

GENERAL NOTES

LAKE COUNTY
LAK-90-6.71

OHIO
FHWA
REGION 5

172
182

STRUCTURE NOTES

SCOPE OF PROPOSED MAJOR WORK ITEMS

MAJOR WORK, AS LISTED BELOW, IS LIMITED TO THE FOLLOWING STRUCTURES: BR. NO. LAK-90-0711 BR. NO. LAK-90-0767, BR. NO. LAK-90-1007, BR. NO. LAK-90-1031, BR. NO. LAK-90-1151

- 1) REPAIR OF UNSOUND AREAS OF EXISTING OVERLAYS AND TOTAL SURFACE TREATMENT WITH HIGH MOLECULAR WEIGHT METHACRYLATE.
- 2) SOUNDING OF ALL CONCRETE BRIDGE COMPONENTS, PATCHING AS NECESSARY AND SEALING.
- 3) FENCE INSTALLATION
- 4) RESETTING TILTED ROCKERS.
- 5) REPLACE END CROSS FRAMES.

FOR EXACT WORK ITEMS ON EACH STRUCTURE SEE THE GENERAL PLAN SHEETS.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.5 AND 105.2.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

PLANS OF EXISTING STRUCTURES ARE AVAILABLE FOR EXAMINATION AT THE OHIO DEPARTMENT OF TRANSPORTATION: DISTRICT 12 OFFICE: 5500 TRANSPORTATION BLVD., GARFIELD HTS., OHIO, AND AT THE ODOT BUREAU OF BRIDGES, 25 SOUTH FRONT STREET, COLUMBUS OHIO.

TRAFFIC CONTROL FOR STRUCTURE REPAIR WORK

WHEN THE PROPOSED STRUCTURE DECK REPAIR WORK REQUIRES A LANE CLOSURE IT SHALL BE LIMITED AS NOTED BELOW:

| BRIDGE NO. | BASIC ROADWAY | MAINTAIN |
|-------------|---------------------------|--|
| LAK-90-0711 | 1 LANE EACH DIRECTION | 1 LANE EACH DIRECTION USING FLAGGERS AS PER MT-97.10 |
| LAK-90-0767 | 2 LANES EACH DIRECTION | 1 LANE EACH DIRECTION USING FLAGGERS AS PER MT-95.30 |
| LAK-90-1007 | 1 LANE EACH DIRECTION | 1 LANE EACH DIRECTION USING FLAGGERS AS PER MT-97.10 |
| LAK-90-1031 | 1 LANE EACH DIRECTION | 1 LANE EACH DIRECTION USING FLAGGERS AS PER MT-97.10 |
| LAK-90-1151 | 1 LANE EACH DIRECTION | 1 LANE EACH DIRECTION USING FLAGGERS AS PER MT-97.10 |

ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN AND ITEM SPECIAL - PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR

THESE ITEMS SHALL BE USED AS DIRECTED BY THE ENGINEER TO REPAIR DAMAGED CONCRETE AREAS OUTLINED BY THE ENGINEER.

GENERALLY, ITEM SPECIAL - PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR MAY BE USED WHERE THE SURFACE TO BE REPAIRED CANNOT READILY BE FORMED AND POURED OR THE REPAIR DEPTH IS 3 INCHES OR LESS. ITEM 519 (CONCRETE) SHALL BE USED WHERE THE REPAIR DEPTH IS OVER 3 INCHES AND THE SURFACE CAN BE READILY FORMED AND POURED.

ALL SURFACES TO BE PATCHED AND THE EXPOSED REINFORCING STEEL WITHIN SHALL BE THOROUGHLY CLEANED BY SANDBLASTING PRIOR TO THE CLEANING SPECIFIED BY 519.04 AND 520.05. CLEANING SHALL PRECEDE APPLICATION OF THE PATCHING MATERIAL OR ERECTION OF THE FORMS BY NOT MORE THAN 24 HOURS. PAYMENT FOR THE ABOVE REQUIREMENTS SHALL BE INCLUDED WITH THE APPROPRIATE ITEM.

ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN

THIS ITEMS SHALL CONSIST OF PATCHING EXISTING STRUCTURAL CONCRETE AS SHOWN ON THE PLANS IN ACCORDANCE WITH ITEM 519 AND THE FOLLOWING ADDITIONAL REQUIREMENTS:

1. CONCRETE MATERIAL SHALL BE AS PER 519.02 (CLASS S).
2. REMOVAL OF CONCRETE SHALL BE IN ACCORDANCE WITH ITEM 519.03. AFTER COMPLETION OF THE REMOVAL OPERATION, THE ENGINEER WILL SOUND THE AREAS TO ENSURE THAT ONLY SOLID CONCRETE REMAINS.
3. SURFACE PREPARATION SHALL INCLUDE THE THOROUGH SANDBLASTING AND AIR CLEANING OF ALL SURFACES WHICH ARE TO BE IN CONTACT WITH THE PATCHING MATERIAL.

PAYMENT SHALL BE MADE UNDER THE SQUARE FOOT UNIT PRICE FOR ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN.

ITEM SPECIAL - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

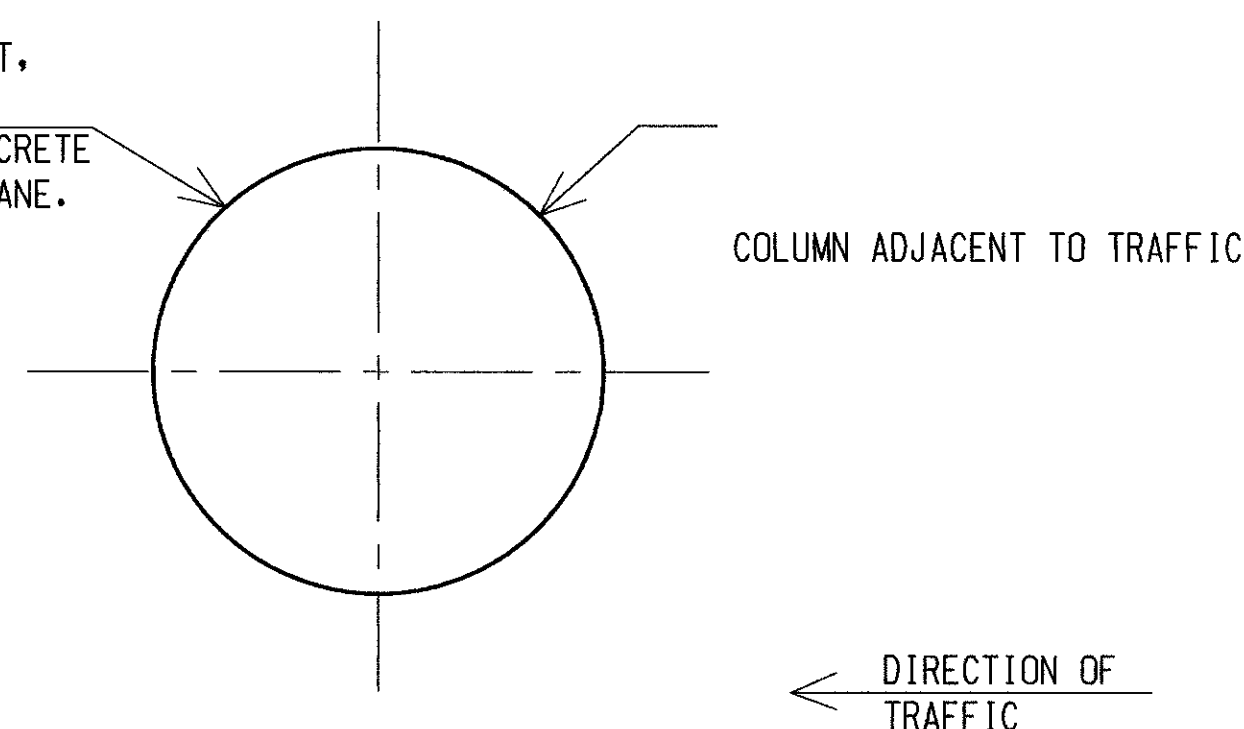
AN EPOXY SEALER SHALL BE APPLIED TO THE FOLLOWING SURFACES ON ALL BRIDGES:

SUBSTRUCTURE: EXPOSED AREAS OF ABUTMENTS, BACKWALLS, WINGWALLS, AND PIER CAPS (TOPS AND SIDES). COLUMNS ADJACENT TO TRAFFIC LANES SHALL BE SEALED EXCEPT FOR THE ONE QUADRANT AWAY FROM TRAFFIC, SEE DETAIL AT END. ALL OTHER COLUMNS SHALL BE SEALED EXCEPT FOR ONE QUADRANT.

