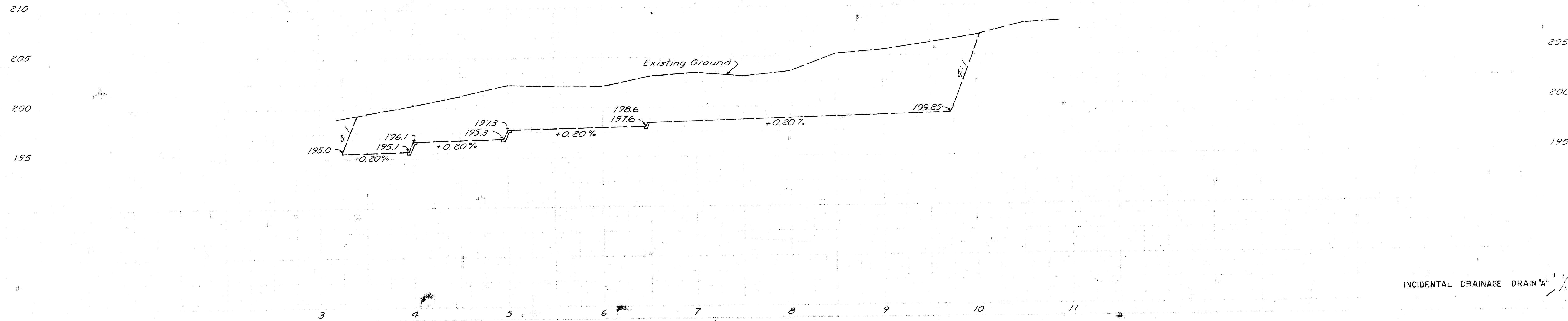
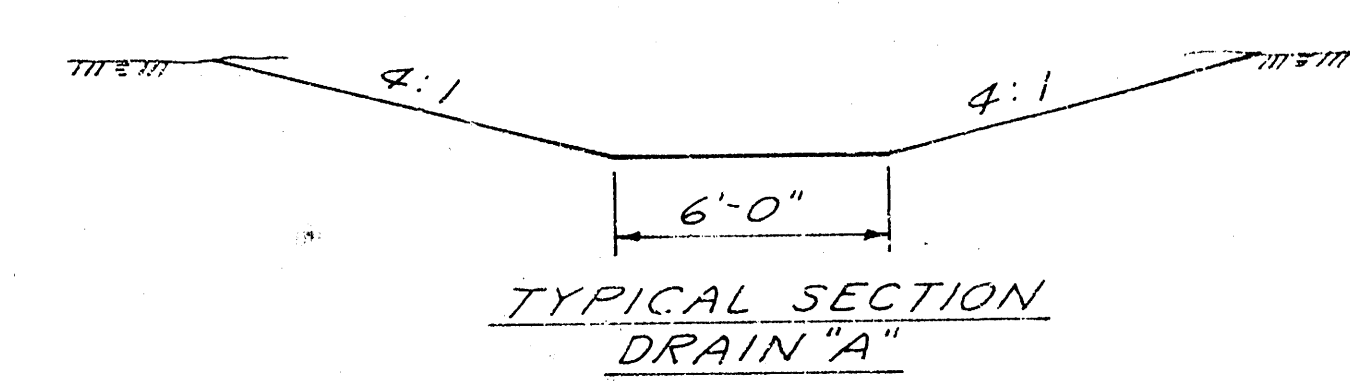
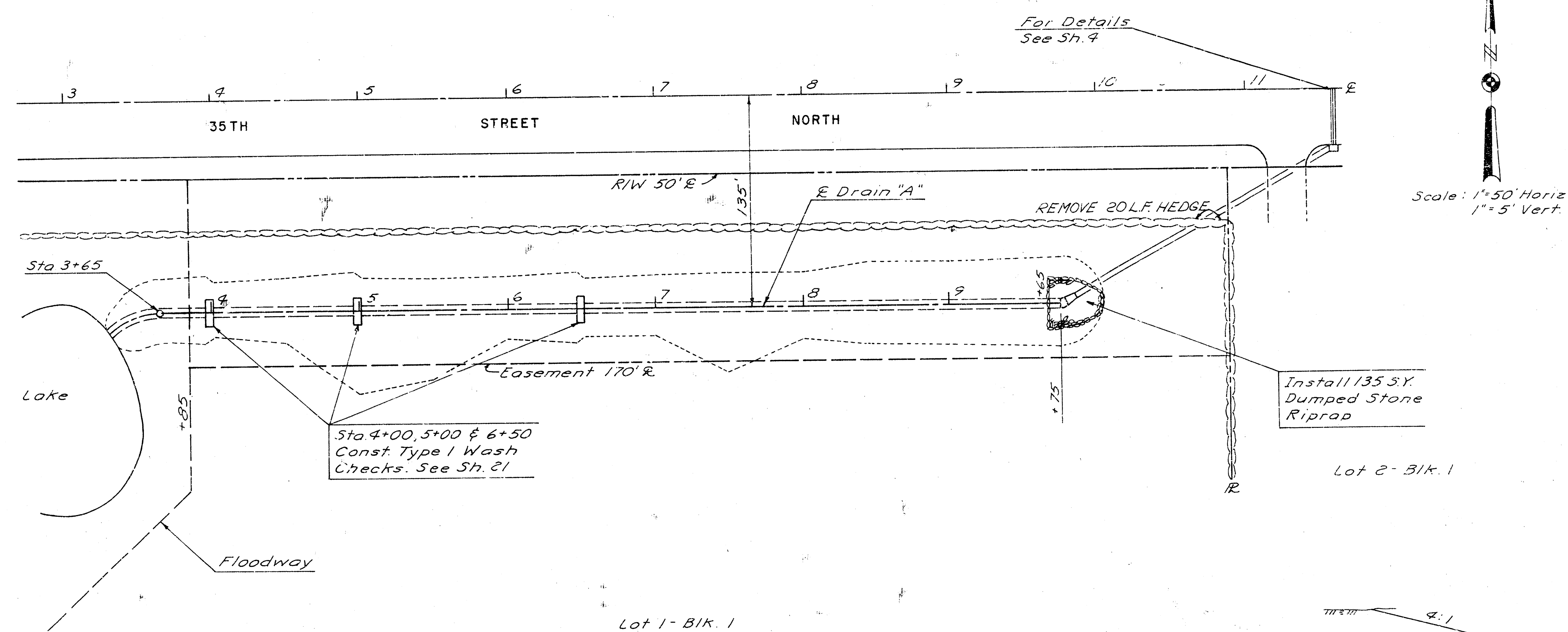
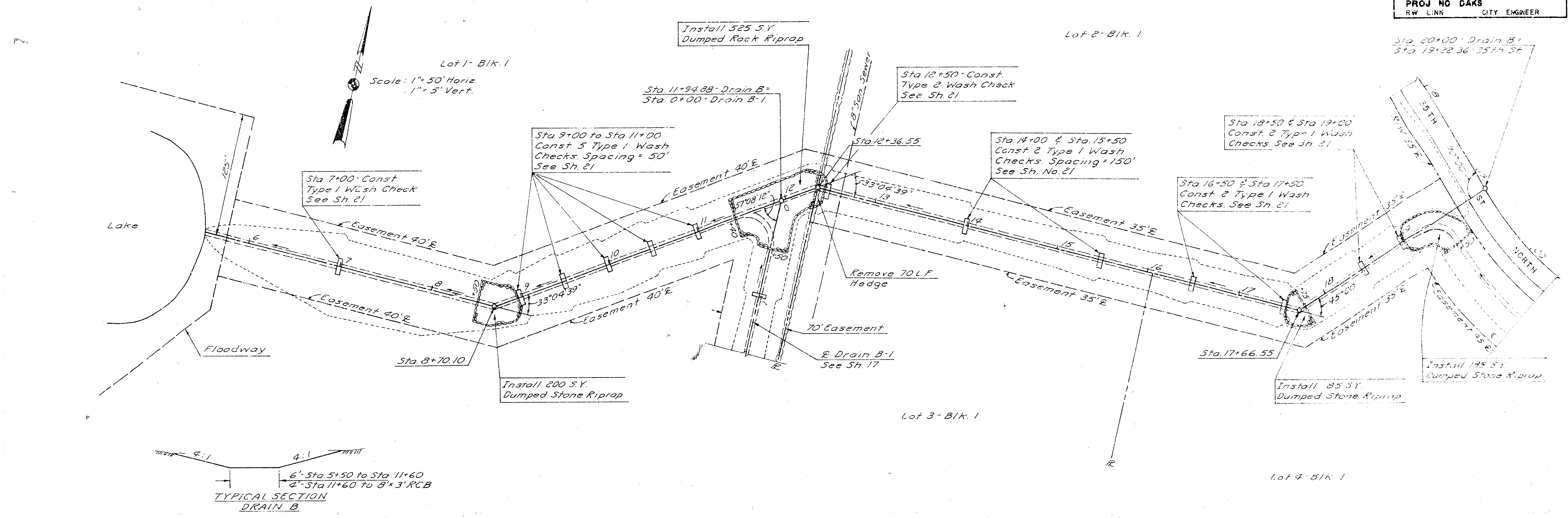
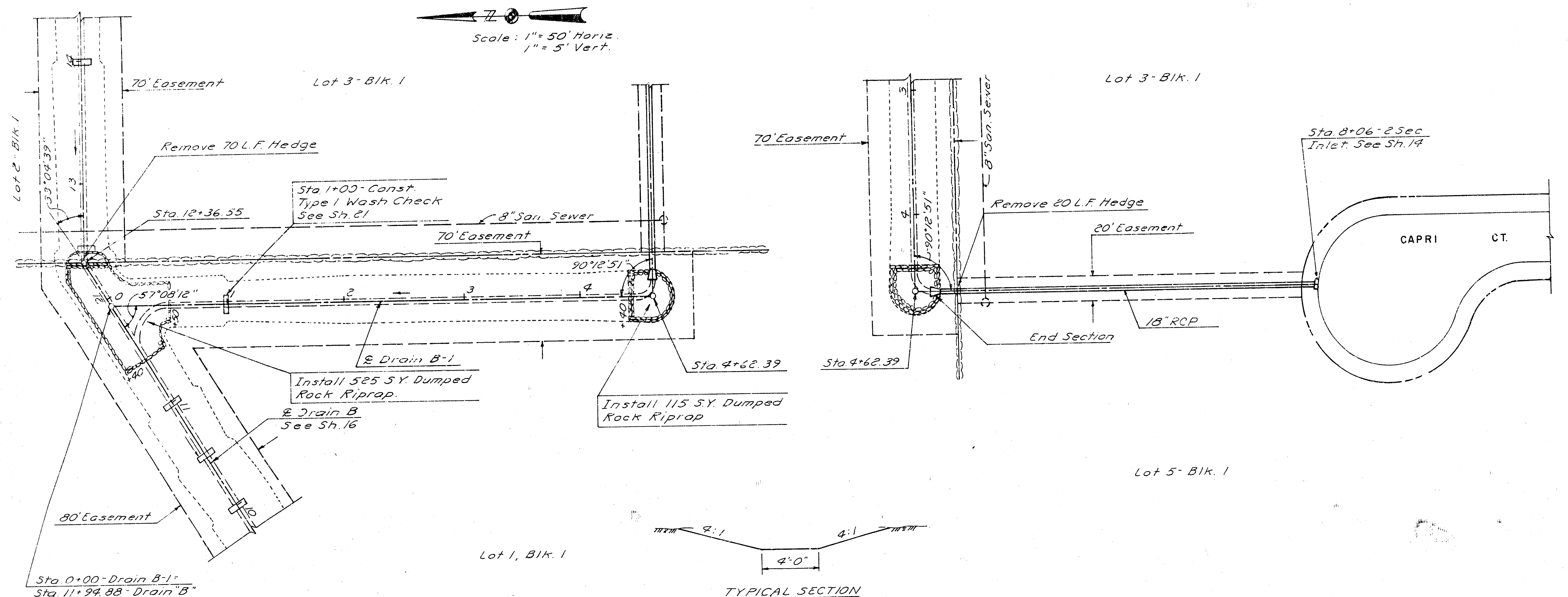


COMOTARA BUSINESS PARK  
WICHITA, KS  
PROJ NO 04KS  
RW LINN CITY ENGINEER



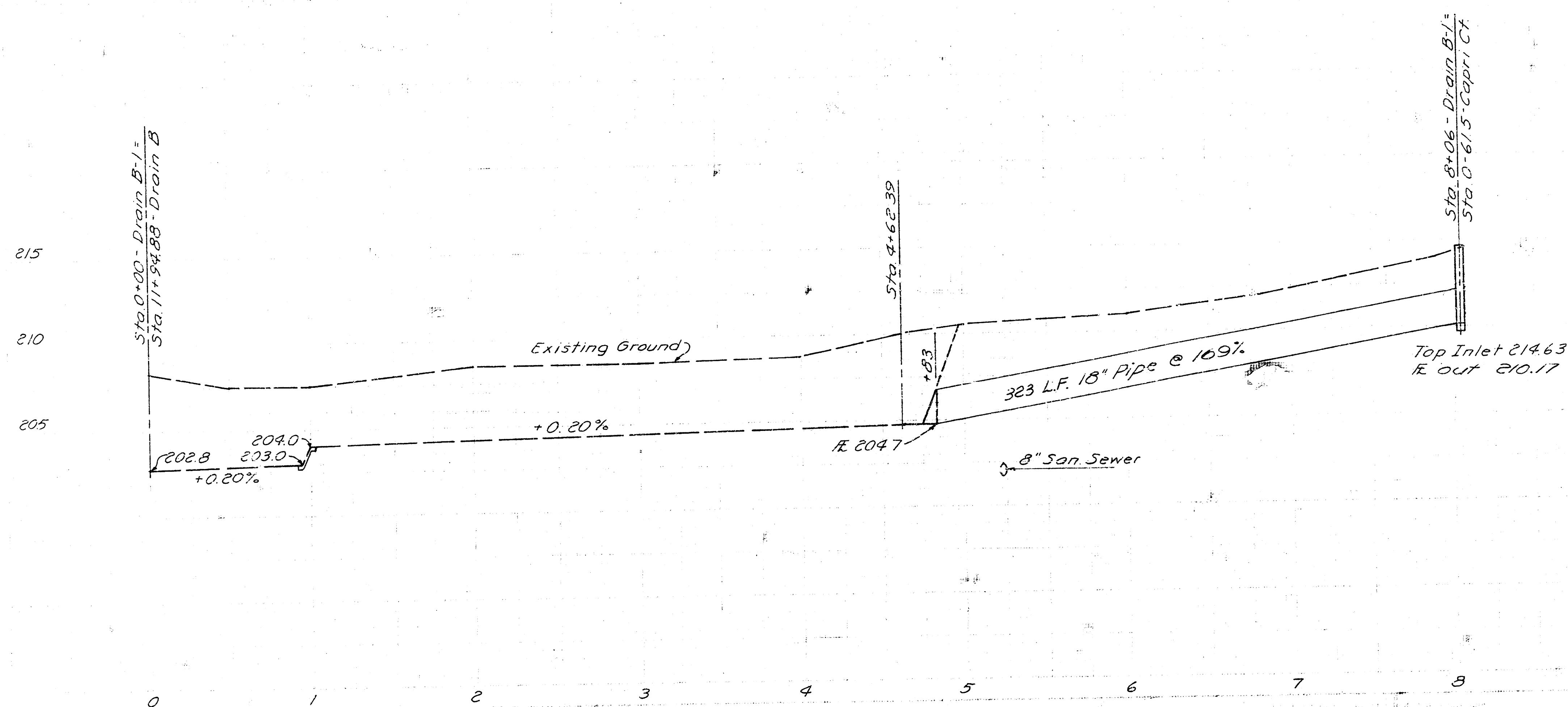
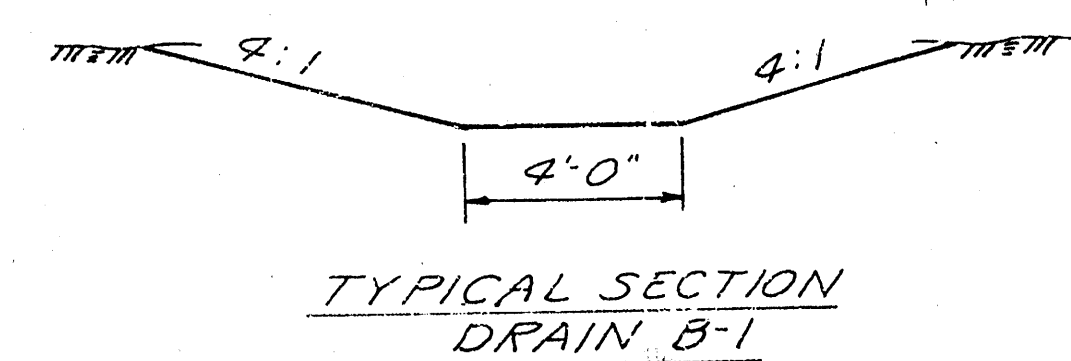
COMOTARA BUSINESS PARK  
WICHITA, KS  
PROJ NO 04KS  
RW LINN CITY ENGINEER

