

PROJECTS \ P18391B & NPLANS \ 18391S \ NB.DGN 14 AUG 2000

ITEM 517 - RAILING FACED, AS PER PLAN

DESCRIPTION:  
 THIS ITEM OF WORK SHALL CONSIST OF FACING SIDEWALK STYLE PARAPETS, USING CAST IN PLACE CONCRETE, TO OBTAIN THE SINGLE SLOPE BARRIER SHAPE AS SHOWN IN THE PLANS. REMOVAL: THE CONTRACTOR SHALL CAREFULLY REMOVE THE EXISTING FENCE, CURB PLATES, EXISTING CONCRETE WALK AND ANY SOUND CONCRETE NECESSARY TO OBTAIN A MINIMUM 4 INCH THICKNESS OF NEW CONCRETE. ALL LOOSE OR UNSOUND CONCRETE SHALL ALSO BE REMOVED.

SLIP FORMING SHALL NOT BE PERMITTED.

DOWEL HOLES AND REINFORCING STEEL:  
 DOWEL HOLES SHALL BE AS PER ITEM 510 USING EPOXY GROUT AS PER 705.20. SE501 BARS SHALL BE 4" FROM DEFLECTION JOINTS. SE502 BARS SHALL BE 6" FROM DEFLECTION JOINTS.

EXISTING REINFORCING STEEL BARS IN THE AREA OF THE DOWEL HOLE SHALL BE LOCATED WITH THE AID OF A REINFORCING STEEL BAR LOCATOR PRIOR TO DRILLING THE HOLES. IF AN EXISTING BAR IS ENCOUNTERED AT THE SAME LOCATION AS A PROPOSED DOWEL HOLE, THE DOWEL HOLE SHALL BE MOVED TO EITHER SIDE OF THE EXISTING BAR. ALL REINFORCING STEEL, DOWEL HOLES AND GROUTING SHALL BE INCLUDED WITH ITEM 517 FOR PAYMENT.

SURFACE PREPARATION:  
 THE PARAPET SURFACE IN CONTACT WITH THE REFACING SHALL BE THOROUGHLY CLEANED BY ABRASIVE BLASTING, WITH ENVIRONMENTAL CONTROLS, FOLLOWED BY AN AIR BLAST. USE OF HAND TOOLS MAY BE NECESSARY TO REMOVE SCALE FROM ANY EXPOSED REINFORCING STEEL. THE SURFACE SHALL BE MADE FREE FROM SPALLS, LATENGE, AND ALL TRACES OF FOREIGN MATERIAL. DETERGENT CLEANING SHALL PRECEDE BLAST CLEANING AS NECESSARY TO ENSURE REMOVAL OF CONTAMINANTS THAT ARE DETRIMENTAL TO ACHIEVING AN ADEQUATE BOND.

1/2" DEEP AND 1/4" WIDE DEFLECTION JOINTS AT ALL EXISTING DEFLECTION JOINT LOCATIONS AS WELL AS MIDWAY BETWEEN SHICH JOINTS SHALL BE SAWED IN THE NEW CONCRETE. THE JOINTS SHALL BE SAWED AS SOON AS POSSIBLE AFTER PLACEMENT, BEFORE ANY SHRINKAGE CRACKS DEVELOP. ALL JOINTS SHALL BE SAWED WITHIN 24 HOURS. THE USE OF AN EDGE GUIDE, FENCE OR JIG IS REQUIRED TO ENSURE THAT THE JOINT IS STRAIGHT, TRUE AND ALIGNED ON ALL FACES OF THE PARAPET. THE PERIMETER OF THE DEFLECTION JOINT SHALL BE SEALED A MINIMUM 1/2" DEEP USING A CAULKING MATERIAL CONFORMING TO FEDERAL SPECIFICATION TT-S-00227E.

CURING SHALL BE AS PER 511.4 METHOD(b). IF THE CONTRACTOR USES CHEMASTERS EPOXY-URETHANE SYSTEM FOR "SEALING OF CONCRETE SURFACES" HE MAY USE THE EPOXY PORTION OF THAT SYSTEM (CHEMASTERS "SAFE-CURE & SEAL EPX") AS THE CURING COMPOUND TO MEET THE REQUIREMENTS OF 511.4(b). IF USED, REMOVAL OF THE CURING COMPOUND SHALL NOT BE REQUIRED PRIOR TO APPLYING THE URETHANE TOP COAT.

