

SPALLING REPAIR CONSTRUCTION PLANS

FOR

304 CATHERINE ST. KEY WEST, FL

MLK COMMUNITY POOL & COMMUNITY CENTER

SCOPE OF WORK

CONCRETE REPAIR PLANS FOR MLK COMMUNITY POOL & COMMUNITY CENTER

INDEX OF DRAWINGS

S-1 - SITE DATA & SPALLING PLAN
S-2 - SPALLING DETAILS

SITE DATA

OWNER: CITY OF KEY WEST
PARCEL ID: 00026470-00000
LEGAL DESCRIPTION:
KW PB1-25-40 LOT 8 SQR 3 TR 10 & PT THOMAS ST C1-385/33 H3-341
PARCEL ID: 00026480-00000
LEGAL DESCRIPTION:
KW PB1-25-40 LOT 9 SQR 3 TR 10 & PT THOMAS ST C1-385 H3-341
SECTION-TOWNSHIP-RANGE: 6/68/25
ZONING DISTRICT: HISTORIC HIGH DENSITY RESIDENTIAL (HHDR)
FLOOD ZONE: AE
BASE FLOOD ELEV. 7.07/8.0' NGVD 1929
DESIGN FLOOD ELEV. 9.07/10.0' NGVD 1929
F.I.R.M. -
COMMUNITY #120168
PREFIX #12087
MAP & PANEL #1516
SUFFIX "K"
DATED: 02-18-2005
SETBACKS:
FRONT: 10 FT
STREET SIDE: 5 FT
SIDE YARD: 5 FT
REAR YARD: 20 FT
ACCESSORY STRUCTURE: 5 FT (ALL SIDES)

DESIGN DATA

THE FOLLOWING LOADINGS WERE USED:

WIND LOAD:
180 MPH (3-SEC GUST)
EXPOSURE D
ROOF LIVE LOAD 20 PSF
ASCE 7-22 CODE
DEAD LOAD 15 PSF
FLOOR LIVE LOAD 40 PSF
FEMA FLOOD DESIGN PER ASCE 24-14

THE WORK DEPICTED HEREIN WAS DESIGNED TO MEET THE REQUIREMENTS OF THE 2020 FLORIDA RESIDENTIAL BUILDING CODE AND THE LATEST EDITIONS OF THE FLORIDA MODEL ENERGY CODE, FIRE CODE, LIFE SAFETY CODE AND THE NATIONAL ELECTRIC CODE.

GENERAL NOTES

- THESE PLANS ARE FOR THE CONSTRUCTION AT THE LOCATION SO DESIGNATED HEREIN.
- THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, EQUIPMENT AND SUPERVISION NECESSARY TO PROVIDE THE WORK COMPLETE AND READY FOR USE.
- THERE SHALL BE NO DEVIATION FROM THESE PLANS WITHOUT PRIOR APPROVAL FROM THE ENGINEER OF RECORD.
- THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS BEFORE BID. CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS OF THE WORK SITE AND REPORT ANY DISCREPANCIES, DIFFERENCES OR CONDITIONS THAT ARE UNSATISFACTORY OR UNSAFE.
- NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY DISCREPANCIES, DIFFERENCES, UNSATISFACTORY OR UNSAFE CONDITIONS. ANY MODIFICATIONS OR CHANGES MADE WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNER AND ENGINEER OF RECORD SHALL NOT BE ALLOWED. ANY REWORK, RESTORATION OR OTHER IMPACT AS A RESULT OF NOT OBTAINING SUCH PRIOR APPROVAL WILL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR COMPENSATION FROM THE OWNER.
- THE CONTRACTOR SHALL PROVIDE FOR THE SAFETY, PREVENTION OF INJURY OR OTHER LOSS AT THE JOB TO ALL PERSONS EMPLOYED IN THE WORK, PERSONS VISITING THE WORK AND THE GENERAL PUBLIC. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE PREVENTION OF DAMAGE, DUE TO THE WORK, TO MATERIALS OR EQUIPMENT AND OTHER PROPERTY AT THE SITE OR ADJACENT THERETO.
- NO RESEARCH AS TO THE PRESENCE OF UNDERGROUND UTILITIES HAS BEEN INCLUDED ON OR PERFORMED FOR THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING SUNSHINE UTILITY LOCATE SERVICE PRIOR TO ANY CONSTRUCTION WITHIN ANY PUBLIC RIGHT-OF-WAY OR OTHER AREAS WHERE UNDERGROUND UTILITIES MAY BE PRESENT (I.E. IN AND AROUND UTILITY EASEMENTS, ETC.).
- THE GENERAL CONTRACTOR SHALL PROVIDE AN ON-SITE DUMPSTER IN A LOCATION COORDINATED WITH THE OWNER FOR THE DISPOSAL OF REMOVED MATERIAL AND CONSTRUCTION DEBRIS. THE DUMPSTER SHALL BE EMPTIED AT APPROPRIATE INTERVALS TO PREVENT OVERFLOW AND UNSIGHTLY CONDITIONS.
- THE CONTRACTOR SHALL PERFORM ALL WORK IN STRICT CONFORMANCE WITH THE PLANS, 2020 FLORIDA BUILDING CODE, LOCAL CODES AND ORDINANCES, MANUFACTURER RECOMMENDATIONS AND ACCEPTABLE TRADE PRACTICES. ANY CONFLICT BETWEEN THESE REQUIREMENTS AND THE MOST STRINGENT REQUIREMENTS SHALL GOVERN THE WORK.
- SHOP DRAWINGS OF ALL PREFABRICATED STRUCTURAL FLOOR AND ROOF SYSTEMS AND MECHANICAL SYSTEMS SHALL BEAR THE SEAL OF A FLORIDA PROFESSIONAL ENGINEER AS REQUIRED BY THE 2023 FLORIDA BUILDING CODE AND SHALL BE SUBMITTED TO THE ENGINEER OF RECORD BY THE CONTRACTOR FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
- THE CONTRACTOR SHALL NOT SCALE DRAWINGS. ANY INFORMATION THAT THE CONTRACTOR CANNOT OBTAIN FROM DIMENSIONS, DETAIL OR SCHEDULE SHALL BE OBTAINED FROM THE ENGINEER OF RECORD.
- THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES TO PREVENT ANY CONFLICTS.
- THE CONTRACTOR SHALL FURNISH ALL SUBCONTRACTORS WITH A COMPLETE SET OF PLANS. ALL CHANGES SHALL BE NOTED ON THE DRAWINGS AND (2) COMPLETE AS-BUILT SETS SHALL BE DELIVERED TO THE OWNER AFTER COMPLETION OF WORK.

SHORING & BRACING NOTES

- PROVIDE ADEQUATE SHORING AND BRACING AT ALL LOCATIONS WHERE NEW OPENINGS ARE SHOWN TO BE CUT INTO EXISTING LOAD BEARING WALLS.
- SHORING SHALL BE PERFORMED BY AN EXPERIENCED SHORING CONTRACTOR.
- SHORING SHALL BE CONTINUOUS TO THE LOWEST LEVEL AND BE ADEQUATELY DISTRIBUTED TO PREVENT DAMAGE TO EXISTING GRADE SLABS.