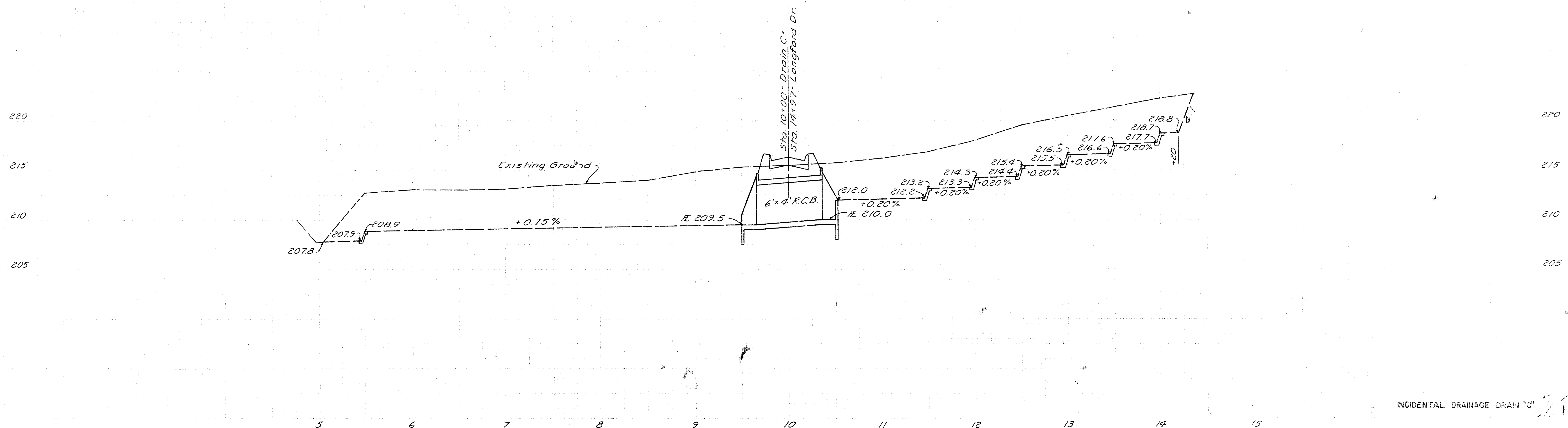
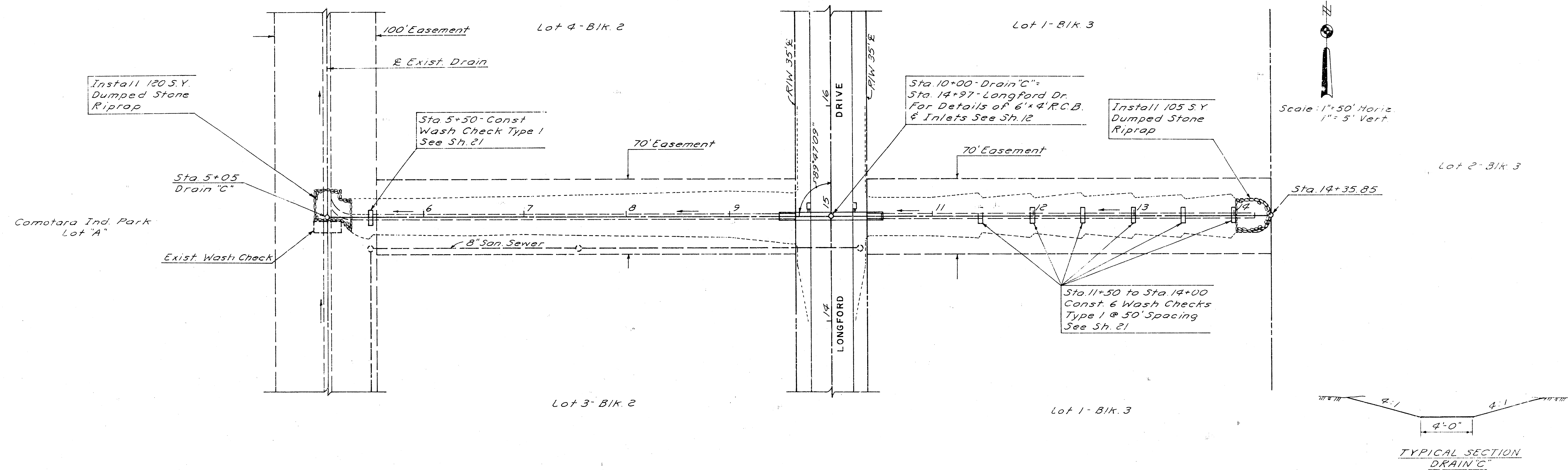


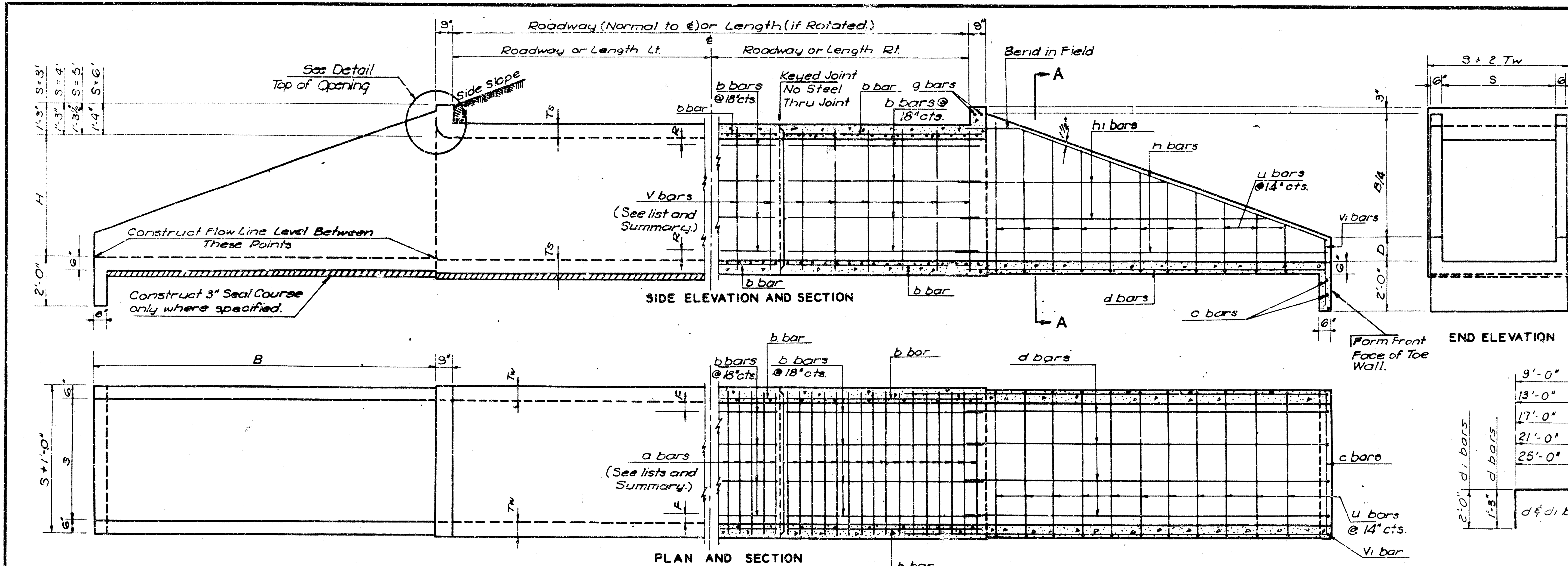


Lot 1, Bk. 1

Lot 5, Bk. 1







**BENDING DIAGRAMS**  
All dimensions are out to out.

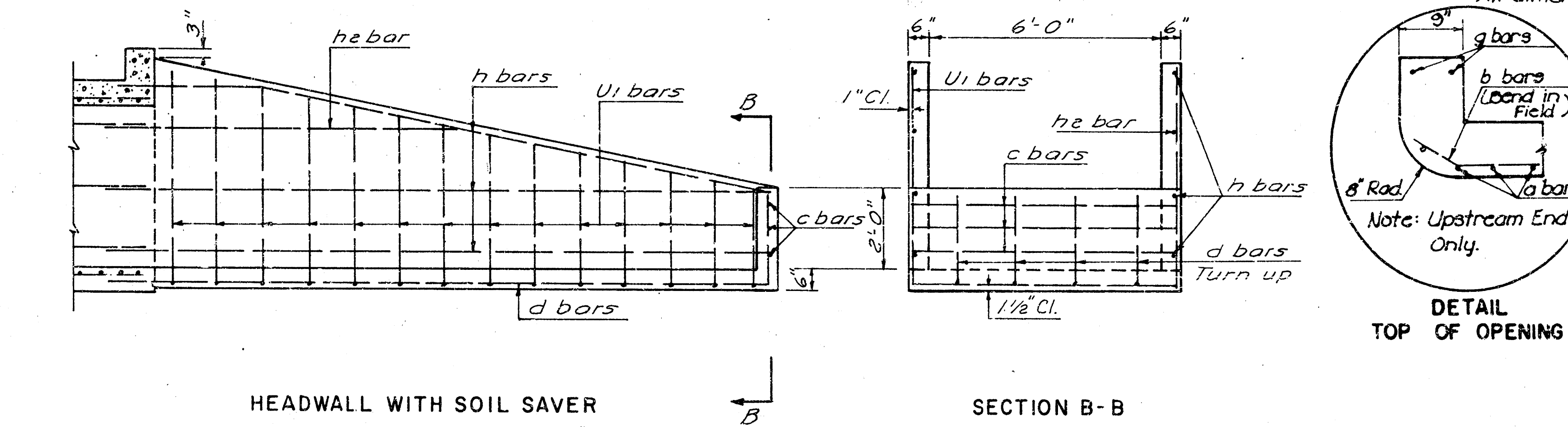
| SECTION A-A<br>(May be constructed at the Contractor's option.) | SECTION THRU BOX |
|-----------------------------------------------------------------|------------------|
| 9'-0" H=2'                                                      | 5'-2" H=2'       |
| 13'-0" H=3'                                                     | 7'-8" H=3'       |
| 17'-0" H=4'                                                     | 6'-8" H=4'       |
| 21'-0" H=5'                                                     | 5'-8" H=5'       |
| 25'-0" H=6'                                                     | 7'-2" H=6'       |

Increase this dim. by 6'-0" from above length. Cut 4 Each h bars  
Decrease this dim. by 3'-0" from above length. Cut 4 Each h bars  
U & V bars \* 2 1/2" for U bars

**LIST OF BARS AND DIMENSIONS**

| Letter | B     | D      | F      | H     | R     | S  | Ts | Tw    | Dimension | Qty | Weight |
|--------|-------|--------|--------|-------|-------|----|----|-------|-----------|-----|--------|
| Letter | B     | D      | F      | H     | R     | S  | Ts | Tw    | Dimension | Qty | Weight |
| Bar    | a     | b      | c      | d     | e     | f  | g  | h     | i         | j   | k      |
| No.    | *     | *      | *      | *     | *     | *  | *  | *     | *         | *   | *      |
| Length | 3'-9" | 3'-10" | 10'-3" | 3'-9" | 9'-0" | 1' | 1' | 2'-9" |           |     |        |

\* See Culvert Summary for these values.



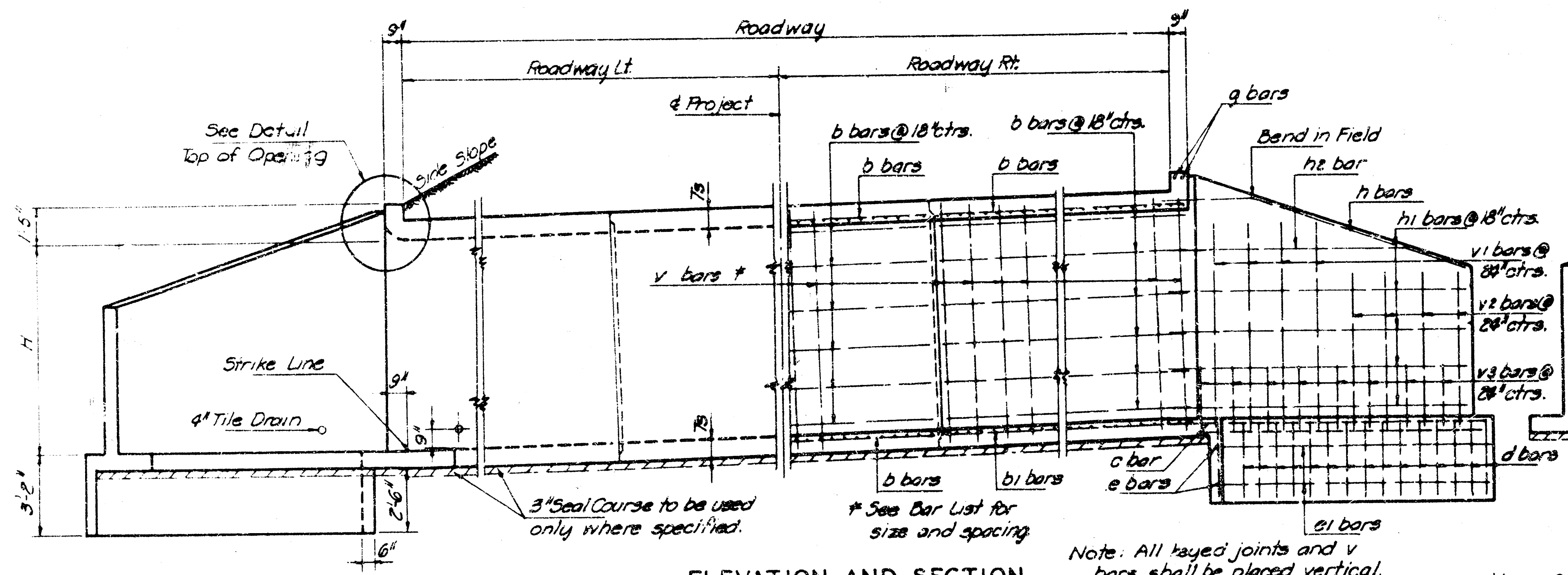
CULVERT SUMMARY

| Station        | Size  | Crown Grade Elev. | Flow Line |       | Horizontal Roadway |        | Degree of Rotation | Length along Box |        | No. of Sect. | Section Length | T <sub>s</sub> | T <sub>w</sub> | "G" Bars |      |       | "b" Bars |        |     | "v" Bars |       |        | Design Fill Ft. | Class A Conc. Cu. Yds | Reinf. Steel Lbs |
|----------------|-------|-------------------|-----------|-------|--------------------|--------|--------------------|------------------|--------|--------------|----------------|----------------|----------------|----------|------|-------|----------|--------|-----|----------|-------|--------|-----------------|-----------------------|------------------|
|                |       |                   | Lt        | Rt    | Lt                 | Rt     |                    | Lt               | Rt     |              |                |                |                | No.      | Size | Spac. | No.      | Length | No. | Size     | Spac. | Length |                 |                       |                  |
| 14+97          | 6'x4' | 216.35            | 209.5     | 210.0 | 34'-3"             | 34'-3" | 90°                | 34'-3"           | 34'-3" | 2            | 35'-0"         | 7"             | 6"             | 200      | 5    | 6"    | 28       | 34'-9" | 36  | 4        | 15"   | 4'-11" | 10'             | 47.20                 | 3210             |
| (Longford Dr.) |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |
|                |       |                   |           |       |                    |        |                    |                  |        |              |                |                |                |          |      |       |          |        |     |          |       |        |                 |                       |                  |

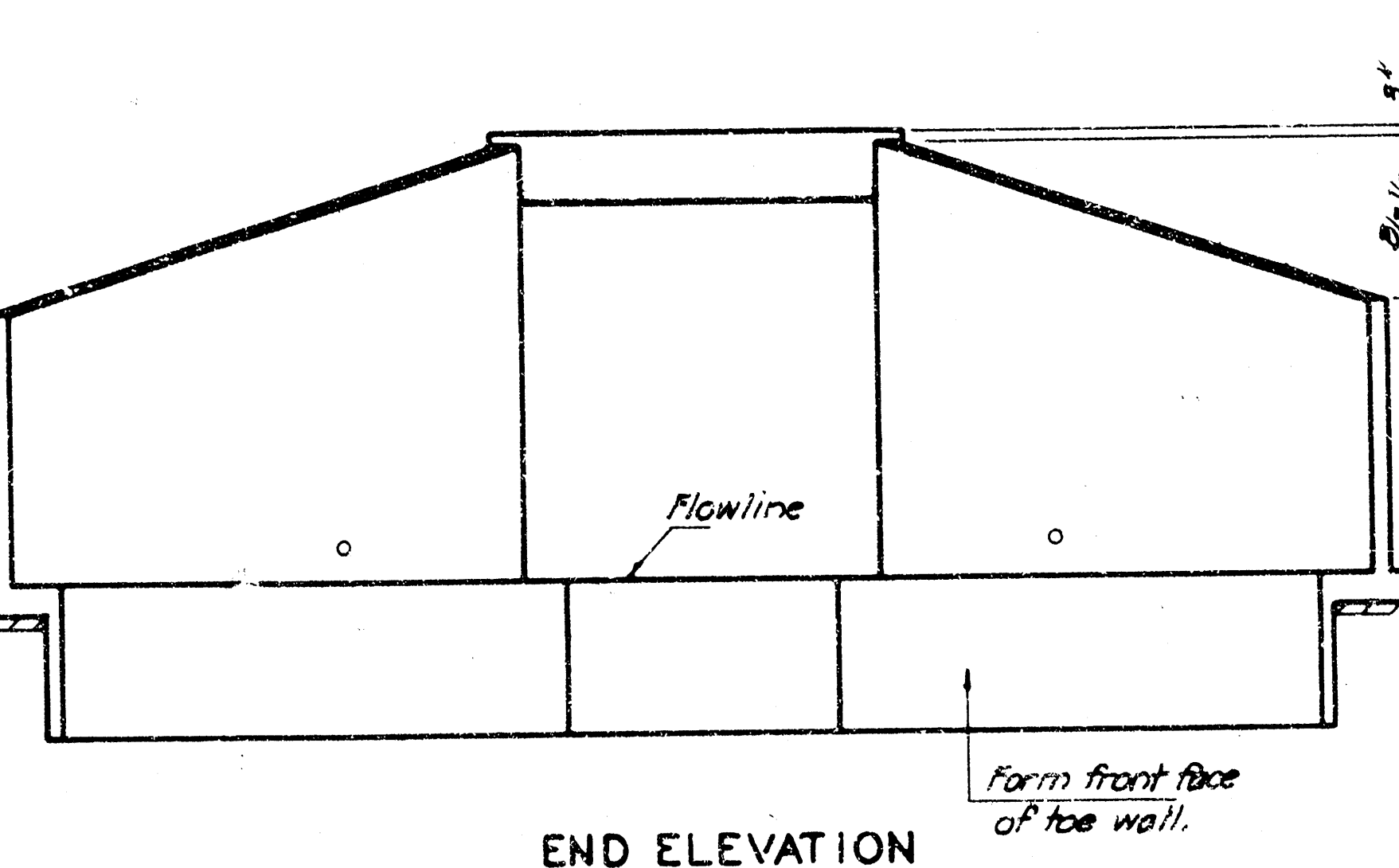
**GENERAL NOTES**

LOADING: H-20-44 AASHTO Specifications, Edition of 1969.  
UNIT STRESSES:  $f_c = 1200$  psi;  $f_s = 3000$  psi;  
 $f_s = 20,000$  psi.  
Class A Concrete shall be used thruout.  
Bevel all exposed edges with a 3/4" triangular molding, unless otherwise noted.

