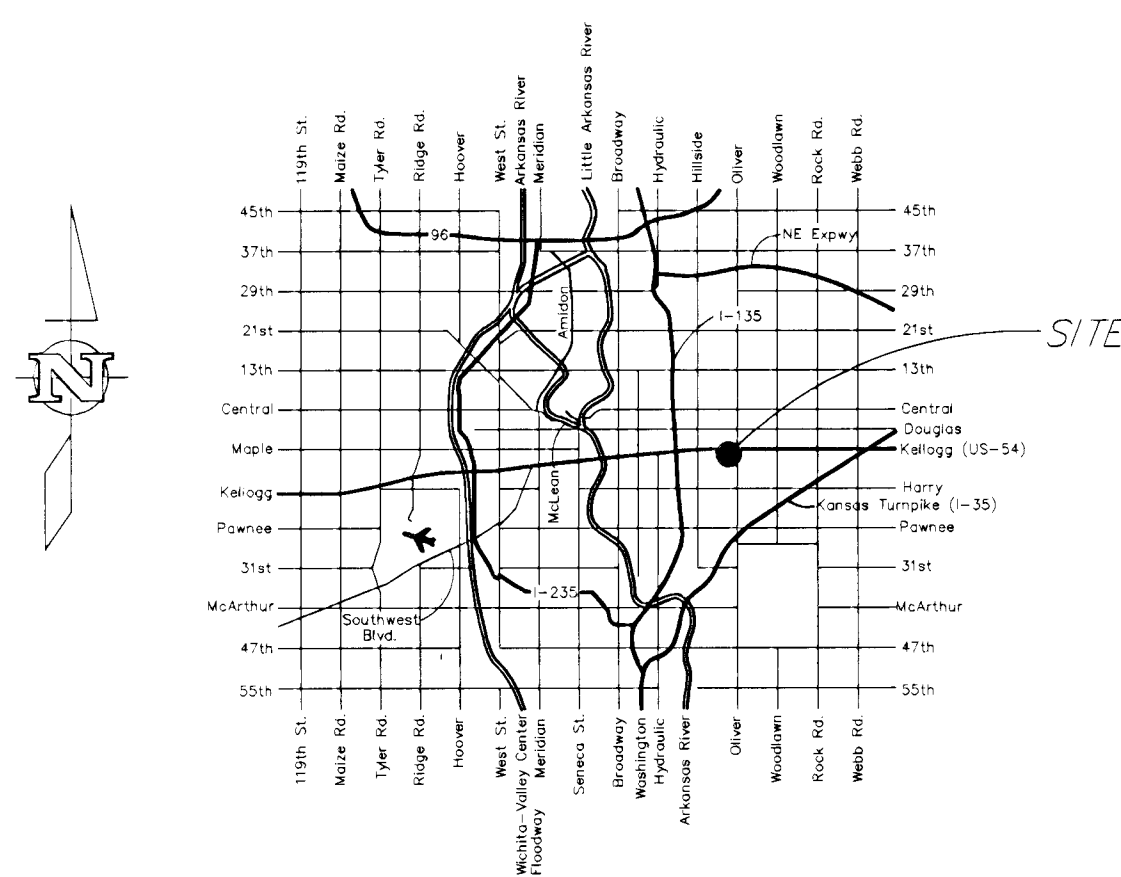


1. *Title Sheet*
2. *Typical Section – Pavement Details*
3. *Orme Street Plan & Profile*
4. *Dry Creek Plan & Profile*
5. *Stormwater Sewer Plan & Profile*
6. *Sanitary Sewer Plan & Profile*
7. *Valley Gutter Details*
8. *Inlet Details*
9. *Reinforced Concrete Manhole Details*
10. *Standard Manhole Details*
11. *Manhole Adjustment Details*
12. *Typical Section – Rip-Rap & Gabion Details*
13. *Triple 10'x9' RCBB*
14. *Wingwall Details*
15. *Auxiliary Box Details*
16. *Fencing Plan*
- 17–18. *Fencing Details*
- 19–20. *Channel Cross–Sections*
- 21–23. *Street Cross–Sections*



## Phase I

**472-83229**      **OCA 702314**

CITY OF WICHITA, KANSAS  
Michael E. Lindebak, P. E., City Engineer

Contractor will be required to provide notice to utility companies a minimum of twenty-four (24) hours prior to any excavation, as follows:

*Kansas One-Call*

*The Contractor must notify the following in case of an emergency:*

|                                            |                                   |
|--------------------------------------------|-----------------------------------|
| <i>Cablevision</i>                         | <i>262-4270 or 263-2061</i>       |
| <i>K.P.L. Gas Service Company</i>          | <i>383-8650</i>                   |
| <i>Kansas Gas &amp; Electric Company</i>   | <i>383-8600</i>                   |
| <i>Arkla Gas Company</i>                   | <i>942-8350</i>                   |
| <i>Southwestern Bell Telephone Company</i> | <i>1-571-2611</i>                 |
| <i>City of Wichita Water Department</i>    | <i>268-4908</i>                   |
| <i>City of Wichita Sewer Department</i>    | <i>268-4071</i>                   |
| <i>Kansas Gas Service</i>                  | <i>832-3168 or 832-3167</i>       |
| <i>Peoples Natural Gas</i>                 | <i>942-8811 or 1-800-303-0357</i> |

2. Existing utilities and their locations, as shown on the plans, represent the best information obtainable for design. Location information has been obtained from the various utility companies and is either from company record drawings or company-provided field locations. The Contractor will be required to work around existing utilities which do not conflict with proposed construction.

3. The Contractor to verify utility locations prior to construction of this project.

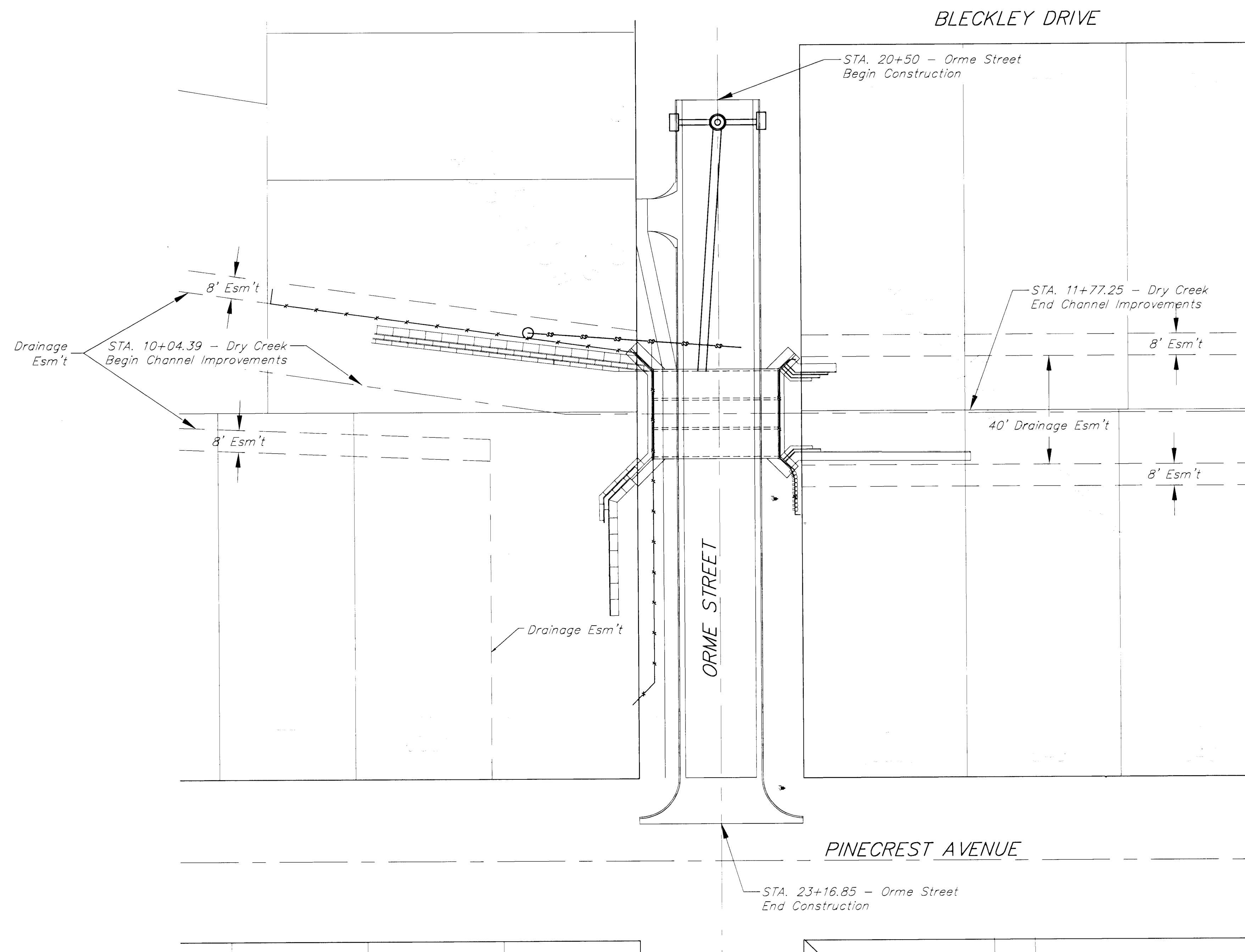
4. Utility service and installation shall be coordinated with the respective utility owners. Contacts are:

|                                                  |                 |
|--------------------------------------------------|-----------------|
| <i>Kansas Gas Service - James Stoltz</i>         | <i>831-3122</i> |
| <i>K.G.E. - Russ Chitwood</i>                    | <i>261-6251</i> |
| <i>Peoples Natural Gas - John Stark</i>          | <i>942-8811</i> |
| <i>Wichita Water - Paul Bryant, Bill Perkins</i> | <i>268-4555</i> |
| <i>Southwestern Bell - Jim Tobin</i>             | <i>268-2759</i> |
| <i>Multimedia Cablevision - Mark Anaya</i>       | <i>262-4270</i> |

5. All lawn/turf areas disturbed by construction of proposed improvements shall be restored with sod. All sodding work shall be in accordance with the City of Wichita standard specifications and the City of Wichita administrative regulation No. AR78 which governs cleanup and replacement following construction. All costs for this work shall be subsidiary to the lump sum price bid for "Site Restoration".

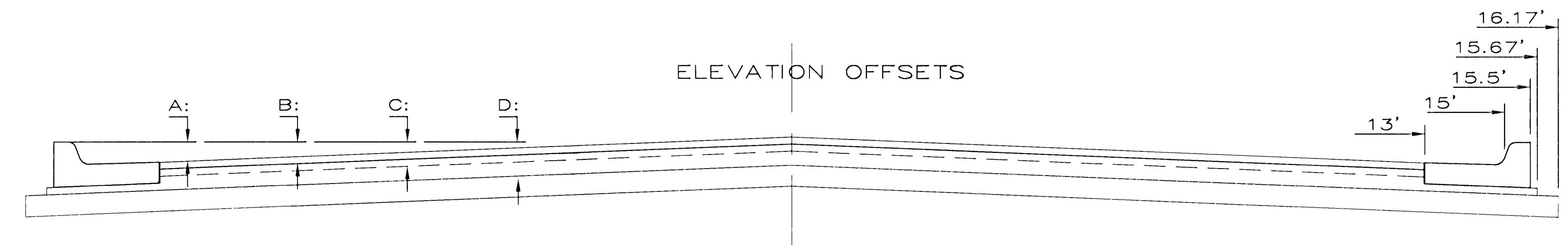
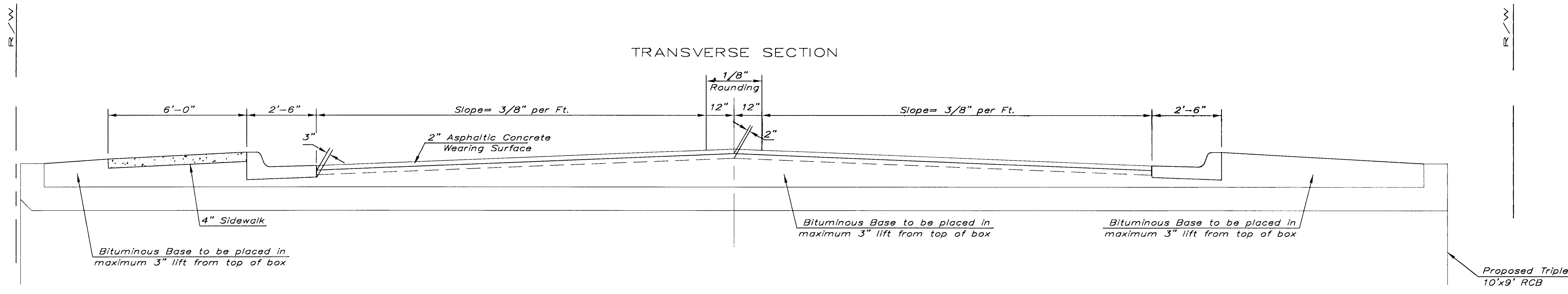
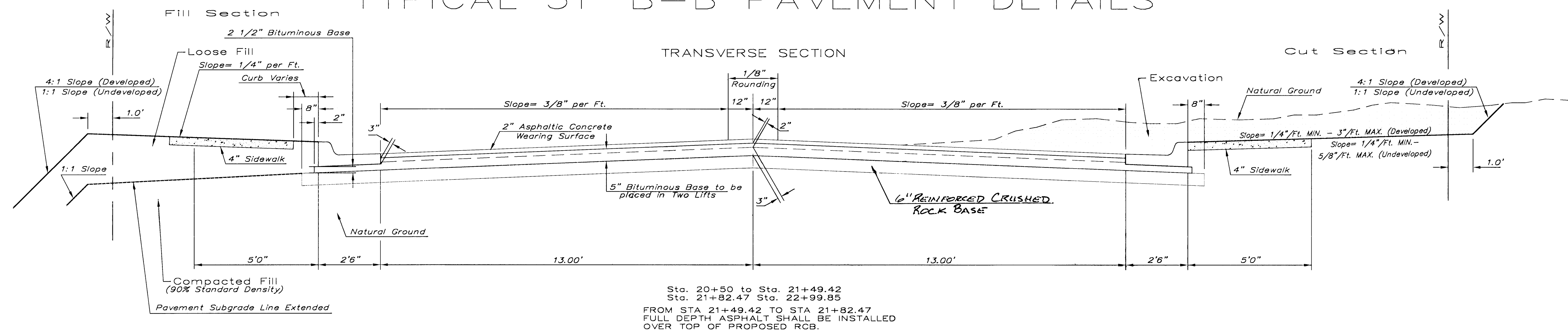
6. Traffic affected by the construction of this project shall be handled in accordance with the latest edition of the Manual on Uniform Traffic Control Devices.

7. The Contractor shall be responsible for preserving property irons. The Contractor will be required to re-establish any property irons which are damaged or destroyed by their construction operations. Such irons shall be re-established by a licensed land surveyor in accordance with state law.

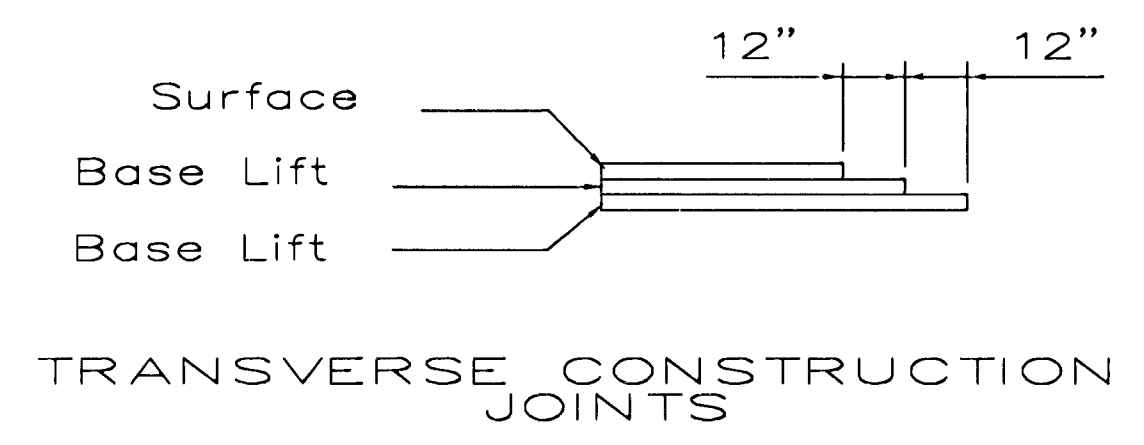
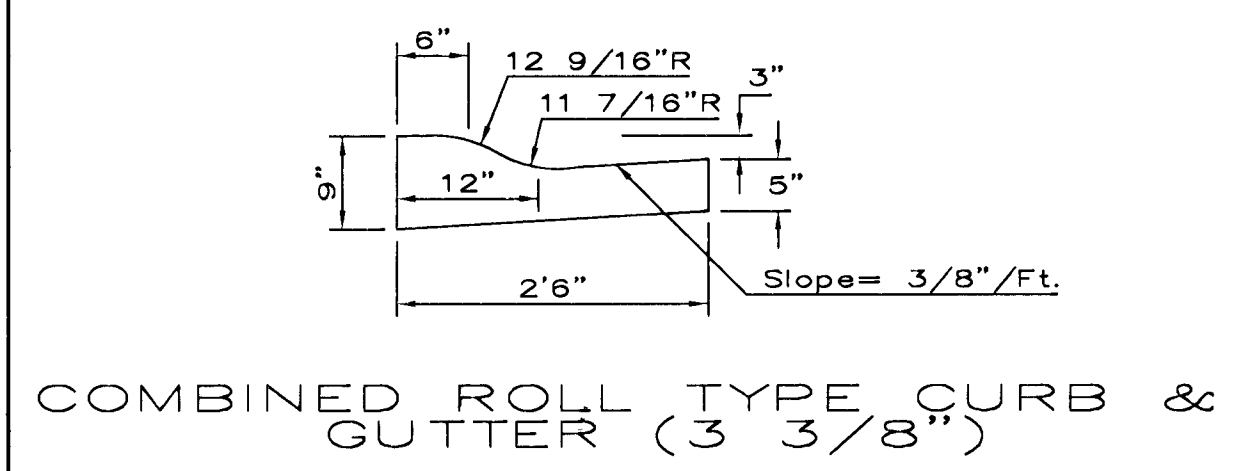
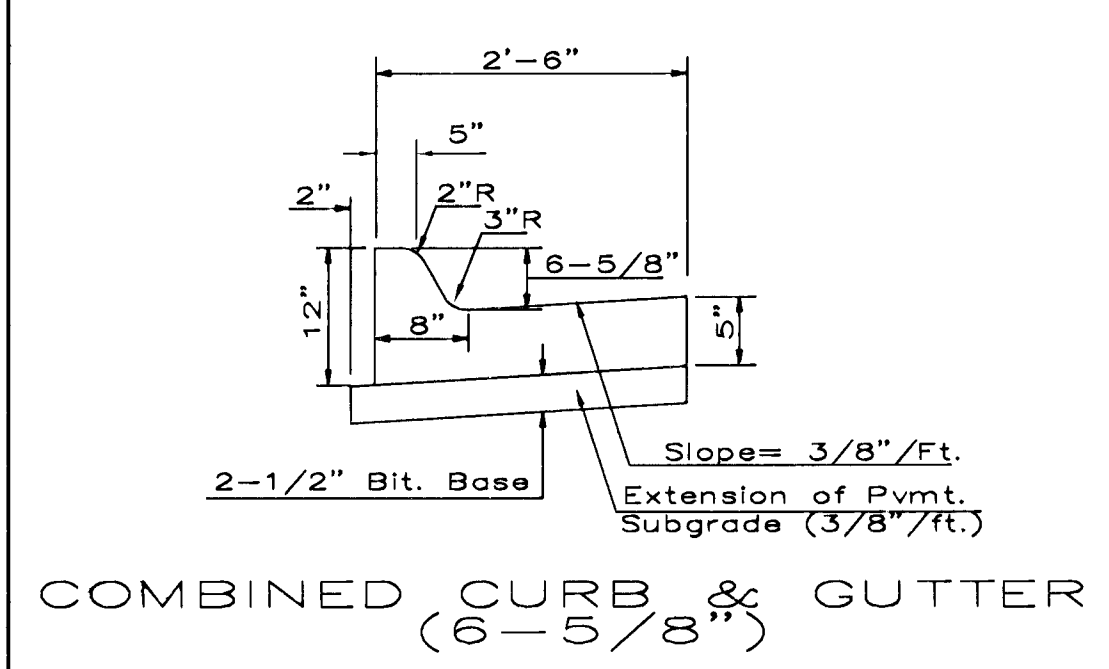


**AUSTIN**  
**ENGINEERING SERVICES**  
355 N. Waco, Suite 200 Wichita, KS 67201  
316/262-1281 fax: 316/262-6773

# TYPICAL 31' B-B PAVEMENT DETAILS



|                                           | 0'   | 2'   | 4'   | 6'   | 7.5' | 10'  | 12'  | 13'  | 15'  | 15.5' | 15.67' | 16.17' |
|-------------------------------------------|------|------|------|------|------|------|------|------|------|-------|--------|--------|
| A: Top of Curbs to Top of Surface Lift    | 0.10 | 0.14 | 0.21 | 0.27 | 0.32 | 0.39 | 0.46 | 0.49 | —    | —     | —      | —      |
| B: Top of Curbs to Top of Upper Base Lift | 0.27 | 0.31 | 0.38 | 0.44 | 0.49 | 0.56 | 0.63 | 0.66 | —    | —     | —      | —      |
| C: Top of Curbs to Top of Lower Base Lift | 0.44 | 0.49 | 0.57 | 0.64 | 0.70 | 0.79 | 0.87 | 0.90 | 0.98 | 1.00  | 1.00   | —      |
| D: Top of Curbs to Top of Subgrade        | 0.69 | 0.73 | 0.80 | 0.87 | 0.93 | 1.01 | 1.08 | 1.12 | 1.19 | 1.21  | 1.21   | 1.23   |

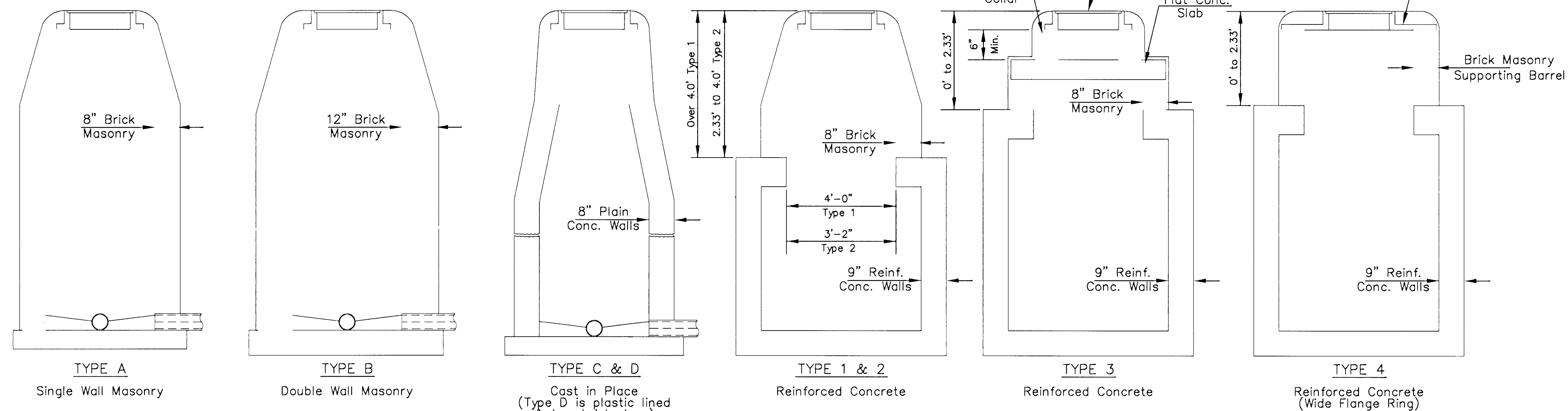


Transverse construction joints shall be constructed in flexible base pavements at locations where pavement joins existing flexible base pavement as shown by the detail. All costs associated with the construction of the transverse joint shall be included in the bid price for Square Yards 7\"/>

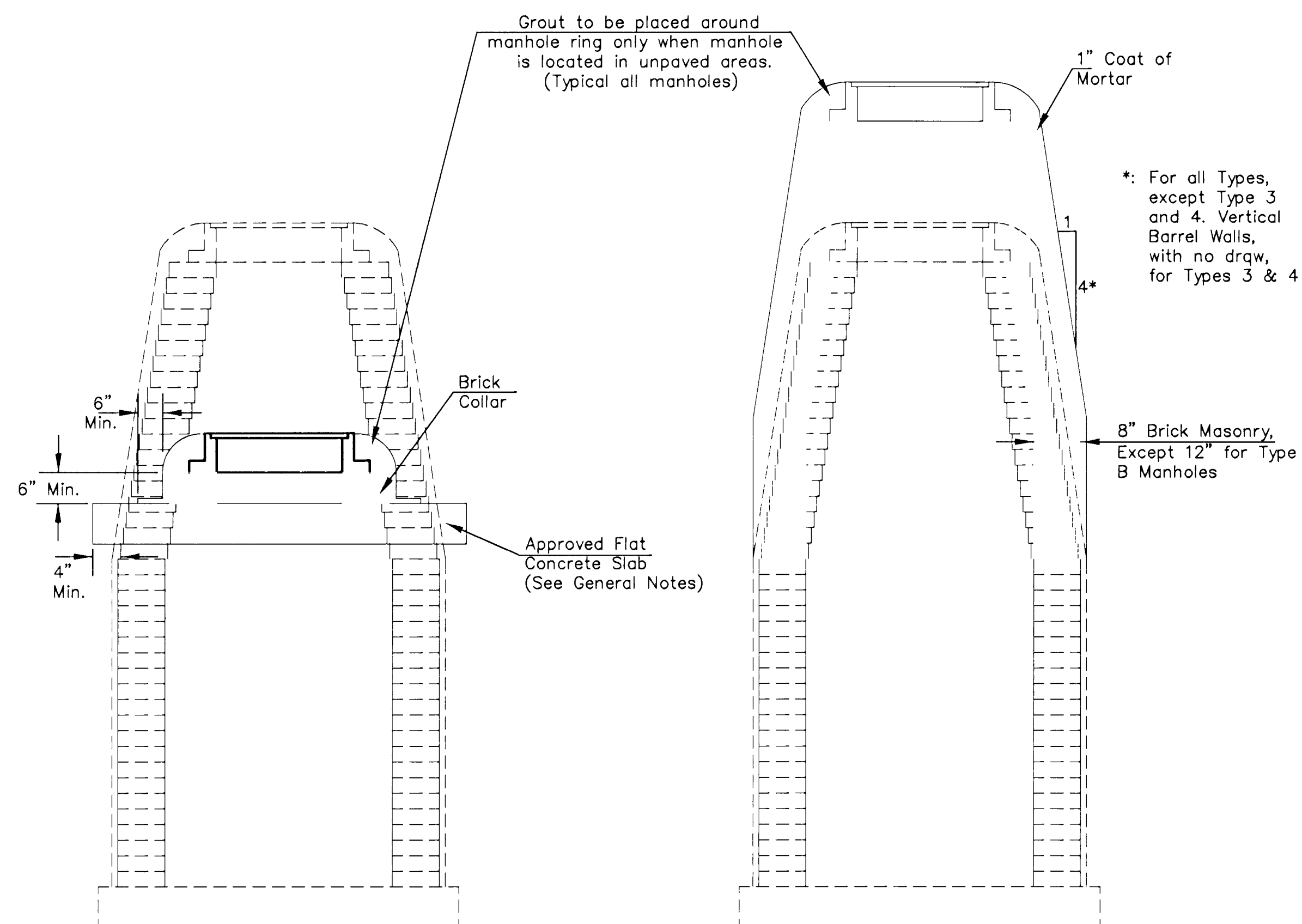
## General Notes

- THE ASPHALTIC CONCRETE PAVEMENT BETWEEN THE COMBINED CURB AND GUTTER SHALL BE PAID AS SQUARE YARDS OF 7\"/>
- THE BITUMINOUS BASE UNDER AND BEHIND THE COMB. CURB AND GUTTER SHALL BE PAID AS SQUARE YARDS OF 2 1/2\"/>
- A TACK COAT OF EMULSIFIED ASPHALT (SC-1H OR CSS-1H) SHALL BE APPLIED AT AN APPROXIMATE RATE OF 0.05 GALLONS PER SQUARE YARD BETWEEN EACH LIFT OF ASPHALTIC MATERIAL.
- BITUMINOUS BASE AND ASPHALTIC CONCRETE WEARING SURFACE SHALL BE PLACED WITH A LAYDOWN MACHINE HAVING AUTOMATIC CONTROLS FOR LINE AND GRADE.
- CONSTRUCTION JOINTS IN EACH LIFT SHALL BE STAGGERED A MINIMUM DISTANCE OF ONE (1) FOOT FROM JOINTS IN PRECEDING LIFTS AND PLACED SO THAT A JOINT WILL BE CONSTRUCTED ON THE CENTERLINE OF THE TOP LIFT.
- CONTRACTOR TO BID ONLY ONE SUBGRADE TREATMENT ALTERNATE WHEN ALTERNATES ARE PROVIDED IN THE PROPOSAL AND CONTRACT. THE ALTERNATE CHOSEN BY THE SUCCESSFUL BIDDER SHALL BE USED IN CONSTRUCTING THIS PROJECT.

|                                    |       |                 |      |                 |                                                                         |                                      |                     |
|------------------------------------|-------|-----------------|------|-----------------|-------------------------------------------------------------------------|--------------------------------------|---------------------|
| PROJECT NUMBER<br><b>472-83229</b> |       |                 |      | AM NO.<br>00101 | <b>Orme Street Phase 1</b><br><b>TYPICAL SECTION</b><br>Wichita, Kansas | SHEET<br><b>2</b><br>OF<br><b>23</b> | REVISION<br>6/14/01 |
| DESIGN                             | DRAWN | FILE<br>6/10-31 | DATE | SCALE<br>N.S.   |                                                                         |                                      |                     |



DEFINITION SKETCHES — CITY OF WICHITA STANDARD MANHOLES



DOWNWARD ADJUSTMENT  
(GREATER THAN 12")

All Types

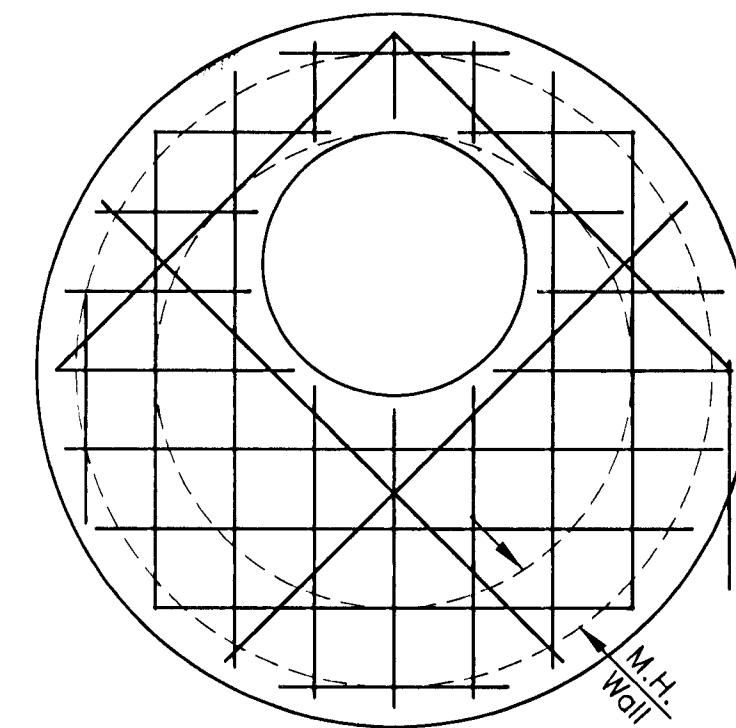
THE APPROPRIATE PORTIONS OF THE DRAW AND BARREL OF TYPE A, B, C, D, 1 AND 2 MANHOLES SHALL BE REMOVED. A FLAT CONCRETE SLAB SHALL BE PLACED AND THE RING AND COVER RESET. ALL WORK AND MATERIALS SHALL CONFORM TO THE DETAILS SHOWN AND THE GENERAL NOTES.

COURSES OF BRICK BARREL SUPPORTING THE WIDE FLANGE RING FOR TYPE 4 MANHOLES AND FLAT CONCRETE SLAB FOR TYPE 3 MANHOLES SHALL BE REMOVED AS NECESSARY PRIOR TO RESETTING THE WIDE FLANGE RING OR FLAT CONCRETE SLAB AND RING. ALL WORK AND MATERIALS SHALL CONFORM TO THE DETAILS SHOWN AND THE GENERAL NOTES.

UPWARD ADJUSTMENT  
(GREATER THAN 12")

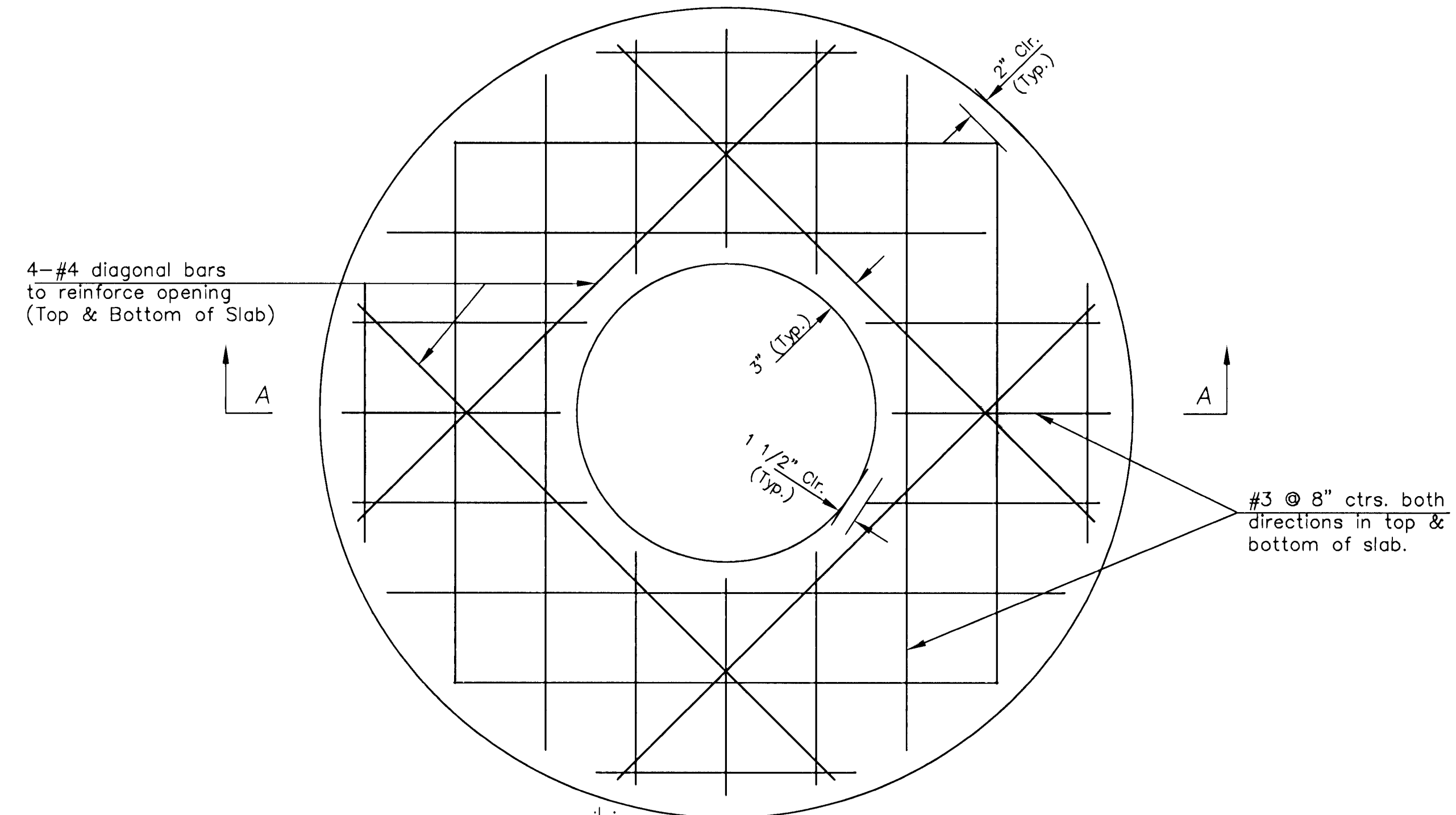
All Types

THE ENTIRE DRAW OF TYPES A, B, C, D, 1 AND 2 MANHOLES SHALL BE REMOVED, THE MANHOLE BARREL RAISED THE APPROPRIATE AMOUNT, A NEW DRAW CONSTRUCTED, AND THE RING AND COVER RESET. THE UPPER PORTION OF TYPE 3 MANHOLES SHALL BE REMOVED TO THE BOTTOM OF THE FLAT CONCRETE SLAB. THE BRICK MASONRY BARREL SUPPORTING THE SLAB SHALL BE RAISED THE APPROPRIATE AMOUNT, AND THE SLAB AND RING AND COVER RESET. THE WIDE FLANGE RING AND COVER OF TYPE 4 MANHOLES SHALL BE REMOVED, THE BRICK MASONRY BARREL SUPPORTING THE RING SHALL BE RAISED THE APPROPRIATE AMOUNT AND THE RING AND COVER RESET. ALL WORK REQUIRED FOR A GREATER THAN TWELVE INCH (12") UPWARD ADJUSTMENT OF ANY MANHOLE SHALL BE ACCOMPLISHED WITH BRICK MASONRY IN ACCORDANCE WITH THE DETAILS SHOWN AND THE GENERAL NOTES.

