

PLAN NOTES:

- ① REPLACE EXISTING LOAD CENTERS, RECEPTACLES, AND ASSOCIATED FEEDER AND BRANCH CIRCUIT WIRING. PROVIDE BONDING OF NEW LOAD CENTERS TO EXISTING TUNNEL GROUND CABLE. SEE GROUNDING DETAIL ON DWG. T-E-500.
- ② REPLACE EXISTING NORMAL AND EMERGENCY TUNNEL FIXTURES AND ASSOCIATED POWER SUPPLY WIRING. FOR MOUNTING HEIGHT OF NEW LIGHTING FIXTURES SEE CUR & COVER DOUBLE BOX TUNNEL DETAIL ON DWG T-E-500.
- ③ REMOVE AND REPLACE ALL EXISTING EMERGENCY TRIP STATIONS (ETS's) AND BLUE LIGHTS. REPLACE RELAY PANELS IN TBS AND TPSS. REPLACE ASSOCIATED CONTROL WIRING BETWEEN ETS's AND RELAY PANELS (7/C ALS CABLE OR MATCH EXISTING MULTICONDUCTOR CABLE). REPLACE EXISTING 25-PAIR COMMUNICATION CABLE BETWEEN ETS's AND FROM ETS's TO COMM ROOM IN EACH STATION. SEE DWGS. T-E-503, -504 FOR RELAY PANEL DETAILS. SEE DWGS. T-E-600, -601, -602 FOR ETS CONTROL WIRING DETAILS. SEE DWG. T-E-500 FOR ETS HEIGHT.
- ④ REPLACE DETERIORATED CABLE SUPPORTS AND CLEAN CABLES FROM CALCIFICATION BUILDUP. REFER TO STRUCTURAL DRAWINGS AND SEE SPECIFICATION 03371.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43224, EXPIRATION DATE 04-14-2015.

FINAL CONTRACT NO. FQ15093

DESIGNED	K. IBRAHIM	01/30/15	REFERENCE DRAWINGS		REVISIONS	
			NUMBER	DESCRIPTION	DATE	BY
DRAWN	V. BHALLA	01/30/15				
CHECKED	A. FISHEL	01/30/15				
APPROVED	J. PURDY	01/30/15				



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

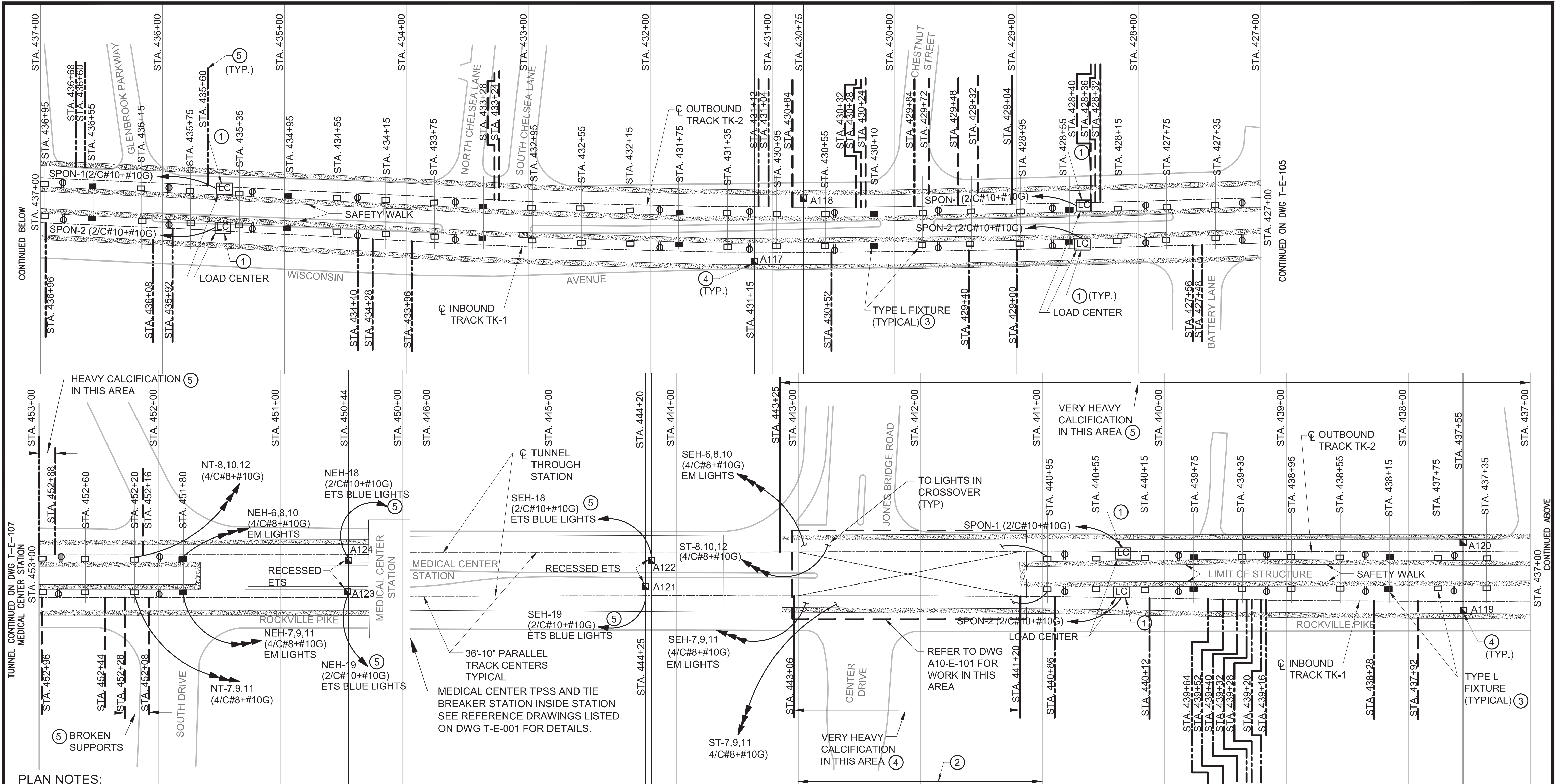
GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED Brad Mason, P.E. PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
 ELECTRICAL PLAN SHEET 6 OF 14
 STA 407+00 TO 427+00

SCALE 1"=40'

DRAWING NO. T-E-105 SHEET NO. M1272-059



PLAN NOTES:

- ① REPLACE EXISTING LOAD CENTERS, RECEPTACLES, AND ASSOCIATED FEEDER AND BRANCH CIRCUIT WIRING. PROVIDE BONDING OF NEW LOAD CENTERS TO EXISTING TUNNEL GROUND CABLE. SEE GROUNDING DETAIL ON DWG. T-E-500.
- ② REPLACE EXISTING NORMAL AND EMERGENCY TUNNEL FIXTURES AND ASSOCIATED POWER SUPPLY WIRING. FOR MOUNTING HEIGHT OF NEW LIGHTING FIXTURES SEE CUR & COVER DOUBLE BOX TUNNEL DETAIL ON DWG T-E-500
- ③ REMOVE AND REPLACE ALL EXISTING EMERGENCY TRIP STATIONS (ETS's) AND BLUE LIGHTS. REPLACE RELAY PANELS IN TBS AND TPSS. REPLACE ASSOCIATED CONTROL WIRING BETWEEN ETS's AND RELAY PANELS (7/C ALS CABLE OR MATCH EXISTING MULTICONDUCTOR CABLE). REPLACE EXISTING 25-PAIR COMMUNICATION CABLE BETWEEN ETS's AND FROM ETS's TO COMM ROOM IN EACH STATION. SEE DWGS. T-E-503, -504 FOR RELAY PANEL DETAILS. SEE DWGS. T-E-600, -601, -602 FOR ETS CONTROL WIRING DETAILS. SEE DWG. T-E-500 FOR ETS HEIGHT.
- ④ REPLACE DETERIORATED CABLE SUPPORTS AND CLEAN CABLES FROM CALCIFICATION BUILDUP. REFER TO STRUCTURAL DRAWINGS AND SEE SPECIFICATION 03371.
- ⑤ REPLACE BLUE LIGHT POWER SUPPLY WIRING TO POWER SOURCE.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43224, EXPIRATION DATE 04-14-2015.



DESIGNED	K. IBRAHIM	01/30/15
DATE		
DRAWN	V. BHALLA	01/30/15
DATE		
CHECKED	A. FISHEL	01/30/15
DATE		
APPROVED	J. PURDY	01/30/15
DATE		

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE

SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

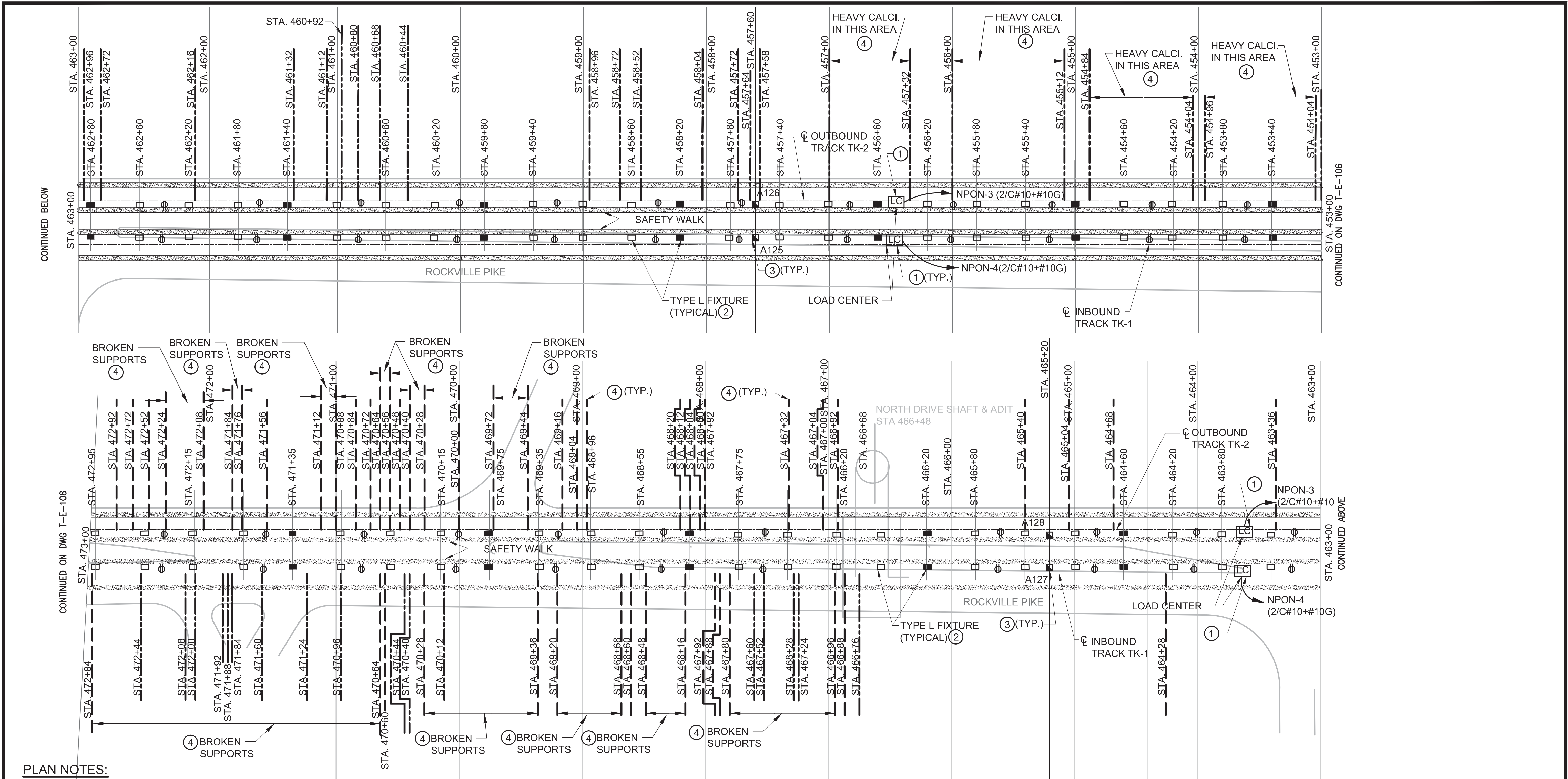
FINAL CONTRACT NO. FQ15093

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1

ELECTRICAL PLAN SHEET 7 OF 14
STA 427+00 TO 453+00

SCALE 1"=40'

DRAWING NO. T-E-106 SHEET NO. M1272-060



PLAN NOTES:

- ① REPLACE EXISTING LOAD CENTERS, RECEPTACLES, AND ASSOCIATED FEEDER AND BRANCH CIRCUIT WIRING. PROVIDE BONDING OF NEW LOAD CENTERS TO EXISTING TUNNEL GROUND CABLE. SEE GROUNDING DETAIL ON DWG. T-E-500.
- ② REPLACE EXISTING NORMAL AND EMERGENCY TUNNEL FIXTURES AND ASSOCIATED POWER SUPPLY WIRING. FOR MOUNTING HEIGHT OF NEW LIGHTING FIXTURES SEE CUR & COVER DOUBLE BOX TUNNEL DETAIL ON DWG T-E-500
- ③ REMOVE AND REPLACE ALL EXISTING EMERGENCY TRIP STATIONS (ETS'S) AND BLUE LIGHTS. REPLACE RELAY PANELS IN TBS AND TPSS. REPLACE ASSOCIATED CONTROL WIRING BETWEEN ETS'S AND RELAY PANELS (7/C ALS CABLE OR MATCH EXISTING MULTICONDUCTOR CABLE). REPLACE EXISTING 25-PAIR COMMUNICATION CABLE BETWEEN ETS'S AND FROM ETS'S TO COMM ROOM IN EACH STATION. SEE DWGS. T-E-503, -504 FOR RELAY PANEL DETAILS. SEE DWGS. T-E-600, -601, -602 FOR ETS CONTROL WIRING DETAILS. SEE DWG. T-E-500 FOR ETS HEIGHT.
- ④ REPLACE DETERIORATED CABLE SUPPORTS AND CLEAN CABLES FROM CALCIFICATION BUILDUP. REFER TO STRUCTURAL DRAWINGS AND SEE SPECIFICATION 03371.

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DRAWN	V. BHALLA	01/30/15
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CHECKED	A. FISHEL	01/30/15
DATE		
APPROVED	J. PURDY	01/30/15
DATE		

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY



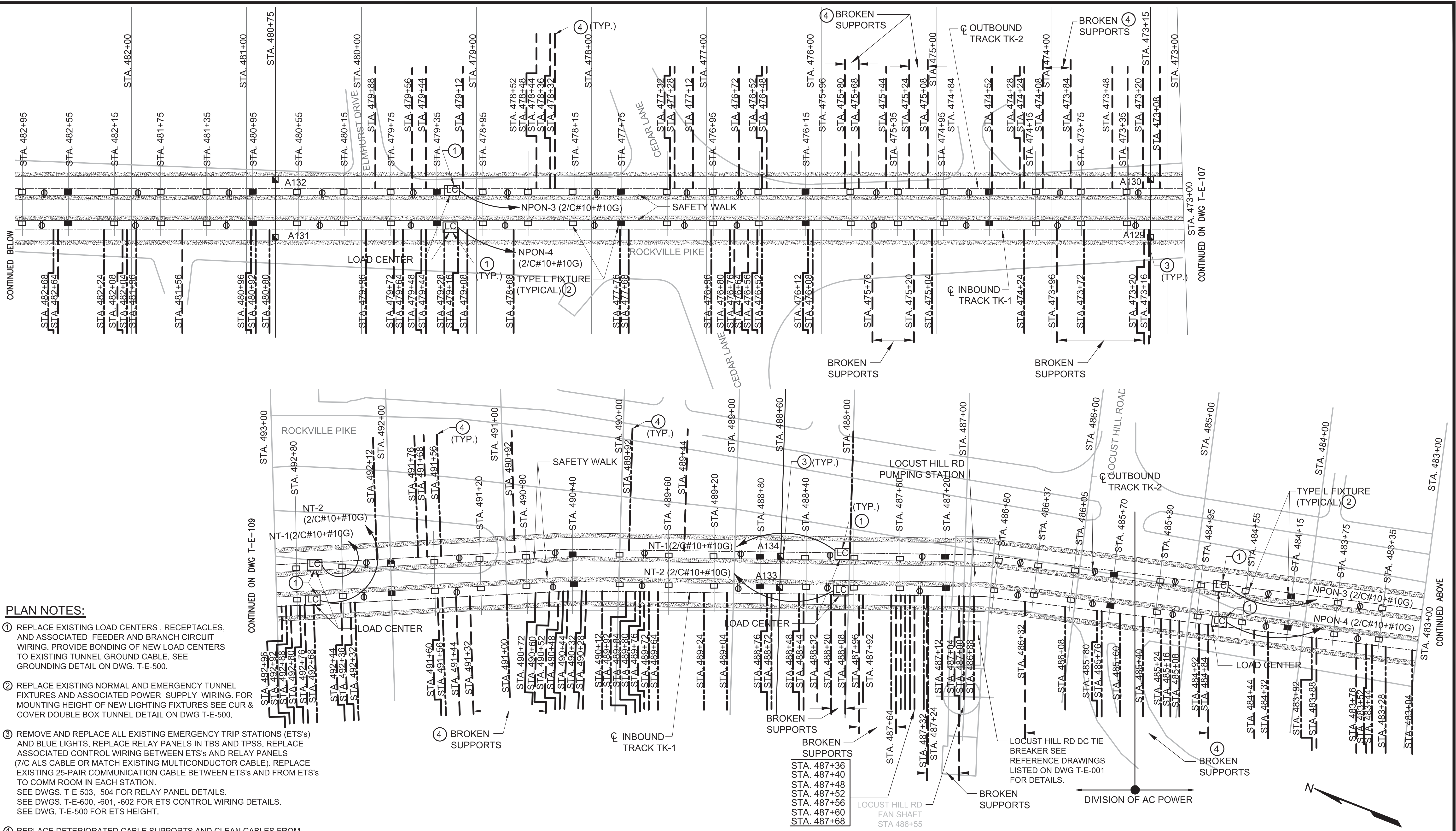
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED _____
 SUBMITTED Brad Mason, P.E.
 PROJECT MANAGER

FINAL CONTRACT NO. FQ15093

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
ELECTRICAL PLAN SHEET 8 OF 14
STA 453+00 TO 473+00

SCALE 1"=40'

 DRAWING NO. T-E-107 SHEET NO. M1272-061



PLAN NOTES:

- ① REPLACE EXISTING LOAD CENTERS, RECEPTACLES, AND ASSOCIATED FEEDER AND BRANCH CIRCUIT WIRING. PROVIDE BONDING OF NEW LOAD CENTERS TO EXISTING TUNNEL GROUND CABLE. SEE GROUNDING DETAIL ON DWG. T-E-500.
- ② REPLACE EXISTING NORMAL AND EMERGENCY TUNNEL FIXTURES AND ASSOCIATED POWER SUPPLY WIRING. FOR MOUNTING HEIGHT OF NEW LIGHTING FIXTURES SEE CUR & COVER DOUBLE BOX TUNNEL DETAIL ON DWG T-E-500.
- ③ REMOVE AND REPLACE ALL EXISTING EMERGENCY TRIP STATIONS (ETS's) AND BLUE LIGHTS. REPLACE RELAY PANELS IN TBS AND TPSS. REPLACE ASSOCIATED CONTROL WIRING BETWEEN ETS's AND RELAY PANELS (7/C ALS CABLE OR MATCH EXISTING MULTICONDUCTOR CABLE). REPLACE EXISTING 25-PAIR COMMUNICATION CABLE BETWEEN ETS's AND FROM ETS's TO COMM ROOM IN EACH STATION.
SEE DWGS. T-E-503, -504 FOR RELAY PANEL DETAILS.
SEE DWGS. T-E-600, -601, -602 FOR ETS CONTROL WIRING DETAILS.
SEE DWG. T-E-500 FOR ETS HEIGHT.
- ④ REPLACE DETERIORATED CABLE SUPPORTS AND CLEAN CABLES FROM CALCIFICATION BUILDUP. REFER TO STRUCTURAL DRAWINGS AND SEE SPECIFICATION 03371.

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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

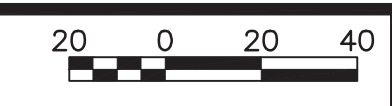


APPROVED _____ SUBMITTED Brad Mason, P.E. PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1

ELECTRICAL PLAN SHEET 9 OF 14
STA 473+00 TO 493+00

SCALE 1"=40'



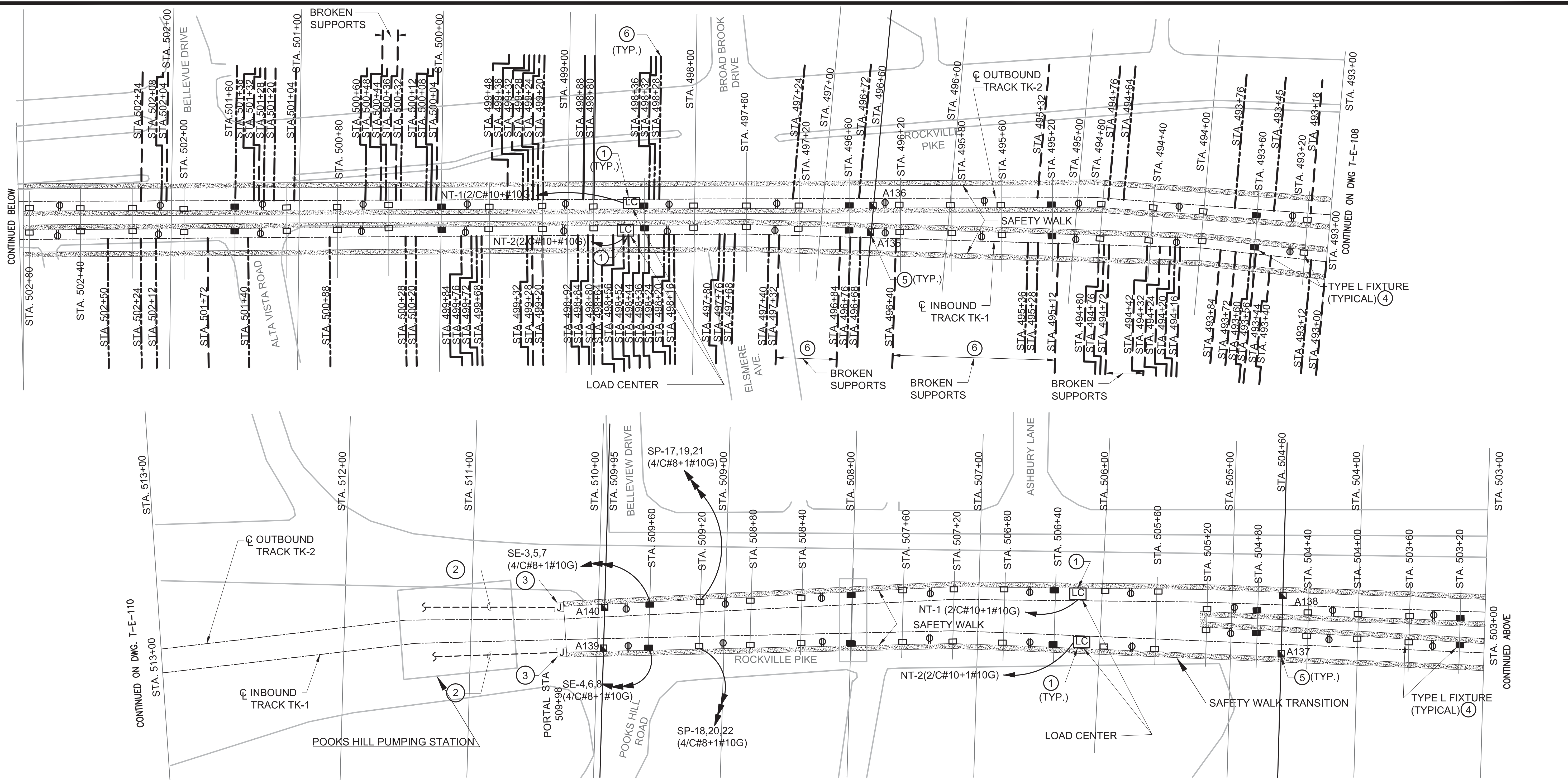
DRAWING NO. T-E-108

SHEET NO. M1272-062

DESIGNED	K. IBRAHIM	01/30/15
DRAWN	V. BHALLA	01/30/15
CHECKED	A. FISHEL	01/30/15
APPROVED	J. PURDY	01/30/15

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY

FINAL CONTRACT NO. FQ15093



PLAN NOTES:

- ① REPLACE EXISTING LOAD CENTERS, RECEPTACLES, AND ASSOCIATED FEEDER AND BRANCH CIRCUIT WIRING. PROVIDE BONDING OF NEW LOAD CENTERS TO EXISTING TUNNEL GROUND CABLE. SEE GROUNDING DETAIL ON DWG. T-E-500.
- ② BLUE LIGHT POWER SUPPLY WIRING IN AERIAL STRUCTURES IS EXISTING TO REMAIN EXCEPT AS FOLLOWS. TEST EXISTING WIRING AND REPLACE WIRING FOUND DEFECTIVE.
- ③ PROVIDE JUNCTION BOX TO SPLICE NEW POWER SUPPLY WIRING FOR BLUE LIGHTS (IN TUNNELS) WITH EXISTING TO REMAIN BLUE LIGHT POWER SUPPLY WIRING (IN AERIAL STRUCTURES). NOTE THAT SOME OR ALL OF WIRING IN AERIAL STRUCTURES MAY BE REPLACED AS DICTATED BY TEST RESULTS. REFER TO PLAN NOTE #2 ABOVE.
- ④ REPLACE EXISTING NORMAL AND EMERGENCY TUNNEL FIXTURES AND ASSOCIATED POWER SUPPLY WIRING. FOR MOUNTING HEIGHT OF NEW LIGHTING FIXTURES SEE CUT & COVER DOUBLE BOX TUNNEL DETAIL ON DWG T-E-500.
- ⑤ REMOVE AND REPLACE ALL EXISTING EMERGENCY TRIP STATIONS (ETS's) AND BLUE LIGHTS. REPLACE RELAY PANELS IN TBS AND TPSS. REPLACE ASSOCIATED CONTROL WIRING BETWEEN ETS's AND RELAY PANELS (7/C ALS CABLE OR MATCH EXISTING MULTICONDUCTOR CABLE). REPLACE EXISTING 25-PAIR COMMUNICATION CABLE BETWEEN ETS's AND FROM ETS's TO COMM ROOM IN EACH STATION. SEE DWGS. T-E-503, -504 FOR RELAY PANEL DETAILS. SEE DWGS. T-E-600, -601, -602 FOR ETS CONTROL WIRING DETAILS. SEE DWG. T-E-500 FOR ETS HEIGHT.
- ⑥ REPLACE DETERIORATED CABLE SUPPORTS AND CLEAN CABLES FROM CALCIFICATION BUILDUP. REFER TO STRUCTURAL DRAWINGS AND SEE SPECIFICATION 03371.

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DRAWN	V. BHALLA	01/30/15
CHECKED	A. FISHEL	01/30/15
APPROVED	J. PURDY	01/30/15

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NUMBER	DESCRIPTION	DATE	BY



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE

SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1

ELECTRICAL PLAN SHEET 10 OF 14
STA 493+00 TO 513+00

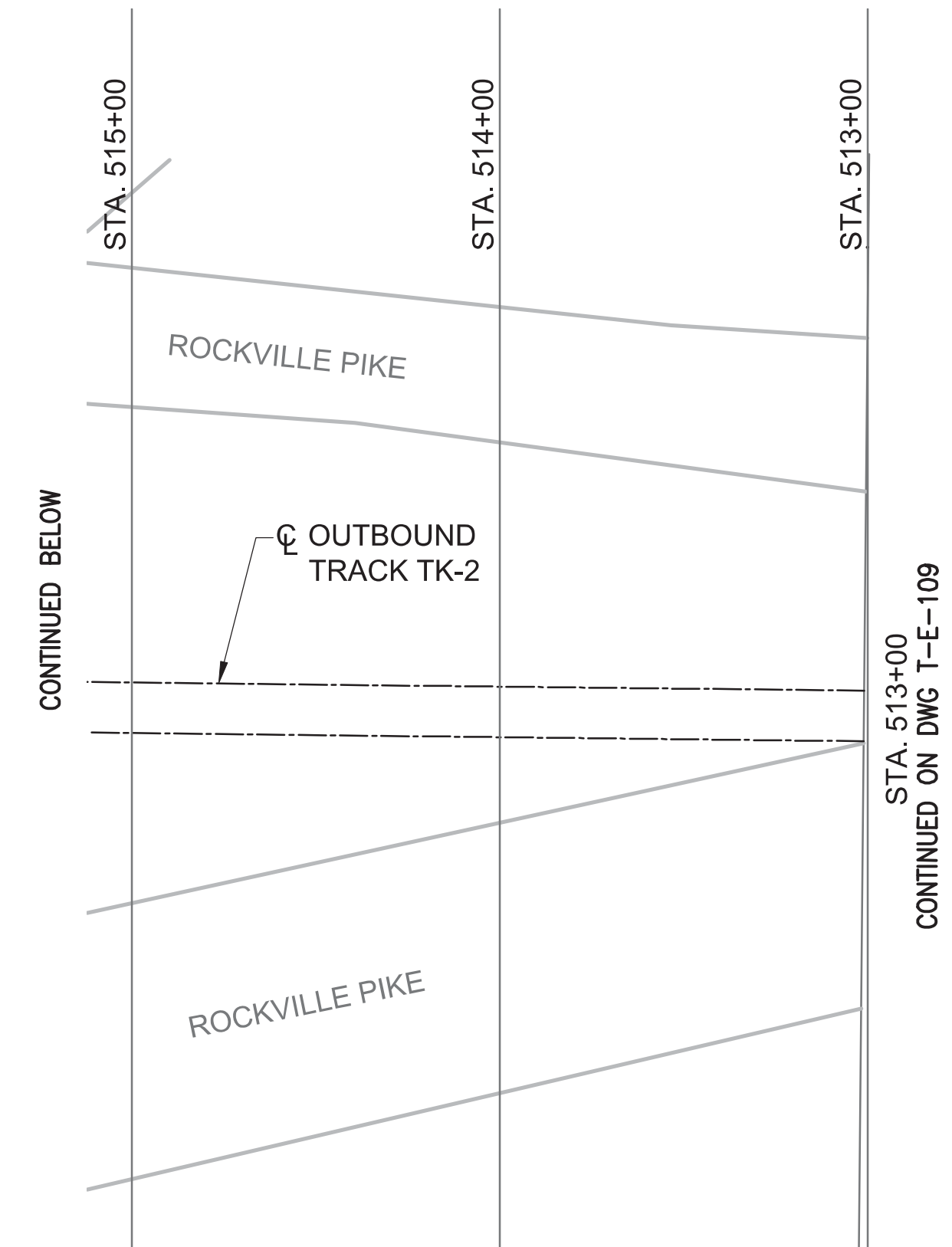
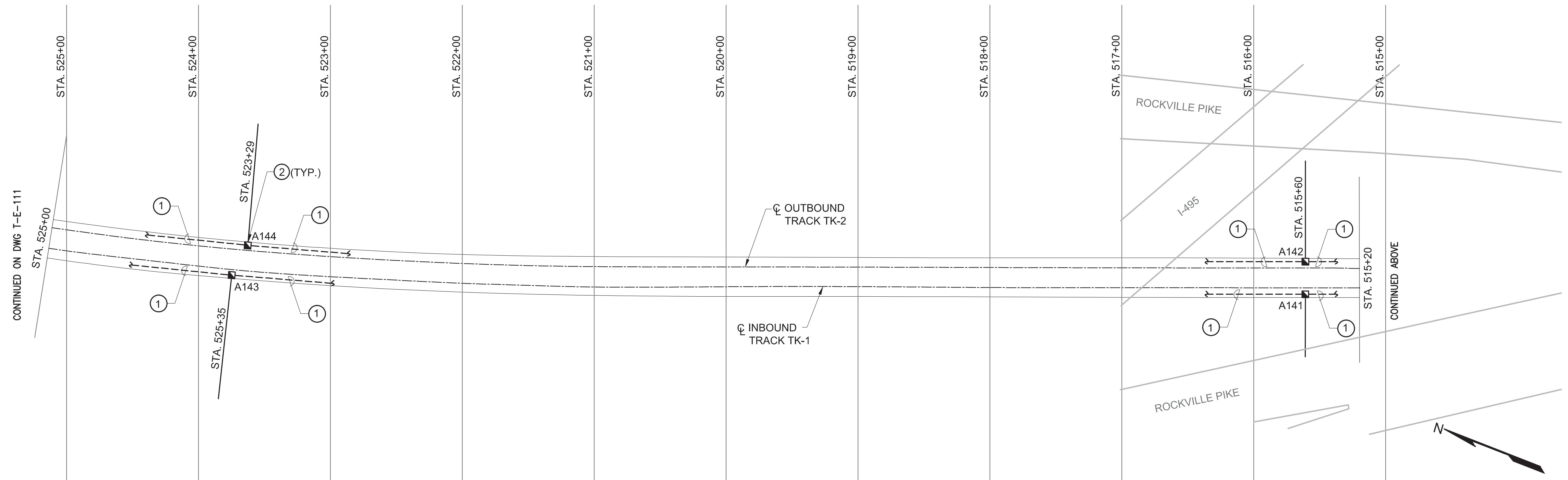
SCALE 1"=40'

DRAWING NO. T-E-109 SHEET NO. M1272-063

FINAL CONTRACT NO. FQ15093

PLAN NOTES:

- ① BLUE LIGHT POWER SUPPLY WIRING IN AERIAL STRUCTURES IS EXISTING TO REMAIN EXCEPT AS FOLLOWS. TEST EXISTING WIRING AND REPLACE WIRING FOUND DEFECTIVE.
- ② REMOVE AND REPLACE ALL EXISTING EMERGENCY TRIP STATIONS (ETS's) AND BLUE LIGHTS. TEST AND REPLACE AS REQUIRED ASSOCIATED CONTROL WIRING (7/C ALS CABLE OR MATCH EXISTING MULTICONDUCTOR CABLE) AND RELAY PANELS IN TBS AND TPSS. TEST AND REPLACE AS REQUIRED 25-PAIR COMMUNICATION CABLE.
SEE DWGS. T-E-503, -504 FOR RELAY PANEL DETAILS.
SEE DWGS. T-E-600, -601, -602 FOR ETS CONTROL WIRING DETAILS.
SEE DWG. T-E-501 FOR ETS HEIGHT.



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FINAL CONTRACT NO. FQ15093

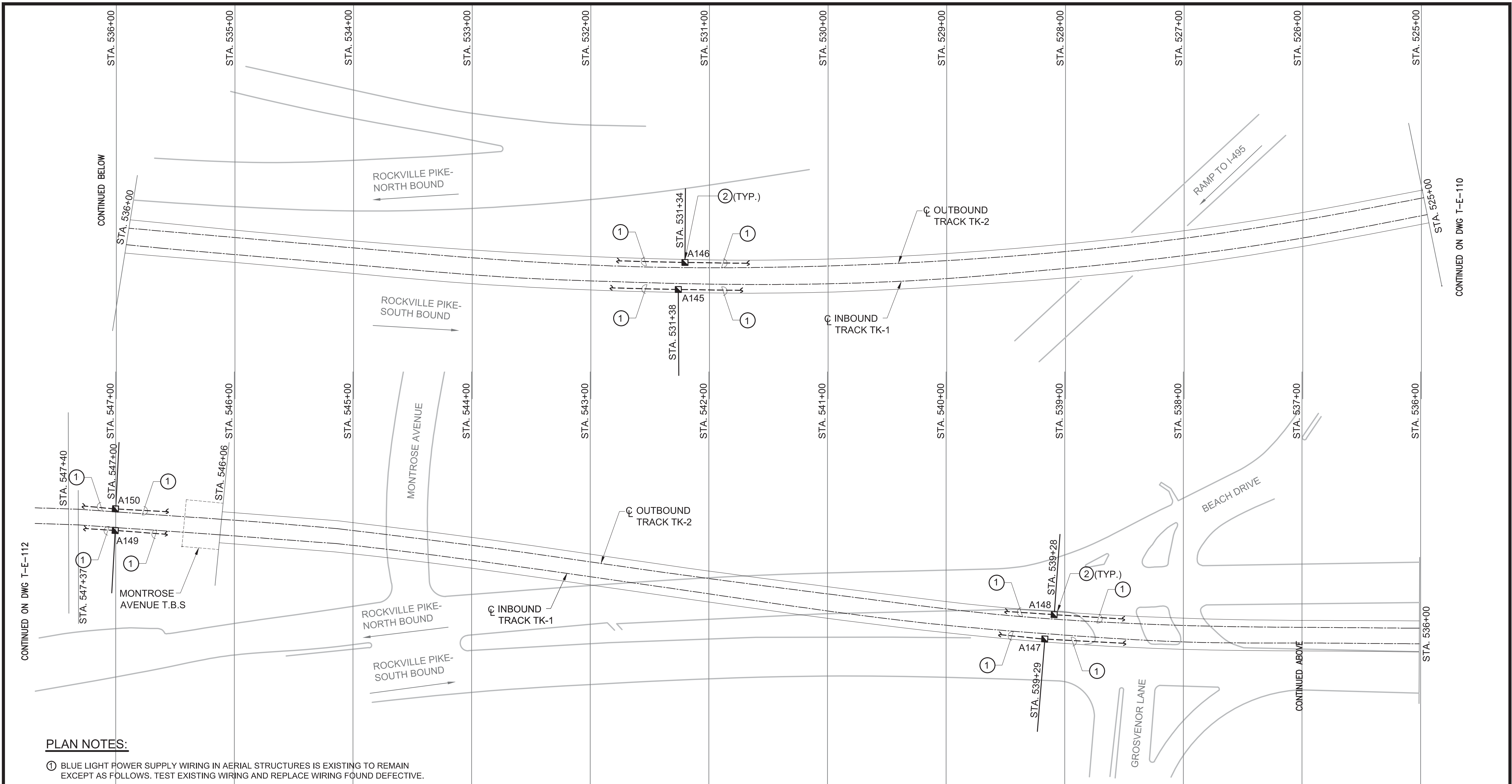
DESIGNED	K. IBRAHIM	01/30/15	REFERENCE DRAWINGS		REVISIONS	
			NUMBER	DESCRIPTION	DATE	BY
DRAWN	V. BHALLA	01/30/15				
CHECKED	A. FISHEL	01/30/15				
APPROVED	J. PURDY	01/30/15				



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED _____
 SUBMITTED Brad Mason, P.E.
 PROJECT MANAGER



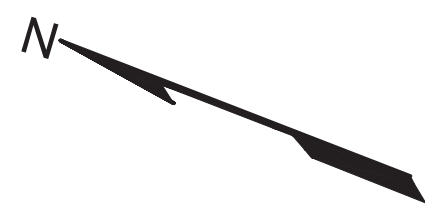
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
 ELECTRICAL PLAN SHEET 11 OF 14
 STA 513+00 TO 525+00
 SCALE 1"=40'
 DRAWING NO. T-E-110
 SHEET NO. M1272-064



PLAN NOTES:

- ① BLUE LIGHT POWER SUPPLY WIRING IN AERIAL STRUCTURES IS EXISTING TO REMAIN EXCEPT AS FOLLOWS. TEST EXISTING WIRING AND REPLACE WIRING FOUND DEFECTIVE.
- ② REMOVE AND REPLACE ALL EXISTING EMERGENCY TRIP STATIONS (ETS's) AND BLUE LIGHTS. TEST AND REPLACE AS REQUIRED ASSOCIATED CONTROL WIRING (7/C ALS CABLE OR MATCH EXISTING MULTICONDUCTOR CABLE) AND RELAY PANELS IN TBS AND TPSS. TEST AND REPLACE AS REQUIRED 25-PAIR COMMUNICATION CABLE.
SEE DWGS. T-E-503, -504 FOR RELAY PANEL DETAILS.
SEE DWGS. T-E-600, -601, -602 FOR ETS CONTROL WIRING DETAILS.
SEE DWG. T-E-501 FOR ETS HEIGHT.

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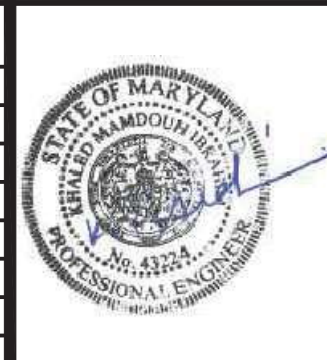


FINAL CONTRACT NO. FQ15093

DESIGNED	K. IBRAHIM	01/30/15
DATE		
DRAWN	V. BHALLA	01/30/15
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APPROVED	J. PURDY	01/30/15
DATE		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS	
NUMBER	DESCRIPTION



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

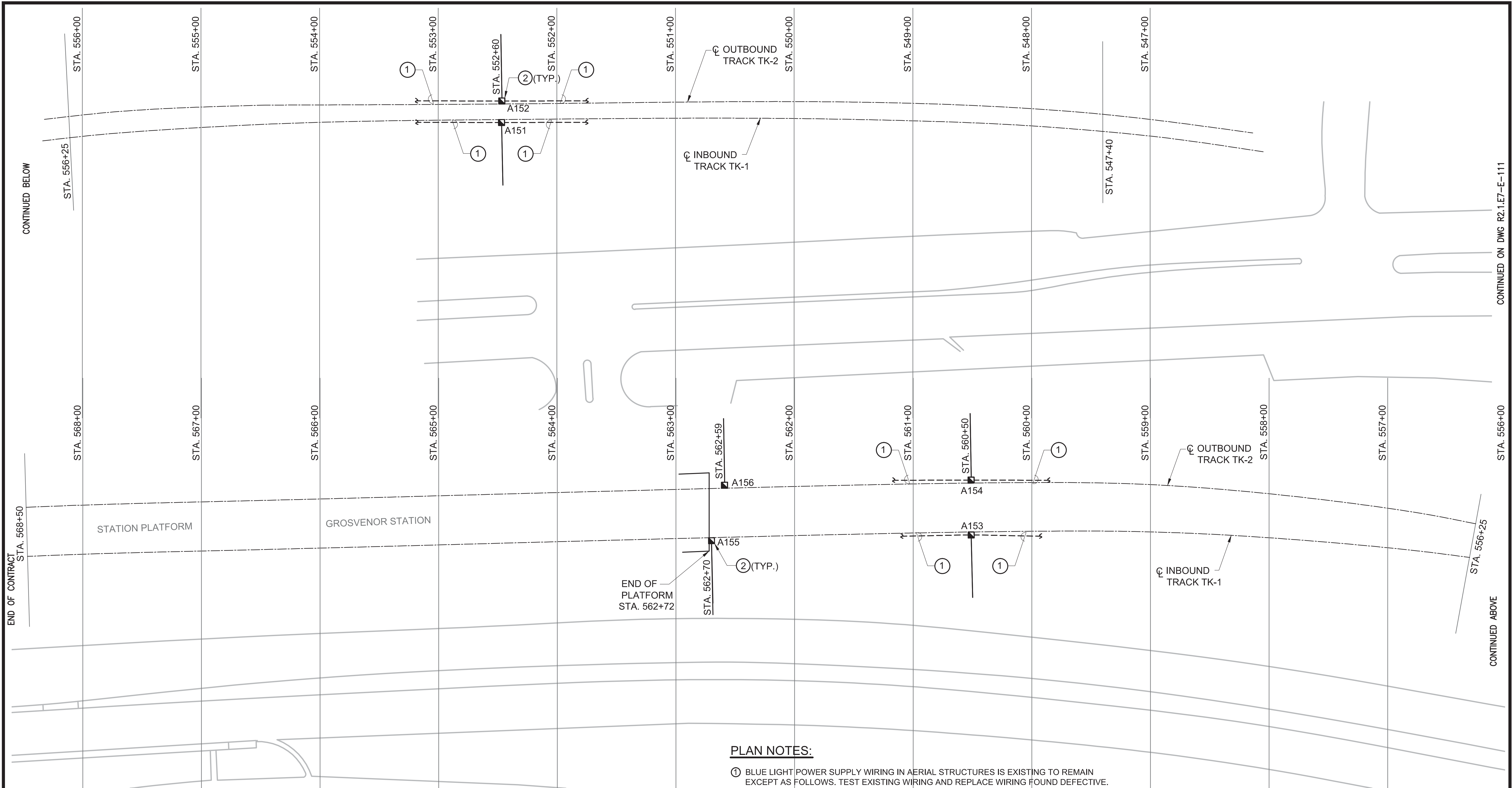
GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED Brad Mason, P.E. PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
 ELECTRICAL PLAN SHEET 12 OF 14
 STA 525+00 TO 547+00

SCALE 1"=40'

DRAWING NO. T-E-111 SHEET NO. M1272-065



PLAN NOTES:

- ① BLUE LIGHT POWER SUPPLY WIRING IN AERIAL STRUCTURES IS EXISTING TO REMAIN EXCEPT AS FOLLOWS. TEST EXISTING WIRING AND REPLACE WIRING FOUND DEFECTIVE.
- ② REMOVE AND REPLACE ALL EXISTING EMERGENCY TRIP STATIONS (ETS's) AND BLUE LIGHTS. TEST AND REPLACE AS REQUIRED ASSOCIATED CONTROL WIRING (7/C ALS CABLE OR MATCH EXISTING MULTICONDUCTOR CABLE) AND RELAY PANELS IN TBS AND TPSS. TEST AND REPLACE AS REQUIRED 25-PAIR COMMUNICATION CABLE.
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FINAL CONTRACT NO. FQ15093

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			NUMBER	DESCRIPTION	DATE	BY
DRAWN	V. BHALLA	01/30/15				
CHECKED	A. FISHEL	01/30/15				
APPROVED	J. PURDY	01/30/15				



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
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 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

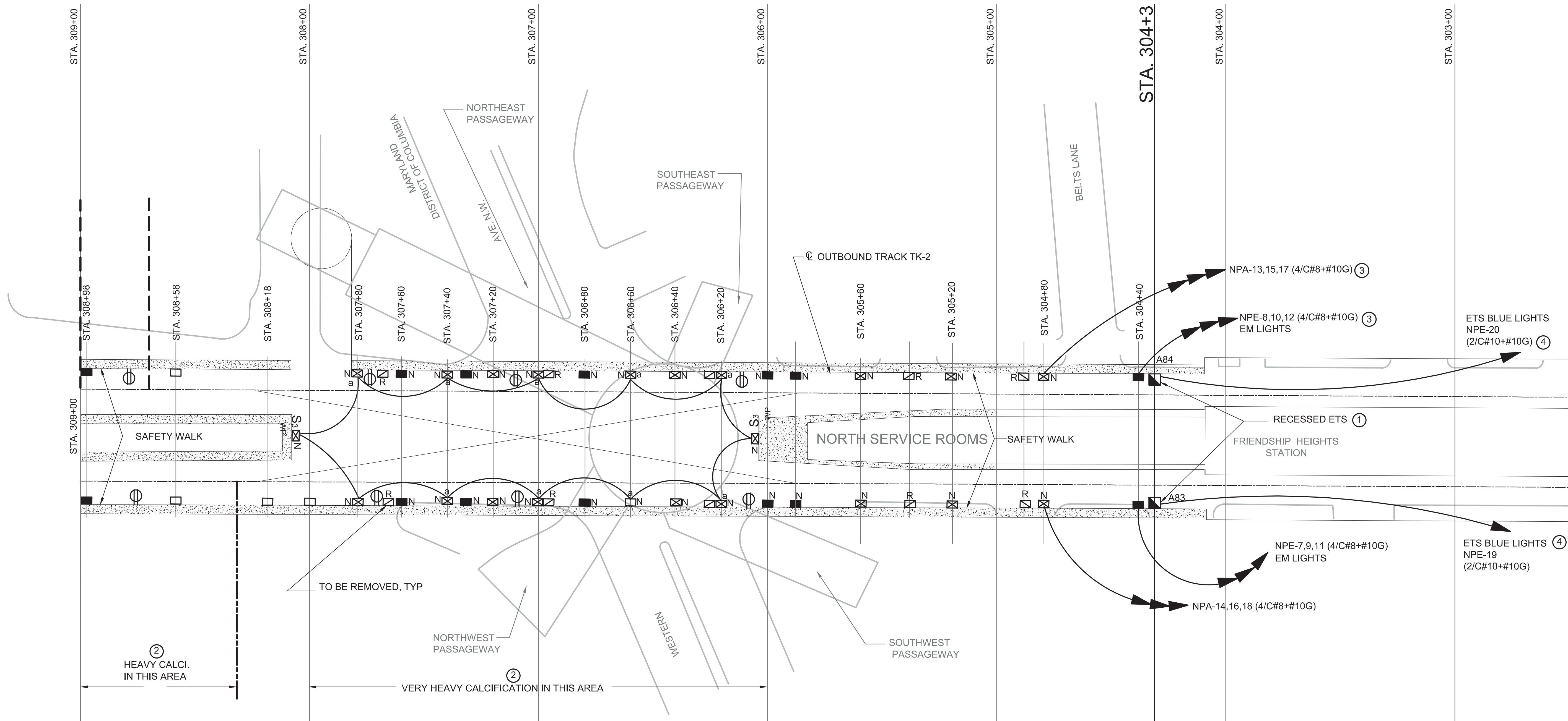
GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED Brad Mason, P.E. PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
 ELECTRICAL PLAN SHEET 13 OF 14
 STA 547+00 TO 568+50

SCALE 1"=40'

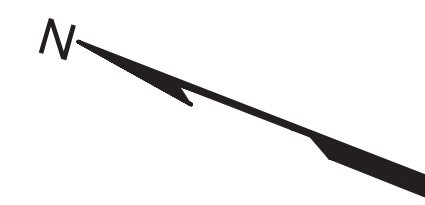
DRAWING NO. T-E-112 SHEET NO. M1272-066



PLAN NOTES:

- ① REMOVE AND REPLACE ALL EXISTING EMERGENCY TRIP STATIONS (ETS's) AND BLUE LIGHTS. REPLACE RELAY PANELS IN TBS AND TPSS. REPLACE ASSOCIATED CONTROL WIRING BETWEEN ETS's AND RELAY PANELS (7/C ALS CABLE OR MATCH EXISTING MULTICONDUCTOR CABLE). REPLACE EXISTING 25-PAIR COMMUNICATION CABLE BETWEEN ETS's AND FROM ETS's TO COMM ROOM IN EACH STATION.
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SEE DWGS. T-E-600, -601, -602 FOR ETS CONTROL WIRING DETAILS.
SEE DWG. T-E-500 FOR ETS HEIGHT.
- ② REPLACE DETERIORATED CABLE SUPPORTS AND CLEAN CABLES FROM CALCIFICATION BUILDUP. REFER TO STRUCTURAL DRAWINGS AND SEE SPECIFICATION 03371.
- ③ NORMAL OR EMERGENCY TUNNEL LIGHTING HOMERUN. USE CIRCUIT NUMBERS INDICATED TO SUPPLY NORMAL OR EMERGENCY LIGHTING ON SAME TUNNEL WALL UP TO "DIVISION OF POWER" LINE. CONNECT FIXTURES ALTERNATELY TO EACH OF THREE CIRCUITS.
- ④ REPLACE BLUE LIGHT POWER SUPPLY WIRING TO POWER SOURCE.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43224, EXPIRATION DATE 04-14-2015.



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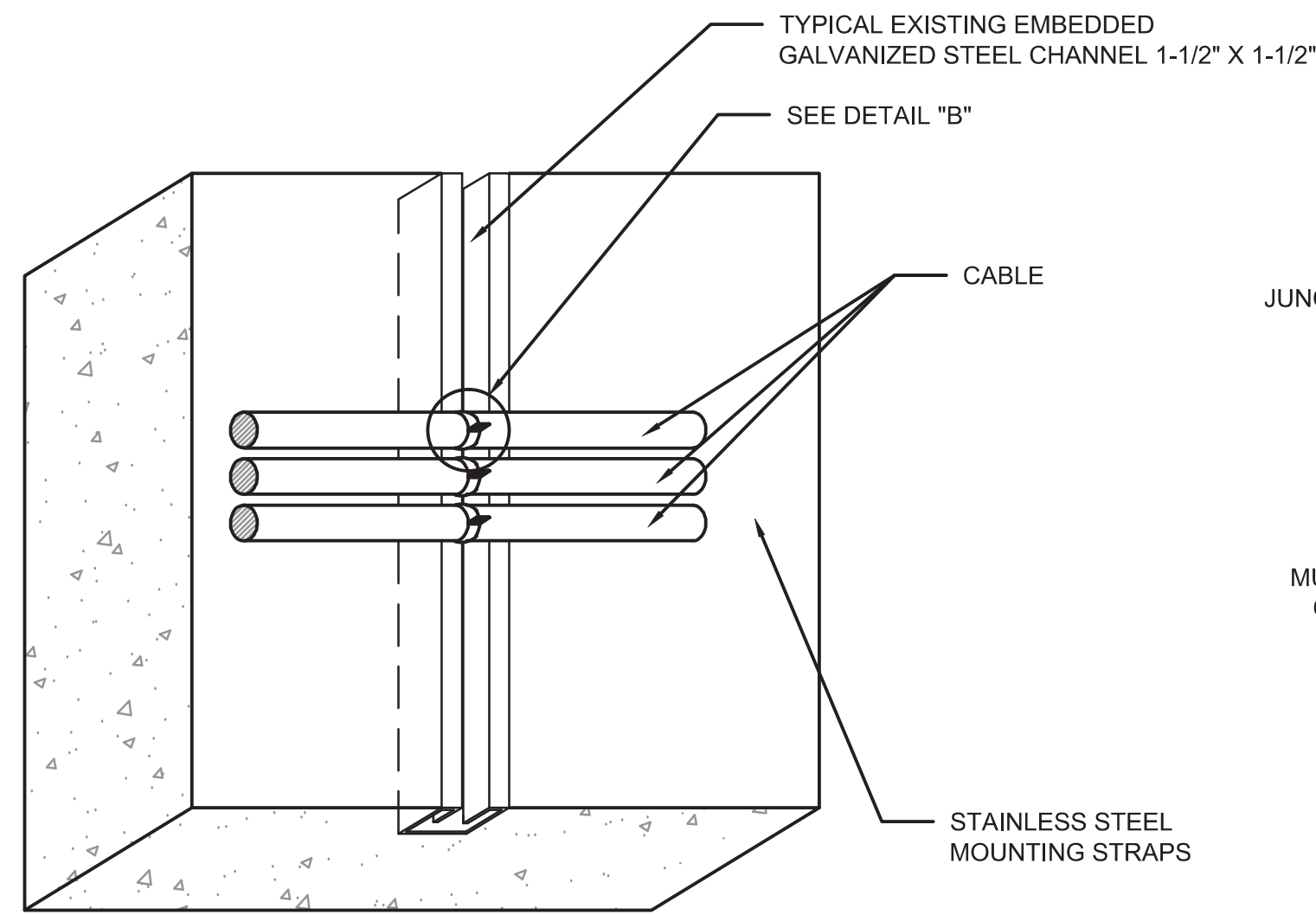
REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY



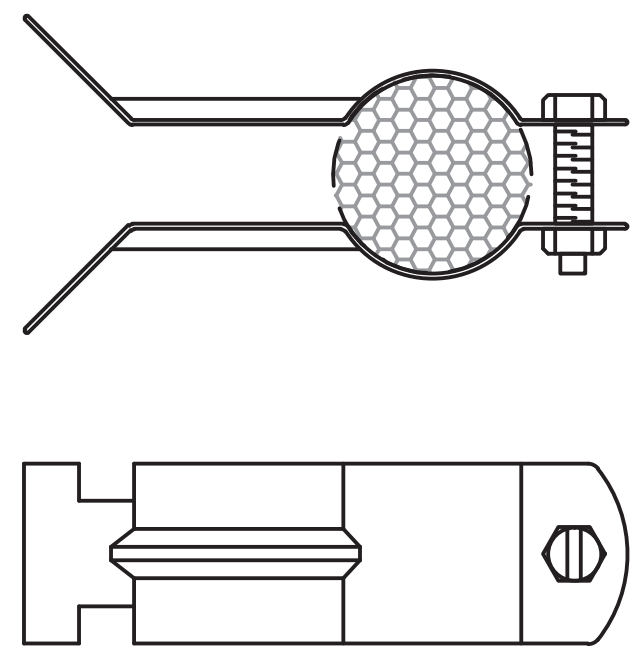
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED _____
 SUBMITTED Brad Mason, P.E.
 PROJECT MANAGER



RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
 CROSSOVER ENLARGED PLAN SHEET 14 OF 14
 FRIENDSHIP HEIGHTS STATION
 SCALE 1"=20'
 DRAWING NO. T-E-113
 SHEET NO. M1272-067

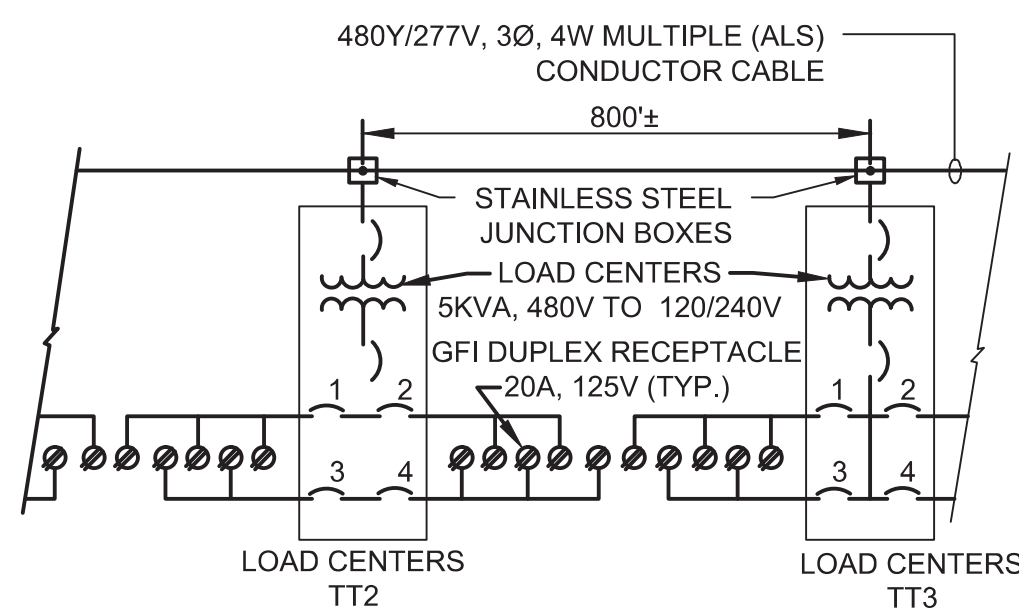


DETAIL "A"
TYPICAL INSTALLATION OF CABLES ON EMBEDDED CHANNEL INSERT

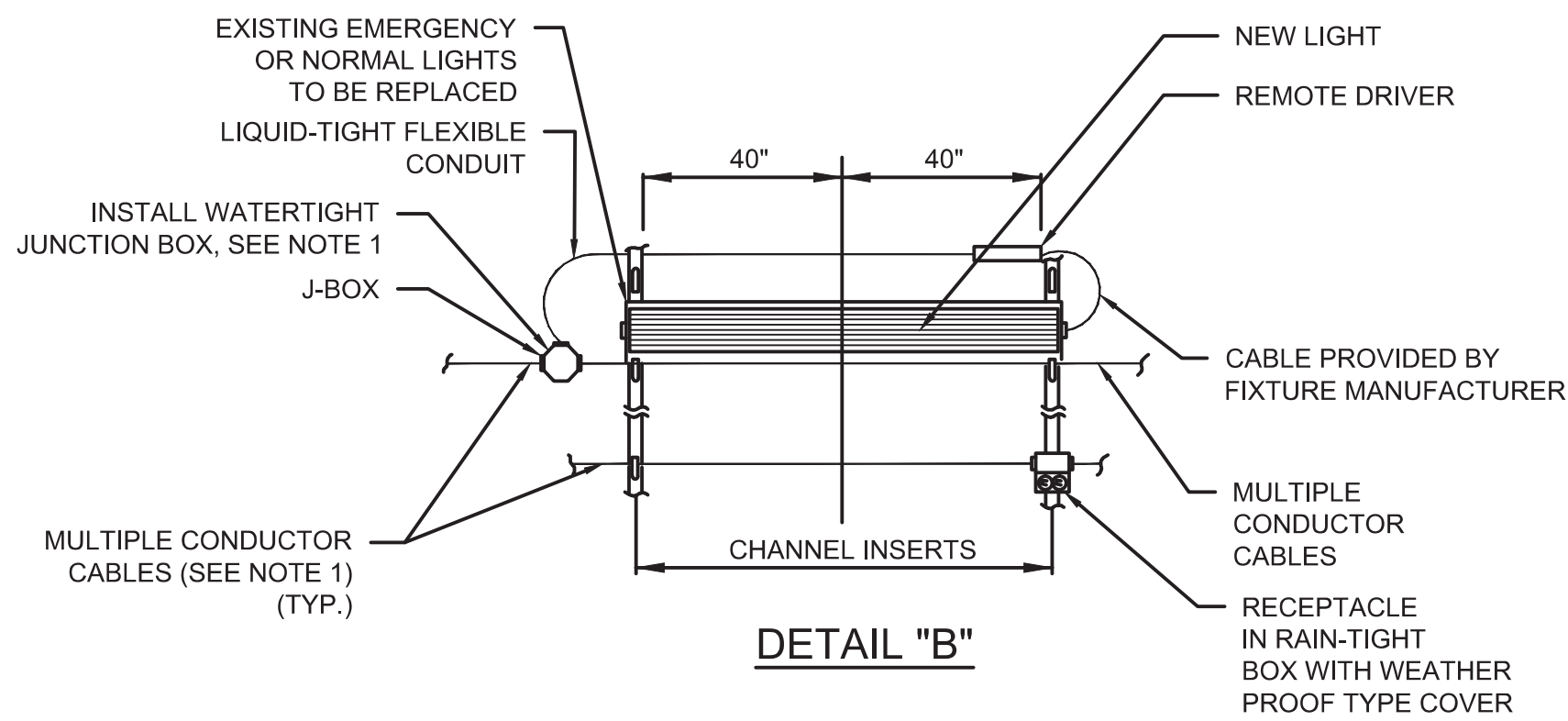


DETAIL "B"
TYPICAL CABLE CLAMP

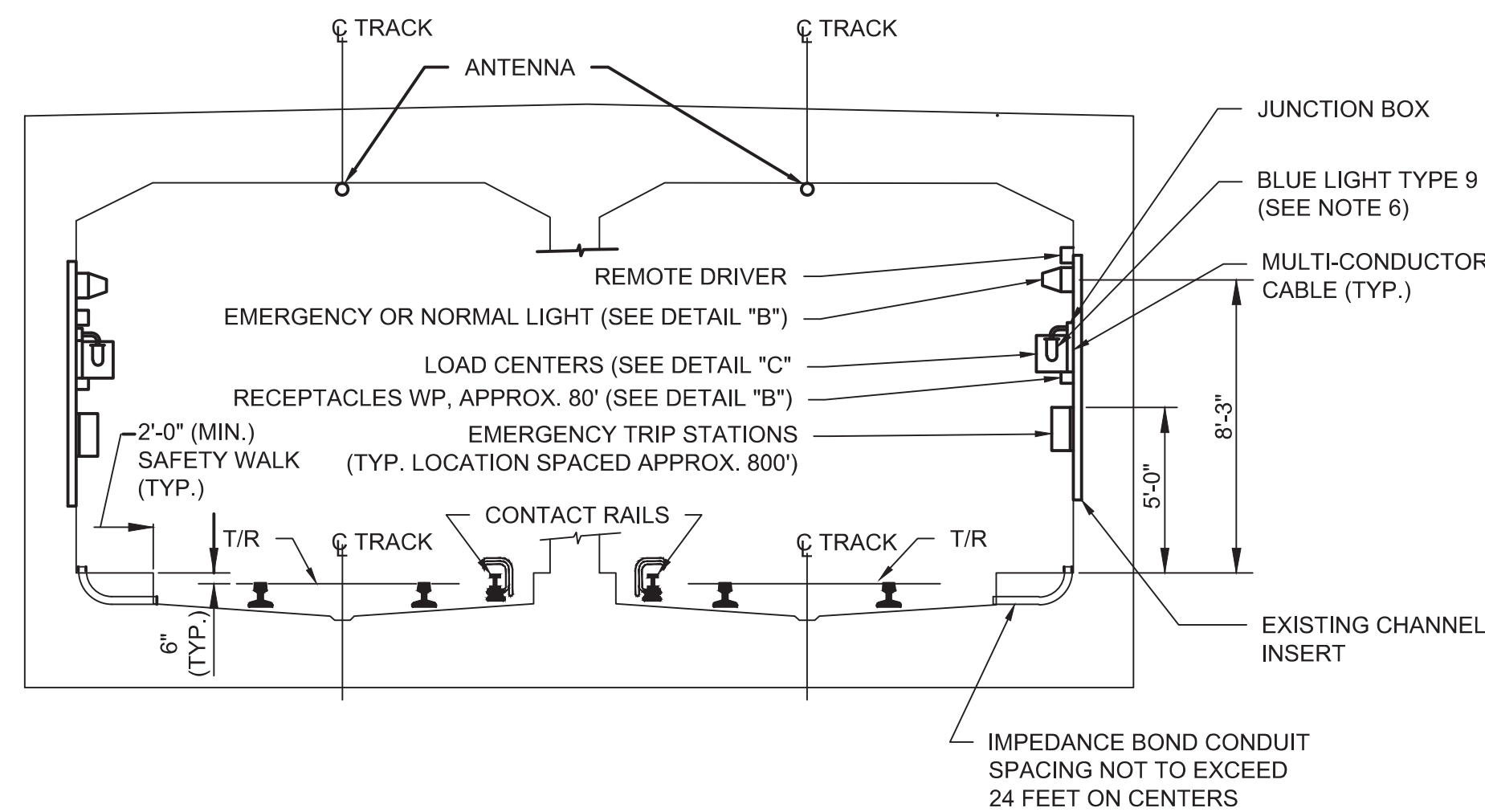
NOTE: PROVIDE 316 STAINLESS STEEL CABLE CLAMPS IN BASE BID.
ADD-ALTERNATE: PROVIDE NON-METALLIC FRE CABLE CLAMPS AS AN ALTERNATE IN BASE BID.



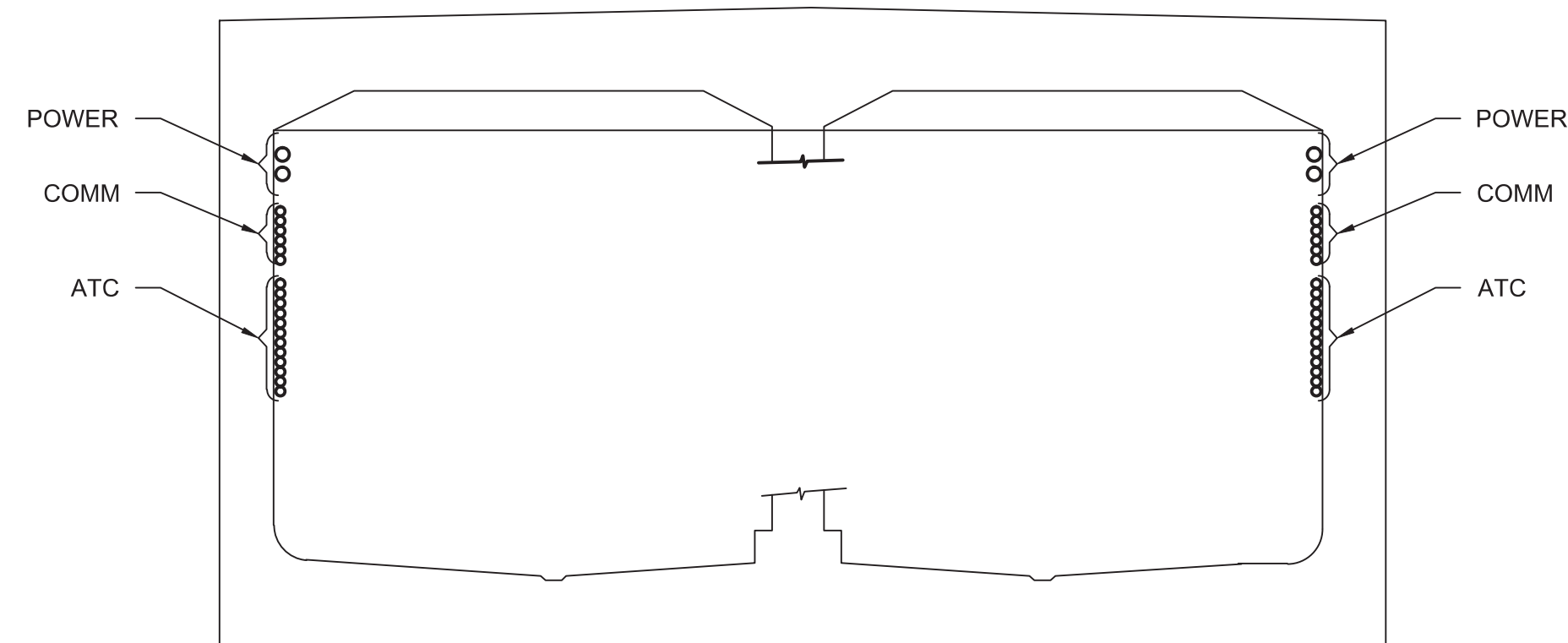
TYPICAL SCHEMATIC DIAGRAM FOR LOAD CENTERS & RECEPTACLES



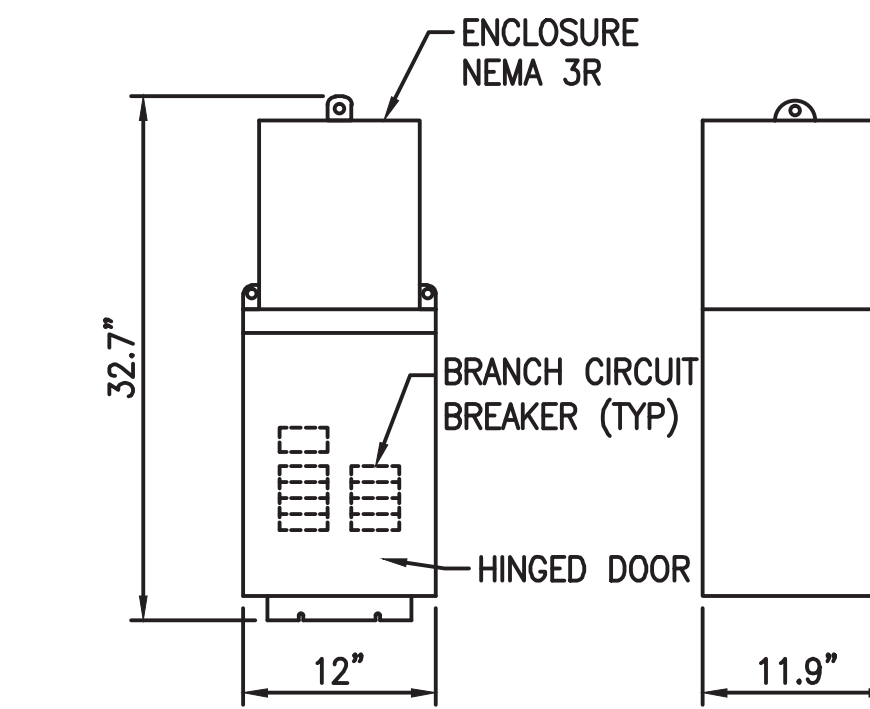
DETAIL "B"



CUT & COVER DOUBLE BOX TUNNEL

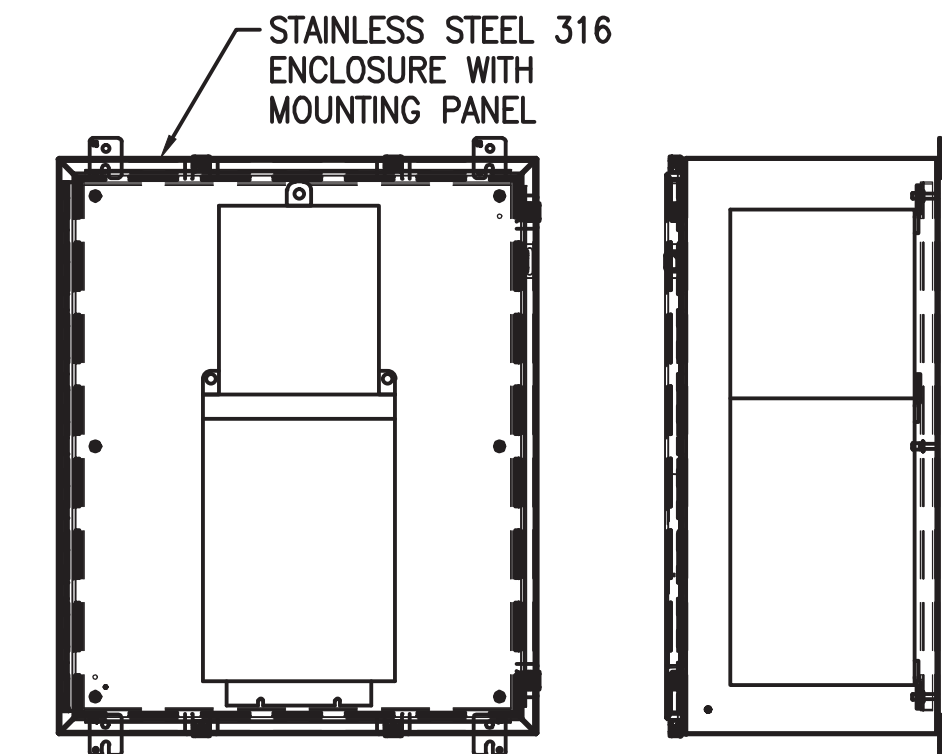


TYPICAL CABLE ARRANGEMENT IN TUNNEL



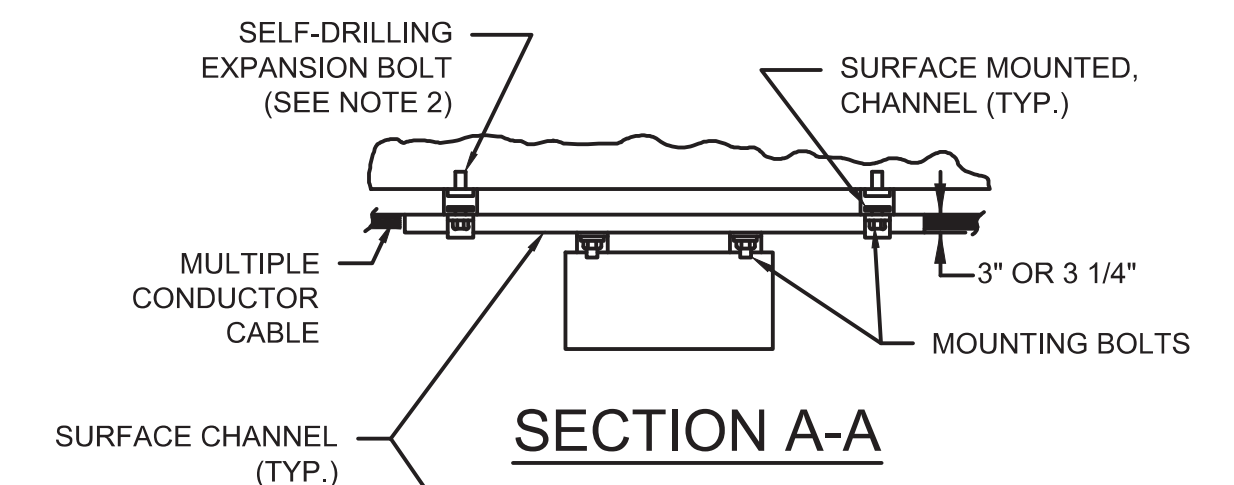
DETAIL "C"
LOAD CENTER

(ALL DIMENSIONS ARE APPROX.)

