

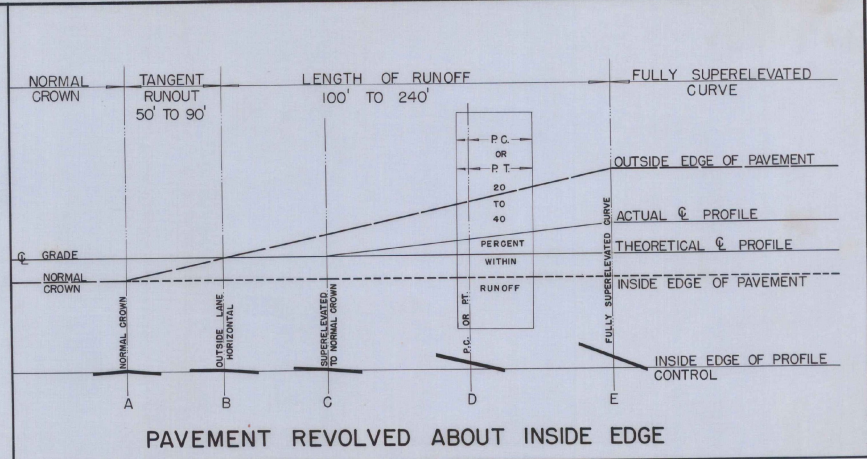
| DEGREE | RADIUS | 30 MPH | | 40 MPH | | 50 MPH | | 60 MPH | | 70 MPH | |
|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|---------------|--------|
| | | RATE | LENGTH | RATE | LENGTH | RATE | LENGTH | RATE | LENGTH | RATE | LENGTH |
| 0-15' | 22,918' | NC | 0 | NC | 0 | NC | 0 | NC | 0 | 3/16" | 200 |
| 0-30' | 11,459' | NC | 0 | NC | 0 | 3/16" | 150 | 3/16" | 175 | 3/16" | 200 |
| 0-45' | 7,639' | NC | 0 | 3/16" | 125 | 3/16" | 150 | 3/16" | 175 | 1/4" | 200 |
| 1° 00' | 5,730' | NC | 0 | 3/16" | 125 | 3/16" | 150 | 1/4" | 175 | 5/16" | 200 |
| 1° 30' | 3,920' | 3/16" | 100 | 1/4" | 125 | 5/16" | 150 | 7/16" | 175 | 1/2" | 200 |
| 2° 00' | 2,965' | 3/16" | 100 | 5/16" | 125 | 7/16" | 150 | 9/16" | 175 | 11/16" | 200 |
| 2° 30' | 2,296' | 1/4" | 100 | 3/8" | 125 | 1/2" | 150 | 11/16" | 175 | 13/16" | 210 |
| 3° 00' | 1,910' | 5/16" | 100 | 7/16" | 125 | 5/8" | 150 | 13/16" | 180 | 15/16" | 230 |
| 3° 30' | 1,637' | 5/16" | 100 | 1/2" | 125 | 11/16" | 150 | 7/8" | 190 | 1" | 240 |
| 4° 00' | 1,432' | 3/8" | 100 | 9/16" | 125 | 3/4" | 150 | 15/16" | 210 | 1" | 240 |
| 5° 00' | 1,146' | 7/16" | 100 | 5/8" | 125 | 13/16" | 170 | 1" | 220 | D MAX = 3.5° | |
| 6° 00' | 955' | 1/2" | 100 | 3/4" | 125 | 15/16" | 180 | 1" | 220 | D MAX = 5.0° | |
| 7° 00' | 819' | 9/16" | 100 | 13/16" | 140 | 15/16" | 190 | 1" | 190 | D MAX = 7.6° | |
| 8° 00' | 716' | 5/8" | 100 | 7/8" | 150 | 1" | 160 | | | | |
| 9° 00' | 637' | 5/8" | 100 | 7/8" | 160 | | | | | | |
| 10° 00' | 573' | 11/16" | 100 | 15/16" | 160 | | | | | | |
| 11° 00' | 521' | 3/4" | 110 | 15/16" | 170 | | | | | | |
| 12° 00' | 477' | 3/4" | 120 | 1" | 170 | | | | | | |
| 13° 00' | 441' | 13/16" | 120 | 1" | 170 | | | | | | |
| 14° 00' | 409' | 13/16" | 130 | | | | | | | D MAX = 12.4° | |
| 16° 00' | 355' | 7/8" | 130 | | | | | | | | |
| 18° 00' | 318' | 15/16" | 140 | | | | | | | | |
| 20° 00' | 286' | 15/16" | 140 | | | | | | | | |
| 22° 00' | 260' | 1" | 140 | | | | | | | | |
| 22.9° | 250' | 1" | 140 | | | | | | | | |

| RATE | PAVEMENT WIDTHS | | |
|--------|-----------------|---------|---------|
| | 20' | 22' | 24' |
| 3/16" | 3 3/4" | 4 1/8" | 4 1/2" |
| 1/4" | 5" | 5 1/2" | 6" |
| 5/16" | 6 1/4" | 6 7/8" | 7 1/2" |
| 3/8" | 7 1/2" | 8 1/4" | 9" |
| 7/16" | 8 3/4" | 9 5/8" | 10 1/2" |
| 1/2" | 10" | 11" | 12" |
| 9/16" | 11 1/4" | 12 3/8" | 13 1/2" |
| 5/8" | 12 1/2" | 13 3/4" | 15" |
| 11/16" | 13 3/4" | 15 1/8" | 16 1/2" |
| 3/4" | 15" | 16 1/2" | 18" |
| 13/16" | 16 1/4" | 17 7/8" | 19 1/2" |
| 7/8" | 17 1/2" | 19 1/4" | 21" |
| 15/16" | 18 3/4" | 20 5/8" | 22 1/2" |
| 1" | 20" | 22" | 24" |

RATE = RATE OF SUPERELEVATION (PER FOOT)
 LENGTH = MINIMUM LENGTH OF RUNOFF
 N C = NORMAL CROWN SECTION

RATES ARE FIGURED TO THE NEAREST SIXTEENTH INCH.
 BANKING FOR CURVES NOT LISTED IN TABLE MAY BE DETERMINED FROM GRAPH

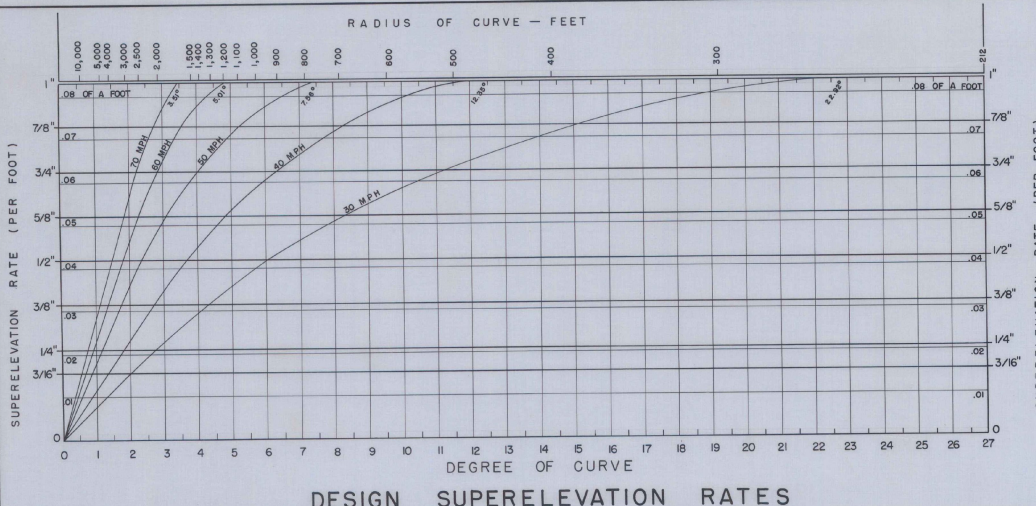
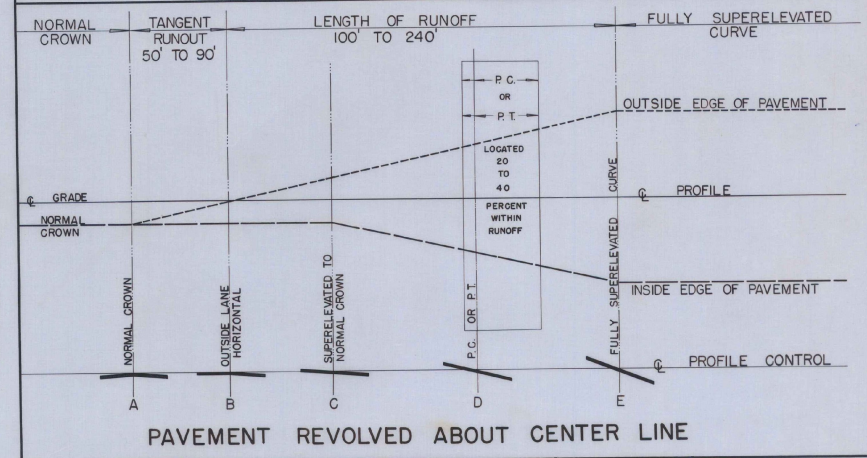
DESIGN VALUES FOR RATE OF SUPERELEVATION AND MINIMUM LENGTH OF RUNOFF



TANGENT RUNOUT... CONSISTS OF MAKING THE LANE OR LANES ON THE OUTSIDE OF THE CURVE HORIZONTAL WITH THE CENTER LINE, USING 50 TO 90 FEET WHERE THE NORMAL CROWN IS APPROXIMATELY 1/3 OF AN INCH PER FOOT.

LENGTH OF RUNOFF... FROM 50 TO 80 PERCENT OF THE LENGTH OF RUNOFF PREFERABLY SHOULD BE LOCATED ON THE TANGENT AT CURVES.

BREAKS IN PROFILES FOR PAVEMENT EDGES SHOULD BE ROUNDED IN FINAL DESIGN BY INSERTION OF VERTICAL CURVES. THE MINIMUM VERTICAL CURVE LENGTH IN FEET CAN BE USED NUMERICALLY EQUAL TO THE DESIGN SPEED IN MPH.



BANKING TABLES

REVISIONS & CORRECTIONS

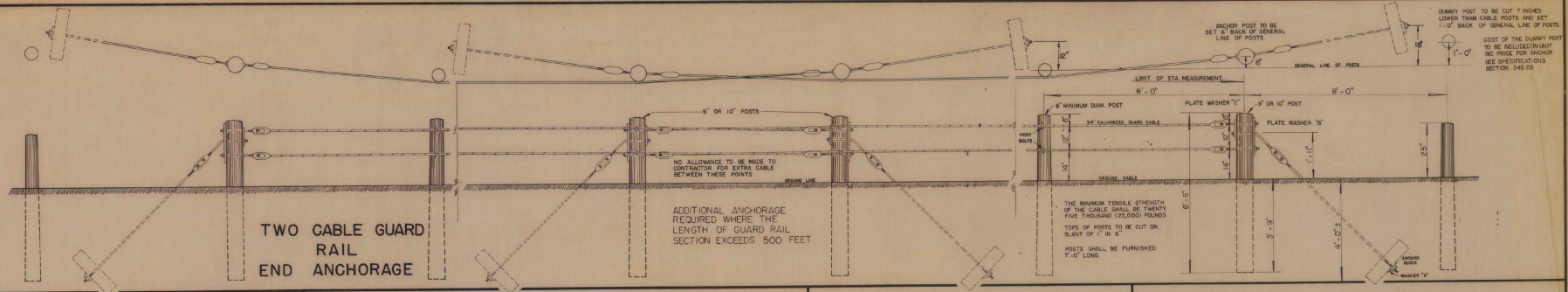
DRAWN BY: L.C. JONES MAY 1956
 TRACED BY: AJA
 APPROVED BY: *[Signature]*
 DATE: *[Signature]*
 DATE SIGNED: *[Signature]*

MAY 23 1956
 HIGHWAY ENGINEER

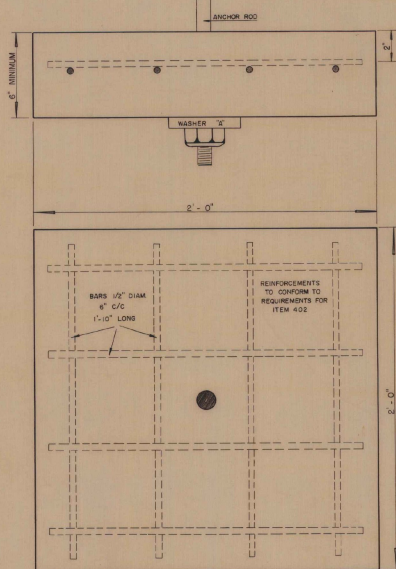
MAY 23 1956
 CHIEF ENGINEER

DEPARTMENT OF HIGHWAYS
 STANDARD STRUCTURES

RS 56-1

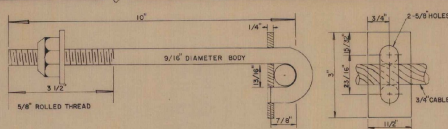


ANCHOR BLOCK IS TO BE OF CONCRETE CLASS B. CONCRETE AND REINFORCING STEEL TO BE INCLUDED IN BID PRICE FOR ANCHORS FOR TWO CABLE GUARD RAIL, ITEM 545



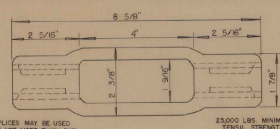
ANCHOR BLOCK

HOOK BOLTS OF LENGTH SHOWN ARE ADAPTABLE TO POSTS UP TO 2 INCH DIAM. HOOK BOLTS OF VARIABLE LENGTHS ARE REQUIRED TO AVOID NOTCHING OF POSTS OR A BOLT PROJECTION OF MORE THAN 2/8"

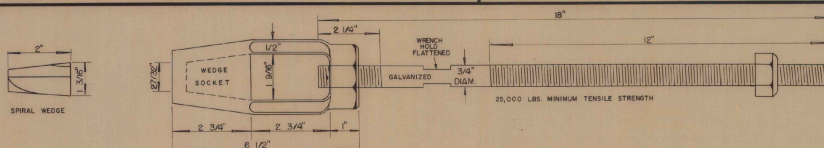


GALVANIZED HOOK BOLT & PLATE

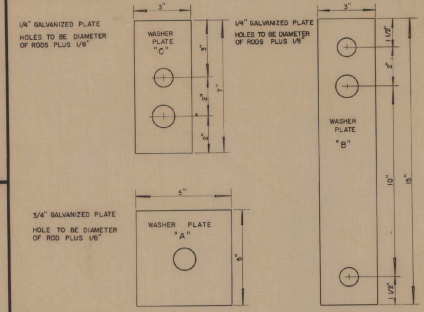
CABLE SPLICES MAY BE USED PROVIDING NOT MORE THAN ONE SPLICE OCCURS IN ANY ONE PANEL, AND NO PIECE OF CABLE IS LESS THAN 50 FEET LONG. SEE SPECIFICATIONS, SECTION 542.03



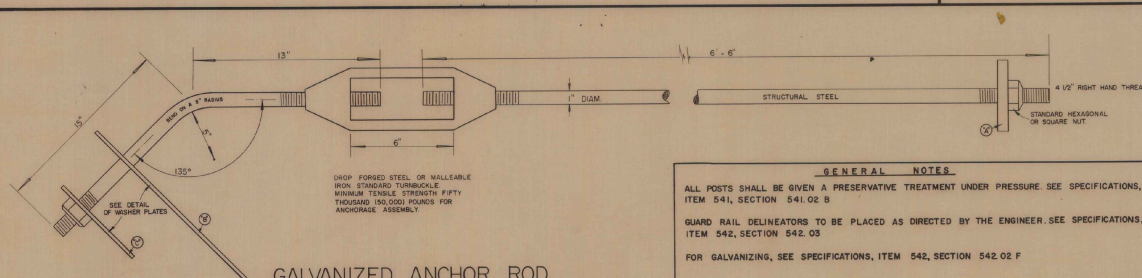
CABLE SPLICE



CABLE END UNIT



WASHER PLATES



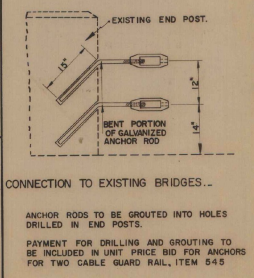
GALVANIZED ANCHOR ROD

GENERAL NOTES.