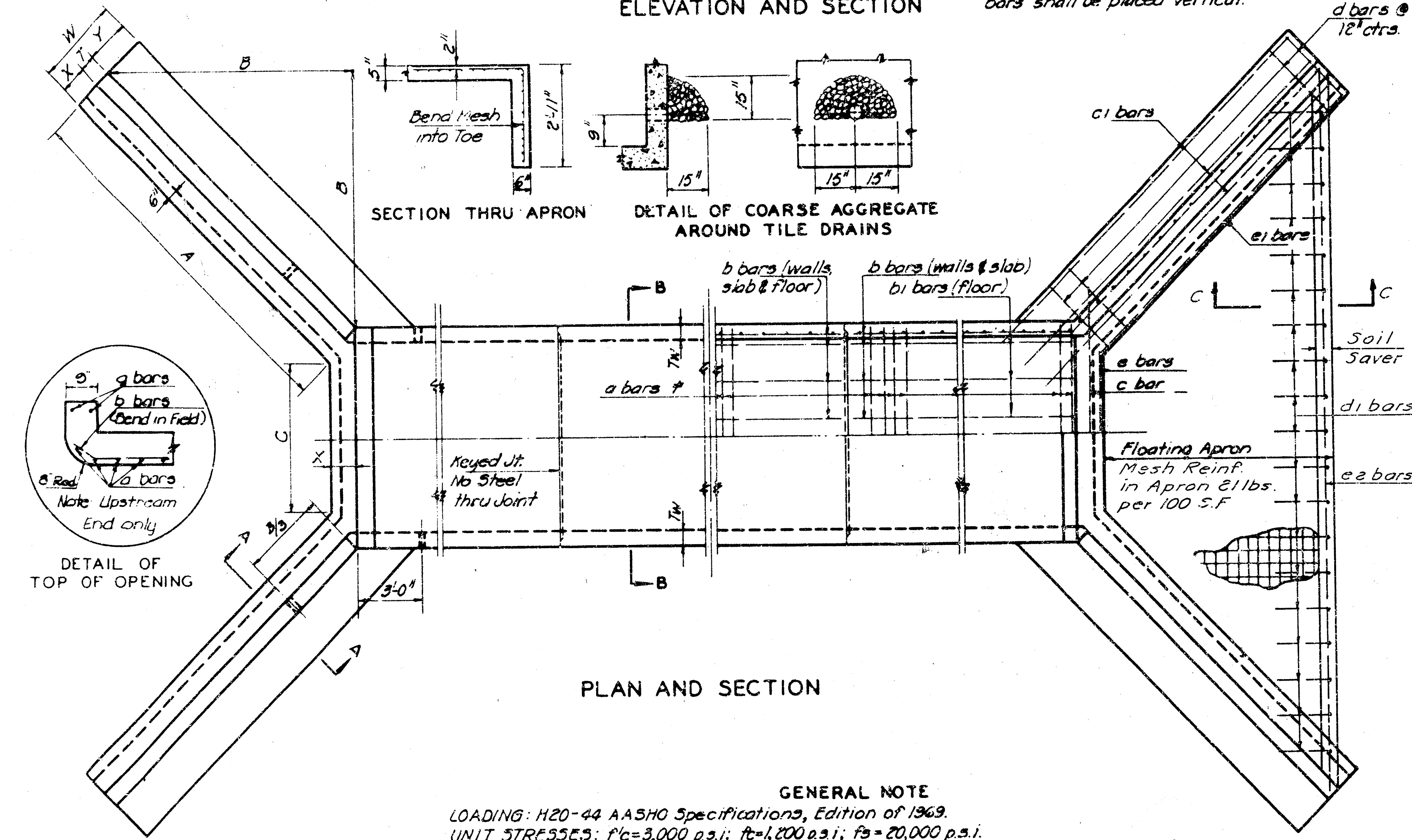
All dimensions are to center-line of bar unless otherwise noted.  
Keyed joint shall be provided as shown on 3', 4', 5' and 6' span culverts which are 40' or more in box length. The number of joints shall be as follows: 40' to 80' - 1 joint; 80' to 120' - 2 joints; 120' to 160' - 3 joints; etc.  
Seal Course consisting of 3" of Class A Concrete shall be constructed only where specified on the Plans or by the Engineer. No reinforcing shall be placed until Seal Course has gained sufficient strength to permit working upon it without injury. Payment for additional quantities, resulting from including Seal Course as a change in the original Plans, shall be made at the unit price bid for the various items involved.  
See Standard No. 671.1 (Woven Wire) or Standard No. 672.1 (Barbed Wire) for details of attachment to culvert wings.  
Where Soil Saver is specified, rotate d bars, omit tailwall and construct rear wall on upstream end of culvert, bend v bars into floor.



ELEVATION AND SECTION



END ELEVATION



GENERAL NOTE

LOADING: H20-44 AASHTO Specifications, Edition of 1969.  
UNIT STRESSSES:  $f'_c = 3,000$  p.s.i.;  $f_t = 1,200$  p.s.i.;  $f_s = 20,000$  p.s.i.  
Class A Concrete shall be used throughout. Bevel all exposed edges with a  $\frac{3}{8}$ " triangular molding unless otherwise noted.  
All dimensions relative to reinforcing steel are to center line of bar unless otherwise noted.  
Seal Course, consisting of 3" of Class A Concrete, shall be constructed only where specified on the Plans or by the Engineer. No reinforcing shall be placed until the Seal Course has gained sufficient strength to permit working upon it without injury.  
Floating Apron shall be constructed only between downstream wings in locations subject to scour where specified on the Plans or by the Engineer.  
Wire reinforcing mesh shall be electrically welded and shall be composed of No. W1.4 wire at 6" centers each way. Weight of reinforcing mesh shall be classified as pounds of reinforcing steel.  
Payment for additional quantities resulting from including Seal Course and or Floating Apron as a change in the original plans, shall be made at the Unit Price bid for the various items involved.  
Coarse aggregate shall be deposited behind each weephole to occupy a space extending 15" in all directions above the weephole flowline. This work shall not be paid for directly, but shall be considered a part of the excavation work.  
Keyed joints shall be provided as shown on all culverts where the box length is 40' or more. These joints shall be spaced so as to divide the box into sections of equal length. The number of joints to be used shall be as follows: 40' to 60'-1 joint; 60' to 120'-2 joints; 120' to 160'-3 joints, etc.  
The quantities shown in Culvert Summary include Apron and or Soil Saver quantities if they are to be constructed.  
See Standard No. G71.1 (Woven Wire) or Standard No. G72.1 (Barbed Wire) for details of attachment to culvert wings.  
Where Soil Saver is specified, omit toe wall on apron and construct weir wall on upstream end of culvert.

BENDING DIAGRAMS

All dimensions are out to out of bars  
Design Note: Length  $b_1 = b + x + 2 \times 10'$

LIST OF BARS AND DIMENSIONS

| Capri Lane - 20' x 75' 8' x 3' x 70' |        |                   |         |                        |           |       |       |       |       |       |       |       |       |       |
|--------------------------------------|--------|-------------------|---------|------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Apron Steel (One)                    | 15 Lbs | Seal Course       | 5.92 CY | Midl Concrete (Two)    | 5.166 CY  |       |       |       |       |       |       |       |       |       |
| Apron Concrete (One)                 | 1.1 CY | Apron Seal Course | 0.66 CY | Concrete for Ft of Box | 0.5555 CY |       |       |       |       |       |       |       |       |       |
| Letter                               | A      | B                 | C       | H                      | R         | T     | Tw    | W     | X     | Y     | Bar   | a     | v     |       |
| Dimension                            | 8'3"   | 5'10"             | 8'9"    | 3'0"                   | 3'0"      | 6"    | 6"    | 6"    | 3'6"  | 1'0"  | 1'0"  | Space | 6'6"  | 1'0"  |
| Bar                                  | a      | b                 | b1      | c                      | c1        | d     | e     | e1    | g     | h     | h1    | h2    | v     | v1    |
| Number                               | 260    | 32                | 12      | 2                      | 12        | 12    | 4     | 8     | 4     | 8     | 4     | 8     | 96    | 12    |
| Size                                 | #6     | #4                | #4      | #4                     | #4        | #4    | #4    | #5    | #5    | #4    | #4    | #4    | #4    | #4    |
| Length                               | 5'-9"  | 3'-9"             | 3'-9"   | 1'10"                  | 1'10"     | 5'-0" | 5'-0" | 5'-0" | 3'-9" | 3'-9" | 3'-9" | 3'-9" | 4'-1" | 5'-0" |

| 8' x 5' x            |          |                   |       |       |                        |          |       |       |       |       |       |       |       |       |
|----------------------|----------|-------------------|-------|-------|------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|
| Apron Steel (One)    | 34 Lbs   | Seal Course       |       | CY    | Midl Concrete (Two)    | 9.117 CY |       |       |       |       |       |       |       |       |
| Apron Concrete (One) | 2.553 CY | Apron Seal Course |       | CY    | Concrete for Ft of Box |          |       |       |       |       |       |       |       |       |
| Letter               | A        | B                 | C     | H     | R                      | T        | Tw    | W     | X     | Y     | Bar   | a     | v     |       |
| Dimension            | 10'3"    | 7'3"              | 5'9"  | 2'10" | 4'0"                   | 6"       | 6"    | 6"    | 6"    | 1'0"  | 1'0"  | Space |       |       |
| Bar                  | a        | b                 | b1    | c     | c1                     | d        | e     | e1    | g     | h     | h1    | h2    | v     | v1    |
| Number               |          | 12                | 2     | 12    | 12                     | 4        | 8     | 4     | 8     | 4     | 8     | 4     | 12    | 12    |
| Size                 |          | #4                | #4    | #4    | #4                     | #4       | #4    | #5    | #5    | #4    | #4    | #4    | #4    | #4    |
| Length               |          | 1'10"             | 1'10" | 5'-2" | 5'-2"                  | 9'-0"    | 9'-0" | 9'-0" | 1'10" | 1'10" | 1'10" | 1'10" | 5'-1" | 4'-6" |

| 8' x 5' x            |          |                   |       |       |                        |           |       |       |       |       |       |       |       |       |
|----------------------|----------|-------------------|-------|-------|------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|
| Apron Steel (One)    | 43 Lbs   | Seal Course       |       | CY    | Midl Concrete (Two)    | 11.662 CY |       |       |       |       |       |       |       |       |
| Apron Concrete (One) | 3.181 CY | Apron Seal Course |       | CY    | Concrete for Ft of Box |           |       |       |       |       |       |       |       |       |
| Letter               | A        | B                 | C     | H     | R                      | T         | Tw    | W     | X     | Y     | Bar   | a     | v     |       |
| Dimension            | 12'5"    | 8'5"              | 8'5"  | 2'10" | 2'10"                  | 3"        | 6"    | 6"    | 6"    | 1'0"  | 1'0"  | Space |       |       |
| Bar                  | a        | b                 | b1    | c     | c1                     | d         | e     | e1    | g     | h     | h1    | h2    | v     | v1    |
| Number               |          | 12                | 2     | 12    | 12                     | 52        | 4     | 8     | 4     | 8     | 4     | 8     | 16    | 12    |
| Size                 |          | #4                | #4    | #4    | #4                     | #4        | #4    | #5    | #5    | #4    | #4    | #4    | #4    | #4    |
| Length               |          | 1'10"             | 1'10" | 5'-5" | 5'-5"                  | 9'-0"     | 9'-0" | 9'-0" | 1'10" | 1'10" | 1'10" | 1'10" | 5'-1" | 4'-6" |

| 8' x 6' x            |          |                   |       |       |                        |           |       |       |       |       |       |       |       |       |
|----------------------|----------|-------------------|-------|-------|------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|
| Apron Steel (One)    | 52 Lbs   | Seal Course       |       | CY    | Midl Concrete (Two)    | 15.079 CY |       |       |       |       |       |       |       |       |
| Apron Concrete (One) | 3.812 CY | Apron Seal Course |       | CY    | Concrete for Ft of Box |           |       |       |       |       |       |       |       |       |
| Letter               | A        | B                 | C     | H     | R                      | T         | Tw    | W     | X     | Y     | Bar   | a     | v     |       |
| Dimension            | 14'5"    | 10'0"             | 5'9"  | 2'10" | 2'10"                  | 3"        | 6"    | 6"    | 6"    | 1'0"  | 1'0"  | Space |       |       |
| Bar                  | a        | b                 | b1    | c     | c1                     | d         | e     | e1    | g     | h     | h1    | h2    | v     | v1    |
| Number               |          | 12                | 2     | 12    | 12                     | 60        | 4     | 8     | 4     | 8     | 4     | 8     | 20    | 12    |
| Size                 |          | #4                | #4    | #4    | #4                     | #4        | #4    | #5    | #5    | #4    | #4    | #4    | #4    | #4    |
| Length               |          | 1'10"             | 1'10" | 5'-5" | 5'-5"                  | 9'-0"     | 9'-0" | 9'-0" | 1'10" | 1'10" | 1'10" | 1'10" | 5'-1" | 4'-6" |

| 8' x 7' x            |          |                   |       |       |                        |           |       |       |       |       |       |       |       |       |
|----------------------|----------|-------------------|-------|-------|------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|
| Apron Steel (One)    | 63 Lbs   | Seal Course       |       | CY    | Midl Concrete (Two)    | 19.439 CY |       |       |       |       |       |       |       |       |
| Apron Concrete (One) | 4.639 CY | Apron Seal Course |       | CY    | Concrete for Ft of Box |           |       |       |       |       |       |       |       |       |
| Letter               | A        | B                 | C     | H     | R                      | T         | Tw    | W     | X     | Y     | Bar   | a     | v     |       |
| Dimension            | 16'3"    | 11'5"             | 5'9"  | 2'10" | 2'10"                  | 3"        | 6"    | 6"    | 6"    | 1'0"  | 1'0"  | Space |       |       |
| Bar                  | a        | b                 | b1    | c     | c1                     | d         | e     | e1    | g     | h     | h1    | h2    | v     | v1    |
| Number               |          | 12                | 2     | 12    | 12                     | 60        | 4     | 8     | 4     | 8     | 4     | 8     | 20    | 12    |
| Size                 |          | #4                | #4    | #4    | #4                     | #4        | #4    | #5    | #5    | #4    | #4    | #4    | #4    | #4    |
| Length               |          | 1'10"             | 1'10" | 5'-5" | 5'-5"                  | 9'-0"     | 9'-0" | 9'-0" | 1'10" | 1'10" | 1'10" | 1'10" | 5'-1" | 4'-6" |

| 8' x 8' x            |          |                   |       |       |                        |           |       |       |       |       |       |       |       |       |
|----------------------|----------|-------------------|-------|-------|------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|
| Apron Steel (One)    | 74 Lbs   | Seal Course       |       | CY    | Midl Concrete (Two)    | 24.583 CY |       |       |       |       |       |       |       |       |
| Apron Concrete (One) | 5.404 CY | Apron Seal Course |       | CY    | Concrete for Ft of Box |           |       |       |       |       |       |       |       |       |
| Letter               | A        | B                 | C     | H     | R                      | T         | Tw    | W     | X     | Y     | Bar   | a     | v     |       |
| Dimension            | 18'3"    | 12'10"            | 5'9"  | 2'10" | 2'10"                  | 3"        | 6"    | 6"    | 6"    | 1'0"  | 1'0"  | Space |       |       |
| Bar                  | a        | b                 | b1    | c     | c1                     | d         | e     | e1    | g     | h     | h1    | h2    | v     | v1    |
| Number               |          | 12                | 2     | 12    | 12                     | 76        | 4     | 8     | 4     | 8     | 4     | 8     | 20    | 12    |
| Size                 |          | #4                | #4    | #4    | #4                     | #4        | #4    | #5    | #5    | #4    | #4    | #4    | #4    | #4    |
| Length               |          | 1'10"             | 1'10" | 5'-5" | 5'-5"                  | 9'-0"     | 9'-0" | 9'-0" | 1'10" | 1'10" | 1'10" | 1'10" | 5'-1" | 4'-6" |

| 8' x                 |     |             |                   |    |                     |                        |    |    |   |   |     |       |   |    |
|----------------------|-----|-------------|-------------------|----|---------------------|------------------------|----|----|---|---|-----|-------|---|----|
| Apron Steel (One)    | Lbs | Seal Course |                   | CY | Midl Concrete (Two) |                        |    |    |   |   |     |       |   |    |
| Apron Concrete (One) |     | CY          | Apron Seal Course |    | CY                  | Concrete for Ft of Box |    |    |   |   |     |       |   |    |
| Letter               | A   | B           | C                 | H  | R                   | T                      | Tw | W  | X | Y | Bar | a     | v |    |
| Dimension            |     |             |                   |    |                     |                        |    |    |   |   |     | Space |   |    |
| Bar                  | a   | b           | b1                | c  | c1                  | d                      | e  | e1 | g | h | h1  | h2    | v | v1 |
| Number               |     |             |                   |    |                     |                        |    |    |   |   |     |       |   |    |
| Size                 |     |             |                   |    |                     |                        |    |    |   |   |     |       |   |    |
| Length               |     |             |                   |    |                     |                        |    |    |   |   |     |       |   |    |

CULVERT SUMMARY

| Station                                              | Size          | Crown Gr. Elev. | Flowline Elev. Lt. | Flowline Elev. Rt. | Roadway Horiz. Lt. | Roadway Horiz. Rt. | Lgth along Box Lt. | Lgth along Box Rt. | Sections No. | Length | Apron | Soil Saver | Design Ft. | C/A Conc. Cuts | Reinf. Steel Lbs |
|------------------------------------------------------|---------------|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------|--------|-------|------------|------------|----------------|------------------|
| Capri Lane                                           |               |                 |                    |                    |                    |                    |                    |                    |              |        |       |            |            |                |                  |
| 20+75                                                | 8' x 3' x 70' | 218.43          | 213.0              | 212.5              | 34'3"              | 34'3"              | 34'3"              | 34'3"              | 2            | 35'0"  | 1.10  | 0.69       | 8'         | 47.64          | 5260             |
| * Includes Apron, Seal Course, Soil Saver, Headwalls |               |                 |                    |                    |                    |                    |                    |                    |              |        |       |            |            |                |                  |

9-10-73 Wire Reinf. Mesh Charged to W.L.H. K.G.L.  
10-27-72 Wire Size AASHTO Des. M32-72 W.L.H. K.G.L.  
11-19-72 Removed 12" Uniform Bbl. Sections W.L.H. K.G.L.

