

CORRECTIVE ACTION NUMBER 110

28 NON-FUNCTIONING DIRECTIONAL LIGHT K08-E-501 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 125

32 MISING RECEPTACLE COVER K08-E-506 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 125

29 MISSING RECEPTACLE COVER

K08-E-507 SCALE: N.T.S.

K08-E-508



CORRECTIVE ACTION NUMBER

33 PAINTED FLOOR ARROW DETAILS
K08-E-504 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 125

30 MISSING RECEPTACLE COVER K08-E-508 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 104

34 NON-FUNCTIONING EXIT FIXTURE

K08-E-501 SCALE: N.T.S.

K08-E-504



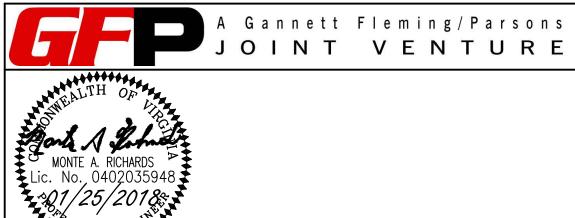
CORRECTIVE ACTION NUMBER

31 MISSING RECEPTACLE COVER K08-E-508 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 120

35 CORRODED CONDUIT K08-E-501 SCALE: N.T.S.



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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

APPROVED 01/25/2018

JOHN PURDY DATE

ENGINEERING MANAGER

IRPG - FIXED FACILITIES Monte A. Lichards

01/25/2018

DATE

APPROVED

APPROVED

MONTE A. RICHARDS, P.E.
ENGINEER OF RECORD

DATE

REHABILITATION OF WMATA PARKING FACILITIES

K08 - VIENNA NORTH PARKING GARAGE

ELECTRICAL

N.T.S.

FQ18064

DEFICIENCY PHOTOGRAPHS 
CORRECTIVE ACTIONS REQUIRED

M NO. CONTRACT NO. SCALE DRAWING NO. SHEET NO.

K08-E-513



CORRECTIVE ACTION NUMBER 117

36 MISSING WALL HEATER COVER K08-E-501 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 123

SCALE: N.T.S.

40 CORRODED CONDUIT SUPPORT



CORRECTIVE ACTION NUMBER 120

37 CORRODED CONDUIT K08-E-501 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 103

41 MISSING LIGHT FIXTURE K08-E-507 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 117

38 MISSING WALL HEATER COVER
K08-E-501 SCALE: N.T.S.



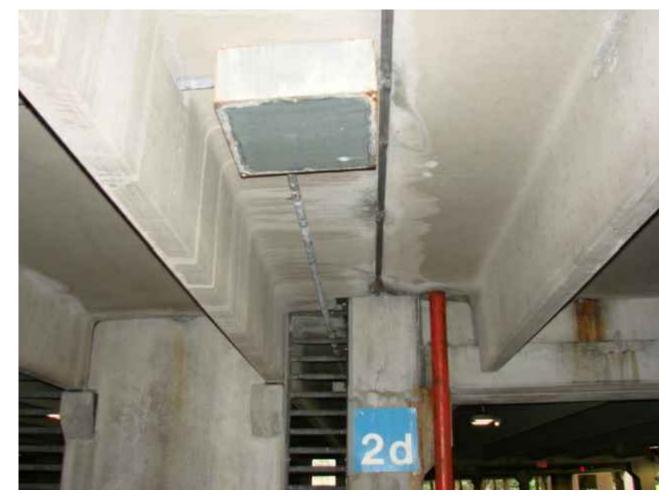
CORRECTIVE ACTION NUMBER 120, 123

42 CORRODED CONDUIT / CORRODED CONDUIT SUPPORT K08-E-502 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 123

39 CORRODED WIRE TROUGH K08-E-501 SCALE: N.T.S.



CORRECTIVE ACTION NUMBER 120, 123

43 CORRODED CONDUIT / CORRODED J-BOX K08-E-504 SCALE: N.T.S.

A Gannett Fleming/Parsons
JOINT VENTURE

MONTE A. RICHARDS
Lic. No. 0402035948

201/25/2018

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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF DESIGN AND CONSTRUCTION IRPG - FIXED FACILITIES

APPROVED 01/25/2018

JOHN PURDY DATE
ENGINEERING MANAGER

ACILITIES

APPROVED

MONTE A. RICHARDS, P.E.
ENGINEER OF RECORD

O1/25/2018

DATE

REHABILITATION OF WMATA PARKING FACILITIES

K08 - VIENNA NORTH PARKING GARAGE

ELECTRICAL

 DEFICIENCY PHOTOGRAPHS | CORRECTIVE ACTIONS REQUIRED

 M NO.
 CONTRACT NO.
 SCALE
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 SHEET NO.

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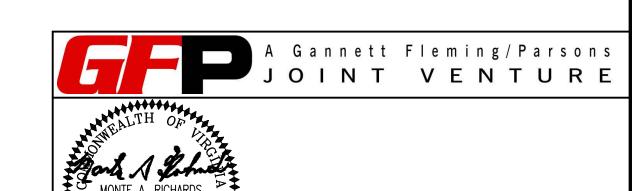
CORRECTIVE ACTION NUMBER 123

44 CORRODED CONDUIT SUPPORT



CORRECTIVE ACTION NUMBER 123

45 CORRODED CONDUIT SUPPORT AND J-BOX
-E-504 SCALE: N.T.S.



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			REFERENCE DRAWINGS			REVISIONS		
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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF DESIGN AND CONSTRUCTION
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APPROVED 01/25/2018

JOHN PURDY DATE
ENGINEERING MANAGER

ACILITIES

APPROVED

MONTE A. RICHARDS, P.E.
ENGINEER OF RECORD

A. Lichards

01/25/2018

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REHABILITATION OF WMATA PARKING FACILITIES K08 - VIENNA NORTH PARKING GARAGE ELECTRICAL

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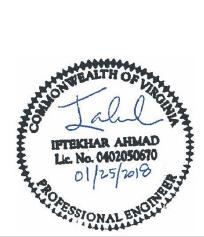
K08-E-515

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P-	-500	503 OF 503	TYPICAL PLUMBING REPAIR DETAILS





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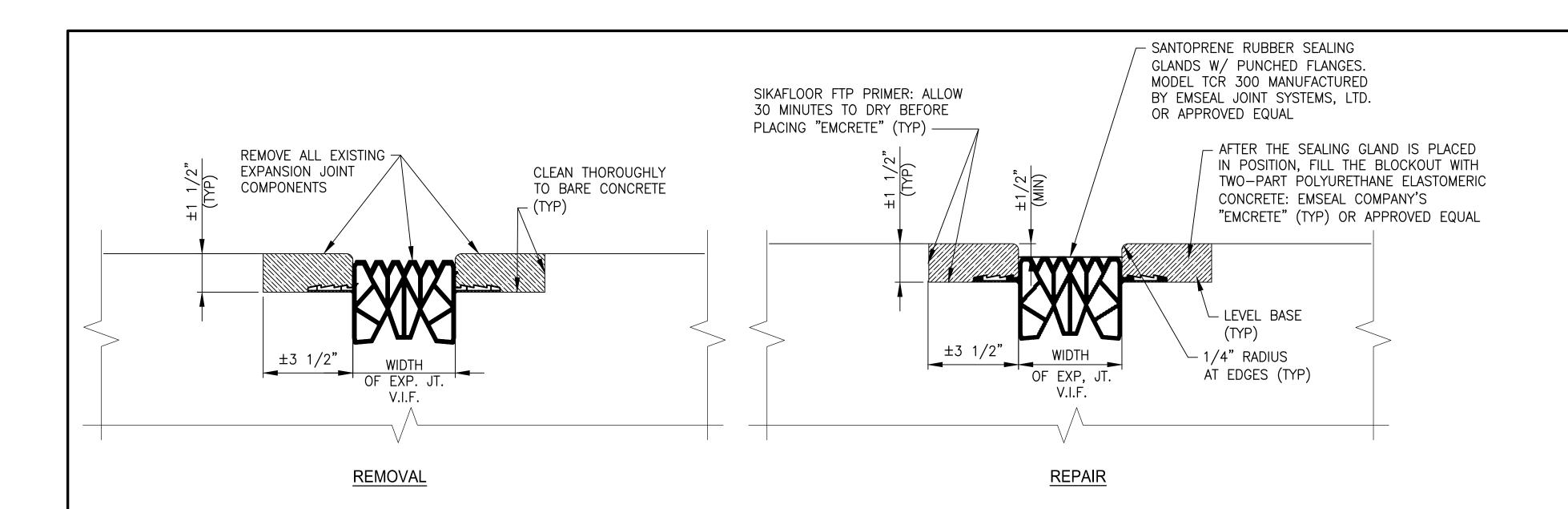
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- COMAR 09.23.03.10

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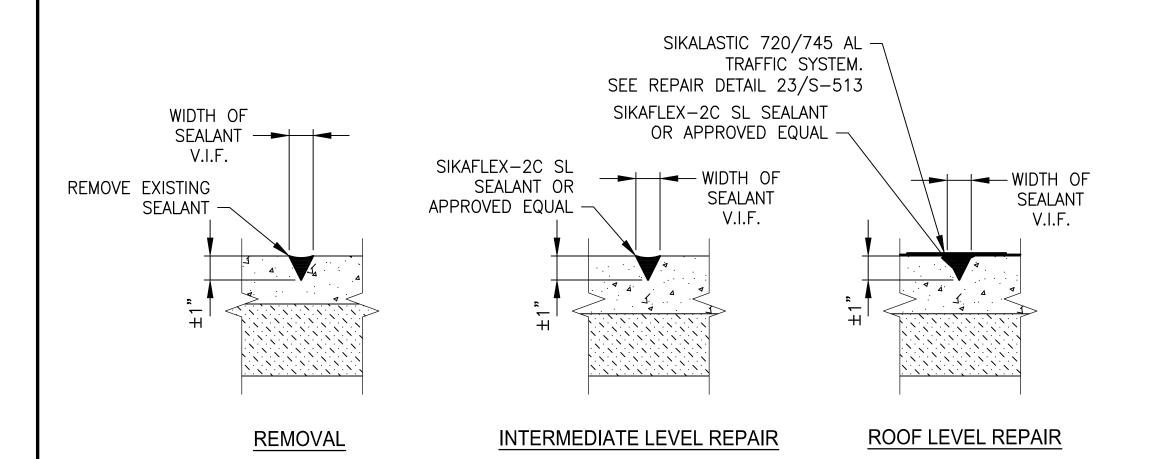
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY OFFICE OF DESIGN AND CONSTRUCTION

IRPG - FIXED FACILITIES					INDEX OF DRAWINGS				
APPROVED	01/25/2018	APPROVED	01/25/2018	M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.	
JOHN PURDY ENGINEERING MANAGER	DATE	IFTEKHAR AHMAD ENGINEER OF RECORD	DATE	M1301	FQ18064	NONE	G-002	483 of 503	



1 S-501 TYPICAL EXPANSION JOINT REPAIR DETAIL

NOT TO SCALE



2 S-501

TYPICAL SEALANT REPAIR DETAIL AT TOOLED JOINT

NOT TO SCALE



DETERIORATED EXPANSION JOINT



DETERIORATED SEALANT AT TOOLED 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."

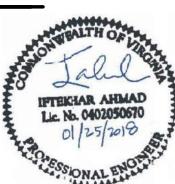
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 EXPIRATION DATE:
 06/17/2019



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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER
IRPG - FIXED FACILITIES

APPROVED 01/25/2018

JOHN PURDY DATE
ENGINEERING MANAGER

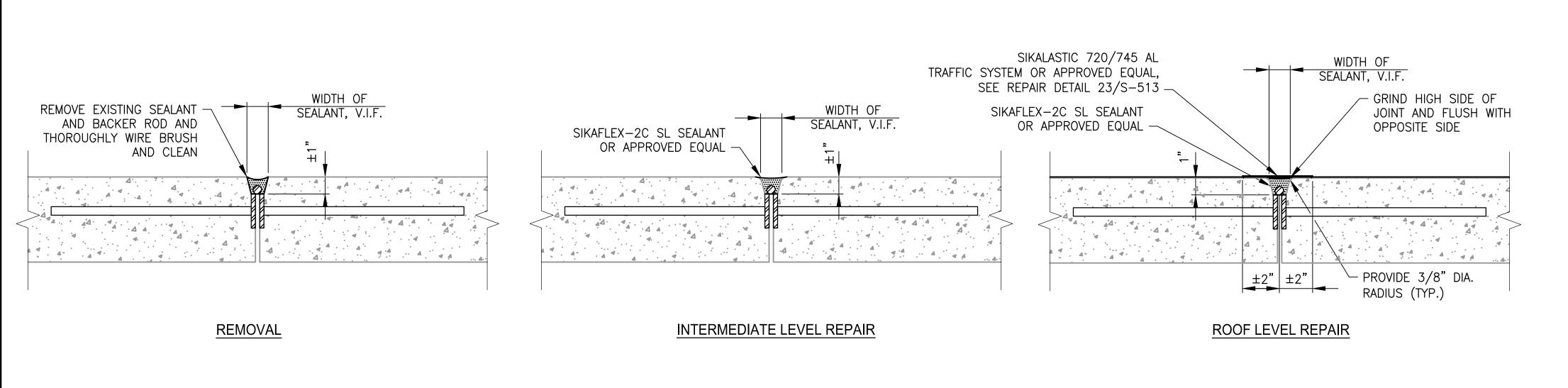
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IFTEKHAR AHMAD / DIPANKAR SENGUPTA
ENGINEER OF RECORD

# STANDARD STRUCTURAL REPAIR DETAILS

TYPICAL REPAIR DETAILS 1 OF 19

M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.			
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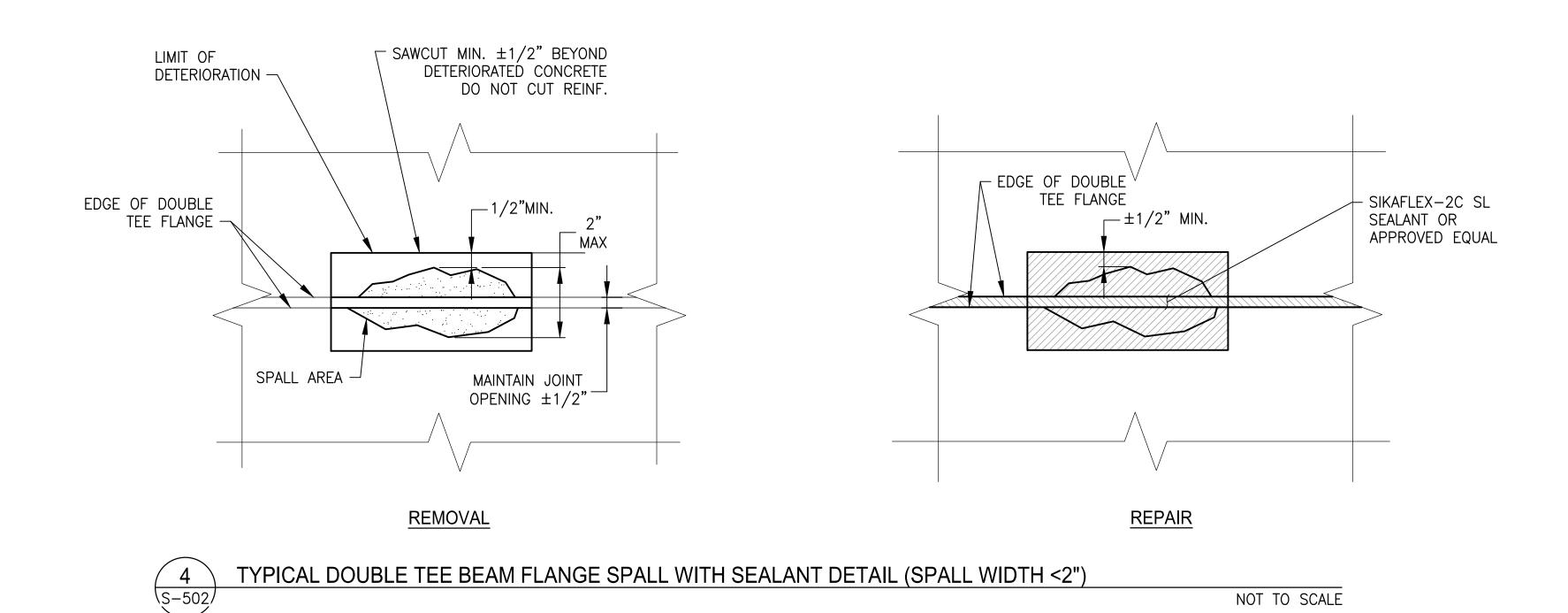


3 S-502

TYPICAL SEALANT REPAIR DETAIL AT DOUBLE TEE BEAM JOINT

NOT TO SCALE

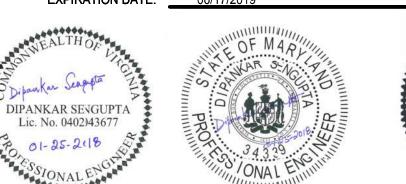






DOUELE TEE BEAM FLANCE SPALL WITH SEALANT

"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."







