# SITE PLAN

BENCH MARK
OM 765 ELEVATION 620.685' 15' EAST OF ℄ OF BRADLEY RD AND 439' SOUTH OF ℄ OF LINK RD (EXISTING ℄ OF ASHTON LANE)

SURVEY DATA: CUYAHOGA COUNTY FIELD BOOK 770

# PROFILE ALONG ℄ OF BRIDGE

## LOCATION PLAN

SCALE OF MILES

0 1/4 1/2 3/4 1

PORTION TO BE IMPROVED —

| TEST HOLE | TOP OF SHALE ELEVATION |
|---|---|
| # 1 | 611.7' |
| # 2 | 611.9' |
| # 3 | 612.1' |
| # 4 | 614.2' |
| # 5 | 614.0' |
| # 6 | 613.2' |

## GENERAL NOTES:

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO THE REQUIREMENTS OF "DESIGN SPECIFICATIONS FOR HIGHWAY STRUCTURES" OF THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS, DATED SEPTEMBER 1, 1957 TOGETHER WITH CURRENT REVISIONS THEREOF.

CONSTRUCTION AND MATERIAL SPECIFICATIONS: "CONSTRUCTION AND MATERIAL SPECIFICATIONS", STATE OF OHIO, DEPARTMENT OF HIGHWAYS, DATED JANUARY 1, 1965 AS MODIFIED BY NOTES ON THE PLAN SHALL GOVERN.

DIMENSIONS: THE DIMENSIONS GIVEN ARE MEASURED HORIZONTALLY AND AT 60° F. UNLESS OTHERWISE NOTED.

CONCRETE FINISH: RAILING TERMINAL POSTS, FASCIAS OF DECK, AND ALL EXPOSED SURFACES OF ABUTMENT WALLS AND WINGWALLS SHALL RECEIVE A RUBBED SURFACE FINISH. ALL OTHER EXPOSED SURFACES SHALL BE GOVERNED BY THE PROVISIONS OF "ITEM 511 PROVIDE 3/4" CHAMFER ON ALL EXPOSED EDGES OF CONCRETE UNLESS OTHERWISE SHOWN.

CHAMFER:

CONCRETE: ALL CONCRETE SHALL BE CLASS "E" EXCEPT PRECAST CONCRETE DECK BEAMS, BRIDGE SIDEWALKS, SIDEWALK PARAPETS, & RAILING TERMINAL POSTS, & APPROACH SLABS.

CONTOURS: CONTOURS SHOWN DOTTED ARE EXISTING. CONTOURS SHOWN SOLID ARE NEW.

EXISTING BRIDGE: EXISTING BRIDGE DECK TO BE REMOVED.

CONCRETE REMOVAL: TOP OF EXISTING ABUTMENT BACKWALLS, AND WINGWALLS TO BE REMOVED (AS INDICATED ON DWGS.)

STRUCTURAL STEEL REMOVAL: ALL STRUCTURAL STEEL IN EXISTING BRIDGE DECK SHALL REMAIN THE PROPERTY OF THE COUNTY. THE CONTRACTOR SHALL REMOVE THE STEEL CAREFULLY AND SHALL LOAD IT ON COUNTY TRUCKS.

APPROVED IN THE CITY OF BAY VILLAGE
ORDINANCE OF CONSENT N° _____ PASSED _____

THE OSBORN ENGINEERING CO.
CONSULTING ENGINEERS
CLEVELAND, OHIO

COUNTY OF CUYAHOGA
ALBERT S. PORTER
COUNTY ENGINEER

APPROVED _____ STRUCTURAL CONSULTANT
DATE _____

APPROVED _____ CHIEF ENGINEER
DATE _____

APPROVED _____ CHIEF DEPUTY
DATE _____

APPROVED _____ COUNTY ENGINEER
DATE _____

APPROVED _____ COUNTY COMMISSIONER
DATE _____

APPROVED _____ COUNTY COMMISSIONER
DATE _____

APPROVED _____ COUNTY COMMISSIONER
DATE _____

# ASHTON LANE (LINK ROAD)

## CITY OF BAY VILLAGE
## RECONSTRUCTION OF BRIDGE OVER PORTER CREEK

CONTOUR F.277 REPORT No. 6883 BRIDGE No. 2

# No. B-210

1/9

SCALE 1" = 10'-0" DATE 8-5-66

DRAWN BY R.S. CHECKED BY M.W. REVISED _____

10-2

## GENERAL PLAN

SEE SHEET NO. 8 FOR RAILING POSTS LOCATION

NOTE: FOR POST AND RAILING DETAILS SEE DWG. BR1-65, STATE OF OHIO DEPT. OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION, BUREAU OF BRIDGES




## SECTION A-A

NOTES TO PRESTRESSED BEAM FABRICATOR:

DIMENSIONS SHOWN ON PLAN ARE HORIZONTAL. THE ATTENTION OF FABRICATOR OF PRESTRESSED BEAMS IS DIRECTED TO VARIOUS DETAILS ON SHEET NO. 7 WITH REFERENCE TO THE FABRICATION OF THE ENDS OF ALL BEAMS.

IN THIS CONNECTION IT IS EMPHASIZED THAT THE OVERALL LENGTH OF ALL BEAMS MUST BE ACCURATELY SET AND MAINTAINED.

| INITIAL CAMBER (INCHES) | |
|---|---|
| B17-36 | B17-48 |
| 0.33 | 0.35 |

INITIAL CAMBER AT RELEASE OF PRESTRESS IS COMPUTED WITH AN ASSUMED MODULUS OF ELASTICITY OF 3,800,000 PSI

NOTES FOR PRESTRESSED BEAMS (SEE SH'T. 7)

MIN. CONC. STRENGTH IN 28 DAYS = 5500 PSI.
MIN. CONC. STRENGTH AT RELEASE OF PRESTRESS = 4000 PSI

PRECAST PRESTRESSED CONCRETE BEAMS SHALL BE FABRICATED AND ERECTED IN FULL CONFORMANCE WITH DETAILS SHOWN ON THE PLANS TOGETHER WITH THE REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATIONS.

EACH PRESTRESSED BEAM UNIT SHALL BE PRESTRESSED BY USING ⅜" UNCOATED SEVEN-WIRE STRESS RELIEVED STRANDS WITH AN INITIAL TENSION OF 14,000 POUNDS PER STRAND. PROVISION HAS BEEN MADE FOR ½" OVER IN WIDTH OF BEAMS WITH NO UNDER TOLERANCE ALLOWED.

