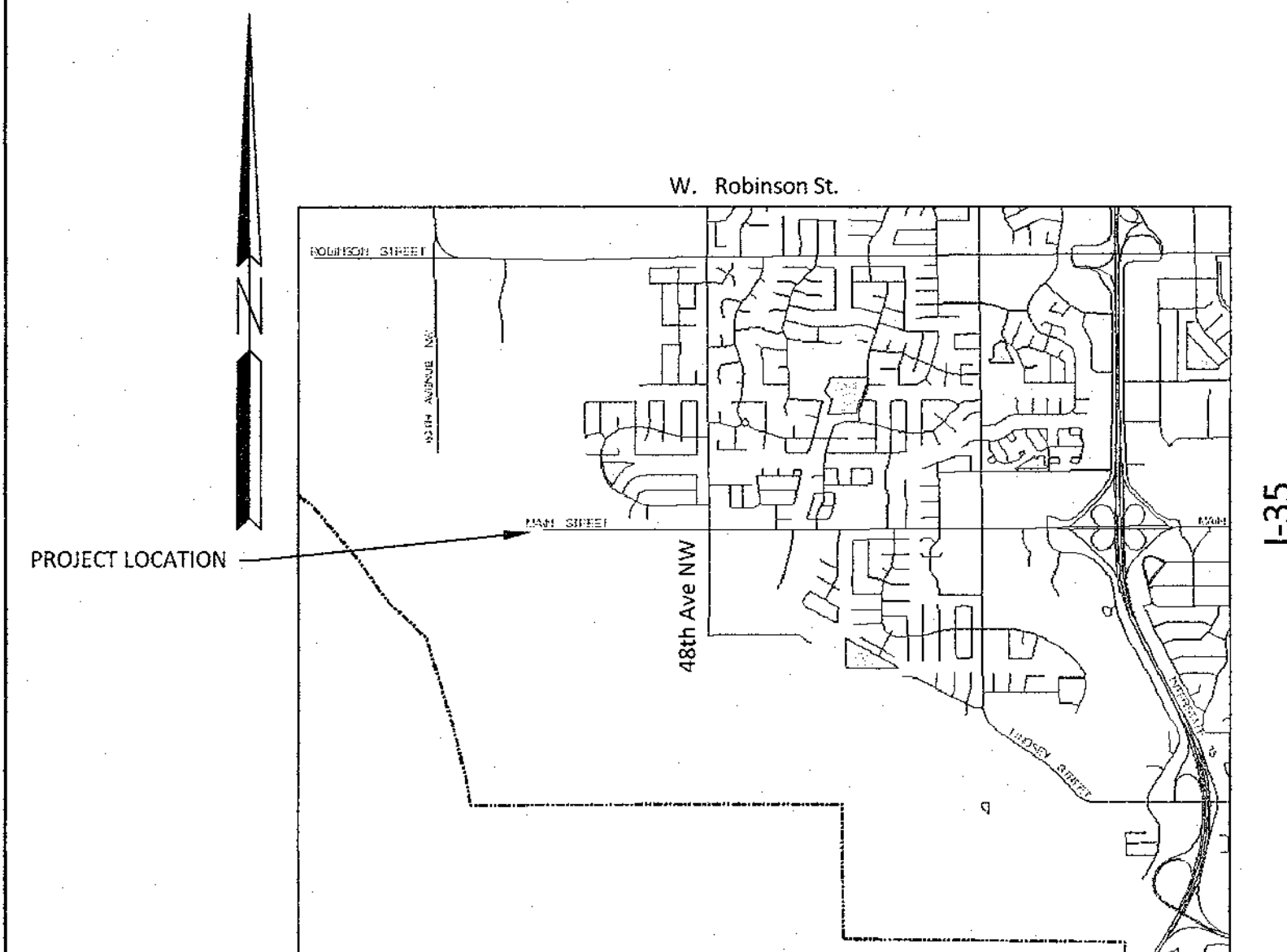
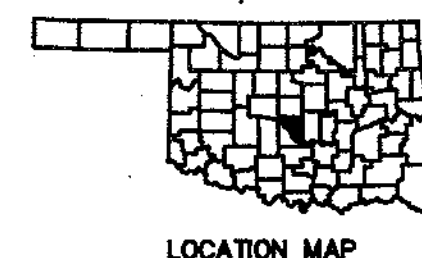


# ROADWAY PLANS FOR CONNECTION TO SINGLE SPAN STEEL I-BEAM BRIDGE WEST MAIN AT DEAD END Norman, Oklahoma



**KEY MAP**  
Scale 1" = 3000'



## SHEET INDEX

### Roadway Plans

- C1 TITLE SHEET
- C2 TYPICAL SECTIONS - QUANTITIES
- C3 GRADING & ENVIRONMENTAL PLAN
- C4 GRADING & ENVIRONMENTAL DETAIL
- C5 SURVEY DATA
- C6 PLAN & PROFILE/PAVING LAYOUT
- C7 CROSS SECTIONS - STA: 2+95 - 4+75
- C8 CROSS SECTIONS - STA: 5+45 - 7+14.79
- C9 ODOT STANDARD DETAILS: R-117E (CSCD-4)
- C10 ODOT STANDARD DETAILS: R-119E (LECS-3)
- C11 ODOT STANDARD DETAILS: R-8 (TRFD-1)
- C12 ODOT STANDARD DETAILS: R-12 (CSCD-5)

### Bridge Plans

- B9 BRIDGE PLANS - GENERAL CONSTRUCTION NOTES
- B10 BRIDGE PLANS - PAY QUANTITIES - BRIDGE
- B11 BRIDGE PLANS - PLAN AND PROFILE
- B12 BRIDGE PLANS - GENERAL PLAN AND ELEVATION
- B13 BRIDGE PLANS - ABUTMENT AND DIAPHRAGM DETAILS
- B14 BRIDGE PLANS - DECK DETAILS
- B15 BRIDGE PLANS - GUARDRAIL DETAILS

## Resource List

**ENGINEERING DEPARTMENT:**  
THE CITY OF NORMAN  
ATTN: SCOTT STURTZ, P.E.  
P.O. BOX 370 (201A WEST GRAY)  
NORMAN, OKLAHOMA 73070  
PHONE: (405)-366-5454

**UTILITIES:**  
THE CITY OF NORMAN  
ATTN: MARK DANIELS  
P.O. BOX 370 (201A WEST GRAY)  
NORMAN, OKLAHOMA 73070  
PHONE: (405)-366-5377

**FIRE MARSHALL:**  
THE CITY OF NORMAN FIRE DEPARTMENT  
ATTN: ROBERT BETTS  
415 E. MAIN  
NORMAN, OKLAHOMA 73070  
PHONE: (405)-292-9780

**ENGINEERING DEPARTMENT:**  
THE CITY OF NORMAN  
ATTN: SCOTT STURTZ, P.E.  
P.O. BOX 370 (201A WEST GRAY)  
NORMAN, OKLAHOMA 73070  
PHONE: (405)-366-5454

**UTILITIES:**  
THE CITY OF NORMAN  
ATTN: MARK DANIELS  
P.O. BOX 370 (201A WEST GRAY)  
NORMAN, OKLAHOMA 73070  
PHONE: (405)-366-5377

**FIRE MARSHALL:**  
THE CITY OF NORMAN FIRE DEPARTMENT  
ATTN: ROBERT BETTS  
415 E. MAIN  
NORMAN, OKLAHOMA 73070  
PHONE: (405)-292-9780

**BUILDING CODE OFFICIAL:**  
THE CITY OF NORMAN  
ATTN: BOB CHRISTIAN  
PERMIT MANAGER  
P.O. BOX 370  
NORMAN, OKLAHOMA 73070  
PHONE: (405) 366-5387  
FAX (405) 366-5445

**CABLE:**  
COX COMMUNICATIONS  
ATTN: JODIE FINNEY  
6301 WATERFORD BOULEVARD  
SUITE 200  
OKLAHOMA CITY, OKLAHOMA 73118  
PHONE: (405) 600-6336

**GAS SERVICE:**  
OKLAHOMA NATURAL GAS (ONG)  
ATTN: GINA COX  
4901 NORTH SANTA FE  
OKLAHOMA CITY, OKLAHOMA 73118-7911  
PHONE: (405) 530-2587

**TELEPHONE SERVICE:**  
SBC  
ATTN: JESSE DEARMON  
OSP PLANNING & DESIGN ENGINEER  
300 S. BROADWAY  
MOORE, OKLAHOMA 73160  
PHONE: (405) 291-1171

**ELECTRIC SERVICE:**  
OG&E  
ATTN: RUSTY BALDWIN  
PROJECT LEADER  
PHONE: (405) 740-7751

## NOTES

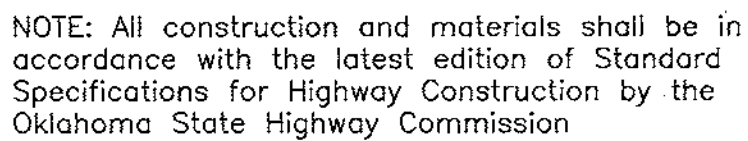
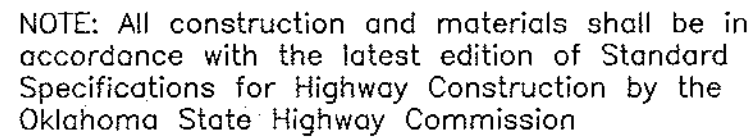
1. All construction shall be in strict accordance with the current City of Norman engineering department or Oklahoma Department of Transportation Standards and Specifications.
2. All work not classified as contract pay item shall be considered as incidental and the cost thereof shall be included in the unit price bid for items which are classified for payment.
3. The contractor shall be responsible for the safety of all utilities, public or private.
4. Contractor for vegetative cover shall apply appropriate grass mixture to provide growth conditioned with the time of the year and the growing cycle. Cover will be placed on bare, sloped or erodible areas as approved by the engineer.
5. All water and sewer trenches crossing streets shall be backfilled with crushed rock and compacted to 95% Standard Proctor.
6. An effort has been made to locate and show approximate location of underground utilities. Buried utilities are not necessarily shown. It is the Contractors responsibility to locate and preserve all utility services.
7. Contractor is responsible for contacting all utility companies prior to construction.
8. All construction shall be done in accordance with Roadway Plans for Connection to Single Span Steel I-Beam Bridge plans and where applicable, as per the City of Norman, Standard Specifications for Public Improvements and Oklahoma Department of Transportation Standard Specifications for Highway Construction, latest edition.
9. Construction methods and materials not specified in these plans shall be performed and installed in accordance with regulations of the authority concerned.

Exhibit B to Contract K-1617-139



H. LESTER SEIGER - P.E. 16103  
Sheets C1-C12

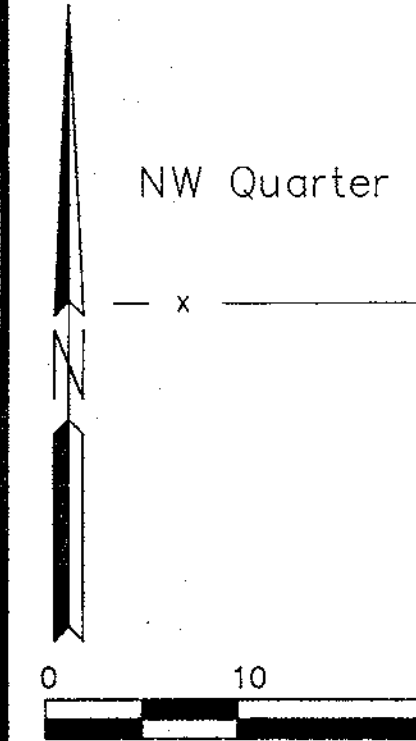
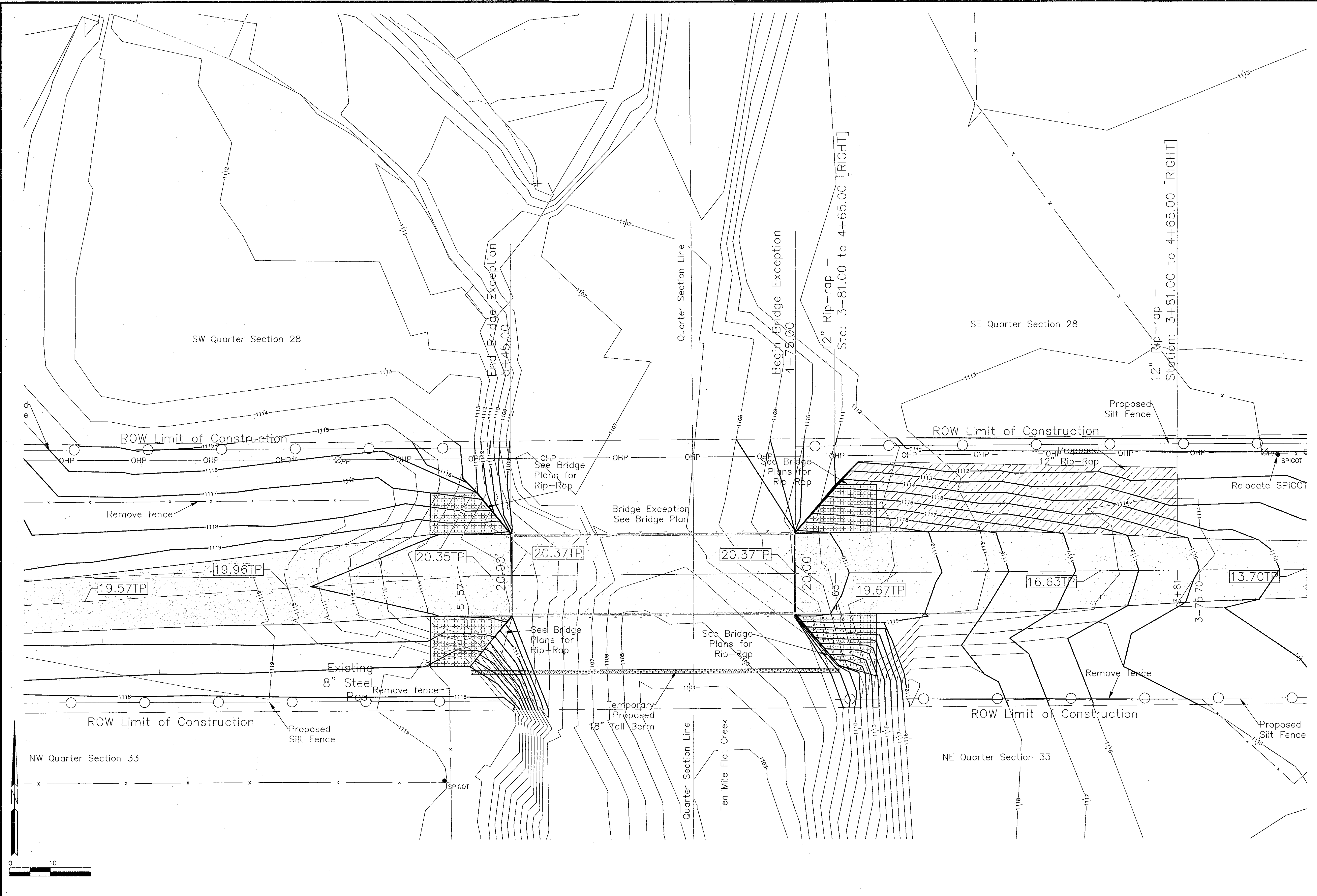
**landmark**  
2505 N.E. SKYLINE PLACE, LAWTON, OK. 73507  
H. Lester Seiger, P.E., P.L.S.  
Tel. (580) 357-2022  
**engineering**



| Cut/Fill Summary |            |             |                  |                |  |                |                      |
|------------------|------------|-------------|------------------|----------------|--|----------------|----------------------|
| Name             | Cut Factor | Fill Factor | 2d Area          | Cut            |  | Fill           | Net                  |
| VOLUME-SURFACE   | 1.000      | 1.150       | 20417.59 Sq. Ft. | 323.50 Cu. Yd. |  | 948.83 Cu. Yd. | 625.33 Cu. Yd.<Fill> |
| Totals           |            |             | 20417.59 Sq. Ft. | 323.50 Cu. Yd. |  | 948.83 Cu. Yd. | 625.33 Cu. Yd.<Fill> |

| ROADWAY Pay Items |                                                  |      |                 |  |
|-------------------|--------------------------------------------------|------|-----------------|--|
| ITEM NO.          | DESCRIPTION                                      | UNIT | QUANTITY        |  |
| 201               | CLEARING & GRUBBING                              | L.S. | 1.00            |  |
| 202               | EXCAVATION AND GRADING                           | C.Y. | 950.00          |  |
| 203               | CONSTRUCTION STAKING (CONSTRUCTION SURVEY)       | L.S. | 1.00            |  |
| 204               | CONSTRUCTION SIGNING AND TRAFFIC CONTROL         | L.S. | 1.00            |  |
| 205               | MOBILIZATION                                     | L.S. | 1.00            |  |
|                   |                                                  |      | PAVING TOTAL=   |  |
| ITEM NO.          | DESCRIPTION                                      | UNIT | QUANTITY        |  |
| 230a              | SOLID SLAB SOD (Optional for Sprigging)          | S.Y. | 1.00            |  |
| 230d              | Broadcast Sprigging                              | S.Y. | 872.00          |  |
| 221G              | Temporary Rock Filter Dam (Type 1)               | C.Y. | 23.00           |  |
|                   |                                                  |      | EROSION CONTROL |  |
| ITEM NO.          | DESCRIPTION                                      | UNIT | QUANTITY        |  |
| 414               | P.C. Concrete Pavement (6" thick)                | S.Y. | 635.00          |  |
| 303               | Type A Aggregate Base                            | S.Y. | 712.00          |  |
| 310               | Subgrade Preparation                             | S.Y. | 712.00          |  |
| 601               | Rock or Rubble Rip Rap for Bank Protection (12") | C.Y. | 15.00           |  |





| No. | Date | Revision |
|-----|------|----------|
|     |      |          |
|     |      |          |
|     |      |          |

**Landmark Engineering**  
 2005 N.E. SHINE BLVD. LAWRENCE, KS 66044  
 H. Lister, P.E., P.L.S.  
 Tel. (785) 842-2022

**Engineering**

**ROADWAY PLANS-CONNECTION TO NEW BRIDGE W. MAIN STREET NORMAN, OKLAHOMA**

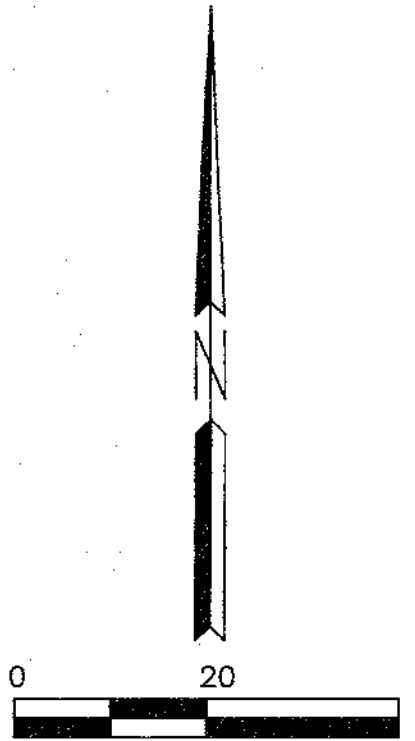
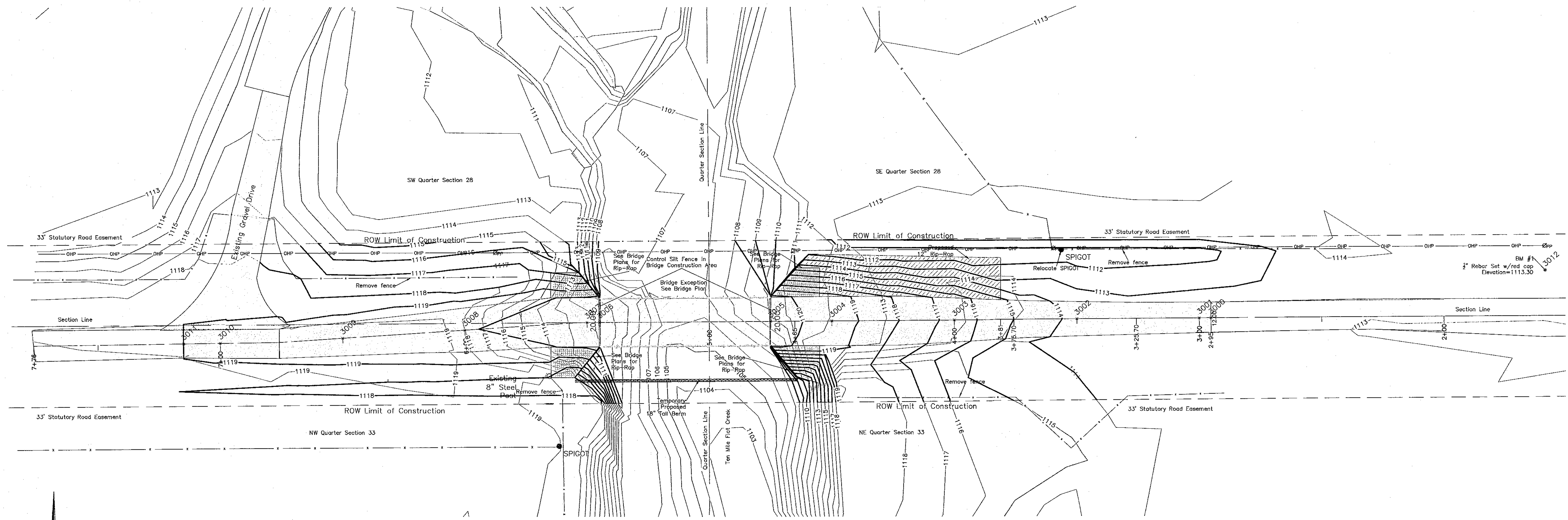
**SHEET TITLE: GRADING & ENVIRONMENTAL PLAN - DETAIL**

**DATE: 05/19/17**

**PROJECT NO. 16gen03**

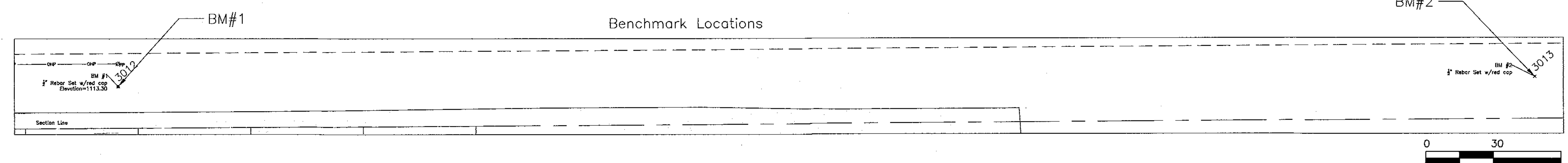
**SHEET NO. 04 OF 04**

Copyright (C) 2017 by Landmark Engineering



| STATION AND BENCHMARK POINTS |             |              |             |         |
|------------------------------|-------------|--------------|-------------|---------|
| Point #                      | Northing    | Easting      | DESCRIPTION | STATION |
| 3000                         | 686362.0597 | 2111859.3696 | STATION     | 2+95    |
| 3001                         | 686362.0304 | 2111854.5960 | STATION     | 3+00    |
| 3002                         | 686361.7226 | 2111804.5970 | STATION     | 3+50    |
| 3003                         | 686361.4149 | 2111754.6164 | STATION     | 4+00    |
| 3004                         | 686361.1071 | 2111704.5989 | STATION     | 4+50    |
| 3005                         | 686360.9533 | 2111679.6124 | STATION     | 4+75    |
| 3006                         | 686360.5254 | 2111609.6942 | STATION     | 5+45    |
| 3007                         | 686360.4922 | 2111604.6008 | STATION     | 5+50    |
| 3008                         | 686357.4590 | 2111554.6987 | STATION     | 6+00    |
| 3009                         | 686354.2104 | 2111504.8044 | STATION     | 6+50    |
| 3010                         | 686352.1754 | 2111454.8617 | STATION     | 7+00    |
| 3011                         | 686351.9562 | 2111439.8649 | STATION     | 7+15    |
| 3012                         | 686381.3044 | 2111995.7858 | BENCHMARK   | 1+59    |
| 3013                         | 686385.1515 | 2112624.6392 | BENCHMARK   |         |

Elevation=1113.30  
Elevation=1118.63



No. Date Revision

No. Date Revision

Roadway Plans-Connection to New Bridge to W. Main Street NORMAN, OKLAHOMA

Landmark

OK CA# 2075  
2505 N.E. SKYLINE PLACE LAWTON, OK 73507  
H. Lester Seigler, P.E., P.L.S.