DEMOLITION NOTES

- PROTECT ALL EXISTING CONSTRUCTION, NOT SCHEDULED FOR REMOVAL, AT ALL TIMES. PROVIDE ADEQUATE SHORING AND/OR BRACING TO PREVENT DAMAGE. PROMPTLY REPAIR DAMAGE CAUSED TO ADJACENT FACILITIES BY REPAIR WORK AT NO COST TO THE OWNER.
- PROVIDE TEMPORARY BARRICADES AND OTHER FORMS OF PROTECTION AS REQUIRED TO PROTECT INDIVIDUALS FROM INJURY. PROVIDE SECURITY LOCKS OR OTHER MEANS TO PREVENT INADVERTENT ENTRY INTO WORK ZONE.
- CONSTRUCT DUST PROOF PARTITIONS TO SEPARATE WORK AREA WHERE NOISY OR DUSTY OPERATIONS ARE PERFORMED. KEEP WORK AREAS CLEAN TO LIMIT DUST AND DIRT TRACKING TO NON-CONSTRUCTION ZONES.
- MAINTAIN EXISTING UTILITIES FOR USE BY OWNER AND PROTECT FROM DAMAGE WHEN SERVICE INTERRUPTION IS UNAVOIDABLE. COORDINATE WITH OWNER AND UTILITY COMPANIES. PROVIDE TEMPORARY UTILITY SERVICE AS REQUIRED BY OWNER.

STRUCTURAL NOTES

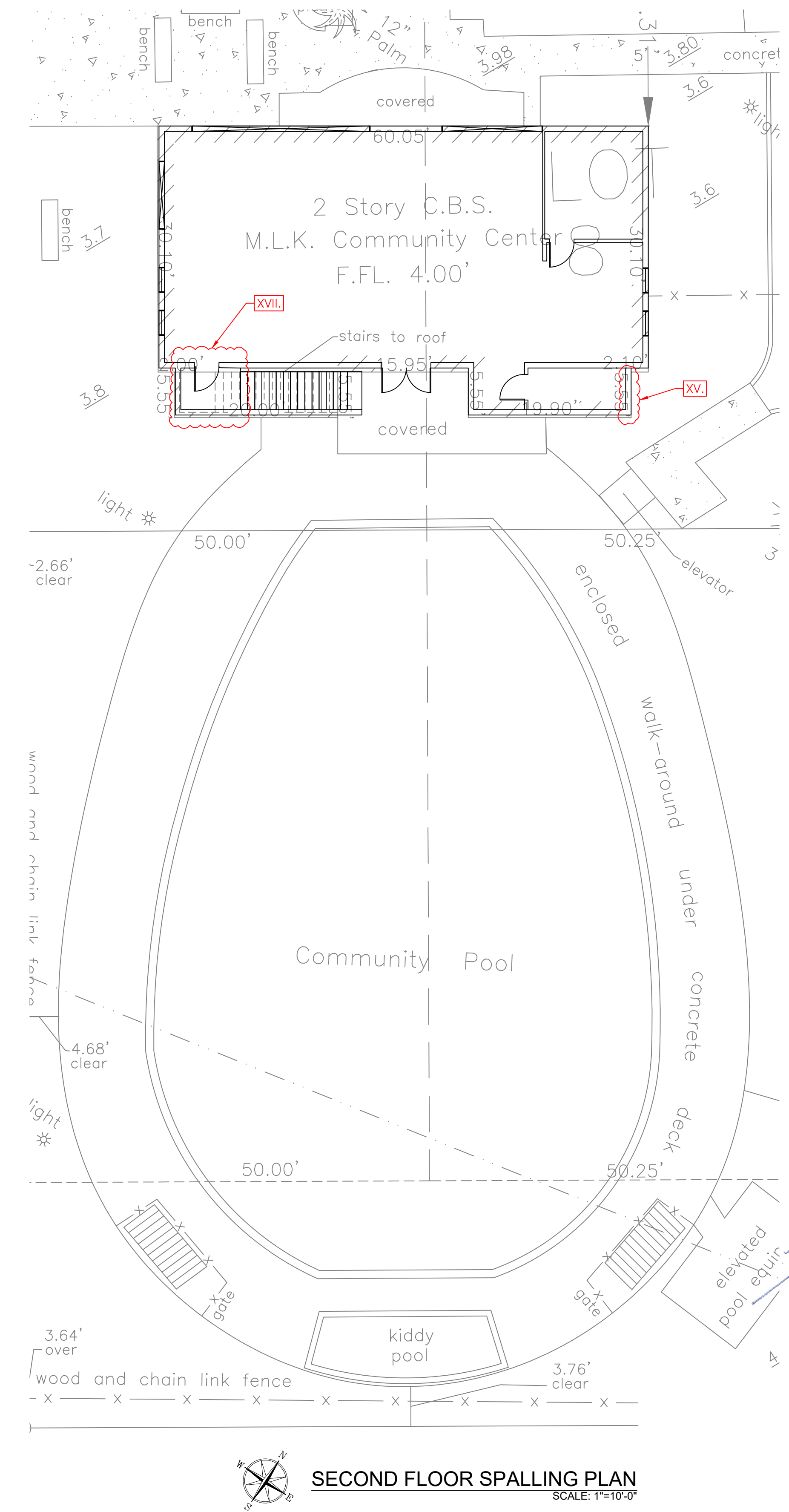
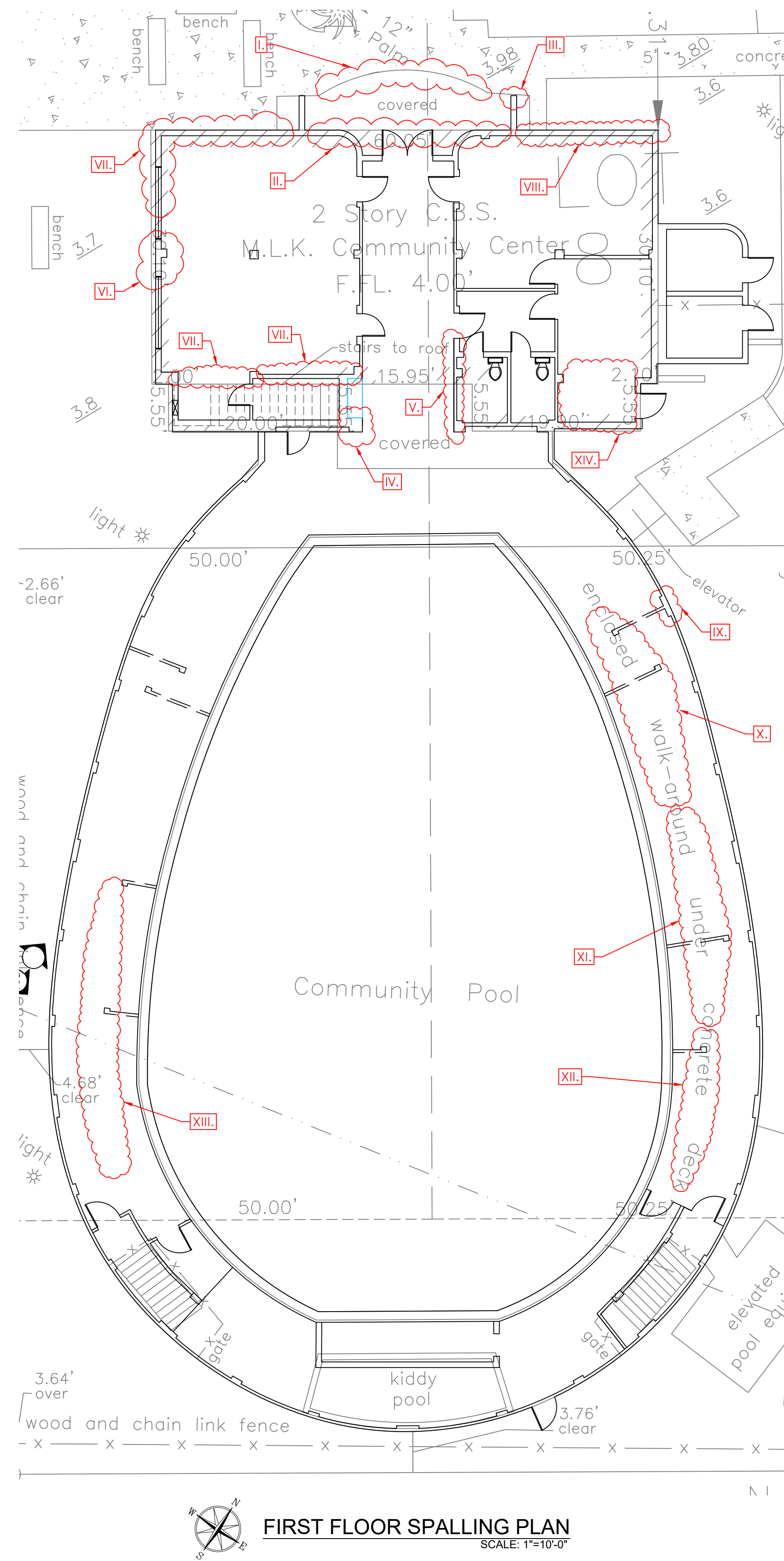
- THE WORK DEPICTED ON THESE DRAWINGS IS DESIGNED TO COMPLY WITH THE 2023 FLORIDA BUILDING CODE AND ASCE 7-22. THE BUILDING IS DESIGNED TO WITHSTAND THE PRESSURES ASSOCIATED WITH 180 MPH WIND LOADS IN ACCORDANCE WITH ASCE 7-22.
- ENGINEERS WRITTEN APPROVAL MUST BE SECURED FOR ALL STRUCTURAL SUBSTITUTIONS AND/OR MODIFICATIONS.
- PROVIDE TEMPORARY BRACING AND SUPPORT NECESSARY TO WITHSTAND ALL CONSTRUCTION AND WIND LOADS UNTIL ALL FIELD CONNECTIONS ARE COMPLETED.
- PROVIDE SHOP AND ERECTION DRAWINGS FOR ALL REINFORCING, STRUCTURAL STEEL.
- ALL STRUCTURAL STEEL AND OTHER MAJOR STRUCTURAL SHOP DRAWINGS SUBMITTED SHALL INCLUDE CALCULATIONS AND BEAR THE SEAL OF A FLORIDA PROFESSIONAL ENGINEER.