ALL POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT UNDER PRESSURE. SEE SPECIFICATIONS, ITEM 541, SECTION 541.02 B

GUARD RAIL DELINEATORS TO BE PLACED AS DIRECTED BY THE ENGINEER. SEE SPECIFICATIONS, ITEM 542, SECTION 542.03

FOR GALVANIZING, SEE SPECIFICATIONS, ITEM 542, SECTION 542.02 F



REVISIONS & CORRECTIONS

PLATE FOR WOOD POST PROTECTION ADDED 1 AUGUST 1956

CONNECTION TO EXISTING BRIDGES - COMPLETE BLOCK ADDED OCT. 1957

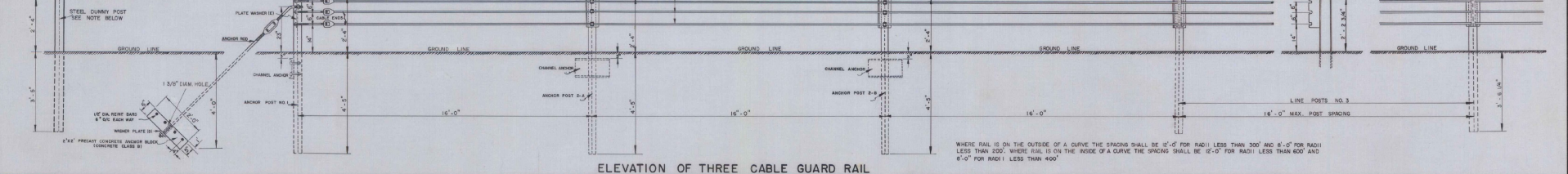
DRAWN BY: PALMER
TRACED BY: PALMER
APPROVED BY: DATE
DATE SIGNED: MAY 7, 1956
H. E. August
CHIEF ENGINEER

TWO CABLE GUARD RAIL, ITEM 542
ANCHORS FOR TWO CABLE GUARD RAIL, ITEM 545

DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURES

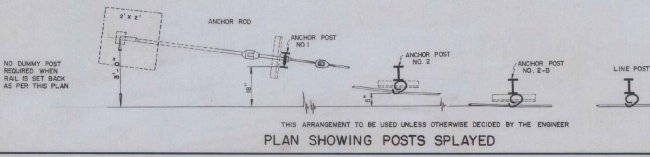
RS 56-10

STEEL DUMMY POST TO CONFORM TO THE REQUIREMENTS FOR STEEL GUARD POSTS, ITEM 543-B THE COST OF THE DUMMY POST TO BE INCLUDED IN UNIT BID PRICE FOR THE END ANCHOR. SEE SPECIFICATIONS, SECTION 543.03

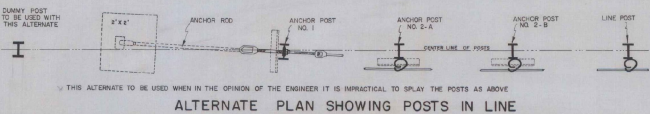


ELEVATION OF THREE CABLE GUARD RAIL

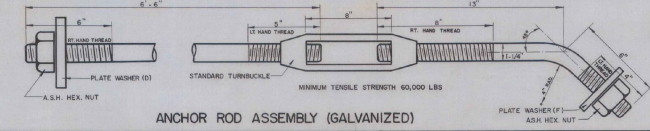
WHERE RAIL IS ON THE OUTSIDE OF A CURVE THE SPACING SHALL BE 8'-0" FOR RADII LESS THAN 500' AND 6'-0" FOR RADII LESS THAN 200'. WHERE RAIL IS ON THE INSIDE OF A CURVE THE SPACING SHALL BE 12'-0" FOR RADII LESS THAN 600' AND 8'-0" FOR RADII LESS THAN 400'



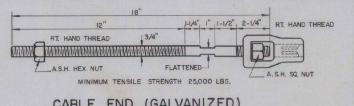
PLAN SHOWING POSTS SPLAYED



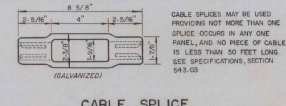
ALTERNATE PLAN SHOWING POSTS IN LINE



ANCHOR ROD ASSEMBLY (GALVANIZED)



CABLE END (GALVANIZED)



CABLE SPLICE

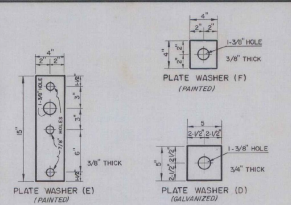
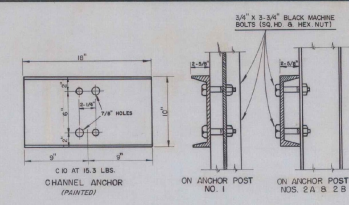
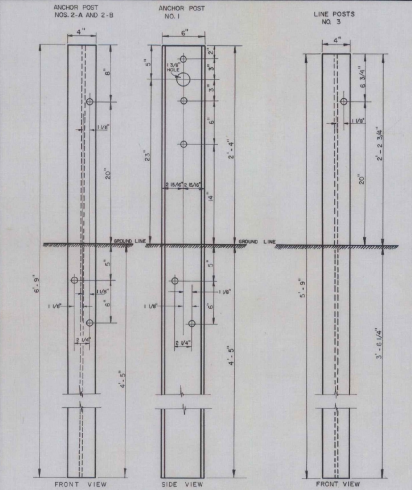


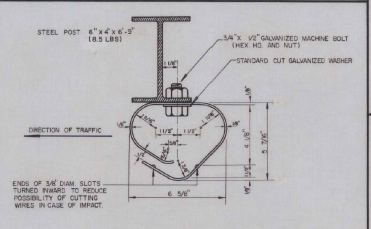
PLATE WASHER DETAILS



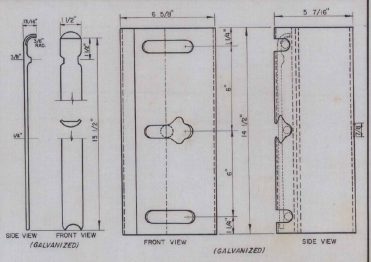
CHANNEL ANCHOR DETAILS



STEEL POSTS



PLAN-OFFSET BRACKET & POST ASSEMBLY



STAY PIN OFFSET BRACKET

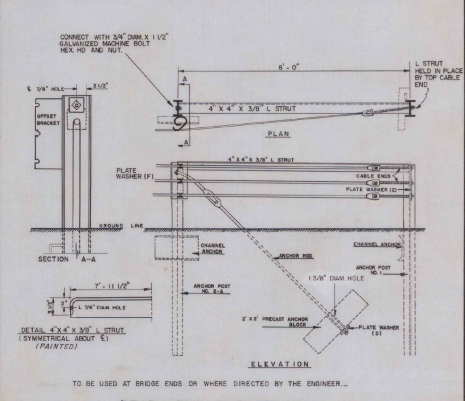
THREE CABLE GUARD RAIL WITH STEEL POSTS, ITEM 543
ANCHORS FOR THREE CABLE GUARD RAIL WITH STEEL POSTS, ITEM 546

GENERAL NOTES

WEDGE-LOCK CABLE ENDS TO BE DROP FORGED STEEL OR MALLEABLE IRON.

THE OFFSET SPRING BRACKET, SHALL BE PUNCHED AND FORMED FROM SPRING STEEL, AFTER WHICH IT SHALL BE TEMPERED AND DRAW AFTER FABRICATION. THE BRACKET AND STAY PIN SHALL BE DOUBLE HOT DIPPED GALVANIZED. A MANUFACTURING TOLERANCE OF PLUS OR MINUS 1/8" WILL BE ALLOWED IN THE HEIGHT AND WIDTH OF THE BRACKET.

SEE SPECIFICATIONS, ITEM 543 AND 546 FOR PAINTING, CONSTRUCTION AND OTHER REQUIREMENTS...



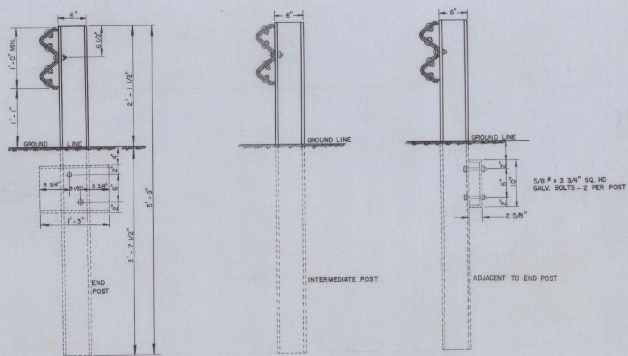
DEAD END ANCHORAGE

REVISIONS & CORRECTIONS

DRAWN BY: DEPT. 4/11/1956
TRACED BY: A.J.A. 4/13/1956
APPROVED BY: [Signature]
DATE: MAY 7, 1956
DATE SIGNED: [Signature] CHIEF ENGINEER

DRAWN BY: DEPT. 4/11/1956
TRACED BY: A.J.A. 4/13/1956
APPROVED BY: [Signature]
DATE: MAY 7, 1956
DATE SIGNED: [Signature] CHIEF ENGINEER

DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURES
RS 56-11



SIDE ELEVATIONS OF POSTS

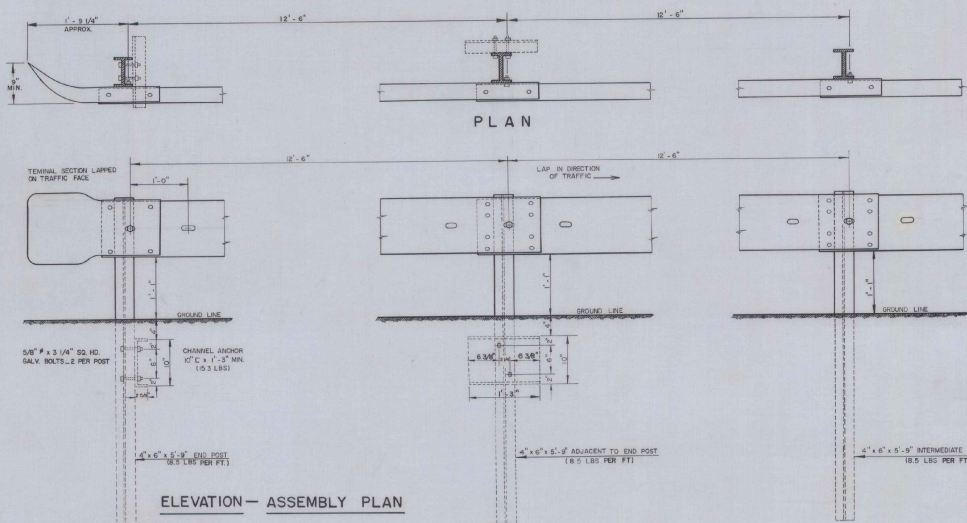
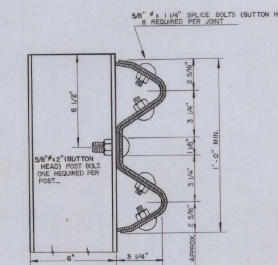
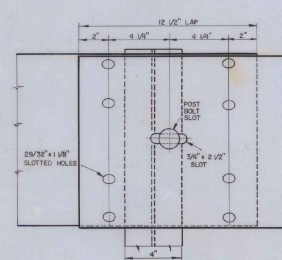
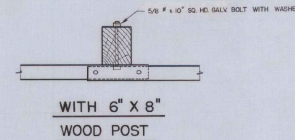
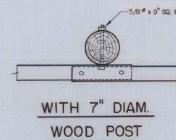
REQUIREMENTS

| ITEM | MINIMUM GAGE | RAIL OR JOINT | | | | |
|-------|--------------|---------------------------|---------------|-----------------------------|----------------------------|--------|
| | | TENSILE STRENGTH (Pounds) | BEAM STRENGTH | | Traffic Face Down (Pounds) | |
| | | | Load (Pounds) | Maximum Deflection (Inches) | | |
| 547-A | 12 | 80,000 | 1500 | 2 3/4" | 1200 | 2 3/4" |
| 547-B | | | 2000 | 5 1/2" | 1600 | 5 1/4" |
| 547-C | 10 | 100,000 | 2000 | 2 3/4" | 1600 | 2 3/4" |
| 547-D | | | 3000 | 5 1/2" | 2400 | 5 1/2" |

STRENGTH The rail element shall be designed to meet the requirements of the above table. The post connection shall withstand a 5,000 pound side pull in either direction with the rail element freely supported on 12'-0" clear span and the load applied through a 2 inch flat surface at the center of the span. When the joint is tested it shall be at the center of the span.

The requirements regarding chemical composition as indicated under the first paragraph of section 547.02 C of the Standard Specifications adopted Jan. 6, 1956 is hereby waived.

Reference section 547.02 F of Standard Specifications adopted Jan. 6, 1956. Bolts, Nuts, & Washers shall be of wrought iron conforming to ASTM Designation A 307. ASTM Designation A 48 is superseded.



GENERAL NOTES

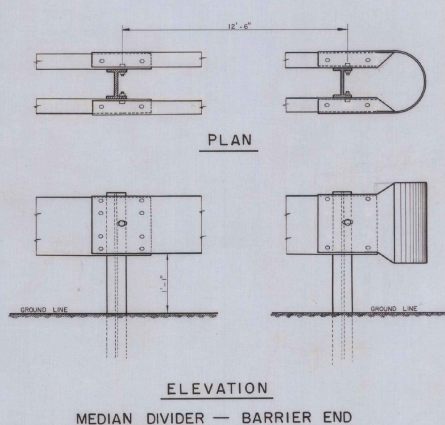
ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. FOR GALVANIZATION, SEE SPECIFICATIONS, ITEM 547, SECTION 547.02 F.

ALL WOOD POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT UNDER PRESSURE. SEE SPECIFICATIONS, ITEM 542, SECTION 542.02 B.

TOP OF ROUND POSTS TO BE CUT TO 1" SLANT AND EDGE BEVELED 1/2" FINISHED POSTS TO BE 5'-9" LONG, AND SHALL BE ADJZD AT POINT OF CONTACT WITH STEEL BEAM PANEL TO PROVIDE AN EVEN BEARING SURFACE.

STEEL POSTS TO BE PAINTED WITH PAINT MEETING THE REQUIREMENTS OF SPECIFICATIONS, ITEM 547, SECTION 547.02 H, AND APPLIED AS REQUIRED BY SECTION 547.03.