MINIMUM CONCRETE COVER SHALL BE 2" .

MATERIALS:  
 REINFORCING STEEL - 709.00, GRADE 60

CONCRETE:  
 CONCRETE SHALL BE AS PER SUPPLEMENTAL SPECIFICATION 844, AS PER PLAN. THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF ALL CONCRETE PARAPETS SHALL BE 6 INCHES.

CONCRETE TABLE:  
 QUANTITIES PER CUBIC YARD  
 AGGREGATES (SSD)

MIX 4, AS PER PLAN (GGBF SLAG + MICROSILICA)

|                       | GRAVEL<br>1245 | LIMESTONE<br>1245 | SLAG<br>1246 |
|-----------------------|----------------|-------------------|--------------|
| FINE AGGREGATE (LB)   |                |                   |              |
| #8 COARSE             |                |                   |              |
| AGGREGATE (LB)        | 360            | 360               | 315          |
| #57 COARSE            |                |                   |              |
| AGGREGATE (LB)        | 1315           | 1335              | 1155         |
| TOTAL (LB)            | 2920           | 2940              | 2716         |
| CEMENT CONTENT (LB)   | 400            | 400               | 400          |
| GGBF SLAG (LB)        | 170            | 170               | 170          |
| MICROSILICA (LB)      | 30             | 30                | 30           |
| WATER TO CEMENTITIOUS |                |                   |              |
| RATIO MAX.            | 0.42           | 0.42              | 0.42         |
| AIR CONTENT, +/-2%    | 7%             | 7%                | 7%           |

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLID 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

METHOD OF MEASUREMENT:  
 THE QUANTITY SHALL BE THE ACTUAL LENGTH OF RAILING FACED AS MEASURED FROM EXPANSION JOINT TO EXPANSION JOINT. THIS ITEM SHALL INCLUDE THE FURNISHING OF ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS WORK. ALL COSTS OF REMOVAL, DOWEL HOLES, REINFORCING STEEL, CONCRETE AND SHRINKAGE CONTROL JOINTS, COMPLETE AND IN PLACE, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR:

| ITEM | UNIT | DESCRIPTION                |
|------|------|----------------------------|
| 517  | FEET | RAILING FACED, AS PER PLAN |

ITEM 844 HIGH PERFORMANCE CONCRETE, MISC; DECK AND APPROACH SLAB EXTENSTON, AS PER PLAN

THE PROVISIONS OF 844 SHALL APPLY EXCEPT AS NOTED BELOW.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF ALL CONCRETE PARAPETS SHALL BE 6 INCHES. THE MAXIMUM SLUMP ALLOWED DURING PLACEMENT IS 8 INCHES.

FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

FENCE POST ANCHORS:  
 ANCHOR BOLTS FOR FENCE POSTS SHALL BE CAST IN PLACE.

DRILLING AND GROUTING HOLES:  
 DOWEL HOLES SHALL BE PER CMS 510. USE NON-SHRINK EPOXY GROUT PER 705.20. PAYMENT SHALL BE INCLUDED WITH THE APPROPRIATE ITEM 844.

MIX OPTIONS:  
 ALL CONCRETE SHALL BE MIX 4, AS PER PLAN. THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN.

CONCRETE TABLE:  
 QUANTITIES PER CUBIC YARD  
 AGGREGATES (SSD)

MIX 4, AS PER PLAN (GGBF SLAG + MICROSILICA)

|                       | GRAVEL<br>1245 | LIMESTONE<br>1245 | SLAG<br>1246 |
|-----------------------|----------------|-------------------|--------------|
| FINE AGGREGATE (LB)   |                |                   |              |
| #8 COARSE             |                |                   |              |
| AGGREGATE (LB)        | 360            | 360               | 315          |
| #57 COARSE            |                |                   |              |
| AGGREGATE (LB)        | 1315           | 1335              | 1155         |
| TOTAL (LB)            | 2920           | 2940              | 2716         |
| CEMENT CONTENT (LB)   | 400            | 400               | 400          |
| GGBF SLAG (LB)        | 170            | 170               | 170          |
| MICROSILICA (LB)      | 30             | 30                | 30           |
| WATER TO CEMENTITIOUS |                |                   |              |
| RATIO MAX.            | 0.42           | 0.42              | 0.42         |
| AIR CONTENT, +/-2%    | 7%             | 7%                | 7%           |

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLID 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

DECK TEXTURING:  
 THE DECK SURFACE SHALL BE RAKED TO PROVIDE A ROUGH MACRO BOND SURFACE FOR THE MSMC OVERLAY.