THERE SHALL BE NO MORE THAN 1/16" DEVIATION FROM THE DEPTH OF THE BEAM SHOWN.

THE PRICE BID FOR ITEM 515 AND SPECIAL - PRECAST PRESTRESSED CONCRETE BOX BEAMS - COMPLETE IN PLACE - AS PER PLAN" SHALL INCLUDE PAYMENT FOR THE FOLLOWING:

(a) CONCRETE FOR BEAMS
(b) REINFORCING STEEL IN BEAMS
(c) PRESTRESSED CABLES
(d) TIE RODS - COMPLETE IN PLACE
(e) JUTE AND GROUTING OF LONGITUDINAL JOINTS
(f) ERECTION OF BEAMS - INCLUDING INSTALLING END ANCHORAGE DOWELS.
(g) EMBEDDED STEEL IN BEAMS
(h) ELASTOMERIC BEARING PADS
(i) COPPER DRAINS FOR SUBSURFACE DRAINAGE COURSE.

## SECTION B-B

| EXISTING BRIDGE DATA |
|---|
| TYPE: STEEL GIRDER WITH CONCRETE SLAB DECK |
| SPAN: 31'-0" C/C BRGS. |
| ROADWAY: 15'-0" |
| DATE BUILT: 1904 |
| CONDITION: DECK - POOR; ABUTMENTS - GOOD |

PROPOSED STRUCTURE:
SPAN C/C BRGS: 31'-2"
SPAN CLEAR: 30'-0"
VERTICAL CLEARANCE: 6'-0" (ABOVE BOTT. OF STR.)
TYPE: PRESTRESSED CONCRETE NON COMPOSITE BOX BEAM.
ROADWAY: 28'-0" F/F CURBS WITH 4'-0" SIDEWALKS WITH PARAPETS AND RAILING
WEARING SURFACE: 3" ASPHALTIC CONCRETE
BEAMS REQ'D: B17-36 (20 STRANDS) - 7 AS PER PLAN, B17-48 (26 STRANDS) - 4 AS PER PLAN
DESIGN REF: DRAWING No. PSB-60 DEPT. OF HWYS STATE OF OHIO

# ASHTON LANE (LINK ROAD)

## CITY OF BAY VILLAGE

RECONSTRUCTION OF BRIDGE OVER PORTER CREEK

CONTOUR F.277 REPORT No. 6883 BRIDGE No. 2

## No. B-210

2/9

SCALE ¼" = 1'-0" DATE 8-5-66
DRAWN BY R.S. CHECKED BY M.W. REVISED

THE OSBORN ENGINEERING CO.
CONSULTING ENGINEERS
CLEVELAND, OHIO

# ASHTON LANE (LINK ROAD)

## CITY OF BAY VILLAGE

### RECONSTRUCTION OF BRIDGE OVER PORTER CREEK

CONTOUR F.277 REPORT No. 6883 BRIDGE No. 2

**No. B-210** (3/9)

SCALE INDICATED DATE 8-5-66

DRAWN BY RS. CHECKED BY M.W. REVISED

THE OSBORN ENGINEERING CO.
CONSULTING ENGINEERS
CLEVELAND, OHIO

# ASHTON LANE (LINK ROAD)

## CITY OF BAY VILLAGE

### RECONSTRUCTION OF BRIDGE OVER PORTER CREEK

CONTOUR F.277 REPORT No. 6883 BRIDGE No. 2

**No. B-210** (4/9)

SCALE 3/8" = 1'-0 DATE 8-5-66

DRAWN BY R.S. CHECKED BY M.W. REVISED

THE OSBORN ENGINEERING CO.
CONSULTING ENGINEERS
CLEVELAND, OHIO

## PLAN-EAST APPROACH SLAB

3/8" = 1'-0"

## ELEVATION S-S

3/8" = 1'-0"

## SECTION N-N

3/8" = 1'-0"

## SECTION P-P

3/8" = 1'-0"

## SECTION M-M

3/8" = 1'-0"

## SECTION R-R

1½" = 1'-0"

TYPICAL CURB SPLICE
TO BE LOCATED BY THE FABRICATOR

## DETAIL "A"

1½" = 1'-0"

### KEY

(TYPICAL FOR EAST & WEST APPROACH SLABS)

1. ITEM SPECIAL - RUBBERIZED SAND ASPHALT SURFACE COURSE
2. ITEM SPECIAL - 2¼" ASPHALT CONCRETE INTERMEDIATE COURSE
3. ITEM SPECIAL - RUBBERIZED ASPHALT TACK COAT
4. ITEM SPECIAL - CONCRETE DECK WATERPROOFING

### NOTE "A"

ALTER EXISTING MANHOLE IN FIELD AS REQUIRED & REPLACE EXISTING MANHOLE RING FLUSH WITH ASPHALTIC SURFACE OF APPROACH SLABS

### NOTE "B"

REMOVE EXIST. CATCH BASIN & OUTLET PIPE. BUILD NEW No. 3A CATCH BASIN.

### NOTES:

1. CURB ∠ JOINTS SHALL BE SHOP ASSEMBLED, CORRECTED TO PROVIDE UNIFORM CLOSE CONTACT BETWEEN THE MATING PARTS OF EACH JOINT, MATCH-MARKED AND ERECTED TO REQUIRED LINES & GRADES.
2. PORTION OF CURB PLATES IN CONTACT WITH STEEL OR CONCRETE SHALL NOT BE PAINTED. ALL OTHER PORTIONS SHALL BE CLEANED AND GIVEN THE SHOP COAT IN THE FIELD AS WELL AS TWO FIELD COATS OF BASIC LEAD SILICO CHROMATE ALKYD PAINT - FOLIAGE GREEN IN COLOR.