A Gannett Fleming/Parsors

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							ENGINEERING MANAGER

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER

IRPG - FIXED FACILITIES

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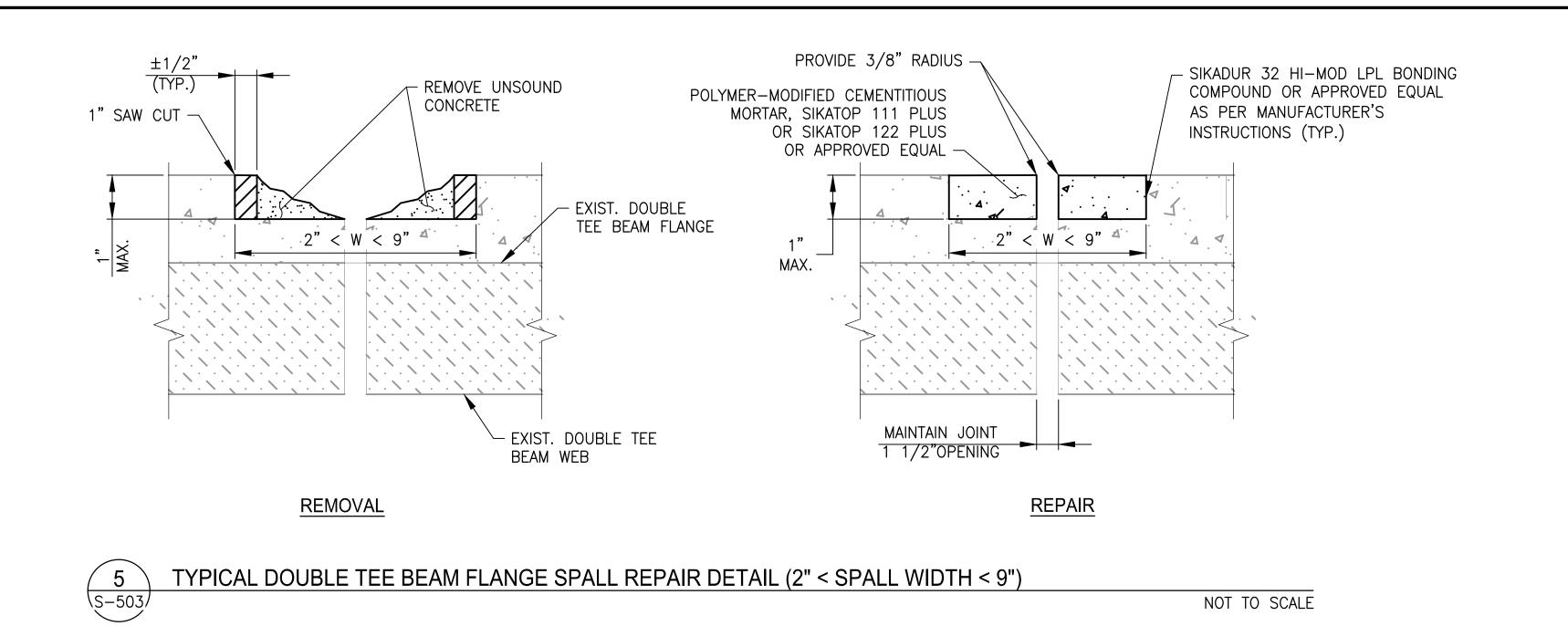
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ENGINEER OF RECORD

REHABILITATION OF PARKING GARAGES STANDARD STRUCTURAL REPAIR DETAILS

TYPICAL REPAIR DETAILS 2 OF 19

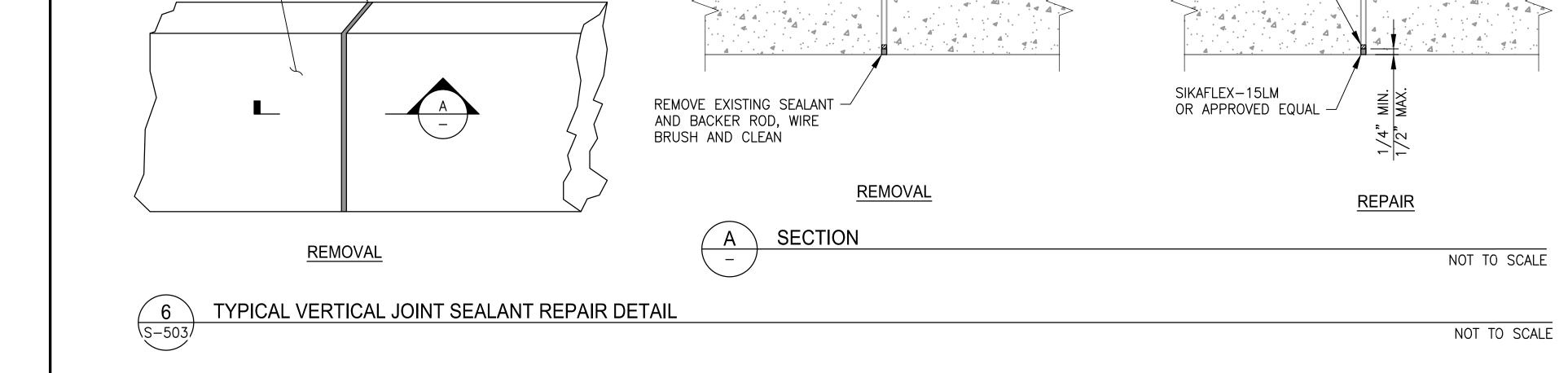
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DETERIORATED SEALANT AND SPALL AT DOUBLE TEE BEAM JOINT

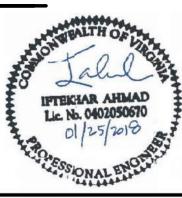
DETERIORATED YERTICAL JOINT SEA\_ANT



"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."







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			1					JOHN PURDY	

REMOVE ALL EXIST. COMPONENTS -

OF VERTICAL JOINT SEALANT

EXIST. CONCRETE WALL (TYP) -

TON METROPOLITAN AREA TRANSIT AUTHORITY FICE OF THE CHIEF OPERATING OFFICER

WIDTH OF JOINT

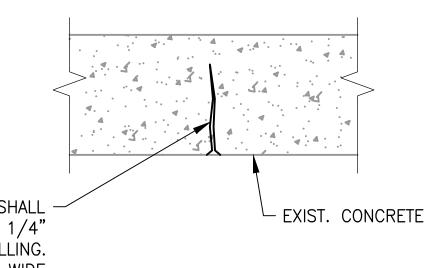
BACKER ROD -

IRPG - FIXED FACILITIES 01/25/2018 IFTEKHAR AHMAD / DIPANKAR SENGUPTA ENGINEER OF RECORD

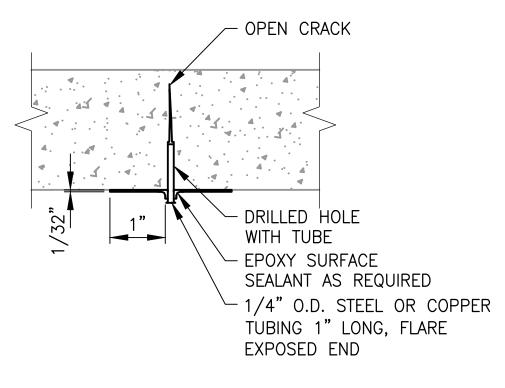
TYPICAL REPAIR DETAILS 3 OF 19

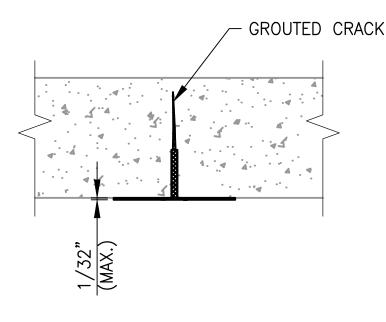
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STANDARD STRUCTURAL REPAIR DETAILS



CRACKS AS IDENTIFIED SHALL BE "VEED" OUT MIN. 1/4" DEEP PRIOR TO FILLING. VOIDS GREATER THAN 1/4" WIDE BY 1/4" DEEP SHALL BE PATCHED WITH EPOXY REPAIR MORTAR





#### STEP 2

DRILL HOLES FOR PORTS TO A WIDTH AND DEPTH SUFFICIENT TO ASSURE A SNUG FIT OF THE PORT. CLEAN OUT DEBRIS WITH HIGH PRESSURE AIR BLASTING. INSERT PORTS AND SEAL SURFACE OF CRACK WITH EPOXY SURFACE SEALANT. SEAL SHALL EXTEND ABOVE CONCRETE SURFACE A MINIMUM OF 1/16" AND EXTEND A MINIMUM OF 1" EITHER SIDE OF CRACK. ALLOW A MINIMUM OF 8 HOURS CURING TIME BEFORE INITIATING INJECTION

#### STEP 3

INJECT SIKADUR INJECTION JEL EPOXY PASTE. ALLOW MINIMUM OF 8 HOURS CURING TIME. REMOVE A MINIMUM AMOUNT OF EPOXY SURFACE SEALANT AND SEALER TO THE SATISFACTION OF THE AUTHORITY REPRESENTATIVE (AR).

- CUT OFF GROUT TUBE FLUSH WITH CONCRETE FACE.
- PATCH OVER GROUT TUBE.
- GRIND EPOXY SURFACE SEALANT SMOOTH TO ABOUT 1/32" OVER CRACK (UNIFORM THICKNESS) AND FEATHER EDGES INTO CONCRETE FACE.



TYPICAL UNDERSIDE CRACK REPAIR DETAIL

STEP 1

CLEAN SURFACE

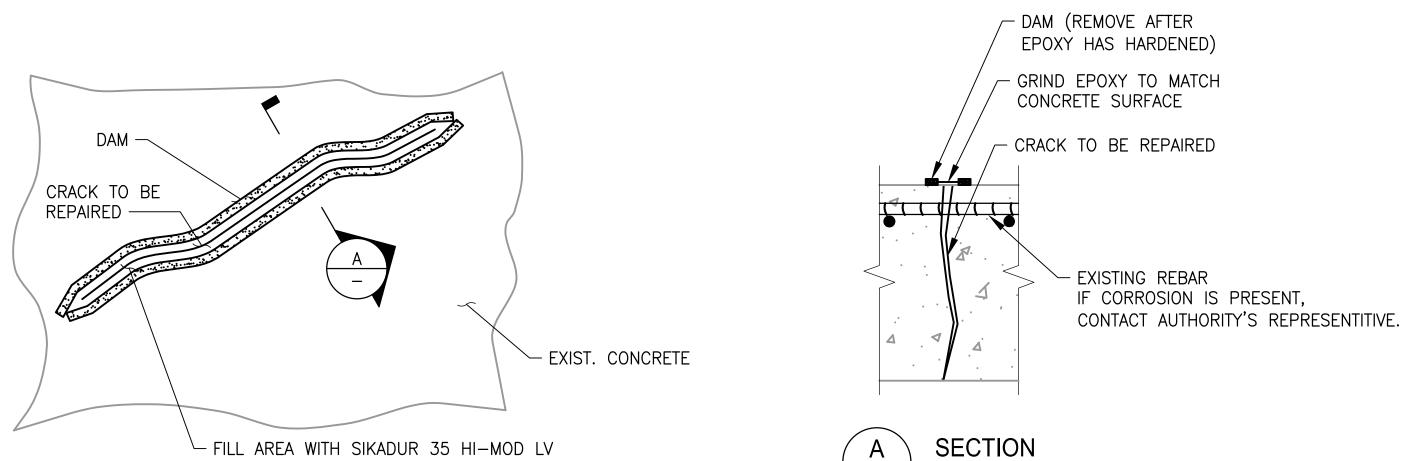
\* NOTE: FOR LONGITUDINAL CRACKS IN DOUBLE TEE FLANGE,

REPAIR DETAIL 36/S-517 SHALL BE PROVIDED.

CLEAN OUT CRACK WITH HAND TOOLS,

HIGH PRESSURE AIR BLAST AND VACUUM

NOT TO SCALE



### **CONCRETE CRACK REPAIR NOTES:**

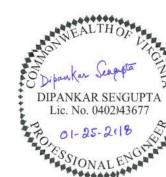
- 1. CRACKS LESS THAN 1/16" WIDE DO NOT REQUIRE REPAIR.
- 2. CLEAN CRACKS WIDER THAN 1/16" USING OIL-FREE COMPRESSED AIR OR WATER UNDER PRESSURE TO REMOVE ALL DIRT AND LOOSE MATERIAL WITHIN THE CRACKS.
- 3. CRACKS SHOWN ARE SCHEMATIC, THE ACTUAL LOCATIONS AND LIMITS OF DETERIORATION SHALL BE VERIFIED AND APPROVED BY THE ENGINEER.
- 4. CRACKS WHICH ARE ASSOCIATED WITH DELAMINATIONS SHALL BE REMOVED WITH THE DELAMINATED CONCRETE.

TYPICAL TOP SIDE CRACK REPAIR 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."