Engineering

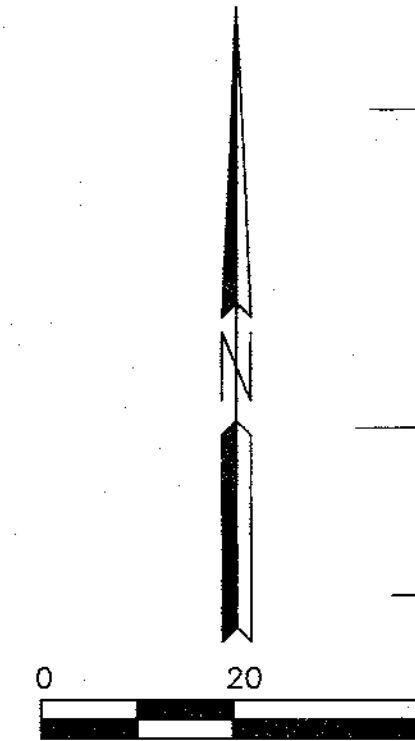
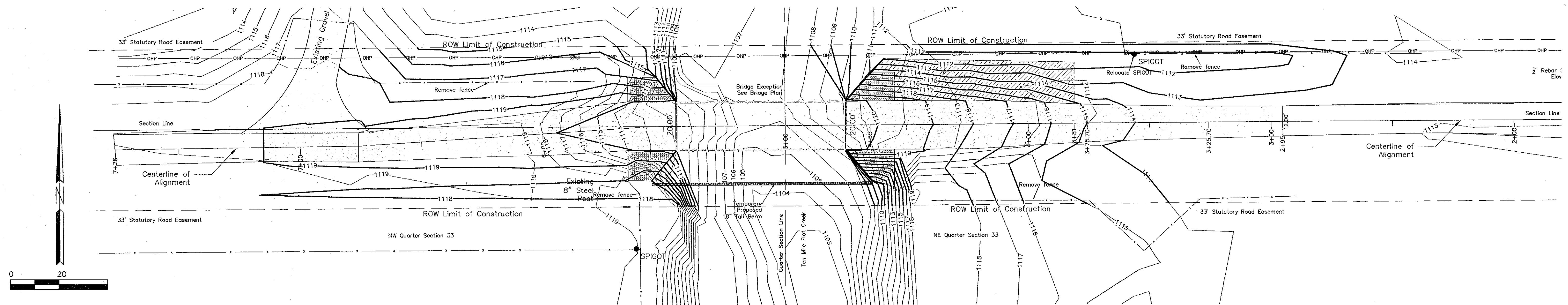
SHEET TITLE  
SURVEY DATA

DATE  
05/19/17

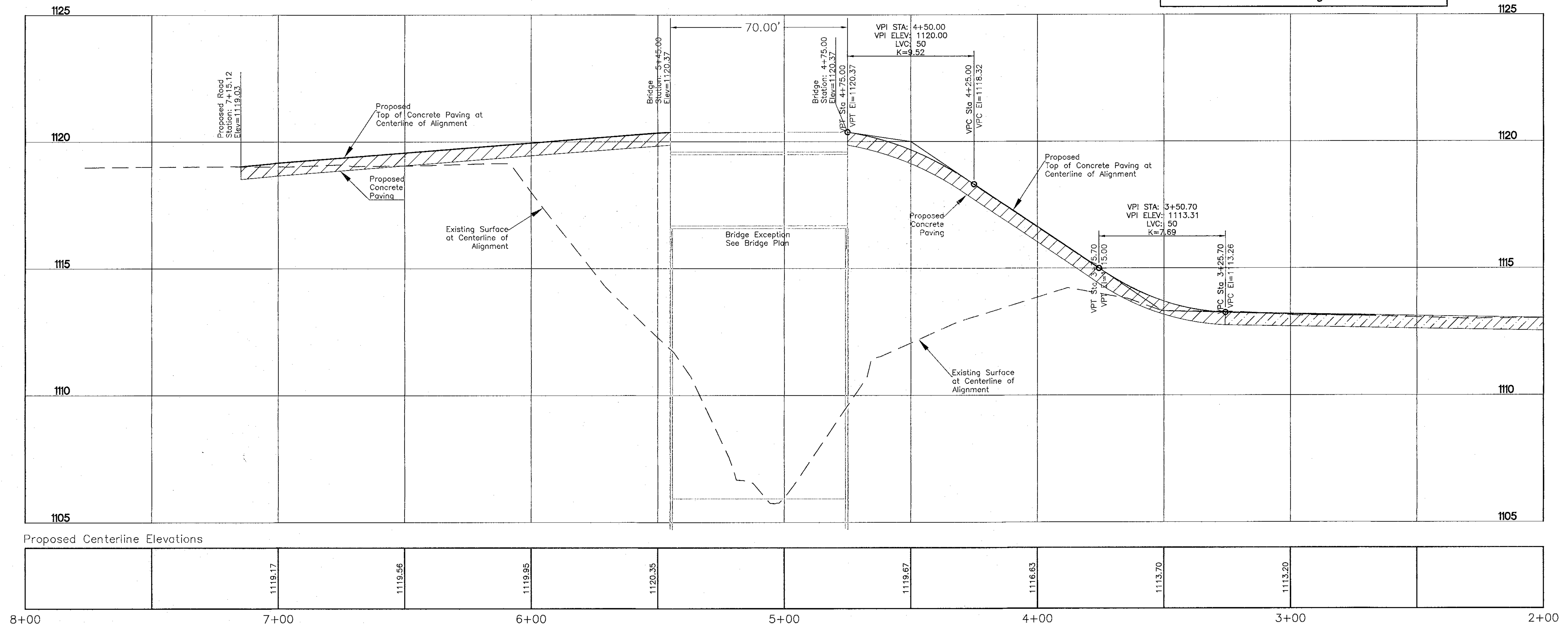
PROJECT NO.  
16gen03

SHEET NO.  
CS

Copyright (C) 2017 by Landmark Engineering



Profile View of Alignment – ROAD



Proposed Centerline Elevations

|      |         |         |         |         |         |         |
|------|---------|---------|---------|---------|---------|---------|
| 8+00 | 7+00    | 6+00    | 5+00    | 4+00    | 3+00    | 2+00    |
|      | 1119.17 | 1119.56 | 1119.95 | 1120.35 | 1119.67 | 1116.63 |
|      |         |         |         |         | 1113.70 | 1113.20 |

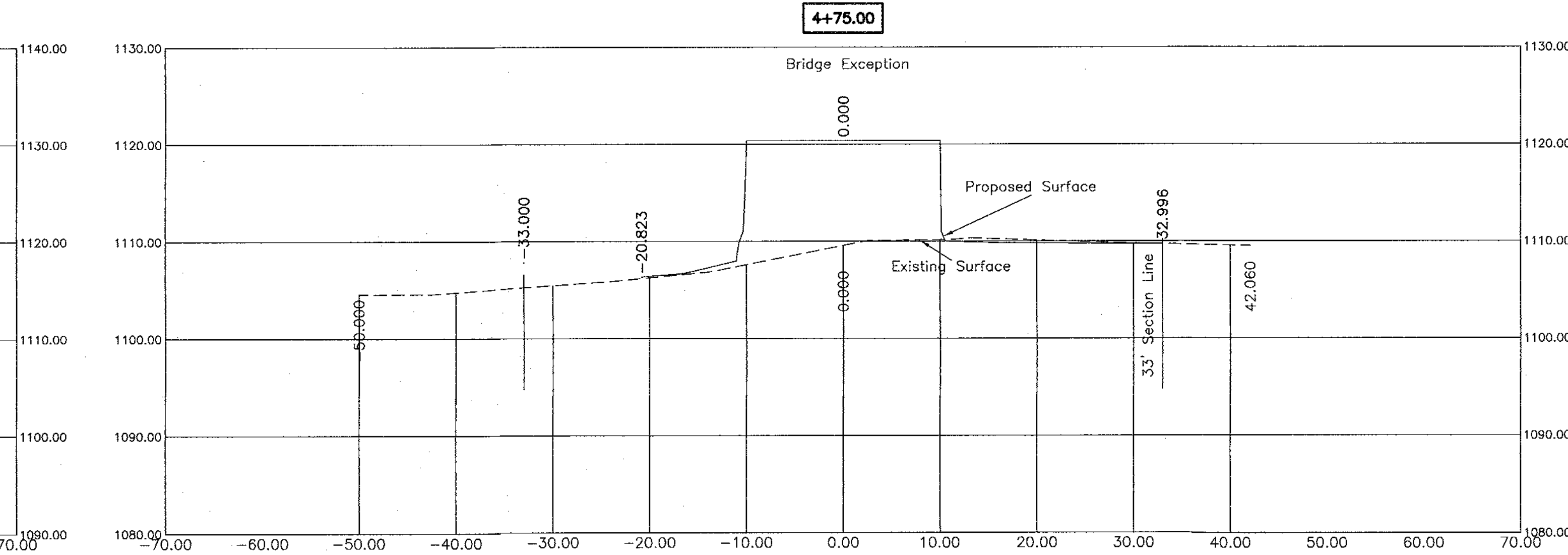
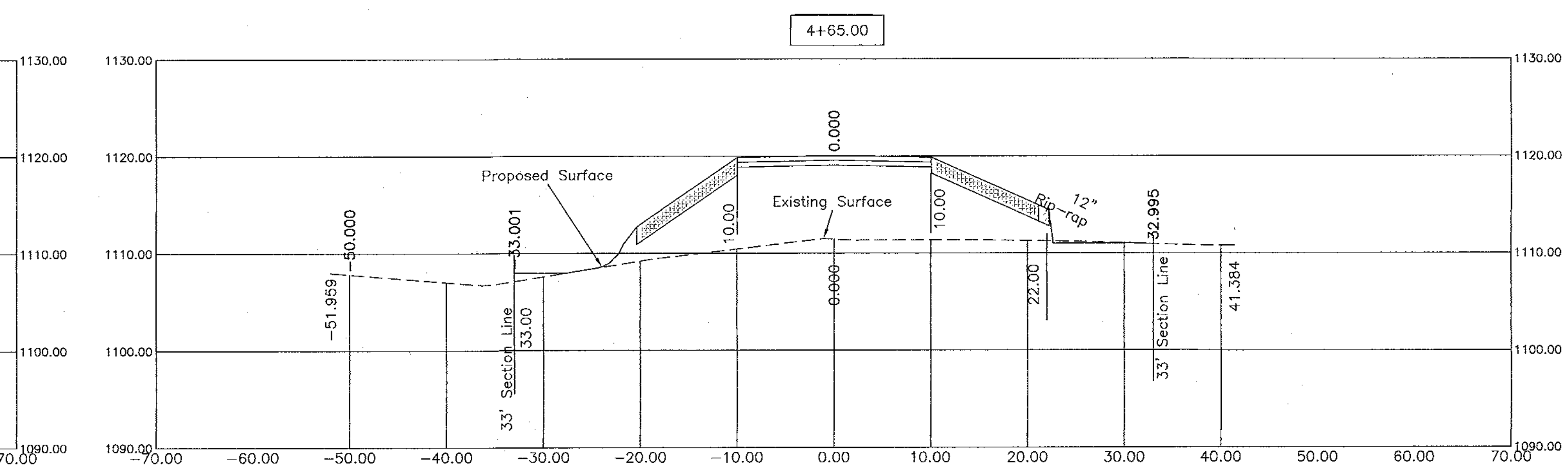
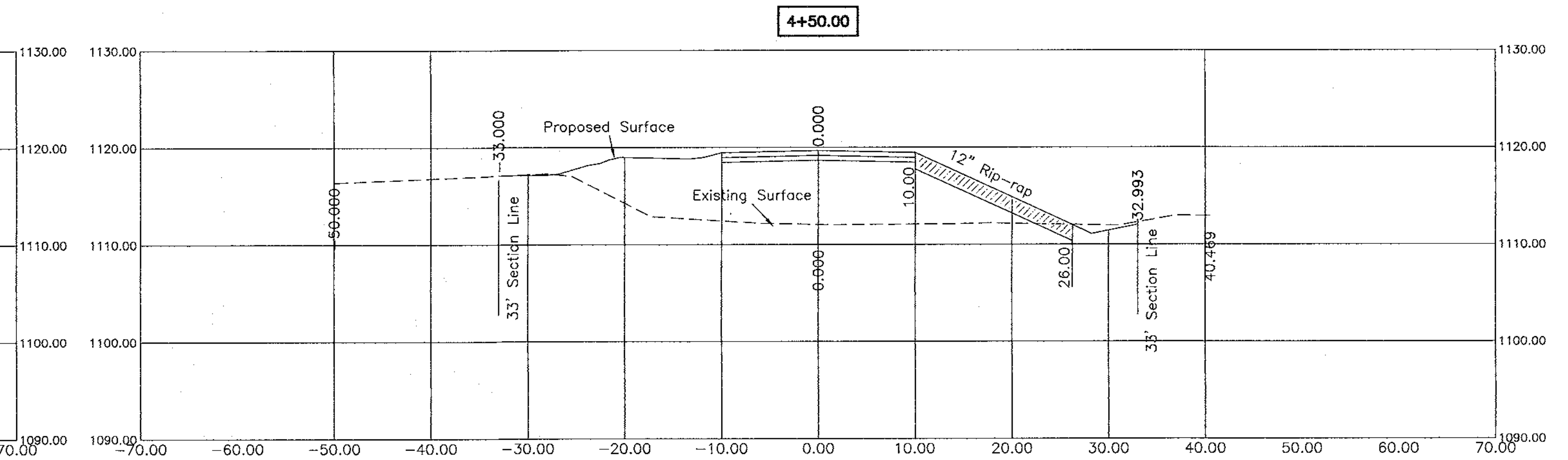
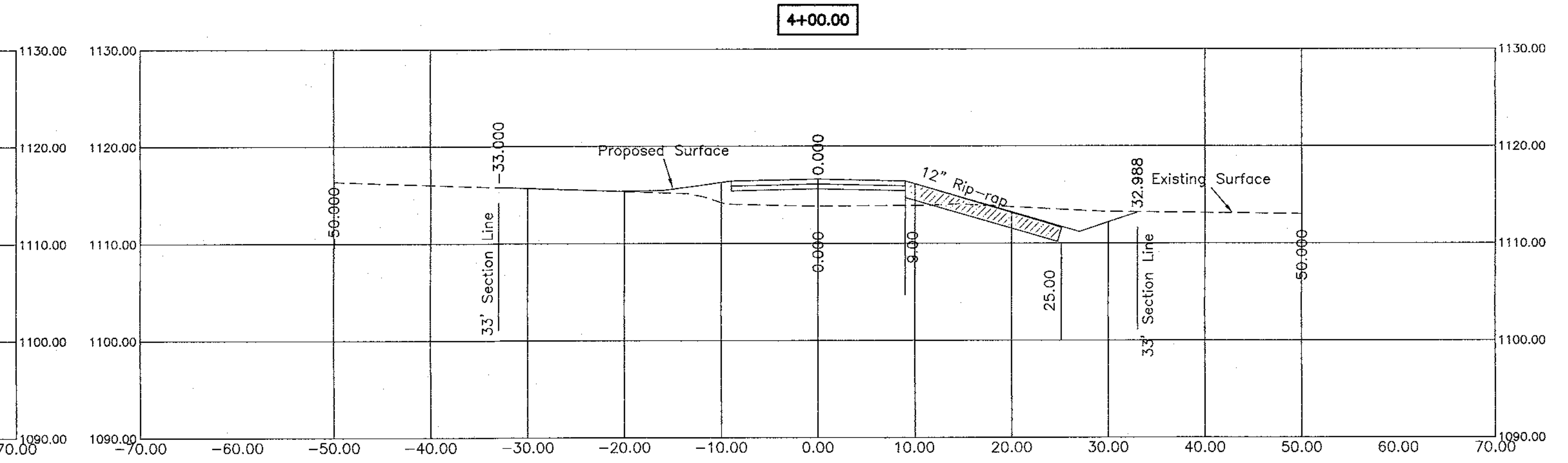
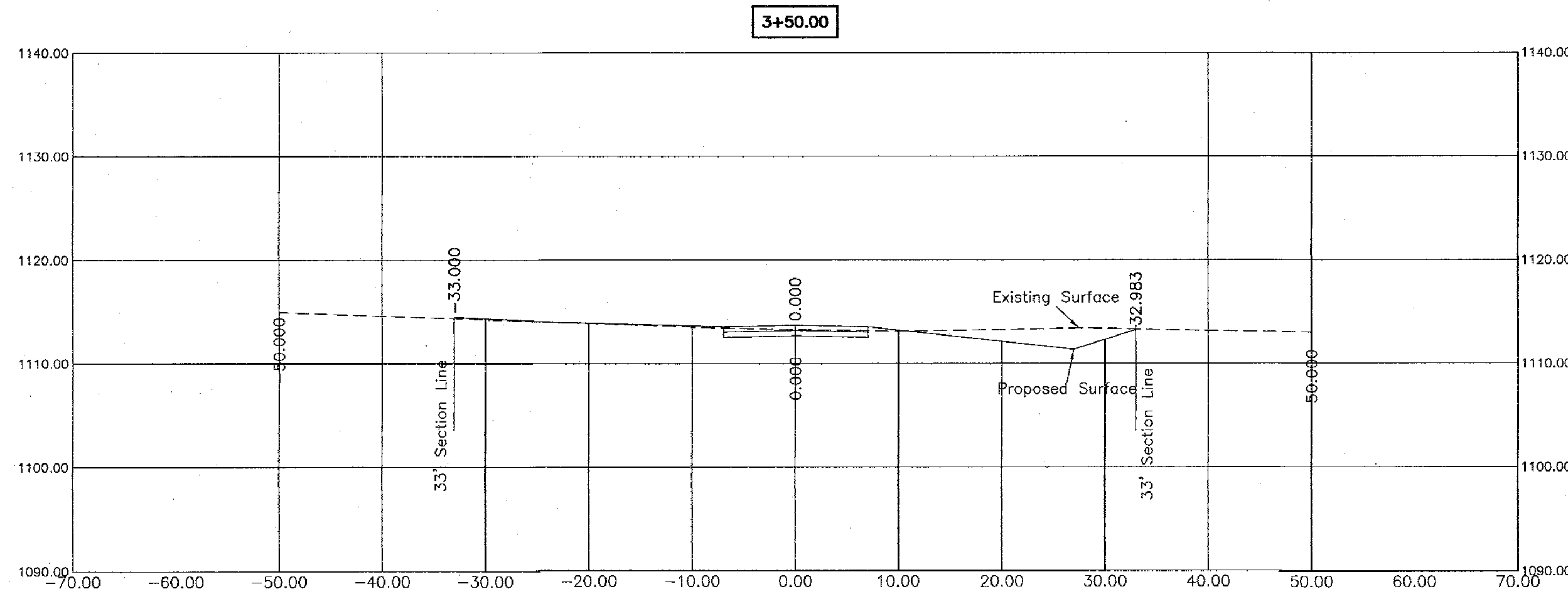
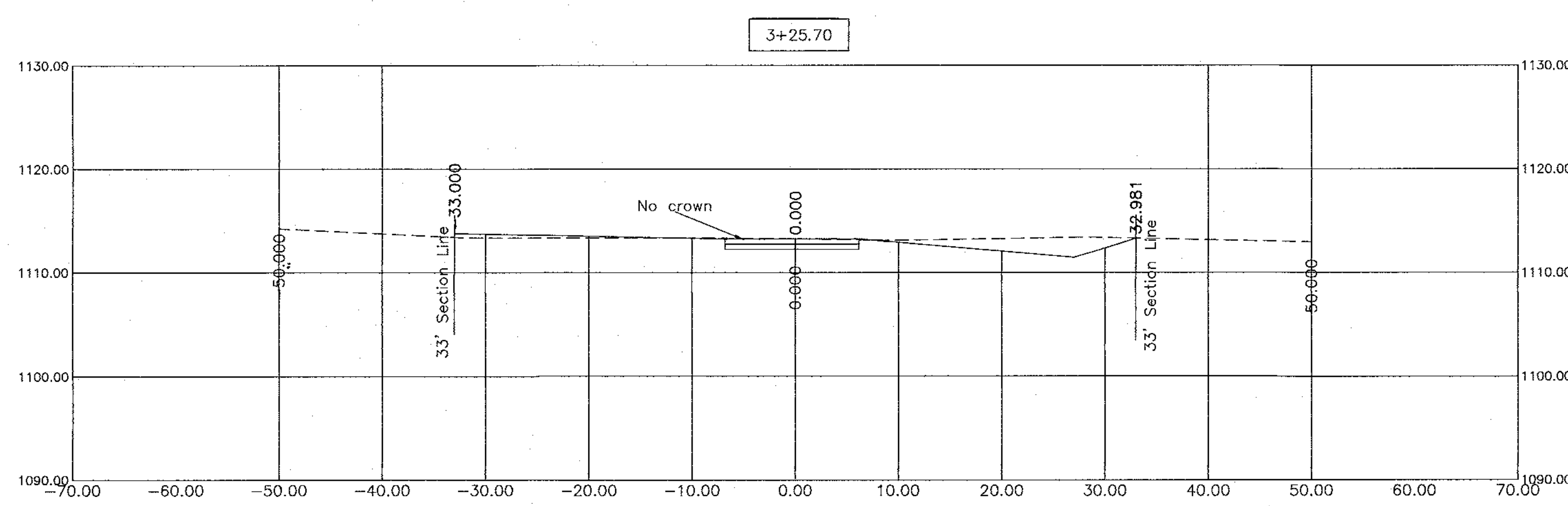
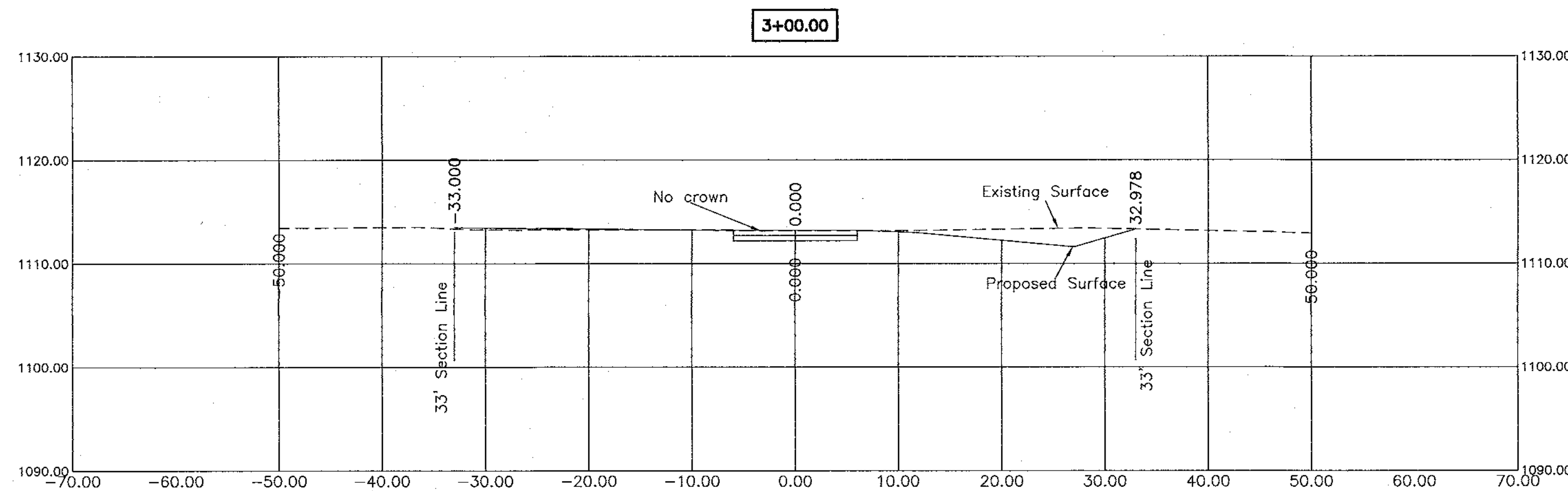
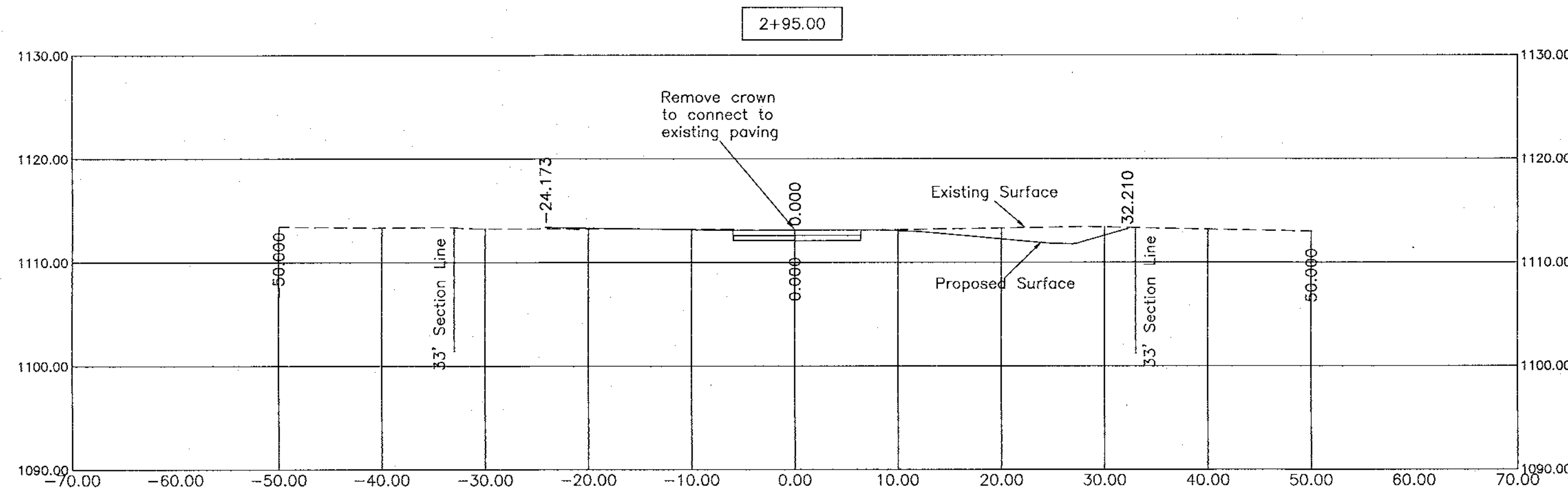
Scale: Hor. 1"=20'  
Ver. 1"=2'