STANDARD STEEL BEAM TO BE 12 GAGE, AND THE HEAVY DUTY 10 GAGE, AND SHALL MEET THE REQUIREMENTS OF SPECIFICATIONS, ITEM 547, SECTION 547.02 O AND D, EXCEPTING AS INDICATED ABOVE UNDER "REQUIREMENTS"



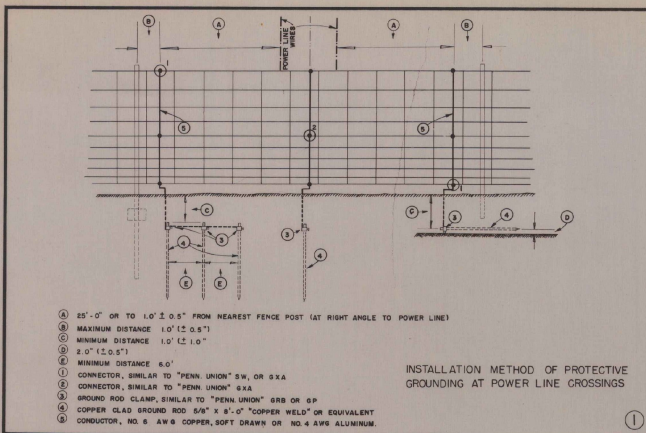
REVISIONS & CORRECTIONS

DRAWN BY: AJA MAY 1956
 TRACED BY: AJA
 APPROVED BY: *Richard Harvett*
 DATE: MAY 10, 1956
 HIGHWAY ENGINEER
 DATE SIGNED: *Richard Harvett*
 MAY 10, 1956
 CHIEF ENGINEER

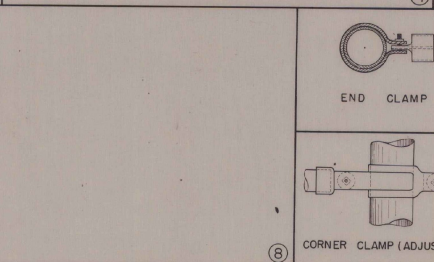
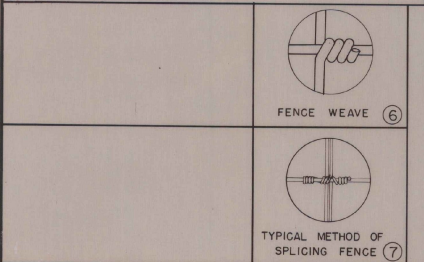
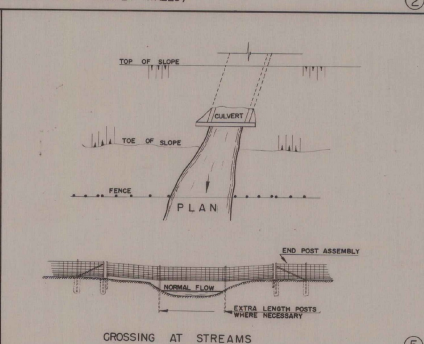
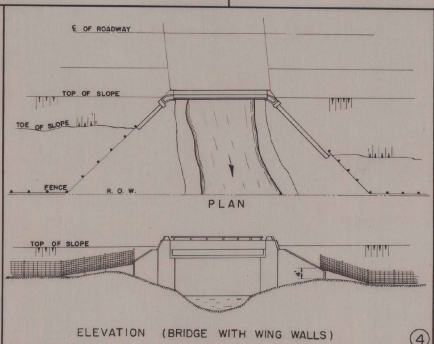
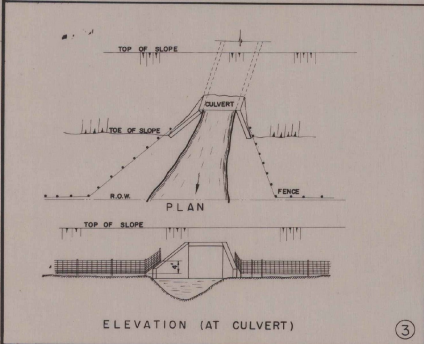
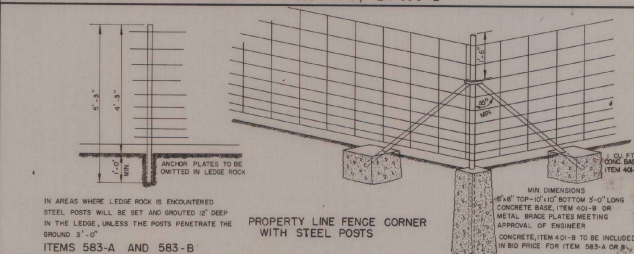
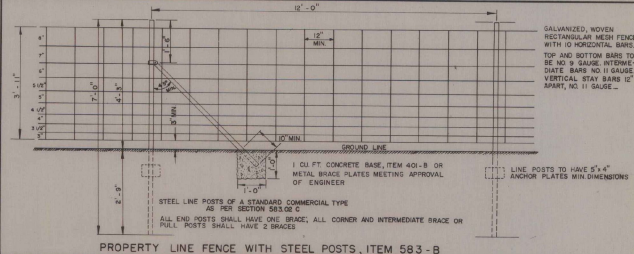
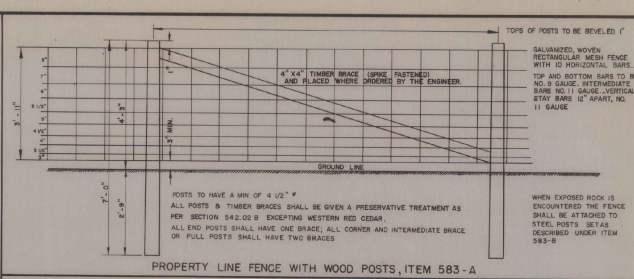
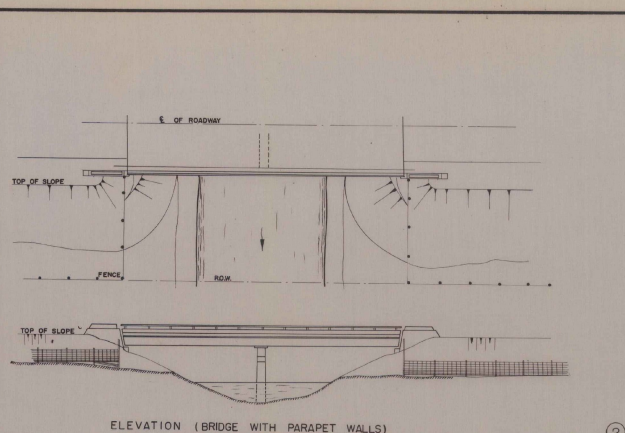
STANDARD STEEL BEAM GUARD RAIL WITH STEEL POSTS ITEM 547-A
 STANDARD STEEL BEAM GUARD RAIL WITH WOOD POSTS ITEM 547-B
 HEAVY DUTY STEEL BEAM GUARD RAIL WITH STEEL POSTS ITEM 547-C
 HEAVY DUTY STEEL BEAM GUARD RAIL WITH WOOD POSTS ITEM 547-D

DEPARTMENT OF HIGHWAYS
 STANDARD STRUCTURES

RS 56-13



INSTALLATION METHOD OF PROTECTIVE GROUNDING AT POWER LINE CROSSINGS



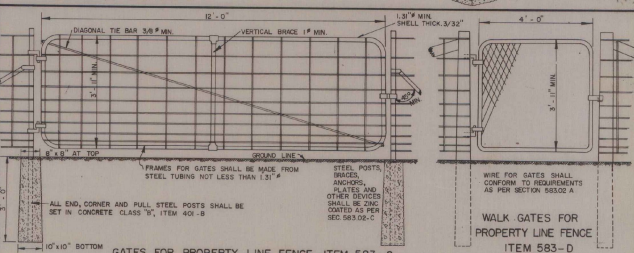
SPECIFICATIONS FOR STEEL POSTS

INTERMEDIATE OR LINE POSTS

QUADRUPLE RIBBED TEE POSTS - MIN WEIGHT 1.32 LBS PER L.F.
 CHANNEL OR U POSTS MIN WEIGHT 1.12 LBS PER L.F.
 STANDARD TEE POSTS MIN WEIGHT 1.12 LBS PER L.F.
 TUBULAR POSTS - MIN OD 1 3/8" MIN GAUGE NO. 15. MUST HAVE SUITABLE CAP AT TOP OF POST.
 ANGLE POSTS - MIN SECTION 2" x 2" x 1/4"

END POSTS, CORNER POSTS, PULL POSTS & BRACES

TUBULAR POSTS & BRACES - MIN. OD 2 1/2" MIN GAUGE NO. 8
 STANDARD PIPE SECTION POSTS & BRACES - MIN WEIGHT 3.65 LBS PER L.F. MUST HAVE SUITABLE CAP AT TOP OF POST.
 ANGLE POSTS & BRACES - MIN SECTION FOR POST 2 1/2" x 2 1/2" x 1/4"
 BRACE MIN SECTION 2" x 2" x 1/4"



REVISIONS & CORRECTIONS

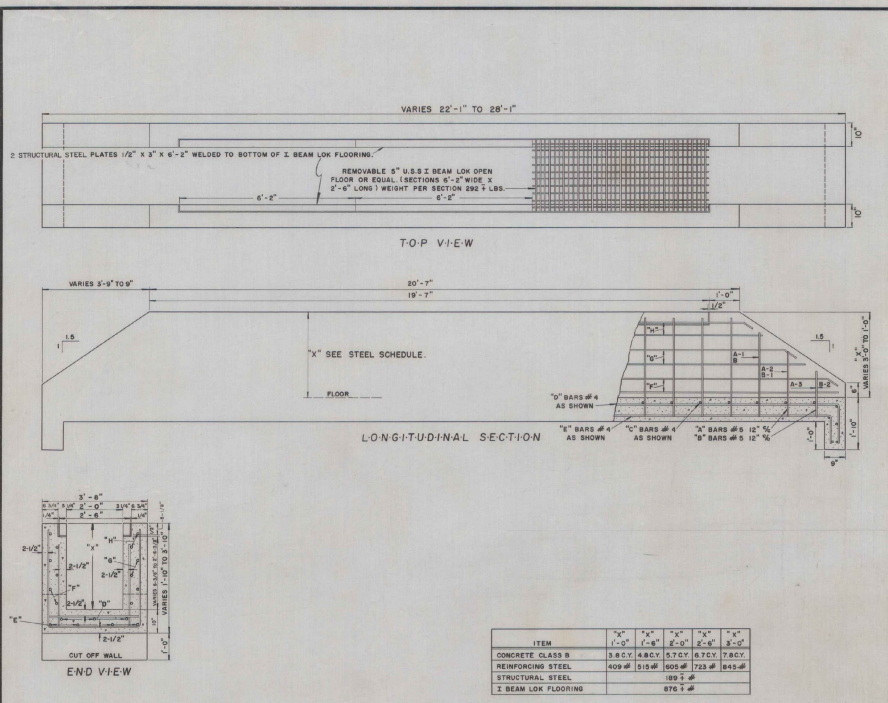
SECTIONS 1 TO 10 HAVE BEEN ADDED, APRIL 9, 1957
 SECTION 8 (ABUTMENT CONNECTION) WAS ERASED, APRIL 30, 1957

DRAWN BY: L.C. JONES MAY 1956
 TRACED BY: AJA
 APPROVED BY: *Walter Harrett*
 MAY 23 1956
 HIGHWAY ENGINEER
 DATE SIGNED: *Walter Harrett*
 MAY 23 1956
 CHIEF ENGINEER

PROPERTY LINE FENCE, ITEM 583

DEPARTMENT OF HIGHWAYS
 STANDARD STRUCTURES

RS 56-15



| ITEM | QTY | UNIT | QTY | UNIT | QTY | UNIT | QTY | UNIT |
|---------------------|---------|--------|--------|--------|--------|-------|-----|------|
| CONCRETE CLASS B | 3.82 CY | 4.8 CY | 5.7 CY | 6.7 CY | 7.8 CY | | | |
| REINFORCING STEEL | 409 # | 515 # | 605 # | 723 # | 845 # | | | |
| STRUCTURAL STEEL | | | | | | 89 # | | |
| I BEAM LOK FLOORING | | | | | | 876 # | | |

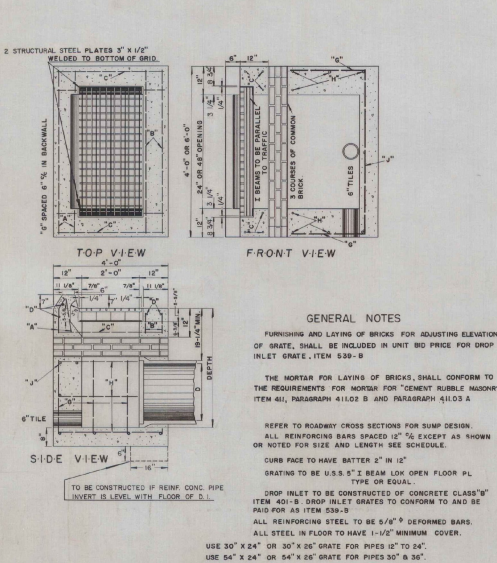
REINFORCED CONCRETE DRAINAGE CHANNEL WITH 5" I BEAM LOK GRATING (FOR DRIVES)

| "X" = 1'-0" | | | | "X" = 1'-6" | | | | "X" = 2'-0" | | | | "X" = 2'-6" | | | | "X" = 3'-0" | | | | | | | | |
|-------------|------|--------------|--------|-------------|------|------|--------------|-------------|-----------|------|------|--------------|--------|-----------|------|-------------|--------------|--------|-----------|------|------|--------------|--------|-----------|
| MARK | SIZE | NO. OF PIPES | LENGTH | DETAIL | MARK | SIZE | NO. OF PIPES | LENGTH | DETAIL | MARK | SIZE | NO. OF PIPES | LENGTH | DETAIL | MARK | SIZE | NO. OF PIPES | LENGTH | DETAIL | MARK | SIZE | NO. OF PIPES | LENGTH | DETAIL |
| A | 5 | 21 | 6'-1" | 1/3-3-1/2 | A | 5 | 21 | 6'-1" | 1/3-3-1/2 | A-1 | 5 | 21 | 6'-1" | 1/3-3-1/2 | A-1 | 5 | 21 | 6'-1" | 1/3-3-1/2 | A-1 | 5 | 21 | 6'-1" | 1/3-3-1/2 |
| B | 5 | 42 | 0'-11" | STRAIGHT | B | 5 | 46 | 1'-5" | STRAIGHT | B | 5 | 46 | 1'-11" | STRAIGHT | B | 5 | 46 | 2'-5" | STRAIGHT | B | 5 | 46 | 2'-11" | STRAIGHT |
| C | 4 | 31 | 3'-3" | STRAIGHT | C | 4 | 33 | 3'-3" | STRAIGHT | C | 4 | 33 | 3'-3" | STRAIGHT | C | 4 | 33 | 3'-3" | STRAIGHT | C | 4 | 33 | 3'-3" | STRAIGHT |
| D | 4 | 3 | 24'-6" | 1/2-2-1/2 | D | 4 | 3 | 25'-0" | 1/2-2-1/2 | D | 4 | 3 | 27'-6" | 1/2-2-1/2 | D | 4 | 3 | 29'-0" | 1/2-2-1/2 | D | 4 | 3 | 30'-4" | 1/2-2-1/2 |
| E | 4 | 4 | 23'-0" | 1/2-2-1/2 | E | 4 | 4 | 24'-6" | 1/2-2-1/2 | E | 4 | 4 | 26'-0" | 1/2-2-1/2 | E | 4 | 4 | 27'-6" | 1/2-2-1/2 | E | 4 | 4 | 29'-0" | 1/2-2-1/2 |
| F | 4 | 2 | 23'-2" | STRAIGHT | F | 4 | 2 | 25'-2" | STRAIGHT | F | 4 | 2 | 26'-2" | STRAIGHT | F | 4 | 2 | 27'-2" | STRAIGHT | F | 4 | 2 | 28'-2" | STRAIGHT |
| G | 4 | 4 | 24'-8" | STRAIGHT | G | 4 | 4 | 25'-3" | STRAIGHT | G | 4 | 4 | 25'-3" | STRAIGHT | G | 4 | 4 | 25'-3" | STRAIGHT | G | 4 | 4 | 25'-3" | STRAIGHT |
| H | 4 | 4 | 22'-8" | STRAIGHT | H | 4 | 4 | 22'-3" | STRAIGHT | H | 4 | 4 | 22'-3" | STRAIGHT | H | 4 | 4 | 22'-3" | STRAIGHT | H | 4 | 4 | 22'-3" | STRAIGHT |

REVISIONS & CORRECTIONS

DRAWN BY: N.L.S., JR. 4/6/55
 TRACED BY: N.L.S., JR. 4/6/55
 APPROVED BY: *H.C. Straight*
 DATE: MAY 7 1956
 HIGHWAY ENGINEER
 DATE: MAY 7 1956
 SIGNED: *H.C. Straight*
 CHIEF ENGINEER