THE OSBORN ENGINEERING CO.
CONSULTING ENGINEERS
CLEVELAND, OHIO

# ASHTON LANE (LINK ROAD)

## CITY OF BAY VILLAGE

RECONSTRUCTION OF BRIDGE OVER PORTER CREEK

CONTOUR F. 277 REPORT No. 6883 BRIDGE No. 2

No. B-210

5/9

SCALE INDICATED DATE 8-5-66

DRAWN BY G.H. CHECKED BY M.W. REVISED

K+E 108 IMPERIAL TRACING CLOTH 1.K. 69196

## PLAN-WEST APPROACH SLAB

SECTION W-W

ELEVATION U-U

## SECTION T-T

VOID

# ASHTON LANE (LINK ROAD)

CITY OF BAY VILLAGE
RECONSTRUCTION OF BRIDGE OVER PORTER CREEK

CONTOUR F.277 REPORT No. 6883 BRIDGE No. 2

No. B-210 (6/9)

SCALE 3/8" = 1'-0" DATE 8-5-66
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THE OSBORN ENGINEERING CO.
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CLEVELAND, OHIO

## SECTION X-X
## (TYPICAL EXCEPT AT SCUPPERS)
FROM SHEET #2
SCALE 1" = 1'-0"

## TYP. LONGITUDINAL JT. SHEAR KEY
SCALE: 1" = 1'-0"

## BRIDGE RAILING AND POST NOTE

AFTER POSTS ARE SET AND SECURED TO THE SATISFACTION OF THE ENGINEER, THREADS ON ALL BOLTS PROJECTING ABOVE NUTS MUST BE PEENED TO PREVENT REMOVAL.

THE SURFACES OF THE CONCRETE PARAPET UNDER AND IN CONTACT WITH THE CAST ALUMINUM POST SHALL BE COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND. THE ANNULAR SPACE AROUND THE ANCHOR BOLTS IN THE BASE OF THE ALUMINUM POSTS SHALL FILLED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND. THE PAYMENT FOR THE APPLICATION OF ALUMINUM IMPREGNATED CAULKING COMPOUND IS INCLUDED IN THE UNIT PRICE BID FOR ITEM S-14 ALUMINUM BRIDGE RAILINGS.

## TYPICAL BRIDGE RAILING DETAILS
SCALE 1" = 1'-0"

EX DE

## DETAILS - BEAM LIFTING INSERTS
NO SCALE

NOTE "A":
CUT OFF TIE ROD 1/8" BEYOND NUT AFTER TIGHTENING, PEEN END AND FILL RECESSES IN OUTSIDE BEAM FLUSH WITH FACE OF BEAM WITH NON-SHRINKING, NON-STAINING PORTLAND CEMENT MORTAR, ALL TIE RODS SHALL BE MILD STEEL AS PER SEC. 711 TIGHTENED TO 18,000 POUNDS. TENSION MAY BE APPLIED BY TORQUE OF APPROXIMATELY 300 FOOT POUNDS WITH THE THREADS LUBRICATED.

## RAILING POST ANCHORS
## SECTION CC-CC
SCALE 1" = 1'-0"

B-17-48

B-17-36

## NOMINAL REINF.
3/4" = 1'-0

## TYP. DETAIL SHOWING TIE ROD ARR'GT.

## TYP. STRAND ARR'GT. - PRECAST BEAMS
3/4" = 1'-0

NOTE:
SEE DWG. PSBD-62 SH'T. NO. 2, ST'D. DWGS.

## TYP. END REINF. - SKEWED BMS.
1/2" = 1'-0

## SECTION Y-Y (FROM SH'T. #2)
(AT SCUPPER)
SCALE: 1" = 1'-0"

## SECTION Z-Z
SCALE: 1" = 1'-0"

NOTE:
SCUPPERS SHALL BE WROUGHT IRON OR AN ALLOYED STEEL OF EQUAL OR BETTER CORROSION RESISTANCE.

## DETAIL "E"

NOTE:
TERMINAL POST TO BE PAID FOR UNDER ITEM 517 "RAILINGS" TYPICAL

## TERMINAL POST ELEVATION
AA — 4-REQ'D. — BB
SCALE: 3/4" = 1'-0"

## SECTION AA-AA  SECTION BB-BB
SCALE 3/4" = 1'-0"

## ESTIMATED QUANTITIES FOR LINK ROAD BRIDGE

| ITEM NO. | ESTIMATED QUANTITIES | ITEM | PROPOSAL QUANTITIES |
|---|---|---|---|
| 202 | LUMP | PORTIONS OF EXISTING STRUCTURES REMOVED | LUMP |
| 203 & SPECIAL | 35 | CU. YDS. EXCAVATION - ROADWAY AND CHANNEL - INCLUDING EMBANKMENT | 50 |
| | | CONSTRUCTION - UNCLASSIFIED | |
| 503 | 37 | CU. YDS. EXCAVATION FOR STRUCTURES - UNCLASSIFIED | 50 |
| 503 | 58 | CU. YDS. EXCAVATION FOR STRUCTURES - SHALE | 60 |
| 509 | 7334 | LBS. REINFORCING STEEL 709.01 INT. GR. | 7500 |
| 510 | 117 | DOWEL HOLES | 120 |
| 511 | 22 | CU. YDS. CLASS "E" CONCRETE - FOOTINGS | 25 |
| 511 | 48 | CU. YDS. CLASS "E" CONCRETE - ABUTMENT WALLS, WINGWALLS, BEAM SEATS | 50 |
| 511 | 18 | CU. YDS. CLASS "C" CONCRETE - SIDEWALK SLABS | 20 |
| 511 | 378 | SQ. FT. CLASS "C" CONCRETE - 3" REINFORCED SIDEWALK WEARING COURSE INCLUDING | 380 |
| | | REINFORCING MESH | |
| 511 | 11 | CU. YDS. CLASS "C" CONCRETE - FACING PORTIONS OF EXISTING ABUTMENTS | 15 |
| 512 | 68 | SQ. YDS. TYPE "A" WATERPROOFING | 80 |
| 512 | 42 | SQ. YDS. TYPE "A" WATERPROOFING BRIDGE SIDEWALKS | 50 |
| 513 | 2219 | LBS. MISCELLANEOUS STRUCTURAL STEEL - INCLUDING CURB PLATES, | 2300 |
| | | ANCHORS, DECK DRAINAGE ANGLES AND FIELD PAINTING | |
| 515 & SPECIAL | | PRESTRESSED CONCRETE BRIDGE BEAMS - COMPLETE IN PLACE - AS PER | LUMP |
| | | PLANS - INCLUDING ALL REQUIRED B17-36, B17-48 AND B17-48 SPECIAL BEAMS | |
| 516 | 132 | SQ. FT. 1" PREFORMED EXPANSION JOINT FILLER | 140 |
| 517 | 140 | LIN. FT. TYPE "2" RAILING | 140 |
| 518 | 2 | SCUPPERS - AS PER PLAN | 2 |
| 518 | 10 | CU. YDS. POROUS BACKFILL | 12 |
| 608 | 120 | SQ. FT. 4 1/2" CONCRETE SIDEWALK INCLUDING 2" GRANULATED SLAG BEDDING & WIRE MESH REINFORCEMENT | 130 |
| 611 | 97 | SQ. YDS. REINFORCED CONCRETE APPROACH SLABS - INCLUDING CURBS AND INSULATION COURSE | 100 |
| SPECIAL | 194 | SQ. YDS. CONCRETE DECK WATERPROOFING | 200 |
| SPECIAL | 20 | GALS. RUBBERIZED ASPHALT TACK COAT | 25 |
| SPECIAL | 13 | CU. YDS. ASPHALT CONCRETE INTERMEDIATE COURSE | 15 |
| 805 & SPECIAL | 4 | CU. YDS. RUBBERIZED SAND ASPHALT | 5 |
| 603 & SPECIAL | 18 | LIN. FT. 15" CONDUIT TYPE "C" 706.02 CLASS III | 22 |
| 603 & SPECIAL | 9 | LIN. FT. 24" CONDUIT TYPE "C" 706.02 CLASS III | 12 |
| 604 & SPECIAL | 2 | ADJUST EXISTING SANITARY MANHOLE TO GRADE | 2 |
| 604 & SPECIAL | 2 | STD. NO. 3-A CATCH BASIN INCL. REMOVAL & DISP. OF EXISTING BASIN & OUTLET PIPE | 2 |
| SPECIAL | 336 | LIN. FT. HOT APPLIED JOINT SEALER SEC. 705.01 | 350 |