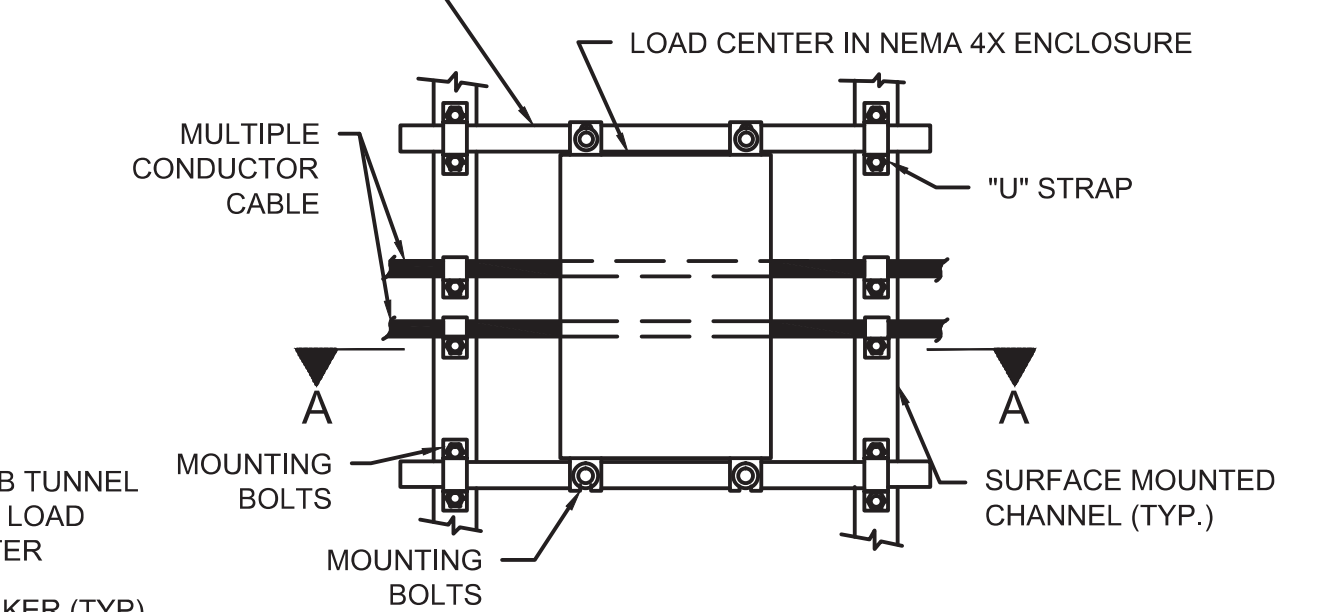


NEMA 4X ENCLOSURE FOR LOAD CENTER

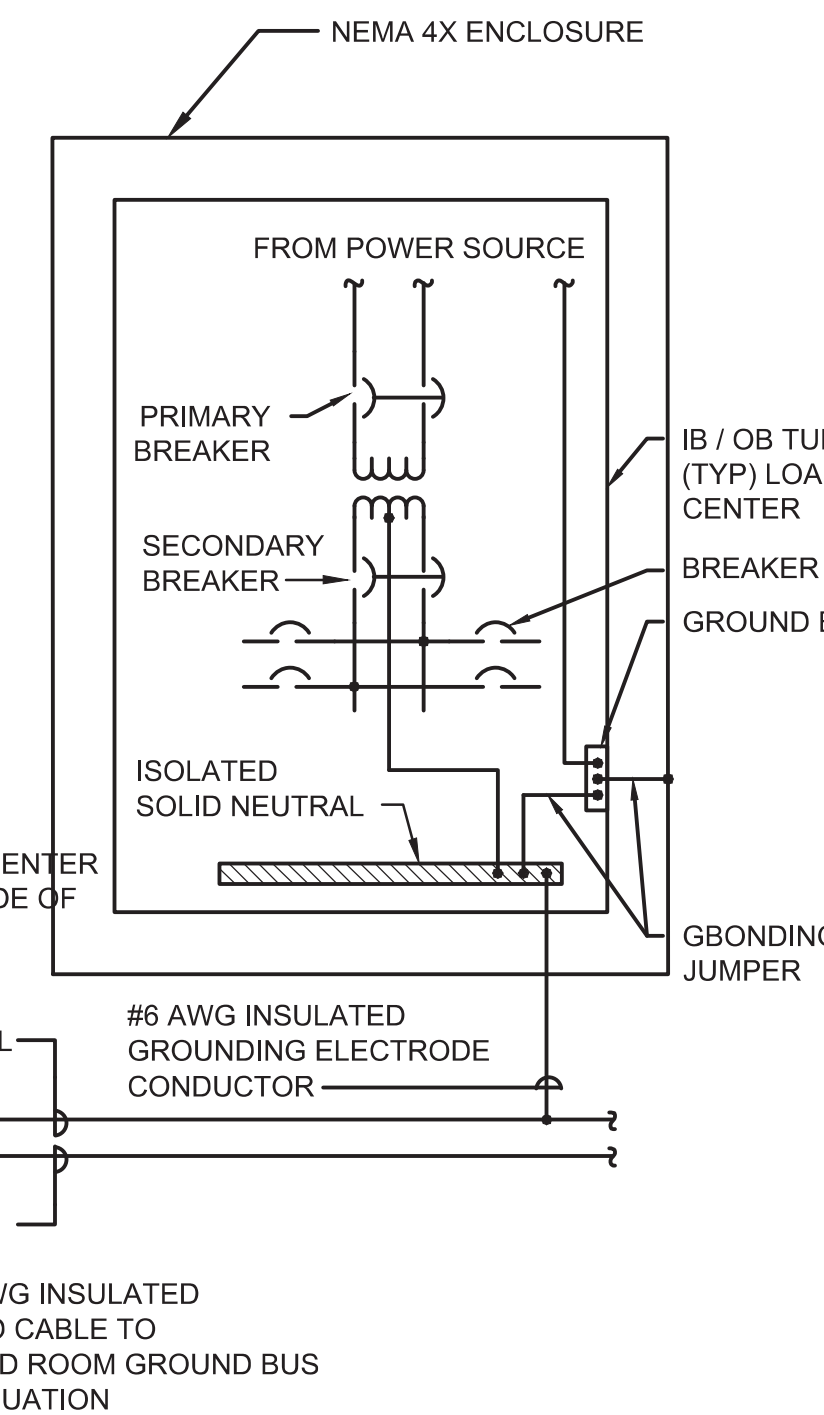
(36 X 30 X 16, CLAMP TYPE HINGED DOOR HUBBELL OR EQUAL)



SECTION A-A



DETAIL "D"
LOAD CENTER MOUNTING DETAILS



TUNNEL LOAD CENTER GROUNDING DETAIL

NOTES:

- CONDUIT AND MULTIPLE CONDUCTOR CABLE ENTRIES INTO BOXES SHALL BE VIA THREADED CONDUIT ENTRANCE HUB OR WATERTIGHT ALUMINUM TERMINAL FITTINGS.
- EXPANSION BOLT 16" ON CENTER MAXIMUM SO AS TO PROVIDE A MINIMUM PULL-OUT LOAD RATING OF 1000 POUNDS PER LINEAR FOOT OF CHANNEL. THE MINIMUM EMBEDMENT OF EXPANSION BOLTS SHALL BE 3 1/2". BOLT SIZE SHALL BE PER MANUFACTURER'S RECOMMENDATIONS AND CERTIFICATION.
- MOUNT LOAD CENTERS LOWER THAN BLUE LIGHTS SO LOAD CENTERS WILL NOT OBSCURE THE BLUE LIGHTS. LOAD CENTERS SHALL BE IN NEMA 3R ENCLOSURE.
- RECEPTACLES ARE WEATHERPROOF, GFI TYPE.
- MOUNT EQUIPMENT ON SPACERS TO KEEP DISTANCE TO CONCRETE WALL NOT LESS THAN 1".
- CONFIGURE BLUE LIGHTS FOR STEADY OPERATION (NON-FLASHING).
- MOUNT NEW RECEPTACLES AT THE SAME HEIGHT AS EXISTING.

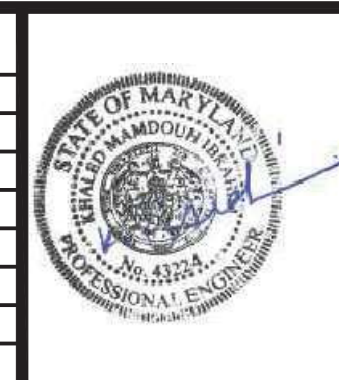
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43224, EXPIRATION DATE 04-14-2015.

FINAL CONTRACT NO. FQ15093

DESIGNED	K. IBRAHIM	01/30/14
DRAWN	V. BHALLA	01/30/14
CHECKED	A. FISHEL	01/30/14
APPROVED	J. PURDY	01/30/14

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION

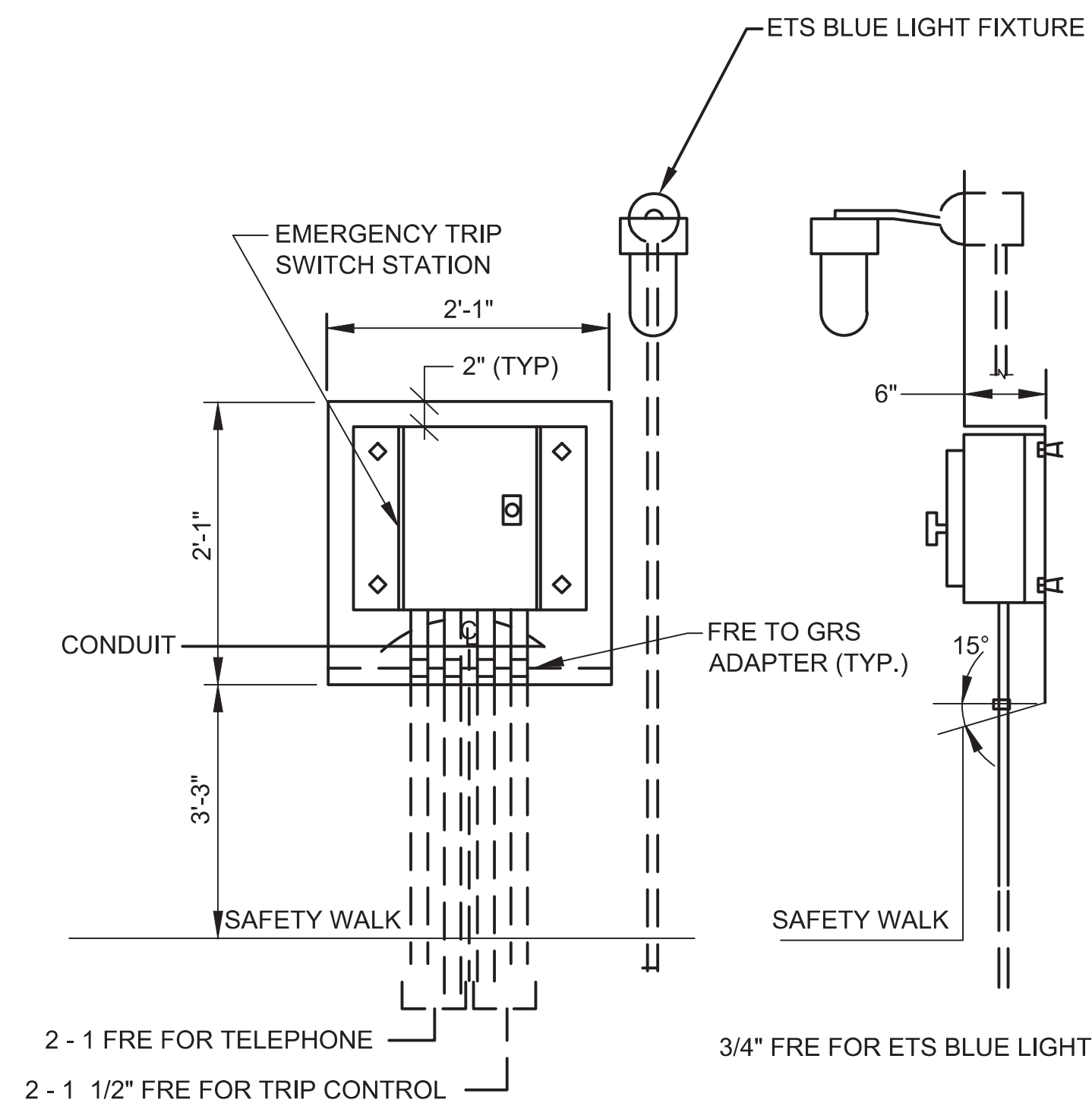


WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE
SUBMITTED Brad Mason, P.E. PROJECT MANAGER

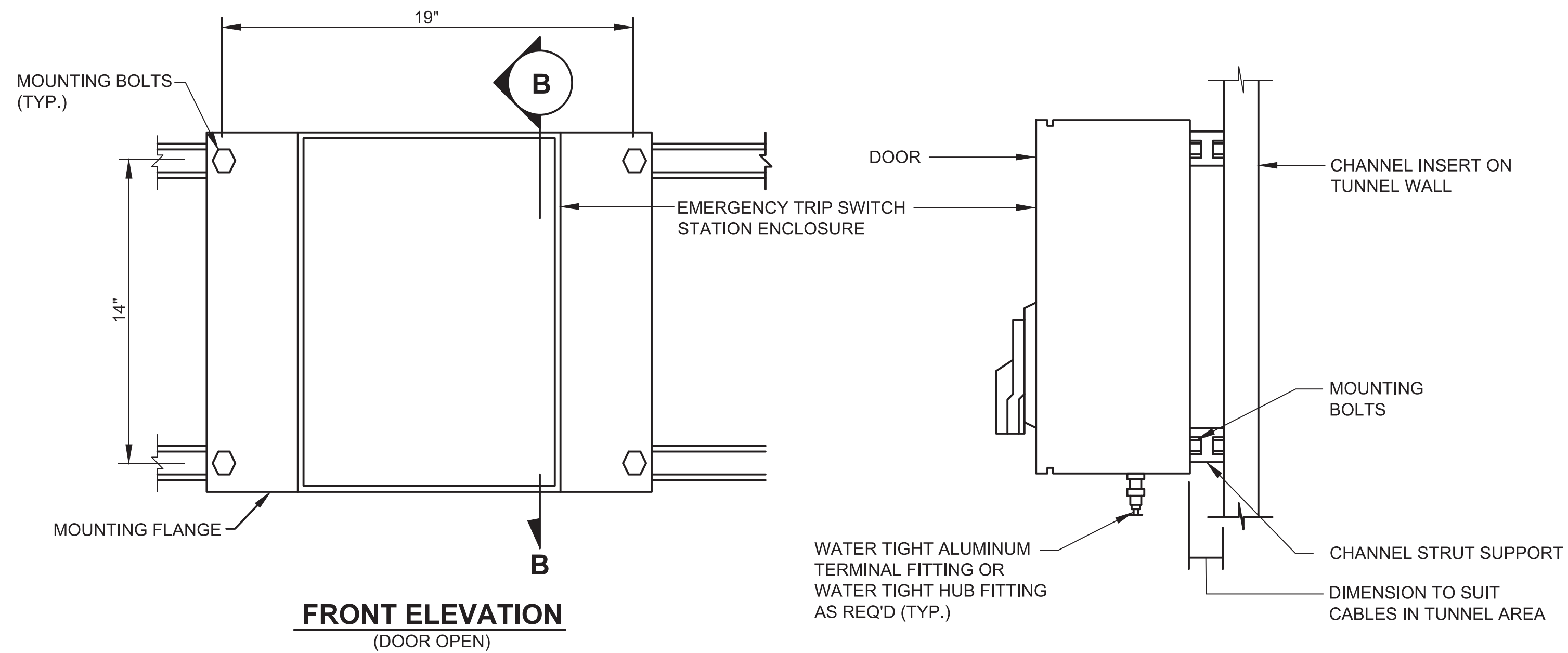
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
MISCELLANEOUS DETAILS

SCALE NOT TO SCALE
DRAWING NO. T-E-500
SHEET NO. M1272-068



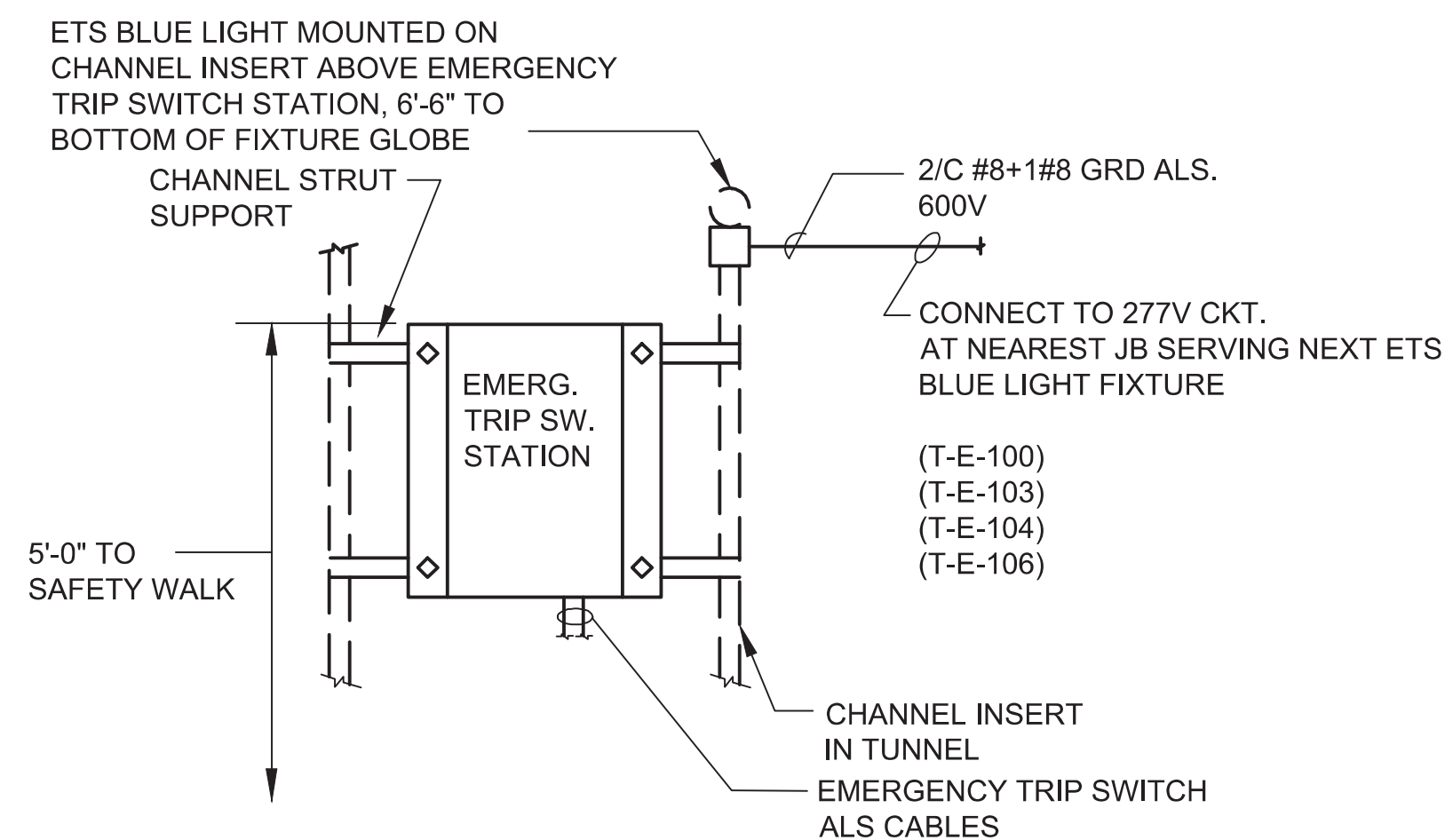
**RECESS FOR EMERGENCY TRIP STATION
AT END OF STATION PLATFORM**

A83, 84, 105-108, 121-124, 155, 156



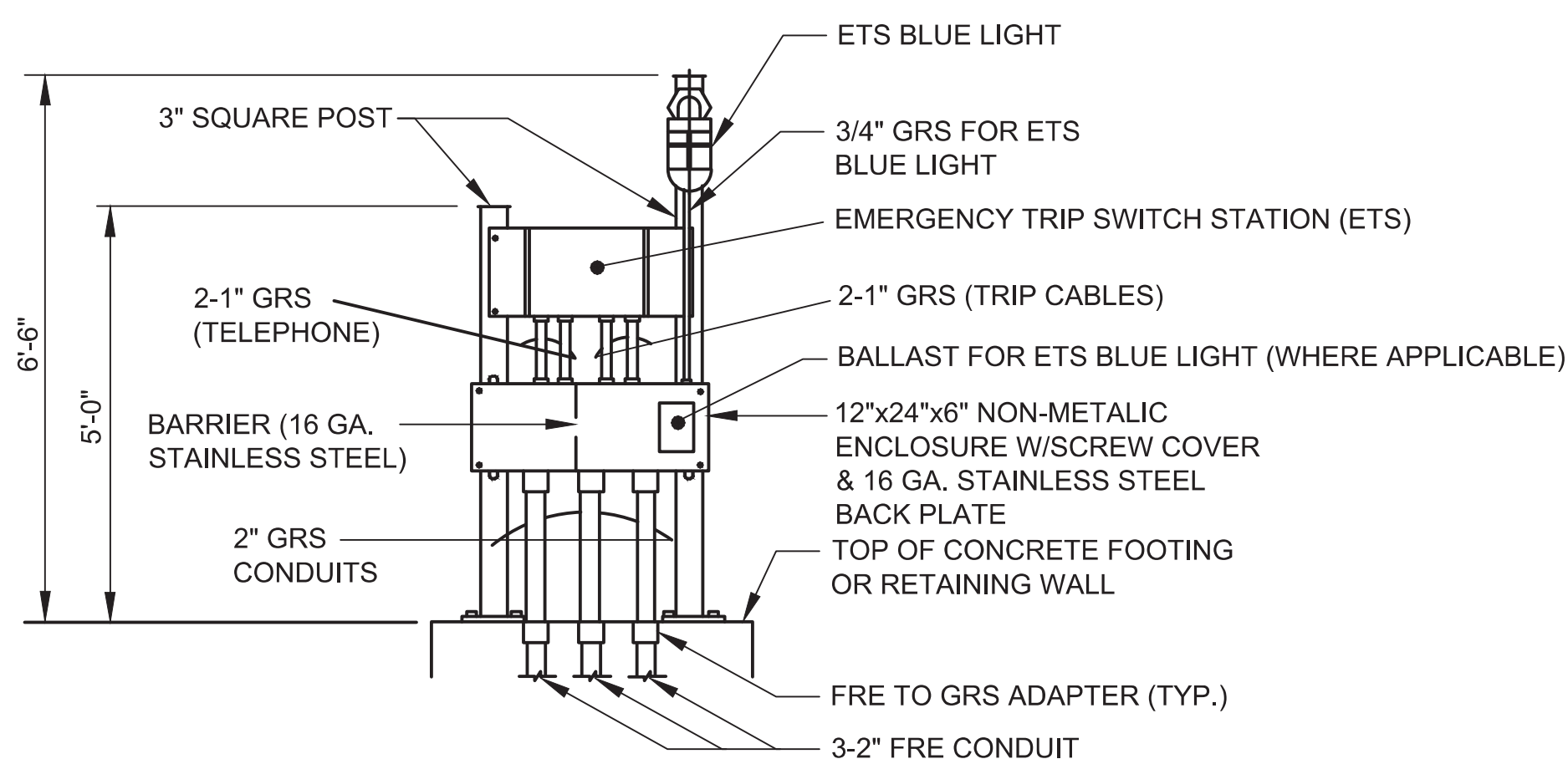
**SURFACE MOUNTED
EMERGENCY TRIP STATION**

SECTION B - B



**TUNNEL WALL MOUNTED
EMERGENCY TRIP STATION**

A85-104, 109,-120, 125-140



**EXTERIOR POST MOUNTED
EMERGENCY TRIP STATION**

A141-156

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43224, EXPIRATION DATE 04-14-2015.

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CHECKED	A. FISHEL	01/30/15				
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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM



APPROVED _____

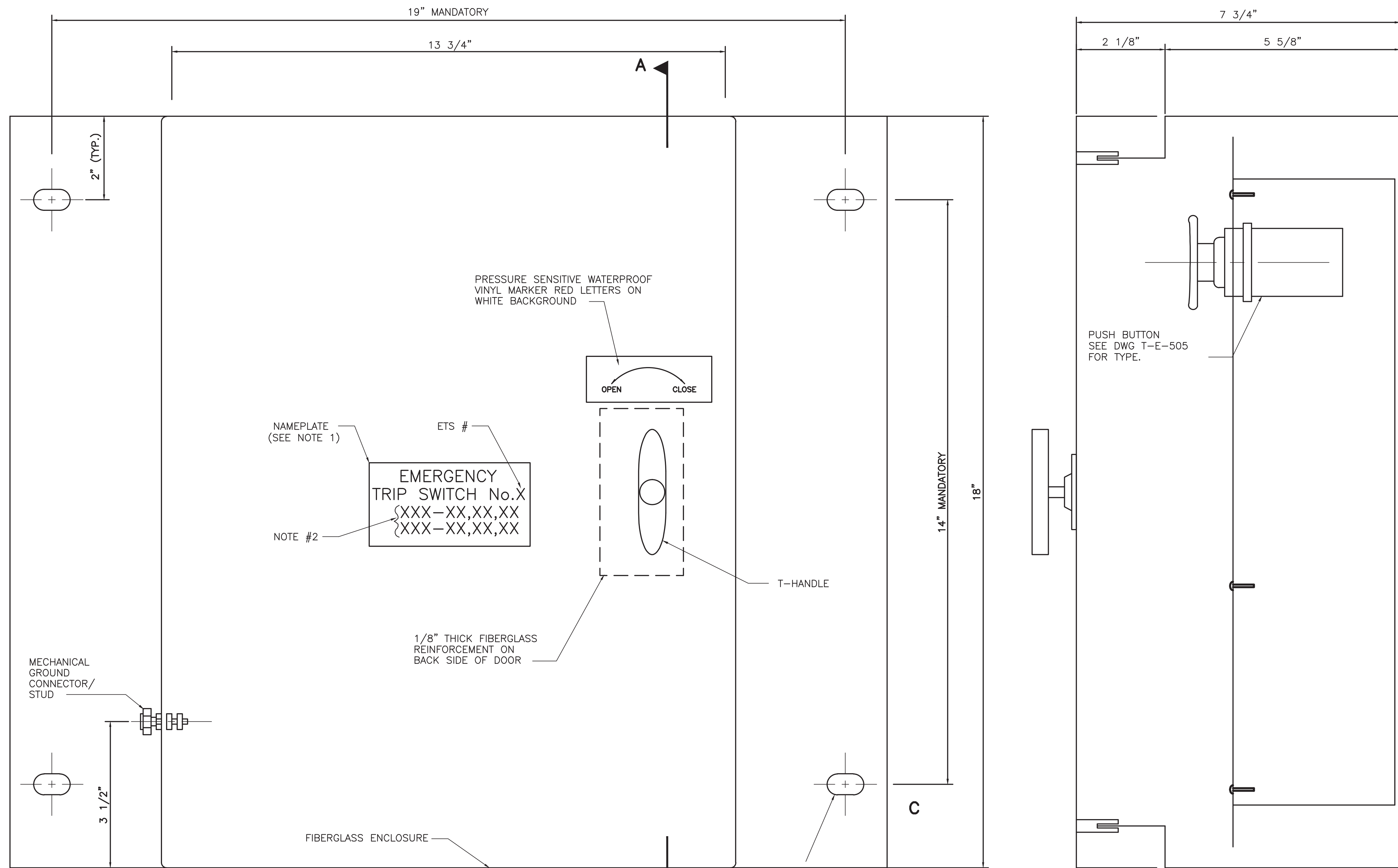
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
ETS CABINET MOUNTING DETAILS

SCALE NOT TO SCALE

DRAWING NO. T-E-501

SHEET NO. M1272-069



19" MANDATORY

13 3/4"

2" (TYP.)

2 1/8"

7 3/4"

5 5/8"

14" MANDATORY

18"

3 1/2"

7/8"x1/2" SLOTTED HOLE TYPICAL

NAMEPLATE (SEE NOTE 1)

ETS #

EMERGENCY TRIP SWITCH No. X
{XXX-XX,XX,XX
{XXX-XX,XX,XX

NOTE #2

PRESSURE SENSITIVE WATERPROOF VINYL MARKER RED LETTERS ON WHITE BACKGROUND

OPEN CLOSE

T-HANDLE

1/8" THICK FIBERGLASS REINFORCEMENT ON BACK SIDE OF DOOR

MECHANICAL GROUND CONNECTOR/STUD

FIBERGLASS ENCLOSURE

PUSH BUTTON SEE DWG T-E-505 FOR TYPE.

NOTES:

1. NAMEPLATE ENGRAVING BELOW ETS NO. TO BE DETERMINED IN FIELD. COORDINATE WITH WMATA PROJECT MANAGER ON SITE.
2. CIRCUIT BREAKER NUMBERS TRIPPED BY ETS. (EG. A10-32,36,42)

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		DATE
APPROVED	J. PURDY	01/30/15
		DATE

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE

SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

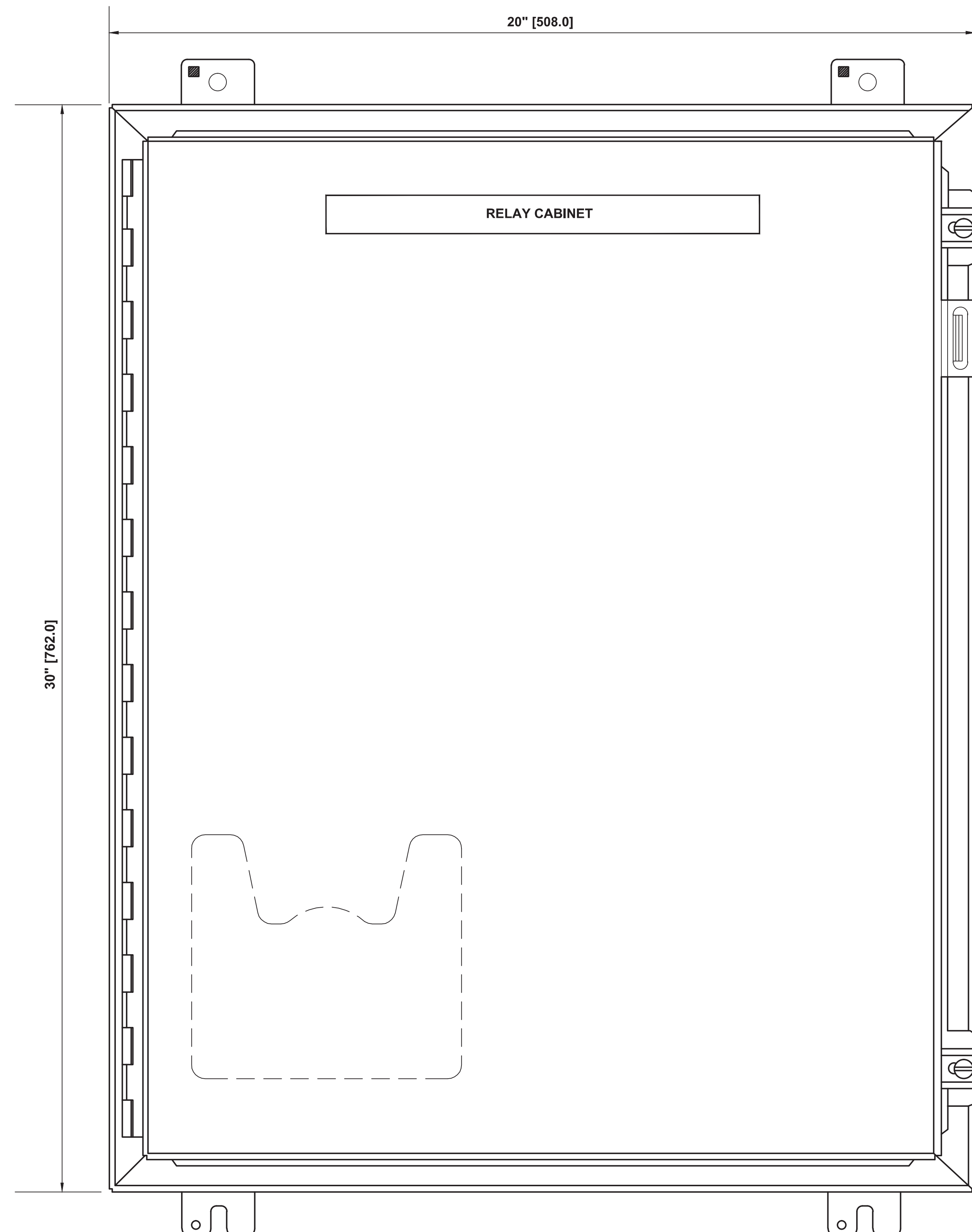
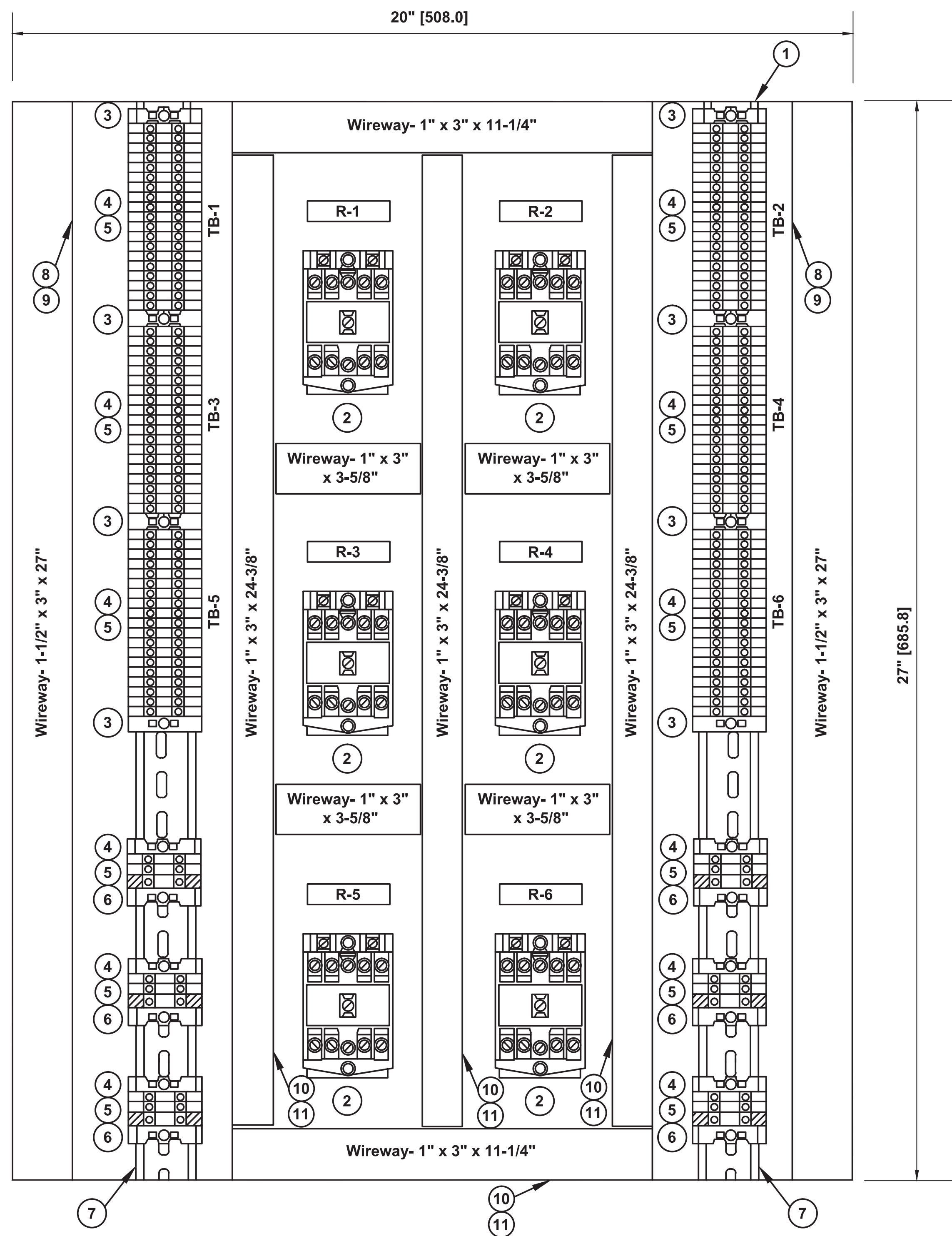
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1

ETS ENCLOSURE AND PANEL LAYOUTS

SCALE NOT TO SCALE

DRAWING NO. T-E-502

SHEET NO. M1272-070



Hoffman Enclosure: A302410LP
30" High x 24" Wide x 10" Deep
NEMA 12, Wall Mounted

EMERGENCY TRIP STATION RELAY CABINET PANEL LAYOUT

3" = 1'-0"

NOTE:

1. REFER SHEET T-E-504 FOR BILL OF MATERIALS.
2. NUMBER OF RELAYS DIFFER FOR EACH CABINET. SEE DWGS. T-E-600 AND T-E-601 TO DETERMINE NUMBER OF REQUIRED RELAYS.

EMERGENCY TRIP STATION RELAY CABINET ENCLOSURE LAYOUT

3" = 1'-0"

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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

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OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM



APPROVED _____

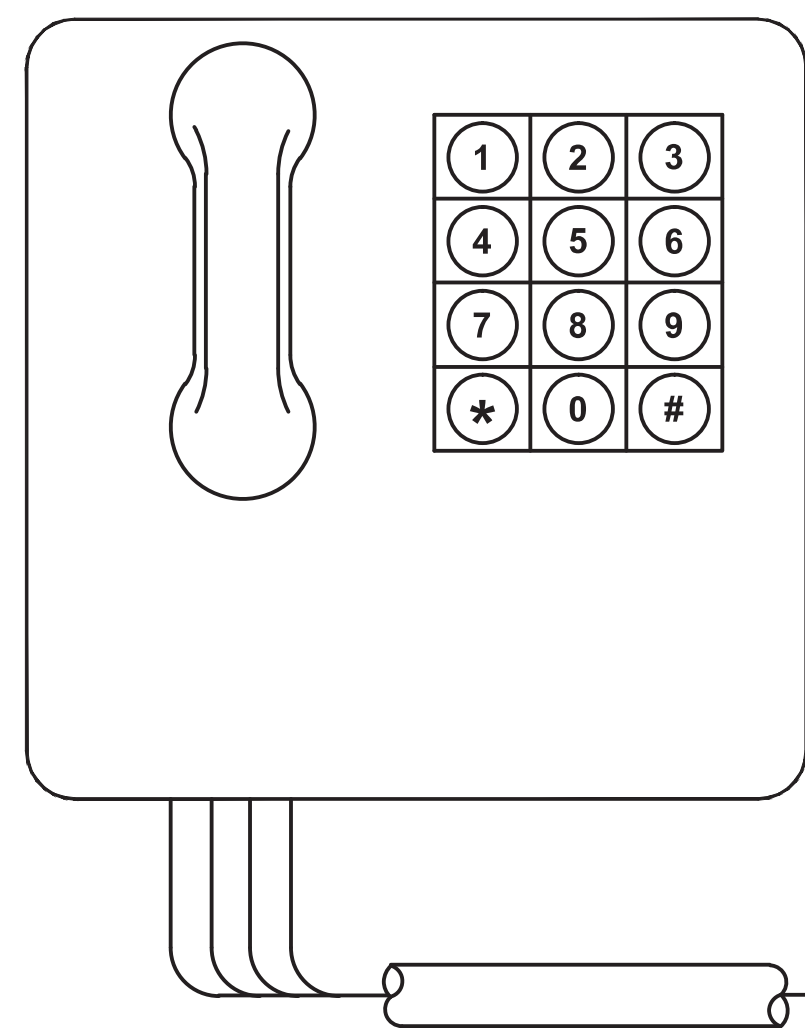
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
ETS RELAY CABINET ENCLOSURE LAYOUTS

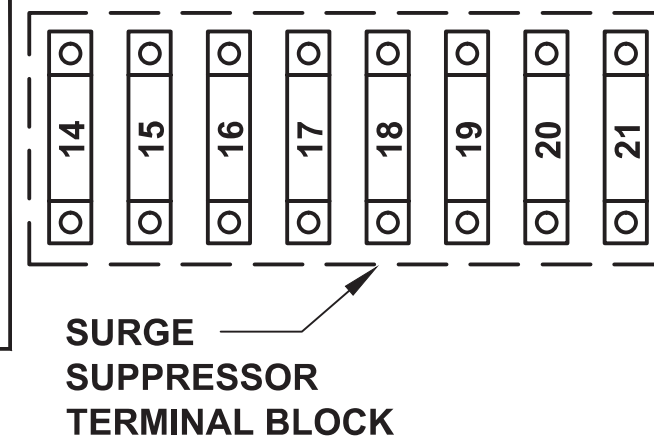
SCALE NOT TO SCALE

DRAWING NO. T-E-503

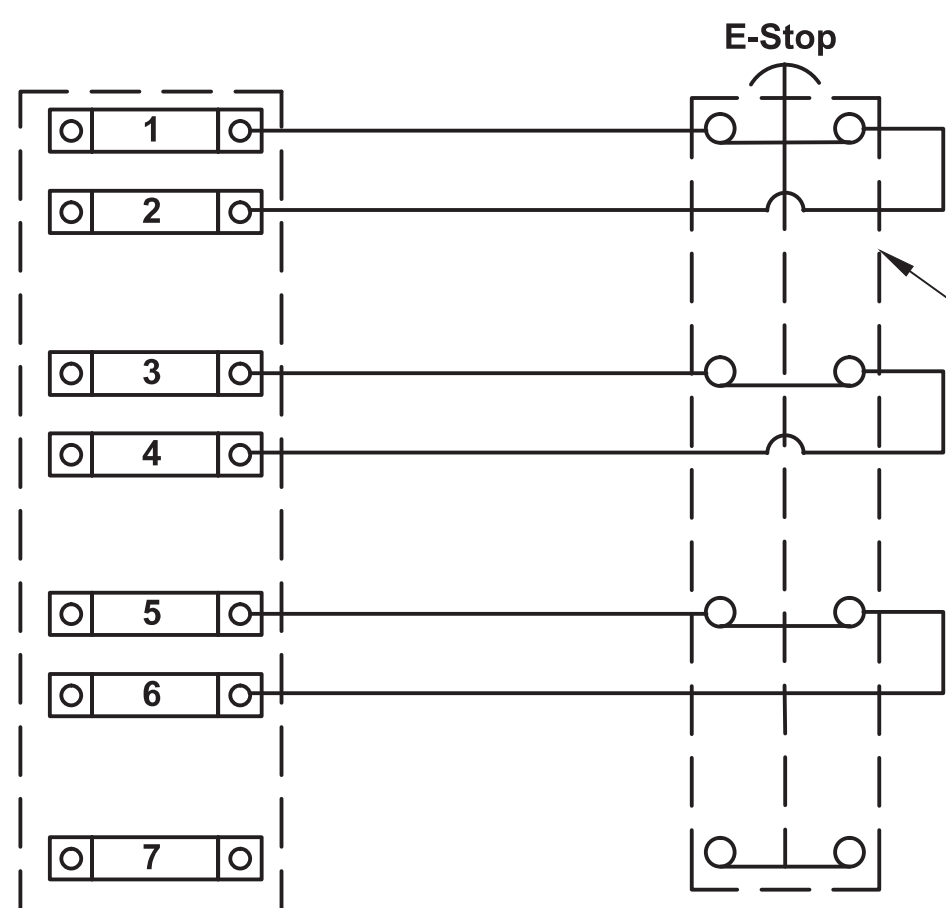
SHEET NO. M1272-071



SURGE SUPPRESSOR

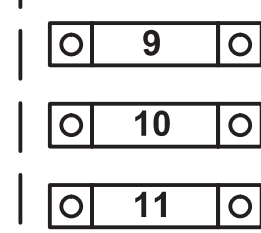


SURGE SUPPRESSOR TERMINAL BLOCK



SEE DWG. E-505 FOR SPEC

FOR INTERCONNECTIONS SEE DWG T-E-602

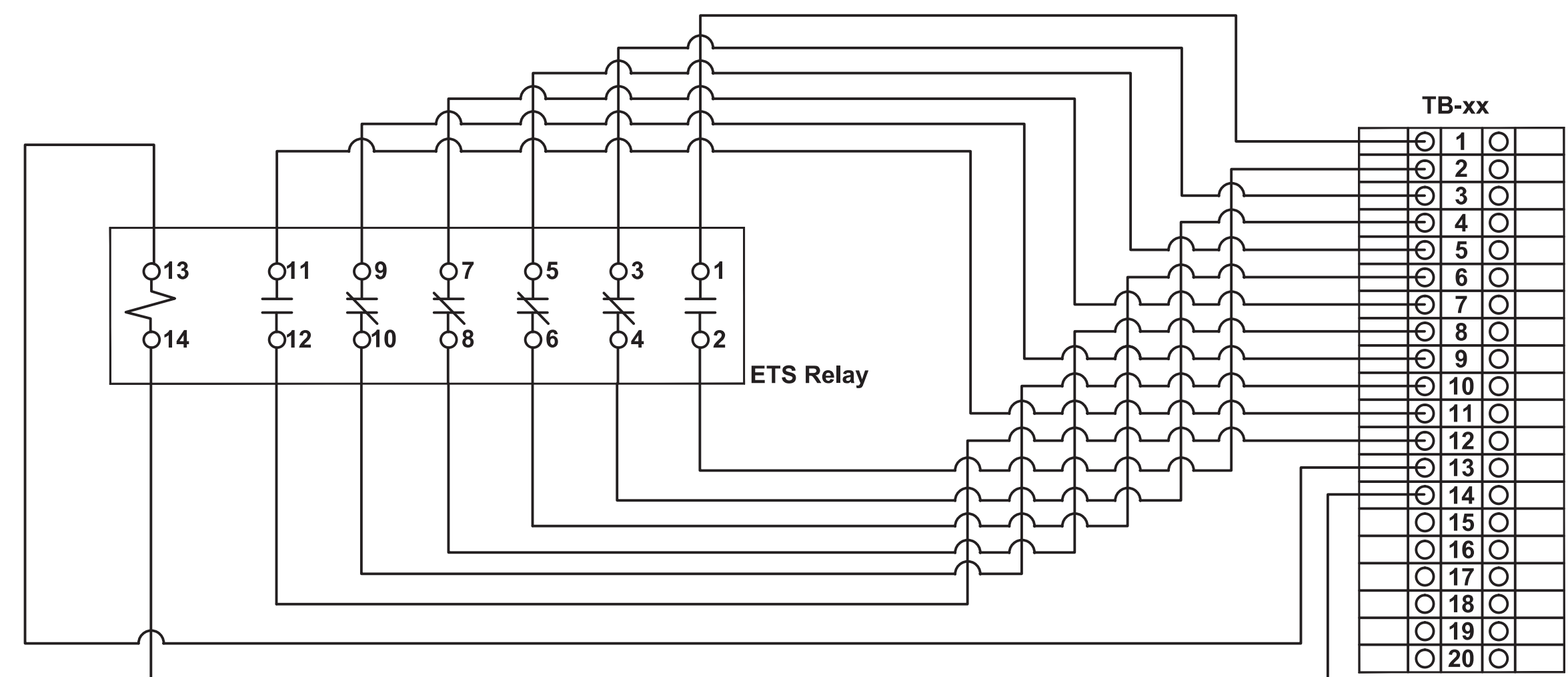


TERMINAL BLOCK FOR PUSHBUTTON WIRING. SEE DWG. E-505 FOR SPEC

EMERGENCY TRIP STATION WIRING DIAGRAM

NOT TO SCALE

NOTE:
1. FOR EQUIPMENT LAYOUT SEE DWG T-E-505. FOR INTERCONNECTION DIAGRAM SEE DWG T-E-602.



TYPICAL RELAY WIRING (MOUNTED IN ETS RELAY CABINET)

NOT TO SCALE

FOR INTERCONNECTIONS SEE DWG T-E-602

BILL of MATERIALS				
Item No.	Quantity	Manufacturer	Part Number	Description
①	1	Hoffman	A30P24	Back Panel - 20" x 27"
②	6	Square D	8501XDO60V62	Control Relay
③	9	Phoenix Contact	0800886	End Clamp, E/NS 35 N
④	132	Phoenix Contact	3044102	Terminal Block, Single Level, Gray UT 4
⑤	12	Phoenix Contact	3047028	End Cover, Single Level, D-UT 2.5/10
⑥	6	Phoenix Contact	3044128	Terminal Block, Ground, UT 4-PE
⑦	2	Phoenix Contact	0801733	Din Rail, Low Profile - NS 3.5/7.5
⑧	1	Panduit	F1.5X3WH6	Wireway, 1-1/2" x 3" White (6'-0" Long)
⑨	1	Panduit	C1.5WH6	Wireway Cover, 1-1/2" White (6'-0" Long)
⑩	2	Panduit	F1X3WH6	Wireway, 1" x 3" White (6'-0" Long)
⑪	2	Panduit	C1WH6	Wireway Cover, 1" White (6'-0" Long)

ETS RELAY CABINET BILL OF MATERIALS

NOT TO SCALE

NOTE:
1. FOR EQUIPMENT LAYOUTS SEE DWG T-E-503

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FINAL CONTRACT NO. FQ15093

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			NUMBER	DESCRIPTION	DATE	BY
DRAWN	V. BHALLA	01/30/15				
CHECKED	A. FISHEL	01/30/15				
APPROVED	J. PURDY	01/30/15				



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

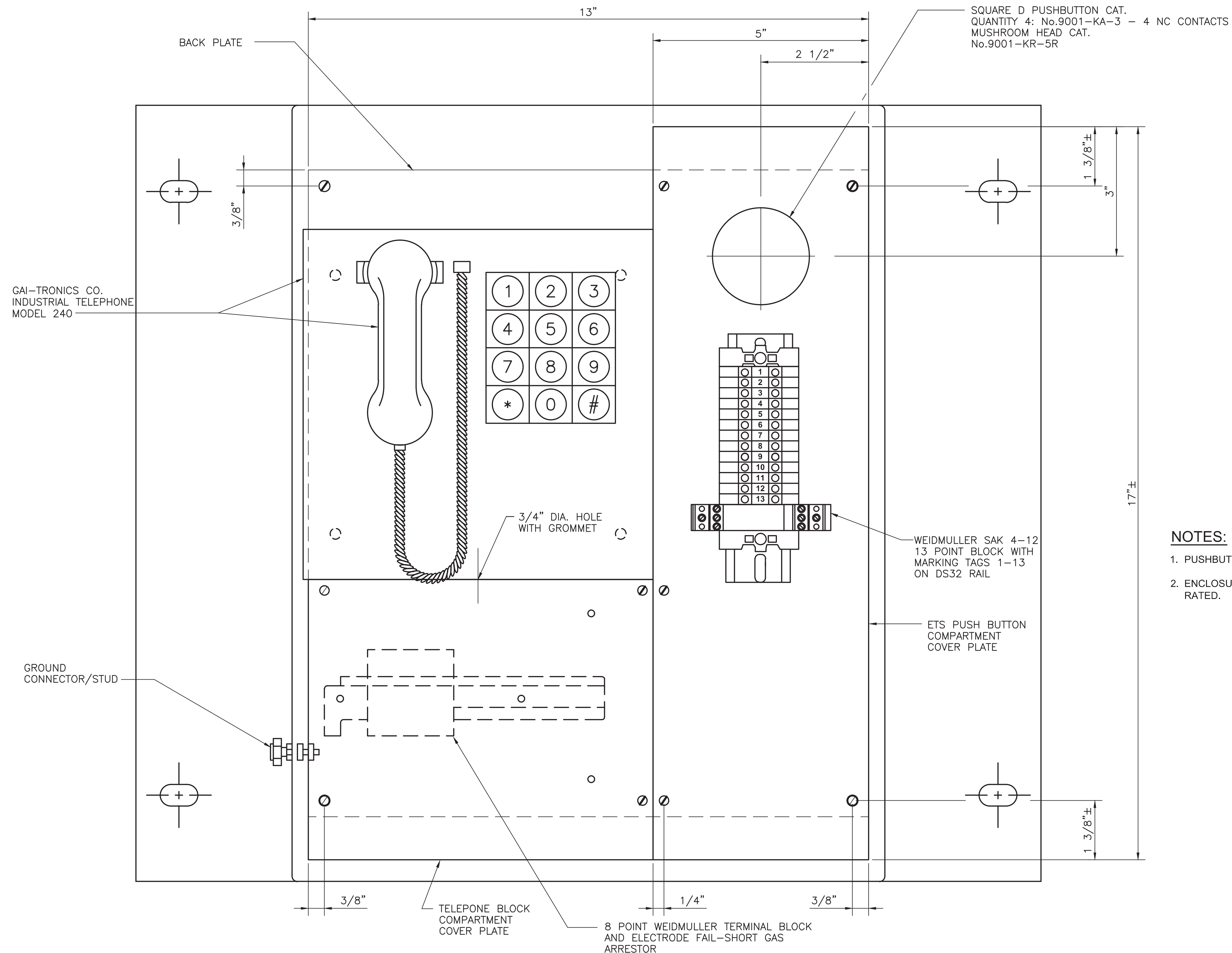
GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED Brad Mason, P.E. PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1

ETS WIRING DIAGRAMS AND BILL OF MATERIAL

SCALE NOT TO SCALE DRAWING NO. T-E-504 SHEET NO. M1272-072



NOTES:

1. PUSHBUTTON SHALL BE MUSHROOM TYPE, RED, WATERTIGHT
2. ENCLOSURE SHALL BE OF FIBERGLASS. THE ASSEMBLY SHALL BE NEMA IP66 RATED.

PANEL LAYOUT WITH OPEN DOOR
NOT TO SCALE

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DATE
DRAWN V. BHALLA 01/30/15
DATE
CHECKED A. FISHEL 01/30/15
DATE
APPROVED J. PURDY 01/30/15
DATE

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY



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APPROVED _____

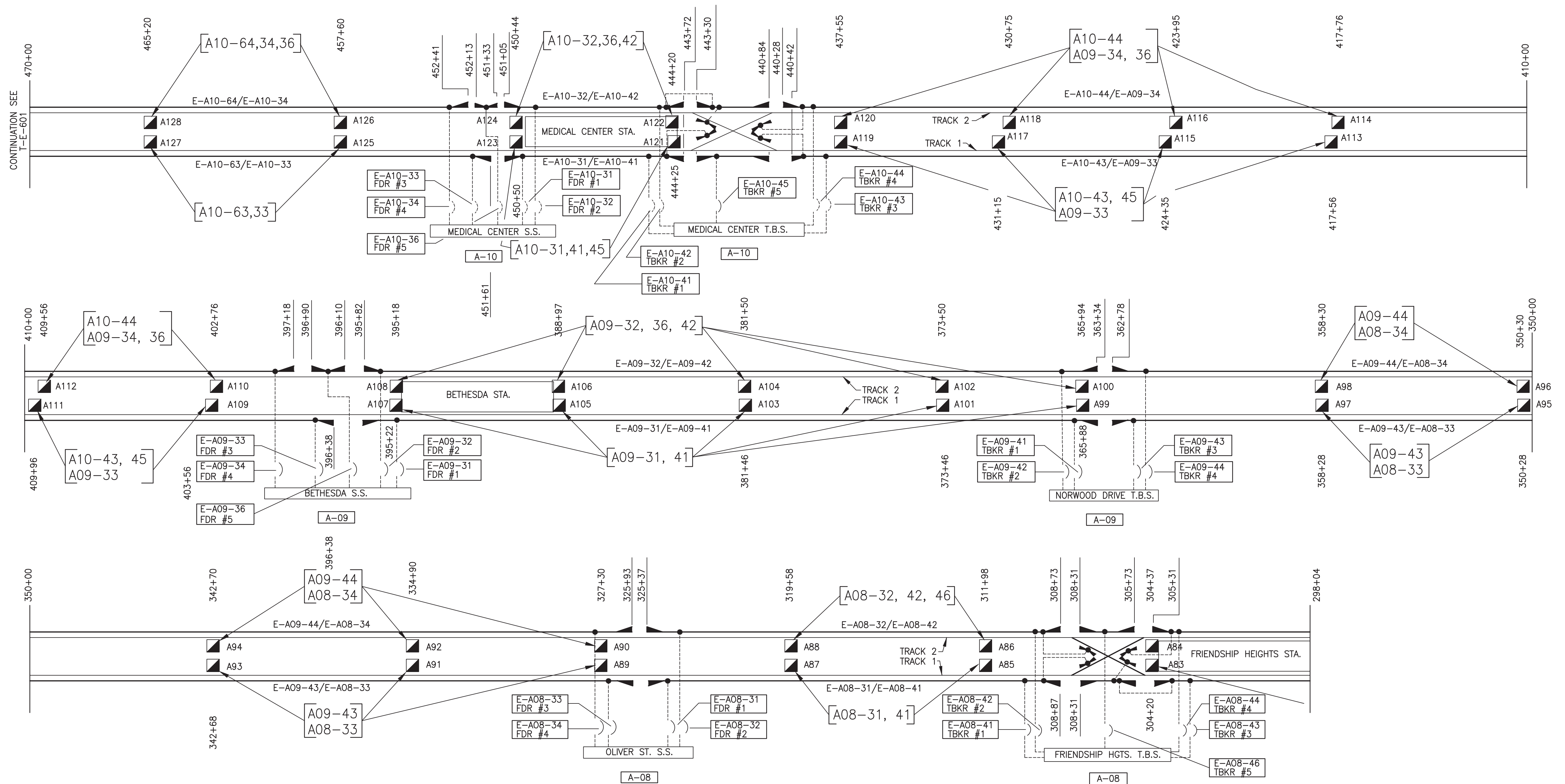
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
ETS ENCLOSURE AND PANEL LAYOUTS

SCALE NOT TO SCALE

DRAWING NO. T-E-505

SHEET NO. M1272-073



NOTES:

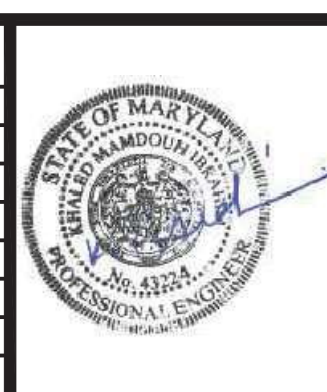
1. FOR ETS CABINET DETAILS, SEE DRAWINGS T-E-501, 502, 504 AND 505.
2. FOR ETS RELAY CABINET (INSTALLED IN TRACTION POWER AND TIE BREAKER STATION) DETAILS, SEE DRAWING T-E-503.
3. FOR TYPICAL ETS INTERCONNECTION DIAGRAM, SEE DRAWING T-E-602.
4. FOR SYMBOLS AND ABBREVIATIONS, SEE DRAWING T-E-002.

REFERENCE DRAWING

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43224, EXPIRATION DATE 04-14-2015.

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APPROVED _____

A Gannett Fleming/Parsons JOINT VENTURE

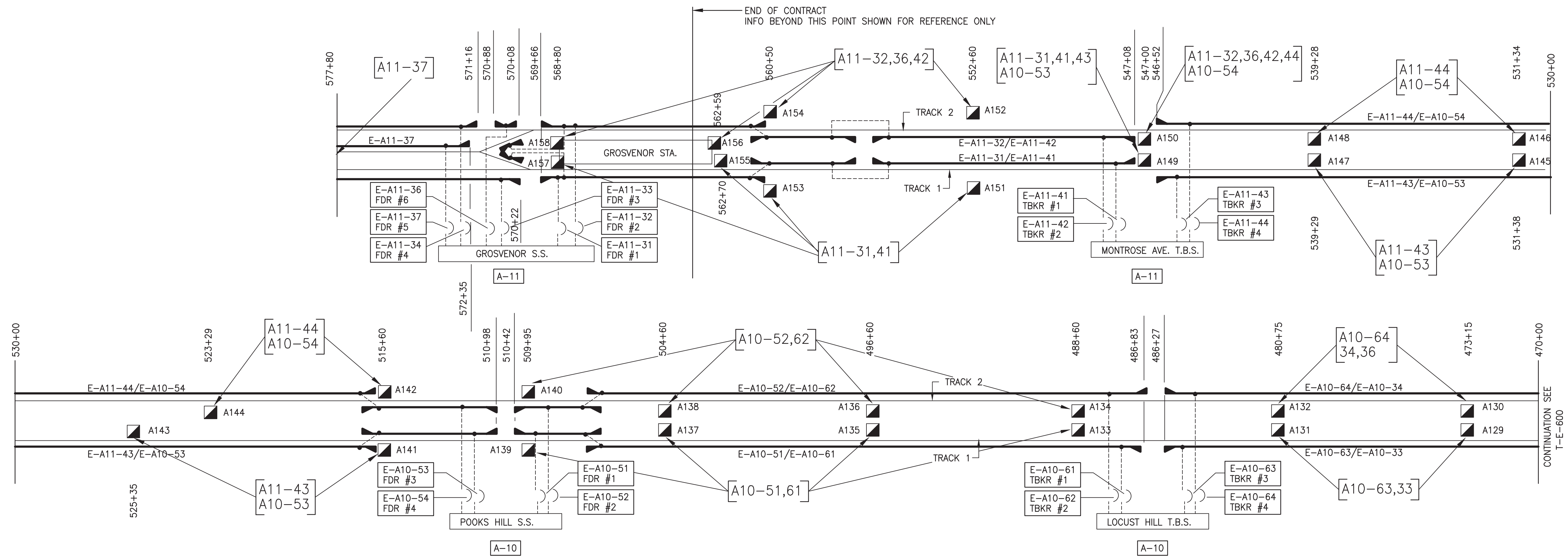
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1

CONTACT RAIL SCHEMATICS AND ETS CONTROLS
STA 298+00 TO 470+00

SCALE NOT TO SCALE

DRAWING NO. **T-E-600**
SHEET NO. **M1272-074**



REFERENCE DRAWING

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43224, EXPIRATION DATE 04-14-2015.

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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

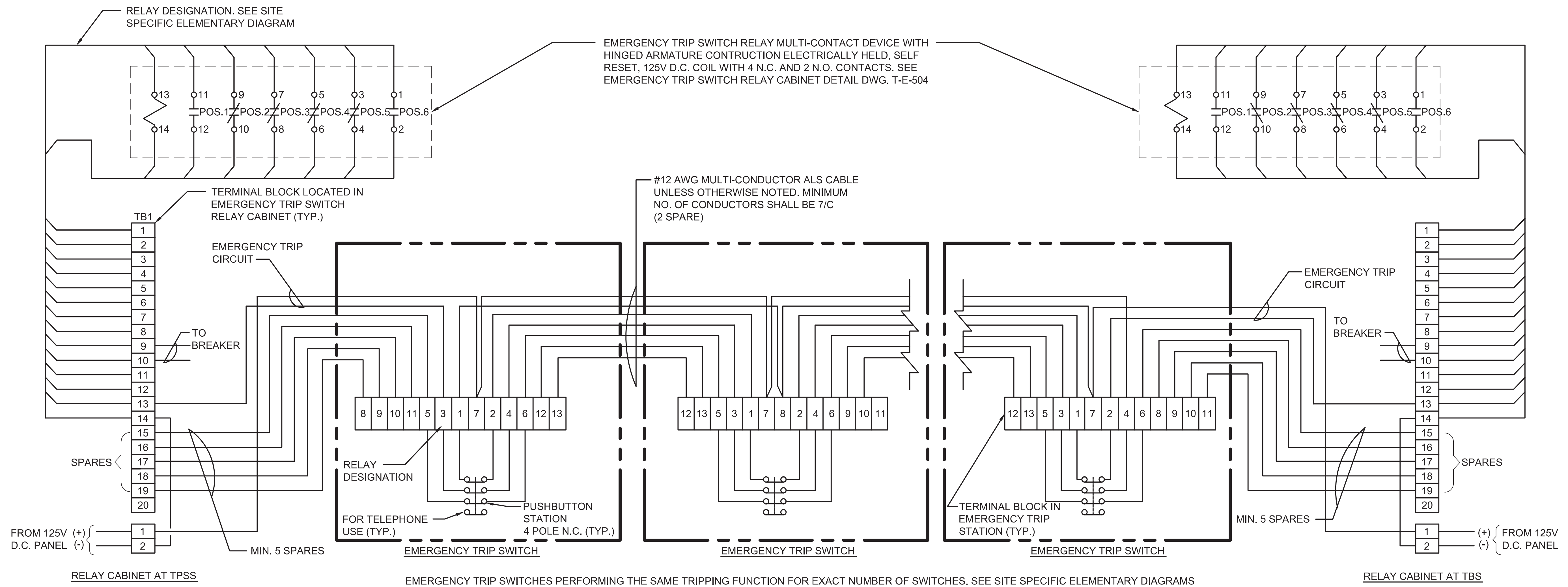
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM



APPROVED _____ SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
CONTACT RAIL SCHEMATIC AND ETS CONTROLS
STA 470+00 TO 578+00

SCALE NOT TO SCALE DRAWING NO. T-E-601 SHEET NO. M1272-075



TYPICAL INTERCONNECTION DIAGRAM

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43224, EXPIRATION DATE 04-14-2015.

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 DRAWN V. BHALLA 01/30/15
 CHECKED A. FISHEL 01/30/15
 APPROVED J. PURDY 01/30/15

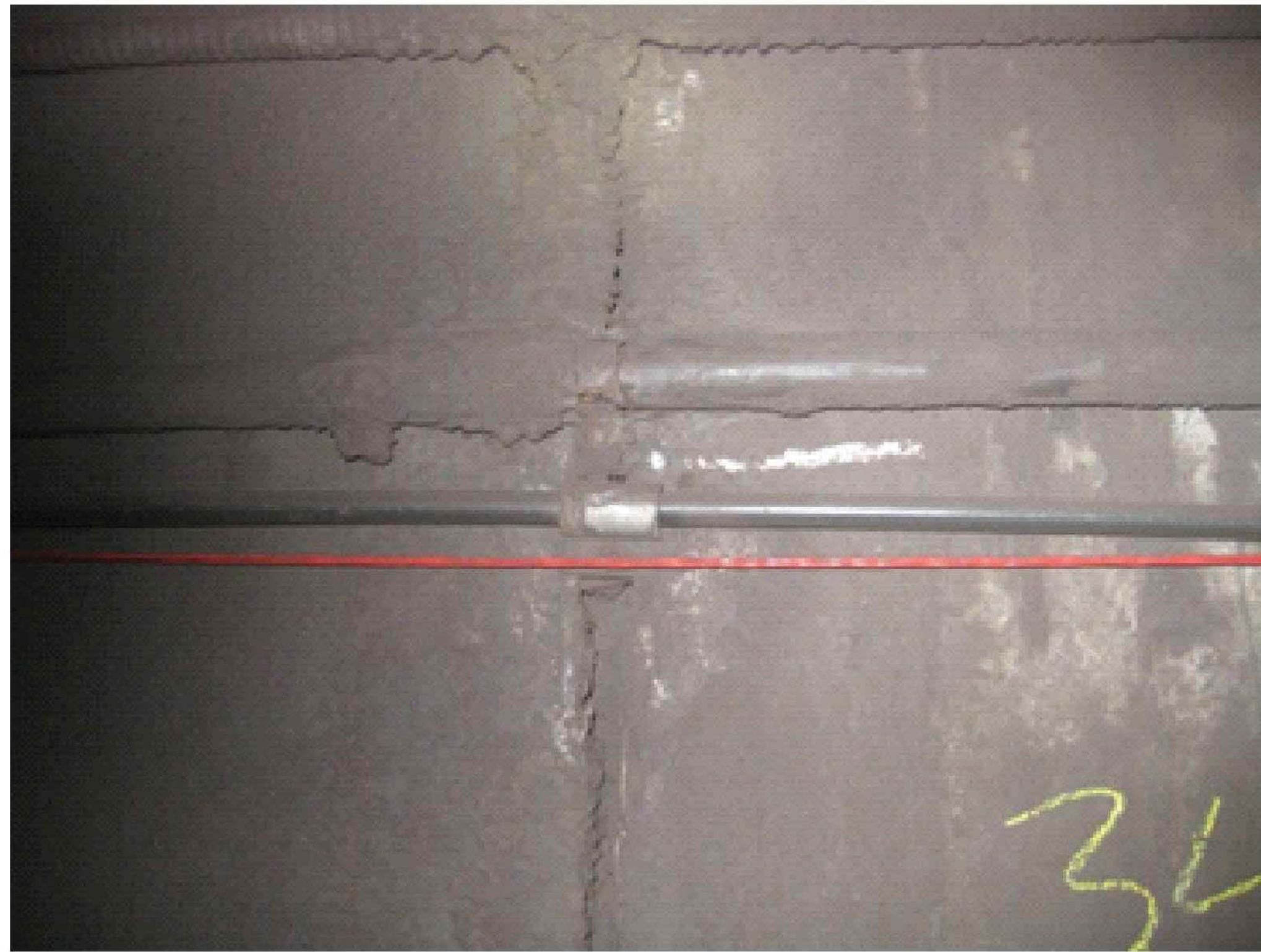
REFERENCE DRAWINGS		REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED _____
 SUBMITTED Brad Mason, P.E.
 PROJECT MANAGER



RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
 ETS INTERCONNECTIONS DIAGRAM
 SCALE NOT TO SCALE
 DRAWING NO. T-E-602
 SHEET NO. M1272-076



———— TYPICAL CABLES WITH HEAVY CALCIFICATION



———— TYPICAL CABLES WITH VERY HEAVY CALCIFICATION



----- TYPICAL CABLES WITH BROKEN SUPPORT

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43224, EXPIRATION DATE 04-14-2015.

