

TYPICAL DEEP CONCRETE REPAIR

N.T.S.

GENERAL:

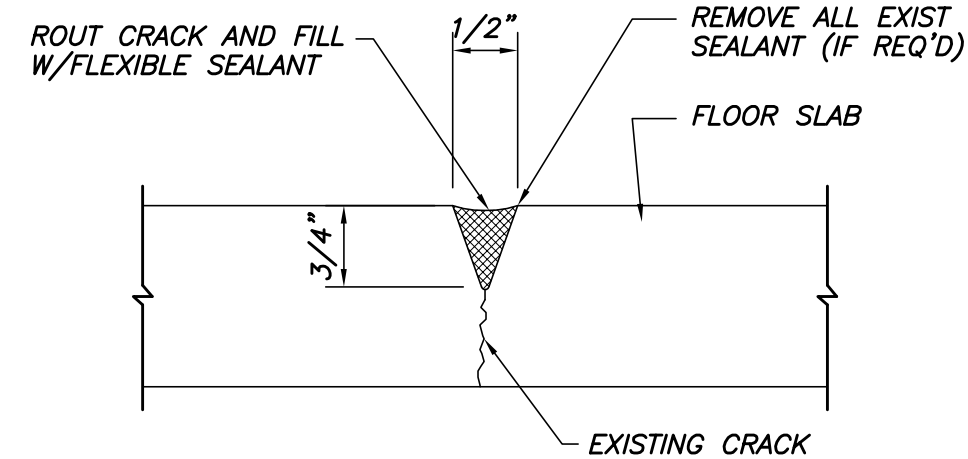
1. ALL TOPPING SLAB REPAIRS ARE ASSUMED TO BE 4" DEEP.
2. DUST AND MOISTURE PROTECTION SHALL BE PROVIDED AT AND BELOW THE LEVELS OF REPAIR.

CONCRETE REMOVAL:

1. REFERENCES: ICRI 03750, 03732, ACI 546R-04.
2. AT EACH REPAIR AREA, REMOVE SMALL AREA OF CONCRETE TO CONFIRM DEPTH OF REINFORCEMENT PRIOR TO CUTTING.
3. SAW CUT PERIMETER OF REPAIR AREA TO A DEPTH OF 3/4". REFERENCE PARTIAL SLAB PLAN THIS SHEET FOR ADDITIONAL INFORMATION. NOTE THAT PERIMETER MAY NEED TO BE EXTENDED.
4. DELAMINATE ALL DETERIORATED, DELAMINATED AND UNSOUND CONCRETE TO THE TOP OF EXISTING PRECAST/PRESTRESSED PLANKS, CONCRETE SHALL BE REMOVED BY A METHOD THAT LIMITS THE DAMAGE TO SURROUNDING SOUND CONCRETE TOPPING, EXIST STEEL TRUSS REINF AND WITH MINIMAL DAMAGE TO EXISTING PRECAST/PRESTRESSED PLANKS.
5. MATERIAL REMOVAL SHALL CONTINUE UNTIL AGGREGATE PARTICLES ARE BEING BROKEN RATHER THAN BEING REMOVED FROM THE CEMENT MATRIX.
6. USE OF MECHANICAL IMPACT CHIPPING HAMMERS SHALL BE LIMITED TO 30lb WITH A 15lb RECOMMENDED. ALL NECESSARY PRECAUTIONS MUST BE TAKEN TO AVOID MICRO CRACKING (BRUISING) OF THE SURFACE OF THE PRECAST/PRESTRESSED PLANKS.
7. ALL EXISTING REINF AND STEEL TRUSS REINF SHALL BE SALVAGED.

PREPARATION:

1. CLEAN ALL STEEL SURFACES REMOVING ALL RUST AND SCALE TO SSPC-SP3 (POWER TOOL CLEAN).
2. REMAINING EXISTING REINF AND STEEL TRUSS REINF SHALL BE PRIMED OR EPOXY COATED.
3. PRIOR TO PROCEEDING WITH REPAIR, INSPECT ALL CONCRETE SURFACES. INSTALLATION OF REPAIR MATERIAL INDICATES ACCEPTANCE OF ALL SUBSTRATE CONDITIONS.