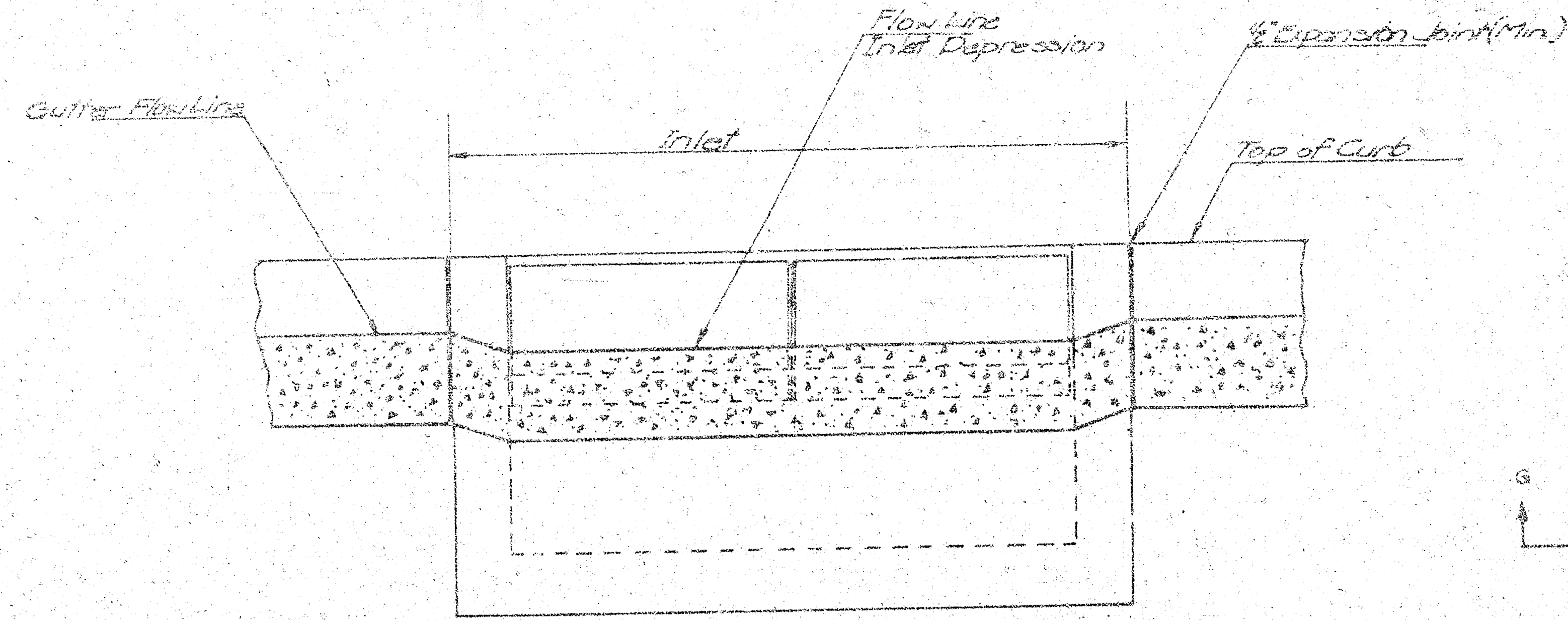
NO. DATE REVISIONS BY APP'D

STATE HIGHWAY COMMISSION OF KANSAS

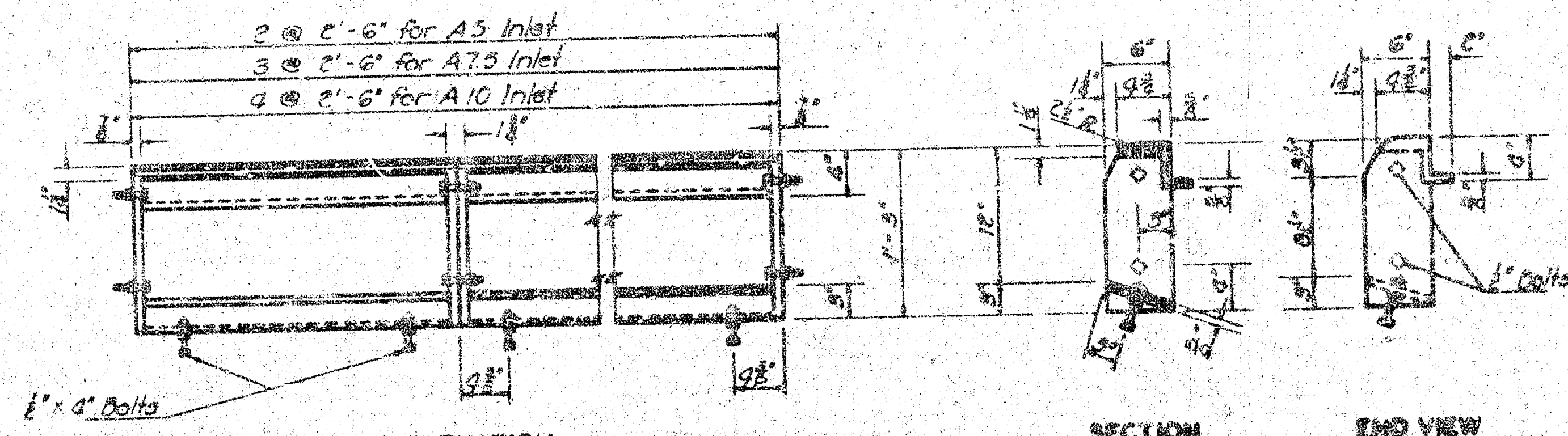
R.C. BOX CULVERT  
8 FT. SPAN

STD. NO. 315.2

SHEET NO. OF SCALE APP'D A. H. KANSAS  
DESIGNED BY: DETAILED BY: QUANTITIES BY: TRAILER BY:  
DESIGNER: LATHAM DETAILER: SCHWARTZ QUANT. CLERK: CLARK TRAILER: CLARK

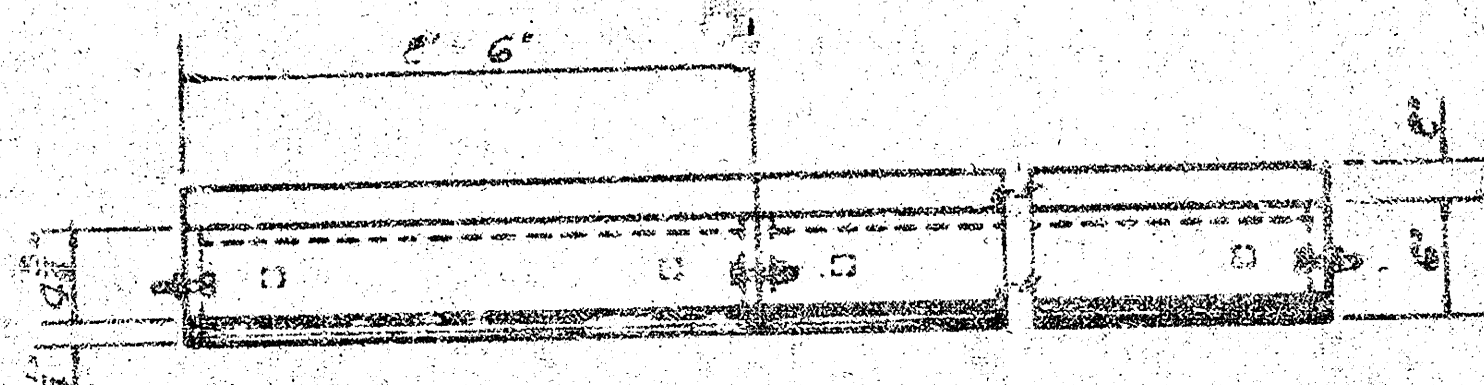


SECTION G-G



ELEVATION

TYPES A5-1, A7.5-1 & A10-1



PLAN

TYPES A5-1, A7.5-1 & A10-1

Weight: 129 Lbs. per 2'-6" section

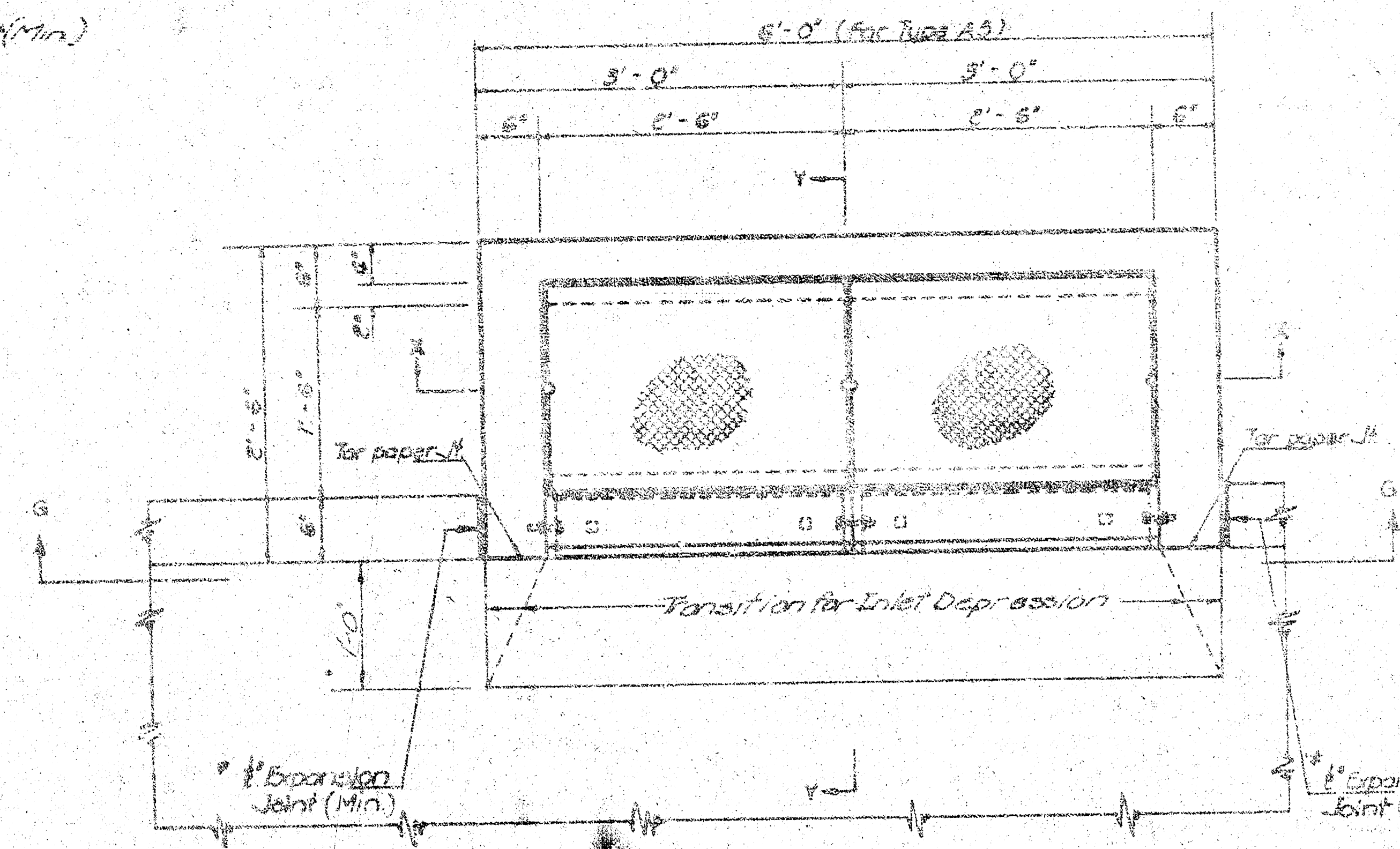
DETAILS OF CURB CASTING (IRON)

**NOTE:** All bolts and nuts shall be galvanized and meet the requirements of sub-section 1006.14 of the Standard Specifications. All weights of castings are calculated weights with no allowance for fillets, overruns, anchor bars and bolts. Weights of cast iron as shown on this sheet are minimum. Heavier weights of cast iron may be used, but payment for cast iron shall be made on the weight as shown on this sheet. Minor variations of design will be permitted on castings.

Note: All castings shall be gray iron and shall comply with ASTM A-48 Class 25.3.

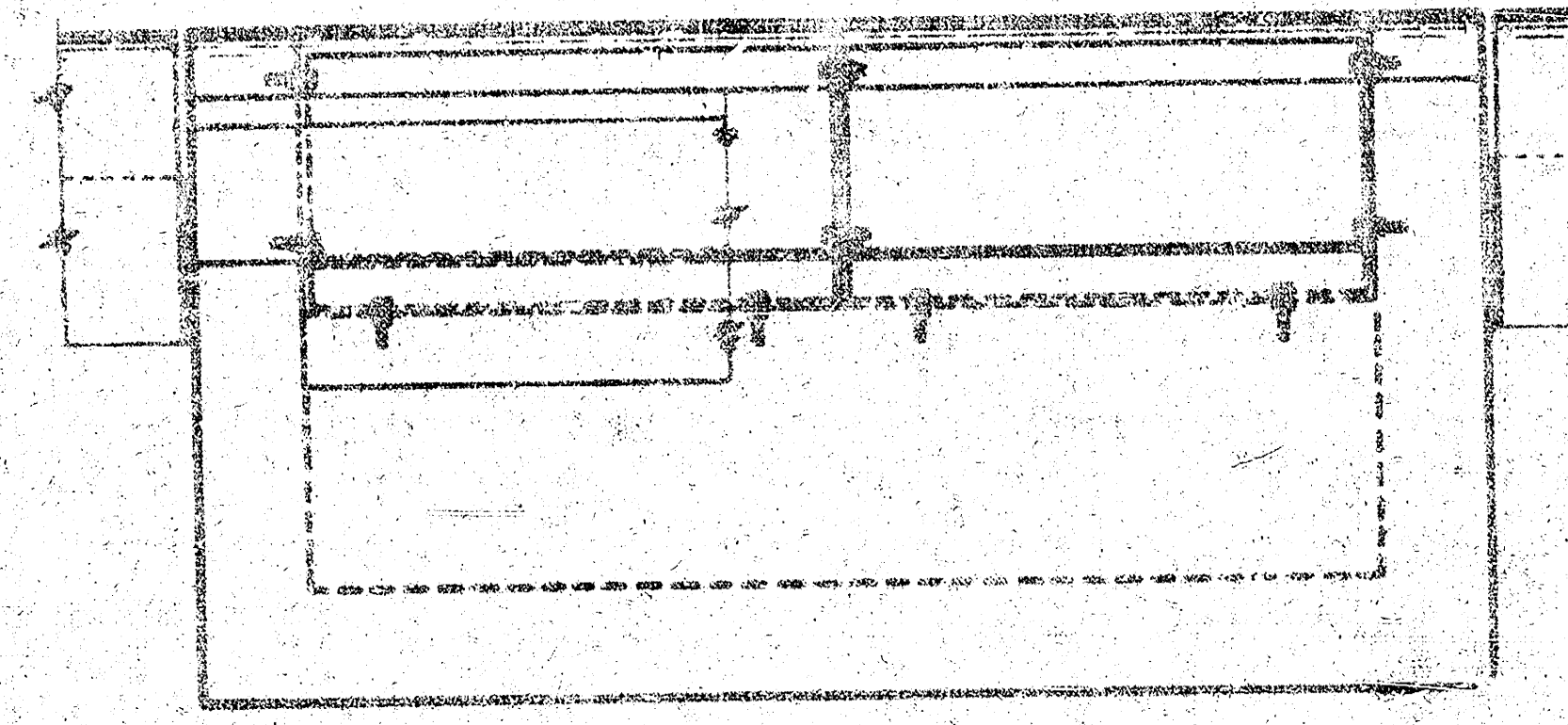
Note: Use Class A Concrete throughout. Bevel all exposed edges with a 3/4" triangular moulding. Reinforcing bars shall be bent around pipe. No deductions in concrete quantities shall be made for pipe openings.