**EXPIRATION DATE:** 



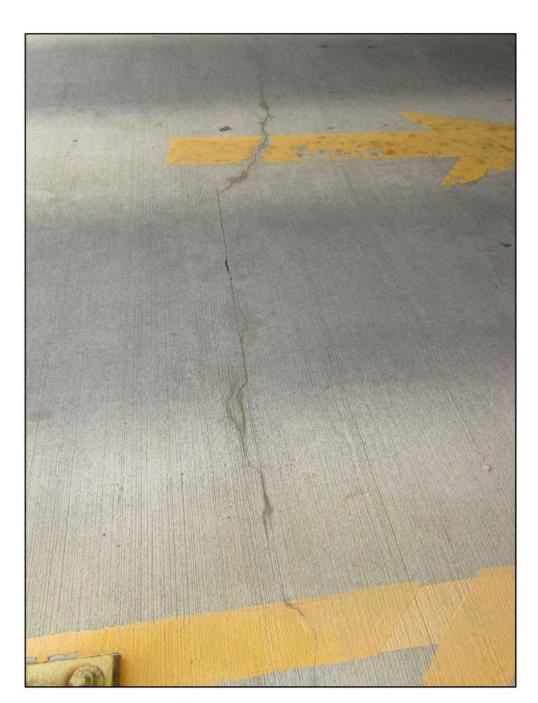








TYPICAL UNDERSIDE CRACK



TYFICAL TOP SIDE CRACK

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REFERENCE DRAWINGS REVISIONS DESCRIPTION DESIGNED M. PARK 01/25/2018 0 FINAL SUBMITTAL 01/2018 DATE CHECKED L. KATSMAN

OR APPROVED EQUAL AND ALLOW TO

SETTLE INTO CRACK

PLAN

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER

APPROVED 01/25/2018 JOHN PURDY

ENGINEERING MANAGER

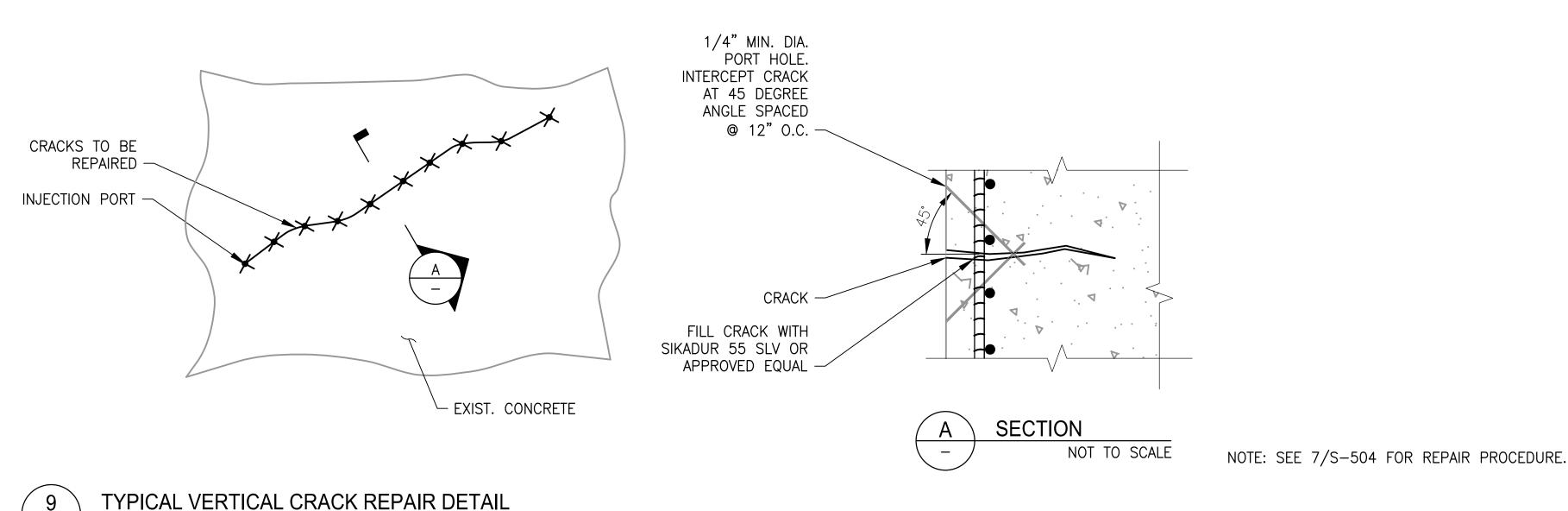
NOT TO SCALE

**IRPG - FIXED FACILITIES** IFTEKHAR AHMAD / DIPANKAR SENGUPTA ENGINEER OF RECORD

STANDARD STRUCTURAL REPAIR DETAILS

TYPICAL REPAIR DETAILS 4 OF 19

CONTRACT NO. SCALE DRAWING NO. SHEET NO. FQ18064 AS NOTED S-504 487 of 504



TYPICAL VERTICAL CRACK

NOT TO SCALE

EXIST. CONCRETE MEMBER -REPAIR DEPTH, MIN. 2" EMBED USE POTABLE WATER FOR CURING REPAIR WORK. -- 6 X 6 X W1.4 X W1.4 EPOXY COATED WWF WHEN REPAIR MORTAR IS PLACED IN MULTIPLE LIFTS, CONTRACTOR SHALL SCORE SURFACE OF MORTAR FOR COAT ALL ANCHORS W/ ADDITIONAL LIFTS AND APPLY A BONDING AGENT BEFORE BONDING AGENT APPLYING NEW LIFT, UNLESS OTHERWISE REQUIRED - 1/4" Ø HILTI GALV. KWIK BY MANUFACTURER'S REPAIR MATERIALS. -BOLT 3 EXPANSION ANCHOR ALL REPAIRED AREAS SHALL BE CURED BY USING PLASTIC @12" O.C. EA. WAY OR SHEETING TAPED ALL AROUND. SHEETING SHALL REMAIN IN APPROVED EQUAL (TYP) PLACE FOR A MINIMUM OF THREE DAYS. -- ROUGHEN EXIST. CONCRETE SURFACE REPAIR MORTAR SHALL BE POLYMER -MODIFIED CEMENTITIOUS SIKATOP 123 PLUS OR APPROVED EQUAL. EXTEND MORTAR WHEN REPAIR THICKNESS OF LIFT IS REMOVE CORROSION ON EXIST. REINFORCEMENT COMPLETELY WITH ONE-STEP RUST CONVERTER OR APPROVED EQUAL. GREATER THAN 3/4" PER MANUFACTURER REQUIREMENTS. CONCRETE COVER OF REINFORCEMENT - APPLY BONDING AGENT. SHALL NOT BE LESS THAN 1 INCH. -\* IF THE DEPTH OF SPALL REPAIR ≤ 1 1/4" SAWCUT EDGE FROM 1/2" MIN WITH NO REBAR EXPOSED, FOLLOW SIMILAR (NO FEATHERED EDGES ALLOWED) PROCEDURE STATED ABOVE. ONLY OMIT STEP TO REMOVE CORROSSION.

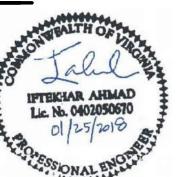
TYPICAL YERTICAL SPALL

"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."

EXPIRATION DATE:







A Gannett Fleming/Parsors
JOINT VENTURE

"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. FXPIRATIONDATE: 08/13/2)18 -COMAR 09.23.0310

	F	REFERENCE DRAWINGS			Metro	\Λ/Δ \	
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						JOHN PURD	

TYPICAL VERTICAL SPALL REPAIR DETAIL

S-505/

# SHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER

01/25/2018 DATE JOHN PURDY ENGINEERING MANAGER

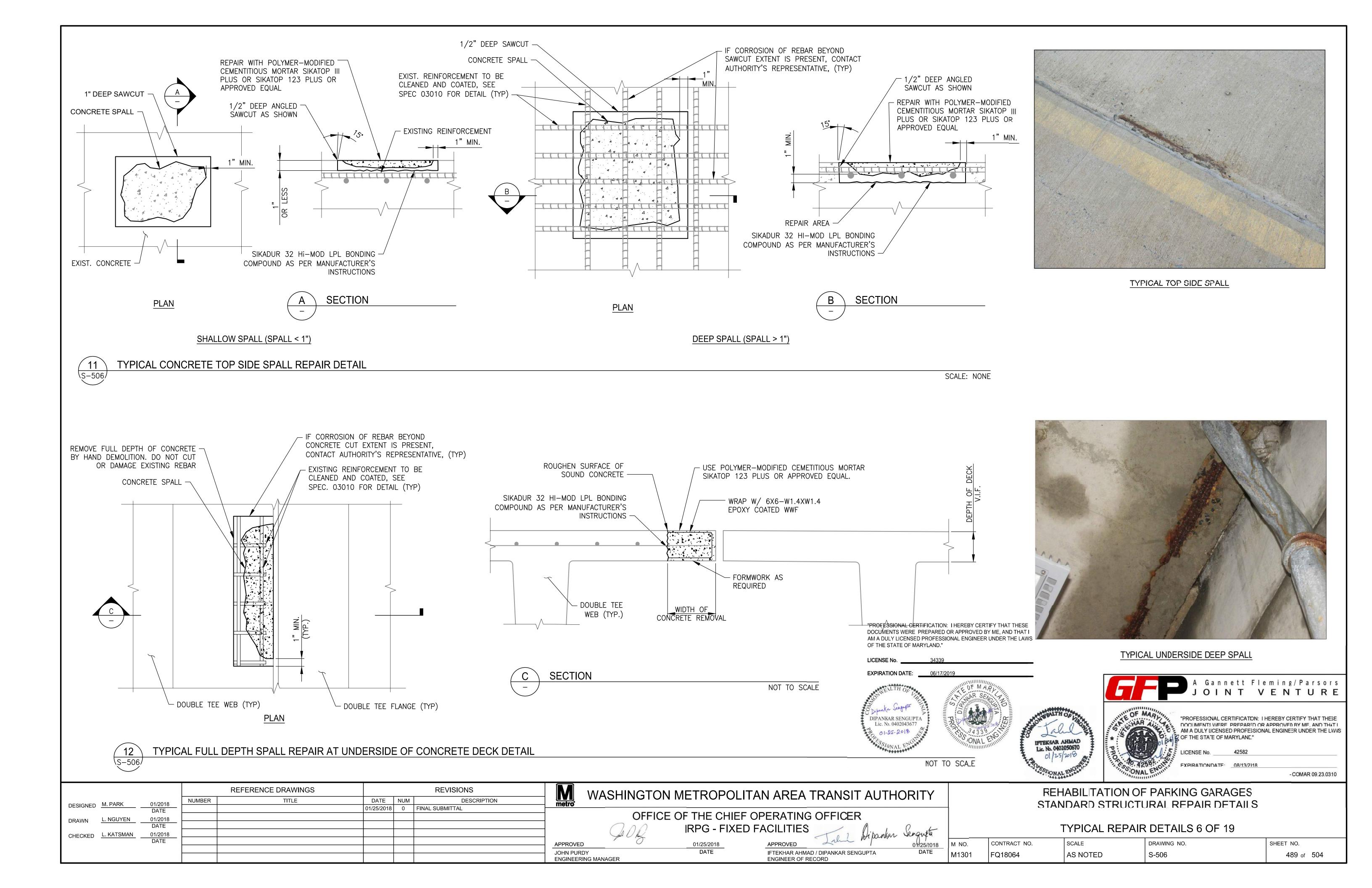
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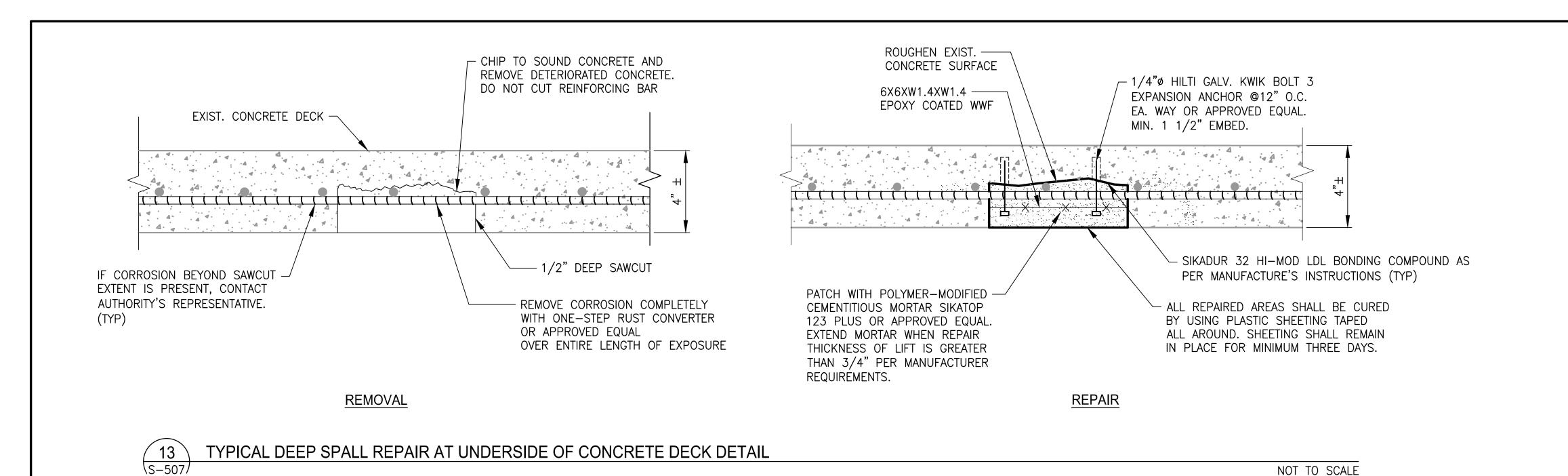
IRPG - FIXED FACILITIES IFTEKHAR AHMAD / DIPANKAR SENGUPTA ENGINEER OF RECORD

### REHABILITATION OF PARKING GARAGES STANDARD STRUCTURAL REPAIR DETAILS

### TYPICAL REPAIR DETAILS 5 OF 19

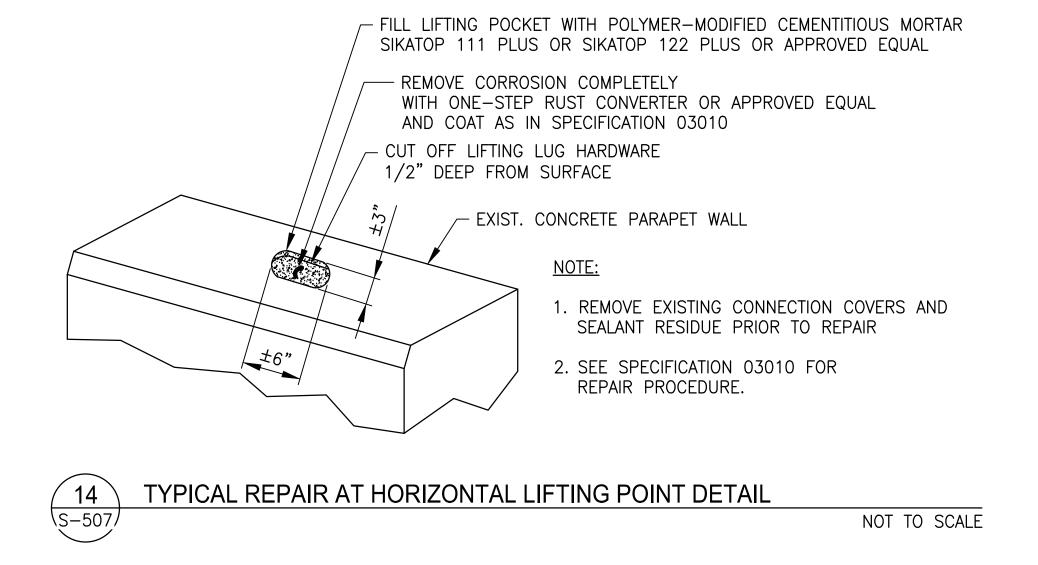
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M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.
M1301	FQ18064	AS NOTED	S-505	488 of 504







TYPICAL UNDERSIDE SHALLOW SPALL





CRACK AT HORIZONTAL LIFTING POINT

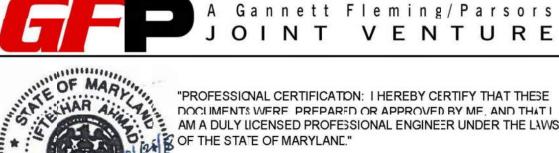
"PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND."