# ASHTON LANE (LINK ROAD)
## CITY OF BAY VILLAGE
### RECONSTRUCTION OF BRIDGE OVER PORTER CREEK
CONTOUR F277 REPORT No. 6883 BRIDGE No. 2

# No. B-210

7/9

SCALE AS NOTED DATE 8-5-66
DRAWN BY R.S. CHECKED BY M.W. REVISED

THE OSBORN ENGINEERING CO.
CONSULTING ENGINEERS
CLEVELAND, OHIO

PLAN - NORTH SIDEWALK

3/8" = 1'-0"

NOTE:
CHAMFER ON PARAPET NOT SHOWN. SEE GENERAL NOTES, SH'T. 1 ALSO SIDEWALK SECTION SH'T. 7.
SEE SH'T. #5 FOR TYPICAL CURB PLATE SPLICE DETAIL

NOTE:
CURB PLATES SHALL BE CONTINUOUS OVER ALL SIDEWALK JOINTS - TYPICAL

PLAN - SOUTH SIDEWALK

3/8" = 1'-0"

SIDEWALK CONTRACTION JOINT
TYPICAL DETAIL

6" = 1'-0"

TYPICAL DETAIL AT
PARAPET EXPANSION JOINT

1" = 1'-0"

SECTION EE-EE

1" = 1'-0

NOTE:
FOR SIDEWALK SECTIONS, AND DETAILS OF SCUPPER, TERMINAL POSTS, SHEAR KEY AND RAIL POST ANCHOR BOLTS SEE SHEET 7.
FOR POST AND RAILING DETAILS SEE DWG. BR.-1-65 STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION, BUREAU OF BRIDGES.
CONCRETE ON THIS SHEET TO BE CLASS "C".
DIMENSIONS SHOWN IN PLAN ARE HORIZONTAL.
CONCRETE PARAPETS INCLUDED FOR PAYMENT UNDER "ITEM 517, ALUMINUM BRIDGE RAILING."

VOID

THE OSBORN ENGINEERING CO.
CONSULTING ENGINEERS
CLEVELAND, OHIO

# ASHTON LANE (LINK ROAD)

## CITY OF BAY VILLAGE

### RECONSTRUCTION OF BRIDGE OVER PORTER CREEK

CONTOUR F.277 REPORT No. 6883 BRIDGE No. 2

No. B-210 (8/9)

SCALE INDICATED DATE 8-5-66

DRAWN BY R.S. CHECKED BY M.W. REVISED

## EAST ABUTMENT SHEET #3

| MARK | NO. | SIZE | LENGTH | TYPE |
|---|---|---|---|---|
| M 711 | 15 | #7 | 2'-11" | C |
| 712 | 15 | #7 | 2'-11" | C |
| 601 | 4 | #6 | 11'-6" | STR. |
| 602 | 11 | | 9'-6" | |
| 603 | 19 | | 3'-0" | |
| 604 | 22 | | 2'-0" | |
| 605 | 4 | #6 | 5'-0" | STR. |
| 611 | 6 | #6 | 5'-9" | A |
| 612 | 20 | | 7'-6" | |
| 613 | 1 | | 8'-0" | |
| 614 | 2 | | 3'-9" | |
| 615 | 2 | | 4'-9" | |
| 616 | 2 | | 5'-9" | |
| 617 | 2 | | 6'-9" | |
| 618 | 7 | | 8'-6" | |
| M 619 | 5 | #6 | 12'-3" | A |
| M 501 | 2 | #5 | 13'-0" | STR |
| 502 | 1 | | 12'-6" | |
| 503 | 7 | | 14'-0" | |
| 504 | 2 | | 16'-6" | |
| 505 | 1 | | 14'-6" | |
| 506 | 2 | | 12'-6" | |
| 507 | 1 | | 10'-9" | |
| 508 | 1 | | 5'-9" | |
| 509 | 2 | | 10'-9" | |
| 510 | 10 | | 9'-3" | |
| 511 | 1 | | 6'-3" | |
| 512 | 5 | #5 | 5'-0" | STR. |
| 514 | 5 | #5 | 9'-0" | STR. |
| 515 | 4 | | 12'-0" | |
| 516 | 1 | | 8'-9" | |
| 517 | 2 | | 7'-0" | |
| 518 | 4 | | 10'-6" | |
| 519 | 4 | | 23'-9" | |
| 520 | 3 | | 17'-0" | |
| 521 | 8 | | 23'-0" | |
| 522 | 15 | | 5'-9" | |
| 523 | 6 | | 6'-6" | |
| 524 | 8 | #5 | 16'-0" | STR. |
| 526 | 4 | #5 | 9'-0" | STR |
| 527 | 15 | #5 | 2'-6" | STR. |
| 532 | 1 | #5 | 8'-0" | A |
| 533 | 13 | | 20'-0" | B |
| 534 | 1 | | 16'-6" | B |
| 535 | 4 | | 17'-6" | B |
| 536 | 8 | | 6'-0" | A |
| 537 | 1 | | 16'-0" | E |
| 538 | 3 | | 6'-1" | A |
| 539 | 3 | | 6'-2" | A |
| 540 | 2 | | 4'-2" | A |
| 541 | 1 | #5 | 15'-0" | B |
| 543 | 7 | #5 | 6'-9" | A |
| 544 | 2 | | 19'-6" | B |
| 545 | 10 | | 3'-0" | A |
| 553 | 1 | | 7'-6" | STR. |
| 547 | 15 | | 8'-0" | B |
| 548 | 1 | | 22'-0" | STR. |
| 573 | 1 | | 6'-6" | STR. |
| 563 | 1 | | 4'-6" | STR. |
| M 584 | 16 | #5 | 21'-6" | C |
| R1574 | 2 | #5 | 17'-0" | STR. |
| R1575 | 2 | #5 | 16'-6" | STR. |
| M1577 | 7 | #5 | 5'-1" | B |
| M1578 | 7 | #5 | 10'-8" | B |