FINAL

CONTRACT NO. FQ15093

	REFERENCE DRAWINGS		REVISIONS		
	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
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		DATE			
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		DATE			
CHECKED	A. FISHEL	01/30/15			
		DATE			
APPROVED	J. PURDY	01/30/15			
		DATE			



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APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE

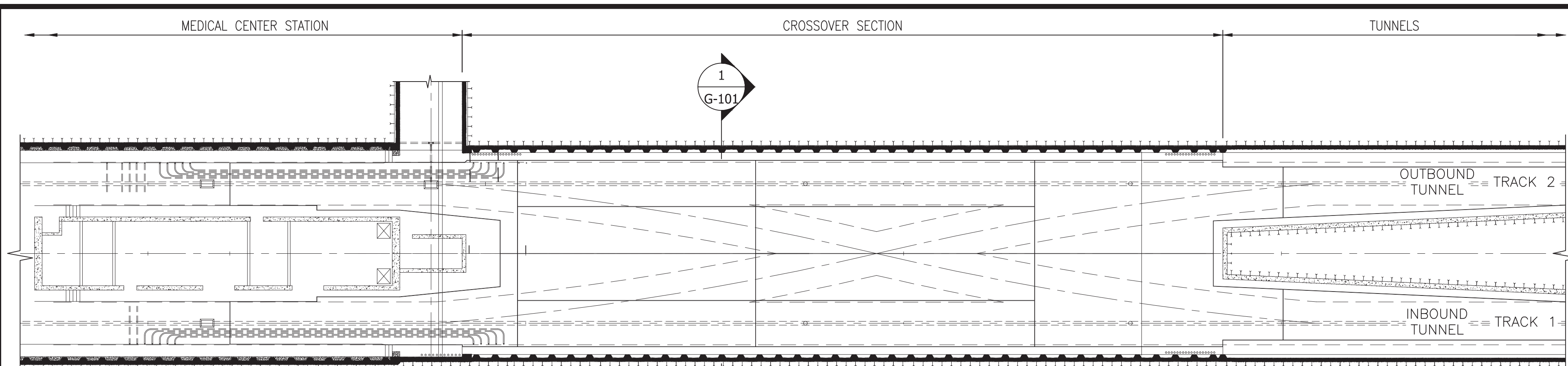
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 1
REPRESENTATIVE PICTURES

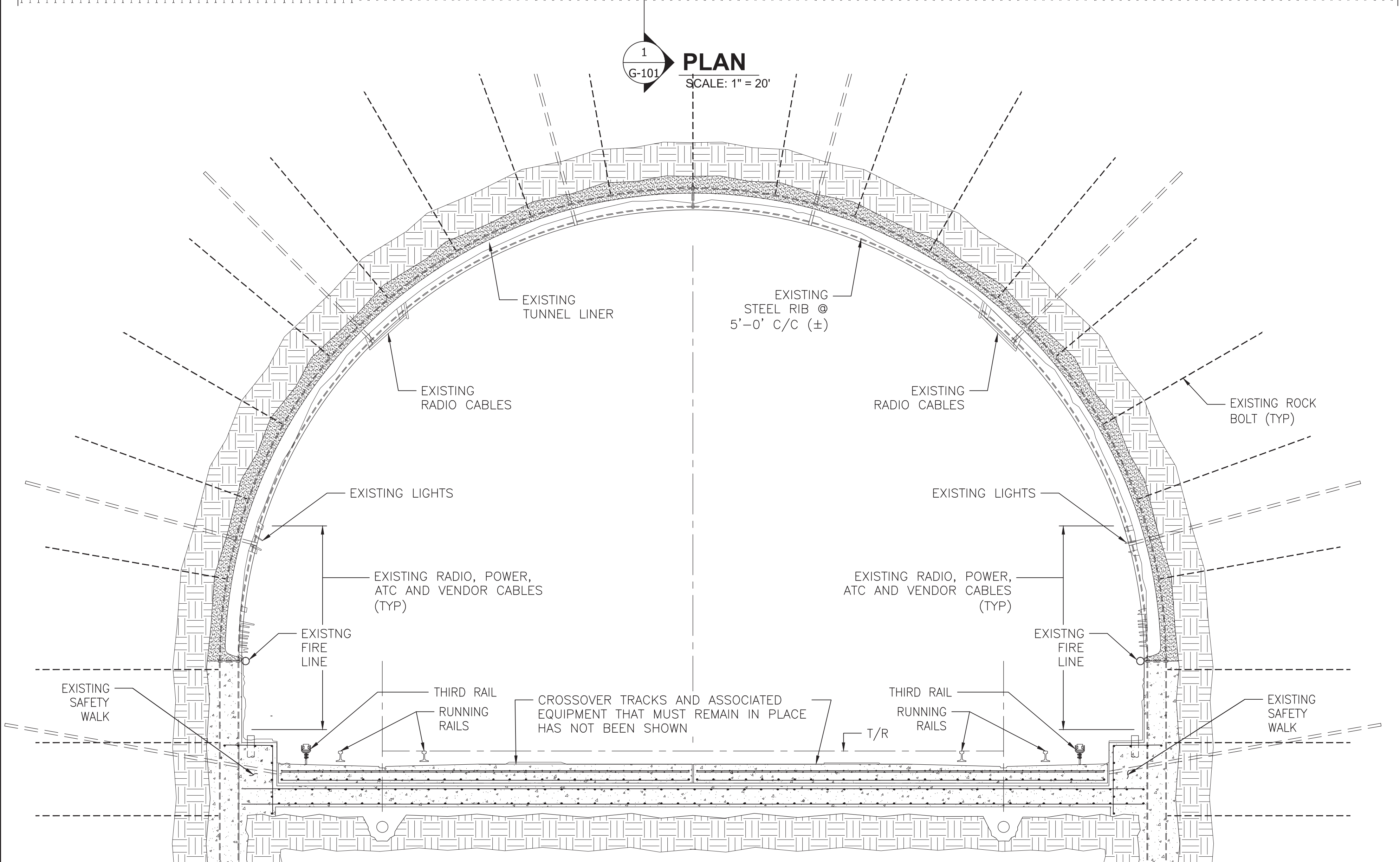
SCALE NOT TO SCALE

DRAWING NO. T-E-700

SHEET NO. M1272-077

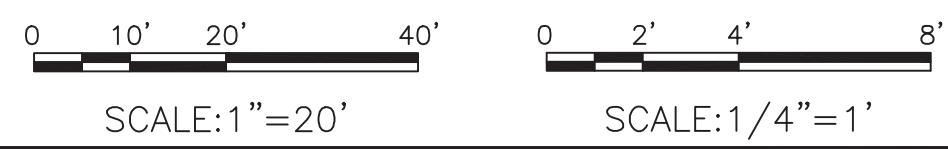


PLAN
SCALE: 1" = 20'



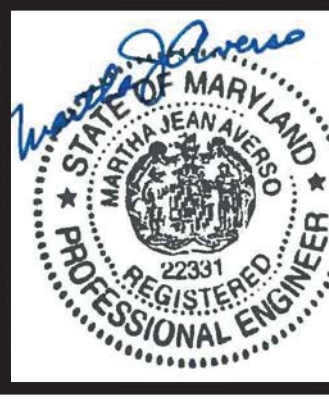
SECTION
SCALE: 1/4" = 1'-0"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."



FINAL CONTRACT NO. FQ15093

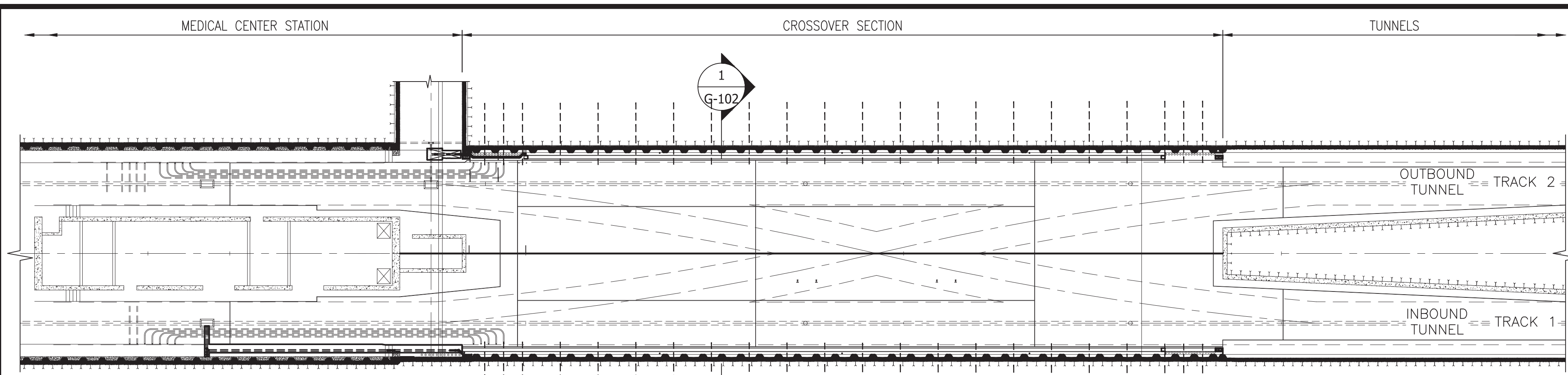
DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
M. VADOVIC		01-15					
P. GRUBB		01-15					
V. CECKA		01-15					
M. AVERSO		01-15					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE
 SUBMITTED Brad Mason, P.E.
 PROJECT MANAGER

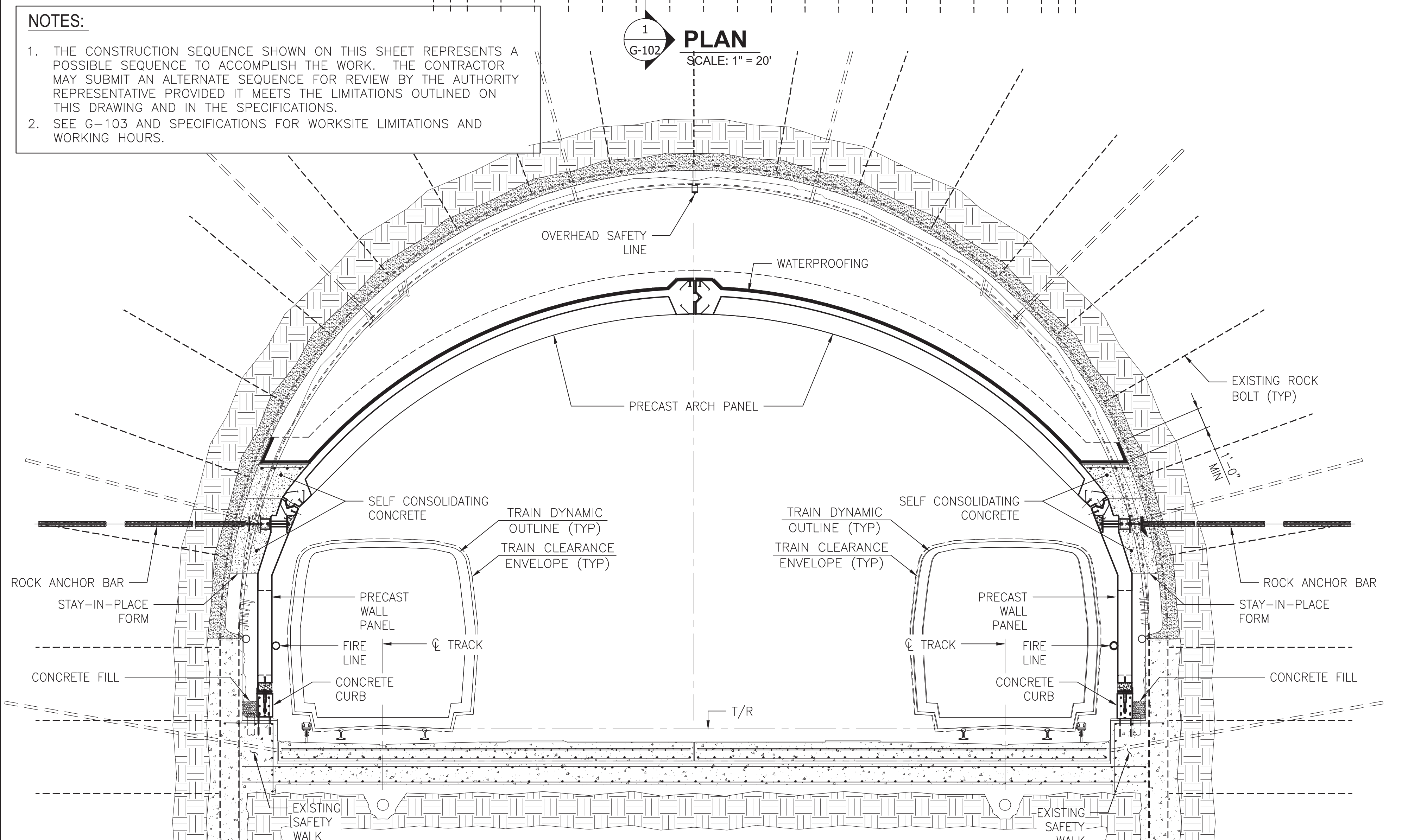
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
 GENERAL EXISTING CONDITION
 SCALE AS SHOWN
 DRAWING NO. A10-G-101
 SHEET NO. M1272-078



NOTES:

1. THE CONSTRUCTION SEQUENCE SHOWN ON THIS SHEET REPRESENTS A POSSIBLE SEQUENCE TO ACCOMPLISH THE WORK. THE CONTRACTOR MAY SUBMIT AN ALTERNATE SEQUENCE FOR REVIEW BY THE AUTHORITY REPRESENTATIVE PROVIDED IT MEETS THE LIMITATIONS OUTLINED ON THIS DRAWING AND IN THE SPECIFICATIONS.
2. SEE G-103 AND SPECIFICATIONS FOR WORKSITE LIMITATIONS AND WORKING HOURS.

PLAN
SCALE: 1" = 20'

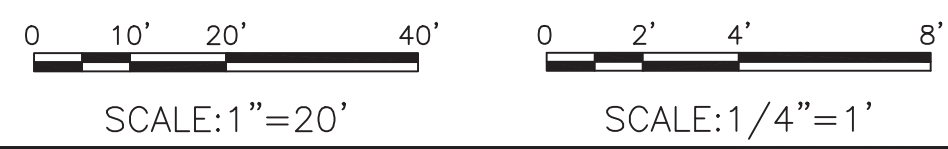


SECTION
SCALE: 1/4" = 1'-0"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

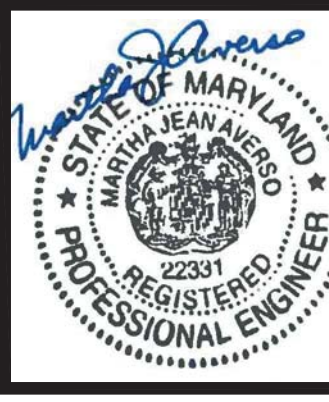
CONSTRUCTION SEQUENCE

1. ALL EXISTING CABLES, WIRES, AND JUNCTION BOXES (EXCLUDING ATC CABLES) WHICH ARE LOCATED ON THE EXISTING WALLS AND NEED TO BE RELOCATED TO THE FRONT OF THE NEW PRECAST CONCRETE WALL SHALL BE TEMPORARILY RELOCATED BY CONTRACTOR TO 15 FEET ABOVE THE EXISTING SAFETY WALK PRIOR TO STARTING OF WORK INSIDE OF CROSSOVER AREA. CONTRACTOR TO VERIFY THAT 15 FOOT HEIGHT IS ADEQUATE NOT TO INTERFERE WITH INSTALLATION OF PRECAST MEMBERS. ALL ATC CABLE WORK RELOCATION AND INSTALLATION TO BE DONE BY WMATA. NEW ALS CABLES TO BE INSTALLED AT CROSSOVER BY CONTRACTOR AFTER NEW PRECAST WALLS ARE INSTALLED. SEE NOTES 23 AND 30 BELOW. ALL THIS WORK NEEDS TO BE COORDINATED WITH AUTHORITY REPRESENTATIVE. EXISTING CABLES AND WIRES ARE LABELED IN THE FIELD AT EACH END OF CROSSOVERS.
2. CONTRACTOR SHALL INSTALL TEMPORARY, WORK, AND EMERGENCY LIGHTING ABOVE THE LOCATION OF PRECAST WALL PANELS PRIOR TO REMOVAL OF EXISTING LIGHTS. LOCATION OF TEMPORARY LIGHTING NEEDS TO BE COORDINATED WITH CABLES AND WIRES, SEE NOTE 1 ABOVE.
3. REMOVE EXISTING LIGHTS AFTER ITEMS IN NOTES 1 AND 2 ARE COMPLETED.
4. INSTALL BYPASS FIRELINE AND TEST (SEE FIRE PROTECTION DRAWINGS).
5. REMOVE EXISTING CONCRETE TO INSTALL NEW DRAINS AND CONNECT TO EXISTING LINE AT TRACK NO. 2 AND TO CATCH BASIN ON TRACK NO. 1. ENCASE NEW PIPES IN CONCRETE AS DETAILED ON CONTRACT DRAWINGS.
6. REMOVE EXISTING FIRELINE FROM THE WALL NEXT TO TRACK NO. 1. BYPASS FIRELINE MUST BE INSTALLED.
7. DRILL HOLES AND INSTALL HORIZONTAL ROCK ANCHOR BARS AND PLATES TRACK NO. 1 SIDE. GROUT AND TEST.
8. REMOVE BUILDUP MATERIAL ON THE TOP OF EXISTING SAFETY WALK NEXT TO TRACK NO. 1. POWER WASH THE EXISTING WALL TO 15 FEET ABOVE SAFETY WALK INCLUDING TOP OF EXISTING SAFETY WALK. DO NOT DAMAGE THE EXISTING CABLES THAT REMAIN ON THE WALL.
9. DRILL HOLES FOR CONCRETE CURB AND CAST-IN-PLACE COLUMNS, GROUT IN DOWELS, AND INSTALL HORIZONTAL REINFORCING. CONCRETE CAST-IN-PLACE CONCRETE CURB AND PRECAST WALL AND ARCH PANELS SHALL BE BONDED OR WELDED TO PROVIDE ELECTRICAL CONTINUITY AS NOTED ON STRUCTURAL DRAWINGS AND AS SHOWN ON WMATA STANDARD DRAWINGS. LOCATION AND ELEVATION OF CONCRETE CURB IS VERY CRITICAL FOR INSTALLATION OF PRECAST WALL PANELS AND ARCH PANELS. SEE STRUCTURAL DRAWINGS S-102, S-201, AND S-202 FOR LOCATION AND CURB ELEVATIONS. SURVEY FORMWORK FOR CONCRETE CURB PRIOR TO PLACEMENT OF CONCRETE AND ALSO AFTER PLACEMENT OF CONCRETE.
10. INSTALL FORMWORK AND EMBEDDED STAINLESS STEEL PLATES AND PLACE CONCRETE CURB.
11. PLACE CONCRETE FILL BETWEEN CONCRETE CURB AND EXISTING CONCRETE LINER. SLOPE FILL AS SHOWN ON THE CONTRACT DRAWINGS.
12. DRILL HOLES AND INSTALL HORIZONTAL ROCK ANCHOR BARS AND PLATES ON TRACK NO. 2 SIDE. GROUT AND TEST.
13. REMOVE BUILDUP MATERIAL ON THE TOP OF EXISTING SAFETY WALK NEXT TO TRACK NO. 2. POWER WASH THE EXISTING WALL TO 15 FEET ABOVE SAFETY WALK INCLUDING TOP OF EXISTING SAFETY WALK. DO NOT DAMAGE THE EXISTING CABLES THAT REMAIN ON THE WALL.
14. DRILL HOLES FOR CONCRETE CURB AND CAST-IN-PLACE COLUMNS, GROUT IN DOWELS AND INSTALL HORIZONTAL REINFORCING. CONCRETE CAST-IN-PLACE CONCRETE CURB AND PRECAST WALL AND ARCH PANELS SHALL BE BONDED OR WELDED TO PROVIDE ELECTRICAL CONTINUITY AS SHOWN ON STRUCTURAL DRAWINGS AND WMATA STANDARD DRAWINGS. LOCATION AND ELEVATION OF CONCRETE CURB IS VERY CRITICAL FOR INSTALLATION OF PRECAST WALL PANELS AND ARCH PANELS. SEE STRUCTURAL DRAWINGS S-102, S-201, AND S-202 FOR LOCATION AND CURB ELEVATIONS. SURVEY FORMWORK FOR CONCRETE CURB PRIOR TO PLACEMENT OF CONCRETE AND ALSO AFTER PLACEMENT OF CONCRETE. BOTH CONCRETE CURBS MUST BE PARALLEL, AND TOP OF CURB ELEVATIONS MUST MATCH.
15. INSTALL FORMWORK AND EMBEDDED STAINLESS STEEL PLATES AND PLACE CONCRETE.
16. PLACE CONCRETE FILL BETWEEN CONCRETE CURB AND EXISTING CONCRETE LINER. SLOPE FILL AS SHOWN ON THE CONTRACT DRAWINGS.
17. INSTALL OVERHEAD FALL PROTECTION LINE AT CENTER OF ARCH AS SHOWN ON CONTRACT DRAWINGS AND TEST. INSTALL HATCH, LADDER, AND RAILING AT TOP OF EXISTING STAIRWELL.
18. INSTALL CONNECTION PLATES ON THE ROCK ANCHOR BARS NEXT TO TRACK NO. 1; ADJUST HORIZONTALLY TO CORRECT LOCATION. WELD HORIZONTAL STAINLESS STEEL CHANNELS AT CORRECT ELEVATION. PRECAST WALL PANEL CONNECTION LOCATIONS MUST MATCH PRECAST WALL BOLT LOCATIONS. CONTRACTOR MUST SUBMIT SURVEYED DATA TO WMATA VERIFYING THAT ALL CONNECTION LOCATIONS ARE WITHIN TOLERANCES PRIOR TO INSTALLATION OF WALL PANEL.
19. INSTALL THREE (3) 3-INCH-DIAMETER FRP VERTICAL DRAIN LINES ON WALL BEHIND PRECAST WALL PANELS AND ONE (1) 4-INCH-DIAMETER FRP VERTICAL DRAIN AT NORTH END.
20. INSTALL STAY-IN-PLACE FORMWORK BEHIND PRECAST WALL PANELS TO SUPPORT SELF-CONSOLIDATING CONCRETE. FORMWORK MUST BE DESIGNED TO SUPPORT WEIGHT OF CONCRETE.
21. INSTALL PRECAST WALL PANELS; BOLT AND PLACE SELF-LEVELING CONCRETE TO TOP OF PRECAST WALL PANELS. START INSTALLING PRECAST WALL PANELS AT SOUTH END. IT IS RECOMMENDED TO PLACE CONCRETE IN LAYERS.
22. INSTALL NEW FIRELINE ON THE WALL NEXT TO TRACK NO. 1 AND TEST.
23. INSTALL RELOCATED WIRES AND CABLES ON FACE OF NEW PRECAST WALL, SEE NOTE 1. COORDINATE WITH AUTHORITY REPRESENTATIVE. CONTRACTOR TO INSTALL NEW RADIO CABLES AT MEDICAL CENTER CROSSOVER INCLUDING STAND-OFFS IN PERMANENT POSITION AND TEST. WMATA WILL CONNECT TO EXISTING CABLES AT EACH END.
24. REMOVE FIRE LINE NEXT TO TRACK NO. 2.
25. INSTALL CONNECTION PLATES ON THE ROCK ANCHOR BARS NEXT TO TRACK NO. 2; ADJUST HORIZONTALLY TO CORRECT LOCATION. WELD HORIZONTAL STAINLESS STEEL CHANNELS AT CORRECT ELEVATION. PRECAST WALL PANEL CONNECTION LOCATIONS MUST MATCH PRECAST WALL BOLT LOCATIONS.
26. INSTALL THREE (3) 3-INCH-DIAMETER FRP VERTICAL DRAIN LINES ON WALL BEHIND PRECAST WALL PANELS AND ONE (1) 4-INCH-DIAMETER FRP VERTICAL DRAIN AT NORTH END.
27. INSTALL STAY-IN-PLACE FORMWORK BEHIND PRECAST WALL PANEL TO SUPPORT SELF-LEVELING CONCRETE.
28. INSTALL PRECAST WALL PANELS; BOLT AND PLACE SELF-CONSOLIDATING CONCRETE TO TOP OF PRECAST WALL PANELS. START INSTALLING PRECAST WALL PANELS AT SOUTH END.
29. INSTALL NEW FIRELINE ON THE WALL NEXT TO TRACK NO. 2 AND TEST.
30. INSTALL RELOCATED WIRES AND CABLES ON FACE OF NEW PRECAST WALL, SEE NOTE 1. COORDINATE WITH AUTHORITY REPRESENTATIVE. CONTRACTOR TO INSTALL NEW RADIO CABLES AT MEDICAL CENTER CROSSOVER INCLUDING STAND-OFFS IN PERMANENT POSITION AND TEST. WMATA WILL CONNECT TO EXISTING CABLES AT EACH END.
31. REMOVE BYPASS FIRELINE.
32. INSTALL PRECAST ARCH PANELS AND CONNECT PRECAST MEMBERS WITH PLATES. START INSTALLATION AT SOUTH END.
33. GROUT ALL JOINTS BETWEEN PRECAST ARCH PANELS.
34. INSTALL SELF-CONSOLIDATING CONCRETE BEHIND LOWER PORTION OF THE PRECAST ARCH PANELS ON BOTH SIDES.
35. INSTALL LIGHTS, OUTLETS, AND SWITCHES ON PRECAST WALL PANELS. SEE ELECTRICAL DRAWINGS.
36. INSTALL WATERPROOFING COATING ON THE TOP OF ARCH SECTIONS.
37. INSTALL CHAIN-LINK FENCE WITH SUPPORTS AT NORTH END OF THE CROSSOVER.
38. AT END OF PROJECT, CONTRACTOR SHALL REMOVE METAL PANS OVER THE ARCH AREA.



FINAL CONTRACT NO. FQ15093

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
01-15	M. VADOVIC	01-15					
01-15	P. GRUBB	01-15					
01-15	V. CECKA	01-15					
01-15	M. AVERSO	01-15					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED **Brad Mason, P.E.**
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

GENERAL CONSTRUCTION SEQUENCE

SCALE AS SHOWN DRAWING NO. A10-G-102 SHEET NO. M1272-079

A. GENERAL

- DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONAL INFORMATION.
- AT ALL TIMES, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONDITIONS OF THE JOBSITE, INCLUDING SAFETY OF PERSONS AND PROPERTY. THE AUTHORITY REPRESENTATIVE'S PRESENCE OR REVIEW OF WORK DOES NOT INCLUDE THE ADEQUACY OF THE CONTRACTOR'S MEANS OR METHODS OF CONSTRUCTION.
- ALL CONTRACT DRAWINGS HAVE BEEN PREPARED BASED ON THE AVAILABLE EXISTING DRAWINGS [SECTION A11a ROCKVILLE ROUTE DATED FEBRUARY 1975 AND SECTION A11c ROCKVILLE ROUTE DATED JUNE 1978] RECEIVED FROM WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA). ELEVATIONS AND DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS ARE BASED ON THE ELEVATIONS AND DIMENSIONS SET FORTH WITHIN THESE EXISTING DRAWINGS. DIMENSIONS AND LOCATIONS OF EXISTING STRUCTURES SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY FIELD MEASUREMENTS PRIOR TO DETAILING OF SHOP DRAWINGS. FIELD-VERIFIED DIMENSIONS ARE TO BE USED FOR PREPARING SHOP DRAWINGS. ANY DISCREPANCIES SHALL BE REPORTED TO THE AUTHORITY REPRESENTATIVE.
- REUSE OF SALVAGED MATERIALS IS NOT PERMITTED UNLESS SPECIFICALLY APPROVED BY THE AUTHORITY REPRESENTATIVE.
- CONTRACTOR IS NOT PERMITTED TO STORE ANY MATERIAL OR EQUIPMENT IN THE CROSSOVER AREA AND SOUTH VENT SHAFT AREA.
- CONTRACTOR SHALL DEVELOP SITE SPECIFIC WORK PLAN AND COORDINATED ALL WORK WITH AUTHORITY REPRESENTATIVE.
- THE CROSSOVER SHOULD REMAIN OPERATIONAL DURING ALL NORMAL RAIL SERVICE.
- CONTRACTOR SHALL SUBMIT REQUEST TO WMATA FOR USE OF ALL TRACK EQUIPMENT REQUIRED TO COMPLETE WORK AT START OF PROJECT. CONTRACTOR SHALL COORDINATE WITH WMATA ON REQUIREMENTS TO OPERATE PRIME MOVER ON WMATA RAILS AND EQUIPMENT TESTING.
- PRIOR TO PERFORMING ANY WORK ON, ABOVE, OR UNDER THE RIGHT-OF-WAY, ARRANGEMENTS SHALL BE MADE THROUGH THE AUTHORITY REPRESENTATIVE FOR ACCESS RIGHTS AND POWER OUTAGES IN ACCORDANCE WITH WMATA SOP NO. 19 AND NO. 33 CONTAINED IN THE METRO RAIL SAFETY RULES AND PROCEDURES HANDBOOK. ALL SPECIAL REQUESTS FOR ACCESS, SINGLE TRACKING, POWER OUTAGES, ESCORTS, AND OTHER AUTHORITY SUPPORT SHALL BE SUBMITTED IN WRITING THROUGH THE AUTHORITY REPRESENTATIVE TO THE APPROPRIATE OFFICIALS. SITE-SPECIFIC WORK PLANS SHALL BE SUBMITTED FOR ALL WORK WITHIN THE REVENUE SYSTEM INCLUDING, BUT NOT LIMITED TO, ALL WORK IN THE RIGHT-OF-WAY AND ANY ANCILLARY OPERATIONAL ROOMS WITHIN THE STATION OR RIGHT-OF-WAY.
- CONTRACTOR SHALL MAINTAIN THE ROW AND TRAIN CLEARANCE ENVELOPE FREE FROM INTERFERENCE DURING NORMAL WMATA REVENUE HOURS. CONTRACTOR SHALL COORDINATE WITH WMATA TO ESTABLISH SINGLE TRACKING AND ANY OTHER CHANGES TO WMATA OPERATIONS REQUIRED TO COMPLETE THE WORK.
- ALL RAIL EQUIPMENT USED BY CONTRACTOR MUST BE APPROVED BY WMATA.
- CONTRACTOR IS REQUIRED TO SUBMIT CALCULATIONS AND DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN MARYLAND FOR ALL RAIL-MOUNTED EQUIPMENT USED FOR ERECTION OF PRECAST WALL PANELS AND PRECAST ARCH PANELS FOR WMATA APPROVAL. DRAWING SHALL SHOW ALL CLEARANCES DURING ALL STAGES OF ERECTION.
- ONCE APPROVED BY WMATA, CONTRACTOR NEEDS TO BUILD THE EQUIPMENT AND TEST IT. FULL SCALE MOCK-UP OF THE TUNNEL GEOMETRY, INCLUDING RAILS, IS REQUIRED TO DEMONSTRATE THAT THE PRECAST WALL PANELS AND PRECAST ARCH PANELS CAN BE INSTALLED WITH PRECISION NEEDED INSIDE OF THE TUNNEL. CONTRACTOR NEEDS TO SUCCESSFULLY ERECT 2 FULL SETS OF PRECAST WALL PANELS AND 2 FULL SETS OF PRECAST ARCH PANELS OF THE TUNNEL INCLUDING CONNECTIONS TO CONCRETE CURB AT THE BOTTOM OF PRECAST WALL PANELS, TOP OF PRECAST WALL PANELS TO PRECAST ARCH PANELS AND TOP CONNECTION BETWEEN PRECAST ARCH PANELS. CONTACT WMATA AND GET PERMISSION TO SET UP A TEST LOCATION WITH CONTRACTOR-FURNISHED EQUIPMENT. ALL DESIGN AND TESTING INCLUDING ANY MODIFICATIONS NEED TO BE COMPLETED WITHIN NINE (9) MONTHS OF AWARD OF CONTRACT OR LESS TO ALLOW FOR INTERNAL WMATA REVIEW AND APPROVAL. RAIL-MOUNTED EQUIPMENT CANNOT BE USED UNTIL TESTING IS COMPLETED AND APPROVED BY WMATA.
- SEE SPECIFICATION SECTION 01000, 1.3 PARTICULARS. CONTRACTOR IS ALLOWED TO USE AREA NEXT TO THE BUS LANE NEAR TO GROSVENOR STATION FOR LIMITED STAGING/STORAGE AND LAYDOWN.
- AREA NEAR PORTAL (BETWEEN MEDICAL CENTER STATION AND GROSVENOR STATION) CAN BE USED TO LOAD ANY EQUIPMENT AND PRECAST MEMBERS IF ONE LANE ON ROUTE 355 IS CLOSED TO TRAFFIC. CONTRACTOR IS RESPONSIBLE FOR FOLLOWING TRAFFIC CLOSURE (MUTCD) REQUIREMENTS AND GETTING APPROVAL FROM MD SHA AND/OR LOCAL MUNICIPALITY FOR SETTING UP THE LANE CLOSURES.
- TOLERANCES – CONTRACTOR IS REQUIRED TO SURVEY ROCK ANCHOR BARS LOCATIONS. CONTRACTOR IS REQUIRED TO SURVEY BEFORE AND AFTER PLACEMENT OF CAST-IN-PLACE CONCRETE CURBS, AFTER ROCK ANCHOR BAR PLATES AND HORIZONTAL CHANNELS ARE INSTALLED, PRIOR TO GROUTING PRECAST WALL PANELS AND PRECAST ARCH PANELS TO MAKE SURE TOLERANCE CORRECTIONS ARE MADE IMMEDIATELY. ALL CAST-IN-PLACE CONCRETE ELEMENTS AND PRECAST MEMBERS MUST BE PLACED WITHIN ¼ INCH HORIZONTAL AND VERTICAL TOLERANCE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES. NO ADDITIONAL COSTS WILL BE PAID BY THE OWNER TO RECTIFY WORK TO BE RELOCATED DUE TO LACK OF JOBSITE COORDINATION.
- CONTRACTOR SHALL DEVELOP PLANS FOR CONTROLLING WATER INFLOWS THROUGH THE TUNNEL LINER TO THE WORK AREA DURING CONSTRUCTION.
- DO NOT APPLY LOADS TO THE EXISTING TUNNEL RIBS OR LINER EXCEPT AS DETAILED ON CONTRACT DRAWINGS WITHOUT THE APPROVAL OF AUTHORITY REPRESENTATIVE.
- ALL CABLES AND WIRES REMAINING ON THE WALL DURING CONSTRUCTION MUST BE PROTECTED TO AVOID DAMAGE. CONTRACTOR IS RESPONSIBLE TO DEVELOP PLAN TO PROTECT CABLES AND SUBMIT FOR APPROVAL. CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS TO DAMAGED CABLES AND WIRES AT NO ADDITIONAL COST TO WMATA.
- CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF THE ADJACENT TRACK DURING ALL SINGLE TRACKING WORK OPERATIONS. FOLLOW ALL WMATA TRACK SAFETY STANDARDS.
- CONTRACTOR MUST PROTECT THIRD RAIL FROM DAMAGE DURING CONSTRUCTION.
- CONTRACTOR TO CLEAR, CLEAN, AND PROOF ALL EXISTING AND NEW DRAIN LINES WITHIN THE WORK AREA INCLUDING VENT SHAFT AREA FOLLOWING CONSTRUCTION AND PREVENT CLOGGING WITH CONSTRUCTION DEBRIS DURING CONSTRUCTION ACTIVITIES. SEE PLUMBING DRAWINGS FOR MORE INFORMATION.

B. DEMOLITION

- DEMOLITION PROCEDURES, SHORING REQUIREMENTS, SEQUENCES, TECHNIQUES, ETC., EITHER GIVEN IN OR IMPLIED BY THESE DRAWINGS ARE SUGGESTIONS ONLY. CONTRACTOR SHALL DETERMINE AND DESIGN ALL CONSTRUCTION REQUIREMENTS AND TECHNIQUES. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION, STABILITY, INTEGRITY, ETC., OF EXISTING AND NEW STRUCTURES DURING EXECUTION OF THE WORK.
- CONTRACTOR SHALL PERFORM ALL WORK IN SUCH A MANNER AS TO PROTECT EXISTING STRUCTURE. CONTRACTOR SHALL REPAIR ANY DAMAGE WHICH OCCURS AS A RESULT OF HIS WORK.
- DO NOT CUT OR ALTER ANY STRUCTURAL MEMBERS WITHOUT WRITTEN AUTHORIZATION OF THE AUTHORITY REPRESENTATIVE UNLESS INDICATED ON THE STRUCTURAL DRAWINGS.
- DO NOT ALLOW RESULTING DEBRIS TO ACCUMULATE. PROPERLY DISPOSE OF THIS MATERIAL TO COMPLY WITH LOCAL REGULATIONS.
- DEMOLITION OF EXISTING CONCRETE SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. CONTRACTOR TO DRILL CORNERS AND SAW CUT STRAIGHT LINES OR USE OTHER SIMILAR METHODS. DO NOT CUT EXISTING REINFORCING BARS UNLESS INDICATED ON THE DRAWINGS.
- CONTRACTOR NEEDS TO PROTECT ALL CABLES AND WIRES REMAINING ON WALL DURING CONSTRUCTION. SEE DRAWING G-101 FOR EXISTING CONDITION.

C. PRECAST WALL PANEL AND ARCH PANEL ERECTION EQUIPMENT REQUIREMENTS

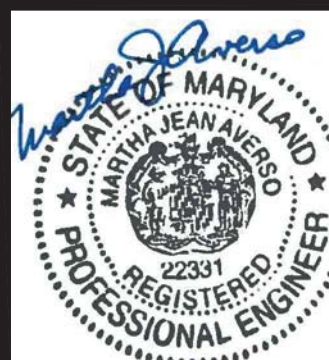
- CONTRACTOR IS REQUIRED TO DESIGN, BUILD AND TEST EQUIPMENT THAT WILL BE USED TO INSTALL PRECAST WALL PANELS AND EQUIPMENT FOR PRECAST ARCH PANELS. SEE GENERAL NOTES 12 AND 13 FOR TESTING REQUIREMENTS. ANY CONCENTRATED LOAD APPLIED TO TOP OF FLOATING SLABS AT CROSSOVER TO BE SPREAD USING CRIBBING. CONTRACTOR IS RESPONSIBLE TO VERIFY THAT EXISTING SLAB IS ADEQUATE FOR CONCENTRATED LOADS OVER 10 KIPS.
- CONTRACTOR SHALL KEEP ALL NECESSARY SPARE PARTS FOR ERECTION EQUIPMENT ON HAND TO KEEP TIME FOR REPAIRS TO A MINIMUM. CONTRACTOR SHALL KEEP EQUIPMENT REPAIR STAFF ON STANDBY IN CASE OF EQUIPMENT FAILURE.
- CONTRACTOR MUST SUBMIT CONTINGENCY PLANS FOR FAILURE OF EQUIPMENT DURING THE ERECTION PROCESS. SUBMIT CONTINGENCY PLANS WITH EQUIPMENT DESIGN. PLAN MUST INCLUDE CONTINGENCY PLANS HOW TO RESCUE EQUIPMENT AND REMOVE ANY PRECAST MEMBERS IF REPAIRS TO EQUIPMENT CANNOT BE MADE IN TIME BEFORE WMATA REVENUE SERVICE STARTS.

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FINAL

CONTRACT NO. FQ15093

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NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	
1	M. VADOVIC	01-15							
2	P. GRUBB	01-15							
3	V. CECKA	01-15							
4	M. AVERSO	01-15							



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

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OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

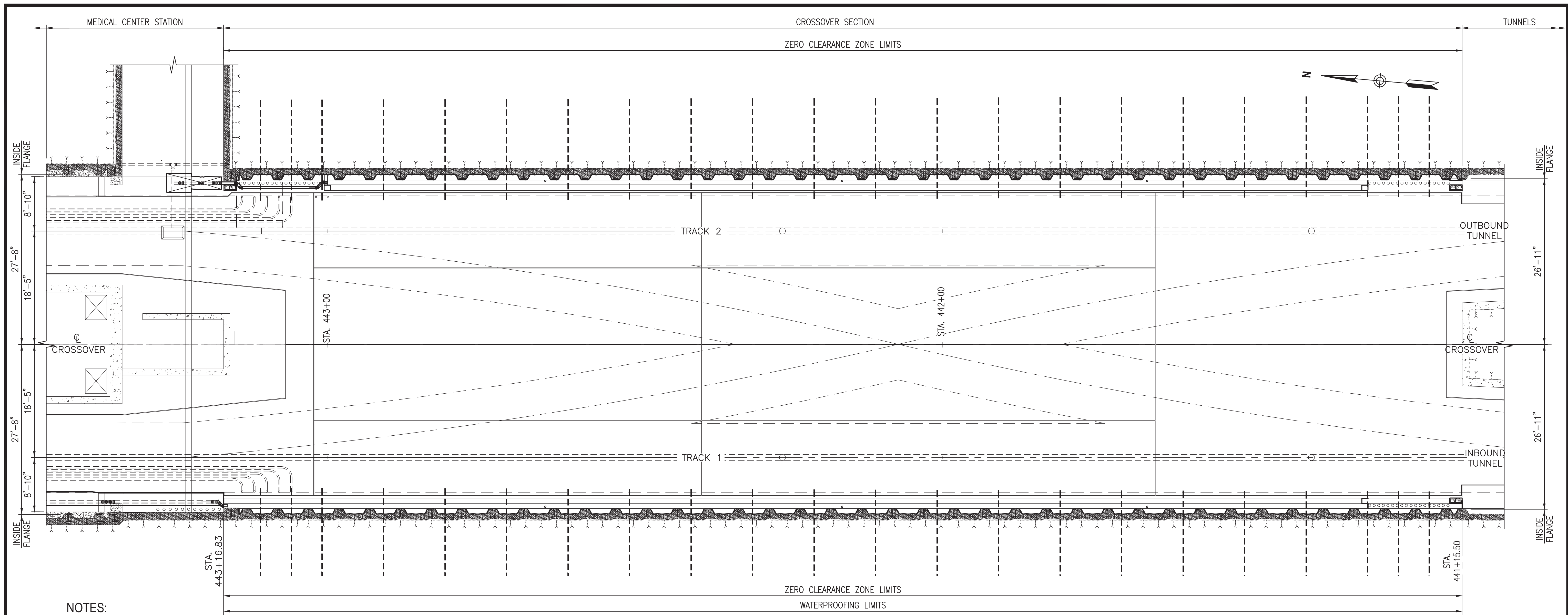
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

GENERAL GENERAL NOTES

SCALE: NO SCALE

DRAWING NO. A10-G-103

SHEET NO. M1272-80



NOTES:

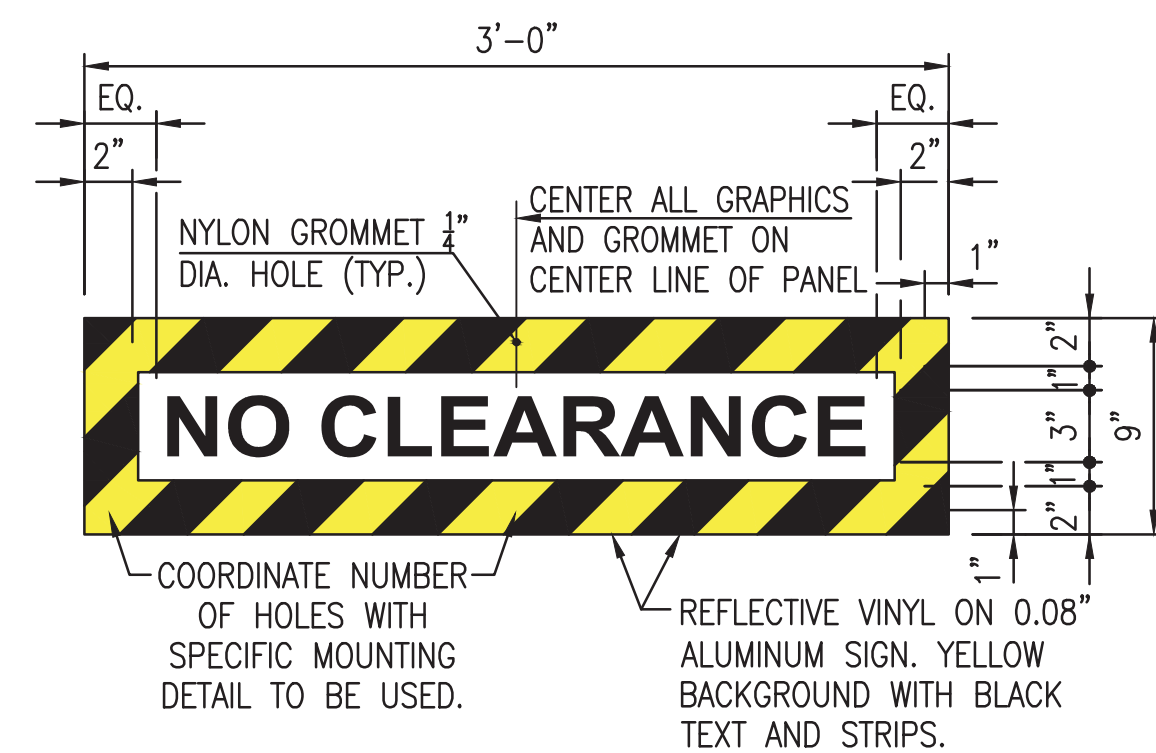
1. PROVIDE NO CLEARANCE SIGN PER "WMATA SIGNAGE STANDARDS MANUAL - RIGHT OF WAY GRAPHICS" AT ENDS OF ZERO CLEARANCE ZONES. CONTINUE NO CLEARANCE SIGNS AT INTERVALS OF 50 FEET MAXIMUM IN ZERO CLEARANCE ZONE.
2. INSTALL NO CLEARANCE SIGN PER WMATA STANDARDS.
3. NO CLEARANCE ZONE SIGNS TO BE INSTALLED THROUGHOUT PROJECT AND VISIBLE DURING WMATA REVENUE HOURS AT ALL TIMES.

PLAN - ZERO CLEARANCE ZONE

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

NOTES:

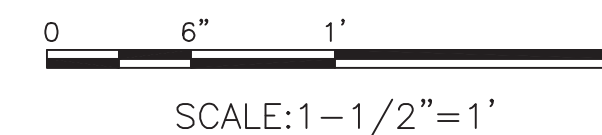
1. FIELD VERIFY ALL EXISTING DIMENSIONS.



DETAIL - NO CLEARANCE SIGN

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

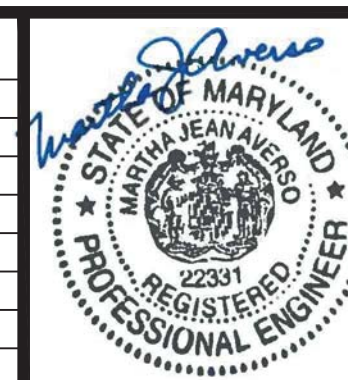
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DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____



SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

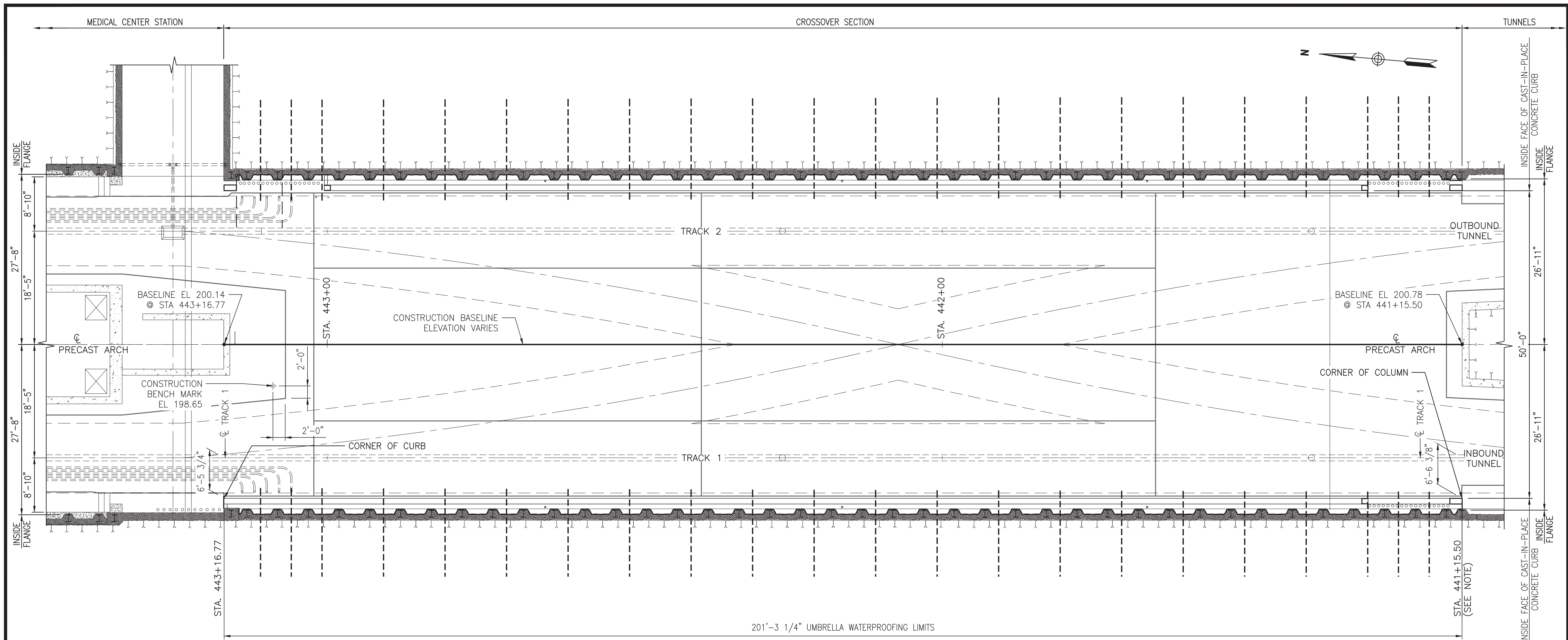
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

GENERAL PLAN - ZERO CLEARANCE ZONE

SCALE AS SHOWN

DRAWING NO. A10-G-104

SHEET NO. M1272-081

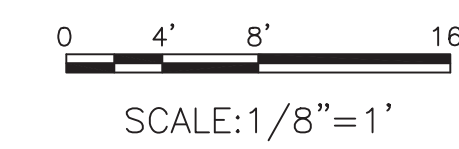


201'-3 1/4" UMBRELLA WATERPROOFING LIMITS

LAYOUT PLAN
SCALE: 1/8" = 1'-0"

NOTE: CONTRACTOR TO FIELD VERIFY LOCATION OF STATION 441+15.50.

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."



FINAL CONTRACT NO. FQ15093

DESIGNED	M. VADOVIC	01-15
		DATE
DRAWN	P. GRUBB	01-15
		DATE
CHECKED	V. CECKA	01-15
		DATE
APPROVED	M. AVERSO	01-15
		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE

SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

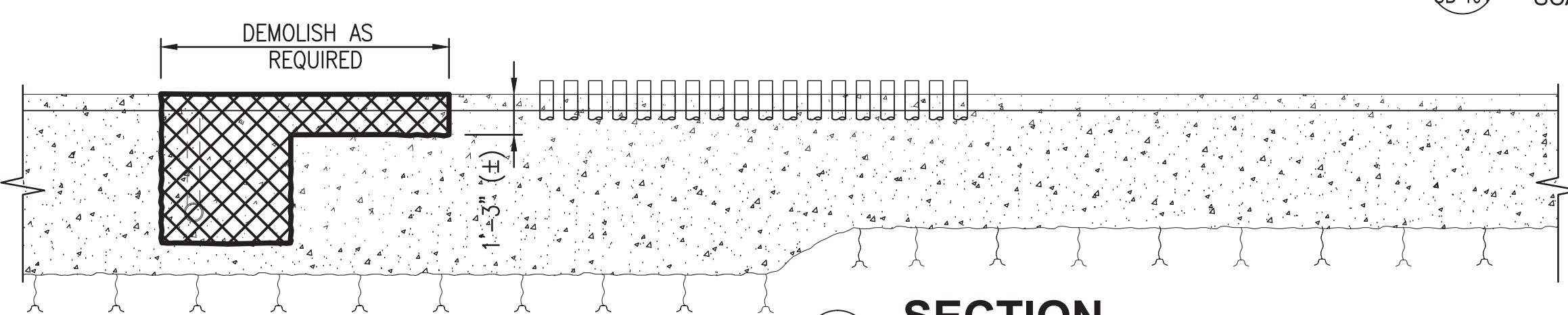
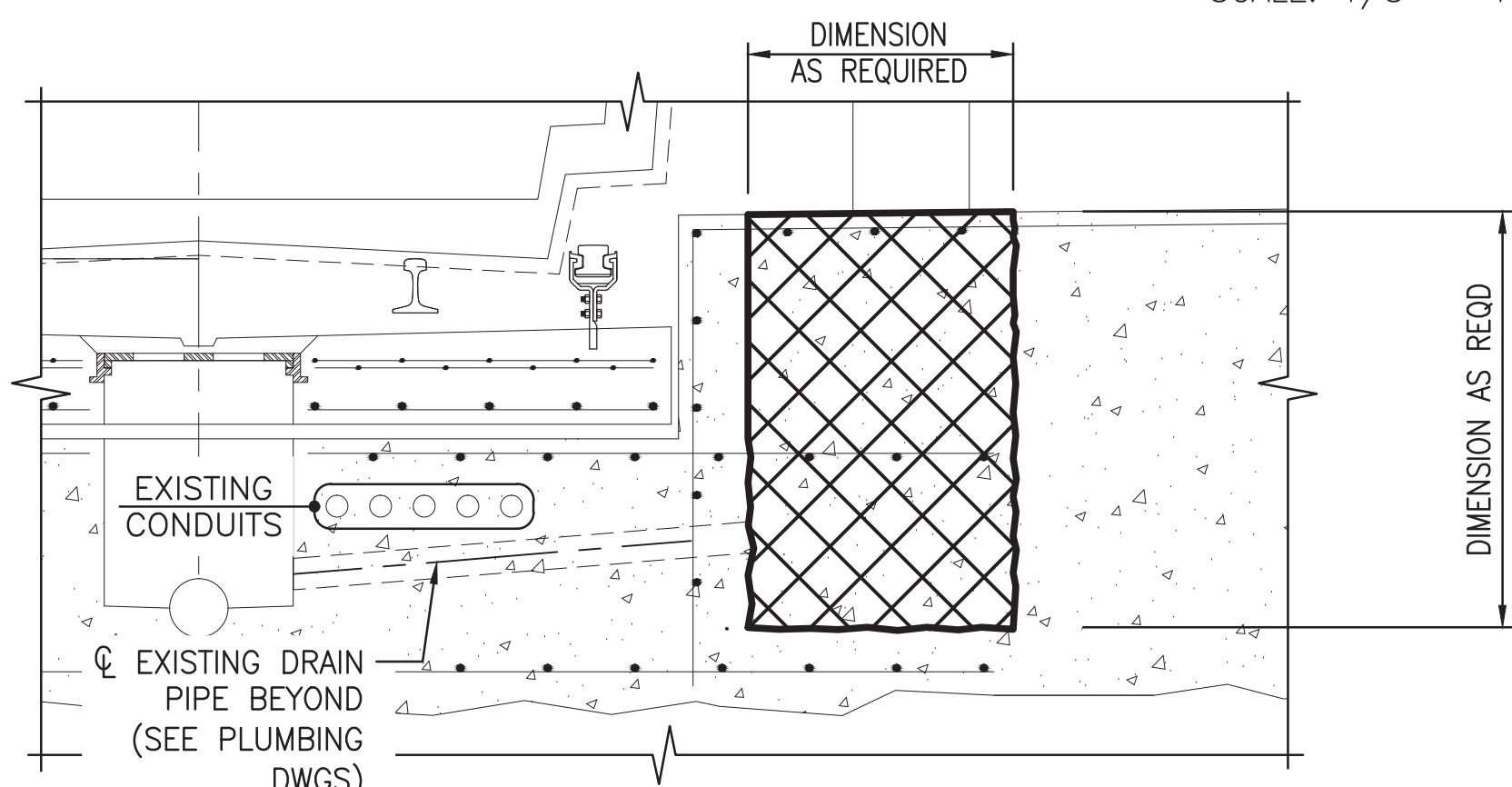
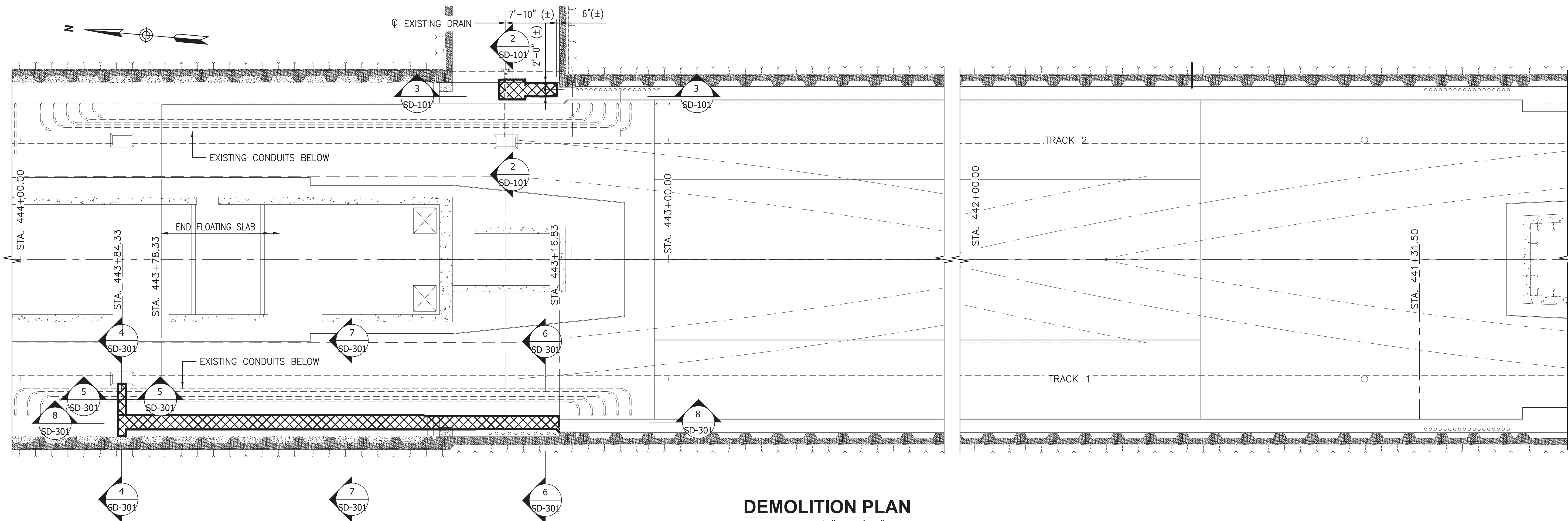
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

GENERAL LAYOUT PLAN

SCALE AS SHOWN

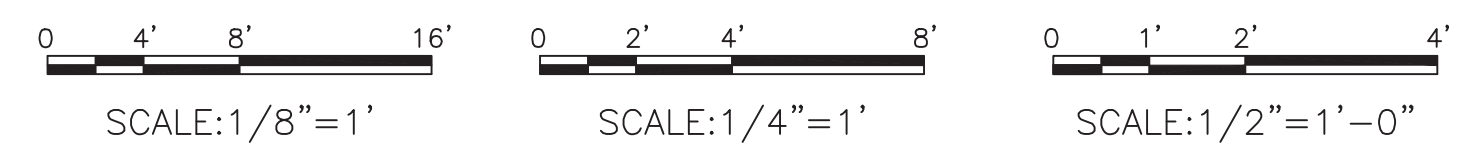
DRAWING NO. A10-G-105

SHEET NO. M1272-082



LEGEND
AREA TO BE DEMOLISHED [Cross-hatched box symbol]

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."



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P. GRUBB	01-15						
V. CECKA	01-15						
M. AVERSO	01-15						

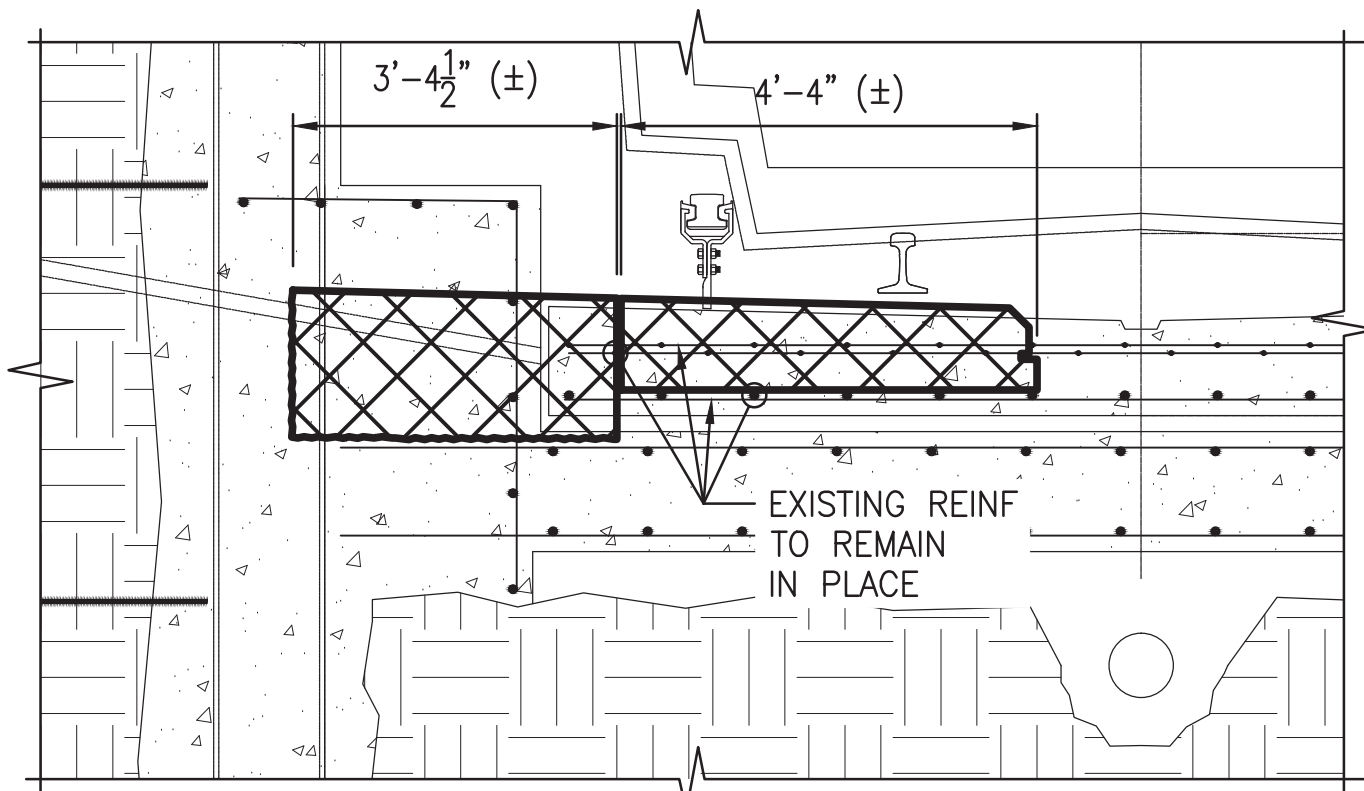


WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
APPROVED _____

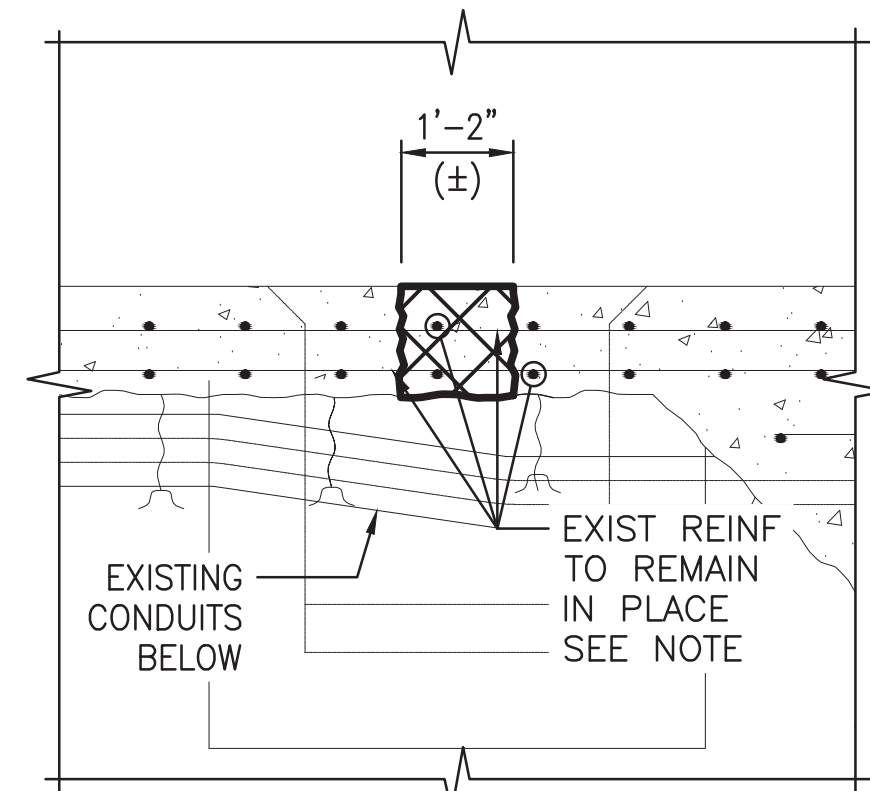
GFP A Gannett Fleming/Parsons JOINT VENTURE
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
STRUCTURAL
DEMOLITION PLAN AND SECTIONS

SCALE AS SHOWN DRAWING NO. A10-SD-101 SHEET NO. M1272-083

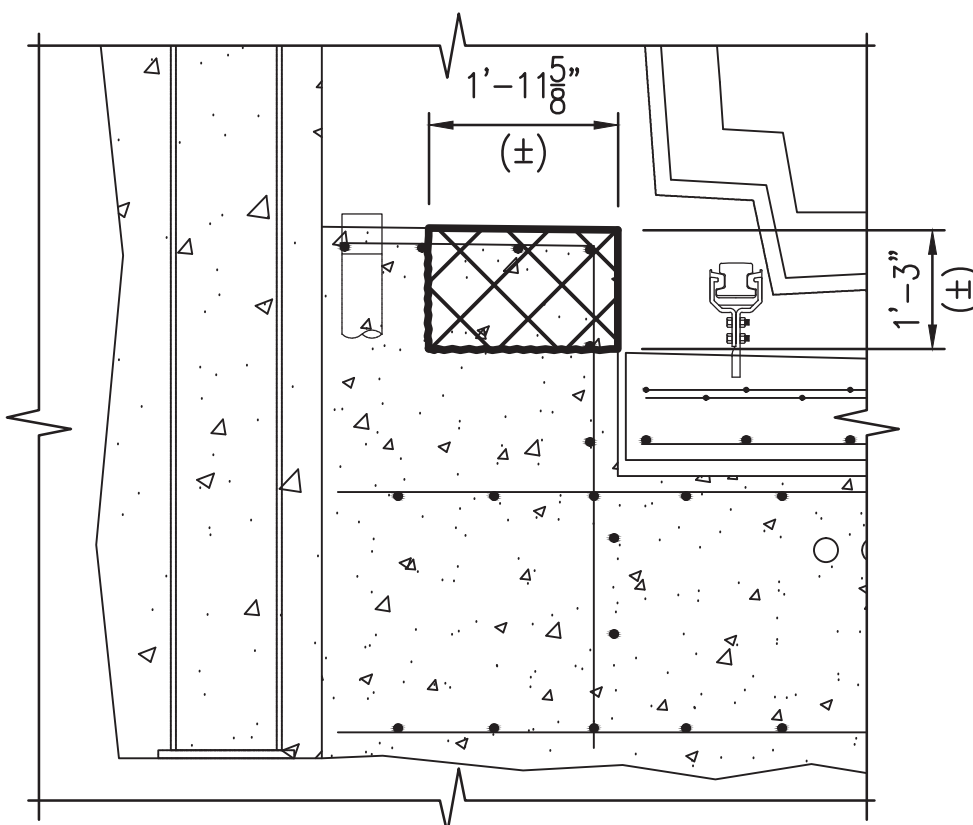


4 SECTION
SD-101 SCALE: 1/2" = 1'-0"

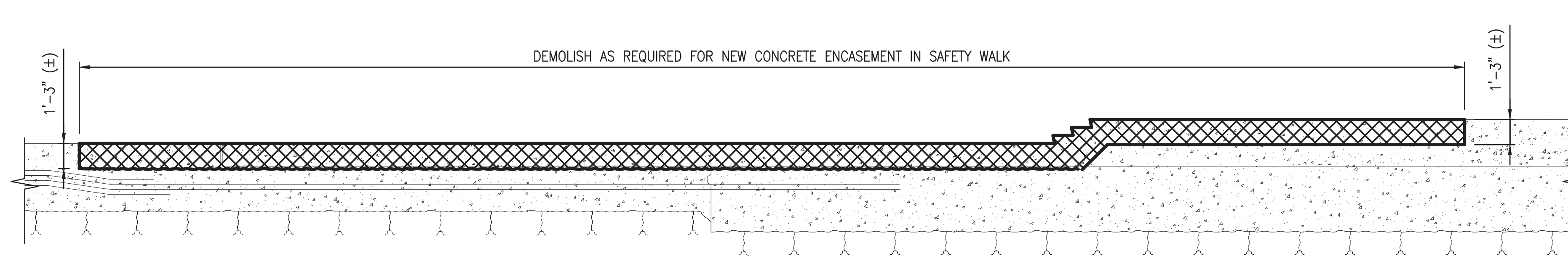


5 SECTION
SD-101 SCALE: 1/2" = 1'-0"

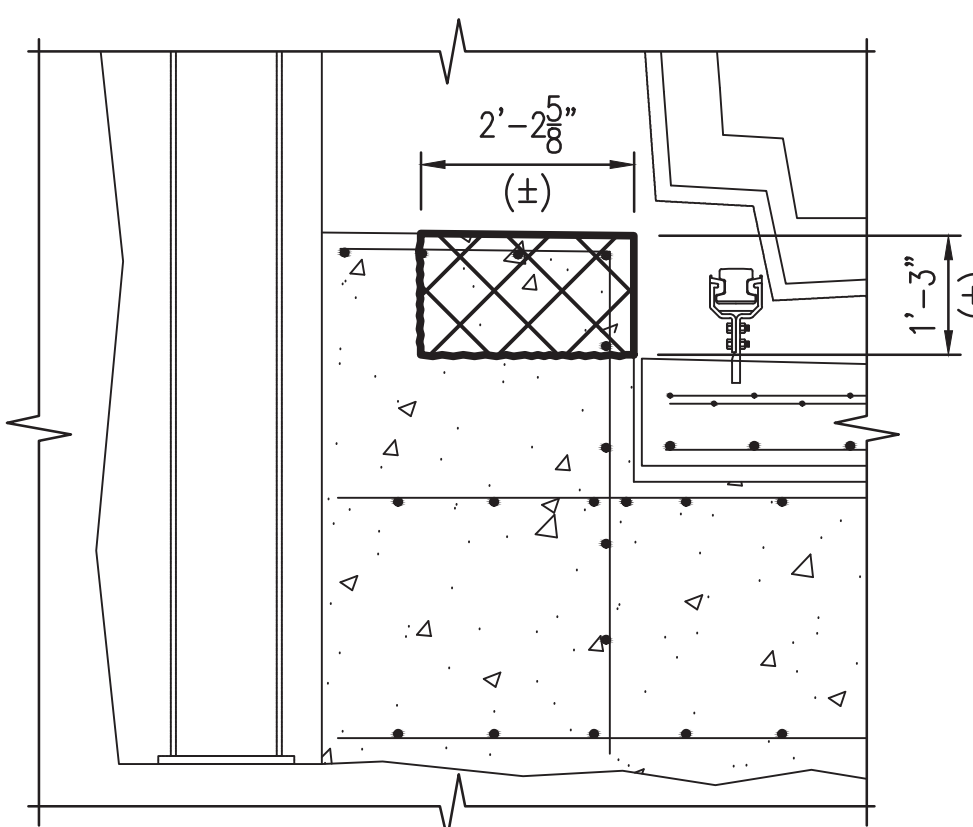
NOTE: CONTRACTOR SHALL AVOID DAMAGE TO EXISTING REINFORCING DURING CONSTRUCTION AND SHALL REPAIR ANY DAMAGE TO EXISTING REINFORCING AT NO ADDITIONAL COST TO OWNER.