CONCRETE NOTES

- ALL FOOTINGS ARE TO BE PLACED ON FIRM, UNDISTURBED, NATURAL ROCK UNLESS OTHERWISE NOTED.
- CENTER ALL FOOTINGS UNDER WALLS, COLUMNS OR GRID LINES UNLESS OTHERWISE NOTED.
- ALL CAST-IN-PLACE CONCRETE SHALL BE MADE WITH TYPE I PORTLAND CEMENT, STONE AGGREGATE AND SHALL DEVELOP AT LEAST 5,000 PSI COMPRESSIVE STRENGTH IN 28 DAYS. (UNLESS OTHERWISE NOTED.)
- ALL CONCRETE WORK AND REINFORCING DETAILS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 318. EXPOSED EDGES OF CONCRETE SHALL HAVE 1/2" CHAMFER. USE STANDARD HOOKS ON DOWELS UNLESS OTHERWISE NOTED.
- CONCRETE FORMS SHALL BE WETTED IMMEDIATELY PRIOR TO PLACING CONCRETE.
- MIXING, PLACING AND CURING OF ALL CONCRETE MUST BE IN ACCORDANCE WITH ACI 308R, HOT WEATHER CONCRETING. NEW CONCRETE EXPOSED TO DIRECT SUNLIGHT SHALL BE COVERED AND SPRAYED.
- ALL REINFORCING SHALL BE HIGH STRENGTH DEFORMED BARS CONFORMING TO ASTM A-615, GRADE 60.
- REINFORCEMENT COVERAGE SHALL BE 2" MINIMUM WHEN FORMS ARE USED AND 3" MINIMUM WHEN POURED AGAINST THE EARTH, UNLESS OTHERWISE NOTED.
- LAP SPLICES SHALL BE A MINIMUM OF 48 BAR DIAMETERS. MAKE ALL BARS CONTINUOUS AROUND CORNERS.
- PROVIDE ALL ACCESSORIES NECESSARY TO SECURE REINFORCING IN PROPER POSITION AS INDICATED ON THE DRAWINGS AND IN ACCORDANCE WITH ACI 318. ALL ACCESSORIES TO BE GALVANIZED.

SPALLING LEGEND

- FRONT ENTRY OVERHEAD EDGE
- FRONT ENTRY LIP OVER ENTRANCE
- FRONT ENTRY LEFT OF DOOR
- STAIRWAY CORNER COLUMN
- LEFT SIDE WALL AT POOL ENTRANCE (BEHIND DESK)
- MUSIC ROOM COLUMN BY SHORING
- MUSIC ROOM BEAM OVER SHORING AND ROOM
- UTILITY ROOM WITH INSTRUMENTS FRONT BEAM
- WOMEN'S ROOM BLOCK WALL CORNER SEPARATION AND WALL
- WOMEN'S ROOM HALLWAY OVER SHORING.
- WOMEN'S BATHROOM CEILING DOWN MIDDLE
- WOMEN'S BATHROOM OVER TOILETS
- MEN'S BATHROOM CEILING
- CEILING UNDER LIFE GUARD CHANGING ROOM
- LIFE GUARD CHANGING ROOM BEAM
- STAIRS CEILING UNDER LIGHTS
- STAIRS CEILING UNDER LIGHTS



REVISIONS:		
No.	DATE	REMARKS

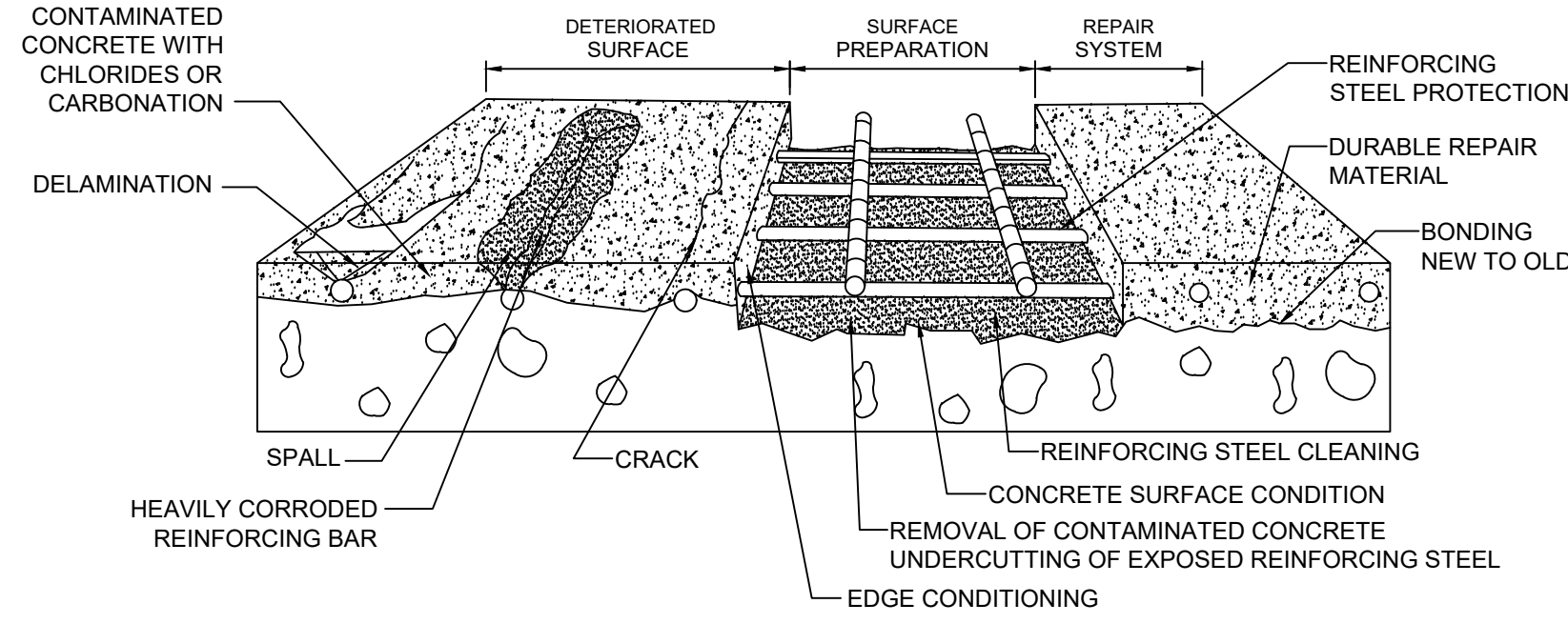
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CONCRETE REPAIR PLAN
FOR
CITY OF KEY WEST
304 CATHERINE ST., KEY WEST, FL

