in 29 CFR 1926.62 as the basis, and insert the name(s) of the other toxic metals. Sign requirements for lead, cadmium, and inorganic arsenic are as follows:

WARNING
LEAD WORK AREA
POISON
NO EATING OR SMOKING

DANGER, CADMIUM
CANCER HAZARD,
CAN CAUSE LUNG AND KIDNEY DISEASE,
AUTHORIZED PERSONNEL ONLY,
RESPIRATORS REQUIRED IN THIS AREA

DANGER
INORGANIC ARSENIC
CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING
RESPIRATOR REQUIRED

J. Use signs that are a minimum of 8 1/2 inches by 11 inches in size with black block lettering on a white, yellow, or orange background. Do not use caution ribbons as a substitute for signs.

K. Verify that all workers who enter the regulated area have had the proper training, blood analysis and medical examinations, and are wearing the required protective clothing and equipment. Prohibit eating, drinking, smoking, and chewing of food or tobacco products in any area where the exposures exceed the Action Level or where hexavalent chromium may be present.

3.03 CONTROL AND MONITORING OF RELEASES TO AIR, SOIL AND WATER

A. General

1. Conduct all activities so that spills or releases to the soil, water, sediment, or sewers do not occur. Comply with all applicable federal, state and local regulations for the protection of soils, groundwater and surface waters.

2. Have the competent person inspect the Work site on a daily basis for compliance with the requirements of this Section and the approved Environmental Protection Plan, and prepare a daily report or daily log of observations made. Maintain the information at the project site and make it available to the Engineer or environmental consultant for review at any time.

3. Initiate immediate corrective action, including the replacement of materials or equipment, or adjustments to work activities as necessary, to correct unacceptable emissions or releases. All equipment and vehicles must be repaired or replaced to prevent leaks to the environment.

4. Spill prevention and control measures must be implemented for vehicles and equipment that utilize diesel fuel, gasoline or other petroleum

products. Any spills of petroleum products to the environment must be reported to the NYSDEC Spill Hotline: 1-800-457-7362 and the National Response Center. Any spills to a storm drain, sewer system, wetland, body of water or waterway must also be reported to the US Coast Guard.

B. **Visible Emissions and Releases**

1. Clean the work area of all visible pre-existing construction material, rubbish, garbage and paint removal debris (i.e. spent abrasive, rust, paint chips, etc.) prior to installing the containment over any land mass. Areas to be cleaned include NYCDOT's right-of-way and adjacent areas as directed by the Engineer. The presence of new paint chips or surface preparation debris in these areas will be cause to examine the containment and work practices, and to correct all observed deficiencies. Upon completion of the project verify that the same locations and all staging areas are free of construction and paint removal debris.

2. Install water booms beneath and around the work area as appropriate and/or use boats with skimmers to control and collect unanticipated escapes of debris (see 3.04 J).

3. Have the competent person conduct observations of visible emissions and releases on an ongoing daily basis when dust-producing activities are underway, such as paint removal, clean up, waste handling, and containment dismantling or relocation. Conduct these assessments in accordance with PD/Lead Method A4 of SSPC 95-06 and SSPC-TU7. These assessments are in addition to those performed by the environmental consultant.

4. Visible emissions in excess of SSPC Guide 6, Level 1 are unacceptable. This involves emissions of a cumulative duration of greater than 1 percent of the workday, or greater than 36 seconds in an hour, or 9 seconds in any 15 minutes.

5. Releases or spills of dust and debris that have become deposited on surrounding property, structures, equipment or vehicles, and bodies of water are unacceptable. If unacceptable visible emissions or releases are observed, whether by the Contractor, Engineer and/or the environmental consultant:

   a) Immediately shut down the emission-producing operations and clean up visible deposits of debris on the unprotected ground, on the soil, in the water, around storm sewers or drains, or in areas where rain water could carry the debris into storm sewers or

drains. Pick up debris by hand and by HEPA vacuuming.

b) Change work practices, modify the containment, or take other appropriate corrective action as needed and as agreed upon by the environmental consultant, to prevent similar releases from occurring in the future.

c) Do not resume the emission-producing operations until the Engineer or environmental consultant has given permission to resume these operations.

6. In the event of a conflict between observations between the environmental consultant and the Contractor, the findings of the environmental consultant shall prevail.

7. Maintain written documentation of the results of the observations in a log book or other report form available to the Engineer or environmental consultant for review. Verbally report problems to the Engineer or environmental consultant on the same day they are observed.

C. **High Volume Ambient Air Monitoring**

1. The environmental consultant, on behalf of the Engineer, will utilize the high volume ambient air monitoring equipment provided by the Contractor. The purpose of the consultant monitoring is to confirm that unacceptable TSP-lead emissions are not generated during paint removal, containment cleaning operations, containment dismantling and other emission-producing activities that involve the disturbance of paint and lead-paint debris/wastes/dust. A minimum of four TSP high volume air monitors are required for each containment.

2. Do not conduct any work involving the disturbance or clean up of lead paint debris or move the containment unless the monitors are in place and operating.

3. Position the monitors at the locations and times as designated by the environmental consultant:

a) Monitor sitting will take into consideration the proximity of homes, businesses, and the general surrounding environment. The locations are likely to change as the work progresses across the bridge.

b) Move and set up the equipment to the designated locations. Put all monitors into position at the designated locations and ensure that

they are fully operational at least 30 minutes before the commencement of dust producing operations in order to allow enough time for the environmental consultant to install filters and make any necessary adjustments to the equipment.

c) Allow the monitors to remain operational for a minimum of 30 minutes after the completion of daily operations.

4. At the completion of each day's monitoring activities pick-up, transport and store monitors and associated equipment for the next use. If the monitors are to remain in position, provide for the necessary level of security.

5. Initiate the following action based on the TSP-lead results:

a) The background concentration for NYCDOT projects is established at $0.1\mu g/m^3$.

b) If TSP-lead levels, measured over 8 hours, are greater than $4.5\mu g/m^3$ minus 2 times the background concentration of $0.1\mu g/m^3$ on one day of dust-producing operations, assess all field operations undertaken on that day and initiate appropriate corrective action.

c) If TSP-lead levels, measured over 8 hours, are greater than $4.5\mu g/m^3$ minus 2 times the background concentration of $0.1\mu g/m^3$ at the same location on two days of dust-producing operations, suspend all dust-producing operations pending a full assessment and corrective action.

d) If the results of the monitoring are unacceptable, undertake the necessary corrective action within 24 hours of receipt of the results. Corrective action may include modifications to the paint removal or containment systems and work practices. Do not resume the emission-producing operations until the Engineer or environmental consultant has given permission to resume these operations.

D. **Real Time Particulate Monitoring**

1. The environmental consultant will conduct real time monitoring around the containment (e.g., seams and entryways) each day using a real-time aerosol monitor such as a Data Ram or hand-held Mini Ram. The monitoring is being conducted to evaluate the containment seams and entryways for particulate emissions that represent instantaneous increases over background of three times or more. Background values will be

established by taking readings in the same or similar locations while no operations are underway.

2. If unacceptable particulate releases are reported by the environmental consultant, in addition to cleaning the debris, change work practices, modify the containment, or take other appropriate corrective action as needed to prevent similar releases from occurring in the future. Do not resume the emission-producing operations until the Engineer or environmental consultant has given permission to resume these operations.

E. **Sensitive Natural Resources**

1. Sensitive natural resource areas may be located around the project. A sensitive natural resource includes any area capable of providing habitat for plant and animal species or capable of functioning to support environmental systems and maintain the City's environmental balance, such as bays, inlets, and wetlands. These areas also include all federal and state parkland, wetlands, tidal zones or other regulated natural areas.

2. If the project is located in a natural resource area, develop a site-specific habitat protection plan addressing the steps that will be taken to protect these ecologically sensitive areas from damage.

F. **Endangered Species and Species Protected by Federal Law**

1. Peregrine falcons (endangered), barn owls or red-tailed hawks (protected by Federal law) may be nesting on the bridge. Note that although these species may not be present on the bridge at the beginning of the project, they could show up at any time. If present, advise the Engineer and develop a site-specific plan for the acceptance by the Engineer, for the sequencing of paint removal operations to avoid disturbing nesting pairs.

2. Federal and State law permits peregrine falcon nests to be moved if the young have already fledged. Before moving any unoccupied nests, advise the Engineer and obtain a Federal United States Fish & Wildlife Service (USF&WS) permit and a NYSDEC depredation permit.

3. Barn owl and red-tailed hawk nests are generally occupied from the beginning of April until the end of July, with eggs laid in April. Peregrine falcon nests are generally occupied from March to July.

3.04 CONTAINMENT

A. General

1. Use a containment system that maintains the work area free of emissions of dust and debris in accordance with all provisions of this Specification.

2. Install and use a containment system for the project based on the paint removal methods that will be utilized.

3. Provide the containment system in compliance with SSPC Guide 6 guidelines and the requirements of this Specification as well as the FEIS.

4. The containment enclosure can not be partitioned to create smaller interior enclosures for performing the work. The entire containment is considered to be the active work area and the specified negative pressure and airflow must be maintained throughout the entire cross-section of the containment enclosure (airflow can not be directed or channeled within the containment enclosure by the use of barriers, partitions, baffle tarps, or other devices).

5. Have the competent person inspect the performance of the containment on a daily basis for compliance with this Section and the approved containment submittals, and prepare a daily report or daily log of observations made. Maintain the information at the project site and make it available to the Engineer or environmental consultant for review at any time.

6. All materials utilized in containment construction shall be fire-retardant. All materials shall possess a fire rating in accordance with all applicable federal, local and state agency, as well as passing U.L and NFPA test standards. With the submittals, provide proof that the materials are fire retardant.

B. Noise

1. Comply with the New York City Noise Control Code for construction equipment.

2. If construction activities will be performed outside of normal hours of operation (7AM to 6PM on weekdays), obtain special permits authorizing this activity. Provide a copy of the permit to the Engineer prior to commencing any operations outside of normal hours.

3. See Section 831 for additional information on noise reduction.

C. **Containment Drawings and Submittals**

1. Provide containment drawings, calculations, and assumptions, including ventilation criteria as detailed in Appendix A, signed and sealed by a New York State licensed Professional Engineer. Do not conduct any work until the drawings, calculations, and containment submittals have been reviewed and accepted by the Engineer and the NYCDOT Environmental Engineering Unit.

2. The containment drawings must include calculations for pressure losses, dust collector capacity, make-up air openings and airflow.

3. Provide catalog cut sheets, fan curves and equipment operating parameters for the dust collectors and filters.

D. **Certification of Containment Installation**

1. After each unique containment is installed, have the New York State licensed Professional Engineer responsible for the containment design, or a designee employed by the same firm and working under the direction of the design engineer, conduct a site inspection to verify that the containment system has been assembled as shown on the approved, signed and sealed drawings. Have the design engineer submit a letter to the Engineer attesting to the above. The Engineer must receive the letter before any paint removal work within the containment can begin.

2. If the containment is not installed in accordance with the design drawings, reinstall the containment, or issue supplemental calculations for the new design for Engineer review and acceptance in accordance with the original submittal requirements. Field changes will only be acceptable after submission and acceptance of supplemental calculations or design drawings.

E. **Containment Flooring System and Additional Collectors**

1. If the floor or ground beneath the structure being prepared serves as the base of the containment:

   a) Cover it with air and dust impenetrable materials such as tarpaulins.

   b) Prior to the installation of the containment floor, ensure that the work area has been cleaned of all rubbish, garbage and debris and

properly disposed. Do not remove any trees, bushes or shrubs.

c) As required, install a rigid material such as plywood over or under the ground tarpaulin in order to prevent any rips, tears or other penetrations from occurring in the ground tarpaulin. Maintain the materials throughout the project to avoid loosing debris through rips, tears, or breaks in the coverings.

2. If a suspended or elevated platform is constructed to serve as the base of the containment:

a) Cover rigid platform materials (e.g., plywood, metal, etc.) with multiple layers of flexible materials as necessary to create an air and dust impenetrable enclosure.

b) Cover flexible platform materials, such as those composed of a chain-link wire fencing with multiple layers of flexible materials to create an air and dust impenetrable enclosure. The flexible materials consist of a first layer of rubber-type membrane and a second layer of tarpaulin-type material.

c) Seal all holes and gaps at cable, hanger, or vertical pick-up intersections with the platform.

d) Verify that the platform and its components are designed and constructed to support at least four times its maximum intended load without failure plus a safety factor, with wire cables capable of supporting at least six times their maximum intended load without failure plus a safety factor. Provide all load calculations for design of the suspended platform systems. Strictly follow all applicable OSHA regulations regarding scaffolding and fall protection systems.

e) Provide ground covers around and beneath the containment area to capture inadvertent spills or leaks of debris. Extend the covers a minimum of 10 feet beyond the area covered by the containment. Increase this distance based on the height of the work above the ground as directed by the Engineer. Remove debris from the covers continuously and at the end of a work shift, or as directed by the Engineer.