6 SECTION
SD-101 SCALE: 1/2" = 1'-0"



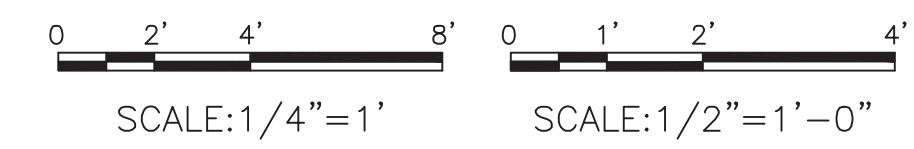
8 SECTION
SD-101 SCALE: 1/4" = 1'-0"



7 SECTION
SD-101 SCALE: 1/2" = 1'-0"

LEGEND
AREA TO BE DEMOLISHED

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FINAL CONTRACT NO. FQ15093

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			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
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CHECKED	V. CECKA	01-15					
APPROVED	M. AVERSO	01-15					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
APPROVED _____
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER



RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
STRUCTURAL DEMOLITION SECTIONS
SCALE AS SHOWN
DRAWING NO. A10-SD-301
SHEET NO. M1272-084

GENERAL STRUCTURAL NOTES

A. DESIGN CRITERIA

1. DESIGN CODES
 - A. WMATA MANUAL OF DESIGN CRITERIA FOR MAINTAINING AND CONTINUED OPERATION OF FACILITIES AND SYSTEMS, RELEASE 9
 - B. 2009 INTERNATIONAL BUILDING CODE (IBC)
 - C. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR STRUCTURAL STEEL BUILDING", AISC 360-05.
 - D. AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" ACI 318-08.
2. LOADS
 - A. DEAD LOADS
 1. MATERIAL SELF-WEIGHT
 - B. LIVE LOAD
 1. AIR PRESSURE CAUSED BY RUNNING TRAIN _____ ±70 PSF
 2. TOP OF ARCH _____ 20 PSF

B. MATERIALS

UNLESS OTHERWISE SHOWN OR NOTED ON DRAWINGS:

1. STRUCTURAL STEEL:
 - ALL WF BEAMS AND COLUMNS: _____ ASTM A992
 - ALL ANGLES, CHANNELS, AND PLATES: _____ ASTM A36
 - WELDING ELECTRODES: _____ E70XX LOW HYDROGEN
 - BOLTING MATERIALS: _____ ASTM A325 AND ASTM A490 AS NOTED
2. CAST-IN-PLACE CONCRETE: _____ 5000 PSI NORMAL WT.
3. SELF-CONSOLIDATING CONCRETE: _____ 4000 PSI
4. REINFORCING STEEL BARS: _____ ASTM A615, GRADE 60
5. ALL REINFORCING STEEL BARS SHALL BE EPOXY COATED.

C. CONCRETE

1. ALL CAST-IN-PLACE CONCRETE FOR STRUCTURES SHALL BE A MINIMUM COMPRESSIVE STRENGTH OF 5000 POUNDS PER SQUARE INCH AT 28 DAYS.
2. DETAIL, FABRICATE AND ERECT REINFORCEMENT BARS, INCLUDING BAR SUPPORTS, SPACERS, ETC. IN ACCORDANCE WITH "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (ACI 315-99).
3. UNLESS SHOWN OTHERWISE, BARS AT SPLICES SHALL BE LAPPED IN ACCORDANCE WITH THE TABLE "REINFORCING STEEL LAP SPLICES AND EMBEDMENTS" SHOWN ON SHEET .

REINFORCING STEEL LAP SPLICES AND EMBEDMENTS				
BAR SIZE	MIN. LAP SPLICE LENGTH (INCHES)		MIN. EMBEDMENT LENGTH (INCHES)	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
3	20	16	16	16
4	26	20	20	16
5	38	30	30	22
6	52	40	40	31
7	56	43	43	33
8	64	48	48	38
9	78	60	60	47

NOTES:

1. TABLE BASED ON A.C.I. 318-08 WITH F'C = 5,000 P.S.I. AND FY = 60,000 P.S.I.
2. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES DEPTH OF CONCRETE CAST BELOW THE REINFORCEMENT.
3. HORIZONTAL WALL REINFORCEMENT IS CONSIDERED A TOP BAR.
4. ALL WELDED WIRE REINFORCEMENT TO BE SPLICED 12 INCHES MINIMUM UNLESS NOTED OTHERWISE.

4. CONCRETE COVER FOR THE REINFORCEMENT BARS SHALL CONFORM TO THE FOLLOWING, UNLESS INDICATED OTHERWISE ON THE DRAWINGS:
 - A. UNFORMED SURFACES IN CONTACT WITH GROUND _____ 3 INCHES
 - B. FORMED SURFACES IN CONTACT WITH GROUND AND ALL WALLS _____ 2 INCHES
 - C. ALL COLUMNS, BEAMS _____ 1 - 1/2 INCHES
 - D. INTERIOR EXPOSURE TOP AND BOTTOM OF SLABS _____ 1 INCH

C. CONCRETE

5. CHAMFER EXPOSED CONCRETE EDGES 3 / 4 INCH X 3 / 4 INCH UNLESS NOTED OTHERWISE.
6. PLACE CONSTRUCTION JOINTS IN CONCRETE CURB WALL AT A MAXIMUM OF 40 FEET ON CENTER.
7. REINFORCING STEEL IN CONCRETE CURB TO BE ELECTRICALLY BONDED PER WMATA STANDARDS. SEE INCLUDED WMATA STRUCTURAL STANDARD DRAWINGS "ELECTRICAL BONDING OF REINFORCING STEEL, SECTIONS AND DETAILS" SHEETS ST-S-007 AND ST-S-021.
8. GROUND BONDED REINFORCING BARS IN CONCRETE CURBS AND WELDED WIRE REINFORCING TO EXISTING STEEL RIBS AT THREE LOCATIONS ON INBOUND AND OUTBOUND SIDES FOR A TOTAL OF SIX GROUNDED LOCATIONS. PROVIDE ONE GROUND AT APPROXIMATELY THE CENTER OF THE CROSSOVER ON EACH SIDE, AND ONE AT EACH END OF CROSSOVER ON EACH SIDE. CONTRACTOR TO COORDINATE ADDITIONAL GROUNDING REQUIREMENTS WITH AUTHORITY REPRESENTATIVE AS REQUIRED. REINFORCING IN CONCRETE CURB TO BE BONDED TO ALL EMBEDDED STAINLESS STEEL PLATES ON TOP OF CAST-IN-PLACE CONCRETE CURB.
9. USE EPOXY ADHESIVE TO GROUT REINFORCING INTO EXISTING CONCRETE. SEE SPECIFICATION SECTION 03300.

D. STRUCTURAL STEEL

1. ALL WELDS SHALL COMPLY WITH LATEST A.W.S. D1.1, BUT IN NO CASE SHALL WELD BE LESS THAN 3/16 INCH.

E. STAINLESS STEEL

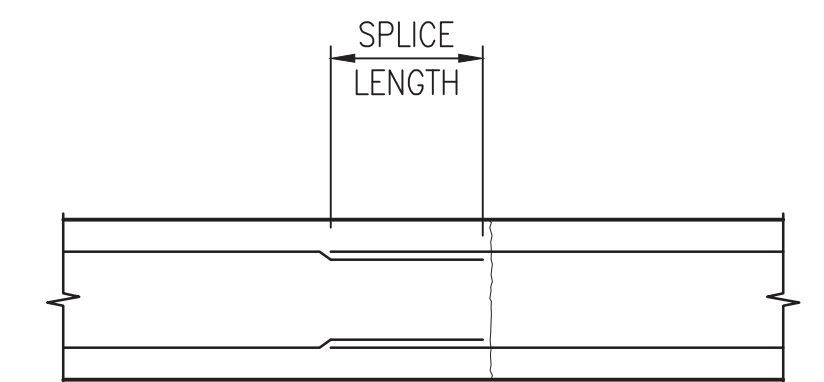
1. ALL PLATES, PIPES AND BARS SHALL BE STAINLESS STEEL TYPE 304L.
2. ALL WELDS SHALL COMPLY WITH LATEST A.W.S. D1.6, BUT IN NO CASE SHALL WELD BE LESS THAN 3/16 INCH.

F. PRECAST CONCRETE

1. PRECAST SECTIONS SHALL BE MANUFACTURED WITH GEOMETRY AND REINFORCING AS SHOWN ON THE CONTRACT DRAWINGS.
2. ALL REINFORCING STEEL BARS SHALL BE EPOXY COATED.
3. ALL REINFORCING BARS IN PRECAST MEMBERS TO COMPLY WITH WMATA ELECTRICAL BONDING OF REINFORCING STEEL REQUIREMENTS. PROVIDE ELECTRICAL BONDING FOR ALL REINFORCING IN PRECAST MEMBERS AND CONNECT TO EACH EMBEDDED STAINLESS STEEL PLATE AT 2 LOCATIONS. ALL PRECAST MEMBERS WILL BE CONNECTED WITH BOLTED STAINLESS STEEL PLATES THAT WILL PROVIDE CONTINUITY.
4. EACH PRECAST SECTIONS SHALL BE INSPECTED FOR ANY DEFECTS AND ALL DIMENSIONS SHALL BE VERIFIED PRIOR TO SHIPPING. PRECAST PANEL TOLERANCES SHALL BE +0", -1/4" MAXIMUM.
5. PRECASTER SHALL PRODUCE ADDITIONAL SPARE SECTIONS TO KEEP ON HAND IN CASE OF DAMAGE TO PRECAST PANELS DURING SHIPPING OR ERECTION. PRODUCE EXTRA 2 PRECAST WALL PANELS FOR EACH WALL TYPE, 1 ADDITIONAL PRECAST BEAM FOR EACH LOCATION, 1 PRECAST COLUMN, 2 PRECAST ARCH PANELS FOR EACH SIDE AND 1 END PRECAST ARCH PANEL FOR EACH SIDE AT NORTH END.
6. ALL PRECAST MEMBERS SHALL BE COATED WITH CLEAR SEALER. DO NOT COAT TOP SURFACE OF ARCH SECTIONS THAT WILL BE RECEIVING WATERPROOFING COATING.
7. PRECASTER IS RESPONSIBLE FOR PROVIDING EMBEDDED STAINLESS STEEL INSERTS ON TOP FOR LIFTING AND ON BOTTOM FOR ERECTION INSIDE OF TUNNEL. LIMITS WHERE THESE INSERTS CAN BE INSTALLED ARE SHOWN ON THE CONTRACT DRAWINGS.
8. PRECASTER TO COORDINATE WITH CONTRACTOR'S ERECTION EQUIPMENT PROVIDER TO LOCATE AND DESIGN STAINLESS STEEL INSERTS THAT WILL BE USED FOR INSTALLATION INSIDE OF TUNNEL.
9. PRECASTER SHALL VERIFY THAT REINFORCING AT LIFTING LOCATIONS IS ADEQUATE. ADDITIONAL REINFORCING MIGHT BE REQUIRED BASED ON CHOICE OF ERECTION SYSTEM.
10. IF DIFFERENT LIFTING LOCATIONS ARE SELECTED, PRECASTER NEEDS TO REDESIGN ARCH PANEL REINFORCING TO ACCOMMODATE LIFTING LOAD. PRECASTER SHALL PROVIDE SIGNED AND SEALED DRAWINGS INDICATING NEW LOCATIONS.

STRUCTURAL ABBREVIATIONS

ADDL AL ALT APPROX ARCH BM BRG BOT B/ST C/C CIR CL CLR COL CONC CONN CONST CONT CONTR DET DIA DN DWG EA EF EL EMBED EQ EQUIP EXIST EXP EW FIN FL FS FTG GALV	ADDITIONAL ALUMINUM ALTERNATE APPROXIMATELY ARCHITECTURAL BEAM BEARING BOTTOM BOTTOM OF STEEL CENTER TO CENTER CIRCULAR CENTERLINE CLEAR COLUMN CONCRETE CONNECTION CONSTRUCTION CONTINUOUS CONTRACTOR DETAIL DIAMETER DOWN DRAWING EACH EACH FACE ELEVATION EMBEDMENT EQUAL EQUIPMENT EXISTING EXPANSION EACH WAY FINISHED FLOOR FAR SIDE FOOTING GALVANIZED	HORIZ IF JT LG LLV MATL MAX MEP MIN NS NTS OPNG OF PL PVC R REINF REQD SC SPA SQ SS STL STIFF SYM T/R TYP T&B UNO WP W/ VERT VIF	HORIZONTAL INSIDE FACE JOINT LONG LONG LEG VERTICAL MATERIAL MAXIMUM MECHANICAL/ELECTRICAL/ PLUMBING MINIMUM NEAR SIDE NOT TO SCALE OPENING OUTSIDE FACE PLATE POLYVINYL CHLORIDE RADIUS REINFORCEMENT REQUIRED SLIP CRITICAL SPACING SQUARE STAINLESS STEEL STEEL STIFFENER SYMMETRICAL TOP OF RAIL TYPICAL TOP AND BOTTOM UNLESS NOTED OTHERWISE WORKING POINT WITH VERTICAL VERIFY IN FIELD
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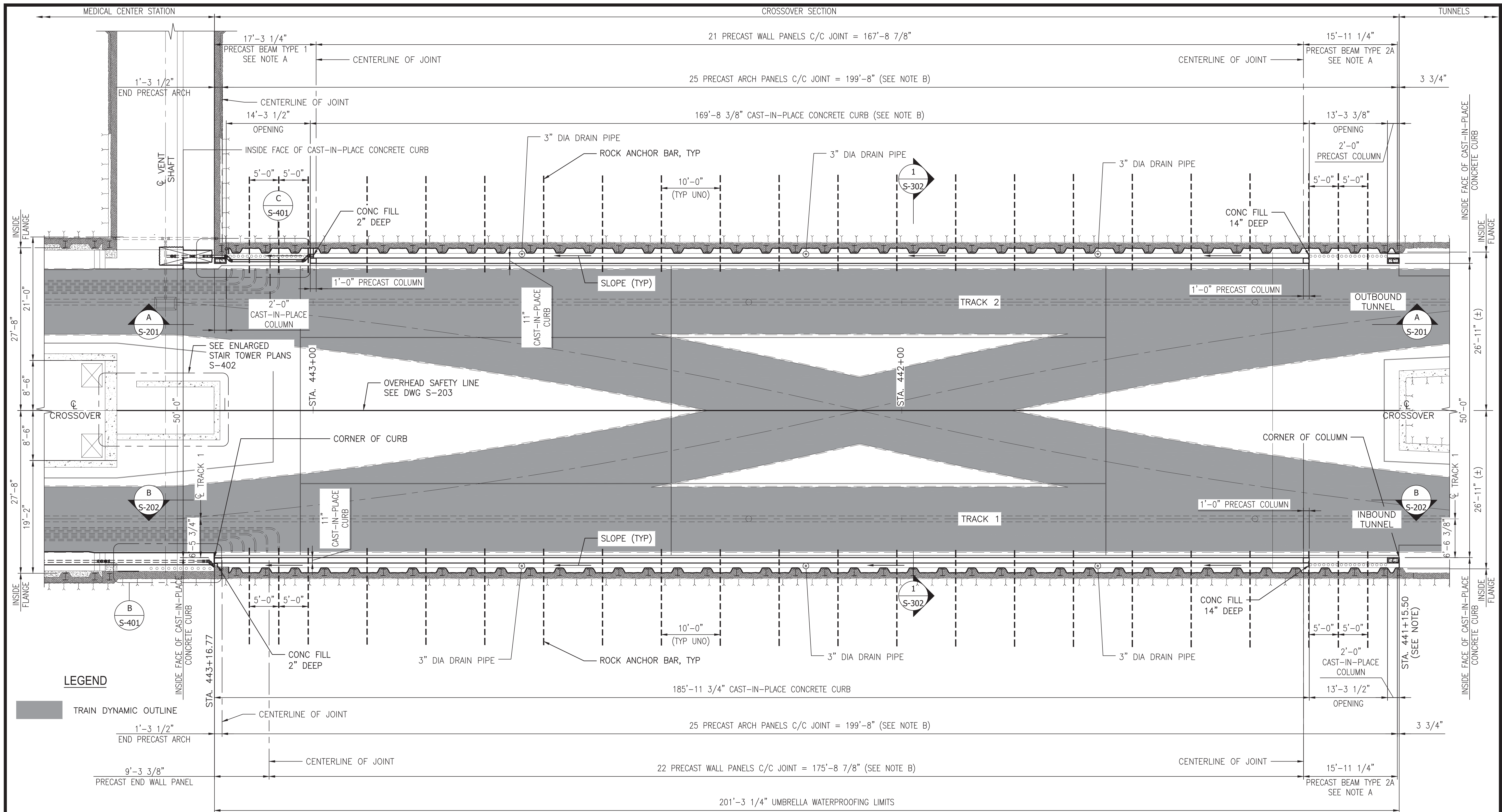


CONSTRUCTION JOINT DETAIL
NOT TO SCALE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

FINAL CONTRACT NO. FQ15093

DESIGNED <u>M. VADOVIC</u> 01-15 DATE DRAWN <u>P. GRUBB</u> 01-15 DATE CHECKED <u>V. CECKA</u> 01-15 DATE APPROVED <u>M. AVERSO</u> 01-15 DATE	REFERENCE DRAWINGS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	NUMBER	DESCRIPTION											REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	DATE	BY	DESCRIPTION																	WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM APPROVED _____	 SUBMITTED <u>Brad Mason, P.E.</u> PROJECT MANAGER	RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2 STRUCTURAL GENERAL STRUCTURAL NOTES SCALE NO SCALE DRAWING NO. A10-S-101 SHEET NO. M1272-085
NUMBER	DESCRIPTION																																			
DATE	BY	DESCRIPTION																																		



LEGEND

- TRAIN DYNAMIC OUTLINE
- 1'-3 1/2" END PRECAST ARCH
- 9'-3 3/8" PRECAST END WALL PANEL
- CENTERLINE OF JOINT
- CENTERLINE OF JOINT

NOTE: CONTRACTOR TO FIELD VERIFY LOCATION OF STATION 441+15.50.

NOTE A: PROVIDE 2 COATS OF CRYSTALLINE WATERPROOFING ON WALL UNDERNEATH PRECAST BEAMS. COATING TO EXTEND FROM TOP OF SAFETY WALK TO UNDERSIDE OF SELF-CONSOLIDATING CONCRETE.

NOTE B: PRECAST ARCH PANELS AND WALL PANELS ARE SHOWN AS NOMINAL DIMENSION, ACTUAL PRECAST DIMENSION WILL BE SMALLER BASED ON DIMENSIONS SHOWN ON THIS PLAN.



PLAN - UMBRELLA WATERPROOFING
SCALE: 1/8" = 1'-0"

FINAL CONTRACT NO. **FQ15093**

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V. CECKA	01-15						
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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE

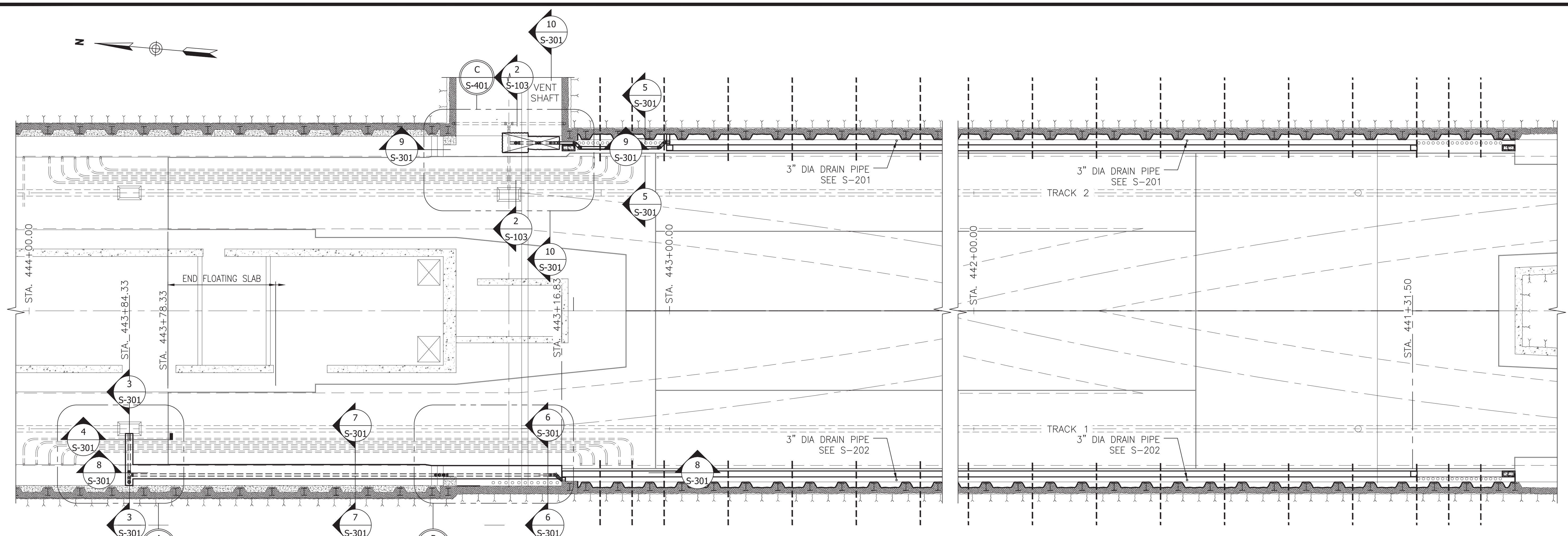
APPROVED _____ SUBMITTED **Brad Mason, P.E.**
PROJECT MANAGER

RED LINE REHAB-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

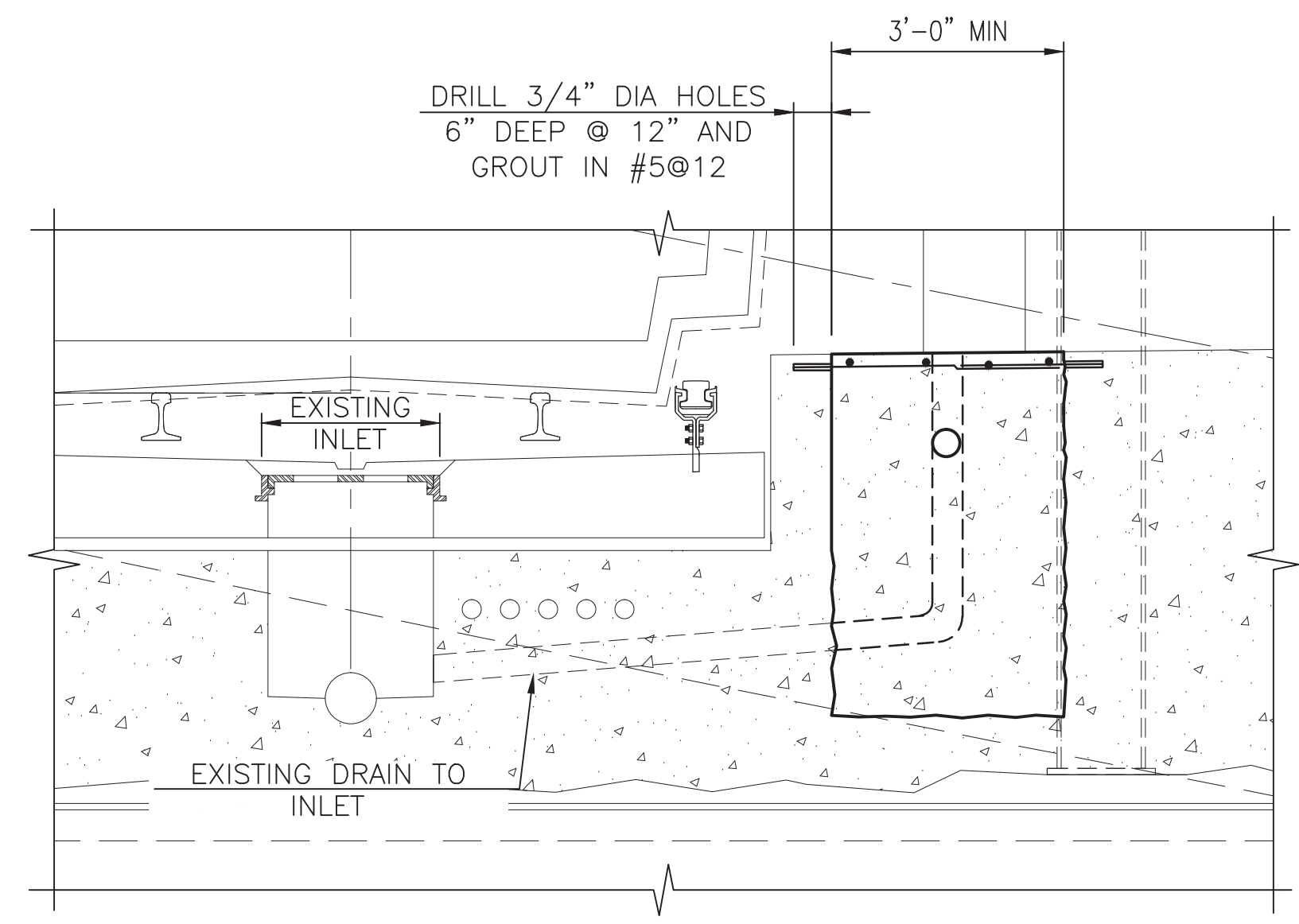
STRUCTURAL
PLAN - UMBRELLA WATERPROOFING

SCALE AS SHOWN DRAWING NO. **A10-S-102** SHEET NO. **M1272-086**

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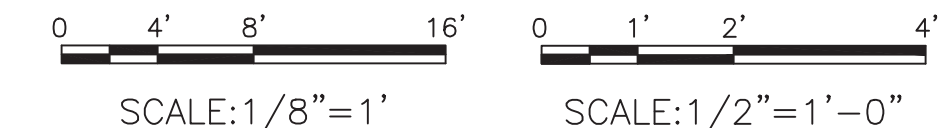
DRAINAGE PLAN
SCALE: 1/8" = 1'-0"



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

ALL REINFORCING
#5@12 UNO

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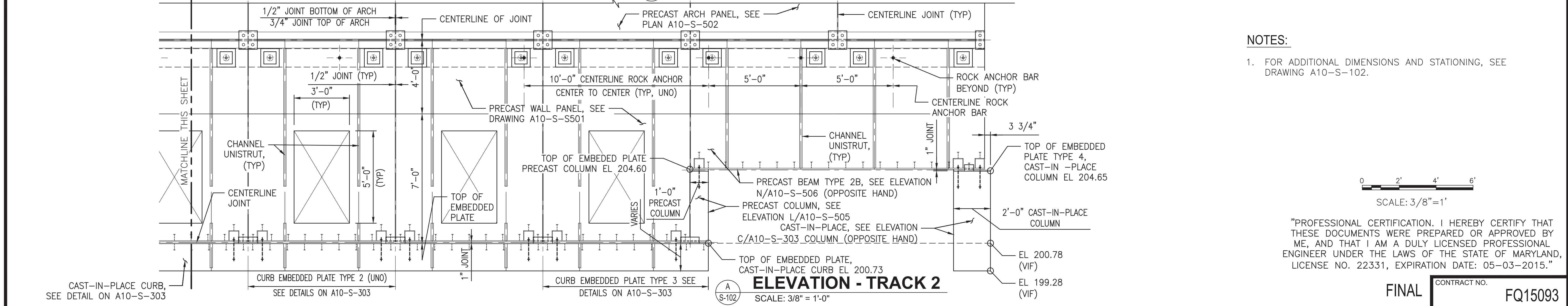
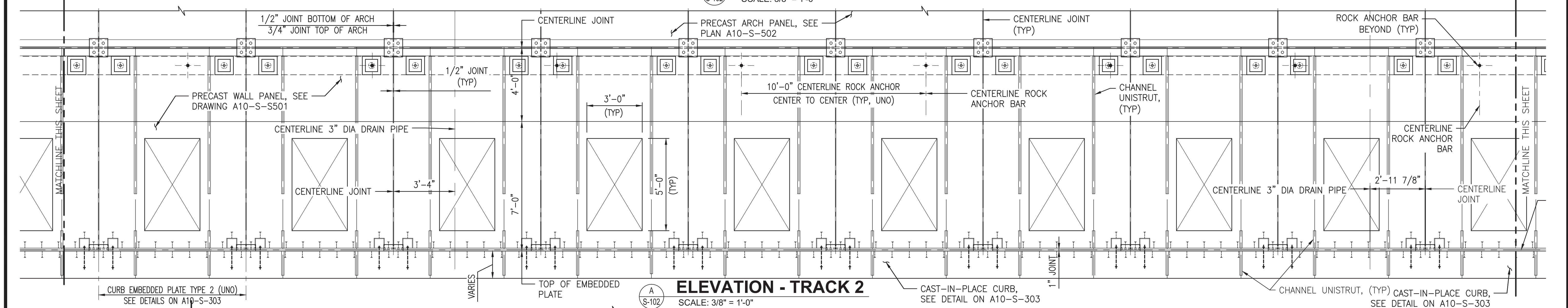
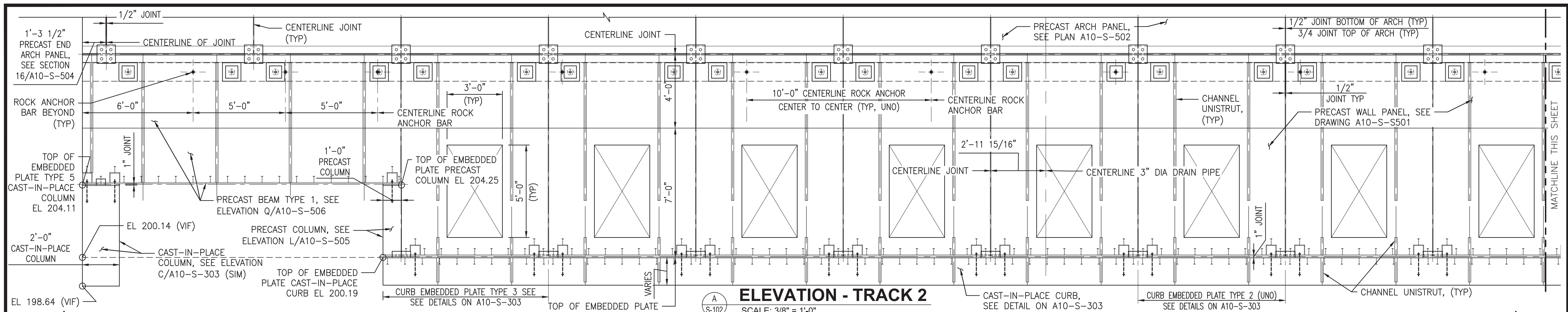


WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
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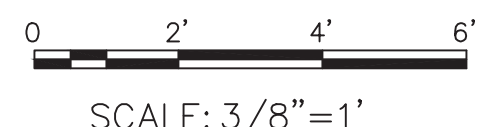
GFP A Gannett Fleming/Parsons JOINT VENTURE
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
STRUCTURAL - WATERPROOFING DRAINAGE PLAN AND SECTIONS

SCALE AS SHOWN
DRAWING NO. A10-S-103
SHEET NO. M1272-087



- NOTES:**
- FOR ADDITIONAL DIMENSIONS AND STATIONING, SEE DRAWING A10-S-102.



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V. CECKA	01-15						
M. AVERSO	01-15						



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

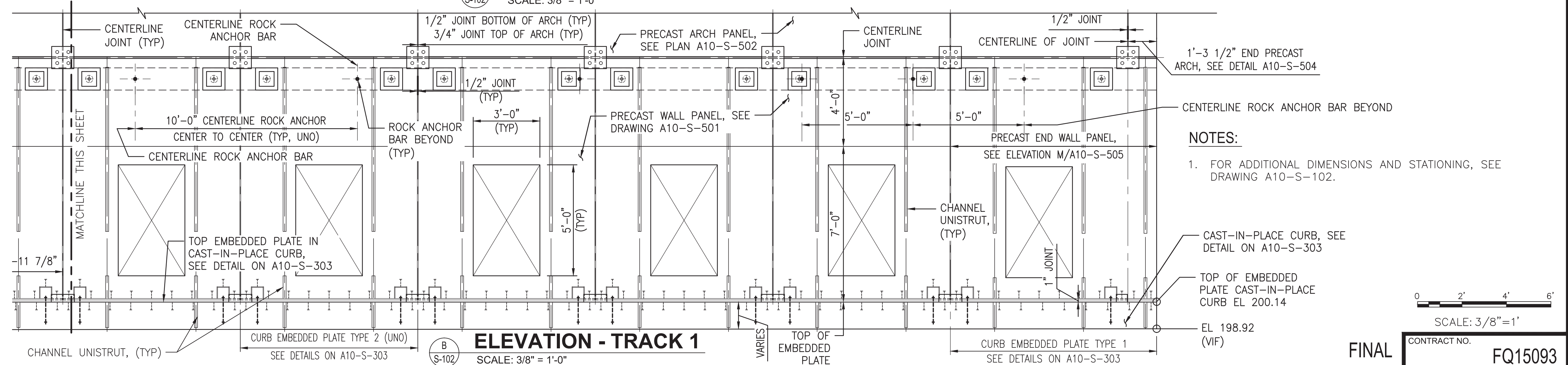
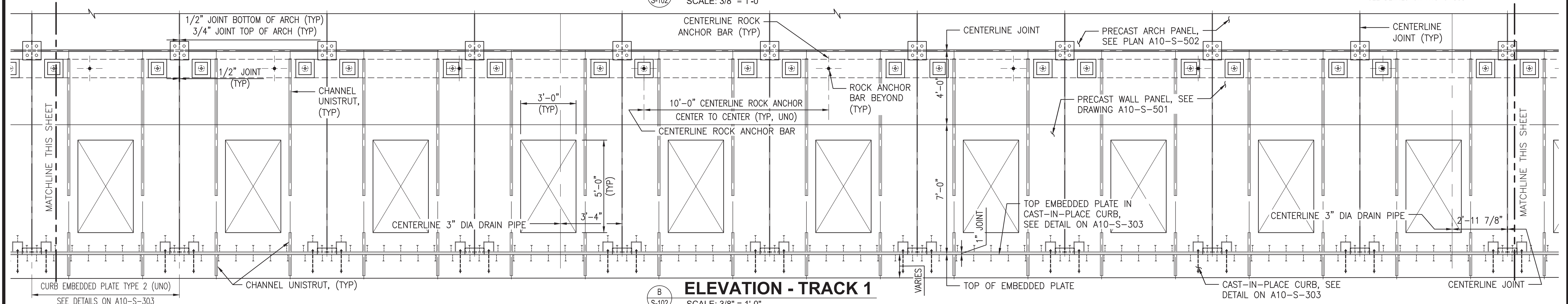
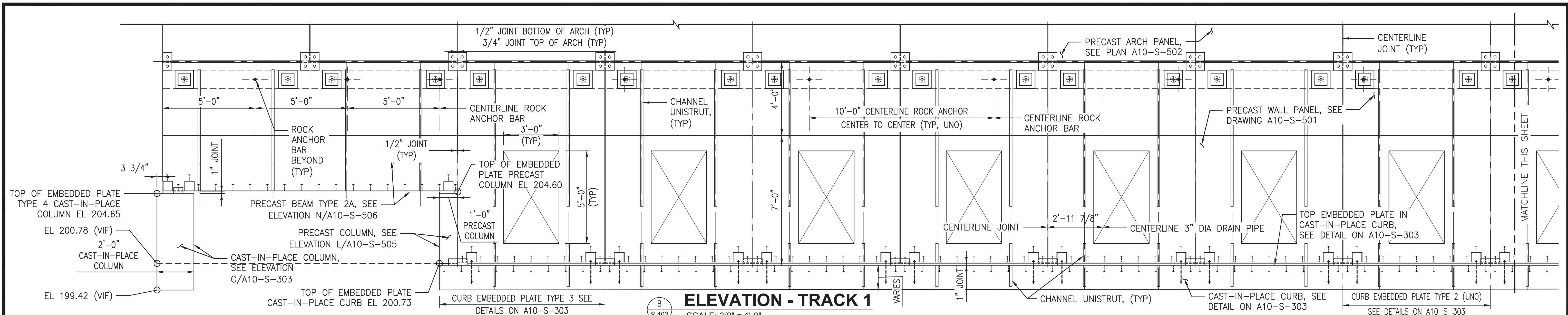
GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED **Brad Mason, P.E.**
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

STRUCTURAL EAST PRECAST PANEL ELEVATION

SCALE AS SHOWN DRAWING NO. **A10-S-201** SHEET NO. **M1272-088**



NOTES:

- FOR ADDITIONAL DIMENSIONS AND STATIONING, SEE DRAWING A10-S-102.

CAST-IN-PLACE CURB, SEE DETAIL ON A10-S-303

TOP OF EMBEDDED PLATE CAST-IN-PLACE CURB EL 200.14

EL 198.92 (VIF)

SCALE: 3/8" = 1'

0 2' 4' 6'

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OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE

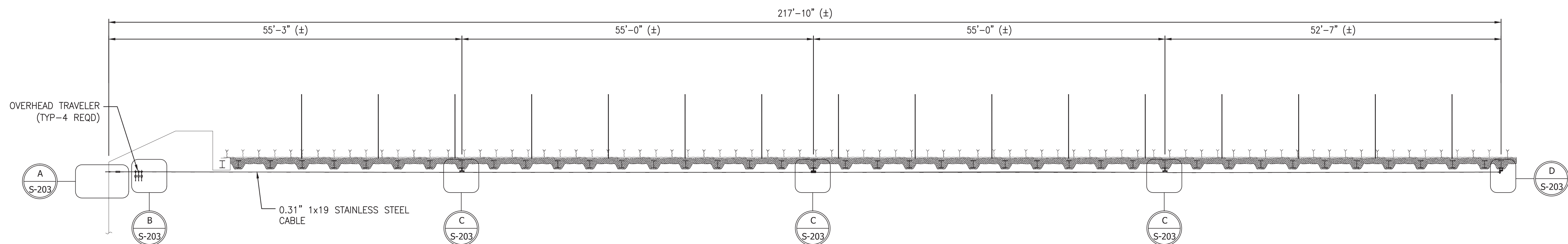
APPROVED _____ SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

STRUCTURAL
WEST PRECAST PANEL ELEVATION

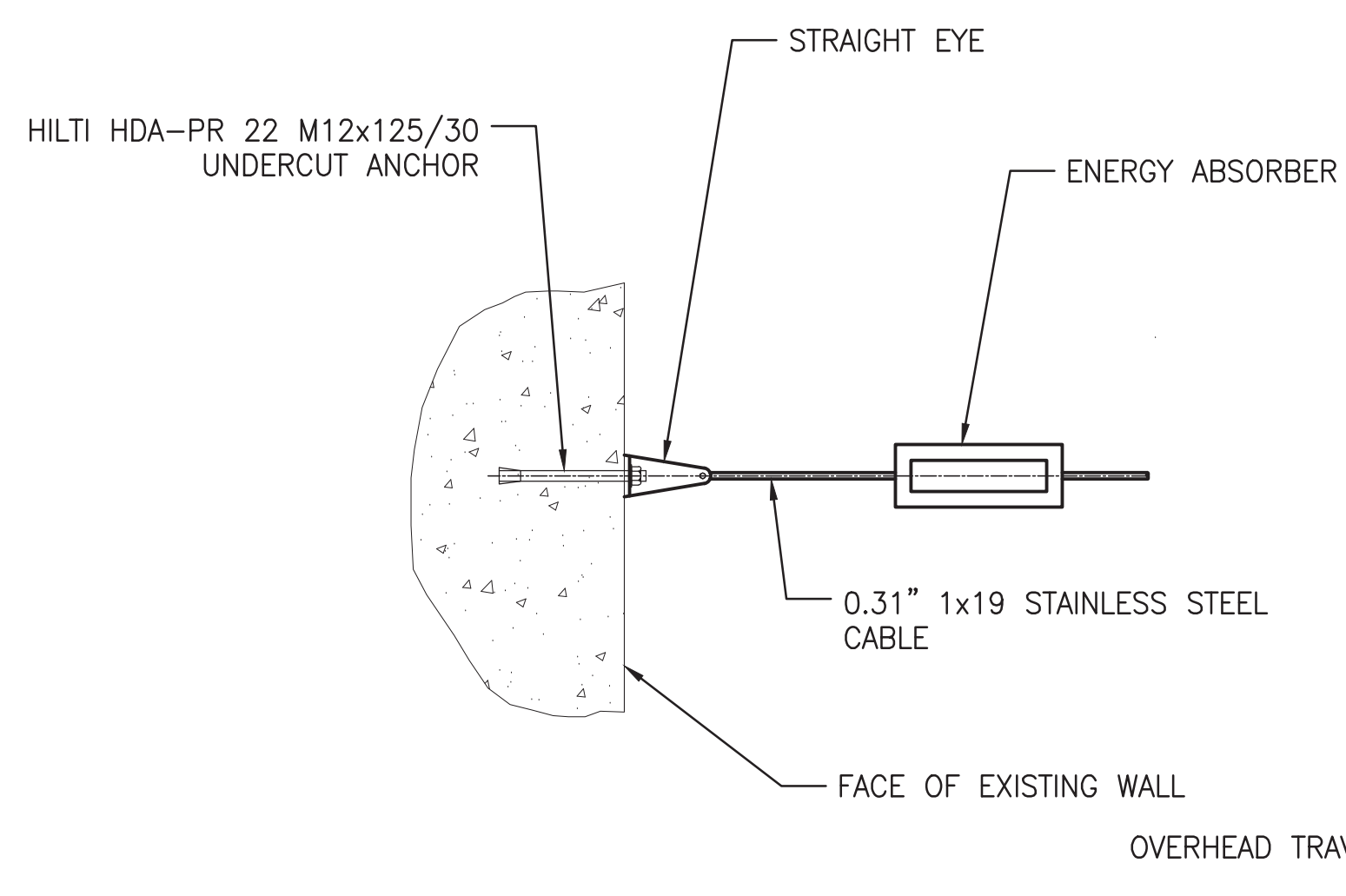
SCALE AS SHOWN DRAWING NO. **A10-S-202** SHEET NO. **M1272-089**

FINAL CONTRACT NO. **FQ15093**

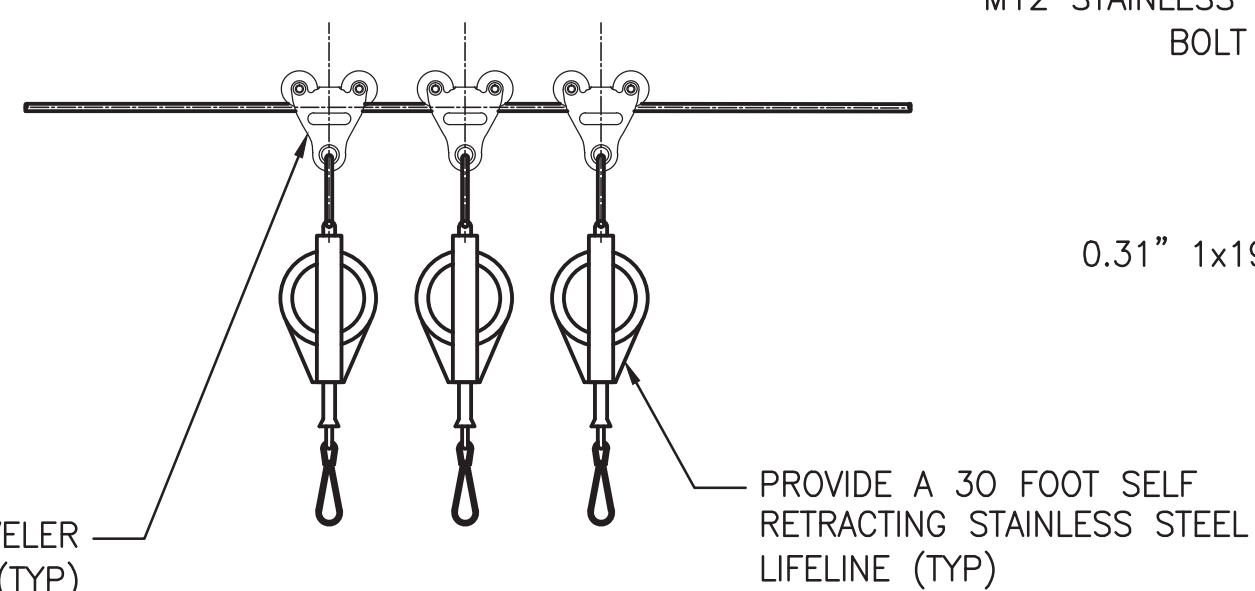


ELEVATION - OVERHEAD FALL PROTECTION

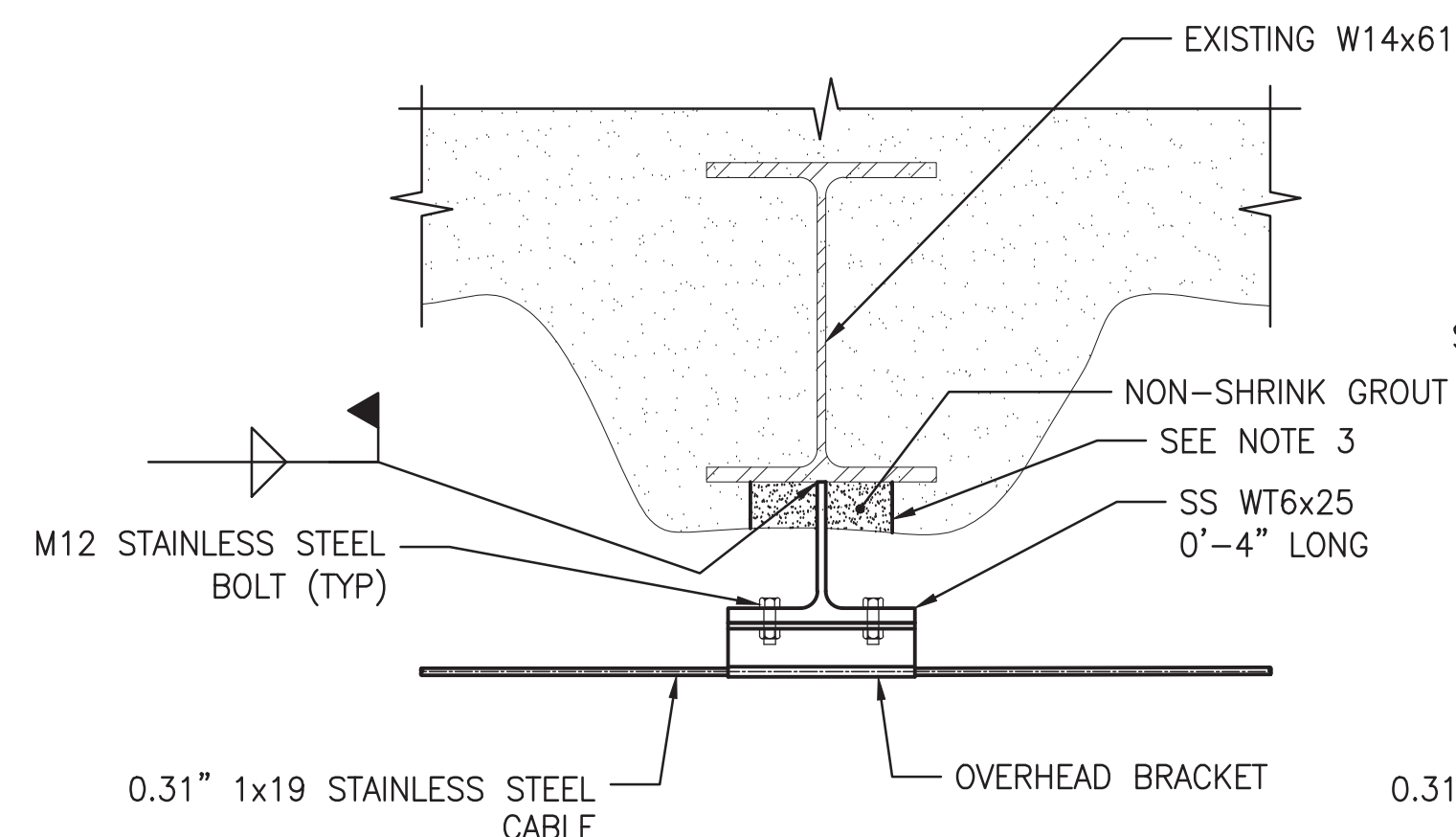
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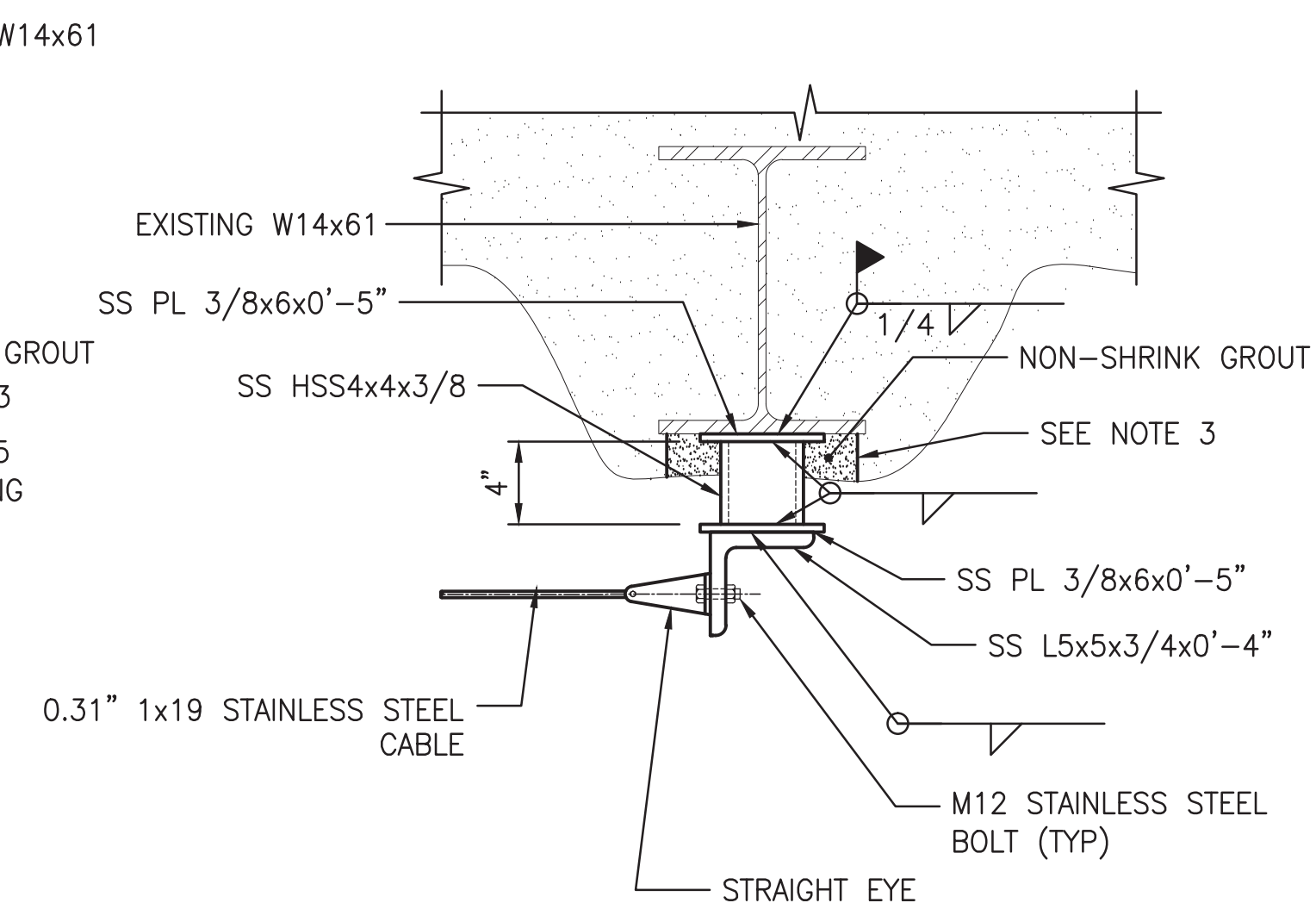
DETAIL A
SCALE: 1 1/2" = 1'-0"



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



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

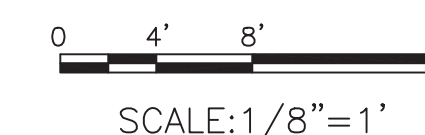


DETAIL D
SCALE: 1 1/2" = 1'-0"

NOTES:

1. ALL COMPONENTS OF THE OVERHEAD SAFETY LINE SHALL BE STAINLESS STEEL INCLUDING THE NEW SUPPORT MEMBERS.
2. PROVIDE A TOTAL OF 3 OVERHEAD TRAVELERS.
3. CLEAN AREAS AT WELDS AND COAT W/ PRIMER PRIOR TO NON-SHRINK GROUT INSTALLATION.

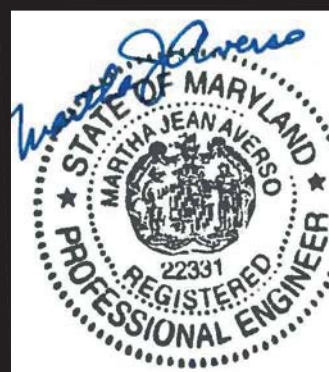
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."



FINAL

CONTRACT NO. FQ15093

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
M. VADOVIC	01-15						
P. GRUBB	01-15						
V. CECKA	01-15						
M. AVERSO	01-15						



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

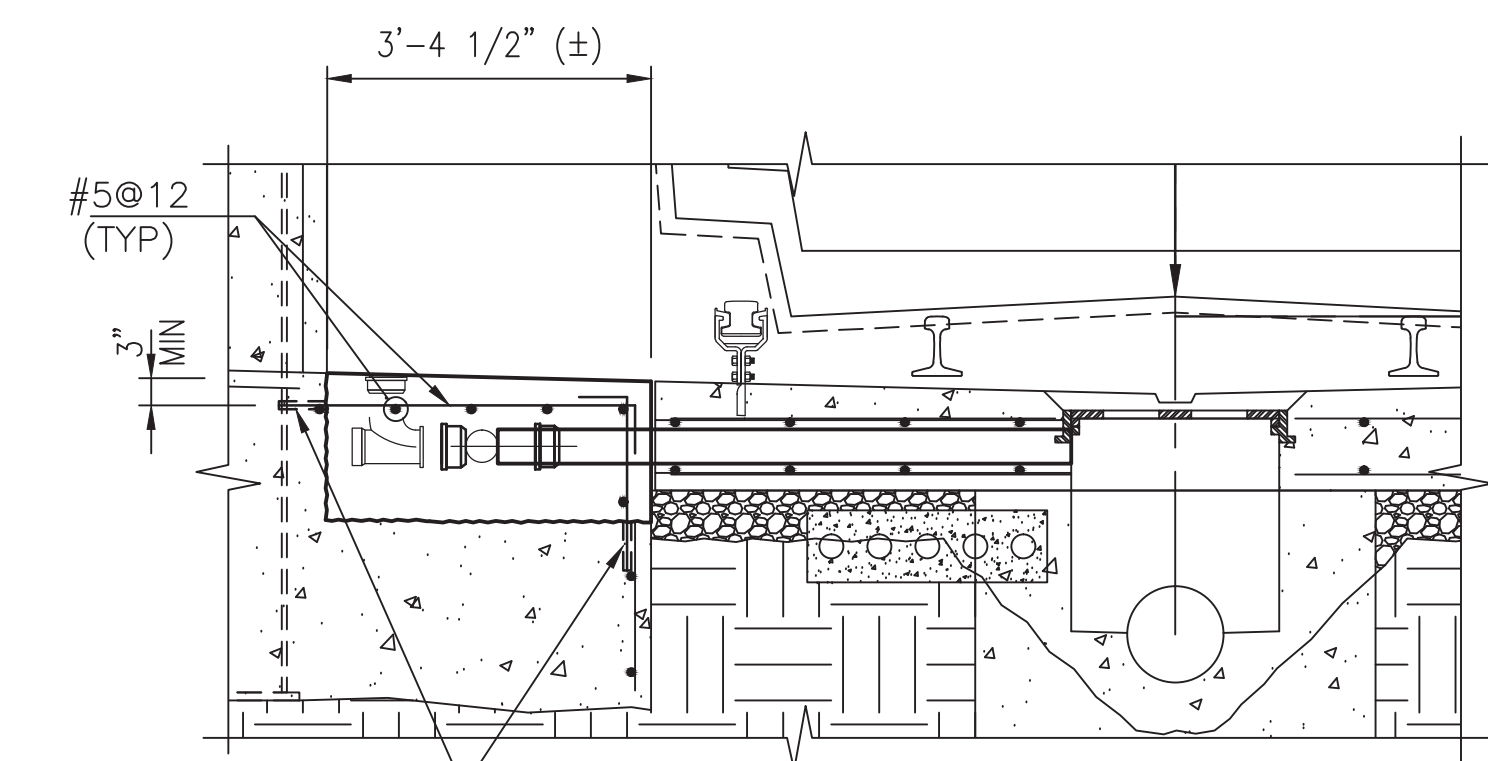
GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

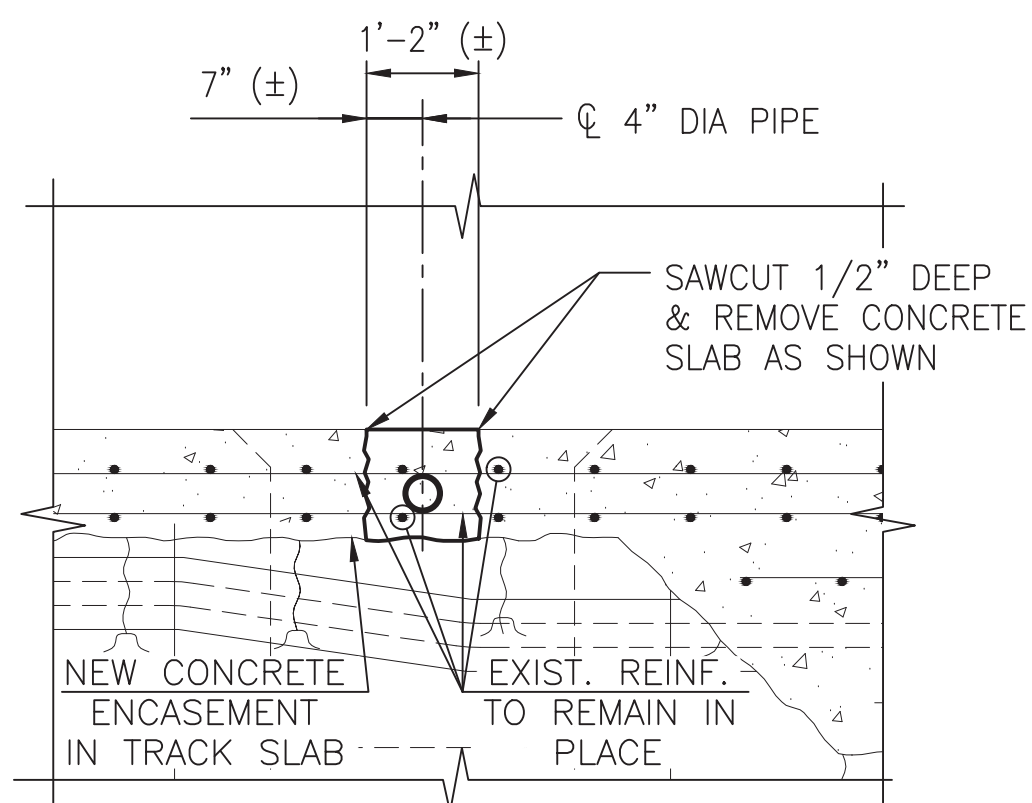
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

STRUCTURAL OVERHEAD FALL PROTECTION SYSTEM

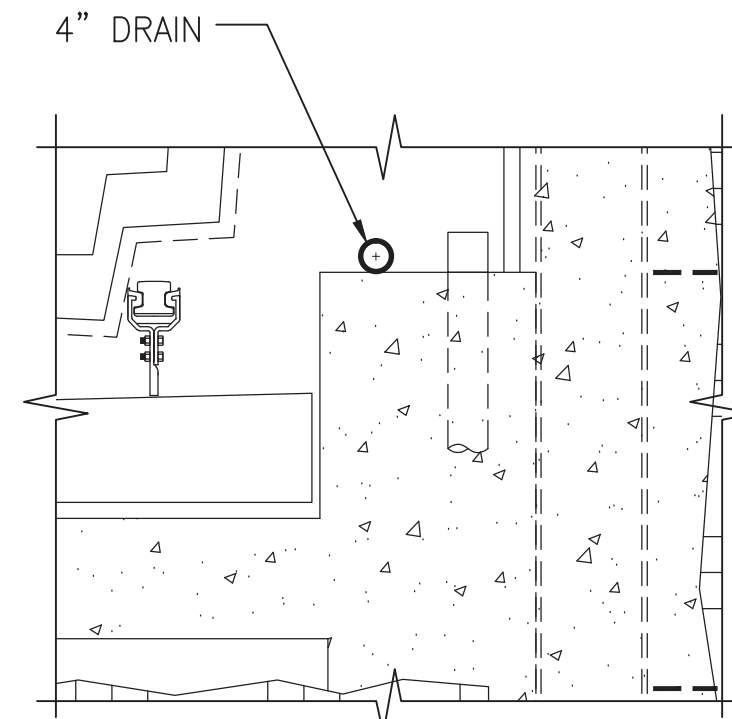
SCALE AS SHOWN DRAWING NO. A10-S-203 SHEET NO. M1272-090



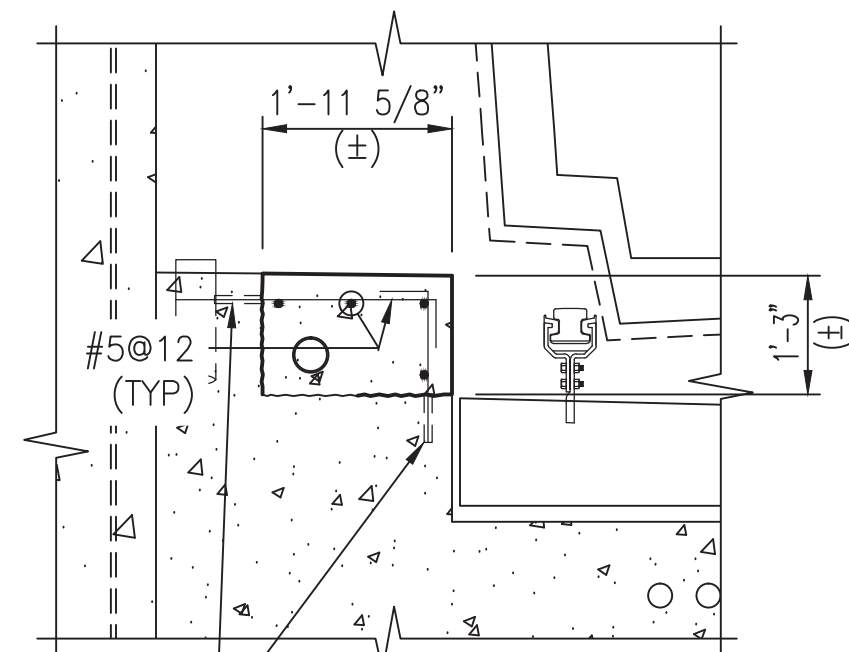
SECTION 3
 SCALE: 1/2" = 1'-0"
 DRILL 3/4" DIA HOLES 6" DEEP @ 12" C/C AND GROUT IN #5 REBAR W/ EPOXY ADHESIVE



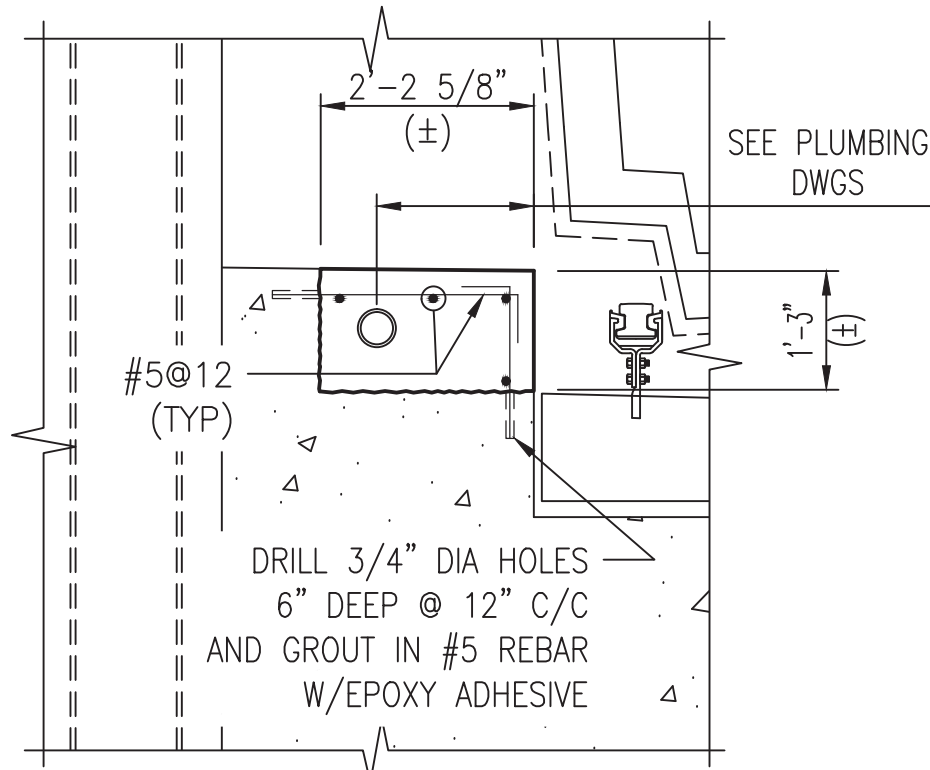
SECTION 4
 SCALE: 1/2" = 1'-0"
 NEW CONCRETE ENCASEMENT IN TRACK SLAB



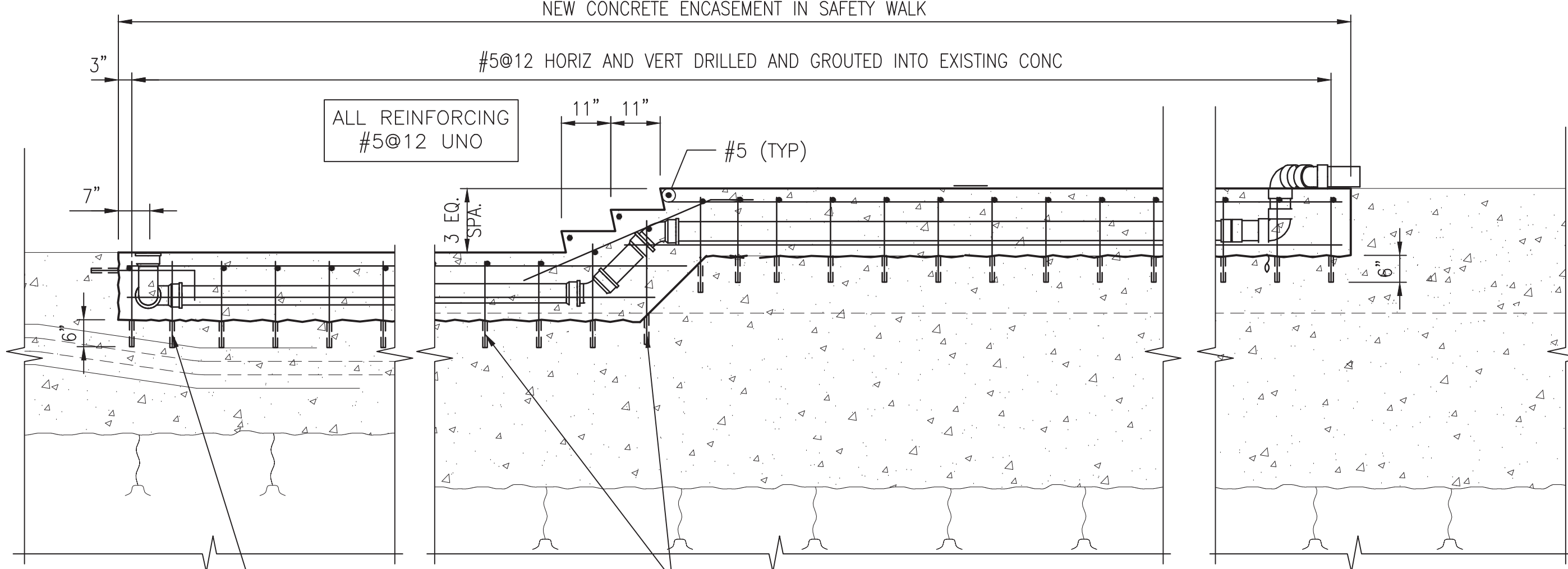
SECTION 5
 SCALE: 1/2" = 1'-0"
 DRILL 3/4" DIA HOLES 6" DEEP @ 12" C/C AND GROUT IN #5@12 W/EPOXY ADHESIVE