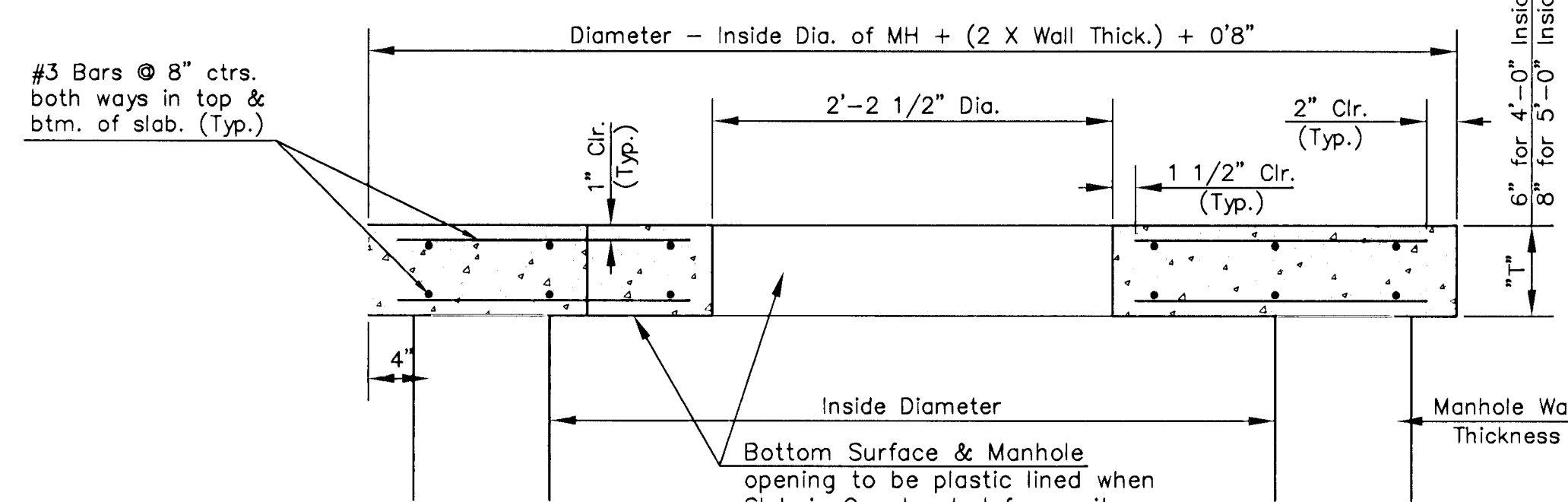


\* PLAN  
ALTERNATE OPENING  
LOCATION

\*: To be used only if necessary to keep ring and cover from conflicting with curb or combined curb and gutter. Flat concrete slab shall be rotated on existing manhole to position ring and cover in pavement or behind curb.



PLAN



SECTION A-A  
FLAT CONCRETE SLAB DETAILS

319/262-128

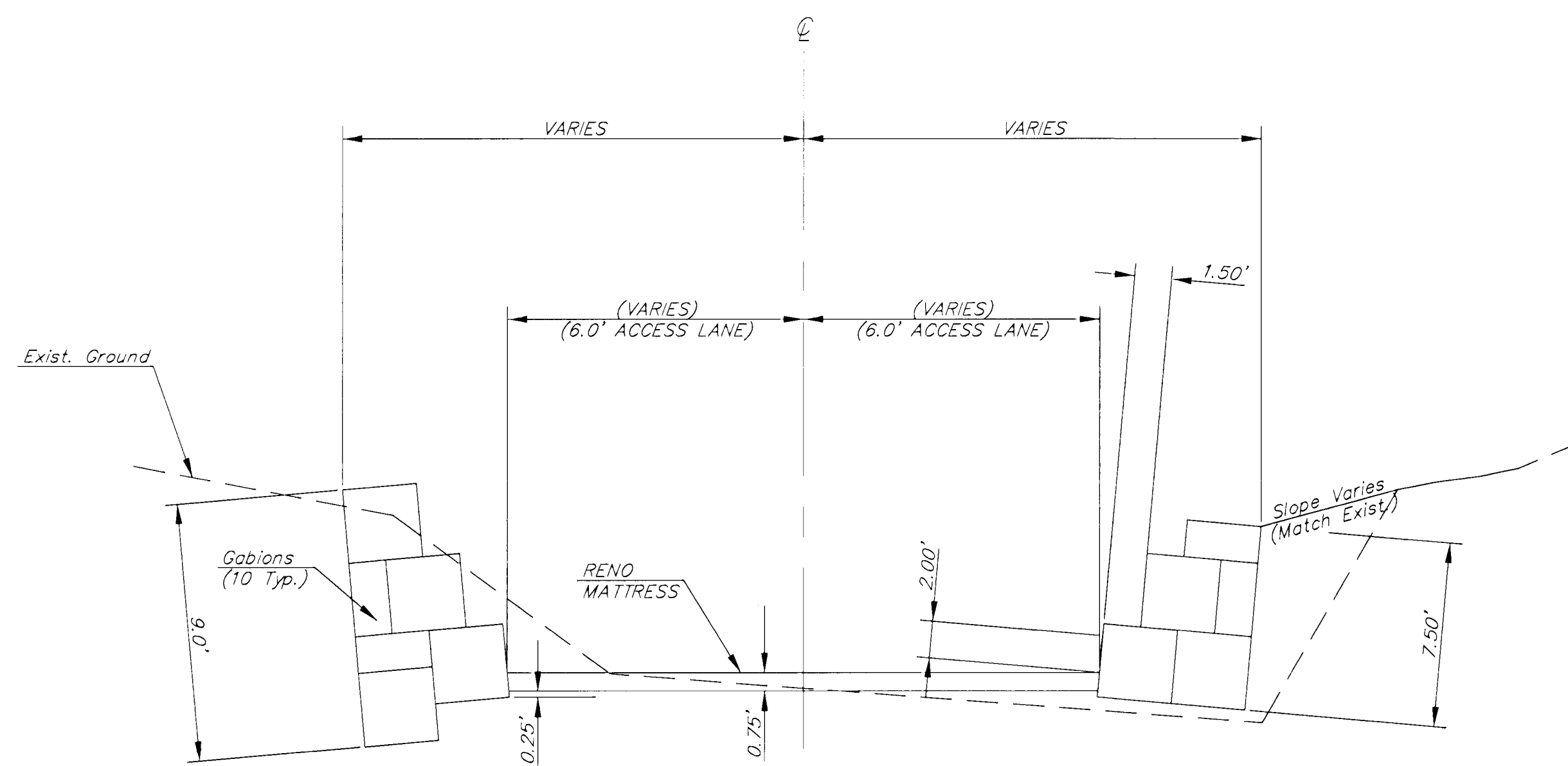


|                                    |       |                    |
|------------------------------------|-------|--------------------|
| PROJECT NUMBER<br><b>472-83229</b> |       | AM NO.<br>00101    |
| DESIGN                             | DRAWN | FILE<br>00101Mhadj |
|                                    |       | DATE               |
|                                    |       | SCALE<br>N.S.      |

Orme Street Phase I  
**Manhole Adjustment**  
Wichita, Kansas

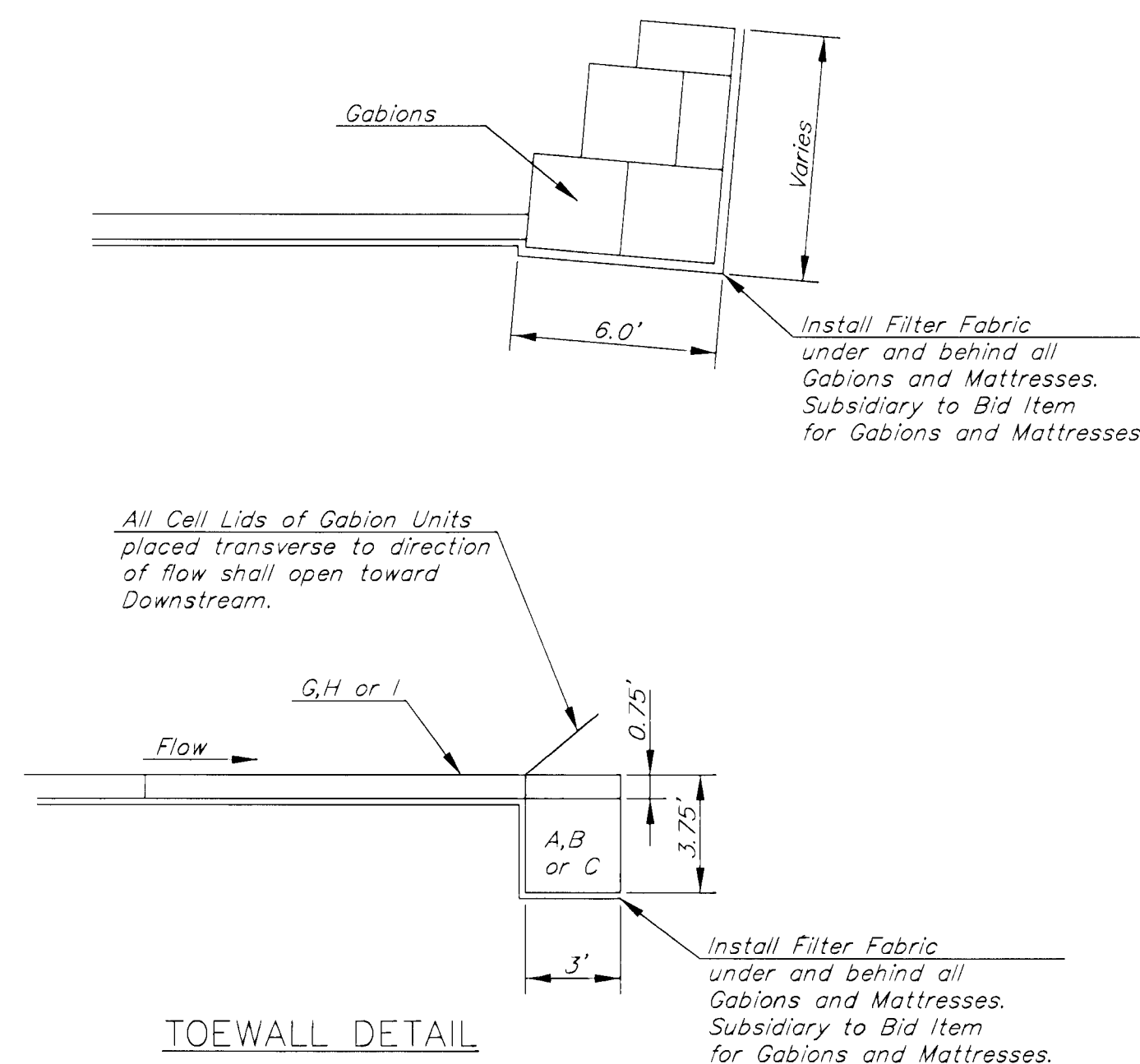
|             |                        |                     |
|-------------|------------------------|---------------------|
| SHEET<br>OF | <b>11</b><br><b>23</b> | REVISION<br>6/14/01 |
|-------------|------------------------|---------------------|

| FHWA<br>REG<br>NO. | STATE  | PROJECT NO.     | YEAR | SHEET<br>NO. | SHEETS |
|--------------------|--------|-----------------|------|--------------|--------|
| 7                  | KANSAS | 54-87 K-4445-01 | 1996 | 12           | 23     |

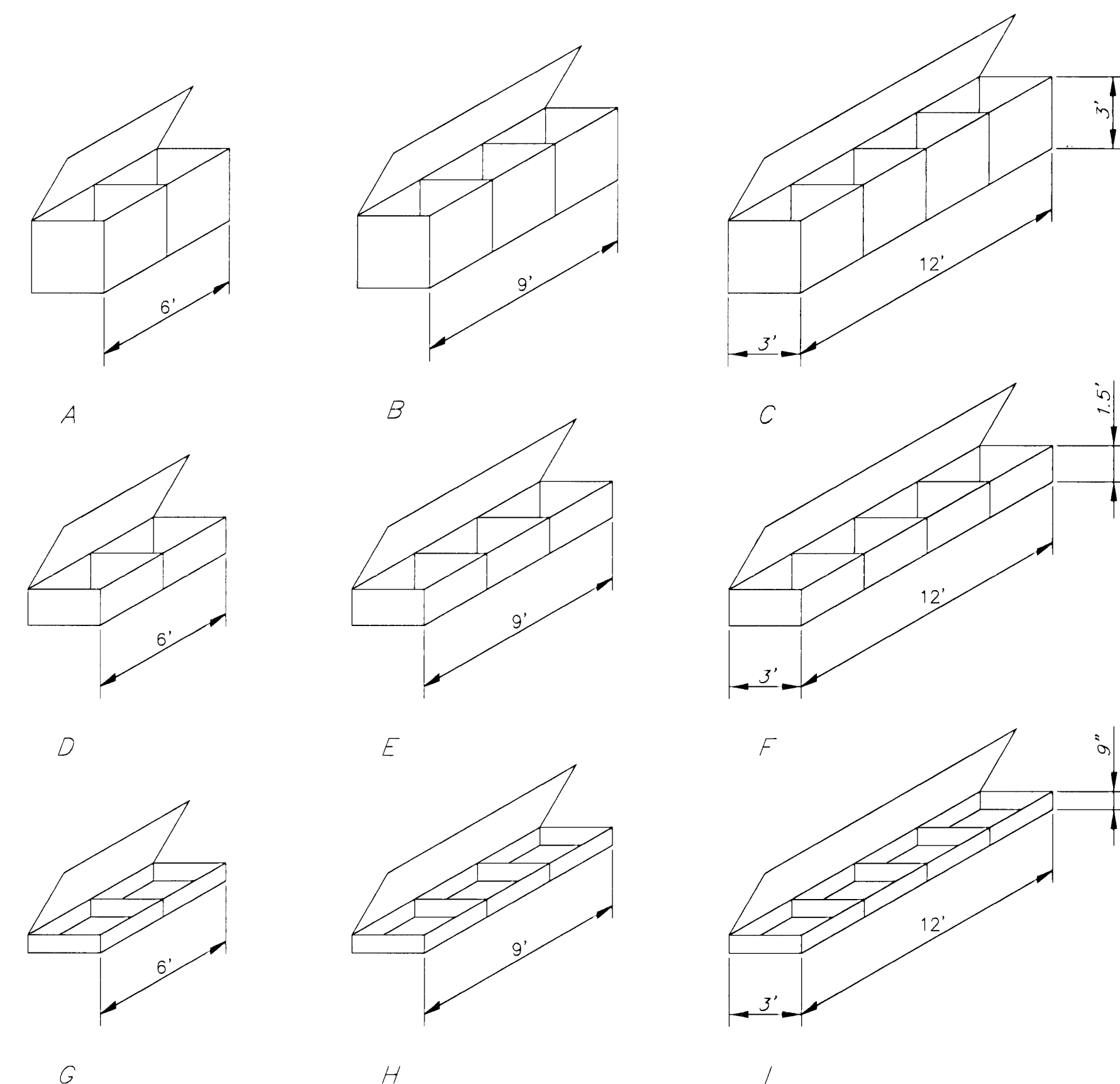


TYPICAL SECTION

NOTE: Dimensions vary throughout Channel Improvements, both Horizontally and Vertically. See Plan/Profile & Cross Section Sheets for additional information.

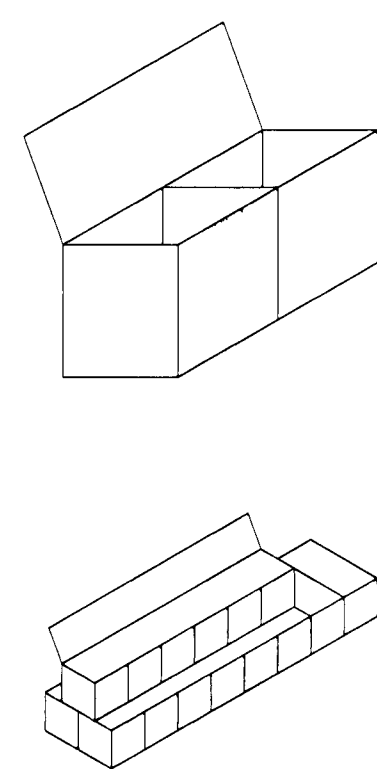


TOEWALL DETAIL

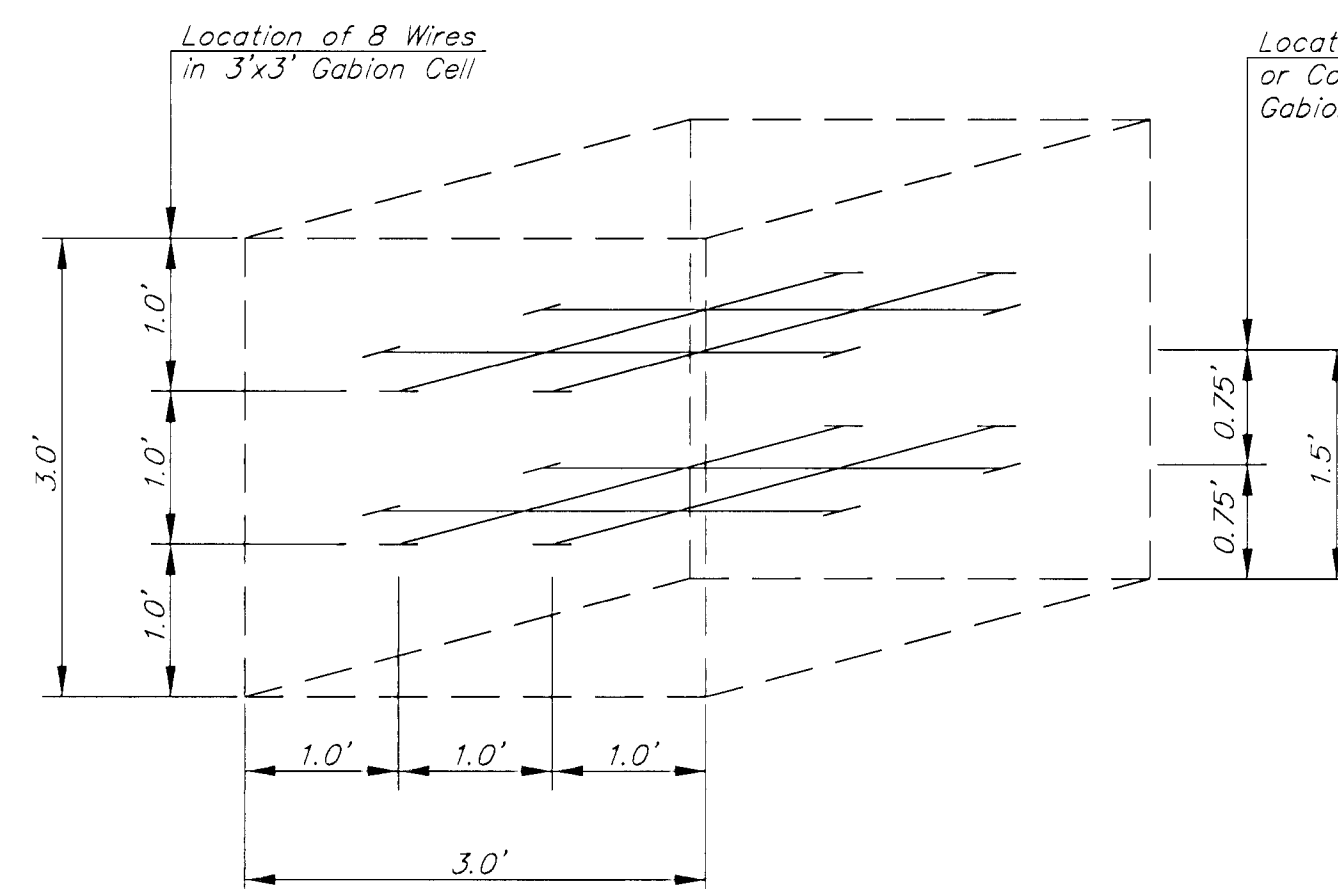


TYPICAL GABION UNITS

NOTE: All Units shall be P.V.C. Coated Galvanized wires.



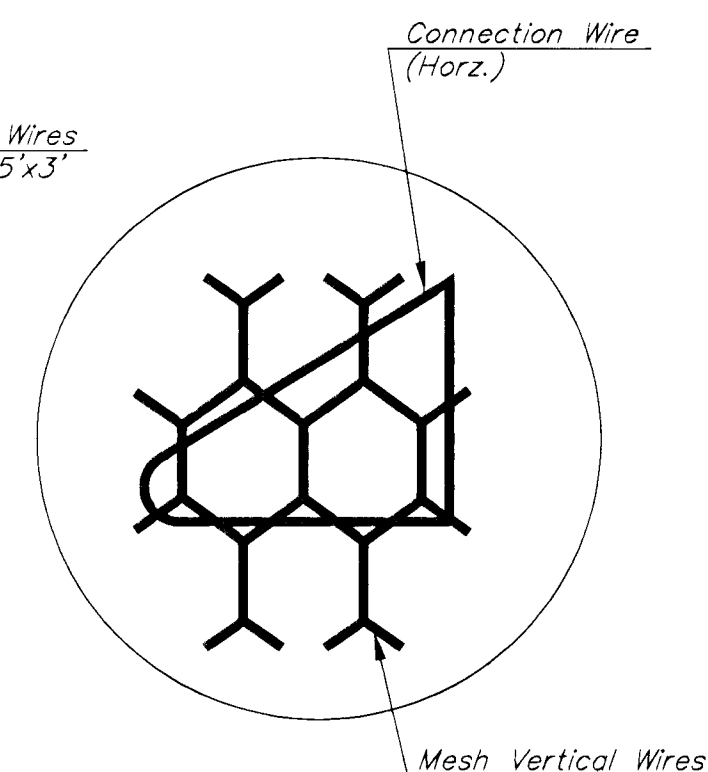
1. Gabions shall be placed in rectangular form by connecting total length of all edges.
2. 3' deep gabions shall be filled to depth of one foot. Then four connecting wires shall be placed in each direction and looped around three meshes of gabion wall. This operation shall be repeated until the gabion is filled. 1.5' deep gabions similar. See detail at right.
3. Gabions shall be connected together along all contacting edges.
4. Completely fill gabions and connect top to all edges.
5. Consult with Gabions supplier for additional assembly requirements.
6. "Retied" units are standard units which are shortened or reshaped in the field.
7. Gabion baskets shall be staked, stretched or supported in accordance with suppliers requirements to ensure that units are placed to proper line & grade in rectangular configuration without unsightly bulging of the basket.
8. All Gabions and Mattresses shall be filled with carefully sorted stones and positioned very carefully, to provide as smooth a surface as possible and to minimize voids. Rock shall be placed by hand along all visible faces.
9. Filter Fabric shall be Trevira #1125, Mirafi #180N or approved equal.
10. All Labor and material required to extend existing drain pipes through Gabions shall be subsidiary to Bid Item for Gabions.



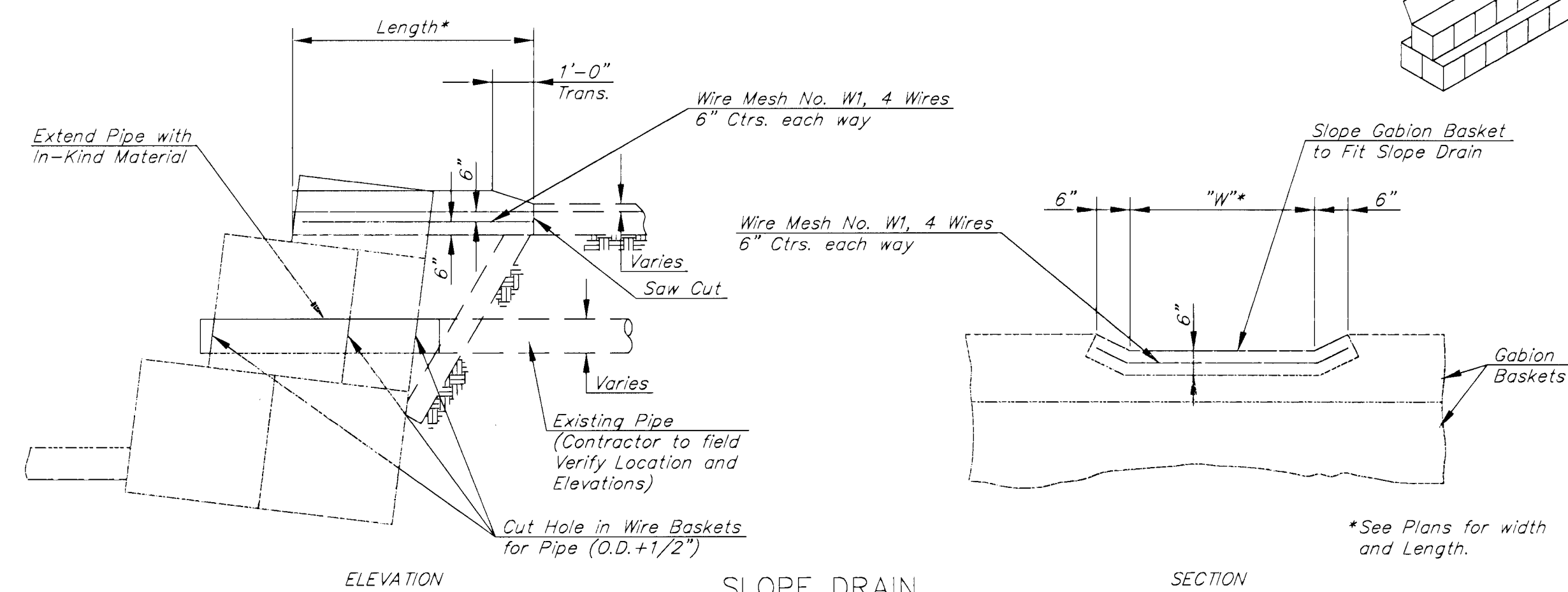
DETAIL OF CONNECTING WIRES IN EACH GABION CELL

| Size of Stone | % Larger Than |
|---------------|---------------|
| 8"            | 0             |
| 4"            | 95-100        |

Rock for this construction shall have a soundness ratio of not less than 0.80 after 25 cycles of freeze and thaw tests.



All connecting wires shall be looped around three wires.



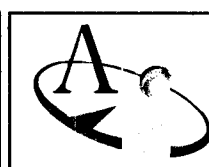
SLOPE DRAIN

GENERAL NOTE-SLOPE DRAIN:

1. Slope Drains shall be paid for by unit price per lined foot.
2. Reinforcing steel and wire mesh are subsidiary to Slope Drain.
3. Class "A" Concrete (AE) shall be used in Slope Drain. On Concrete pavement projects, the contractor may Substitute the mix used in concrete pavement.
4. All exposed edges shall be finished with an edging tool.

(3) South, March, 1996

310/702-1281

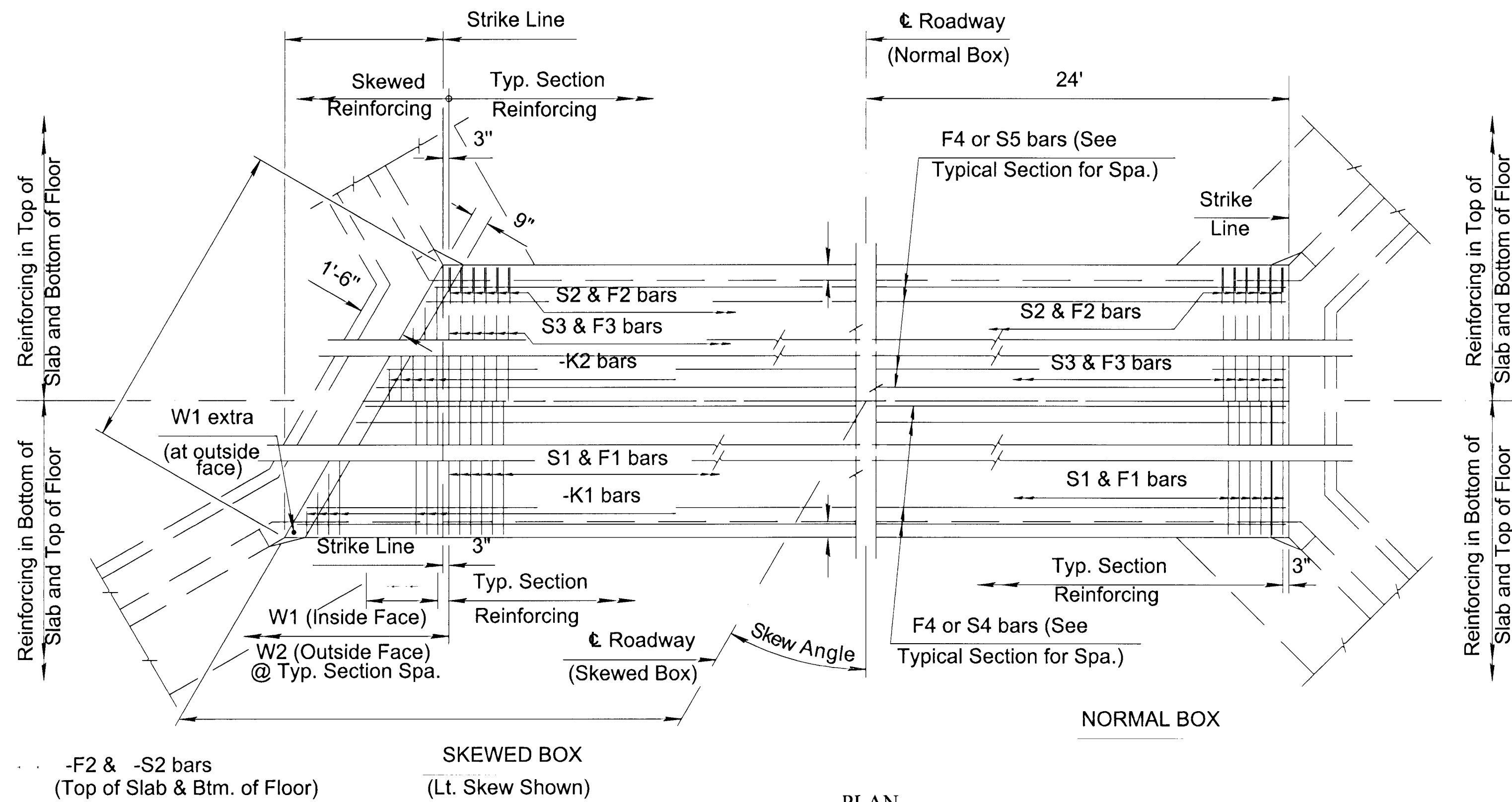
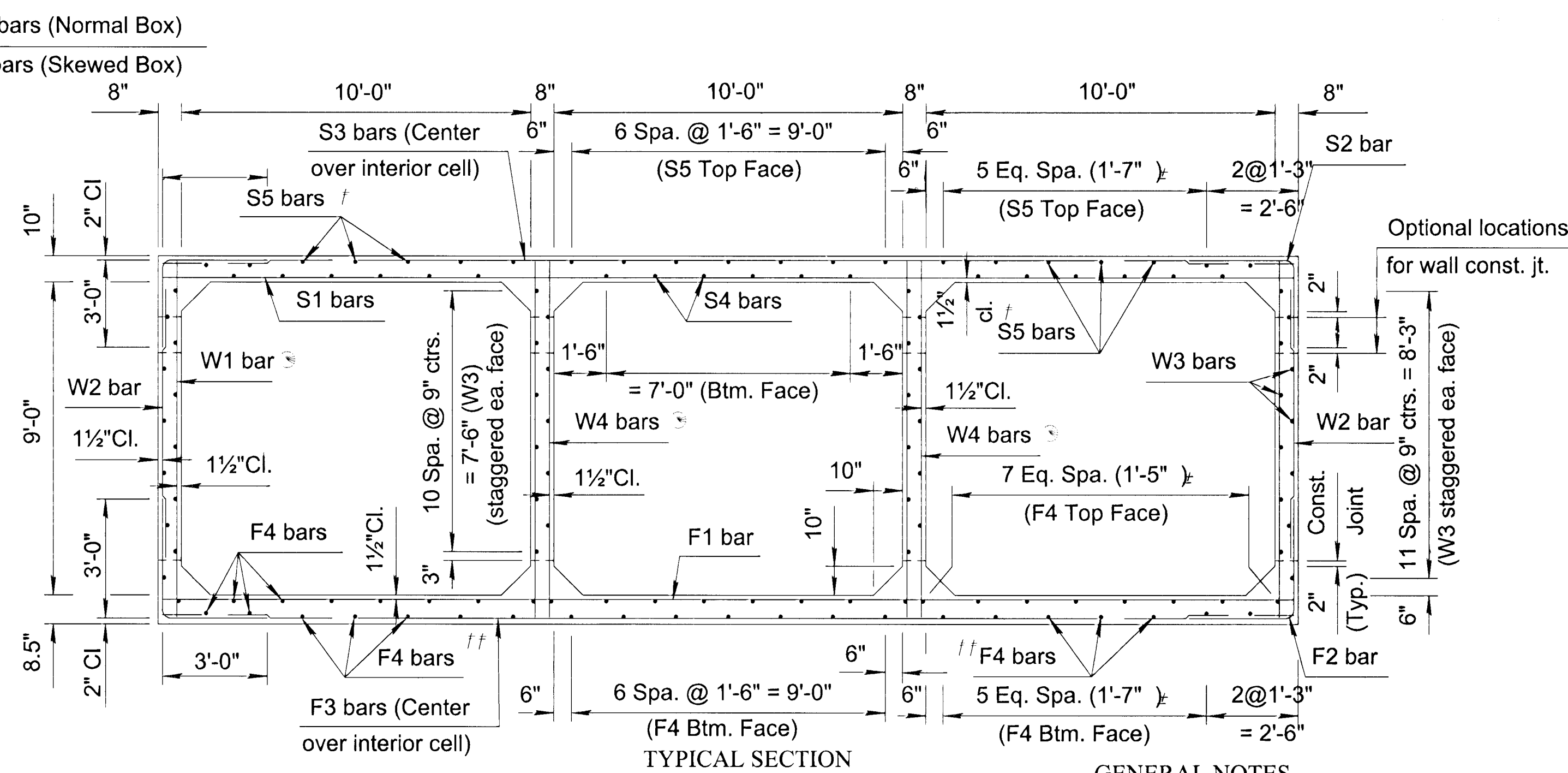
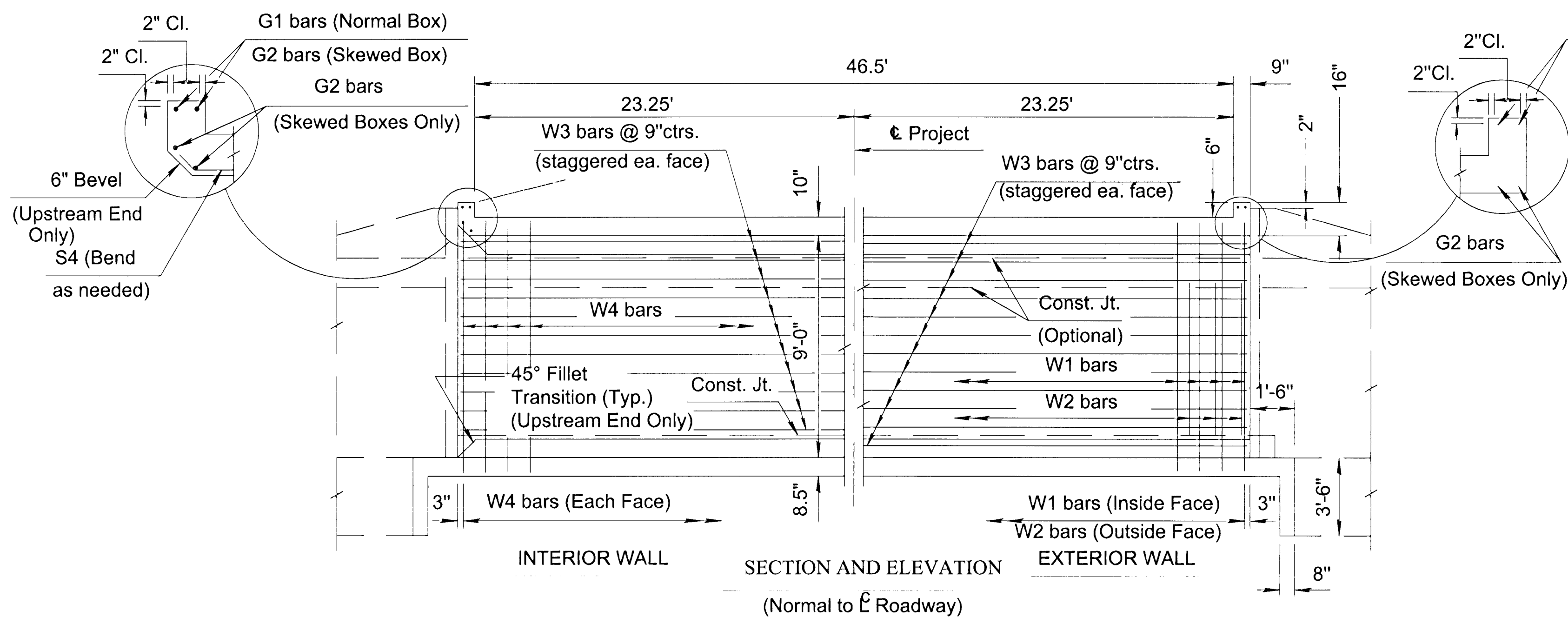


| DESIGN | DRAWN | FILE          | DATE  | SCALE |
|--------|-------|---------------|-------|-------|
| PB     | AE    | Riprap-Gabion | 02/01 | NTS   |

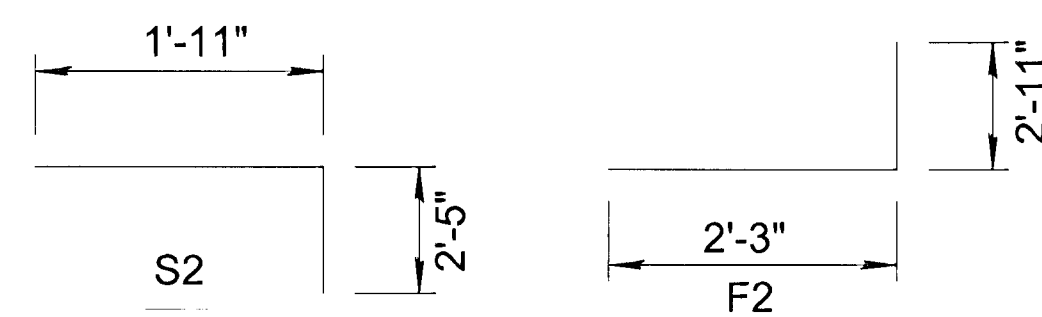
| PROJECT NUMBER | AM NO. | DATE  | SCALE |
|----------------|--------|-------|-------|
| 472-83229      | 00101  | 02/01 | NTS   |

RIP-RAP & GABION DETAILS  
**TYPICAL SECTIONS**  
CITY OF WICHITA

| SHEET | NO. | OF      | REVISION |
|-------|-----|---------|----------|
| 12    | 23  | 6/14/01 |          |



- # See RCB Auxiliary Details for Optional Splice.
- # Place when S3 bar extends to exterior walls.
- ## Place when F3 bar extends to exterior walls.