3. Note the requirements in 3.06 C for the daily cleaning of the floor and for overall cleaning of the containment prior to moving or dismantling the enclosure.

F. **Containment Requirements for Removal Methods** – The minimum containment system requirements for the various method(s) of paint removal as follows:

1. Dry Abrasive Blast Cleaning – Class 1A
2. Vacuum Blast Cleaning – Class 4A
3. Wet Abrasive Blast Cleaning – Class 1W
4. Water Jetting – Class 2W
5. Power Tool Cleaning without Vacuum Shrouds – Class 1P
6. Power Tool Cleaning with Vacuum Shrouds – Class 3P
7. Hand Tool Cleaning – Class 3P
8. Chemical Stripping with Hand Removal – Class 3C
9. Chemical Stripping with Wet Removal – Class 2C

G. **Containment and Ventilation System Components** – The basic components that make up containment systems are defined below. The components are combined in Table 1 and in accordance with the requirements of SSPC Guide 6 to establish the requirements for each method of removal.

1. **Rigidity of Containment Materials**: Rigid containment materials consist of solid panels of plywood, aluminum, rigid metal, plastic, fiberglass, composites, or similar materials. Flexible materials consist of screens, tarps, drapes, plastic sheeting, or similar materials. Containment materials must be fire retardant, and new and unused when delivered to the project site. Maintain stored materials in a new condition until used in containment construction. Containment materials that become torn, ripped, or otherwise damaged during use, or show evidence of wear that may affect their ability to control emissions shall not be used for the construction of containment enclosures or in any other manner on the project.
2. **Permeability of Containment Materials**: The containment materials are identified as air impenetrable if they are impervious to dust or wind such as provided by rigid panels, coated solid tarps, or plastic sheeting. Air penetrable materials are those that are formed or woven to allow air flow. Water impermeable materials are those that are capable of containing and controlling water when wet methods of preparation are used. Chemical

resistant materials are those resistant to the specific chemical and solvent stripping solutions.

3. **Support Structure**: Rigid support structures consist of scaffolding and framing to which the containment materials are affixed to minimize movement of the containment cocoon. Flexible support structures are comprised of cables, chains, or similar systems to which the containment materials are affixed. Minimal support structures involve the cables or connections necessary to attach the material to the structure being prepared and/or to the ground.

4. **Containment Joints**: Fully sealed joints require that mating surfaces between the containment materials and the structure being prepared are completely sealed. Sealing measures include tape, caulk, Velcro, clamps, or other similar material capable of forming a continuous, impenetrable or impermeable seal. Partially sealed joints involve the mating of the materials to one another and to the structure being prepared with concern for the structural soundness of the joint, but without consideration for creating a continuous, impenetrable or impermeable seal.

5. **Entryway**: An airlock entryway involves a minimum of one stage that is fully sealed to the containment and which is maintained under negative pressure using the ventilation system of the containment. Resealable door entryways involve the use of flexible or rigid doors capable of being repeatedly opened and resealed. Sealing methods include the use of zippers, Velcro, clamps, or similar fasteners. The use of clamps to create "resealable doors" is not permitted. Overlapping door tarpaulin entryways consist of two or three overlapping door tarpaulins. Open seam entryways involve entrance into the containment through any open seam.

6. **Mechanical Ventilation**: The requirement for mechanical ventilation is to ensure that adequate air movement is achieved to reduce worker exposure to toxic metals to as low as feasible, and to enhance visibility. Design the system with proper exhaust ports or plenums, adequately sized ductwork, adequately sized discharge fans and air cleaning devices (dust collectors) and properly sized and distributed make-up air points. A minimum cross-draft airflow of 100 feet per minute (30.48 meters/min) or a down-draft airflow of 60 feet per minute (18.29 meters/minute) are required during all activities that disturb lead paint or debris within the containment. These activities include, but are not limited to, abrasive blasting, blow down, waste removal, cleaning of the containment and cleaning of surfaces in the containment. Increase these minimum airflows as required if unacceptable visibility or worker exposures to lead or other toxic metals occur. Verify through instrument monitoring that air flows meet or exceed design values initially and at least weekly thereafter. Document air flow measurements.

Natural ventilation does not require the use of mechanical equipment for moving dust and debris through the work area. It relies on natural air flow patterns, if any, through the containment.

7. **Negative Pressure**: If negative pressure is specified, verify its performance through instrument monitoring to achieve a minimum of 0.03 in. (0.08 cm) water column (W.C.) relative to ambient conditions during all activities that disturb lead paint, debris, grit or other lead-contaminated materials. This shall include, but not be limited to, abrasive blasting, containment cleaning, vacuuming, and blowdown within containment. In addition verify through visual assessments for the concave appearance of the containment enclosure.
8. **Exhaust Ventilation**: When mechanical ventilation systems are used, provide filtration of the exhaust air, otherwise airborne particulate from the containment will be exhausted directly into the surrounding air. Provide a filter that is at least 99.9% efficient in removing a mono-dispersed aerosol at 0.5 micrometers in diameter. For other requirements related to exhaust ventilation design and use requirements, see SSPC-Guide 16 and Item 6, Mechanical Ventilation and Item 7, Negative Pressure, described above.

H. **Maintenance of Existing Lighting Systems and Containment Lighting Requirements**

1. Maintain as fully operational throughout the project, all existing navigation and anti-collision lighting systems that are attached to the structure. If existing lighting will be concealed, install temporary lighting. Provide the lighting plan to the Engineer for approval in advance.

2. Make all efforts to maintain existing aerial, roadway, and parking lot lighting, or provide suitable substitutions as approved by the Engineer.

3. In accordance with SSPC-Guide 12, maintain light intensity inside containment, by natural or artificial means, at a minimum of 20 foot-candles (215 lux) on the surface throughout surface preparation and painting activities. Maintain a minimum of 50 foot-candles (538 lux) at the surface for inspection activities. Provide auxiliary lighting as necessary. Use explosion-proof lighting.

4. Increase lighting intensity when measurements by any involved party indicate that there is insufficient lighting for either surface preparation, painting, or inspection.

5. Comply with the lockout/tagout provisions of the following section.

I. **Lockout/Tagout of Existing Electrical Systems**

1. De-energize and lockout/tagout existing electrical systems located inside containment enclosures and in other work areas as appropriate.

2. The Contractor is responsible for performing all lockout/tagout in accordance with 29 CFR 1910.147 and 1910.333.

3. Coordinate all lockout/tagout activities with NYCDOT and the utilities.

J. **Protection of Drainage Systems**

1. Protect storm sewers and drains from the entrance of debris from project activities. Keep all protective systems clean and operational throughout the entire project. At the end of each shift, remove all visible debris from the protective devices or from areas where rain water could carry the debris into drains or storm sewers. Conduct more frequent cleaning as directed by the Engineer.

2. Identify the methods that will be used to route run-off from the existing deck drains through the containment enclosure. Do not close any bridge deck drains without the explicit approval of the Engineer.

K. **Work Over Water - Containment Restrictions**

1. When working over or near water, install a shield, suspended platform or other engineering control to prevent discharge of any debris or materials into the waterway. Use water booms to contain inadvertent spills or releases of dust and debris unless prohibited by navigation lanes. In these cases, have a boat available with a skimmer to collect fugitive materials. Remove all project-related dust and debris from the surface of the water or from sediment at the end of each shift at a minimum. Conduct more frequent cleaning, if directed by the Engineer.

2. Provide the Engineer and the appropriate authorities (e.g., Coast Guard) with the distance that the containment will extend below the bottom of the bridge (e.g., below the bottom chord) when operating in the navigation channel. Maintain this distance to the minimum required and approved.

3. Unless otherwise directed by the Engineer or the appropriate authorities, design the containment to allow it to be moved out of the navigation channel within 24 hours of notification that ships needing additional

clearance require passage.

4. Provide the Engineer and the appropriate authorities with a 24 hour telephone number and contacts for discussions regarding the containment system.

L. **Inclement Weather**

1. When threatening weather conditions exist or are forecast for the New York City Metropolitan Area, such as sustained winds or gusts of 30 mph (48 kilometers/hour) or more that could cause the release of waste material to the surrounding environment, stop all work activities and immediately clean up waste materials within the containment. The work area and project site must be secured of all loose materials and equipment.

2. Develop and submit to the Engineer for acceptance, an Emergency Demobilization Procedure for the securing of equipment and materials, and the removal of necessary containment materials in the event of, or the forecast of, inclement weather for the New York City Metropolitan Area. Inclement weather includes, but is not limited to, sustained wind speeds or gusts of 40 mph (64 kilometers/hour) or greater and heavy snow storms that will place unacceptable loads on the containment structure. Initiate the Emergency Demobilization Procedure under, or the forecast of, inclement weather conditions or as directed by the Engineer.

3.05 WASTE CLASSIFICATION, HANDLING, AND DISPOSAL

A. **General**

1. The Contractor and the NYCDOT are co-generators of the hazardous waste. The NYCDOT will provide the EPA identification number, but the Contractor is solely responsible for the aspects of waste management as defined in this Section.

2. Work under this Section consists of accumulating, packaging, labeling, loading, transporting, treating, and disposing of hazardous paint removal waste, non-hazardous construction debris, and waste water used for cleaning and washing the bridge and equipment prior to removal from the Work site.

3. For purposes of this Section, paint removal waste is defined as removed paint particles combined with the material used to remove the paint. This also includes abrasive grit material, recyclable or otherwise. The NYCDOT has declared all paint removal waste as hazardous, even if sampling and analysis indicate that hazardous thresholds are not exceeded.

Note that the existing coatings may contain toxic metals in addition to lead.

4. Recover all waste products generated during cleaning and painting work, including but not limited to rags, tape, and paint cans. Manage as non-hazardous /construction waste as described in 3.05 J, unless the items are soaked with paint and thinners. If the items are soaked with paint and thinners, handle them as a flammable hazardous waste.
5. Have the competent person inspect the waste handling and storage areas on a daily basis for compliance with this Section and the approved Waste Management Plan and prepare a daily report or daily log of observations made. Maintain the information at the project site and make it available to the Engineer or environmental consultant for review at any time.

B. **Items Provided by the Contractor**

1. Waste sampling, testing, and classification.

2. Waste packaging, handling, and secure storage.

3. Labeling of containers.

4. Procuring all necessary waste permits and licenses.

5. Arranging for the transportation and disposal of hazardous waste.

6. Arranging for the transportation and disposal of non-hazardous waste.

C. **Waste Sampling**

1. All paint removal waste streams are declared hazardous, but collect a minimum of four representative samples of each paint removal waste stream to identify the specific composition.

2. Collect a minimum of ½ pound of waste per sample, or approximately 8 oz per sample in the case of wastewater. Collect the wastewater sample only after the water has been filtered as specified later in this Section.

3. Collect the samples under the observation of the environmental consultant.

4. Collect the samples in accordance with EPA solid waste test methods SW-846, "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods." Use a random sampling technique to collect representative samples.

5. Complete the initial sampling of each waste stream immediately upon filling the first container, but do not allow waste to accumulate for longer than 30 days before sampling. After the representative samples are collected, send them immediately to the approved and NYS accredited laboratory for analysis.

6. Unless otherwise directed by the Engineer, or required by State regulations or the waste recycling or disposal facility, once each waste stream is sampled, tested, and classified, additional sampling and analysis are not required for subsequent shipments unless the waste stream changes.

E. **Waste Testing**

1. Only use laboratories which meet the qualification requirements of Appendix A, and which have been approved by the Engineer.

2. Direct the laboratory to test the solid waste in accordance with 40 CFR 261, Appendix II, Method 1311 Toxicity Characteristic Leaching Procedure (TCLP).

3. Analyze one sample from each waste stream by TCLP for all eight (8) metals, and other hazardous characteristics (e.g., corrosivity, reactivity, and ignitability) as required by the regulations. Conduct any additional tests required by the disposal facility. When chemical strippers are used, test all liquids and sludge. Include pH to determine corrosivity. Test chemical waste products for ignitability.

4. Retain the other samples for possible further analysis.

5. After filtration, test the wastewater for lead and any other analytical parameters required for disposal characterization by the POTW or disposal facility. Comply with disposal requirements in 3.05 K.