EXPIRATION DATE: 06/17/2019

DIPANKAR SENGUPTA
Lic. No. )402043677

DIPANKAR SENGUPTA
Lic. No. 0402030670





ESSIONAL ENOUGH	ONAL ENGINE	EXPIRATION DATE:	08/13/2)18	- COMAR 09.23.0310
REHABILITA	TION OF PARK	(ING GARA	GES	

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### WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER

IRPG - FIXED FACILITIES

APPROVED 01/25/2018

JOHN PURDY DATE
ENGINEERING MANAGER

APPROVED

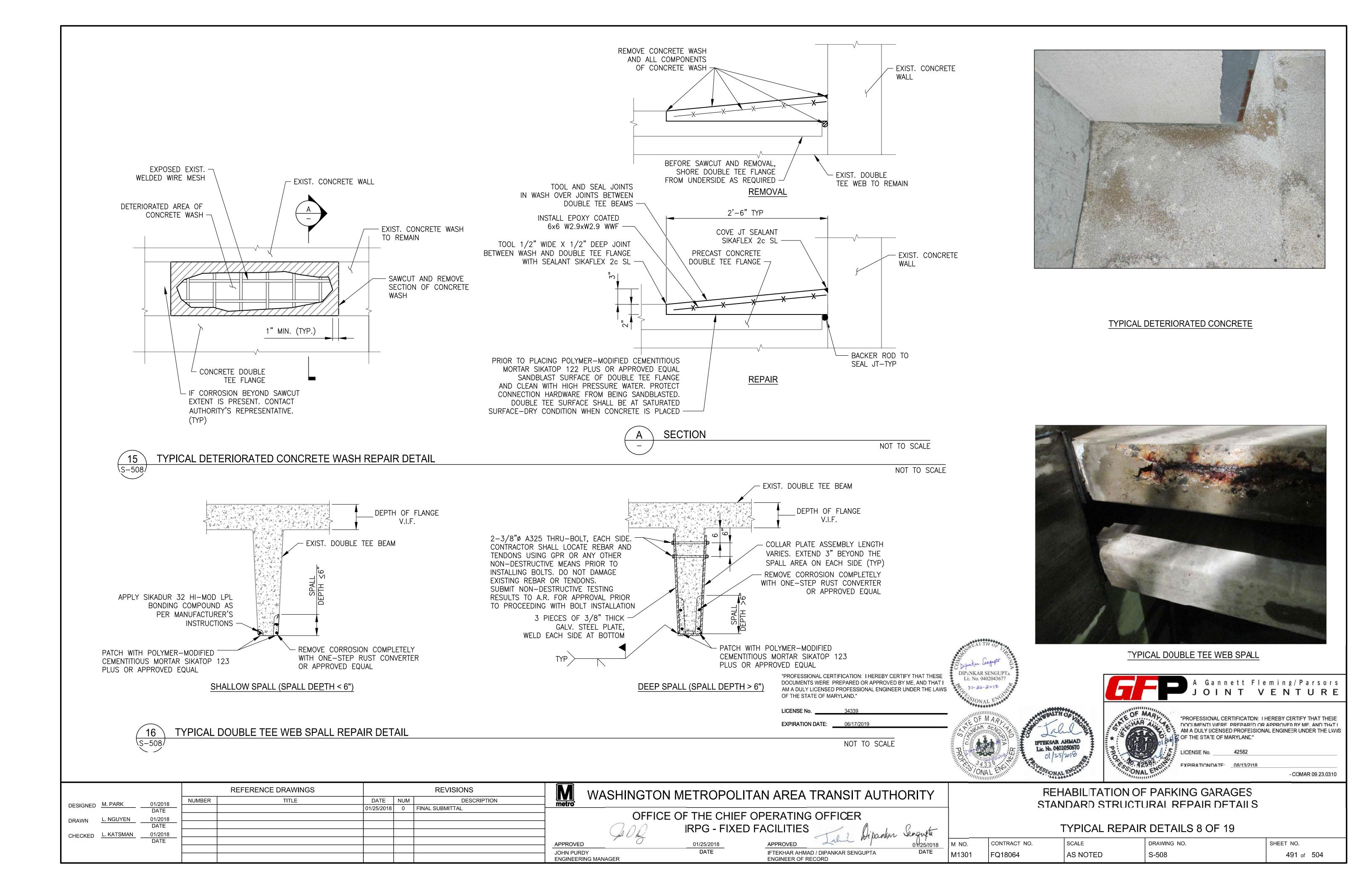
IFTEKHAR AHMAD / DIPANKAR SENGUPTA
ENGINEER OF RECORD

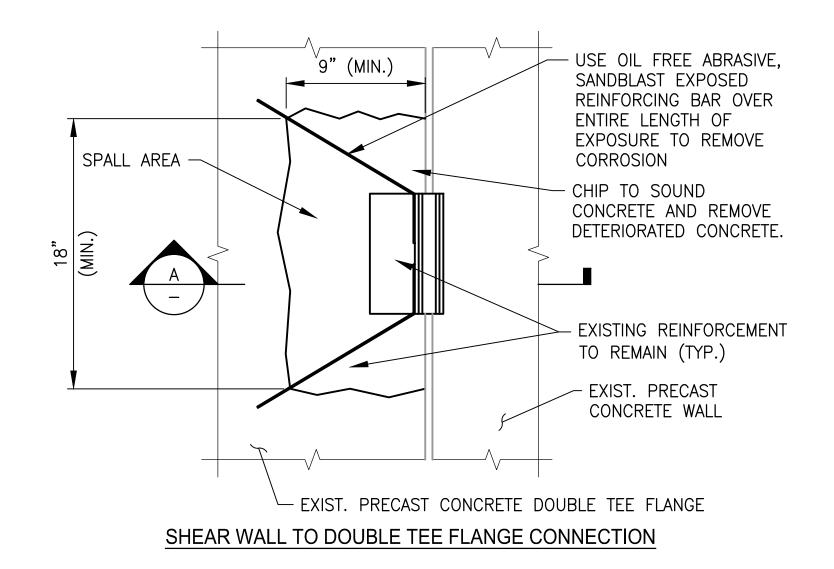
ENGINEER OF RECORD

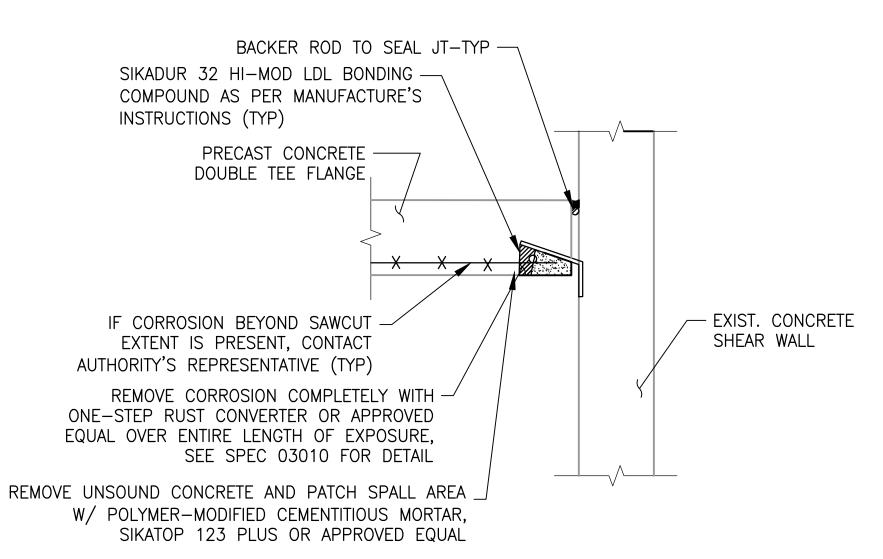
STANDARD STRUCTURAL REPAIR DETAILS

TYPICAL REPAIR DETAILS 7 OF 19

		I PICAL REPAIR	R DETAILS / OF 19	
M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.
M1301	FQ18064	AS NOTED	S-507	490 of 504

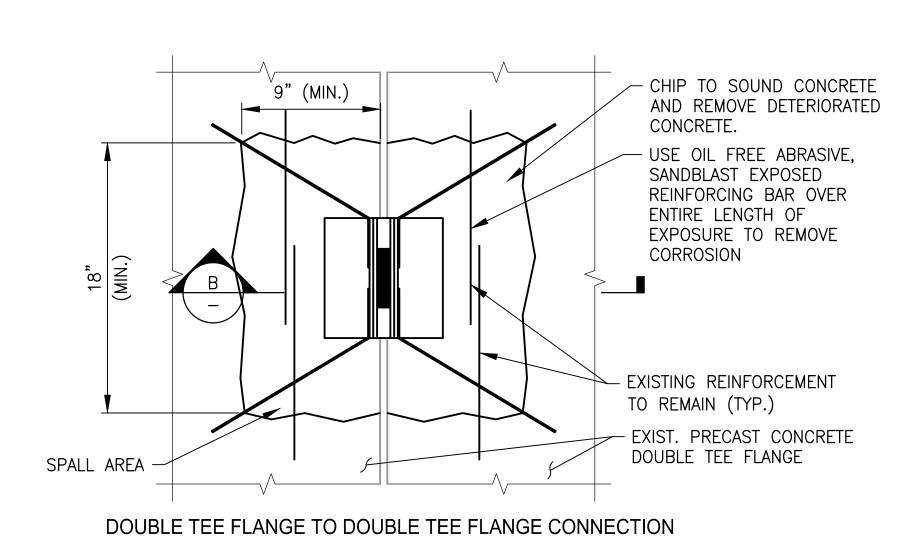


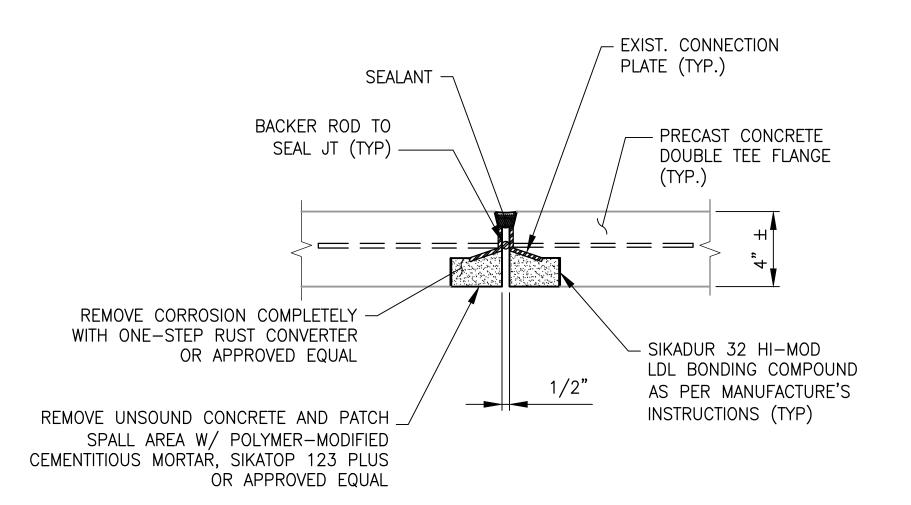




SECTION SCALE: NONE

NOTE: ANY EXPOSED STEEL TO BE CLEANED AND COATED WITH COLD SPRAY GALVANIZING.





SECTION NOT TO SCALE

NOTE: ANY EXPOSED STEEL TO BE CLEANED AND COATED WITH COLD SPRAY GALVANIZING.

"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."

**EXPIRATION DATE**: 06/17/2019



IFTEKHAR AHMAD Lic. No. 0402050670



TYPICAL DEFECT AT CONNECTION PLATE



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. EXPIRATION DATE: 08/13/2018 - COMAR 09.23.03.10

REFERENCE DRAWINGS REVISIONS DATE NUM DESCRIPTION NUMBER DESIGNED M. PARK 01/25/2018 0 FINAL SUBMITTAL 01/2018 DATE CHECKED L. KATSMAN

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER **IRPG - FIXED FACILITIES** 

APPROVED 01/25/2018 JOHN PURDY ENGINEERING MANAGER

a hipankar Sengusta 01/25/2018 IFTEKHAR AHMAD / DIPANKAR SENGUPTA ENGINEER OF RECORD

STANDARD STRUCTURAL REPAIR DETAILS

TYPICAL REPAIR DETAILS 9 OF 19

CONTRACT NO. SCALE DRAWING NO. SHEET NO. FQ18064 AS NOTED S-509 492 of 504

REHABILITATION OF PARKING GARAGES

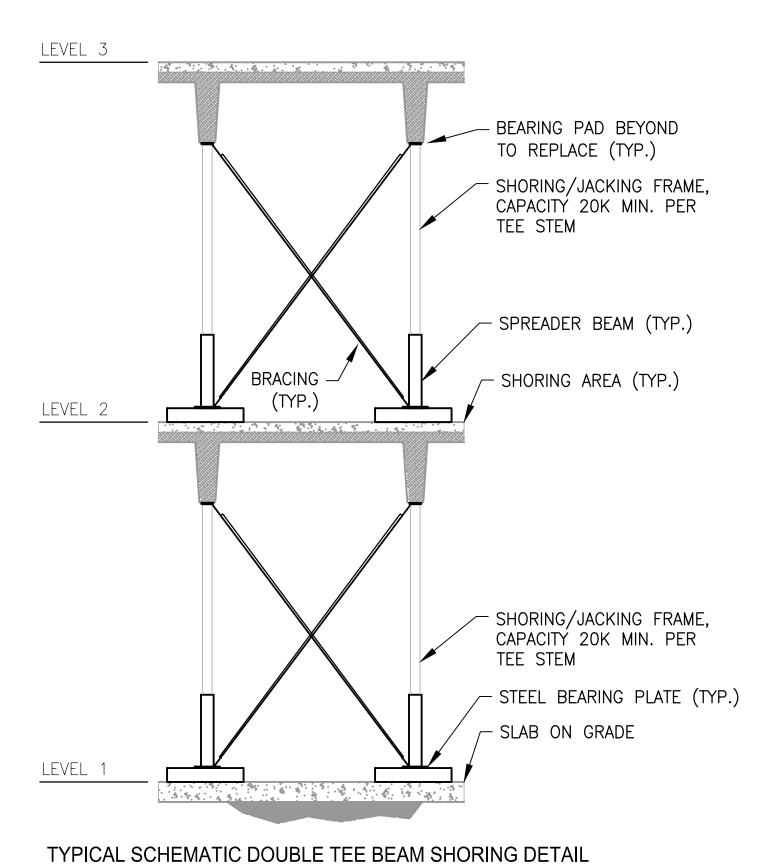
TYPICAL CONNECTION PLATE REPAIR DETAIL

(5-509)

NOT TO SCALE







#### **SHORIING NOTES:**

1. CONSTRUCTION LOADS:

ROOF 50 PSF FLOOR 50 PSF

- 2. SHORING REQUIRED FOR CONCRETE REPAIR AT CORBELS AND REPLACEMENT OF BEARING PADS.
- 3. SEE PROJECT SPECIFICATIONS FOR SHORING REMOVAL CRITERIA.
- 4. SHORING SHALL BE EXTENDED FROM LEVEL WHERE WORK IS TO BE PERFORMED, DOWN TO FOUNDATION LEVEL OR A MINIMUM OF THREE LEVEL BELOW.
- 5. CONTRACTOR SHALL SUBMIT A SHORING PLAN AND PROCEDURE FOR JACKING PRECAST DOUBLE TEES FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK.

  JACKING PROCEDURE SHALL INCLUDE THE EFFECTS OF JACKING ON ADJOINING PRECAST DOUBLE TEE BEAMS AND ON TOPPING.
- 6. CONTRACTOR SHALL DESIGN JACKING FRAME WITH A MINIMUM CAPACITY AS SHOWN ON
- 7. JACKING OF PRECAST DOUBLE TEE BEAMS AND REPLACEMENT OF BEARING PADS SHALL BE PERFORMED PRIOR TO PERFORMING DECK SURFACE REPAIRS.
- 8. THE CONTRACTOR SHALL FIELD VERIFY THE ALLOWABLE SOIL BEARING VALUE OR USE VALUES STATED IN AS-BUILT DRAWINGS.
- 9. CONTRACTOR SHALL EXERCISE CAUTION DURING SHORING TO PREVENT INSTABILITY DUE TO CROSS SLOPE OF PRECAST DOUBLE TEE BEAMS.