At the contractor's option Class A Concrete (A5) may be used throughout, but payment shall be made as for Class A Concrete miscellaneous. A small opening may be required in the back of the inlet to drain a low area, if ordered by the

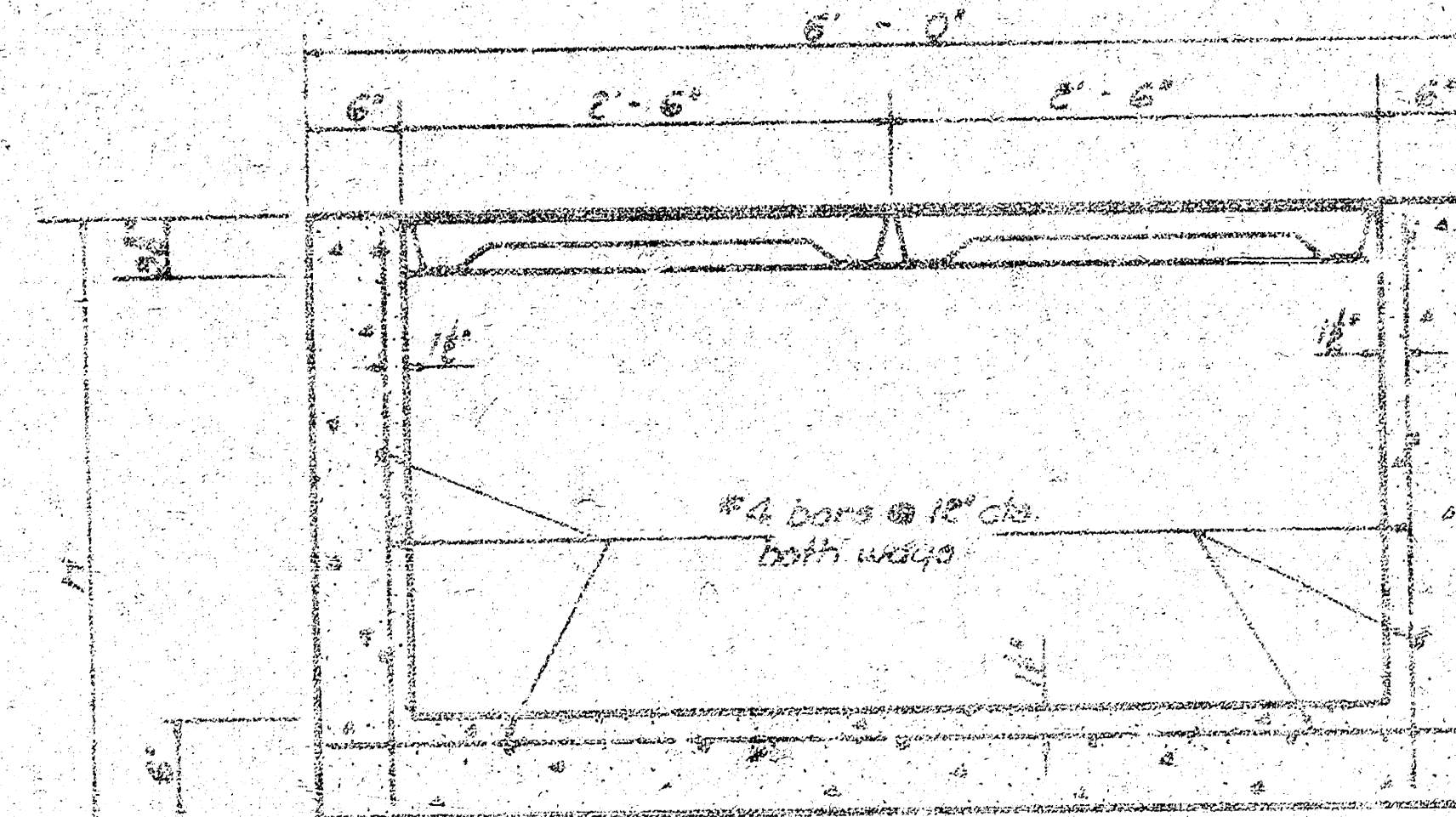


PLAN

\* Hot or cold poured joint sealing compound, or Premoulded Exp. Jt. Filler (Non-extruding, Type B).

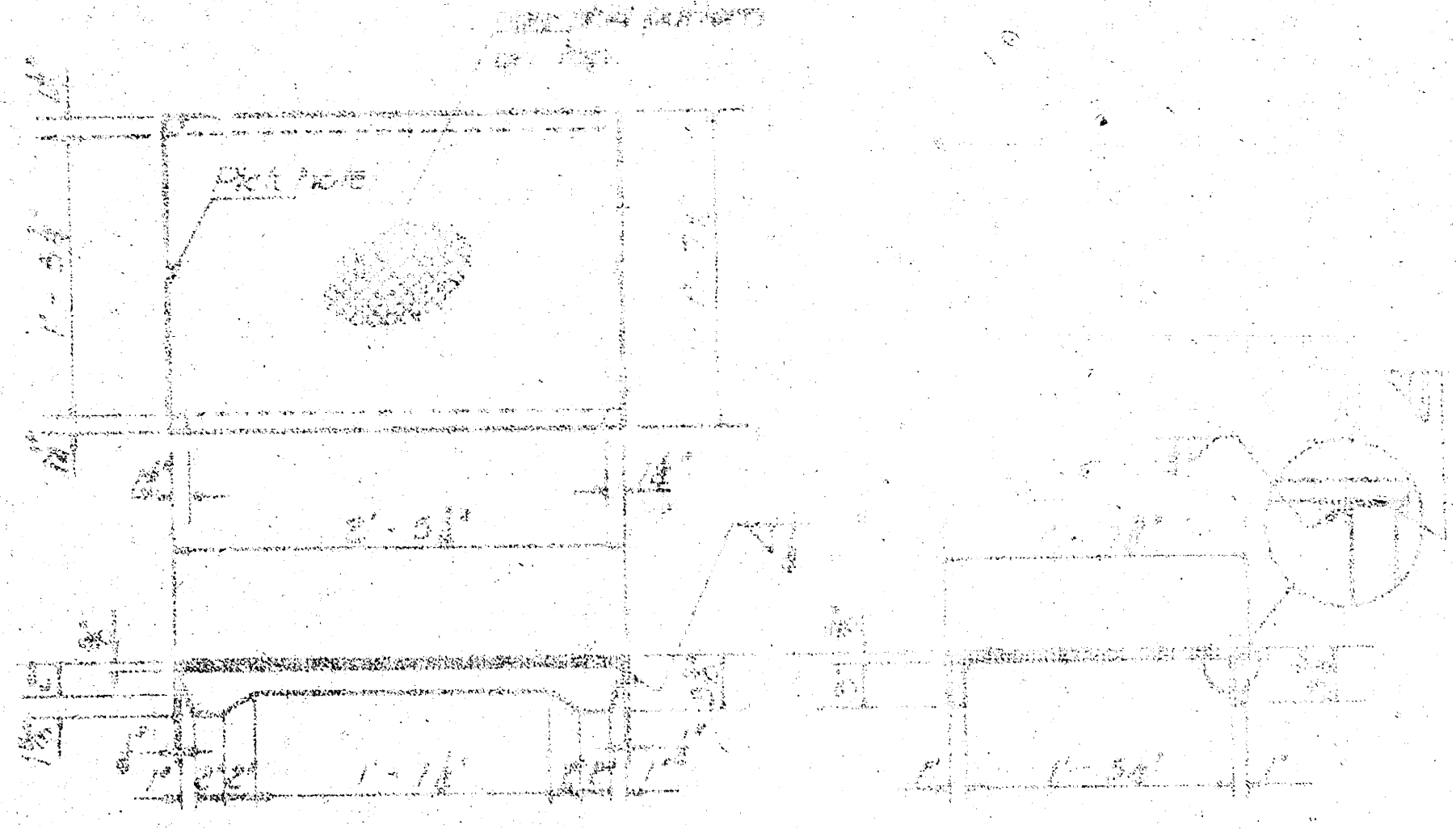


FRONT ELEVATION



SECTION X-X

Engineer. Reinforcing bars will extend through the opening. No deduction in concrete quantities will be made for this opening. When so ordered by the Engineer the top of the inlet shall be sloped slightly to approximately fit the ground line or other conditions. Structural steel cover plate and all exposed cast iron surfaces shall be painted either in the shop or in the field with one coat of a zinc dust paint, followed by two field coats of aluminum paint.

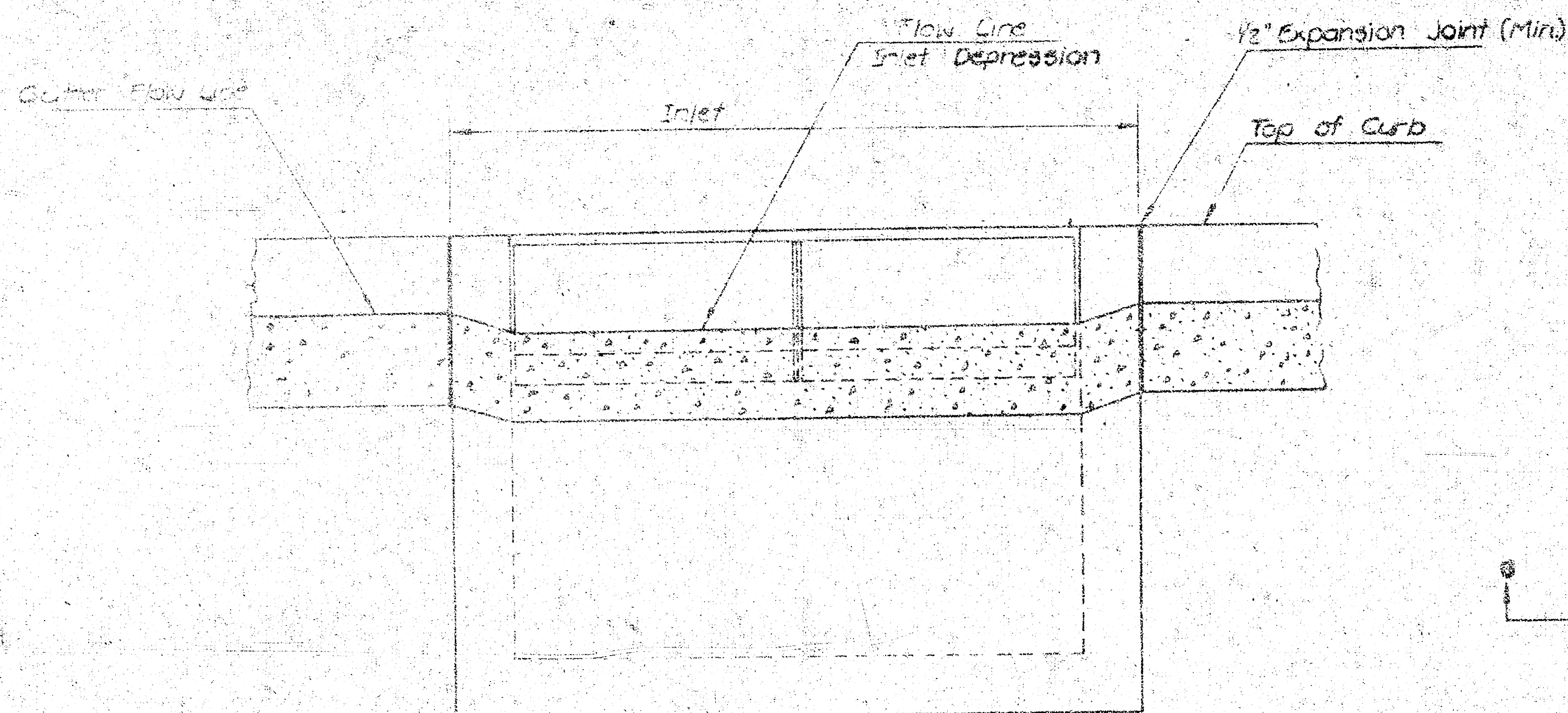


SECTION Y-Y

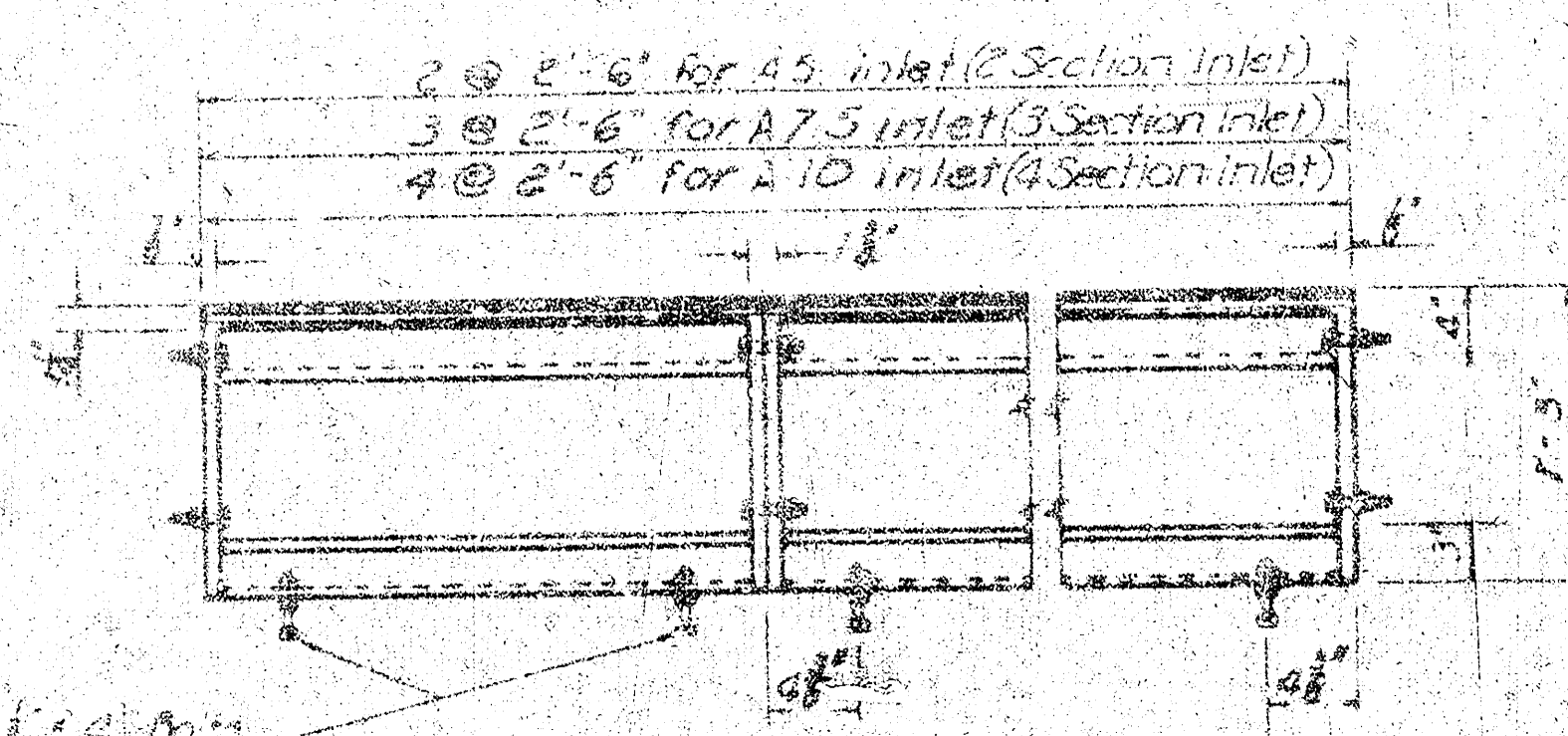
**NOTE:** See this sheet for shaping of depression at inlet. This work shall be paid for as 'Concrete Movement'. Floor of inlet shall be shaped to conform with 'EXAMPLES' on Reinforced Concrete, Warholes Standard No. 633. Concrete used for shaping shall be unreinforced Class 'A' concrete. No addition in concrete quantities shall be made for shaping floor of inlets.