SUPERSTRUCTURE: SIDEWALKS, PARAPET (ALL FACES), DECK EDGES AND UNDERSIDE OF DECK UP TO TO FIRST BEAM. SEE MISCELLANEOUS DETAIL SHEET.

THE FINAL COAT SHALL BE GRAY.
SEE THE PROPOSAL NOTE, SEALING OF CONCRETE SURFACES (EPOXY), FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

DO NOT SEAL THIS QUADRANT,
INSTEAD COAT WITH ITEM
SPECIAL - SEALING OF CONCRETE
SURFACES WITH TINTED SILANE.



ITEM SPECIAL - SEALING CONCRETE SURFACES WITH TINTED SILANE

THIS SEALER SHALL BE APPLIED TO THE QUADRANTS OF THE CONCRETE PIER COLUMNS LEFT BARE AFTER THE EPOXY SEALING OPERATION.

THE SEALER SHALL BE AS PER PROPOSAL NOTE TITLED "SEALING OF CONCRETE SURFACES", SHALL BE SILANE, AND SHALL BE TINTED TO FEDERAL COLOR STANDARD NO. 595A-36492.

| ITEM | UNIT | DESCRIPTION |
|---------|----------|--|
| SPECIAL | SQ. YDS. | SEALING CONCRETE SURFACES WITH TINTED SILANE |

ITEM SPECIAL - TREATING CONCRETE BRIDGE DECKS WITH HMMW RESIN

(SEE NOTE IN PROPOSAL FOR THIS ITEM OF WORK) THIS ITEM OF WORK SHALL NOT BE PERFORMED UNTIL ALL REPAIRS TO THE DECK AND WALKS ARE COMPLETE. TREATED AREA SHALL INCLUDE THE DECKS, WALKS, CURBS AND MEDIANS.

ITEM SPECIAL - CONCRETE REPAIR BY EPOXY INJECTION INCLUDING SURFACE PREPARATION

THIS WORK SHALL CONSIST OF THE REPAIR OF CRACKS OR FRACTURES IN CONCRETE BY MEANS OF AN EPOXY INJECTION SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND MANUFACTURER'S RECOMMENDATIONS OR AS DIRECTED BY THE ENGINEER.

SEE THE PROPOSAL NOTE "CONCRETE REPAIR BY EPOXY INJECTION" FOR MATERIALS, APPROVALS, PROCEDURES, METHOD OF MEASUREMENT, AND PAYMENT. AREAS TO BE REPAIRED UNDER THIS ITEM SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.

ITEM 513 - STRUCTURAL STEEL, REPLACEMENT OF DETERIORATED END CROSS FRAMES, AS PER PLAN

STEEL MEMBERS TO BE FABRICATED UNDER THIS ITEM WILL NOT REQUIRE SHOP DRAWINGS PRIOR TO FABRICATION. THE CONTRACTOR SHALL MAKE NECESSARY MEASUREMENTS AND PREPARE SKETCHES, DRAWINGS, TABLES, ETC. THE ENGINEER SHALL HAVE AUTHORITY AND RESPONSIBILITY FOR ENSURING THAT THE FABRICATED STEEL IS ACCEPTABLE. TECHNICAL ASSISTANCE WILL BE PROVIDED ON REQUEST BY THE BUREAU OF BRIDGES. MILL TEST REPORTS AND SHIPPING DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INCORPORATING STEEL ITEMS INTO THE WORK, AS REQUIRED BY 501.07. AFTER FABRICATION, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL TO ENSURE THAT THE DRAWINGS DEPICT THE STEEL AS ACTUALLY INCORPORATED INTO THE WORK. THE ENGINEER WILL THEN SEND ONE APPROVED SET TO THE BUREAU OF BRIDGES FOR INFORMATION. PAY WEIGHTS SHALL BE COMPUTED IN COMPLIANCE WITH 513 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS AND SUBMITTED TO THE ENGINEER FOR HIS REVIEW AND APPROVAL. THE FABRICATOR SHALL FURNISH A 35 MILLIMETER MICROFILM COPY OF EACH SHOP DRAWING, WHICH SHALL BE MOUNTED ON AN APERTURE CARD AS SPECIFIED IN 501.05.