JAMES C. REYNOLDS, P.E.
FLORIDA PROFESSIONAL ENGINEER
No. 46885
James C. Reynolds, PE
Fl. License No. 46885
Drawn by: KLC
Checked by: JCR

Title:
SITE DATA & SPALLING PLAN
Sheet:
S-1
Date: 12.21.2023

ANATOMY OF SURFACE REPAIRS



CONCRETE REPAIR SPECIFICATIONS

SECTION 1 - SCOPE OF WORK

- THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, UTILITIES AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK DESCRIBED HEREIN. THE WORK INCLUDES REMOVING UNSOUND CONCRETE, CLEANING ALL AREAS UPON WHICH REPAIR MORTAR IS TO BE PLACED, CLEANING AND COATING REINFORCEMENT STEEL, REPLACING REINFORCEMENT STEEL, PLACING REPAIR MORTAR, SHORING AS REQUIRED AND ANY WORK NECESSARY TO PROVIDE THE WORK COMPLETE AND READY FOR USE.
- THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE, INCLUDING ACCESS AND AVAILABILITY OF UTILITIES. ALL SITE CONDITIONS WILL BE VERIFIED AND ANY DEVIATIONS WILL BE REPORTED TO THE ENGINEER. THE CONTRACTOR SHALL VERIFY THAT NO CONCEALED ELECTRICAL CONDUITS OR PRE-STRESSING/POST-TENSIONING TENDONS EXIST.
- THE CONTRACTOR IS RESPONSIBLE FOR SECURING AND PROVIDING ALL PERMITS REQUIRED FOR THE WORK. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, REGULATIONS AND LAWS. IF THERE IS A CONFLICT BETWEEN THESE SPECIFICATIONS AND ANY SUCH CODES, ORDINANCES, REGULATIONS AND LAWS, THE MOST STRINGENT WILL GOVERN.
- THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION FOR ALL EXISTING FEATURES THAT ARE TO REMAIN AND APPROVED SHORING FOR TEMPORARY SUPPORT OF STRUCTURAL MEMBERS. SHORING SHALL BE ENGINEERED TO SAFELY AND ADEQUATELY SUPPORT STRUCTURAL LOADINGS TO BE ENCOUNTERED UNTIL THE WORK IS COMPLETE. THE CONTRACTOR WILL REMOVE ALL DEVICES USED FOR PROTECTION AFTER THE WORK IS COMPLETE AND WILL RETURN THE SITE TO ITS ORIGINAL CONDITION.
- PROOF OF INSURANCE AND LICENSURE WILL BE TENDERED TO THE OWNER PRIOR TO COMMENCING WORK.

SECTION 2 - MATERIALS

- THE MATERIALS SHALL BE DELIVERED TO THE SITE IN ORIGINAL PACKAGING BEARING IDENTIFICATION OF THE PRODUCT, MANUFACTURER, BATCH NUMBER, AND EXPIRATION DATE AS APPLICABLE. THE PRODUCTS SHALL BE PROTECTED FROM DAMPNESS, CONSTRUCTION ACTIVITY, PRECIPITATION, AND DIRECT SUNLIGHT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. HANDLE ALL PRODUCTS WITH APPROPRIATE PRECAUTIONS AND CARE AS DESCRIBED ON THE MATERIAL SAFETY DATA SHEET (MSDS).
- THE STRUCTURAL REPAIR MORTAR SYSTEMS SHALL BE FACTORY PRE-MEASURED, POLYMER AND/OR SILICA FUME MODIFIED, SHRINKAGE-COMPENSATED, CEMENT BASED PRODUCTS OR PLANT MIX APPROVED BY ENGINEER. THE STRUCTURAL REPAIR MORTAR SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS FOR THE SPECIFIC APPLICATION USED.
 - THE CURED REPAIR MORTAR SYSTEMS SHALL HAVE THE FOLLOWING PROPERTIES:
 - DRYING SHRINKAGE (ASTM C598); MAXIMUM 0.1% AT 28 DAYS
 - SLANT SHEAR BOND STRENGTH (ASTM C1042); MINIMUM 1 DAY 800 PSI, 7 DAY 1700 PSI, 28 DAY 2200 PSI
 - MODULUS OF ELASTICITY (ASTM C469); MINIMUM 2.2 MILLION PSI, 28 DAYS
 - RAPID CHLORIDE PERMEABILITY (ASTM C1202); MAXIMUM 1000 COULOMBS
 - COMPRESSIVE STRENGTH (ASTM C109); MINIMUM 1 DAY 1500 PSI, 7 DAY 4000 PSI, 28 DAY 6000 PSI
 - FLEXURAL STRENGTH (ASTM C348); MINIMUM 28 DAY 800 PSI, SPLIT TENSILE STRENGTH (ASTM C496); MINIMUM 28 DAY 500 PSI
- REINFORCEMENT
 - ASTM A615, GRADE 60
 - #3 MST-BAR OR 4EQ STRUCTURAL BAR
- AGGREGATE
 - COARSE: PEA GRAVEL, 1/4" TO 3/8" WASHED, ROUND QUARTZ (ASTM C33)
 - FINE: CLEAN, WASHED, DRIED SILICA SAND (ASTM C33)
- CURING COMPOUND
 - CHEMICAL-TYPE HARDENING COMPOUND FUNCTIONAL AS A CONCRETE CURE AND SEAL.