F. **Waste Classification**

1. **Hazardous Waste Classification**

a) All paint removal waste streams are classified as hazardous. Other waste streams are classified as hazardous if results from TCLP analysis indicate any one of the following eight metals in concentrations at or above limits established in 40 CFR 261:

Arsenic -	5.0 mg/L
Barium -	100.0 mg/L
Cadmium -	1.0 mg/L

Chromium -	5.0 mg/L
Lead -	5.0 mg/L
Mercury -	0.2 mg/L
Selenium -	1.0 mg/L
Silver -	5.0 mg/L

b) The above list includes only those elements typically associated with paints. Take into account and test for other substances that may be present which can cause debris to be classified as hazardous waste as defined in 40 CFR 261 (e.g., pH ≤ 2.0 or ≥ 12.5 resulting in corrosivity, or the characteristics of reactivity or ignitability).

c) The NYCDOT requires that paint removal waste, including waste that is generated through the use of steel abrasives and the steel abrasives, be handled, transported, and disposed of as hazardous waste, regardless of the TCLP test results.

d) Typical paint removal waste contains less than 2% by weight of organic material. The Contractor is specifically forewarned that disposal facilities perform spot tests and may refuse to accept wastes in excess of 2% organic content. Waste contaminated in this manner (e.g., with solvent waste) will be the Contractor's responsibility. All penalties and costs associated with the refusal of a disposal facility to accept waste not meeting its requirements will be borne by the Contractor.

2. **Non-hazardous Waste Classification**

a) A waste stream is classified as non-hazardous if the TCLP analysis indicates that the waste stream contains toxic metals or hazardous substances below the thresholds identified above which would classify it as hazardous, and it does not exhibit other characteristics of hazardous wastes.

b) The NYCDOT has classified paint removal waste as hazardous regardless of the test results.

3. **Laboratory Report**

a) Have the laboratory send the original test report directly to the Engineer no later than five (5) calendar days after the representative samples are submitted for testing, with a copy being sent by facsimile to the Engineer on the same day the original report is sent.

b) Include the following minimum information in each report: Identity of the waste stream(s) analyzed, the number of samples collected and tested, dates of sampling and testing, laboratory test procedures utilized, the names and signatures of the individuals collecting the samples and conducting the laboratory tests, an interpretation of the test results, and chain-of-custody forms.

G. **Waste Handling, Site Transportation and Spill Containment**

1. Comply with 40 CFR 262, State and City regulations for the on-site handling, packaging, and storage of all waste generated by the project.

2. Sequence the waste collection operations and identify storage locations in order to minimize the amount of container movement required throughout the course of the project. The Engineer must approve all waste storage locations. All hazardous waste must be stored on NYCDOT bridge property.

3. Provide secure waste storage areas (e.g., within a separate locked fenced-in area or other secure enclosure) to prevent access by the public or vandals, and placard the storage area in accordance with applicable regulations. Store the waste on a level surface. Any fencing used for the storage area must be a minimum of eight feet high.

4. Do not place hazardous waste on the unprotected ground (e.g., cover the ground with impermeable tarpaulins) and provide protection from the elements (e.g., rain and snow) and adequate shielding to prevent dispersion of the waste by wind or rain. Use pallets to store drums in areas prone to flooding from rain. Store drums containing liquid wastes (e.g., wastewater and spent solvents) on drip pads. Clean the drip pads on a periodic basis. Install secondary containment controls around all hazardous waste containers.

5. Store non-hazardous waste separately from hazardous waste. Do not co-mix hazardous waste with non-hazardous waste. Do not mix different types of hazardous waste together unless specifically approved by the Engineer and the disposal facility.

6. Arrange containers in the storage area for easy accessibility. Drums should be stored in rows of two with hazardous waste labels facing outward for inspection.

7. At the end of each working day at a minimum, collect and store the waste in drums or containers such that no waste is left exposed overnight. Cover

all containers immediately upon filling and confirm that all lids are closed except when filling. Verify that all labels remain intact. Hazardous waste must be transported from the points of generation to the secure storage area within a closed vehicle (i.e. box truck). Transportation of hazardous waste via fork lift, pick-up truck, flat bed or other similar type vehicles is not permitted.

8. Maintain all containers in good operating condition with all lids and closing mechanisms intact and operational to prevent the escape of debris by wind, spilling of the contents, or access by unauthorized personnel. Drums must have lids and rings in place. Drums stationed at the dust collectors, recyclers or other equipment must have drum lids in place and connected to the discharge nozzles of the equipment through the flanged opening on the drum lid. All hazardous waste and debris from paint removal operations must be stored in rigid containers. The use of fabric or plastic-type bags to collect hazardous waste, non-characterized waste or other regulated waste is prohibited. The connecting of fabric or plastic bags to discharge nozzles of equipment is prohibited.

9. Provide adequate shielding and protection of the surrounding area when transferring and/or conveying hazardous waste from one container to another to prevent dispersion or spills. Hazardous waste can only be transferred within a regulated, controlled and contained area. Immediately clean up spilled debris and return it to the storage containers. Use methods such as HEPA vacuuming that will prevent airborne dispersion of the material.

10. Do not fill any container or roll-off in excess of the capacity marked on the container.

11. Have the competent person, on a daily basis, inspect the drums or containers for corrosion, applicable and legible labels, proper covers, ground protection, and leaks, and record the results of all the inspections in a log book. Conduct additional inspections before containers are moved.

12. Verify that all waste is transported to the appropriate recycling or disposal facility within forty five (45) calendar days after waste is generated, or two weeks following demobilization of the site, whichever occurs first. Failure to comply with the aforementioned deadlines may result in the actions described under Basis of Payment.

13. Improper waste storage is cause for immediate suspension of the Work by the Engineer until appropriate corrective action is completed.

14. Train all personnel in the proper handling of hazardous waste at the Work site in accordance with 40 CFR 265.16 and 6 NYCRR 373. Include procedures in the Waste Handling Plan that will be followed in the event of a release or spill when handling the waste, including containment of the spill, notification of the NYCDOT Engineer, collection and containerizing of the waste, and a review of work practices and implementation of necessary changes to prevent a reoccurrence. Maintain all training records on-site. Workers responsible for handling hazardous wastes must have a current OSHA 24 hour HAZWOPER certification plus 8 hours of annual refresher training.

H. **Labeling of Containers**

1. Immediately label all containers of hazardous waste in accordance with 40 CFR 262, and 49 CFR 171-179. Complete missing information upon receipt of the testing results. Include the following minimum information:

   a) Hazardous Waste. Federal law prohibits improper disposal. If found, contact the nearest police, or public safety authority, or the U.S. Environmental Protection Agency.

   b) Proper DOT Shipping Name (e.g., RQ Hazardous Waste Solid, N.O.S. 9, NA 3077, PG III)

   c) Manifest Document No (when manifest is prepared; prior to shipping)

   d) Generator Name, Address, EPA ID No, and Contract No.
   ‘

   e) Date of Accumulation (accumulation date commences when hazardous waste is first placed into the container)

   f) EPA Waste No (e.g., Arsenic - D0004, Cadmium - D0006, Chromium - D0007, Lead - D008)

   g) Apply DOT identification labels based on DOT hazard class in accordance with 49 CFR 172.

2. Enter the above information using permanent marking material, printed in English, and displayed on a background of contrasting color unobscured by other labels or attachments. Locate labeling away from other markings that could substantially reduce its effectiveness.

3. Complete the labeling, marking, and placarding activities under the observation of the environmental consultant prior to storing or

transporting any container or rolloff.

I. **Waste Transportation and Disposal**

1. **Hazardous Waste**

a) Procure all necessary waste permits or licenses that are required by State or City regulations.

b) Prepare the Uniform Hazardous Waste Manifest for each shipment, including the LDR (Land Disposal Restriction) certification, which will be attached to the manifest. The Engineer will sign the Generator's Certification on the manifest and maintain copies of the original manifest and signed copies upon completion of disposal.

c) Arrange for the transportation of all hazardous waste by a licensed transporter in accordance with 40 CFR 263, 49 CFR 171-179, and State and City regulations. Verify that all waste is completely covered during transport.

d) The hazardous waste transporter is not permitted to stop enroute after the pick up of hazardous materials from the construction site.

e) Arrange for the recycling or disposal of all hazardous waste in accordance with 40 CFR 264, 40 CFR 268, and state regulations. Verify that only licensed recycling or Treatment, Storage, and Disposal (TSD) facilities are used.

f) Should any problems arise that would preclude the selected facility from accepting the waste, immediately notify the Engineer in writing of such situation. Identify and provide information on an alternate TSD that is properly licensed and acceptable to the NYCDOT, and arrange for disposal at such facility after having obtained written approval from the Engineer.

g) Provide a certification for each manifested shipment that the waste was accepted by the recycling or disposal facility, and properly treated and disposed. Comply with all of the manifesting, certification, and reporting requirements for hazardous waste in accordance with 40 CFR 262, 40 CFR 268 and State regulations, including certificates of final disposal for each shipment.

h) If the signed manifest is not received from the disposal facility within forty-five (45) days of shipment, as directed by the

Engineer, initiate the EPA Exception Report in accordance with 40 CFR 262.42, and take all steps necessary to locate the manifest and waste.

2. **Non-Hazardous Municipal/Construction Waste**

a) Procure all necessary waste permits or licenses that are required by State or City regulations.

b) Properly transport, and dispose of all non-hazardous municipal/construction waste.

c) Verify that waste is completely covered during transport.

d) If toxic metals or hazardous substances were detected during the laboratory testing, notify the disposal facility that such metals or materials are present in the waste.

e) Comply with additional City regulations as applicable.

f) Lead coated scrap steel shipped off-site for recycling must be properly wrapped and protected during transport to prevent paint chips discharging from the truck into the environment. Provide a letter from the recycling facility acknowledging the receipt of lead coated steel from the specific NYCDOT project site.

3. **Special Waste Requirements for Recycled Steel Grit**

a) When recycled steel abrasives are used, collect, handle, store, and transport the recycled steel abrasives, as hazardous waste. All waste generated from the recycled steel abrasives, including the recyclable steel abrasives, must also be treated as hazardous waste.

b) Manage the hazardous waste as per Section H (1) above.

4. **Waste Water Handling and Disposal**

a) Provide containers for the collection and retention of all waste water, including but not limited to the water used for bridge cleaning, hygiene purposes, laundering of clothing if done on site, cleanup activities, and water collected by compressed air moisture separators. Note that payment for the hygiene and laundering water is included under decontamination facilities for worker protection.

b) Filter visible paint chips and particulate from the water prior to placing it into the containers. Prior to disposal, test the water for total toxic metals and provide ample filtration (e.g., through a multi-stage filtration system ending in 5 microns or better if needed) until the water is not classified as hazardous. Conduct the necessary laboratory testing as described above.

c) Make disposal arrangements with the local publicly owned treatment works (POTW), sanitation company, or other appropriate permitted facility. Provide the Engineer with documentation signed by an official of the facility stating that the facility will accept the waste, and that the levels of any lead or other metals remaining in the water are acceptable. If the facility allows the filtered water to be placed into the sanitary sewer system, include such authorization in the letter. Provide a copy of the NYCDEP Discharge Permit for any discharge into the NYC sewer system. Waste water discharged to the New York City sewer system must be below the discharge standards established by the NYCDEP.

3.06 CLEANING AND CLEARANCE OF MATERIALS, EQUIPMENT, AND SURROUNDING SURFACES

A. General

1. Have the competent person inspect the Work site on a daily basis for compliance with the requirements of this Section and the approved Environmental Protection Plan, and prepare a daily report or daily log of observations made. Maintain the information at the project site and make it available to the Engineer or environmental consultant for review at any time.

B. Daily Cleaning of Work Site

1. Clean up paint chips, dust, materials and paint removal debris from the unprotected ground, the soil, on or in the water or sediment, from surfaces of all equipment, around storm sewers or drains, or in areas where rain water could carry the debris into storm sewers or drains. When cleaning pavement surfaces take special care to remove all waste material so as to prevent it from being redistributed into the air by traffic.

2. Clean up the debris at least once each shift or more frequently if directed by the Engineer or environmental consultant.

3. Conduct the cleaning by manually removing paint chips, washing and

wiping, and/or HEPA vacuuming.