CONCRETE DROP INLET WITH 5" I BEAM LOK GRATING

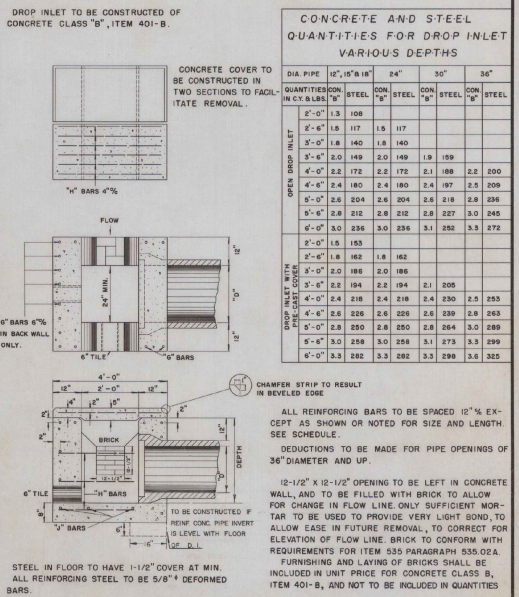


GENERAL NOTES
 FURNISHING AND LAYING OF BRICKS FOR ADJUSTING ELEVATION OF GRATE, SHALL BE INCLUDED IN UNIT BID PRICE FOR DROP INLET GRATE, ITEM 539-B
 THE MORTAR FOR LAYING OF BRICKS, SHALL CONFORM TO THE REQUIREMENTS FOR MORTAR FOR "GENERAL RUBBLE MASONRY" ITEM 401, PARAGRAPH 411.02 B AND PARAGRAPH 411.03 A
 REFER TO ROADWAY CROSS SECTIONS FOR DUMP DESIGN
 ALL REINFORCING BARS SPACED 12" EXCEPT AS SHOWN OR NOTED FOR SIZE AND LENGTH SEE SCHEDULE.
 CURB FACE TO HAVE BATTER 2" IN 12"
 TO BE CONSTRUCTED IF REIN. CONC. PIPE INVERT IS LEVEL WITH FLOOR OF D.I.
 DROP INLET TO BE CONSTRUCTED OF CONCRETE CLASS "B" ITEM 401-B DROSS INLET GRATES TO CONFORM TO AND BE PAID FOR AS ITEM 539-B
 ALL REINFORCING STEEL TO BE 5/8" DEFORMED BARS.
 ALL STEEL IN FLOOR TO HAVE 1/2" MINIMUM COVER.
 USE 30" X 24" OR 30" X 26" GRATE FOR PIPES 12" TO 24"
 USE 54" X 24" OR 54" X 26" GRATE FOR PIPES 30" & 36"

REINFORCED CONCRETE DROP INLET WITH 5" I BEAM LOK GRATING STEEL SCHEDULE AND QUANTITIES FOR DROP INLETS

| DIA. PIPE | 12", 15" & 18" | | 24" | | 30" | | 36" | |
|-----------|----------------|-------|---------|-------|---------|-------|---------|-------|
| | CONC. B | STEEL | CONC. B | STEEL | CONC. B | STEEL | CONC. B | STEEL |
| 4'-0" | 2.0 | 177 | | | | | | |
| 4'-6" | 2.2 | 200 | 2.2 | 200 | | | | |
| 5'-0" | 2.4 | 209 | 2.4 | 209 | 3.2 | 302 | 3.8 | 302 |
| 5'-6" | 2.6 | 232 | 2.6 | 232 | 3.5 | 302 | 3.8 | 302 |
| 6'-0" | 2.8 | 241 | 2.8 | 241 | 3.8 | 312 | 3.8 | 312 |
| 6'-6" | 3.0 | 264 | 3.0 | 264 | 4.1 | 342 | 4.1 | 342 |

DROP INLET WITH OR WITHOUT PRECAST COVER



CONCRETE AND STEEL QUANTITIES FOR DROP INLET VARIOUS DEPTHS

| OPEN DROP INLET | 12", 15" & 18" | | 24" | | 30" | | 36" | |
|-----------------|----------------|-------|---------|-------|---------|-------|---------|-------|
| | CONC. B | STEEL | CONC. B | STEEL | CONC. B | STEEL | CONC. B | STEEL |
| 2'-0" | 1.3 | 108 | | | | | | |
| 2'-6" | 1.5 | 117 | 1.5 | 117 | | | | |
| 3'-0" | 1.8 | 140 | 1.8 | 140 | | | | |
| 3'-6" | 2.0 | 149 | 2.0 | 149 | 1.9 | 159 | | |
| 4'-0" | 2.2 | 172 | 2.2 | 172 | 2.1 | 186 | 2.2 | 200 |
| 4'-6" | 2.4 | 180 | 2.4 | 180 | 2.4 | 197 | 2.5 | 209 |
| 5'-0" | 2.6 | 204 | 2.6 | 204 | 2.8 | 219 | 2.8 | 236 |
| 5'-6" | 2.8 | 212 | 2.8 | 212 | 3.2 | 227 | 3.0 | 245 |
| 6'-0" | 3.0 | 236 | 3.0 | 236 | 3.1 | 252 | 3.2 | 272 |
| 2'-0" | 1.5 | 153 | | | | | | |
| 2'-6" | 1.8 | 162 | 1.8 | 162 | | | | |
| 3'-0" | 2.0 | 185 | 2.0 | 185 | | | | |
| 3'-6" | 2.2 | 194 | 2.2 | 194 | 2.1 | 205 | | |
| 4'-0" | 2.4 | 218 | 2.4 | 218 | 2.4 | 230 | 2.5 | 255 |
| 4'-6" | 2.6 | 236 | 2.6 | 236 | 2.8 | 259 | 2.8 | 283 |
| 5'-0" | 2.8 | 250 | 2.8 | 250 | 3.2 | 284 | 3.0 | 289 |
| 5'-6" | 3.0 | 268 | 3.0 | 268 | 3.1 | 273 | 3.3 | 299 |
| 6'-0" | 3.3 | 292 | 3.3 | 292 | 3.3 | 299 | 3.5 | 325 |

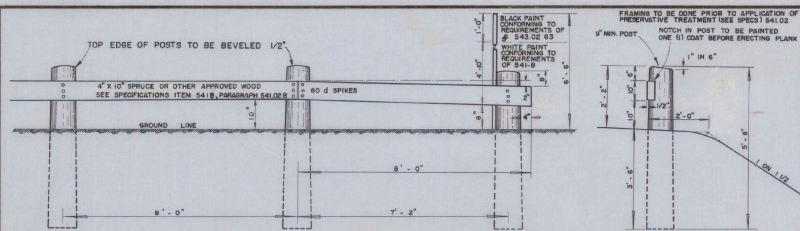
REINFORCED CONCRETE DROP INLET WITH OR WITHOUT REINFORCED CONCRETE COVER

STEEL SCHEDULE FOR DROP INLETS

OPEN DROP INLETS AND DROP INLETS WITH PRECAST COVER

| DIA. PIPE | 12" TO 24" DIA. | | | | 30" DIAMETER | | | | 36" DIAMETER | | | | | |
|-----------|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------|
| | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | OPEN WITH TOP | |
| 4'-0" | 16 | 2'-4" | 16 | 2'-4" | 16 | 2'-4" | 16 | 2'-4" | 16 | 2'-4" | 16 | 2'-4" | 16 | 2'-4" |
| 4'-6" | 16 | 2'-6" | 16 | 2'-6" | 16 | 2'-6" | 16 | 2'-6" | 16 | 2'-6" | 16 | 2'-6" | 16 | 2'-6" |
| 5'-0" | 16 | 2'-8" | 16 | 2'-8" | 16 | 2'-8" | 16 | 2'-8" | 16 | 2'-8" | 16 | 2'-8" | 16 | 2'-8" |
| 5'-6" | 16 | 2'-10" | 16 | 2'-10" | 16 | 2'-10" | 16 | 2'-10" | 16 | 2'-10" | 16 | 2'-10" | 16 | 2'-10" |
| 6'-0" | 16 | 2'-12" | 16 | 2'-12" | 16 | 2'-12" | 16 | 2'-12" | 16 | 2'-12" | 16 | 2'-12" | 16 | 2'-12" |
| 6'-6" | 16 | 2'-14" | 16 | 2'-14" | 16 | 2'-14" | 16 | 2'-14" | 16 | 2'-14" | 16 | 2'-14" | 16 | 2'-14" |

REINFORCED CONCRETE DROP INLET WITH REINFORCED CONCRETE COVER
 REINFORCED CONCRETE DROP INLET WITH 5" I-BEAM LOK GRATING
 REINFORCED CONCRETE DRAINAGE CHANNEL WITH 5" I-BEAM LOK GRATING



CABLE GUARD RAIL DELINEATORS TO BE PLACED AS DIRECTED BY THE ENGINEER, SEE SPECS. SECTION 541.03.
WHEN ITEM 541-B IS SPECIFIED THE RAIL SHALL RECEIVE THREE COATS OF WHITE PAINT TO CONFORM TO SPECIFICATIONS... SEE SECTION 541.02 D

THE CONTRACTOR IS REQUIRED TO USE PLANK SIXTEEN FEET LONG WHEREVER POSSIBLE ALL POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT UNDER PRESSURE. SEE SPECIFICATIONS: SECTION 5, ITEM 541, PARAGRAPH 541.02 C

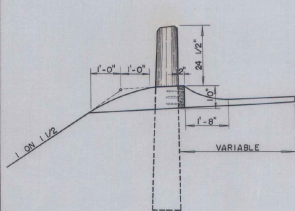
POSTS TO CONFORM TO SPECIFICATIONS FOR PLANK GUARD RAIL AND FURNISHED 6'-0" LONG POSTS EIGHT INCHES SQUARE MAY BE USED IN PLACE OF ROUND POSTS, NINE INCHES IN DIAMETER THE FIRST AND LAST POST OF EACH SECTION OF RAILING, IS TO BE SET BACK 12 INCHES FROM THE GENERAL LINE OF RAILING.

RAIL TO BE CONNECTED TO EACH POST BY THREE 60 d SPIKES

1/2 x 6 x 6 PLANK TO BE SPIKED TO ONE END POST OF EACH SECTION OF WOOD GUARD RAIL (VERTICALLY ATTACHED) WITH 80 d SPIKES. TO BE INCLUDED IN BID PRICE FOR WOOD GUARD RAIL

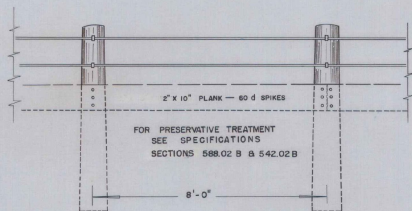
HEIGHT OF PLANK ABOVE GROUND LINE
8 INCHES ON OUTSIDE OF BANKED CURVE
10 INCHES ON NORMAL SECTION
12 INCHES ON INSIDE OF BANKED CURVE

PLANK GUARD RAIL WITH PRESERVATIVE TREATMENT, ITEM 541-A
PLANK GUARD RAIL WITH PAINT ITEM 541-B

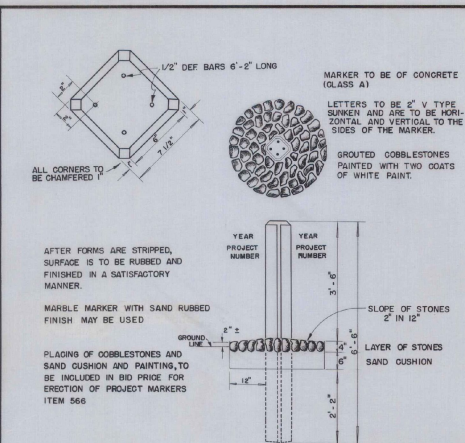


THE FILL IN BACK OF AND TO THE TOP OF THE TIMBER CURB SHALL BE MADE FROM COMMON EXCAVATION, ITEM 101 OR BORROW, ITEM 102. THIS FILL SHALL BE MADE AND COMPACTED BEFORE THE GUTTER MATERIAL IS PLACED IN FRONT OF THE CURB.

TREATED TIMBER CURB, ITEM 558
TIMBER CURB, ITEM 559



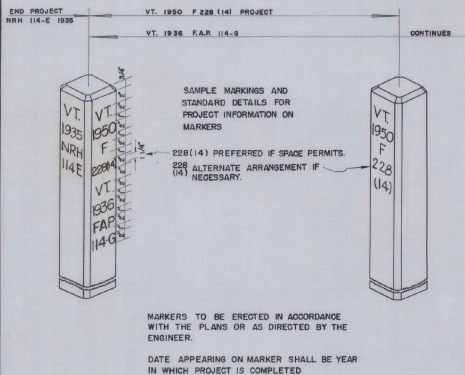
FOR PRESERVATIVE TREATMENT
SEE SPECIFICATIONS
SECTIONS 588.02 B & 542.02 B



AFTER FORMS ARE STRIPPED, SURFACE IS TO BE RUBBED AND FINISHED IN A SATISFACTORY MANNER.

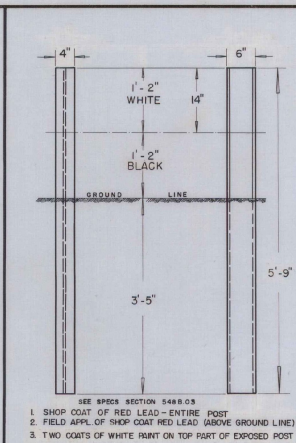
MARBLE MARKER WITH SAND RUBBED FINISH MAY BE USED

PLACING OF COBBLESTONES AND SAND CUSHION AND PAINTING, TO BE INCLUDED IN BID PRICE FOR ERECTION OF PROJECT MARKERS
ITEM 566



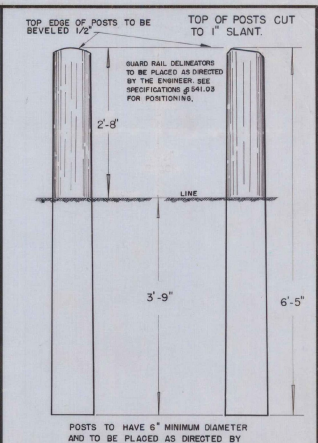
MARKERS TO BE ERECTED IN ACCORDANCE WITH THE PLANS OR AS DIRECTED BY THE ENGINEER.
DATE APPEARING ON MARKER SHALL BE YEAR IN WHICH PROJECT IS COMPLETED

ERECTION OF PROJECT MARKERS
ITEM 566



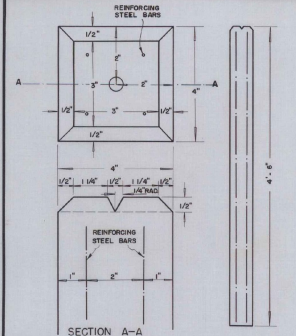
STEEL GUIDE POSTS
ITEM 548-B

SEE SPEC SECTION 548.03
1. SHOP COAT OF RED LEAD-ENTIRE POST
2. FIELD APPL. OF SHOP COAT RED LEAD (ABOVE GROUND LINE)
3. TWO COATS OF WHITE PAINT ON TOP PART OF EXPOSED POST
4. TWO COATS OF BLACK PAINT ON BOTTOM PART OF EXPOSED POST



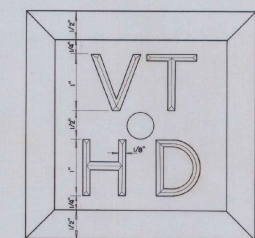
WOOD GUIDE POSTS
ITEM 548-A

POSTS TO HAVE 6" MINIMUM DIAMETER AND TO BE PLACED AS DIRECTED BY THE ENGINEER



BOUNDARY MARKERS TO BE CONSTRUCTED OF CONCRETE CLASS B, ITEM 401-B
4 REINFORCING STEEL BARS ARE 3/8" Ø DEFORMED BARS 4'-4" LONG CONFORMING TO REQUIREMENTS FOR REINFORCING STEEL ITEM 402, SECTION 402.02 A
BOUNDS ARE TO BE SET FLUSH WITH GROUND.

