MICROFILMED
DEC 23 1987

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | I-1103(20) | |

3135
333

LAKE COUNTY
LAK-I-402

# REINFORCING STEEL BAR SCHEDULE

Bending diagram types - All dimensions are out to out, except radii which are to inside.

## ABUTMENTS

| MARK | TOTAL | SIZE | LENGTH | TYPE | A | B | C | D | E | WEIGHT LBS. |
|---|---|---|---|---|---|---|---|---|---|---|
| A601 | 142 | 6 | 9'-8" to 11'-8" | 1 | 4'-5" | 3'-3" to 7'-5" | 2 sets of 7 ea. "B" varies by 5/16"± | | | 2275 |
| A602 | 142 | 6 | 15'-9" | 7 | 6'-2" | 1'-5" | 4'-10" | 3'-2" | 10" | 3359 |
| A503 | 16 | 5 | 39'-11" | Str. | | | | | | 666 |
| A504 | 142 | 5 | 3'-0" | Str. | | | | | | 444 |
| A505 | 150 | 5 | 2'-5" to 4'-5" | Str. | | 2 sets of 7 ea Length varies by 5/16"± | | | | 535 |
| A506 | 56 | 5 | 39'-0" | Str. | | | | | | 2278 |
| A507 | 108 | 5 | 3'-2" | 6 | 7⅝" | 2'-2" | | | | 357 |
| A508 | 20 | 5 | 10'-2" | Str. | | | | | | 212 |
| A509 | 48 | 5 | 7'-2" | 6 | 2'-2" | 3'-2" | | | | 359 |
| A510 | 16 | 5 | 10'-0" | 6 | 4'-7" | 1'-2" | | | | 167 |
| A511 | 20 | 5 | 5'-1" | 1 | 7⅝" | 4'-7" | | | | 106 |
| A512 | 36 | 5 | 8'-2" | Str. | | | | | | 307 |
| A513 | 8 | 5 | 11'-6" | 5 | 7'-1" | 4'-6" | 2'-0" | | | 96 |
| A514 | 32 | 5 | 14'-5" | Str. | | | | | | 481 |
| A515 | 36 | 5 | 3'-8" | Str. | | | | | | 138 |
| A516 | 24 | 5 | 8'-0" | Str. | | | | | | 200 |
| A517 | 8 | 5 | 6'-3" | Str. | | | | | | 52 |
| A518 | 8 | 5 | 4'-8" | Str. | | | | | | 39 |
| A519 | 8 | 5 | 4'-2" | Str. | | | | | | 35 |
| A520 | 4 | 5 | 5'-2" | Str. | | | | | | 22 |
| A521 | 44 | 5 | 3'-6" | Str. | | | | | | 161 |
| A522 | 24 | 5 | 10'-2" | Str. | | | | | | 254 |
| A523 | 8 | 5 | 8'-3" | Str. | | | | | | 69 |
| A524 | 8 | 5 | 14'-8" | 10 | 2'-9" | 14'-5" | 2'-4" | | 29'-9" | 122 |
| A525 | 4 | 5 | 10'-4" | Str. | | | | | | 43 |
| A526 | 4 | 5 | 13'-1" | Str. | | | | | | 55 |
| A527 | 20 | 5 | 4'-6" | 11 | 7⅝" | 1'-4" | 0" | 2'-9" | 3" | 94 |
| A528 | 8 | 5 | 4'-5" | 11 | 7⅝" | 1'-4" | 0" | 2'-8" | 3" | 37 |
| A529 | 24 | 5 | 4'-3" to 3'-0" | 11 | 7⅝" | 1'-4" | 0" | 2'-6" to 1'-3"▲ | 3" | 91 |
| A530 | 4 | 5 | 2'-7" | 11 | 7⅝" | 1'-4" | 0" | 10" | 3" | 11 |
| A531 | 4 | 5 | 2'-2" | 11 | 7⅝" | 1'-4" | 0" | 5" | 3" | 9 |
| A532 | 20 | 5 | 4'-2" | 6 | 10" | 2'-9" | | | | 87 |
| A533 | 8 | 5 | 4'-1" | 6 | 10" | 2'-8" | | | | 34 |
| A534 | 24 | 5 | 3'-11" to 2'-8" | 6 | 10" | 2'-6" to 1'-3"▲ | | | | 83 |
| A535 | 4 | 5 | 2'-3" | 6 | 10" | 10" | | | | 9 |
| A536 | 4 | 5 | 1'-10" | 6 | 10" | 5" | | | | 8 |
| A437 | 56 | 4 | 5'-11" | 13 | 2'-4" | 8" | 6¼" | | | 221 |
| R438 | 16 | 4 | 12'-11" | Str. | | | | | | Included with railing for paym't |
| | | | | | | | | | | 13,516 lbs. |