MISALIGNED DOUBLE TEE BEAM BERING PAD

18 S-510

TYPICAL SHORING DETAIL FOR DOUBLE TEE BEARING PAD REPLACEMENT

NOT TO SCALE

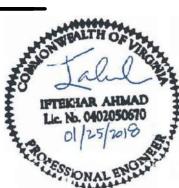
"PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND."

 LICENSE No.
 34339

 EXPIRATION DATE:
 06/17/2019









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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER
IRPG - FIXED FACILITIES

APPROVED 01/25/2018

JOHN PURDY DATE
ENGINEERING MANAGER

APPROVED

IFTEKHAR AHMAD / DIPANKAR SENGUPTA
ENGINEER OF RECORD

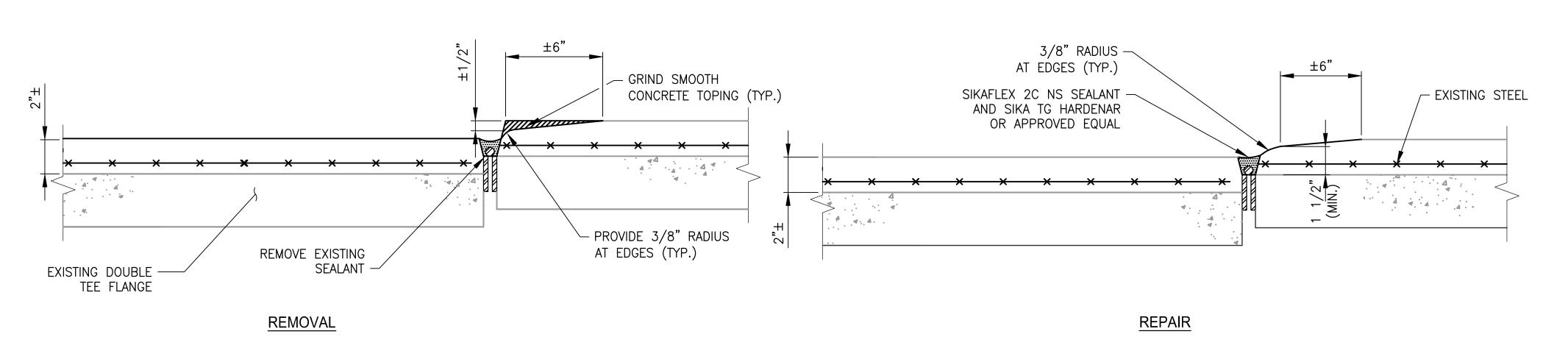
TYPICAL REPAIR DETAILS 10 OF 19

REHABILITATION OF PARKING GARAGES

STANDARD STRUCTURAL REPAIR DETAILS

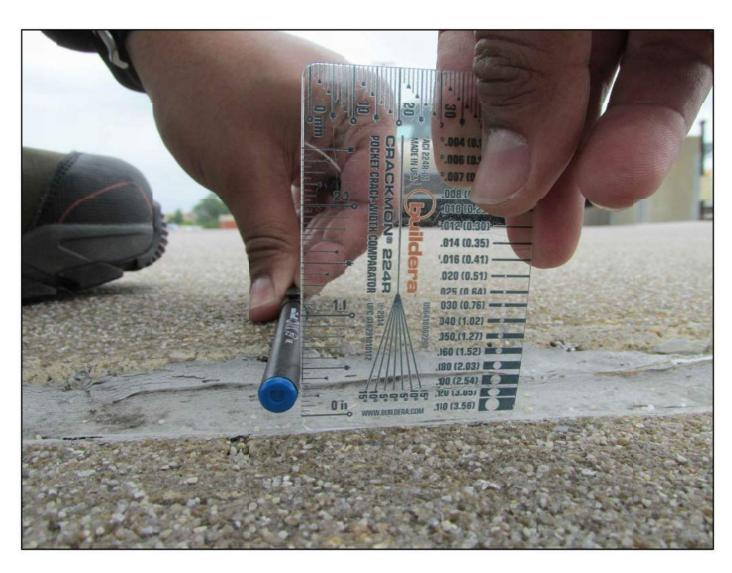
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 M1301
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 AS NOTED
 S-510
 493 of 504

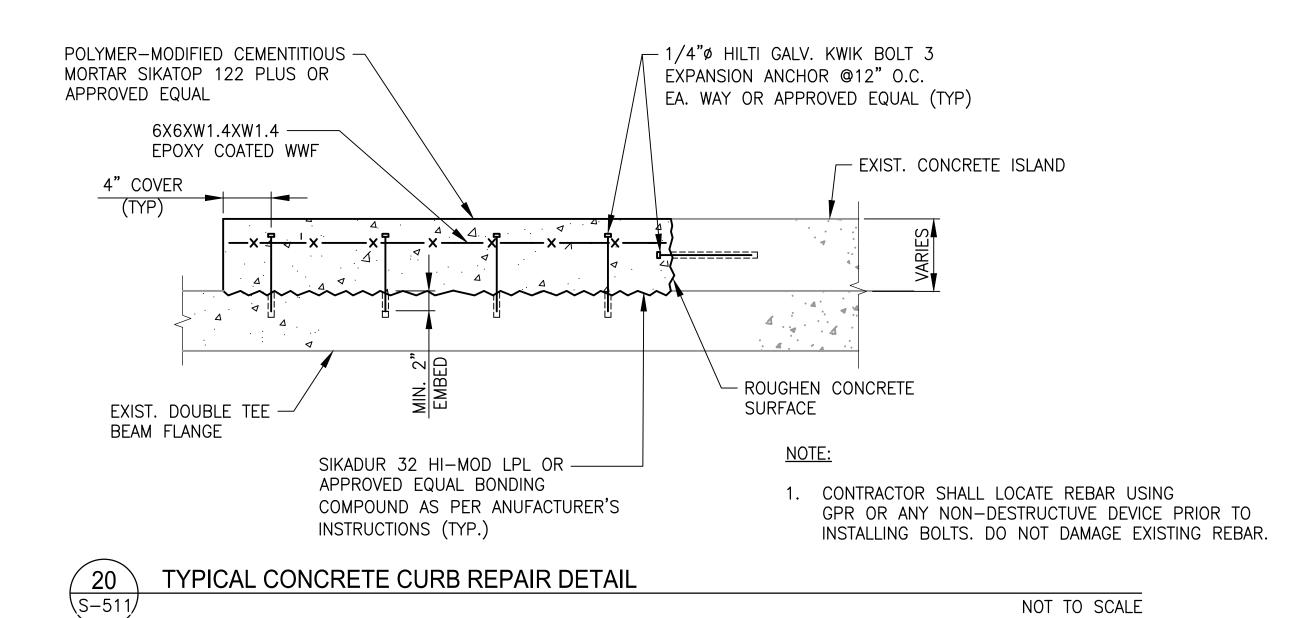


TYPICAL UNEVEN JOINT REPAIR DETAIL AT DOUBLE TEE FLANGES

NOT TO SCALE



TYPICAL UNEVEN JOINT AT DOUBLE TEE FLANGES





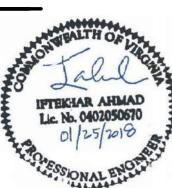
TYPICAL CONCRETE CURB DEFECT

"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."

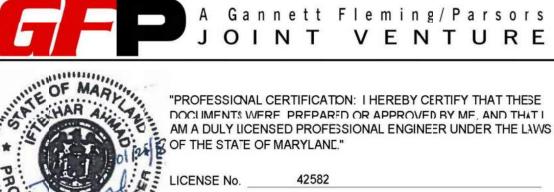
LICENSE No. **EXPIRATION DATE:** 









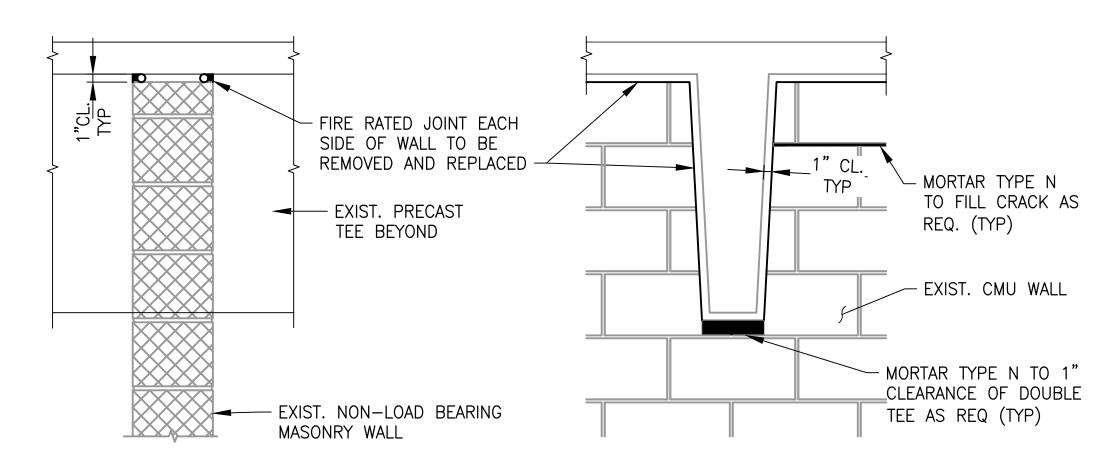


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						JOHN PURDY	,	DATE		AD / DIPANKAR SENGUPTA	DATE	
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## STANDARD STRUCTURAL REPAIR DETAILS

M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.		
M1301	FQ18064	NOT TO SCALE	S-511	494 of 504		



TYPICAL CMU WALL CRACK REPAIR AT DOUBLE TEE

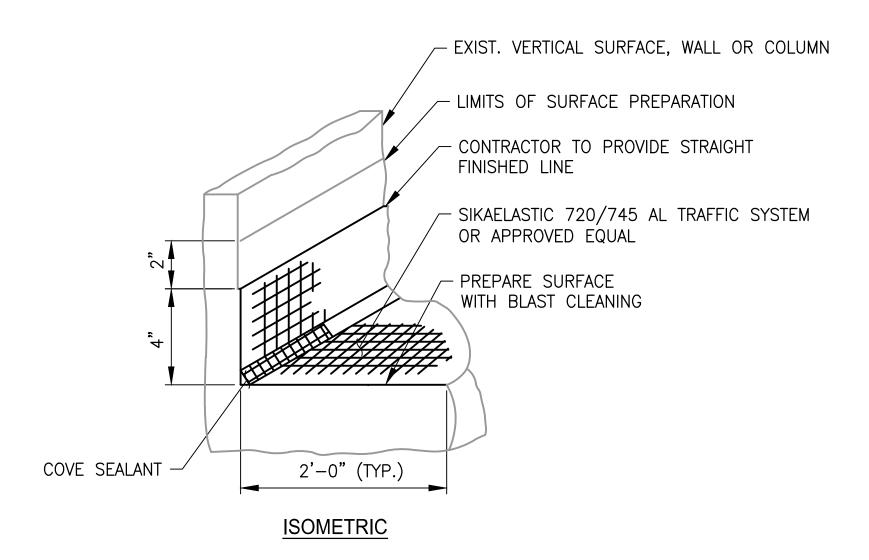
NOT TO SCALE

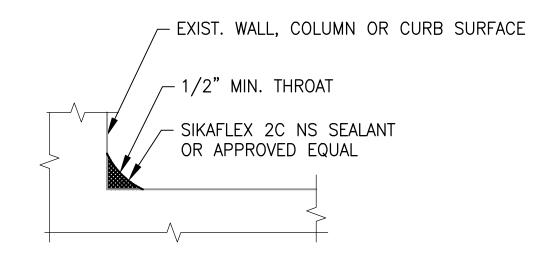
### NOTES:

- 1. JOINT SYSTEM MAX SEPARATION BETWEEN BOTTOM OF FLOOR AND TOP OF WALL (AT TIME OF INSTALLATION OF JOINT SYSTEM) IS 1 IN. (25 MM). THE JOINT SYSTEM IS DESIGNED TO ACCOMMODATE A MAX 25 PERCENT COMPRESSION FROM ITS INSTALLED WIDTH. THE JOINT SYSTEM CONSISTS OF A PACKING OR FORMING MATERIAL AND A FILL MATERIAL BETWEEN THE TOP OF THE WALL AND THE BOTTOM OF THE FLOOR, AS FOLLOWS:
  - A.) PACKING MATERIAL (OPTIONAL, NOT SHOWN): POLYURETHANE FOAM BACKER ROD FIRMLY PACKED INTO JOINT OPENING AS A PERMANENT FORM AND RECESSED FROM EACH SURFACE OF WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
  - B.) FORMING MATERIAL (OPTIONAL, NOT SHOWN): MIN 3/4" WIDTH OF 4 PCF MINERAL WOOL BATT INSULATION COMPRESSED 50% AND PACKED INTO THE GAP BETWEEN THE TOP OF THE WALL AND DOUBLE TEE ON BOTH SIDES OF THE WALL.
  - C.) FILL, VOID OR CAVITY MATERIAL: A MIN 1/2" THICKNESS OF FILL MATERIAL INSTALLED ON EACH SIDE OF THE WALL BETWEEN THE TOP OF THE WALL AND THE BOTTOM OF THE DOUBLE TEE.



TYPICAL CMU WALL CRACK AT DOUBLE TEE





### NOTES:

- 1. PREPARE AND ALLOW FOR PRIMER TO CURE PROPERLY PRIOR TO INSTALLING SEAL.
- 2. INSTALLATION OF COVE SEALANT, AND REMOVAL OF EXISTING SEALANTS ARE INCIDENTAL TO THIS

COVE SEALANT SECTION



DETERIORATED TRAFFIC TOPPING AT PARAPET WALL

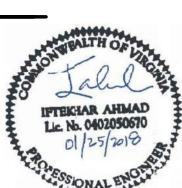
22 S-512

21 S-512

TYPICAL TRAFFIC TOPPIING REPAIR DETAIL AT PARAPET WALL

NOT TO SCAL

"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."