TYP. CRACK/C.J. REPAIR DETAIL

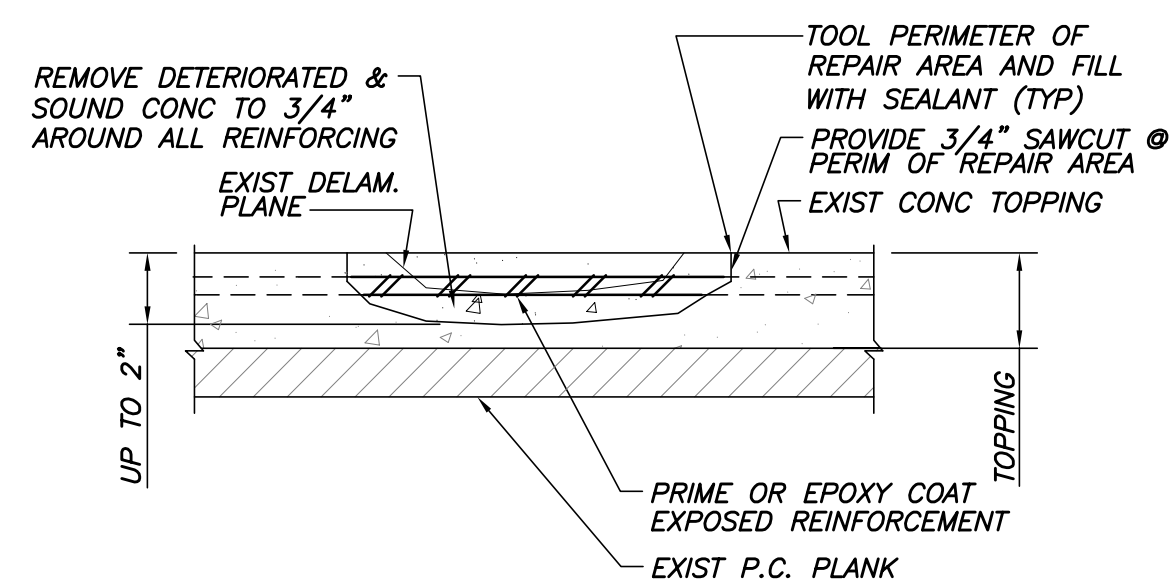
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PREPARATION:

1. CENTER ROUTED GROOVE ON CRACK.
2. REMOVE ALL LOOSE AND DETERIORATED MATERIAL.
3. ALL JOINT-WALL SURFACES MUST BE CLEAN, SOUND, AND FROST FREE. JOINT WALLS MUST BE FREE OF OILS, GREASE, CURING COMPOUND RESIDUES, AND ANY OTHER FOREIGN MATTER THAT MIGHT PREVENT BOND. THIS SHOULD BE ACCOMPLISHED BY BLAST CLEANING OR EQUIVALENT MECHANICAL MEANS.
4. CONFORM TO ALL MANUFACTURER'S PREPARATION REQUIREMENTS.
5. JOINT PREPARATION SHALL BE CONFIRMED BY SEALANT INSTALLER. INSTALLATION OF SEALANT SHALL IMPLY PROPER JOINT PREPARATION.

CRACK SEALANT INSTALLATION:

1. INSTALLATION SHALL CONFORM TO MANUFACTURER'S REQUIREMENTS.
2. INSTALL SEALANT EVENLY AND RECESS 1/16" BELOW SURFACE. **DO NOT OVERFILL JOINT.**