STEEL MEMBERS INCLUDED IN THIS ITEM INCLUDE THE END CROSS-FRAME MEMBERS.

ITEM 516 - REFURBISHING BEARING DEVICES, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL WORK NECESSARY TO PROPERLY ALIGN BRIDGE BEARINGS AS WELL AS THEIR CLEANING AND PAINTING. INCLUDED SHALL BE THE DISASSEMBLY OF THE BEARINGS, HAND TOOL CLEANING (GRINDING IF NECESSARY), PAINTING AS REQUIRED BY SYSTEM, REPLACEMENT OF ANY DAMAGED SHEET LEAD (711.19), INSTALLATION OF ANY NECESSARY STEEL SHIMS OF THE SAME SIZE AS THE BEARINGS TO PROVIDE A SNUG FIT, REALIGNMENT OF THE UPPER BEARING PLATE BY REMOVING EXISTING WELDS AND REWELDING SO THAT THE BEARINGS ARE VERTICALLY ALIGNED AT 60 DEGREES F, LUBRICATING SLIDING SURFACES, AND REASSEMBLY OF THE BEARINGS. THE CONTRACTOR SHALL BE SURE THAT ALL BEARINGS ARE SHIMMED ADEQUATELY AND THAT NO BEAMS AND/OR BEARING DEVICES ARE "FLOATING". AT THE OPTION OF THE CONTRACTOR AND AT NO ADDITIONAL COST TO THE STATE, NEW BEARINGS OF THE SAME TYPE AS THE EXISTING MAY BE INSTALLED IN LIEU PLACE OF REFURBISHING THE BEARINGS. ALL WORK SHALL BE TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL THE ABOVE DESCRIBED LABOR AND MATERIALS WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 516 - REFURBISH BEARING DEVICES, AS PER PLAN.

ITEM SPECIAL - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE

THIS ITEM SHALL INCLUDE ALL WORK NECESSARY TO JACK AND ADEQUATELY SUPPORT THE EXISTING SUPERSTRUCTURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, INSTALLATION AND OPERATION OF AN ADEQUATE JACKING SYSTEM, INCLUDING ANY TEMPORARY OR PERMANENT SUPPORTS, TO PERFORM THE WORK DESCRIBED IN THE PROJECT PLANS. THREE (3) SETS OF JACKING AND SUPPORT PLANS, PROCEDURES AND LOADING CALCULATIONS, PERFORMED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL AT LEAST THIRTY (30) DAYS BEFORE ACTUAL WORK IS TO BEGIN. SUBMITTALS SHALL INCLUDE AT LEAST THE FOLLOWING:

1. PHYSICAL DIMENSIONS AND CAPACITY OF THE JACKING SYSTEMS ALONG WITH THE ACTUAL POSITIONS, INCLUDING DIMENSIONS, DEFINING WHERE THE JACKING SYSTEMS WILL BE PHYSICALLY LOCATED ON THE STRUCTURE TO PERFORM THE REQUIRED LIFTS.
2. PHYSICAL DIMENSIONS, MATERIALS, FABRICATION DETAILS AND DESIGN CALCULATIONS FOR ANY TEMPORARY OR PERMANENT SUPPORTS ALONG WITH ACTUAL DETAILS OF THEIR INSTALLED LOCATIONS ON THE STRUCTURE. HORIZONTAL MOVEMENT RESTRAINTS SHALL BE DESIGNED AND DETAILED. LATERAL AND LONGITUDINAL DESIGN LOADS AND SUPPORTING DESIGN CALCULATIONS SHALL BE INCLUDED.
3. A JACKING PLAN SHEET LAYOUT, WITH ADEQUATE DETAILS TO SHOW ALL JACKING POINTS, CALCULATED LOADINGS AT THOSE POINTS, LOCATIONS OF JACKING EQUIPMENT AND TEMPORARY OR PERMANENT SUPPORTS SHALL BE INCLUDED IN THE SUBMITTAL. ANY PHASED CONSTRUCTION, SPECIAL TRAFFIC REQUIREMENTS, CLEARANCE REQUIREMENTS, RAILROAD DETAILS OR SPECIAL CONSTRUCTION DETAILS THAT AFFECT THE JACKING OPERATION AND ANY OTHER DETAILS THE CONTRACTOR DEEMS NECESSARY TO ADEQUATELY VISUALLY DESCRIBE THE JACKING OPERATION SHALL ALSO BE INCLUDED IN THE JACKING PLAN SHEET.
4. THE PLAN SHEET SHALL INCLUDE A STEP BY STEP JACKING PROCEDURE DETAILING ALL STEPS IN THE OPERATION INCLUDING THE REQUIRED WORK DESCRIBED IN THE PROJECT PLANS.