4. Have the competent person document the results of the daily cleaning in a report or log.

C. **Cleaning of Containment**

1. When abrasive blast cleaning is employed, remove abrasive/paint debris from the containment floor in order to minimize excessive waste build up. Acceptable methods include the use of automatic waste conveyance systems or HEPA vacuums. If such ongoing methods of removal are not employed, conduct waste removal at a minimum every two hours or continuously, while abrasive blast cleaning is underway, to remove accumulations of waste, or as directed by the Engineer. Remove all abrasive/paint waste at the end of the shift, before new paint is applied, or before a prolonged work stoppage, such as for weather interruptions, or as directed by the Engineer.

2. When methods of paint removal other than abrasive blast cleaning are employed, conduct cleaning of the waste from within containment at the end of the shift, before new paint is applied, or before a prolonged work stoppage, such as for weather interruptions, or as directed by the Engineer.

3. Prior to moving the containment enclosure, clean the inside surfaces of the enclosure (walls, floors, ceiling, etc.) of dust and other spent material by vacuuming. Have the competent person conduct a visual inspection to verify that the surfaces are free of loose debris, dust, paint removal waste, grit, etc. prior to moving and document the results in the daily log or report. All scaffolding, platforms, floor sheathing must be removed prior to dismantling of containment tarps. Mechanical air ventilation must be maintained during all cleaning operations and must remain operational until the tarps are dismantled from the containments.

4. Prior to dismantling the containment, clean the inside surfaces to the extent that dust or debris are not dislodged when wiping a cloth across the surface. Have the competent person conduct the inspection and document the results in the daily log or report.

D. **Cleaning of Contractor Equipment and Materials**

1. Prior to removing equipment or reusable materials from the project site, remove all loose dust and debris from the surfaces to the satisfaction of the Engineer and environmental consultant.

2. Conduct the cleaning by manually removing paint chips, washing and wiping, and/or HEPA vacuuming.

3. Ductwork – Remove all accumulation of loosely held dust or debris from ductwork exterior by thoroughly vacuuming (using wet- or dry-powered HEPA vacuums), followed by wet washing as necessary. Clean the interior surface of ductwork using a low-pressure wash or air in conjunction with a system designed to capture dust washings, waste water and debris. After all visible, loose dust has been removed from inside the ductwork, seal the ends of each segment of duct using a minimum of double-wrapped, 6-mil polyethylene sheeting. Prior to transporting off site, the ductwork would be labeled "LEAD-CONTAMINATED."

4. Have the competent person conduct clearance tests by wiping a cloth across representative surfaces. If dust or debris is dislodged, conduct additional cleaning until the surfaces pass the clearance test. Report the results of the testing in the daily report or log.

5. NYCDOT, the engineer, environmental consultant or authorized representative may collect and analyze wipe samples from equipment to confirm effectiveness of cleaning. An acceptance criteria of <400 µg/sq ft will be used.

6. All dust collectors and recycling units must have all filters removed and disposed of as hazardous waste during the project as necessary and prior to equipment leaving the project site.

E. **Final Cleaning/Clearance of Surrounding Property and Structures**

1. After all Contractor equipment and materials have been removed, conduct a visual inspection and clean up of the project site and surrounding property. This includes all areas used by the Contractor (e.g., staging and equipment yards, shower and trailer areas, waste storage, etc.), and all surrounding property, structures, buildings, equipment, and surfaces located within 100 feet in each direction from the bridge. If project debris is observed to be present beyond 100 feet from the structure, expand the limits of the inspection and clean up, as directed by the Engineer.

2. Test the surface layer of bare soil beneath bridges and up to 100 feet from either side of the structure for total lead concentrations. If the concentration of total lead exceeds 400 ppm, remove the top two inches (not including vegetation) of topsoil and replace with clean soil and/or sod.

3. Remove all lead dust, spent abrasives or other paint removal media, paint

chips, solvents, materials of construction, fuel, and other litter. Clean up and remove the debris to the satisfaction of the Engineer and environmental consultant. This includes all visible debris and waste associated with bridge painting activities, even if the paint chips and abrasive waste are a pre-existing condition.

4. Clean the surrounding ground, equipment and other surfaces by manually removing paint chips, wet washing and wiping, and/or HEPA-vacuuming. The environmental consultant will be conducting visual cleanliness inspections and wiping a cloth across surfaces to verify that dust has been removed. Conduct additional cleaning as required, based on the results of these inspections.

5. Clean the surrounding water with the use of approved materials and equipment including but not limited to water booms and/or boats with skimmers, as directed by the Engineer.

6. Properly collect, handle, store, transport and dispose of all material and/or water along with all waste products generated during the Work including but not limited to rags, tape, disposable coveralls, and filters.

7. Prepare a letter report presenting the results of the inspections and tests conducted to verify the final cleanliness of the project site, surrounding property, waterways, equipment, buildings, and structures.

3.07 METHOD OF MEASUREMENT

A. **Worker Protection Plan –** The work of developing and implementing the Worker Protection Plan will be measured on a lump sum basis. This includes all medical testing and exposure monitoring sample analysis, and the furnishing, installation, maintenance, relocation, and removal of decontamination facilities. Included in the price is the cost of testing, storing, and disposing all hygiene water.

B. **Environmental Protection and Project Cleanup –** The work to develop and implement the environmental protection plans; supply and maintain the TSP-lead monitors; conduct visible emissions evaluations; and conduct routine and final project inspections and clean up will be measured on a lump sum basis.

C. **Containment System –** The work to design the containment/ventilation system, prepare all working drawings and submittals, and provide all labor, materials and equipment necessary to install, operate, and remove the containment systems, and provide all necessary lockout/tagout will be measured on a lump sum basis. On single projects where different types of containment are being used (e.g., unique designs for girder spans versus through truss, or one design for power tool work

versus blast cleaning), the Contractor may elect to provide a separate lump sum price for each type of containment system being employed.

D. **Disposal of Paint Removal Waste and Waste Water**

1. This work will be measured on a lump sum basis to include all paint removal waste and waste water (with the exception of hygiene water which is included under decontamination facilities) accumulated, packaged, stored, transported, treated, and disposed in accordance with the requirements of this Section.

2. The accumulation, packaging, storage, transportation, and disposal of waste other than paint removal waste or waste water (e.g., construction debris) is addressed in this specification, but it is not measured for payment. The cost for the handling and disposal of this waste is considered to be incidental to the surface preparation and painting items.

E. **Community Notification –** The work to develop and distribute pamphlets and participate in community meetings will be measured on a lump sum basis. The specific scope of Contractor involvement will be defined by the NYCDOT in the Special Provisions.

3.08 BASIS OF PAYMENT

A. **General –** The extent of the Contractor's compliance with all provisions of this specification (e.g., control of emissions and worker exposures, performance of the containment, timeliness of disposal, etc.) will be considered as relevant in any future determination of an award to the Contractor as the lowest responsible bidder for any project under the supervision of the NYCDOT.

B. **Worker Protection Plan**

1. The lump sum price bid shall include labor costs for the IH and the competent person, and the cost of all materials, personal protective equipment, respirators, other equipment, and fees necessary to complete the Work.

2. All costs related to worker monitoring and medical surveillance, including worker time and transportation for medical testing, the cost of providing results to employees and the Engineer, and the cost for collection of exposure monitoring samples, shall be included in the lump sum price. No payments shall be made for additional medical tests or laboratory analysis required due to an increase in the blood lead level of any employee(s) above the OSHA threshold of 40 μg/dl.

3. The lump sum price shall also include the cost of ground rental, utility and waste water disposal charges necessary to furnish, install, clean, maintain, relocate and remove the decontamination facilities as necessary to complete the Work.

4. Progress payments for the development and installation of the Worker Protection Plan will be computed in accordance with the following schedule:

   a) 15% of the lump sum price will be paid when work entailing a potential for lead exposure has begun, the work is in compliance with the Worker Protection Plan as determined by the Engineer, and the following items (if required) have been completed:

      (1) Certification of completion of lead training for supervisors and employees is provided to the Engineer.

      (2) Certification of completion of respirator training and documentation of respirator fit testing for all employees who will wear respirators is provided to the Engineer.

      (3) Documentation of purchase or mobilization of all required respirators and Personal Protective Equipment (PPE) is provided to the Engineer.

      (4) Documentation of purchase or mobilization of decontamination facilities is provided to the Engineer.

      (5) Documentation of initial medical testing and a summary of the results is provided to employees and the Engineer.

      (6) Documentation of initial exposure monitoring and a summary of the results are provided to employees and the Engineer.

      (7) Warning signs are posted in exposure areas.

   b) 75% of the lump sum price will be paid in proportional amounts over the duration of Work, based on the percentage of the work completed.

      (1) The Engineer will determine a daily rate of payment by dividing 75% of the lump sum amount bid for the Worker Protection Plan by the total number of workdays, as shown in the Contractor’s schedule, without regard to any extension

of time.

(2) At any time, the Engineer may request the Contractor to submit a revised schedule that reflects the actual progress of the Work. Failure to submit a revised schedule upon request will result in termination of the progress payments.

(3) No payments will be made under this item for each calendar day during which there are substantial deficiencies in compliance, as determined by the Engineer. The amount of such calendar day non-payment(s) will be deducted from the next progress payment.

(4) 10% of the lump sum price will be paid when the exit medical exams have been offered as required and results provided to employees and the Engineer, the final monthly report has been received, all work which entails a potential for lead exposure has been demobilized, and all equipment associated with such operations has been removed from the project site.

C. **Environmental Protection and Project Cleanup**

1. The lump sum price bid shall include the cost for developing and implementing the environmental protection plans; supplying, setting up and maintaining the TSP-lead monitors including power, conducting visible emissions evaluations, correcting emissions as required, and conducting routine and final project inspections and clean up.

2. Prior to the beginning of any Work, the Contractor will supply the Engineer with an initial estimate of workdays required to complete environmental protection and cleanup activities. This initial estimate will not be considered final. The Engineer may request a revised estimate at any time during the progress of the Work.

3. Progress payments will be made. They will be based upon the number of workdays required to complete all of the dust producing operations such as abrasive blast cleaning or other paint removal, containment moving and demobilization, and project cleanup. Monthly payments will be made based on the percentage of work completed.

D. **Containment System**

1. The lump sum price bid shall include the cost for preparing the containment/ventilation system design, working drawings, and all labor,

materials and equipment necessary to install, operate, and remove the containment systems. As directed by the Pay Items, provide a separate price for various types of containment design used on unique sections of the bridge (e.g., girder approaches versus through truss), or for unique methods of paint removal (containment for power tool cleaning versus abrasive blast cleaning).

2. All Work shall be done in a manner satisfactory to the Engineer. Payment for the assessment and clean up of emissions and releases, and final project cleanup, are addressed above in the Environmental Protection and Project Cleanup item.

3. Prior to the beginning of any work, the Contractor will supply the Engineer with an initial estimate of workdays required to complete all of the paint removal and clean up work involving the use of containment(s). This initial estimate will not be considered final. The Engineer may request a revised estimate at any time during the progress of the Work.

4. Progress payments will be made. They will be based upon percentage of completion. The percentage of the total containment cost(s) represented by each section of the bridge (e.g., each span) will be established in advance, and the lump sum price(s) divided accordingly. A total of 60% of the proportional containment amount(s) will be issued when the last containment in the given section (e.g., span) is erected. The remaining 40% of the proportional amount will be issued when the last containment is removed from the section.

5. Payment amounts will be deducted for each calendar day during which there are substantial deficiencies in compliance with the requirements of this specification, as determined by the Engineer. Substantial deficiencies are defined as a situation in which either of the following are true:

   a) A visible emission is observed which indicates failure to perform “in reasonably close conformity” to the specification requirements, and the visible emission is for a similar cause as a previous visible emission that required work to be stopped and corrective action taken.

   b) Violations of TSP-lead criteria occur.

6. Payment deductions under this item will be taken when the last containment on a given bridge section has been removed. At that time, the total deduction will be calculated as follows:

   (Proportional Lump Sum Price for Bridge Segment/Actual No. of

Workdays Required to Complete the Segment) x (No. of Days with Substantial Deficiencies)

This amount will be deducted from the final monies due to the Contractor for the given bridge section.

7. Final payment will not be made until verification that all Work has been performed to the satisfaction of the Engineer.

E. **Disposal of Paint Removal Waste and Waste Water**

1. The lump sum price for the disposal of paint removal waste and waste water used for cleaning the bridge and equipment shall include the cost of all labor, materials, equipment, sampling, testing, and fees necessary to complete the Work. The cost for the handling, testing, and disposal of hygiene water is included in the cost for the decontamination facilities.