**BENDING DIAGRAM**  
All Dimensions are out to out of bars.

**LOADING:** HS20-44 AASHTO Specifications, 1983 Edition.  
**UNIT STRESSES:** Class AAA Concrete;  $f_c = 4,000$  p.s.i.  
 Reinforcing Steel;  $f_y = 60,000$  p.s.i.  
**FILL HEIGHT:** Unless otherwise noted, the Design Fill Height is measured from the riding surface at the culvert and shall include the surfacing.  
**CONCRETE:** Class AAA Concrete shall be used throughout. Bevel all exposed edges with a finch triangular moulding. Where Class AAA Concrete (AE) is specified, it shall be placed in the top slab above the Construction Joint.  
**REINFORCING:** All reinforcing shall conform to ASTM A615, Grade 60. All dimensions relative to reinforcing steel shall be to centerline of bar unless otherwise noted.  
**EXCAVATION:** Excavation for culverts less than bridge length shall not be paid for directly but shall be subsidiary to Class AAA Concrete. Excavation for RCB Bridges shall be paid for as Class III Excavation.  
**SEAL COURSE:** A Seal Course may be required by the Engineer. The Seal Course shall be unreinforced Concrete (Commercial Grade) to a minimum depth of 3 inches or as determined by the Engineer. Concrete for the seal course shall be paid for at the unit price set for Concrete for Seal Course.  
**FOUNDATION STABILIZATION:** Foundation Stabilization may be required as directed by the Engineer. The depth of Foundation Stabilization shall be determined by the Engineer. Foundation Stabilization shall be paid for at the determined Unit Price set for Foundation Stabilization. See Auxiliary Details.  
**QUANTITIES:** The quantities shown in the Culvert Summary include apron and/or soil saver quantities when their construction is required by the plans. Payment for additional quantities that result from including seal course and/or floating apron, as a change in original plans, shall be made at the Unit Price bid for the various items involved.  
**GRANULAR BACKFILL (WINGWALLS):** Special backfill procedures may be required at the direction of the Engineer. See Auxiliary Details Sheet.  
**STRIKE LINE:** Wingwalls and that portion of the RCB outside the Strike Line shall be constructed level. Footing for wingwalls shall be constructed with the culvert floor. See wingwall detail sheet.

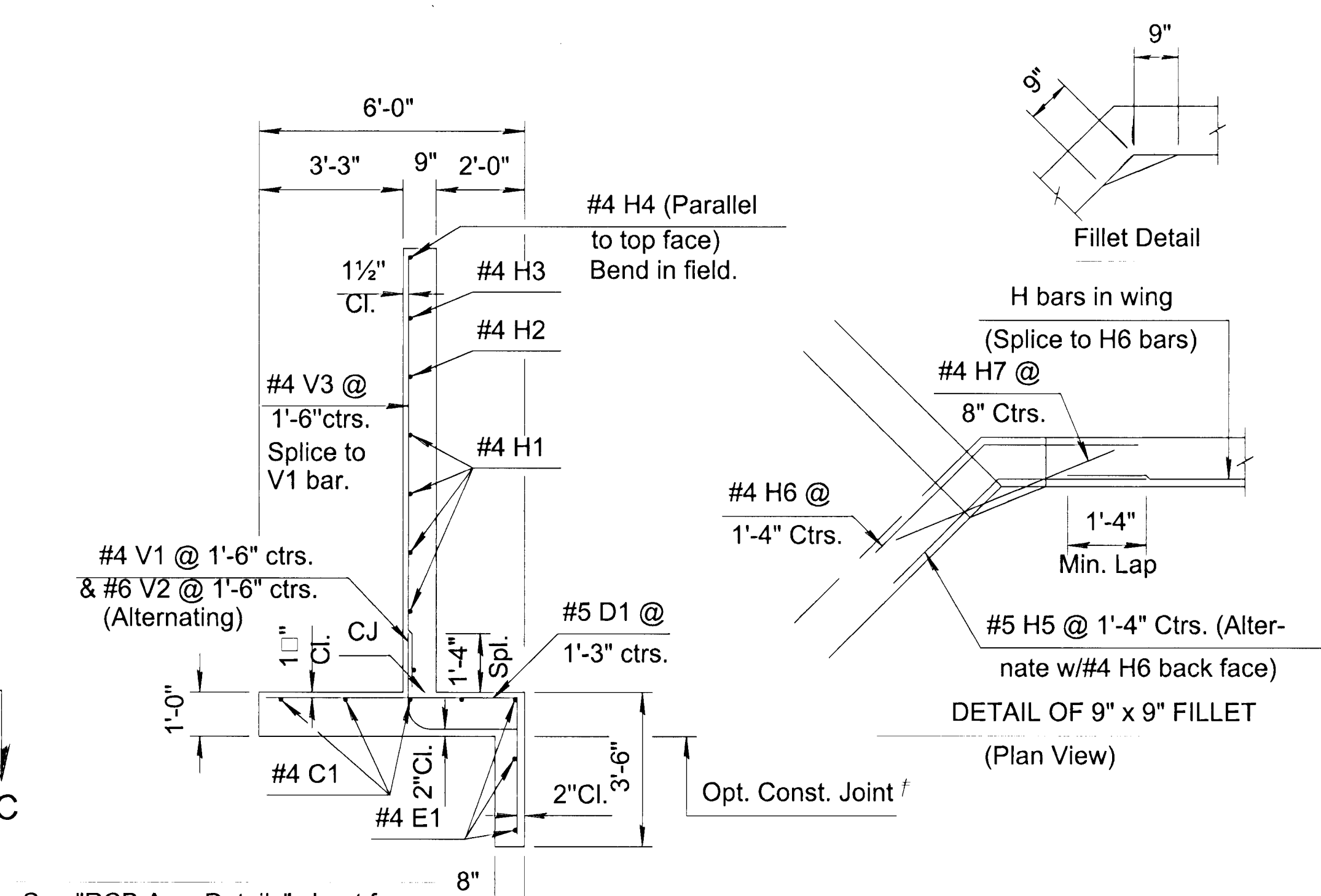
| CULVERT SUMMARY     |                     |                 |                 |      |            |             |             |            |                   |                  |                 |                 |                       |              |              |
|---------------------|---------------------|-----------------|-----------------|------|------------|-------------|-------------|------------|-------------------|------------------|-----------------|-----------------|-----------------------|--------------|--------------|
| Flow Line Elev. Lt. | Flow Line Elev. Rt. | Crown Gr. Elev. | Design Fill Ht. | Skew | Left Wings | Right Wings | Scour Apron | Soil Saver | Granular Backfill | Concrete         |                 |                 | Reinf. Steel (Gr. 60) |              |              |
|                     |                     |                 |                 |      |            |             |             |            |                   | Barrel (Cu.Yds.) | Wings (Cu.Yds.) | Total (Cu.Yds.) | Barrel (Lbs.)         | Wings (Lbs.) | Total (Lbs.) |
| 1328.38             | 1328.38             | 1339.26         | 1.13            | 0.0  | FLARED     | FLARED      | YES         | NO         |                   | 82.57            | 46.08           | 140.43          | 14957.60              | 3171.45      | 18287.00     |

| BAR SCHEDULE |      |     |        |      |      |     |        |      |      |     |        |      |      |        |        |      |     |        |      |      |     |        |      |      |        |        |      |        |        |      |      |        |  |
|--------------|------|-----|--------|------|------|-----|--------|------|------|-----|--------|------|------|--------|--------|------|-----|--------|------|------|-----|--------|------|------|--------|--------|------|--------|--------|------|------|--------|--|
| F1           |      |     |        | F2   |      |     |        | F3   |      |     |        | F4   |      |        |        | △ S1 |     |        |      | △ S2 |     |        |      | △ S3 |        |        |      | △ S4   |        |      | △ S5 |        |  |
| Size         | Spa. | No. | Length | Size | Spa. | No. | Length | Size | Spa. | No. | Length | Size | No.  | Length | Size   | Spa. | No. | Length | Size | Spa. | No. | Length | Size | Spa. | No.    | Length | Size | No.    | Length | Size | No.  | Length |  |
| 4            | 5"   | 115 | 32'-4" | 6    | 7"   | 164 | 5'-2"  | 6    | 7"   | 82  | 32'-4" | 4    | 90   | 24'-6" | 5      | 5"   | 115 | 32'-4" | 5    | 7"   | 164 | 4'-4"  | 6    | 7"   | 82     | 32'-4" | 4    | 54     | 24'-6" | 4    | 42   | 24'-6" |  |
| △ K1         |      |     |        | △ K2 |      |     |        | W1   |      |     |        | W2   |      |        |        | W3   |     |        |      | W4   |     |        |      | △ G1 |        |        |      | △ G2   |        |      |      |        |  |
| Size         | Spa. | No. | Length | Size | Spa. | No. | Length | Size | Spa. | No. | Length | Size | Spa. | No.    | Length | Size | No. | Length | Size | Spa. | No. | Length | Size | No.  | Length | Size   | No.  | Length | Size   | Spa. | No.  | Length |  |
|              |      |     |        |      |      |     |        | 4    | 10"  | 116 | 10'-3" | 4    | 7"   | 164    | 7'-7"  | 4    | 92  | 24'-6" | 5    | 10"  | 232 | 10'-3" | 5    | 4    | 32'-4" | 0      | 0    | 32'-4" |        |      |      |        |  |

| Minimum Splice Lengths |       |
|------------------------|-------|
| #4                     | 1'-4" |
| #5                     | 1'-8" |
| #6                     | 2'-0" |

| SUMMARY OF QUANTITIES               |                |
|-------------------------------------|----------------|
| Class AAA Concrete                  | 140.430 C.Y.   |
| Class AAA Concrete (AE)             | 58.049 C.Y.    |
| Reinforcing Steel (Gr. 60)          | 18287.006 Lbs. |
| Reinforcing Steel (Epoxy Coated)    | 10172.747 Lbs. |
| Class III Excavation                | C.Y.           |
| Foundation Stabilization (Set)      | 1 C.Y.         |
| Concrete for Seal Course (Set)      | 1 C.Y.         |
| Granular Backfill (Wingwalls) (Set) | 1 C.Y.         |

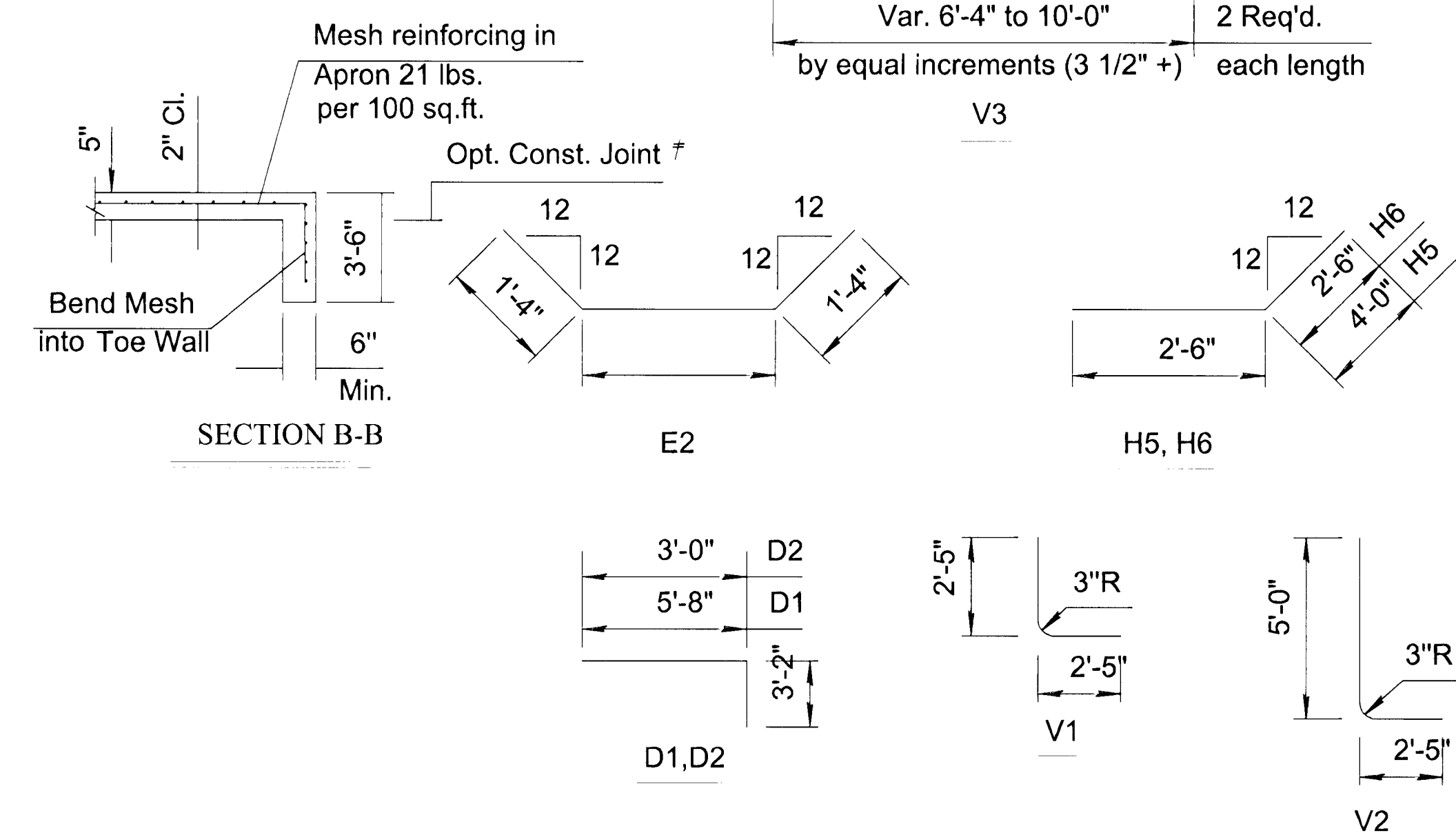
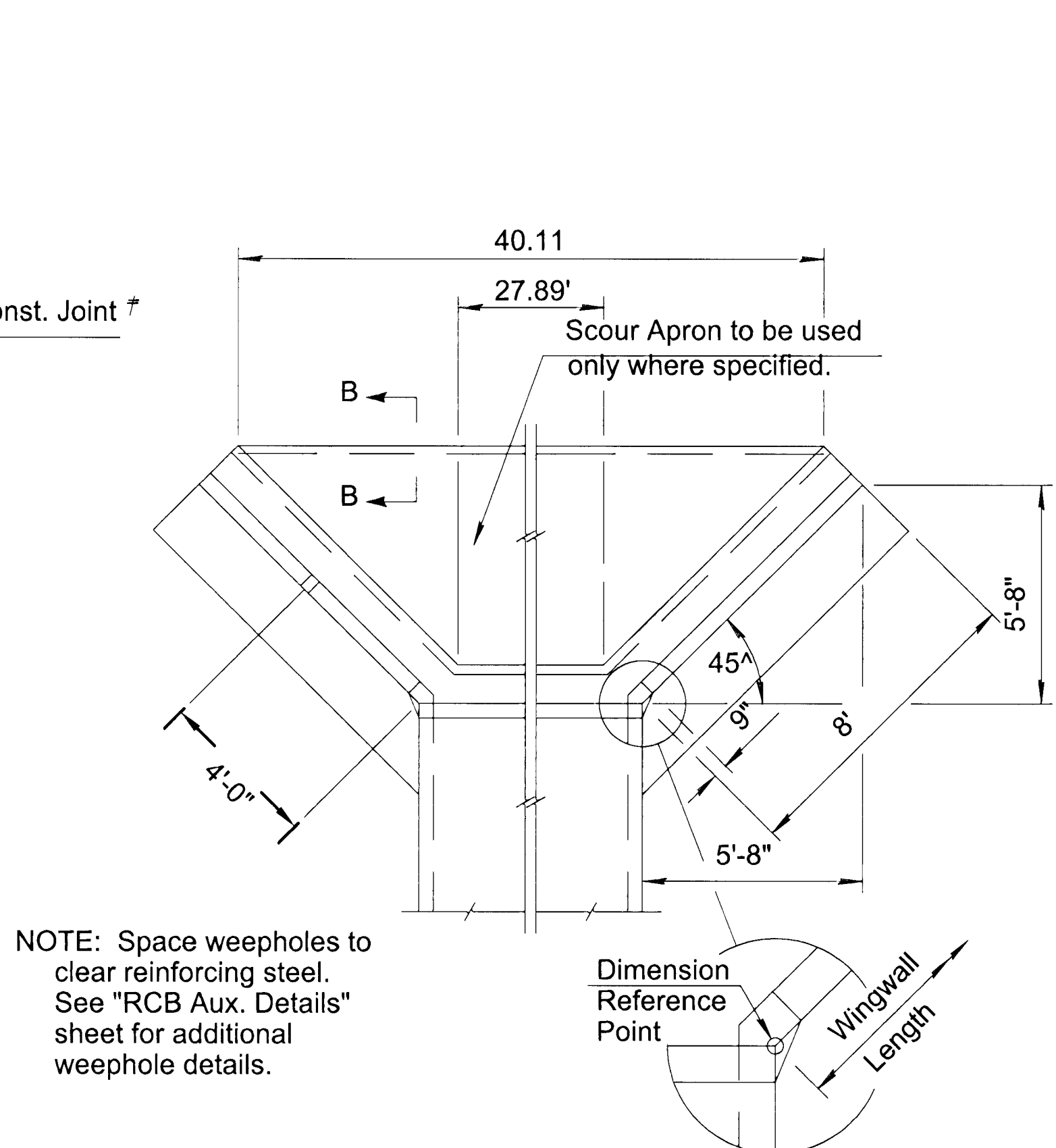
BR



Engineer. See Auxiliary

Var. 6'-4" to 10'-0" 2 Req'd.  
by equal increments (3 1/2" +) each length

V3



| Minimum Splice Lengths |       |
|------------------------|-------|
| #4                     | 1'-4" |
| #5                     | 1'-8" |
| #6                     | 2'-0" |

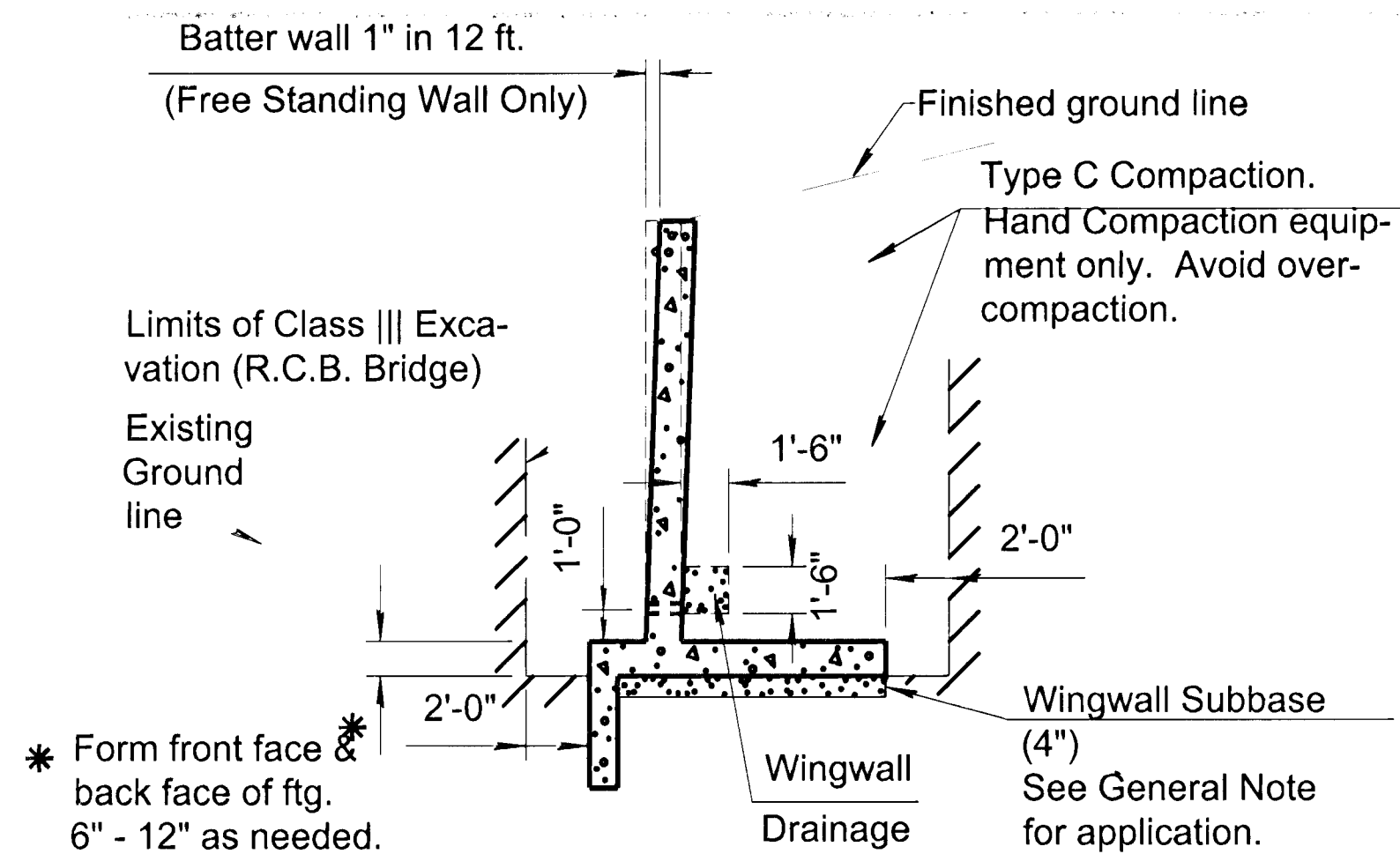
### BENDING DIAGRAM

(All dimensions are out to out of bars.)

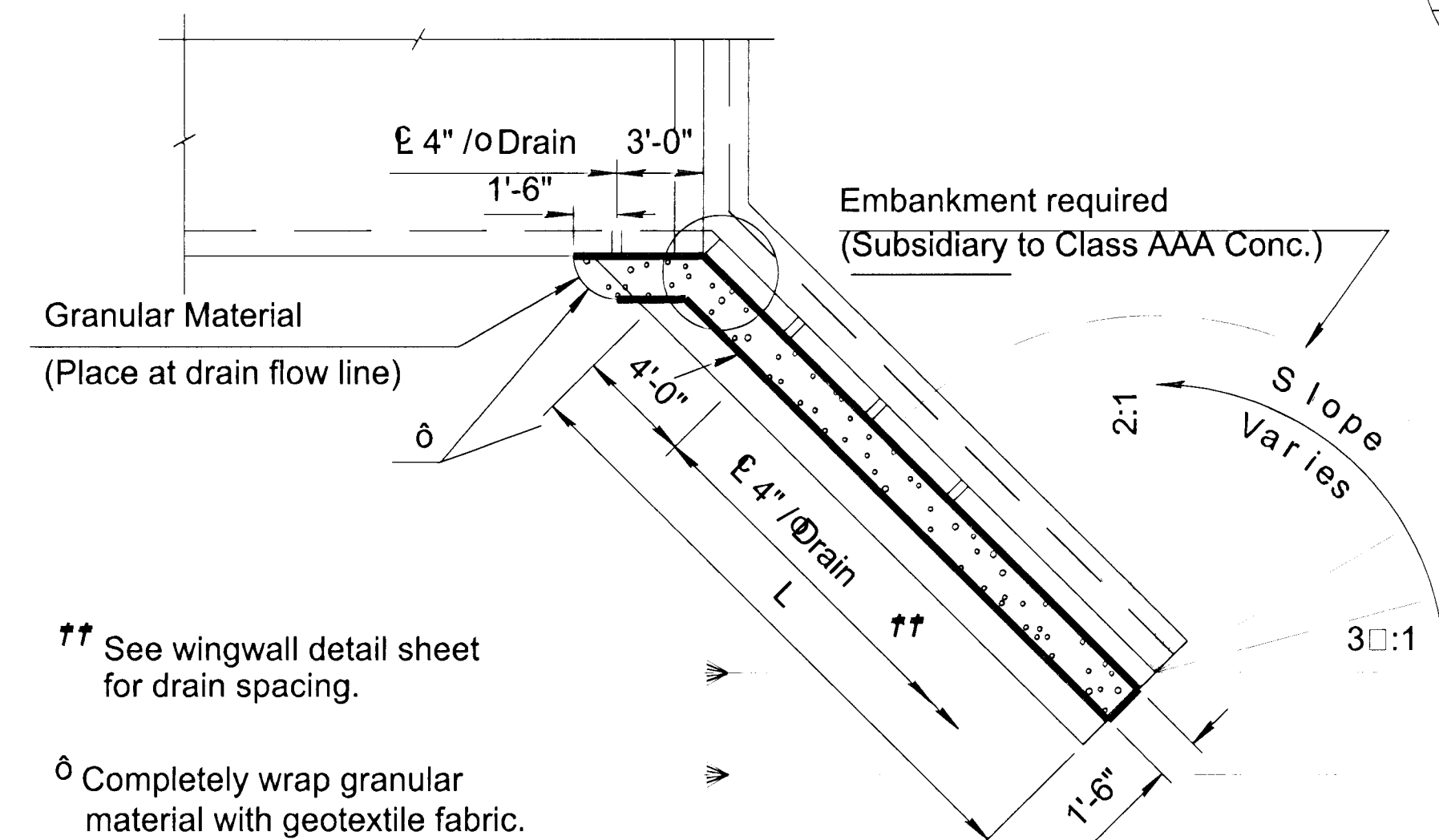
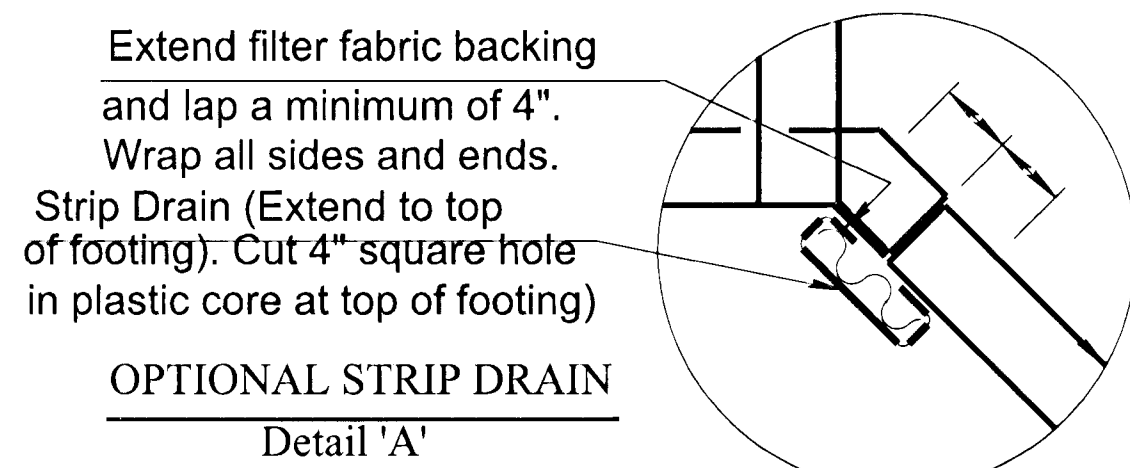
NOTE: Reinforcing Bar List is for both wings at one end of box only.