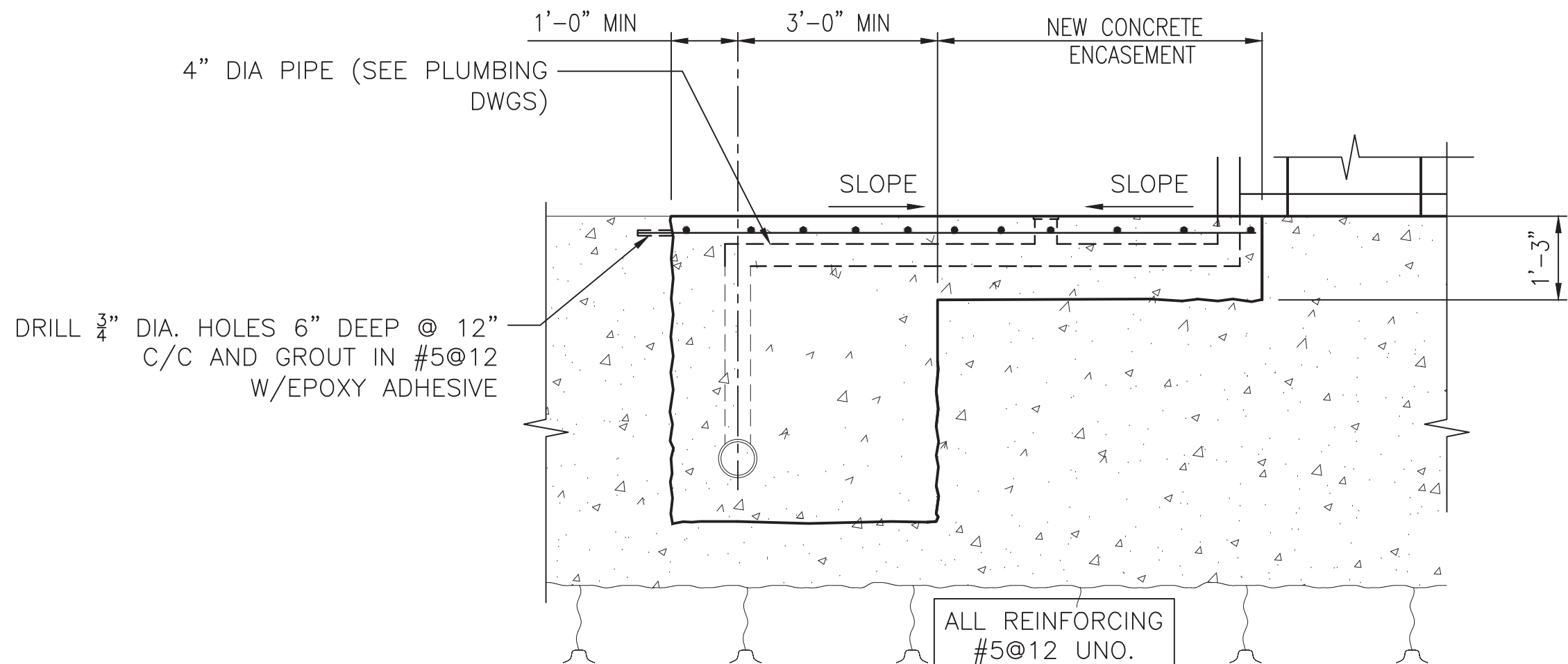
SECTION 6
 SCALE: 1/2" = 1'-0"
 ALL REINFORCING #5@12 UNO



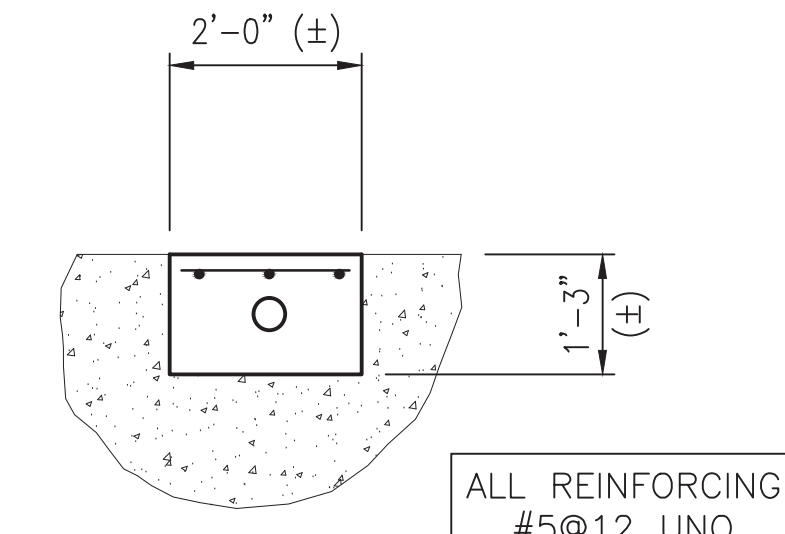
SECTION 7
 SCALE: 1/2" = 1'-0"
 DRILL 3/4" DIA HOLES 6" DEEP @ 12" C/C AND GROUT IN #5 REBAR W/EPOXY ADHESIVE



SECTION 8
 SCALE: 1/2" = 1'-0"
 NEW CONCRETE ENCASEMENT IN SAFETY WALK



SECTION 9
 SCALE: 1/2" = 1'-0"
 DRILL 3/4" DIA. HOLES 6" DEEP @ 12" C/C AND GROUT IN #5@12 W/EPOXY ADHESIVE



SECTION 10
 SCALE: 1/2" = 1'-0"
 ALL REINFORCING #5@12 UNO

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

0 1' 2' 4'
 SCALE: 1/2" = 1'-0"

FINAL CONTRACT NO. FQ15093

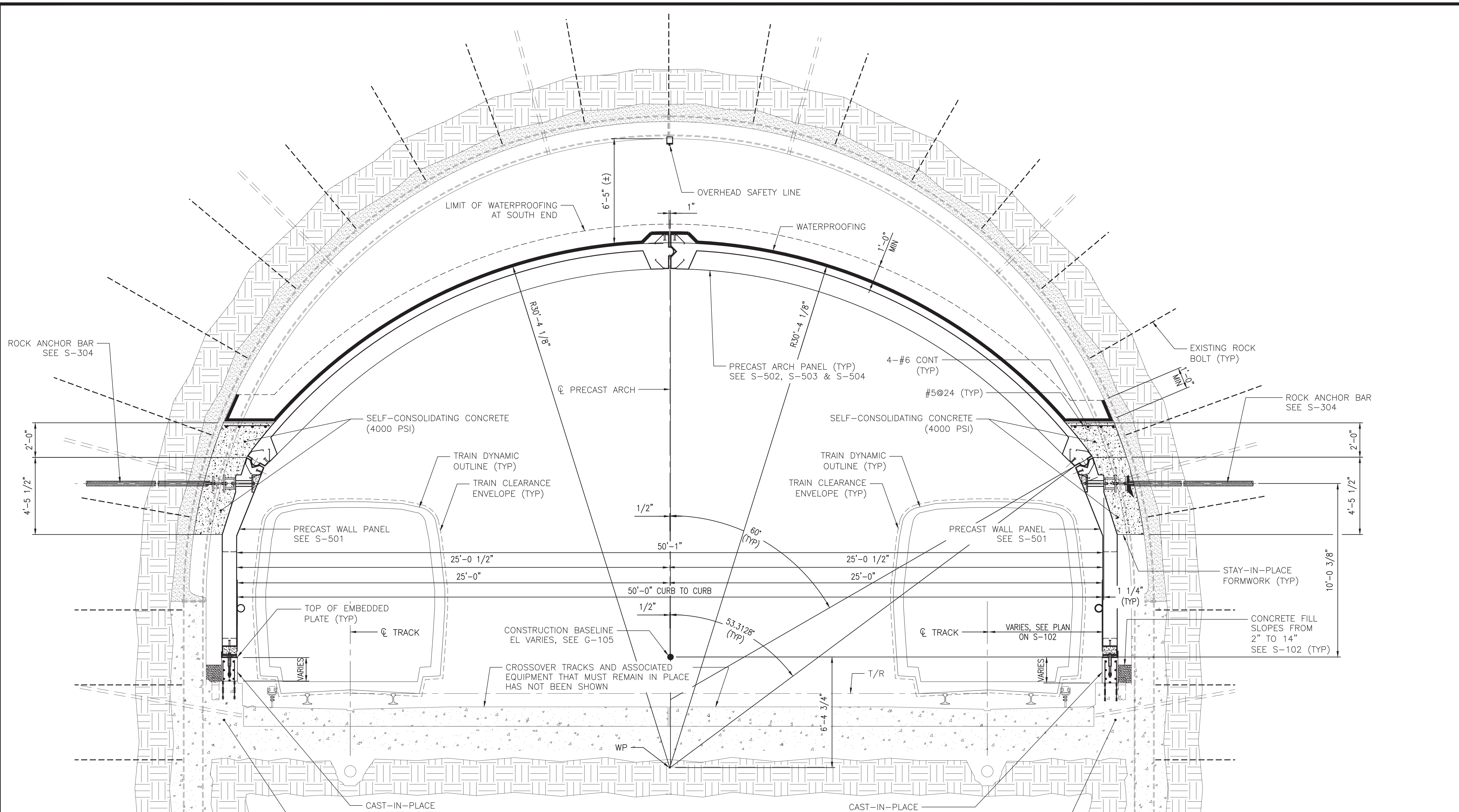
DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
M. VADOVIC	01-15						
P. GRUBB	01-15						
V. CECKA	01-15						
M. AVERSO	01-15						



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE
 SUBMITTED Brad Mason, P.E.
 PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
 STRUCTURAL DRAINAGE SECTIONS
 SCALE AS SHOWN
 DRAWING NO. A10-S-301
 SHEET NO. M1272-091



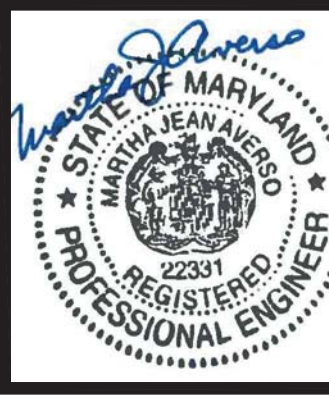
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

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



FINAL CONTRACT NO. FQ15093

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
M. VADOVIC	01-15						
P. GRUBB	01-15						
V. CECKA	01-15						
M. AVERSO	01-15						

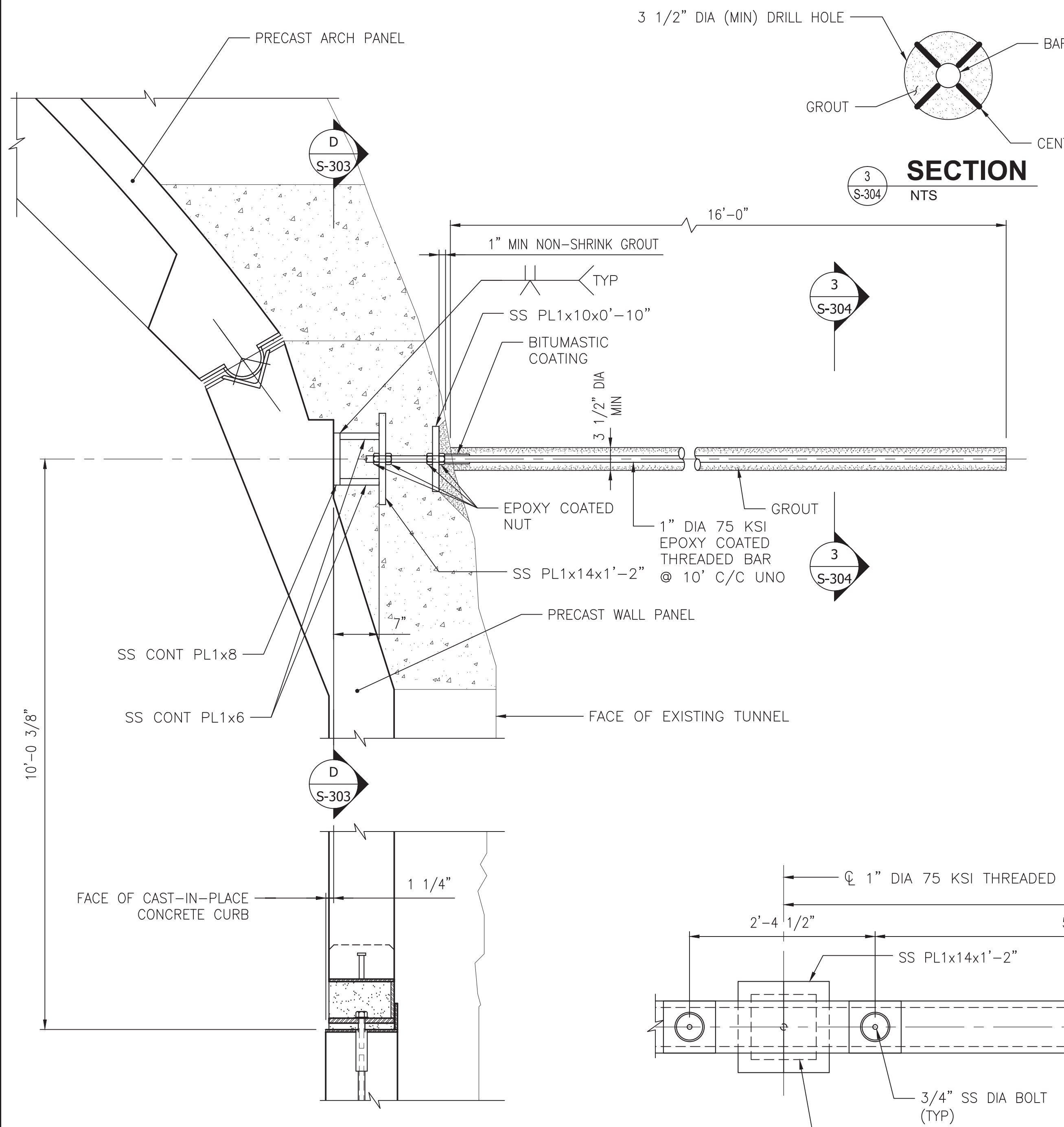


WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED _____

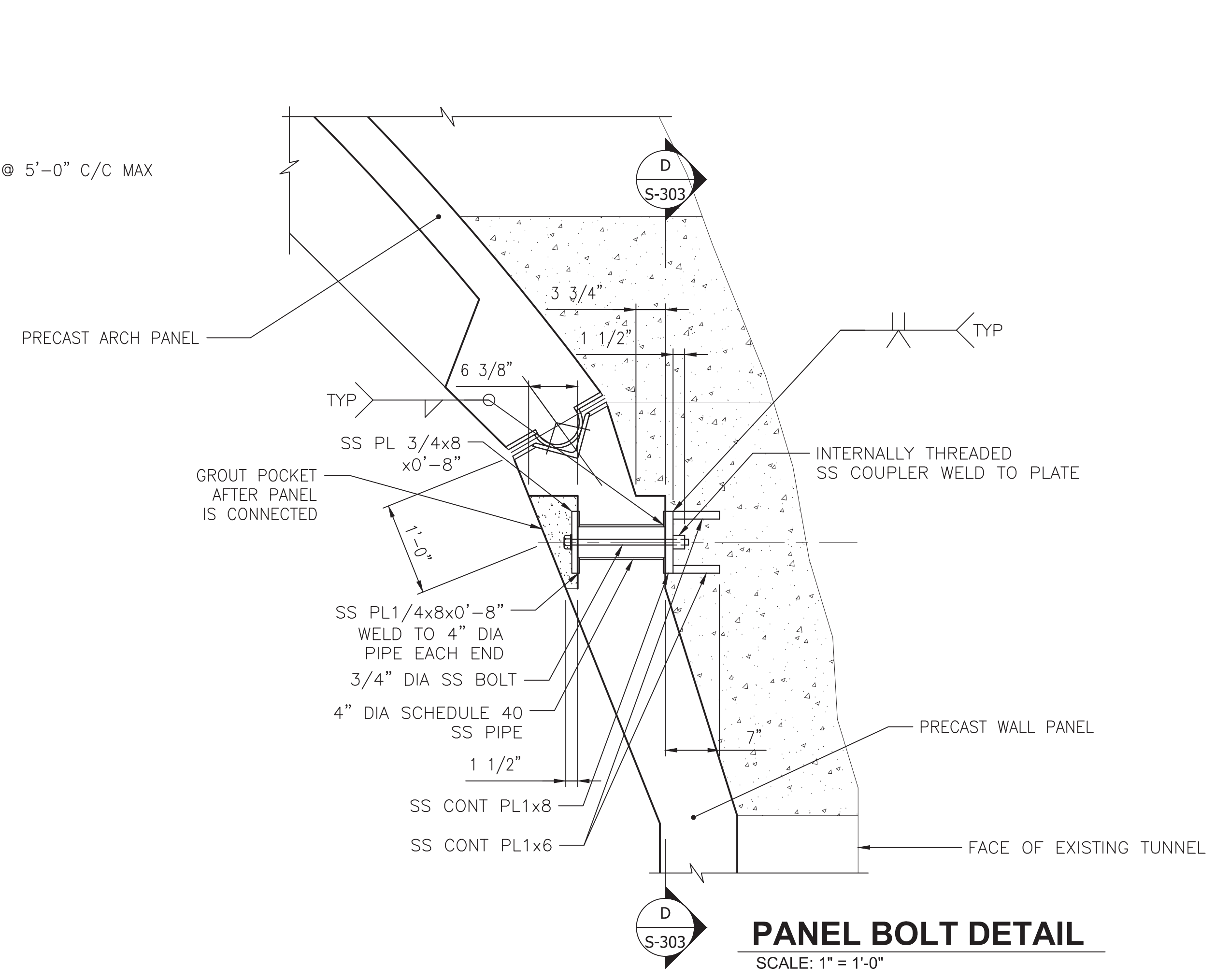
GFP A Gannett Fleming/Parsons JOINT VENTURE
 SUBMITTED Brad Mason, P.E.
 PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
 STRUCTURAL
 SECTION 1 - UMBRELLA WATERPROOFING

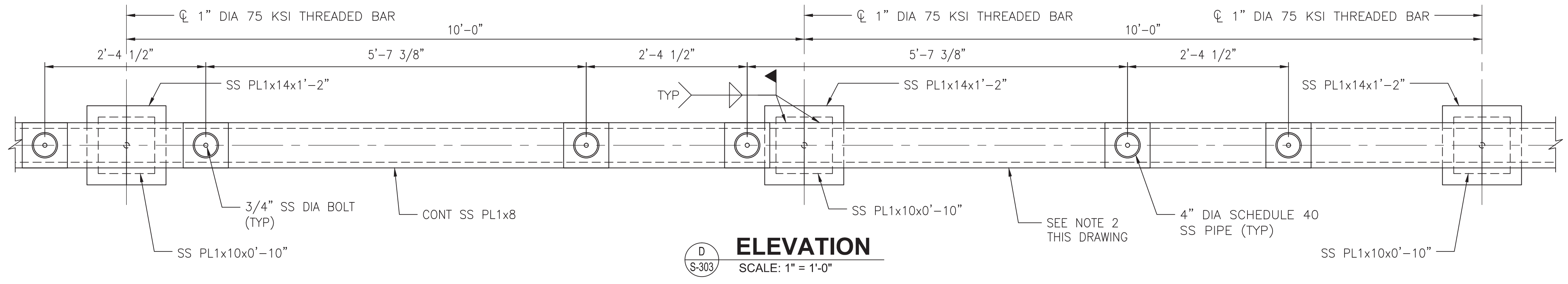
SCALE AS SHOWN
 DRAWING NO. A10-S-302
 SHEET NO. M1272-092



ROCK ANCHOR BAR DETAIL
SCALE: 1" = 1'-0"



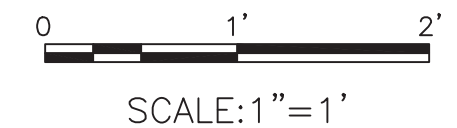
PANEL BOLT DETAIL
SCALE: 1" = 1'-0"



ELEVATION
SCALE: 1" = 1'-0"

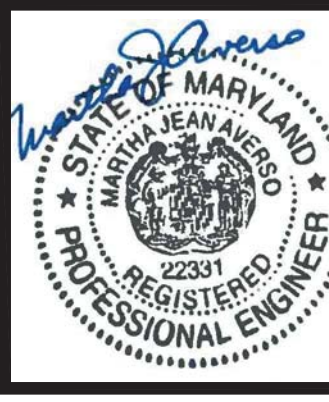
- NOTES:**
- FOR PRECAST COMPONENT DETAILS SEE S-501 THROUGH S-506.
 - SPLICES IN HORIZONTAL CHANNELS TO BE AT ROCK ANCHOR BAR LOCATIONS OVER STAINLESS STEEL PLATE 1x14x1'-2".
 - SEE ELEVATIONS ON S-201 AND S-202 FOR PRECAST WALL PANEL AND PRECAST BEAM BOLT CONNECTION LOCATIONS. SEE PLAN ON S-103 FOR ROCK ANCHOR BAR LOCATIONS.

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FINAL CONTRACT NO. FQ15093

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01-15	M. VADOVIC	01-15					
01-15	P. GRUBB	01-15					
01-15	V. CECKA	01-15					
01-15	M. AVERSO	01-15					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

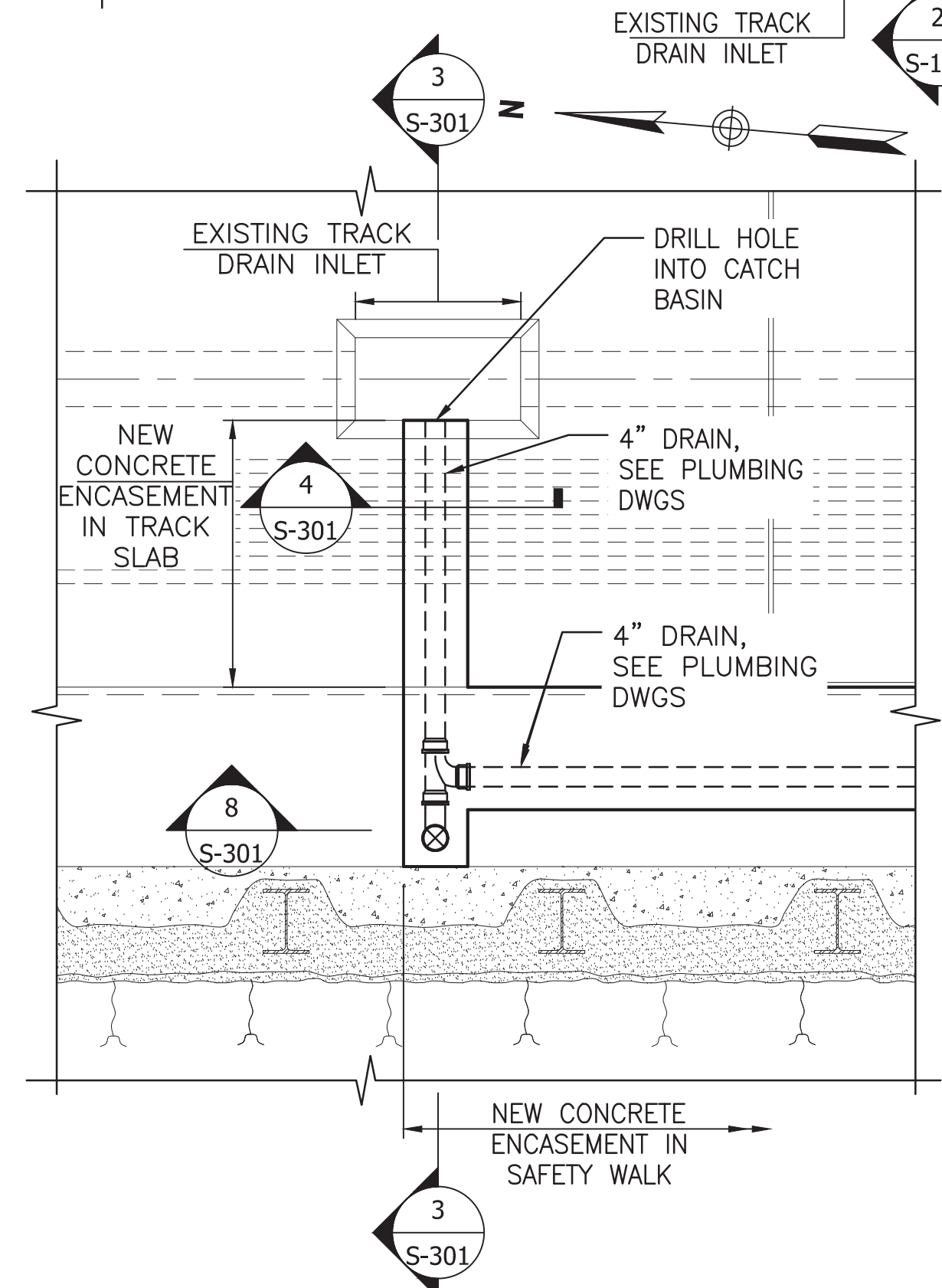
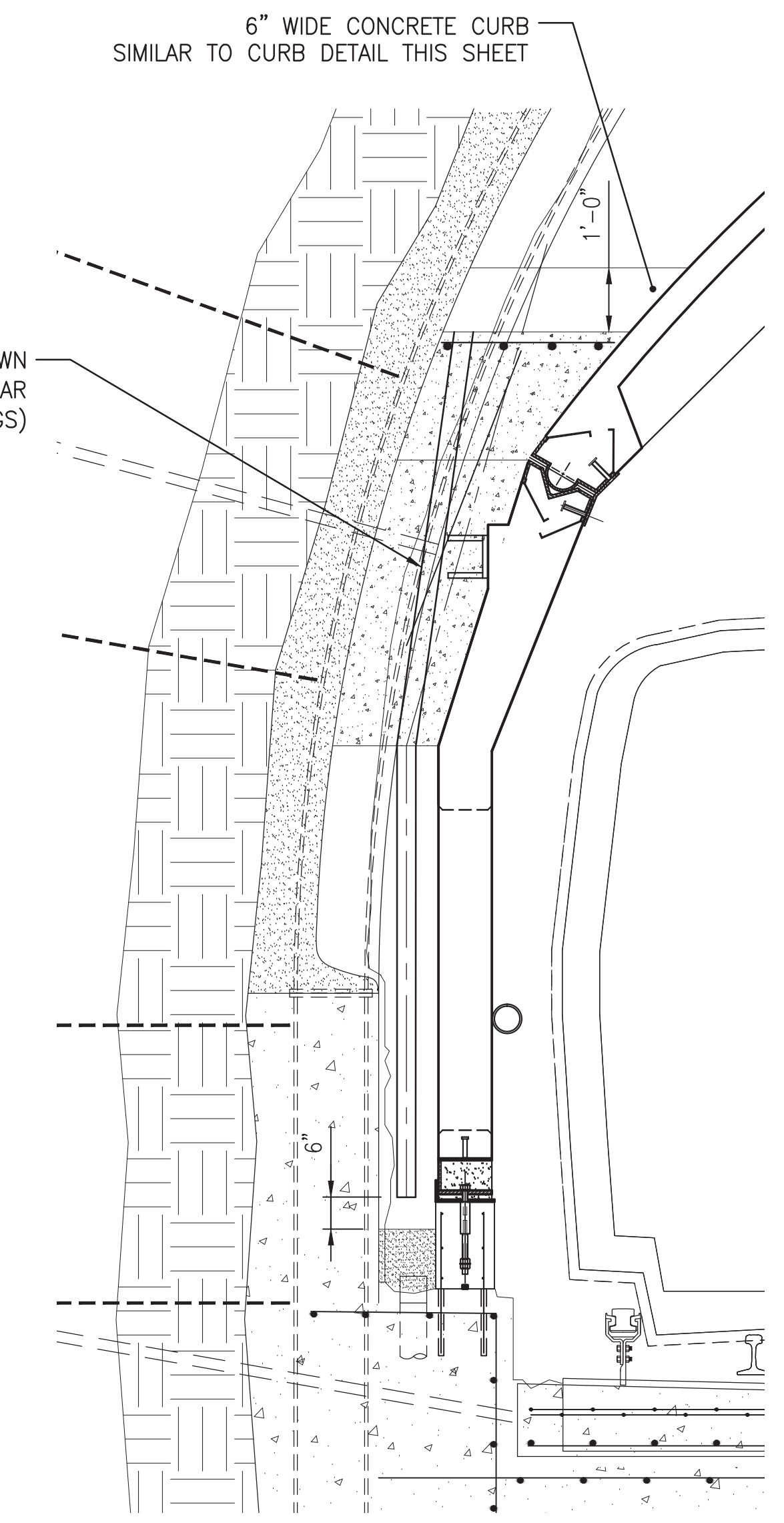
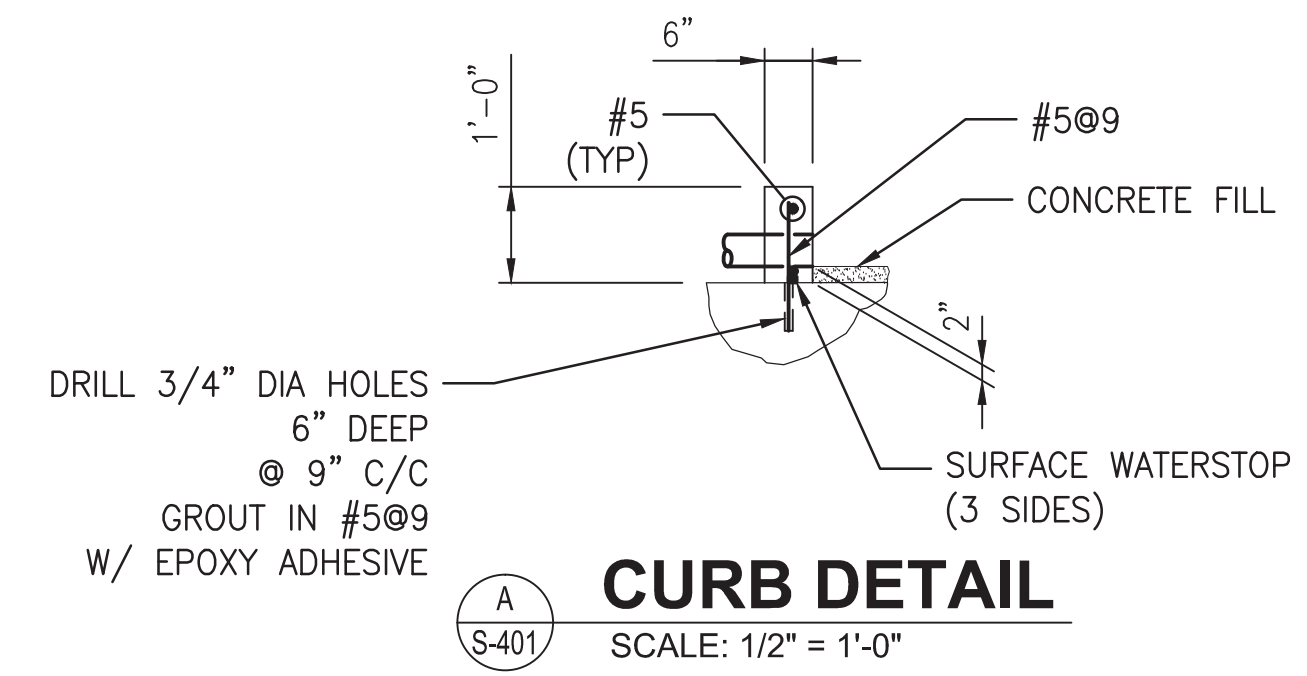
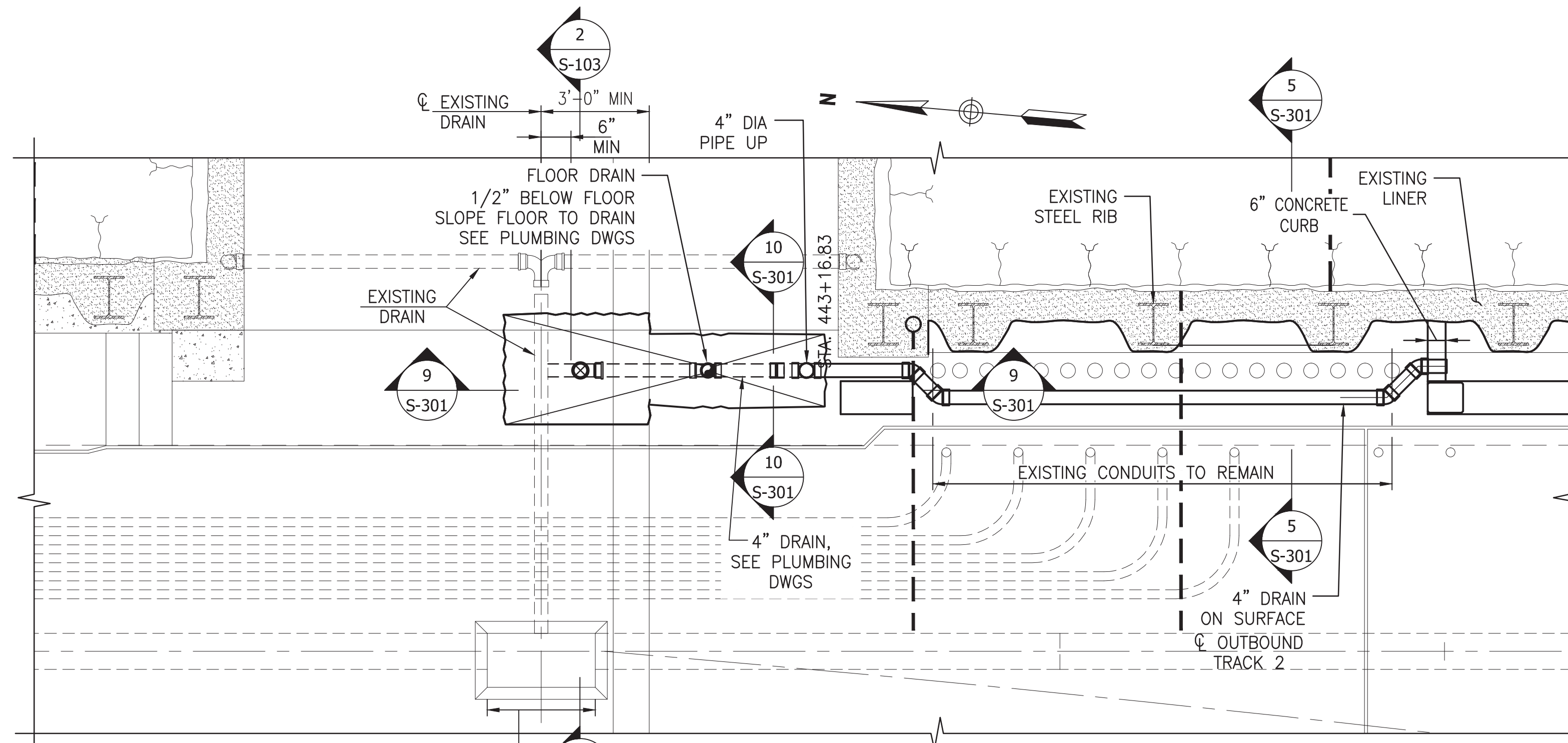
GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED **Brad Mason, P.E.**
PROJECT MANAGER

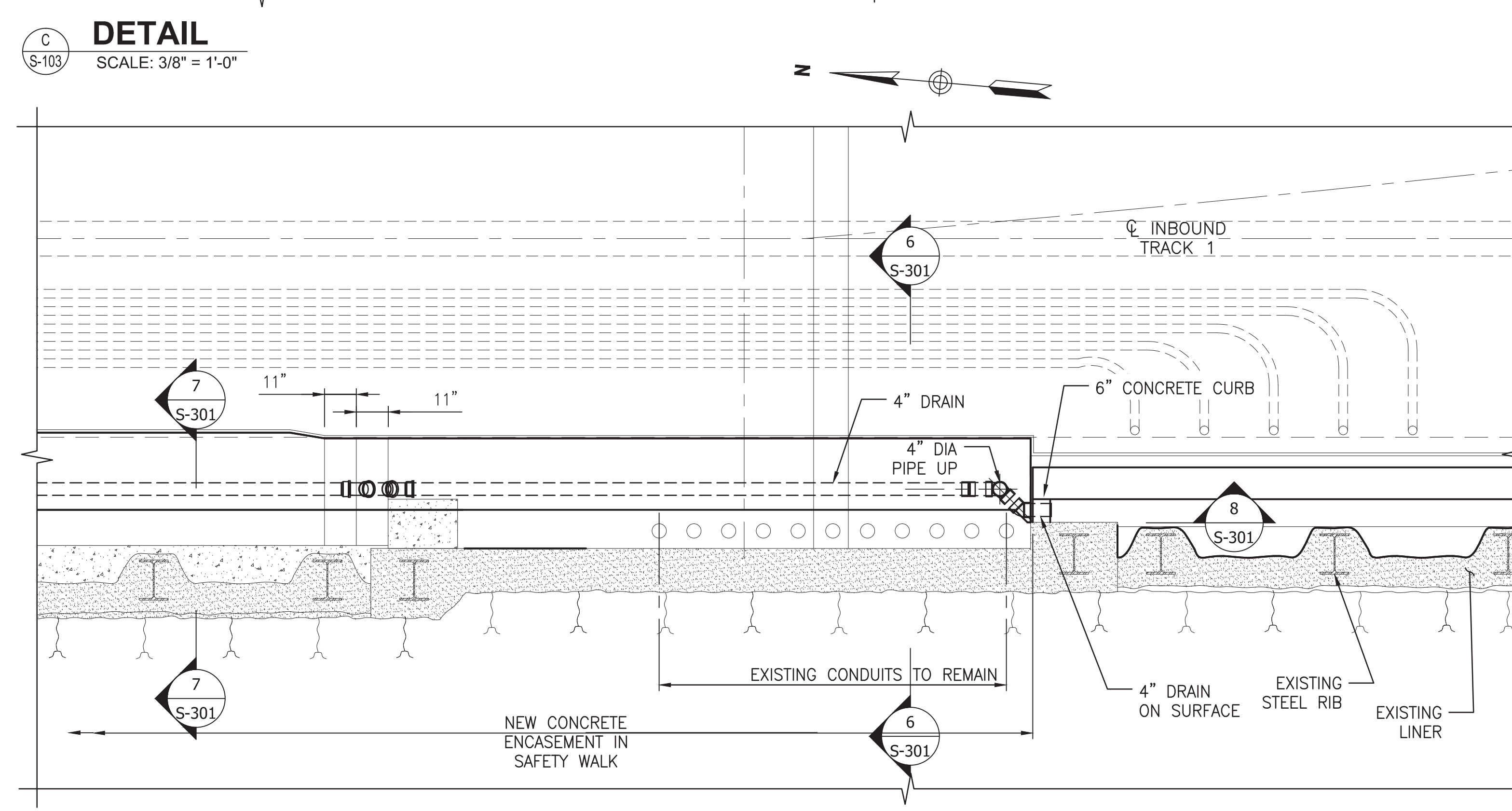
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

STRUCTURAL
ROCK ANCHOR BAR AND PANEL BOLT DETAILS

SCALE AS SHOWN DRAWING NO. A10-S-304 SHEET NO. M1272-094



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



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

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

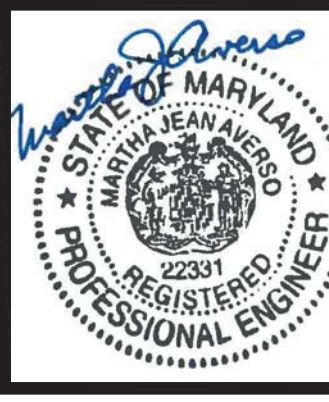
0 2' 4' 6'
SCALE: 3/8" = 1'

FINAL CONTRACT NO. FQ15093

DESIGNED	M. VADOVIC	01-15
DRAWN	P. GRUBB	01-15
CHECKED	V. CECKA	01-15
APPROVED	M. AVERSO	01-15

NUMBER	DESCRIPTION	DATE	BY

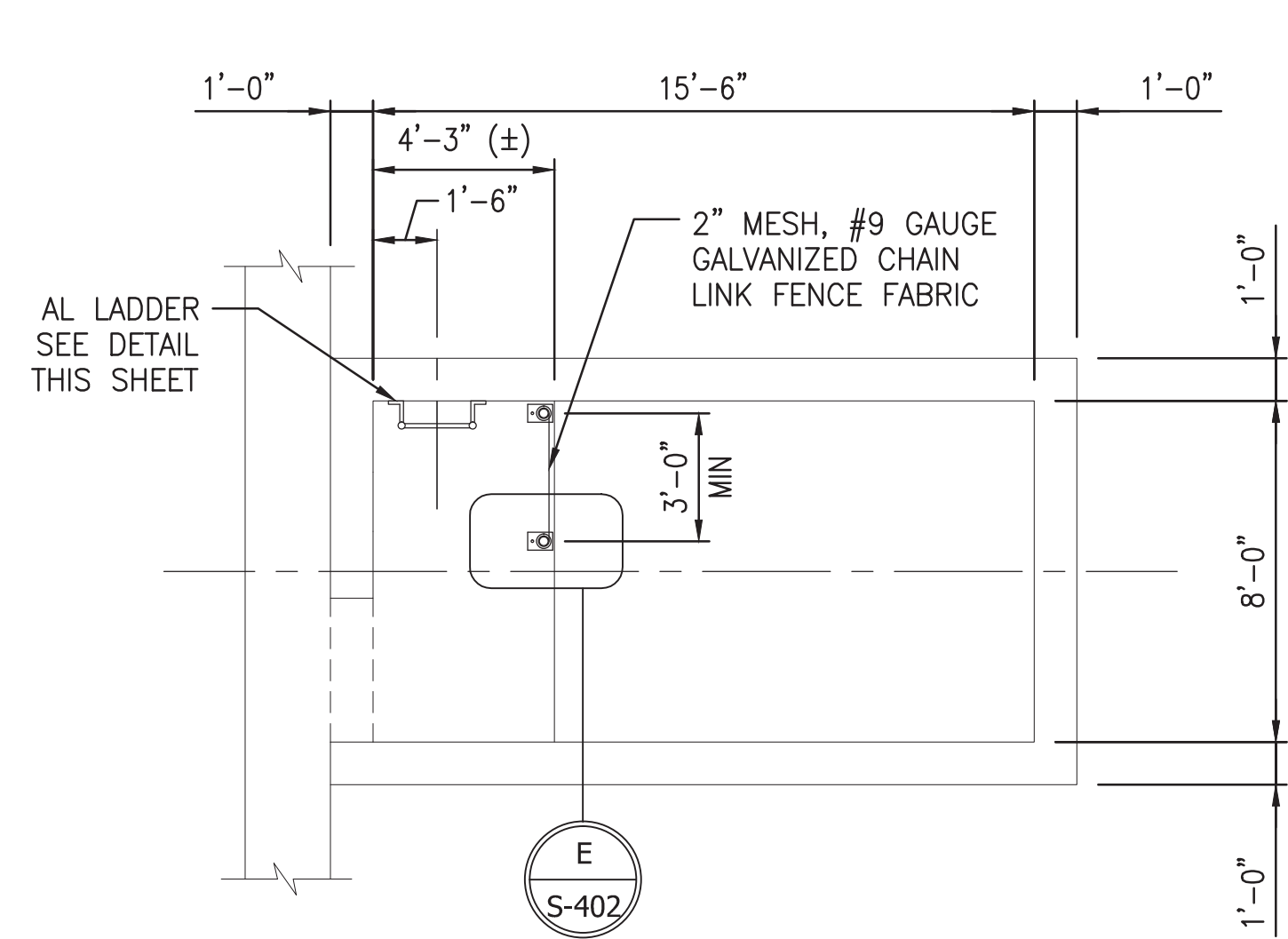
NUMBER	DESCRIPTION	DATE	BY



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
APPROVED _____

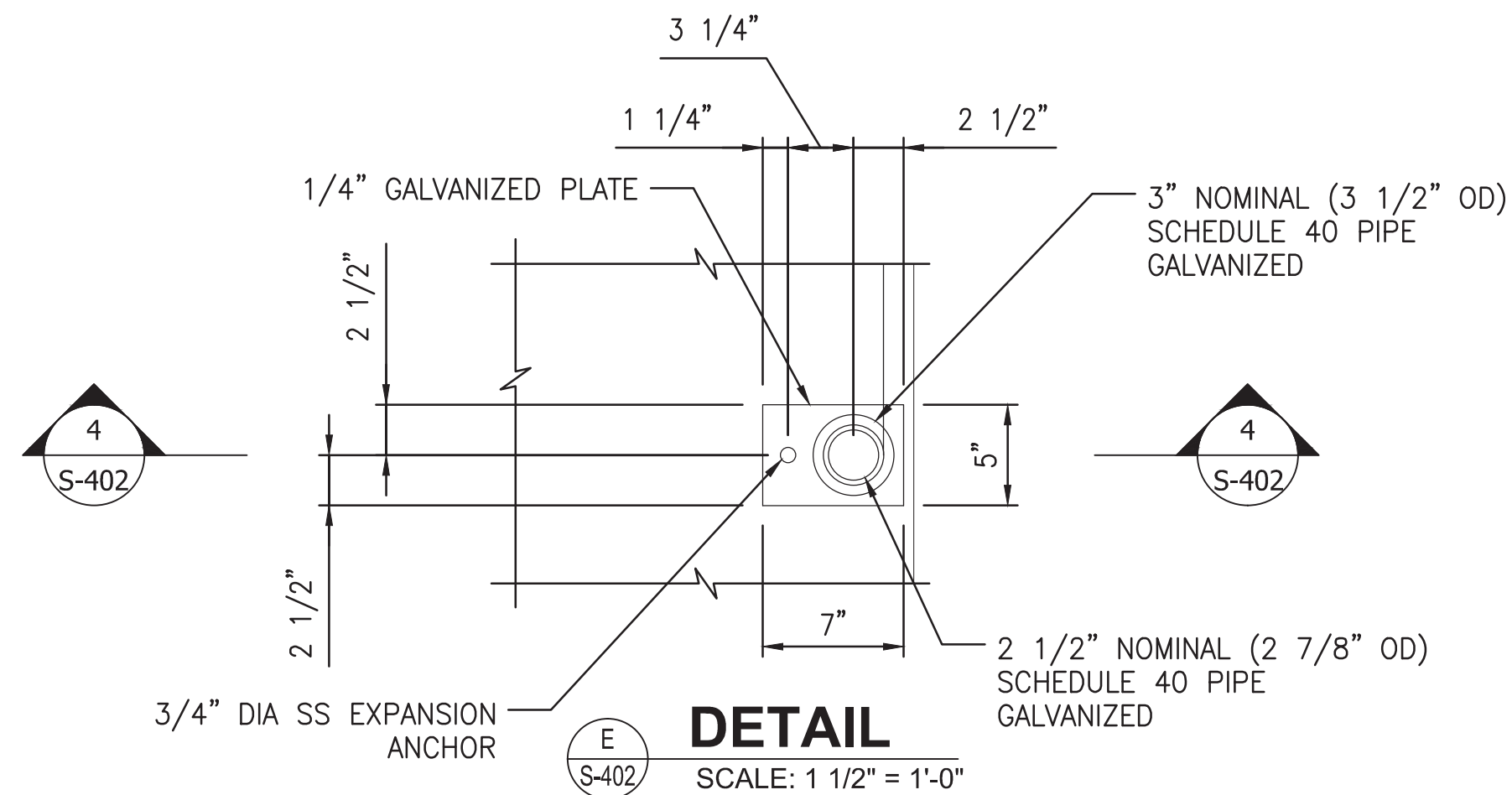
GFP A Gannett Fleming/Parsons JOINT VENTURE
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
STRUCTURAL ENLARGED DRAINAGE DETAILS
SCALE AS SHOWN
DRAWING NO. A10-S-401
SHEET NO. M1272-095



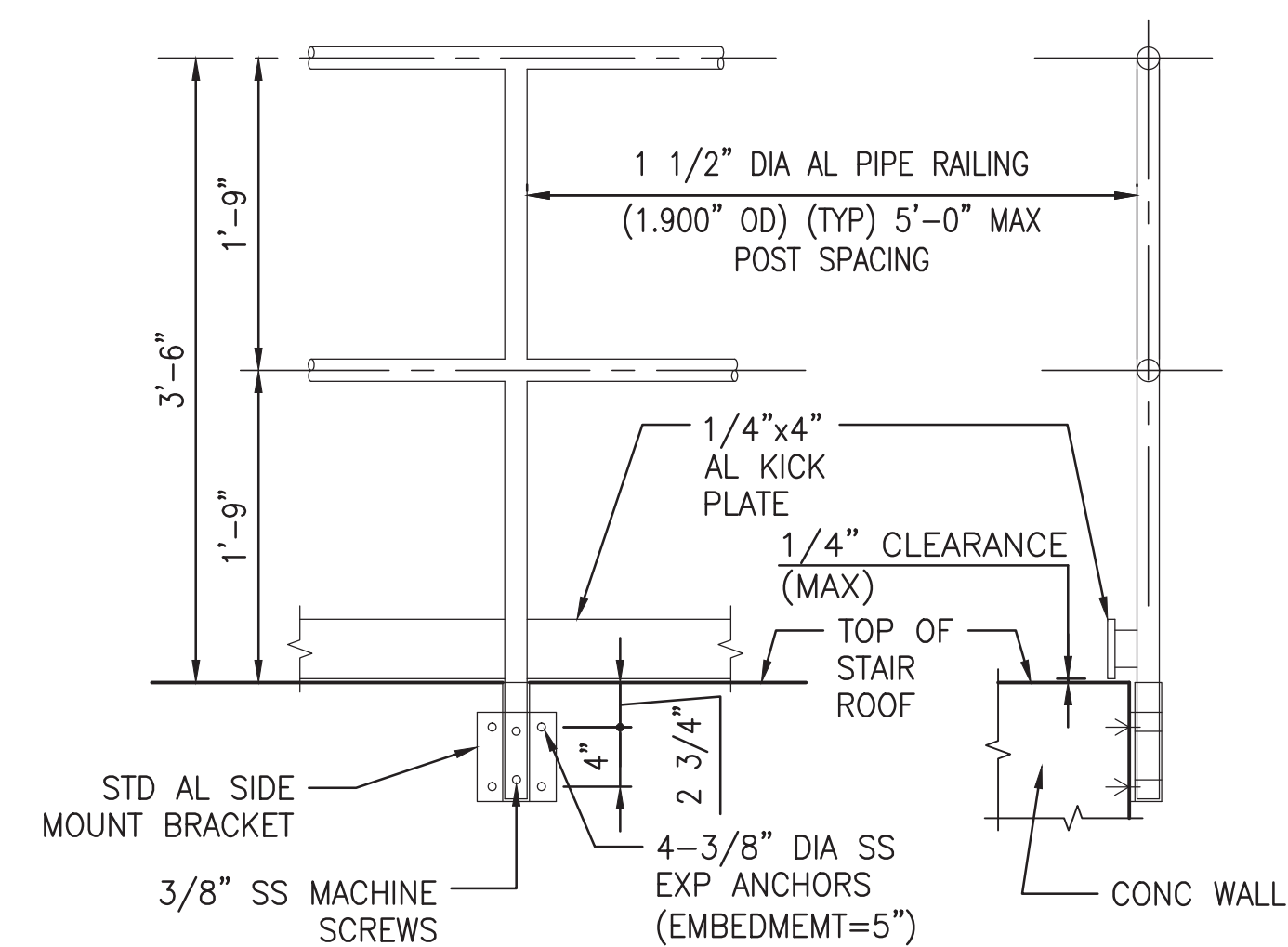
STAIR TOWER PLAN AT MEZZANINE LEVEL

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



DETAIL

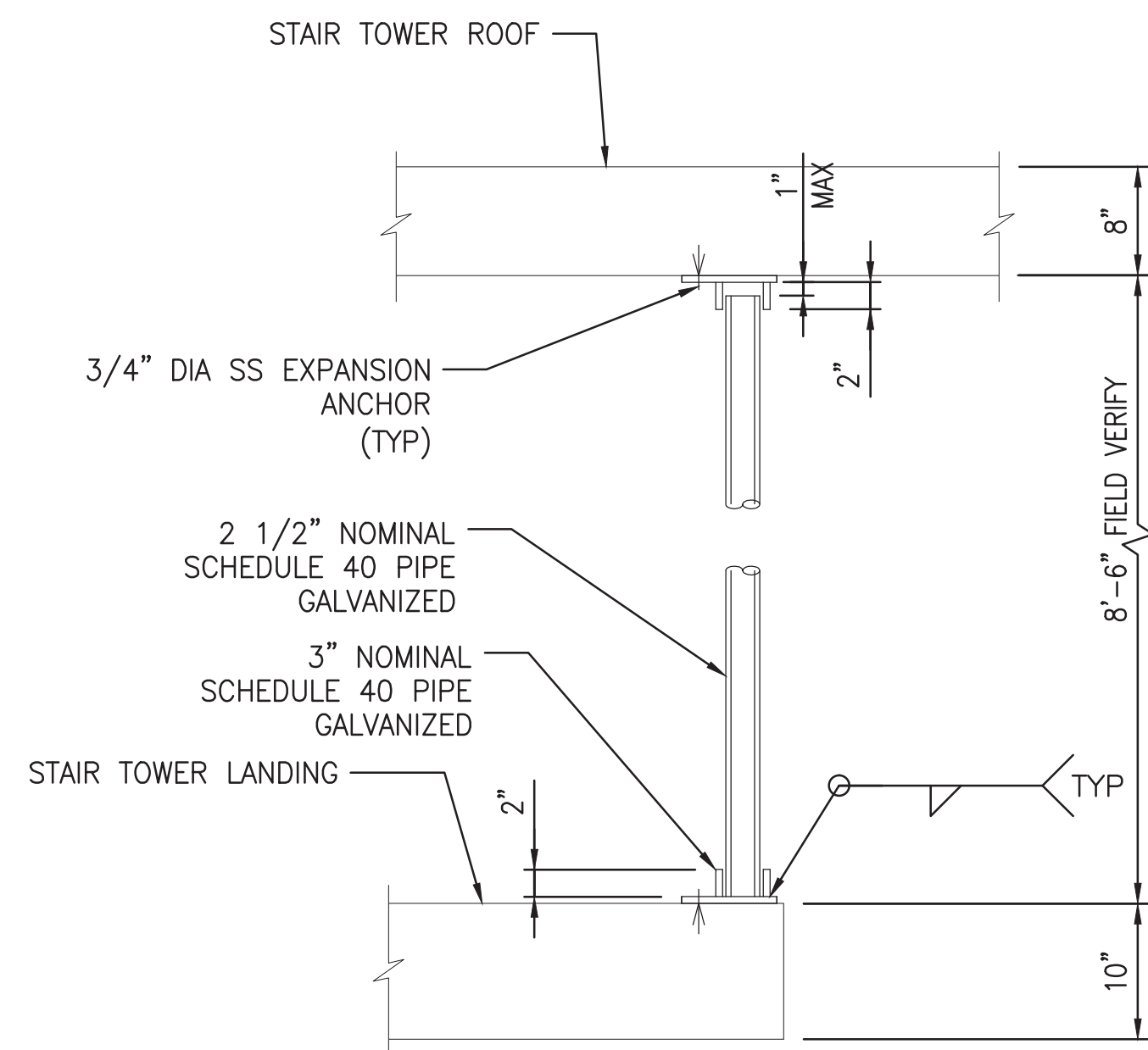
SCALE: 1 1/2" = 1'-0"



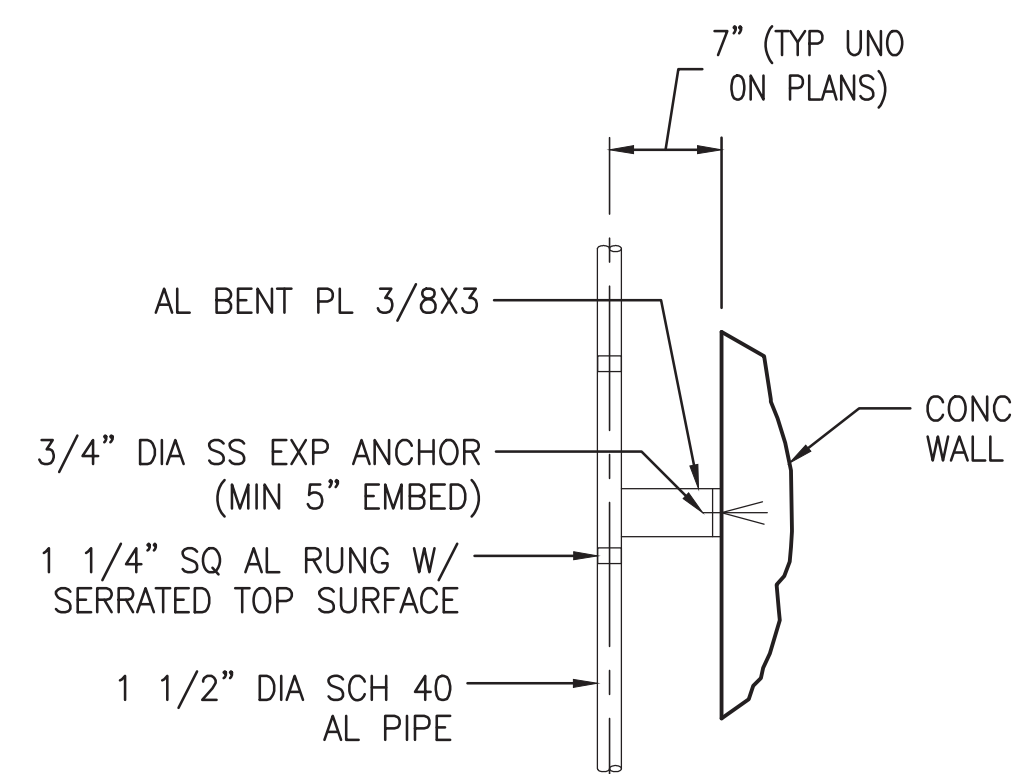
ALUMINUM PIPE RAILING DETAIL

NTS

NOTE:
APPLY A HEAVY COAT OF BITUMASTIC TO ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE.

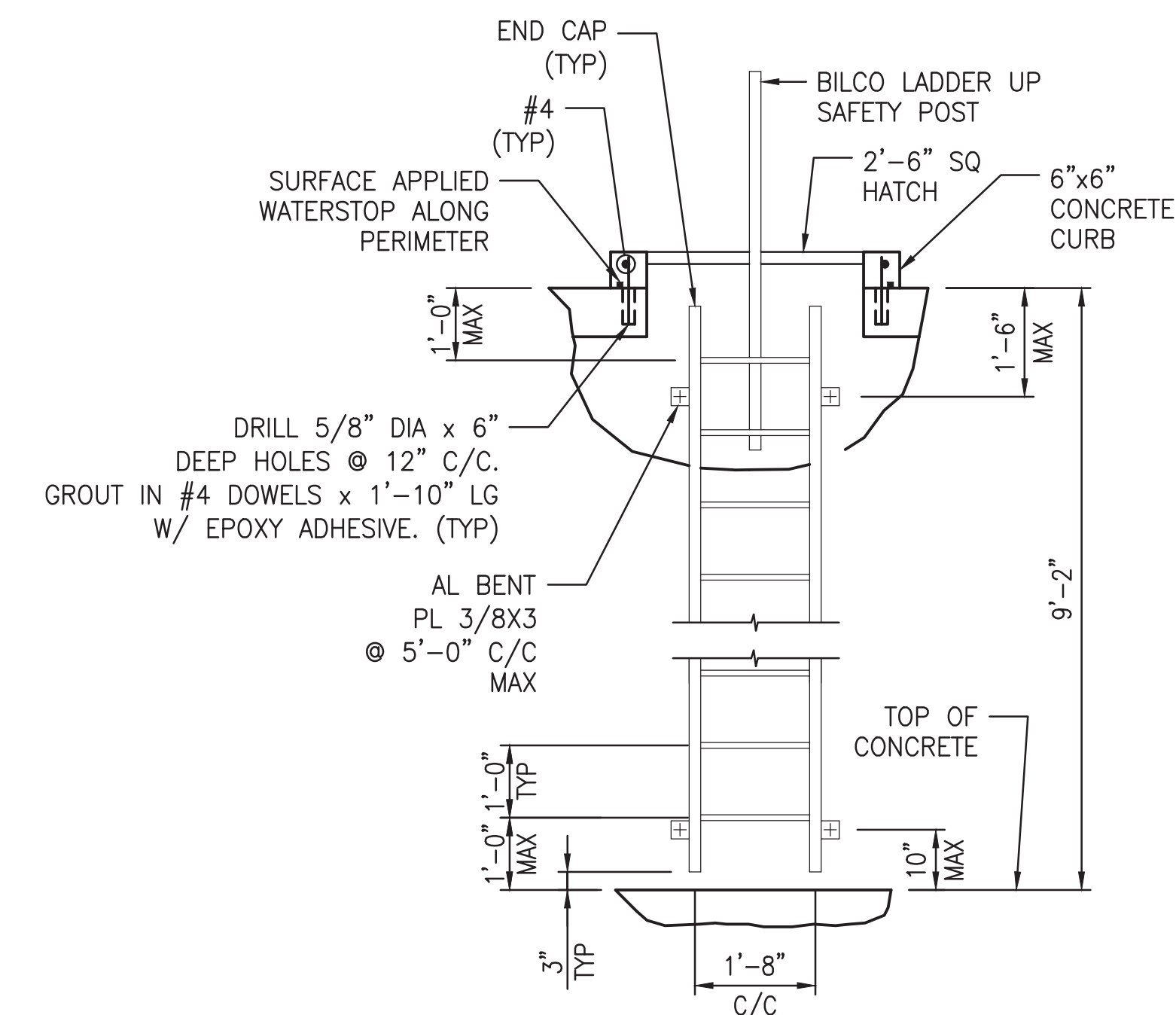


SECTION
SCALE: 1" = 1'-0"



SECTION

NOTE:
APPLY A HEAVY COAT OF BITUMASTIC TO ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE.

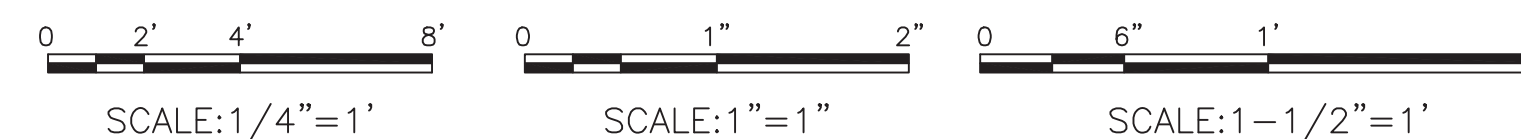


ELEVATION

ALUMINUM LADDER DETAIL

NTS

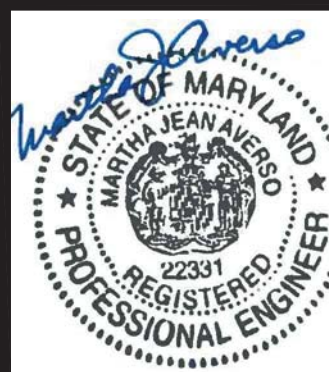
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."