▲ Vary by 3"

## SUPERSTRUCTURE

| MARK | TOTAL | SIZE | LENGTH | TYPE | A | B | C | D | E | WEIGHT LBS. |
|---|---|---|---|---|---|---|---|---|---|---|
| S701 | 1776 | 7 | 26'-10" | Str. | | | | | | 97,409 |
| S602 | 1776 | 6 | 26'-8" | Str. | | | | | | 71,135 |
| S603 | 1485 | 6 | 37-7" | Str. | | | | | | 83,828 |
| S604 | 300 | 6 | 28'-0" | Str. | | | | | | 12,617 |
| S505 | 788 | 5 | 5'-2" | 11 | 8" | 1'-5" | 8" | 2'-10" | 3" | 4,246 |
| S406 | 788 | 4 | 3'-2" | 1 | 6'-4" | 2'-9" | | | | 1,667 |
| S407 | 788 | 4 | 4'-2" | 4 | 1'-2" | 8" | 2'-2" | 6'-4" | | 2,193 |
| R408 | 168 | 4 | 17'-1" | Str. | | | | | | Included with |
| R409 | 16 | 4 | 13'-10" | Str. | | | | | | railing for paym't |
| M501 | 104 | 5 | 31'-9" | Str. | | | | | | 3,444 |
| M402 | 127 | 4 | 4'-2" to 13'-4" | Str. | Vary by 7/8" | | | | | 742 |
| M403 | 272 | 4 | 3'-0" | 14 | 1'-9" | 11" | 6" | 2" | | 545 |
| M404 | 125 | 4 | 3'-0" to 12'-1" | Str. | Vary by 7/8" | | | | | 630 |
| M405 | 11 | 4 | 12'-8" | Str. | | | | | | 93 |
| M406 | 254 | 4 | 3'-0" | 14 | 1'9" | 11" | 6" | 2" | | 509 |

Total Weight 279,058

## PIERS

| MARK | TOTAL | SIZE | LENGTH | TYPE | A | B | C | D | E | WEIGHT LBS. |
|---|---|---|---|---|---|---|---|---|---|---|
| P1101 | 22 | 11 | 22'-4" | Str. | | | | | | 2611 |
| P1102 | 22 | 11 | 22'-10" | Str. | | | | | | 2669 |
| P1103 | 22 | 11 | 23'-4" | Str. | | | | | | 2727 |
| P1104 | 22 | 11 | 23'-10" | Str. | | | | | | 2786 |
| P1105 | 22 | 11 | 24'-4" | Str. | | | | | | 2844 |
| P1106 | 40 | 11 | 29'-3" | 1 | 3'6" | 26'2" | | | | 6216 |
| P1107 | 20 | 11 | 27'-0" | Str. | | | | | | 2869 |
| P1108 | 45 | 11 | 12'-0" | Str. | | | | | | 2869 |
| P1109 | 40 | 11 | 24'-1" | 12 | 1'-7" | 22'-6" | 1'-2" | | | 5118 |
| P1110 | 20 | 11 | 32'-0" | Str. | | | | | | 3400 |
| P1111 | 60 | 11 | 12'-6" | Str. | | | | | | 3985 |
| P1112 | 110 | 11 | 7'-2" | 1 | 1'-6⅛" | 6'0" | | | | 4188 |
| P713 | 22 | 7 | 20'-10" | Str. | | | | | | 937 |
| P714 | 22 | 7 | 21'-4" | Str. | | | | | | 959 |
| P715 | 22 | 7 | 21'-10" | Str. | | | | | | 982 |
| P716 | 22 | 7 | 22'-4" | Str. | | | | | | 1004 |
| P717 | 22 | 7 | 22'-10" | Str. | | | | | | 1027 |
| P718 | 22 | 7 | 20'-4" | Str. | | | | | | 914 |
| P719 | 22 | 7 | 20'-10" | Str. | | | | | | 937 |
| P720 | 22 | 7 | 21'-4" | Str. | | | | | | 959 |
| P721 | 22 | 7 | 21'-10" | Str. | | | | | | 982 |
| P722 | 22 | 7 | 22'-4" | Str. | | | | | | 1004 |
| P723 | 22 | 7 | 20'-4" | Str. | | | | | | 914 |
| P724 | 22 | 7 | 20'-10" | Str. | | | | | | 937 |
| P725 | 22 | 7 | 21'-4" | Str. | | | | | | 959 |
| P726 | 22 | 7 | 21'-10" | Str. | | | | | | 982 |
| P727 | 22 | 7 | 22'-4" | Str. | | | | | | 1004 |
| P728 | 22 | 7 | 18'-4" | Str. | | | | | | 824 |
| P729 | 22 | 7 | 18'-10" | Str. | | | | | | 847 |
| P730 | 22 | 7 | 19'-4" | Str. | | | | | | 869 |
| P731 | 22 | 7 | 19-10" | Str. | | | | | | 892 |
| P732 | 22 | 7 | 20'-4" | Str. | | | | | | 914 |
| P733 | 600 | 7 | 10'-4" | 8 | 10" | 8'8" | 7" | | | 12,673 |
| P734 | 440 | 7 | 5'8" | 1 | 1'-0⅛" | 4'-10" | | | | 5,096 |
| P535 | 10 | 5 | 3'-3" | 6 | 7⅝" | 2'-3" | | | | 34 |