[illegible]

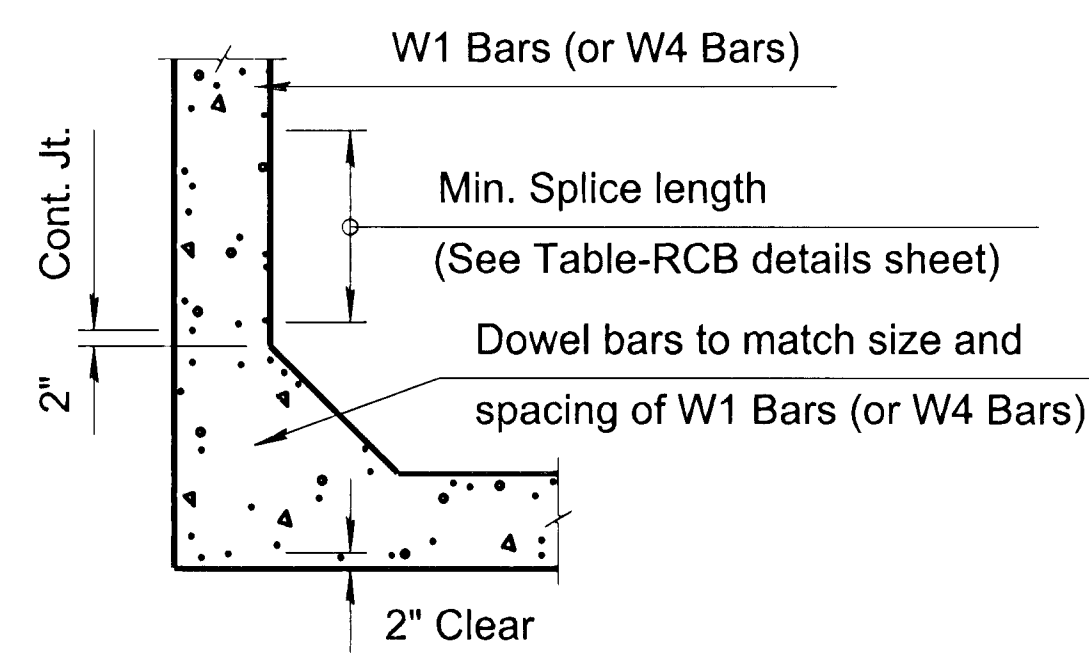
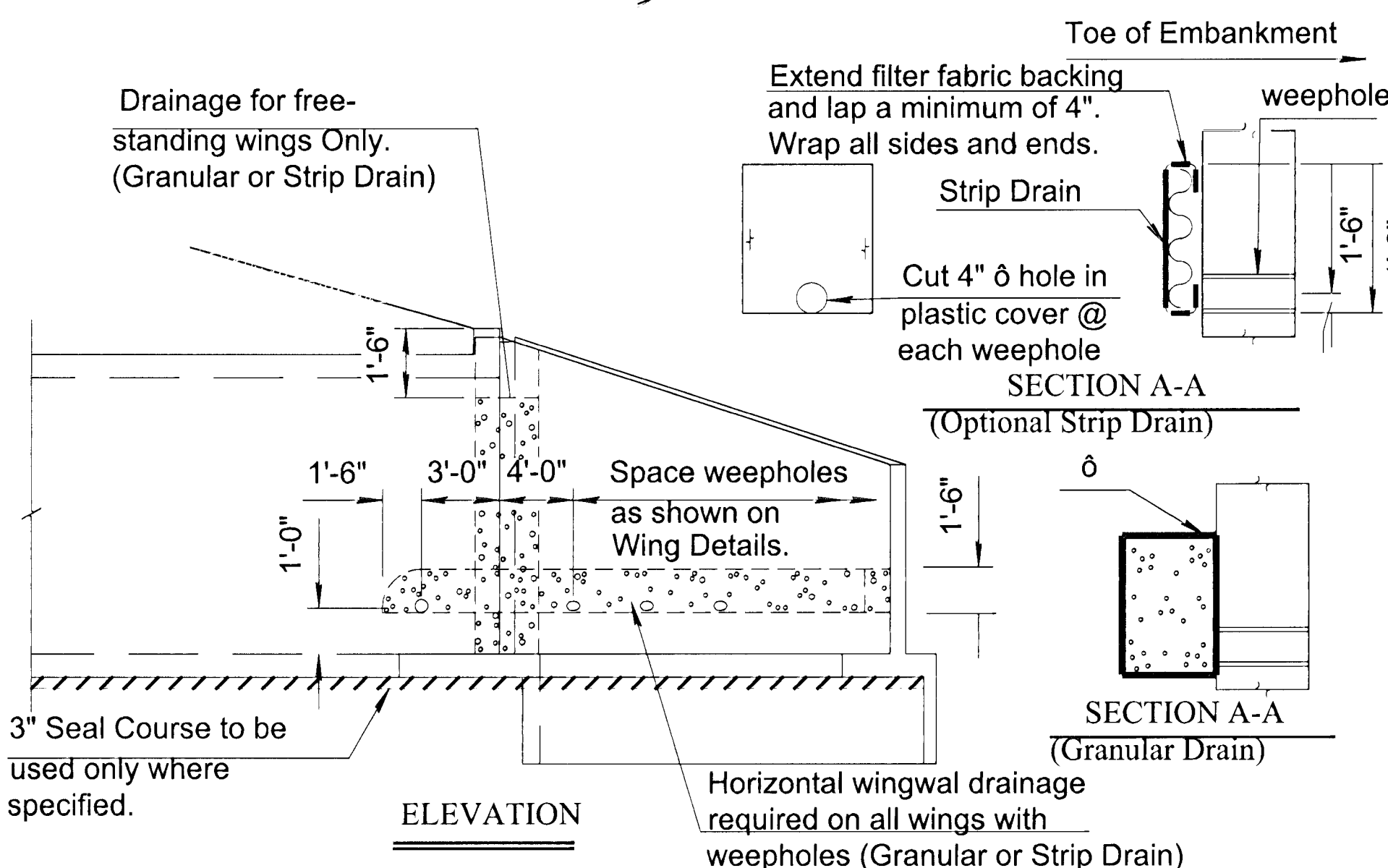
BR



SECTION THRU WINGWALL

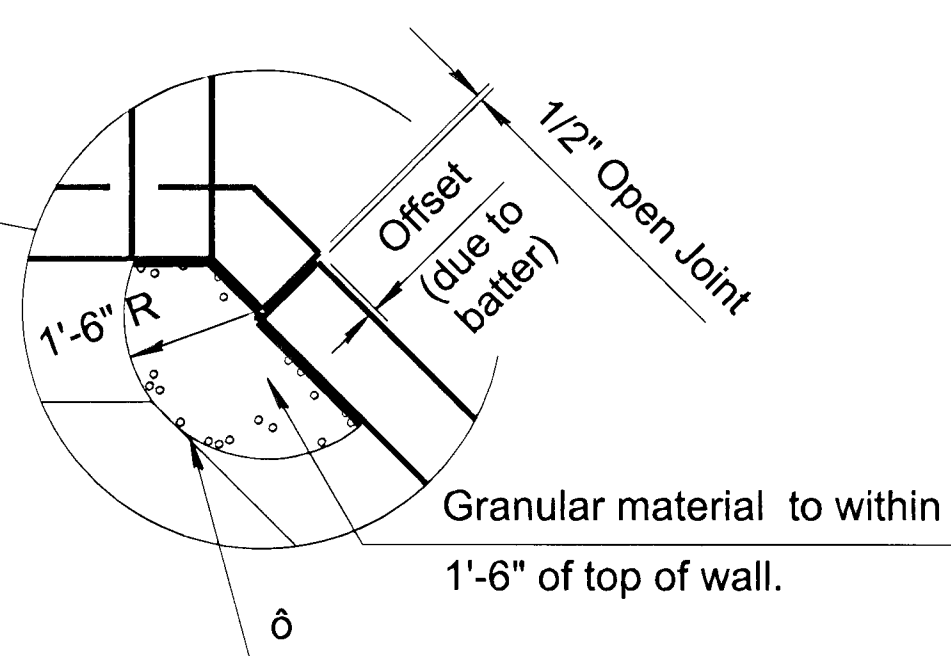


WINGWALL PLAN



OPTIONAL BAR DETAIL

The Contractor shall have the option of using Dowel Bars to match vertical wall bars as shown, however no allowance will be made for additional steel required for bar laps.



VERTICAL WINGWALL DRAINAGE FOR FREE-STANDING WINGWALLS ONLY (RCB Rise 12 ft. & over)

### GENERAL NOTES

#### Wingwall Drainage:

- All wingwalls with weepholes shall have horizontal wingwall drainage as shown. Free-standing wingwalls shall also have the vertical wingwall drainage. Strip drains may be used in lieu of aggregate. See KDOT Specifications for "Abutment Strip Drains" for strip drain requirements.
- Construction and materials for wingwall drainage, including weepholes, geotextile fabric, granular material, and strip drain shall be subsidiary to the bid item, "Class AAA Concrete". Granular material for wingwall drainage shall conform to the requirements of UD-1. Weepholes may be a formed opening or corrugated polyethylene tubing.

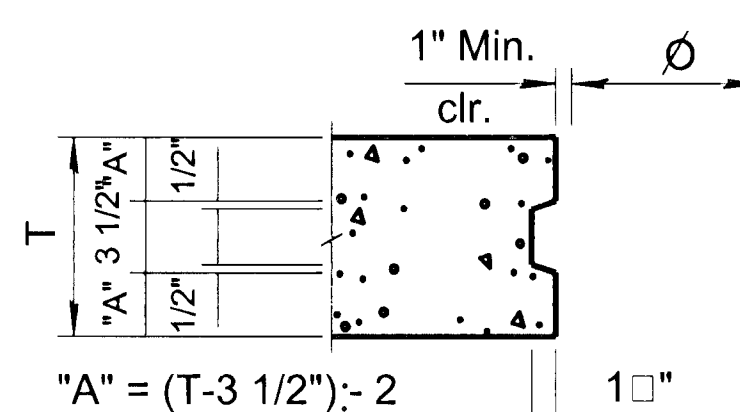
#### Wingwall Subbase:

- Wingwall subbase shall be constructed at all wingwall footings to assure the assumed coefficient of friction between the concrete footing and the foundation, with the following exceptions;
  - Wingwall subbase will not be required for footings on RCB's 6 feet or less in height unless otherwise determined by the Engineer.
  - The subbase will also not be required for footings founded on rock or clean, granular material as determined by the Engineer.
- Subbase shall consist of 4" compacted granular material consisting of commercial grade clean sand or UD-1 material. All excavation, material and labor necessary to construct the wingwall subbase shall be subsidiary to "Class AAA Concrete".

#### Seal Course:

- Seal Course consisting of 3" min. of Commercial Grade Concrete shall be constructed to the limits directed by the Engineer. No reinforcing in the floor of the slab or wall footing shall be placed until the Seal Course has gained sufficient strength to permit working upon it without injury.

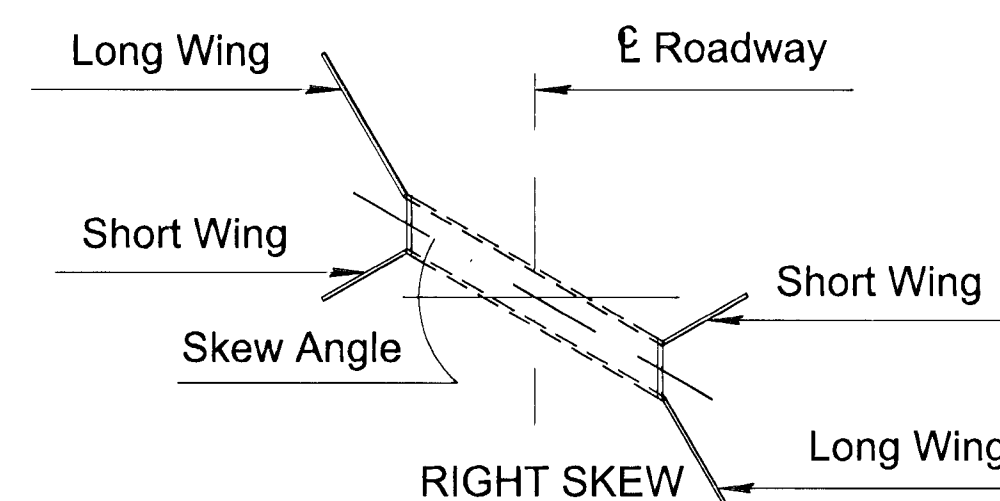
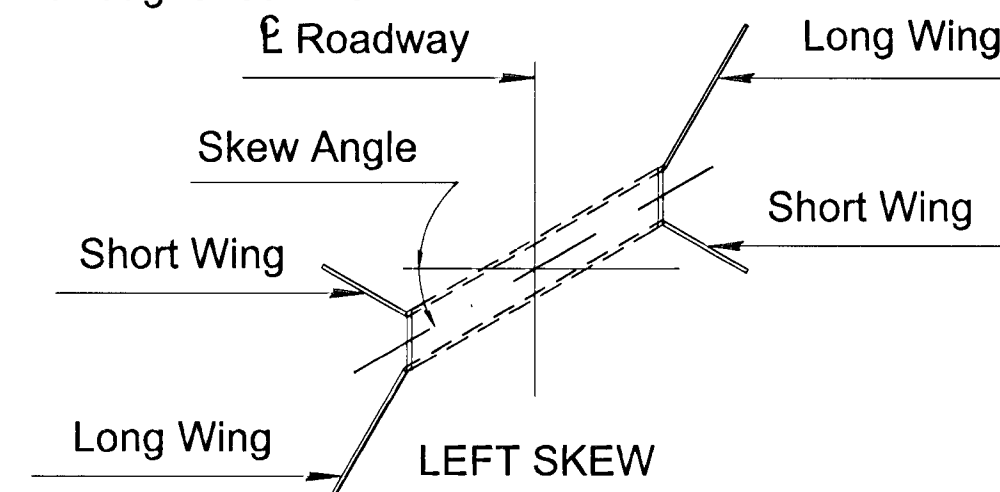
Longitudinal bars shall extend through the joint to provide a minimum lap equal to the required splice length. See RCB Details Sh. for required splice length.



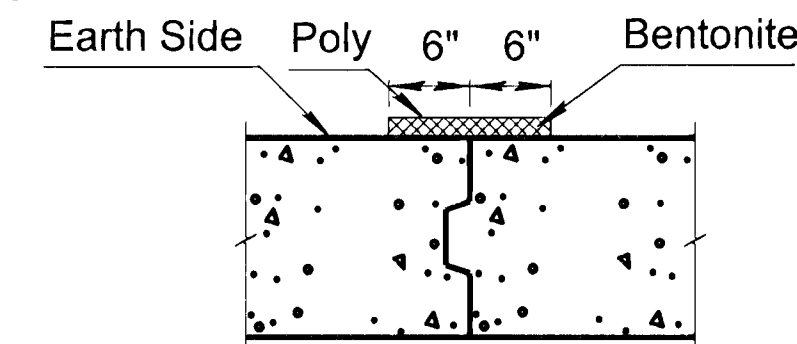
VERTICAL CONSTRUCTION JOINTS

NOTE: Vertical construction joints shall be perpendicular to the longitudinal axis of the RCB and shall be placed at any location as needed for construction and as approved by the Engineer.

NOTE: Horizontal construction joints shall be a roughened finish.



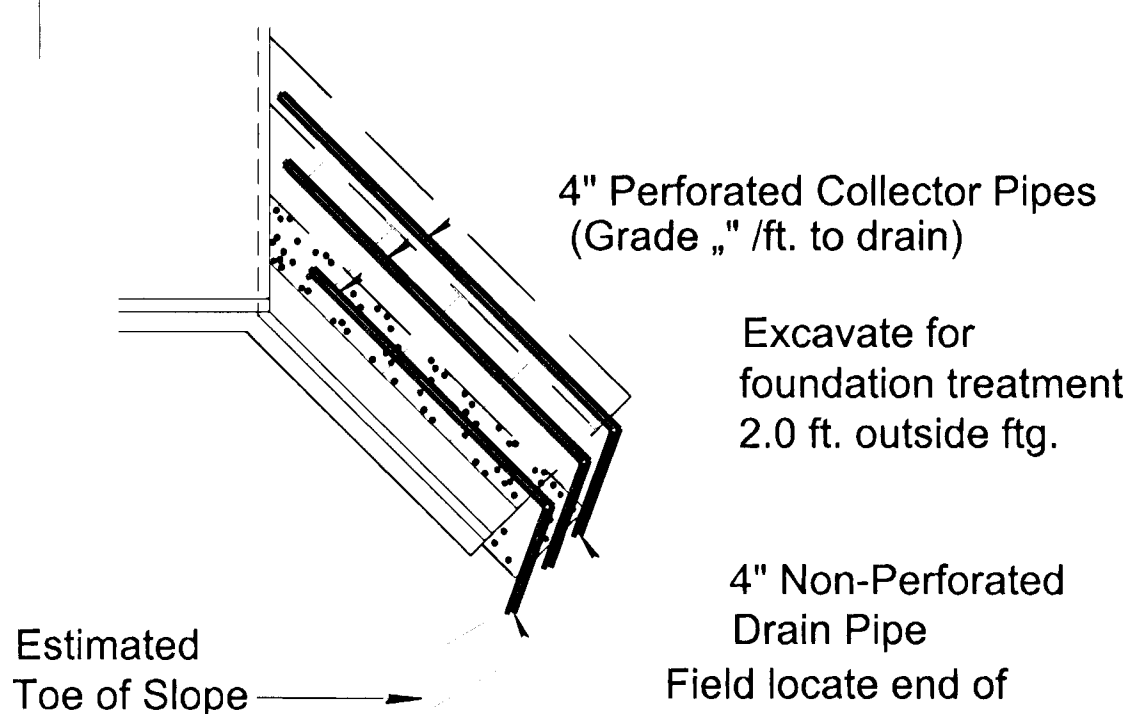
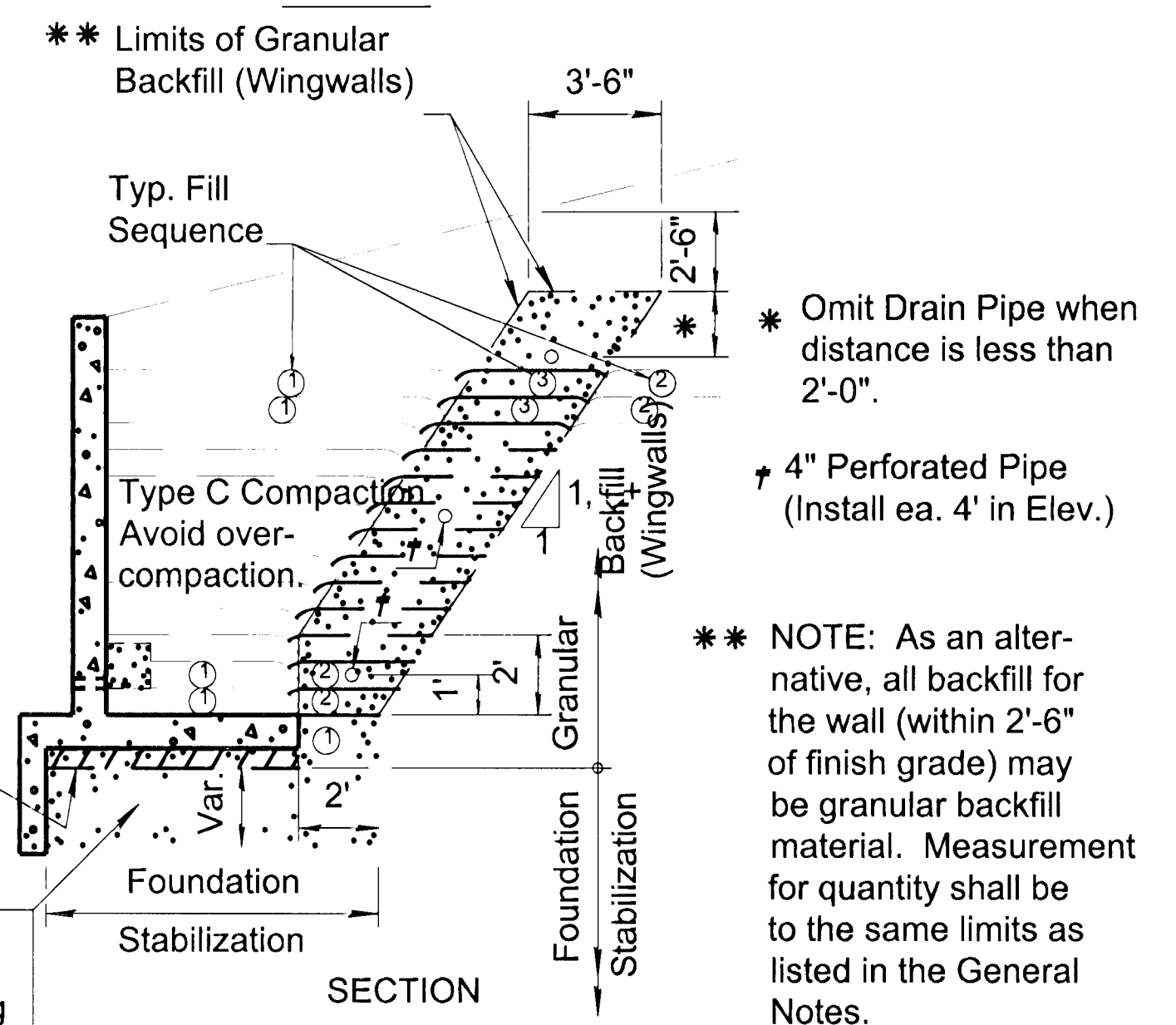
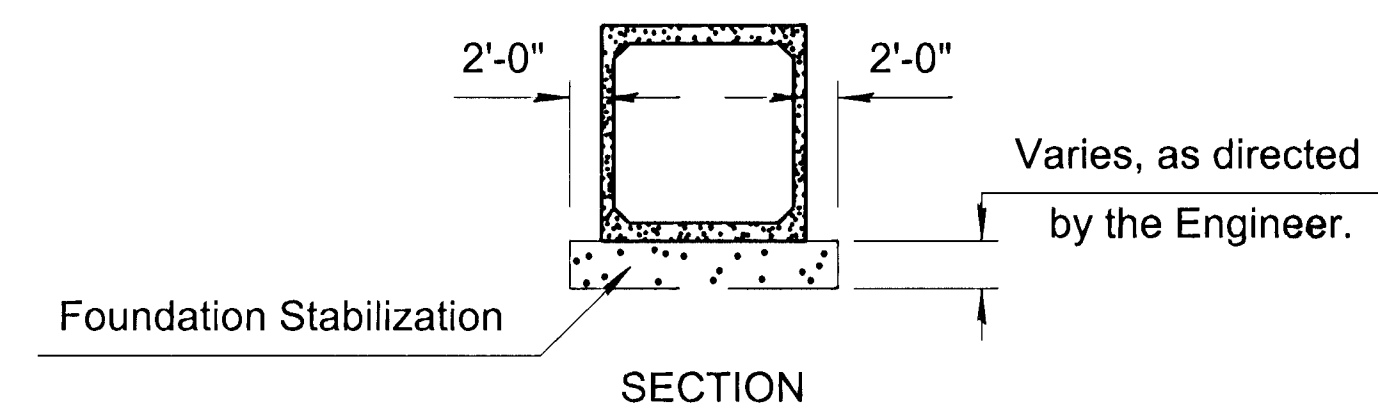
PLAN VIEW SKEWED R.C.B.



NOTE: Barrel Construction Joints located in a median with less than 5 ft. of fill or at locations specified by the Engineer, shall be protected by a bentonite based system as shown. Place the bentonite on the exterior walls and top slab. See requirements for bentonite in the KDOT Specifications for "Bridge Backwall Protection System". Material and installation of the bentonite system shall be subsidiary to the bid item "Class AAA Concrete".

Footing Subbase (4") See note on "Section Thru Wingwall"

Overexcavate and backfill with granular material. Compact in 8" lifts meeting Type B Compaction requirements.



PLAN

### GRANULAR BACKFILL AND FOUNDATION STABILIZATION

### GENERAL NOTES

#### Foundation Stabilization:

- At sites where the wingwall footing or culvert floor is located within the limits of an existing streambed or is founded on unsuitable material, the Engineer will determine the depth of Foundation Stabilization.
- Foundation Stabilization may be required under the box and/or wingwalls as directed by the Engineer. The granular material placed for foundation stabilization shall be measured and paid for at the contract price per cubic yard for "Foundation Stabilization". Material for Foundation Stabilization shall be suitable backfill material as approved by the Engineer. The excavation for the placement of granular material shall be subsidiary to the bid item, "Foundation Stabilization".

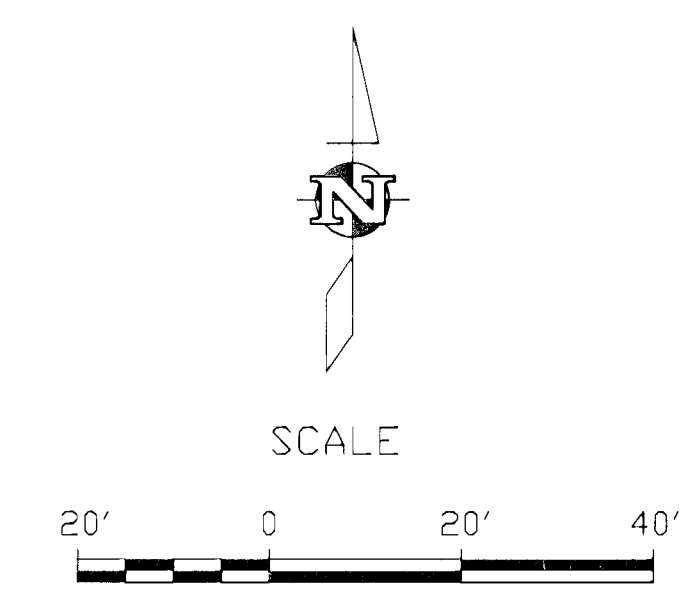
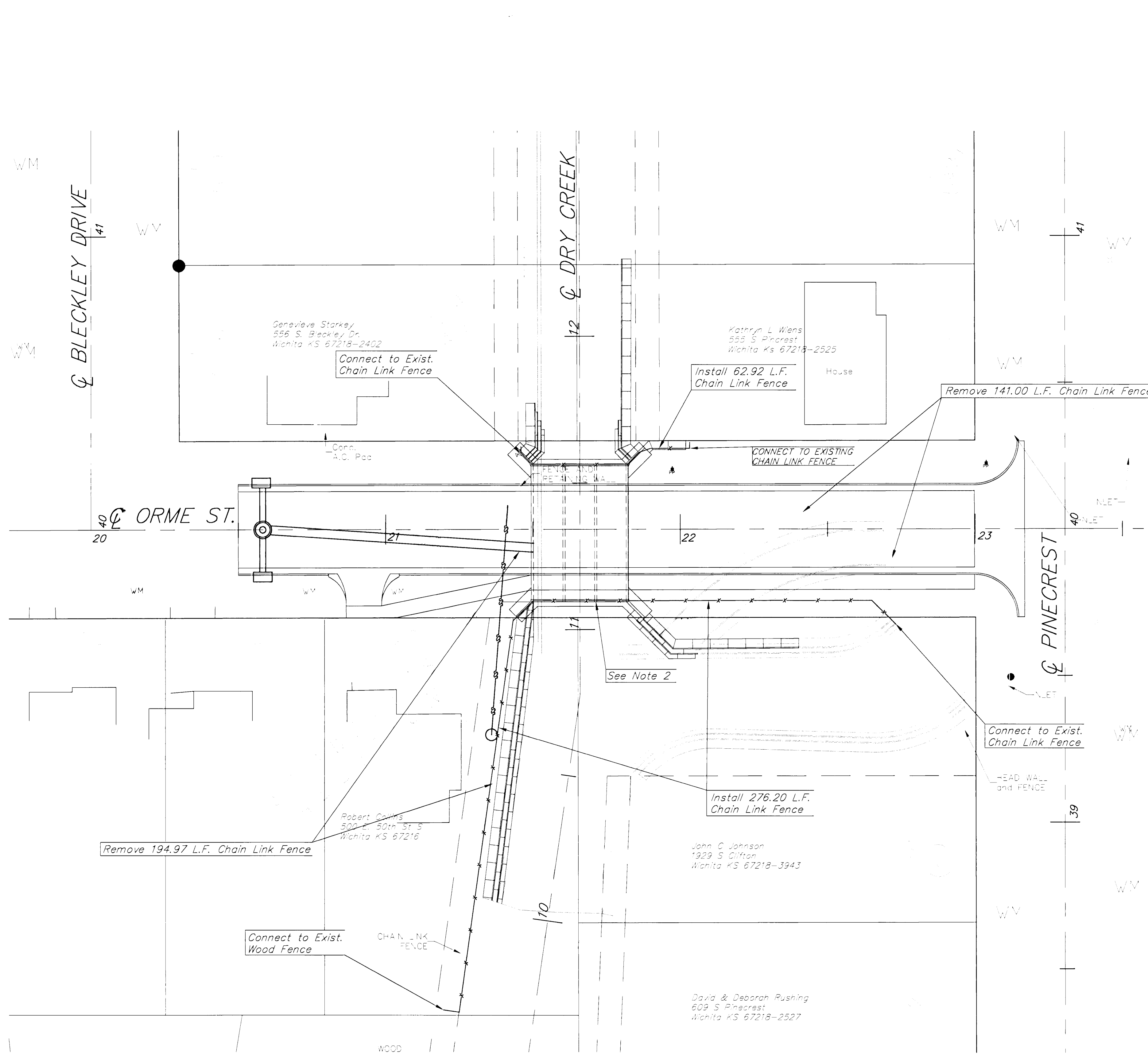
#### Granular Backfill (Wingwalls):

- In locations where the material behind the wingwall consist of soils judged as high plasticity clays, fat clays, expansive clays or organic clays, Granular Backfill (Wingwalls) shall be used. Granular Backfill construction may be used separately or combined with Foundation Stabilization as directed by the Engineer.
- Measurement for the bid item, "Granular Backfill (Wingwalls)", shall be measured in Cubic Yards to the theoretical limits as shown. Drainage pipe, rodent screens, and excavation shall be subsidiary to the bid item, "Granular Backfill (Wingwalls)".
- Material for Granular Backfill (Wingwalls) shall conform to the requirements of UD-1 or BD-1. Drainage Pipe shall be corrugated polyethylene tubing conforming to KDOT Specifications.

|   |         |                                  |     |     |
|---|---------|----------------------------------|-----|-----|
| 3 | 3-28-97 | Wrap granular drains             | RAM | KFH |
| 2 | 9-20-96 | Strip drain & bentonite at joint | RAM | KFH |
| 1 | 10-2-91 | Change drainage details          | RAM | KFH |

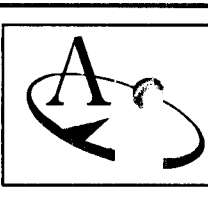
### RCB AUXILIARY DETAILS

|     |         |     |                  |
|-----|---------|-----|------------------|
| RAM | 3-31-97 | RDR | KENNETH F. HURST |
| RRR | RRR     | RRR |                  |



- NOTES:
1. Existing Chain Link Fence may need to be removed. May be reused if in good condition, and approved by the Engineer.
  2. Contractor to submit shop drawings to Engineer for review and approval on method of post attachment to box curb or rcb.

316/282-1281

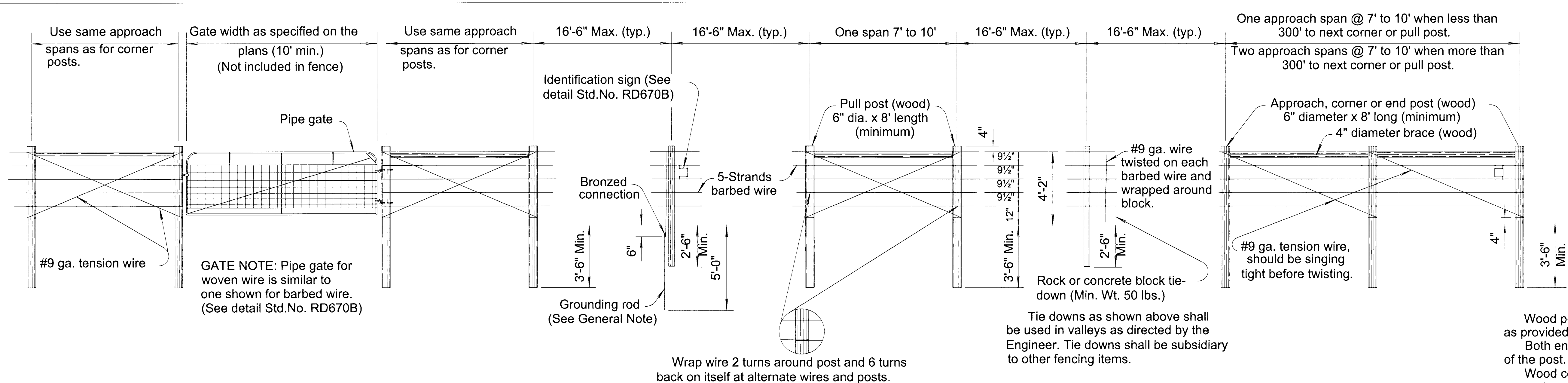


| PROJECT NUMBER |       |       |      |
|----------------|-------|-------|------|
| DESIGN         | DRAWN | FILE  | DATE |
| OK             | mp    | fence |      |

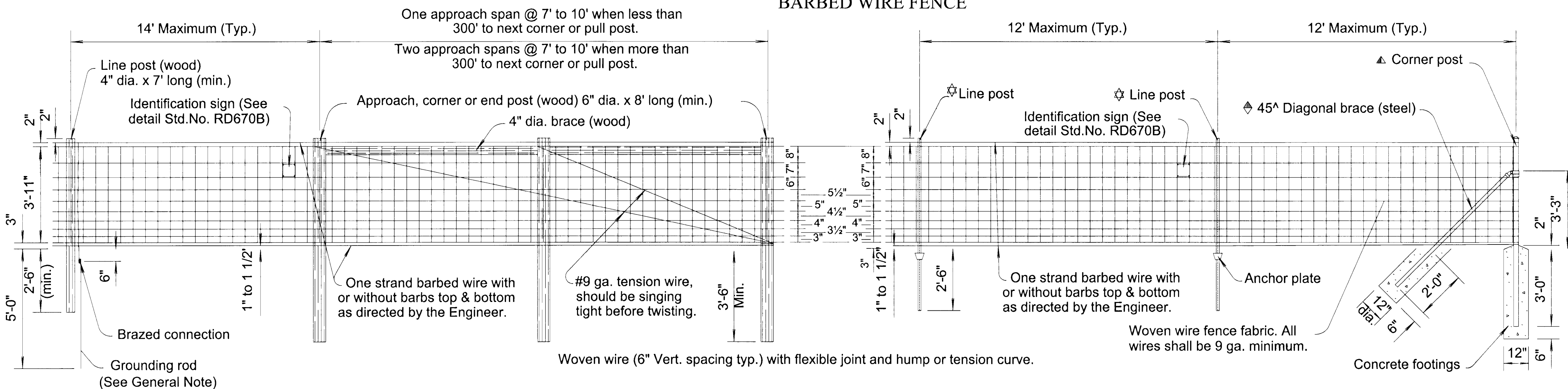
|         |        |
|---------|--------|
| AM. NO. | 00101  |
| SCALE   | 1"=20' |

Orme Street Improvements  
**Fencing Plan**  
Wichita, Kansas

|         |    |
|---------|----|
| SHEET   | 16 |
| OF      | 23 |
| REVISED |    |



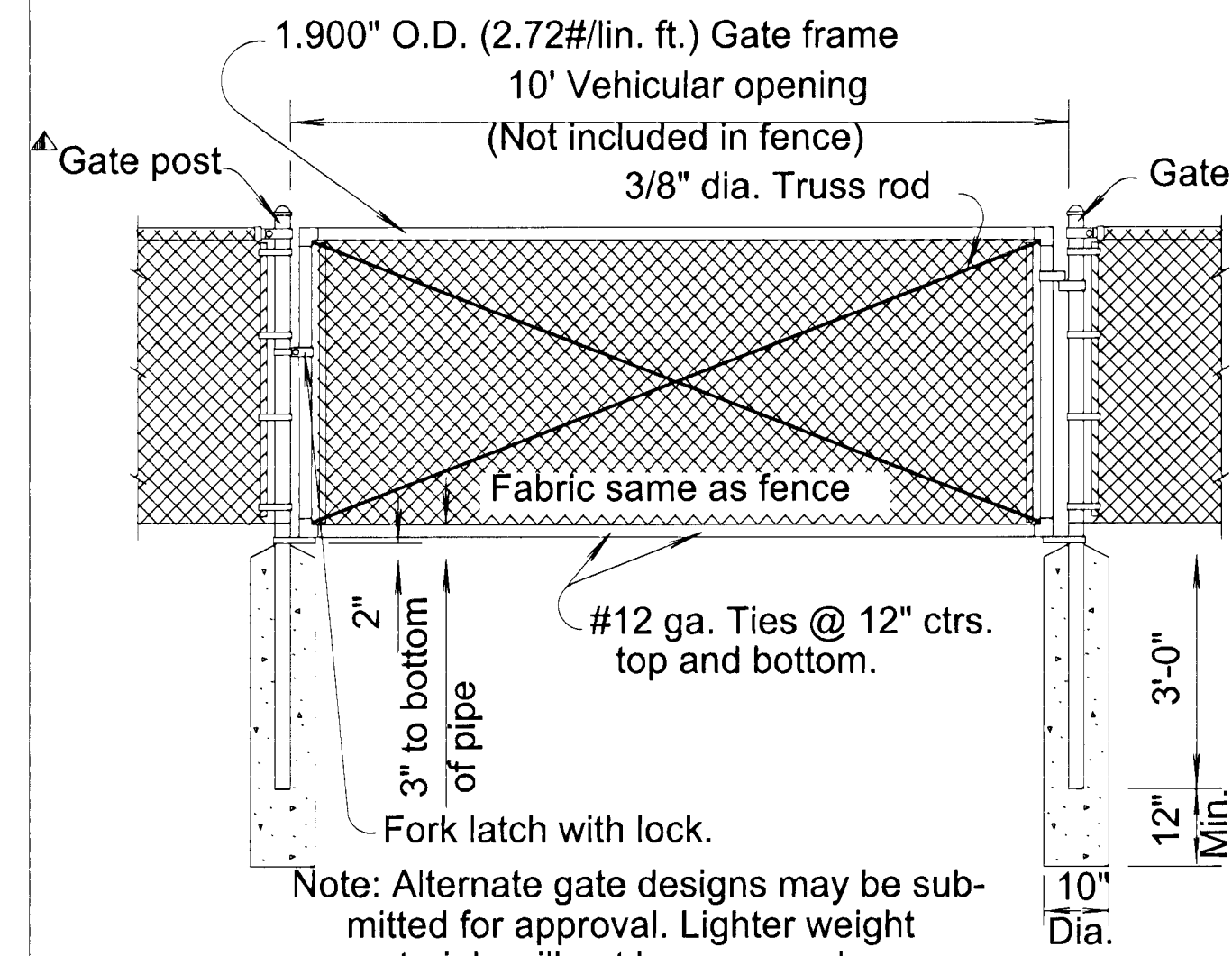
### BARBED WIRE FENCE



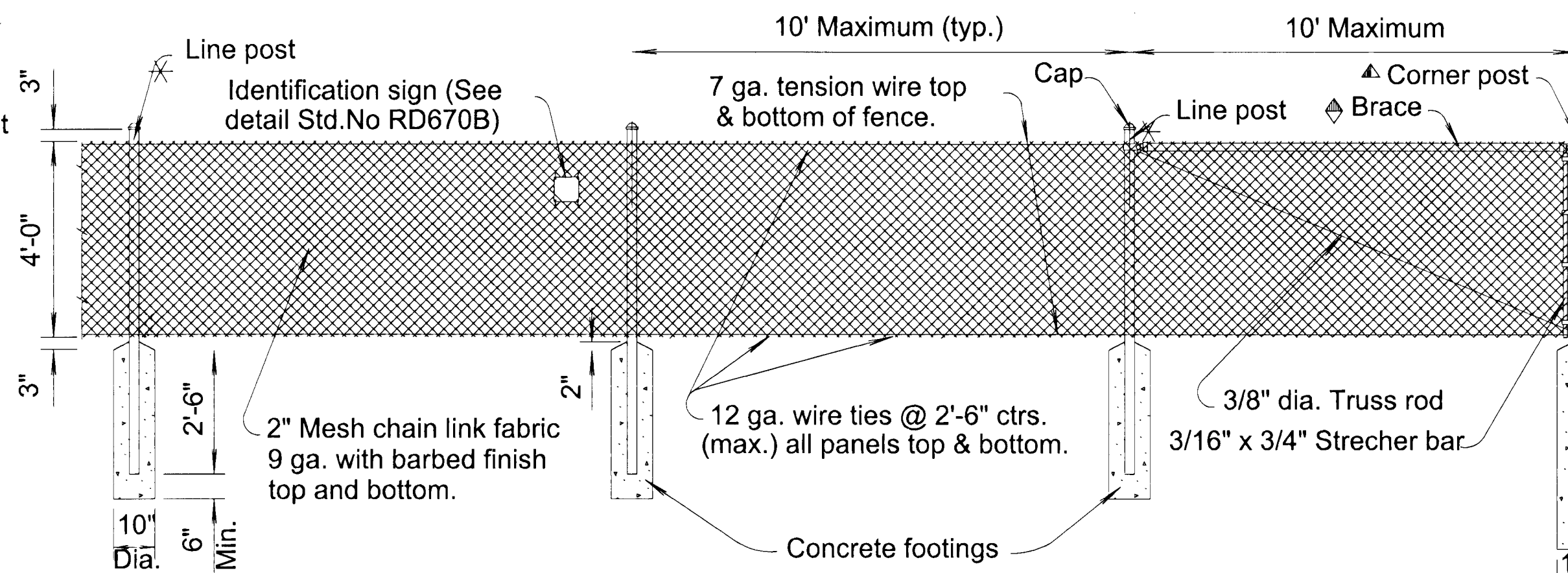
### WOVEN WIRE TYPE A FENCE

Pull post assembly for woven wire with wood posts shall be similar to barbed wire pull post assembly detail.