FINAL

CONTRACT NO. FQ15093

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
DESIGNED	M. VADOVIC	01-15					
DRAWN	P. GRUBB	01-15					
CHECKED	V. CECKA	01-15					
APPROVED	M. AVERSO	01-15					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE

SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

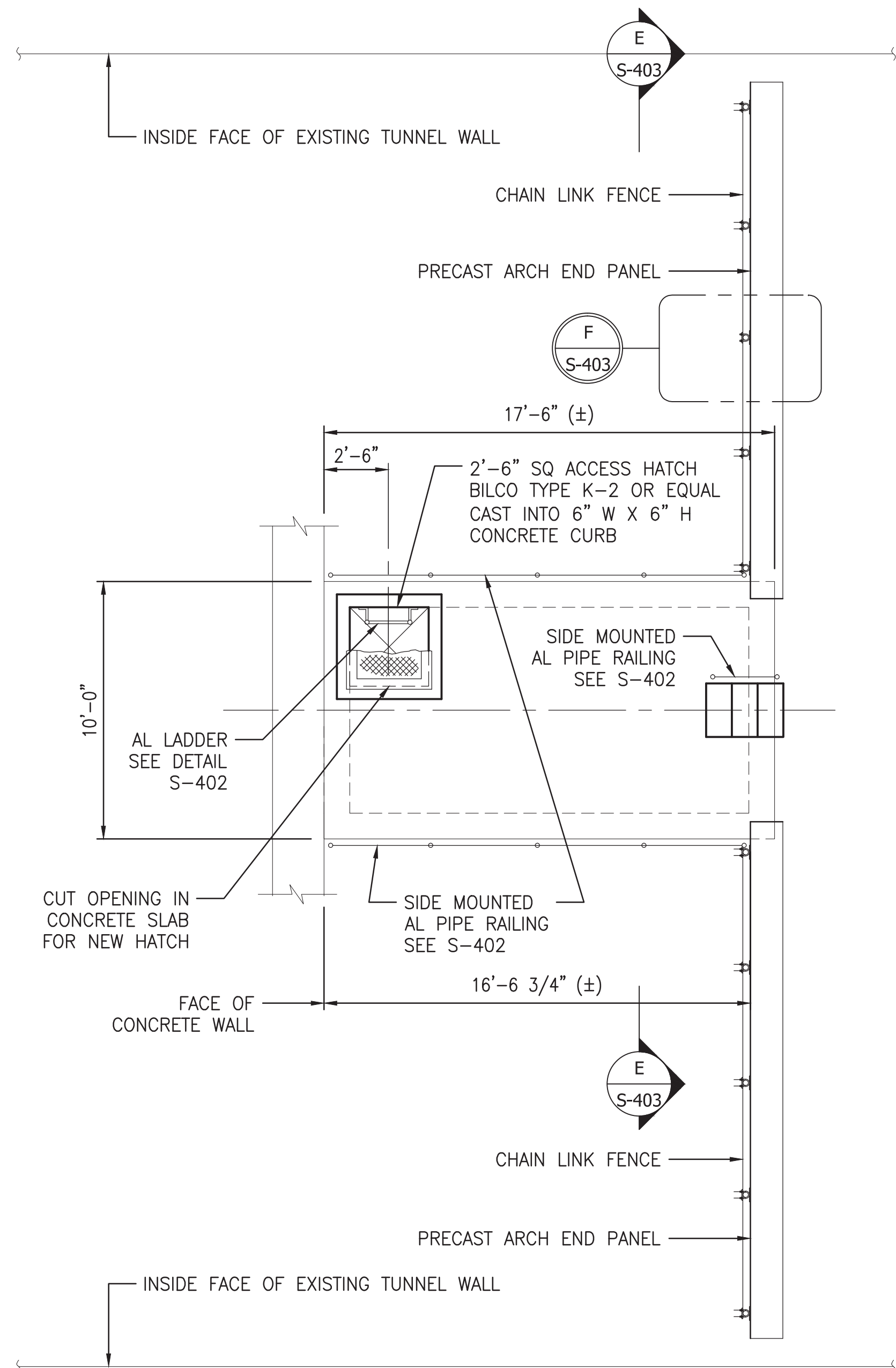
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

STRUCTURAL
ENLARGED STAIR TOWER PLAN AND DETAILS

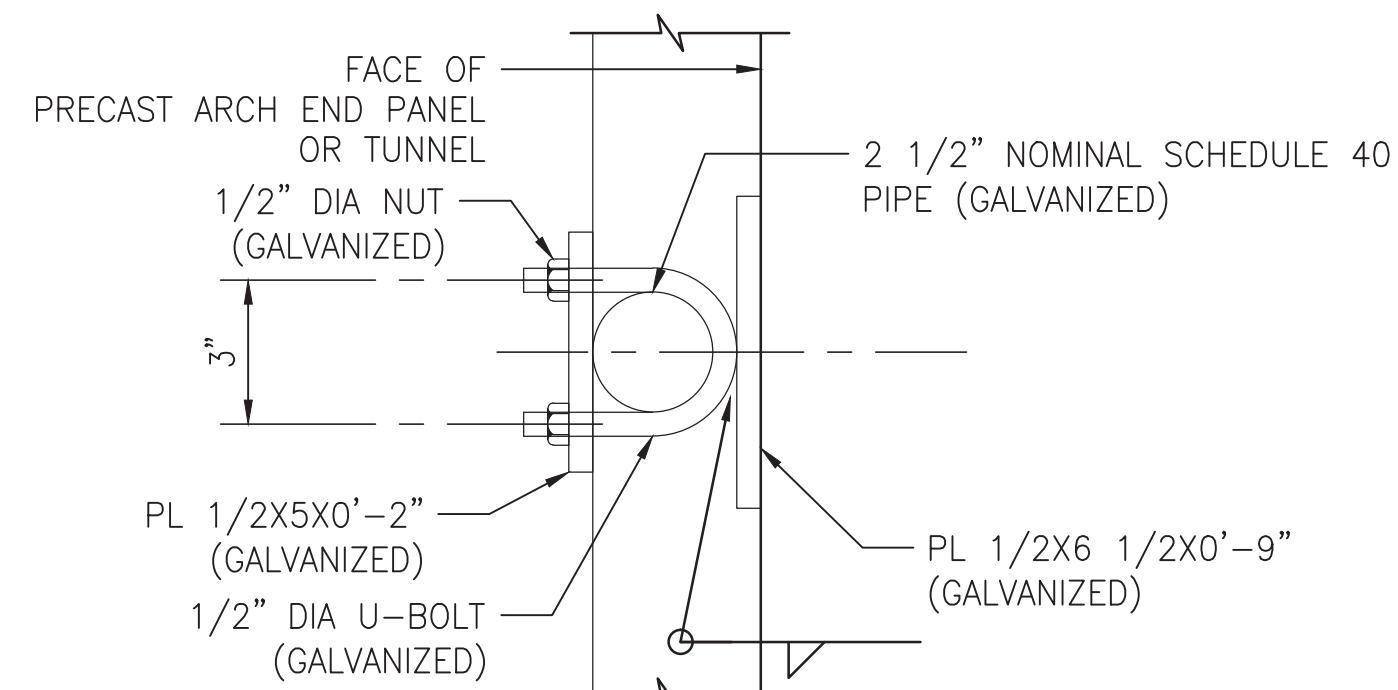
SCALE AS SHOWN

DRAWING NO. A10-S-402

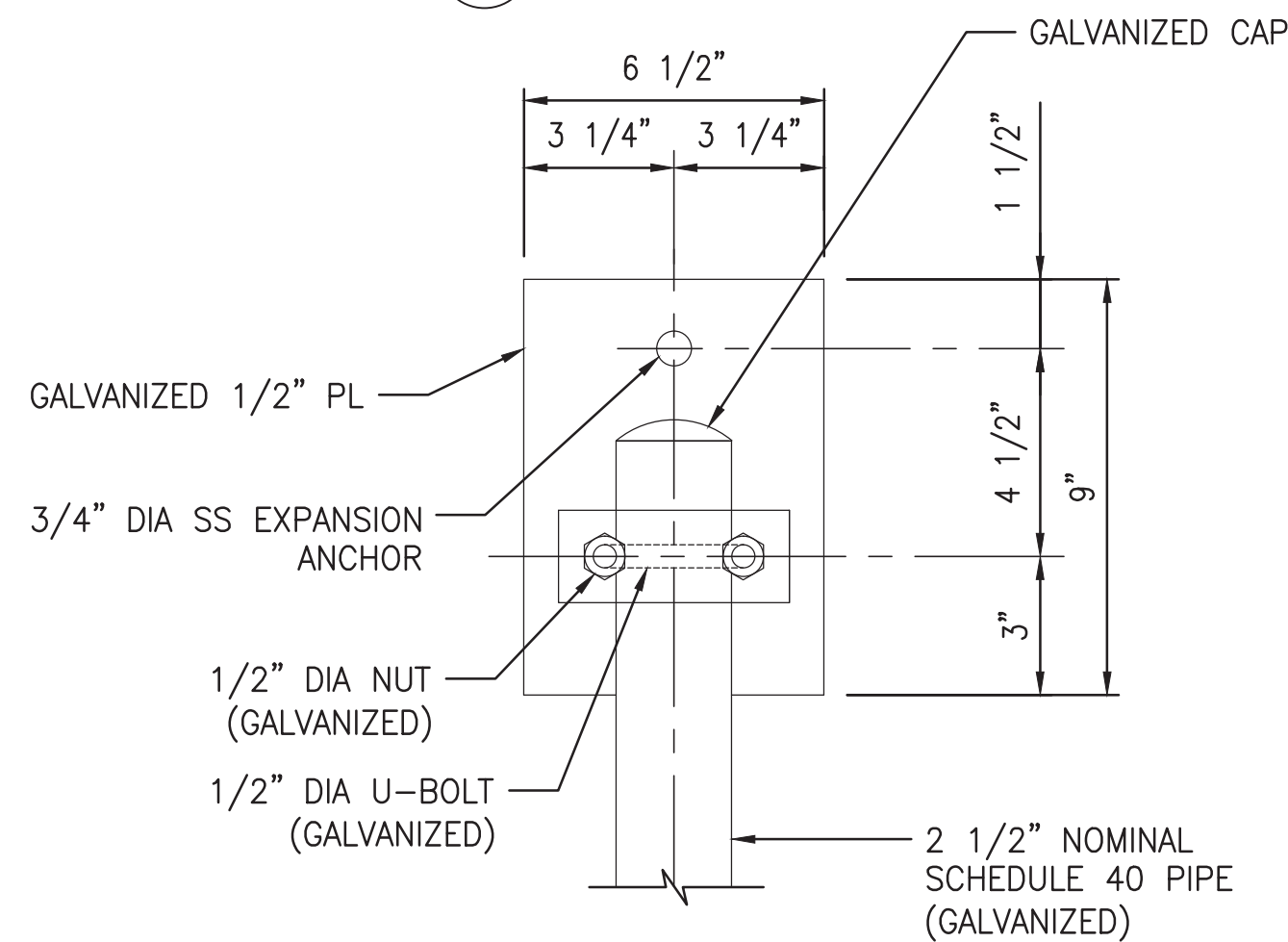
SHEET NO. M1272-096



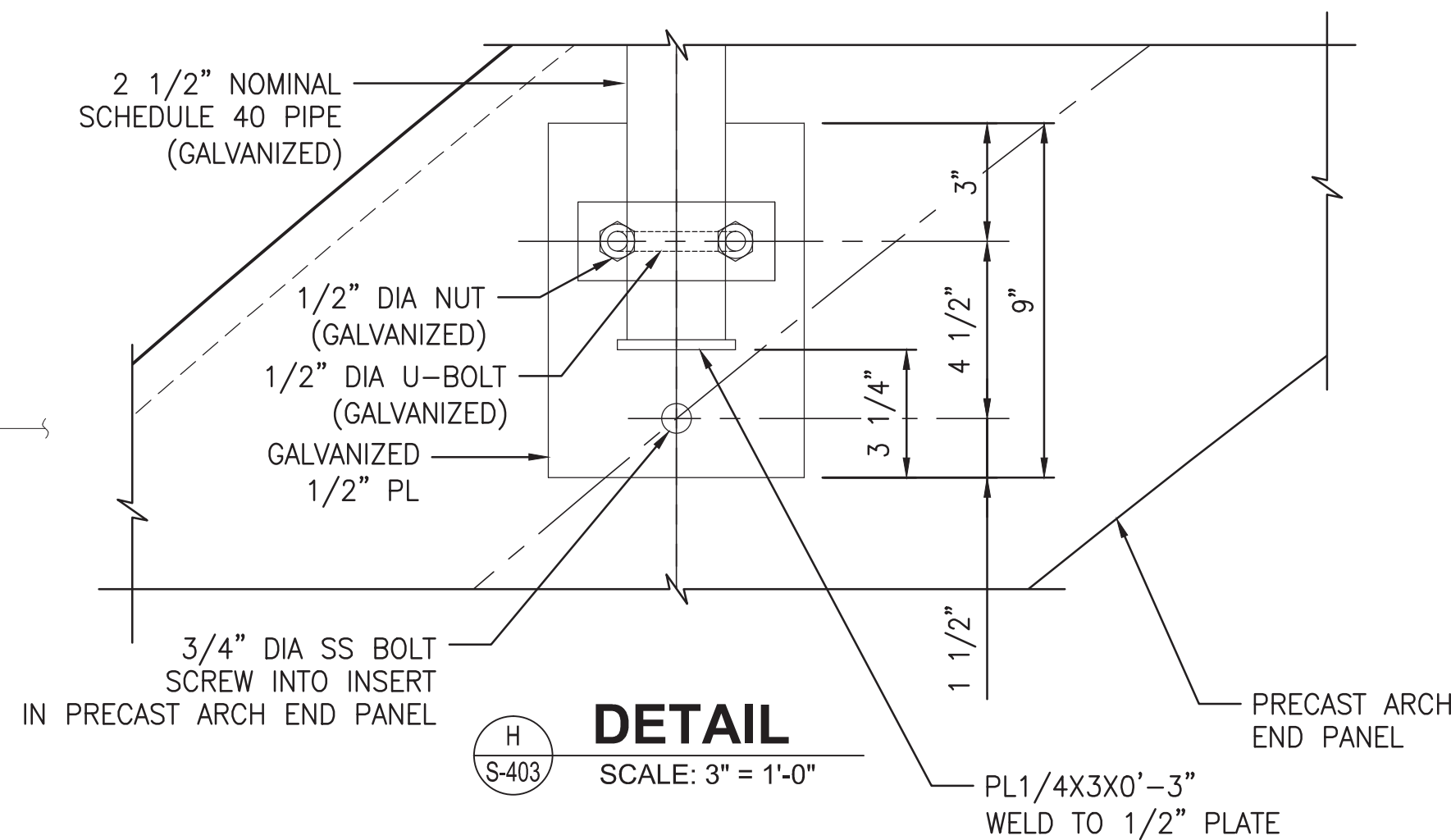
STAIR TOWER PLAN AT ROOF LEVEL
SCALE: 1/4" = 1'-0"



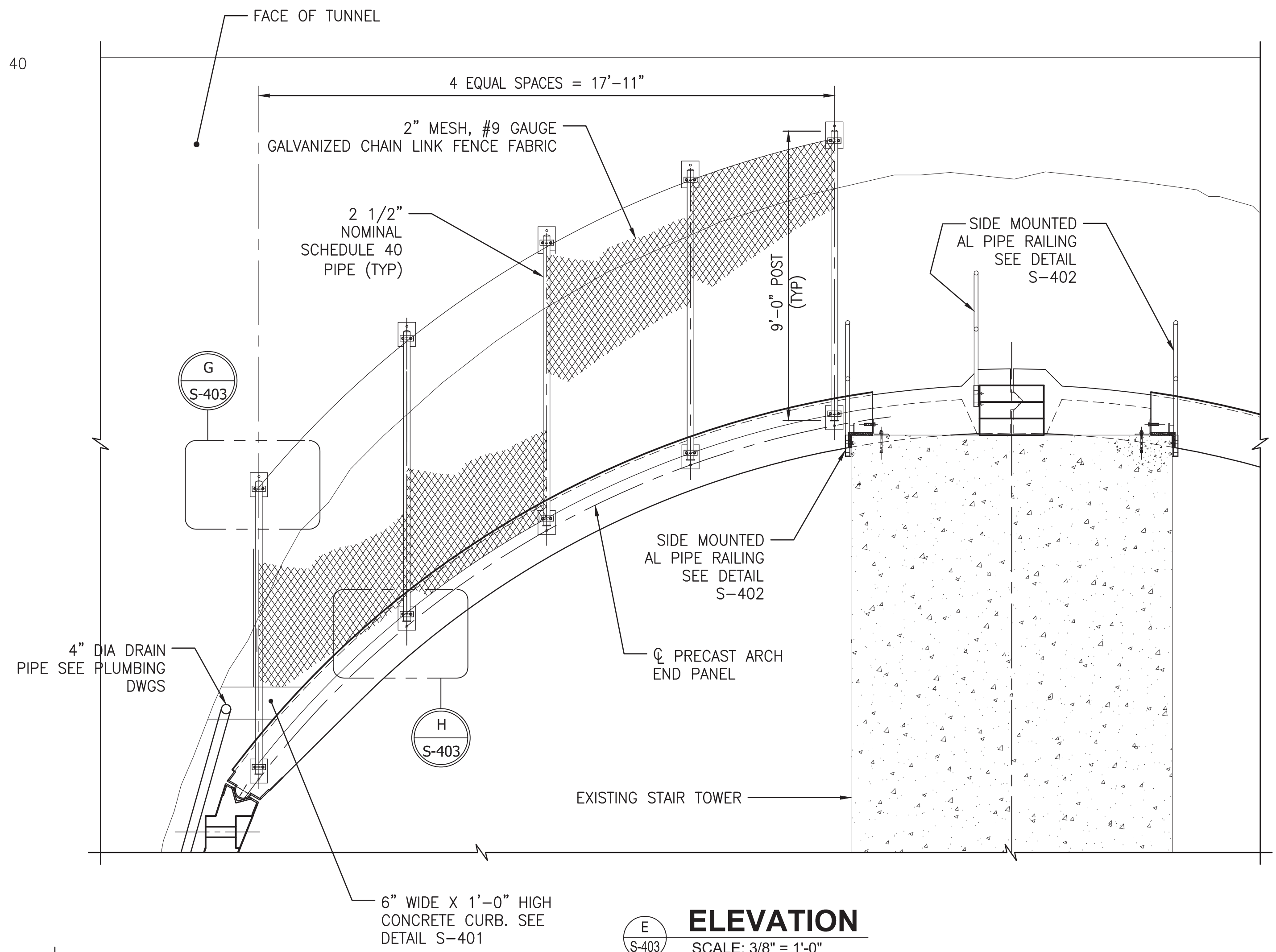
DETAIL F
SCALE: 3" = 1'-0"



DETAIL G
SCALE: 3" = 1'-0"

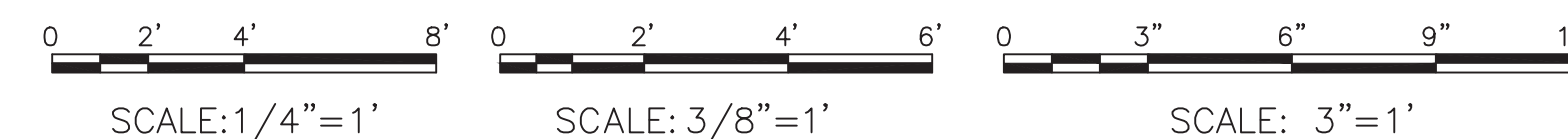


DETAIL H
SCALE: 3" = 1'-0"



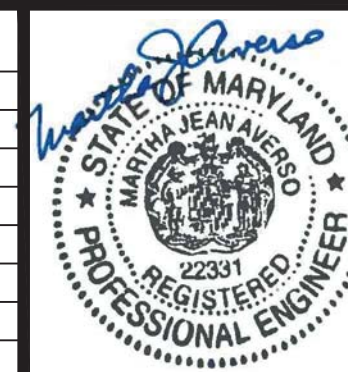
ELEVATION
SCALE: 3/8" = 1'-0"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."



FINAL CONTRACT NO. FQ15093

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
M. VADOVIC	01-15						
P. GRUBB	01-15						
V. CECKA	01-15						
M. AVERSO	01-15						



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE

SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

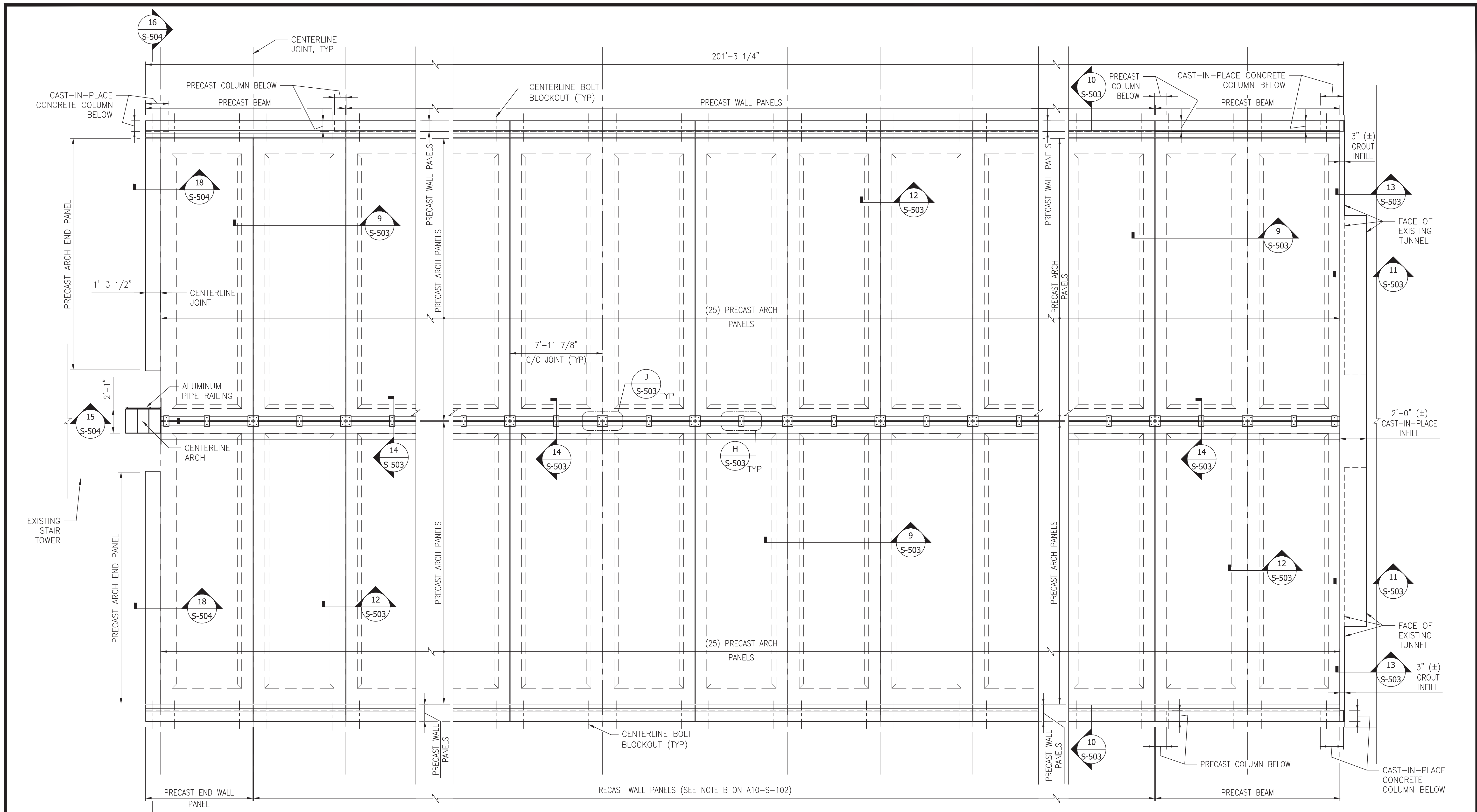
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

STRUCTURAL
ENLARGED STAIR TOWER PLAN AND DETAILS

SCALE AS SHOWN

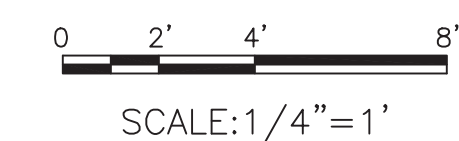
DRAWING NO. A10-S-403

SHEET NO. M1272-097



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

ENLARGED OVERHEAD PLAN
SCALE: 1/4" = 1'-0"



FINAL CONTRACT NO. **FQ15093**

DESIGNED	M. VADOVIC	01-15
DRAWN	D. DILLON	01-15
CHECKED	V. CECKA	01-15
APPROVED	M. AVERSO	01-15

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS	
DATE	DESCRIPTION



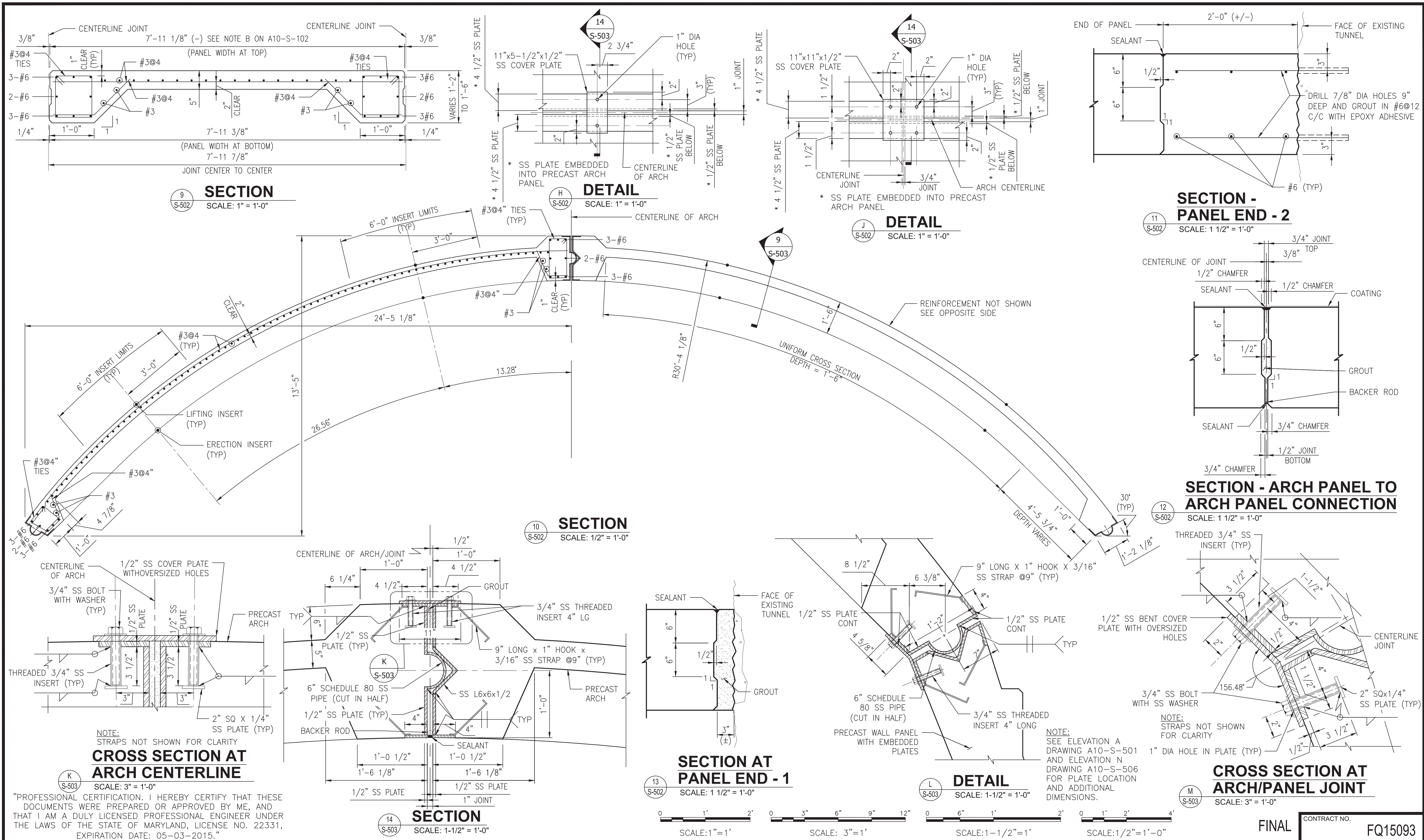
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED **Brad Mason, P.E.**
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
STRUCTURAL
PLAN - PRECAST ARCH PANEL

SCALE AS SHOWN DRAWING NO. **A10-S-502** SHEET NO. **M1272-099**



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
M. VADOVIC	01-15						
D. DILLON	01-15						
V. CECKA	01-15						
M. AVERSO	01-15						



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE

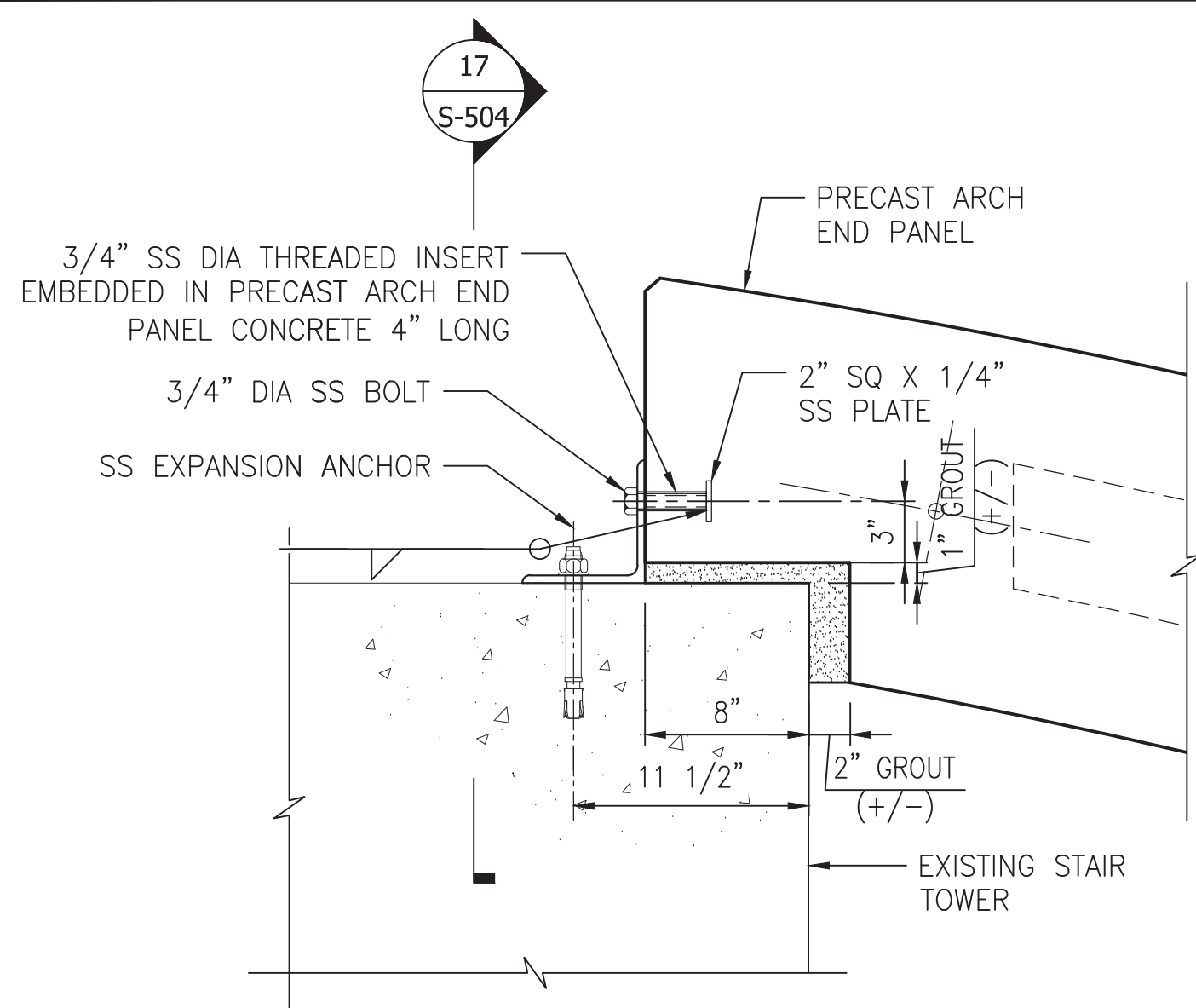
APPROVED _____ SUBMITTED Brad Mason, P.E.
 PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
 STRUCTURAL PRECAST ARCH PANEL

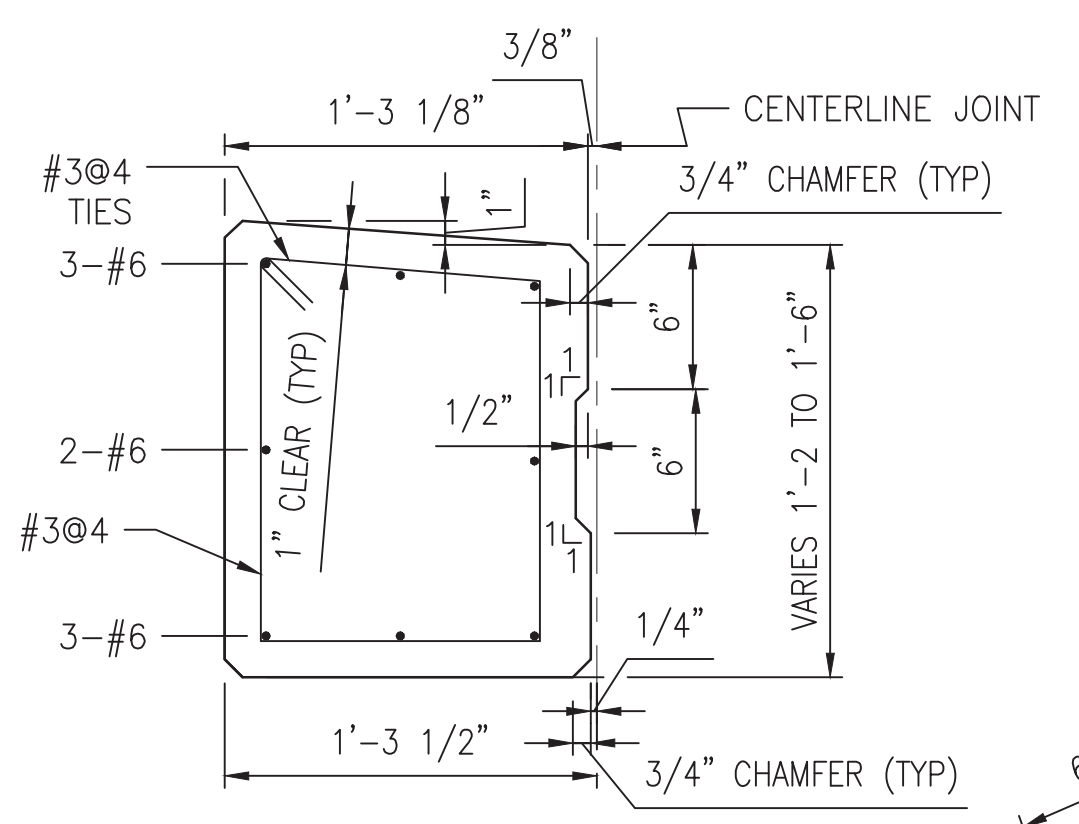
SCALE AS SHOWN DRAWING NO. **A10-S-503** SHEET NO. **M1272-100**

CONTRACT NO. **FQ15093**

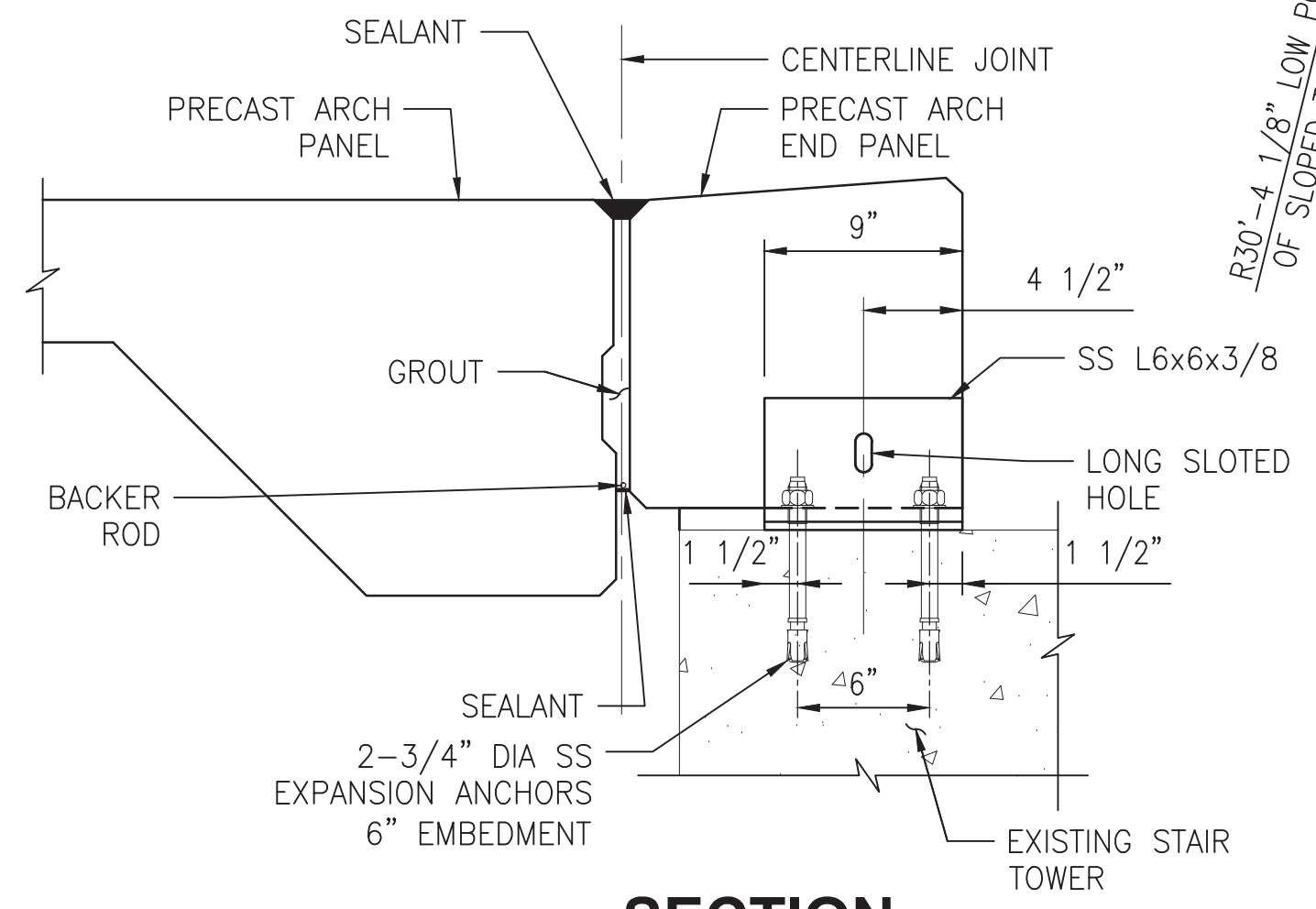
DESIGNED	DATE	REFERENCE DRAWINGS	REVISIONS
NUMBER	DESCRIPTION	DATE	BY
M. VADOVIC	01-15		
D. DILLON	01-15		
V. CECKA	01-15		
M. AVERSO	01-15		



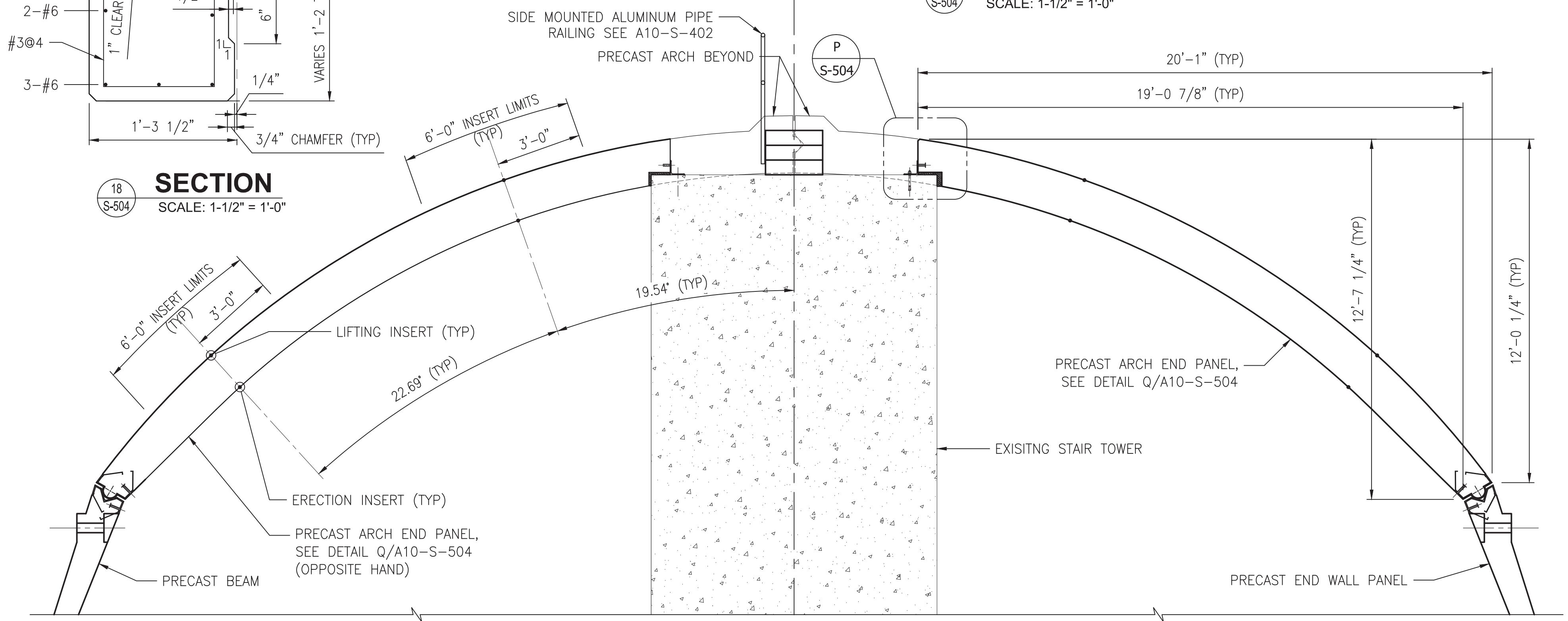
DETAIL
P S-504
SCALE: 1-1/2" = 1'-0"



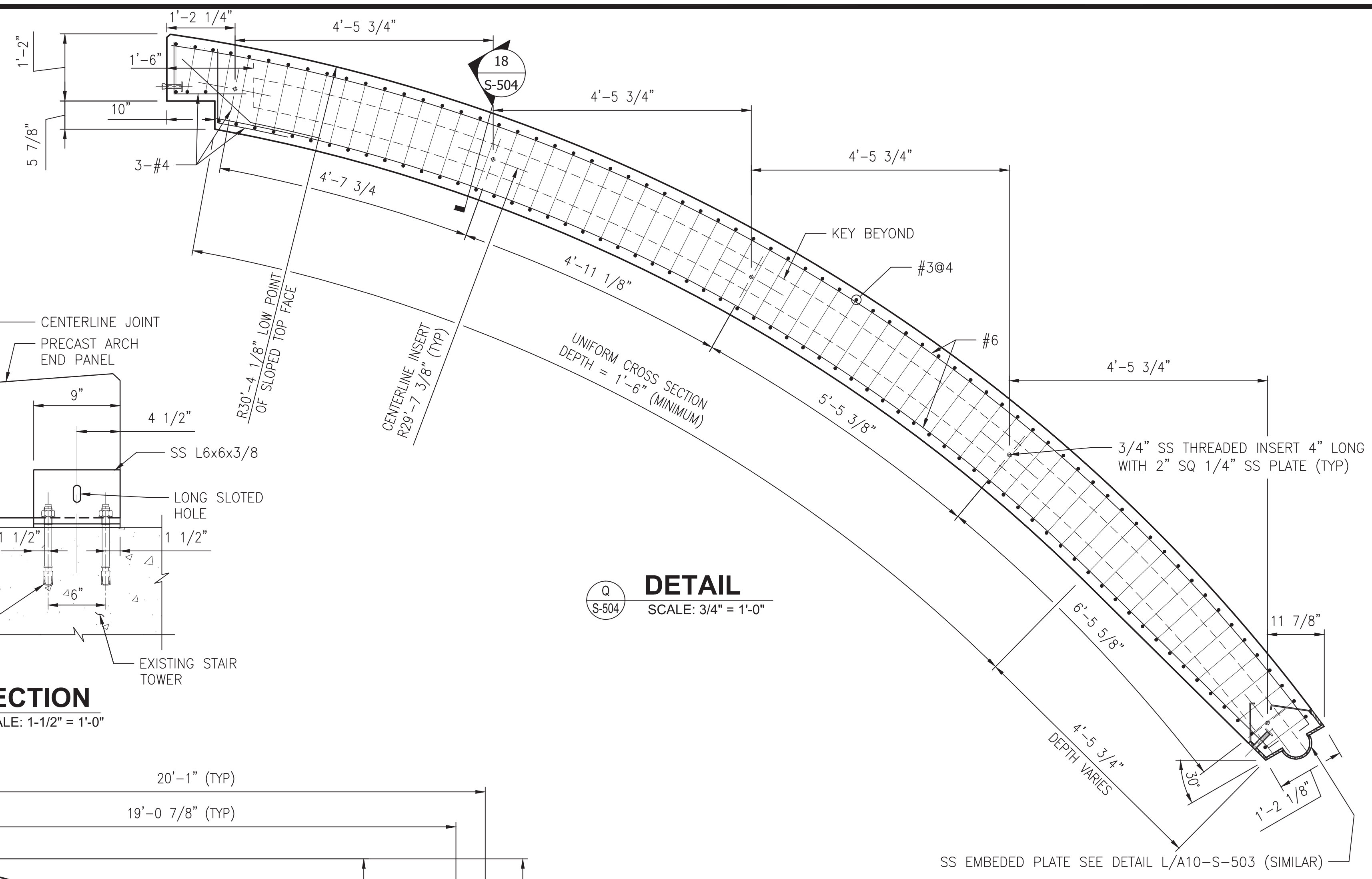
SECTION
18 S-504
SCALE: 1-1/2" = 1'-0"



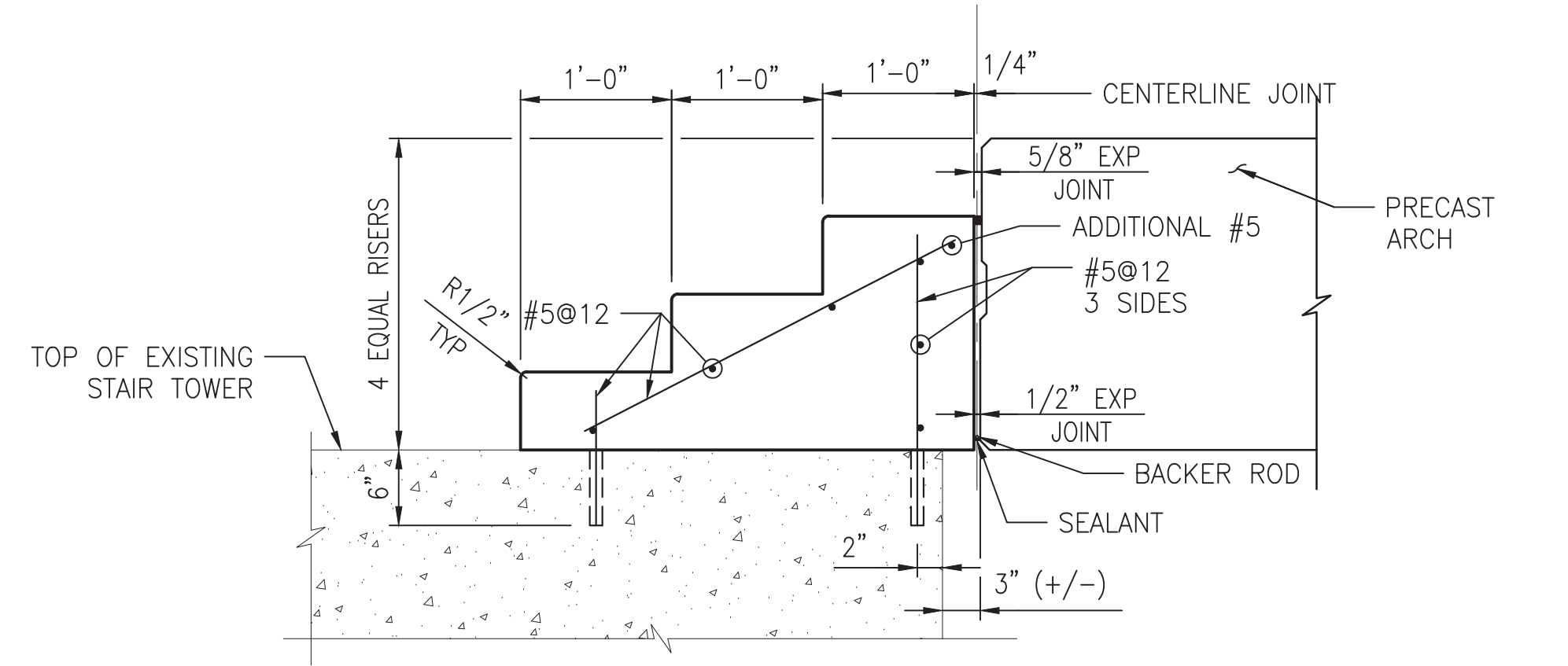
SECTION
17 S-504
SCALE: 1-1/2" = 1'-0"



SECTION
16 S-502
SCALE: 3/8" = 1'-0"

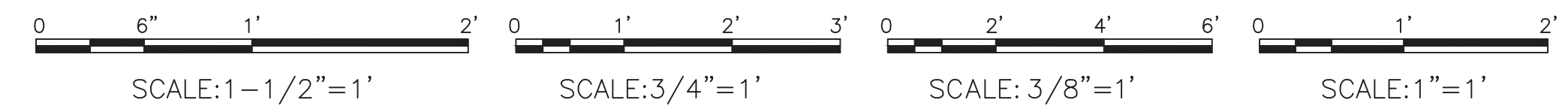


DETAIL
Q S-504
SCALE: 3/4" = 1'-0"



SECTION
15 S-502
SCALE: 1" = 1'-0"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."



FINAL CONTRACT NO. FQ15093

DESIGNED	M. VADOVIC	01-15
DRAWN	D. DILLON	01-15
CHECKED	V. CECKA	01-15
APPROVED	M. AVERSO	01-15

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

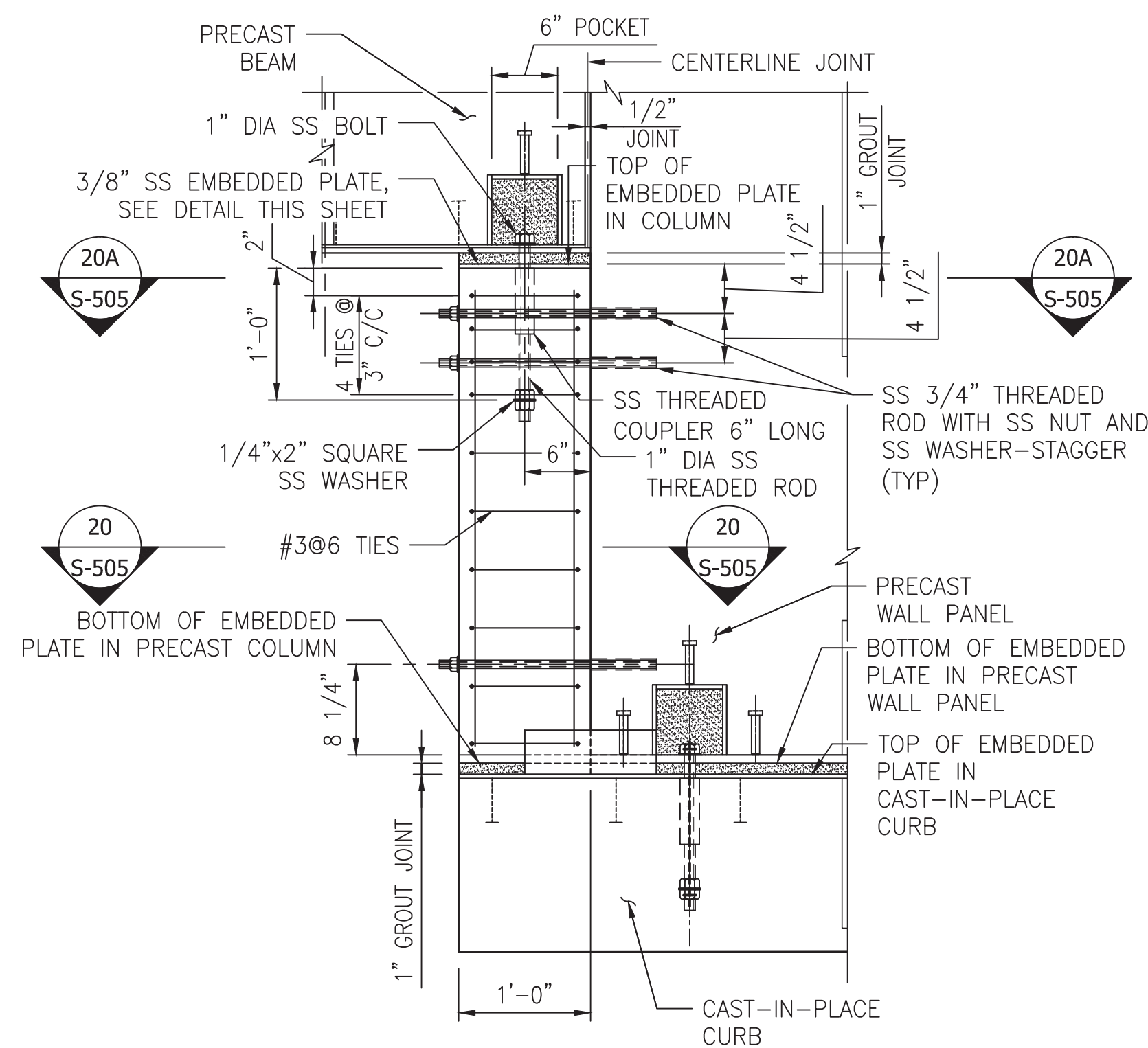
REVISIONS	
NUMBER	DESCRIPTION



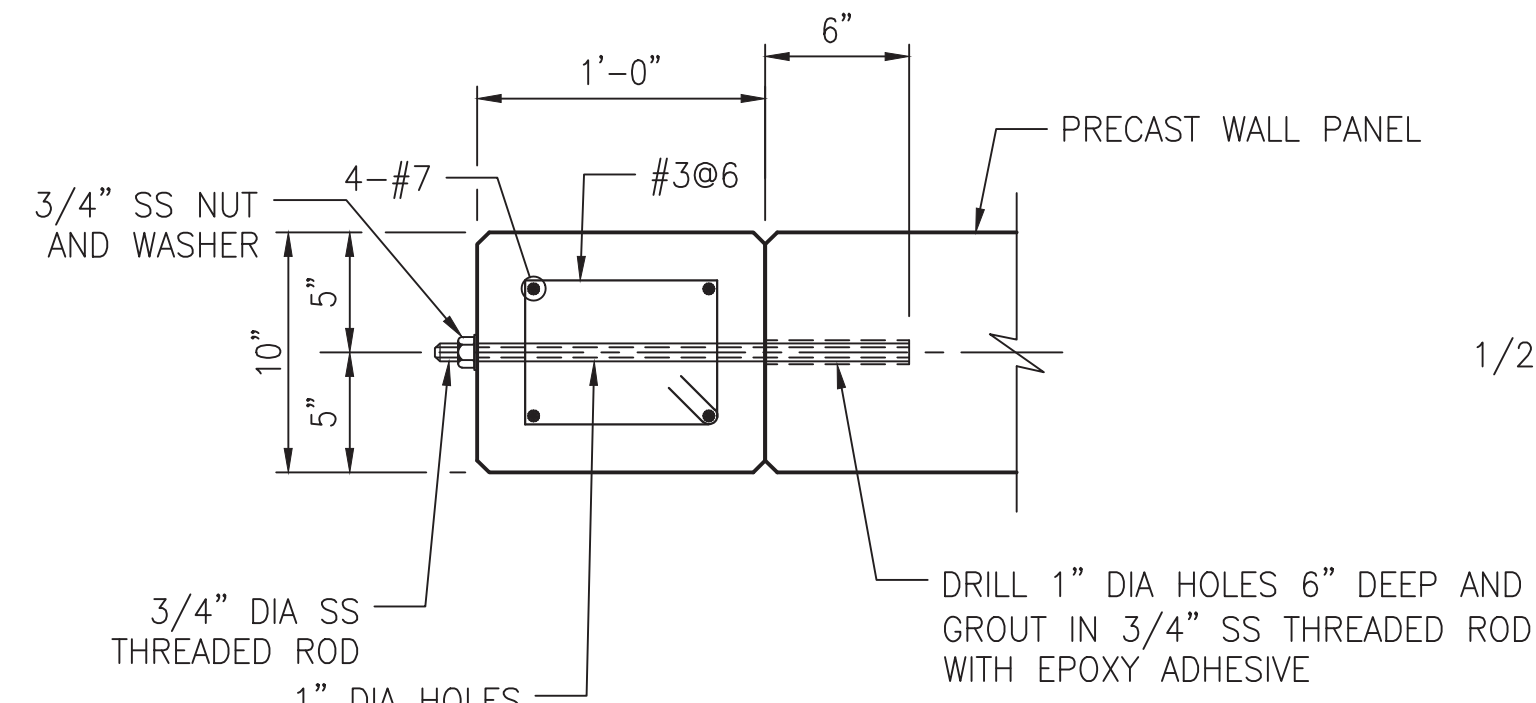
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

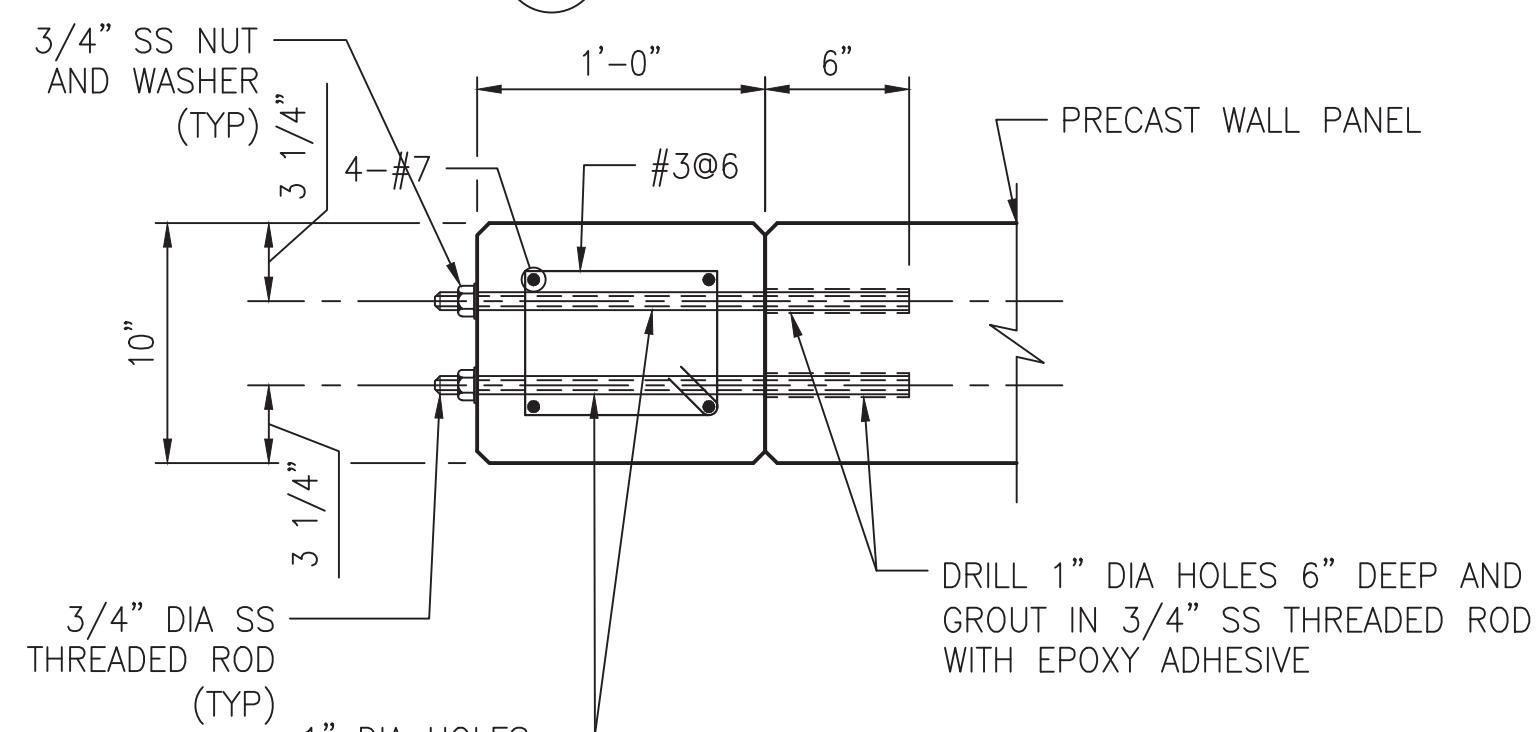
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
STRUCTURAL
PRECAST ARCH END PANEL
SCALE AS SHOWN
DRAWING NO. A10-S-504
SHEET NO. M1272-101



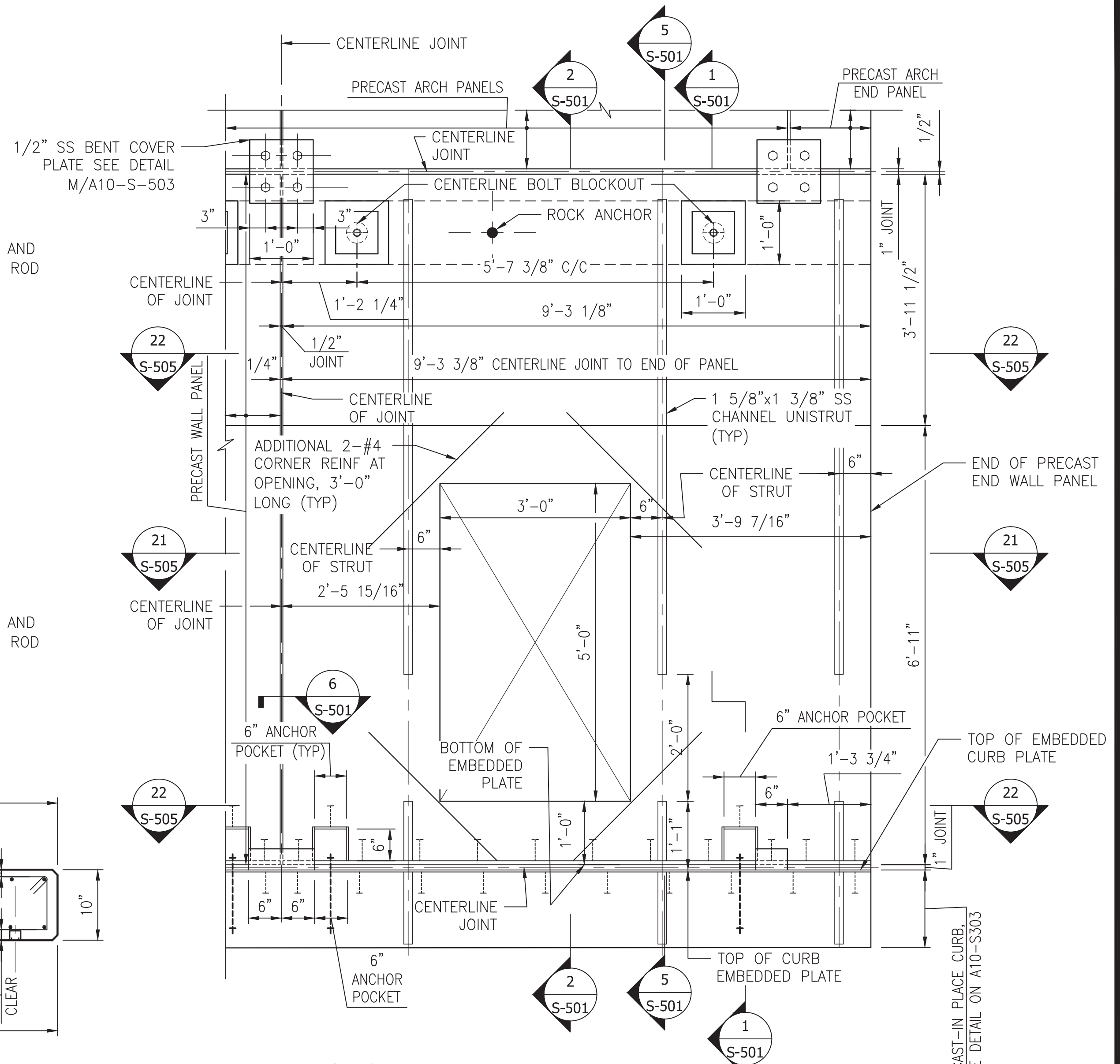
PRECAST COLUMN ELEVATION
SCALE: 1" = 1'-0"



SECTION
SCALE: 1" = 1'-0"



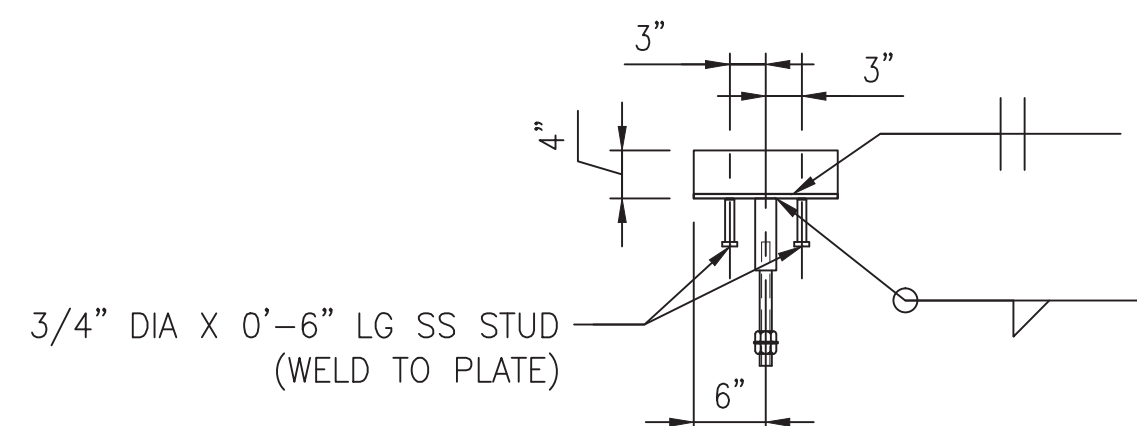
SECTION
SCALE: 1" = 1'-0"



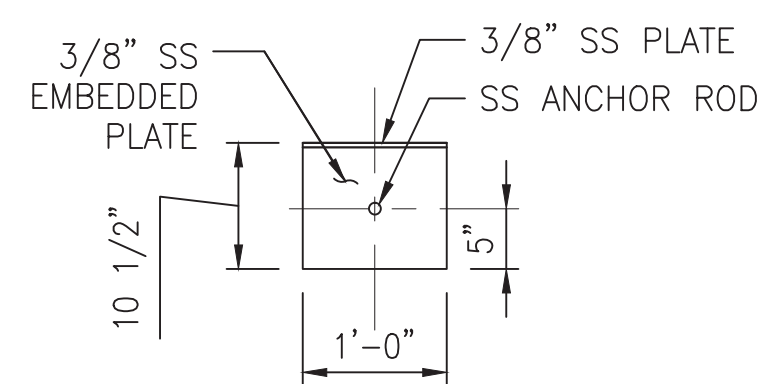
NOTES:

- FOR ADDITIONAL WALL PANEL DETAILS SEE DRAWING A10-S-501.

END WALL PANEL ELEVATION
SCALE: 3/4" = 1'-0"

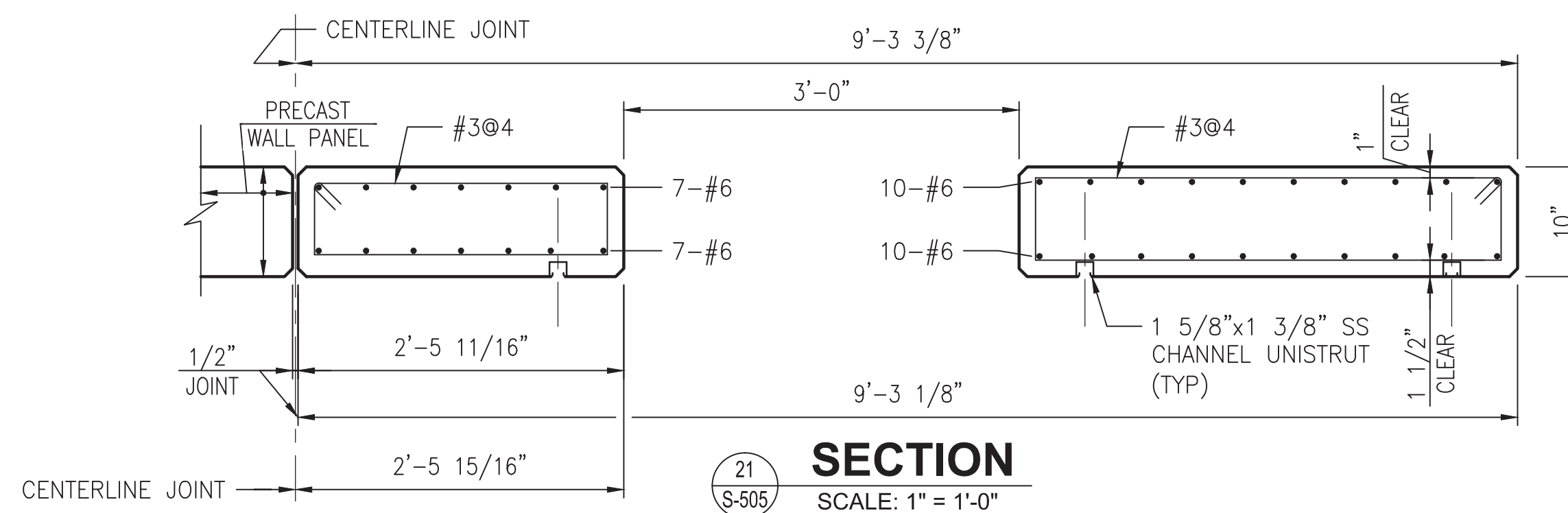


ELEVATION

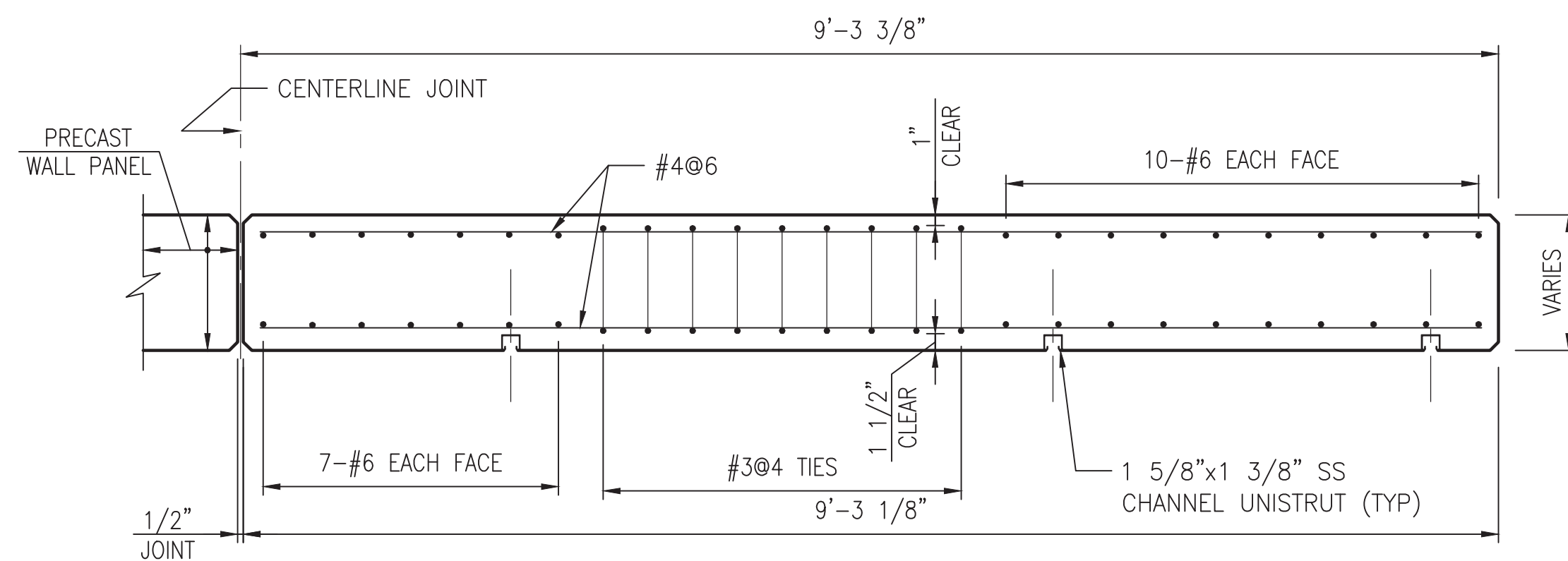


PLAN

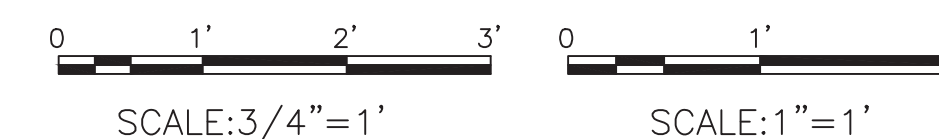
EMBEDDED PLATE DETAIL
SCALE: 3/4" = 1'-0"



SECTION
SCALE: 1" = 1'-0"

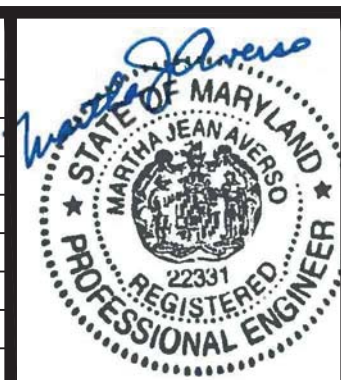


SECTION
SCALE: 1" = 1'-0"



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
M. VADOVIC	01-15						
D. DILLON	01-15						
V. CECKA	01-15						
M. AVERSO	01-15						



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____



SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

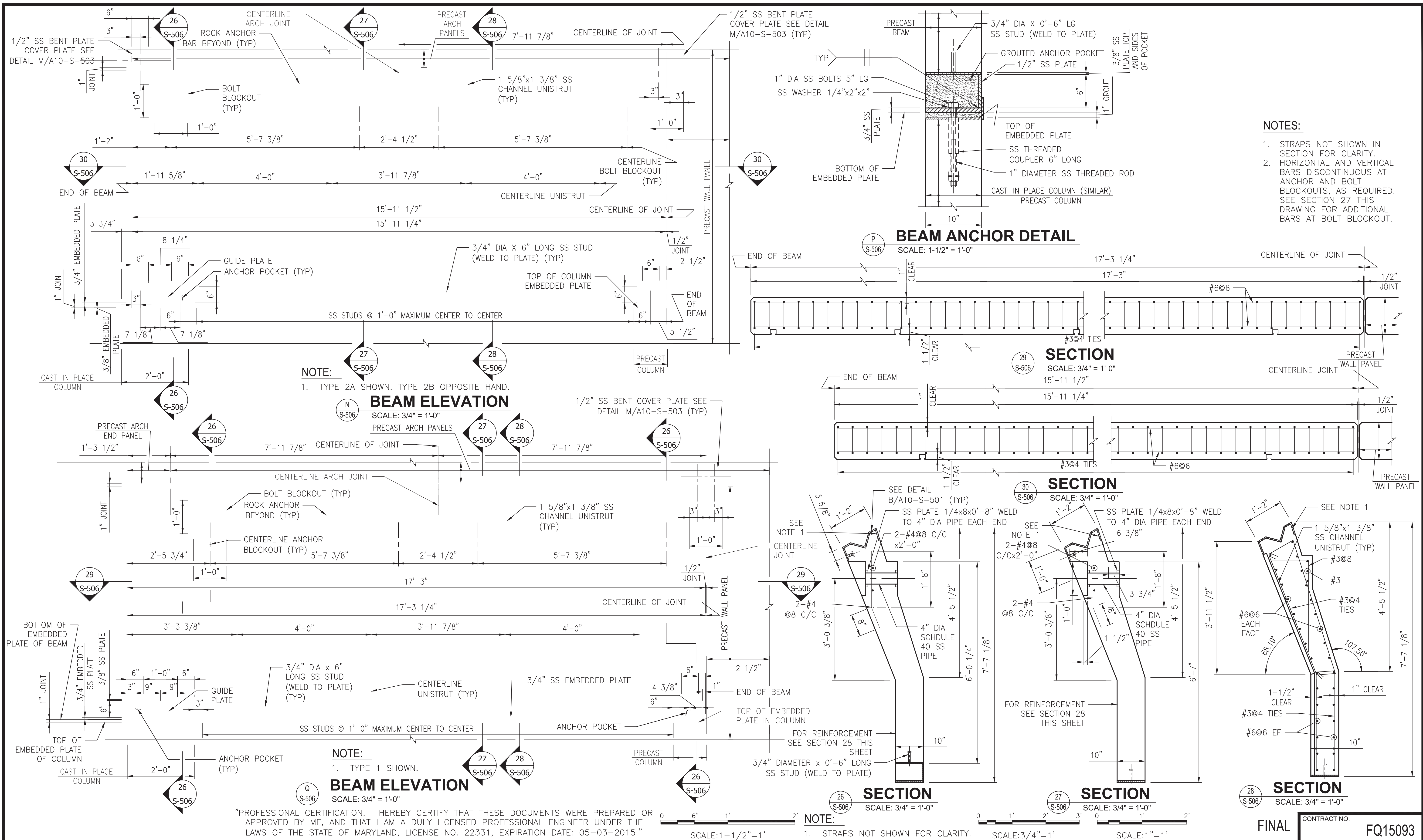
STRUCTURAL MISCELLANEOUS PRECAST DETAILS

SCALE AS SHOWN

DRAWING NO. A10-S-505

SHEET NO. M1272-102

FINAL CONTRACT NO. FQ15093



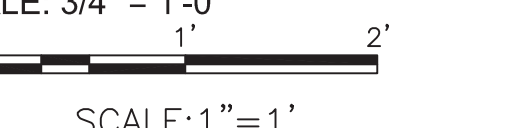
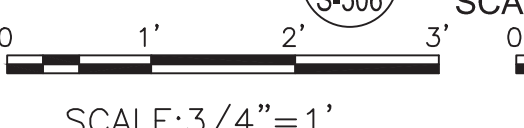
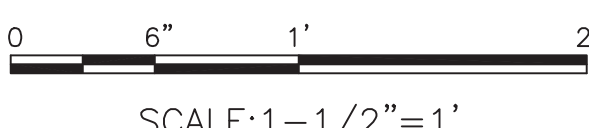
- NOTES:**
- STRAPS NOT SHOWN IN SECTION FOR CLARITY.
 - HORIZONTAL AND VERTICAL BARS DISCONTINUOUS AT ANCHOR AND BOLT BLOCKOUTS, AS REQUIRED. SEE SECTION 27 THIS DRAWING FOR ADDITIONAL BARS AT BOLT BLOCKOUT.

NOTE:
1. TYPE 2A SHOWN. TYPE 2B OPPOSITE HAND.

NOTE:
1. TYPE 1 SHOWN.

NOTE:
1. STRAPS NOT SHOWN FOR CLARITY.

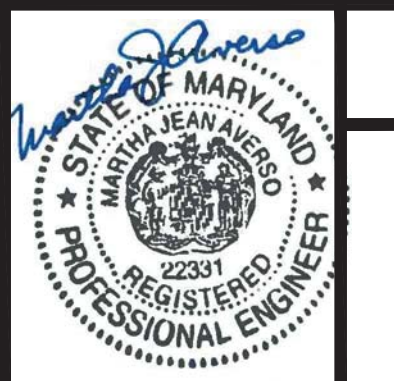
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."