BOUNDARY MARKERS
ITEM 567



FULL SIZE DETAILS OF LETTERS
LETTERS TO BE V-SUNK 1/8"

REVISIONS & CORRECTIONS

DRAWN BY: AJA 1/30/56
TRACED BY: AJA 1/30/56

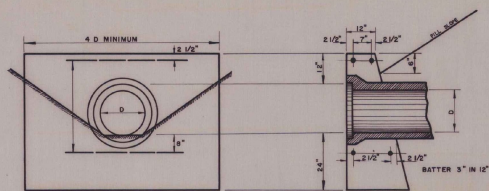
APPROVED BY: *A.W. Merritt*
HIGHWAY ENGINEER
DATE: MAY 7, 1956

DATE SIGNED: *H.E. Sargent*
CHIEF ENGINEER
MAY 7, 1956

PLANK GUARD RAIL WITH PRESERVATIVE TREATMENT, ITEM 541-A
PLANK GUARD RAIL WITH PAINT, ITEM 541-B
WOOD GUIDE POSTS, ITEM 548-A
STEEL GUIDE POSTS, ITEM 548-B
TREATED TIMBER CURB, ITEM 558 - TIMBER CURB, ITEM 559
ERECTION OF PROJECT MARKERS, ITEM 566
BOUNDARY MARKERS, ITEM 567

DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURES

RS 56-3



QUANTITY SCHEDULE FOR REINFORCED CONCRETE HEADWALL, ITEM 401-B

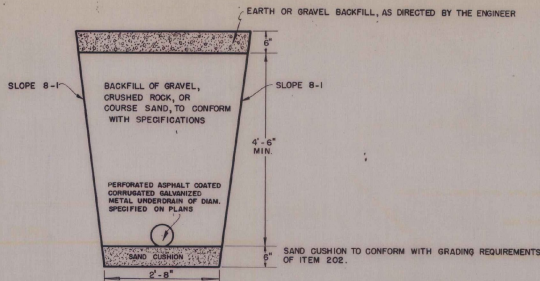
| PIPE DIAMETER | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CONC. QUANTITY | 1.0 | 1.4 | 1.8 | 2.7 | 3.9 | 4.9 | 6.4 | 8.1 | 10.0 | 12.3 |

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL, ITEM 402

| PIPE DIAMETER | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| NUMBER OF BARS | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| LENGTH OF BARS | 3'-0" | 3'-0" | 3'-0" | 3'-0" | 4'-0" | 4'-0" | 5'-0" | 5'-0" | 6'-0" | 6'-0" |

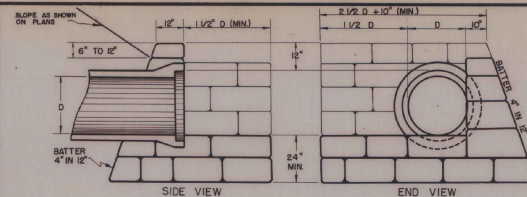
ALL REINFORCING STEEL TO BE 5/8" DIAM. DEFORMED BARS.

STRAIGHT HEADWALL



ELBOWS, T'S AND OTHER JUNCTION UNITS NECESSARY FOR PROPER INSTALLATION OF UNDERDRAIN AS DIRECTED BY THE ENGINEER, ARE TO BE INCLUDED IN THE UNIT BID PRICE FOR UNDERDRAIN. MINIMUM GRADE FOR UNDERDRAIN PIPE SHALL BE 3% UNLESS OTHERWISE DIRECTED BY THE ENGINEER. A CONCRETE BOX WITH REMOVABLE TOP IS TO BE BUILT AT INLET WHEN LESS THAN 3% GRADE IS USED OR AS REQUESTED BY THE ENGINEER. DUE CARE SHALL BE TAKEN TO BRING THE UNDERDRAIN TO A PROPER OUTLET. SUCH OUTLET SHALL BE PROTECTED WITH A HEADWALL OF CEMENT RUBBLE MASONRY, IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER. WOOD GUIDE POST TO BE ERECTED AT EACH UNDERDRAIN OUTLET.

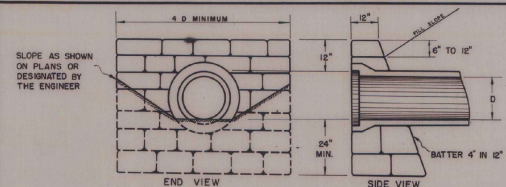
PERFORATED ASPHALT COATED CORRUGATED GALVANIZED METAL UNDERDRAIN



QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY, ITEM 411

| PIPE DIAMETER | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|-----------------|-----|-----|-----|-----|-----|-----|------|------|
| C.R.M. QUANTITY | 1.6 | 2.1 | 2.8 | 4.3 | 6.2 | 8.0 | 10.5 | 13.4 |

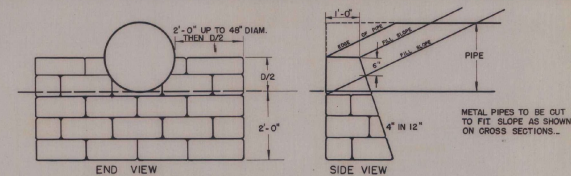
L TYPE HEADWALL



QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY, ITEM 411

| PIPE DIAMETER | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| C.R.M. QUANTITY | 1.0 | 1.4 | 1.8 | 2.7 | 3.9 | 4.9 | 6.4 | 8.1 | 10.0 | 12.3 |

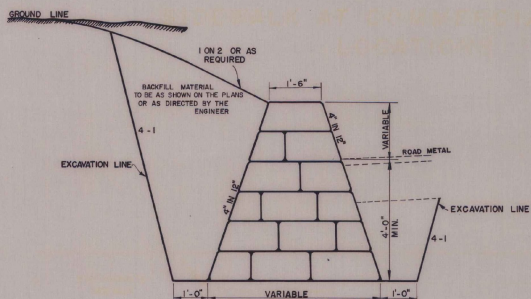
STRAIGHT HEADWALL



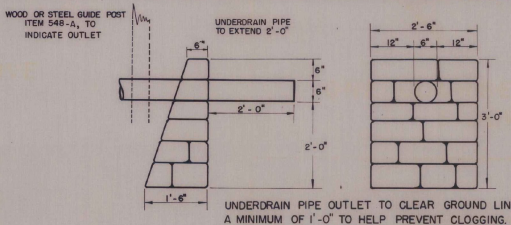
QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY, ITEM 411

| PIPE DIAMETER | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| C.R.M. QUANTITY | 0.8 | 1.0 | 1.2 | 1.3 | 1.5 | 1.7 | 2.0 | 2.4 | 2.8 | 3.3 |

CRADLE HEADWALL



CEMENT RUBBLE MASONRY RETAINING WALL



UNDERDRAIN OUTLET CONSTRUCTION

GENERAL NOTES

RECTANGULAR FIELD STONE APPROVED BY THE ENGINEER MAY BE USED BELOW FLOW LINE ONLY. HEADWALLS TO BE CONSTRUCTED PARALLEL WITH GRADE OF ROAD AND PARALLEL WITH CENTER LINE CEMENT RUBBLE MASONRY. MORTAR BETWEEN ALL EXPOSED JOINTS TO BE RECESSED 1/2". ALL MORTAR IS TO BE CLEANED FROM THE EXPOSED SURFACES OF ALL STONES. ALL CEMENT RUBBLE MASONRY TO BE CONSTRUCTED OF QUARRY STONE. ON DRIVEWAY PIPES, THE HEIGHT OF HEADWALL ABOVE TOP OF PIPE, IS TO BE REDUCED TO 6". BELL AND SPIGOT PIPE TO BE LAID WITH THE BELL UPSTREAM.

REVISIONS & CORRECTIONS

DRAWN BY: DEPT.
TRACED BY: AJA
APPROVED BY: APR. 1956
DATE

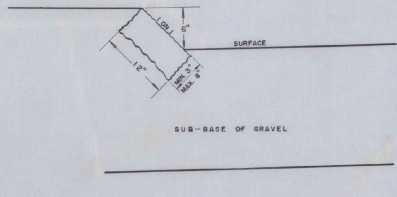
DATE SIGNED

MAY 7, 1956
H. E. Lagquist
HIGHWAY ENGINEER
MAY 7, 1956
H. E. Lagquist
CHIEF ENGINEER

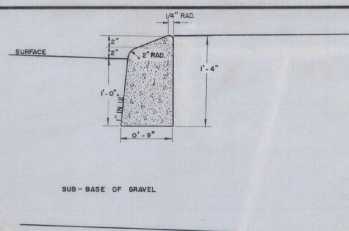
CEMENT RUBBLE MASONRY, ITEM 411
REINFORCED CONCRETE HEADWALL, ITEMS 401-B AND 402
PERFORATED ASPHALT COATED CORRUGATED GALVANIZED METAL
UNDERDRAIN, ITEM 531

DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURES

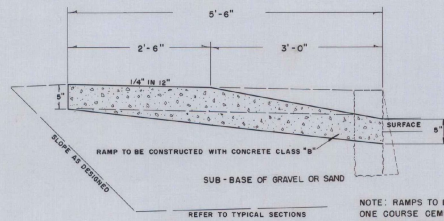
RS 56-4



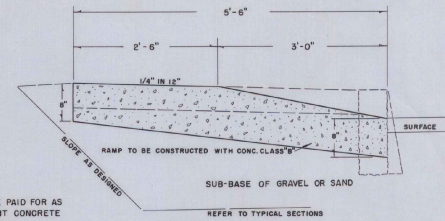
GRANITE SLOPE EDGING



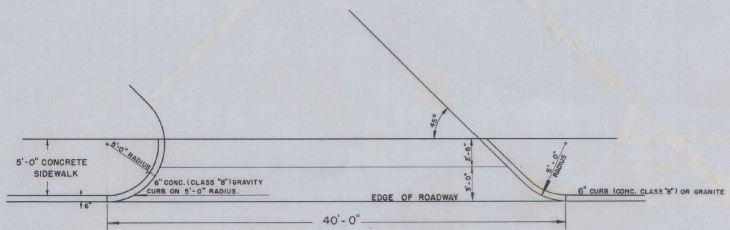
MOUNTABLE CONCRETE CURB



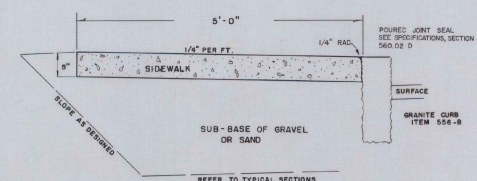
RAMP AT NON-COMMERCIAL DRIVEWAY LOCATIONS



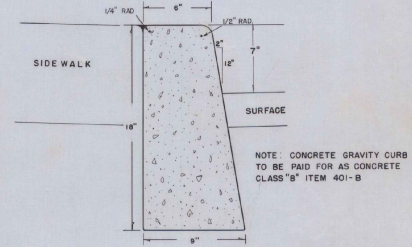
RAMP AT COMMERCIAL DRIVE LOCATION



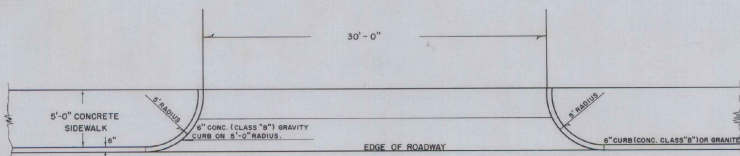
PLAN VIEW OF CURB AND SIDEWALK AT COMMERCIAL DRIVE LOCATIONS



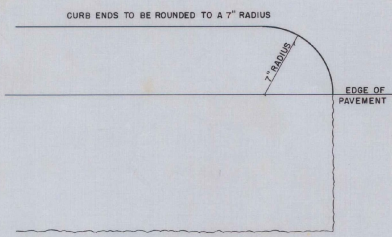
ONE COURSE CEMENT CONCRETE SIDEWALK, ITEM 560.



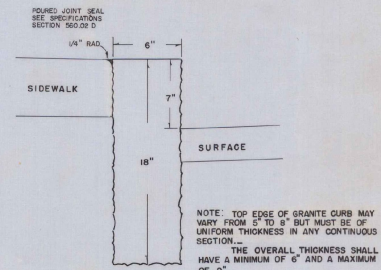
CONCRETE GRAVITY CURB



(AT NON-COMMERCIAL DRIVES, CURB ON RADIUS IS OMITTED)
WIDTH OF DRIVE AS PER PROJECT PLANS.



CURB ENDS



GRANITE CURB

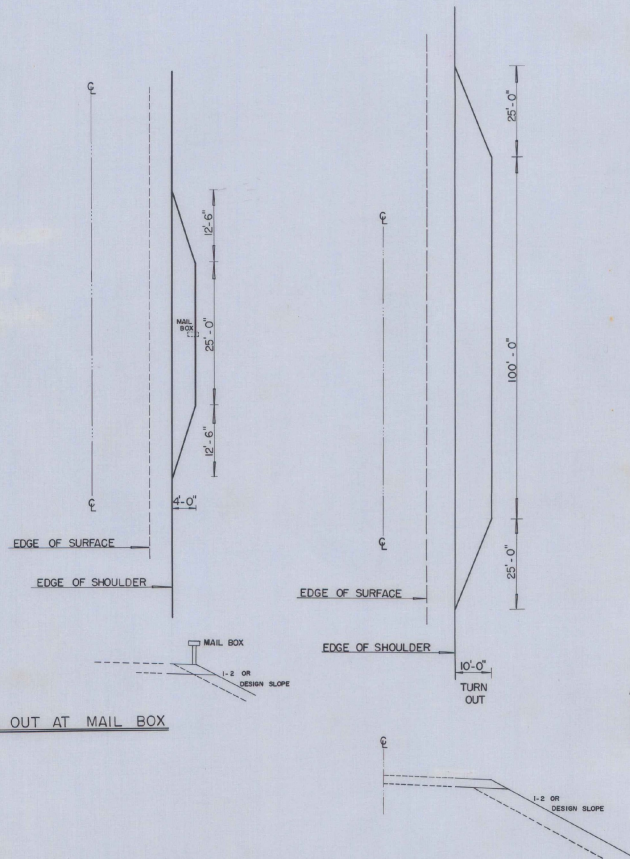
REVISIONS & CORRECTIONS
 SEPT. 5, 1956. VERTICAL CURB HEIGHT CHANGED FROM 6" TO 7"
 MARCH 21, 1957 GRANITE SLOPE EDGING VERTICAL HEIGHT OF 6" INDICATED.
 AUG. 20, 1957 GRANITE SLOPE EDGING, MINIMUM THICKNESS CHANGED FROM 5" TO 4"
 MAY 5, 1958 GRANITE SLOPE EDGING, MINIMUM THICKNESS CHANGED FROM 4" TO 3"

DRAWN BY: J.O.C. 2/20/56
 TRACED BY: R.T. 2/25/56
 APPROVED BY: [Signature] MAY 7, 1956
 DATE: [Signature] MAY 7, 1956
 DATE SIGNED: [Signature] MAY 7, 1956
 CHIEF ENGINEER

CONCRETE GRAVITY CURB, ITEM 40I-B
 GRANITE CURB, ITEM 556-B
 ONE COURSE CEMENT CONCRETE SIDEWALK, ITEM 560
 GRANITE SLOPE EDGING, ITEM 556-A
 MOUNTABLE CONCRETE CURB, ITEM 40I-B

DEPARTMENT OF HIGHWAYS
 STANDARD STRUCTURES

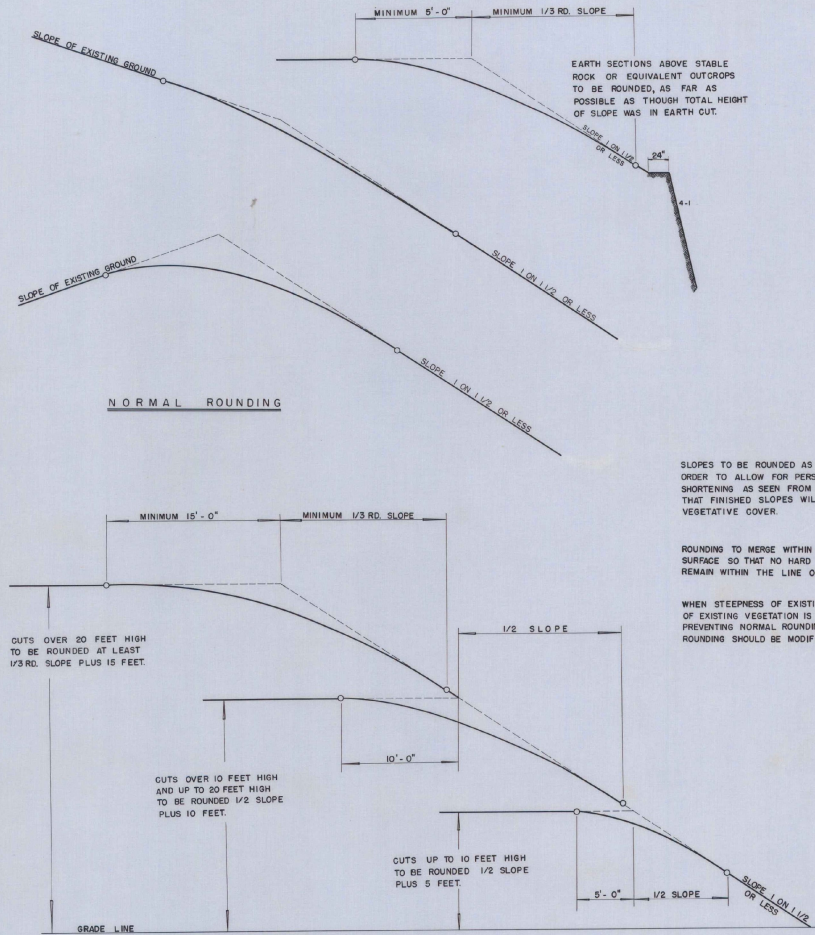
RS 56-5



TURN OUT AT MAIL BOX

TURN - OUT

AT SCHOOLHOUSES,
EMERGENCY HALTS,
WATERING PLACES &
PICNIC AREAS.