### WOVEN WIRE TYPE B FENCE



### DETAIL of GATE, HINGE & SPECIFICATIONS



### CHAIN LINK FENCE

Spec:  
Fabric Finish: Minimum 7 mil. polyvinyl chloride (P.V.C.) Plastic resin finish over galvanized #9 Gage steel wire. Color shall be black. All post and related hardware to install 4' Chain Link Fence shall be finished with polyvinyl chloride (P.V.C.) plastic resin according to manufacture's recommendations. Color shall be black. The P.V.C. plastic coating shall be applied to the galvanized steel wire, all post and related hardware, by the thermal bonding method.

| FHWA REGION NO. | STATE  | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|-----------------|--------|-------------|------|-----------|--------------|
| 7               | KANSAS |             | 2001 | 17        | 23           |

### GENERAL NOTE

Wood posts and braces shall be given a preservative treatment as provided in the K.D.O.T. Standard Specifications.

Both ends of all wood posts shall be cut normal to the axis of the post. Pointed posts will not be permitted.

Wood corner, end, pull and approach posts shall be notched to support ends of wood braces. Wood braces shall be toenailed to the posts with 2-10d nails in each end of the brace.

When wood posts are used, both ends of all tension wires shall be wrapped around the posts twice and stapled in place.

When wood posts are used the fence shall be grounded by a 5/8" diameter galvanized or copper coated rod five feet long, driven vertically until the top is six inches below the ground surface. A #6 solid copper conductor shall be securely fastened to each element of the fence by use of clamps or other suitable device. Grounding rod shall be installed at intervals of 175' maximum.

In lieu of using the galvanized or copper coated rod as described above the contractor may, at his option, use a steel line post at intervals not to exceed each eighth post.

The galvanized or copper coated rod shall be used where power lines pass over the fence.

All steel posts, braces, fittings, and gate frames shall be galvanized and/or coated in accordance with KDOT Standard Spec.

Steel posts shall be provided with fasteners to prevent slippage of the wire strands.

Outside diameters shown for tubular steel posts, bracing and gate frames are nominal. Weight tolerances shall be as shown in the K.D.O.T. Standard Specifications.

Posts may be set by driving or digging. If by digging, the posts shall be set in the center of the hole and the soil tamped securely on all sides.

Pull post assembly shall be used at sharp breaks in vertical grade or at approximately 330' centers (Woven & Chain link) or 1320' centers (Barbed wire) on straight runs or as directed by the Engineer.

Concrete used in fence installation shall conform to the requirements of the K.D.O.T. Standard Specifications.

Woven wire, chain link fabric, barbed wire and tension wire shall be either zinc coated (galvanized) or aluminum coated.

Minimum strength of barbed wire and tension wire shall be as provided in the K.D.O.T. Standard Specifications.

Use #9 gauge galvanized staples 1 1/2" to 1 1/2" long, or #9 gauge galvanized Ring-shank staples 1 1/2" to 1 1/2" long.

Alternate gate designs may be submitted for approval. Lighter weight materials will not be approved.

Padlocks for gates shall be furnished by the State.

| NO. | DATE     | REVISIONS                              | BY     | APP'D  |
|-----|----------|----------------------------------------|--------|--------|
| 5   | 1-12-98  | Rev. line post and end post listing    | R.J.S. | J.O.B. |
| 4   | 3-26-96  | Rev. woven wire cor., end, & pull post | R.J.S. | J.O.B. |
| 3   | 10-19-94 | Revised notes on galvanization         | R.J.S. | J.O.B. |
| 2   | 3-24-93  | Added tie-down location note           | R.J.S. | J.O.B. |

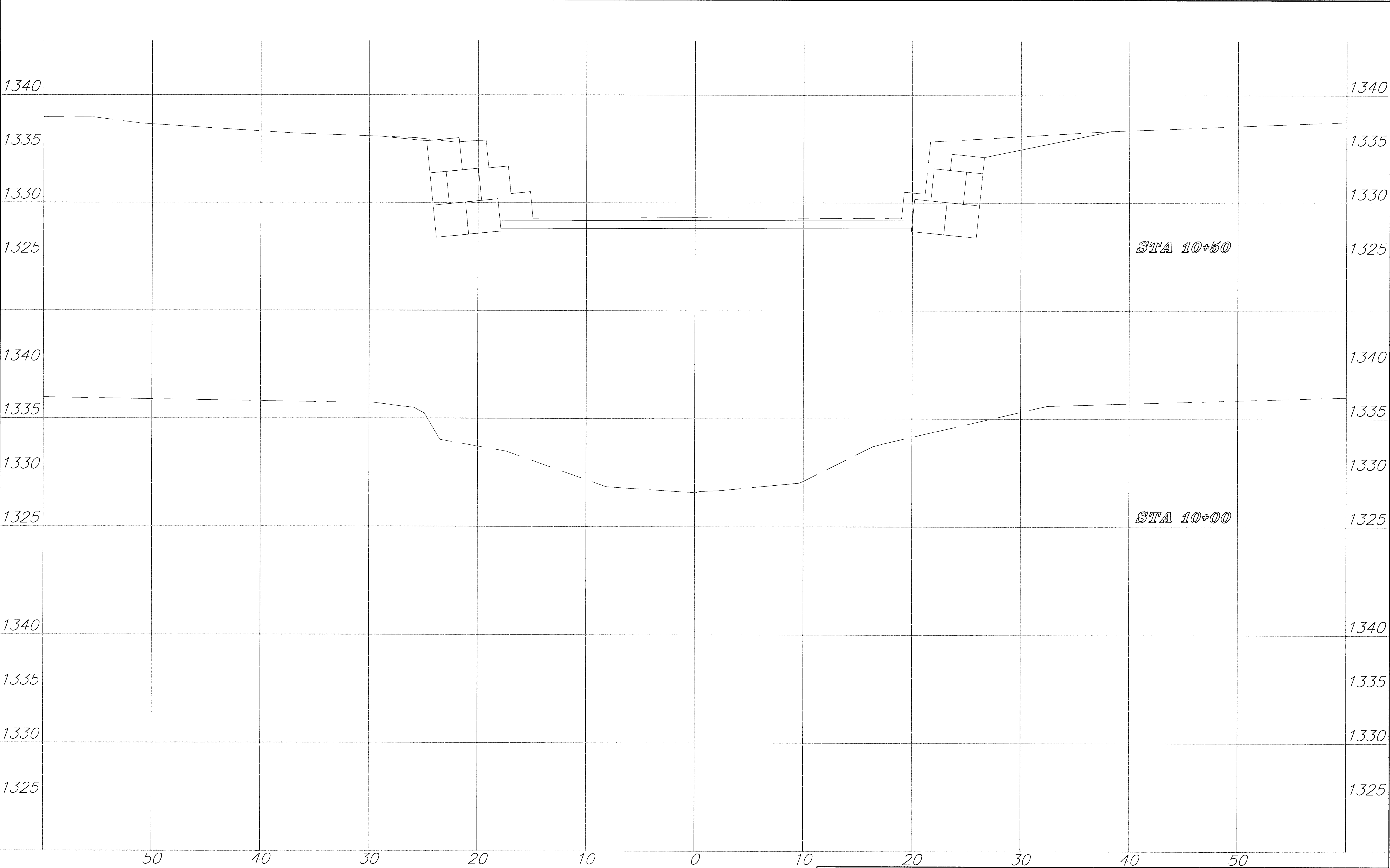
KANSAS DEPARTMENT OF TRANSPORTATION

### HIGHWAY FENCE BARBED, WOVEN, & CHAIN LINK

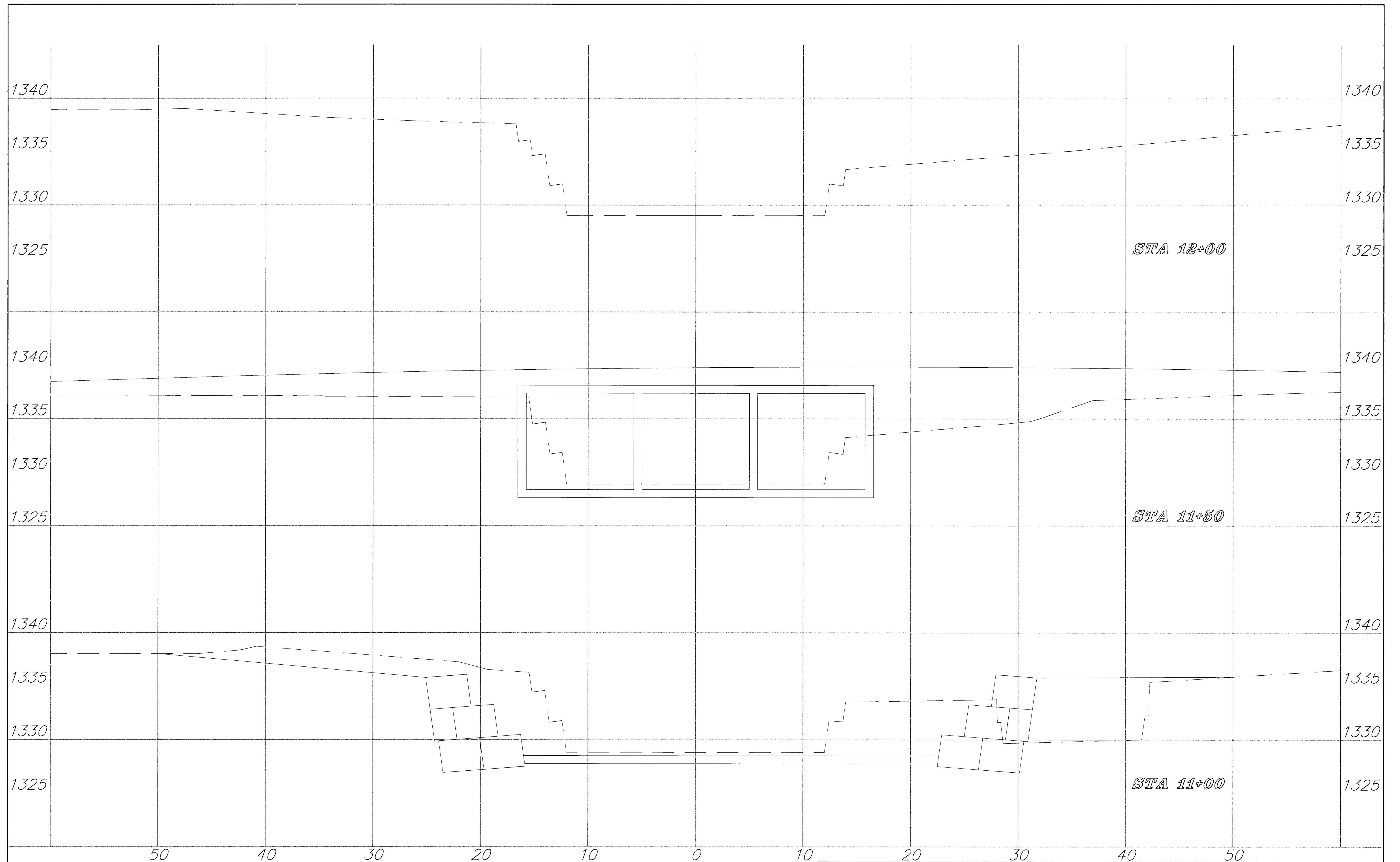
#### RD670A

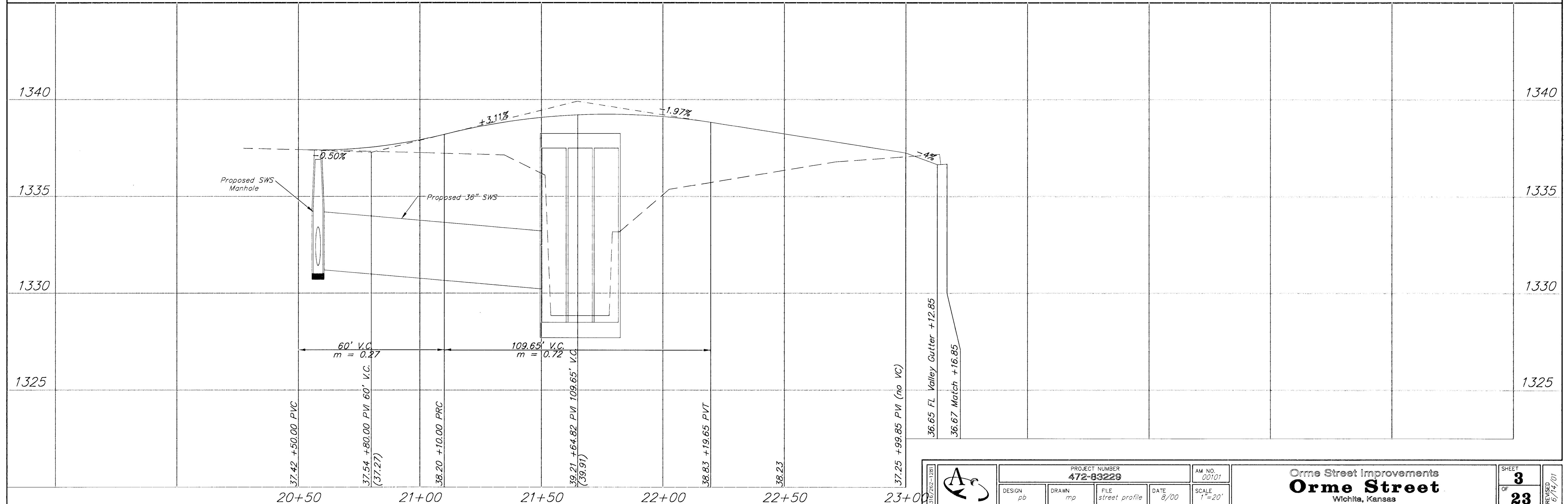
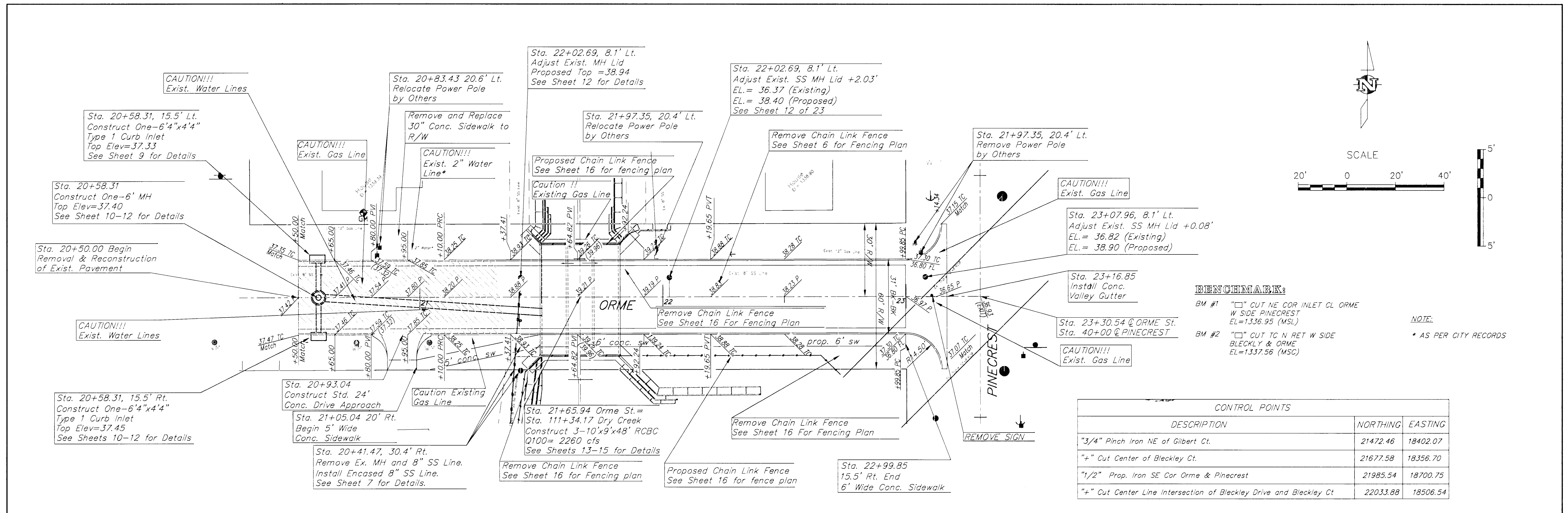
|               |            |                        |           |        |
|---------------|------------|------------------------|-----------|--------|
| FHWA APPROVAL | 2-9-98     | APP'D. James O. Brewer |           |        |
| DESIGNED      | DETAILED   | QUANTITIES             | TRACED    | B.N.B. |
| DESIGN CK.    | DETAIL CK. | QUAN. CK.              | TRACE CK. | R.J.S. |

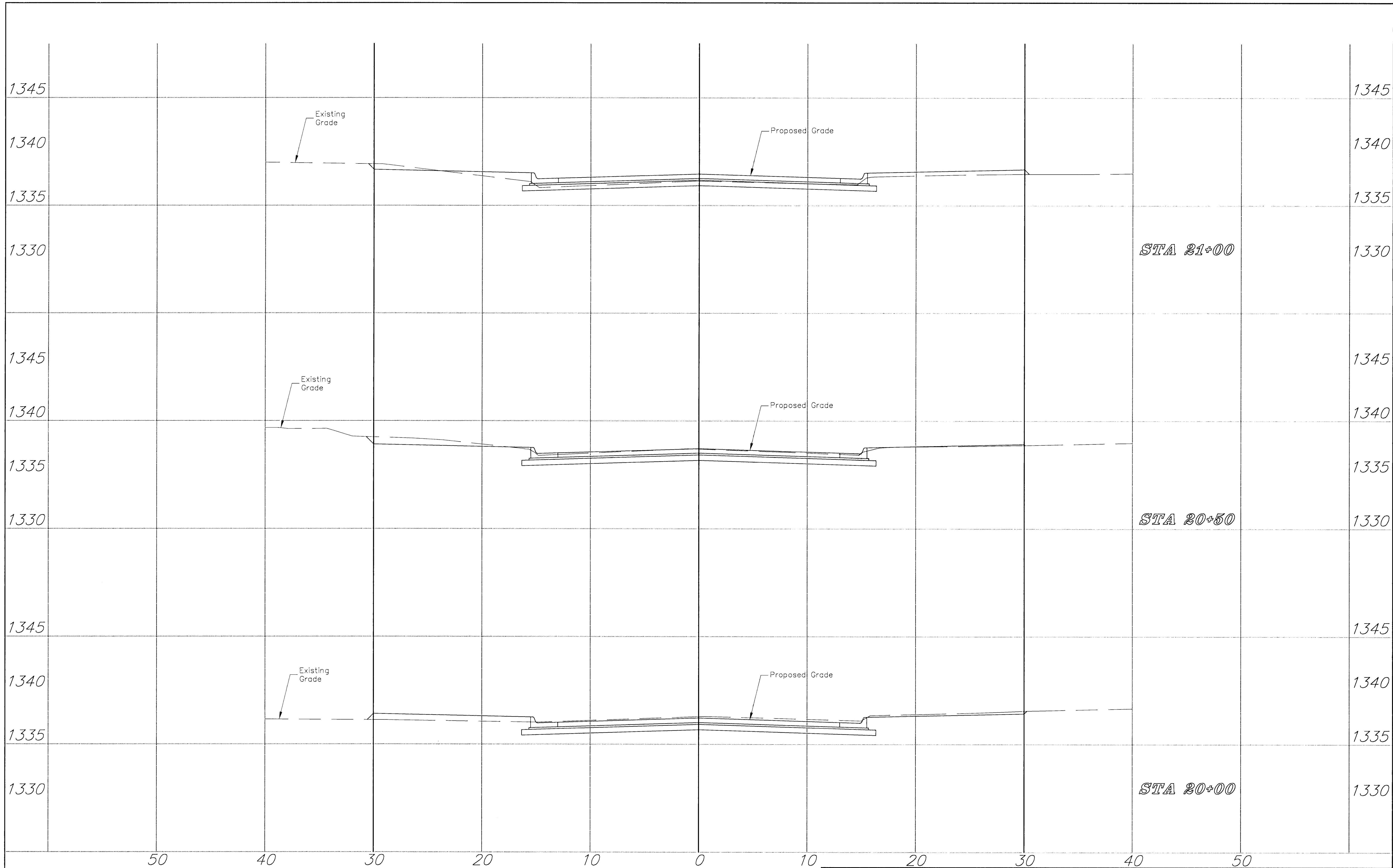




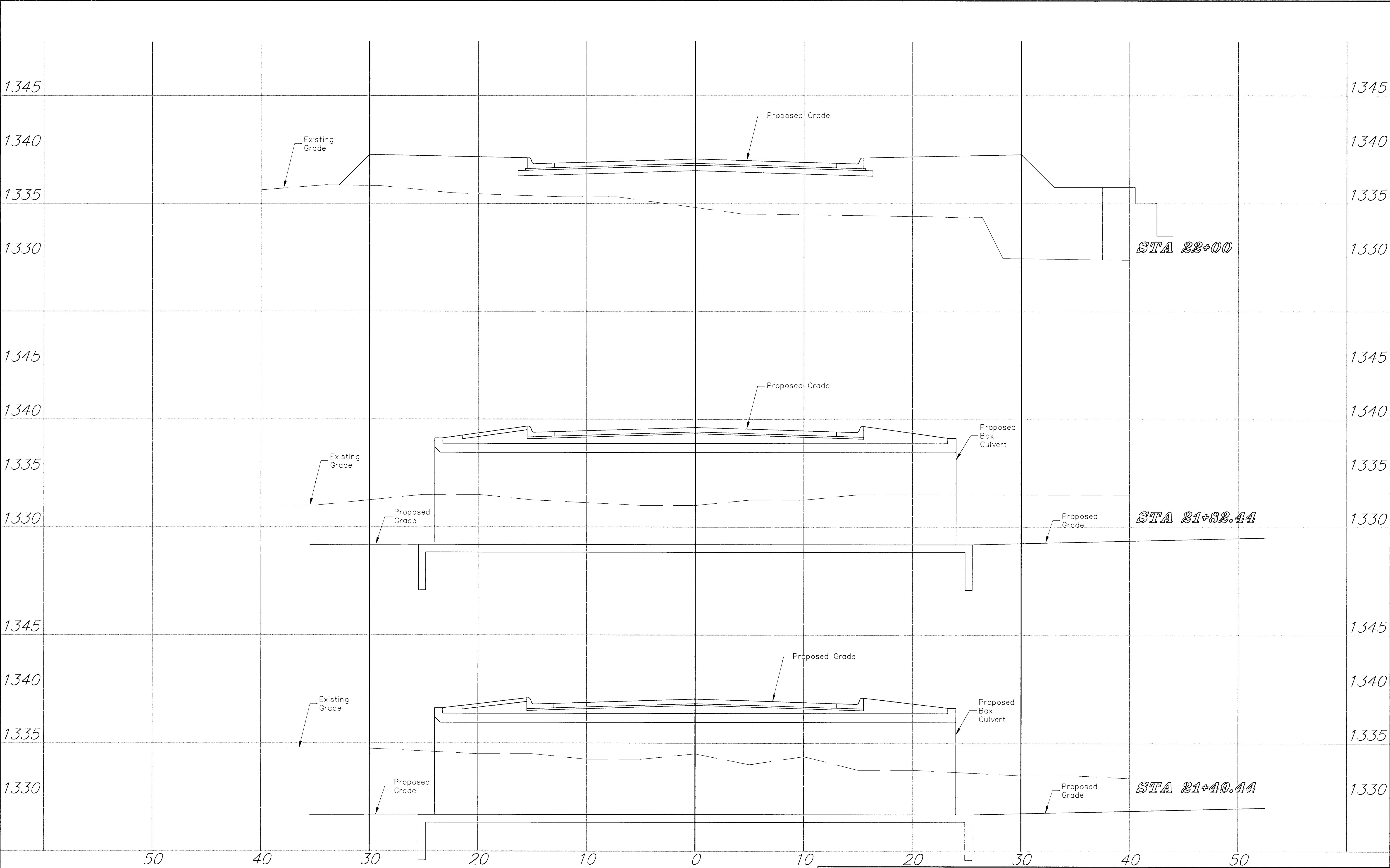
|                                                                                       |                                    |             |                 |               |                                                              |
|---------------------------------------------------------------------------------------|------------------------------------|-------------|-----------------|---------------|--------------------------------------------------------------|
|  | PROJECT NUMBER<br><b>472-83229</b> |             |                 |               | AM. NO.<br>00101                                             |
|                                                                                       | DESIGN<br>pb                       | DRAWN<br>pb | FILE<br>section | DATE<br>11/00 | SCALE<br>1"=4'                                               |
| Dry Creek Channel Improvement<br><b>Sta 9+50 to 10+50</b><br>Wichita, Kansas          |                                    |             |                 |               | SHEET<br><b>19</b><br>OF<br><b>23</b><br>REVISED<br>07/19/01 |

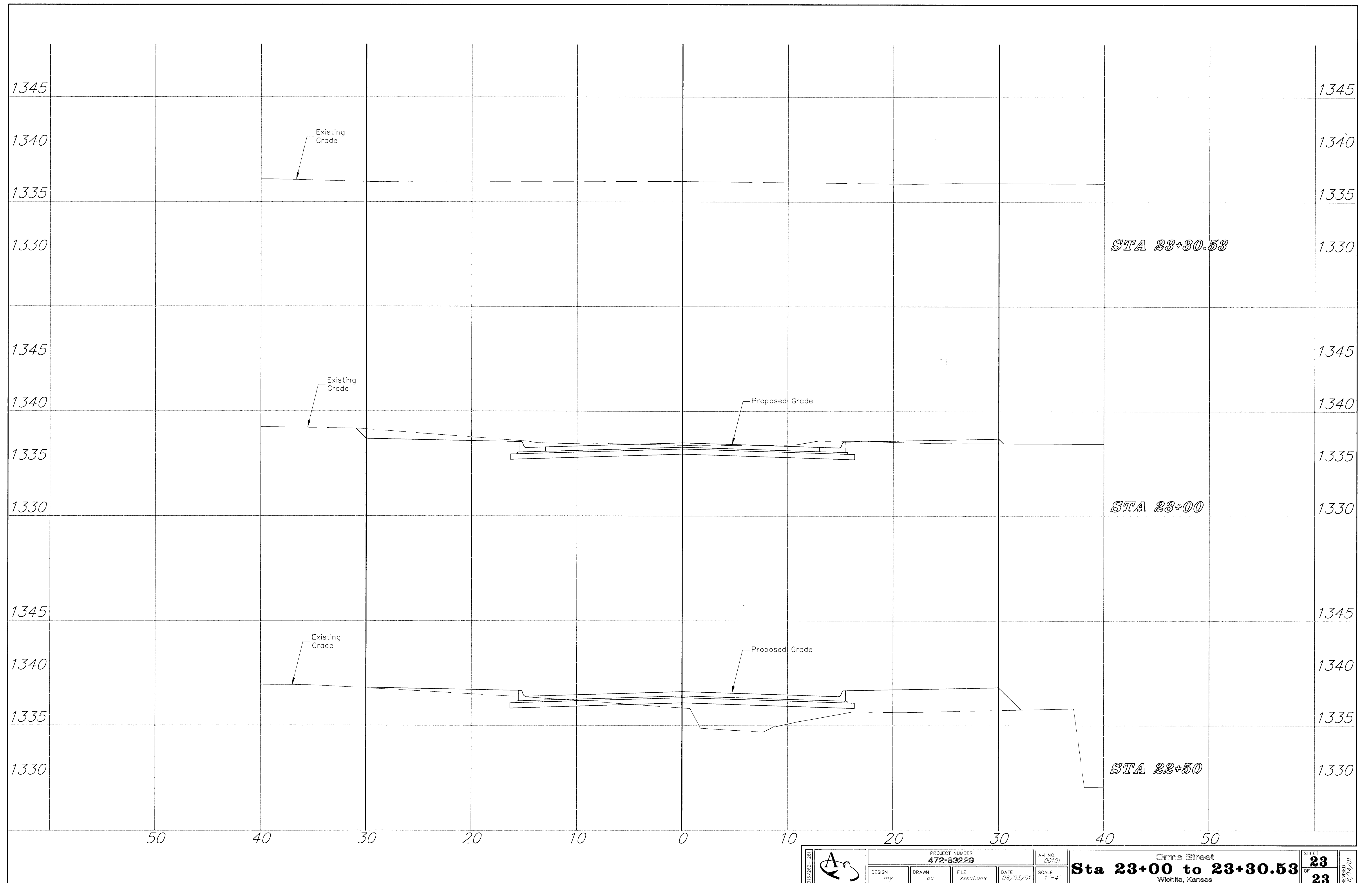






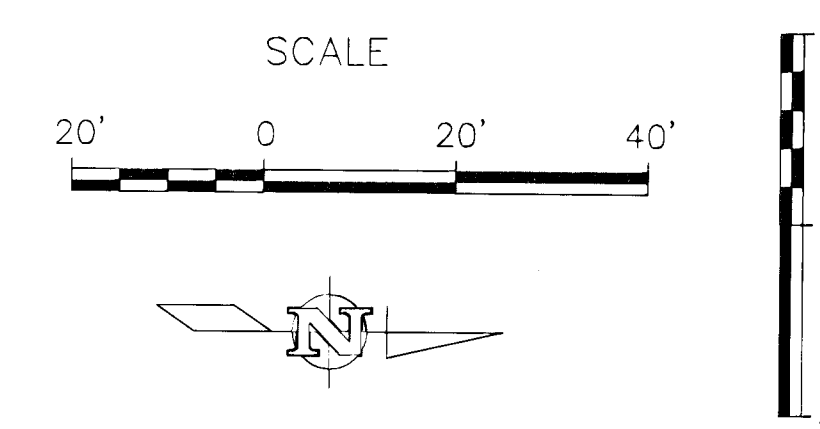
|                                                                                       |                                    |             |                   |                  |                  |                                                             |                                       |                     |
|---------------------------------------------------------------------------------------|------------------------------------|-------------|-------------------|------------------|------------------|-------------------------------------------------------------|---------------------------------------|---------------------|
|  | PROJECT NUMBER<br><b>472-83229</b> |             |                   |                  | AM. NO.<br>00101 | <b>Sta 20+00 to 21+00</b><br>Orme Street<br>Wichita, Kansas | SHEET<br><b>21</b><br>OF<br><b>23</b> | REVISED<br>07/17/01 |
|                                                                                       | DESIGN<br>my                       | DRAWN<br>oe | FILE<br>xsections | DATE<br>08/03/01 | SCALE<br>1"=4'   |                                                             |                                       |                     |





|                                                                                       |                                    |             |                   |                  |                                                                |                                       |                     |
|---------------------------------------------------------------------------------------|------------------------------------|-------------|-------------------|------------------|----------------------------------------------------------------|---------------------------------------|---------------------|
|  | PROJECT NUMBER<br><b>472-83229</b> |             | I.M. NO.<br>00101 |                  | <b>Sta 23+00 to 23+30.53</b><br>Orme Street<br>Wichita, Kansas | SHEET<br><b>23</b><br>OF<br><b>23</b> | REVISION<br>6/14/01 |
|                                                                                       | DESIGN<br>my                       | DRAWN<br>ae | FILE<br>xsections | DATE<br>08/03/01 |                                                                |                                       |                     |

| Station  | Northing | Easting  |
|----------|----------|----------|
| 9+35.78  | 21790.97 | 18486.71 |
| 10+77.88 | 21931.63 | 18506.84 |
| 12+00    | 22053.88 | 18506.54 |



#### BENCHMARK:

BM #1 "□" CUT NE COR INLET CL ORME  
W SIDE PINECREST  
EL=1336.95 (MSL)

BM #2 "□" CUT TC N RET W SIDE  
BLECKLEY & ORME  
EL=1337.56 (MSL)

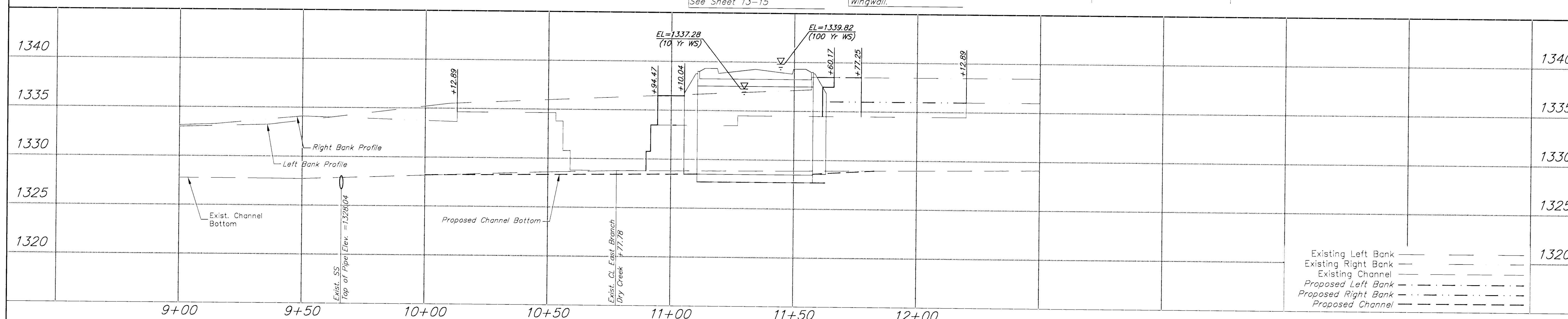
#### RCB DESIGN DATA

DRAIN AREA= 1.53 Sq. Mi.  
DESIGN FREQUENCY= 100 Yr  
DESIGN DISCHARGE= 2260 c.f.s.