TYPICAL SHALLOW CONCRETE REPAIR

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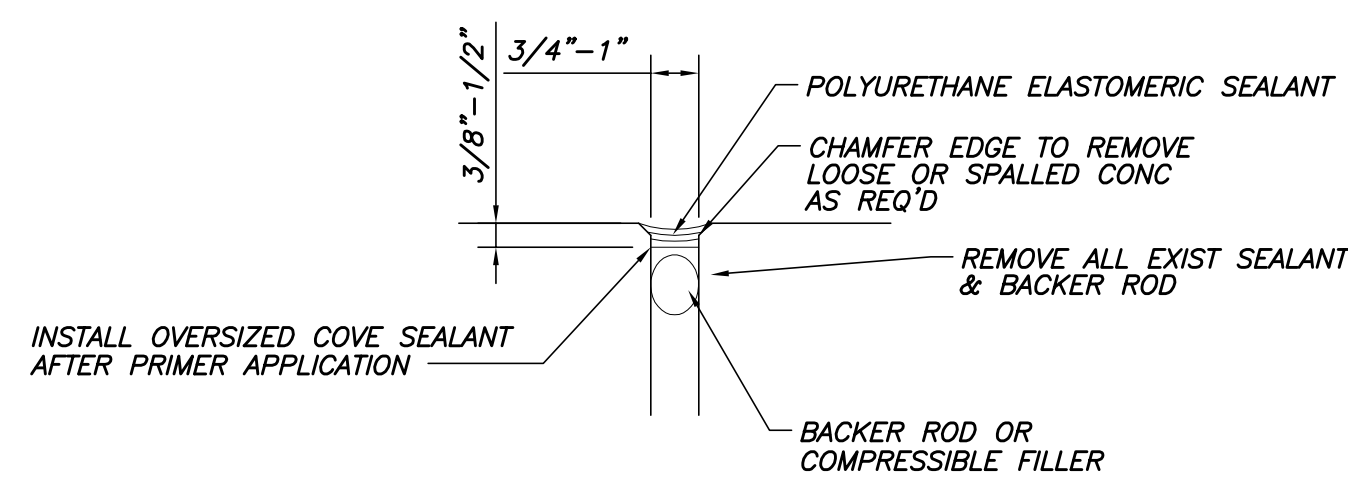
PREPARATION CONTINUED:

4. APPLY POLYMER ADHESIVE/BONDING AGENT TO ALL CONCRETE SURFACES OR COAT ALL CONCRETE SURFACES WITH A CEMENT SLURRY PRIOR TO PLACING REPAIR MATERIAL.
5. INSTALL NEW REINF IF REQUIRED AND TIE TO EXISTING. PROVIDE CHAIRS AS REQUIRED TO MAINTAIN PROPER PLACEMENT. MINIMUM COVER=2".
6. REPAIR MATERIAL FOR LARGE AREAS (TOTAL PLACEMENTS OVER 1 YARD)
 - COMPRESSIVE STRENGTH (f'c) = 5,000 PSI (MIN)
 - AIR CONTENT = 6 1/2 ±2%
 - WATER/CEMENT RATIO (W/C) = 0.35 (MAX)
 - AGGREGATE = 3/8" MIN
 - ADMIXTURES: SHRINKAGE REDUCER = AS PER MANUFACTURER

7. REPAIR MATERIAL FOR SMALL PLACEMENTS (PLACEMENT LESS THAN 1 YARD) SHALL BE A ONE-COMPONENT, EARLY STRENGTH GAINING, CEMENTITIOUS REPAIR MATERIAL WITH THE FOLLOWING PROPERTIES (REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION):
 - COMPRESSIVE STRENGTH: 5,000 PSI (MIN)
8. PLACEMENT: ALL CIP REPAIR MATERIAL MUST BE TESTED AS PER THE SPECIFICATIONS.
9. ALL JOINTS SHALL BE HAND TOOLED.

CONCRETE CURING:

1. WET CURE FOR A MINIMUM OF 3 DAYS (72 HOURS). REFERENCE THE SPECIFICATION FOR FURTHER CURING INFORMATION.



TYP. JOINT SEALANT DETAIL

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PREPARATION:

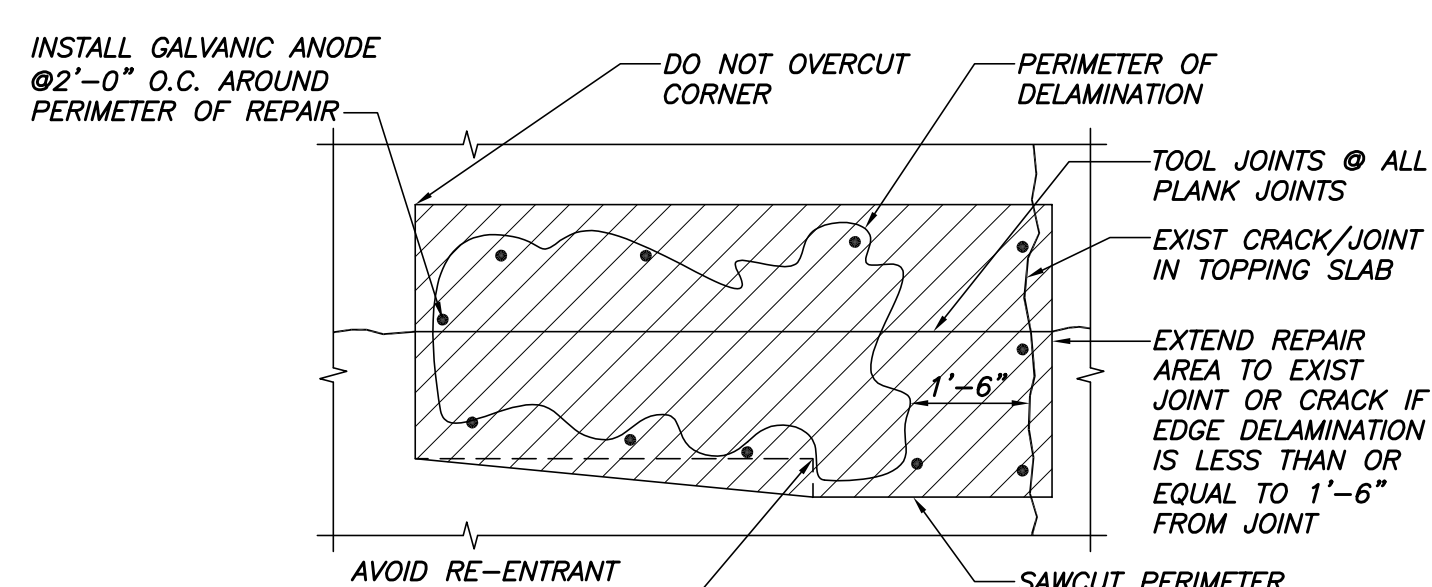
1. REMOVE EXISTING JOINT SEALANT MATERIAL.
2. GRIND JOINT EDGES TO REMOVE ALL LOOSE AND DETERIORATED MATERIAL.
3. ALL JOINT-WALL SURFACES MUST BE CLEAN, SOUND, AND FROST FREE. JOINT WALLS MUST BE FREE OF OILS, GREASE, CURING COMPOUND RESIDUES, AND ANY OTHER FOREIGN MATTER THAT MIGHT PREVENT BOND. THIS SHOULD BE ACCOMPLISHED BY MECHANICAL MEANS.
4. INSTALL BACKER ROD OR BOND BREAKER TAPE.

PRIMING:

1. PREPARE AND ALLOW FOR PRIMER TO CURE PROPERLY PRIOR TO INSTALLING SEALANT.
2. PROVIDE A PRIMER APPROVED BY SEALANT MANUFACTURER.
3. INSTALLATION SHALL CONFORM TO MANUFACTURER'S REQUIREMENTS.

JOINT SEALANT INSTALLATION:

1. INSTALLATION SHALL CONFORM TO MANUFACTURER'S REQUIREMENTS.
2. INSTALL SEALANT EVENLY AND RECESS 1/16" BELOW SURFACE. **DO NOT OVERFILL JOINT.**
3. DO NOT EXCEED 2:1 WIDTH TO DEPTH RATIO.



PARTIAL SLAB PLAN

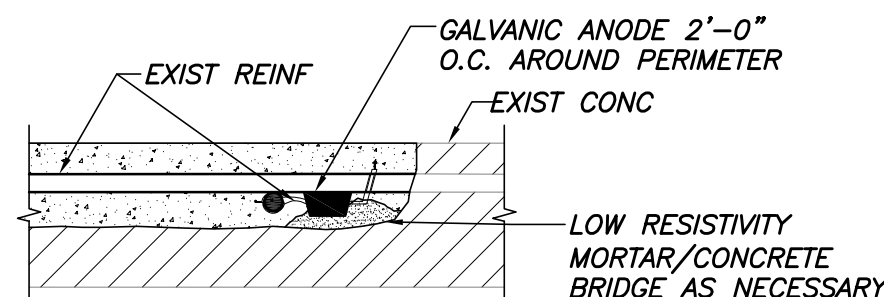
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NOTES:

1. AREA OF CONCRETE REPAIR.
2. 1'-0" MIN OF EXIST WWF SHALL BE SALVAGED AROUND PERIMETER OF REPAIR AREA AND BE LAPPED TO NEW WWF.
3. PROVIDE TOOLED JOINTS AROUND PERIMETER OF REPAIR AND AS NOTED IN PLAN.

REPAIR:

1. INSTALL GALVANIC ANODE
 - A. ENSURE ALL EXPOSED EXISTING REINFORCEMENT IS TIED W/ STEEL TIE WIRES.
 - B. INSTALL ANODES USING A SUITABLE WIRE TWISTING TOOL TO ELIMINATE FREE MOVEMENT AND ENSURE GOOD ELECTRICAL CONNECTION. ANODE SHALL HAVE 3/4" MINIMUM COVER AND BE PLACED WITHIN 6" OF EDGE OF REPAIR.