## WEST ABUTMENT SHEET #4

| MARK | NO. | SIZE | LENGTH | TYPE |
|---|---|---|---|---|
| M 711 | 6 | #7 | 2'-11" | C |
| 712 | 6 | #7 | 2'-11" | C |
| 618 | 1 | #6 | 8'-6" | A |
| 603 | 21 | | 3'-0" | STR. |
| 604 | 22 | | 2'-0" | STR. |
| 605 | 4 | | 5'-0" | STR. |
| 612 | 13 | | 7'-6 | A |
| 621 | 3 | | 11'-0" | STR. |
| 622 | 11 | | 9'-3" | STR. |
| 631 | 12 | | 6'-3" | A |
| 632 | 4 | | 12'-3" | |
| 633 | 7 | | 8'-0" | |
| 634 | 1 | | 7'-0" | |
| 635 | 1 | | 6'-7" | |
| 636 | 1 | | 6'-3" | |
| 637 | 1 | | 5'-10" | |
| 638 | 1 | | 5'-6" | |
| 639 | 1 | | 5-1" | |
| 640 | 1 | | 4'-9" | |
| 641 | 1 | | 4'-4" | |
| 642 | 1 | #6 | 4'-0" | A |
| M 502 | 2 | #5 | 12'-9" | STR. |
| 506 | 2 | | 11'-3" | |
| 512 | 4 | | 5'-0" | |
| 515 | 4 | | 2'-0" | |
| 516 | 8 | | 5'-6" | |
| 517 | 3 | | 7'-0" | |
| 518 | 2 | | 10'-6" | |
| 522 | 7 | | 5'-9" | |
| 526 | 4 | | 9'-0" | |
| 527 | 15 | | 2'-6" | STR. |
| 537 | 1 | | 16'-0" | E |
| 538 | 2 | | 6'-1" | A |
| 545 | 10 | | 3'-0" | A |
| 551 | 2 | #5 | 23'-6" | STR. |
| 552 | 5 | | 8'-9" | |
| 553 | 4 | | 7'-6" | |
| 554 | 1 | | 6'-0 | |
| 555 | 8 | | 15'-6" | |
| 556 | 7 | | 4'-0" | |
| 557 | 2 | | 12'-6" | |
| 558 | 4 | | 8'-9" | |
| 559 | 3 | | 7'-9 | |
| 560 | 1 | | 6'-9 | |
| 561 | 7 | | 6'-0" | |
| 562 | 1 | | 5'-0" | |
| 563 | 1 | | 4'-6" | |
| 564 | 3 | | 20'-6" | |
| 565 | 2 | | 21'-3" | |
| 566 | 1 | | 20'-3" | |
| 567 | 2 | | 17'-9 | |
| 568 | 1 | | 15'-0" | |
| 569 | 14 | #5 | 13-9 | STR. |
| 571 | 5 | #5 | 10'-3" | C |
| 572 | 2 | | 10'-8" | C |
| 573 | 6 | | 6'-6" | C |
| 574 | 1 | | 17'-6" | B |
| 575 | 4 | | 7'-8" | A |
| 576 | 6 | #5 | 6'-6" | C |
| 578 | 1 | #5 | 25'-6" | B |
| 579 | 1 | | 18-11" | B |
| 580 | 2 | | 10'-3" | A |
| 581 | 6 | | 7'-9" | A |
| 582 | 6 | | 6'-0" | E |
| 583 | 1 | | 7'-0" | A |
| M 584 | 16 | #5 | 21'-6" | C |
| R1576 | 3 | #5 | 20'-0" | STR. |
| M1579 | 6 | #5 | 8'-3" | B |

## EAST APPROACH SLAB SHEET #5

| MARK | NO. | SIZE | LENGTH | TYPE |
|---|---|---|---|---|
| M 801 | 2 | #8 | 3'-0" | STR. |
| 802 | 3 | | 2'-3" | |
| 803 | 2 | | 5'-9" | |
| 804 | 2 | | 6'-0" | |
| 805 | 9 | #8 | 4'-6" | STR. |
| 807 | 3 | #8 | 5'-0" | STR. |
| 808 | 30 | #8 | 1'-6" | STR. |
| 811 | 33 | #8 | 15'-4" | G |
| 812 | 1 | | 15'-1" | |
| 813 | 1 | | 14'-10" | |
| 814 | 1 | | 14'-7" | |
| 815 | 1 | | 14'-4" | |
| 816 | 1 | | 14'-1 | |
| 817 | 1 | | 13'-10" | |
| 818 | 1 | | 13'-7" | |
| 819 | 1 | | 13'-4" | |
| 820 | 1 | | 13'-1" | |
| 821 | 1 | | 12'-10" | |
| 822 | 1 | | 12'-7" | |
| 823 | 2 | | 12'-4" | |
| 824 | 2 | | 7'-9" | |
| 825 | 2 | | 6'-10" | |
| 826 | 2 | #8 | 7'-4" | G |
| 563 | 9 | #5 | 4'-6" | STR. |
| 564 | 1 | #5 | 20'-0" | STR. |
| 1501 | 6 | #5 | 29'-0" | STR |
| 1502 | 1 | | 26'-0" | |
| 1503 | 1 | | 23'-0" | |
| 1504 | 1 | | 20'-9" | |
| 1505 | 1 | | 19'-3" | |
| 1506 | 1 | | 12'-6" | |
| 1507 | 1 | | 11'-9" | |
| 1508 | 1 | | 11'-0" | |
| 1509 | 2 | #5 | 26'-6" | STR. |
| R1511 | 4 | #5 | 18'-6" | STR. |
| M1512 | 4 | #5 | 2'-6" | STR. |
| M1515 | 6 | #5 | 6'-6" | A |
| M 401 | 3 | #4 | 5'-0" | STR |
| 402 | 3 | #4 | 2'-3" | STR |
| M 407 | 6 | #4 | 4'-9" | F |
| M 434 | 11 | #4 | 4'-2" | H |