OVERTOPPING ELEVATION= 1339.26  
OVERTOPPING DISCHARGE= 2015  
OVERTOPPING FREQUENCY= 50+

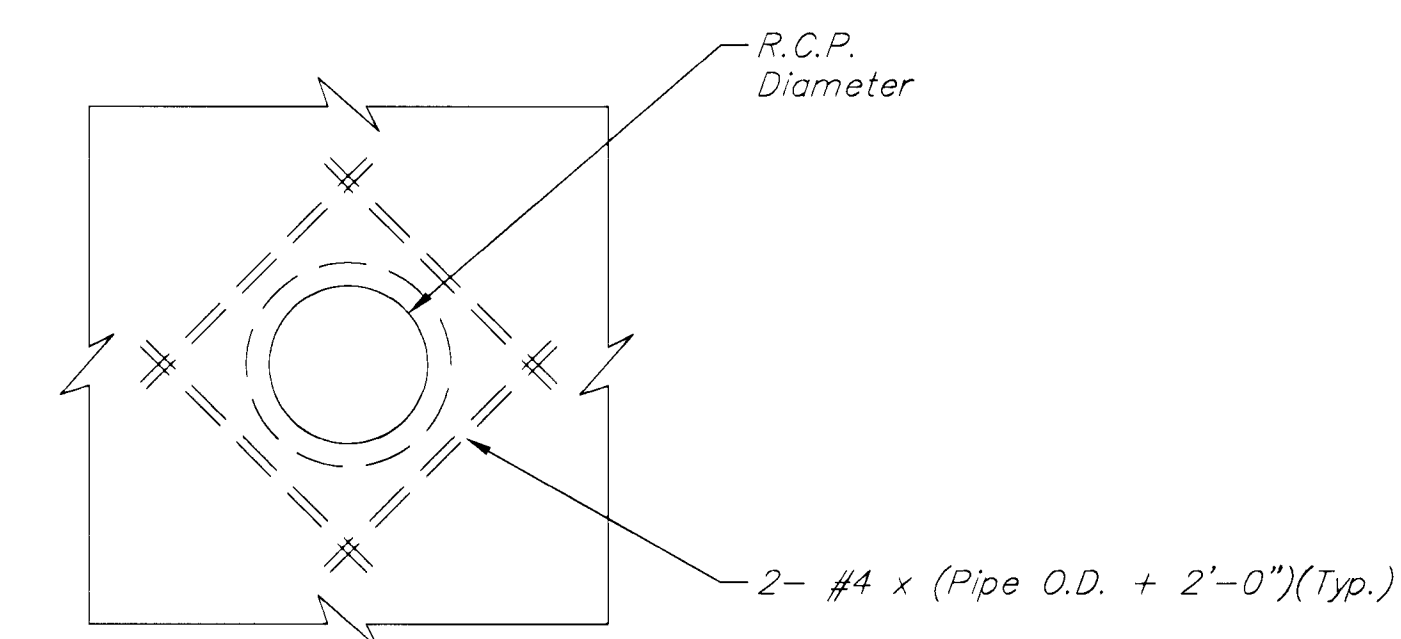
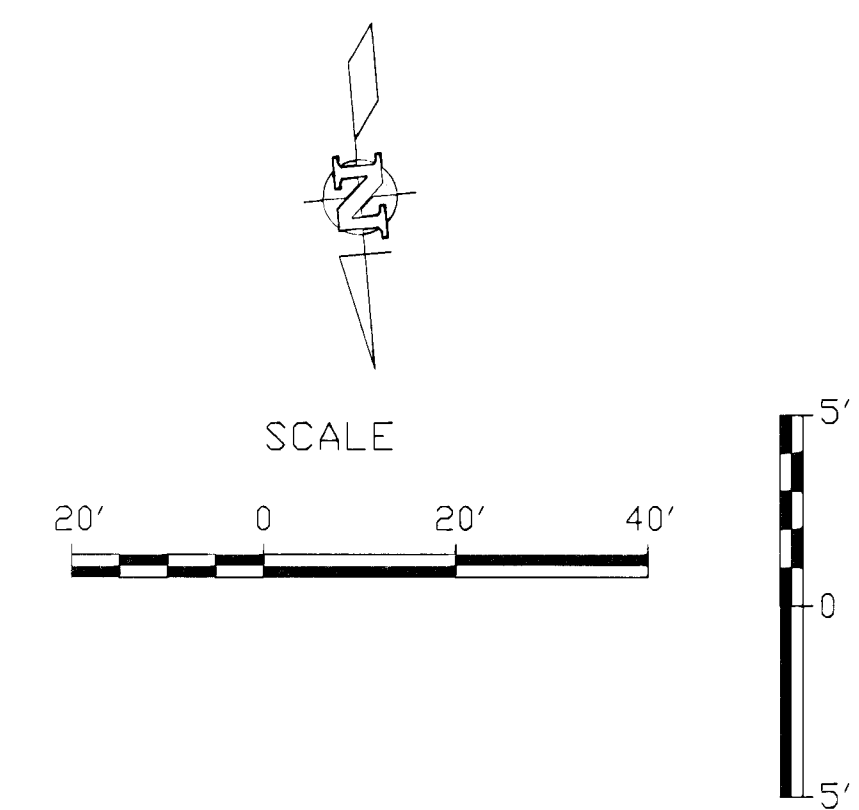
HIGH WATER ELEVATION @ Q100=1339.82  
HIGH WATER ELEVATION @ Q50 =1339.14  
HIGH WATER ELEVATION @ Q10 =1337.28

Remove & Replace  
Existing Reno Mattress



Existing Left Bank  
Existing Right Bank  
Existing Channel  
Proposed Left Bank  
Proposed Right Bank  
Proposed Channel

|                                                                           |             |                 |               |                                                          |
|---------------------------------------------------------------------------|-------------|-----------------|---------------|----------------------------------------------------------|
| PROJECT NUMBER<br><b>472-83229</b>                                        |             |                 |               | AM NO.<br>00101                                          |
| DESIGN<br>pb                                                              | DRAWN<br>pb | FILE<br>channel | DATE<br>11/00 | SCALE<br>1"=20'                                          |
| <b>Orme Street Improvements</b><br><b>Channel Plan</b><br>Wichita, Kansas |             |                 |               | SHEET<br><b>4</b><br>OF<br><b>23</b><br>DATED<br>6/14/01 |



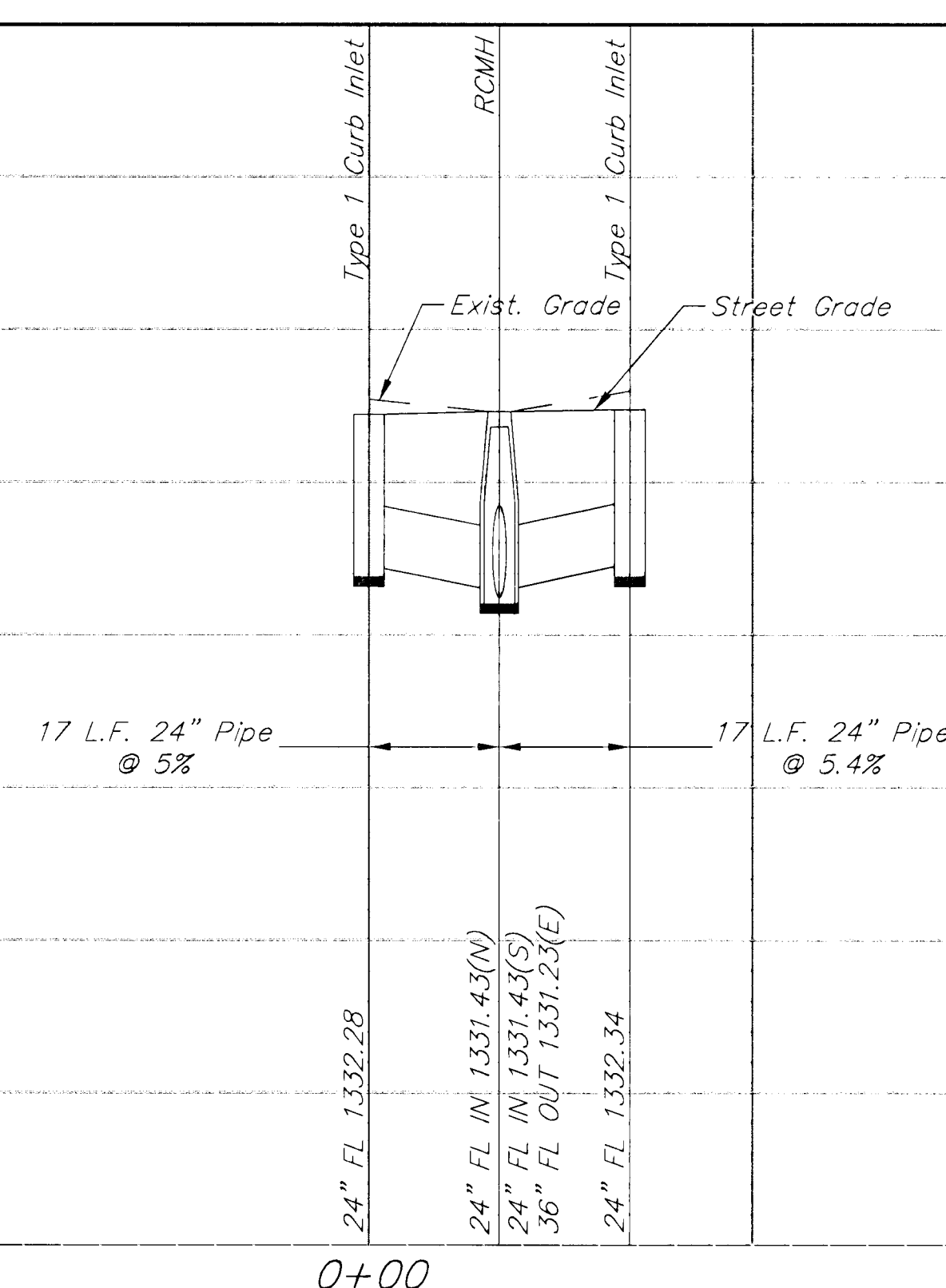
Typical Pipe Opening for RCB

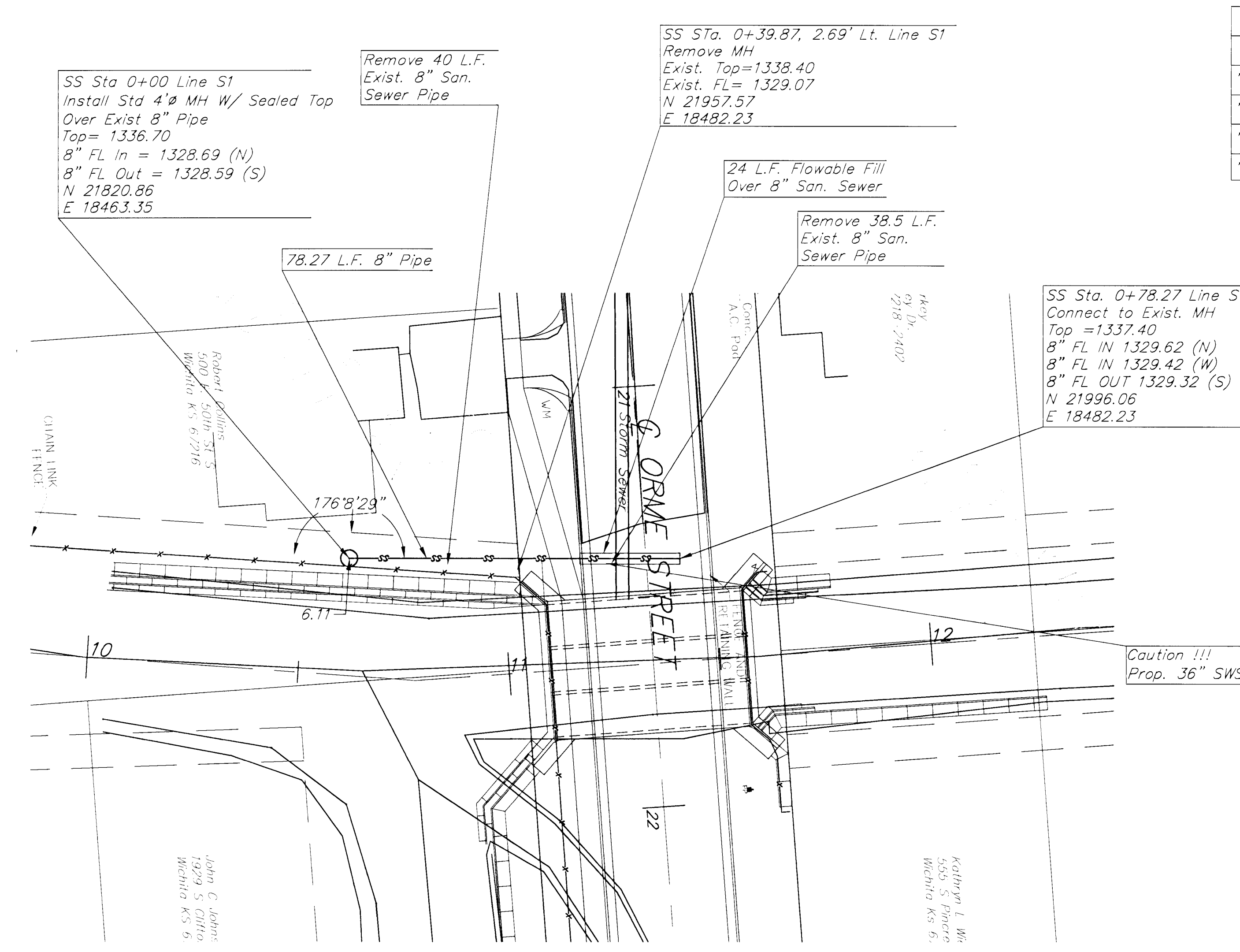
BENCHMARK:

BM #1 "□" CUT NE COR INLET CL ORME  
W SIDE PINECREST  
EL=1336.95 (MSL)

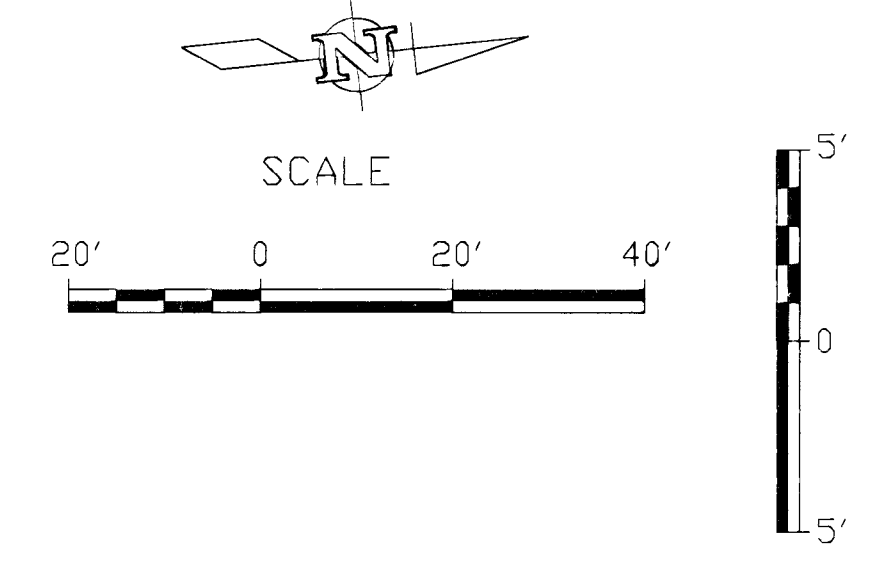
BM #2 "□" CUT TC N RET W SIDE  
BLECKLY & ORME  
EL=1337.56 (MSL)

NOTE:  
\* PER CITY RECORDS

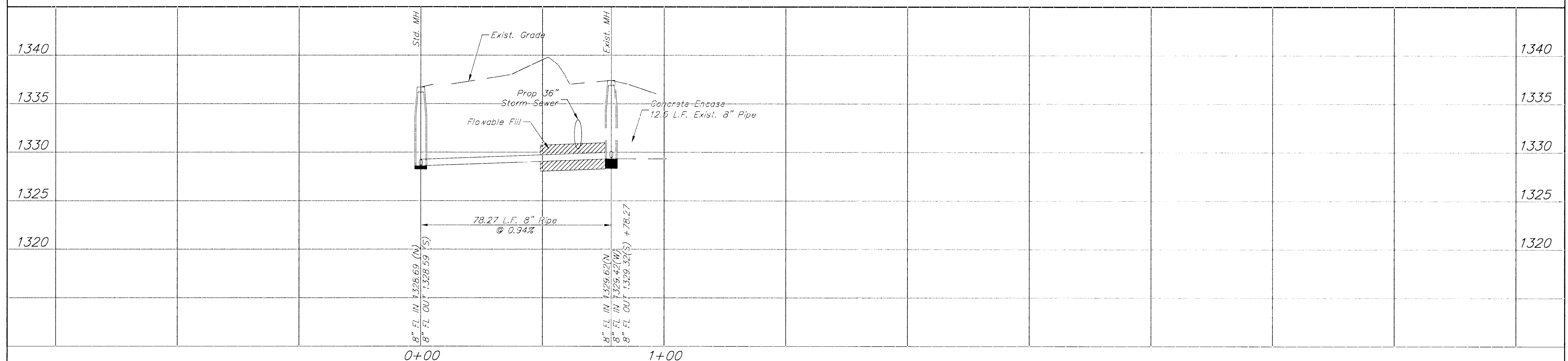




| CONTROL POINTS                                                    |          |          |
|-------------------------------------------------------------------|----------|----------|
| DESCRIPTION                                                       | NORTHING | EASTING  |
| 3/4" Pinch Iron NE of Gilbert Ct.                                 | 21472.46 | 18402.07 |
| 4" Cut Center of Bleckley Ct.                                     | 21677.58 | 18356.70 |
| 1/2" Prop. Iron SE Cor orme & Pinecrest                           | 21985.54 | 18700.75 |
| 4" Cut Center Line Intersection of Bleckley Drive and Bleckley Ct | 22033.88 | 18506.54 |



**BENCHMARK:**  
BM #1 "CUT NE COR INLET CL ORME W SIDE PINECREST EL=1336.95 MSL  
BM #2 "CUT TO N RET W SIDE BLECKLY & ORME EL=1337.56 MSL



472-83229

DESIGN PB

DRAWN AE

FILE 00101-SS

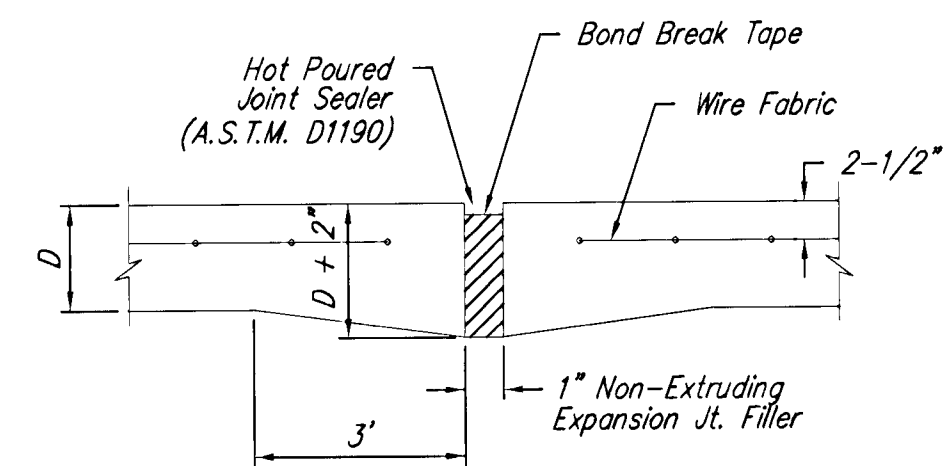
DATE 01/28/01

SCALE 1"=20'

ORME STREET PHASE I  
**SANITARY SEWER**  
WICHITA, KANSAS

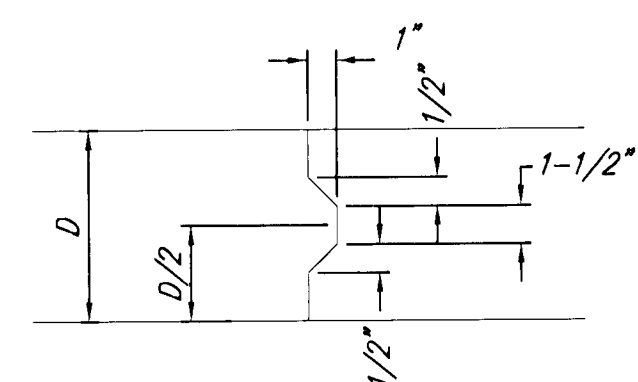
SHEET  
OF  
**6  
23**

10/14/01  
REVISED

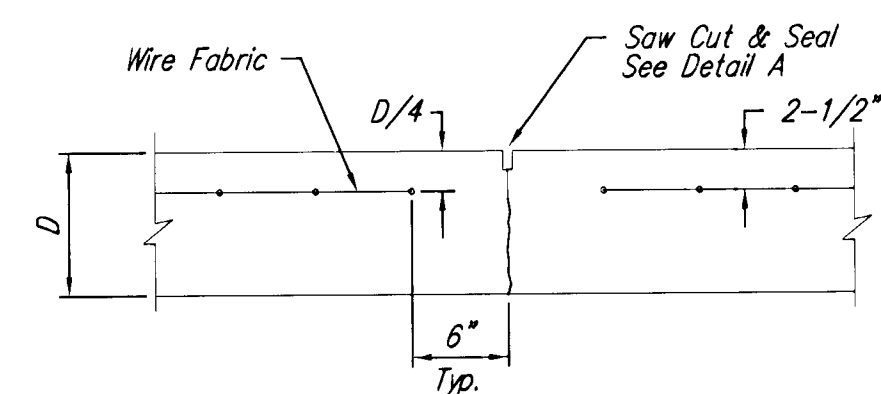


EXPANSION JOINT

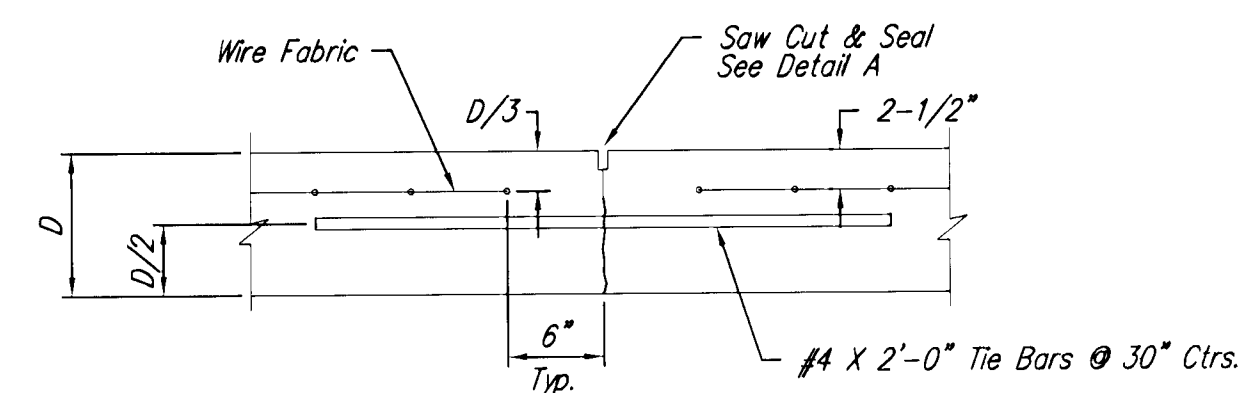
NOTE: Extra Thickness to be Subsidiary to Price of Square Yards Pavement



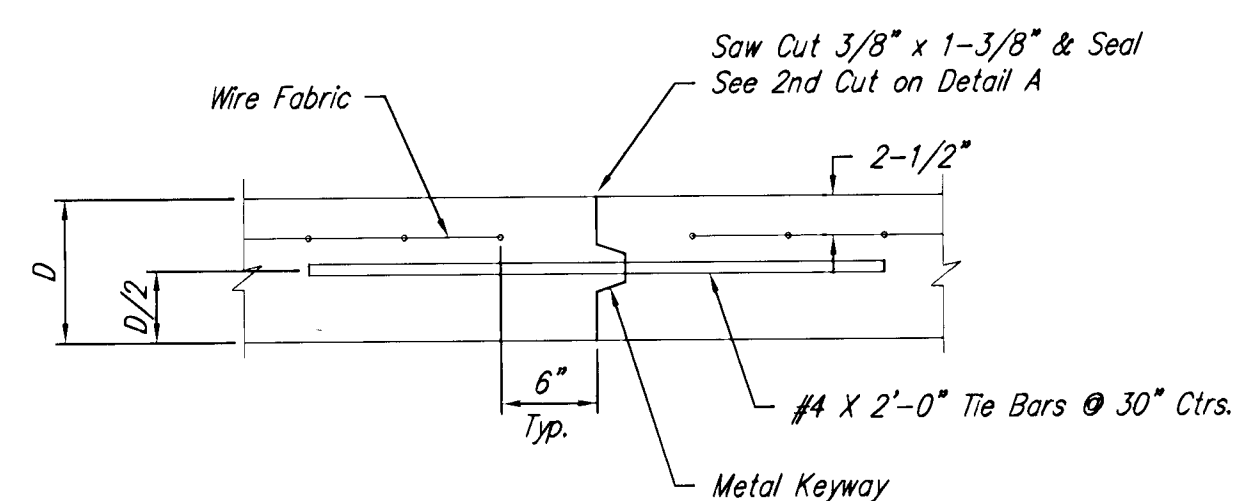
KEYWAY DETAIL



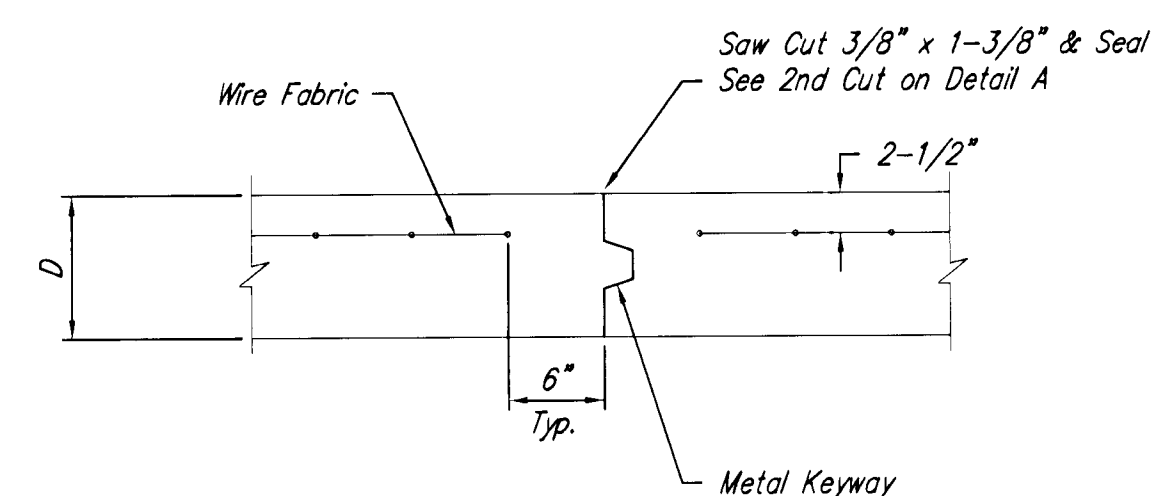
CONTRACTION JOINT DETAIL (C.J.)



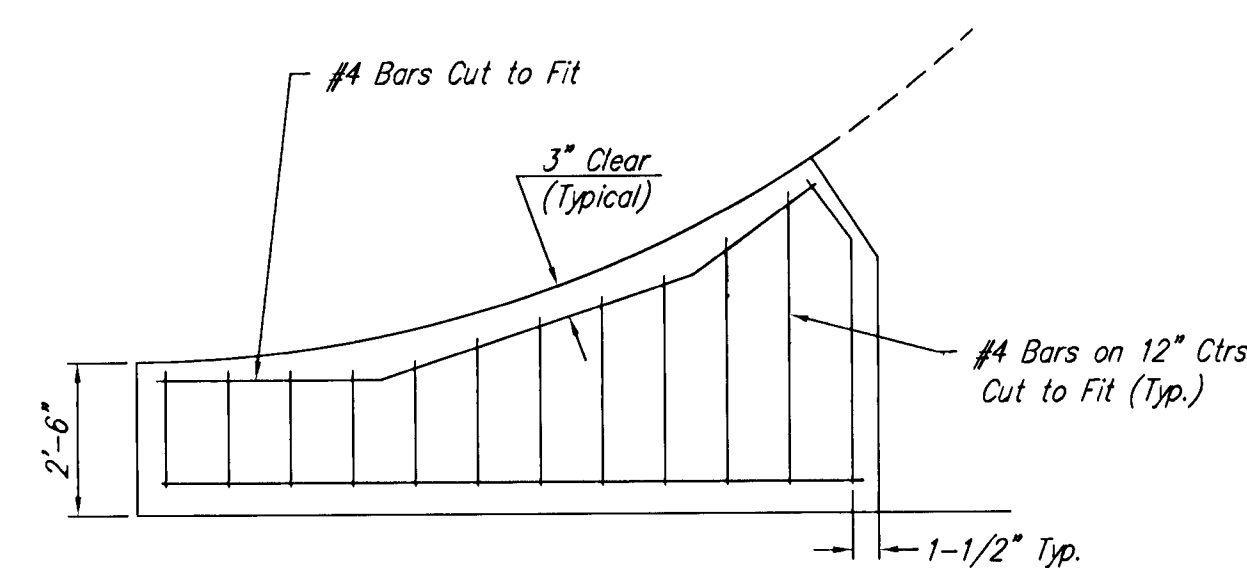
LONGITUDINAL JOINT DETAIL (L.J.)



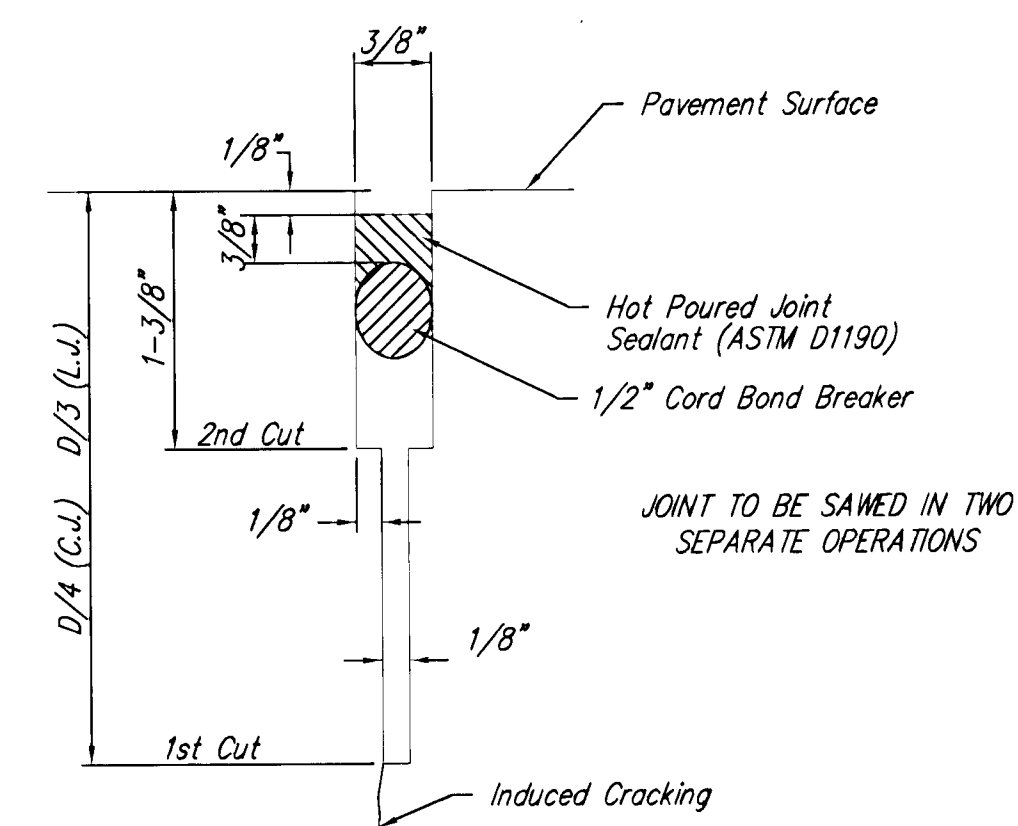
OPTIONAL LONGITUDINAL JOINT DETAIL (L.J.)