GALVANIC ANODE DETAIL

N.T.S.

GALVANIC ANODE NOTES

1. PRODUCT:

EMBEDDED GALVANIC ANODES SHALL CONSIST OF A MINIMUM OF 100 GRAMS OF ZINC IN COMPLIANCE WITH ASTM B6 SPECIAL HIGH GRADE CAST AROUND A PAIR OF STEEL TIE WIRES IN COMPLIANCE WITH BRIGHT ANNEALED ASTM A82 AND ENCASED IN A HIGHLY ALKALINE CEMENTITIOUS SHELL WITH A PH OF 14 OR GREATER. THE CEMENTITIOUS SHELL SHALL CONTAIN NO ADDED SULFATE NOR SHALL IT CONTAIN CHLORIDE, BROMIDE OR OTHER CONSTITUENTS THAT ARE CORROSIVE TO REINFORCING STEEL. ANODE UNITS SHALL BE SUPPLIED WITH INTEGRAL UNSPLICED WIRES WITH LOOP TIES FOR DIRECTLY TYING TO THE REINFORCING STEEL.

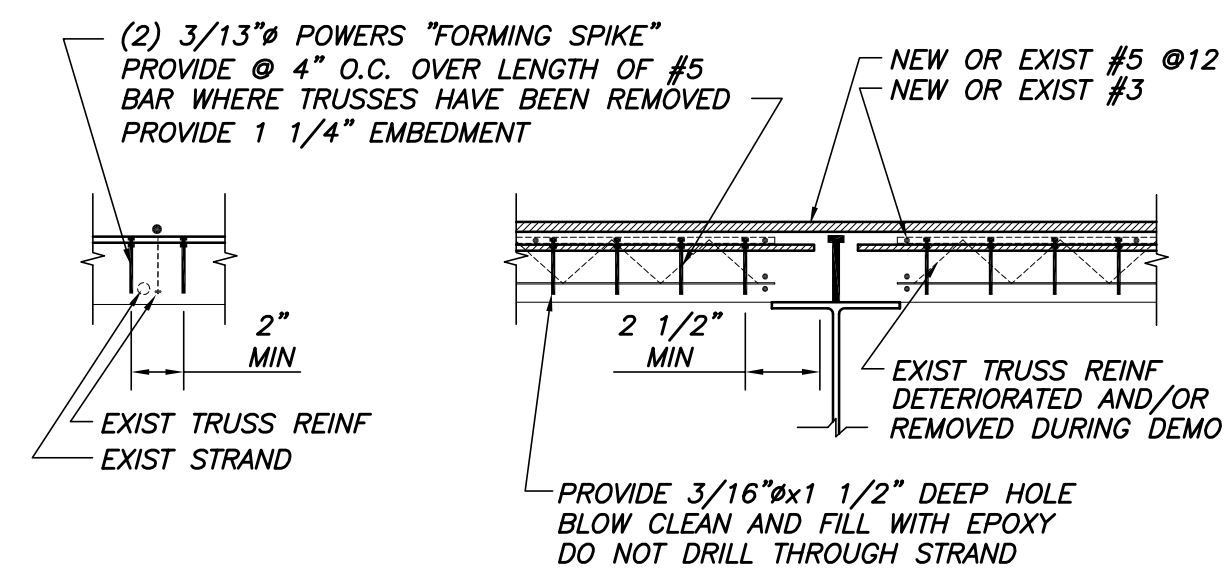
2. GALVANIC ANODE INSTALLATION:

- INSTALL ANODES AND REPAIR MATERIAL IMMEDIATELY FOLLOWING PREPARATION AND CLEANING OF THE STEEL REINFORCEMENT.
- GALVANIC ANODES SHALL BE INSTALLED ALONG THE PERIMETER OF THE REPAIR OR INTERFACE AT A SPACING AS SPECIFIED ON THE DRAWINGS. ANODE SPACING WILL VARY WITH CHANGES IN THE REINFORCING STEEL DENSITY, THE LEVEL OF CHLORIDE IN THE STRUCTURE AND THE CORROSIVITY OF THE LOCAL ENVIRONMENT, ETC.
- PROVIDE SUFFICIENT CLEARANCE BETWEEN ANODES AND SUBSTRATE TO ALLOW REPAIR MATERIAL TO ENCASE ANODE.
- SECURE THE GALVANIC ANODES AS CLOSE AS POSSIBLE TO THE PATCH EDGE USING THE ANODE TIE WIRES. THE TIE WIRES SHALL BE WRAPPED AROUND THE CLEANED REINFORCING STEEL AND TWISTED TIGHT TO ALLOW LITTLE OR NO FREE MOVEMENT.