DESIGNED	M. VADOVIC	01-15
DRAWN	D. DILLON	01-15
CHECKED	V. CECKA	01-15
APPROVED	M. AVERSO	01-15

NUMBER	DESCRIPTION	DATE	BY

DATE	BY	DESCRIPTION



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE

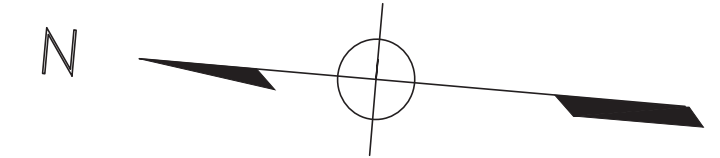
APPROVED _____ SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

STRUCTURAL
PRECAST BEAM DETAILS

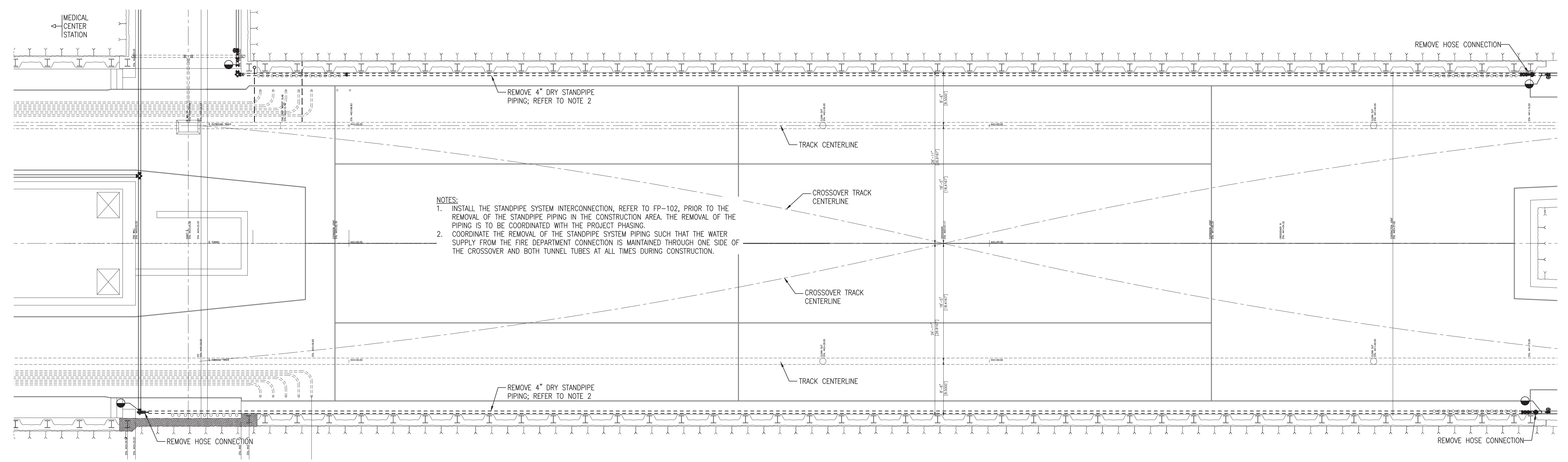
SCALE AS SHOWN DRAWING NO. **A10-S-506** SHEET NO. **M1272-103**

FINAL CONTRACT NO. **FQ15093**



GENERAL NOTES FOR FIRE PROTECTION AND PLUMBING

- 1 FIRE PROTECTION SYSTEM STANDPIPE WORK SHALL CONFORM TO OR MEET THE REQUIREMENTS OF THE MOST CURRENT EDITION OF:
 - A. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 14
 - B. ALL FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES.
- 2 PROVIDE A COMPLETE DRY STANDPIPE SYSTEM MODIFICATIONS AS INDICATED, AND IN ACCORDANCE WITH ALL APPLICABLE NFPA STANDARDS.
- 3 CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE SITE.
- 4 ALL COMPONENTS OF THE STANDPIPE SYSTEM TO CONFORM TO THE LATEST EDITION OF NFPA 14.
- 5 COORDINATE WORK OF THIS TRADE WITH THE WORK OF ALL OTHER TRADES. ANY REWORK REQUIRED DUE TO THE LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTORS.
- 6 PIPING AND EQUIPMENT INDICATED ON THE DRAWINGS ARE SCHEMATIC AND SHOWN FOR COORDINATION PURPOSES ONLY.
- 7 PROVIDE AND INSTALL ALL BONDING AND GROUNDING FOR THE SYSTEM
- 8 COORDINATE WORK WITH STRUCTURAL FEATURES AND PROVIDE OFFSETS
- 9 PLUMBING WORK SHALL CONFORM TO OR MEET THE REQUIREMENTS OF THE MOST CURRENT EDITION OF:
 - A. INTERNATIONAL PLUMBING CODE.
 - B. ALL FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES.



NOTES:
 1. INSTALL THE STANDPIPE SYSTEM INTERCONNECTION, REFER TO FP-102, PRIOR TO THE REMOVAL OF THE STANDPIPE PIPING IN THE CONSTRUCTION AREA. THE REMOVAL OF THE PIPING IS TO BE COORDINATED WITH THE PROJECT PHASING.
 2. COORDINATE THE REMOVAL OF THE STANDPIPE SYSTEM PIPING SUCH THAT THE WATER SUPPLY FROM THE FIRE DEPARTMENT CONNECTION IS MAINTAINED THROUGH ONE SIDE OF THE CROSSOVER AND BOTH TUNNEL TUBES AT ALL TIMES DURING CONSTRUCTION.

FIRE PROTECTION DEMOLITION PLAN
 SCALE: 1/8" = 1'-0"

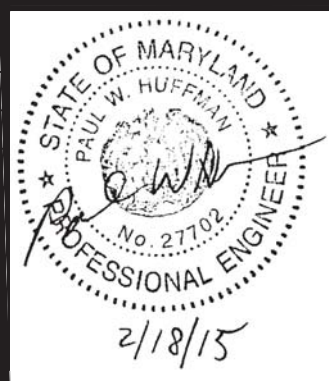
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

FINAL CONTRACT NO. FQ15093

DESIGNED	T. BRANSON	01-15
		DATE
DRAWN	T. BRANSON	01-15
		DATE
CHECKED	P. HUFFMAN	01-15
		DATE
APPROVED	P. HUFFMAN	01-15
		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

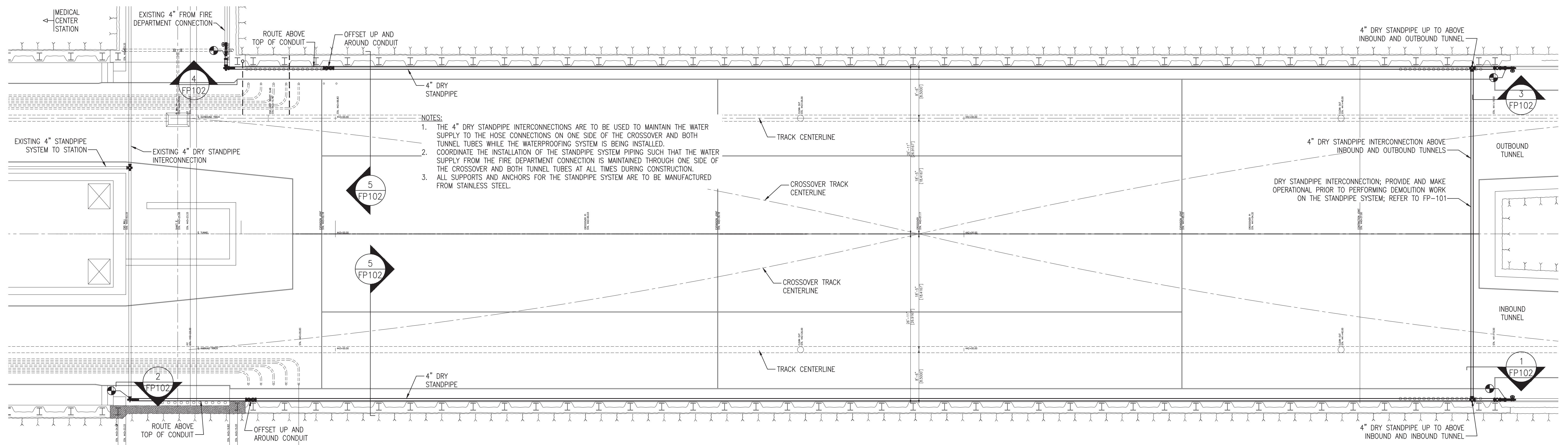
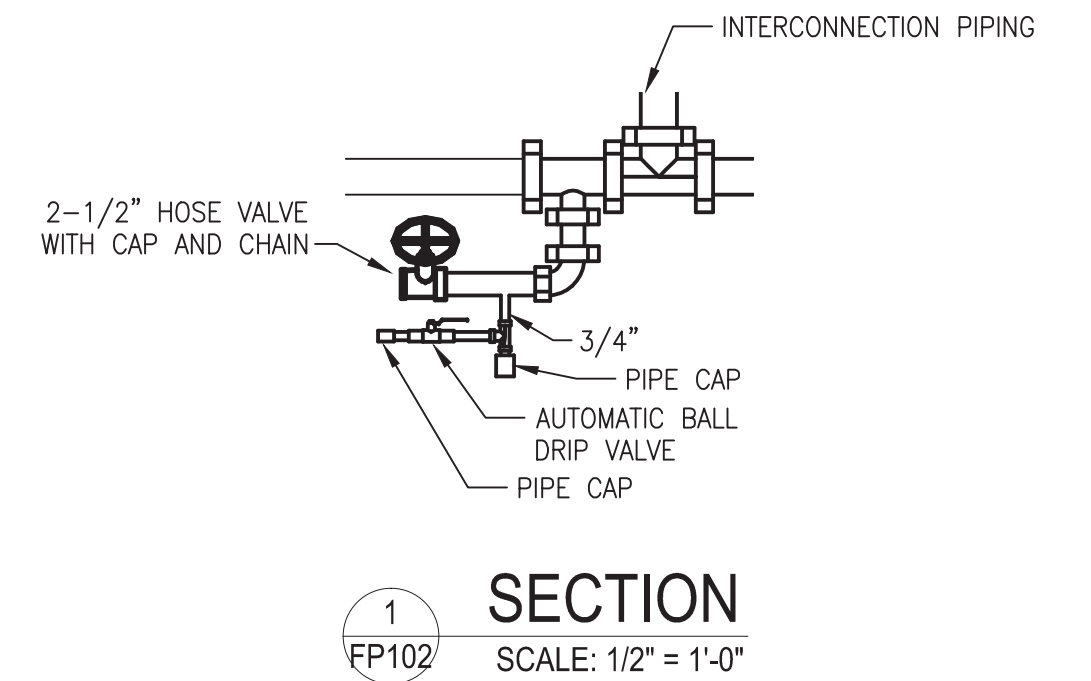
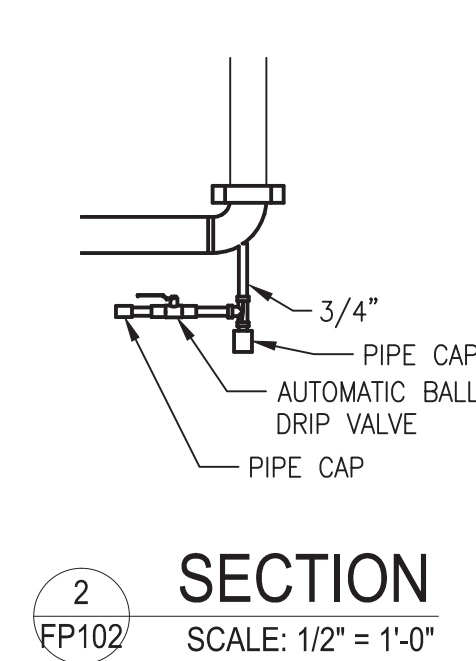
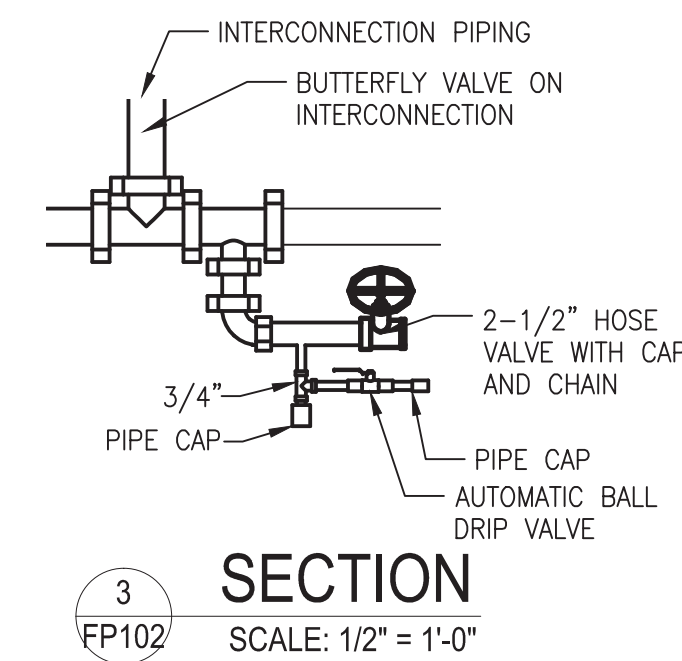
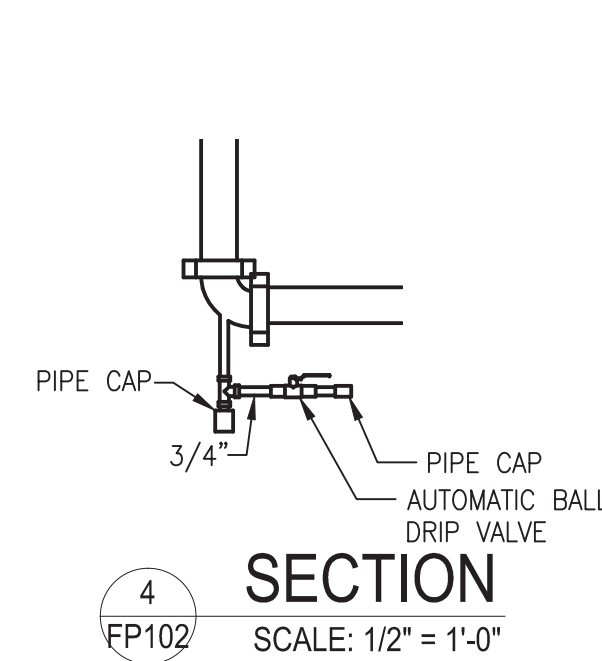
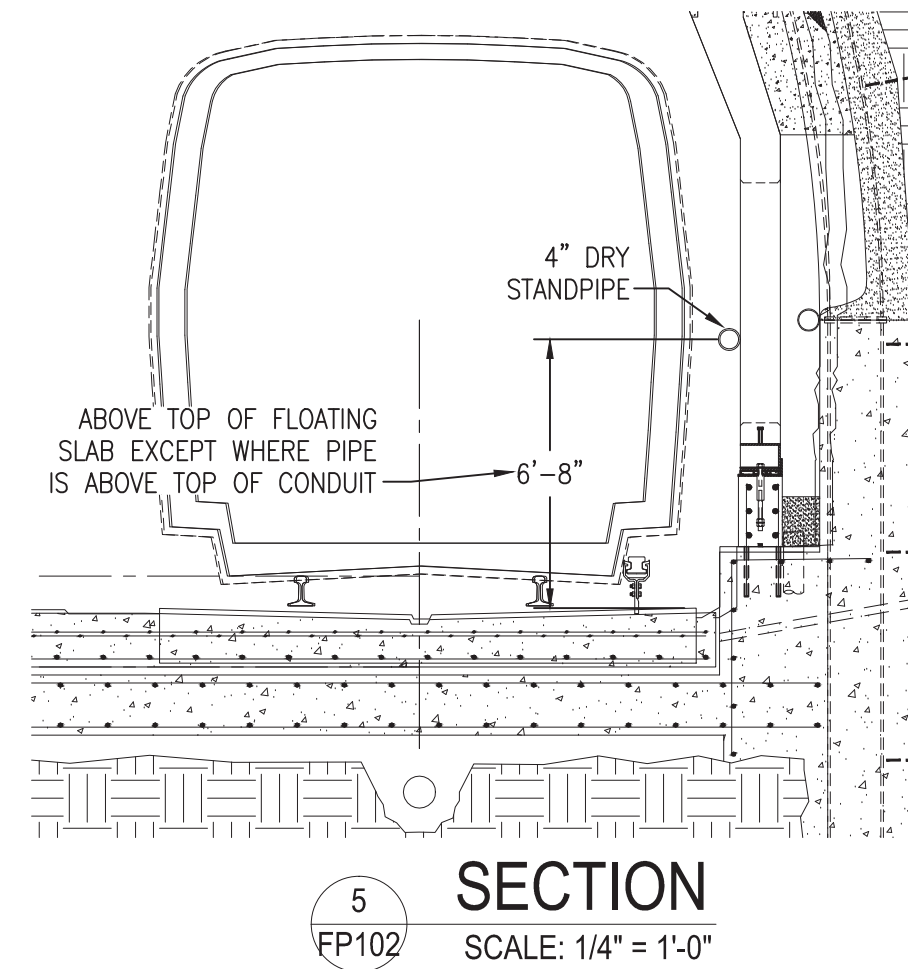
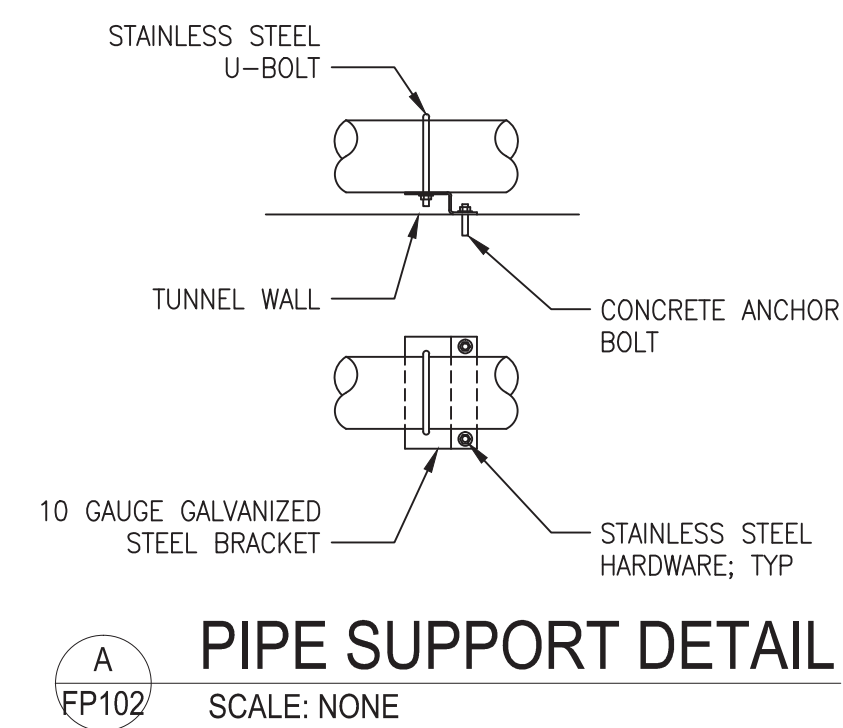
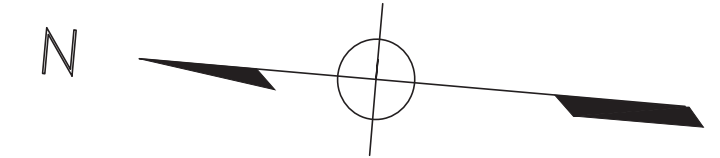
REVISIONS		
NUMBER	DATE	DESCRIPTION



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED _____

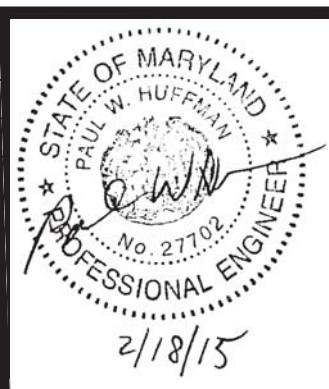
GFP A Gannett Fleming/Parsons JOINT VENTURE
 SUBMITTED Brad Mason, P.E.
 PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
FIRE PROTECTION DEMOLITION PLAN
 SCALE AS NOTED
 DRAWING NO. A10-FP-101
 SHEET NO. M1272-104



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
01-15	T. BRANSOM	01-15	T. BRANSOM				
01-15	T. BRANSOM	01-15	P. HUFFMAN				
01-15	P. HUFFMAN	01-15	P. HUFFMAN				
01-15	P. HUFFMAN	01-15					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

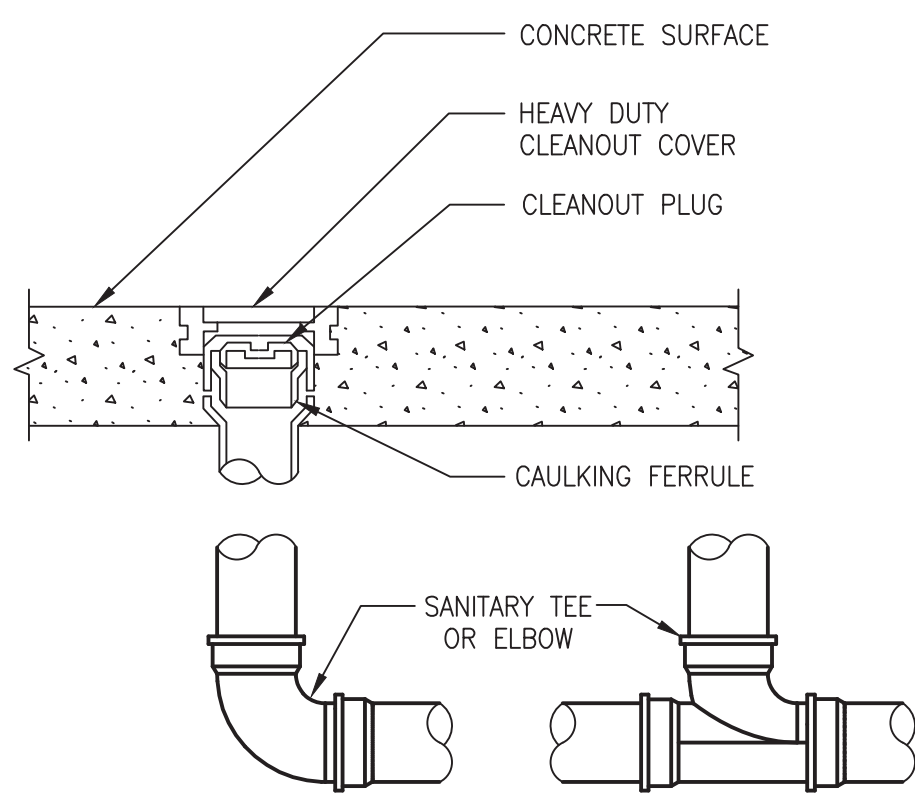
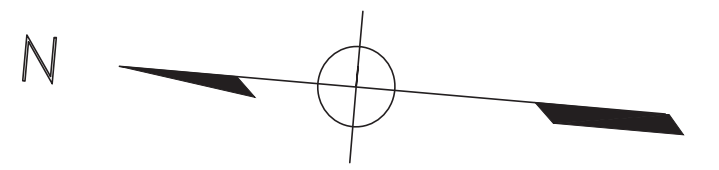
GFP A Gannett Fleming/Parsons JOINT VENTURE

APPROVED _____ SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

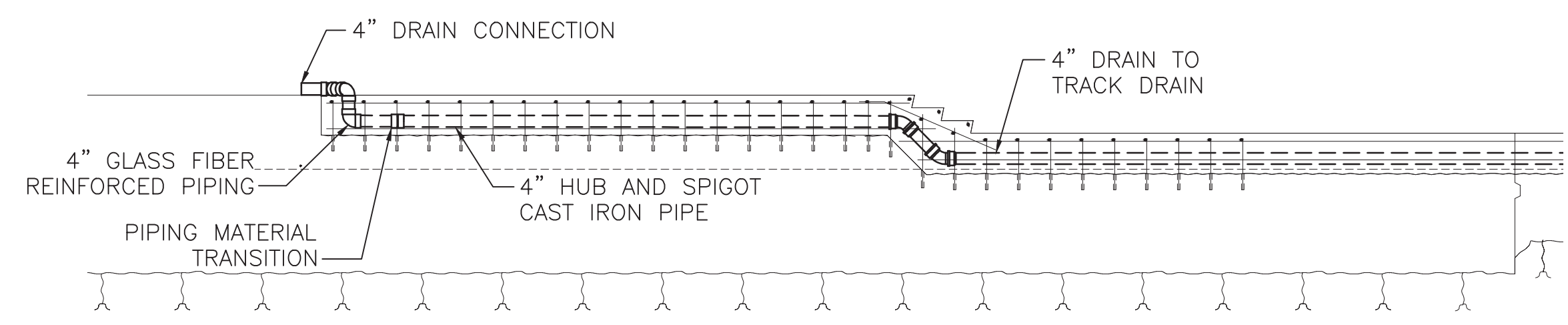
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
FIRE PROTECTION PLAN, SECTIONS, AND DETAIL

SCALE AS NOTED DRAWING NO. **A10-FP-102** SHEET NO. **M1272-105**

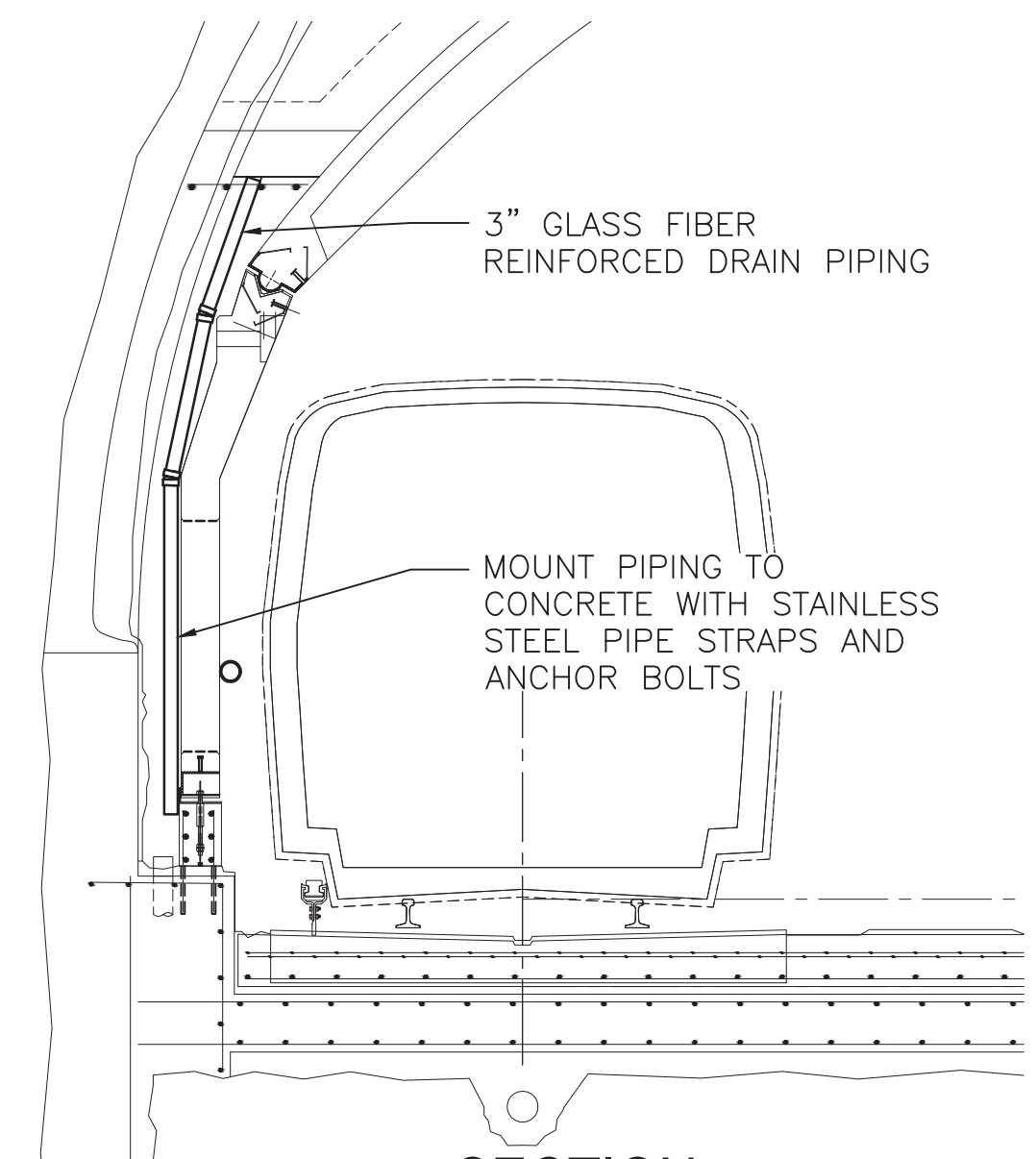
FINAL CONTRACT NO. **FQ15093**



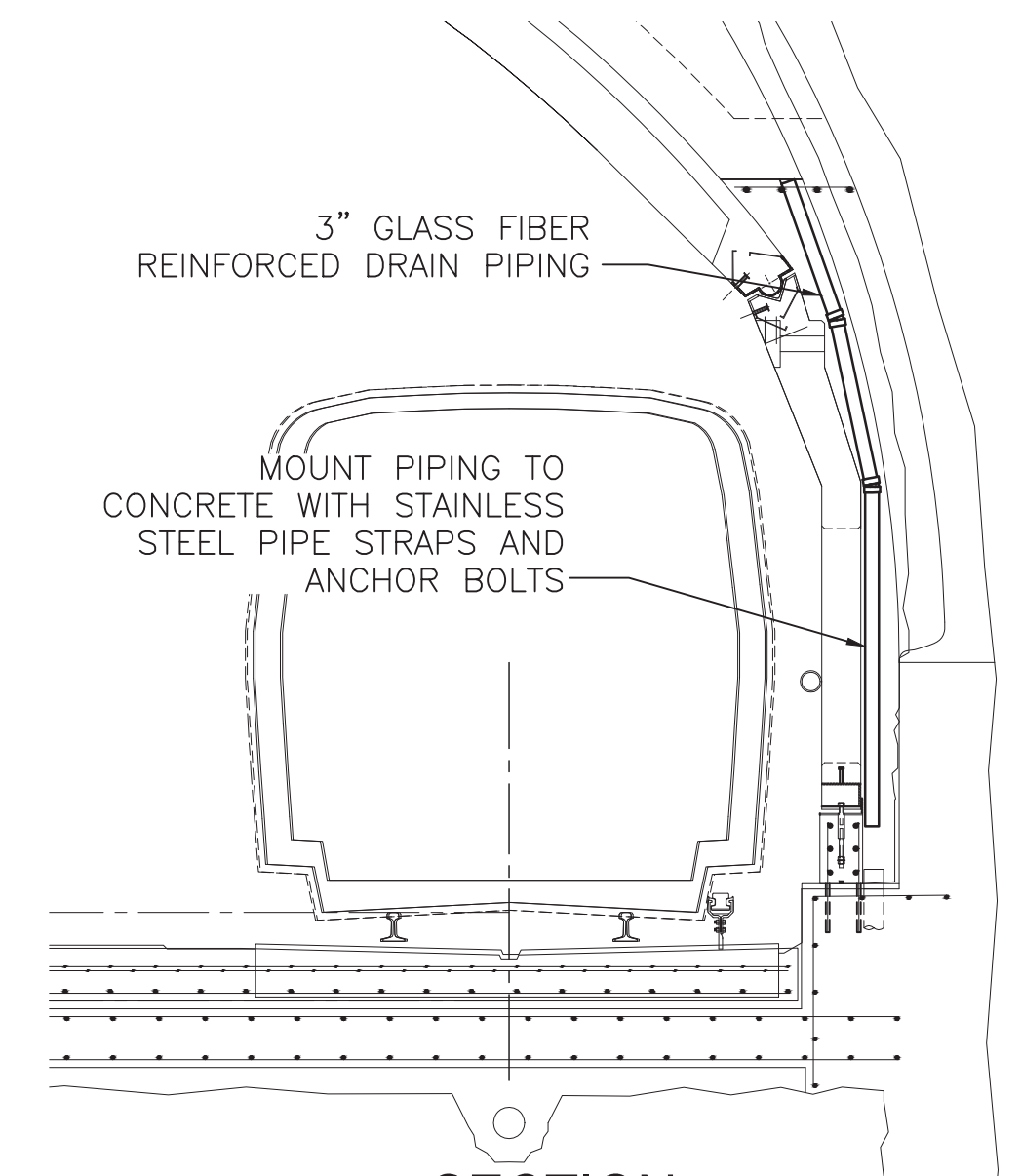
A FLOOR CLEANOUT DETAIL
SCALE: NONE



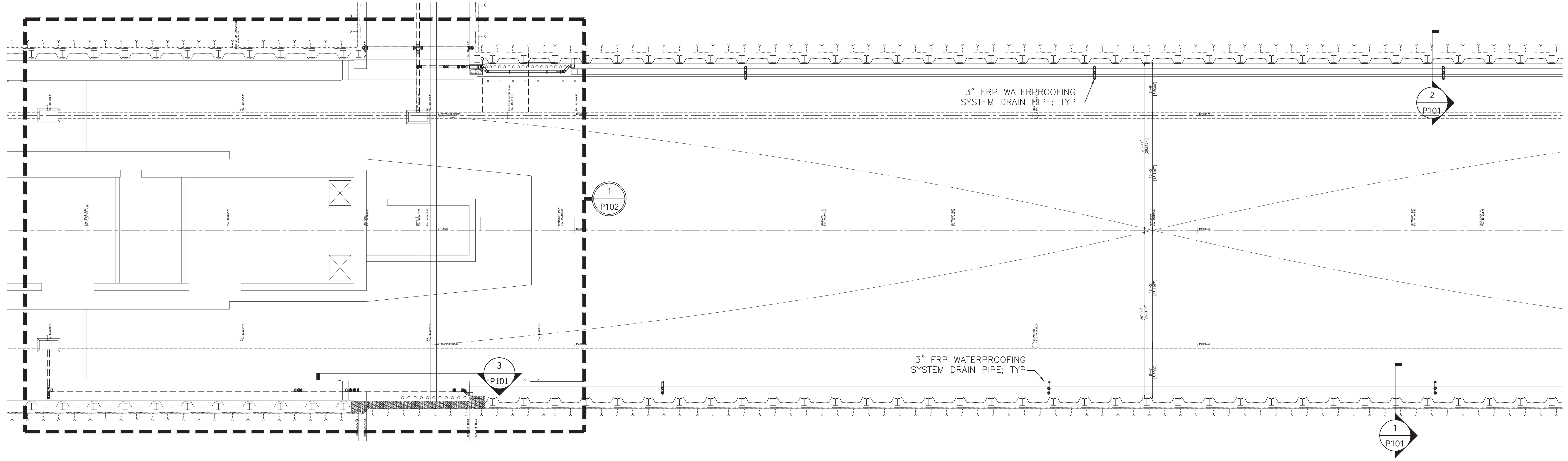
3 SECTION
SCALE: 1/4" = 1'-0"



2 SECTION
SCALE: 1/8" = 1'-0"



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



PLUMBING PLAN
SCALE: 1/8" = 1'-0"

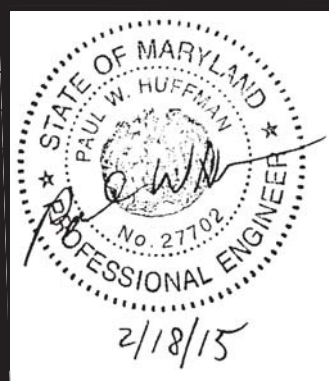
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

FINAL CONTRACT NO. FQ15093

DESIGNED	T. BRANSON	01-15
DRAWN	T. BRANSON	01-15
CHECKED	P. HUFFMAN	01-15
APPROVED	P. HUFFMAN	01-15

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

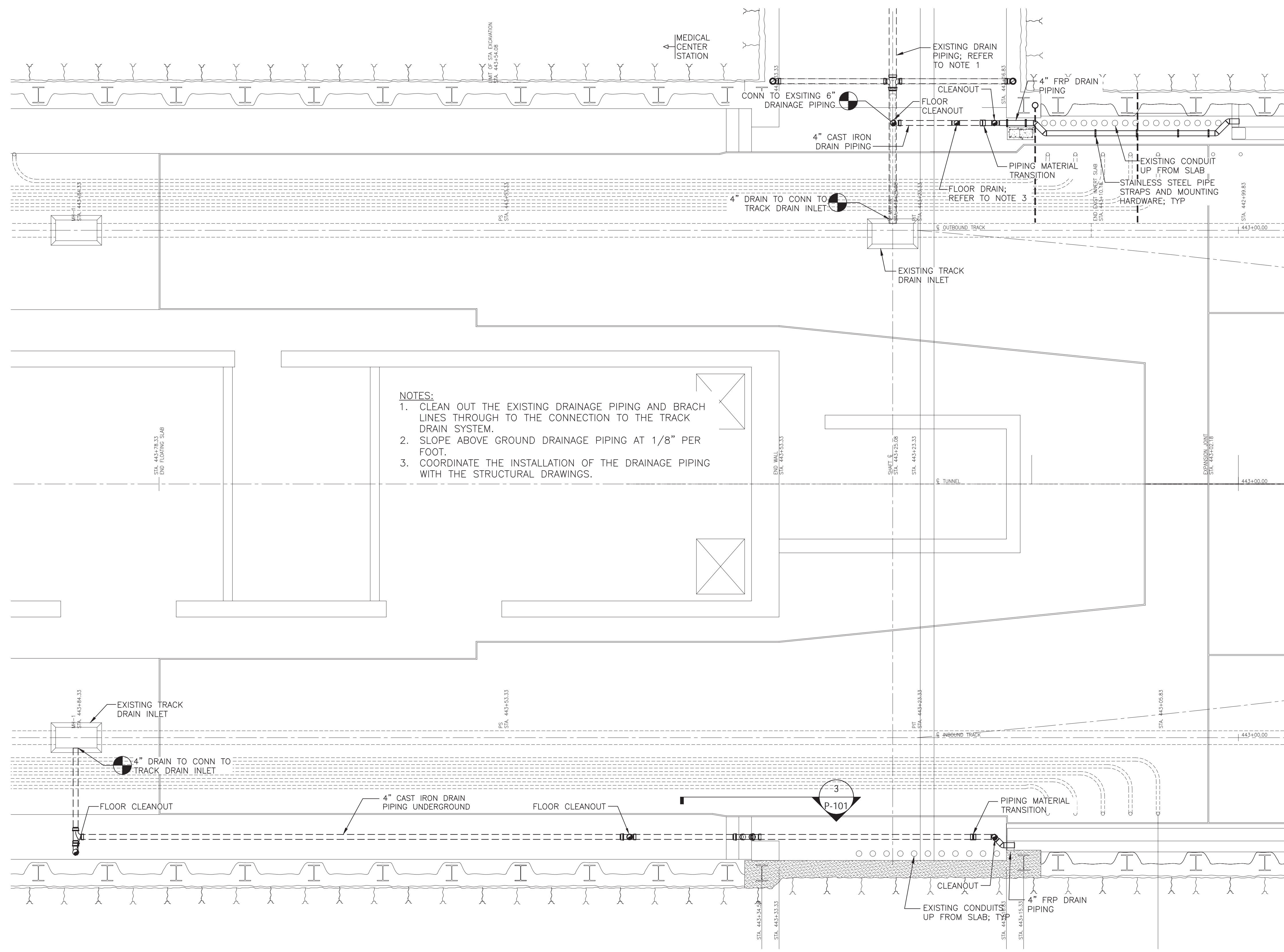
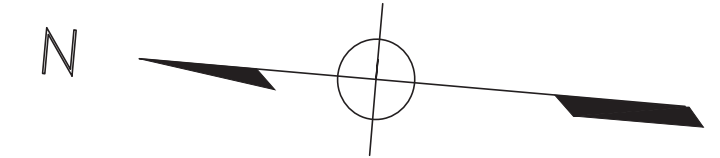
REVISIONS		
NUMBER	DATE	DESCRIPTION



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
PLUMBING PLAN, SECTIONS, AND DETAILS
SCALE AS NOTED
DRAWING NO. A10-P-101
SHEET NO. M1272-106



- NOTES:**
- CLEAN OUT THE EXISTING DRAINAGE PIPING AND BRACH LINES THROUGH TO THE CONNECTION TO THE TRACK DRAIN SYSTEM.
 - SLOPE ABOVE GROUND DRAINAGE PIPING AT 1/8" PER FOOT.
 - COORDINATE THE INSTALLATION OF THE DRAINAGE PIPING WITH THE STRUCTURAL DRAWINGS.

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22331, EXPIRATION DATE: 05-03-2015."

ENLARGED PLUMBING PLAN
SCALE: 1/4" = 1'-0"

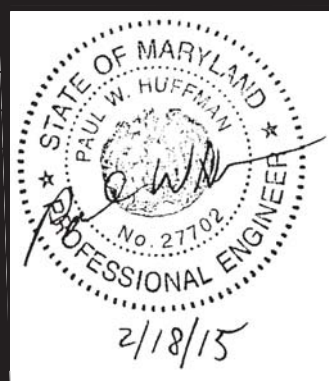


FINAL CONTRACT NO. FQ15093

DESIGNED	T. BRANSOM	01-15
		DATE
DRAWN	T. BRANSOM	01-15
		DATE
CHECKED	P. HUFFMAN	01-15
		DATE
APPROVED	P. HUFFMAN	01-15
		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
NUMBER	DATE	DESCRIPTION



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE
SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2
PLUMBING ENLARGED PLAN
SCALE AS NOTED
DRAWING NO. **A10-P-102**
SHEET NO. **M1272-107**

GENERAL NOTES:

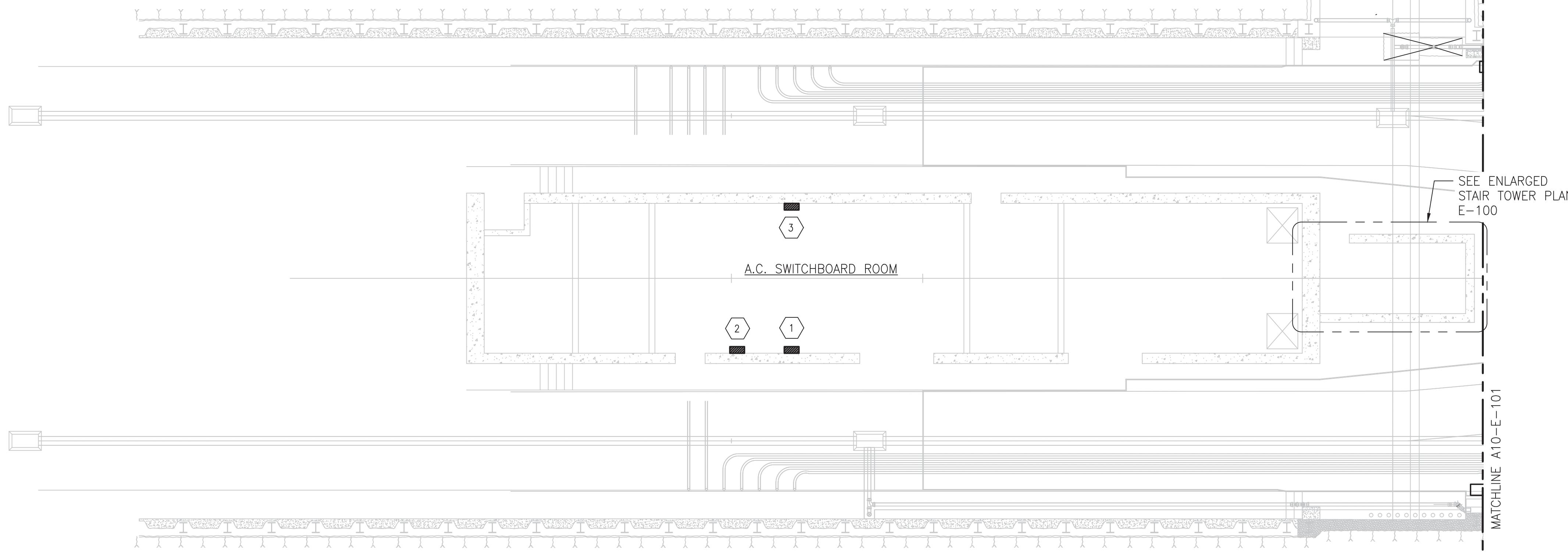
- DRAWINGS ARE DIAGRAMMATIC IN NATURE, CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO INSTALLATION. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER DIVISION TRADES TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. CONTRACTOR SHALL COORDINATE LOCATION OF FIXTURES, DEVICES, ETC. WITH OTHER TRADES IN ORDER TO AVOID INTERFERENCES.
- STRUCTURAL FEATURES SHOWN ON THESE DRAWINGS ARE FOR BACKGROUND INFORMATION ONLY. REFER TO STRUCTURAL DRAWINGS FOR ACTUAL CONSTRUCTION OF WALL AND CURBS.
- ALL WORK SHALL BE PERFORMED AS REQUIRED BY APPLICABLE SECTION OF THE NATIONAL ELECTRICAL CODE, LATEST EDITION, AND ALL GOVERNING LOCAL CODES, LAWS, AND/OR REGULATIONS.
- SYSTEM AND EQUIPMENT GROUNDING CONTINUITY SHALL BE ASSURED AS REQUIRED BY APPLICABLE SECTIONS OF THE NATIONAL ELECTRICAL CODE.
- MINIMUM WIRING SHALL BE #12 (POWER WIRE). ALL WIRE SHALL BE COPPER. MINIMUM CONDUIT SIZE SHALL BE 3/4".
- ALL CIRCUIT PROTECTIVE DEVICES SHALL HAVE THE REQUIRED RATING INTERRUPTING CAPACITY EQUAL TO OR GREATER THAN THE AVAILABLE SHORT-CIRCUIT CURRENT AT ITS SUPPLY TERMINAL.
- CODE APPLICATION:** REFER TO THE INTERNATIONAL BUILDING CODE, LATEST EDITION, THE NATIONAL ELECTRICAL CODE, LATEST EDITION, AND THE NATIONAL FIRE PROTECTION ASSOCIATION CODE LATEST EDITION.

GENERAL NOTES CONT.:

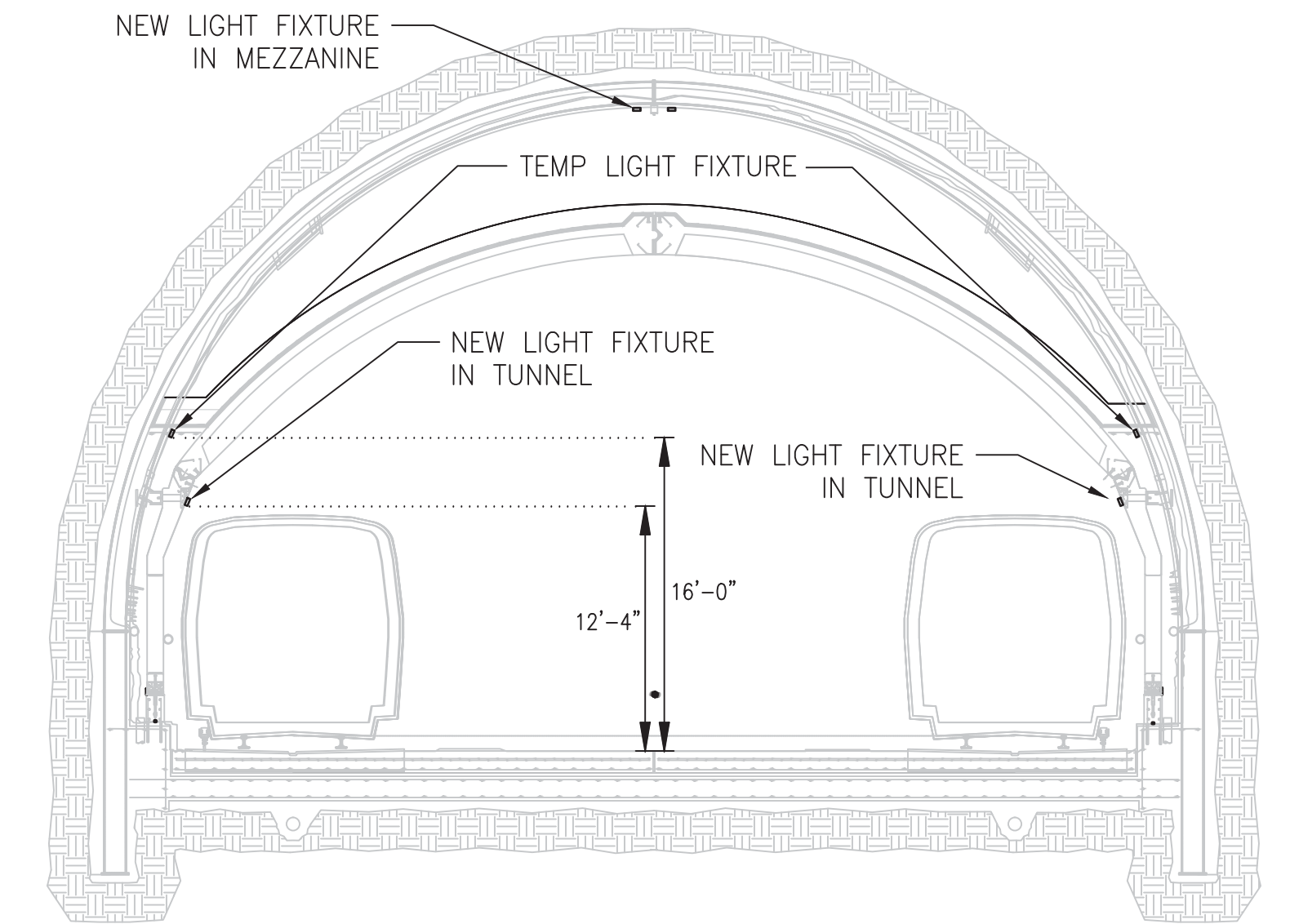
- ALL EXISTING LIGHT FIXTURES (INCLUDING WORK LIGHTS) AND ASSOCIATED CONDUIT & WIRE WITHIN THE CROSSOVER SHALL BE DISCONNECTED AND RELOCATED TO 15' ABOVE EXISTING GRADE TO BE USED AS TASK LIGHTING DURING THE INSTALLATION OF NEW WORK. EXISTING CIRCUITS ARE TO BE MAINTAINED. COORDINATE INSTALLATION OF TEMPORARY LIGHTING WITH OTHER EQUIPMENT BEING RELOCATED. FIXTURES SHALL BE MOUNTED TO TUNNEL WALL IN SIMILAR FASHION TO EXISTING.
- ALL TEMPORARY FIXTURES AND ASSOCIATED WIRE, CONDUIT AND ACCESSORIES ARE TO BE DISCONNECTED AND REMOVED BACK TO SOURCE ONCE NEW LIGHT FIXTURES ARE INSTALLED AND OPERATIONAL.
- ALL EXISTING RECEPTACLES AND ASSOCIATED CONDUIT & WIRE WITHIN THE CROSSOVER SHALL BE DISCONNECTED AND REMOVED BACK TO SOURCE.
- ALL ELECTRICAL LOAD CENTERS AND ASSOCIATED CONDUIT AND WIRE WITHIN THE CROSSOVER SHALL BE DISCONNECTED AND REMOVED BACK TO SOURCE.
- FOR FULL CONSTRUCTION SEQUENCE, SEE DRAWING A10-G-101.

SHEET NOTES:

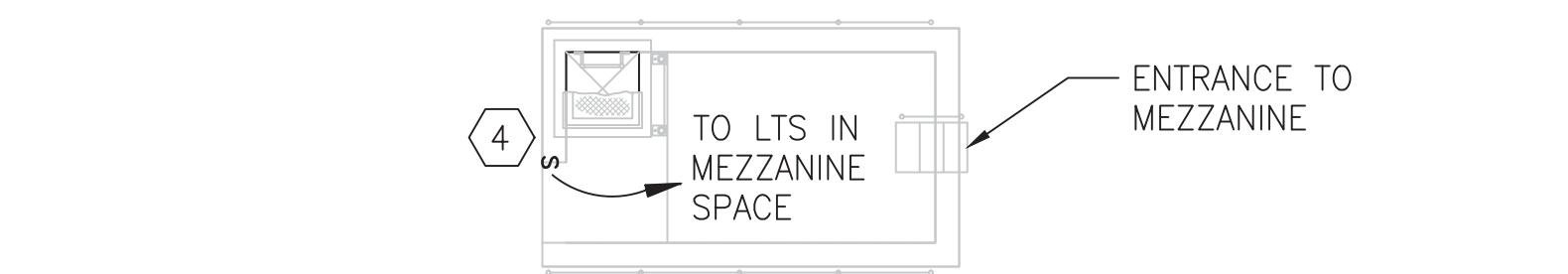
- PANEL ST, 480/277V, 4 WIRE, 3 PHASE. PANEL IS EXISTING TO REMAIN, REPLACE FEEDERS NOTED ON A10-E-101.
- EMERGENCY PANEL SEH, 480/277V, 4 WIRE, 3 PHASE. PANEL IS EXISTING TO REMAIN, REPLACE FEEDERS NOTED ON A10-E-101.
- PANEL SPON, 480/277V, 4 WIRE, 3 PHASE. PANEL IS EXISTING TO REMAIN, REPLACE FEEDERS NOTED ON A10-E-101.
- PROVIDE NEW WET LOCATION SINGLE POLE TOGGLE SWITCH FOR MEZZANINE LIGHTING IN SPACE BETWEEN NEW ARCH AND EXISTING MEMBRANE. CONNECT CIRCUIT BACK TO PANEL ST.



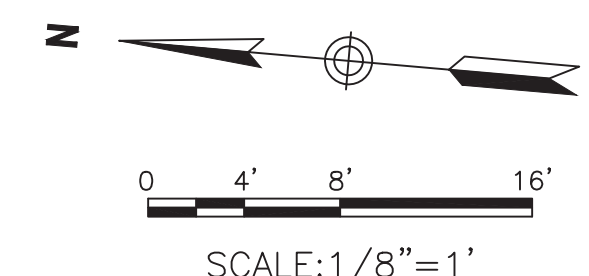
1
E100 **NEW WORK PLAN A**
SCALE: 1/8"=1'-0"



A
E100 **SECTION - TUNNEL**
SCALE: 1/8"=1'-0"



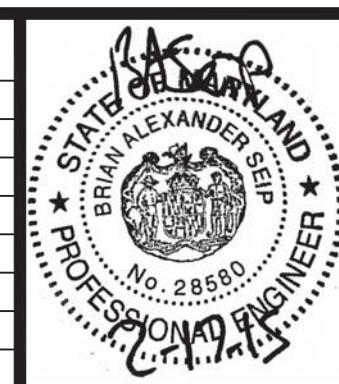
2
E100 **ENLARGED TOWER PLAN - MEZZ LEVEL**
SCALE: 1/8"=1'-0"
NOTE: SEE DRAWING A10-E-101 FOR MEZZANINE LOCATION.



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 28580, EXPIRATION DATE: 04-16-2015."

FINAL CONTRACT NO. **FQ15093**

DESIGNED	J. SPICHER	01-15 DATE	REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DRAWN	J. SPICHER	01-15 DATE					
CHECKED	B. SEIP	01-15 DATE					
APPROVED	B. SEIP	01-15 DATE					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE
AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____



SUBMITTED **Brad Mason, P.E.**
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2	
ELECTRICAL NEW WORK PLAN A	
SCALE AS SHOWN	DRAWING NO. A10-E-100
SHEET NO. M1272-108	

SHEET NOTES:

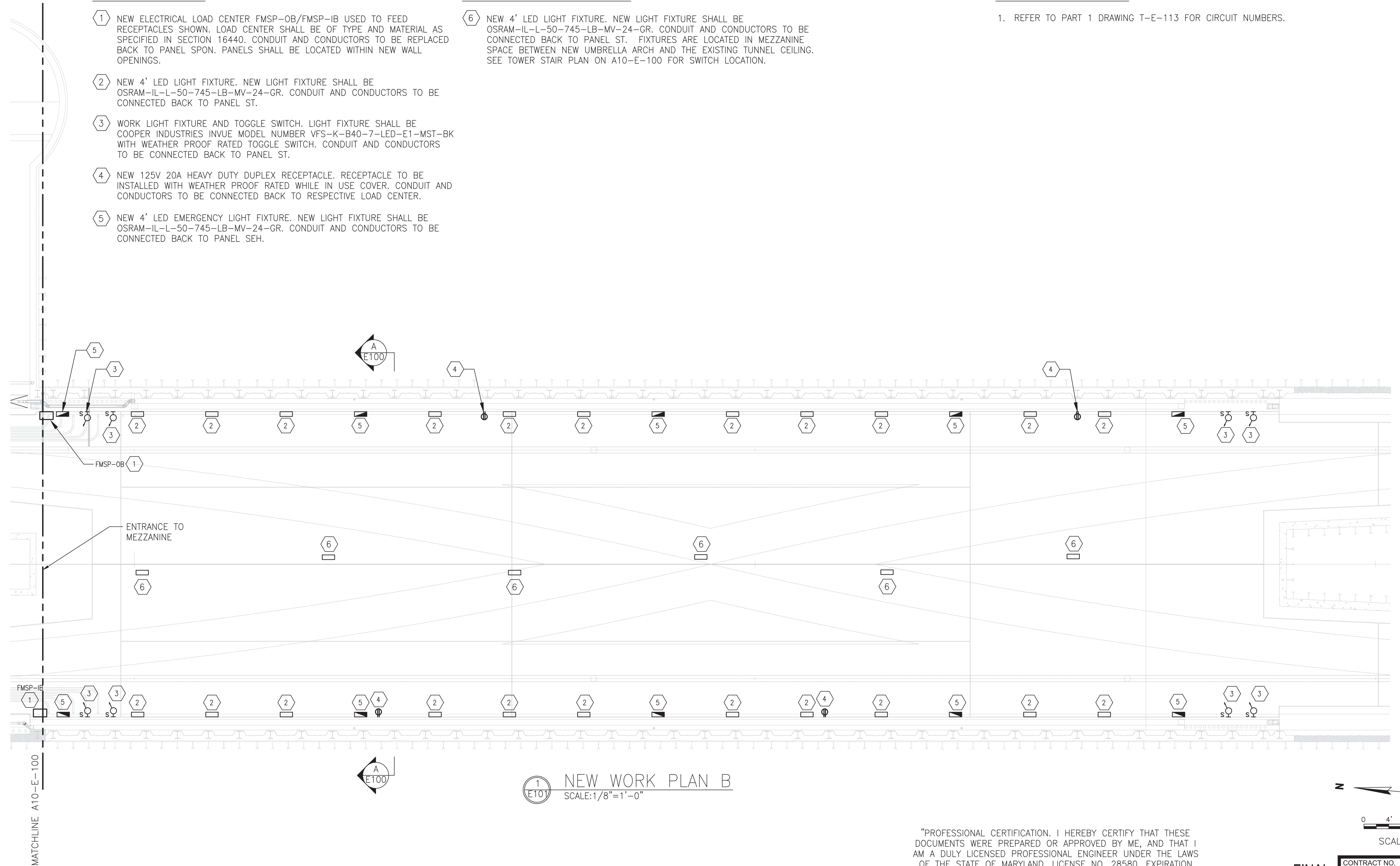
- ① NEW ELECTRICAL LOAD CENTER FMSP-OB/FMSP-IB USED TO FEED RECEPTACLES SHOWN. LOAD CENTER SHALL BE OF TYPE AND MATERIAL AS SPECIFIED IN SECTION 16440. CONDUIT AND CONDUCTORS TO BE REPLACED BACK TO PANEL SPON. PANELS SHALL BE LOCATED WITHIN NEW WALL OPENINGS.
- ② NEW 4' LED LIGHT FIXTURE. NEW LIGHT FIXTURE SHALL BE OSRAM-IL-L-50-745-LB-MV-24-GR. CONDUIT AND CONDUCTORS TO BE CONNECTED BACK TO PANEL ST.
- ③ WORK LIGHT FIXTURE AND TOGGLE SWITCH. LIGHT FIXTURE SHALL BE COOPER INDUSTRIES INVUE MODEL NUMBER VFS-K-B40-7-LED-E1-MST-BK WITH WEATHER PROOF RATED TOGGLE SWITCH. CONDUIT AND CONDUCTORS TO BE CONNECTED BACK TO PANEL ST.
- ④ NEW 125V 20A HEAVY DUTY DUPLEX RECEPTACLE. RECEPTACLE TO BE INSTALLED WITH WEATHER PROOF RATED WHILE IN USE COVER. CONDUIT AND CONDUCTORS TO BE CONNECTED BACK TO RESPECTIVE LOAD CENTER.
- ⑤ NEW 4' LED EMERGENCY LIGHT FIXTURE. NEW LIGHT FIXTURE SHALL BE OSRAM-IL-L-50-745-LB-MV-24-GR. CONDUIT AND CONDUCTORS TO BE CONNECTED BACK TO PANEL SEH.

SHEET NOTES CONT.:

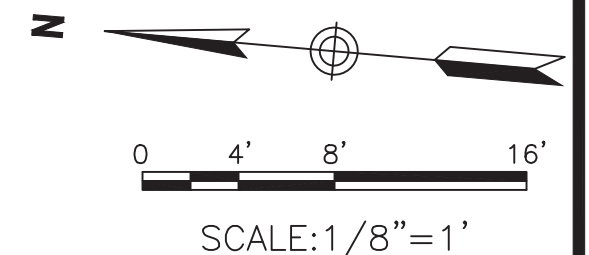
- ⑥ NEW 4' LED LIGHT FIXTURE. NEW LIGHT FIXTURE SHALL BE OSRAM-IL-L-50-745-LB-MV-24-GR. CONDUIT AND CONDUCTORS TO BE CONNECTED BACK TO PANEL ST. FIXTURES ARE LOCATED IN MEZZANINE SPACE BETWEEN NEW UMBRELLA ARCH AND THE EXISTING TUNNEL CEILING. SEE TOWER STAIR PLAN ON A10-E-100 FOR SWITCH LOCATION.

GENERAL NOTES:

- 1. REFER TO PART 1 DRAWING T-E-113 FOR CIRCUIT NUMBERS.



① NEW WORK PLAN B
SCALE: 1/8" = 1'-0"



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FINAL CONTRACT NO. FQ15093

	REFERENCE DRAWINGS		REVISIONS		
	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DESIGNED	J. SPICHER	01-15			
		DATE			
DRAWN	J. SPICHER	01-15			
		DATE			
CHECKED	B. SEIP	01-15			
		DATE			
APPROVED	B. SEIP	01-15			
		DATE			



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE

SUBMITTED Brad Mason, P.E.
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 2

ELECTRICAL
NEW WORK PLAN B

SCALE AS SHOWN

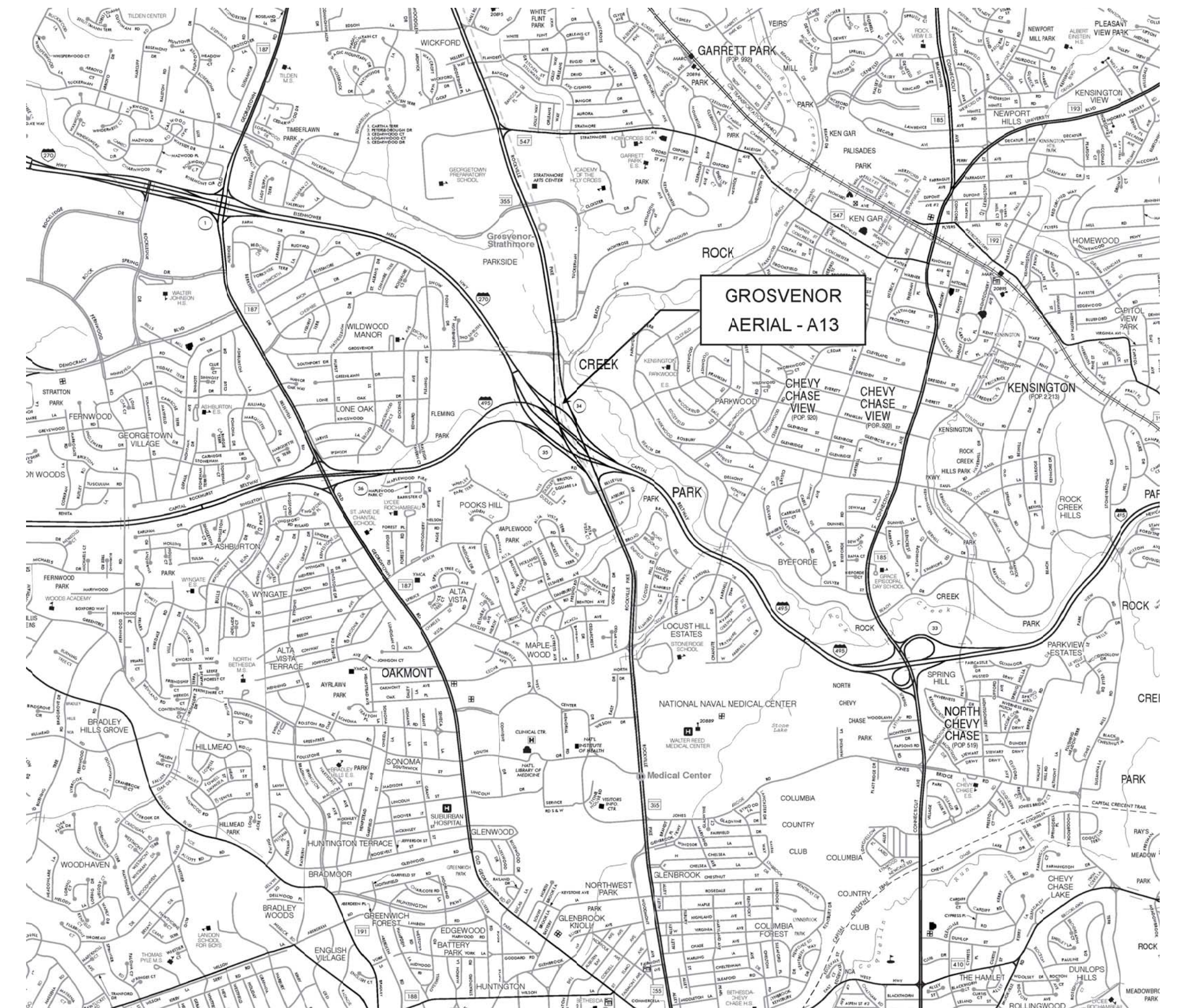
DRAWING NO. A10-E-101

SHEET NO. M1272-109

AERIAL STRUCTURE RETROFIT PLANS

CIVIL GENERAL NOTES

- TRAFFIC CONTROL STANDARDS MD 355 (35 MPH POSTED SPEED) USE STD. NOS. 104.04-04 AND -06.
I-495 (55 MPH POSTED SPEED) USE STD. NO. 104.05-07 WITH PROTECTION VEHICLE.
- VERTICAL CLEARANCE:
MINIMUM 16'-0" VERTICAL CLEARANCE FROM FORMWORK MUST BE PROVIDED AT ALL TIMES UNLESS AREA BELOW REDUCED CLEARANCE IS PROTECTED FROM VEHICULAR TRAFFIC.
LANE WIDTHS:
LANE WIDTHS SHALL NOT BE REDUCED ON I-495.
LANE WIDTHS ON MD 355 FROM TUCKERMAN LANE TO GROSVENOR AVENUE NORTHBOUND AND FROM TUCKERMAN TO 150 FEET SOUTH OF GROSVENOR AVENUE SOUTHBOUND SHALL BE REDUCED TO 11 FOOT WIDTHS. EXISTING MARKINGS TO BE COVERED WITH BLACKOUT TAPE AND TEMPORARY MARKINGS APPLIED.
- WORK HOURS:
WORK/LANE CLOSURES SHALL ONLY BE ALLOWED DURING NONPEAK TRAFFIC HOURS. THESE HOURS ARE GENERALLY 9AM TO 3PM AND 9PM TO 5AM MONDAY THRU FRIDAY.
- ACCESS TO ROADS AND PROPERTIES:
ACCESS TO ALL DRIVEWAYS, SIDE ROADS AND ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
- ON I-495 MAINTAIN FULL LANE USAGE AT ALL TIMES. SHOULDERS ON RAMPS TO BE CLOSED DURING CONSTRUCTION. ALONG MD 355 BARRIER SHALL BE SHIFTED AT THE END OF EACH DAY TO ALLOW FOR FULL LANE USAGE DURING PEAK HOURS.
- INSTALL ADVANCE WARNING SIGNS AS PER THE STANDARDS PRIOR TO CONSTRUCTION. ALL OF THE SIGNING SHALL COMPLY WITH MARYLAND STATE HIGHWAY STANDARDS AND LATEST EDITION OF THE MUTCD AND MARYLAND SUPPLEMENTS.
- UNLESS NOTED OTHERWISE, MARKINGS AND SIGNS NOT IN USE SHALL BE COVERED AS PER SPECIFICATIONS.
- THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR INSTALLING, MAINTAINING AND REMOVING ALL MAINTENANCE OF TRAFFIC DEVICES.
- MOT MEASURES SHALL BE PLACED USING APPROPRIATE CONTROLS AS PER MDSHA BOOK OF STANDARDS. WHEN INSTALLING OR REMOVING LANE CLOSURES, THE CONTRACTOR SHALL BE IN ACCORDANCE WITH STANDARD NOS. AS NOTED AND REFERENCED.
- PVMS, IF NEEDED, SHALL BE INSTALLED TEN (10) CALENDAR DAYS PRIOR TO INITIATING LANE SHIFTS AND WILL REMAIN IN PLACE FOR THREE (3) DAYS AFTER THE LANE SHIFT OCCURS. MESSAGES SHALL BE PROVIDED BY THE ASSISTANT DISTRICT ENGINEER-TRAFFIC, DISTRICT 3.
- ALL WORK ZONE TRAFFIC CONTROL (WZTC) SIGNS SHALL BE BLACK ON ORANGE AND 48" X 48".
- CONTRACTOR MUST MAINTAIN PEDESTRIAN TRAFFIC.
- STORAGE OF CONSTRUCTION EQUIPMENT AND MATERIAL SHALL BE LOCATED OFF THE TRAVEL LANES BEHIND PROTECTION AT ALL TIMES.
- THE MAINTENANCE OF TRAFFIC DRAWINGS/STANDARDS SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 TO 104.00-18 AND STANDARD DETAILS MD 104.01-01 TO MD 104.01-81.
- ALL EXCAVATION WHICH RESULTS IN A PAVEMENT EDGE DROP-OFF SHALL BE IN ACCORDANCE WITH STD. NOS. MD 104.06-15 TO MD 104.06-19. TEMPORARY GAB AND HMA FOR MOT SHALL BE USED AS BACK FILL TO SATISFY THE PAVEMENT EDGE DROP-OFF STANDARDS.
- ANY OTHER TRAFFIC CONTROL FOR AREAS NOT SHOWN ON THESE PLANS WILL BE AS PER THE MDSHA BOOK OF STANDARDS.
- DURING EACH CONSTRUCTION STAGE THE CONTRACTOR SHALL MAINTAIN ALL APPLICABLE SIGNS AND PAVEMENT MARKINGS.
- PERMANENT PAVEMENT MARKINGS OR SIGNS DAMAGED DUE TO WORK BY THE CONTRACTOR SHALL BE IMMEDIATELY REPAIRED AT NO COST TO SHA.
- ADVANCED WARNING SIGNS SHALL BE INSTALLED AT A MINIMUM SPACING OF 200 FEET TO AN EXISTING SIGN, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- TEMPORARY TRAFFIC SIGNS PLACED DURING MOT SHALL NOT PROTRUDE INTO USABLE WIDTH OF THE SIDEWALK.