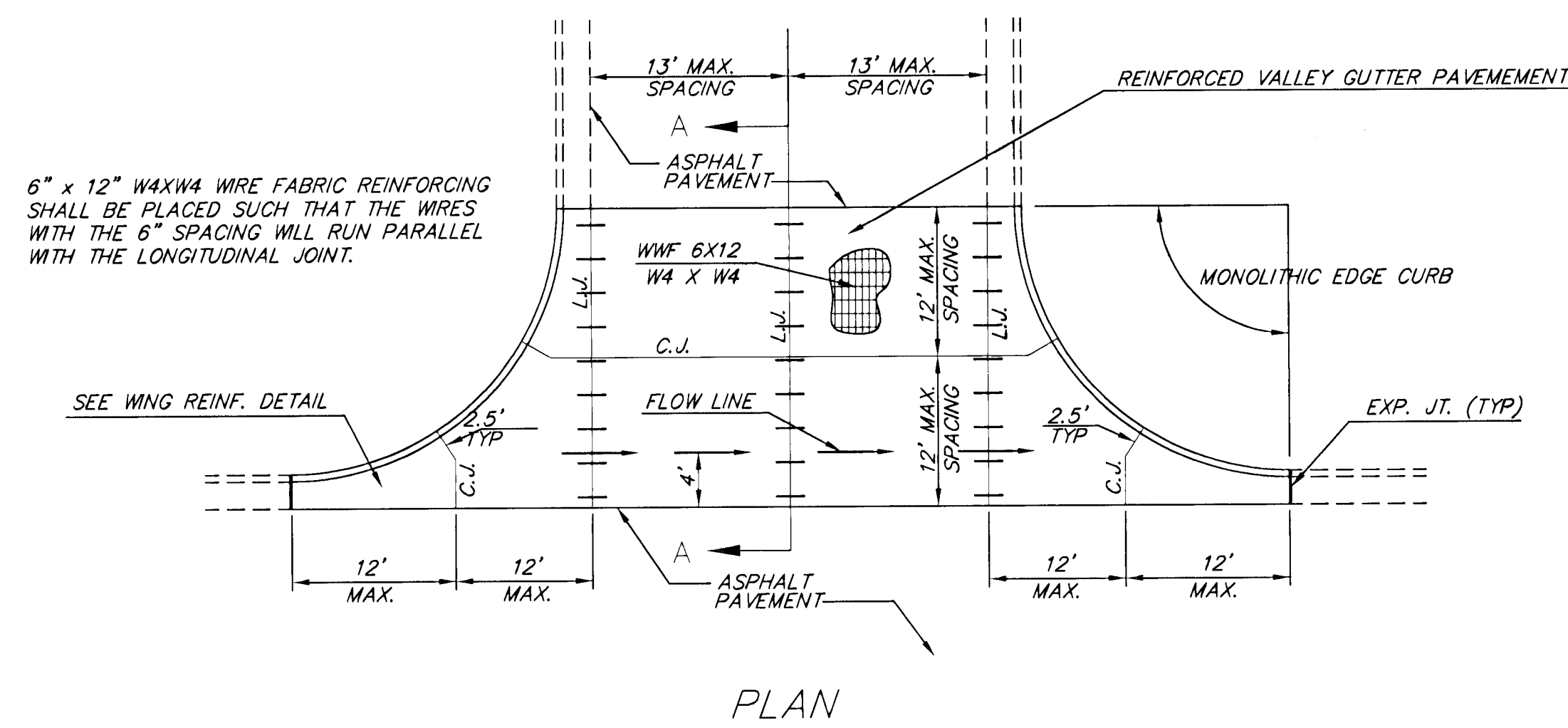
OPTIONAL CONTRACTION JOINT



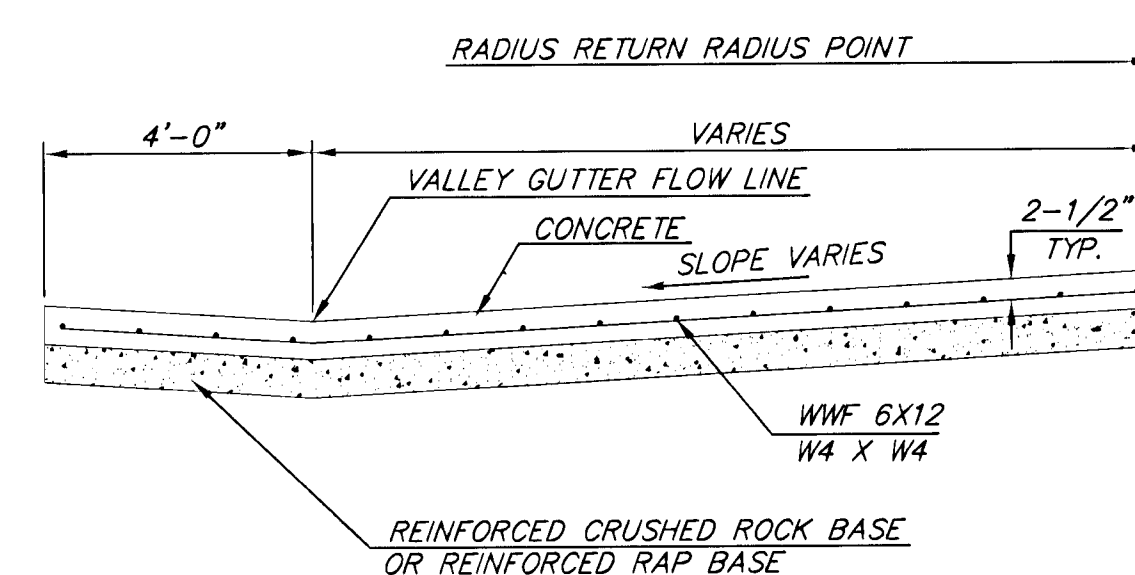
WING REINFORCING DETAIL



SAW JOINT DETAIL

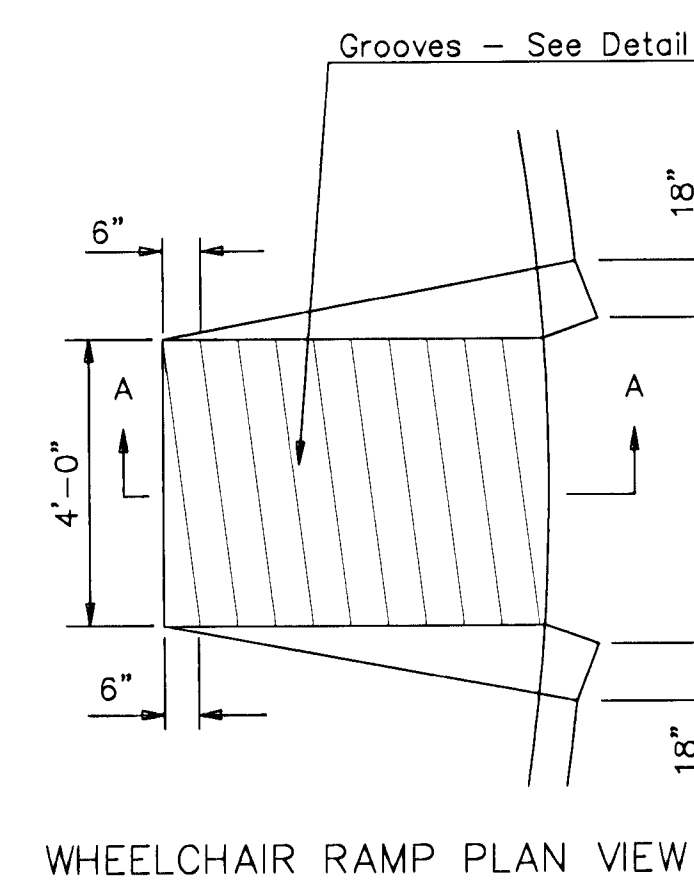


PLAN

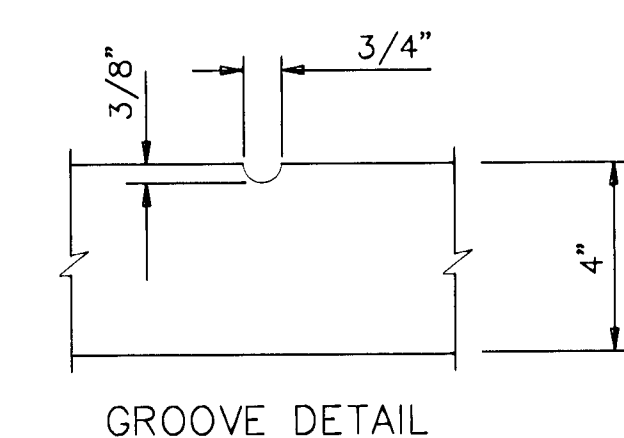


SECTION A-A

REINFORCED VALLEY GUTTER DETAIL

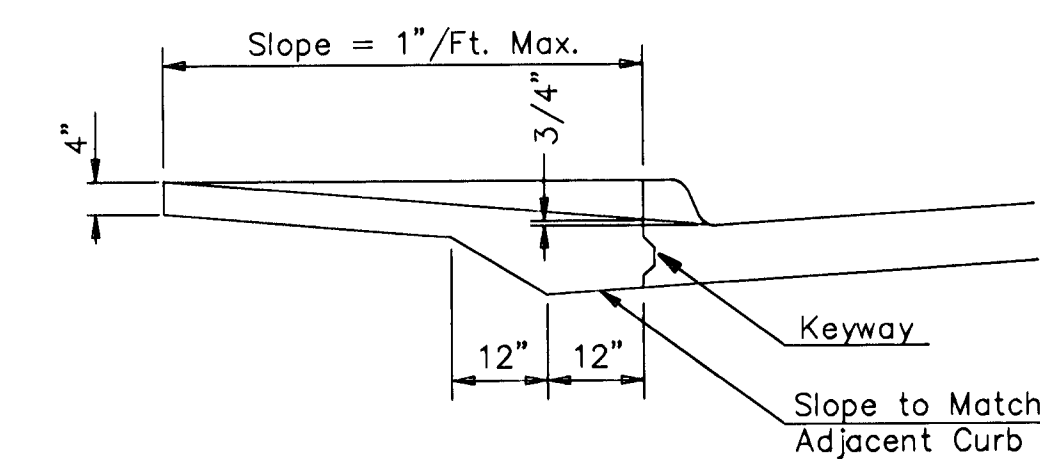


WHEELCHAIR RAMP PLAN VIEW

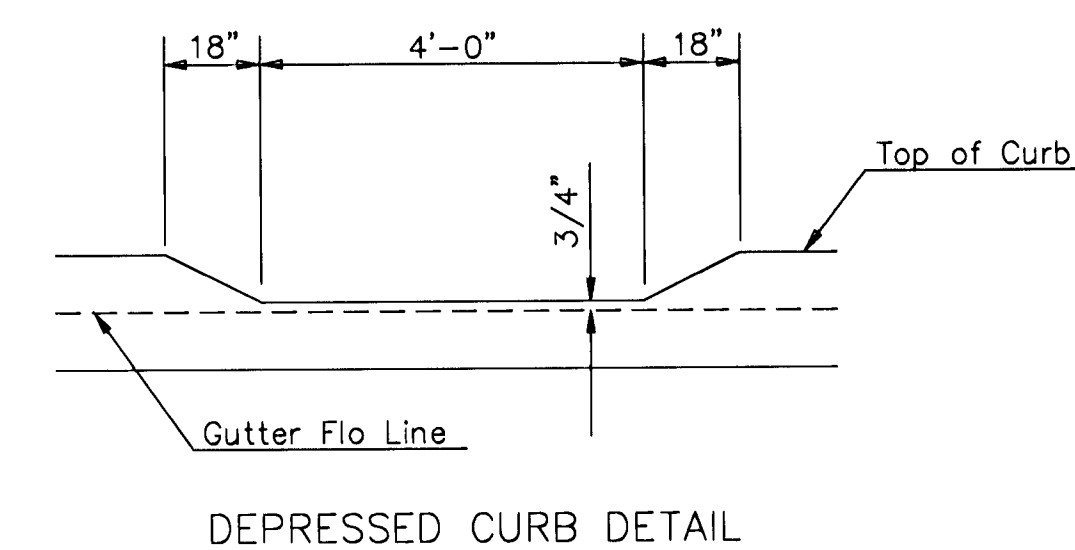


GROOVE DETAIL

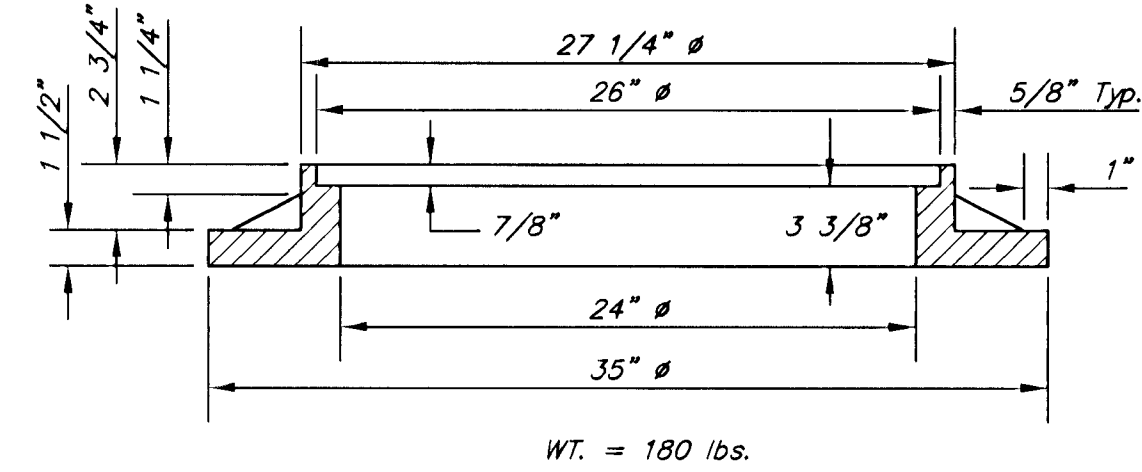
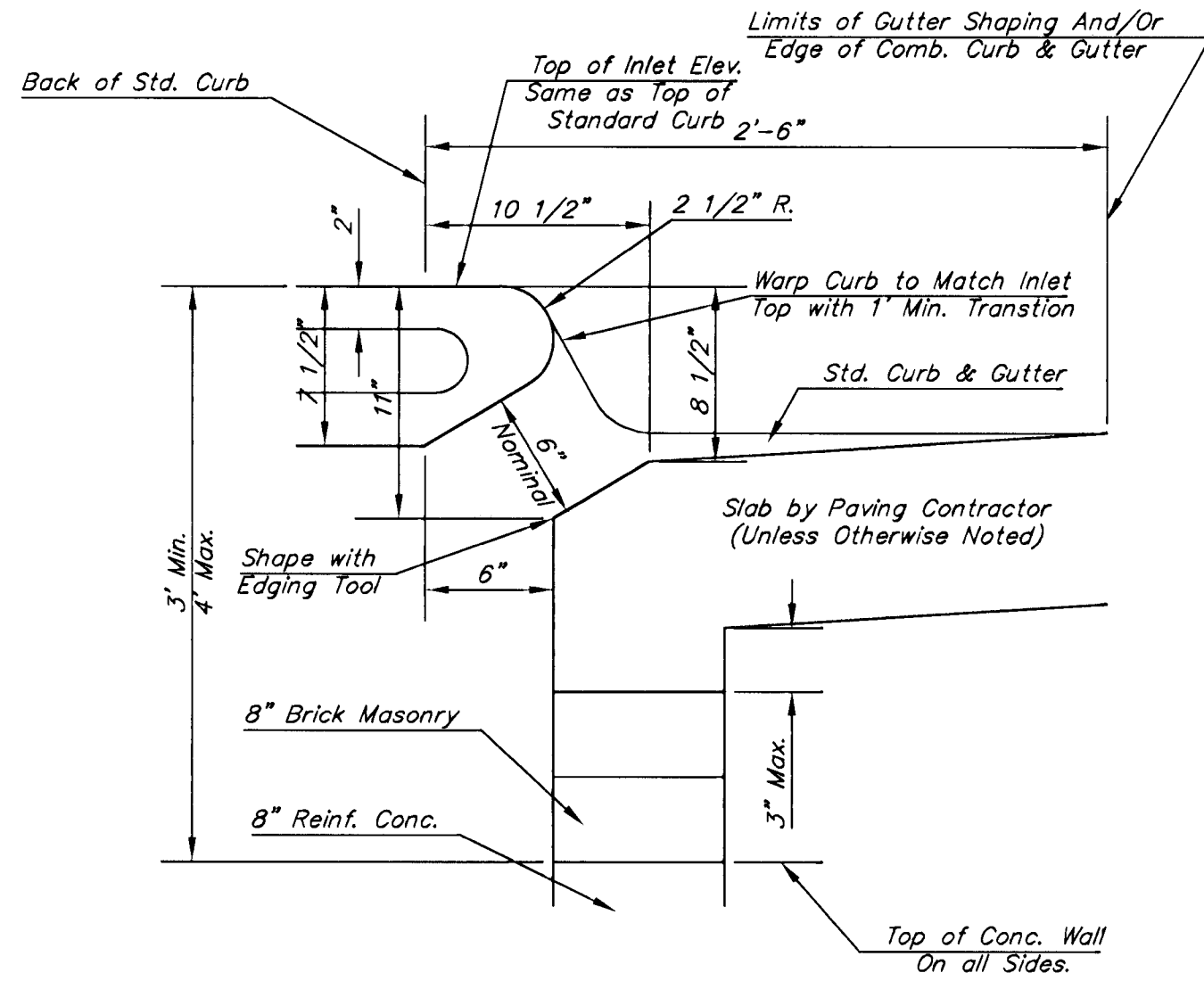
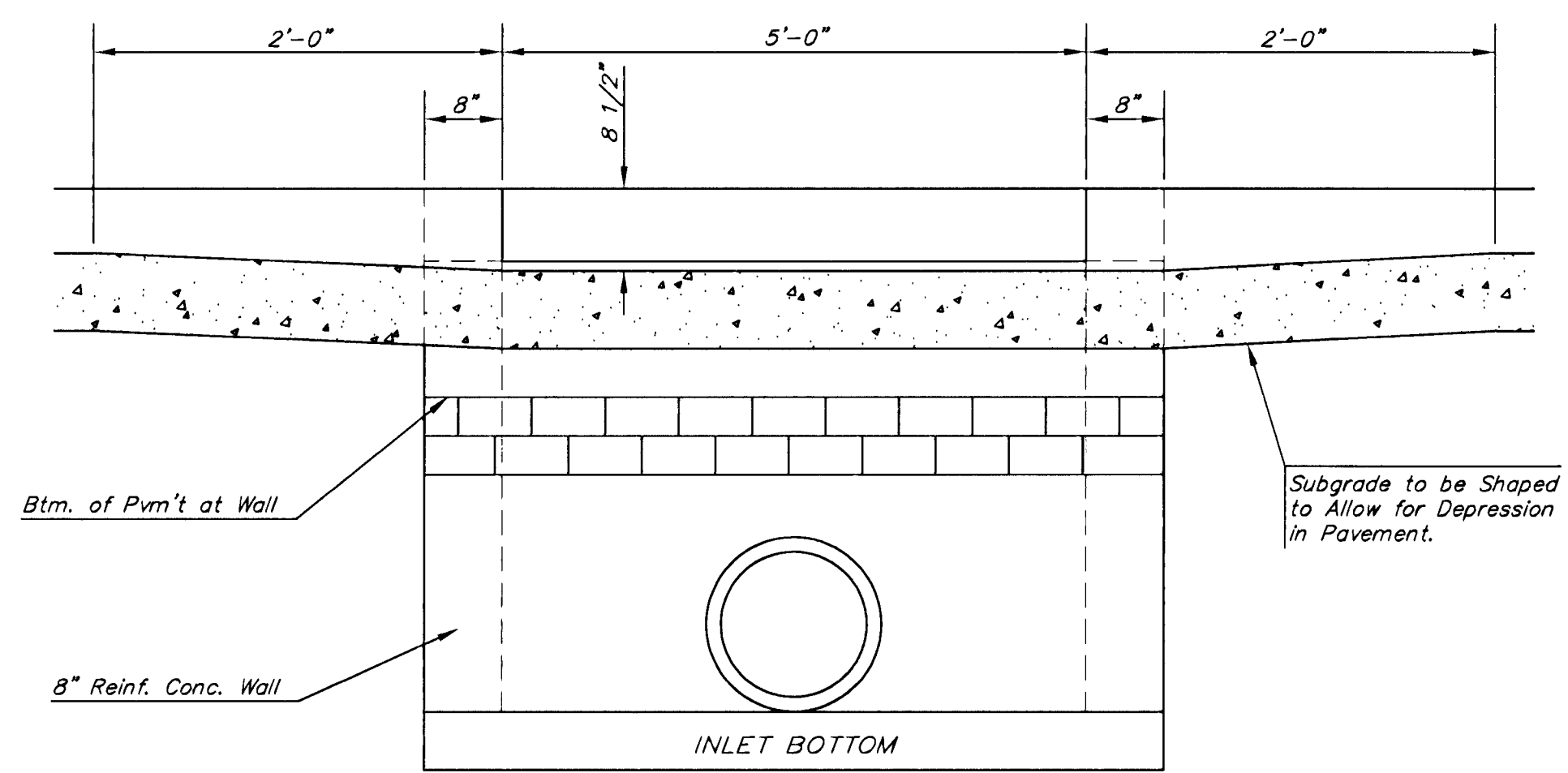
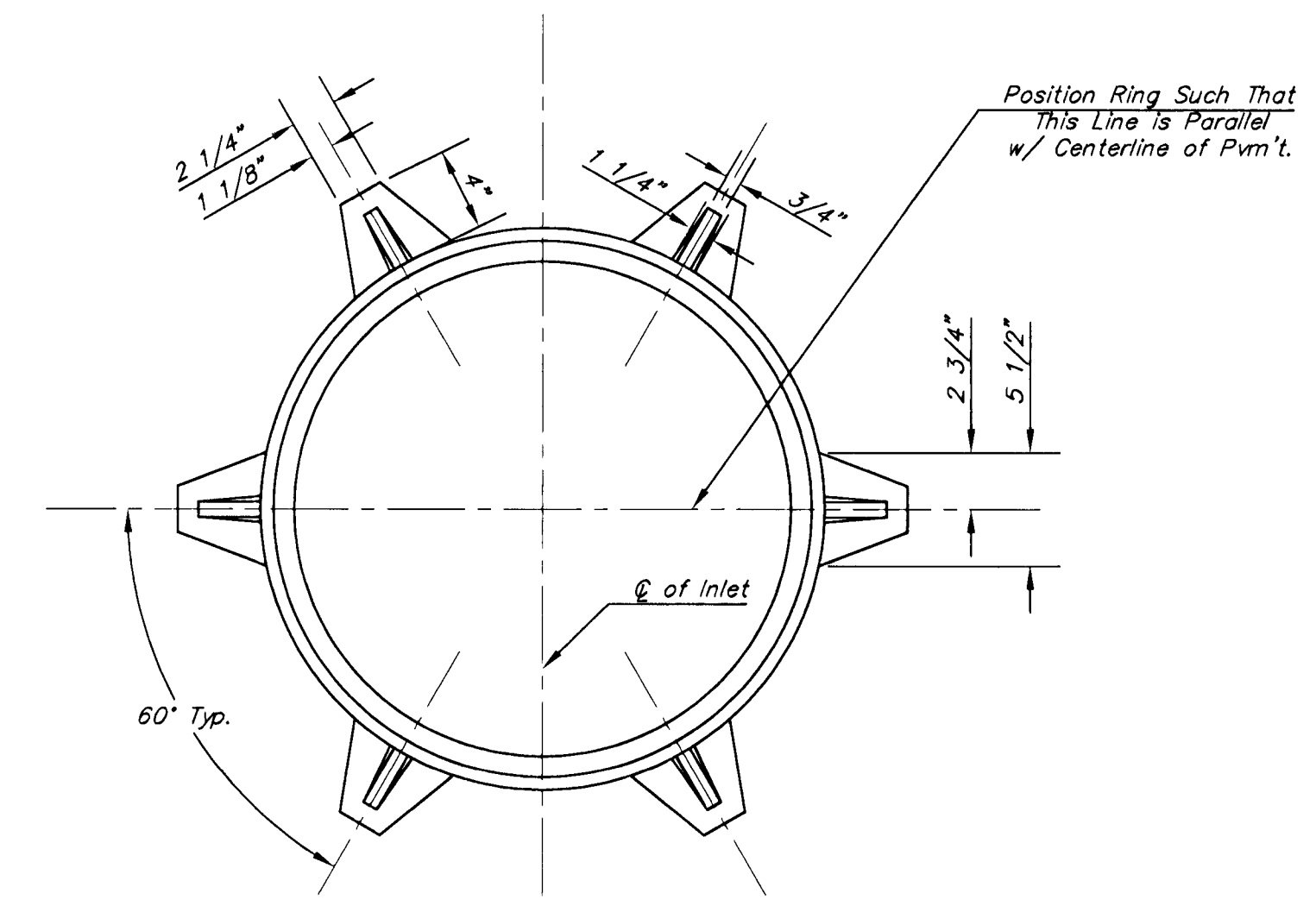
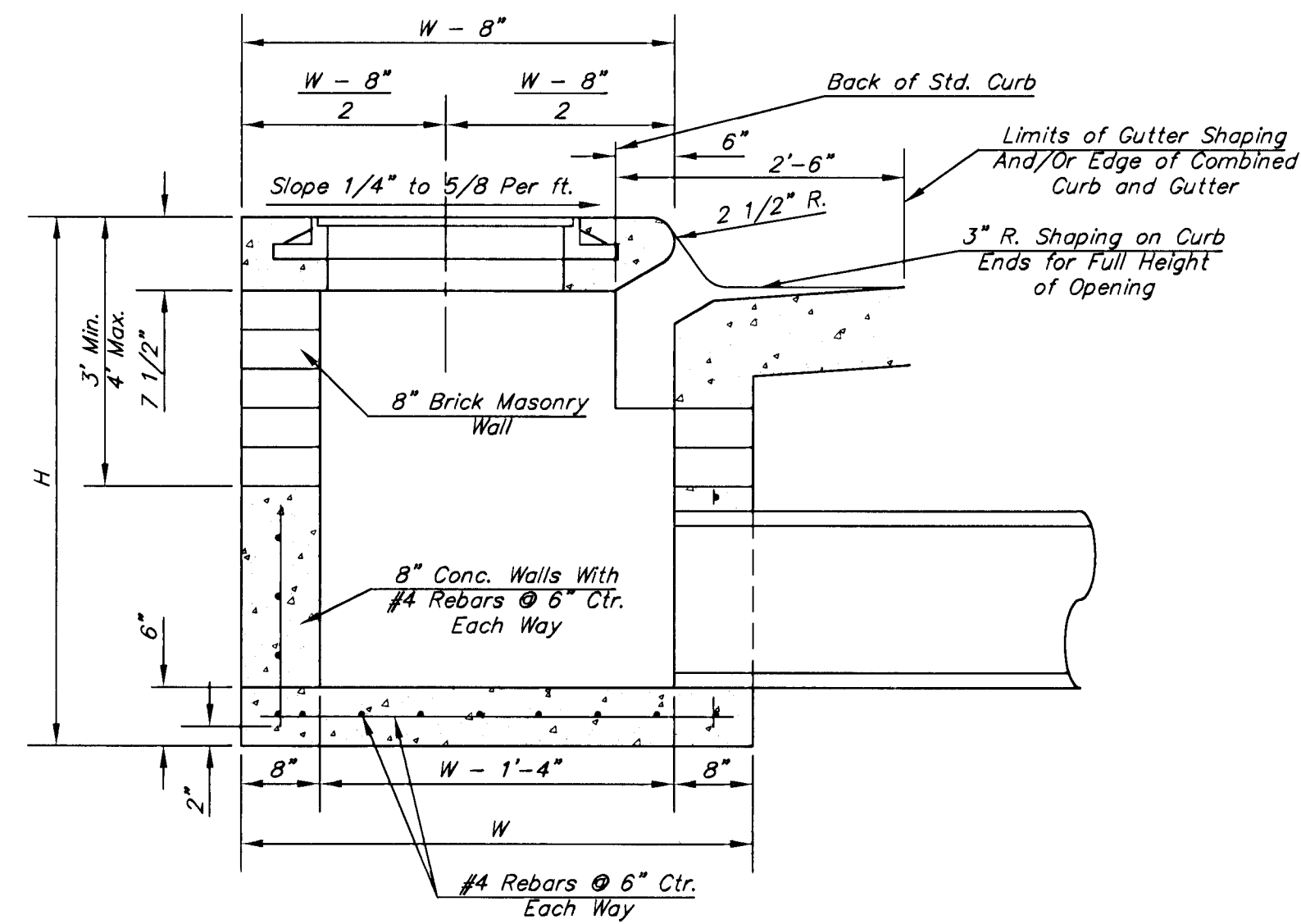
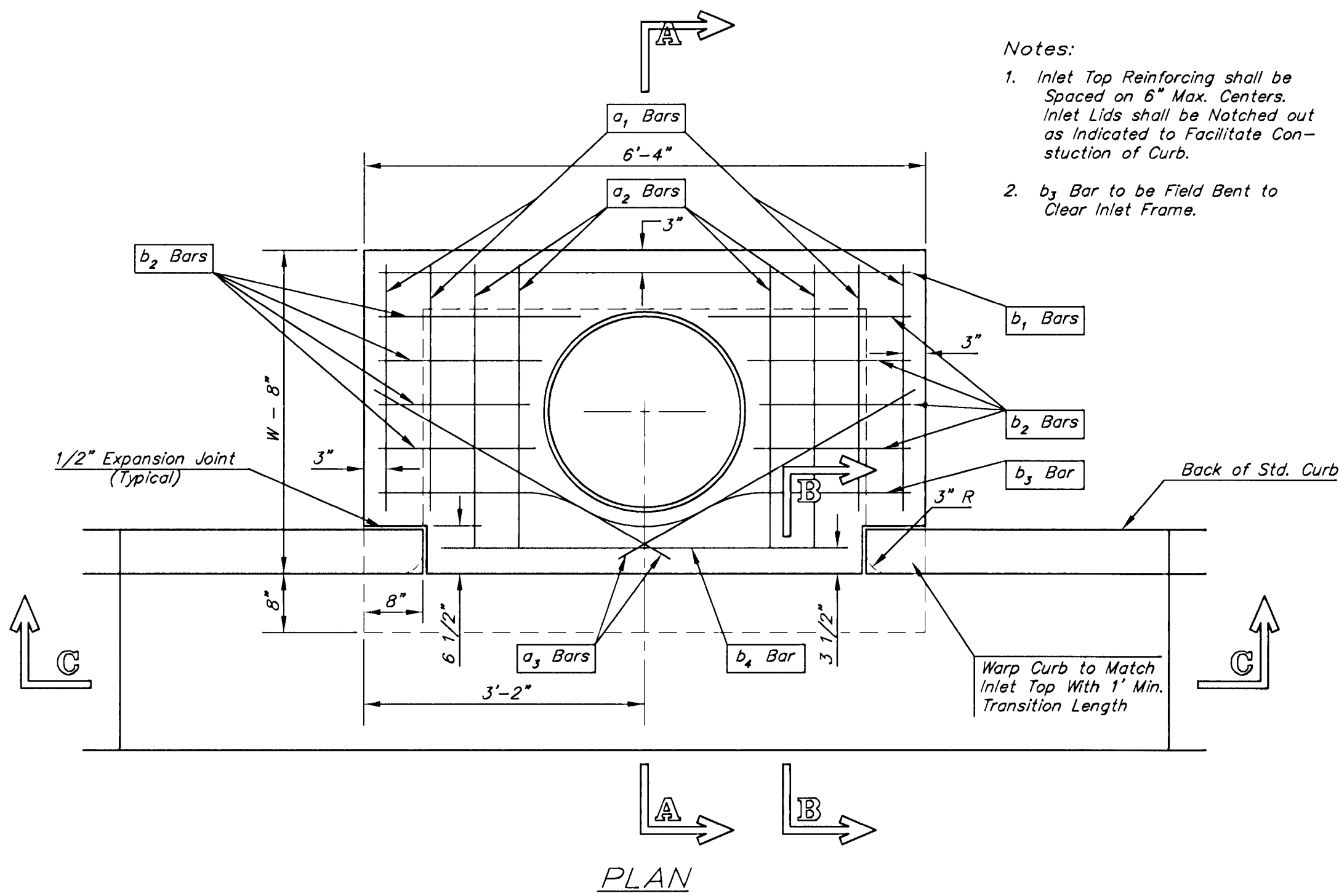
WHEELCHAIR RAMP DETAIL



SECTION A-A



DEPRESSED CURB DETAIL



**STEEL SCHEDULE**

| BAR    | a <sub>1</sub> | a <sub>2</sub> | a <sub>3</sub> | b <sub>1</sub> | b <sub>2</sub> | b <sub>3</sub> | b <sub>4</sub> | Wt. Lbs. |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|
| NUMBER | 4              | 4              | 2              | 1              | 3              | 5              | 7              | 9        |
| SIZE   | #4             | #4             | #4             | #4             | #4             | #4             | #4             | #4       |
| LENGTH | W=4'-4"        | 5'-7"          | 6'-7"          | 4'-0"          | 6'-1"          | -              | -              | -        |
|        | W=5'-4"        | 7'-7"          | 8'-7"          | 5'-0"          | 6'-1"          | -              | -              | -        |
|        | W=6'-4"        | 9'-7"          | 10'-7"         | 6'-0"          | 6'-1"          | -              | -              | -        |
|        | W=7'-4"        | 11'-7"         | 12'-7"         | 7'-0"          | 6'-1"          | -              | -              | -        |
|        | W=8'-4"        | 13'-7"         | 14'-7"         | 8'-0"          | 6'-1"          | -              | -              | -        |

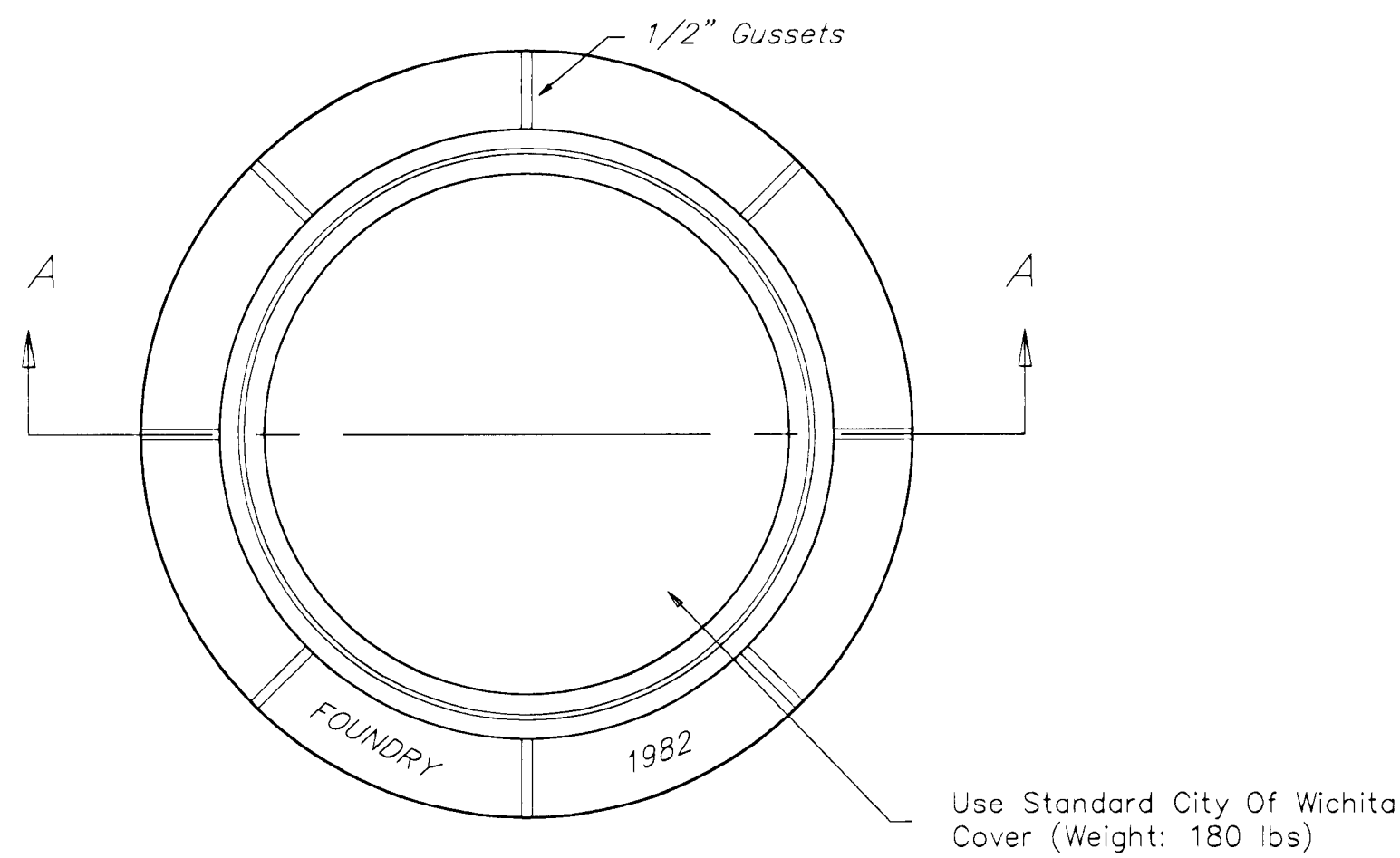
Note: a<sub>3</sub> Bars to be Placed Approx. 2" Below Top of Inlet Cover.