2. The lump sum price shall also include the following fees which are the responsibility of the Contractor:

   a) Special Assessment on Generation, Treatment or Disposal of Hazardous Waste in New York State. The Contractor shall pay the fee to the NYS Department of Taxation and Finance on a quarterly basis within 20 days after the end of each quarter. The fee will be based on actual tons of hazardous waste per quarter. The Contractor shall be responsible for all interest and penalties associated with late or non-payment of taxes.

   b) Hazardous Waste Fee (Generator Fee) – The Contractor shall pay the fee to New York State Department of Environmental Conservation on an annual basis (once a year). The fee is based on the amount of hazardous waste generated per year. The Contractor shall be responsible for all interest and penalties associated with late or non-payment of fees.

   c) Hazardous Waste Regulatory Surcharge Fee – The Contractor shall pay the fee to the New York State Department of Environmental Conservation on an annual basis (once a year). The fee is based on the amount of hazardous waste generated per year. The Contractor shall be responsible for all interest and penalties associated with late or non-payment of fees.

   d) The Contractor shall contact the NYS Department of Taxation and Finance and NYS Department of Environmental Conservation for proper procedures and forms for payment.

3. If the NYCDOT is fined or penalized as a result of the Contractor's performance or lack thereof on this item, in addition to other remedies the NYCDOT may possess, said fine or penalty will be deducted from the Contractor's payments on this item.

4. Progress payments will be made based on the percentage of project completion at a maximum of 10% completion intervals. Payment will be issued after the waste for the given interval has been shipped and the signed manifest is returned. For example, if 10% of the project has been completed, but none of the waste has been shipped and/or the manifests were not returned, payment for 10% of the waste will not be issued at that time.

F. **Community Notification** – Payment will be made on a lump sum basis to cover the cost of furnishing all labor and materials to develop and distribute pamphlets and participate in community meetings as directed by the NYCDOT.

G. **Pay Items** – Payment will be made under the following items:

Item No	**Item**	**Pay Unit**
XXX.10	Worker Protection	Lump Sum
XXX.20	Environmental Protection and Project Cleanup	Lump Sum (for each Structure)
XXX.30NNNN	Containment System(s)	Lump Sum (for each designated type)
XXX.40	Treatment and Disposal of Paint Removal Waste and Waste Water	Lump Sum
XXX.50	Community Notification	Lump Sum

APPENDIX A – SUBMITTALS

A.01 GENERAL

A. This Appendix identifies the plans, programs, and documentation required prior to mobilization on site, at the start of construction, and during the construction phase.

A.02 PRE-CONSTRUCTION SUBMITTALS

A. **Submittal Schedule and Engineer Acceptance**

1. Submit the following plans and programs to the Engineer for review and acceptance a minimum of 30 days prior to mobilization at the project site. The Contractor shall not begin any paint removal Work until the Engineer has accepted the submittals.

2. Do not construe Engineer acceptance of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Acceptance of the programs does not relieve the Contractor from the responsibility to conduct the Work in strict accordance with the requirements of Federal, State, or City regulations and this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

B. **Project Schedule** – Provide the Engineer with an initial estimate of the workdays required to complete each phase of the project (e.g., mobilization, paint removal, paint application, and demobilization). Include the estimated number of workdays each month when lead exposures are anticipated.

C. **Qualifications, Experience, and Certifications** – Provide written qualification, experience, and certification information for the following:

1. Contractor – Provide proof of SSPC QP-1 and QP-2 certifications.

2. Provide evidence that the laboratories have two certifications. One certification must be from the New York State Environmental Laboratory Approval Program (ELAP) in the appropriate category. The second certification must be from either the American Industrial Hygiene Association (AIHA) or Environmental Protection Agency (EPA) in the appropriate category:

MEDIA	CERTIFICATION 1 (mandatory)	CERTIFICATION 2 (One of the following)		
	NYSELAP category	AIHA (IHLAP) category	AIHA (ELLAP) category	EPA (NLLAP) category
Worker or Regulated Area	Air & Emissions - Lead, Total	Metals	Air	Air
Hi-volume Air	Air & Emissions - Lead, Total	N/A	N/A	N/A
Paint Chip	Solid and Hazardous Waste - Lead in Paint	N/A	Paint	Paint
Settled Dust	Solid and Hazardous Waste - Lead in Dust Wipes	N/A	Dust	Dust
Soil	Solid and Hazardous Waste - Lead, Total	N/A	Soil	Soil
TCLP	Solid and Hazardous Waste - TCLP	N/A	N/A	N/A

3. Laboratory for blood lead analysis – Provide the name, address, contact person, and proof that the laboratory conducting the worker blood lead analysis is approved by OSHA and the NYS DOH. A current list of approved labs may be obtained from the OSHA Technical Center at (801) 487-0267, or at the following address:

OSHA Technical Center
P.O. Box 65200
Salt Lake City, UT 84165-0200

4. Industrial Hygienist (IH) - provide the name, experience, and qualifications of the IH who will be reviewing, approving and sealing the site-specific Worker Protection Plan. The IH must meet one or more of the following qualifications:

   a) Current certification by the American Board of Industrial Hygiene (Certified Industrial Hygienist - CIH).

   b) A Bachelor's Degree in engineering, chemistry, physics, biological sciences, industrial hygiene, toxicology, the environmental sciences or a related field, and at least three years of documented full-time work as an IH, including field and sampling experience.

c) A Master's Degree in one of the above fields, and at least two years of documented full-time work as an IH, including field and sampling experience.

5. Competent Person, IH, supervisors, and foremen – Provide proof that the competent person, IH, and all project superintendents and foremen, have successfully completed the SSPC C3, Competent Person and Supervisor training, with refresher training completed within the last 12 months, as well as an NYCDOT-approved course that addresses the procedures and documentation specific to NYCDOT projects. OSHA 40 hour HAZWOPER certification plus 8 hours of annual refresher training is required for the competent person/supervisor responsible for managing or handling hazardous waste. An OSHA 24 hour HAZWOPER certification plus 8 hours of annual refresher training is required for workers who will be handling hazardous waste.

6. Visible Emission Observers – Provide evidence that personnel performing visible emissions evaluations have been trained and certified as a Method 9 Opacity observer.

D. **Contractor Chain of Command**

1. Submit a listing of key Contractor personnel, including names and relative positions, addresses, and telephone and pager numbers.

2. Include the names and telephone/pager numbers for contact persons who are available on a 24-hour basis in the event of emergencies.

E. **Worker Protection Plan**

1. Submit two copies of a written Worker Protection Plan to the Engineer for review and acceptance. The Worker Protection Plan must provide for the protection of Contractor workers from all project hazards including but not limited to fall protection, confined space (if applicable), lock out/tag out, hearing and eye protection, and exposure to hazardous materials or conditions.

2. Include as part of the plan, or in a separate submittal, a binder containing MSDS for all materials that will be used on the Project site. If all MSDS are not available at the pre-construction stage, provide the MSDS before using the product on site.

3. Address as part of the Worker Protection Plan, or in a separate document, the personal protective equipment and hygiene practices that will be

invoked to protect workers from exposure to pigeon droppings in accordance with NYSDOT Safety Bulletin SB-94-4.

4. The Worker Protection Plan must be a project-specific program, prepared under the direction of, and signed by, an Industrial Hygienist (IH).

5. Address worker protection from lead in strict accordance with 29 CFR 1926.62 and the requirements of this Specification, as well as from other toxic metals in the paint (e.g., 29 CFR 1926.1126 for hexavalent chromium, 29 CFR 1926.1127 for cadmium, and 29 CFR 1926.1118 for inorganic arsenic). When toxic metals are present in the paint for which OSHA has not developed a comprehensive health and safety standard, include provisions to assure that the workers will not be exposed above the Threshold Limit Values (TLVs) established for the metal as identified in 29 CFR 1926.55. In the event of a conflict between the requirements of this specification and an OSHA standard, follow the most restrictive requirement.

6. Address the requirements of 29 CFR 1926.62, this specification, and other applicable Federal or State regulations in the Worker Protection Plan. A Worker Protection Plan is required any time that exposures to lead or other toxic metals exceed the Action Level. These elements of the Worker Protection Plan include, but are not limited to, the following:

   a) A description of the Contractor's lead health and safety organization, including the responsibilities and qualifications of the IH and the competent person.

   b) A description of arrangements for ensuring that subcontractors, if any, will comply with the Worker Protection Plan.

   c) A description of each activity which will entail a risk for lead exposure.

   d) Descriptions of the engineering, administrative and work practice controls that will be used to reduce exposure. As required by 29CFR1926.62, all feasible engineering, administrative and work practice controls must be implemented before considering the use of respirators to reduce exposure.

   e) A respiratory protection program in compliance with 29 CFR 1910.134 including commitments to provide the necessary fit testing, respirator training, and medical evaluations. When lead is present, include the provisions of 29 CFR 1926.62. When hexavalent chromium is present, include 29 CFR 1926.1126. When

cadmium is present, include 29 CFR 1926.1127. When inorganic arsenic is present, include 29 CFR 1926.1118. Address the selection, use, maintenance and inspection of respirators, and qualifications for respirator users.

f) A description of the Personal Protective equipment (PPE) to be provided, and plans for regular laundering or replacement of protective clothing.

Provide the name, address, and qualifications of the launderer, if one will be used, for the cleaning of reusable clothing. Provide a letter from the laundry indicating that it is permitted to handle clothing contaminated with lead and/or the other toxic metals of concern.

g) A description of the hygiene practices the employees will be required to follow, and the procedures that will be implemented for the proper storage, testing, and disposal of hygiene and laundry wash water. Include a description, floor plan, and proposed number of decontamination facilities and hand wash stations that will be provided.

h) A description of the Contractor's medical surveillance and removal program, including plans for notifying employees and the Engineer of results. This description shall include the name and address of the clinic(s) where testing will be performed, and of the OSHA-approved laboratory where blood samples will be analyzed.

i) Plans for worker and supervisor lead training.

j) An initial assessment of anticipated exposure level(s), including any relevant historical exposure monitoring data.

k) Plans for performing exposure monitoring, and for notifying employees and the Engineer of results.

l) Plans for posting warning signs in high exposure areas.

m) Plans for regular inspections of the jobsite by the IH and the competent person. The IH shall inspect the site at least monthly and the competent person at least daily.

n) Provisions for providing parking area(s) for worker's cars where they will not be exposed to lead.

o) Plans for updating the Worker Protection Plan.

p) Plans for keeping and maintaining the records, and issuing monthly summary reports.

q) Include the name of the competent person who will be making daily inspections of project activities to ensure compliance with the program, and the signature of the IH responsible for the development of the Plan.

7. Verify that any Subcontractors working for the Contractor are included in the program or in a separate program which meets the requirements of this Specification. If Subcontractors are operating under a separate program, include the program with the submittals.

8. Include statements that the Contractor will provide NYCDOT employees, NYCDOT Agents (such as REI Consultants engaged in inspection activities, and employees of the environmental monitoring firm), with the same OSHA related equipment and facilities that are provided to the Contractor and sub-contractor personnel. These include:

a) Respiratory protection including cleaning and maintenance, and work areas to wash faces and respirator face piece. NYCDOT employees or Agents are responsible for assuring that all of their personnel have the necessary medical surveillance, are qualified to wear the respirators, and have been properly fit tested.

b) Protective work clothing including laundering or disposal.

c) Clean change areas including separated storage facilities for street and work clothes.

d) Hand washing facilities per 29 CFR 1926.51.

e) Shower facilities per 29 CFR 1926.51.

9. Review the Worker Protection Plan at least annually during the portion(s) of the Project which involve the disturbance of toxic metals. Revise and update as necessary to comply with any newly issued Federal, State or local regulations or revisions to existing regulations. Verify that the IH signs off on all reviews and revisions.

10. Submit a letter to the Engineer if it is proposed that objective data, rather than monitoring, will be used to prove that exposures from a given activity cannot exceed the Action Level for lead or other metals contained in the

coating. Provide the objective data in writing, signed by the Contractor's IH in strict accordance with the requirements of 29CFR1926.62 (d)(3) and 29 CFR 1926.1126(k)(3). The Contractor can rely upon this data in lieu of monitoring only upon acceptance by the Engineer.

F. **Environmental Protection Plan** – Submit an Environmental Protection Plan to the Engineer. The plan shall include but not be limited to, the following elements:

1. Assessment of Visible Emissions and Releases

   a) Provide a written program for the observation of visible emissions during Project activities. Note that these inspections by the Contractor are in addition to the observations that will be made by the Engineer or environmental consultant.

   b) Visual assessments of emissions is required on a continuous basis while dust producing operations are underway. Include the ~~frequency and~~ methods of observation and inspection that will be made, and areas or work activities that will be observed.

   c) Include a statement that the Contractor will shut down operations, adjust work practices, modify containment and take other steps as necessary to comply with the results of the visible emissions assessments as directed by the Engineer and/or the environmental consultant.