Roadway Plans-Connection  
to New Bridge  
W. Main Street  
NORMAN, OKLAHOMA

Landmark  
2605 N.E. SHULINE ROAD, LAWRENCE, OK 73907  
H. Lester Seiger, P.E., P.L.S.  
Engineering

SHEET TITLE  
PLAN AND  
PROFILE  
PAVING LAYOUT  
DATE  
05/19/17  
PROJECT NO.  
16gen03  
SHEET NO. OF  
06

Cross Sections 2+95 - 4+75



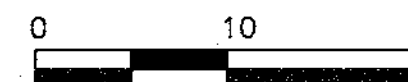
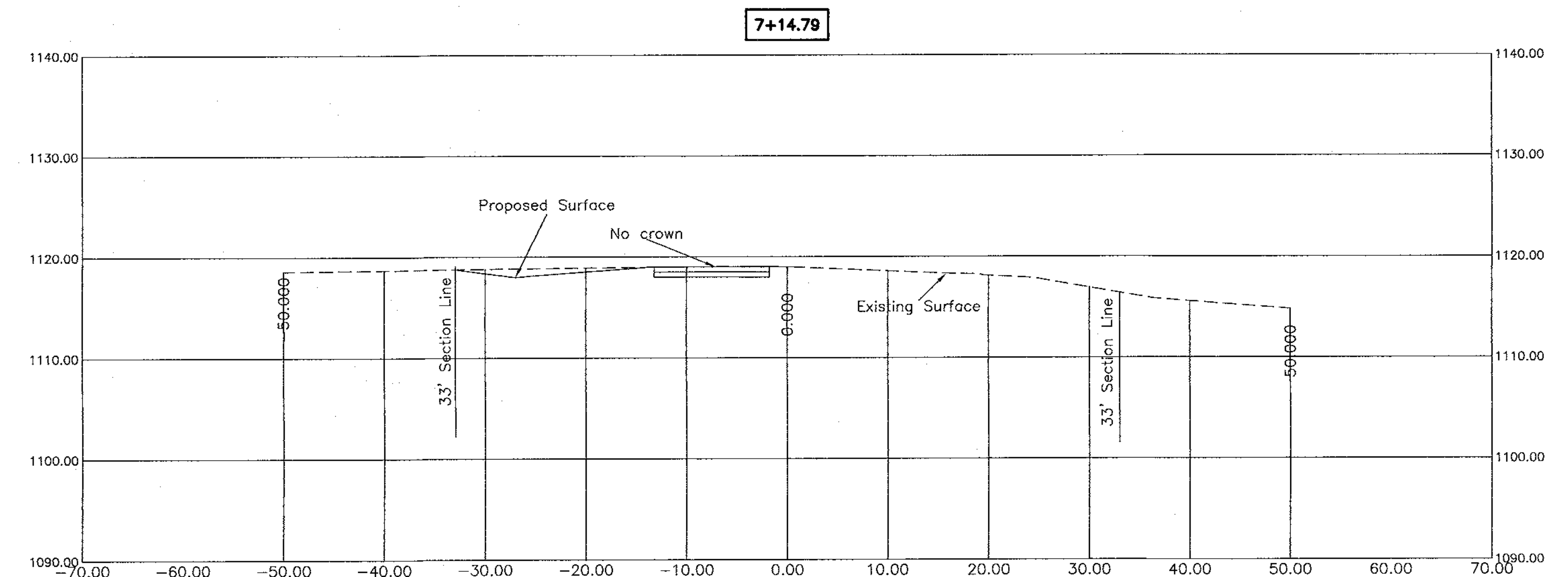
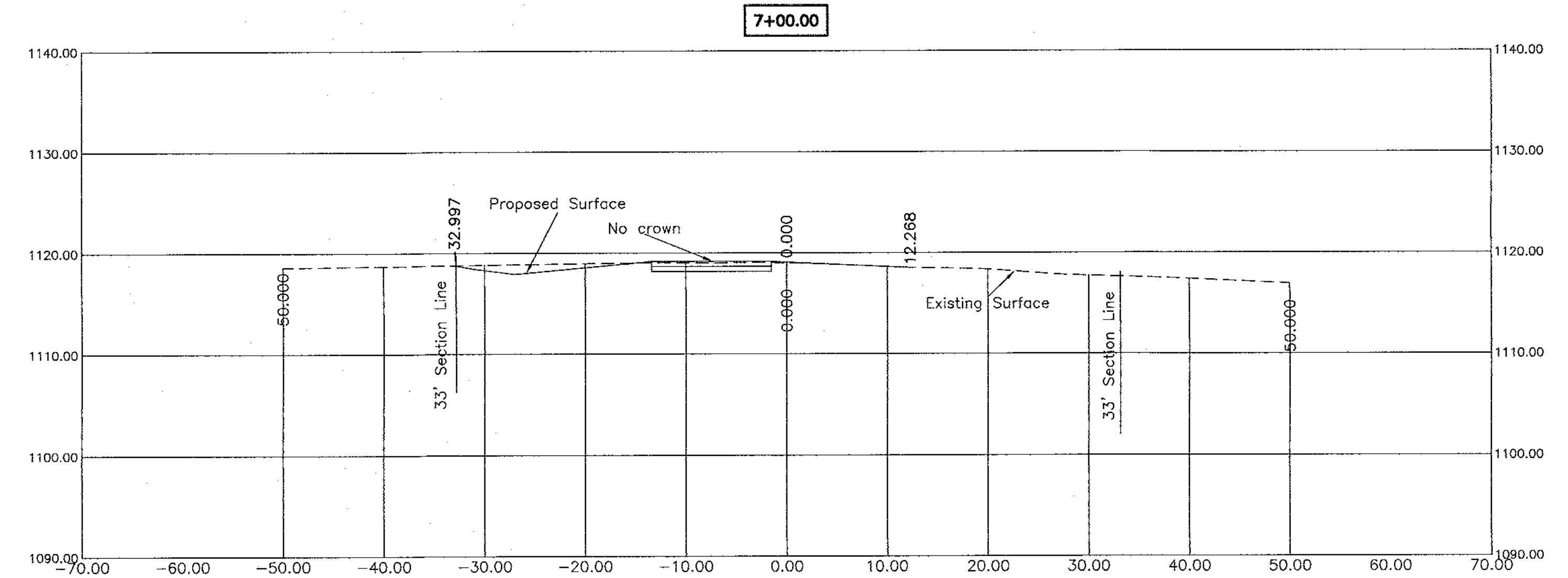
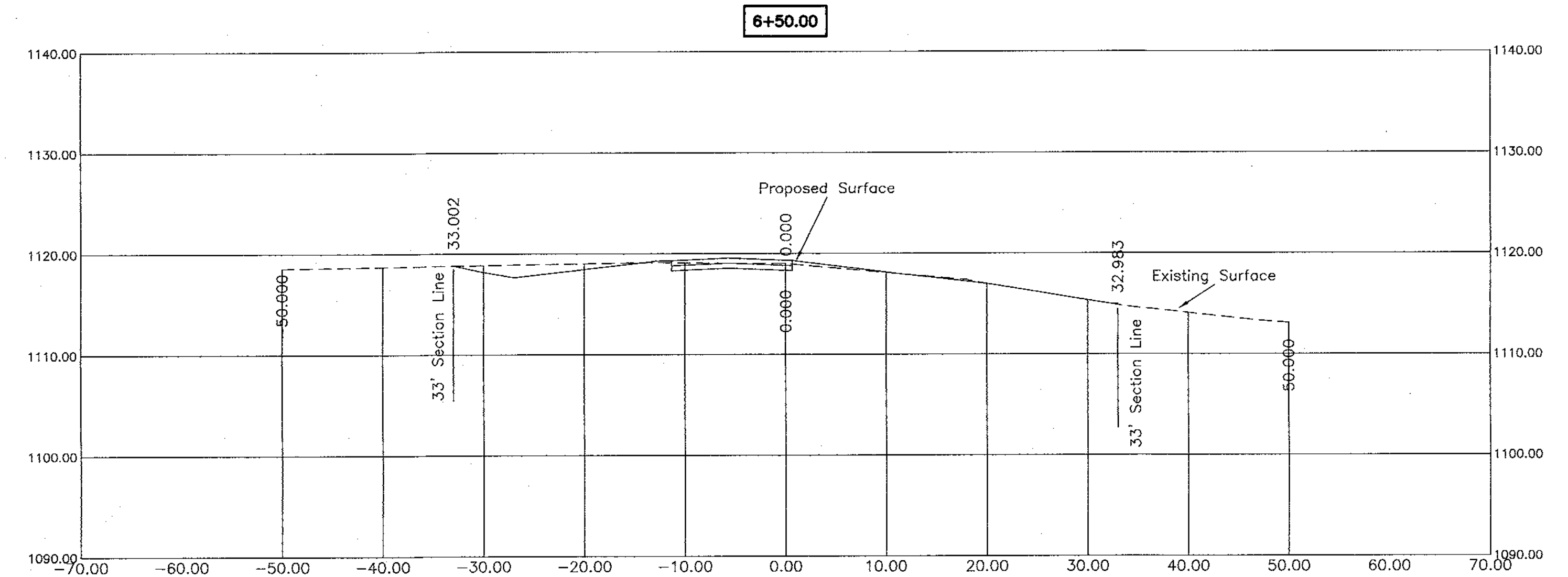
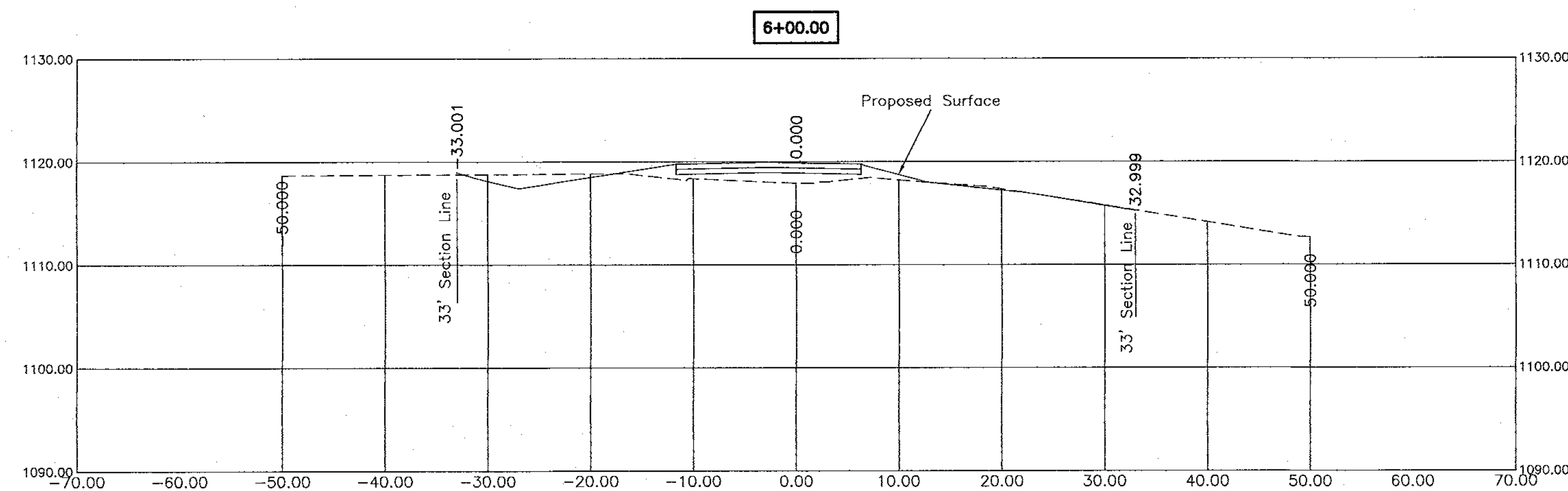
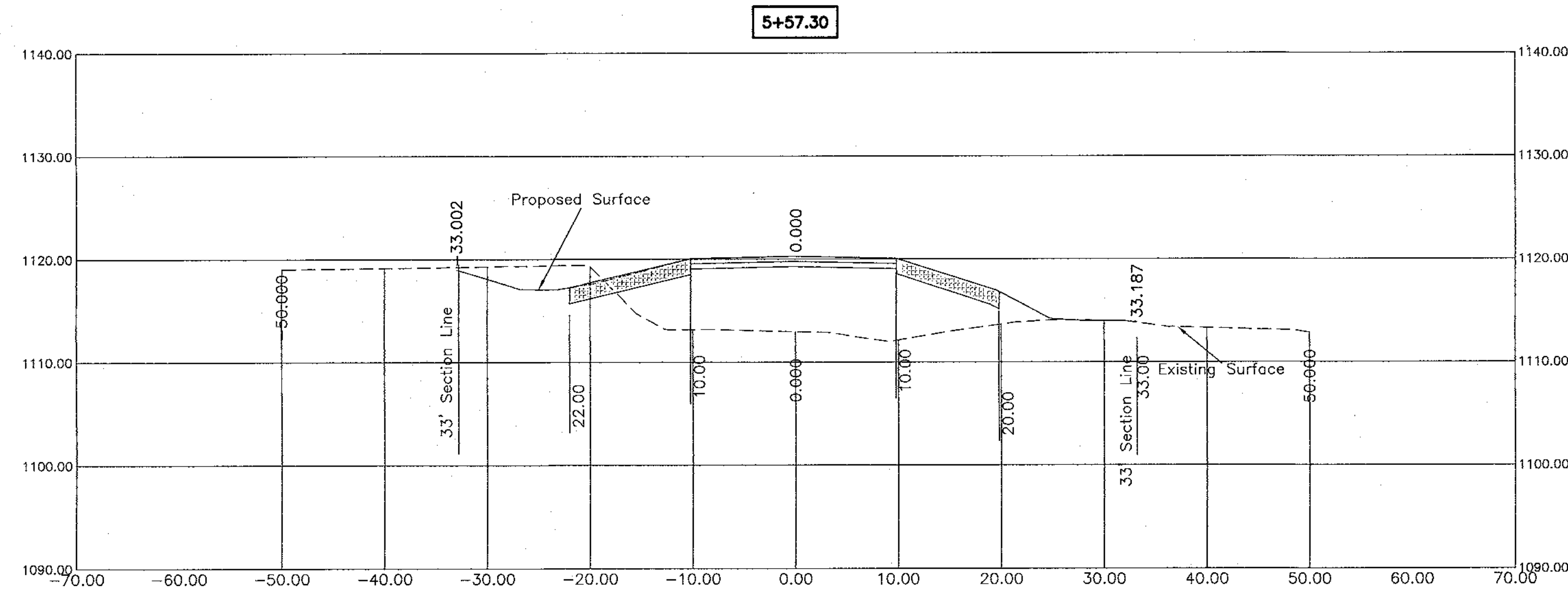
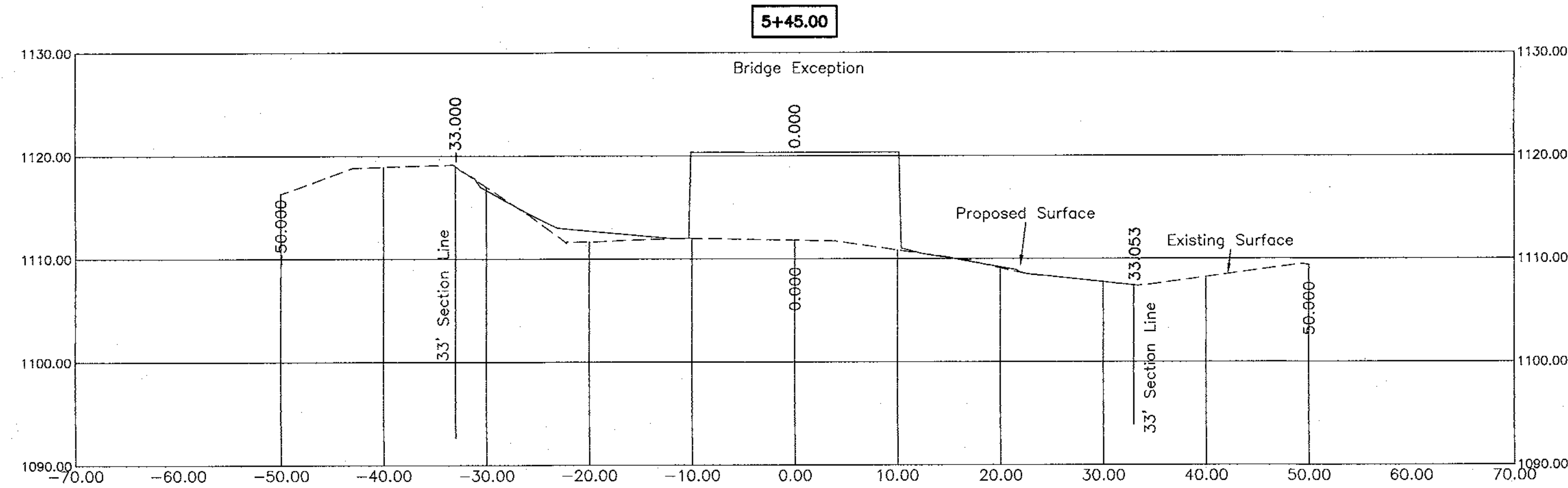
Roadway Plans—Connection  
to New Bridge  
W. Main Street  
NORMAN, OKLAHOMA

**LAURENCE**  
 ONE PLAZA, LAWTON, OK. 73507  
 Tel. (580) 357-2022  
**Engineering**

|                   |    |
|-------------------|----|
| SHEET TITLE       |    |
| CROSS<br>SECTIONS |    |
| STA: 2+95 - 4+75  |    |
| DATE              |    |
| 05/19/17          |    |
| PROJECT NO.       |    |
| 16gen03           |    |
| SHEET NO.         | OF |
| C7                |    |

**Discussion** *Staphylococcus aureus* (S. aureus) is the most common

# Cross Sections 5+45 - 7+14.79

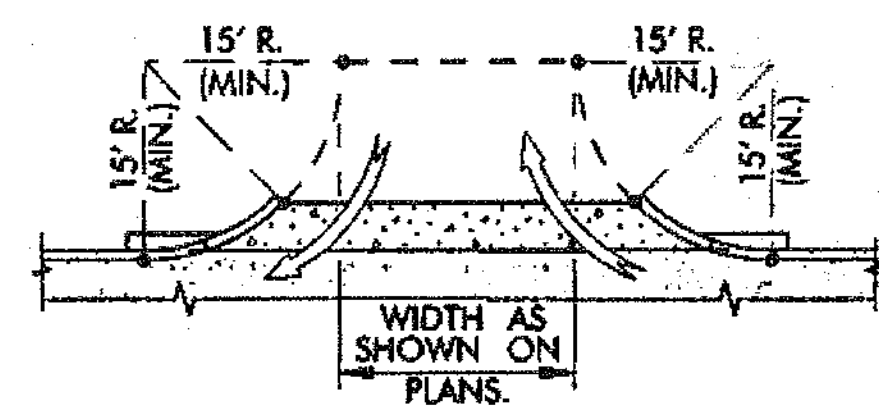


Roadway Plans-Connection  
to New Bridge  
w. Main Street  
NORMAN, OKLAHOMA

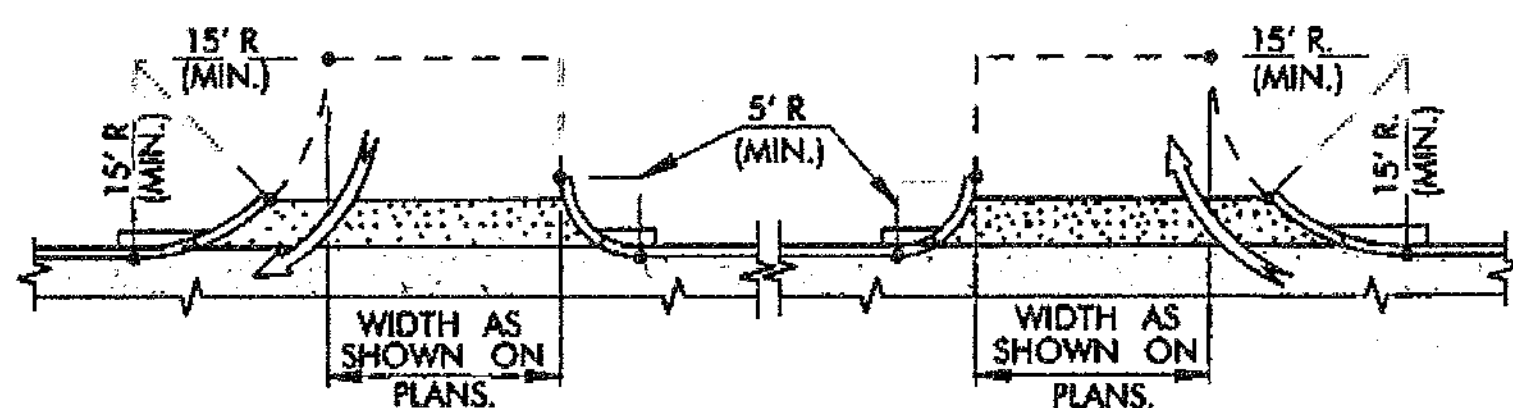
Landmark  
2503 N.E. SPURLINE BLVD. LAWTON, OK 73007  
H. Lester Seliger, P.E., P.L.S.