STATE HIGHWAY COMMISSION OF ILLINOIS

SPECIAL TYPE A CURB INLET

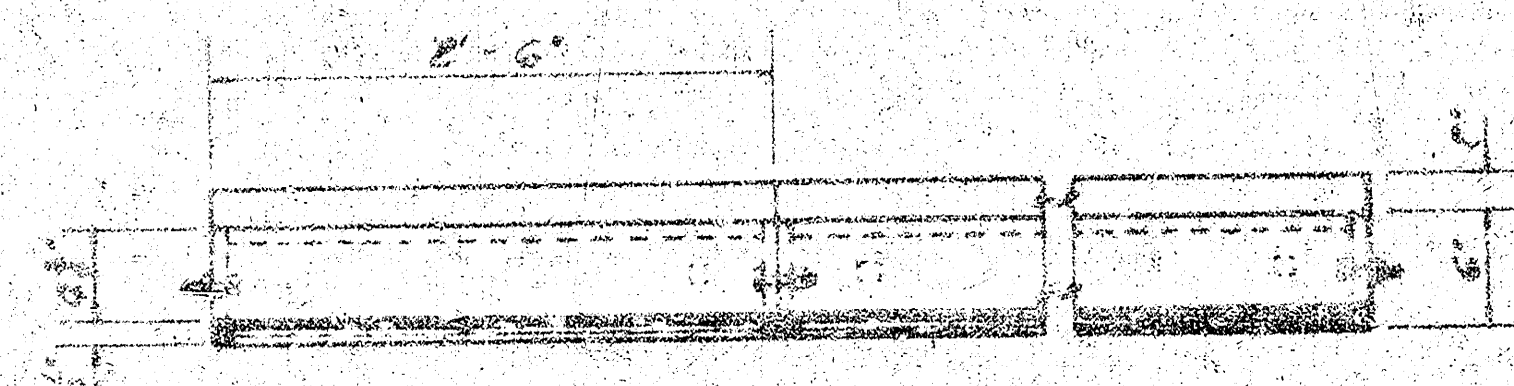


SECTION G-G



ELEVATION

TYPE A5



9. 4. 4

7425 A 5

Weight = 129 lbs. per 2'-8" section

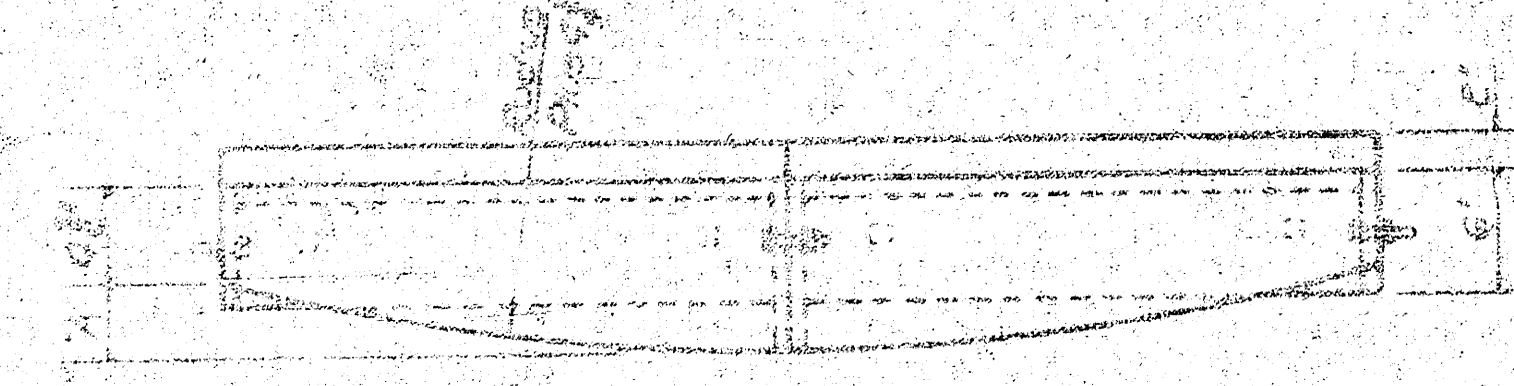
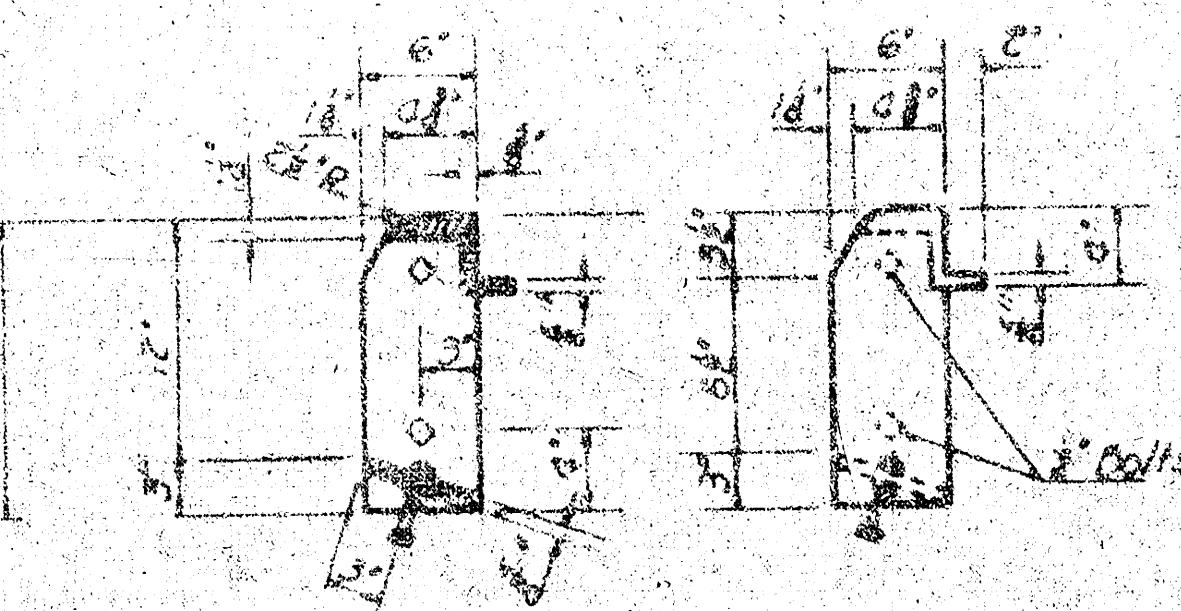


Figure 1

TYPE A 5-2 SHOWN

Height - See Tables Below.

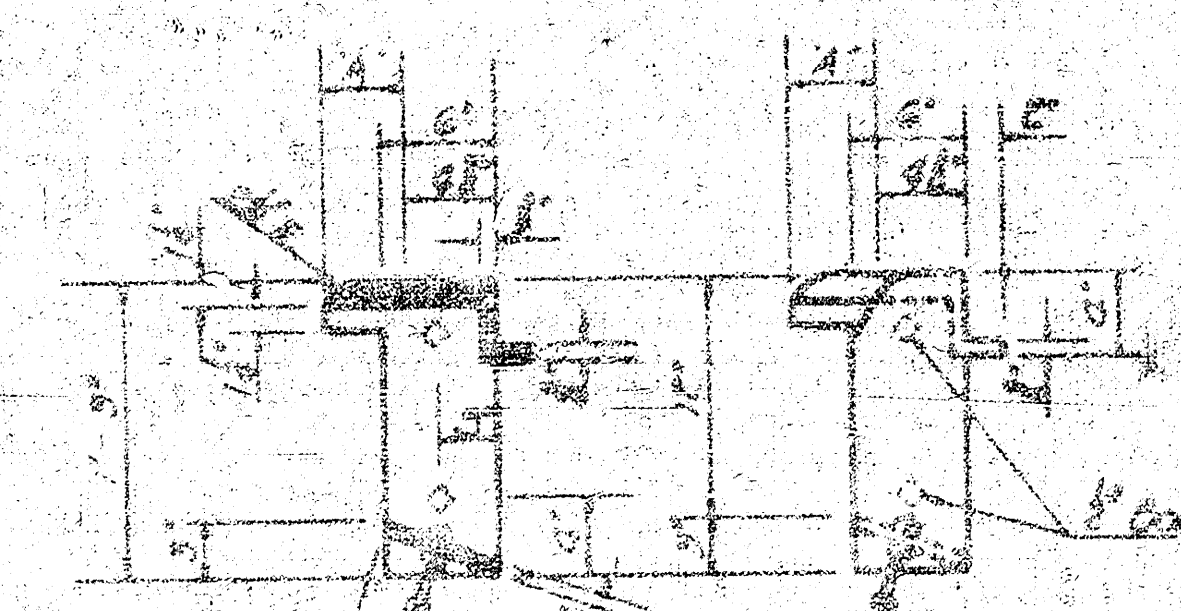


## SECTION

END VIEW

TYPE A5-1

NOTE: All bolts and nuts shall be galvanized and meet the requirements of sub-section U15-2 of the 1966 Specifications.

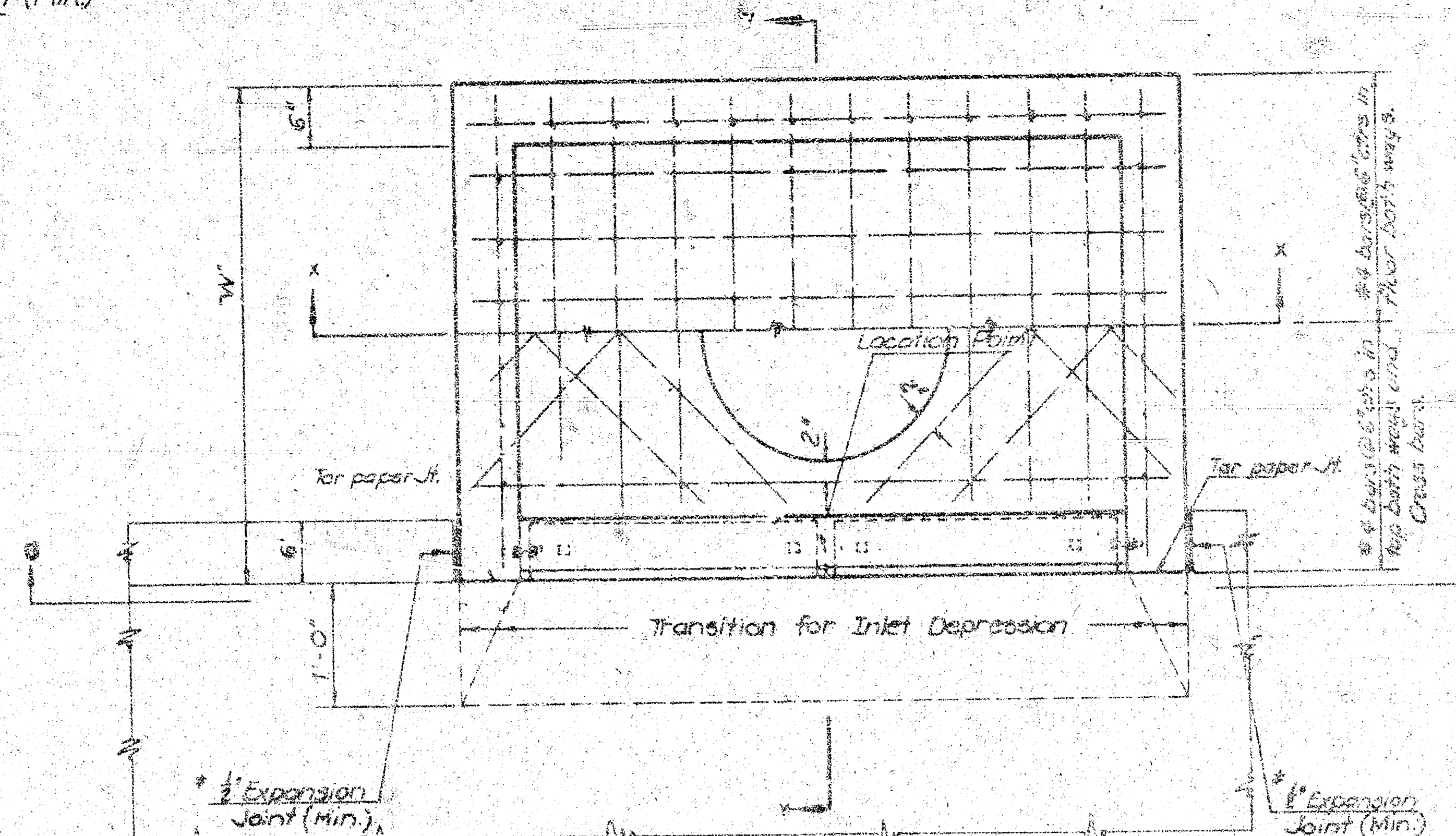


## NOTES

END VIEW

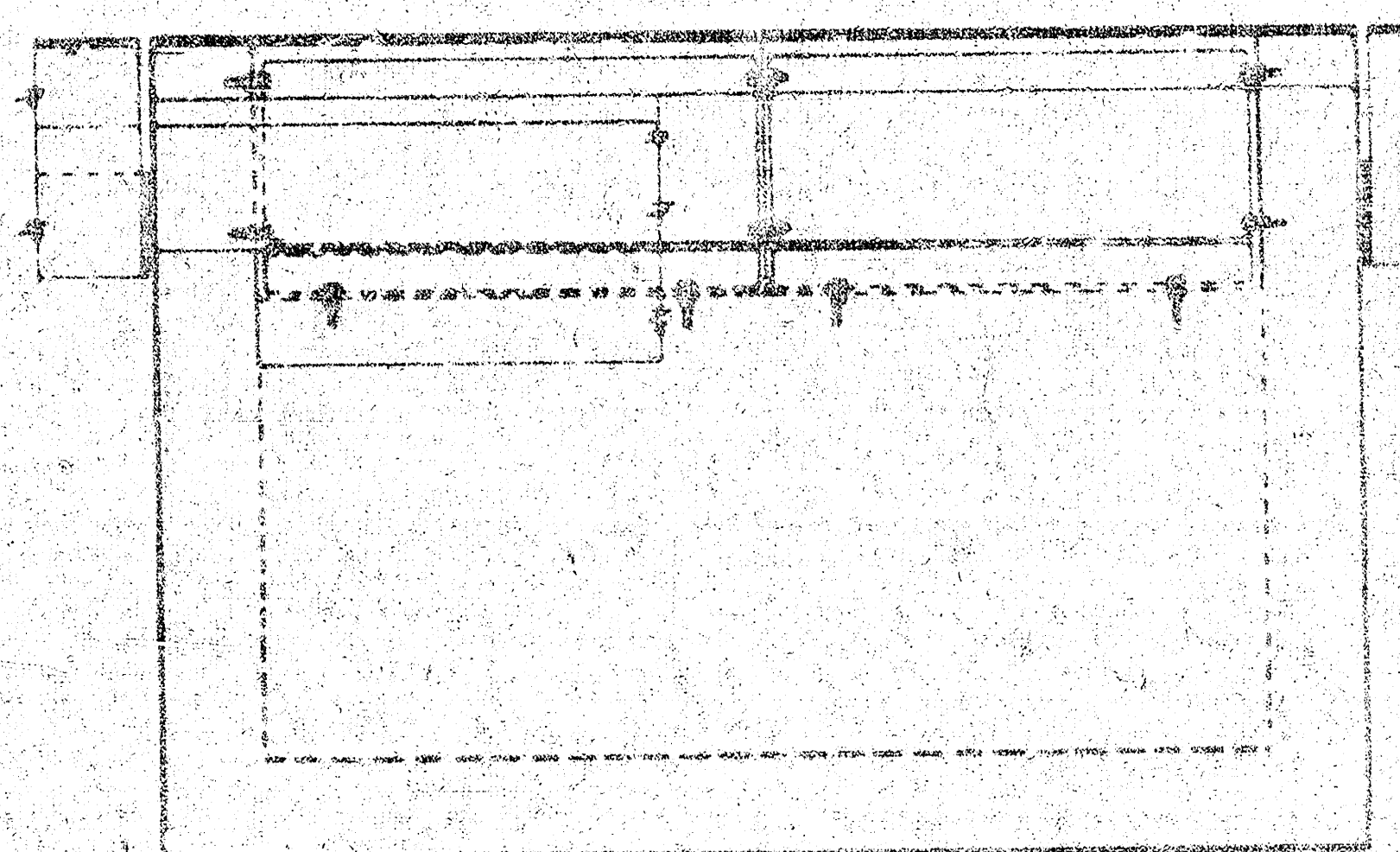
TYPE 45-26

Note: All castings shall be gray iron and shall comply with ASTM A-48 Class 253.

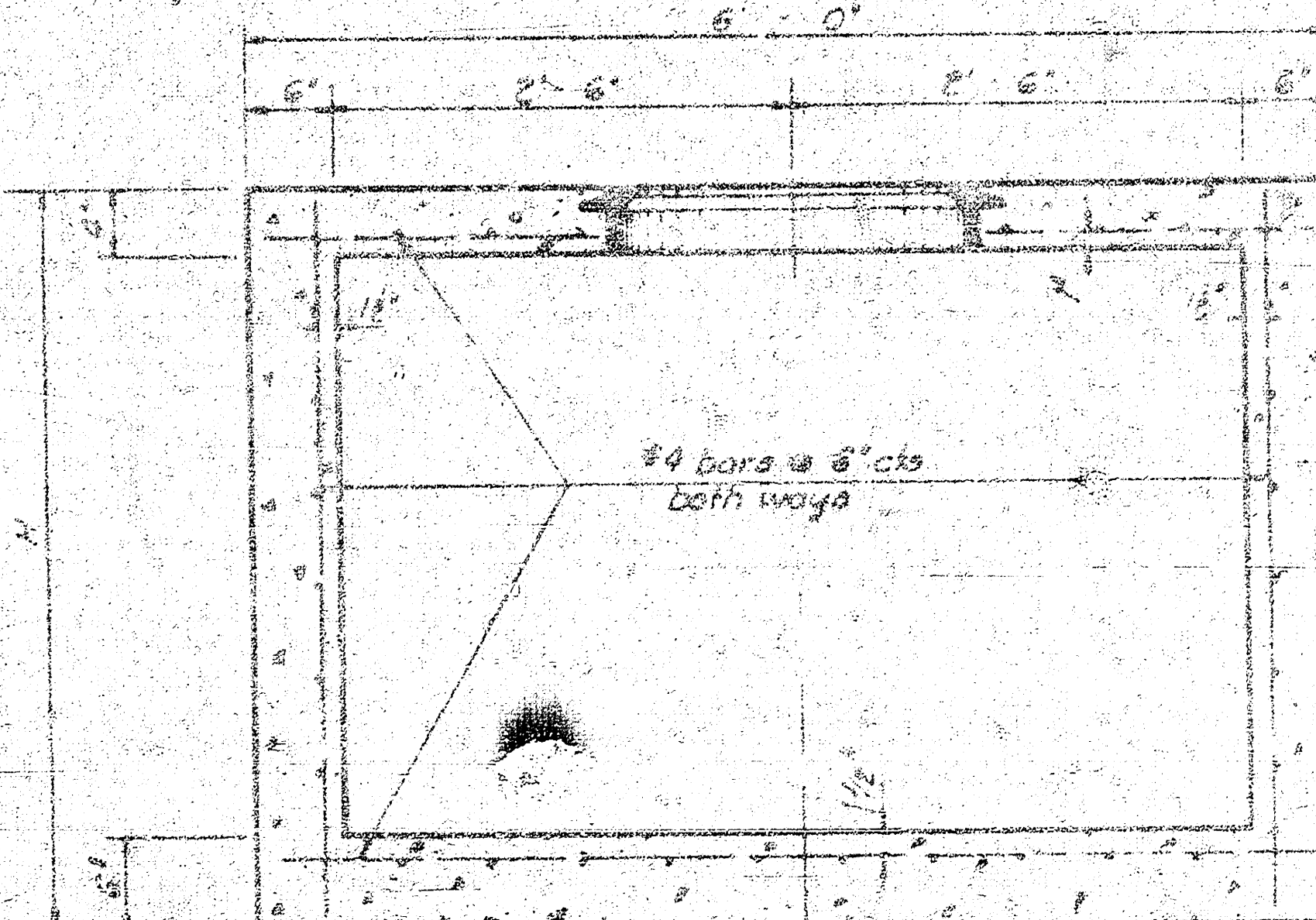


## PLAN

- \* Hot or cold poured joint sealing compound, or  
Pre-moulded Exp. Jt. Filler (Nonextruding,  
Type B).