2. Establishment of Regulated Areas - Provide written procedures in accordance with the requirements of Part 3 of this Specification for the instrument monitoring of airborne exposures surrounding project activities, and the establishment of visible barriers (regulated areas) to control the access of personnel within the exposure zones.

3. Ambient Air Monitoring

   a) Provide a written description of the TSP-lead high volume ambient air monitoring equipment the Contractor will provide for the Work. Include a description of the power that will be provided to operate the units. Provide catalog cut sheets for the monitors and power generators (if used).

   b) Provide a written description of the maintenance and security measures that will be taken to protect the monitoring equipment (i.e., full time guard, removal and reinstallation of the equipment each day, etc.). Describe the provisions made for setting up and

removing (or securing) the monitors each day, as stipulated in this Section.

c) The environmental consultant will also be conducting real time monitoring (using their own equipment) to evaluate airborne particulate levels at various locations such as the containment seals and entryways.

d) Include a statement that the Contractor will shut down operations, adjust work practices, modify containment and take other steps as necessary to comply with the results of the high volume or real time monitoring as directed by the Engineer and/or the environmental consultant.

4. Evaluations of Ground (Soil), Equipment, Structures and Other Surfaces

a) Provide a written program for the visual inspection of the ground, soil, equipment, and other surfaces beneath and around the project site for the presence of project dust and debris. Include the frequency of the inspections, and the inspection procedures that will be followed both during the Work and upon completion of project activities. Note that these inspections by the Contractor are in addition to the observations that will be made by the Engineer or environmental consultant.

5. Water and Sediment Evaluations

a) Provide a written program for the visual inspection of the water and sediment beneath and around the project site for the presence of project dust and debris. Include the frequency of the inspections, and the inspection procedures that will be followed both during the Work and upon completion of project activities. Note that these inspections by the Contractor are in addition to the observations that will be made by the Engineer or environmental consultant.

6. Cleaning/Clearance Plans

a) Provide a written program identifying the procedures, methods, equipment, and materials that will be used to conduct daily and final cleanup of project dust and debris. Include a description of the cleanliness examinations that will be made by the competent person (e.g., both visual examinations and more detailed inspections involving wiping the surfaces as described in Section 3.06). Include provisions for recleaning equipment that fails wipe

tests (<400 µg/sq ft) that may be conducted by the environmental consultant.

b) Indicate that these inspections are conducted to assure that the work site and surrounding equipment, property, structures, ground, soil, water, sediment, and other surfaces have been properly cleaned and are free of visible paint chips, blasting material, or other debris in compliance with this Section. Cleaning is required routinely each day and upon completion of all project activities.

c) When wet wiping or washing is employed, identify the solutions proposed for cleaning the surfaces and equipment.

7. Sensitive Natural Resources and Endangered or Protected Species

a) The NYCDOT will stipulate whether sensitive natural resource areas are located around the project. If the project is located in a natural resource area, develop a site-specific Habitat Protection Plan addressing the steps that will be taken to protect these sensitive ecological areas from damage.

b) The NYCDOT will advise whether peregrine falcons, barn owls or red-tailed hawks are nesting on the bridge. If present, develop a site-specific plan for the sequencing of paint removal operations to avoid disturbing nesting pairs, including obtaining the required Federal USF&WS and NYSDEC permits if it is proposed that unoccupied peregrine falcon nests be moved.

G. **Spill Response Plan**

1. Develop and implement a Spill Response Plan to control and clean up spills or dispersions of deteriorated paint chip material, and/or abrasive blast material.

2. Specifically identify the procedures that will be used to comply with the following steps:

a) Containment of the breach.

b) Immediate notification of the NYCDOT Engineer and, as directed by the Engineer, other agencies such as the Coast Guard or the New York State Department of Environmental Conservation Spill Bureau.

c) Collection and removal of the spilled material by washing and

wiping and/or HEPA vacuuming.

d) Visual inspections to confirm complete removal of the material.

e) Changes to work practices and/or equipment and material used to prevent a reoccurrence.

H. **Noise Permits** – If work will be performed outside of the hours 7AM to 6PM on weekdays, obtain a permit authorizing these activities, and provide the Engineer with a copy.

I. **Containment Plans and Drawings** – Provide six (6) complete sets of detailed working drawing(s) of each containment system proposed for use on the structure. The drawings shall be prepared and stamped by a registered, licensed Professional Engineer. No paint removal work is allowed to begin until the drawings have been reviewed and accepted by the Engineer.

1. Provide plan and elevation views of the containment enclosure in relation to the bridge structure.

2. A design analysis of the loads on the bridge due to the containment enclosure including: maximum dead and live loads of the enclosure, the workers, blast abrasive, and equipment; maximum allowable load for the floor and working platform; wind loads imposed on the structure by the enclosure; and maximum wind velocity that the containment enclosure is designed to withstand.

3. If the containment system is supported by the bridge, the working drawing submittal shall include certification by the Professional Engineer that the loads imposed do not cause the overall stress level of any element of the bridge to exceed the Operating Allowable Stresses defined in AASHTO Manual for Maintenance Inspection of Bridges (current edition).

4. The analysis shall account for all loads on the structure, including the enclosure dead load, worker live load, blast abrasive load, equipment load, wind load, structure dead load, and live load plus the impact. The highway live load used for analysis purposes shall be either a HS20 truck or equivalent lane loading, whichever is greater, unless a different highway live load is shown on the plans.

   Except as noted, the analysis shall use the loadings and design assumptions in the NYSDOT Standard Specifications for Highway Bridges.

5. Provide all data, calculations, and assumptions used for the design of the

containment and ventilation system. Provide air make-up locations, the location(s) of the exhaust ductwork, and the type and location of dust collector(s) that will be employed. Provide manufacturer's data sheets, equipment weights, and airflow capacities of the equipment.

6. Provide a description of the type of containment material(s) used for the walls and ceiling, and the type of flooring system or working platform employed. If a barge or another type of floating platform is used, include details regarding its construction, such as materials and dimensions, how the platform will be tied-off, how the debris will be collected and off-loaded, etc.

7. Provide technical data sheets, specification sheets, any other information needed to thoroughly describe the materials proposed for use.

8. Identify the methods by which the containment enclosure will be supported or attached to the bridge (e.g., rollers, clamps). Welding, bolting, or similar connections will not be allowed.

9. Identify the methods that will be used to seal the joints (seams) formed when fabricating the containment enclosure, and the method that will be used to seal the mating joints between the containment enclosure and the bridge structure.

10. Identify the method that will be used to seal the entryway.
11. Provide a description of how the drainage run-off from existing deck drains will be routed through the enclosure.

12. Provide the plans for maintaining the operation of any existing equipment or bridge facilities during the Work (e.g., navigation, anti-collision, aerial, roadway, and parking lot lighting).

13. Provide the type, size, and configuration of auxiliary lighting that will be provided for inside the containment enclosure.

14. Provide information on any temporary heating units proposed for use, fuel to be used and the safety measures to be employed for heater use and fuel storage.

15. Describe the methods that will be used to provide worker access to the enclosure (personal lifts, scaffolds, etc.) and the procedures and equipment that will be used to protect workers from falls.

16. Provide details on how the use of the containment enclosure will be coordinated with the maintenance and protection of traffic.

Encroachments onto roadways, and clearances over waterways and railroads shall be clearly identified. Structures that span a navigable waterway may be subject to regulation by the U.S. Coast Guard, the U.S. Army-Corps of Engineers, the N.Y.S. Thruway Authority – Office of Canals, and the N.Y.S. Dept. of Environmental Conservation.

17. Provide details on how the containment enclosure is assembled and disassembled, and moved to a new location on the structure as surface preparation work progresses. Indicate how the dust collector will be included in the containment enclosure. All other pertinent details relating to the containment enclosure shall be included with the working drawings as notes, or as written narrative.

18. Describe the provisions made for moving the containment out of navigation lanes when working over active waterways.

19. Describe the provisions made for moving or lowering the containment in the event of inclement weather.

20. Identify the methods that will be used to verify adequate air flow characteristics and negative pressure within containment.

21. Describe the containment inspection and cleaning procedures that will be undertaken.

22. Include any other information needed to thoroughly describe the containment plan.

J. **Emergency Containment Demobilization Plan**

1. Provide a detailed plan for dropping the containment upon notification of inclement weather, including but not limited to conditions such as sustained wind speeds or gusts of 40 mph (64 kilometers/hour) or greater or heavy snow.

2. Include the methods and procedures that will be followed to assure that:

   a) all equipment and tools are secured,

   b) the containment is cleaned of loose dust and debris,

   c) all containment system roof and wall enclosure elements that could contribute to adding wind load to the bridge structure are removed or lowered (excluding containment framing), and

d) snow and ice are removed from the containment routinely, as well as under storm conditions.

K. **Lockout/Tagout Plan**

1. Provide the procedures in accordance with 29 CFR 1910.147 and 1910.333 that will be followed for lockout/tagout of existing electrical utilities within containment or other work areas as appropriate.

2. Include provisions for coordinating lock-out/tag-out activities with NYCDOT and the Utilities.

L. **Waste Management Plan**

1. **Waste Handling, Storage, and Disposal**

a) Provide the procedures that will be followed for the collection of random and representative samples of the waste for sampling and testing, and the testing and analysis procedures that will be used to characterize the waste before shipping.

b) Provide procedures for the site handling, storage, container inspection, packaging, labeling, manifesting, transporting, and disposal of the waste. Include a written containment plan for adequately shielding and protecting the surrounding area when transferring and/or conveying hazardous waste from one container to another to prevent any dispersion or spills.

c) Provide a detailed contingency plan that addresses worker training and the notification, containment, clean up, and reporting that will be undertaken in the event of a spill during the jobsite handling and transportation of the waste.

2. **Hazardous Waste Transportation**

a) Submit evidence that each proposed hazardous waste transporter has a 6 NYCRR Part 364 Waste Transporter Permit.

b) If it is proposed that the transportation pass through other states, provide evidence that the transporter complies with the applicable laws, codes, rules and regulations of the respective states.

3. **Hazardous Waste Disposal**

a) Provide the name, address, license or permit number,

qualifications, and contact person of each proposed legally permitted hazardous waste disposal facility that will be used.

b) Advise each proposed recycling or waste disposal facility that paint removal waste will be generated (e.g., abrasive/paint debris), and identify the metals that the waste will likely contain. Based on that information, request a letter from each facility, stating that the facility can accept this type of waste, is authorized to accept the waste under the laws of the State of residence, has the required capability to treat and dispose of the materials, and will provide or ensure the ultimate disposal method indicated on the Uniform Hazardous Waste Manifest.

c) Provide the Engineer with the original letter signed by a legally authorized representative of the facility prior to shipping any hazardous waste but within enough time to ensure all wastes are disposed within Contract required time frames. Include a copy of permits or letter of authorization to operate the facility and provide a signed statement from the disposal facility that the waste shipping containers that the Contractor proposes to use are acceptable to the facility.

d) If recycled steel grit abrasives will be used, the Contractor shall advise the disposal facilities that the paint removal waste must be handled and stabilized as if it tested hazardous, even if the initial TCLP test results are below hazardous thresholds. Provide the Engineer with the proposed means of stabilization that will be used by the facility to comply with the requirements of this specification.

e) If it is proposed that a secondary smelter will be used for the recycling of the hazardous waste, provide evidence that the smelter holds a valid EPA and consignment state approval for the treatment of the hazardous materials present in the waste that will be generated (e.g., D008 in the case of lead-containing waste).

4. **Waste Water Disposal Information**

a) Submit the name, address, and contact person of the facility that will be accepting the wastewater for disposal. Wastewater under this item is water used for washing and cleaning the bridge and equipment. The handling and disposal of hygiene water is included as part of the decontamination units under the Worker Protection Plan.

b) The Contractor shall advise the facility of all of the toxic metals and anticipated concentrations that the water will likely contain. Based on that information, request a letter from the proposed facility stating that the facility can accept waste water, is authorized to accept the waste under the laws of the State of residence, and has the required capability to treat and dispose of the waste water. If the facility indicates that the wastewater can be placed into the sanitary sewer system, include such an authorization in the letter. Provide the Engineer with the original letter signed by a legally authorized representative of the facility, including a copy of permits or letter of authorization to operate the facility.