NORMAL ROUNDING

SLOPES TO BE ROUNDED AS SHOWN IN ORDER TO ALLOW FOR PERSPECTIVE FORE-SHORTENING AS SEEN FROM THE ROAD AND SO THAT FINISHED SLOPES WILL BETTER SUPPORT VEGETATIVE COVER.

ROUNDING TO MERGE WITHIN EXISTING GROUND SURFACE SO THAT NO HARD GRADE LINE WILL REMAIN WITHIN THE LINE OF SIGHT.

WHEN STEEPNESS OF EXISTING GROUND OR PRESENCE OF EXISTING VEGETATION IS CONSIDERED A FACTOR PREVENTING NORMAL ROUNDING, THE EXTENT OF THE ROUNDING SHOULD BE MODIFIED TO MEET CONDITIONS.

REVISIONS & CORRECTIONS

DRAWN BY: N.L.S.
TRACED BY: A.J.A.
APPROVED BY:
DATE

MAY 7, 1956
H.W. Maxwell
HIGHWAY ENGINEER

DATE SIGNED

MAY 7, 1956
H.E. August
CHIEF ENGINEER

TYPICAL SLOPE GRADING

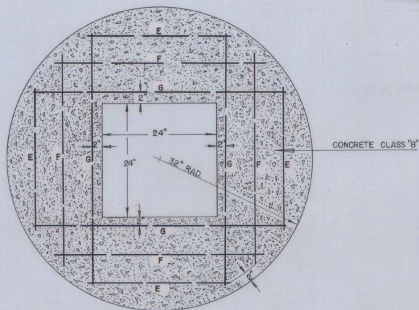
TURN OUT AT SCHOOLHOUSES, EMERGENCY HALTS, WATERING
PLACES AND PICNIC AREAS
TURN OUT AT MAIL BOX

DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURES

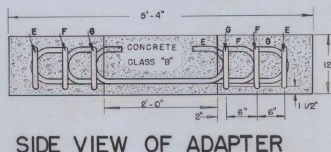
RS 56-6

GRATE SEAT ADAPTER DETAILS

ALL REINFORCING STEEL BARS IN GRATE SEAT ADAPTER ARE NO. 7 (7/8" DIAM) WITH HOOKED ENDS AND SPACED 6" C/C



TOP VIEW OF ADAPTER



SIDE VIEW OF ADAPTER

| ITEM | QTY | SIZE | LENGTH | MARK | TYPE | A | B | G | J |
|------|-----|------|--------|------|------|--------|-------|--------|-------|
| 1 | 4 | 7 | 4'-2" | E | 1 | 0'-10" | 0'-6" | 0'-10" | 0'-7" |
| 2 | 4 | 7 | 8'-2" | F | 1 | 0'-10" | 8'-6" | 0'-10" | 0'-7" |
| 3 | 4 | 7 | 6'-3" | G | 1 | 0'-10" | 4'-8" | 0'-10" | 0'-7" |

COMPOSITE WEIGHT OF 7/8" DIAM. REINFORCING BARS 141 LBS.

GRATE SEAT AND GRATE SEAT ADAPTER TO BE CONSTRUCTED OF CONCRETE, CONCRETE TO CONFORM TO THE REQUIREMENTS OF CONCRETE CLASS "B", ITEM 401-B, AND PAYMENT TO BE INCLUDED IN THE LUMP SUM BID PRICE FOR CONCRETE BLOCK CATCH BASINS AND MANHOLES WITH STEEL GRATES OR COVERS, ITEM 536-B

THREE COURSES OF COMMON BRICK TO BE PLACED ON TOP OF GRATE SEAT ADAPTER PRIOR TO PLACING CONCRETE SEAT TO FACILITATE CHANGING ELEVATION OF CATCH BASIN WHEN REQUIRED. FURNISHING AND LAYING OF BRICKS AND MORTAR AS WELL AS 6" TILE DRAIN TO BE INCLUDED IN LUMP SUM BID PRICE FOR CONCRETE BLOCK CATCH BASINS AND MANHOLES WITH STEEL GRATES OR COVERS, ITEM 536-B

REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR REINFORCING STEEL, ITEM 402, AND PAYMENT TO BE INCLUDED IN THE LUMP SUM BID PRICE FOR CONCRETE BLOCK CATCH BASINS AND MANHOLES WITH STEEL GRATES OR COVERS, ITEM 536-B

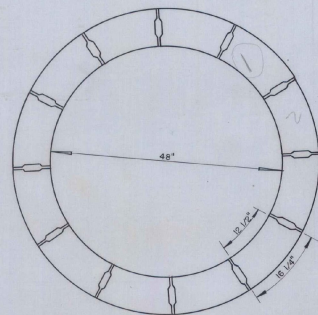
2" IN 12" BATTER ON CURB

GRATINGS TO BE U.S.S. 5" I BEAM LOK, OPEN FLOOR PL TYPE OR EQUAL

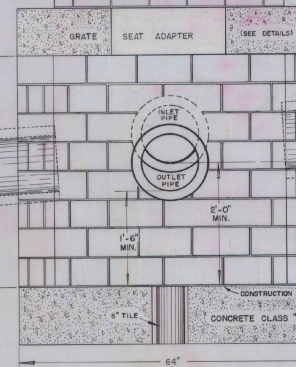
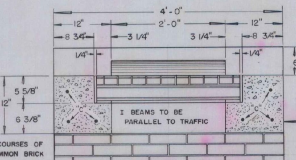
CATCH BASIN OR MANHOLE GRATES TO CONFORM TO THE REQUIREMENTS FOR STEEL DROP INLET GRATES, ITEM 539-B, AND PAYMENT TO BE INCLUDED IN BID PRICE FOR CONCRETE BLOCK CATCH BASINS AND MANHOLES WITH STEEL GRATES OR COVERS ITEM 536-B

USE 30" X 26" OR 30" X 24" GRATE FOR ALL PIPE SIZES

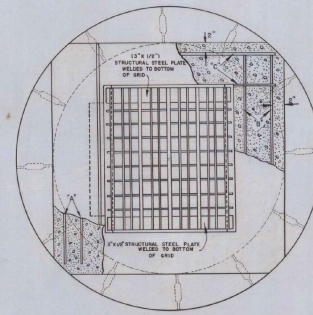
REFER TO ROADWAY CROSS-SECTIONS FOR SUMP DESIGN



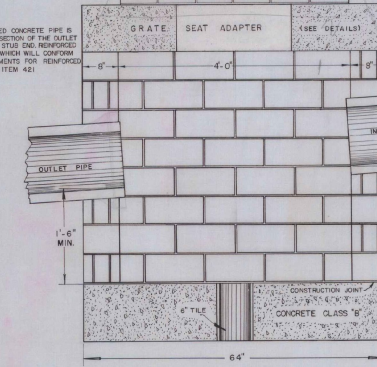
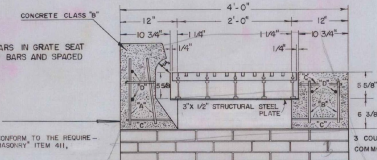
TOP VIEW OF BARREL BLOCKS



FRONT VIEW



TOP VIEW



SIDE VIEW

STEEL SCHEDULE FOR GRATE SEAT

| A | LENGTH | B | LENGTH |
|---|--------|---|--------|
| 1 | 6'-0" | 2 | 5'-0" |

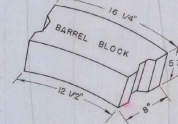
| 1'-2" | A BARS | B BARS | 0'-8" |
|-------|--------|--------|-------|
| | 3 | 3 | 3 |

| C | LENGTH | D | LENGTH |
|---|--------|---|--------|
| 6 | 3'-6" | 4 | 3'-8" |

COMPOSITE WT. OF 5/8" DIAM. REINFORCING BARS 61.2 LB

BARREL BLOCK QUANTITIES

| DEPTH OF MANHOLE | NO. OF BLOCKS | DEPTH OF MANHOLE | NO. OF BLOCKS |
|------------------|---------------|------------------|---------------|
| 5'-0" | 120 | 8'-0" | 192 |
| 5'-6" | 132 | 8'-6" | 204 |
| 6'-0" | 144 | 9'-0" | 216 |
| 6'-6" | 156 | 9'-6" | 228 |
| 7'-0" | 168 | 10'-0" | 240 |
| 7'-6" | 180 | 10'-6" | 252 |



NOTE: ANY MANUFACTURED CONCRETE BLOCK APPROXIMATING THESE DIMENSIONS AND APPROVED BY THE CHIEF ENGINEER MAY BE USED, MUST CONFORM TO REQUIREMENTS SET FORTH UNDER SECTION 536.02 B OF SPECIFICATIONS.

NOTE: SAME DESIGN TO BE USED FOR MANHOLE, EXCEPT THAT RECTANGULAR STEEL COVER WITH FRAME IS TO BE SUBSTITUTED FOR GRATE AND GRATE SEAT.

SCALE 1"=12"

REVISIONS & CORRECTIONS

2 WROUGHT IRON PLATES (13" X 1/2") HAVE BEEN CHANGED TO STRUCTURAL STEEL. (2/19/56)

DRAWN BY: J.O.C. 4/3/56

TRACED BY: J.O.C. & AJA

APPROVED BY:

DATE

DATE SIGNED

MAY 7, 1956

H. A. HARRIS

HIGHWAY ENGINEER

MAY 7, 1956

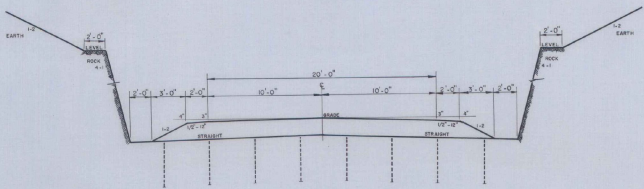
F. E. SHANNON

CHIEF ENGINEER

CONCRETE BLOCK CATCH BASINS OR MANHOLES WITH STEEL GRATE OR COVER, ITEM 536-B

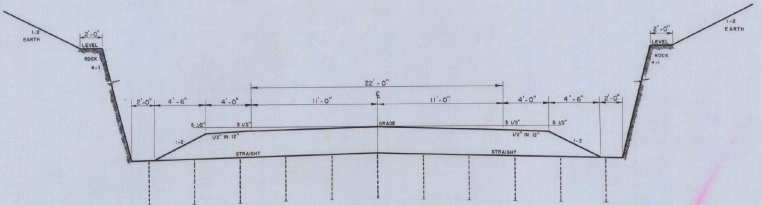
DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURES

RS 56-8



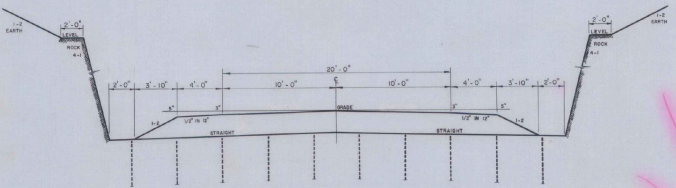
FOR TYPICAL SECTION WITH
20' PAVEMENT AND 2' SHOULDERS
18' BASE

| C/C SPACING HOLES 4 FEET DEEP | NUMBER OF HOLES PER 50 FEET | LINEAR FEET OF HOLES PER 100 FEET | NUMBER OF HOLES PER 100 FEET | LINEAR FEET OF HOLES PER 100 FEET |
|-------------------------------------|-----------------------------------|---|------------------------------------|---|
| 3 FEET | 167 | 7.48 | 363 | 1452 |
| 4 FEET | 124 | 4.16 | 200 | 800 |
| 5 FEET | 70 | 2.80 | 140 | 560 |



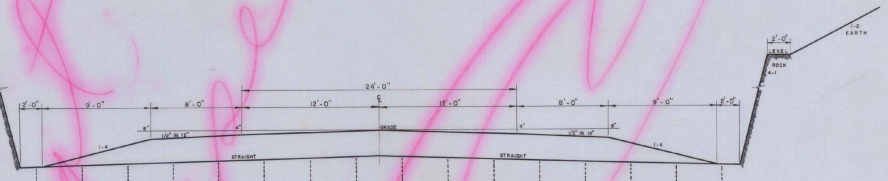
FOR TYPICAL SECTION WITH
22' PAVEMENT AND 4' SHOULDERS
3' SURFACE - 4' SUB-COURSE
20' BASE

| C/C SPACING HOLES 4 FEET DEEP | NUMBER OF HOLES PER 50 FEET | LINEAR FEET OF HOLES PER 100 FEET | NUMBER OF HOLES PER 100 FEET | LINEAR FEET OF HOLES PER 100 FEET |
|-------------------------------------|-----------------------------------|---|------------------------------------|---|
| 3 FEET | 238 | 11.90 | 463 | 1848 |
| 4 FEET | 163 | 8.15 | 326 | 1304 |
| 5 FEET | 98 | 4.90 | 196 | 784 |



FOR TYPICAL SECTION WITH
20' PAVEMENT AND 4' SHOULDERS
3' SURFACE
20' BASE

| C/C SPACING HOLES 4 FEET DEEP | NUMBER OF HOLES PER 50 FEET | LINEAR FEET OF HOLES PER 100 FEET | NUMBER OF HOLES PER 100 FEET | LINEAR FEET OF HOLES PER 100 FEET |
|-------------------------------------|-----------------------------------|---|------------------------------------|---|
| 3 FEET | 221 | 11.05 | 442 | 1768 |
| 4 FEET | 130 | 6.50 | 260 | 1040 |
| 5 FEET | 80 | 4.00 | 160 | 640 |



FOR TYPICAL SECTION WITH
24' PAVEMENT AND 8' SHOULDERS
3' SURFACE - 4' SUB-COURSE
20' BASE

| C/C SPACING HOLES 4 FEET DEEP | NUMBER OF HOLES PER 50 FEET | LINEAR FEET OF HOLES PER 100 FEET | NUMBER OF HOLES PER 100 FEET | LINEAR FEET OF HOLES PER 100 FEET |
|-------------------------------------|-----------------------------------|---|------------------------------------|---|
| 3 FEET | 357 | 17.85 | 714 | 2856 |
| 4 FEET | 208 | 10.40 | 416 | 1664 |
| 5 FEET | 130 | 6.50 | 260 | 1040 |

NOTE: FOR HOLES 3' & 4' C/C USE ONE ROW IF DRIVING ON EVEN 50 FEET OR 100 FEET

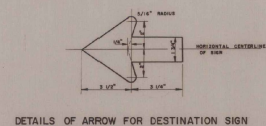
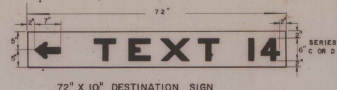
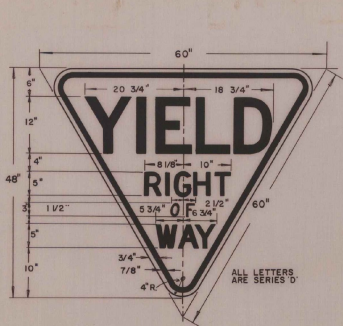
REVISIONS & CORRECTIONS

DRAWN BY: R. FUNK MAR. 1956
 TRACED BY: A. J. A. APR. 1956
 APPROVED BY: *N. W. Mansuet* MAY 7, 1956
 HIGHWAY ENGINEER
 DATE SIGNED: *H. E. Sauguet* MAY 7, 1956
 CHIEF ENGINEER