**STANDARD CURB INLET PRECAST TOPS**

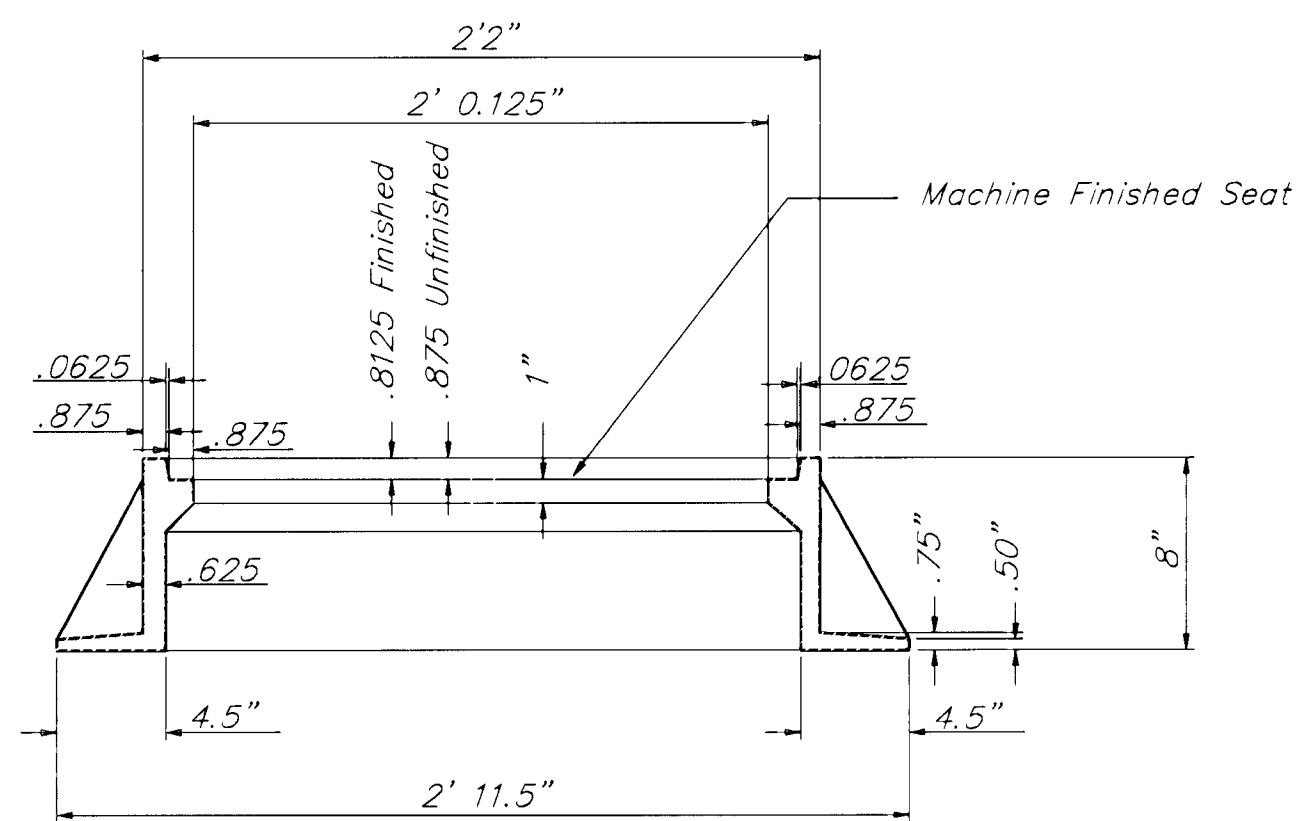
| W     | PRE-CAST TOP SIZE  | PIPE SIZE     | CU. YD. CONC. |
|-------|--------------------|---------------|---------------|
| 4'-4" | 3'-8" 6'-4" 7 1/2" | 21" & SMALLER | 0.38±         |
| 5'-4" | 4'-8" 6'-4" 7 1/2" | 24" & 30"     | 0.51±         |
| 6'-4" | 5'-8" 6'-4" 7 1/2" | 36" & 42"     | 0.64±         |
| 7'-4" | 6'-8" 6'-4" 7 1/2" | 48" & 54"     | 0.77±         |
| 8'-4" | 7'-8" 6'-4" 7 1/2" | 60" & 66"     | 0.90±         |

**GENERAL NOTES**

- Concrete tops to be installed on thin mortar cushion to insure full support along brick walls. Concrete tops may be cast in place or precast. Concrete used for inlet construction shall be concrete pavement mix.
- Contractor shall have the option of constructing 8" brick masonry walls between the concrete inlet base and top on this inlet when W=6'-4" and H=7'-0" or less.
- Inlet invert shall be shaped with 8 sack sand mix concrete to create flow channels and to increase hydraulic efficiency such that the inlet will be self cleaning between all inlet and/or outlet pipes.
- The ends of all pipes installed in inlets shall be cut off flush with the inside face of the inlet wall.

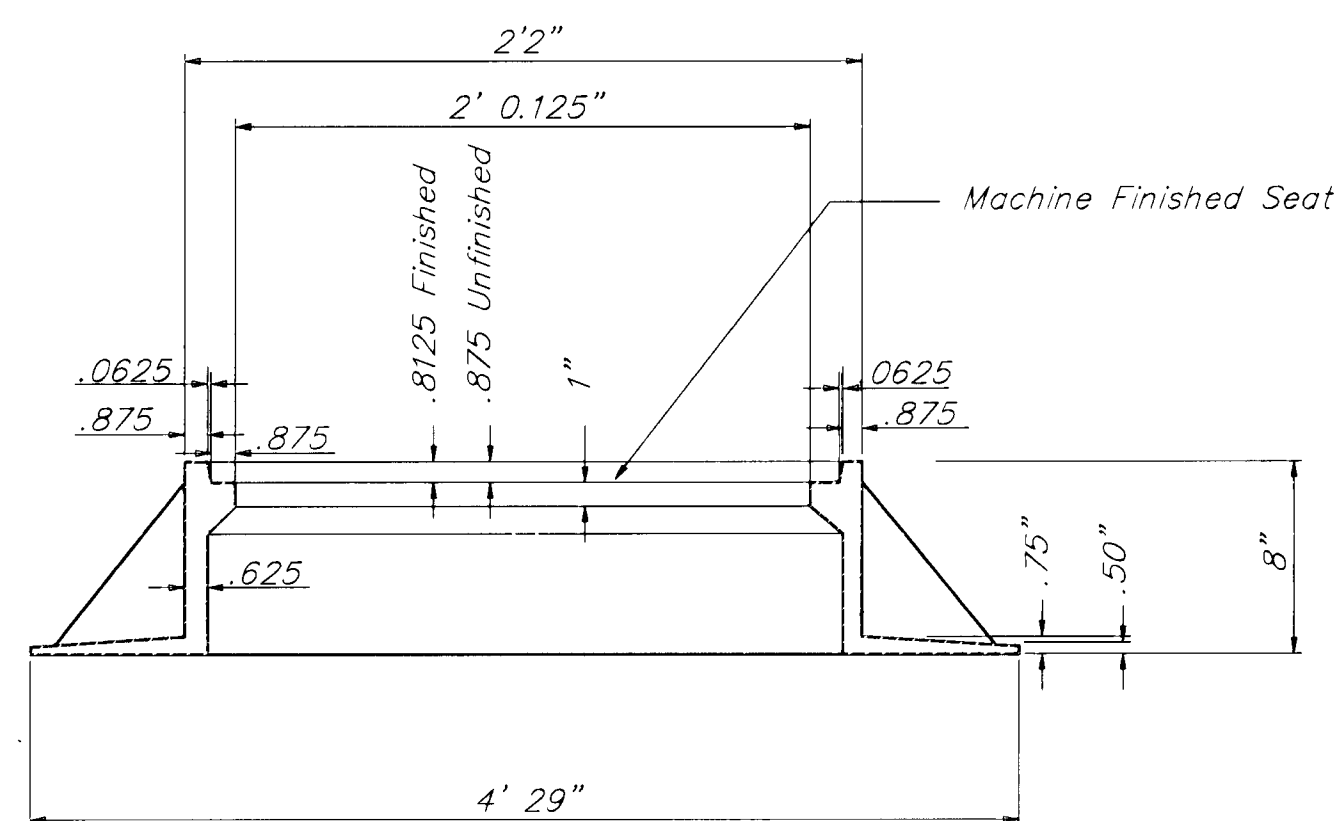


TOP VIEW

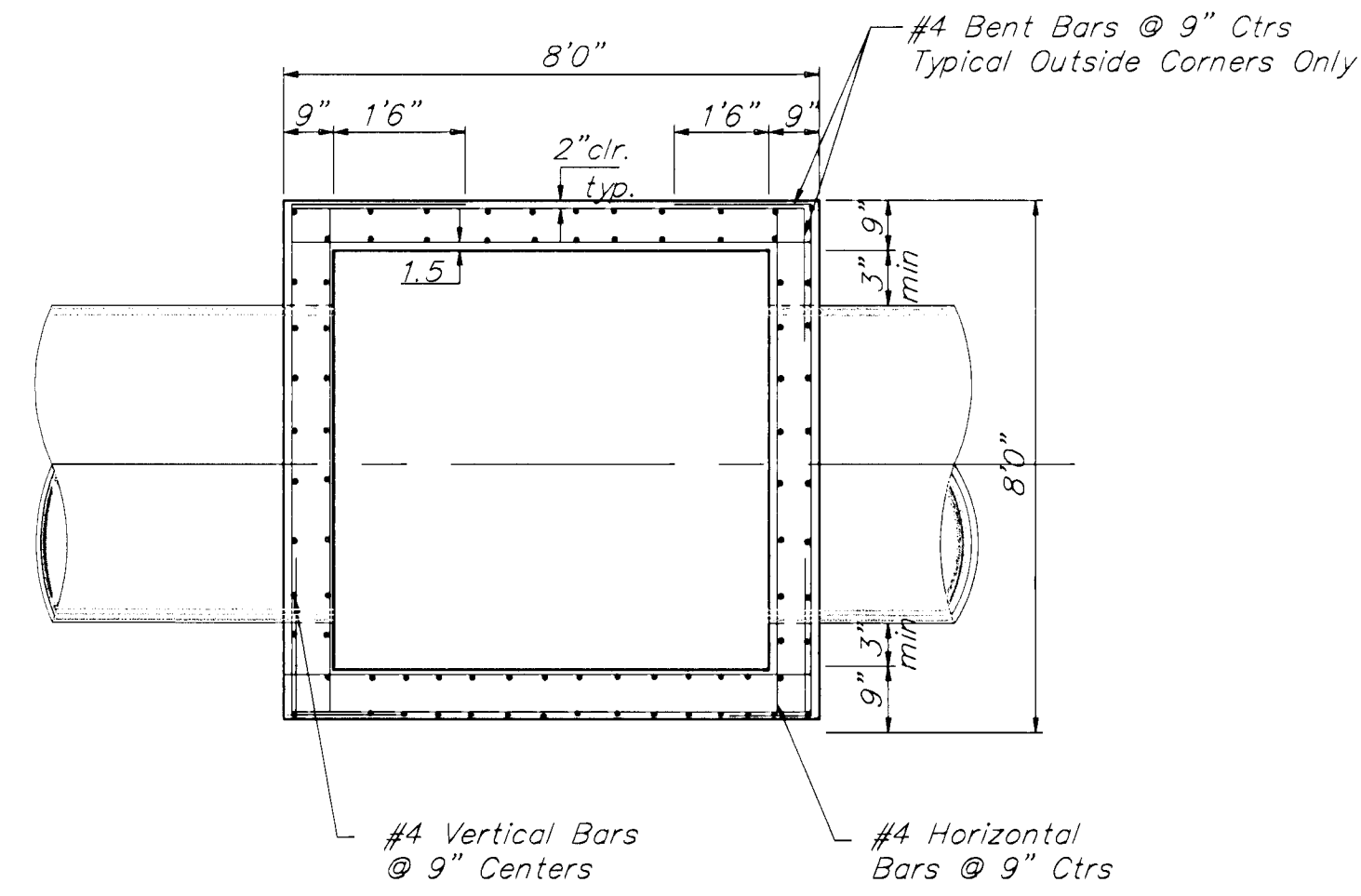


SECTION A-A

MANHOLE FRAME  
Weight: 240 Lbs.



WIDE FLANGE RING  
Weight: 705 Lbs.

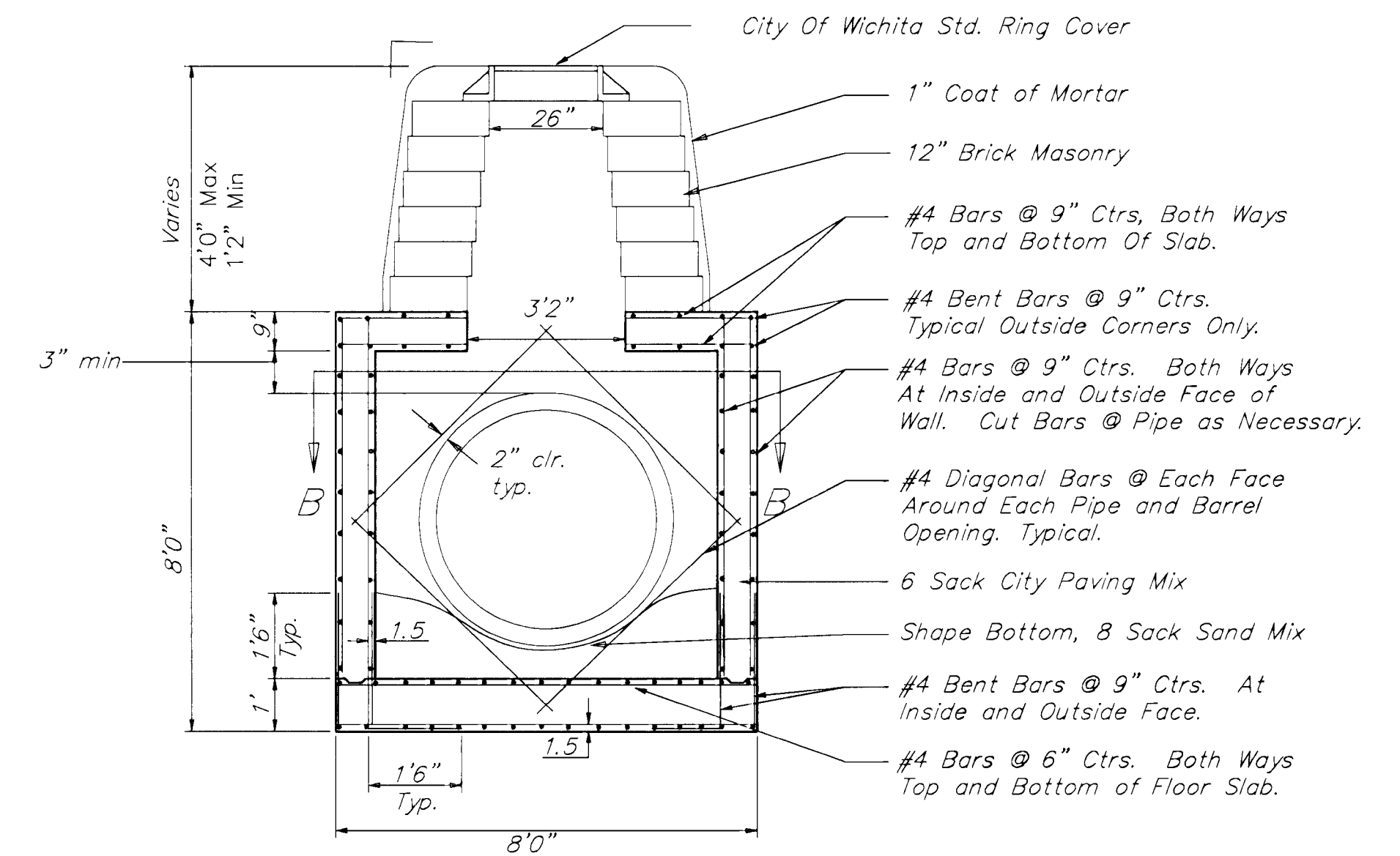


NOTE:  
Bend Bars Not More Than 8"  
to Clear Pipes, or Cut Bars  
2" Clear of Pipe, as Necessary.

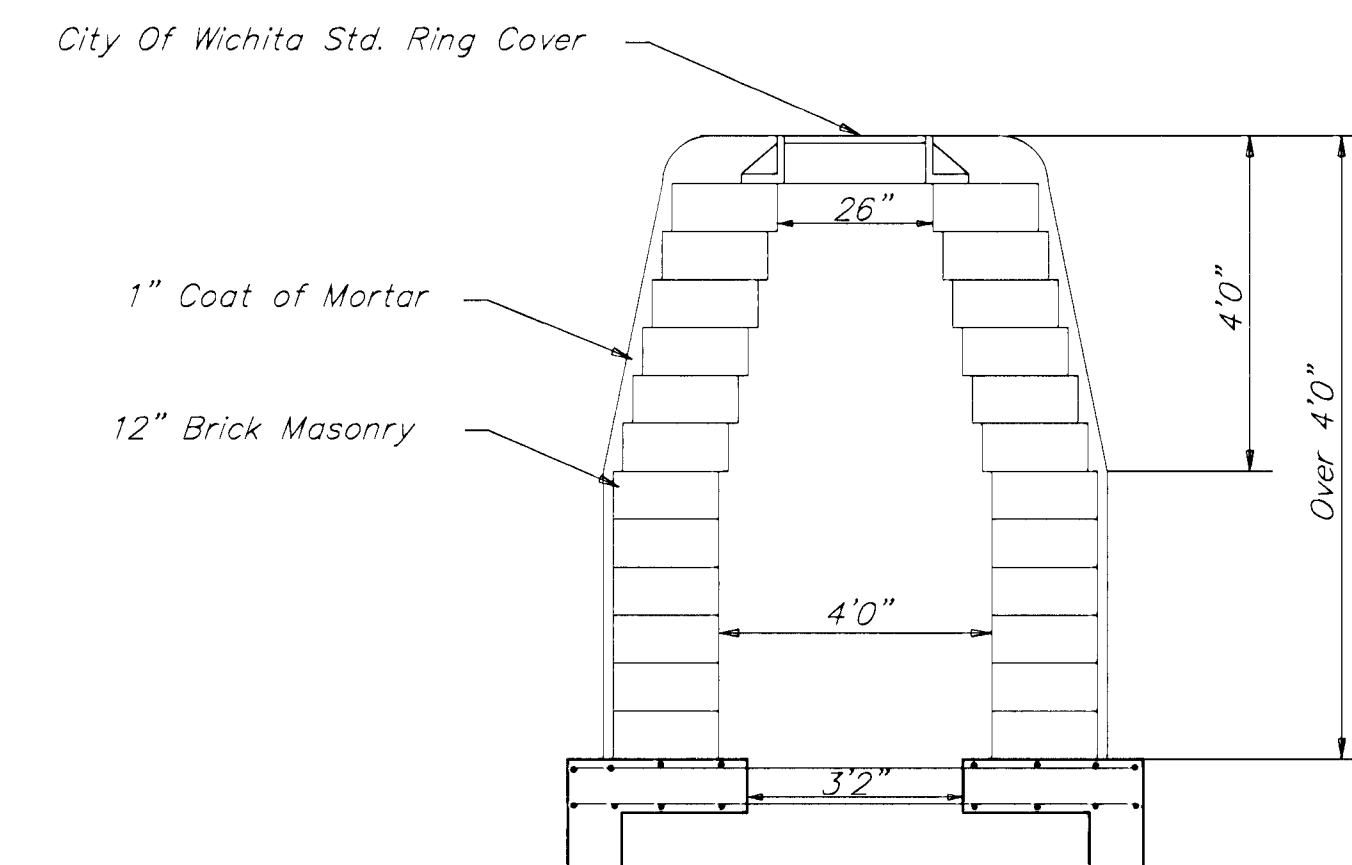
SECTION B-B

#### GENERAL NOTES:

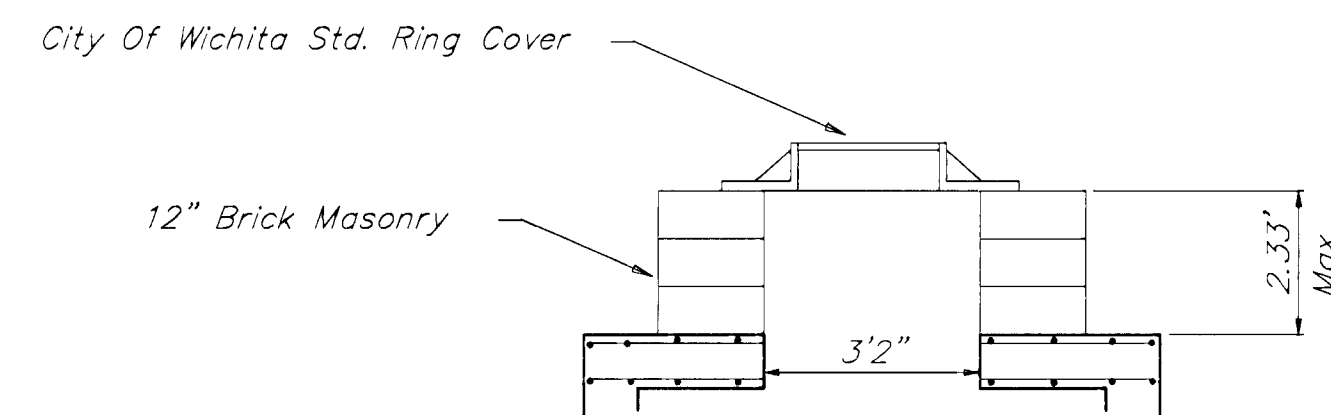
1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS, USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
2. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING. USING 8-SACK SAND MIX CONCRETE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS.
3. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
4. THE ENDS OF ALL PIPES IN MANHOLES SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF MANHOLE WALL.



REINFORCED CONCRETE MANHOLE  
STACK 2.33' TO 4' 0"

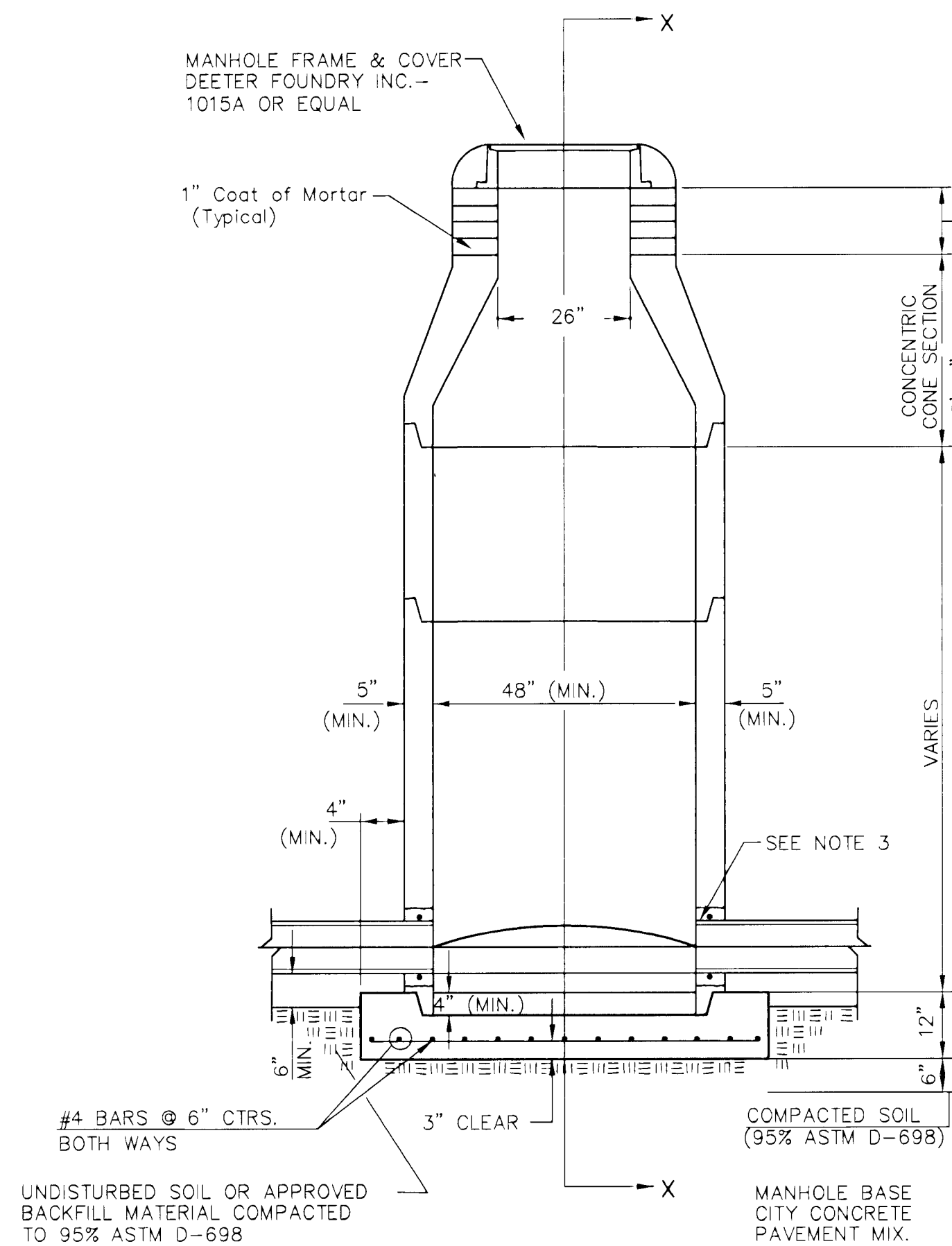


MANHOLE STACK OVER 4' 0"

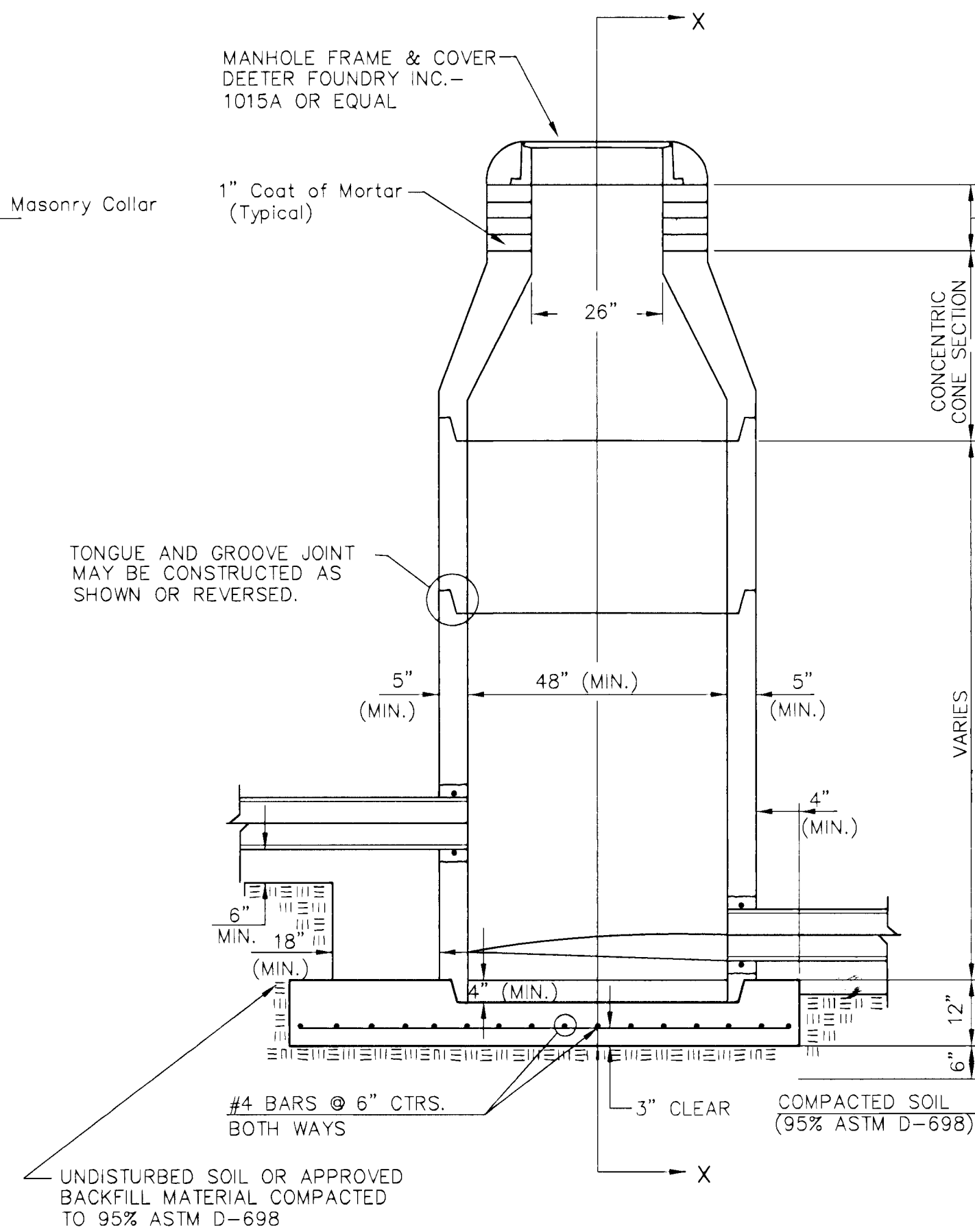


MANHOLE STACK LESS THAN 2.33'

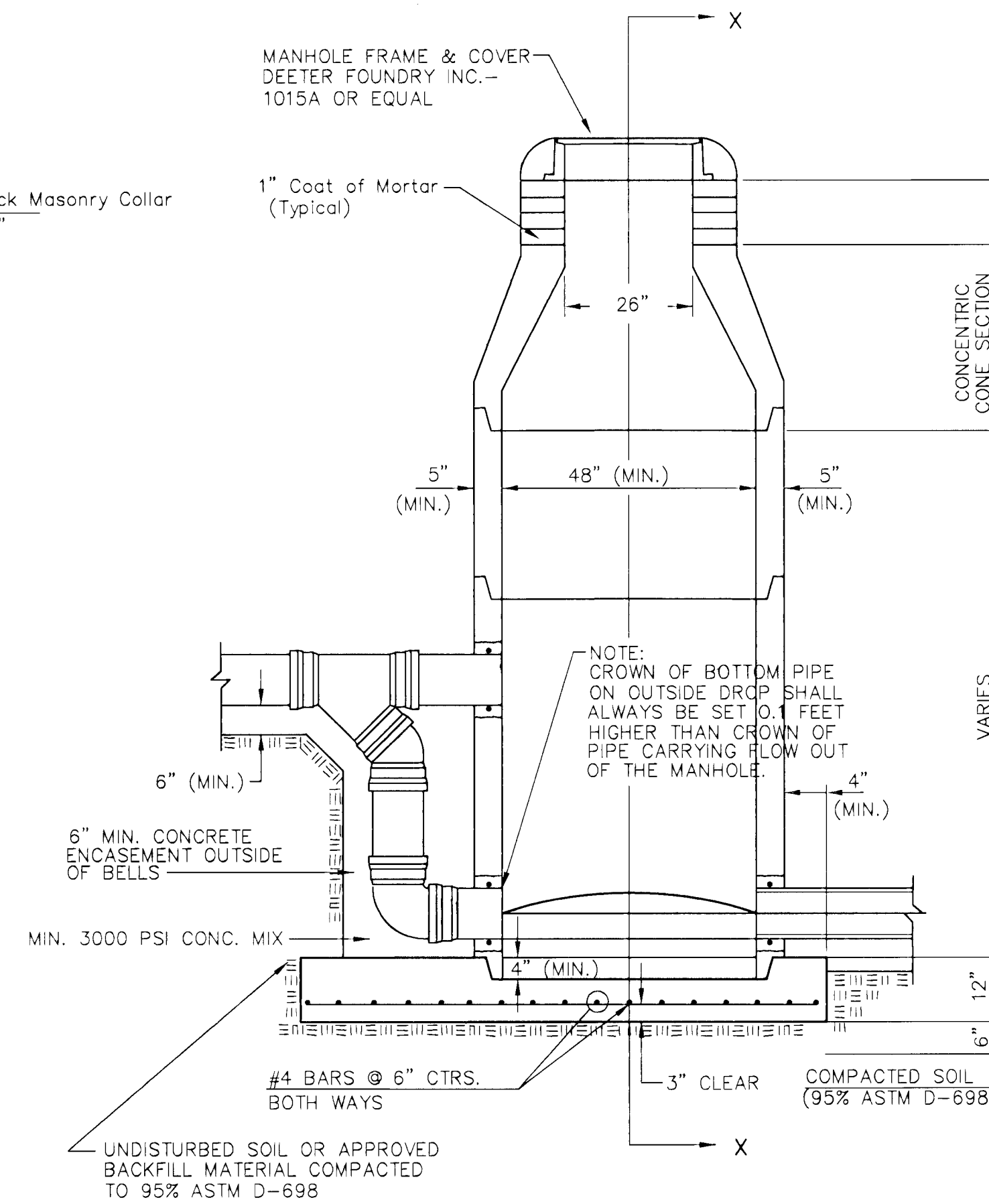
# SEWER APPURTENANCES DETAILS



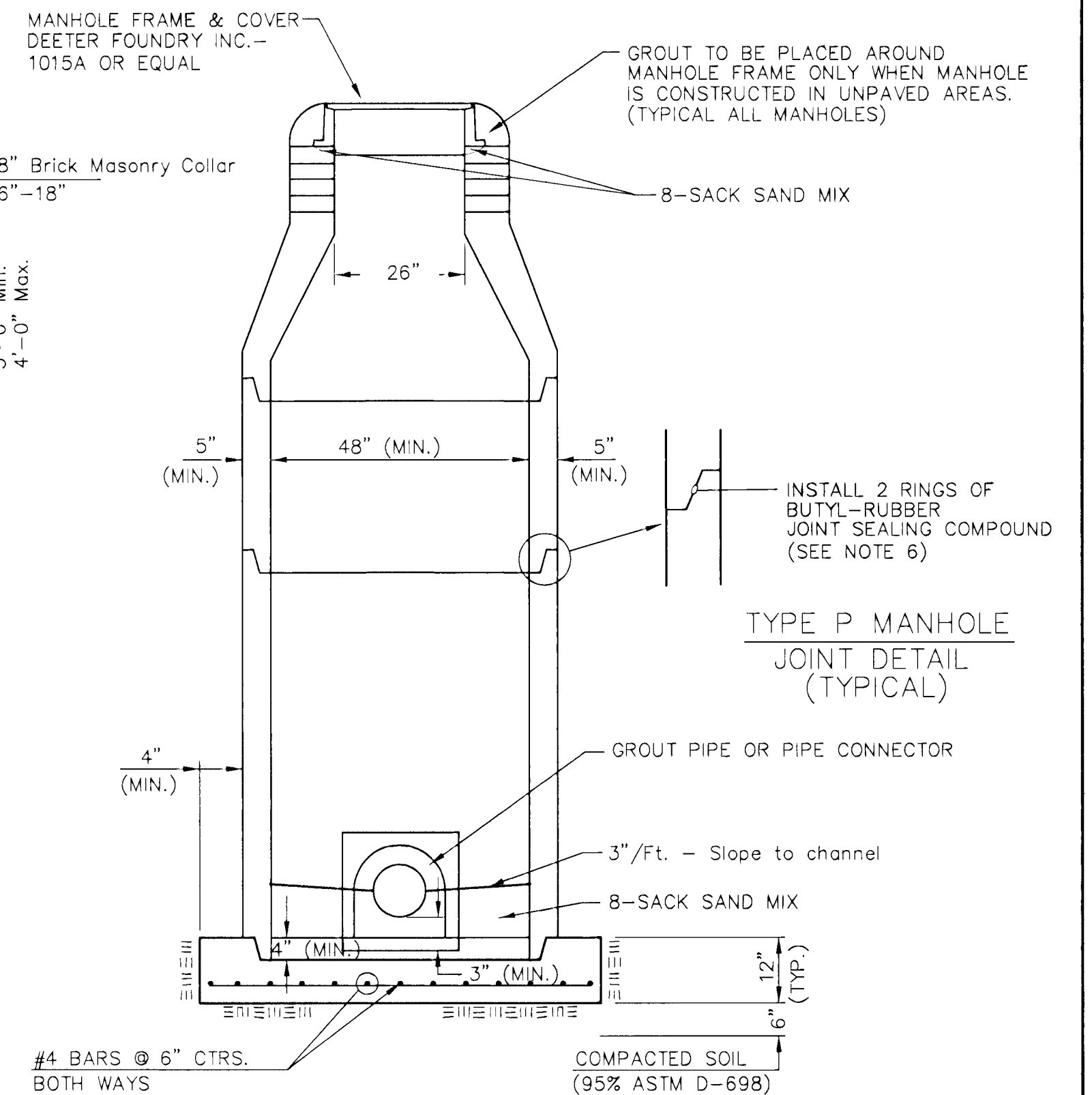
TYPE P  
STANDARD MANHOLE



TYPE P  
INSIDE DROP MANHOLE



TYPE P  
OUTSIDE DROP MANHOLE



SECTION X  
(TYPICAL)

## GENERAL NOTES PRECAST MANHOLE NOTES

- ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
- NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
- APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER PIPE SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
- ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS TNEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.)
- EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
- JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
- PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
- TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
- LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4". MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.

- REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
- THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
- PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MAHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.

- MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
- A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.

|                                    |       |                    |      |                  |                                                                  |                                       |                    |
|------------------------------------|-------|--------------------|------|------------------|------------------------------------------------------------------|---------------------------------------|--------------------|
| PROJECT NUMBER<br><b>472-83229</b> |       |                    |      | AM. NO.<br>02101 | Orme Street Phase 1<br><b>Manhole Details</b><br>Wichita, Kansas | SHEET<br><b>10</b><br>OF<br><b>23</b> | REVISED<br>6/14/01 |
| DESIGN                             | DRAWN | FILE<br>mh-details | DATE | SCALE<br>N.S.    |                                                                  |                                       |                    |