JACKING OPERATIONS ARE LIMITED TO A MAXIMUM DIFFERENTIAL JACKING HEIGHT BETWEEN ADJACENT BEARINGS OF 1/4 INCH.

AT A MINIMUM, A JACKING OPERATION SHALL LIFT ALL BEARINGS AT ANY ONE ABUTMENT OR PIER SIMULTANEOUSLY. MAXIMUM DIFFERENTIAL JACKING HEIGHT BETWEEN ANY ADJACENT ABUTMENTS OR PIERS SHALL BE LIMITED BY STRESSES INDUCED IN THE AFFECTED STRUCTURAL MEMBERS. CALCULATION DETAILING ALL STRESSES INDUCED IN THE AFFECTED MEMBERS AND LIMITED BY ALLOWABLE STRESSES OF 136.5% OF NORMAL DESIGN STRESSES, SHALL BE INCLUDED IN THE JACKING PROCEDURE SUBMITTAL. THE ONLY EXCEPTION TO THE SIMULTANEOUS JACKING REQUIREMENT IS WHEN ACTUAL PROJECT WORK REQUIRES INDIVIDUAL BEARINGS TO BE REPLACED OR REHABILITATED, NO PERMANENT SHIMMING IS REQUIRED AND THE HEIGHT OF THE TOTAL LIFT DOES NOT EXCEED 1/4 INCH.

ALL LABOR, TOOLS, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK ARE INCLUDED UNDER ITEM SPECIAL, LUMP SUM, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 516 - RESET BEARINGS

THIS ITEM OF WORK SHALL CONSIST OF VERTICALLY RESETTING TILTED ROCKERS AS FOLLOWS:

- 1) LIFT THE INDIVIDUAL BEAM OR GIRDER UNTIL THERE IS NO CONTACT BETWEEN THE SOLE PLATE AND ROCKER (1/4 INCH MAXIMUM).
- 2) RESET THE ROCKER AND BASE PLATE INTO THEIR FINAL POSITION BY CENTERING THE BASE PLATE UNDER THE SOLE PLATE BOTH LONGITUDINALLY AND TRANSVERSELY AT 60 DEGREES F.
- 3) LOWER BEAM OR GIRDER.
- 4) PLACE TROWELABLE MORTAR (SEE NOTES) AROUND THE PERIMETER OF THE BASE PLATE TO PREVENT FUTURE MOVEMENT.

PAYMENT SHALL INCLUDE ALL MATERIAL, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO RESET THE BEARINGS.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE STRUCTURE SUMMARY TO BE USED WHERE AND AS DIRECTED BY THE ENGINEER.

ITEM 516 - RESET BEARINGS 14 EACH

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|--|-------|-------------|----------|---------|
| RALPH C. TYLER, P.E., P.S., INC. CIVIL ENGINEERS & LAND SURVEYORS 2143 FAIRHILL RD., CLEVELAND, OHIO 44106 | | | | |
| STRUCTURE NOTES LAK-90-0711 | | | | |
| LAK-90-0767 | | LAK-90-1031 | | |
| LAK-90-1007 | | LAK-90-1151 | | |
| LAKE COUNTY | | OHIO | | |
| DESIGNED | DRAWN | CHECKED | REVIEWED | REVISED |
| R.J.K. | R.L. | K.P. | R.C.T. | |
| DATE | | | | SHEET / |

STRUCTURE NOTES