## WEST APPROACH SLAB SHEET #6

| MARK | NO. | SIZE | LENGTH | TYPE |
|---|---|---|---|---|
| M 805 | 8 | #8 | 4'-6" | STR. |
| 807 | 2 | #8 | 5'-0" | STR. |
| 808 | 33 | #8 | 1'-6" | STR. |
| 811 | 33 | #8 | 15'-4" | G |
| 813 | 1 | #8 | 14'-10" | G |
| 814 | 1 | #8 | 14'-7" | G |
| M 831 | 1 | #8 | 15'-7" | G |
| 832 | 1 | | 15'-10" | |
| 833 | 1 | | 16'-1" | |
| 834 | 1 | | 16'-4" | |
| 835 | 1 | | 16'-7" | |
| 836 | 1 | | 16'-10" | |
| 837 | 1 | | 17'-1" | |
| 838 | 1 | | 17'-4" | |
| 839 | 1 | | 17'-7" | |
| 840 | 1 | | 17'-10" | |
| 841 | 1 | | 18'-1" | |
| 842 | 2 | #8 | 18'-4" | G |
| 861 | 1 | #8 | 2'-0" | STR. |
| 862 | 1 | | 1'-9" | STR |
| 863 | 1 | | 4'-9" | STR |
| 864 | 2 | | 8'-7" | G |
| 865 | 1 | #8 | 8'-4" | G |
| 512 | 1 | #5 | 5'-0 | STR |
| 558 | 1 | #5 | 8'-9" | STR. |
| 563 | 8 | #5 | 4'-6" | STR. |
| 1501 | 8 | #5 | 29'-0" | STR. |
| 1521 | 1 | #5 | 26'-3" | STR. |
| 1522 | 1 | | 21'-6" | |
| 1523 | 1 | | 5'-3" | |
| 1524 | 3 | | 12'-0" | |
| 1525 | 3 | | 21'-0" | |
| 1526 | 6 | #5 | 3'-6" | STR. |
| M 1541 | 6 | #5 | 9'-8" | A |
| R 1573 | 4 | #5 | 18'-6" | STR. |
| M 407 | 12 | #4 | 4'-9" | F |
| M 411 | 3 | #4 | 14'-0" | STR. |
| M 412 | 3 | #4 | 1'-6" | STR. |
| M 434 | 11 | #4 | 4'-2" | H |

## PRECAST BEAMS & TERMINAL POSTS SHEET #7

| MARK | NO. | SIZE | LENGTH | TYPE |
|---|---|---|---|---|
| M 1551 | 8 | #5 | 6'-6" | STR. |
| * 1552 | 12 | | 6'-9" | |
| 1553 | 8 | | 4'-3" | |
| * 1554 | 8 | #5 | 4'-6" | STR. |
| M 1561 | 20 | #5 | 3'-1" | A |
| M 1562 | 20 | #5 | 5'-2" | A |
| M 1563 | 12 | #5 | 5'-4" | A |
| P 1571 | 28 | #5 | 31'-9" | STR. |
| P 416 | 24 | #4 | 31'-9" | STR. |
| P 417 | 16 | #4 | 4'-0" | STR. |
| 418 | 16 | #4 | 3'-0" | STR. |
| P 423 | 8 | #4 | 5'-5" | A |
| P 424 | 8 | | 4'-7" | |
| P 425 | 8 | | 2'-11" | |
| P 426 | 8 | | 3'-9" | |
| P 427 | 64 | | 4'-7" | |
| P 428 | 138 | | 5'-9" | |
| P 429 | 8 | | 3'-9" | A |
| P 431 | 195 | | 5'-1½" | D |
| P 432 | 195 | #4 | 5'-1½" | D |

## SIDEWALKS & PARAPETS SHEET #8

| MARK | NO. | SIZE | LENGTH | TYPE |
|---|---|---|---|---|
| M 806 | 6 | #8 | 18'-6" | STR. |
| M 508 | 60 | #5 | 4'-9" | STR. |
| M1510 | 8 | #5 | 14'-6" | STR. |
| M1571 | 14 | #5 | 31'-9" | STR. |
| R 1572 | 20 | #5 | 15'-9" | STR. |
| M 406 | 52 | #4 | 7'-4" | F |
| P 421 | 51 | #4 | 7'-3" | A |
| P 422 | 2 | #4 | 7'-6" | A |
| M 433 | 23 | #4 | 7'-2" | F |