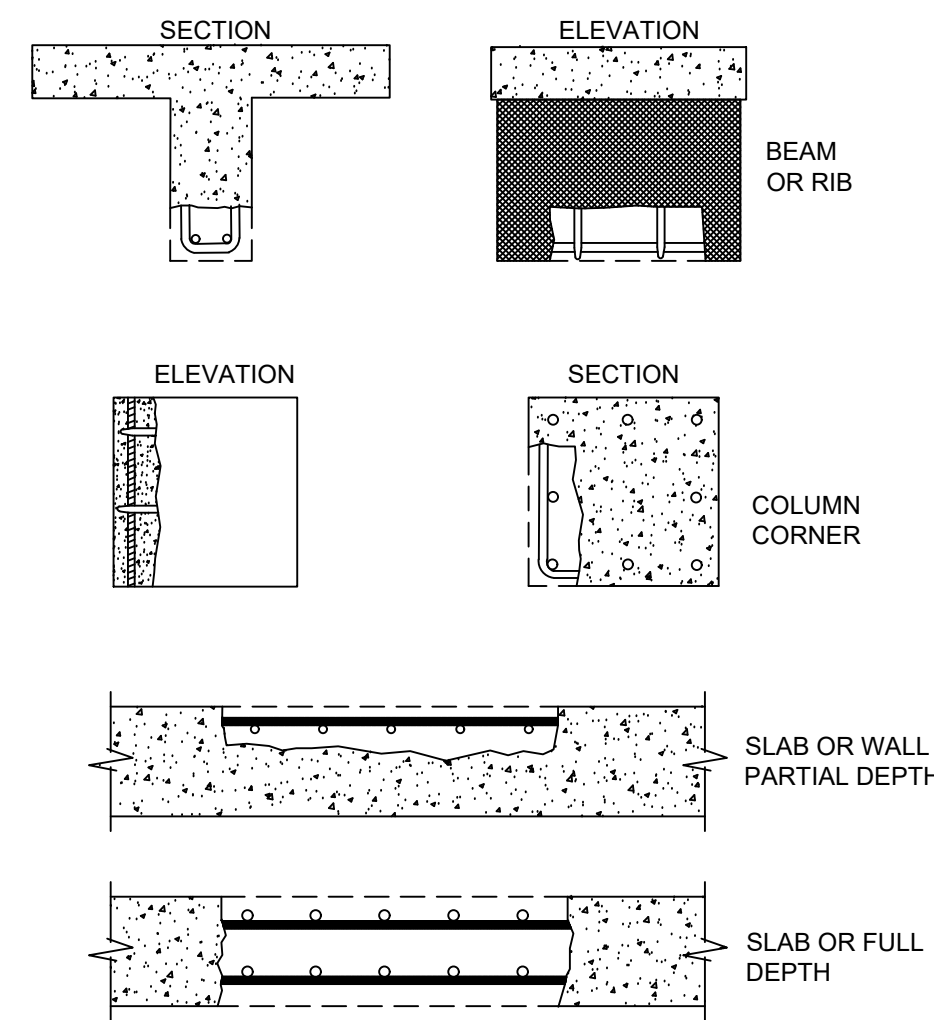
SECTION 3 - EXECUTION

- CONCRETE REPAIR
 - REMOVE UNSOUND CONCRETE AND ALL CONCRETE NECESSARY TO COMPLETELY EXPOSE ANY CORRODED STEEL. UNSOUND CONCRETE AND ANY LOOSE AND/OR DELETERIOUS MATERIAL SHALL BE MECHANICALLY REMOVED USING A 15-POUND GLASS PNEUMATIC HAMMER. ALL CONCRETE ADJACENT TO CORRODED STEEL SHALL BE REMOVED TO A DEPTH THAT WILL PERMIT REPAIR MORTAR TO BOND TO THE ENTIRE PERIPHERY OF THE STEEL. A MINIMUM 3/4-INCH CLEARANCE SHALL BE REQUIRED OR 1/4-INCH LARGER THAN THE LARGEST REPAIR AGGREGATE, WHICHEVER IS GREATER.
 - THE REINFORCING STEEL SHALL BE MECHANICALLY CLEANED TO BARE WHITE METAL BY SANDBLASTING OR WIREBRUSHING. THE STEEL SHALL BE FREE OF RUST, GREASE, OIL, AND OTHER BOND INHIBITING MATTER. STEEL THAT HAS LOST MORE THAN 15% OF THE CROSS SECTIONAL AREA SHALL BE REPLACED. NEW STEEL SHALL BE CLEANED IN THE SAME MANNER DESCRIBED ABOVE. CARE SHALL BE EXERCISED TO PREVENT CUTTING, STRETCHING, OR DAMAGING ANY EXPOSED STEEL. ALL EXPOSED AND NEW STEEL SHALL BE COATED WITH CORROSION PROTECTION MATERIAL.
 - THE REPAIR AREA PERIMETER SHALL BE SAW-CUT TO ELIMINATE FEATHERED EDGES. THE SAW-CUTS SHALL BE 1/2"-INCH DEEP OR LESS AS REQUIRED TO AVOID CUTTING REINFORCING STEEL (MINIMUM 1/4"-INCH).
 - ALL WORK SHALL BE IN CONFORMANCE WITH THE INTERNATIONAL ASSOCIATION OF CONCRETE REPAIR SPECIALISTS (IACRS) GUIDELINE 03731 AND THE MANUFACTURER'S RECOMMENDATIONS.
 - REPORT ANY CRACKS THAT APPEAR IN THE INTERFACE AREA OF THE PATCH OR OVERLAY TO THE ENGINEER. REPAIR ALL CRACKS AND EXPANSION/CONTROL JOINTS AS DIRECTED BY THE ENGINEER.
- MIXING
 - THE MIXERS SHALL BE CLEAN AND THE INGREDIENTS ACCURATELY PROPORTIONED. THE REPAIR MORTAR SHALL BE MIXED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AT THE SITE WITH THE SPECIFIC EQUIPMENT REQUIREMENTS. THE MATERIAL DISCHARGED FROM THE MIXER SHALL BE UNIFORM IN COMPOSITION AND CONSISTENCY.
- PLACEMENT
 - STRUCTURAL REPAIR MORTAR
 - THE WORK SHALL NOT BE EXECUTED UNDER CONDITIONS OF PRECIPITATION OR TEMPERATURES ABOVE 90 DEGREES FAHRENHEIT. INSPECT ALL SURFACES TO RECEIVE REPAIR MORTARS TO ENSURE SUBSTRATE IS CLEAN, SOUND, PROPERLY CURED, AND FREE OF STANDING WATER, COATINGS, CURING COMPOUNDS, FOREIGN PARTICLES, OIL, DUST, GREASE, LAITANCE OR OTHER MATERIAL THAT WILL ADVERSELY AFFECT THE BONDING OF THE REPAIR MATERIALS. AT THE TIME OF APPLICATION, THE SUBSTRATE SHALL BE SATURATED SURFACE DRY WITH NO STANDING WATER. PLACEMENT OF REPAIR MORTAR SHALL BE AS SPECIFIED BY THE MATERIAL SUPPLIER.
- CURING
 - ADHERE TO THE MANUFACTURER'S RECOMMENDATIONS, LIMITATIONS AND CAUTIONS FOR THE STRUCTURAL REPAIR MORTAR.
- SAFETY
 - SHORING, SCAFFOLDING, LADDERS, BELTS, HARNESSSES, LIFELINES AND OTHER SAFETY EQUIPMENT (SUCH AS RESPIRATORY, SKIN, AND EYE PROTECTION) USED TO REDUCE HAZARDS TO WORKERS SHALL BE IN COMPLIANCE WITH THE REGULATIONS ESTABLISHED BY THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- QUALITY CONTROL
 - COMPRESSIVE STRENGTH TESTS: ONE SET OF THREE CYLINDERS FOR EACH 100 CUBIC FEET OF MATERIAL BATCHED SHALL BE TESTED IN ACCORDANCE WITH ASTM C109. TEST RESULTS WILL BE RETURNED WITHIN 24 HOURS. ANY MATERIAL THAT FALLS BELOW THE SPECIFIED LEVELS SHALL BE REPLACED ENTIRELY.