5. **Non-Hazardous Waste Transportation and Disposal Information**

a) Provide the name, address, license or permit number, qualifications, and contact person of each proposed hauler of non-hazardous waste (note that paint removal waste has been declared hazardous).

b) Submit the name, address, license or permit number, qualifications, and contact person of each permitted waste landfill that will accept the non-hazardous (construction) waste, and the waste which passes TCLP, but which contains toxic metals.

c) Provide a letter of intent from the proposed legally permitted landfill operator agreeing to accept waste which passes TCLP, but which contains toxic metals.

A.03 CONSTRUCTION START UP SUBMITTALS

A. **Worker Protection** – Submit the following documentation to the Engineer prior to the initiation of lead exposure-producing operations:

1. Documentation of purchase or mobilization of respirators and personal protective equipment (PPE).

2. Documentation of purchase and mobilization of decontamination facilities before beginning the project.

3. Certification of completion of lead training for supervisors and employees (including SSPC C3 and NYCDOT project-specific requirements, such as HAZWOPER).

4. Documentation of respirator fit testing for all employees who will wear respirators.

5. Verification that the employees who will potentially be exposed to lead above the Action Level have successfully completed the necessary medical surveillance. For employees who refuse to participate in the medical examinations and biological monitoring, provide written proof signed by the employee, that they were offered, but declined the examinations and monitoring.

B. **Certification of Containment Installation**

1. Prior to working within each unique containment design, submit a letter signed and sealed by the containment design engineer stating that the containment system has been assembled as shown on the approved, signed and sealed drawings. The inspection shall be performed by the design engineer, or a designee employed by the same firm and working under the direction of the design engineer,

2. If the containment is not installed in accordance with the design drawings, and field modifications are made, issue supplemental calculations for the new design for Engineer review and approval in accordance with the original submittal requirements.

A.04 CONSTRUCTION PHASE SUBMITTALS

A. **Competent Person Daily Reports** – Make the competent person's daily oversight reports or logs available for review by the Engineer or environmental consultant when requested. Include enough information and observations to demonstrate compliance with the specification requirements and the documentation requirements of the following plans:

1. Compliance with the Worker Protection Plan.

2. Compliance with Environmental Protection Plan including daily and final project cleanup.

3. Compliance with the Waste Handling Plan.

4. Compliance with the Containment submittals.

B. **Worker Protection** – Submit the following documentation to the Engineer throughout the course of the project:

1. For all new supervisors and employees who begin Work after the initial

project start-up, before the individual begins working on the project, provide certification of completion of lead training (including SSPC C3 and NYCDOT project-specific requirements), respirator fit testing, and verification that they have successfully completed the necessary medical surveillance. For employees who refuse to participate in the medical examinations and biological monitoring, provide written proof signed by the employee, that they were offered, but declined the examinations and monitoring.

2. Worker exposure monitoring results (included in the monthly summary report described below).

3. Depersonalized results of all employee medical testing at the end of each month that testing is performed (included in the monthly summary report described below).

4. Documentation of any medical removals within 1 day of the removal, a description of what triggered them, and the corrective measures taken.

5. Copies of the hygiene water test results (water used for washing, showering, or laundering clothing on site). Tests are to address all of the parameters established by the POTW to confirm the acceptability of the filtration. Provide the Engineer with the test results within 5 days of receipt and before disposal or discharge of the water.

6. Any revisions or updates to the Worker Protection Plan immediately upon development.

7. Confirmation that the parking lots for worker cars are not in lead-exposure areas.

8. MSDS for all new products and materials brought onto the Project site. At the Engineer's discretion, the Contractor may be directed to maintain the MSDS at the Project site only, rather than provide a separate copy to the Engineer in addition to the Project site copy.

9. Monthly progress reports - Except where the Contractor can document that employee lead exposure will be below the Action Level, at the end of each month of Work which entails potential lead exposure, submit a report to the Engineer which has been reviewed, signed, and certified by the IH. Submit the report within 10 calendar days after the completion of each month. This report shall contain the following elements:

   a) A summary of the Work entailing potential lead exposure that was completed in the last month including a summary of the

observations made by the IH during the monthly visit and any required intervention activities.

b) A statement that, with the exception of any deficiencies noted, the past month's work has been in compliance with the requirements of 29 CFR 1926.62, this specification, and all other applicable Federal and State regulations.

c) A description of any interventions or deficiencies noted, along with a summary of the corrective actions taken.

d) A summary of the results of any exposure monitoring or medical testing which was completed in the past month. To protect worker privacy, these results shall not include the individual names or Social Security numbers of the workers tested. Instead, workers shall be identified by trade (e.g., ironworker, painter, laborer, etc.) and with an individual control number so that their exposure can be tracked throughout the project.

10. Results of any exposure monitoring conducted on the Engineer and NYCDOT Agents. Provide the results within the same 5 day notification period required for Contractor employees.

C. **Visible Emissions and Releases**

1. Record the results of the daily assessments of visible emissions and releases in a log or report form approved by the Engineer. Include the following information at a minimum: Contract number, Contractor's name, Work location, date of observations, daily observation results (location and duration of emission), general comments, outline of the visible emission criteria, notation of compliance or noncompliance with the visible emission criteria, notification of Agencies as applicable, corrective actions, and signature block for the observer.

2. Provide the Engineer with an immediate verbal report each time that unacceptable visible emissions or releases are observed.

3. Document all cases where Work has been halted due to visible emissions or releases, the resulting cleanup activities performed, the reason or explanation for the emission or release, and the corrective action taken to avoid a reoccurrence. Provide the written report to the Engineer within 48 hours of the occurrence.

D. **Regulated Area Monitoring** – The laboratory must provide the results of regulated area monitoring to the Contractor within three days of the field

sampling. Provide the test results to the Engineer verbally within one day of receipt, and in writing within 5 working days thereafter.

E. **Containment Scaffolding Inspection Log -** Maintain, and make available for review by the Engineer, a daily log of the inspections of scaffolding, platforms, and wire ropes in accordance with the OSHA requirements. Conduct the inspections each shift, and after any occurrence which could affect the structural integrity of the scaffolding or wire suspension ropes.

F. **Air flow and Negative Pressure Measurement Log - -** Maintain, and make available for review by the Engineer, a log of air flow and negative pressure measurements.

G. **Temporary Heating Units -** If the use of temporary heating units was not anticipated at the time of the initial submittals, notify the Engineer at least one week in advance of use of heating units. Submit, for approval, information on fuel to be used and the safety measures to be employed for heater use and fuel storage.

H. **Waste Management**

1. **Waste Storage Logs –** Maintain daily waste storage logs and make them available for inspection by the Engineer or environmental consultant.

2. **Waste Analysis Reports**

a) Direct the laboratory to send the original waste analysis test reports directly to the Engineer, with copies of the results to the Contractor. The reports must be issued no later than five (5) calendar days after the representative samples are submitted for testing, with a copy being sent by facsimile transmission to the Engineer the same day the report is sent.

b) The reports shall contain at a minimum the following information: the identity of the waste stream(s) analyzed, the number of samples collected and tested, dates of sampling and testing, laboratory test procedures utilized, the names and signatures of the individuals collecting the samples and conducting the laboratory tests, an interpretation of the test results, and chain-of-custody forms.

3. **Waste Manifests and Disposal Documentation**

a) **Waste Manifest**

(1) The Contractor shall prepare the Uniform Hazardous Waste

Manifest for each shipment, including the LDR (Land Disposal Restriction) certification, which will be attached to the manifest. The Engineer will sign the Generator's Certification on the manifest and maintain copies of the original manifest and signed copies upon completion of disposal.

(2) If the signed manifest is not received from the disposal facility within forty-five (45) days of shipment, as directed by the Engineer, the Contractor shall initiate the EPA Exception Report in accordance with 40 CFR 262.42, and take all steps necessary to locate the manifest or waste.

b) **Disposal Certification** – The Contractor shall provide a certification for each manifested shipment that the waste was accepted by the recycling or disposal facility, and properly treated and disposed of.

I. **Daily and Final Project Clean-up**

1. Maintain a log or report confirming the visual cleanliness of the jobsite each day, the cleanliness of containment prior to movement, and the more detailed testing of cleanliness (wiping with a cloth and inspecting for dislodged material) prior to dismantling, and cleanliness of contractor equipment prior to removal from the project site. Include the results of any wipe samples conducted on equipment by the environmental consultant.

2. Prepare a letter report presenting the results of the inspections conducted to verify the final cleanliness of the project site, surrounding property, waterways, equipment, buildings, and structures. Submit the report to the Engineer within one (1) week of the final inspection.

3. Include a summary of any problems or releases that occurred during the project, and the clean up and corrective action measures that were taken to resolve the problem.

APPENDIX B – TERMS AND DEFINITIONS

1. **Action Level** – Employee exposure, without regard to the use of respirators, to an airborne concentration in micrograms per cubic meter of air ($\mu g/m^3$) calculated as an eight hour time-weighted average (TWA). The Action Level for lead is 30 $\mu g/m^3$.

2. **Acceptance Criteria** – Minimum standards for the content of programs, plans, procedures, and designs required by this Specification for the performance of the Contract. Acceptance criteria will be the basis for judging the responsiveness of Contractors' programs and will also be used as a basis for suspending work, if necessary.

3. **Agency** – New York City Department of Transportation (NYCDOT)

4. **CERCLA** – Comprehensive Environmental Response, Compensation, and Liability Act; commonly called Superfund. Federal laws addressing the clean up of hazardous waste sites. Amended in 1986 by the Superfund Amendments and Re-Authorization Act (SARA). EPA implementing regulations are contained in 40 CFR 300-373.

5. **CIH** – Certified Industrial Hygienist holding valid certification by the American Board of Industrial Hygiene (ABIH).

6. **Competent Person** – One who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them. The Competent Person is either an employee of the Contractor, or is under contract directly to the Contractor.

7. **Compliance Program** – A document prepared by the Contractor performing the removal of the lead-containing paint giving a detailed description of engineering controls, work practices, and safety precautions that will be adopted for the execution of the work. The Compliance Program is part of the overall Worker Protection Plan in this specification.

8. **Containment System** – A system which minimizes or prevents debris, generated during surface preparation or the removal of lead-containing paint, from entering into the environment, and which facilitates the controlled collection of the debris for disposal. It includes the cover panels, screens, tarpaulins, scaffolds, supports, and shrouds used to enclose entire work areas or the paint removal tools. Containment systems may also employ the use of ground covers or water booms.

9. **Contractor** – The person or corporate body that is party to the contract and bound to execute the work in accordance with the contract.

10. **Discharge** – Accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous material, waste water or waste into or on any land, water or airspace.

11. **Disposal –** The discharge, deposit, injection, dumping, spilling, leaking or placing of any solid or hazardous waste into or on any land or water, so that no solid waste or hazardous waste, or any constituent thereof, may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

12. **Disposal Facility –** A licensed facility where hazardous and non-hazardous waste is intentionally placed, and in which the waste will remain after closure.

13. **Emission -** A release of material to the air, water, or ground.

14. **Employee Lead Exposure –** Exposure which would occur if the employee were not using a respirator.

15. **Engineer –** The designated NYCDOT employee, or authorized representative, who is responsible for the project including the authority to accept or reject Work on behalf of the Agency.

16. **Engineering Controls –** The use of technologically feasible controls in the work areas for the purpose of reducing and maintaining employee exposure to lead to or below the PEL, and for controlling emissions from the work area. Examples of engineering controls are mechanical ventilation for enclosures, or methods which capture the dust at the point of generation such as vacuum blast cleaning.

17. **Environmental Consultant –** Individual or company employed by the NYCDOT on a periodic or full time basis to monitor the lead removal project to assure that it is conducted in an environmentally protective manner in accordance with the provisions of this specification and the contract documents.

18. **EPA –** The U.S. Environment Protection Agency. Regulations are contained in Title 40 of the Code of Federal Regulations (40 CFR).

19. **EPA Hazardous Waste Number –** The Federal number assigned to each hazardous waste. The number assigned to lead waste is D008.

20. **Flood Plain –** A flat, low-lying portion of a stream valley subject to periodic (50 to 100 years) inundation during a flood.

21. **Generator –** Any facility owner, operator or person whose act or process produces hazardous waste or whose act first causes a hazardous waste to become subject to regulation. The NYCDOT and Contractor are co-generators for the work under this Specification. The NYCDOT will obtain the EPA ID Number.

22. **Hazardous Waste (lead paint debris) –** Waste that is classified as hazardous due to its concentrations of regulated hazardous substances. Wastes may be classified as hazardous based on the characteristics of toxicity, ignitability, corrosivity, and reactivity. Paint

debris is typically classified as hazardous waste based on the characteristic of toxicity. This is determined by testing representative samples of the waste using the Toxicity Characteristic Leaching Procedure (TCLP). If the leachate contains any of the eight metals or other substances in concentrations at or above limits established in 40 CFR 261, Identification and Listing of Hazardous Wastes, it is classified as hazardous.