OK CA# 2075  
TEL. (800) 357-2022  
Engineering

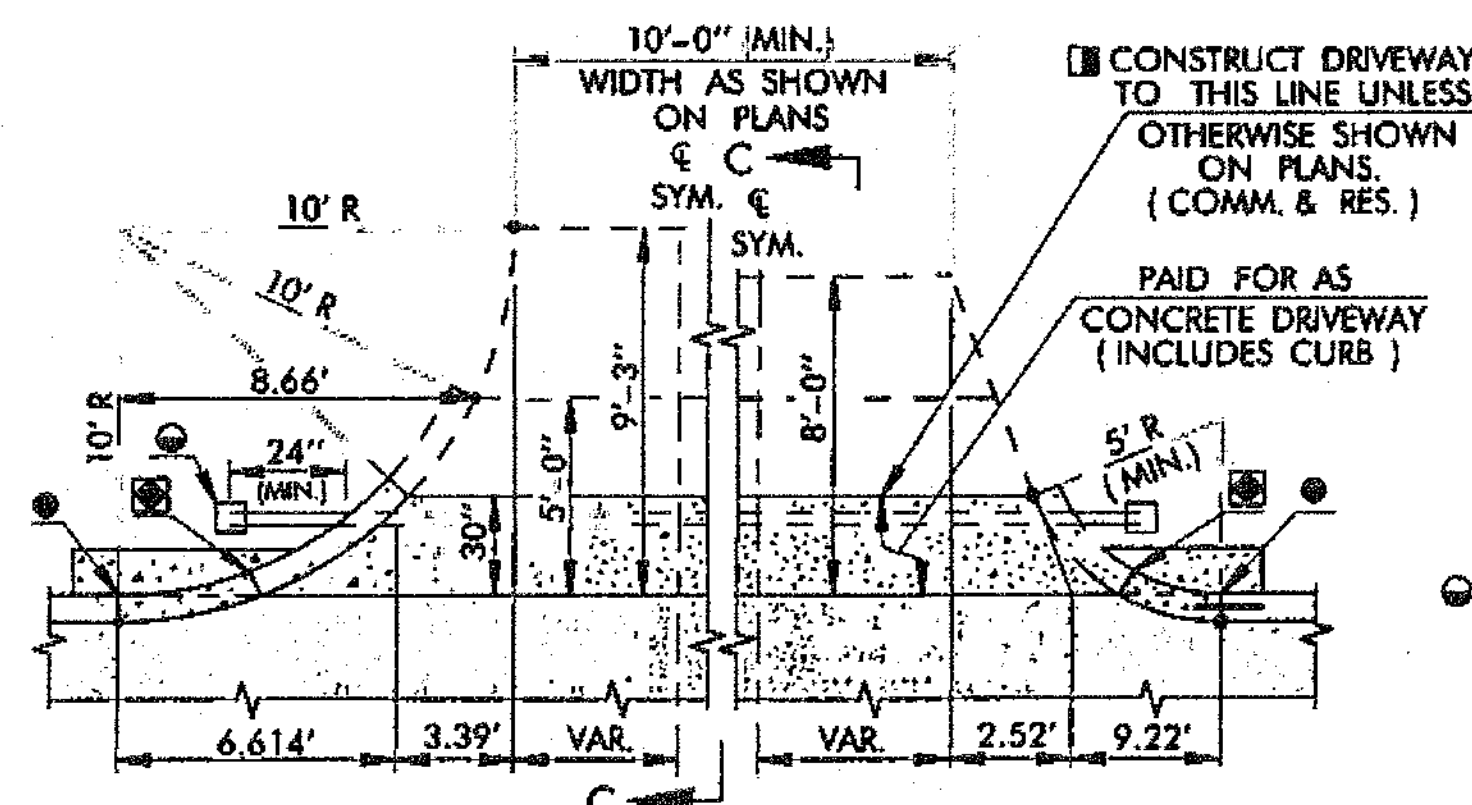
SHEET TITLE  
CROSS  
SECTIONS  
STA: 5+45-17+14.79  
DATE  
05/19/17  
PROJECT NO.  
16gen03  
SHEET NO. OF  
CB



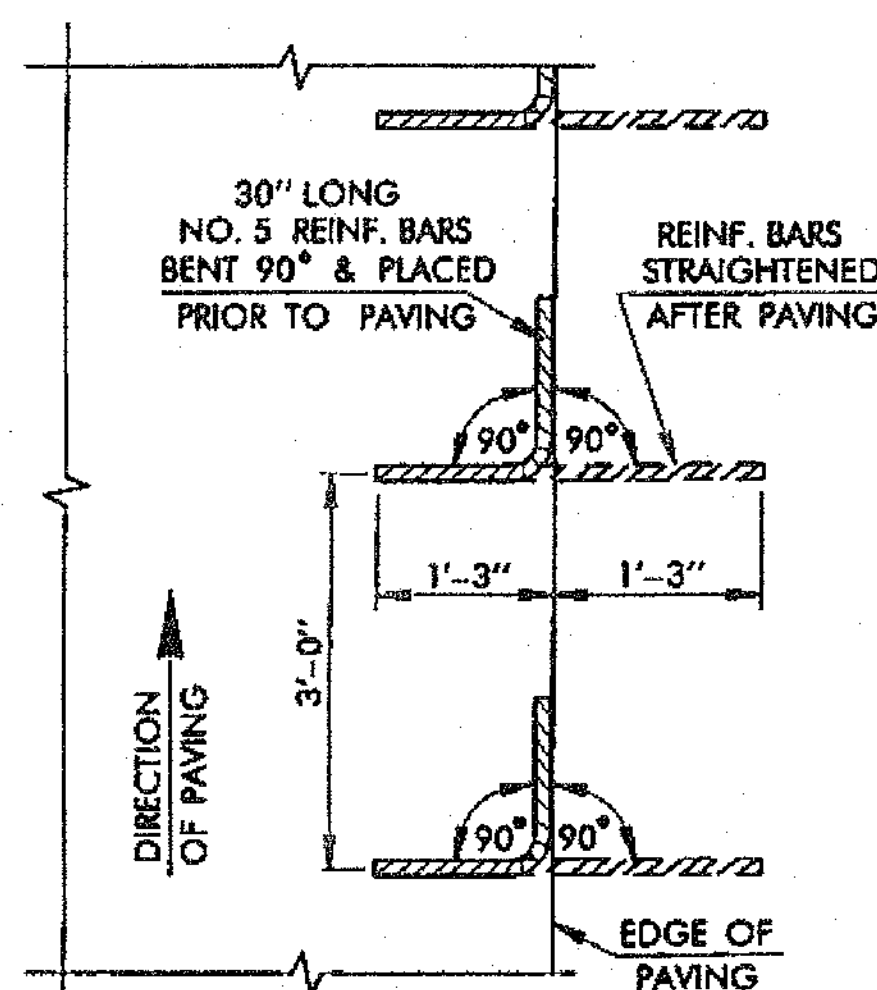
TYPE 2 DRIVEWAY  
(TWO-WAY OPERATION)



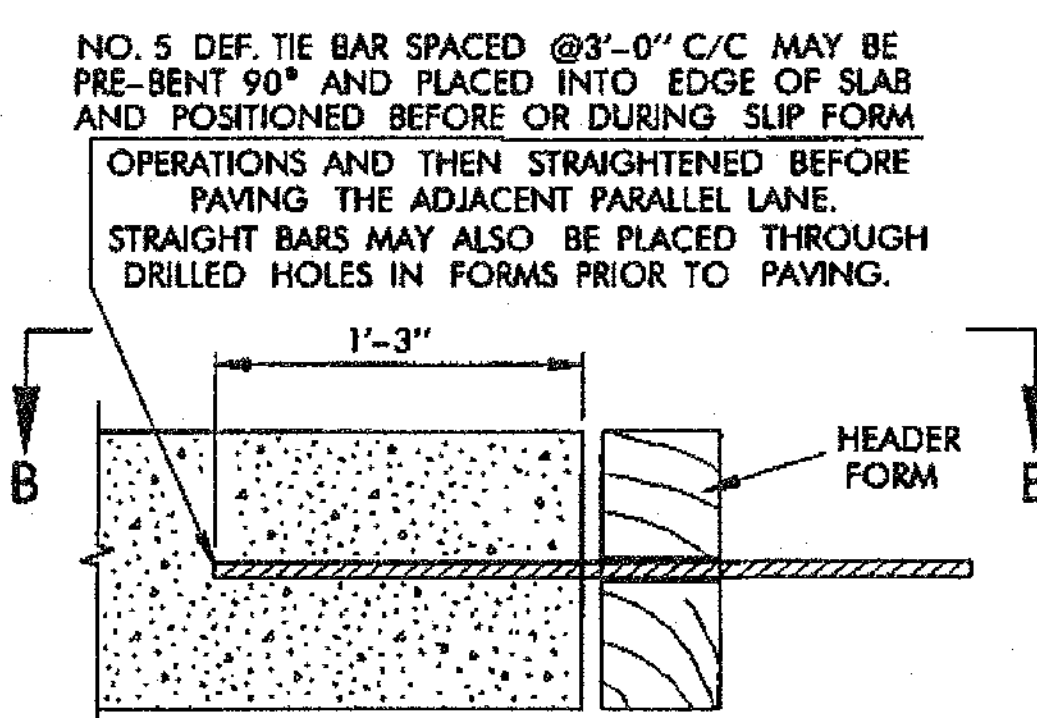
TYPE 2A DRIVEWAYS  
(ONE-WAY OPERATION)



TYPE 1 DRIVEWAYS  
(PRIVATE OR RESIDENTIAL)

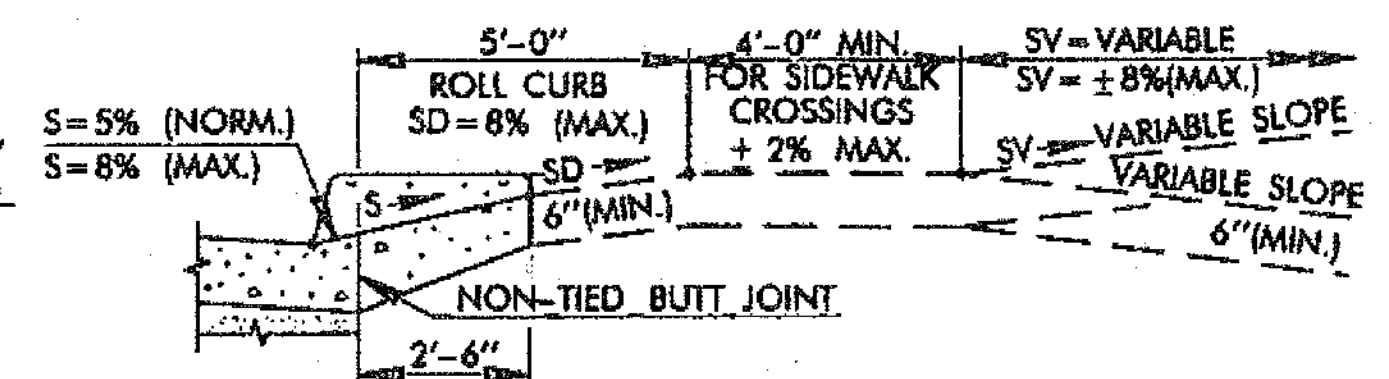


SECTION B-B



SECTION A-A  
TIED LONGITUDINAL BUTT JOINT  
(TO BE USED BETWEEN ADJACENT PAVING LANES)

NOTE: LONGITUDINAL BUTT JOINT TIE BAR STEEL AND PLACEMENT METHOD NOT COVERED ON THIS STANDARD SHALL BE APPROVED BY THE ENGINEER.

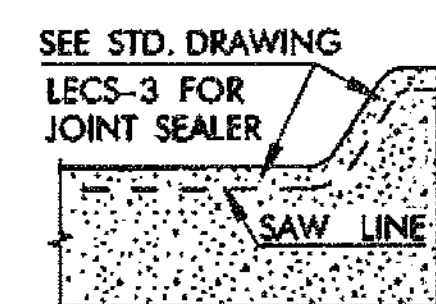


SECTION C-C  
ALONG DRIVE

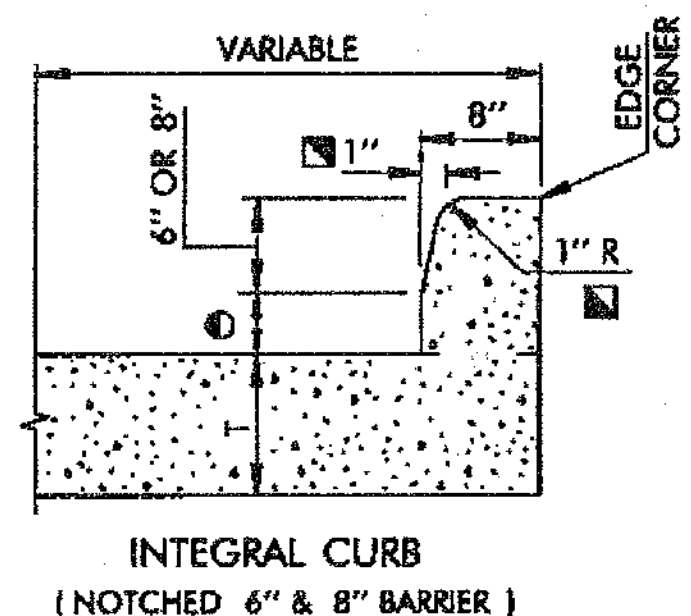
FOR ADDITIONAL DETAILS SEE POLICY ON DRIVEWAY REGULATIONS FOR OKLA. HIGHWAYS

IF SPECIFIED IN THE PLANS, CONSTRUCT CONDUIT CROSSING OF THE SAME SIZE & TYPE SPECIFIED AT APPROXIMATELY 30" BELOW FINISHED GRADE OF RAMP. SEE GENERAL NOTES FOR DETAILS.

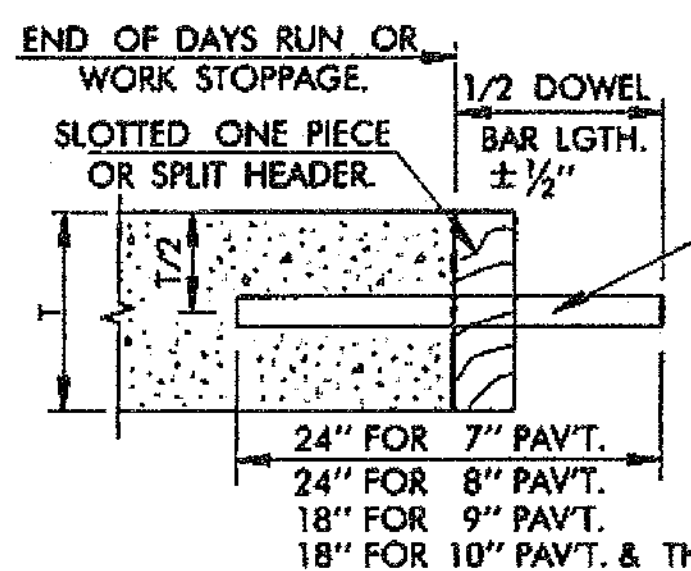
FOR STREET RETURN DETAILS SEE ROADWAY STD. ASCD-4.



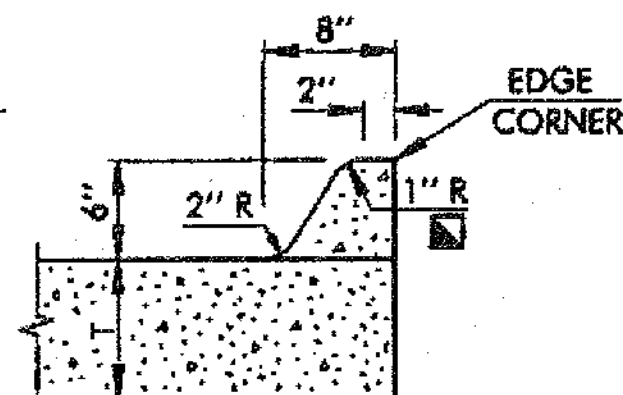
ALTERNATE  
CURB JOINT



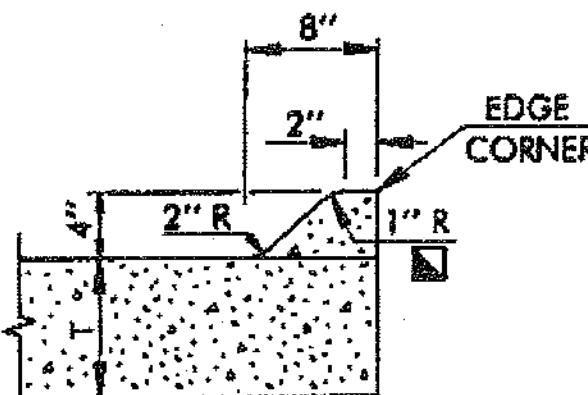
INTEGRAL CURB  
(NOTCHED 6" & 8" BARRIER)



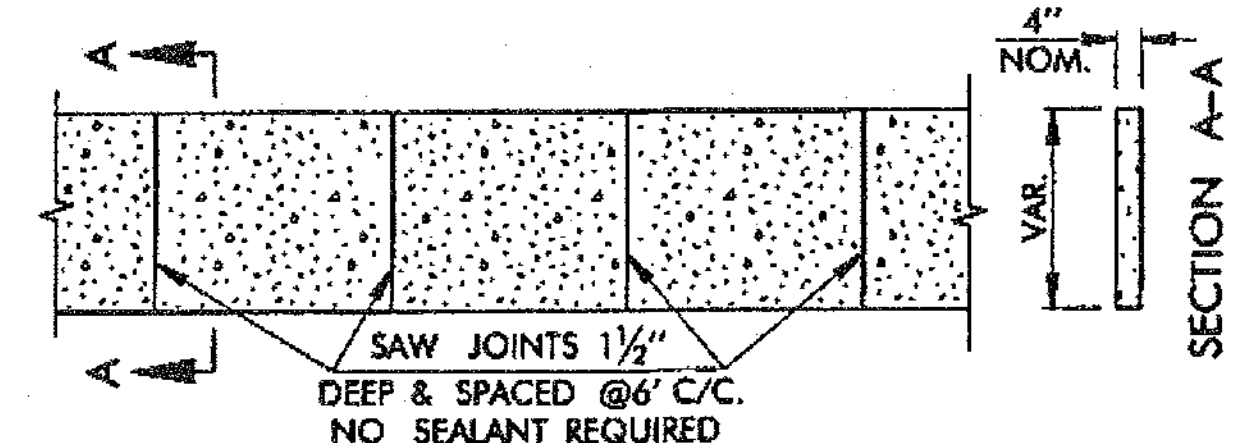
INTEGRAL CURB  
(6" & 8" BARRIER)