## TYPE "H"

| MARK | A | B | C |
|---|---|---|---|
| M 434 | 1'-6" | 1'-2" | 1'-6" |

## TYPE "A"

| MARK | A | B | C |
|---|---|---|---|
| M 611 | 3'-6" | 2'-3" | — |
| 612 | 3'-6" | 4'-0" | — |
| 613 | 4'-0" | 4'-0" | — |
| 614 | 1'-0" | 2'-9" | — |
| 615 | 1'-0" | 3'-9" | — |
| 616 | 1'-0" | 4'-9" | — |
| 617 | 1'-0" | 5'-9" | — |
| 618 | 1'-0" | 7'-6" | — |
| 619 | 1'-0" | 11'-3" | — |
| 631 | 2'-6" | 3'-9" | — |
| 632 | 1'-0" | 11'-3" | — |
| 633 | 1'-0" | 7'-0" | — |
| 634 | 1'-0" | 6'-0" | — |
| 635 | 1'-0" | 5'-7" | — |
| 636 | 1'-0" | 5'-3" | — |
| 637 | 1'-0" | 4'-10" | — |
| 638 | 1'-0" | 4'-6" | — |
| 639 | 1'-0" | 4'-1" | — |
| 640 | 1'-0" | 3'-9" | — |
| 641 | 1'-0" | 3-4" | — |
| 642 | 1'-0" | 3'-0" | — |
| 532 | 4'-0" | 4'-0" | — |
| 536 | 3'-0 | 3'-0" | — |
| 538 | 2'-6" | 1'-1" | 2'-6" |
| 539 | 2'-3" | 1'-8 | 2'-3" |
| 540 | 1'-3" | 1'-8" | 1'-3" |
| 543 | 2'-0" | 4'-9 | — |
| 545 | 1'-6" | 1'-6" | — |
| 575 | 3'-0" | 1'-8" | 3'-0" |
| 580 | 2'-6" | 7'-9" | — |
| 581 | 2'-6" | 4'-6" | — |
| 583 | 3'-6 | 3'-6" | — |
| 1515 | 1'-4" | 5'-2" | — |
| 1541 | 1'-3" | 8'-5" | — |
| 1561 | 0'-10" | 2'-3" | — |
| 1562 | 1'-6" | 0'-6" | 3'-2" |
| M1563 | 2'-3" | 0'-10" | 2'-3" |
| P 421 | 1'-10" | 3'-7" | 1'-10" |
| P 422 | 1'-10" | 3'-10" | 1'-10" |
| P 423 | 1'-1" | 3'-3" | 1'-1" |
| P 424 | 1'-1" | 2'-5" | 1'-1" |
| P 425 | 1'-0" | 0'-11" | 1'-0" |
| P 426 | 1'-0" | 1'-9" | 1'-0" |
| P 427 | 1'-0" | 2'-7" | 1'-0" |
| P 428 | 1'-1" | 3'-7" | 1'-1" |
| P 429 | 1'-1" | 1'-7" | 1'-1" |

## TYPE "B"

| MARK | A | B | C | D | E |
|---|---|---|---|---|---|
| 533 | 2'-6 | 15'-0" | 2'-6 | 5'-6" | 13'-11½" |
| 534 | 2'-6" | 14'-0" | — | 5'-1 9/16" | 13'-0 5/16" |
| 535 | 2'-6" | 15'-0" | — | 5'-6" | 13'-11½" |
| 541 | — | 13'-0" | 2'-0" | 4'-9¼" | 12'-1¼" |
| 544 | 2'-6" | 15'-0" | 2'-0" | 5'-6" | 13'-11½" |
| 547 | 7'-0" | 1'-0" | — | 0'-11⅜" | 0'-3⅜" |
| 574 | — | 15'-6" | 2'-0" | 5'-8 3/16" | 14'-5 1/16" |
| 1577 | 1'-3" | 2'-1" | 1'-9" | 1'-3" | 1'-9" |
| 1578 | 5'-0" | 0'-10" | 4'-10" | 0'-4" | 0'-10" |
| 578 | — | 23'-3" | 2'-3" | 8'-6¼" | 21'-7 9/16" |
| 579 | 0'-9" | 15'-8" | 2'-6" | 5'-9" | 14'-6⅜" |
| 1579 | 2'-0" | 1'-9" | 4'-6" | 0'-9" | 1'-6" |

## TYPE "C"

| MARK | A | B | C | D | E |
|---|---|---|---|---|---|
| M. 711 | 0'-9" | 1'-2" | 1'-0" | 0'-11¼" | 0'-4⅜" |
| 712 | — | 2'-2" | 0'-9" | 0'-8 3/16" | 0'-3 1/16" |
| 571 | 1'-0" | 7'-0" | 2'-3" | 2'-0" | 1'-3" |
| 572 | 0'-8" | 7'-2" | 2'-3" | 1'-10" | 1'-3" |
| 573 | — | 5'-6" | 1'-0" | 0'-11⅜" | 0'-3⅜" |
| 584 | — | 1'-6" | 1'-0" | 0'-11¼" | 0'-4⅜" |
| 576 | 2'-6" | 1'-6" | 2'-6" | 1'-3" | 2'-0" |

## TYPE "D"

| MARK | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| M 431 | 1'-2" | 0'-3" | 0'-4¼" | 1'-7" | 0'-3" | 0'-3" |
| 432 | 1'-2" | 0'-9" | 0'-4¼" | 0'-7" | 0'-3" | 0'-3" |

## TYPE "E"

| MARK | A | B | C | D | E |
|---|---|---|---|---|---|
| M. 537 | 1'-6" | 4'-0" | 10'-6" | 10'-7½" | 0'-6¾" |
| 582 | — | 3'-0" | 3'-0" | 2'-9½" | 1'-1¼" |

## TYPE "F"

| MARK | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| M 406 | 0'-4" | 2'-6" | 0'-10" | 2'-6" | 0'-10" | 0'-4" |
| 407 | 0'-4" | 1'-6½" | 0'-6" | 1'-6½" | 0'-6" | 0'-4" |
| 433 | 0'-4" | 2'-5" | 0'-10" | 2'-5" | 0'-10" | 0'-4" |

## TYPE "G"

| MARK | A | B | J |
|---|---|---|---|
| M 811 | 0'-10" | 14'-6" | 0'-7" |
| 812 | 0'-10" | 14'-3" | 0'-7" |
| 813 | 0'-10" | 14'-0" | 0'-7" |
| 814 | 0'-10" | 13'-9" | 0'-7" |
| 815 | 0'-10" | 13'-6" | 0'-7" |
| 816 | 0'-10" | 13'-3" | 0'-7" |
| 817 | 0'-10" | 13'-0" | 0'-7" |
| 818 | 0'-10" | 12'-9" | 0'-7" |
| 819 | 0'-10" | 12'-6" | 0'-7" |
| 820 | 0'-10" | 12'-3" | 0'-7" |
| 821 | 0'-10" | 12'-0" | 0'-7" |
| 822 | 0'-10" | 11'-9" | 0'-7" |
| 823 | 0'-10" | 11'-6" | 0'-7" |
| 824 | 0'-10" | 6'-9" | 0'-7" |
| 825 | 0'-10" | 6'-0" | 0'-7" |
| 826 | 0'-10" | 6'-6" | 0'-7" |
| M 831 | 0'-10" | 14'-9" | 0'-7" |
| 832 | 0'-10" | 15'-0" | 0'-7" |
| 833 | 0'-10" | 15'-3" | 0'-7" |
| 834 | 0'-10" | 15'-6" | 0'-7" |
| 835 | 0'-10" | 15'-9" | 0'-7" |
| 836 | 0'-10" | 16'-0" | 0'-7" |
| 837 | 0'-10" | 16'-3" | 0'-7" |
| 838 | 0'-10" | 16'-6" | 0'-7" |
| 839 | 0'-10" | 16'-9" | 0'-7" |
| 840 | 0'-10" | 17'-0" | 0'-7" |
| 841 | 0'-10" | 17'-3" | 0'-7" |
| 842 | 0'-10" | 17'-6" | 0'-7" |
| 864 | 0'-10" | 7'-9" | 0'-7" |
| 865 | 0'-10" | 7'-6" | 0'-7" |