23. **HEPA –** A high efficiency particulate air filter (HEPA filter) removes from the air 99.97% or more of the aerosols having a diameter of 0.3 microns.

24. **Ignitability –** A characteristic of waste that causes it to be classified as hazardous. Waste is determined to be ignitable if it is found to be capable of being set afire, or of bursting into flame spontaneously or by interaction with another substance or material, when tested in accordance with 40 CFR 261. Spent solvents and liquid paint waste typically fall into this category.

25. **Leachate –** The amount of a specific substance (e.g., lead) that is carried off or dissolved out of a material. The amount of leachable lead that classifies paint debris as being hazardous is 5 mg/L (ppm) when tested by TCLP.

26. **Lead –** Metallic lead, all inorganic lead compounds, and organic lead soaps. The lead pigments used in paints comply with this definition.

27. **$\mu g/m^3$ –** Micrograms per cubic meter. Common units for reporting airborne concentrations of lead and other aerosols.

28. **mg/L –** Milligrams per liter. Common units for reporting a concentration of a specific substance in units of mass per volume (e.g., amount of hazardous material contained in paint debris).

29. **MSDS –** Material Safety Data Sheet. Data provided by the manufacturer of a product that identifies the hazardous constituents contained in the product together with precautions that need to be taken during its handling and use.

30. **NAAQS –** National Ambient Air Quality Standards. Federal regulations which establish limits on allowable pollutants in the ambient air. Lead and particulate matter are included. Regulations are found in 40 CFR 50.

31. **NIOSH –** National Institute of Occupational Safety and Health.

32. **OSHA –** Occupational Safety and Health Administration. Standards are contained in Title 29 of the Code of Federal Regulations, Parts 1910 and 1926 (29 CFR 1910 and 29 CFR 1926).

33. **Owner –** New York City Department of Transportation (NYCDOT)

34. **Paint Removal Waste –** Removed paint particles combined with the material (e.g., abrasives) used to remove the paint. Recyclable steel grit is also considered a paint removal waste once it has been used for the paint removal operation.

35. **Permissible Exposure Limit (PEL) –** Employee exposure, without regard to the use of respirators, to an airborne concentration in micrograms per cubic meter of air ($\mu g/m^3$), calculated as an eight hour time-weighted average (TWA). The PEL for lead is 50 $\mu g/m^3$ as an 8 hour TWA. If an employee works for longer than 8 hours in a given day, the PEL is reduced using the following formula:

    Adjusted PEL = (PEL x 8) ÷ (hours worked in the day)

36. **PM-10 –** Particulate matter of an aerodynamic equivalent diameter of 10 microns or less. PM-10. Term associated with the collection of airborne particulate using high volume ambient air samplers.

37. **POTW –** Publicly Owned Treatment Works (e.g., waste water treatment facility).

38. **PPM –** Parts per million. Common units for reporting a concentration of a specific substance (e.g., amount of hazardous material contained in paint debris).

39. **RCRA –** Resource Conservation and Recovery Act. RCRA regulations addressing waste handling and disposal and are found in 40 CFR 240 through 280.

40. **Regulated Area –** Area established by the Contractor, outside of which the airborne concentrations of lead or other toxic material can reasonably be expected to not exceed the corresponding Action Level.

41. **Representative Sample –** A sample of debris from a pile, drum, or container of debris which can be expected to exhibit the average properties of that pile, drum, or container of debris.

42. **SSPC –** The Society for Protective Coatings. An independent, non-profit organization of engineers, technical specialists, and contractors whose goal is research and development of new coatings and methods for removal, application, and disposal of existing coatings on industrial structures.

43. **TCLP –** Toxicity Characteristic Leaching Procedure. Laboratory tests conducted on wastes that determine the amount of hazardous materials that leach out into a test solution. The test is intended to simulate the properties of water as it leaches through a solid waste landfill. TCLP testing is defined in 40 CFR 261, Appendix II.

44. **Threshold Limit Value (TLV) –** The time-weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly

exposed day after day, without adverse effect.

45. **Time Weighted Average (TWA) –** The average concentration of a contaminant in air during a specific time period.

46. **Treatment** – Any method or process designed to change the physical, chemical or biological characteristics or the composition of any hazardous waste so as to render such waste non-hazardous.

47. **Treatment, Storage, and Disposal (TSD) Facility –** The TSD facility is the last phase of the cradle-to-grave concept in handling hazardous waste, and is responsible for its proper disposal. Requirements are found in 40 CFR 264 and 265.

48. **TSP –** Total Suspended Particulate. Term associated with the collection of airborne particulate using high volume ambient air samplers. Filters are typically analyzed for lead.

49. **Waste Stream** – A waste stream represents debris of a similar type, make up, and process. The paint debris from a given structure represents a single waste stream if the coating system and method of removal is constant. The debris represents a different waste stream, if different coating materials or methods of removal are involved. For example, the waste created when using recycled steel grit generates a different waste stream than waste created using a disposable abrasive (e.g., Black Beauty) even though the paint being removed is the same. The waste stream consists of the abrasive material, removed paint particles and any other materials generated during the paint removal process.

50. **Worker Protection Plan –** Comprehensive plan addressing the steps that will be taken to protect the health and safety of Contractor workers from jobsite hazards.

51. **Ventilation System –** Ventilation systems include both natural ventilation and artificial ventilation (mechanical fans, hoods, and ductwork), to provide air movement across the work area, and dust collectors to clean the air stream prior to discharge.

52. **Visible Emissions –** Emissions of particulate from the work area that are visible to the unaided eye. EPA methods for assessing visible emissions are found in 40 CFR 60, Appendix A. Method 9 determinations are based on the opacity of the emissions. Method 22 is based on total visible emissions regardless of the opacity.

APPENDIX C

New York State Department of Transportation Safety Bulletin 94-4 - "Histosplasmosis" is shown on Pages C2 and C3 of this Appendix.

Safety Bulletin Index - Histoplasmosis

(Code: SB-94-4, Date: 1/21/94)

INTRODUCTION

Employees engaged in a variety of tasks are often required to work in areas where pigeons have nested, usually for long periods. Such conditions are often found in bridge structures and cold storage facilities. This nesting results in a substantial build-up of pigeon droppings, a condition which can be harmful to humans if the material is disturbed and made airborne.

Histoplasmosis is a fungal infection resulting from exposure to pigeon droppings. Infectious material enters the body usually by inhalation into the lungs, but in some cases by ingestion through the mouth into the gastrointestinal tract. Pigeons do not carry the organism that causes histoplasmosis. Histoplasmosis is caused by a soil organism that requires the moist, nutrient rich environment that large masses of droppings offer. Areas with small amounts of dried droppings pose minimal hazard.

This Safety Bulletin is intended to alert employees of this potential health hazard and establish common sense precautions to minimize exposure.

PROCEDURES

Prior to work in any area where pigeons nest, a thorough inspection should be made to determine if, and to what extent there is a build-up of material. Inspection itself requires minimum precautions such as the use of personal protective equipment, which may include gloves, rubber boots, rain suit components, goggles and a dust/nuisance respirator. Questions regarding proper equipment for this activity should be directed to the Regional Safety Representative or Employee Safety & Health Section.

If substantial material is found in the immediate work area, cleaning must be performed. Employees engaged in cleaning activity shall wear all of the personal protective equipment specified above. A high powered water hose is an effective means to remove material. If the material is to be scraped away, it must be kept wet during the entire process. Application of a cleaning agent (bleach, for example), before removal may help dissolve the material, and may be applied as a disinfectant upon the affected surfaces after the droppings have been removed. Compressed air shall not be used to remove pigeon droppings because

it increases the potential for inhalation and ingestion of airborne particles and the area of potential exposure.

When cleaning has been successfully completed, the personal protective equipment specified above is no longer required. All other personal protective equipment appropriate for the task and/or location shall be used, such as fall protection, hard hat, etc.

Employees engaged in cleaning, or any other activity which involves exposure to pigeon droppings, should observe a high degree of personal hygiene, even if the exposure is casual. Special care must be taken to wash hands thoroughly before eating or smoking.

Table 1
Containment Criteria for Removal of Paint Containing Lead and Other Toxic Metals[1]

Containment Removal Method	Containment SSPC Class[2]	Containment Material Flexibility	Containment Material Permeability[3]	Support Structure	Material Joints	Containment Entryway	Ventilation System Required	Negative Pressure Required	Exhaust Filtration Required
Hand Tool Cleaning	3P	Rigid or Flexible	Penetrable	Minimal	Partially Sealed	Open Seam	Natural	Not Reqd	Not Reqd
Power Tool Cleaning w/ Vacuum	3P	Rigid or Flexible	Penetrable	Minimal	Partially Sealed	Open Seam	Natural	Not Reqd	Not Reqd
Power Tool Cleaning w/o Vacuum	1P	Rigid or Flexible	Penetrable or Impenetrable	Rigid or Flexible	Fully Sealed	Resealable	Mechanical	Required	Required
Chemical[4] Stripping Hand Remv	3C	Rigid or Flexible	Chemical Resistant	Minimal	Partially Sealed	Open Seam	Natural	Not Reqd	Not Reqd[4]
Chemical[4] Stripping Wet Remv	2C	Rigid or Flexible	Chemical and Impermeable	Rigid or Flexible	Fully Sealed	Overlapping	Natural	Not Reqd	Not Reqd[4]
Water Methods[5]	2W	Rigid or Flexible	Impermeable	Rigid or Flexible	Fully Sealed	Overlapping	Natural	Not Reqd	Not Reqd[5]
Vacuum Blasting	4A	Rigid or Flexible	Penetrable or Impenetrable	Minimal	Partially Sealed	Open Seam	Natural	Not Reqd	Not Reqd
Wet Abrasive Blasting[6]	1W	Rigid or Flexible	Impenetrable & Impermeable	Rigid or Flexible	Fully Sealed	Resealable	Mechanical	Required	Required
Abrasive Blast Cleaning[7]	1A	Rigid or Flexible	Impermeable	Rigid or Flexible	Fully Sealed	Airlock or Resealable	Mechanical	Required	Required

[1]This table provides general design criteria only. Other combinations of materials may provide controls over emissions equivalent to those combinations shown above.

Section 832 - Table 1

[2]The SSPC Classification is based on SSPC Guide 6. Note that for work over water, water booms or boats with skimmers should be employed, where feasible, to contain spills or releases. Debris must be removed daily at a minimum.

[3]Permeability addresses both air penetrability and water permeability as appropriate. In the case of water or chemical removal methods, the containment materials must be resistant to both chemicals and water. Ground covers should always be impermeable, and of sufficient strength to withstand the impact and weight of the debris and the equipment used for collection and clean-up.

[4]Ground covers must always be impermeable and of sufficient strength to withstand the weight and impact of the debris and the equipment used for cleaning. When tarpaulins are used, nstall plywood above or below the tarpaulins as necessary to prevent perforation. If debris escape through the seams, then additional sealing of the seams and joints is required. All containment materials and materials used for sealing must be resistant to both chemicals and water. If unacceptable worker exposures to lead or other toxic metals occurs, incorporate a ventilation system.

[5]This method applies to high pressure water jetting without abrasives. Ground covers and the lower portions of the containment must be of sufficient strength and integrity to facilitate the collection and holding of the water and debris for proper disposal. Ventilation is not required provided the emissions are controlled as specified in this Section, and provided worker exposures are properly controlled. If unacceptable worker exposures to lead or other toxic metals occurs, incorporate a ventilation system into the containment.

[6]This method applies to any methods which combine water with abrasives. Ground covers and the lower portions of the containment must be of sufficient strength and integrity to facilitate the collection and holding of the water and abrasive/paint debris for proper disposal.

[7]Ground covers must be of sufficient strength to withstand the impact and weight of the abrasive and the equipment used for cleaning. Ground covers must also extend beyond the containment boundary to capture escaping debris.

Book 2

NEW YORK CITY
DEPARTMENT OF TRANSPORTATION

DIVISION OF BRIDGES

P.I.N. 84107BXBR171

Contract No. HBX1123

ENGINEERING REQUIREMENTS

DESIGN / BUILD
BRUCKNER EXPRESSWAY BRIDGES (N/B & S/B)
OVER AMTRAK & CSXT RAILROADS
BIN 2075352
BIN 2075351

Together With All Work Incidental Thereto
BOROUGH OF BRONX