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		DATE						
CHECKED	L. KATSMAN	01/2018						
		DATE						 APPF
								 APPF JOHN
								<b>FNGI</b>

# WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER

IRPG - FIXED FACILITIES

PPROVED 01/25/2018
OHN PURDY DATE
NGINEERING MANAGER

APPROVED

IFTEKHAR AHMAD / DIPANKAR SENGUPTA
ENGINEER OF RECORD

APPROVED

APPROVED

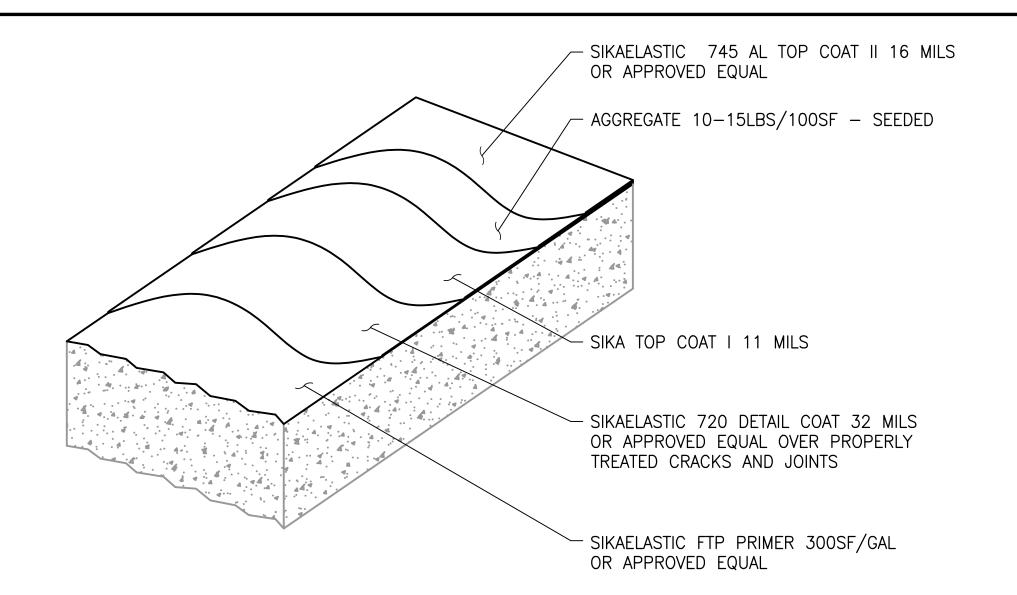
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DATE

## STANDARD STRUCTURAL REPAIR DETAILS

### TYPICAL REPAIR DETAILS 12 OF 19

NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.			
1301	FQ18064	NOT TO SCALE	S-512	495 of 504			



#### NOTES:

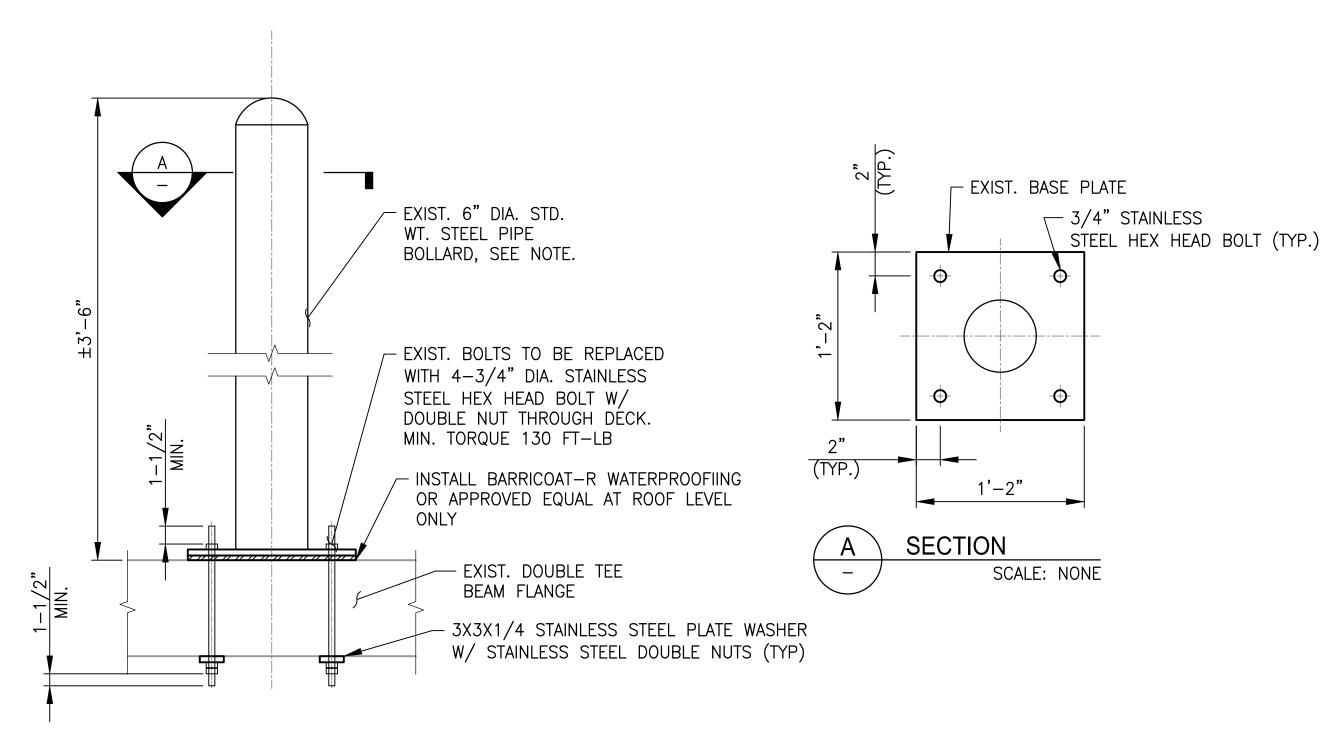
- 1. ENSURE EXISTING COATING HAS SUFFICIENT BOND WITH CONCRETE.
- 2. TEST AN AREA FOR COMPATIBILITY IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
- 3. USE SIKALASTIC 720/745 AL OR APPROVED EQUAL.



DETERIORATED TRAFFIC TOPPING

TYPICAL TRAFFIC BEARING MEMBRANE

NOT TO SCALE

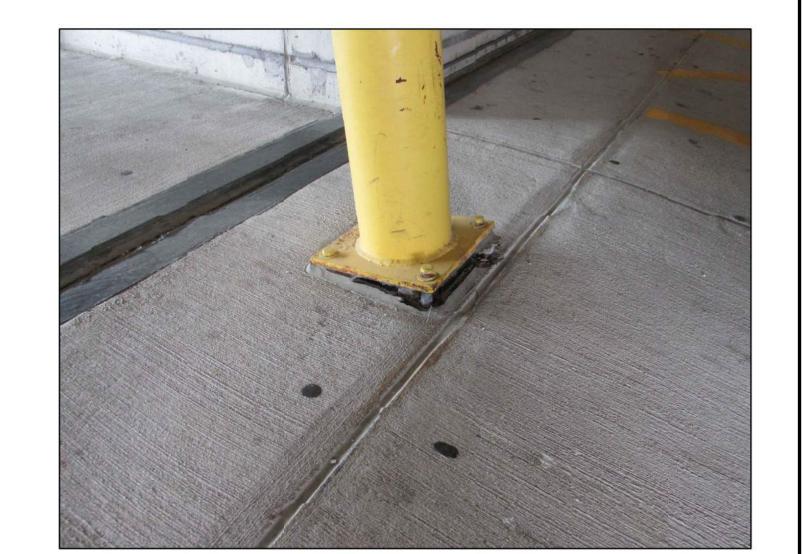


### PIPE BOLLARD ANCHOR BOLT REPLACEMENT DETAIL

NOTE: SEE ARCHITECTURAL SPECIFICATION FOR BOLLARD PAINTING REQUIREMENTS.

TYPICAL TRAFFIC BOLLARD REPAIR DETAIL

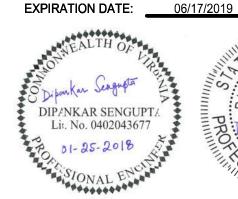
NOT TO SCALE



TYPICAL DEFECT AT TRAFFIC BOLLARD "PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE

OF THE STATE OF MARYLAND." LICENSE No. \_

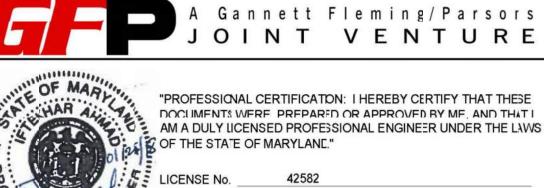
DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS











DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS

FXPIRATIONDATE: 08/13/2)18 -COMAR 09.23.0310

REFERENCE DRAWINGS REVISIONS DATE NUM DESCRIPTION DESIGNED M. PARK 01/25/2018 0 FINAL SUBMITTAL CHECKED L. KATSMAN 01/2018 DATE

## WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER IRPG - FIXED FACILITIES

APPROVED 01/25/2018 JOHN PURDY ENGINEERING MANAGER

IFTEKHAR AHMAD / DIPANKAR SENGUPTA ENGINEER OF RECORD

### STANDARD STRUCTURAL REPAIR DETAILS

### TYPICAL REPAIR DETAILS 13 OF 19

M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.		
M1301	FQ18064	NOT TO SCALE	S-513	496 of 504		



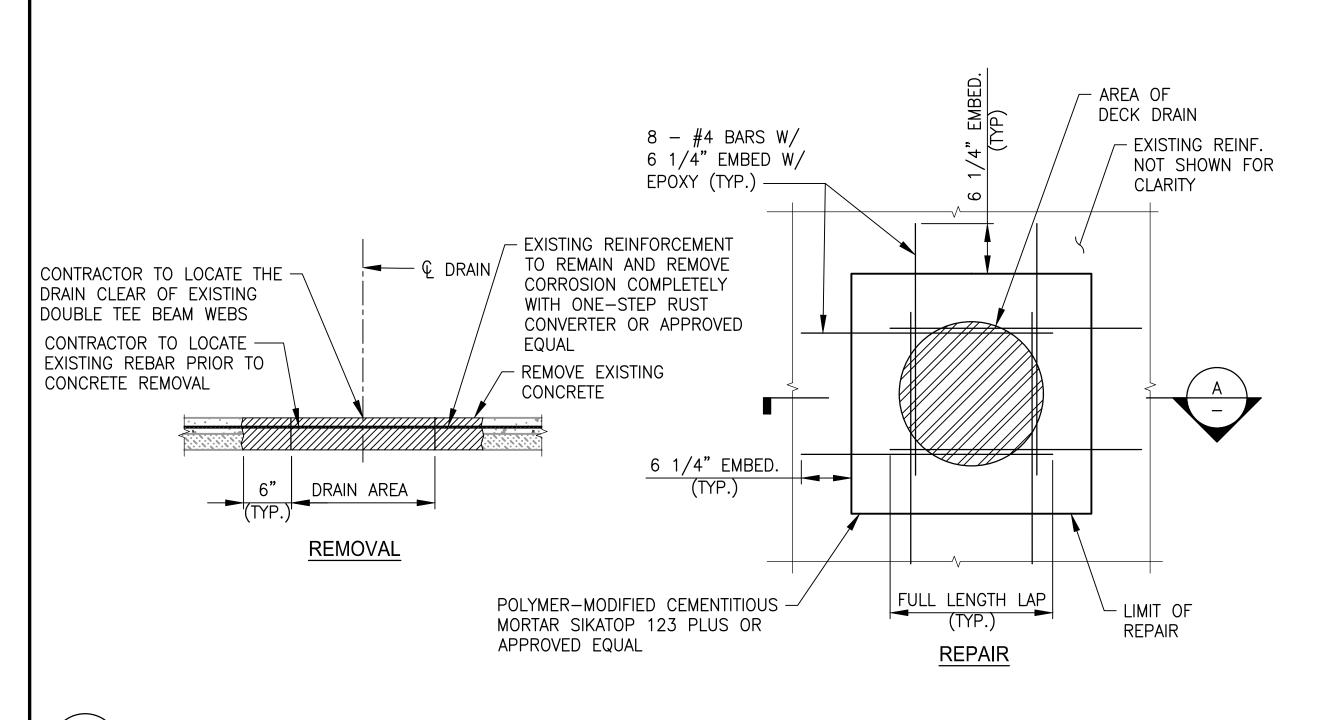
CLEAN

- HYDRO BLAST

TYPICAL EFFLORESCENCE / RUST STAINING ON CONCRETE NOT TO SCALE

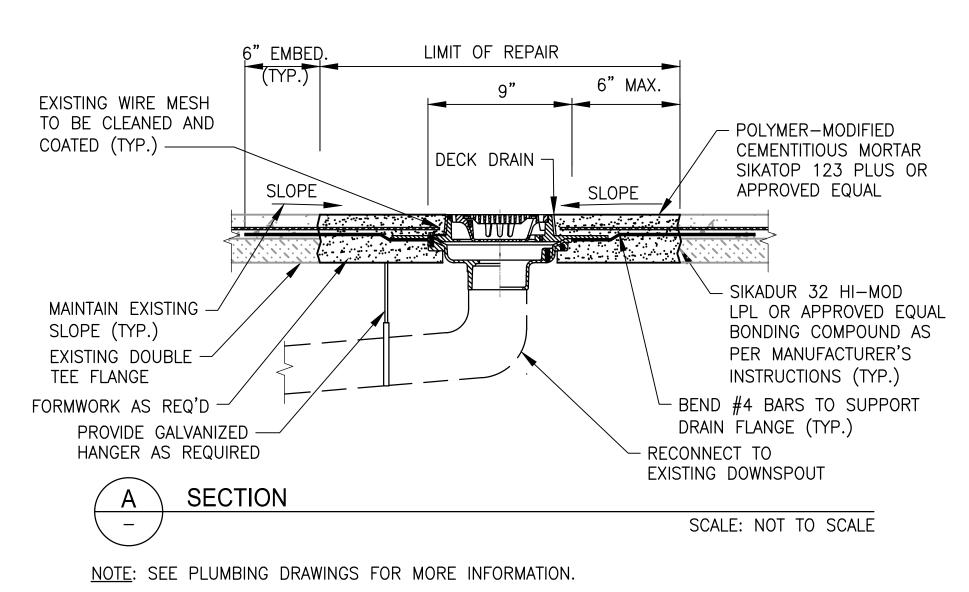
TYPICAL MORTAR / GROUT DETERIORATION

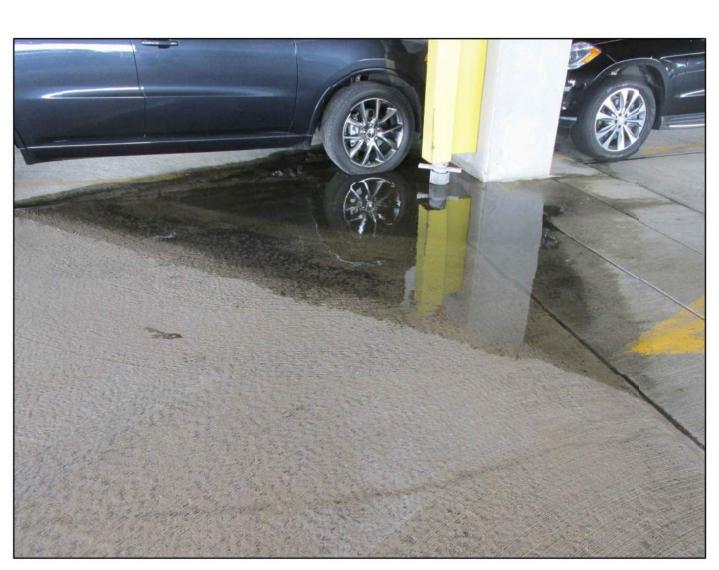
NOT TO SCALE



TYPICAL MISSING PLASTIC CAP AT VERTICAL LIFTING POINT

NOT TO SCALE





TYPICAL WATER PONDING

TYPICAL PONDING AREA WITH DRAIN INSTALLATION DETAIL

S-514

"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."

IFTEKHAR AHMAD / DIPANKAR SENGUPTA

ENGINEER OF RECORD

EXPIRATION DATE: \_\_\_\_\_06/17/2019

DIPANKAR SENGUPTA Lic. No. 0402043677 01-25-2018

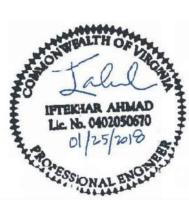
DATE



SCALE: NOT TO SCALE

CLEANOUT MORTAR/ GROUT. REPLACE W/

NEW GROUT -



GF		ett Fleming/P NTVENT	
OF MAR	DOCUMENTS WERE	RTIFICATION: I HEREBY CERTIFY PREPARED OR APPROVED BY MED PROFESSIONAL ENGINEER UN	IF, AND THAT I
B. College	LICENSE No.	42582	
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REHABILITATION OF PARKING GARAGES

STANDARD STRUCTURAL REPAIR DETAILS

EXPIRATIONDATE:	08/13/2018	
		-COMAR 09.23.0310

REFERENCE DRAWINGS REVISIONS DATE NUM DESCRIPTION NUMBER DESIGNED M. PARK 01/25/2018 0 FINAL SUBMITTAL 01/2018 DATE CHECKED L. KATSMAN APPROVED JOHN PURDY ENGINEERING MANAGER

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY OFFICE OF THE CHIEF OPERATING OFFICER IRPG - FIXED FACILITIES Dipankar Sengueta 01/25/2018

DATE

TYPICAL REPAIR DETAILS 14 OF 19 CONTRACT NO. SCALE DRAWING NO. SHEET NO. M NO. FQ18064 NOT TO SCALE S-514 497 of 504



- SANDBLAST CLEAN, PRIME AND PAINT CONNECTION PLATE CORRODED AREA. APPLY EPOXY SEALANT.