FRONT ELEVATION



SECTION X-X

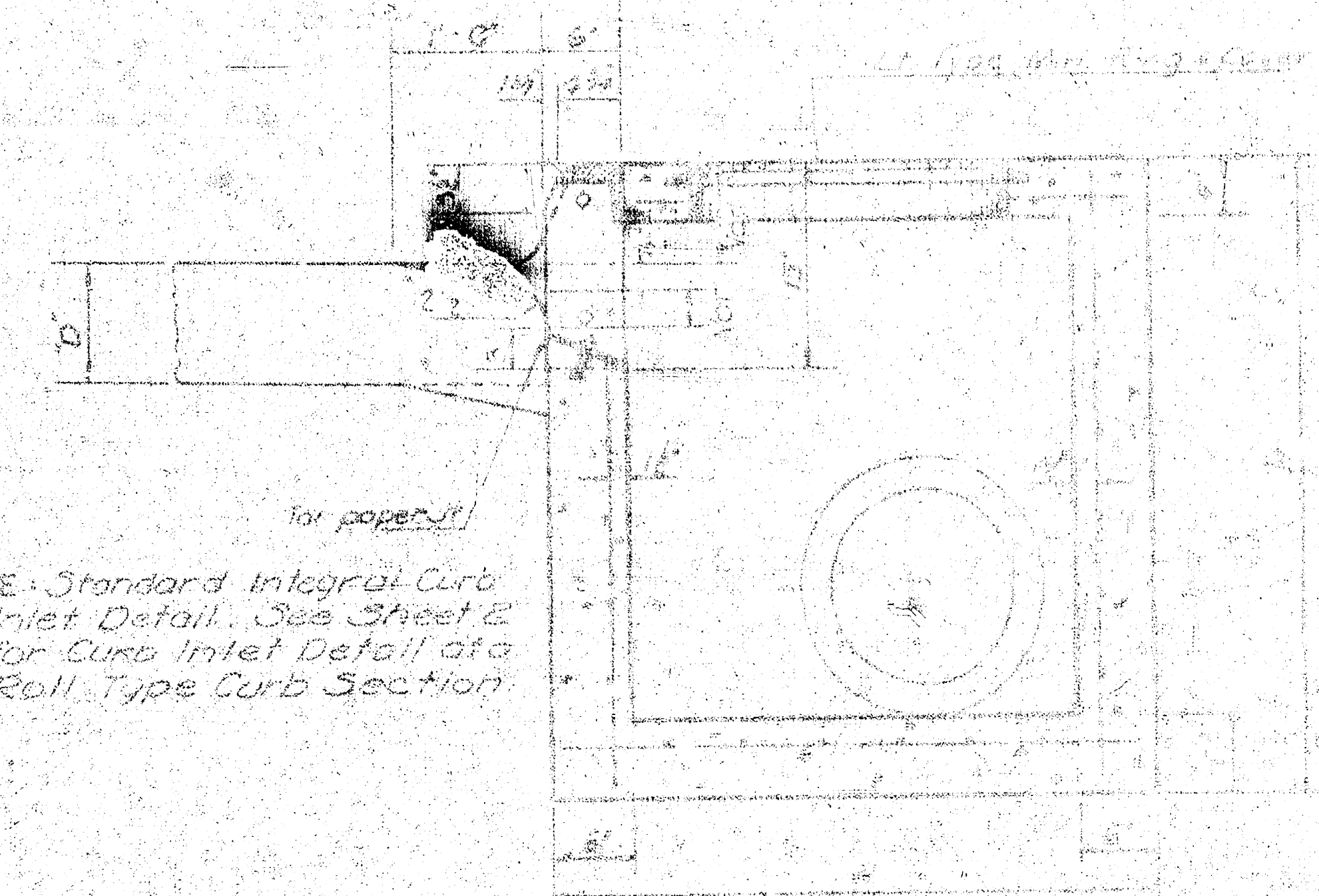
Note: Use Class A concrete throughout.  
Bevel all exposed edges with a  
triangular moulding.  
Reinforcing bars shall be bent around  
pipe.  
No deductions in concrete quantities  
shall be made for pipe openings.

At the contractor's option, Class A Concrete may be used throughout the entire structure, as made in the field or in the plant. Reinforcing steel opening may be required in the deck of the pier to draw down grids, if necessary, as directed by the Engineer. Reinforcing bars will extend through the opening. No deductions in concrete quantities will be made for this opening.

When so ordered by the Engineer the top of this inlet shall be sloped slightly to approximately 1% of the ground line or other condition.

All exposed cast iron surfaces should be painted either in the shop or in the field with one coat of a zinc dust paint, followed by two field coats of aluminum paint.

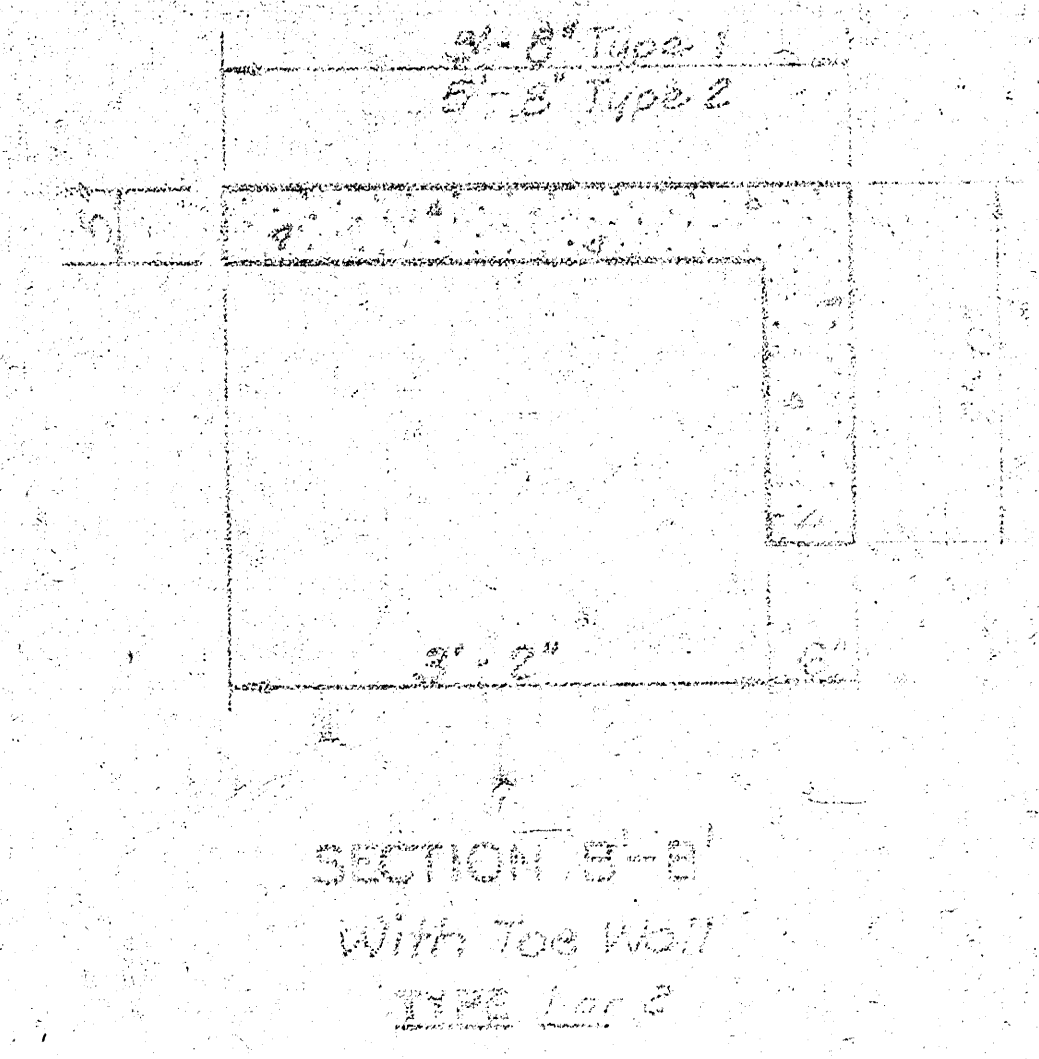
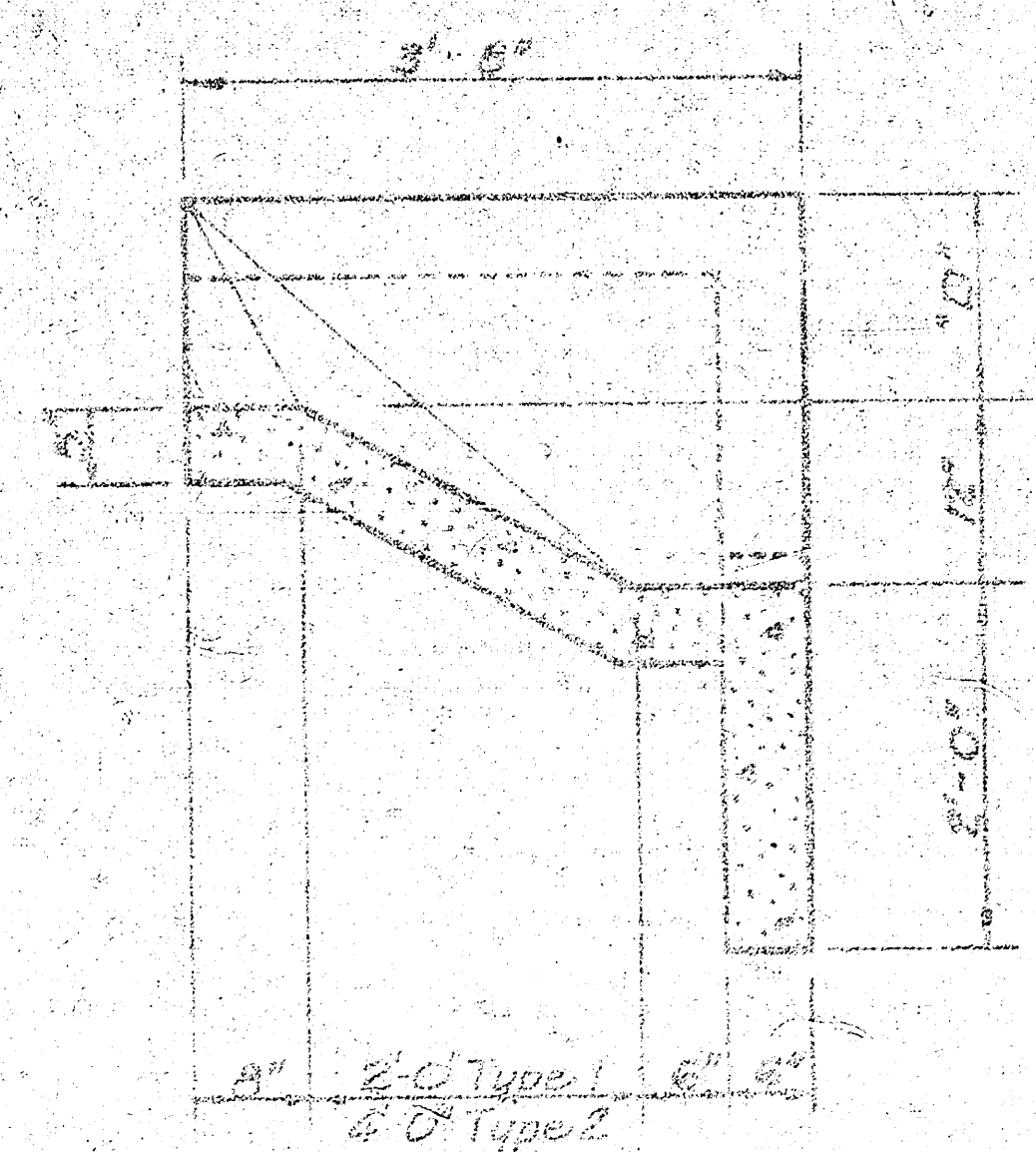
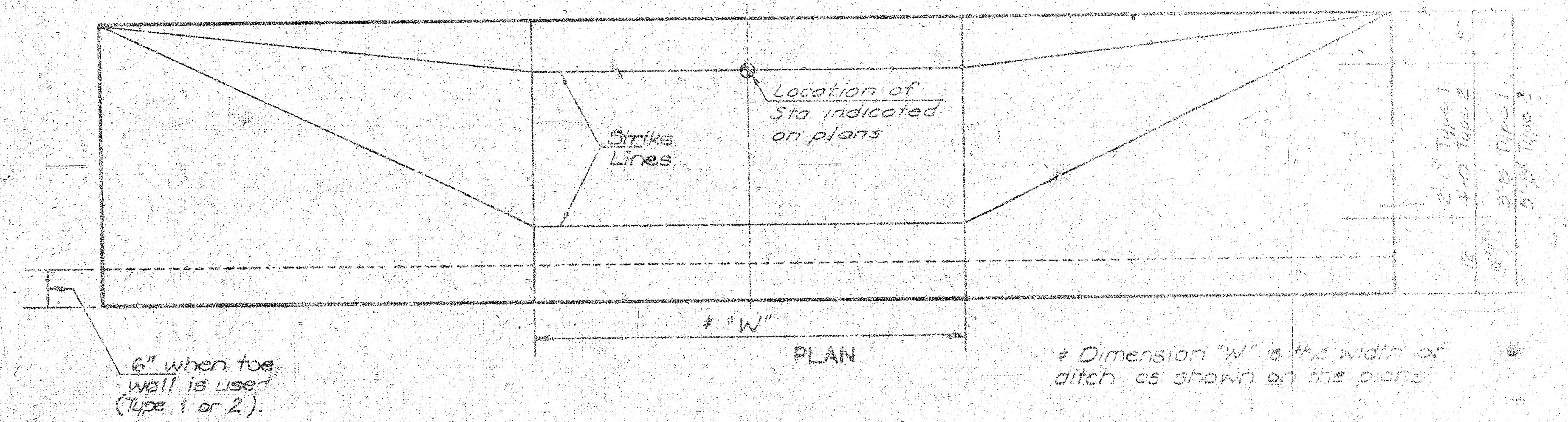
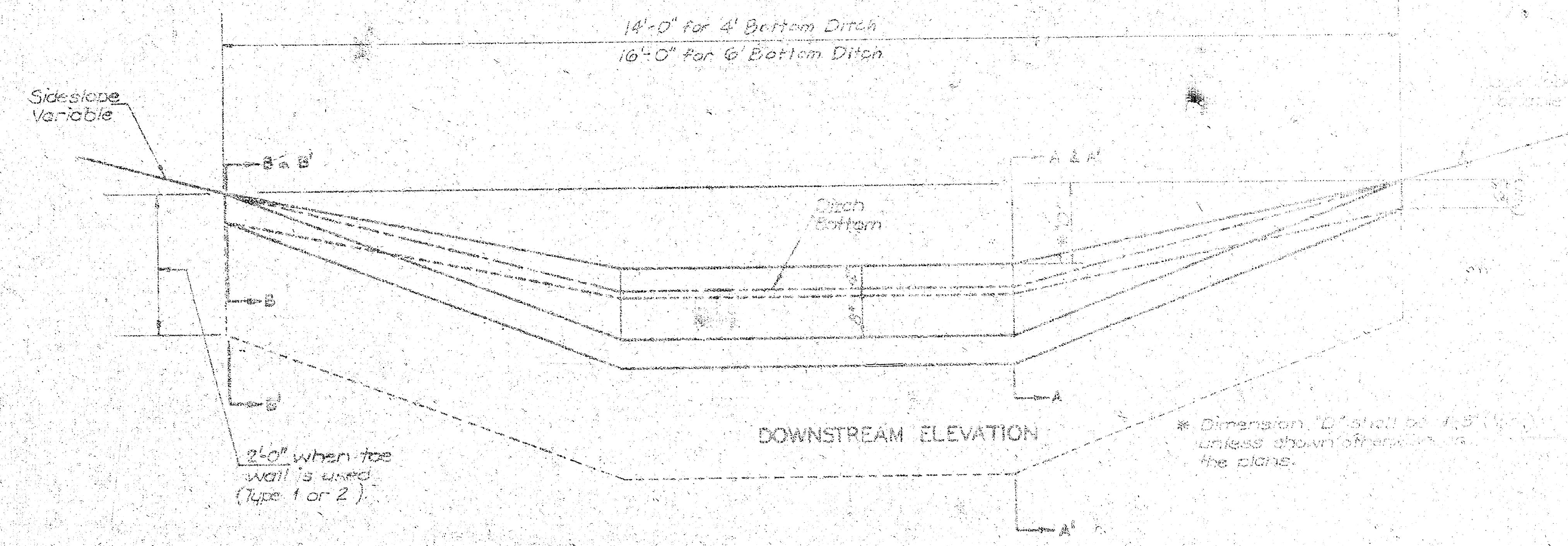
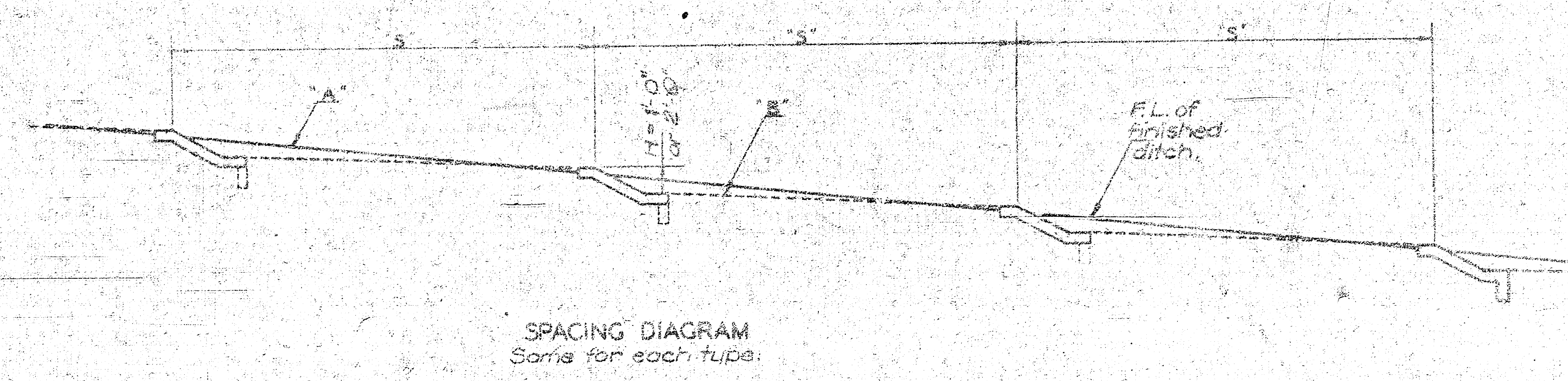
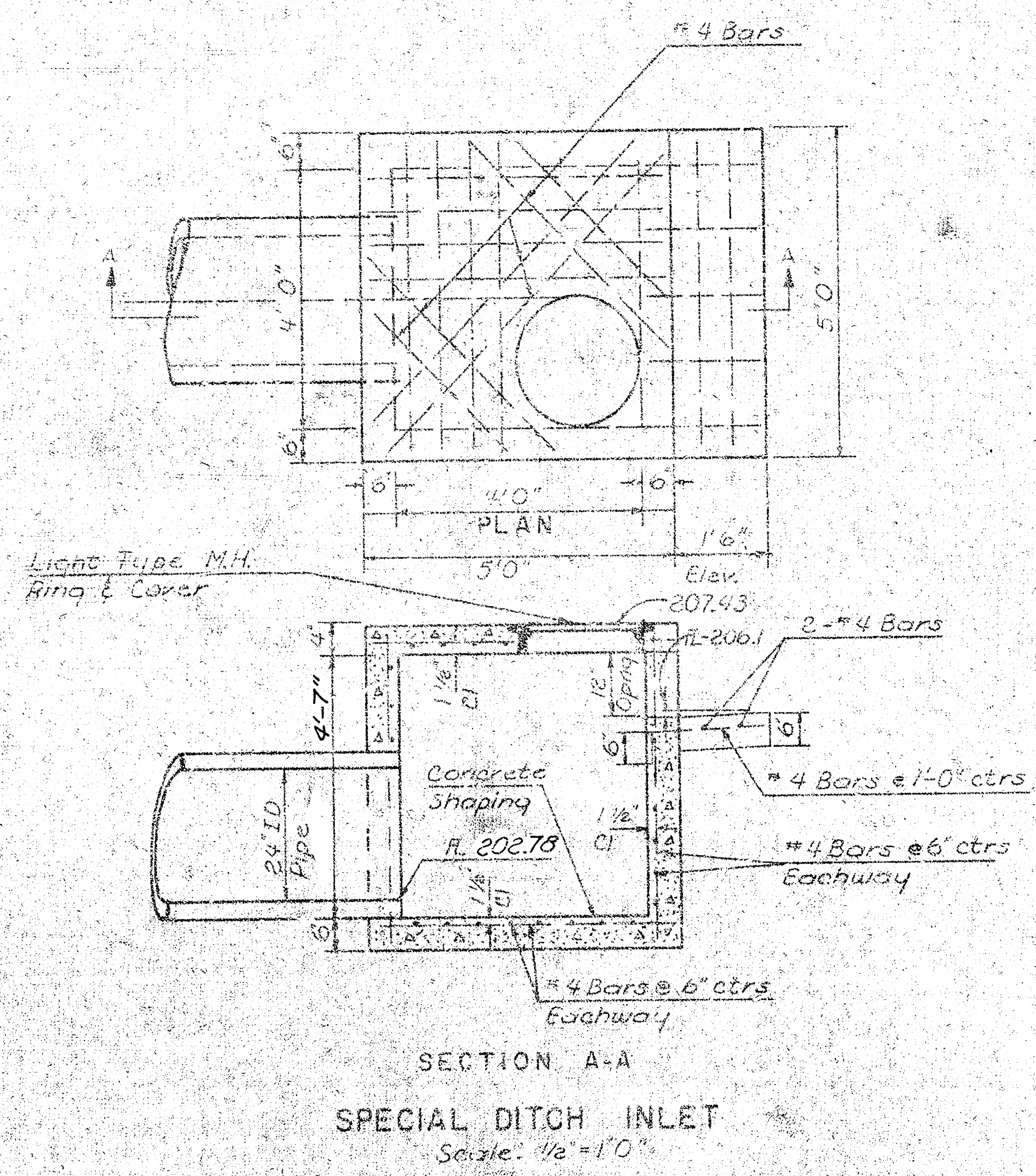
No substitutions of design will be permitted on coatings.