LOCATION MAP

1" = 2000'

STANDARD DRAWINGS

- MD 104.01-23A ADVANCE CHANNELIZATION AND PROTECTION FOR BARRIER FLARE SECTION
- MD 104.01-71 CRASH CUSHION SAND FILLED PLASTIC BARRELS (TEMPORARY OR PERMANENT)
- MD 104.04-04 LEFT LANE CLOSURE/DIVIDED UNCON. EQUAL/LESS THAN 40 MPH
- MD 104.04-06 RIGHT LANE CLOSURE/DIVIDED UNCON. EQUAL/LESS THAN 40 MPH
- MD 104.05-01 SHOULDER WORK/EXP-FREEWAY GREATER THAN 40 MPH
- MD 104.05-07 RIGHT LANE CLOSURE/EXP-FREEWAY GREATER THAN 40 MPH
- MD 104.05-18 PARTIAL RAMP CLOSURE/EXP-FREEWAY GREATER THAN 40 MPH
- MD 605.03 TYPE C TRAFFIC BARRIER END TREATMENT
- MD 605.06 TYPE E TRAFFIC BARRIER END TREATMENT (TEMPORARY OR PERMANENT)
- MD 605.20 TRAFFIC BARRIER W BEAM END SECTION
- MD 605.22 TRAFFIC BARRIER W BEAM SINGLE FACE
- MD 605.31 TRAFFIC BARRIER W BEAM PLACEMENT DETAILS
- MD 620.02 STANDARD TYPES A&B CONCRETE CURB AND COMBINATION CONCRETE CURB AND GUTTER

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24077, EXPIRATION DATE 02-24-2015

CONTRACT NO.
FQ15093

NOVEMBER 14, 2014

DESIGNED			REFERENCE DRAWINGS			REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	
1								
2								
3								
4								
5								



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE
AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____



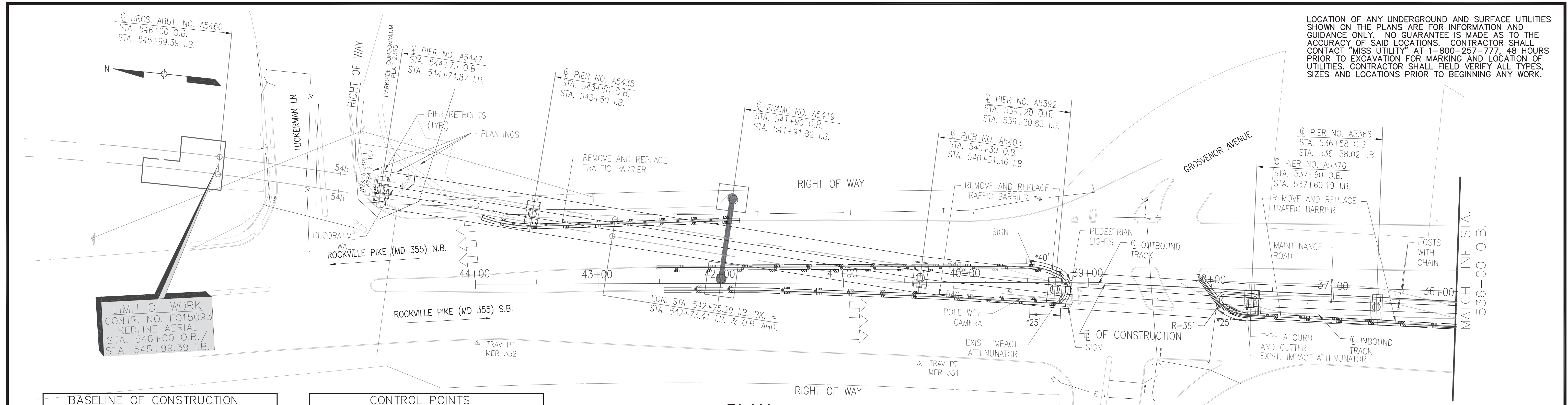
SUBMITTED BRAD MASON
PROJECT MANAGER

RED LINE REHABILITATION GROSVENOR AERIAL STRUCTURE

CIVIL GENERAL NOTES AND VICINITY MAP

SCALE NONE DRAWING NO. A13-C-001 M1272-110

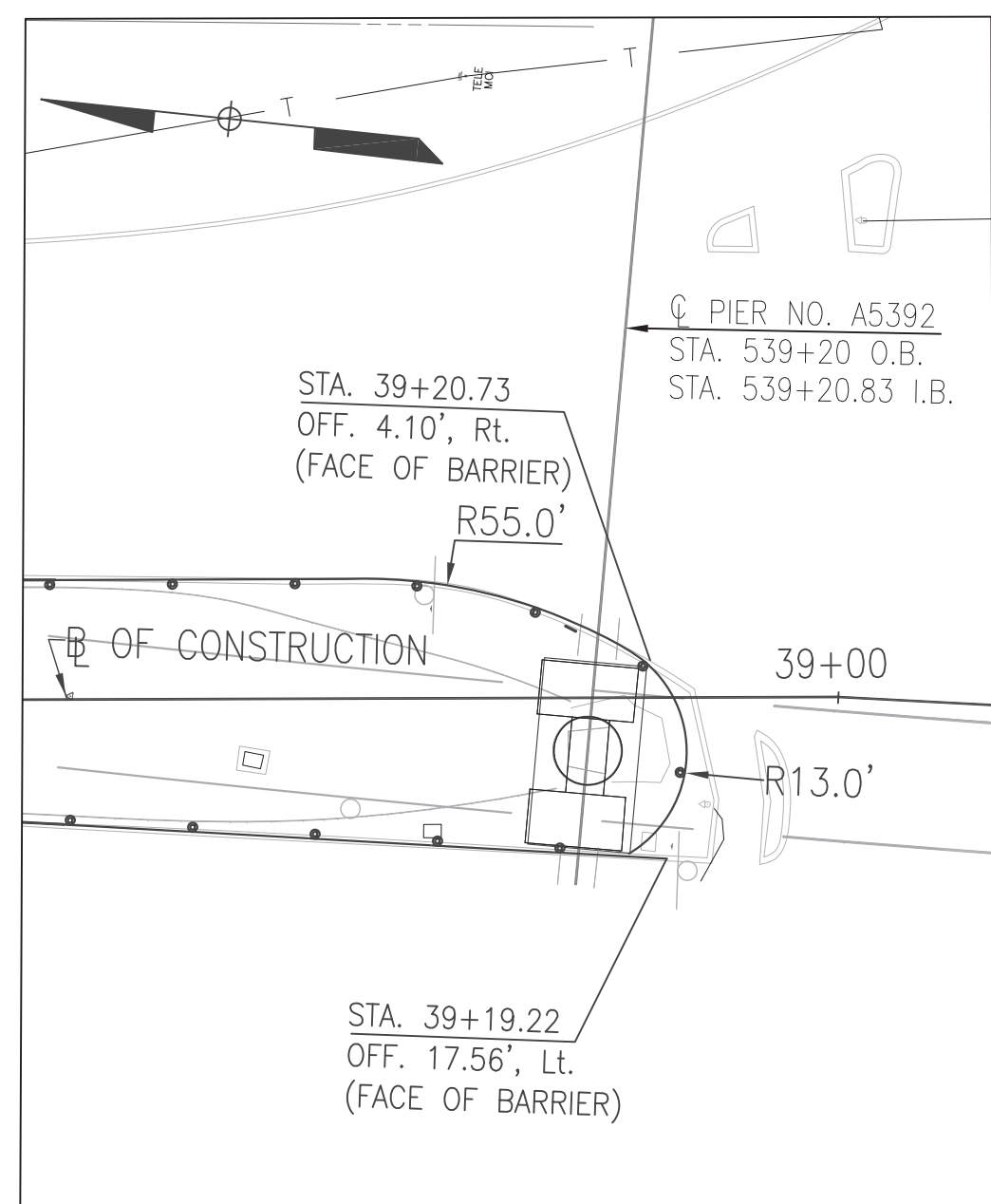
LOCATION OF ANY UNDERGROUND AND SURFACE UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS. CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO EXCAVATION FOR MARKING AND LOCATION OF UTILITIES. CONTRACTOR SHALL FIELD VERIFY ALL TYPES, SIZES AND LOCATIONS PRIOR TO BEGINNING ANY WORK.



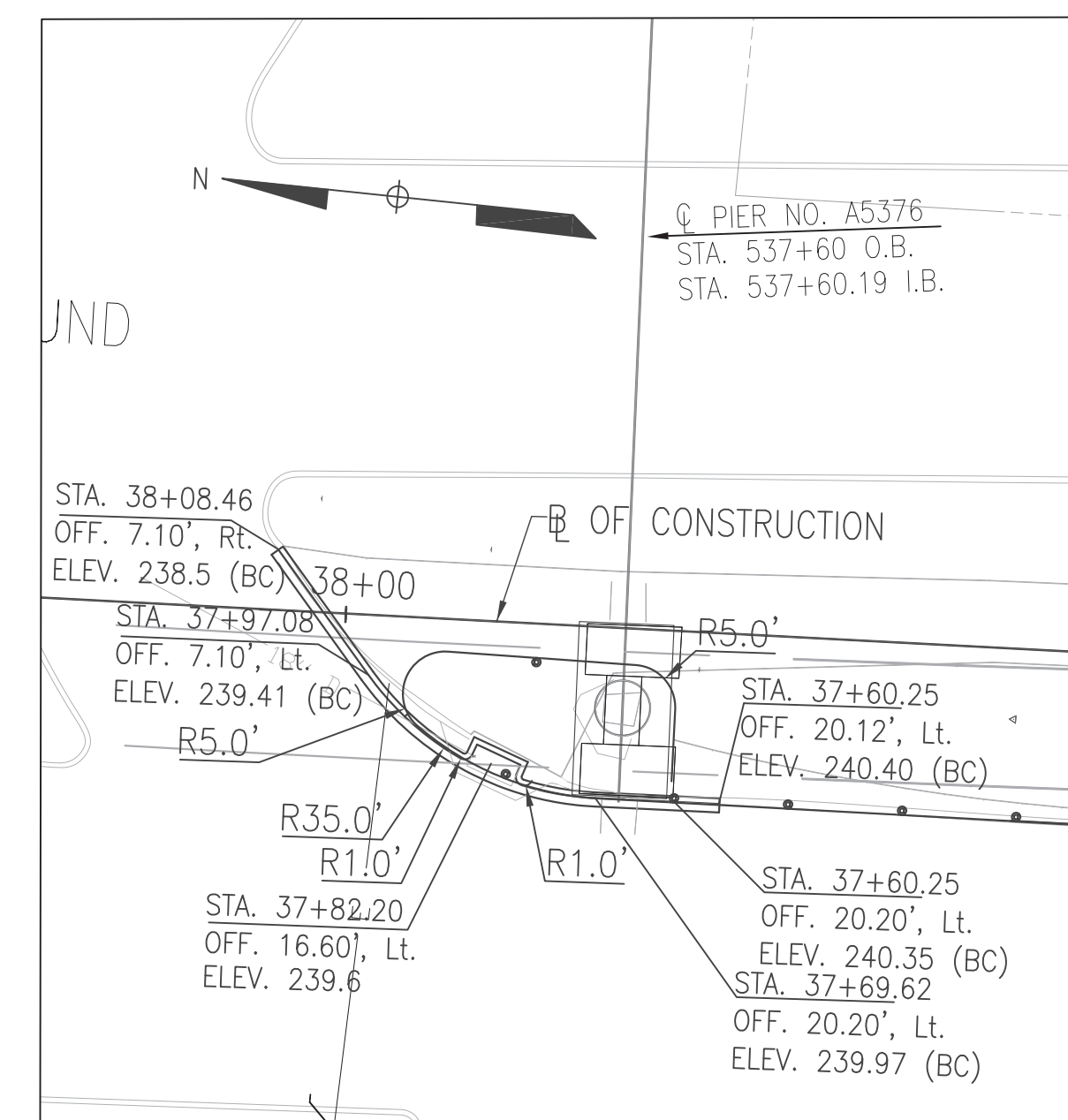
BASELINE OF CONSTRUCTION		
DESCRIPTION	NORTH	EAST
STA. 35+00	432927.6923	771215.2365
STA. 39+00	432934.8726	770815.2793
STA. 44+00	432916.0850	770315.6324

CONTROL POINTS			
DESCRIPTION	NORTH	EAST	ELEV.
MER 352	433577.5428	770639.4311	230.61
MER 351	433217.2064	770650.3951	233.80
MER 307	432778.2931	770731.5921	243.93

PLAN
SCALE: 1" = 40'-0"



INSET - A5392
SCALE: 1" = 20'-0"



INSET - A5376
SCALE: 1" = 20'-0"

REMOVE AND DISPOSE OF EXISTING TRAFFIC BARRIER		
STATION	LF	REMARKS
STA. 36+00 TO 37+60	160	MEDIAN
STA. 39+30 TO 42+52	324	MEDIAN
STA. 39+30 TO 42+56	324	MEDIAN
STA. 41+85 TO 43+93	211	EAST CURB

W BEAM TRAFFIC BARRIER USING 6 FOOT POSTS (STD NO. 605.31)		
STATION	LF	REMARKS
STA. 36+00 TO 37+60, LT.	235	* DECREASE POST SPACING TO 3'-1 1/2" AROUND PIERS, SEE PLANS
STA. 39+85 TO 42+52, RT.	280	
STA. 39+85 TO 42+02, LT.	220	
STA. 42+52 TO 43+93, RT.	145	

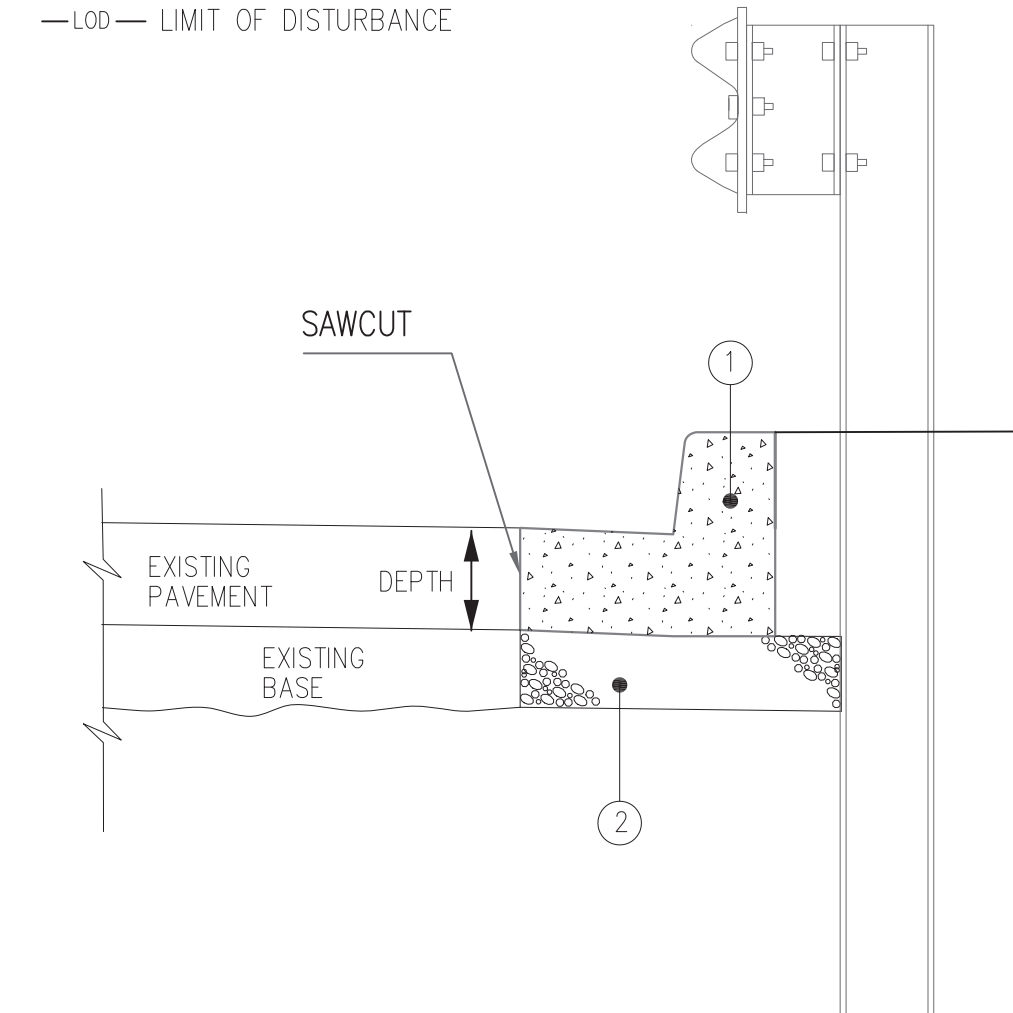
TRAFFIC BARRIER W BEAM END SECTION (STD NO. 605.20)		
STATION	EA	REMARKS
STA. 37+60	1	BEHIND PIER
STA. 42+52	1	NB 355, WEST CURB
STA. 43+93	1	NB 355, EAST CURB
STA. 39+85	1	NB 355, WEST CURB
STA. 39+85	1	SB 355, WEST CURB

TYPE C TRAFFIC BARRIER END TREATMENT (STD NO 605.03)		
STATION	EA	REMARKS
STA. 42+52 TO 42+02	1	SB 355, EAST CURB
STA. 41+85 TO 42+35	1	NB 355 EAST CURB

STD TYPE A CONC. COMBINATION CURB & GUTTER (STD NO 620.02)		
STATION	LF	REMARKS
STA. 37+55 TO 38+08.46	70	

LEGEND

—LOD— LIMIT OF DISTURBANCE



CURB & GUTTER REPLACEMENT

NOT TO SCALE

PAVEMENT LEGEND

- ① STD. TYPE A CONCRETE COMBINATION CURB AND GUTTER (STD NO. 620.02) (DEPTH TO MATCH EXISTING PAVEMENT DEPTH)
- ② 6" GRADED AGGREGATE BASE COURSE INCIDENTAL TO CURB & GUTTER

STANDARD STABILIZATION NOTE
FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND
B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24158, EXPIRATION DATE: 03/19/2017

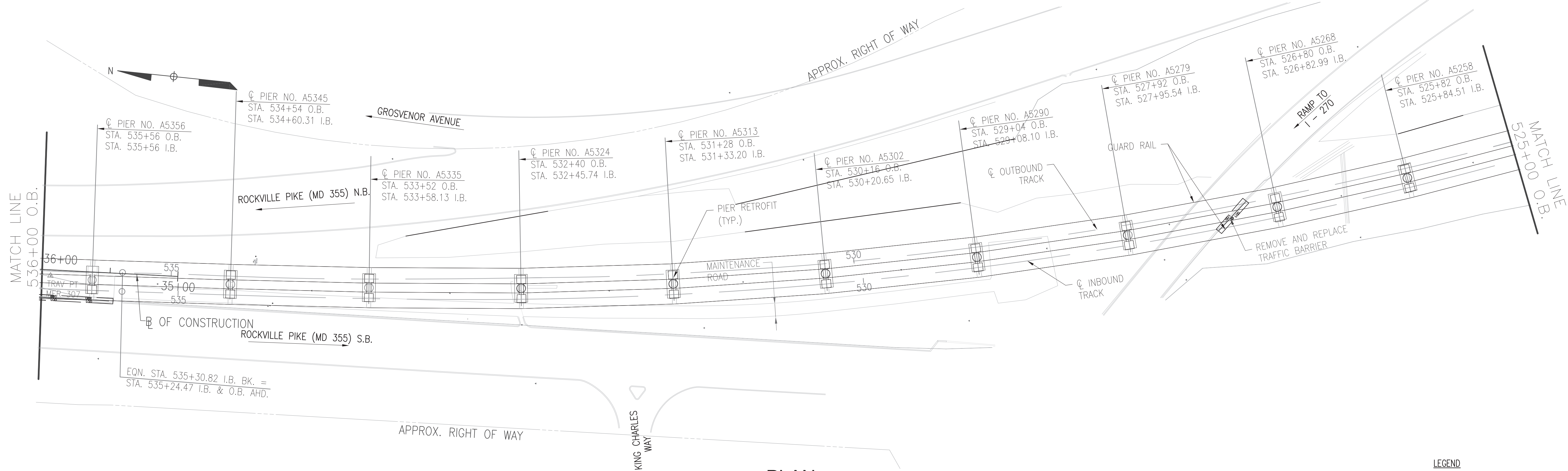
DESIGNED		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	NUMBER	DESCRIPTION	DATE	BY
CSF		2-8-14					
CSF		2-8-14					
GM		2-8-14					
GM		4-23-14					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
APPROVED _____
SUBMITTED _____ PROJECT MANAGER
GFP A Gannett Fleming/Parsons JOINT VENTURE
Brad Mason, P.E.

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 3
ROADWAY PLAN - 1
SCALE AS SHOWN
DRAWING NO. A13-C-100
M1272-111
CONTRACT NO. **FINAL** FQ15093

LOCATION OF ANY UNDERGROUND AND SURFACE UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS. CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-777, 48 HOURS PRIOR TO EXCAVATION FOR MARKING AND LOCATION OF UTILITIES. CONTRACTOR SHALL FIELD VERIFY ALL TYPES, SIZES AND LOCATIONS PRIOR TO BEGINNING ANY WORK.



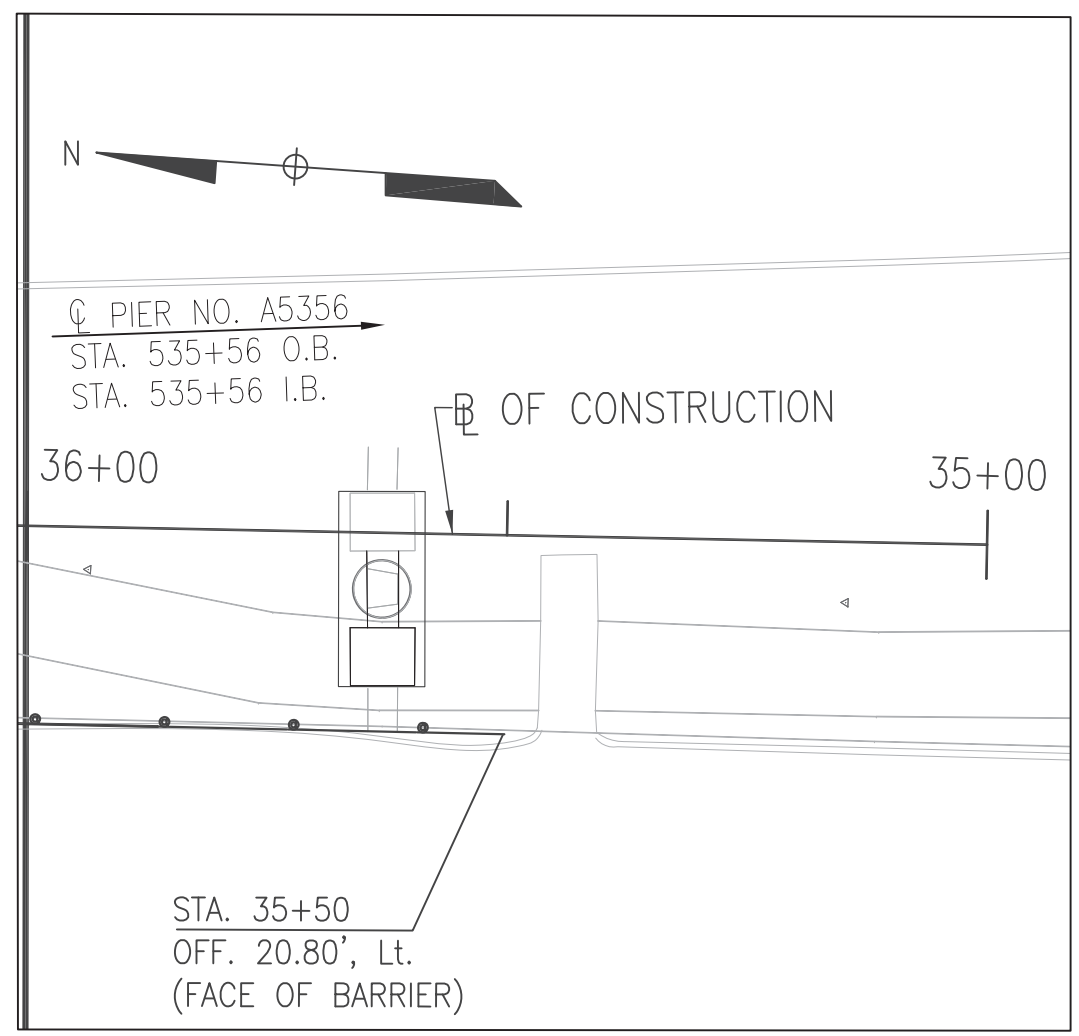
PLAN

SCALE: 1" = 40'-0"

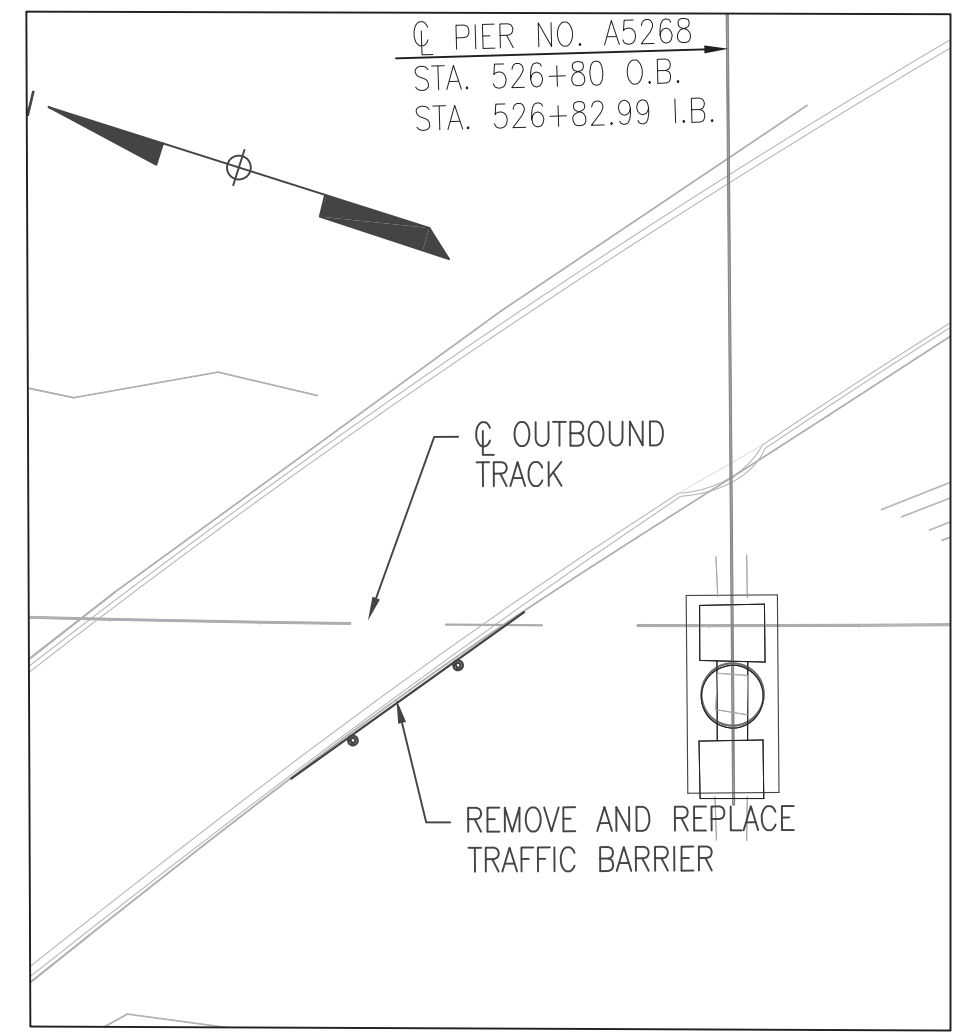
LEGEND
 -LOD- LIMIT OF DISTURBANCE

REMOVE AND DISPOSE OF EXISTING TRAFFIC BARRIER		
STATION	LF	REMARKS
B STA. 35+00 TO 35+50, LT.	50	MEDIAN
O.B. STA. 527+00, RT. TO 527+25, LT.	30	

W BEAM TRAFFIC BARRIER USING 6 FOOT POSTS (STD NO. 605.31) SEE DETAIL, SHEET A13-C-100		
STATION	LF	REMARKS
B STA. 35+50 TO 36+00, LT.	50	TIE TO EXISTING TRAFFIC BARRIER
O.B. STA. 527+00, RT. TO 527+25, LT.	30	



INSET - A5356
 SCALE: 1" = 20'-0"



INSET - A5268
 SCALE: 1" = 20'-0"

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FINAL CONTRACT NO. FQ15093

DESIGNED CSF 2-8-14 DATE
 DRAWN CSF 2-8-14 DATE
 CHECKED GM 2-8-14 DATE
 APPROVED GM 04-24-14 DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

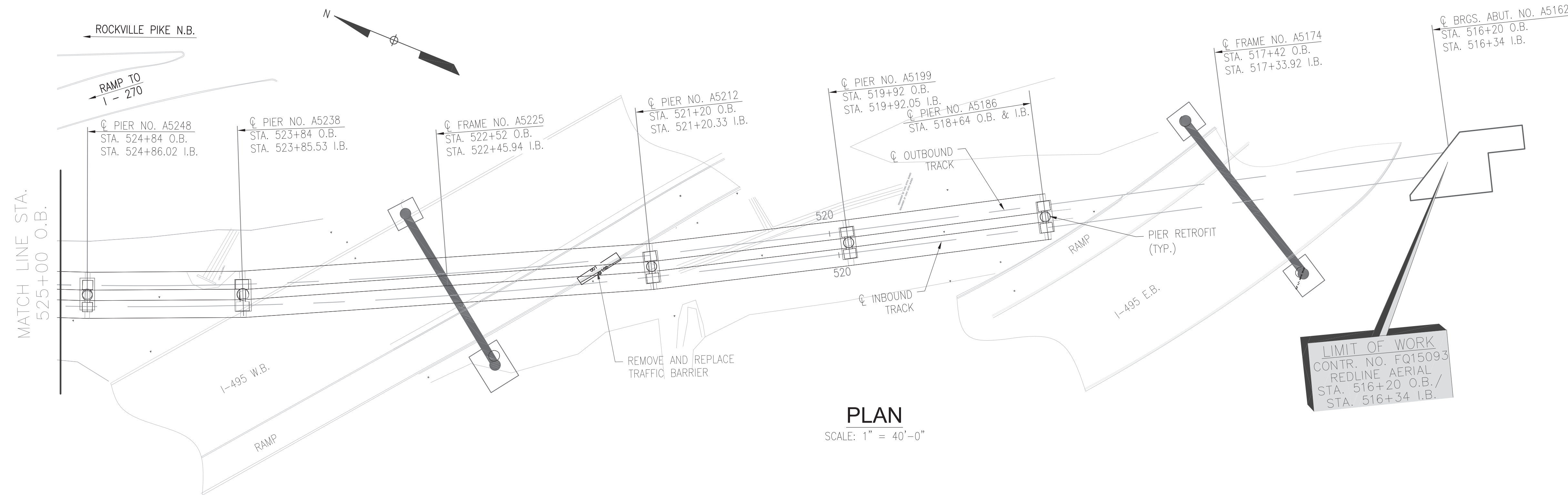
REVISIONS		
NUMBER	DATE	DESCRIPTION



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM
 APPROVED _____
GFP A Gannett Fleming/Parsons JOINT VENTURE
 Brad Mason, P.E.
 SUBMITTED _____ PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 3
 ROADWAY PLAN - 2
 SCALE AS SHOWN DRAWING NO. A13-C-101 M1272- 112

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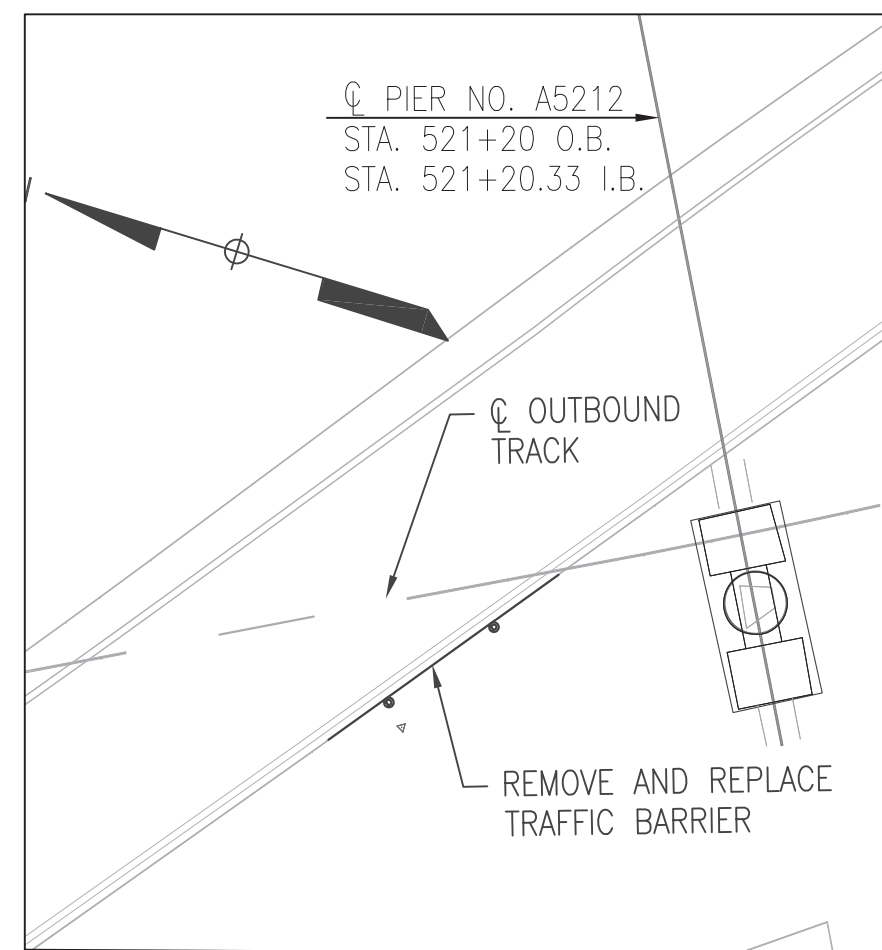
PLAN
SCALE: 1" = 40'-0"

LIMIT OF WORK
CONTR. NO. FQ15093
REDLINE AERIAL
STA. 516+20 O.B./
STA. 516+34 I.B.

LEGEND
—LOD— LIMIT OF DISTURBANCE

REMOVE AND DISPOSE OF EXISTING TRAFFIC BARRIER		
STATION	LF	REMARKS
O.B. STA. 521+40, RT. TO 521+67, LT.	30	MEDIAN

W BEAM TRAFFIC BARRIER USING 6 FOOT POSTS (STD NO. 605.31) SEE DETAIL, SHEET A13-C-100		
STATION	LF	REMARKS
O.B. STA. 521+40, RT. TO 521+6, LT.	30	TIE TO EXISTING TRAFFIC BARRIER

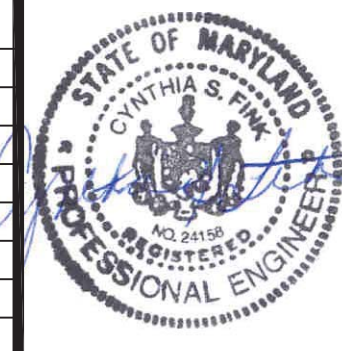


INSET - A5212
SCALE: 1" = 20'-0"

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24158, EXPIRATION DATE: 03/19/2017

FINAL CONTRACT NO. FQ15093

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS		
		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
CSF	2-8-14					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM



Brad Mason, P.E.

APPROVED _____

SUBMITTED _____ PROJECT MANAGER

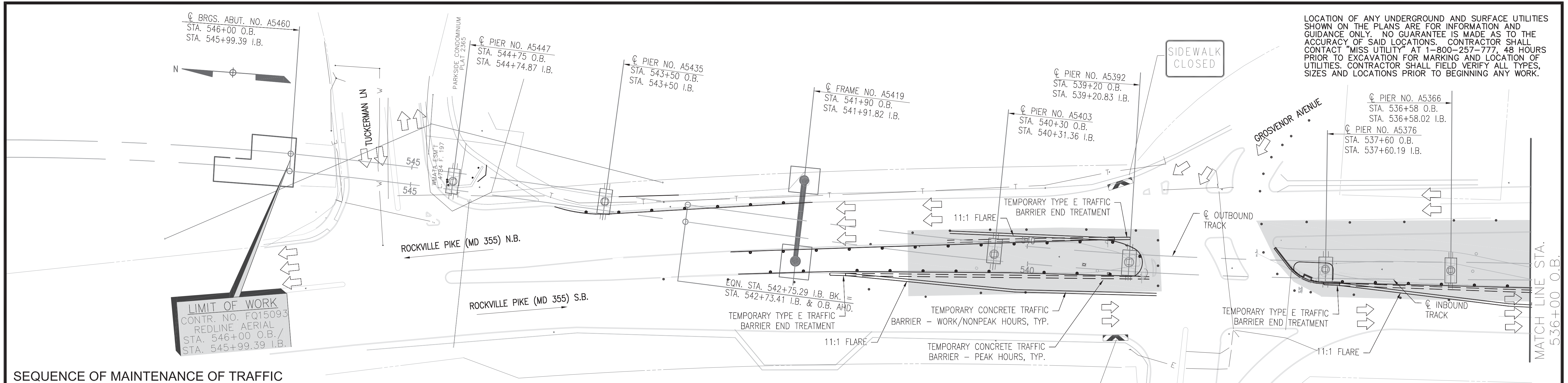
RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 3

ROADWAY PLAN - 3

SCALE AS SHOWN

DRAWING NO. A13-C-102

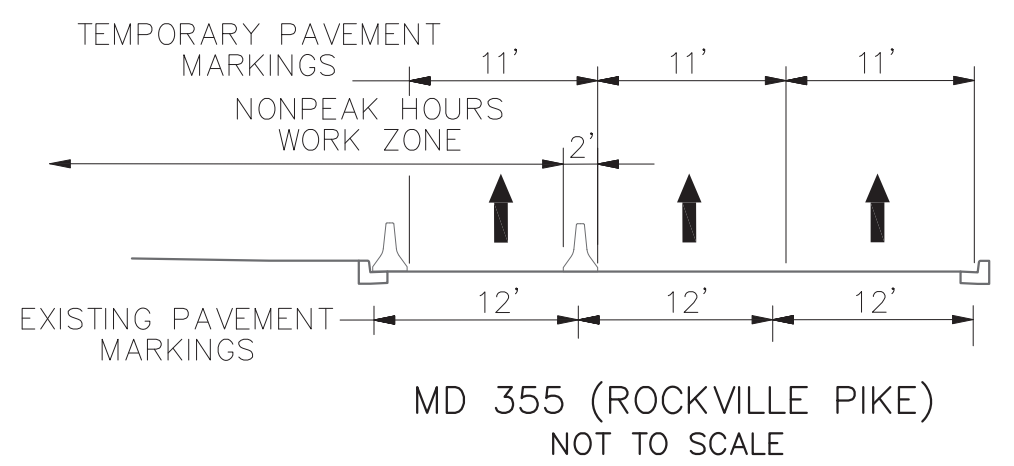
M1272-113



PLAN

SCALE: 1" = 40'-0"

LOCATION OF ANY UNDERGROUND AND SURFACE UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS. CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-777, 48 HOURS PRIOR TO EXCAVATION FOR MARKING AND LOCATION OF UTILITIES. CONTRACTOR SHALL FIELD VERIFY ALL TYPES, SIZES AND LOCATIONS PRIOR TO BEGINNING ANY WORK.



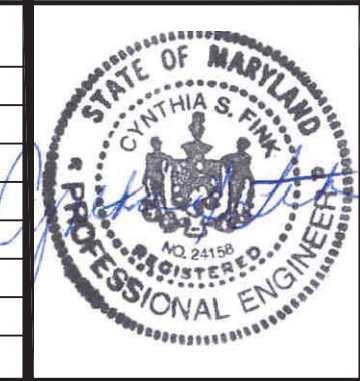
LEGEND

- WORK ZONE
- DRUMS/CHANNELIZING DEVICES
- DOUBLE FACED CONCRETE BARRIER (PEAK/NONPEAK)
- TEMPORARY TYPE E TRAFFIC BARRIER END TREATMENT (40MPH 3 BAYS, 50MPH 4 BAYS, 70 MPH 9 BAYS, ALL 2 FEET WIDE)
- CRASH CUSHION (SAND FILLED PLASTIC BARRELS)
- PEDESTRIAN BARRICADE (TYPE II) WITH SIGN

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24158, EXPIRATION DATE: 03/19/2017

FINAL CONTRACT NO. FQ15093

DESIGNED		2-08-14		DATE		REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY	DATE	DESCRIPTION	DATE	BY	DATE	DESCRIPTION
CSF		2-08-14							
CSF		2-08-14							
GM		2-8-14							
GM		04-24-14							



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE
Brad Mason, P.E.

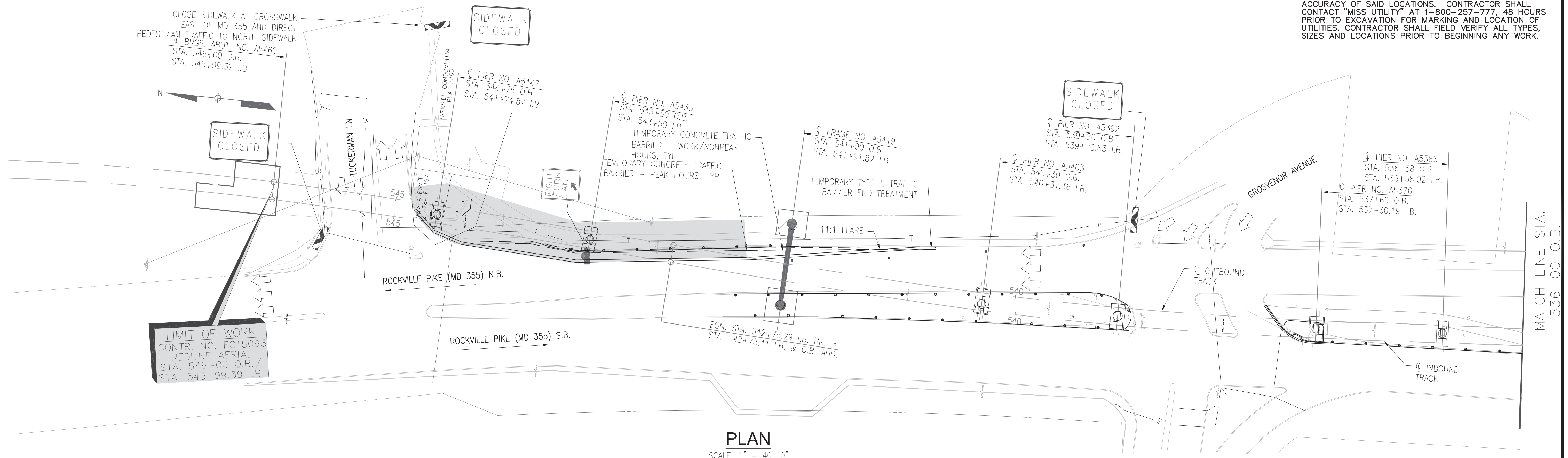
APPROVED _____ SUBMITTED _____ PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSEVENOR - PART 3

MAINTENANCE OF TRAFFIC PLAN - 1

SCALE AS SHOWN DRAWING NO. A13-C-103 M1272-114

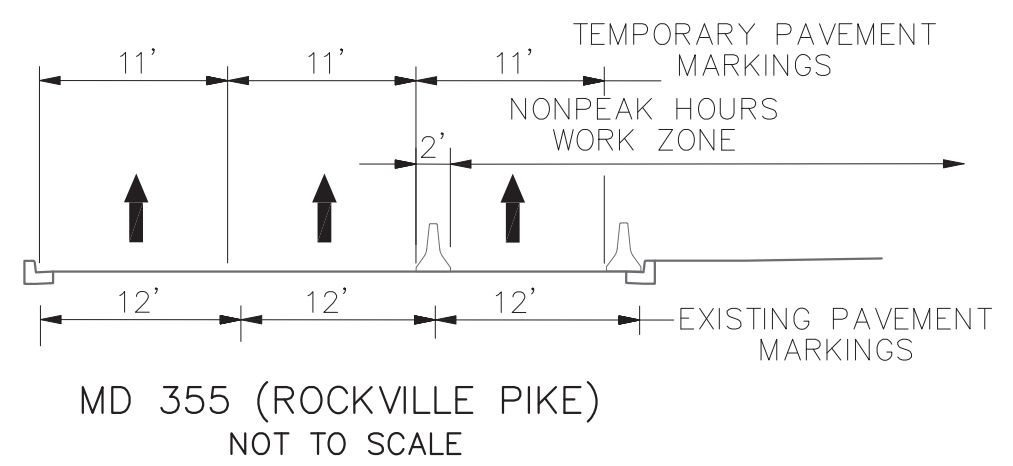
LOCATION OF ANY UNDERGROUND AND SURFACE UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS. CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-777, 48 HOURS PRIOR TO EXCAVATION FOR MARKING AND LOCATION OF UTILITIES. CONTRACTOR SHALL FIELD VERIFY ALL TYPES, SIZES AND LOCATIONS PRIOR TO BEGINNING ANY WORK.



PLAN
SCALE: 1" = 40'-0"

SEQUENCE OF MAINTENANCE OF TRAFFIC
SEE A13-C-103 FOR SEQUENCE OF MAINTENANCE OF TRAFFIC

GENERAL NOTES
SEE A13-C-001 FOR CIVIL GENERAL NOTES



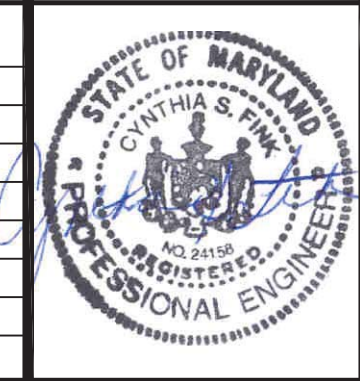
LEGEND

- WORK ZONE
- DRUMS/CHANNELIZING DEVICES
- DOUBLE FACED CONCRETE BARRIER (PEAK/NONPEAK)
- TEMPORARY TYPE E TRAFFIC BARRIER END TREATMENT (3 BAYS 2 FEET WIDE)
- PEDESTRIAN BARRICADE (TYPE II) WITH SIGN

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24158, EXPIRATION DATE: 03/19/2017

FINAL CONTRACT NO. FQ15093

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CSF		2-08-14									
CSF		2-08-14									
GM		2-8-14									
GM		04-24-14									



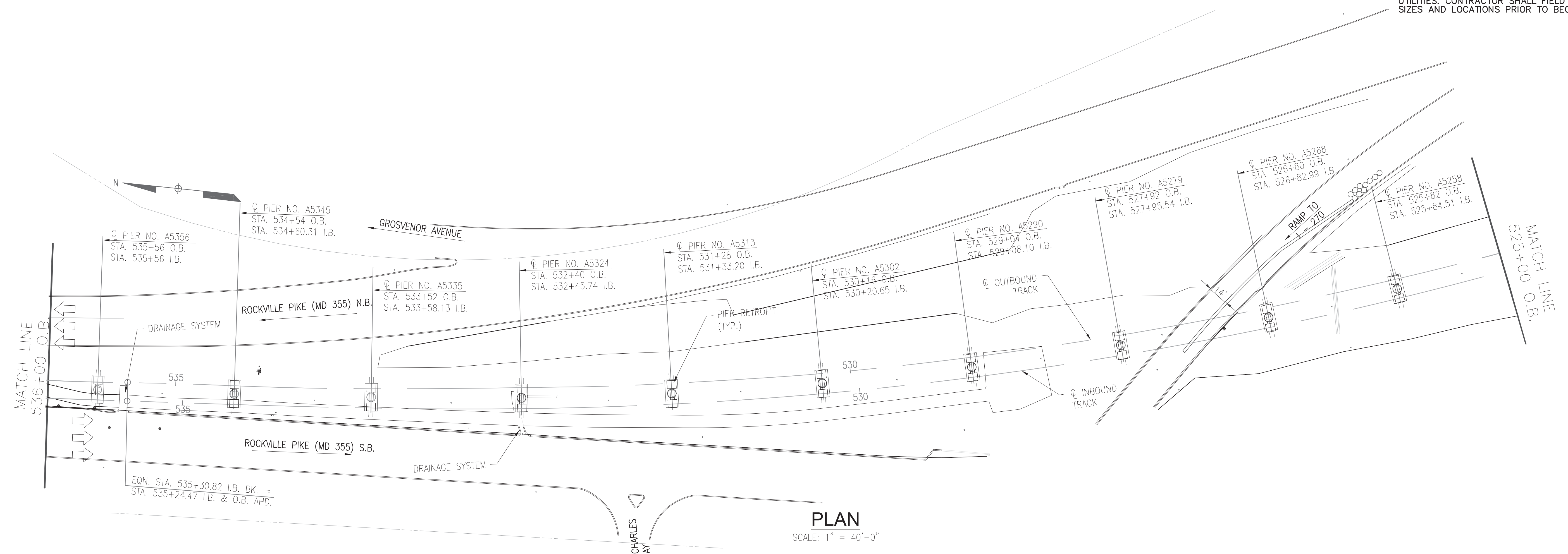
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE
Brad Mason, P.E.
SUBMITTED PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 3
MAINTENANCE OF TRAFFIC PLAN - 1A

SCALE AS SHOWN DRAWING NO. A13-C-104 M1272-115

LOCATION OF ANY UNDERGROUND AND SURFACE UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS. CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-777, 48 HOURS PRIOR TO EXCAVATION FOR MARKING AND LOCATION OF UTILITIES. CONTRACTOR SHALL FIELD VERIFY ALL TYPES, SIZES AND LOCATIONS PRIOR TO BEGINNING ANY WORK.



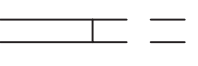
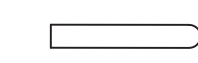



PLAN
SCALE: 1" = 40'-0"

SEQUENCE OF MAINTENANCE OF TRAFFIC
SEE A13-C-103 FOR SEQUENCE OF MAINTENANCE OF TRAFFIC

GENERAL NOTES
SEE A13-C-001 FOR CIVIL GENERAL NOTES

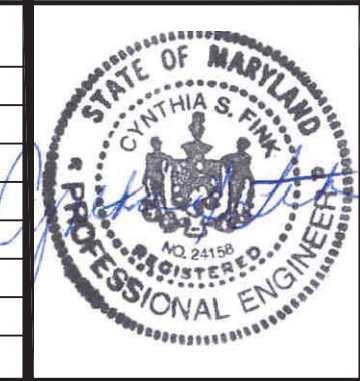
LEGEND

-  WORK ZONE
-  DRUMS/CHANNELIZING DEVICES
-  DOUBLE FACED CONCRETE BARRIER (PEAK/NONPEAK)
-  TEMPORARY TYPE E TRAFFIC BARRIER END TREATMENT (40MPH 3 BAYS, 50MPH 4 BAYS, 70 MPH 9 BAYS, ALL 2 FEET WIDE)
-  CRASH CUSHION (SAND FILLED PLASTIC BARRELS)

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24158, EXPIRATION DATE: 03/19/2017

FINAL CONTRACT NO. FQ15093

DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS		
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CSF	2-08-14					
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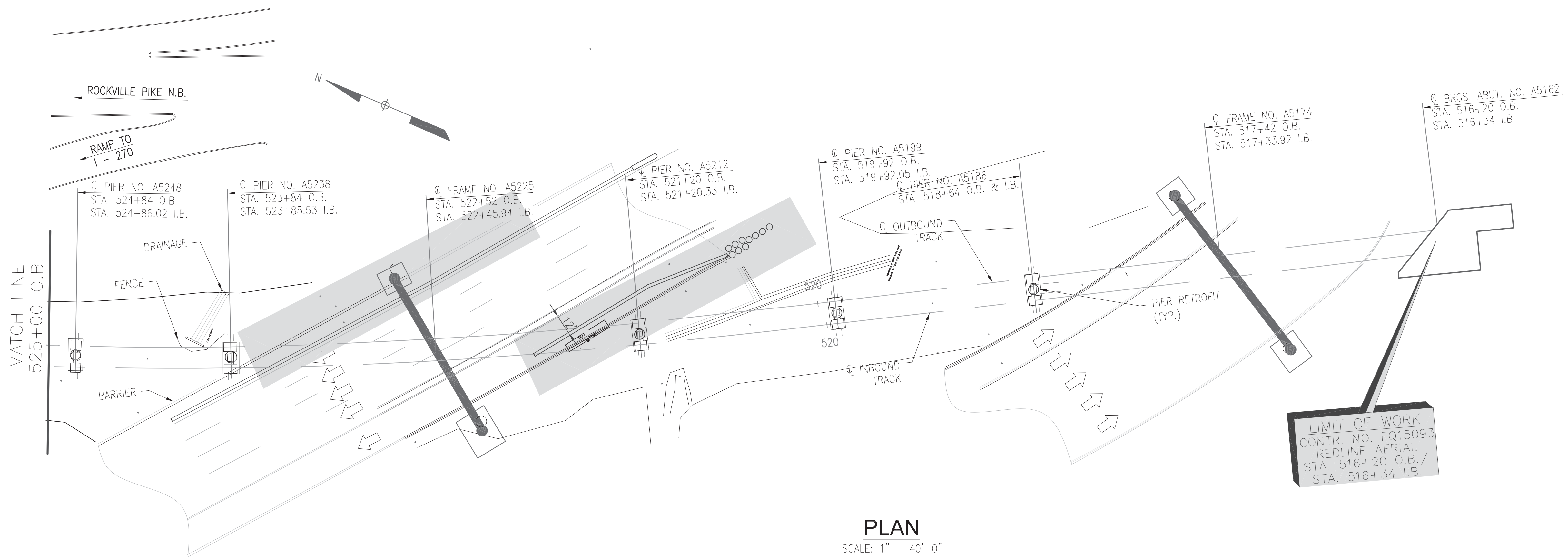
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

GFP A Gannett Fleming/Parsons JOINT VENTURE
Brad Mason, P.E.
SUBMITTED PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 3
MAINTENANCE OF TRAFFIC PLAN - 2

SCALE AS SHOWN DRAWING NO. A13-C-105 M1272-116

LOCATION OF ANY UNDERGROUND AND SURFACE UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS. CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-777, 48 HOURS PRIOR TO EXCAVATION FOR MARKING AND LOCATION OF UTILITIES. CONTRACTOR SHALL FIELD VERIFY ALL TYPES, SIZES AND LOCATIONS PRIOR TO BEGINNING ANY WORK.



PLAN
SCALE: 1" = 40'-0"

SEQUENCE OF MAINTENANCE OF TRAFFIC
SEE A13-C-103 - 1 FOR SEQUENCE OF MAINTENANCE OF TRAFFIC

GENERAL NOTES
SEE A13-C-001 FOR CIVIL GENERAL NOTES

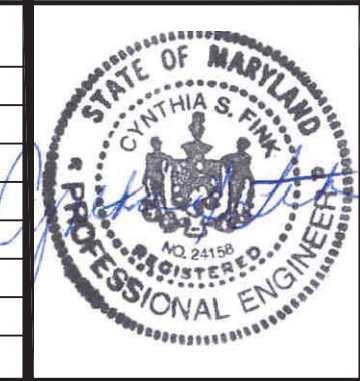
LEGEND

- WORK ZONE
- DRUMS/CHANNELIZING DEVICES
- DOUBLE FACED CONCRETE BARRIER (PEAK/NONPEAK)
- TEMPORARY TYPE E TRAFFIC BARRIER END TREATMENT (40MPH 3 BAYS, 50MPH 4 BAYS, 70 MPH 9 BAYS, ALL 2 FEET WIDE)
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FINAL CONTRACT NO. FQ15093

	DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS		
			NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
DESIGNED	CSF	2-08-14					
		DATE					
DRAWN	CSF	2-08-14					
		DATE					
CHECKED	GM	2-8-14					
		DATE					
APPROVED	GM	04-24-14					
		DATE					



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
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GFP A Gannett Fleming/Parsons JOINT VENTURE
Brad Mason, P.E.

APPROVED _____ SUBMITTED _____
PROJECT MANAGER

RED LINE REHAB.-FRIENDSHIP HEIGHTS TO GROSVENOR - PART 3

MAINTENANCE OF TRAFFIC PLAN - 3

SCALE AS SHOWN DRAWING NO. A13-C-106 M1272-117

STRUCTURAL GENERAL NOTES

- REPAIR/RETROFIT THE EXISTING WMATA BRIDGE STRUCTURES AS SHOWN ON THE DRAWINGS. FOR DESCRIPTION OF WORK, APPLICABLE REFERENCES, REQUIRED SUBMITTALS, QUALITY ASSURANCE, MATERIALS, EXECUTION, SEE PROJECT SPECIFICATIONS IN ADDITION TO THESE NOTES.
- FOR DETAILS OF EXISTING STRUCTURE, SEE REFERENCE DRAWINGS; WMATA, SECTION A013, ROCKVILLE ROUTE, JANUARY 1976 APPROVED FOR CONSTRUCTION DECEMBER 23, 1975.
- ALL APPLICABLE DIMENSIONS, LOCATIONS, CLEARANCES AND ELEVATIONS OF EXISTING STRUCTURES SHOWN ON THE DRAWINGS AND IN THE REFERENCE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO PREPARATION OF SHOP DRAWINGS AND COMMENCEMENT OF ANY WORK. IF DISCREPANCIES ARE DISCOVERED BETWEEN EXISTING CONDITIONS AND THE CONTRACT WORK, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE A.R.
- THE CONTRACTOR SHALL PROVIDE MAINTENANCE OF TRAFFIC PLANS FOR MAINTENANCE OF TRAFFIC IN ADDITION TO OR MODIFIED FROM THE MAINTENANCE OF TRAFFIC PLANS INCLUDED IN THE CONTRACT DOCUMENTS FOR APPROVAL BY THE A.R. AND MD SHA. ADDITIONAL M.O.T. MAY BE NECESSARY IF PT TENDON STRESSING IS DONE USING FOUR MULTI-STRAND JACKS SIMULTANEOUSLY.
- THE CONTRACTOR SHALL OBTAIN THE NECESSARY PERMITS AND COORDINATE WITH THE STATE OF MARYLAND IN ORDER TO GAIN ACCESS TO ADJACENT PROPERTIES & ROADWAYS TO EXECUTE THE WORK UNDER THIS CONTRACT.
- ALL WORK WITHIN WMATA TRAIN PASSAGES INCLUDING DECK JOINT SEAL REPLACEMENT, BEARING REPLACEMENT, RETROFIT GROUT PAD PLACEMENT, AND EXISTING GROUT PAD REPAIR PLACEMENT SHALL BE PERFORMED DURING NON-REVENUE HOURS OR DURING A WEEKEND SHUTDOWN AS DIRECTED BY THE A.R. AT THE END OF EACH SHIFT, ALL EQUIPMENT MUST BE REMOVED FROM TRAIN PASSAGES. SEE CONTRACT SPECIFICATIONS FOR WORKING HOURS. RESTRICTIONS FOR GROUT AND CONCRETE PLACEMENT ARE LISTED IN THE SUPPLEMENTAL NOTES.
- THE CONTRACTOR SHALL KEEP DEBRIS FROM FALLING ON PARKING AREAS, ROADS, TRACKS AND PEDESTRIAN WALKWAYS BY PROVIDING A DEBRIS CONTAINMENT SYSTEM. CONTRACTOR IS PROHIBITED FROM DISCHARGING INTO WMATA TRACK DRAINS, MUNICIPAL DRAINAGE SYSTEMS AND WATERWAYS. ALL DEBRIS AND WATER SHALL BE CONTAINED.
- THE CONTRACTOR SHALL SUBMIT A COPY OF ALL PERMITS TO THE A.R. PRIOR TO START OF WORK.
- THE CONTRACTOR SHALL MAINTAIN AND MONITOR EXISTING UTILITIES DURING THE EXECUTION OF WORK.
- THE CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING IN THE VICINITY OF EXISTING CONDUITS.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL IN ACCORDANCE WITH THE SPECIFICATIONS.
- UPON COMPLETION OF WORK, CONTRACTOR SHALL RESTORE SITE TO THE CONDITION THAT EXISTING PRIOR TO THE START OF THE CONTRACT.
- IN AREAS WHERE IT IS NECESSARY THAT THE EXISTING GROUNDING CONDUCTOR BE REMOVED FOR THE REPAIR/RETROFIT WORK, THE CONTRACTOR SHALL REINSTALL THE GROUNDING CONDUCTOR.
- FALSEWORK SHORING SHALL BE DESIGNED IN ACCORDANCE WITH THE AASHTO "GUIDE SPECIFICATIONS FOR BRIDGE TEMPORARY WORKS," 1995.
- FALSEWORK SHALL NOT BE ATTACHED TO THE EXISTING PIER COLUMNS UNLESS APPROVED BY THE A.R.
- ALL DIMENSIONS SHOWN ON THE PLANS ARE MEASURED HORIZONTALLY OR VERTICALLY UNLESS OTHERWISE NOTED. DIMENSIONS SHALL NOT BE MEASURED FROM THE PLANS.
- VERIFY ALL DIMENSIONS AND GEOMETRY OF EXISTING STRUCTURES AND CURB LINES IN THE FIELD AS NECESSARY FOR PROPER FIT OF THE PROPOSED CONSTRUCTION.
- A MOCK-UP IS REQUIRED FOR GROUTING TENDONS - SEE PROJECT SPECIFICATIONS.
- COORDINATE DE-ENERGIZING, TEMPORARY SIGNALING AND RE-ENERGIZING OF THE TRAFFIC SIGNAL AT GROSVENOR AVENUE WITH MD SHA.

- A. SPECIFICATIONS
- CONSTRUCTION: WMATA MANUAL OF DESIGN CRITERIA FOR MAINTAINING & CONTINUED OPERATION OF FACILITIES & SYSTEMS, MAY 2008.
 - DESIGN: AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES," 17TH EDITION, 2002.
- B. LOADINGS
- ALL LOADINGS SHALL BE IN ACCORDANCE WITH WMATA MANUAL OF DESIGN CRITERIA FOR MAINTAINING & CONTINUED OPERATION OF FACILITIES & SYSTEMS, MAY 2008.
- C. MATERIALS
- CONCRETE (MIN. 28-DAY STRENGTHS):
 CONCRETE GROUT f'c = 7,500 psi
 CAST IN PLACE PIER CAP-SCC, RETROFIT AND CLOSURE POUR, RETROFIT TYPES 1-4 f'c = 5,000 psi
 CAST IN PLACE PIER CAP-SCC, RETROFIT AND CLOSURE POUR, RETROFIT TYPE 5
 • WITH > 2% LOCAL POST-TENSIONING ZONE REINFORCEMENT PROVIDED f'c = 5,000 psi
 • WITHOUT > 2% LOCAL POST-TENSIONING ZONE REINFORCEMENT PROVIDED f'c = 6,000 psi
 - ALL EXPOSED CORNERS SHALL BE CHAMFERED $\frac{3}{4}$ ", UNLESS SHOWN OTHERWISE.
 - CONSTRUCTION JOINTS SHALL BE MADE WHERE SHOWN IN THE PLANS. ADDITIONAL JOINTS SHALL BE MADE ONLY WITH THE APPROVAL OF THE A.R.
 - REINFORCING STEEL: ALL REINFORCING STEEL SHALL BE GRADE 60, EPOXY COATED.
 - ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER FOR PRIMARY REINFORCEMENT AND 1 $\frac{1}{2}$ " FOR STIRRUPS, UNLESS OTHERWISE NOTED.
 - ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS, ALL PLACEMENT DIMENSIONS SHALL BE TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
 - FIELD ADJUSTMENTS OF REINFORCING STEEL SHALL BE MADE ONLY WITH APPROVAL OF THE A.R. CUT BARS MUST HAVE ACCOMPANYING BARS OF THE SAME SIZE WITH APPROPRIATE LAP ACROSS THE CUT LOCATION. THE SHOP DRAWINGS SHALL INCLUDE ADDITIONS OR REARRANGEMENT OF REINFORCING STEEL FROM THAT SHOWN ON THE PLANS.
 - BAR LAPS, HOOKS AND BENDS SHALL HAVE A MINIMUM LENGTH IN ACCORDANCE WITH AASHTO, OR AS SHOWN ON THE PLANS.
 - FABRICATED STRUCTURAL STEEL SHALL BE AASHTO M270, GRADE 50, UNLESS NOTED OTHERWISE. ALL FABRICATED STRUCTURAL STEEL AND HARDWARE SHALL BE GALVANIZED.
 - A325 BOLTS OF EQUAL DIAMETER AND PROJECTION MAY BE SUBSTITUTED FOR WELDED SHEAR STUDS. WHEN SUBSTITUTING A325 BOLTS FOR WELDED SHEAR STUDS, PROVIDE A DETAIL FOR APPROVAL BY THE A.R.
 - DECK JOINT SEAL SHALL BE A FOAM JOINT SEAL WITH 100% SILICONE JOINT SEALER OR APPROVED EQUAL. CONTRACTOR SHALL REMOVE EXISTING SEALANT/JOINT FILLER AND CLEAN JOINT SURFACE BEFORE INSTALLING JOINT SEAL.
- D. POST-TENSIONING CONCRETE
- PRE-STRESSING STEEL SHALL BE 0.6" DIAMETER 7-WIRE STRAND STRESS-RELIEVED LOW-RELAXATION CONFORMING TO ASTM A416, GRADE 270.
 - ANCHORAGES AND MISCELLANEOUS HARDWARE SHALL MEET POST-TENSIONING INSTITUTE (PTI) SPECIFICATIONS AND BE APPROVED BY THE A.R.
 - SHEATHING SHALL BE OF SUFFICIENT STRENGTH AND DURABILITY TO RESIST DAMAGE DURING NORMAL FABRICATION, TRANSPORTATION, INSTALLATION AND CONCRETE PLACEMENT OPERATIONS.

- THE TENDON STRESSING OPERATION SHALL BE SUPERVISED BY A POST-TENSIONING INSTITUTE (PTI) CERTIFIED INSTALLER EXPERIENCED IN WORK BEING DESIGNATED.
 - TENDONS SHALL BE LOCATED IN THEIR DESIGNATED POSITIONS AS SHOWN ON THE APPROVED INSTALLATION DRAWINGS. PLACEMENT TOLERANCE SHALL MEET STIPULATIONS STATED IN PROJECT SPECIFICATIONS. ALL DIMENSIONS SHOWING THE LOCATIONS OF POST-TENSIONING TENDONS ARE TO THE CENTER OF GRAVITY OF THE TENDON.
 - P-JACK FORCE IN KIPS PER TENDON IS REQUIRED AT JACKING ENDS. (SEE TABLE 1) INITIAL STRESS AT DEAD END IS BASED ON P-JACK SPECIFIED AT THE JACKING END WHICH INCLUDES FRICTION LOSSES. $A_s = P\text{-JACK}/0.70 f'_s$ (TOTAL NUMBER OF POST-TENSIONING STRANDS REQUIRED) SHALL BE DETERMINED ON THE BASIS OF $f'_s = 270$ KSI AND A STRAND AREA OF 0.217 IN². TENDONS SHALL BE JACKED TO 0.70 f'_s (PLUS ADDITIONAL AMOUNT NOT TO EXCEED 80% OF f'_s TO ACCOUNT FOR SEATING LOSSES; AND THE ADDITIONAL NUMBER OF STRANDS (Y) IF REQUIRED PER NOTES ON SHEET A13-S-103) AND ANCHORED AT AN EQUIVALENT ANCHOR SET < $\frac{3}{8}$ IN. DESIGN IS BASED ON $\mu = 0.25$; $K < 0.0002$ K/FT. TENDONS SHALL BE JACKED FROM ONE END OF EACH PIER CAP RETROFIT IF A SINGLE MULTI-STRAND JACK IS USED FOR PT TENDON STRESSING. IF PT TENDON STRESSING IS DONE USING FOUR MULTI-STRAND JACKS SIMULTANEOUSLY, TWO JACKS MAY BE PLACED AT EACH END OF EACH PIER CAP RETROFIT TO PROVIDE SUFFICIENT CLEARANCE BETWEEN JACKS.
 - CONCRETE FOR RETROFITS SHALL REACH THE MINIMUM 28-DAY COMPRESSIVE STRENGTH INDICATED AND THE CURING PERIOD AS DESCRIBED IN THE PROJECT SPECIFICATIONS SHALL BE COMPLETED PRIOR TO STRESSING OF TENDONS.
 - CONTINUOUS SPECIAL INSPECTIONS SHALL BE PROVIDED DURING THE PLACEMENT OF REINFORCEMENT STEEL AND POST-TENSIONING TENDONS FOR ALL STRUCTURAL CONCRETE. RECORDING OF FIELD-MEASURED ELONGATION AND JACKING FORCE FOR EACH TENDON SHALL BE SUBMITTED TO THE A.R.
 - CONTRACTOR SHALL SUBMIT DETAILS OF POST-TENSIONING SYSTEMS AS NOTED IN THE PROJECT SPECIFICATIONS FOR APPROVAL.
 - THE GENERAL ZONE ANCHORAGE REGION HAS BEEN DESIGNED ASSUMING TENDON LAYOUT AS SHOWN ON THE PROJECT PLANS USING 0.6" DIA. STRANDS. OTHER TENDON AND STRAND CONFIGURATIONS ARE ACCEPTABLE BUT MAY REQUIRE CHANGES TO THE GENERAL ZONE REINFORCING.
 - CONTRACTOR SUBMITTAL: CONTRACTOR SHALL SUBMIT ELONGATION AND JACKING CALCULATIONS BASED ON $\mu_a + KL =$ AND INITIAL STRESS AT THE DEAD END PER TABLE 1 ON SHEET A13-S-103.
 - LOCAL ZONE REINFORCING AND ANCHORAGE DEVICES: CONTRACTOR'S RESPONSIBILITY - SEE SPECIFICATIONS. DESIGN IN ACCORDANCE WITH SECTION 9.21.7 OF AASHTO STANDARD SPECIFICATIONS.
 - AFTER JACKING IS COMPLETE AND ANCHORAGES ARE ACCEPTABLE TO THE A.R., GROUT ALL TENDONS.
- E. BEARINGS
- SEE SHEET A13-S-109 FOR GENERAL NOTES PERTAINING TO THE BEARING REPLACEMENT.

ABBREVIATIONS

ABUT.	ABUTMENT	N	NORTH
A.R.	AUTHORITY REPRESENTATIVE	N/A	NOT APPLICABLE
BRG./BRGS.	BEARINGS	NO.	NUMBER
BOT.	BOTTOM	N.T.S.	NOT TO SCALE
℄	CENTER LINE	O.B.	OUTBOUND
CL.	CLEARANCE	OH	OVERHEAD
CLR	CLEAR	OPNG	OPENING
COL./COLS.	COLUMN/COLUMNS	PL	PLATE
CONC.	CONCRETE	PT.	POINT
CONST.	CONSTRUCTION	P.V.I.	POINT OF VERTICAL INTERSECTION
COTR	CONTRACTING OFFICER TECHNICAL REPRESENTATIVE	R.	RADIUS
CY	CUBIC YARD	S.	SOUTH
DIA.	DIAMETER	S.F.	SQUARE FEET
DIAPH.	DIAPHRAGM	SPA.	SPACING
DWG.	DRAWING	STA.	STATION
E	EXPANSION	STIFF.	STIFFENER
EXP.	EXPANSION	TYP.	TYPICAL
E.B.	EASTBOUND	VERT.	VERTICAL
E.F.	EACH FACE	U.O.N.	UNLESS OTHERWISE NOTED
EL	ELEVATION	W.B.	WESTBOUND
E.S.	EACH SIDE	LF	LINEAR FEET
EXIST.	EXISTING	LS	LUMP SUM
F	FIXED	MAT'L	MATERIAL
F.S.	FAR SIDE	MAX.	MAXIMUM
GALV.	GALVANIZED	MIN.	MINIMUM
I.B.	INBOUND	M.O.T.	MAINTENANCE OF TRAFFIC
JT	JOINT		

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24077, EXPIRATION DATE 02-24-2015

CONTRACT NO.
FQ15093

NOVEMBER 14, 2014

REFERENCE DRAWINGS			REVISIONS		
DESIGNED	DATE	NUMBER	DATE	BY	DESCRIPTION
LMK	1-30-14				
CJP	1-30-14				
TGL	3-3-14				
TGL	4-10-14				



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM

APPROVED _____

GFP A Gannett Fleming/Parsons JOINT VENTURE

SUBMITTED BRAD MASON PROJECT MANAGER

**RED LINE REHABILITATION
GROSVENOR AERIAL STRUCTURE**

PIER CAP RETROFIT STRUCTURAL GENERAL NOTES

SCALE: NO SCALE

DRAWING NO. A13-S-001

M1272-118