REMOVAL GEOMETRY

NOTE:

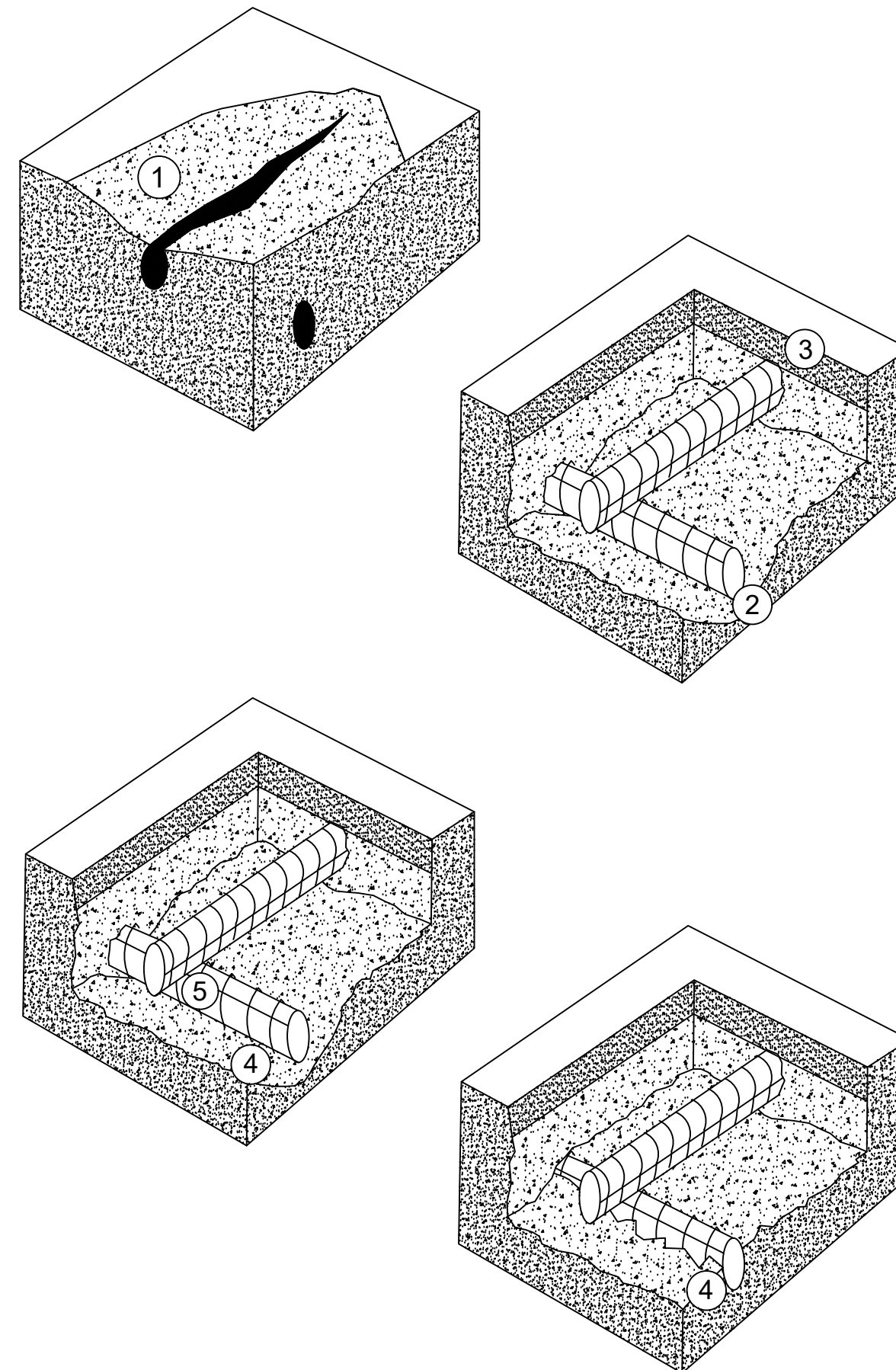
- PROVIDE SHORING OF MEMBERS AS NECESSARY.
- PARTICULAR CARE SHALL BE EXERCISED AT SLAB/BEAM CONNECTION TO COLUMNS.



EXPOSING & UNDERCUTTING OF REINFORCING STEEL

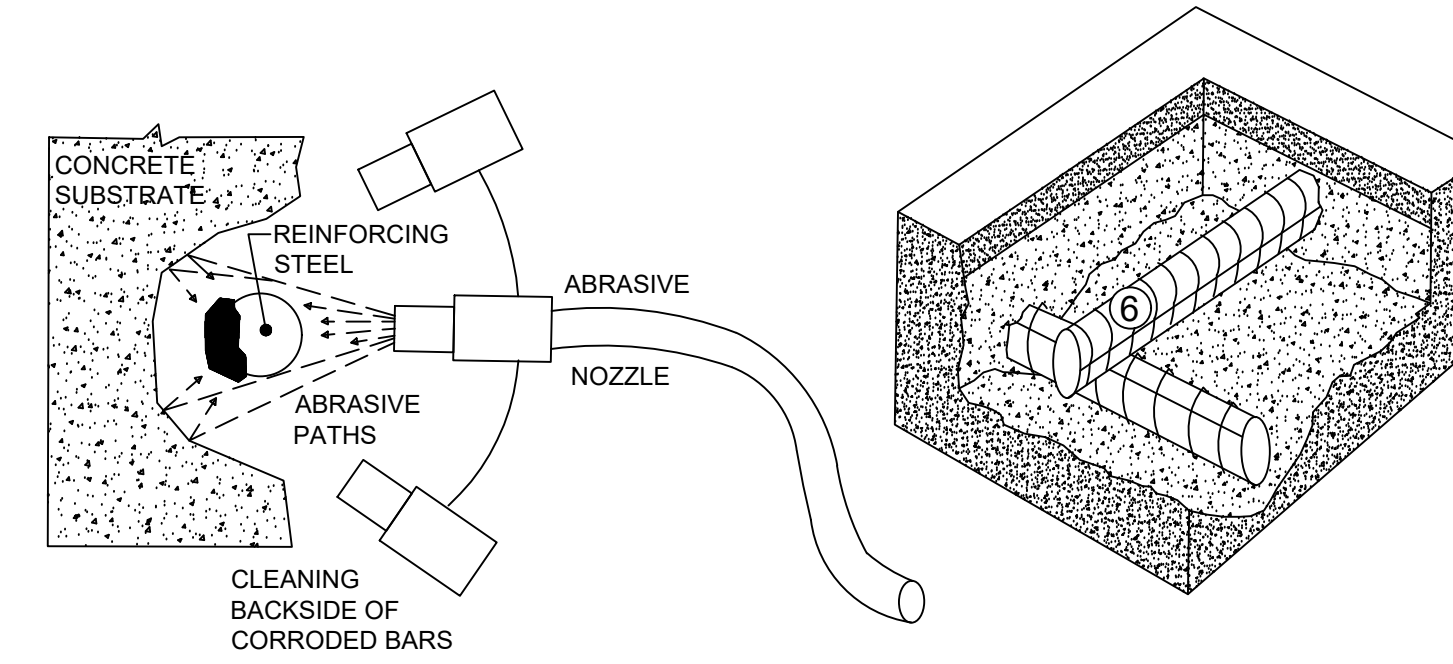
THESE DETAILS ARE APPLICABLE TO HORIZONTAL, VERTICAL, AND OVERHEAD LOCATIONS. THEY ARE ALSO APPLICABLE TO REMOVAL BY HYDRO-DEMOLITION, HYDROMILLING, AND ELECTRIC, PNEUMATIC OR HYDRAULIC IMPACT BREAKERS.