## PIERS (continued)

| MARK | TOTAL | SIZE | LENGTH | TYPE | A | B | C | D | E | WEIGHT LBS. |
|---|---|---|---|---|---|---|---|---|---|---|
| P536 | 250 | 5 | 3'8" | 6 | 7⅝" | 2'-8" | | | | 956 |
| P537 | 10 | 5 | 2'-8" | 6 | 7⅝" | 1'-8" | | | | 28 |
| P538 | 440 | 5 | 7'-5" | 6 | 2'-6" | 2'-8" | | | | 3404 |
| P539 | 40 | 5 | 8'-8" | 9 | 2'-6" | 2'-4" | | | 1'-2" | 362 |
| P540 | 30 | 5 | 25'-0" | Str. | | | | | | 782 |

## SPIRAL BARS

| MARK | TOTAL | SIZE | LENGTH | PITCH | NO. OF TURNS | CORE DIA. | WEIGHT LBS. |
|---|---|---|---|---|---|---|---|
| SP401 | 1 | ½ ϕ | 17'-2" | 4½ | 49 | 32 | 322 |
| SP402 | 1 | ½ ϕ | 17'-8" | 4½ | 50 | 32 | 329 |
| SP403 | 1 | ½ ϕ | 18'-2" | 4½ | 52 | 32 | 343 |
| SP404 | 1 | ½ ϕ | 18'-8" | 4½ | 53 | 32 | 350 |
| SP405 | 1 | ½ ϕ | 19'-2" | 4½ | 54 | 32 | 355 |
| SP406 | 1 | ½ ϕ | 16'-8" | 4½ | 48 | 32 | 316 |
| SP407 | 1 | ½ ϕ | 17'-2" | 4½ | 49 | 32 | 322 |
| SP408 | 1 | ½ ϕ | 17'-8" | 4½ | 50 | 32 | 329 |
| SP409 | 1 | ½ ϕ | 18'-2" | 4½ | 52 | 32 | 341 |
| SP410 | 1 | ½ ϕ | 18'-8" | 4½ | 53 | 32 | 349 |
| SP411 | 1 | ½ ϕ | 18'-8" | 4½ | 53 | 32 | 349 |
| SP412 | 1 | ½ ϕ | 19'-2" | 4½ | 54 | 32 | 355 |
| SP413 | 1 | ½ ϕ | 19'-8" | 4½ | 56 | 32 | 367 |
| SP414 | 1 | ½ ϕ | 20'-2" | 4½ | 57 | 32 | 375 |
| SP415 | 1 | ½ ϕ | 20'-8" | 4½ | 59 | 32 | 387 |
| SP416 | 1 | ½ ϕ | 16'-8" | 4½ | 48 | 32 | 314 |
| SP417 | 1 | ½ ϕ | 17'-2" | 4½ | 49 | 32 | 322 |
| SP418 | 1 | ½ ϕ | 17'-8" | 4½ | 50 | 32 | 329 |
| SP419 | 1 | ½ ϕ | 18'-2" | 4½ | 52 | 32 | 341 |
| SP420 | 1 | ½ ϕ | 18'-8" | 4½ | 53 | 32 | 349 |
| SP421 | 1 | ½ ϕ | 14'-8" | 4½ | 42 | 32 | 276 |
| SP422 | 1 | ½ ϕ | 15'-2" | 4½ | 44 | 32 | 288 |
| SP423 | 1 | ½ ϕ | 15'-8" | 4½ | 45 | 32 | 296 |
| SP424 | 1 | ½ ϕ | 16'-2" | 4½ | 46 | 32 | 302 |
| SP425 | 1 | ½ ϕ | 16'-8" | 4½ | 48 | 32 | 314 |