3. ELECTRICAL CONTINUITY

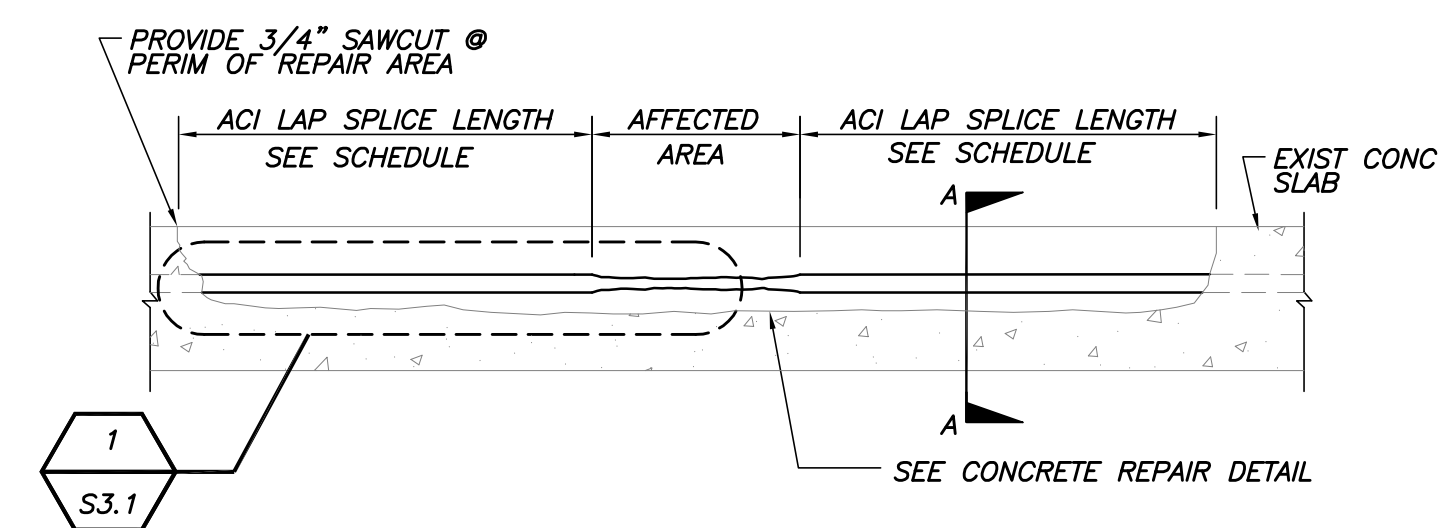
- CONFIRM ELECTRICAL CONNECTION BETWEEN ANODE TIE WIRE AND REINFORCING STEEL BY MEASURING DC RESISTANCE (OHM,Ω) OR POTENTIAL (MV) WITH A MULTI-METER.
- ELECTRICAL CONNECTION IS ACCEPTABLE IF THE DC RESISTANCE MEASURED WITH MULTI-METER IS LESS THAN 1 Ω OR THE DC POTENTIAL IS LESS THAN 1 MV.
- CONFIRM ELECTRICAL CONTINUITY OF THE EXPOSED REINFORCING STEEL WITHIN THE REPAIR AREA. IF NECESSARY, ELECTRICAL CONTINUITY SHALL BE ESTABLISHED WITH STEEL TIE WIRE.
- ELECTRICAL CONTINUITY BETWEEN TEST AREAS IS ACCEPTABLE IF THE DC RESISTANCE MEASURED WITH MULTI-METER IS LESS THAN 1 Ω OR THE POTENTIAL IS LESS THAN 1MV.

4. CONFORM TO ALL MANUFACTURERS RECOMMENDATIONS FOR PREPARATION INSTALLATION AND TESTING.



TYPICAL REINF TRUSS REPAIR

N.T.S.



TYPICAL REINFORCEMENT REPAIR

N.T.S.