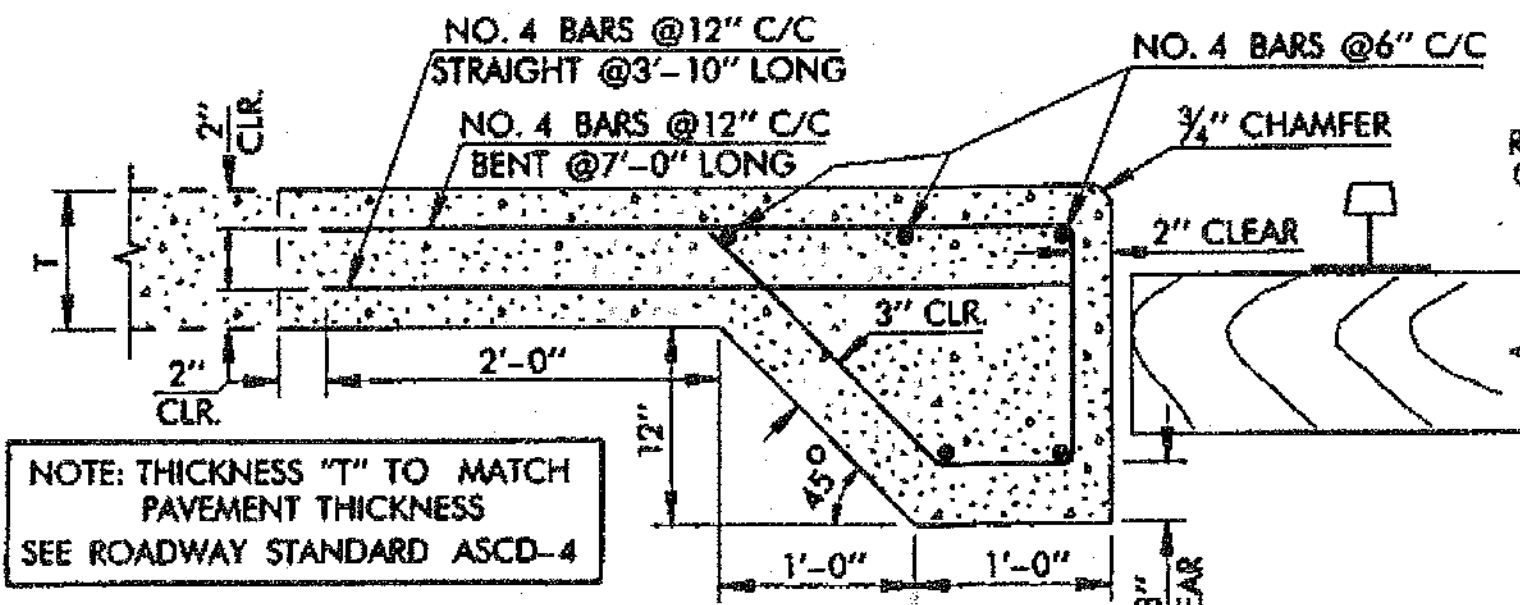
INTEGRAL CURB  
(6" MOUNTABLE)



INTEGRAL CURB  
(4" MOUNTABLE)

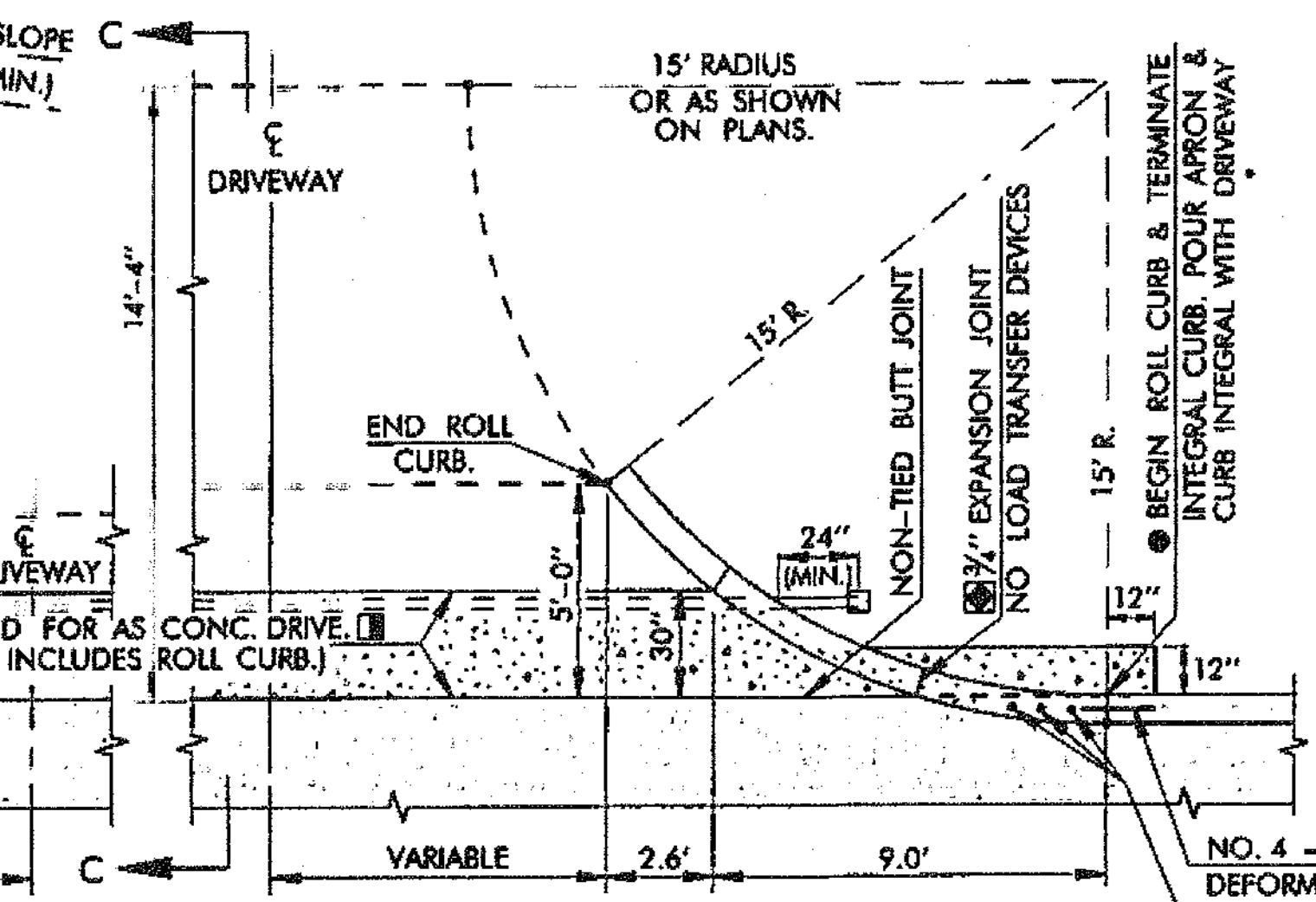


SECTION A-A  
PLAN DETAIL OF CONCRETE SIDEWALK



CONCRETE RAILROAD APPROACH SLAB  
THICKENED EDGE @ RAILROAD CROSSING

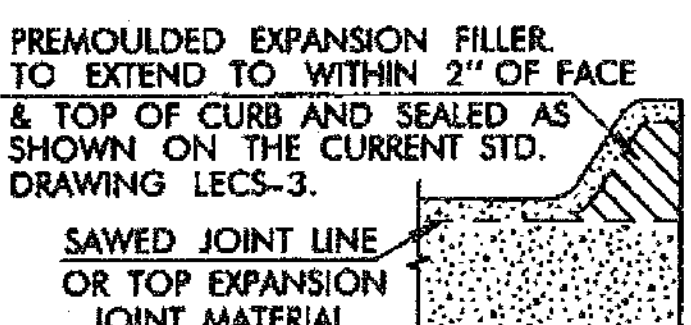
NOTE: THICKNESS "T" TO MATCH PAVEMENT THICKNESS SEE ROADWAY STANDARD ASCD-4



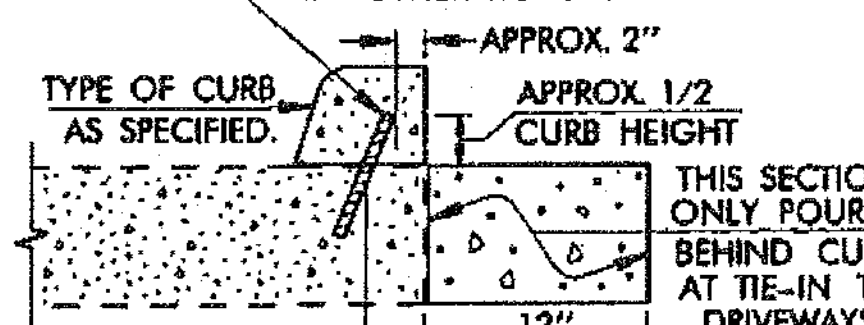
TYPE 2 & 2A COMMERCIAL DRIVEWAYS

WHEN SIDEWALK IS BUILT DIRECTLY BEHIND THE CURB, THE CONCRETE DRIVEWAY SHOULD BE CONSTRUCTED & EXTENDED TO THE BACK EDGE OF SIDEWALK

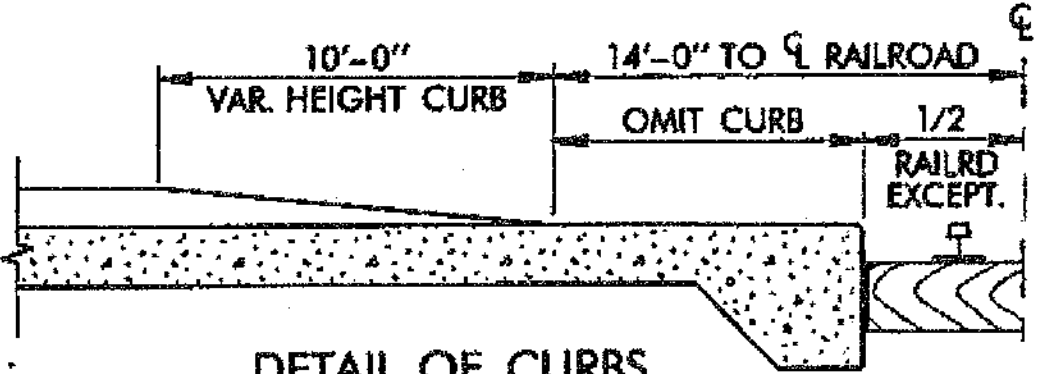
NO. 4 DEFORMED TIE BAR 8" LONG, SPACED @ 18" C/C (10" C/C AT DRIVEWAYS) COST TO BE INCLUDED IN OTHER ITEMS OF WORK.



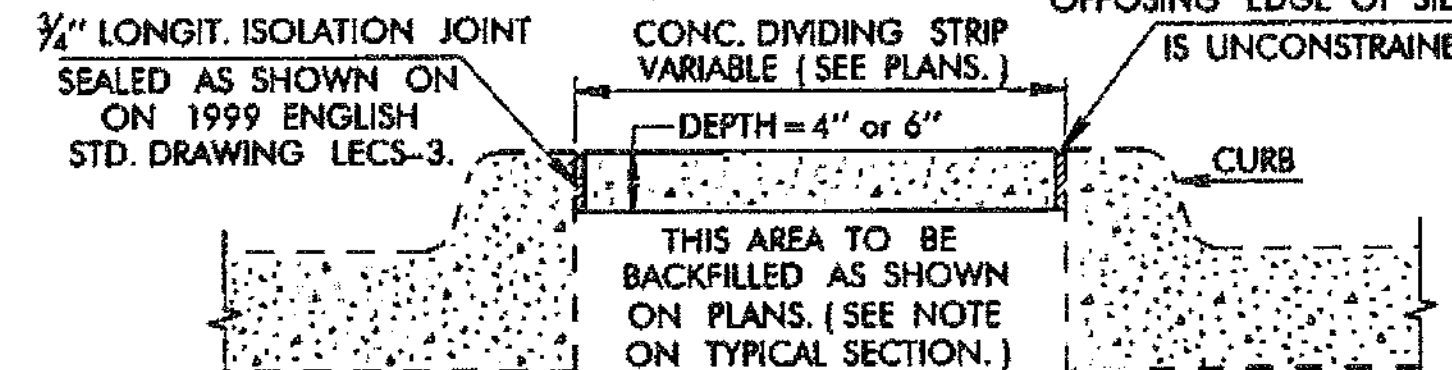
CURB JOINT WITH  
EXPANSION MATERIAL



OPTIONAL CURB CONSTRUCTION  
FOR SLIP FORM PAVING

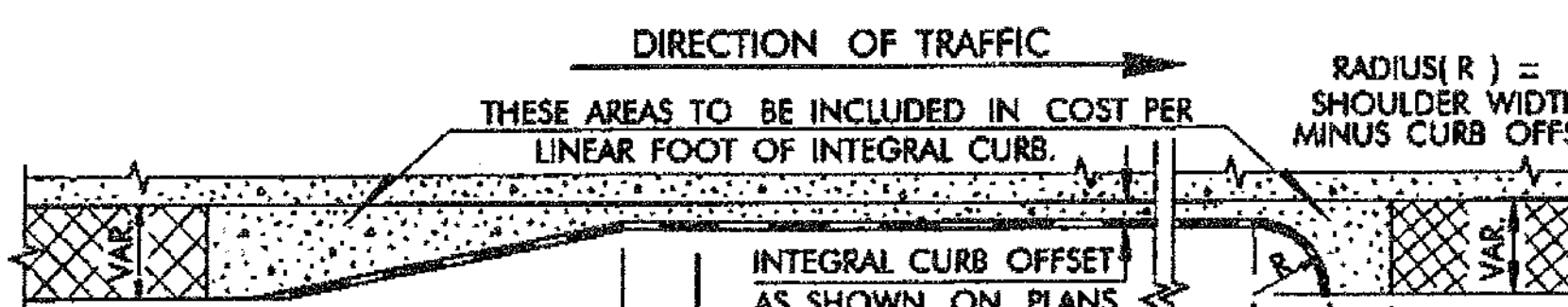


DETAIL OF CURBS  
ADJACENT TO RAILROAD CROSSINGS

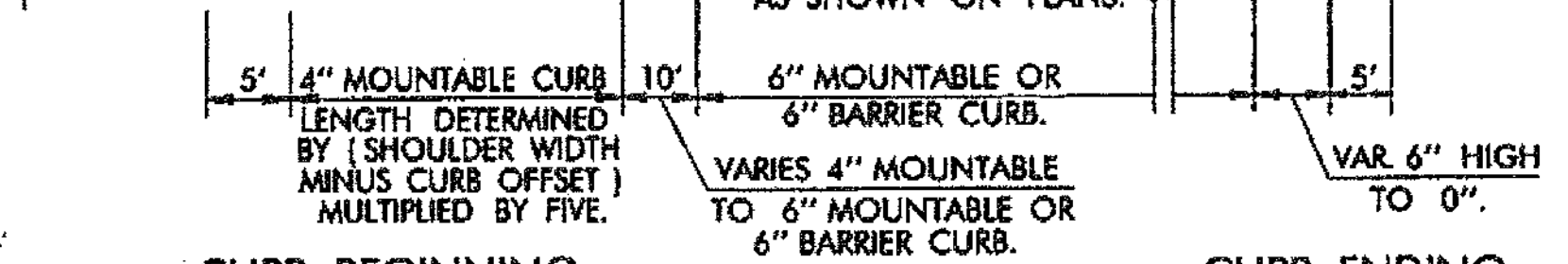


CONCRETE DIVIDING STRIP

TRANSVERSE EXPANSION JOINTS TO BE 1/2" EXPAN. JOINT FILLER AT 50'-0" C/C, 1/4" EXPANSION JOINT MATERIAL AT 1/3 POINTS BETWEEN 1/2" EXPANSION JOINTS. FILLER MATERIAL TO BE PREMOULDED & JOINTS TO BE SEALED AS SHOWN ON STANDARD DRAWING LECS-3. JOINTS IN DIVIDING STRIP SHOULD ALIGN WITH CURB EXPANSION JOINTS.



CURB BEGINNING



CURB ENDING

### GENERAL NOTES

- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
- ALL COST OF CLASS A CONCRETE & REINFORCING STEEL IN THICKENED EDGE AT RAILROAD CROSSINGS SHALL BE INCLUDED IN THE PRICE BID FOR CONCRETE RAILROAD APPROACH SLAB.
- COST OF JOINT FILLERS, SEALING AND REINFORCING STEEL SHALL BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.
- CONTRACTION JOINTS IN JOINTED P.C. PAVEMENT SHALL BE AT APPROXIMATELY 15'-0" CENTERS, UNLESS OTHERWISE SHOWN ON THE PLANS.
- CURB & GUTTER SHALL BE PLACED INTEGRAL WITH THE PAVING SLAB UNLESS OTHERWISE SHOWN IN THE PLANS. TRANSVERSE JOINTS SHALL BE EXTENDED THE FULL WIDTH OF SLAB.
- ALL CONDUIT CROSSINGS ARE TO BE TRENCHED, PLACED, BACKFILLED, AND COMPACTED PRIOR TO SURFACING. BORING OR PUSHING PROCEDURES MAY BE USED WHERE SURFACING IS ALREADY IN PLACE AND IF APPROVED BY THE ENGINEER.
- IF CONDUIT IS NOT CONTINUOUS BETWEEN DRIVEWAYS/RAMPS, CAP BOTH ENDS OF EACH CONDUIT CROSSING AND PLACE MARKER TO PREVENT DAMAGE DURING CONSTRUCTION.
- CONDUIT SHALL NOT TERMINATE BELOW A SURFACED AREA, BUT SHALL EXTEND MINIMUM OF 24" PAST EDGE OF PAVING.
- FOR PULL BOX INSTALLATION DETAILS, SEE TRAFFIC STANDARD DRAWING PBD.
- RADIUS OF 2" MAY BE USED IF APPROVED BY THE ENGINEER.
- BATTER OF 2" MAY BE USED IF APPROVED BY THE ENGINEER.
- DIMENSION EQUALS THICKNESS OF ASPHALT CONCRETE SHOWN ON TYPICAL SECTION ASPHALT CONCRETE THICKNESS (2" MIN.; 4" MAX.)

| BASIS OF PAYMENT |                                 |      |
|------------------|---------------------------------|------|
| ITEM NO.         | ITEM                            | UNIT |
| 414.06(C)        | CONCRETE RAILROAD APPROACH SLAB | S.Y. |
| 609.06(A)        | CONCRETE CURB (INTEGRAL)        | L.F. |
| 610.06(A)        | CONCRETE SIDEWALK               | S.Y. |
| 610.06(B)        | CONCRETE DRIVEWAY               | S.Y. |
| 610.06(B)        | CONCRETE DRIVEWAY (H.E.S.)      | S.Y. |
| 610.06(C)        | CONCRETE DIVIDING STRIP         | S.Y. |

HEIGHT & SHAPE OF CURB SHALL BE SPECIFIED.  
THICKNESS SHALL BE SPECIFIED IN INCHES.