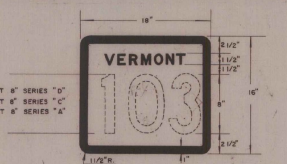
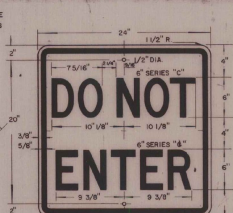
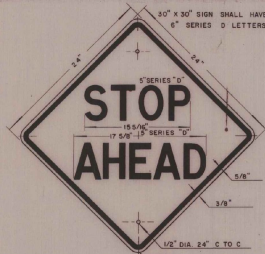
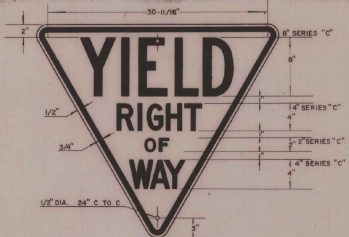
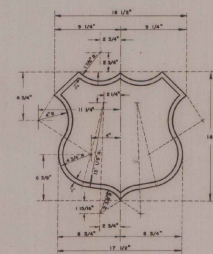
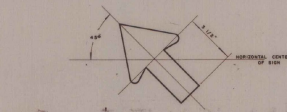
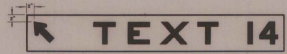
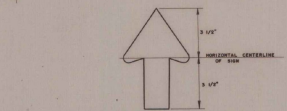
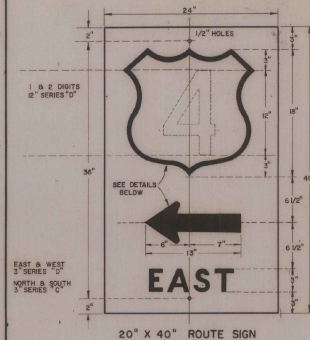
DRILLING OF SOLID ROCK SUB-GRADE, ITEM 114-A
 BLASTING OF SOLID ROCK SUB-GRADE, ITEM 114-B

DEPARTMENT OF HIGHWAYS
 STANDARD STRUCTURES

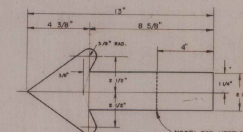
RS 56-9



DETAILS OF ARROW FOR DESTINATION SIGN



DETAILS OF STATE ROUTE SYMBOL FOR 24" X 40" ROUTE SIGN



DETAILS OF ARROW FOR USE WITH 24" X 40" ROUTE SIGN

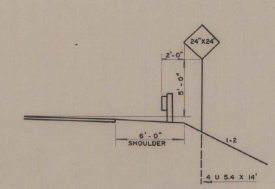
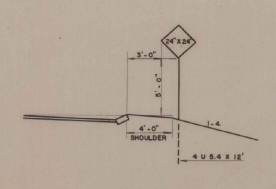
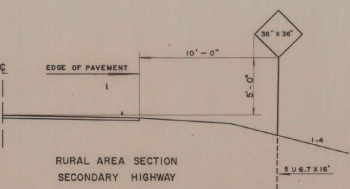
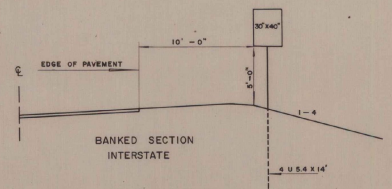
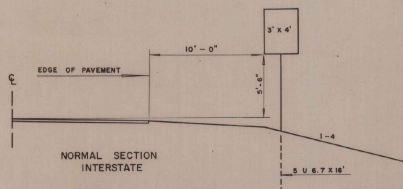
REVISIONS AND CORRECTIONS
JUNE 10, 1957 - ADDITION OF REGULATORY AND WARNING SIGN DESIGN DETAILS.

DRAWN BY: A.J.A.
TRACED BY: A.J.A.
APPROVED BY: DATE
DATE SIGNED: HIGHWAY ENGINEER
CHIEF ENGINEER

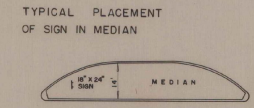
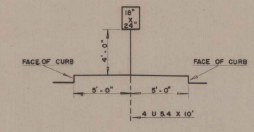
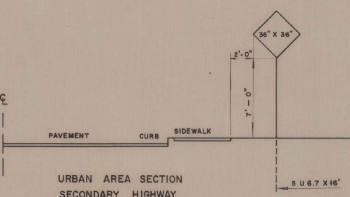
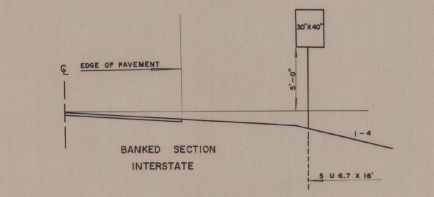
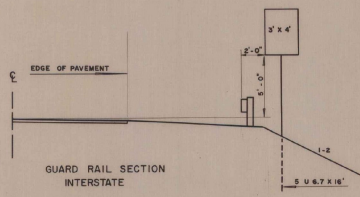
SIGN COLORS AND REFLECTORIZATIONS
REGULATORY SIGNS, EXCEPT STOP SIGNS AND YIELD RIGHT OF WAY SIGNS, SHALL HAVE BLACK PRINTED LETTERS, DIGITS, SYMBOLS AND BORDERS ON A SILVER REFLECTORIZED BACKGROUND.
STOP SIGNS SHALL HAVE SILVER REFLECTORIZED LETTERS AND BORDERS ON A RED REFLECTORIZED BACKGROUND.
WARNING SIGNS SHALL HAVE BLACK PRINTED LETTERS AND BORDERS ON A YELLOW REFLECTORIZED BACKGROUND.
THICKNESS OF PLYWOOD SIGNS OF 9 SQUARE FEET AND OVER SHALL HAVE A THICKNESS OF 5/8" INCH, OTHERS A THICKNESS OF 1/2" INCH.

REFLECTORIZED PLYWOOD SIGNS
DESIGN DETAILS

DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURES
RS 57-3



TYPICAL PLACEMENT OF SIGN ON RAMPS
SCALE 1" = 5'



TYPICAL PLACEMENT OF SIGN IN MEDIAN

TYPICAL PLACEMENT OF SIGNS
SCALE 1" = 5'

SIGN POSTS SHALL BE SET IN THE GROUND TO THE FOLLOWING MINIMUM DEPTH FOR EACH TYPE AND LENGTH OF POST:

- 4 U 5.4 X 10' LONG - 3 1/2 FT.
- 4 U 5.4 X 12' LONG - 4 FT.
- 4 U 5.4 X 14' LONG - 4 1/2 FT.
- 5 U 6.7 X 16' LONG - 5 FT.
- 4 WF 13 - 6 FT.

IN RURAL AREAS THE HEIGHT OF SIGNS MEASURED TO BOTTOM OF SIGN SHALL BE NOT LESS THAN 5 FEET OR MORE THAN 6 FEET ABOVE ROAD GRADE ON NORMAL SECTIONS OR ON INSIDE OF BANKED SECTIONS, OR ABOVE HIGHEST EDGE OF SHOULDER ON OUTSIDE OF BANKED SECTIONS, OR ABOVE TOP OF CURB IN URBAN AREAS THE HEIGHT SHALL BE 7 FEET.

NOTES

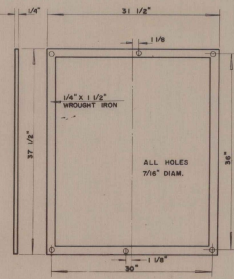
THE FABRICATION AND INSTALLATION OF PLYWOOD TRAFFIC SIGNS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 575, "REFLECTORIZED HIGH DENSITY TYPE OVERLAID PLYWOOD TRAFFIC SIGNS"

THE TEXTS OF ALL REQUIRED PLYWOOD TRAFFIC SIGNS, THE DIMENSIONS OF EACH TYPE OF SIGN, ARE SHOWN ON THE SIGN SUMMARY SHEET B STANDARD SHEET RS 57-3.

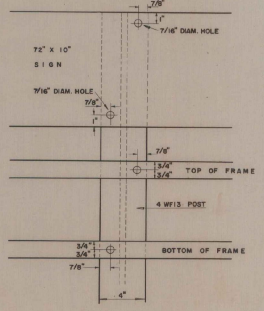
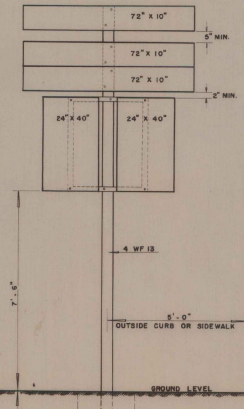
THE DESIGN OF PLYWOOD 24" X 40" SIGNS TO BE USED IN CONJUNCTION WITH ALL SIGN ASSEMBLIES SHALL HAVE SQUARE CORNERS AND HAVE NO PAINTED BORDERS. THE DESIGN OF ALL OTHER PLYWOOD SIGNS, EXCEPT STOP SIGNS, SHALL HAVE ROUNDED CORNERS AND BORDERS IN ACCORDANCE WITH THE DIMENSIONS SHOWN IN THE FOLLOWING TABLE:

| SIZE OF SIGN | RADIUS OF CORNER | WIDTH OF BORDER | WIDTH OF MARGIN |
|--------------|------------------|-----------------|-----------------|
| 18" X 24" | 1 1/2" | 5/8" | 3/8" |
| 24" X 24" | 1 1/2" | 5/8" | 3/8" |
| 24" X 30" | 1 1/2" | 5/8" | 3/8" |
| 30" X 40" | 1 3/4" | 3/4" | 1/2" |
| 36" X 36" | 1 3/4" | 3/4" | 1/2" |
| 3' X 4' | 2" | NONE | NONE |

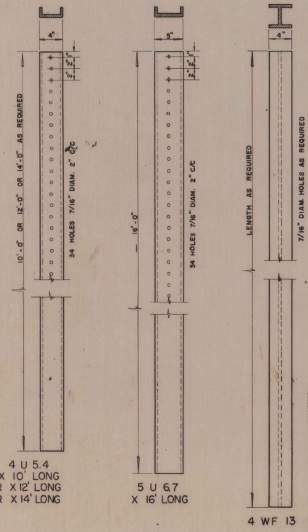
FOR MOUNTING PLYWOOD TRAFFIC SIGNS ON THE SIGN POSTS, ALUMINUM BOLTS 3/8" X 1 1/2" AND NUTS SHALL BE USED, CONFORMING TO THE REQUIREMENTS OF ITEM 572, SEC. 572.02, C-8. ALUMINUM FLAT WASHERS, 1" OUTSIDE DIAMETER, .406" INSIDE DIAMETER, CONFORMING TO THE REQUIREMENTS OF ITEM 572, SEC. 572.02, C-9, SHALL BE USED BETWEEN BOLT HEAD AND SIGN POST.



DETAILS OF WELDED WROUGHT IRON FRAME FOR 24" X 40" ROUTE MARKERS
SCALE 1" = 1'



DETAILS OF MOUNTING DESTINATION SIGNS AND ROUTE MARKER ASSEMBLIES
SCALE 1" = 5'



DETAILS OF SIGN POSTS

SIGN POSTS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 404-A, "STRUCTURAL STEEL"

REVISIONS AND CORRECTIONS:

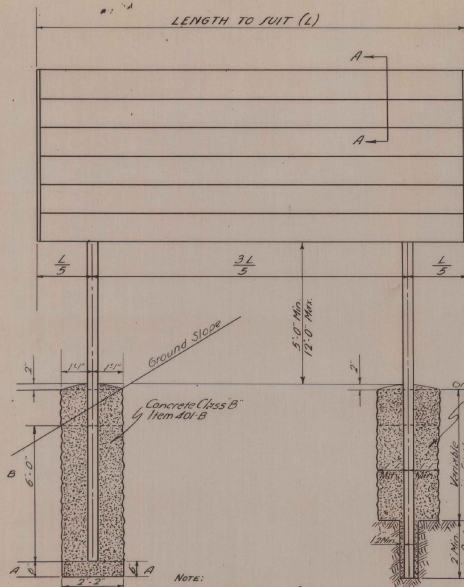
MAY 30, 1957 REVISION OF SHOULDER WIDTH AND ADDITION OF NOTES ON POSTS DEPTHS AND SIGN PLACEMENT.

RECOMMENDED FOR APPROVAL
APPROVED

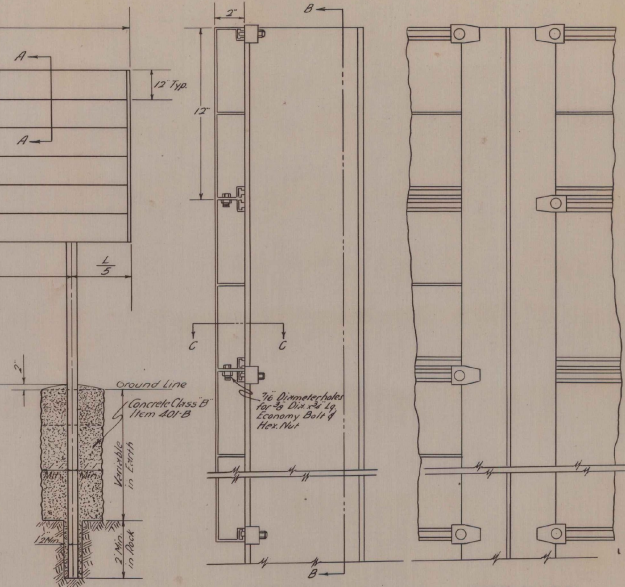
CONCRETE BASE TO BE POURED AND ALLOWED TO CURE FOR LENGTH OF TIME DETERMINED BY THE ENGINEER IN THE FIELD, BEFORE SETTING POST.

REFLECTORIZED PLYWOOD SIGNS & SIGN ASSEMBLIES
DESIGN AND INSTALLATION DETAILS

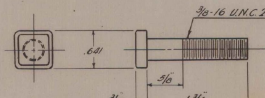
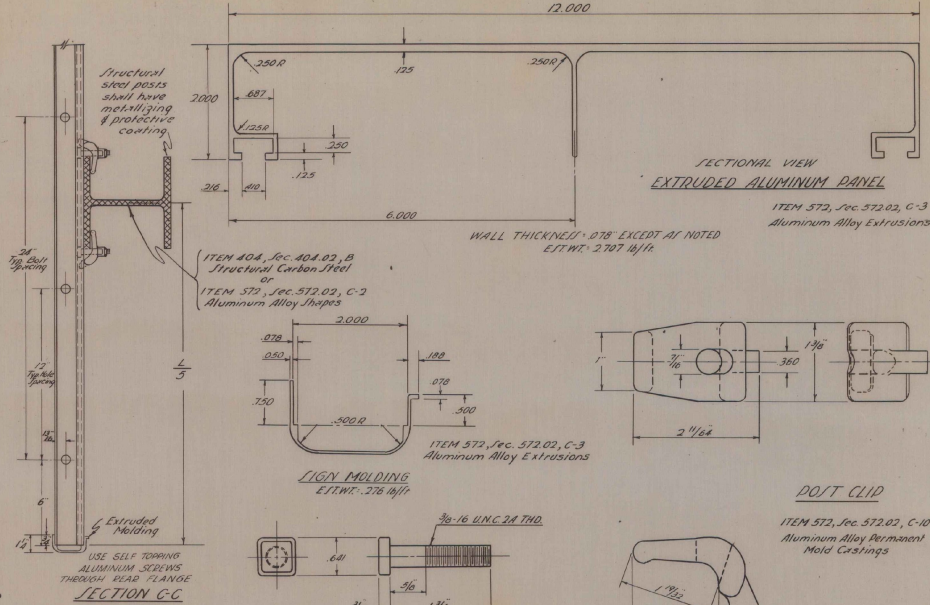
RS57-4



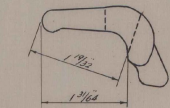
NOTE:
In erecting post, first
excavate and pour A. Then
place post, plumb, and
pour B. The time between
pours for proper curing of
concrete shall be determined
by Engineer in field.