- CLEAN OUT CRACK/ HONEY COMB BY HIGH PRESSURE AIR BLAST AND VACUUM CLEAN SURFACE. COAT AREA WITH WATERPROOFING.



TYPICAL CONNECTION PLATE CORROSION

NOT TO SCALE

TYPICAL MAP CRACKING / HONEY COMB

NOT TO SCALE

NOT TO SCALE

M NO.



- CLEAN WALL SURFACE AND IDENTIFY CRACK LOCATION. PERFORM VERTICAL CRACK REPAIR.



- RFM()VE CORRODED BOLT. SANDBLAST CLEAN, PRIME AND PAINT CORRODED AREA. INSTALL NEW BOLT.

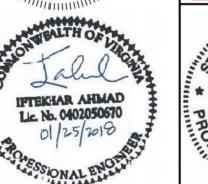


"PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I

AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND."

EXPIRATION DATE: 06/17/2019

A Gannett Fleming/Parsors
JOINT VENTURE



"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."

FXPIRATIONDATE: 08/13/2)18 -COMAR 09.23.0310

REHABILITATION OF PARKING GARAGES

NOTE: FOR VERTICAL CRACK, SEE REPAIR DETAIL 9 SHEET S-505

TYPICAL WATER LEAKING

		REFERENCE DRAWINGS			REVISIONS		ASHINGTON	METROE
DESIGNED M. PARK 01/2018	NUMBER	TITLE	DATE	NUM	DESCRIPTION	<b>─ W</b> W, metro		
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NOT TO SCALE

# OPOLITAN AREA TRANSIT AUTHORITY

CHIEF OPERATING OFFICER FIXED FACILITIES

IFTEKHAR AHMAD / DIPANKAR SENGUPTA

ENGINEER OF RECORD

TYPICAL CORRODED / MISSING ANCHOR BOLTS

CONTRACT NO.

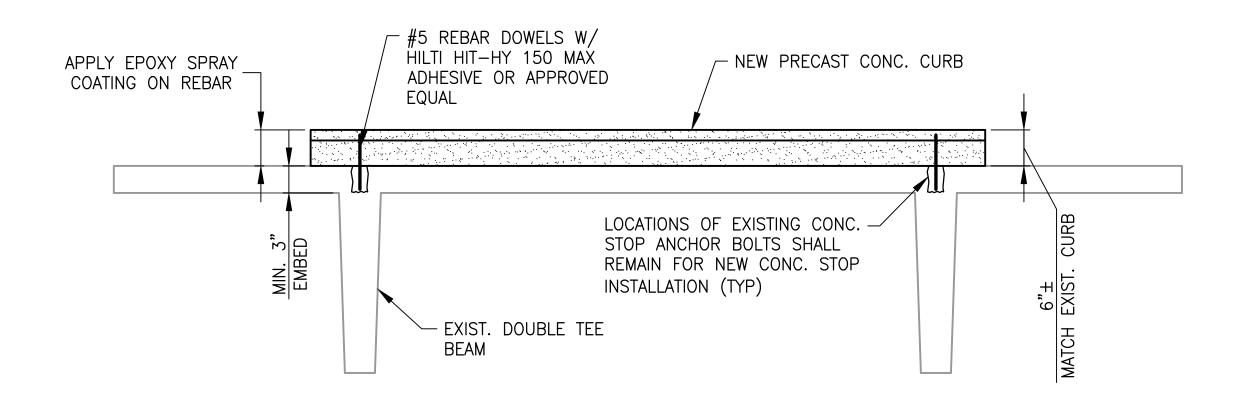
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TYPICAL REPAIR DETAILS 15 OF 19

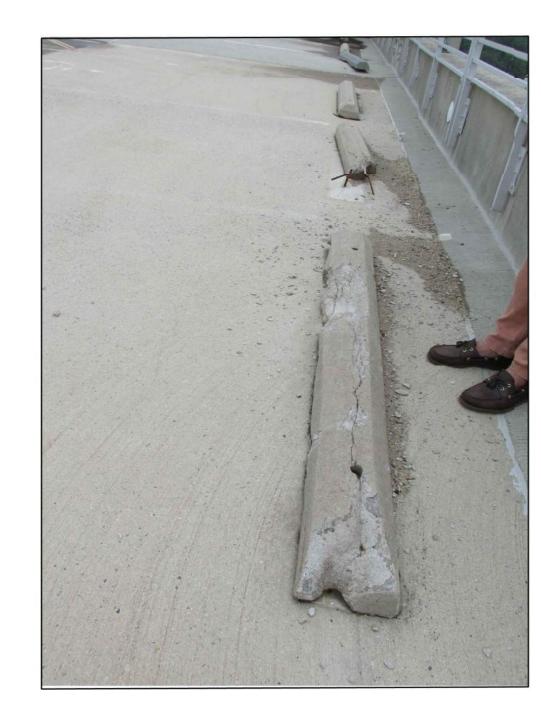
STANDARD STRUCTURAL REPAIR DETAILS

DRAWING NO. SHEET NO. NOT TO SCALE S-515 498 of 504



TYPICAL CONCRETE STOP CURB REPAIR DETAIL

NOT TO SCALE



DAMAGED CONCRETE STOP CURB



- REALIGN AND INSTALL WITH NEW ANCHORS AND PAINT. REMOVE AND REPLACE SHIFTED ELASTOMERIC BEARING PAD. PREPARE ANGLE SURFACE AND APPLY ADHESIVE





TYPICAL CORROSION AT WELDING

CLEAN CORRODED AREA AND APPLY ZRC OR APPROVED EQUAL GALVANIZED COATING.



"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."



IFTEKHAR AHMAD Lic. No. 0402050670

EXPIRATION DATE: 06/17/2019





DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS STATE OF MARYLAND."

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REHABILITATION OF PARKING GARAGES TANDARD STRUCTURAL REPAIR DETAILS

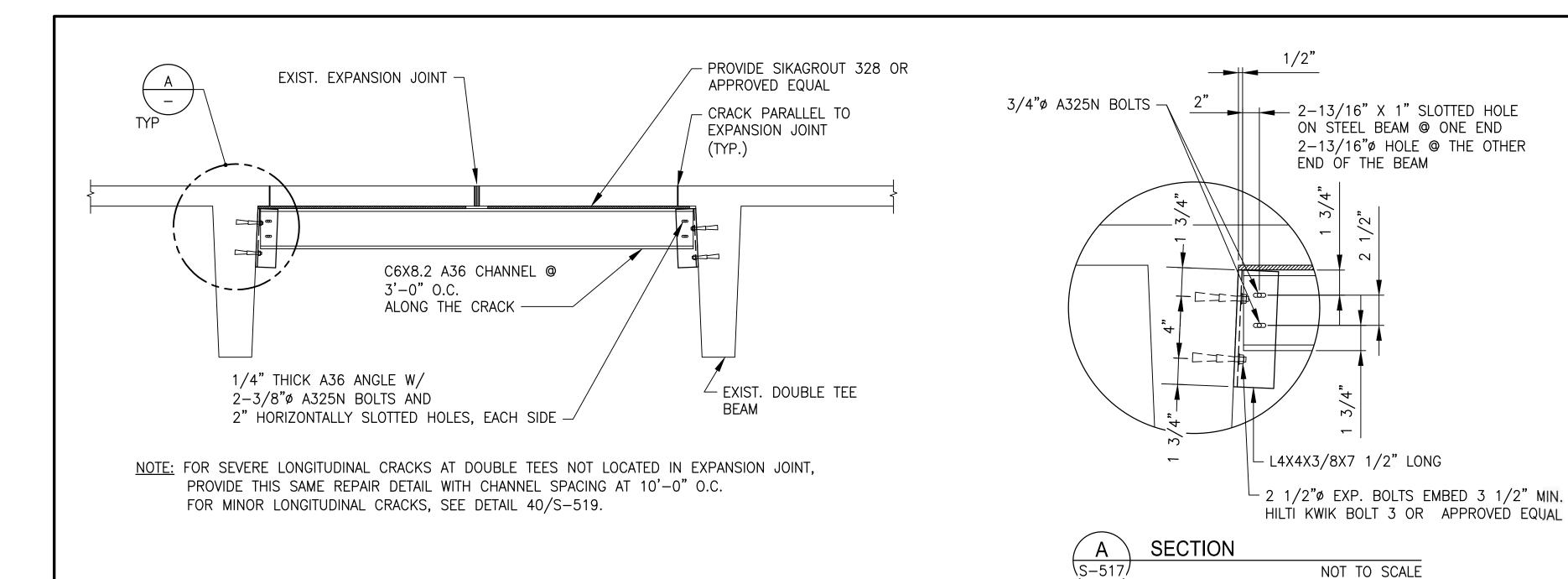
	TYPICAL REPAIR DETAILS 16 OF 19							
M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.				
M1301	FQ18064	NOT TO SCALE	S-516	499 of 504				

REFERENCE DRAWINGS REVISIONS DESCRIPTION DESIGNED M. PARK 01/25/2018 0 FINAL SUBMITTAL 01/2018 DATE

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY OFFICE OF THE CHIEF OPERATING OFFICER IRPG - FIXED FACILITIES

01/25/2018 JOHN PURDY ENGINEERING MANAGER

IFTEKHAR AHMAD / DIPANKAR SENGUPTA ENGINEER OF RECORD





SEVERE LONGITUDINAL CRACK AT DOUBLE TEE

TYPICAL REPAIR AT CRACK PARALLEL TO EXPANSION JOINT

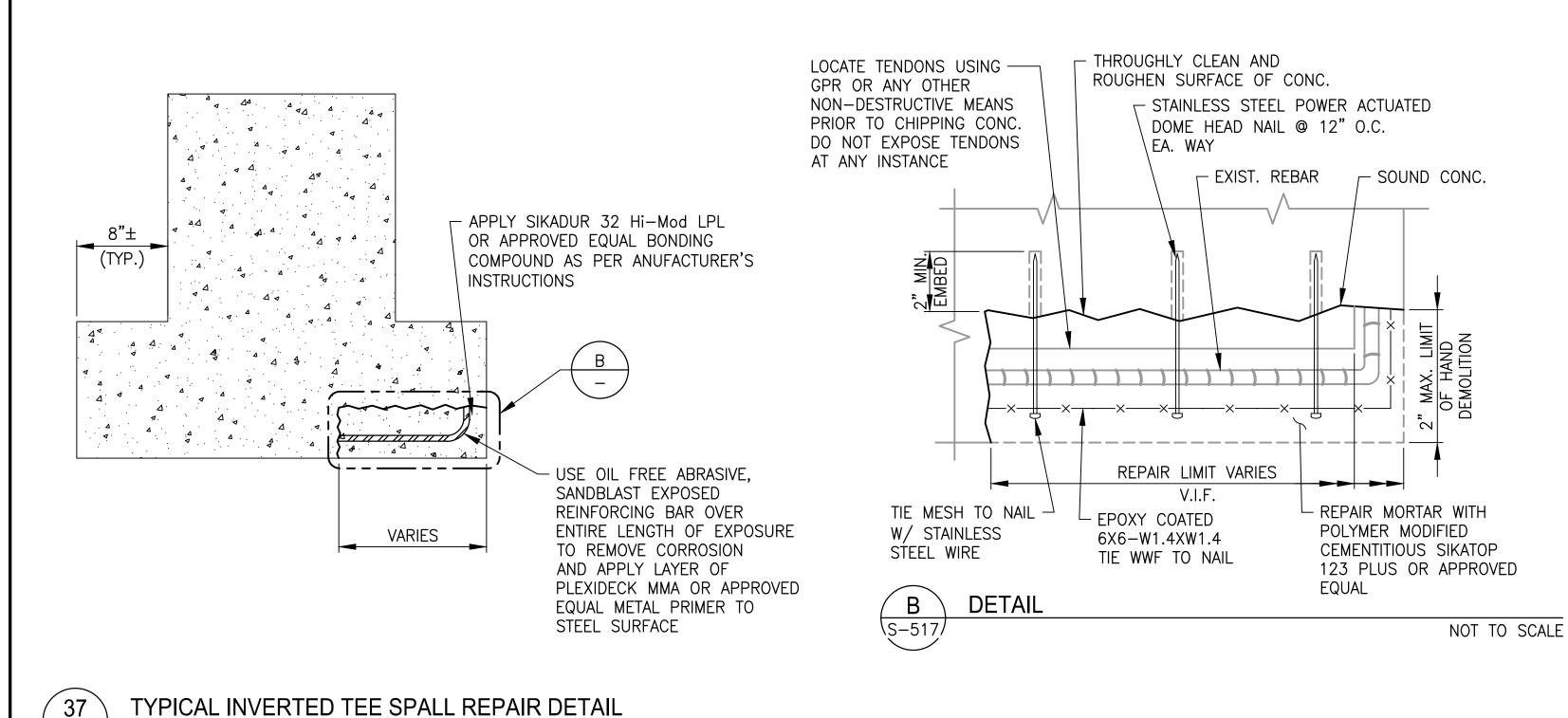
S-517

S-517

NOT TO SCALE

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CRACK PARALLEL TO EXPANSION JOINT





DETERIORATED INVERTED TEE SPALL

"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."



DIPANKAR SENGUPTA Lic. No.0402043677

IPTEKHAR AHMAD Lic. No.0402050670 01/25/2018

A Gannett Fleming/Parsors JOINT VENTURE



DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS STATE OF MARYLAND."