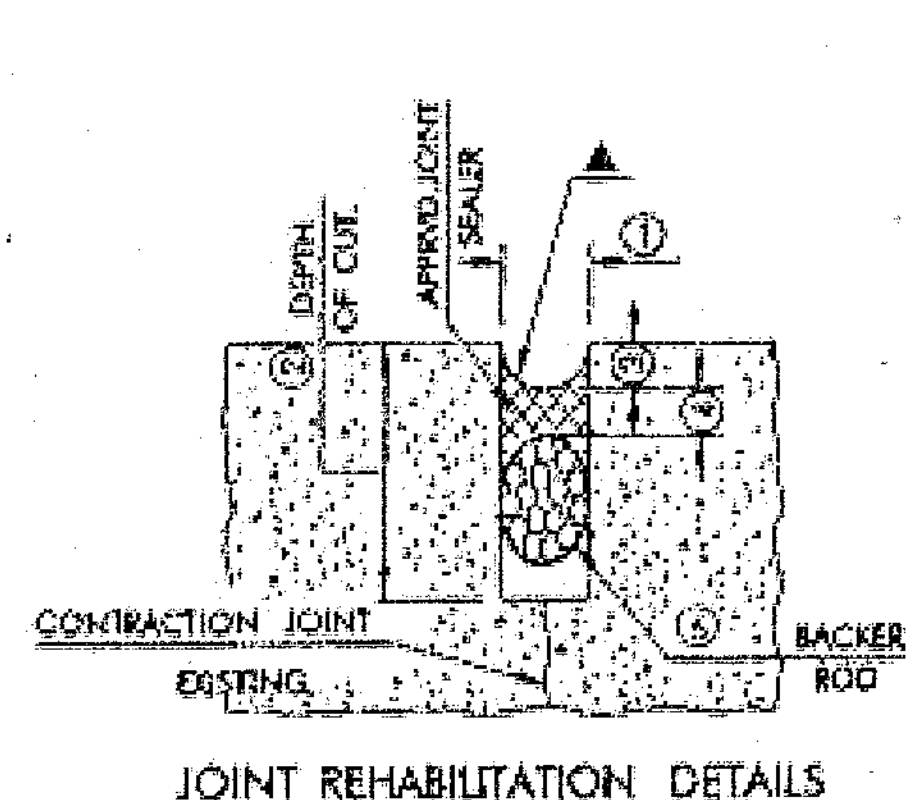
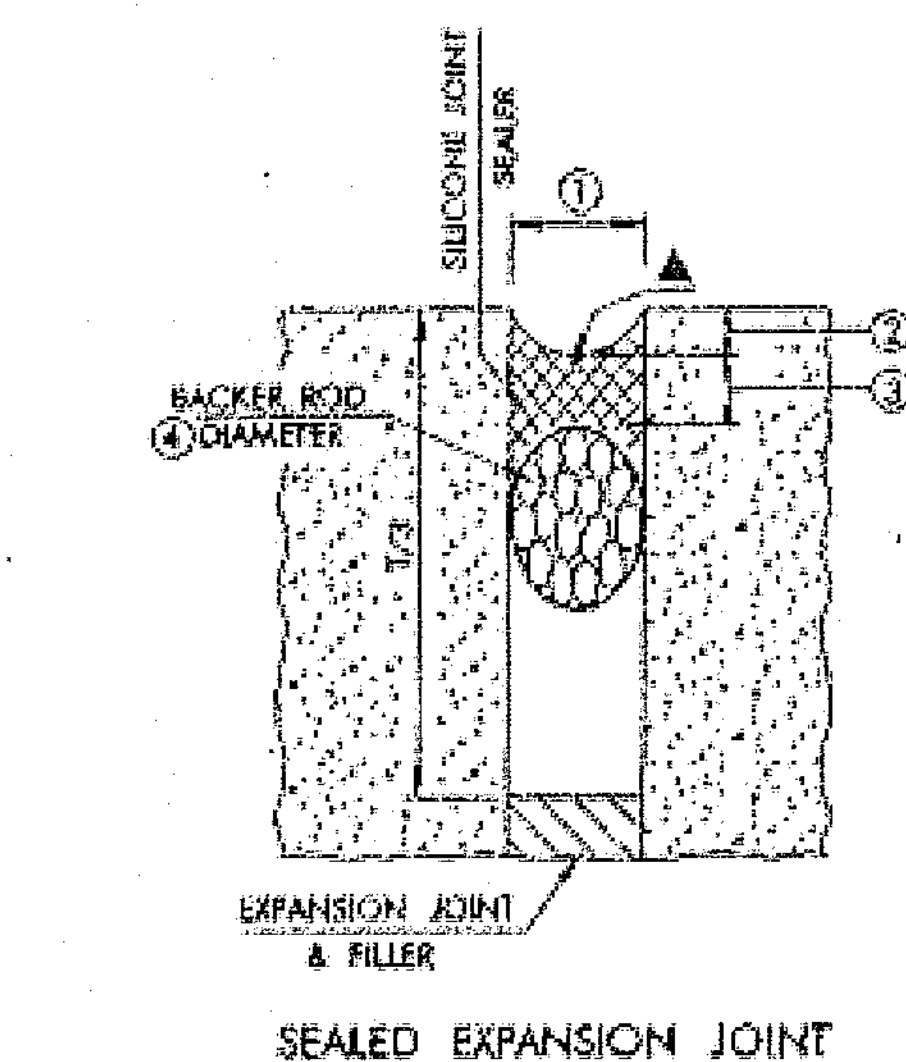
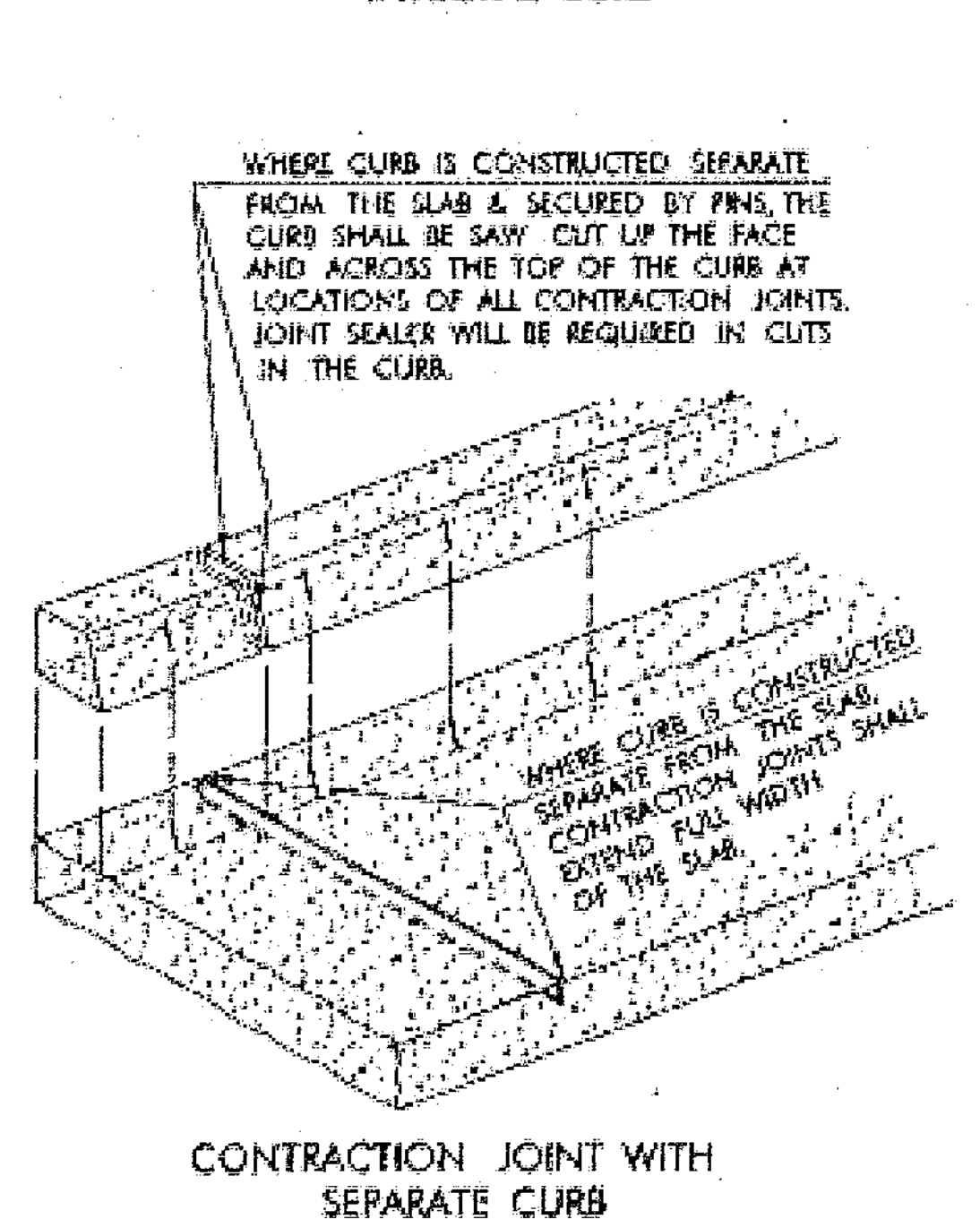
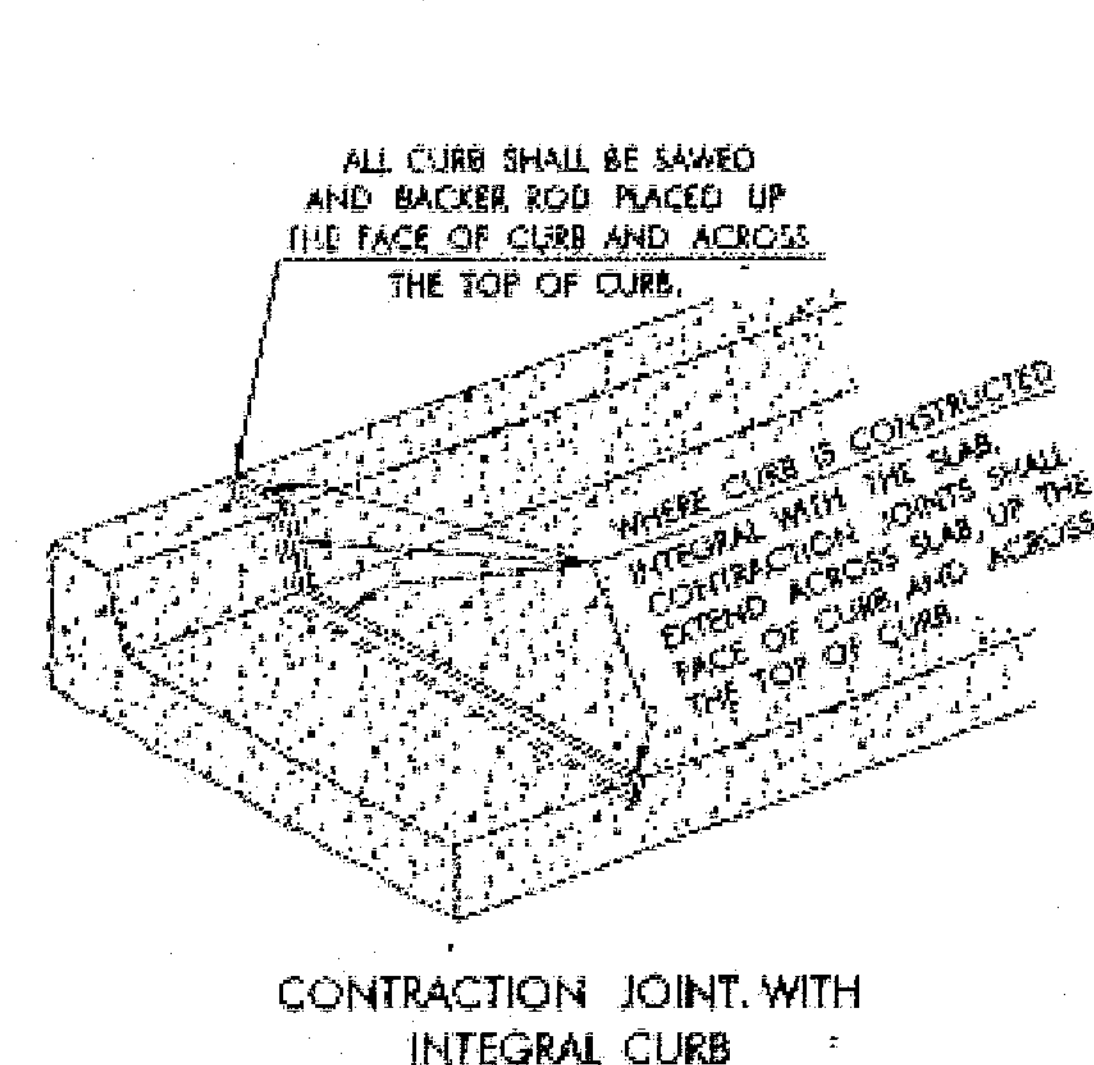
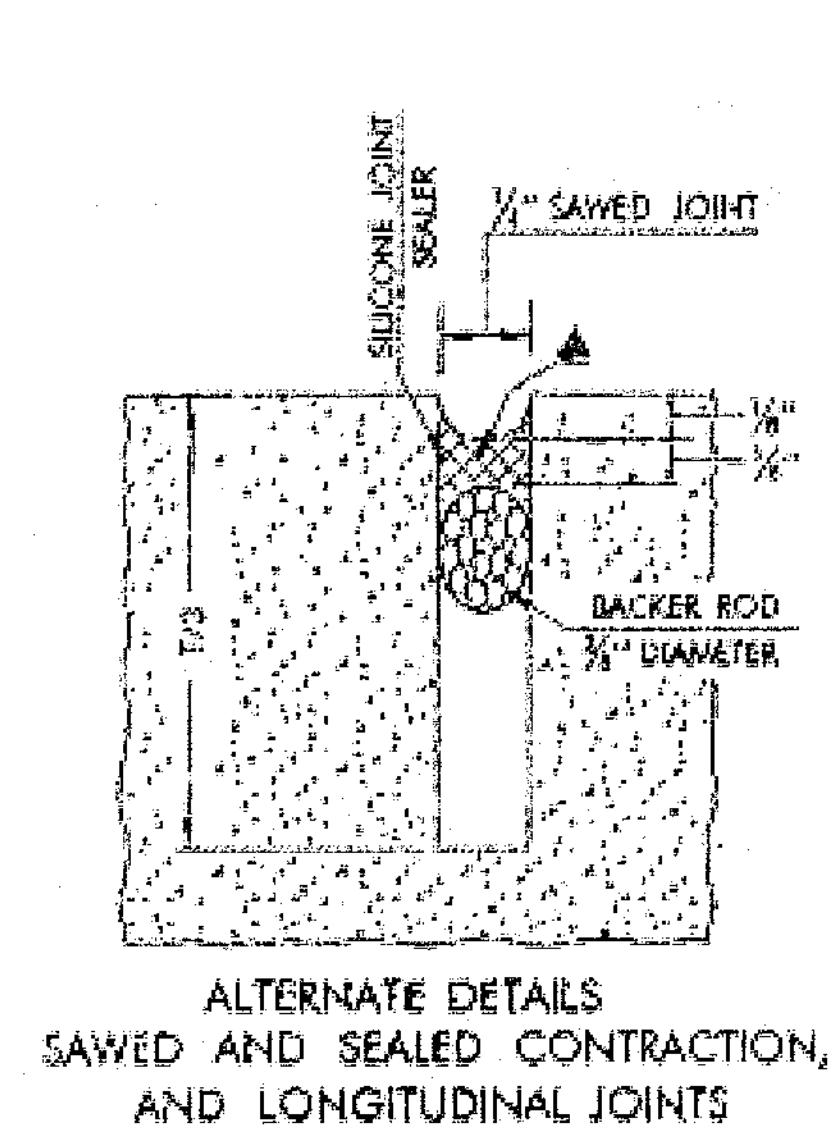
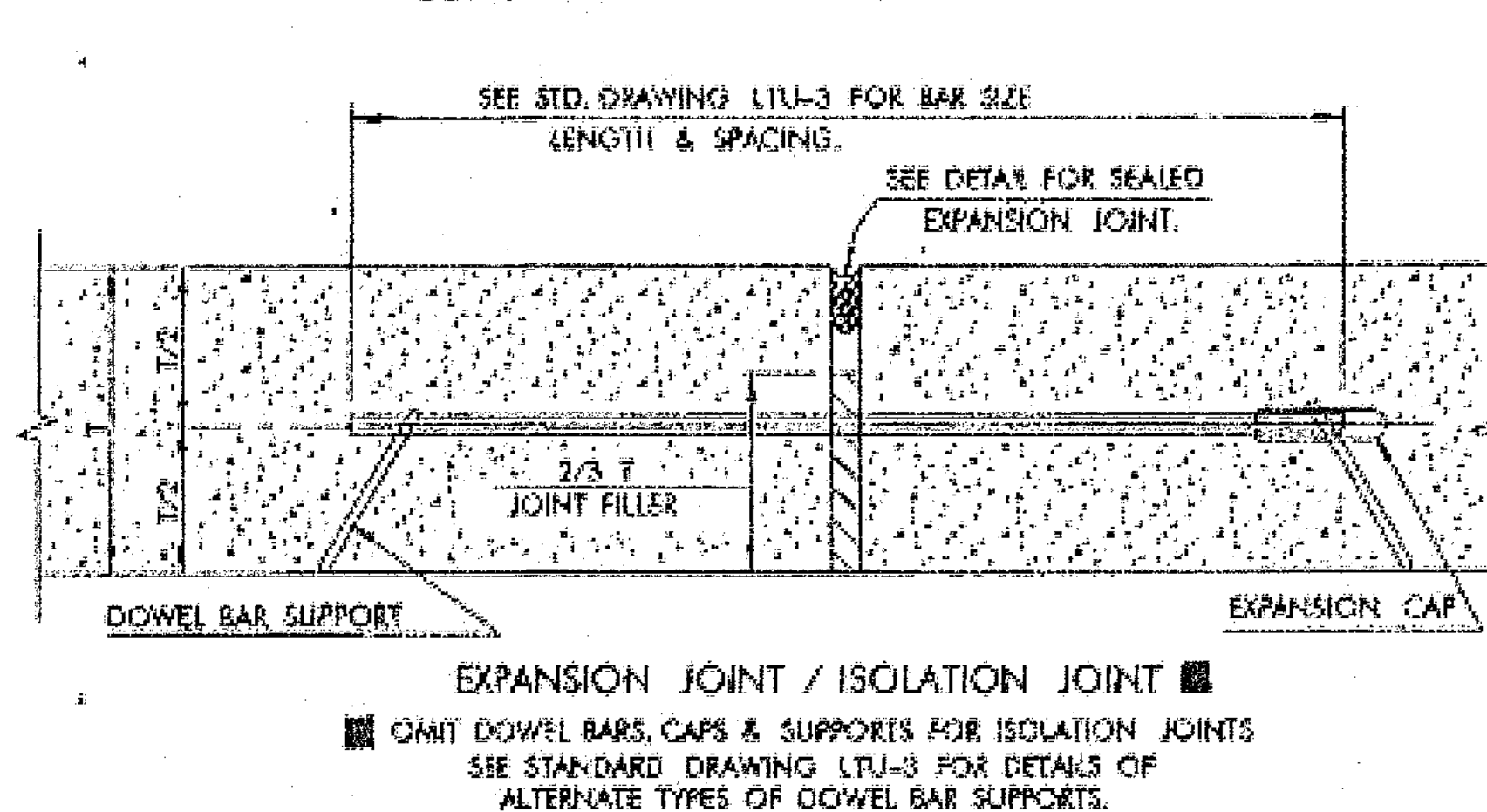
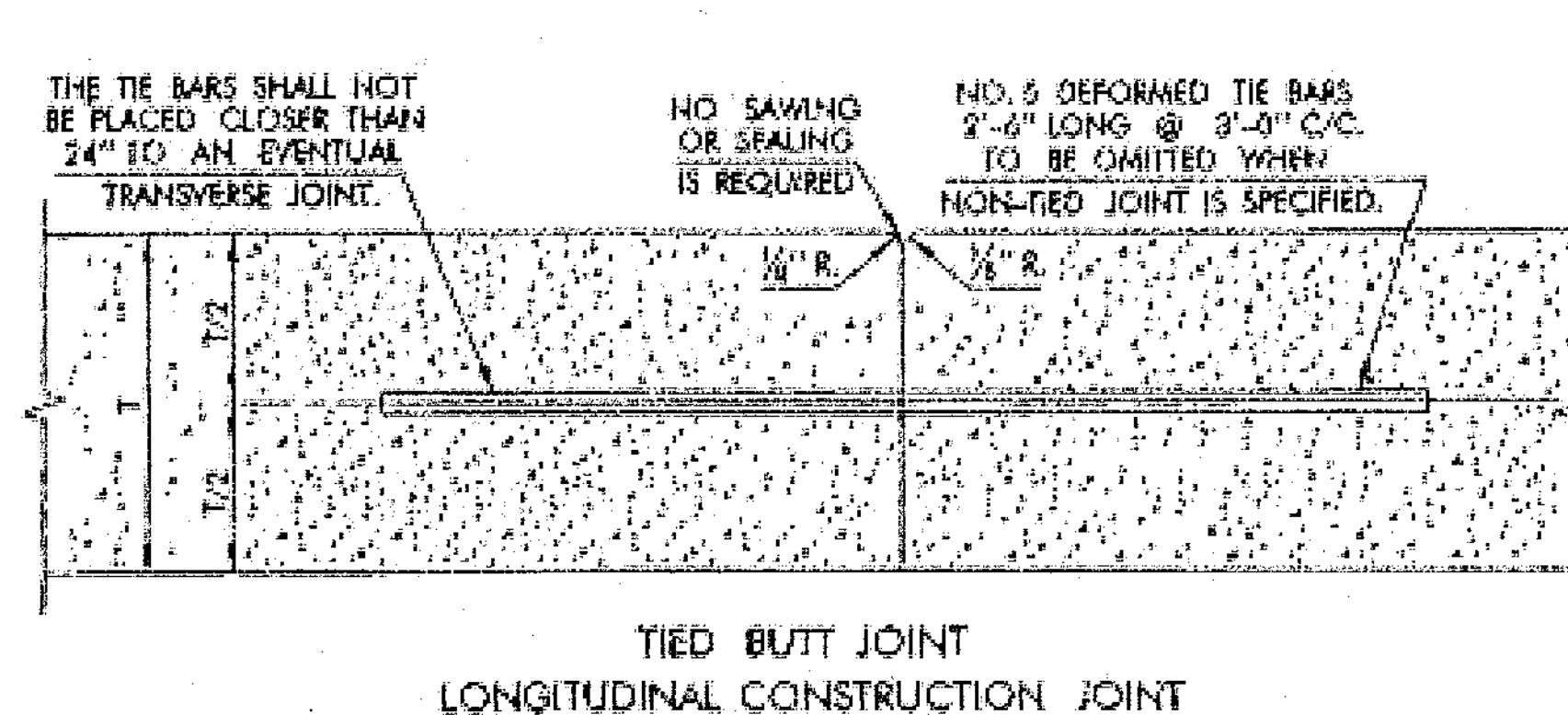
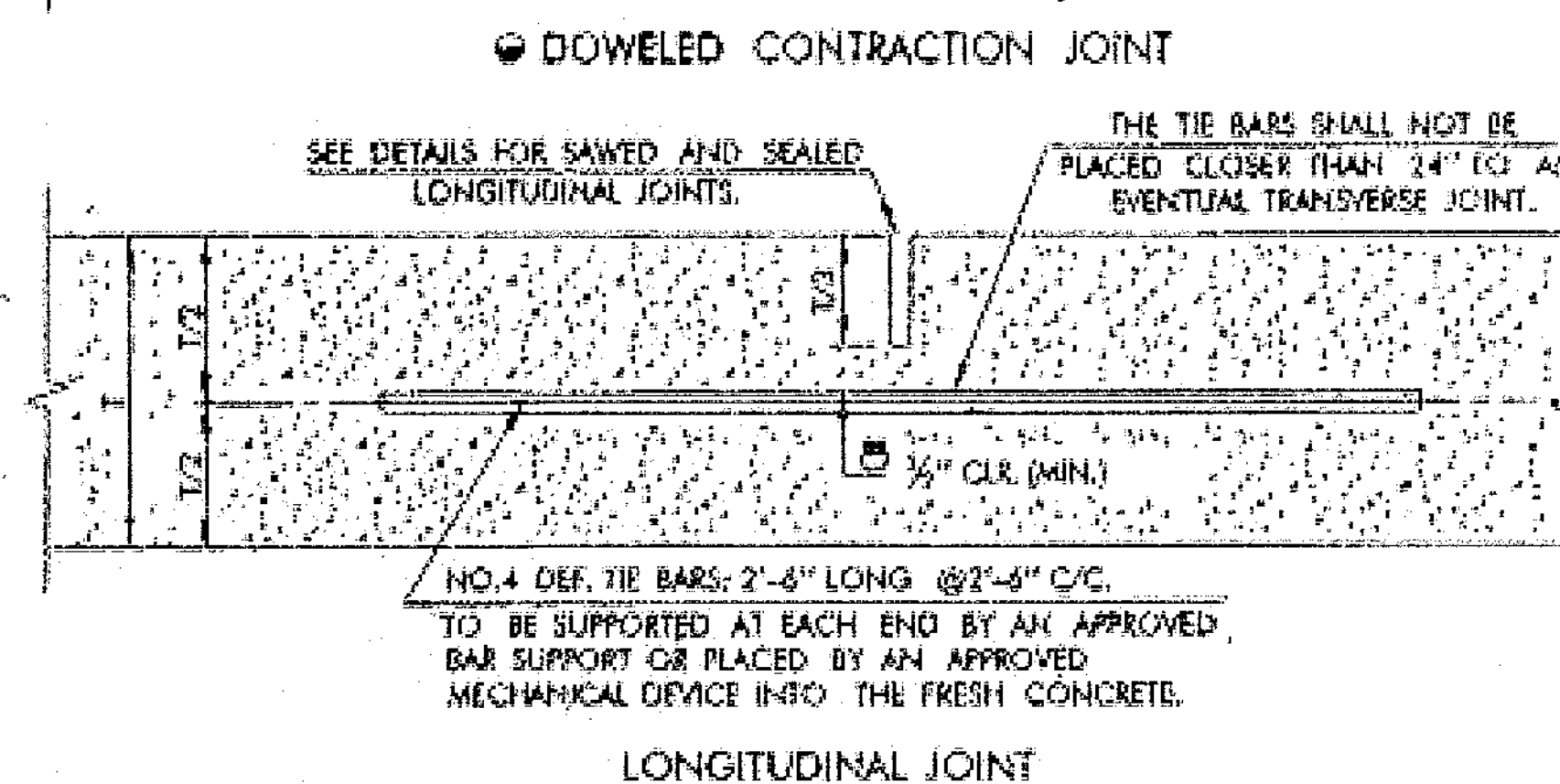
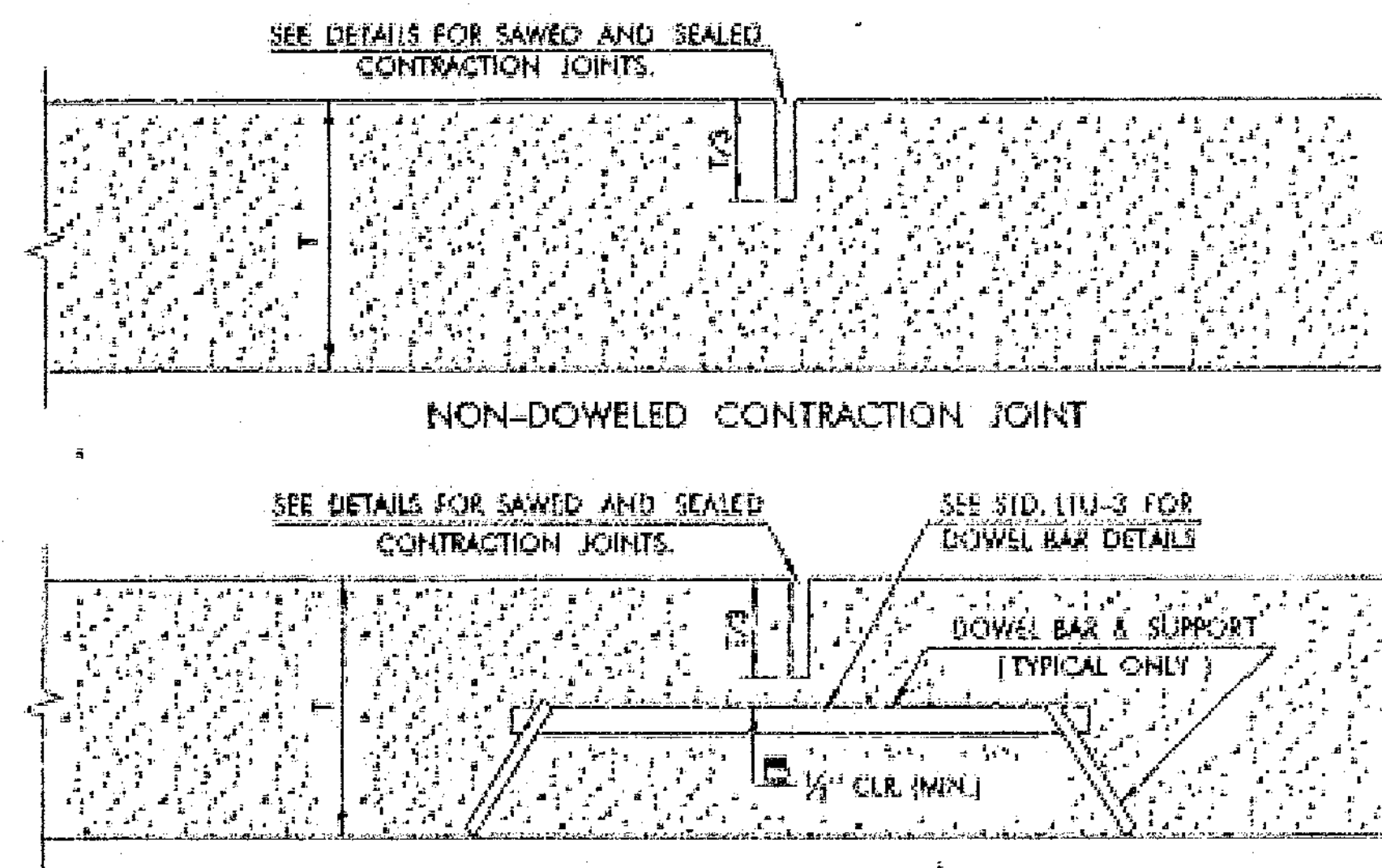
APPROVED BY ROADWAY ENGINEER *Timothy A. Rogers* DATE 4/24/09