NOTE:-
Use above clip arrangement for signs up to 24 ft. long
Use double clips at all locations indicated for signs over 24 ft. long



POST CLIP BOLT
ITEM 572, Sec. 572.02, C-8
Aluminum Alloy Bolts and Nuts



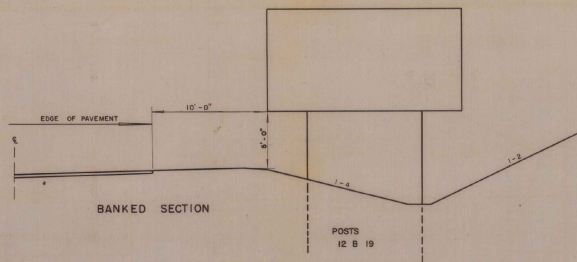
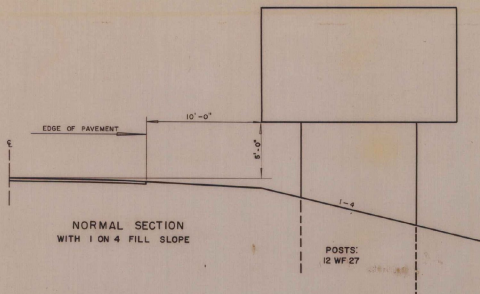
POST CLIP
ITEM 572, Sec. 572.02, C-10
Aluminum Alloy Permanent
Mold Castings

REVISIONS & CORRECTIONS
JUNE 7, 1957 - REVISION OF POST FOUNDATION DESIGN.

DRAWN BY A. B. MacDougal
TRACED BY A. B. MacDougal
CHECKED BY _____
RECOMMENDED FOR APPROVAL
H. E. Langmut
APPROVED
H. E. Langmut
MAY 31, 1957

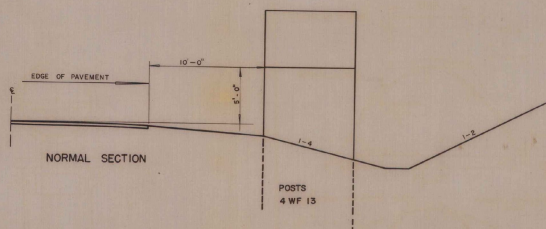
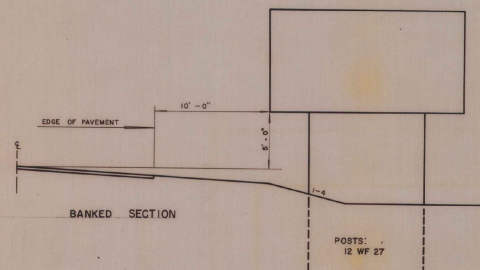
EXTRUDED ALUMINUM PANEL
GUIDE SIGNS
CONSTRUCTION & ASSEMBLY DETAILS

RS 57-5



TYPICAL PLACEMENT OF SIGNS
ON INTERSTATE

SCALE 1" = 5'



NOTES

THE FABRICATION AND INSTALLATION OF EXTRUDED ALUMINUM PANEL GUIDE SIGNS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 576 "REFLECTORIZED EXTRUDED ALUMINUM PANEL TRAFFIC SIGNS."

FOR SIGNS MEASURING 50 SQUARE FEET OR OVER THE POSTS SHALL BE OF THE FOLLOWING ROLLED STEEL STRUCTURAL SHAPES:
12 WF 27 WHEN THE DISTANCE FROM THE GROUND TO THE BOTTOM OF THE SIGN FOR EITHER OF THE TWO POSTS IS GREATER THAN 7'-6".
12 B 19 WHEN THE DISTANCE FROM THE GROUND TO THE BOTTOM OF THE SIGN IS 7'-6" OR LESS FOR BOTH POSTS.

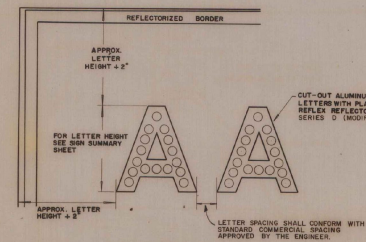
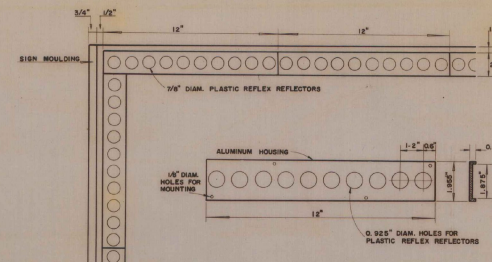
FOR SIGNS OF LESS THAN 50 SQUARE FT. THE POST SHALL BE ROLLED STEEL STRUCTURAL SHAPE 4 WF 13.
COMPARABLE STRUCTURAL ALUMINUM SHAPES MAY BE USED IN PLACE OF ROLLED STEEL STRUCTURAL SHAPES IN ACCORDANCE WITH THE FOLLOWING TABLE.

| STEEL SHAPE | ALUMINUM SHAPE |
|-------------|-------------------------|
| 12 WF 27 | 12 X .350 OR EQUIVALENT |
| 12 B 19 | 10 X .310 OR EQUIVALENT |
| 4 WF 13 | 5 X .210 OR EQUIVALENT |

STRUCTURAL STEEL POSTS SHALL MEET THE REQUIREMENTS OF ITEM 404, SEC. 404.02, 5, "STRUCTURAL CARBON STEEL."
STRUCTURAL ALUMINUM POSTS SHALL MEET THE REQUIREMENTS OF ITEM 672, SEC. 672.02, C-2, "ALUMINUM ALLOY SHAPES."

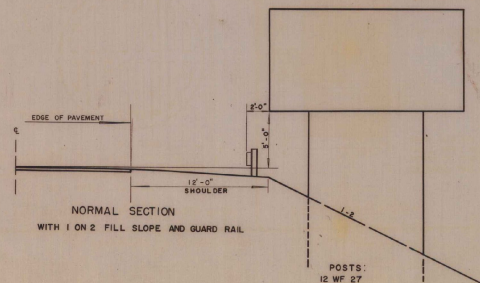
THE LENGTHS OF POSTS REQUIRED FOR EACH SIGN SHALL BE COMPUTED TO FIT THE FINAL SIGN LOCATION.

REVISIONS AND CORRECTIONS:
MAY 27, 1957 REVISION OF SHOULDER WIDTH.



| HEIGHT OF LETTER | DIAM. OF REFLECTOR | DIAM. OF HOLE IN HOUSING |
|------------------|--------------------|--------------------------|
| 8" | 7/8" | 0.925" |
| 10" | 1 1/4" | 1.306" |
| 15" | 1 5/8" | 1.660" |
| BORDER | 7/8" | 0.925" |

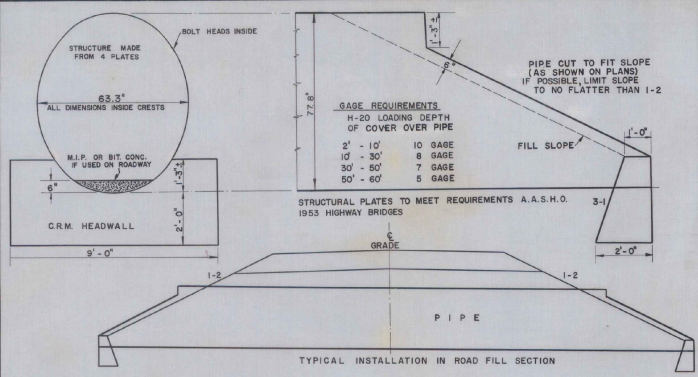
REFLECTORIZED LETTERS, DIGITS, SYMBOLS AND BORDERS SHALL BE APPLIED TO THE EXTRUDED ALUMINUM PANELS BY MEANS OF FRONT ENTRY ALUMINUM RIVETS OF THE EXPANDING TYPE MEETING THE REQUIREMENTS OF ITEM 572 SECTION 572.02, C-2 "ALUMINUM ALLOY RIVETS".
FOR CONSTRUCTION AND ASSEMBLY DETAILS OF EXTRUDED ALUMINUM PANEL GUIDE SIGNS, SEE ROADWAY STANDARD RS 57-5



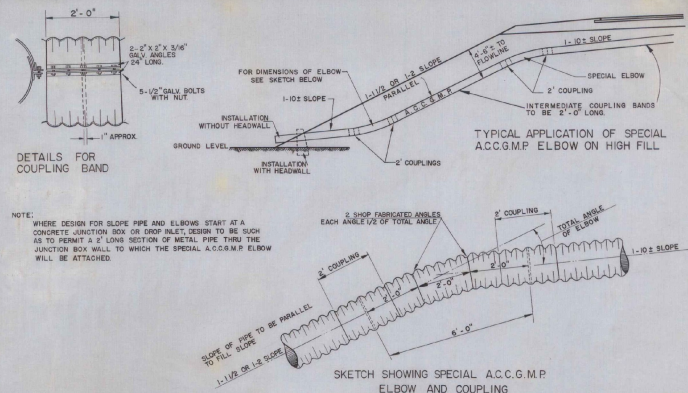
EXTRUDED ALUMINUM
PANEL GUIDE SIGNS
DESIGN AND
INSTALLATION DETAILS

RS 57-6

RECOMMENDED FOR APPROVAL
N.C. HANCOCK
MAY 29 1957
APPROVED
H.E. HANCOCK
MAY 29 1957

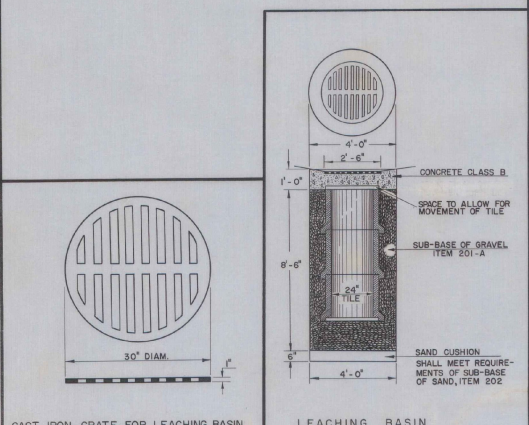


CATTLE PASS OF 72" CORR. GALV METAL PLATE PIPE, ITEM 429-A (FABRICATED 10% ELLIPTICAL)

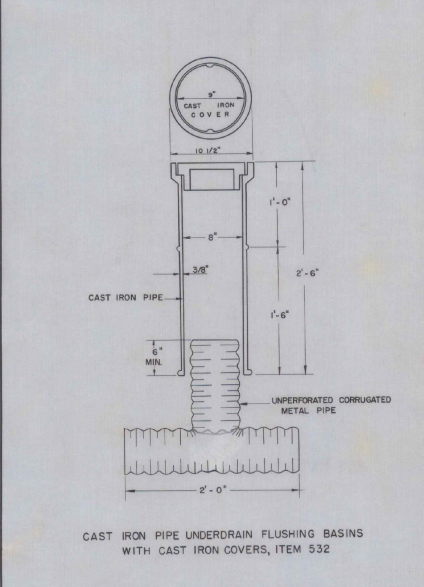


NOTE: WHERE DESIGN FOR SLOPE AND ELBOWS START AT A CONCRETE JUNCTION BOX OR GROUND INLET, DESIGN TO BE SUCH AS TO PERMIT A 2' LONG SECTION OF METAL PIPE THRU THE JUNCTION BOX WALL TO WHICH THE SPECIAL A.C.C.G.M.P. ELBOW WILL BE ATTACHED.

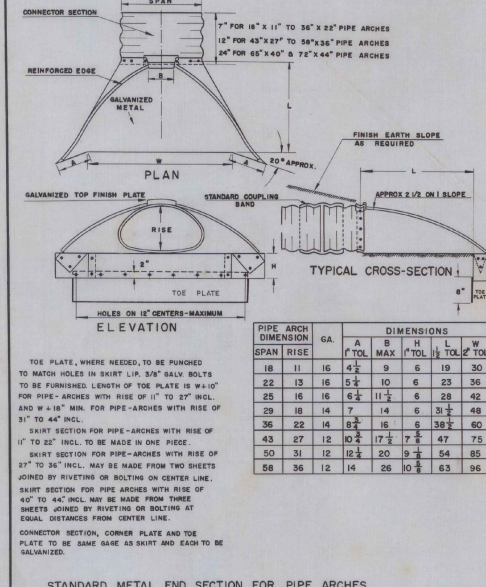
SKETCH SHOWING SPECIAL A.C.C.G.M.P. ELBOW AND COUPLING



CAST IRON GRATE FOR LEACHING BASIN LEACHING BASIN

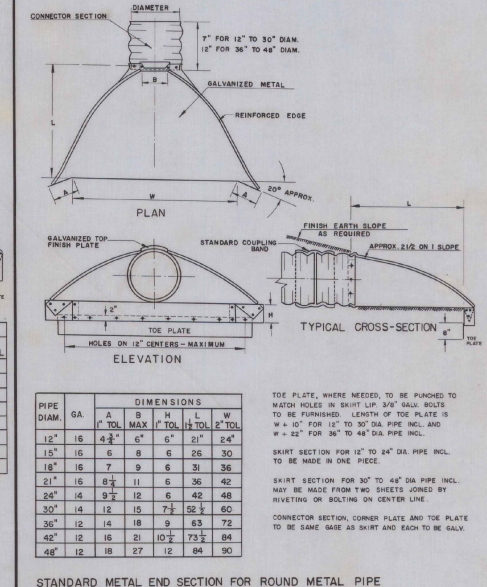


CAST IRON PIPE UNDERDRAIN FLUSHING BASINS WITH CAST IRON COVERS, ITEM 532



| PIPE ARCH DIMENSION SPAN RISE | GA. | DIMENSIONS | | | | |
|-------------------------------|-----|------------|--------|--------|--------|----|
| | | A | B | H | L | W |
| 18 11 | 16 | 4 1/2 | 9 | 6 | 19 | 30 |
| 22 13 | 16 | 5 1/2 | 10 | 6 | 23 | 36 |
| 25 16 | 16 | 6 1/2 | 11 1/2 | 6 | 28 | 42 |
| 29 18 | 14 | 7 | 14 | 6 | 31 1/2 | 48 |
| 36 22 | 14 | 8 1/2 | 16 | 6 | 38 1/2 | 60 |
| 43 27 | 12 | 10 1/2 | 17 1/2 | 7 1/2 | 47 | 75 |
| 50 31 | 12 | 12 1/2 | 20 | 9 1/2 | 54 | 85 |
| 58 36 | 12 | 14 | 26 | 10 1/2 | 63 | 96 |

STANDARD METAL END SECTION FOR PIPE ARCHES



| PIPE DIAM. | GA. | DIMENSIONS | | | | |
|------------|-----|------------|----|--------|--------|-----|
| | | A | B | H | L | W |
| 12" | 16 | 4 3/4 | 6" | 6" | 21" | 24" |
| 15" | 16 | 6 | 8 | 6 | 26 | 30 |
| 18" | 16 | 7 | 9 | 6 | 31 | 36 |
| 21" | 16 | 8 1/2 | 11 | 6 | 36 | 42 |
| 24" | 16 | 9 1/2 | 12 | 6 | 42 | 48 |
| 30" | 14 | 12 | 15 | 7 1/2 | 52 1/2 | 60 |
| 36" | 12 | 14 | 18 | 9 | 63 | 72 |
| 42" | 12 | 16 | 21 | 10 1/2 | 73 1/2 | 84 |
| 48" | 12 | 18 | 27 | 12 | 84 | 90 |

STANDARD METAL END SECTION FOR ROUND METAL PIPE

REVISIONS & CORRECTIONS

DRAWN BY: AJA
 TRACED BY: AJA
 APPROVED BY: [Signature]
 DATE: APRIL 14, 1958

TH. E. JOHNSON
 CHIEF ENGINEER

72" CORRUGATED GALVANIZED METAL PLATE PIPE, ITEM 429-A
 SPECIAL ASPH. CTD. CORR. GALV. METAL PIPE ELBOW, ITEM 422
 CAST IRON PIPE UNDERDRAIN FLUSHING BASINS WITH CAST IRON COVERS, ITEM 532
 METAL END SECTIONS FOR CORR. GALV. METAL PIPE, ITEM 430-1
 METAL END SECTIONS FOR CORR. GALV. METAL PIPE ARCH, ITEM 430-2
 LEACHING BASIN, ITEM 534

DEPARTMENT OF HIGHWAYS
 STANDARD STRUCTURES

RS 57-9