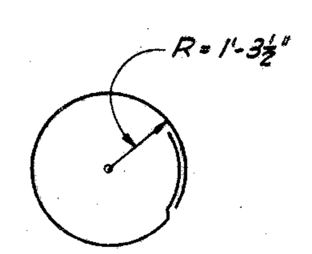
Total Weight 92,784 lbs.

## ESTIMATED QUANTITIES

| ITEM | TOTAL | UNIT | DESCRIPTION | SUPERSTR. | ABUTS. | PIERS | GENERAL | | PIERS (Additional Estimated Quantities due to Increase in Vertical Clearance.) |
|---|---|---|---|---|---|---|---|---|---|
| E-2 | 1,132 | Cu.Yd. | Unclassified Excavation | | 347 | 785 | | | |
| Special | 612 | Lin.ft | 10"ϕ to 14ϕ Prebored holes | | 612 | | | | |
| S-1 | 1,011 | Cu.Yd. | Class "C" Concrete, Superstructure | 1,011 | | | | | |
| S-1 | 272 | Cu.Yd. | Class "C" Concrete, Pier Caps and Columns | | | 272 | | | 8 |
| S-1 | 151 | Cu.Yd. | Class "E" Concrete, Abutments above footing | | 151 | | | | |
| S-1 | 326 | Cu.Yd. | Class "E" Concrete, Footings | | 108 | 218 | | | |
| S-4 | 385,358 | Lbs. | Reinforcing Steel | 279,058 | 13,516 | 92,784 | | | 5,999 |
| S-7 | 834,300 | Lbs. | Structural Steel | 834,300 | | | | | |
| S-8 | 834,300 | Lbs. | Field Painting of Structural Steel | 834,300 | | | | | |
| S-14 | 843 | Lin.Ft. | Railing (Aluminum Rail and Supports, Concrete Parapet) | 789 | 54 | | | | |
| S-16 | Lump | Sum | First Test Pile | | | | Lump Sum | | |
| S-18 | 10,255 | Lin.Ft. | 12"ϕ Cast-in-place Reinforced Concrete Pile | | 2380 | 7,875 | | | |
| S-29 | 55 | Cu.Yd. | Porous Backfill | | 55 | | | | |
| I-10 | 756 | Sq.Yd. | Crushed Aggregate Slope Protection | | | | 756 | | |

## REPLACEMENT BARS

| MARK | NO. | SIZE | LENGTH | TYPE | WEIGHT |
|---|---|---|---|---|---|
| RE1101 | 3 | 11 | 7'-6" | Str. | |
| RE702 | 7 | 7 | 6'-3" | Str. | |
| RE603 | 9 | 6 | 5'-11" | Str. | |
| RE504 | 1 | 5 | 5'-7" | Str. | |
| RE405 | 1 | 4 | 5'-3" | Str. | |
| RE406 | 1 | ½ϕ | 5'-3" | 15 | |




Type (15) Spiral

## REPLACEMENT BARS

If reinforcing bars are fabricated from stock which has previously been tested and approved by the Ohio Highway Testing Laboratory, test sample as provided in section S-4.02 need not be furnished and replacement bars will not be required.

## SPIRAL NOTES

The "length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

The "No. of Turns" shown in the steel list for the spiral bars is the "length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.

Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4.

1½ closed coils shall be provided at ends of each spiral unit.

Four steel channel, tee or angle spacers, weighing approximately 0.68 lbs. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lbs. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

This sheet supersedes sheet 313. 3-21-60.

## BAR SIZE

Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A401 is a No. 4 size bar and A1114 is a No.11 size bar.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING STEEL LIST & ESTIMATED QUANTITIES
BRIDGE NO. LAK-I-0665
UNDER STATE ROUTE 306

LAKE COUNTY STA. 358+74.33

| Designed | Drawn | Traced | Checked | Reviewed-Date | Revised |
|---|---|---|---|---|---|
| J.V.W. | L.M.M. | A.D. | Y.G. C.P.J. | W.R.B. 4-28-58 | 3-14-60 |



K-E 180 IMPERIAL TRACING CLOTH 90449