FXPIRATIONDATE: 08/13/2)18 -COMAR 09.23.0310

NOT TO SCALE

REFERENCE DRAWINGS REVISIONS DATE NUM DESCRIPTION NUMBER DESIGNED M. PARK 01/25/2018 0 FINAL SUBMITTAL 01/2018 DATE CHECKED L. KATSMAN

## WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER

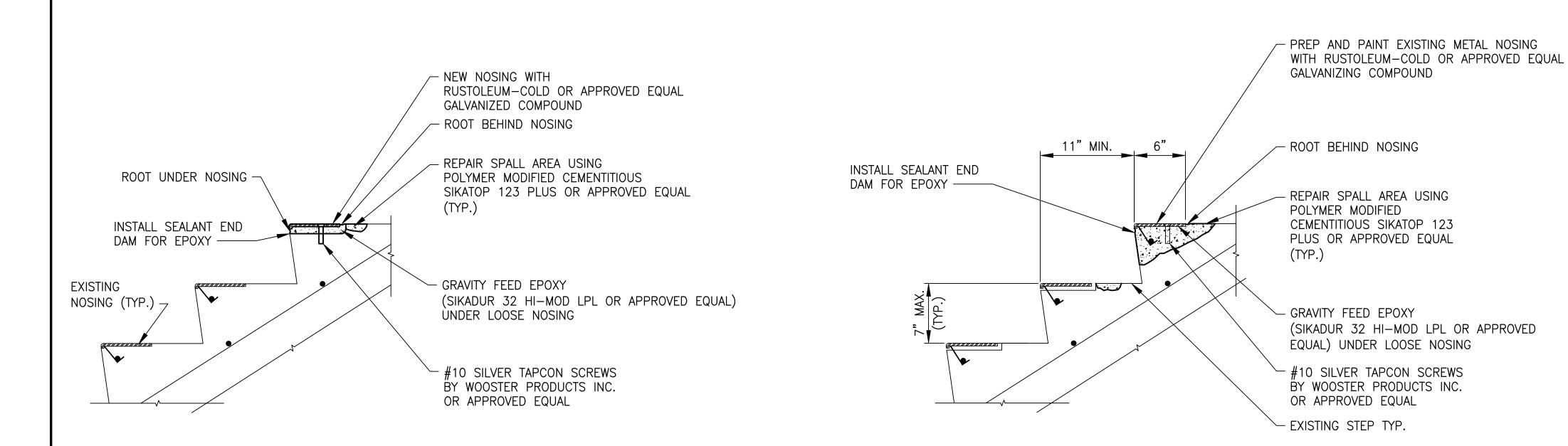
01/25/2018 JOHN PURDY ENGINEERING MANAGER

**IRPG - FIXED FACILITIES** IFTEKHAR AHMAD / DIPANKAR SENGUPTA ENGINEER OF RECORD

### REHABILITATION OF PARKING GARAGES STANDARD STRUCTURAL REPAIR DETAILS

### TYPICAL DEPAID DETAILS 17 OF 10

TYPICAL REPAIR DETAILS 17 OF 19							
M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.			
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MISSING STAIR NOSING WITH SPALL AT TREAD

STAIR NOSING WITH SPALL AT RISER

STAIR NOSING INSTALLATION W/ SPALL AT TREAD

NOTES:

STAIR WITH SPALL

- 1. UPON REMOVAL OF ALL DETERIORATED STEEL STAIR NOSING, CONCRETE TREADS AND RISERS TO BE POWER WASHED TO REMOVE EXISTING STAINING ASSOCIATED WITH THE CORROSION OF THE STEEL STAIR TREADS.
- 2. NEW NOSING SHALL BE ALUMINUM WITH A NON-SKID SURFACE.
- 3. CONTRACTOR TO REMOVE ALL DEMOLISHED MATERIALS PROMPTLY FROM SITE.
- 4. ALUMINUM NOSING REQUIRES BITUMINOUS COATING WHEN IN CONTACT WITH CONCRETE.

TYPICAL STAIR NOSING REPAIR DETAIL

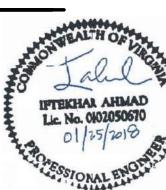
SCALE: NOT TO SCALE

"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."

**EXPIRATION DATE:** 









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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER IRPG - FIXED FACILITIES

01/25/2018 JOHN PURDY ENGINEERING MANAGER

IFTEKHAR AHMAD / DIPANKAR SENGUPTA

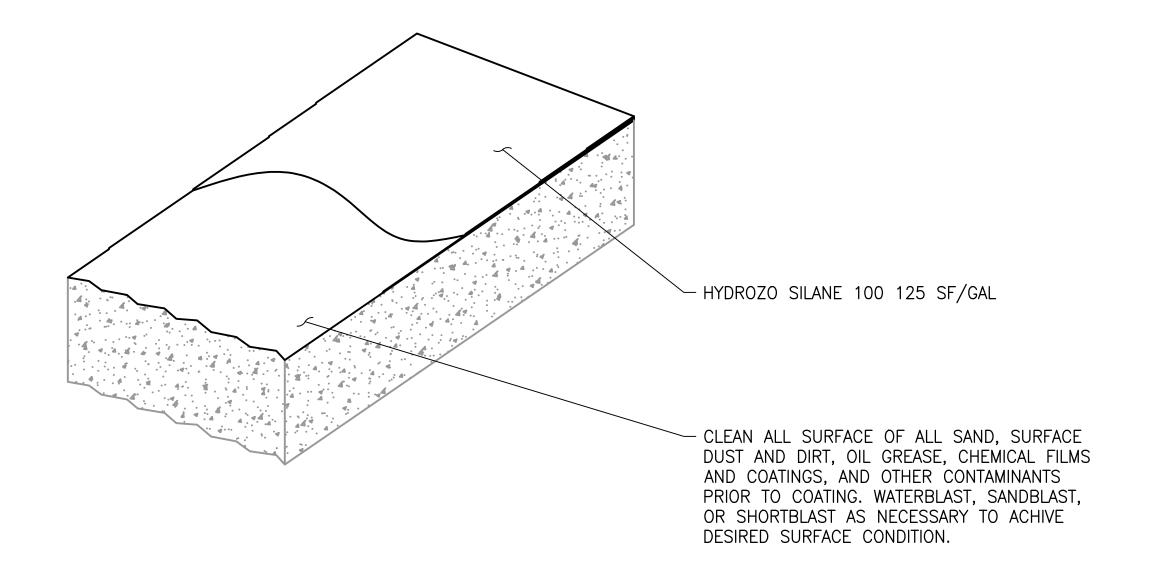
ENGINEER OF RECORD

STANDARD STRUCTURAL REPAIR DETAILS

TYPICAL REPAIR DETAILS 18 OF 19

REHABILITATION OF PARKING GARAGES

CONTRACT NO. DRAWING NO. SHEET NO. M NO. FQ18064 NOT TO SCALE S-518 501 of 504



### NOTES:

- 1. CAULKING AND SEALANT WORK MAYBE DONE BEFORE OR AFTER THE APPLICATION OF THE SEALER. ALLOW SEALANT TO FULLY CURED BEFORE APPLICATION OF HYDROZO SILANE 100.
- 2. DO NOT APPLY DURING INCLEMENT WEATHER OR WHEN INCLEMENT WEATHER IS ANTICIPATED WITHIN 12 HOURS.
- 3. PAINT LINE STRIPPING AFTER THE CURRING OF THE SEALER.



### TYPICAL SILANE SEALER COATING SYSTEM DETAIL (INTERMEDIATE LEVEL)

NOT TO SCALE

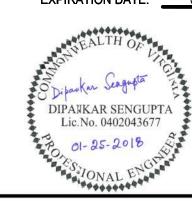


REPAIR CRACK WITH SIKADUR 31 HI-MOD GEL OR APPROVED EQUAL AFTER CLEANING CRACK SURFACE.

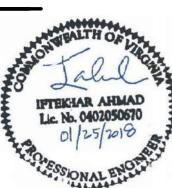
NOTE: FOR SEVERE LONGITUDINAL CRACK AT UNDERSIDE OF DOUBLE TEE, SEE DETAIL 36/S-517.

> "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. \_\_ **EXPIRATION DATE**: 06/17/2019









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### TYPICAL MINOR LONGITUDINAL CRACK AT UNDERSIDE OF DOUBLE TEE NOT TO SCALE

REFERENCE DRAWINGS REVISIONS DESCRIPTION DATE NUM NUMBER DESIGNED M. PARK 01/25/2018 0 FINAL SUBMITTAL 01/2018 DATE CHECKED L. KATSMAN

### WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF THE CHIEF OPERATING OFFICER

APPROVED 01/25/2018 JOHN PURDY

ENGINEERING MANAGER

IRPG - FIXED FACILITIES DATE IFTEKHAR AHMAD / DIPANKAR SENGUPTA

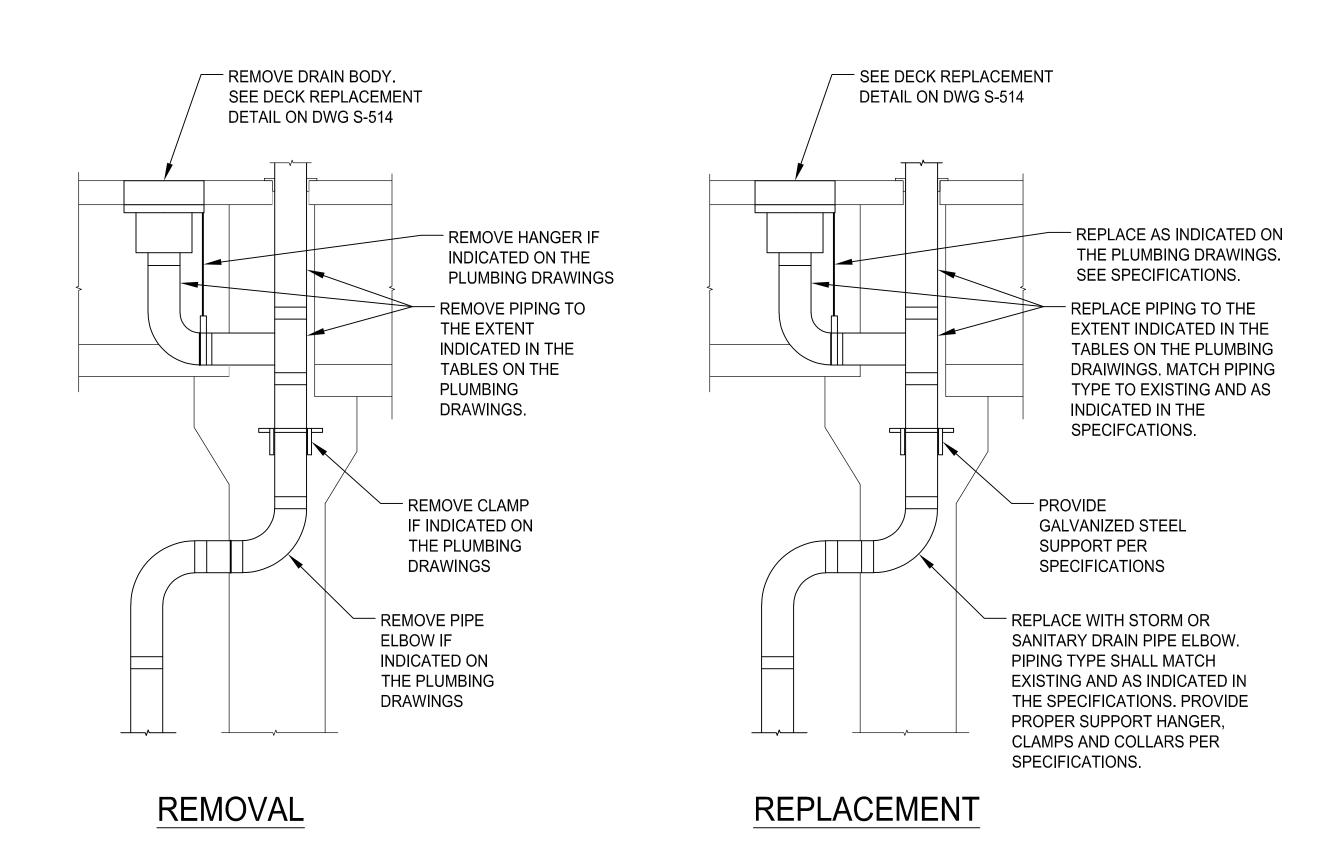
ENGINEER OF RECORD

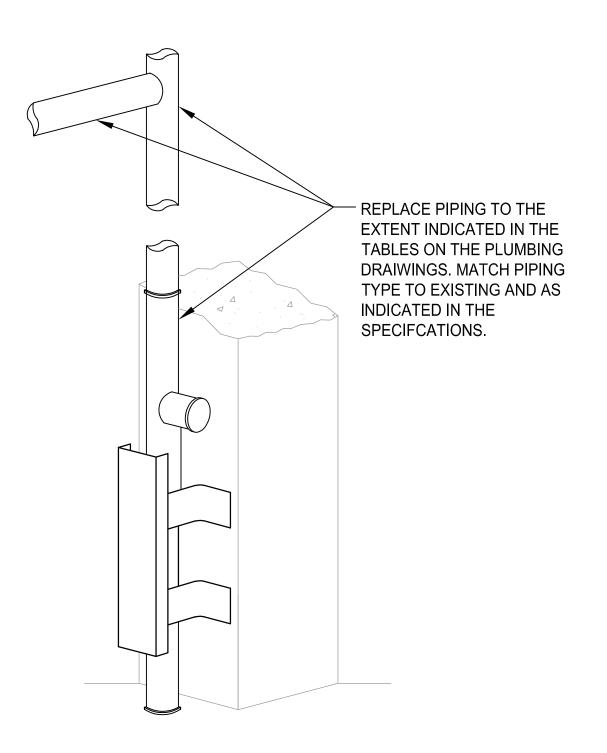
### STANDARD STRUCTURAL REPAIR DETAILS

REHABILITATION OF PARKING GARAGES

### TYPICAL REPAIR DETAILS 19 OF 19

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M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.						
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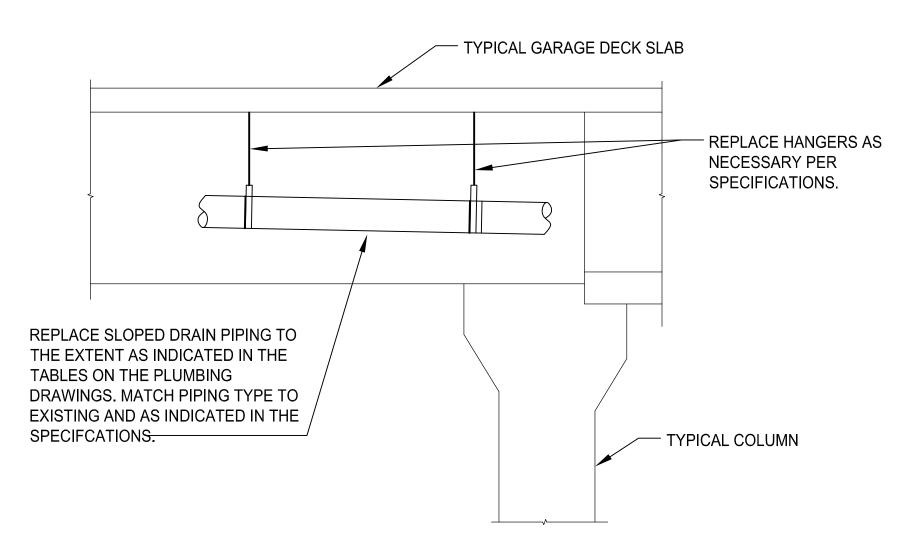


# TYPICAL STANDPIPE AND STORM DRAIN REPLACEMENT DETAILS N.T.S.

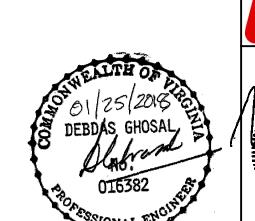
TYPICAL STANDPIPE AND STORM DRAIN RISER REPAIR DETAIL

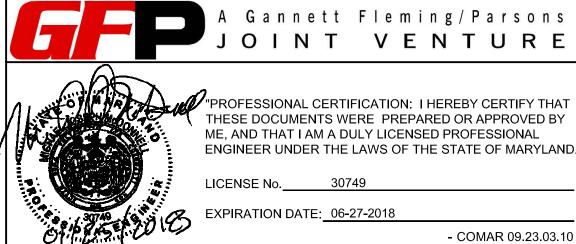
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DATE



# TYPICAL SLOPED DRAIN PIPING REPLACEMENT DETAIL





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REHABILITATION	OF WMATA PARKING FACILITIES	

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

OFFICE OF DESIGN AND CONSTRUCTION
IRPG - FIXED FACILITIES

01/25/2018

APPROVED

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ENGINEER OF RECORD

MICHAEL J. McDONNELL / DEBDAS GHOSAL

DATE

 M NO.
 CONTRACT NO.
 SCALE
 DRAWING NO.
 SHEET NO.

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 P-500
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TYPICAL PLUMBING REPAIR DETAILS