- REMOVE LOOSE OR DELAMINATED CONCRETE ABOVE CORRODED REINFORCING STEEL.
- ONCE INITIAL REMOVALS ARE MADE, PROCEED WITH THE UNDERCUTTING OF ALL EXPOSED CORRODED BARS. UNDERCUTTING WILL PROVIDE CLEARANCE FOR UNDER BAR CLEANING AND FULL BAR CIRCUMFERENCE BONDING TO SURROUNDING CONCRETE, AND WILL SECURE THE REPAIR STRUCTURALLY. PROVIDE MINIMUM 3/4" (19MM) CLEARANCE BETWEEN EXPOSED REBARS AND SURROUNDING CONCRETE OR 1/4" (6MM) LARGER THAN THE LARGEST AGGREGATE IN REPAIR MATERIAL, WHICHEVER IS GREATER.
- CONCRETE REMOVALS SHALL EXTEND ALONG THE BARS TO LOCATIONS ALONG THE BAR FREE OF BOND INHIBITING CORROSION, AND WHERE THE BARS IS WELL BONDED TO SURROUNDING CONCRETE.
- IF NON-CORRODED REINFORCING STEEL IS EXPOSED DURING THE UNDERCUTTING PROCESS, CARE SHALL BE TAKEN NOT TO DAMAGE THE BAR'S BOND TO SURROUNDING CONCRETE. IF BOND BETWEEN BAR AND CONCRETE IS BROKEN, UNDERCUTTING OF THE BAR SHALL BE REQUIRED.
- ANY REINFORCEMENT WHICH IS LOOSE SHALL BE SECURED IN PLACE BY TYING TO OTHER SECURED BARS OR BY OTHER APPROVED METHODS.



CLEANING AND REPAIR OF REINFORCING STEEL

- ALL HEAVY CORROSION AND SCALE SHOULD BE REMOVED FROM THE BAR AS NECESSARY TO PROMOTE MAXIMUM BOND OF REPLACEMENT MATERIAL. OIL FREE ABRASIVE BLAST IS THE PREFERRED METHOD. A TIGHTLY BONDED LIGHT RUST BUILD-UP ON THE SURFACE IS USUALLY NOT DETRIMENTAL TO BOND, UNLESS A PROTECTIVE COATING IS BEING APPLIED TO THE BAR SURFACE. IN WHICH CASE THE COATING MANUFACTURER'S RECOMMENDATIONS FOR SURFACE PREPARATION SHOULD BE FOLLOWED.

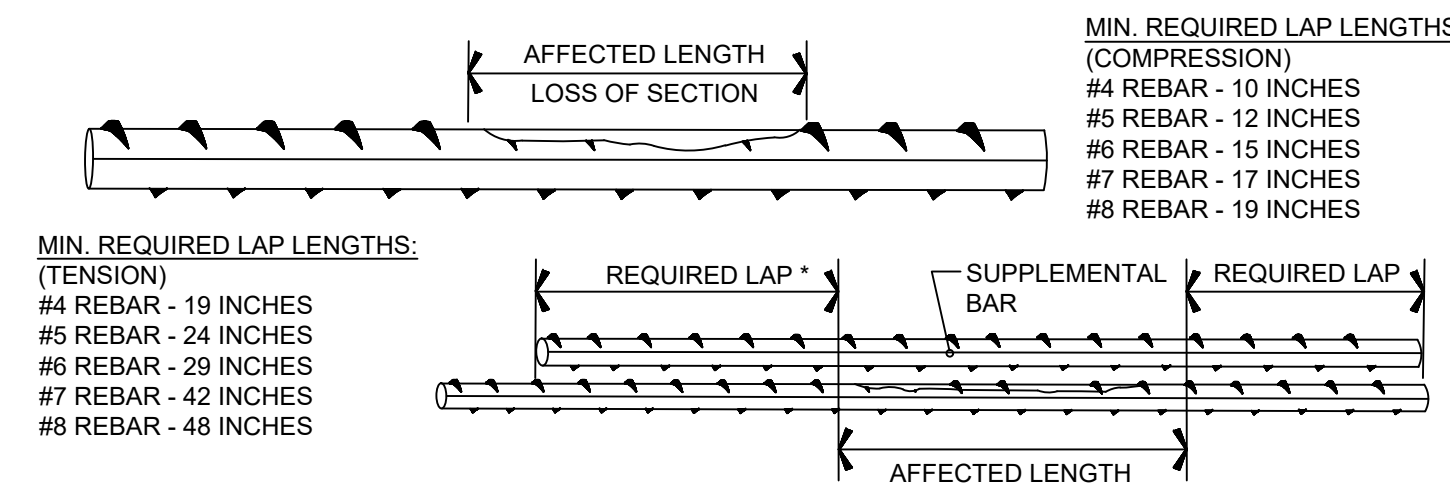


REPAIR OF REINFORCING STEEL DUE TO LOSS OF SECTION

- IF REINFORCING STEEL HAS LOST 15% OF ITS DIAMETER COMPLETE BAR REPLACEMENT, OR ADDITION OF SUPPLEMENTAL BAR OVER AFFECTED SECTION.

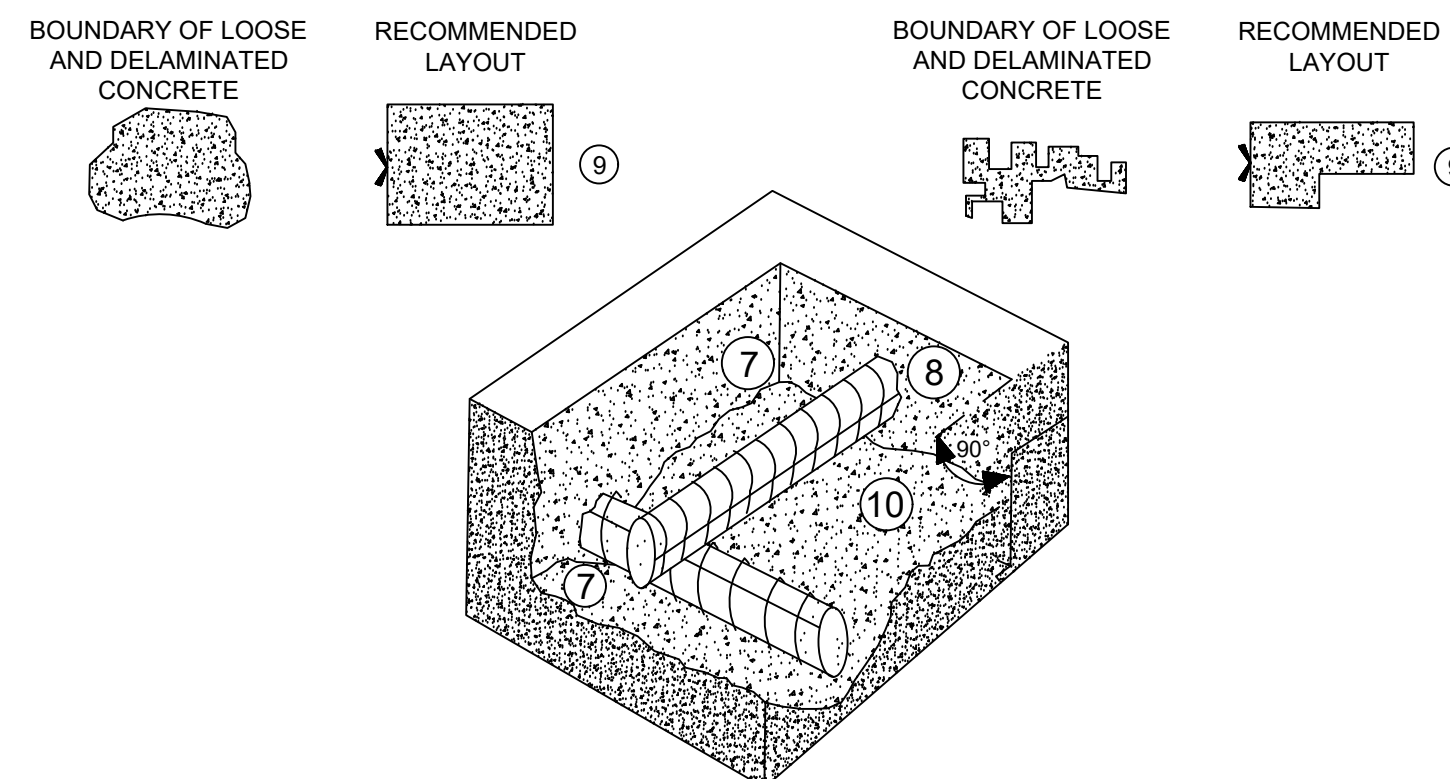
EXAMPLE:

 - #8 REBAR DIA. = 1" (REPLACE IF 0.850" OR LESS)
 - #7 REBAR DIA. = 0.875" (REPLACE IF 0.744" OR LESS)
 - #6 REBAR DIA. = 0.75" (REPLACE IF 0.637" OR LESS)
 - #5 REBAR DIA. = 0.625" (REPLACE IF 0.531" OR LESS)
 - #4 REBAR DIA. = 0.5" (REPLACE IF 0.425" OR LESS)
 - #3 REBAR DIA. = 0.375" (REPLACE IF 0.318" OR LESS)
- NEW BARS MAY BE MECHANICALLY SPLICED TO OLD BARS OR PLACED PARALLEL TO AND APPROXIMATELY 3/4" (19MM) FROM EXISTING BARS. LAP LENGTHS SHALL BE DETERMINED IN ACCORDANCE WITH ACI 318; ALSO REFER TO CRSI AND AASHTO MANUAL.



EDGE & SURFACE CONDITIONS OF CONCRETE

- REMOVE DELAMINATED CONCRETE, UNDERCUT REINFORCING STEEL (REFER TO "EXPOSING AND UNDERCUTTING OF REINFORCING STEEL"), REMOVE ADDITIONAL CONCRETE AS REQUIRED TO PROVIDE MINIMUM REQUIRED THICKNESS OF REPAIR MATERIAL.
- AT EDGE LOCATIONS, PROVIDE RIGHT ANGLE CUTS TO THE CONCRETE SURFACE WITH EITHER OF THE FOLLOWING METHODS: SAWCUT 1/2" (13MM) OR LESS AS REQUIRED TO AVOID CUTTING REINFORCING STEEL. USE POWER EQUIPMENT SUCH AS HYDRODEMOLITION OR IMPACT BREAKERS. AVOID FEATHER EDGES.
- REPAIR CONFIGURATIONS SHOULD BE KEPT AS SIMPLE AS POSSIBLE, PREFERABLY WITH SQUARED CORNERS.
- AFTER REMOVALS AND EDGE CONDITIONING ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, CONCRETE SLURRY, LOOSELY BONDED AGGREGATES) BY ABRASIVE OR HIGH PRESSURE WATERBLASTING WITH OR WITHOUT ABRASIVE. CHECK THE CONCRETE SURFACES AFTER CLEANING TO INSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE, OR ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
- IN HYDRODEMOLITION IS USED, CEMENT & PARTICULATE SLURRY MUST BE REMOVED FROM THE PREPARED SURFACES BEFORE SLURRY HARDENS.



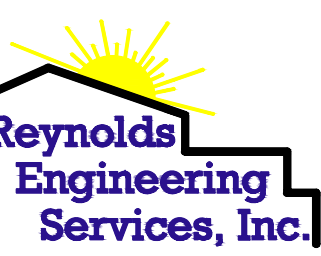
CONCRETE REPAIR MATERIALS

CONCRETE: 5,000 PSI MIN.
 STEEL COATING: FX 406 ZINC RICH PRIMER OR ENGINEERED APPROVED EQUIVALENT
 BONDING AGENT: FX 792 LP HYDRO-ESTER® HIGH MODULUS EPOXY RESIN OR ENGINEER APPROVED EQUIVALENT
 REPAIR COMPOUND: FX 263 RAPID HARDENING TROWELABLE MORTAR OR ENGINEER APPROVED EQUAL
 SIMILAR PRODUCTS INCLUDE: RAPID SET AND SIKKA MATERIALS
 CONTRACTOR TO USE FX 406 ON ANY EXPOSED REBAR TO REMAIN.
 CONTRACTOR TO MATCH EXISTING DECK AND WALL COLORS WITH REPAIR MATERIAL.

EMBEDDED GALVANIC ANODES

(OPTIONAL, BUT RECOMMENDED TO EXTEND LIFE OF REPAIRS)

- EMBEDDED GALVANIC ANODES SHALL BE VECTOR CORROSION TECHNOLOGY GALVASHIELD XP2, BASF BUILDING SYSTEMS EMACO CP, OR EQUIVALENT.
- REPAIR MORTARS, CONCRETE AND BONDING AGENTS SHALL BE PORTLAND CEMENT BASED MATERIALS WITH SUITABLE ELECTRICAL CONDUCTIVITY LESS THAN 15,000 OHM-CM. NON-CONDUCTIVE REPAIR MATERIALS SUCH AS EPOXY, URETHANE, OR MAGNESIUM PHOSPHATE SHALL NOT BE PERMITTED TO SECURE THE EMBEDDED GALVANIC ANODES. IF HIGHER ELECTRICALLY RESISTANT REPAIR MORTARS ARE USED, THE ANODES SHALL BE EMBEDDED IN GALVASHIELD EMBEDDING MORTAR, OR EQUIVALENT. TP CREATE A CONDUCTIVE BRIDGE FROM THE ANODE TO THE EXISTING CONCRETE PRIOR TO PLACEMENT OF THE REPAIR MORTAR.
- EMBEDDED ANODES SHALL BE PLACED AROUND THE PERIMETER OF THE REPAIR AREA WITH SPACING OF 18" BETWEEN ANODES THROUGHOUT THE REPAIR AREA.
- PLACE EMBEDDED ANODES AS CLOSE AS POSSIBLE TO THE PATCH EDGE WHILE PROVIDING SUFFICIENT CLEARANCE BETWEEN ANODES AND EXISTING CONCRETE TO ALLOW REPAIR MORTAR TO FULLY ENCASE THE ANODE.
- TIE-WIRES SHALL BE WRAPPED AROUND THE CLEANED REINFORCING STEEL MULTIPLE TIMES IN OPPOSITE DIRECTIONS AND THEN TWISTED TIGHT USING REBAR WIRE TWISTING TOOL OR PLIERS TO ALLOW LITTLE OR NO ANODE MOVEMENT DURING CONCRETE PLACEMENT. IF LESS THAN 1" OF CONCRETE COVER IS EXPECTED, PLACE ANODE BESIDE OR BENEATH THE BAR AND SECURE TO CLEAR REINFORCING STEEL.



REVISIONS:		
No.	DATE	REMARKS

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CONCRETE REPAIR PLAN
 FOR
 CITY OF KEY WEST
 304 CATHERINE ST., KEY WEST, FL



James C. Reynolds, PE
 Fl. License No. 46685
 Drawn by: KLC
 Checked by: JCR
 Title: SPALLING REPAIR DETAILS
 Sheet: S-2
 Date: 12.21.2023