BASIS OF PAYMENT:  
 PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

| ITEM      | UNITS      | DESCRIPTION   |
|-----------|------------|---|
| 844E49500 | CUBIC YARD | HIGH PERFORMANCE CONCRETE MISC; DECK AND APPROACH SLAB EXTENSION, AS PER PLAN |

REPLACEMENT OF EXISTING REINFORCING STEEL

ANY EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE MADE UNUSABLE BY CONCRETE REMOVAL OR OTHER CONTRACTOR OPERATIONS SHALL BE REPLACED WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT THE CONTRACTOR'S COST PER CMS 509.

ITEM 842 - CONCRETE MISC.; REPLACEMENT OF EXISTING REINFORCING STEEL

ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW EPOXY COATED REINFORCING STEEL PER CMS 509.

THE NUMBER OF POUNDS OF REINFORCING STEEL PAID FOR SHALL BE THE ACTUAL POUNDS OF REPLACEMENT REINFORCING STEEL FURNISHED AND INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER TO REPLACE CORROSION DAMAGED REINFORCING STEEL.

PAYMENT FOR ALL THE ABOVE DESCRIBED LABOR AND MATERIALS WILL BE MADE AT THE CONTRACT PRICE BID PER POUND FOR ITEM 842 - CONCRETE, MISC.; REPLACEMENT OF EXISTING REINFORCING STEEL.

ITEM 842 - CONCRETE MISC.; DRILLING AND GROUTING DOWEL HOLES

THIS CONTINGENCY QUANTITY SHALL INCLUDE THE DRILLING OF HOLES PER CMS 510 INTO CONCRETE OR MASONRY AND THE FURNISHING AND PLACEMENT OF GROUT INTO HOLES AS DIRECTED BY THE ENGINEER. NONSHRINKING EPOXY GROUT SHALL BE USED PER CMS 705.20.

PAYMENT FOR ALL THE ABOVE DESCRIBED LABOR AND MATERIALS WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 842 - CONCRETE MISC.; DRILLING AND GROUTING DOWEL HOLES.

SCUPPER DEPRESSIONS

THE EXISTING SCUPPERS MUST REMAIN IN SERVICE IN ORDER TO DRAIN THE BRIDGE. THE DEPRESSIONS IN THE CONCRETE OVERLAY SURROUNDING THE SCUPPERS ON THE NORTH SIDE OF THE BRIDGE MUST BE ELIMINATED PRIOR TO OPENING THE WIDENING TO TRAFFIC. CONCRETE WITHIN THE DEPRESSION SHALL BE REMOVED DOWN TO THE TOP OF THE SCUPPER AND REPLACED UP TO THE NORMAL WEARING SURFACE TOP WITH MICROSILICA MODIFIED CONCRETE, AS DIRECTED BY THE ENGINEER. ONLY THE FULL SURFACE AREA OF THE SCUPPER SHALL REMAIN UNFILLED. PAYMENT FOR FILLING SCUPPER DEPRESSIONS SHALL BE INCLUDED IN ITEM 847 - MICROSILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS).

ITEM 847 - MICROSILICA MODIFIED CONCRETE OVERLAY

(1 3/4" THICKNESS)

PROPER HAND FINISHING EQUIPMENT MAY BE USED TO PLACE THE OVERLAY AS DIRECTED BY THE ENGINEER. THE CONTRACTOR MUST DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER PRIOR TO PLACEMENT THAT THE HAND METHODS WILL ACHIEVE SATISFACTORY CONSOLIDATION AND SCREEDING OF THE OVERLAY.

DESIGN AGENCY  
 BURGESS & NIPLE  
 100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DATE 02-28-01  
 REVIEWED DWL  
 STRUCTURE FILE NUMBER 4302702  
 DRAWN M/KB  
 CHECKED SCT  
 REVISION

STRUCTURE NOTES II OF II  
 BRIDGE NO. LAK-44-0510  
 JACKSON STREET OVER STATE ROUTE 44

LAKE COUNTY  
 LAK-2/44-13.05/4.14

3/8  
 85C  
 93