NOTE - Standard Integral Curb  
Inlet Detail. See Sheet 2  
for Curb Inlet Detail at a  
Roll Type Curb Section

[illegible][illegible]

SPECIAL TYPE  
COMBINED FLET-MANTOL



|                                               |     |
|-----------------------------------------------|-----|
| STATE HIGHWAY COMMISSION OF KANSAS            |     |
| WASH CHECKS TYPE 1 & 2<br>SPECIAL DITCH INLET |     |
| DESIGN NO.                                    | 21  |
| DATE                                          | 3/3 |
| DESIGNED BY                                   | SAK |
| CHECKED BY                                    |     |
| APPROVED BY                                   |     |

35th St North - Sta. 11+88 to Sta. 16+79.18 - Lt. Curb  
 $\Delta = 54^{\circ}22'46''$  R = To BkCb, T = 281.16' L = 519.45'

| Curve Data Based on 547.31'R $\Delta/2 = 27^{\circ}11'23''$ |       |                            |            |                  |  |
|-------------------------------------------------------------|-------|----------------------------|------------|------------------|--|
| Sta.                                                        | E Arc | Chord Length<br>7.5'Lt.BC. | Deflection | Total Deflection |  |
| 11+88                                                       |       |                            |            |                  |  |
| 12+00                                                       | 12.00 | 13.00                      | 0°40'18"   | 0°40'18"         |  |
| 12+25                                                       | 25.00 | 27.09                      | 1°23'58"   | 2°04'16"         |  |
| 12+50                                                       | 25.00 | 27.09                      | 1°23'58"   | 3°28'13"         |  |
| 12+75                                                       | 25.00 | 27.09                      | 1°23'58"   | 4°52'11"         |  |
| 13+00                                                       | 25.00 | 27.09                      | 1°23'58"   | 6°16'09"         |  |
| 13+25                                                       | 25.00 | 27.09                      | 1°23'58"   | 7°40'06"         |  |
| 13+50                                                       | 25.00 | 27.09                      | 1°23'58"   | 9°04'04"         |  |
| 13+75                                                       | 25.00 | 27.09                      | 1°23'58"   | 10°28'01"        |  |
| 14+00                                                       | 25.00 | 27.09                      | 1°23'58"   | 11°51'29"        |  |
| 14+25                                                       | 25.00 | 27.09                      | 1°23'58"   | 13°15'57"        |  |
| 14+50                                                       | 25.00 | 27.09                      | 1°23'58"   | 14°39'54"        |  |
| 14+75                                                       | 25.00 | 27.09                      | 1°23'58"   | 16°03'52"        |  |
| 15+00                                                       | 25.00 | 27.09                      | 1°23'58"   | 17°27'50"        |  |
| 15+25                                                       | 25.00 | 27.09                      | 1°23'58"   | 18°51'47"        |  |
| 15+37                                                       | 12.00 | 13.00                      | 0°40'18"   | 19°32'05"        |  |
| 15+50                                                       | 13.00 | 14.09                      | 0°43'40"   | 20°15'45"        |  |
| 15+75                                                       | 25.00 | 27.09                      | 1°23'58"   | 21°39'43"        |  |
| 16+00                                                       | 25.00 | 27.09                      | 1°23'58"   | 23°03'40"        |  |
| 16+25                                                       | 25.00 | 27.09                      | 1°23'58"   | 24°27'38"        |  |
| 16+50                                                       | 25.00 | 27.09                      | 1°23'58"   | 25°51'35"        |  |
| 16+73.76                                                    | 23.76 | 25.75                      | 1°19'48"   | 27°11'23"        |  |

35th St North - Sta. 11+88 to Sta. 15+37.16 - Rt. Curb  
 $\Delta = 39^{\circ}05'14''$  R = To BkCb, T = 169.08' L = 324.94'

| Curve Data Based on 476.31'R $\Delta/2 = 19^{\circ}32'37''$ |       |                            |            |                  |  |
|-------------------------------------------------------------|-------|----------------------------|------------|------------------|--|
| Sta.                                                        | E Arc | Chord Length<br>7.5'Rt.BC. | Deflection | Total Deflection |  |
| 11+88                                                       |       |                            |            |                  |  |
| 12+00                                                       | 12.00 | 10.99                      | 0°40'18"   | 0°40'18"         |  |
| 12+25                                                       | 25.00 | 22.89                      | 1°23'58"   | 2°04'16"         |  |
| 12+50                                                       | 25.00 | 22.89                      | 1°23'58"   | 3°28'13"         |  |
| 12+75                                                       | 25.00 | 22.89                      | 1°23'58"   | 4°52'11"         |  |
| 13+00                                                       | 25.00 | 22.89                      | 1°23'58"   | 6°16'09"         |  |
| 13+25                                                       | 25.00 | 22.89                      | 1°23'58"   | 7°40'06"         |  |
| 13+50                                                       | 25.00 | 22.89                      | 1°23'58"   | 9°04'04"         |  |
| 13+75                                                       | 25.00 | 22.89                      | 1°23'58"   | 10°28'01"        |  |
| 14+00                                                       | 25.00 | 22.89                      | 1°23'58"   | 11°51'29"        |  |
| 14+25                                                       | 25.00 | 22.89                      | 1°23'58"   | 13°15'57"        |  |
| 14+50                                                       | 25.00 | 22.89                      | 1°23'58"   | 14°39'54"        |  |
| 14+75                                                       | 25.00 | 22.89                      | 1°23'58"   | 16°03'52"        |  |
| 15+00                                                       | 25.00 | 22.89                      | 1°23'58"   | 17°27'50"        |  |
| 15+25                                                       | 25.00 | 22.89                      | 1°23'58"   | 18°51'47"        |  |
| 15+37.16                                                    | 12.16 | 11.13                      | 0°40'50"   | 19°32'37"        |  |

35th St North - Sta. 16+80.96 to Sta. 17+39.97 - Rt. Curb  
 $\Delta = 5^{\circ}54'47''$  R = To BkCb, T = 29.59' L = 59.13'

| Curve Data Based on 572.96'R $\Delta/2 = 2^{\circ}57'23.5''$ |          |                            |            |                  |  |
|--------------------------------------------------------------|----------|----------------------------|------------|------------------|--|
| BkCb Sta.                                                    | BkCb Arc | Chord Length<br>7.5'Rt.BC. | Deflection | Total Deflection |  |
| 16+80.96                                                     |          |                            |            |                  |  |
| 17+00                                                        | 19.16    | 18.90                      | 0°57'29"   | 0°57'29"         |  |
| 17+25                                                        | 25.00    | 24.67                      | 1°15'00"   | 2°12'29"         |  |
| 17+39.97                                                     | 14.97    | 14.77                      | 0°44'55"   | 2°57'23.5"       |  |

35th St North - Sta. 16+79.18 to Sta. 17+72.58 - Lt. Curb  
 $\Delta = 9^{\circ}52'55''$  R = To BkCb, T = 49.53' L = 98.82'

| Curve Data Based on 572.96'R $\Delta/2 = 4^{\circ}56'27.5''$ |          |                            |            |                  |  |
|--------------------------------------------------------------|----------|----------------------------|------------|------------------|--|
| BkCb Sta.                                                    | BkCb Arc | Chord Length<br>7.5'Lt.BC. | Deflection | Total Deflection |  |
| 16+73.76                                                     |          |                            |            |                  |  |
| 16+75                                                        | 1.24     | 1.22                       | 0°03'43"   | 0°03'43"         |  |
| 17+00                                                        | 25.00    | 24.67                      | 1°15'00"   | 1°18'43"         |  |
| 17+25                                                        | 25.00    | 24.67                      | 1°15'00"   | 2°33'43"         |  |
| 17+50                                                        | 25.00    | 24.67                      | 1°15'00"   | 3°48'43"         |  |
| 17+72.58                                                     | 22.58    | 22.28                      | 1°07'44"   | 4°56'27.5"       |  |

35th St North - Longford Dr. to East  
 $\Delta = 8^{\circ}21'04''$  R = 1432.40' T = 104.37' L = 208.78'

| Curve Data Based on 1432.40'R $\Delta/2 = 4^{\circ}10'33''$ |       |                            |            |            |                  |
|-------------------------------------------------------------|-------|----------------------------|------------|------------|------------------|
| Sta.                                                        | E Arc | Chord Length<br>7.5'Lt.BC. | 7.5'Rt.BC. | Deflection | Total Deflection |
| 1+67.02                                                     |       |                            |            |            |                  |
| 1+75                                                        | 7.98  | 7.82                       | 8.13       | 0°09'35"   | 0°09'35"         |
| 2+00                                                        | 25.00 | 24.51                      | 25.44      | 0°30'00"   | 0°39'35"         |
| 2+25                                                        | 25.00 | 24.51                      | 25.44      | 0°30'00"   | 1°09'35"         |
| 2+50                                                        | 25.00 | 24.51                      | 25.44      | 0°30'00"   | 1°39'35"         |
| 2+75                                                        | 25.00 | 24.51                      | 25.44      | 0°30'00"   | 2°09'35"         |
| 3+00                                                        | 25.00 | 24.51                      | 25.44      | 0°30'00"   | 2°39'35"         |
| 3+25                                                        | 25.00 | 24.51                      | 25.44      | 0°30'00"   | 3°09'35"         |
| 3+50                                                        | 25.00 | 24.51                      | 25.44      | 0°30'00"   | 3°39'35"         |
| 3+75                                                        | 25.00 | 24.51                      | 25.44      | 0°30'00"   | 4°09'35"         |
| 4+00                                                        | 0.80  | 0.79                       | 0.79       | 0°00'57"   | 4°10'32"         |

Capri Lane  
 $\Delta = 44^{\circ}47'09''$  R = 358.10' T = 147.55' L = 279.91'

| Curve Data Based on 358.10'R $\Delta/2 = 22^{\circ}23'45''$ |       |                            |            |            |                  |
|-------------------------------------------------------------|-------|----------------------------|------------|------------|------------------|
| Sta.                                                        | E Arc | Chord Length<br>7.5'Lt.BC. | 7.5'Rt.BC. | Deflection | Total Deflection |
| 19+22.36                                                    |       |                            |            |            |                  |
| 19+25                                                       | 2.64  | 2.84                       | 2.43       | 0°12'40"   | 0°12'40"         |
| 19+50                                                       | 25.00 | 26.94                      | 23.04      | 2°00'00"   | 2°12'40"         |
| 19+73.18                                                    | 23.18 | 24.98                      | 21.35      | 1°51'16"   | 4°03'56"         |
| 19+75                                                       | 1.82  | 1.96                       | 1.68       | 0°08'44"   | 4°12'40"         |
| 20+00                                                       | 25.00 | 24.98                      | 23.04      | 2°00'00"   | 6°12'40"         |
| 20+25                                                       | 25.00 | 24.98                      | 23.04      | 2°00'00"   | 8°12'40"         |
| 20+50                                                       | 25.00 | 24.98                      | 23.04      | 2°00'00"   | 10°12'40"        |
| 20+75                                                       | 25.00 | 24.98                      | 23.04      | 2°00'00"   | 12°12'40"        |
| 20+91.53                                                    | 16.53 | 17.82                      | 15.22      | 1°19'21"   | 13°32'01"        |
| 21+00                                                       | 8.47  | 9.13                       | 7.81       | 0°40'39"   | 14°12'40"        |
| 21+25                                                       | 25.00 | 24.98                      | 23.04      | 2°00'00"   | 16°12'40"        |
| 21+50                                                       | 25.00 | 24.98                      | 23.04      | 2°00'00"   | 18°12'40"        |
| 21+75                                                       | 25.00 | 24.98                      | 23.04      | 2°00'00"   | 20°12'40"        |
| 22+00                                                       | 25.00 | 24.98                      | 23.04      | 2°00'00"   | 22°12'40"        |
| 22+02.27                                                    | 2.27  | 2.45                       | 2.09       | 0°10'05"   | 22°23'45"        |

Longford Drive  
 $\Delta = 62^{\circ}48'51''$  R = 200.00' T = 122.11' L = 219.26'

| Curve Data Based on 200.00'R $\Delta/2 = 31^{\circ}04'25.5''$ |       |                            |            |            |                  |
|---------------------------------------------------------------|-------|----------------------------|------------|------------|------------------|
| Sta.                                                          | E Arc | Chord Length<br>7.5'Lt.BC. | 7.5'Rt.BC. | Deflection | Total Deflection |
| 3+24.34                                                       |       |                            |            |            |                  |
| 3+25                                                          | 0.66  | 0.56                       | 0.75       | 0°05'40"   | 0°05'40"         |
| 3+50                                                          | 25.00 | 21.48                      | 28.48      | 3°34'52"   | 3°40'32"         |
| 3+75                                                          | 25.00 | 21.48                      | 28.48      | 3°34'52"   | 7°15'23"         |
| 4+00                                                          | 25.00 | 21.48                      | 28.48      | 3°34'52"   | 10°50'15"        |
| 4+25                                                          | 25.00 | 21.48                      | 28.48      | 3°34'52"   | 14°25'07"        |
| 4+50                                                          | 25.00 | 21.48                      | 28.48      | 3°34'52"   | 17°59'58"        |
| 4+60.96                                                       | 10.96 | 2.42                       | 12.99      | 1°34'12"   | 19°34'10"        |
| 4+75                                                          | 14.04 | 12.52                      | 15.99      | 2°00'40"   | 21°34'50"        |
| 5+00                                                          | 25.00 | 21.48                      | 28.48      | 3°34'52"   | 25°09'41"        |
| 5+25                                                          | 25.00 | 21.48                      | 28.48      | 3°34'52"   | 28°44'33"        |
| 5+43.60                                                       | 18.60 | 15.98                      | 21.19      | 2°19'53"   | 31°24'25.5"      |

|                                           |                           |          |
|-------------------------------------------|---------------------------|----------|
| DESIGN                                    | COMOTARA BUSINESS PARK    |          |
| DR BY                                     | WICHITA, KANSAS           |          |
| CK BY                                     |                           |          |
| DATE                                      | CURVE STAKING INFORMATION |          |
| JOB NO                                    |                           |          |
| VAN DOREN-HAZARD-STALLINGS-SCHNACKE       |                           | SHEET 26 |
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