OKLAHOMA DEPT. OF TRANSPORTATION  
ROADWAY STANDARD (ENGLISH)  
CONCRETE SURFACING  
CONSTRUCTION DETAILS

1999 SPECIFICATIONS

CSCD-4 03E  
R-117E

| DESCRIPTION                                                                         | REVISIONS | DATE |
|-------------------------------------------------------------------------------------|-----------|------|
| RE-ISSUE WITH/OUT 1999 SPEC. Rev. TAG Jt.<br>Rev. AA, Jotul Dev. Modify Hatch Steps | Spec 7/99 |      |
| 1st Bone Spec. Spec. Jotul                                                          | Spec 8/99 |      |



| JOINT WIDTH | DEPTH OF CUT | SEALANT RECESS DEPTH | SEALANT THICKNESS | BACKER ROD DIAMETER |
|-------------|--------------|----------------------|-------------------|---------------------|
| INCHES      | INCHES       | INCHES               | INCHES            | INCHES              |
| 1/2"        | 1/2"         | 1/2" (MIN.)          | 1/2"              | 3/8"                |
| 3/4"        | 1/2"         | 1/2" (MIN.)          | 3/4"              | 1/2"                |
| 1"          | 1/2"         | 1/2" (MIN.)          | 1"                | 5/8"                |
| 1 1/2"      | 1/2"         | 1/2" (MIN.)          | 1 1/2"            | 3/4"                |
| 2"          | 1/2"         | 1/2" (MIN.)          | 2"                | 1"                  |
| OVER 2"     | OVER 1/2"    | 1/2"                 | OVER 2"           | OVER 1"             |

SEE SEC. 701.08(D) OF THE STD. SPECIFICATIONS  
JOINT REHABILITATION - POLYMER SEALANT

| JOINT WIDTH | DEPTH OF CUT | SEALANT RECESS DEPTH | SILICONE SEALANT THICKNESS | BACKER ROD DIAMETER |
|-------------|--------------|----------------------|----------------------------|---------------------|
| INCHES      | INCHES       | INCHES               | INCHES                     | INCHES              |
| 1/2"        | 1/2"         | 1/2" (MIN.)          | 1/2"                       | 3/8"                |
| 3/4"        | 1/2"         | 1/2" (MIN.)          | 3/4"                       | 1/2"                |
| 1"          | 1/2"         | 1/2" (MIN.)          | 1"                         | 5/8"                |
| 1 1/2"      | 1/2"         | 1/2" (MIN.)          | 1 1/2"                     | 3/4"                |
| 2"          | 1/2"         | 1/2" (MIN.)          | 2"                         | 1"                  |
| OVER 2"     | OVER 1/2"    | 1/2"                 | OVER 2"                    | OVER 1"             |

SEE SEC. 701.08(F) OF THE STANDARD SPECIFICATIONS  
JOINT REHABILITATION - SILICONE SEALANT

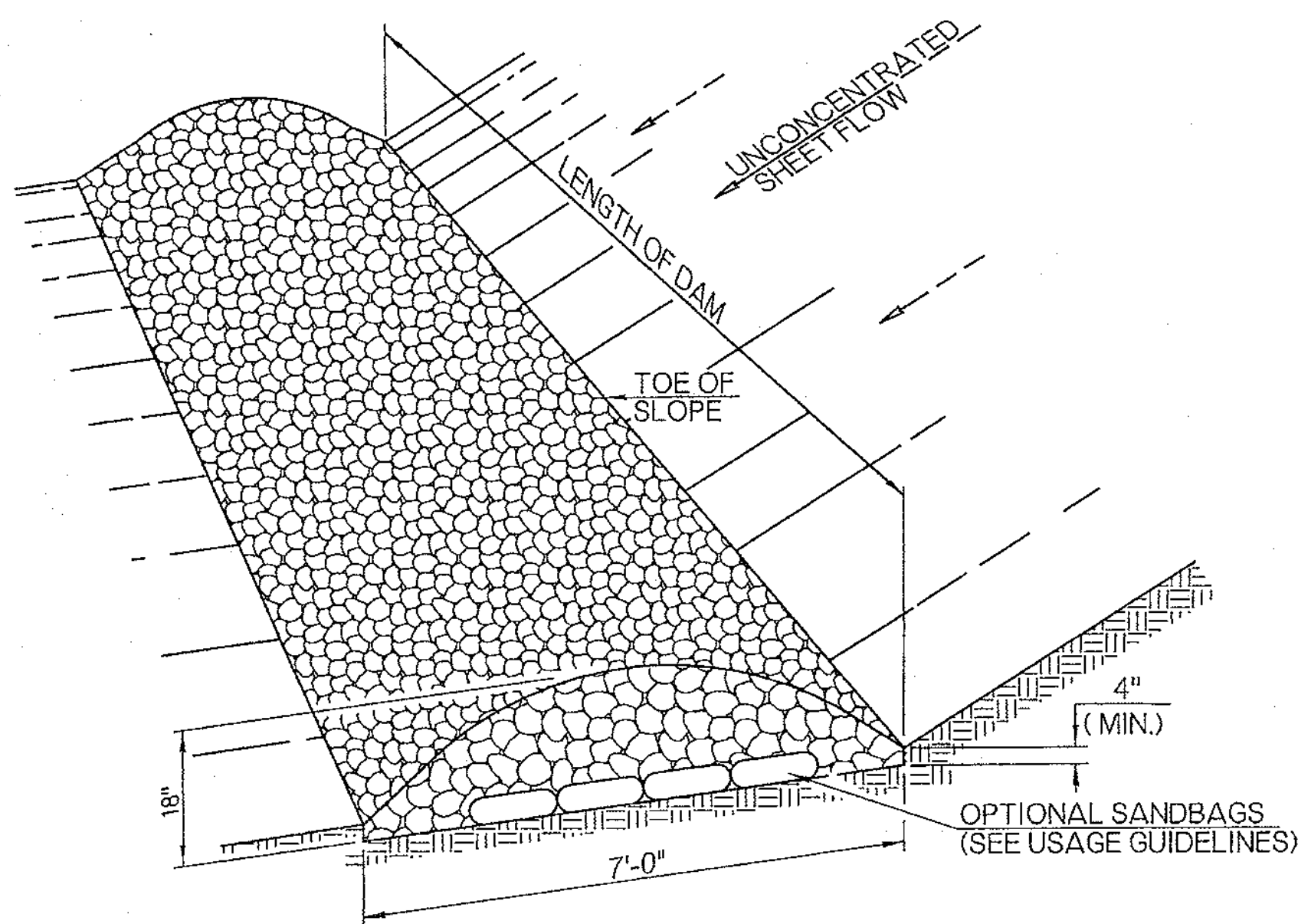
| JOINT WIDTH | SEALANT RECESS DEPTH | SILICONE SEALANT THICKNESS | BACKER ROD DIAMETER |
|-------------|----------------------|----------------------------|---------------------|
| INCHES      | INCHES               | INCHES                     | INCHES              |
| 1/2"        | 1/2"                 | 1/2"                       | 3/8"                |
| 3/4"        | 1/2"                 | 3/4"                       | 1/2"                |
| 1"          | 1/2"                 | 1"                         | 5/8"                |
| 1 1/2"      | 1/2"                 | 1 1/2"                     | 3/4"                |
| 2"          | 1/2"                 | 2"                         | 1"                  |
| OVER 2"     | OVER 1/2"            | OVER 2"                    | OVER 1"             |

DETAILS FOR SEALED EXPANSION / ISOLATION JOINT  
EXPANSION OR ISOLATION JOINT WIDTH SHALL BE 1/2", UNLESS OTHERWISE SPECIFIED ON THE PLANS. TABLE VALUES, AS SHOWN THIS TABLE, SHALL BE USED IN THOSE SPECIFIED CASES.

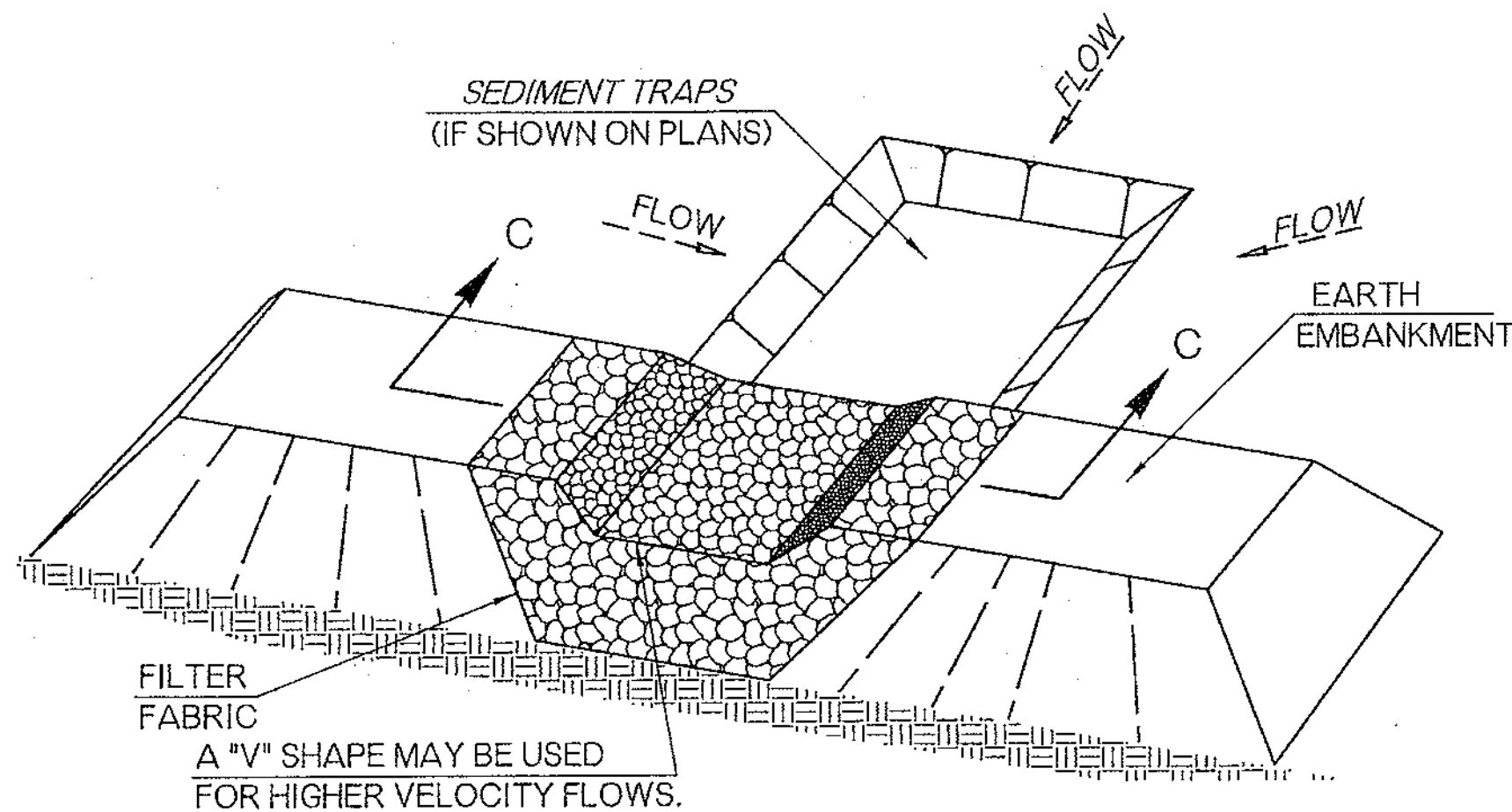
- GENERAL NOTES**
1. ALL CONSTRUCTION AND MATERIALS REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
  2. ONLY SILICONE SEALANT MEETING REQUIREMENTS OF THE 1999 ENGLISH STANDARD SPECIFICATIONS SHALL BE ACCEPTABLE FOR USE.
  3. ALL JOINTS SHALL BE CLEANED IN ACCORDANCE WITH 1999 ENGLISH STANDARD SPECIFICATIONS 414.04(D) AND 419.04. WATER FLUSHING AND AIR CLEANING OF JOINT SHALL BE IN ONLY ONE DIRECTION-FORWARD. SANDBLASTING SHALL BE PERFORMED IN TWO PASSES, ONE FOR EACH FACE OF THE JOINT.
  4. THE SHAPE FACTOR COMBINED WITH JOINT CLEANNESS IS THE CRITICAL COMBINATION NECESSARY TO GUARANTEE DESIRED BONDING AND FUNCTION OF SEALED JOINTS. NO TOLERANCE EXCEPT THOSE SHOWN HERE WILL BE ALLOWED.
  5. THE JOINT SHAPE FACTOR IS DEFINED AS THE FINAL PRESSED SHAPE OF THE SILICONE MATERIAL. THE TOOLING OPERATION WILL FIRMLY PRESS THE FRESHLY APPLIED MATERIAL INTIMATELY AGAINST THE CUT SIDES OF THE RECESS AND THE BACKER ROD SURFACES. THE ROUNDED SHAPE ON TOP AND BOTTOM OF THE SILICONE ALLOWS THE SEALANT TO PROPERLY FLEX BUT MAINTAIN ADHERANCE TO THE PAVING.
  6. ON JOINTED PORTLAND CEMENT CONCRETE PAVEMENTS, DOWELED CONTRACTION JOINTS SHALL BE USED ON DRIVING LANES ONLY. CONCRETE SHOULDERS SHALL NOT BE DOWELED UNLESS SPECIFIED ON THE PLANS.
  7. LONGITUDINAL JOINTS BETWEEN PAVEMENT AND TIED CONCRETE SHOULDERS SHALL NOT BE SAWED OR SEALED UNLESS OTHERWISE SHOWN ON THE PLANS.
  8. ON ALL SAWED JOINTS, THE KERF DEPTH SHALL CLEAR DOWEL BARS, TIE BARS AND/OR REINFORCING STEEL BY A MINIMUM OF 1/2".
  9. CONTRACTION JOINTS IN JOINTED P.C. PAVEMENT SHALL BE AT APPROXIMATELY 15'-0" CENTERS, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

|                                                                                                                                          |                  |      |          |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------|------|----------|
| APPROVED BY ROADWAY ENGINEER                                                                                                             | C. M. Schowinski | DATE | 01/15/00 |
| OKLAHOMA DEPT. OF TRANSPORTATION<br>ROADWAY STANDARD (ENGLISH)<br>LONGITUDINAL JOINTS - EXPANSION JOINTS<br>CONTRACTION JOINTS & SEALERS |                  |      |          |
| 1999 SPECIFICATIONS                                                                                                                      | LECS-3           | 01E  | R-119E   |

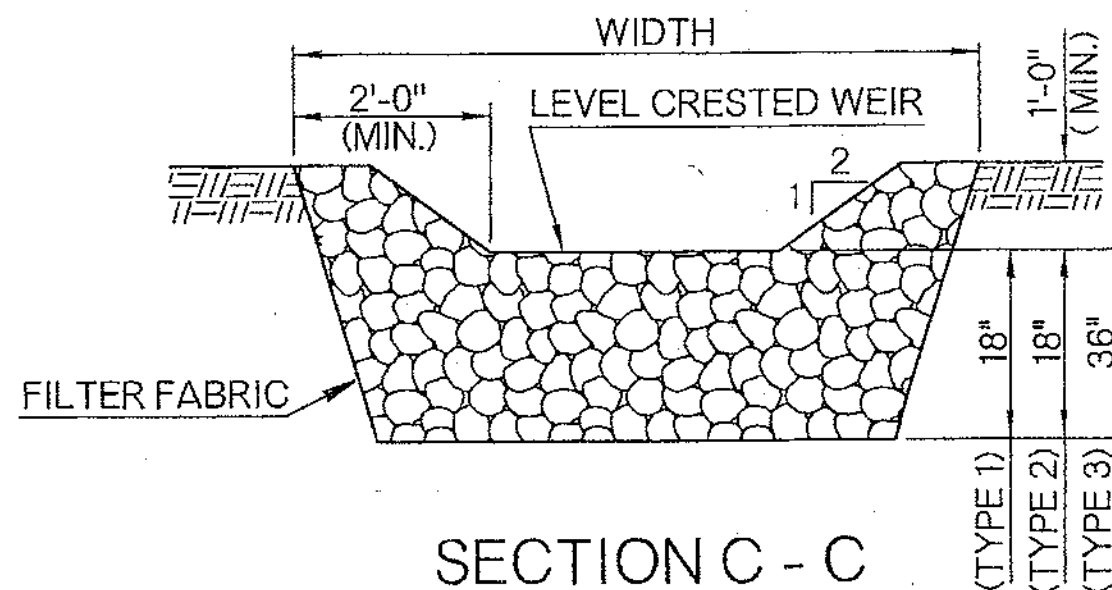
| OKLAHOMA DEPARTMENT OF TRANSPORTATION |      |
|---------------------------------------|------|
| STANDARD REVISIONS                    |      |
| DESCRIPTION                           | DATE |
|                                       |      |
|                                       |      |



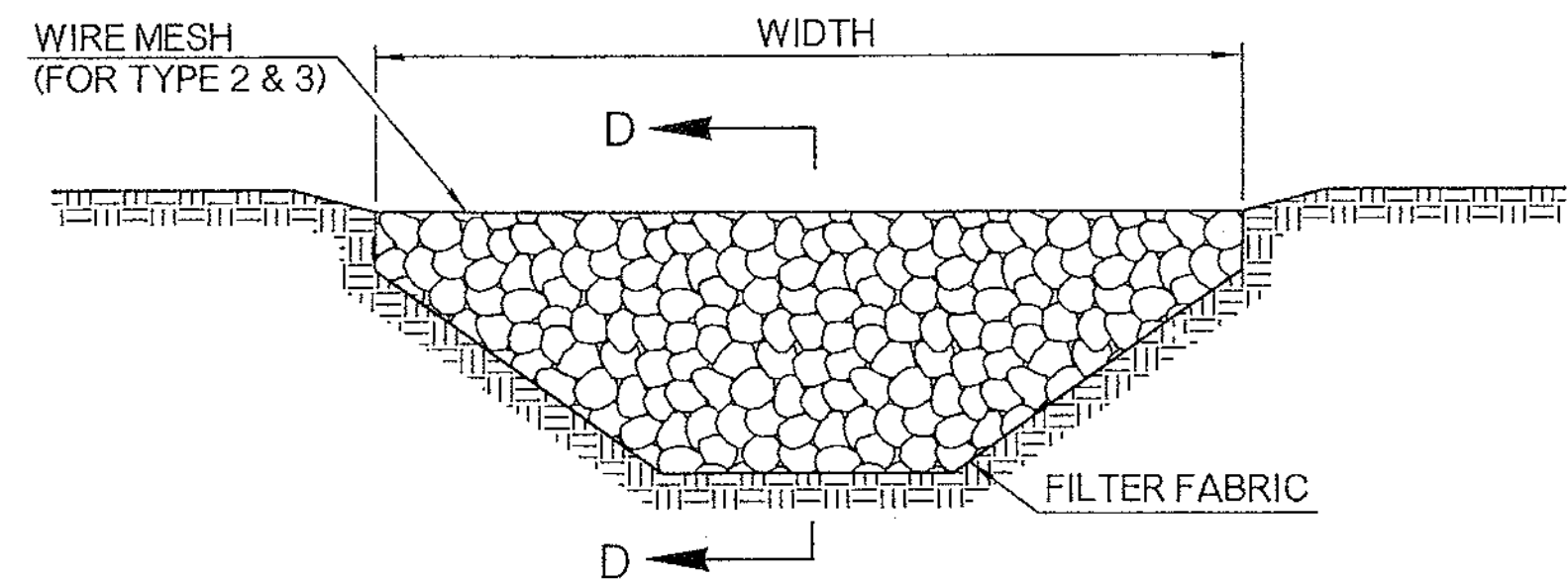
**FILTER DAM AT TOE OF SLOPE**  
CAN BE USED WHEN TEMPORARY SILT FENCE IS NOT ADEQUATE FOR CONDITIONS. USED WITH ROCK FILTER DAM (TYPE 1) ONLY. ESTIMATED QUANTITY = 0.28 C.Y. PER FOOT OF LENGTH.