PREPARATION:

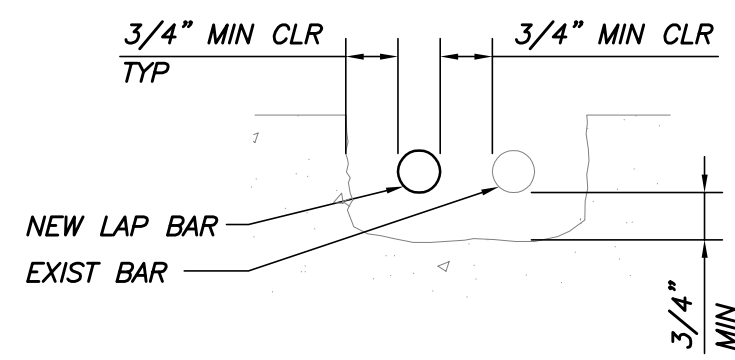
1. SEE TYPICAL CONCRETE REPAIR FOR REMOVAL/REPLACEMENT OF CONCRETE.

INSPECTION:

1. IF REINFORCEMENT HAS LOST MORE THAN 25% OF ITS CROSS SECTIONAL AREA, NOTIFY STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH PATCH.

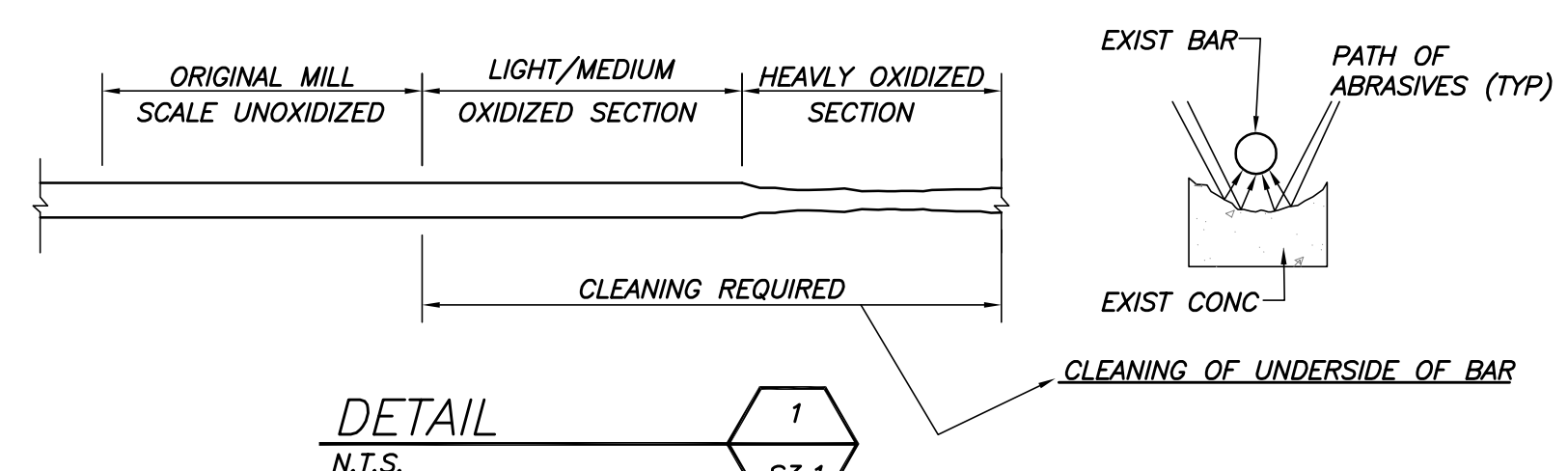
REPAIR:

1. LAP BARS AS NOTED ABOVE.
2. SEE TYPICAL CONCRETE REPAIR.



SECTION A-A

N.T.S.



DETAIL

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REBAR LAP SPLICE TABLE

BAR SIZE	LAP LENGTH
#3	30"
#4	36"
#5	48"
#6	56"
#7	81"



Approved For	
Issued For	ISSUED FOR PRICING ISSUED FOR PERMIT
Date	12/7/15 1/21/16
Rev. No	

FORE STREET PARKING FACILITY
 PORTLAND, MAINE
 CONCRETE REPAIR SECTIONS & DETAILS

Designed	ATS	Scale	AS NOTED
Drawn	ATS	Date	11/30/15
Checked	JMM	Becker Job Number	3708

S3.1

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