NOTE:
1) BARS MARKED WITH "*" TO BE BENT IN FIELD.
2) BARS MARKED WITH PREFIX "P" TO BE INCLUDED FOR PAYMENT WITH PRECAST CONCRETE BEAMS.
3) R1511, R1572, R1573, R1574, R1575 & R1576 TO BE INCLUDED FOR PAYMENT WITH ALUMINUM BRIDGE RAILING (PREFIX "R").

THE OSBORN ENGINEERING CO.
CONSULTING ENGINEERS
CLEVELAND, OHIO

# ASHTON LANE (LINK ROAD)

## CITY OF BAY VILLAGE

### RECONSTRUCTION OF BRIDGE OVER PORTER CREEK

CONTOUR F.277 REPORT No.6883 BRIDGE No.2

**No B-210** (9/9)

SCALE NO SCALE DATE 8-5-66

DRAWN BY KBS CHECKED BY M.W. REVISED

Concrete above curb surface construction joint is included with Item 517 for payment.

ELEVATION OF RAILING

RAILING DETAIL AT DECK EXPANSION JOINT

CANTILEVER END POST

SUPPORTED END POST

SECTION G-G

SECTION F-F

TYPICAL PARAPET AND END POST DETAILS

PART DECK SECTION

For values of "A", 3'-0" and larger

VIEW A-A

TYPICAL SECTION

SECTION E-E

SECTION D-D

Internal sleeve detail

DETAIL A

Tubes symmetrical about ℄ anchor channel.

CAST TUBE CAP

Cap shall fit tight in tubes

SECTION H-H

SECTION C-C (thru post)

Lower tube seat shown, Upper tube seat similar

SECTION B-B

POST SHIM PLATES

(aluminum)

PART VIEW A-A

DETAIL B

TUBE SPLICE DETAIL

TUBE ANCHOR BAR DETAIL

(aluminum)

**GENERAL**: This drawing provides design and construction details. The project plans for each structure shall give necessary additional railing dimensions including parapet and tube panel lengths, reinforcing steel details, reinforcing steel list, estimated quantities, and any other pertinent information, including special notes and details.

**DESIGN SPECIFICATION**: This standard drawing conforms to the requirements of the A.A.S.H.O. Interim Specification, I(64).

**DESIGN UNIT STRESSES** as given in the A.S.C.E. paper No. 3341 were used in the design of the rail tubing. 35% of the unit stresses given in the paper were used in the design of the post.

Basic unit stresses: Tubes = 21,000 psi
Post = 6,000 psi

**TUBE SPLICES** are to be located so that each tube segment shall be connected to not less than two posts nor more than three.

**CONCRETE PARAPETS** shall be placed in alternate sections by the use of bulkheads. Closing sections shall be placed after removal of bulkheads and after placement of sponge rubber. Rubber shall be flush with surface of concrete and exposed edges shall be free of mortar.

**SHIMS** shall be provided under railing post, where necessary, to provide for the vertical adustment of the post. Shims shall be of aluminum alloy, 1/16 inch thick, cut as shown. Where more adjustment of the post is required, for plumb alignment, than can be corrected by one shim, the post shall be removed and the concrete surface corrected by grinding.

**FINISH**: The outside surface of the post flanges and the tube caps shall be given a 40 grit finish.

**ANCHORS**: Post anchor rods, hexagonal nuts and flat washers shall be galvanized steel, with all galvanizing, except on the lower 6" of the anchor rods, meeting the requirements of Ohio Specification Section 711.02. Anchor rods, as fabricated, shall have the following minimum dimensions and mechanical properties

| | |
|---|---|
| Diameter at root of threads | 0.620" |
| Straight portion of rod | 1'-0" long |
| Hook at bottom | 2½"-90° bend |
| Anchor tensile strength | 21,000 lbs |

Hexagonal nut shall develop the tensile strength of the anchor rod.

Cap screws shall be stainless steel, ASTM A276, type 410 with a minimum yield strength of 80,000 psi.

**MATERIAL**: Railing posts shall be permanent mold castings. All aluminum products shall conform to Section 711.20

**HORIZONTAL CURVATURE**: This standard is applicable to structures having a railing curvature radius of 20 feet or more. For a radius less than 20 feet, the design shall be special. For structures on curvatures of 3° or less, the tubes may be furnished straight and forced into position in the field.

RAILING REINFORCING STEEL

| Mark | Length | Weight | Shape | Bending Diagrams |
|---|---|---|---|---|
| R5-bar | * | Included with Item 517 for payment | St. | |
| R503 | 6'-1" | | Bt. | |
| R504 | 4'-2" | | Bt. | |
| R505 | 5'-5" | | Bt. | |
| R506 | 3'-0" | | St. | |
| R507 | 3'-5" | | Bt. | |

*See Project Plans

A-bars are included with superstructure, abutments, or other parapet supporting elements, under Item 509, for payment.

| REVISIONS |
|---|
| 11-24-65 |

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

STANDARD

# BRIDGE RAILING TYPE-2

WITH CONCRETE PARAPETS

| APPROVED | | | DRAWING NUMBER |
|---|---|---|---|
| DATE 2-1-65 | C. H. Wheeler ENGINEER OF BRIDGES | | BR-1-65 |
| PREPARED | TRACED | CHECKED | REVIEWED | SHEET NO. 2 OF 2 SHEETS |
| MPB | CAM | JDR | HHH BFG CDB | |