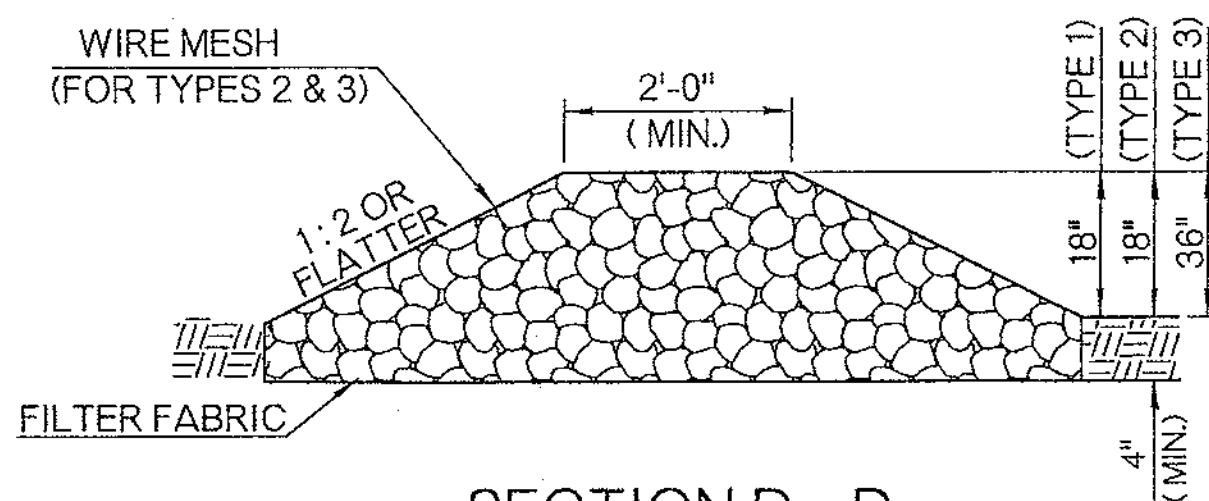
**FILTER DAM AT SEDIMENT TRAP**  
ROCK FILTER DAM (TYPE 1, 2, OR 3)



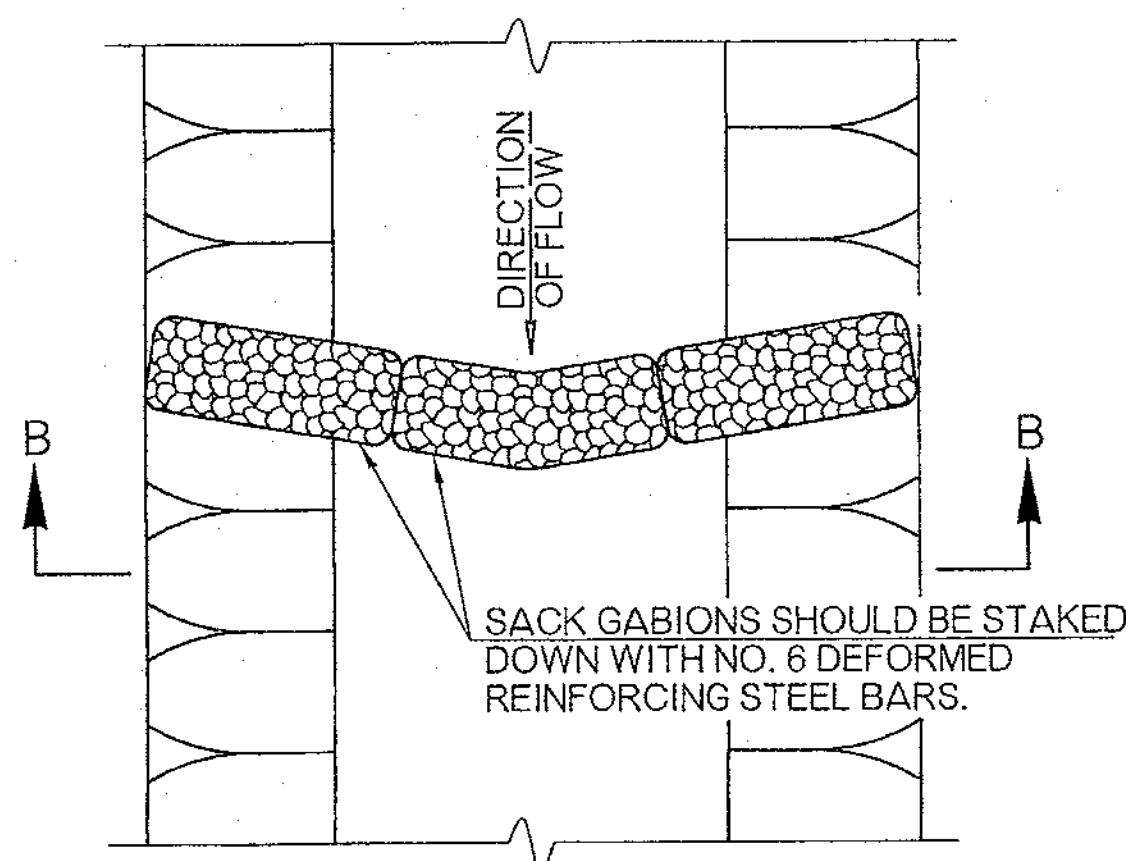
**SECTION C - C**



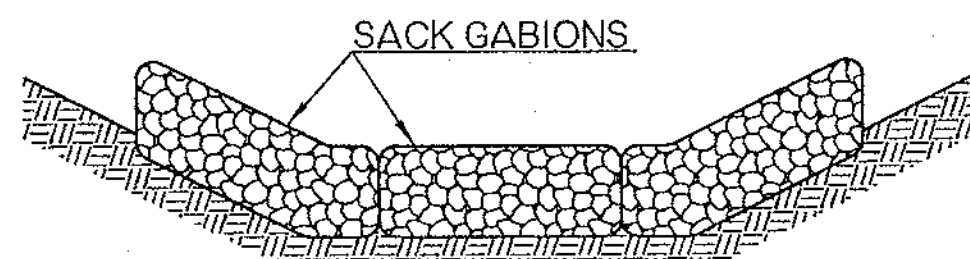
**FILTER DAM AT CHANNEL SECTION**  
ROCK FILTER DAM (TYPE 1, 2, OR 3)



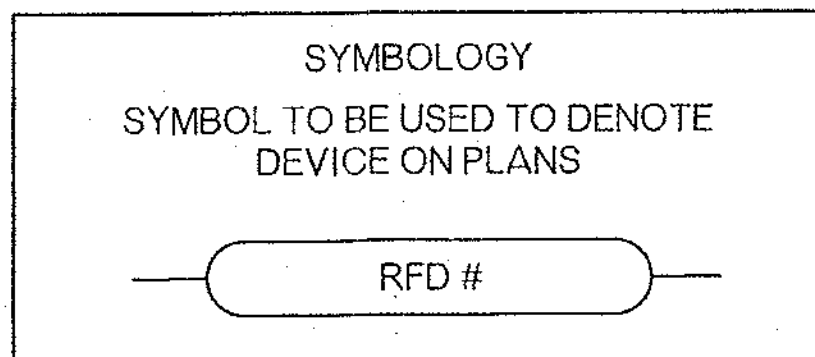
**SECTION D - D**



**PLAN VIEW**



**SECTION B - B**



### ROCK FILTER DAM USAGE GUIDELINES

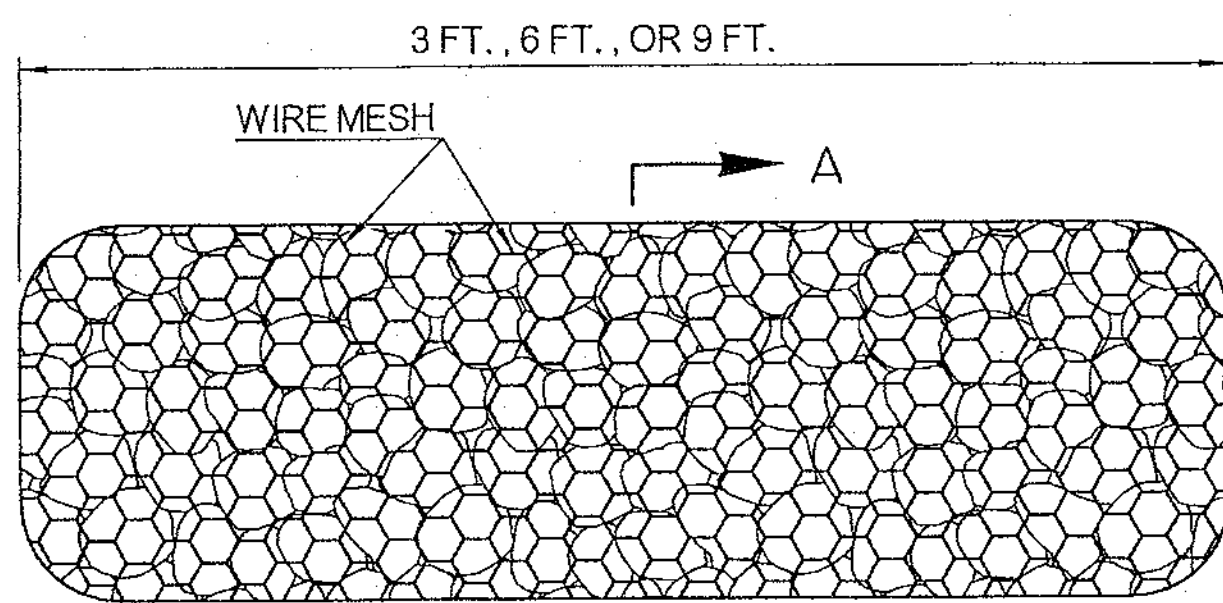
ROCK FILTER DAMS SHOULD BE USED WHEN SIGNIFICANT AMOUNTS OF SEDIMENT ARE ANTICIPATED, TO DISSIPATE THE ENERGY OF FLOWING WATER AND COLLECT SEDIMENT NEAR THE TOE OF SLOPES, AT UPSTREAM AND DOWNSTREAM DRAINAGE STRUCTURES, IN ROADWAY DITCHES AND IN SMALL CHANNELS, AS SHOWN IN PLANS OR AS DIRECTED BY THE ENGINEER.

**TYPE 1 (18 IN. HIGH WITH NO WIRE MESH) :** TYPE 1 SHOULD BE USED AT THE TOE OF SLOPES, AROUND INLETS, IN SMALL DITCHES AND AT DIKE OR SWALE OUTLETS. THIS TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 SHOULD NOT BE USED IN CONCENTRATED HIGH VELOCITY FLOWS (APPROX. 7.9 FT./SEC. OR MORE) IN WHICH ROCK WASH OUT MAY OCCUR. SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION ( 4 IN. DEEP (MIN.) ) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS.

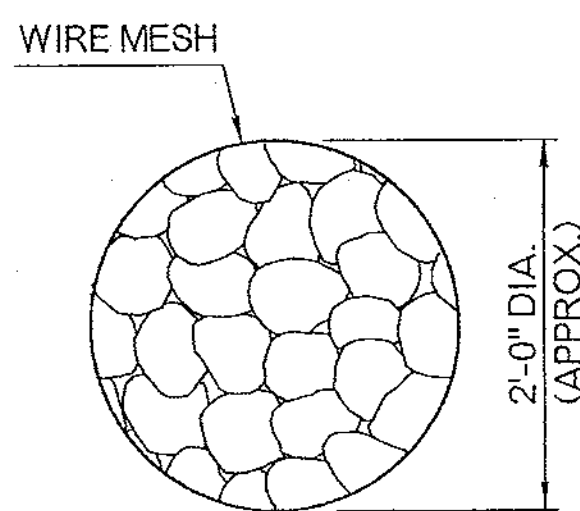
**TYPE 2 (18 IN. HIGH WITH WIRE MESH) :** TYPE 2 SHOULD BE USED IN DITCHES AND AT DIKES OR SWALE OUTLETS.

**TYPE 3 (3 FT. HIGH WITH WIRE MESH) :** TYPE 3 SHOULD BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.

**TYPE 4 (SACK GABIONS) :** TYPE 4 SHOULD BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.



**SACK GABIONS**  
ROCK FILTER DAM (TYPE 4)



**SECTION A - A**

### GENERAL NOTES

- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ODOT STANDARD SPECIFICATIONS.
- MATERIALS SPECIFICATIONS FOR FILTER FABRIC, STONE FILL FOR GABIONS ( ROCK )AND WIRE MESH, SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION SECTIONS 712.02, 713.03 AND 732.09, RESPECTIVELY.
- SPECIFIC DIMENSIONS OF ROCK FILTER DAMS OR SEDIMENT TRAPS SHALL BE SHOWN ON THE PLANS.
- ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH WIRE MESH. THE ROCK SHALL BE PLACED ON THE MESH TO THE HEIGHT & SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE ROCK AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE, THE MESH SHALL BE SECURED OR STAKED TO THE STREAM BED PRIOR TO ROCK PLACEMENT.
- A MINIMUM DISTANCE OF 12 INCHES SHALL BE MAINTAINED BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP EMBANKMENT FOR FILTER DAMS AT SEDIMENTATION TRAPS. ROCK FILTER DAMS SHALL BE EMBEDDED A MINIMUM OF 4 INCHES INTO THE EXISTING GROUND.

### BASIS OF PAYMENT

| ITEM NO. | ITEM                                 | UNIT |
|----------|--------------------------------------|------|
| 221 (G)  | TEMPORARY ROCK FILTER DAM ( TYPE 1 ) | CY   |
| 221 (G)  | TEMPORARY ROCK FILTER DAM ( TYPE 2 ) | CY   |
| 221 (G)  | TEMPORARY ROCK FILTER DAM ( TYPE 3 ) | CY   |
| 221 (G)  | TEMPORARY ROCK FILTER DAM ( TYPE 4 ) | CY   |

COST OF FILTER DAM ( ALL TYPES ) TO INCLUDE ALL MATERIAL AND LABOR REQUIRED FOR CONSTRUCTION.

APPROVED BY  
ROADWAY ENGINEER



ROADWAY DESIGN DIVISION STANDARD

TEMPORARY ROCK FILTER DAMS

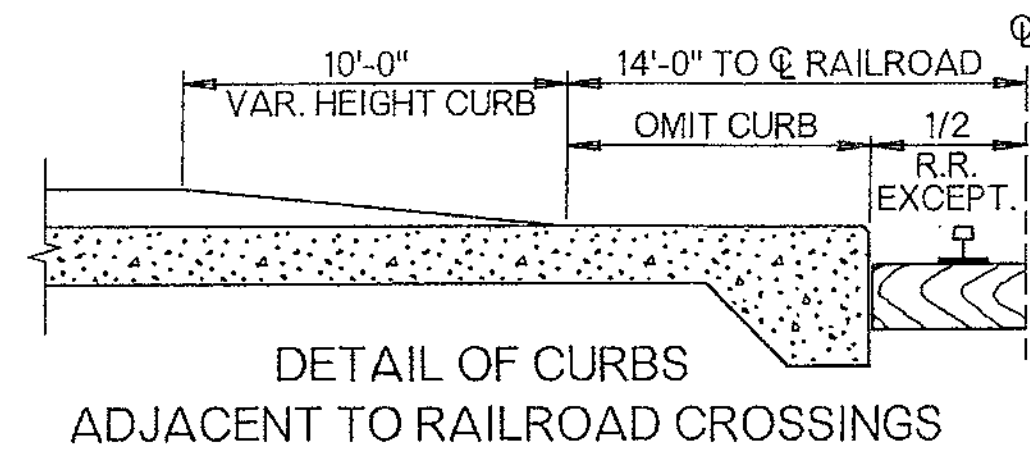
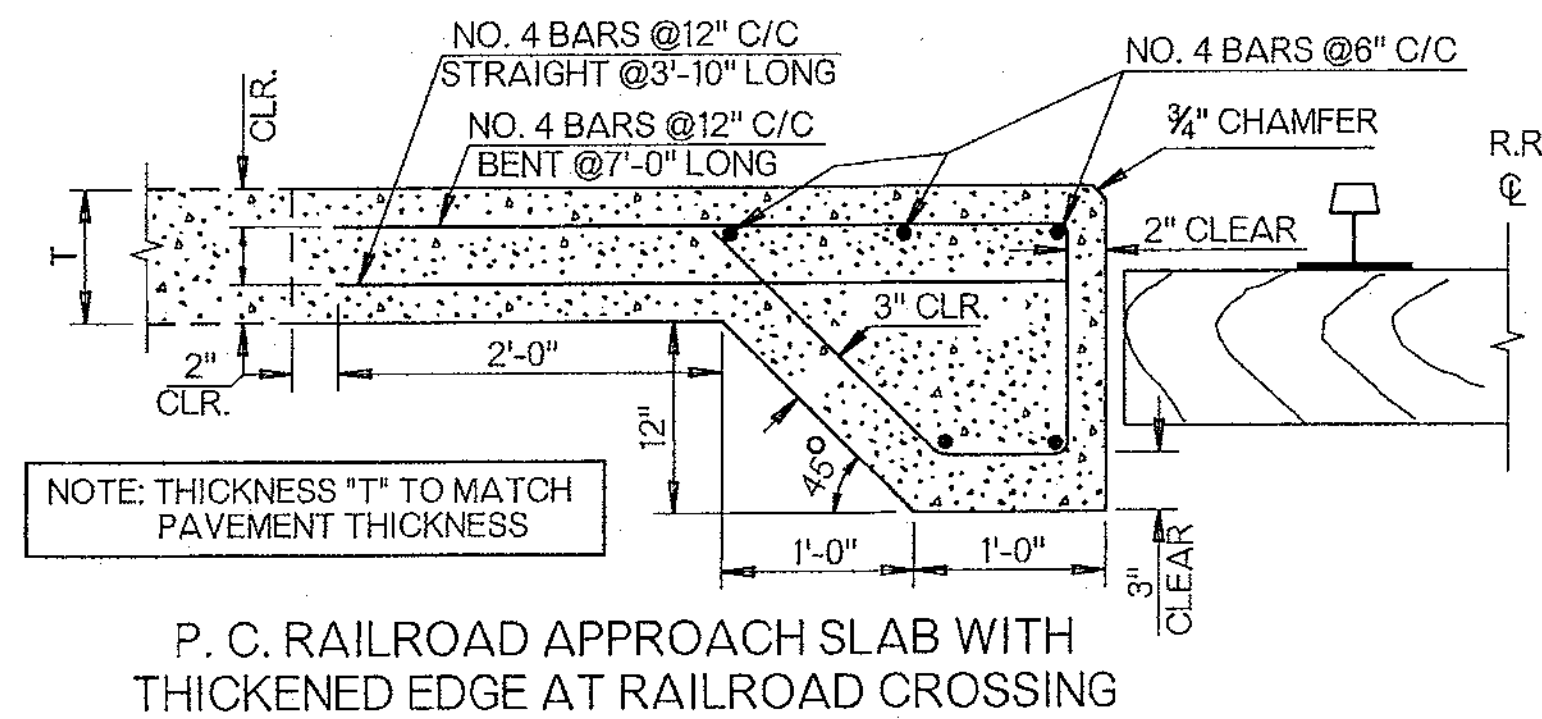
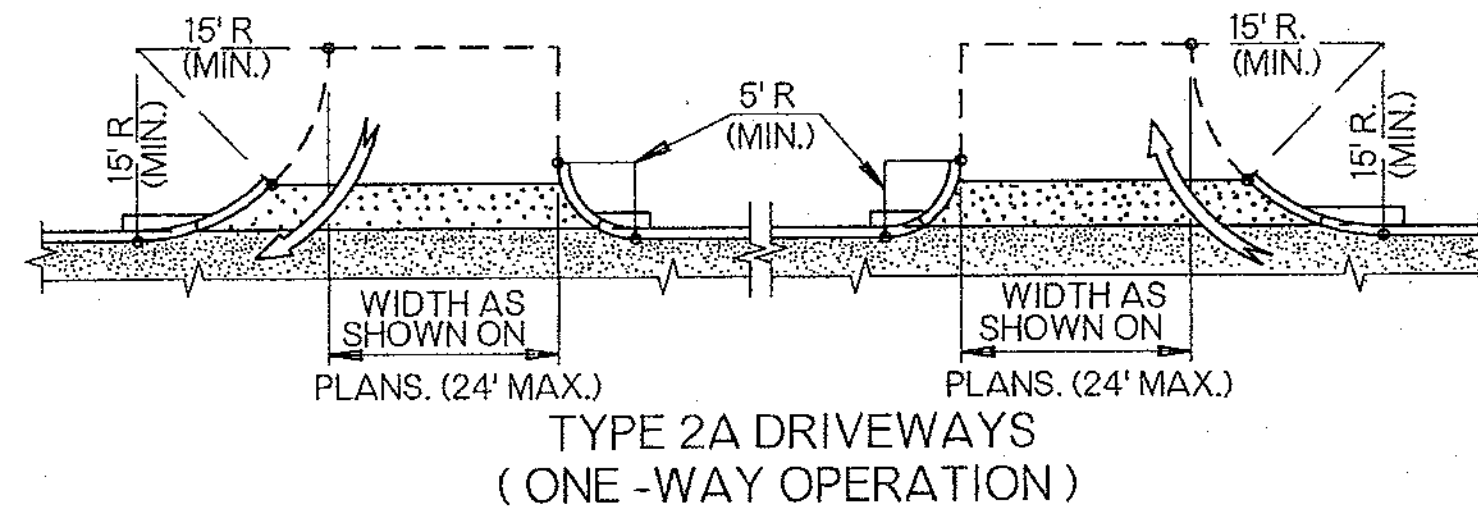
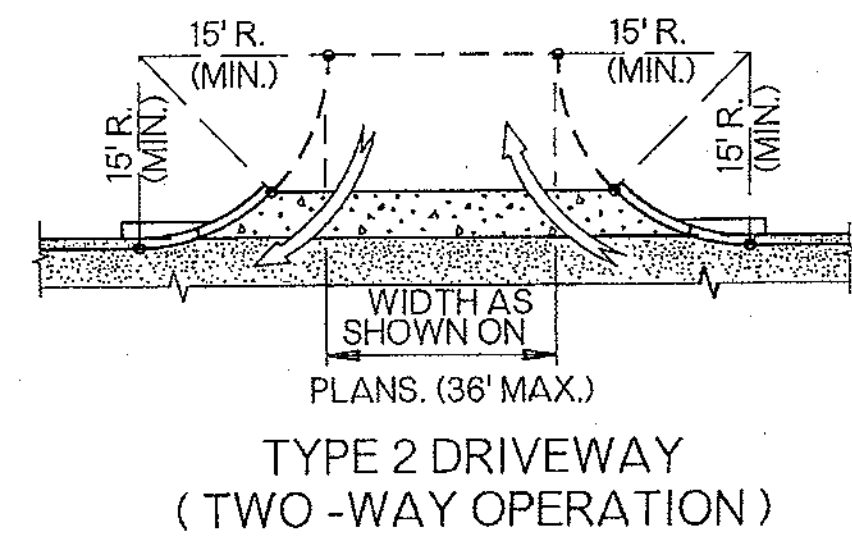
OKLAHOMA DEPARTMENT OF TRANSPORTATION  
2009 SPECIFICATIONS

TRFD-1

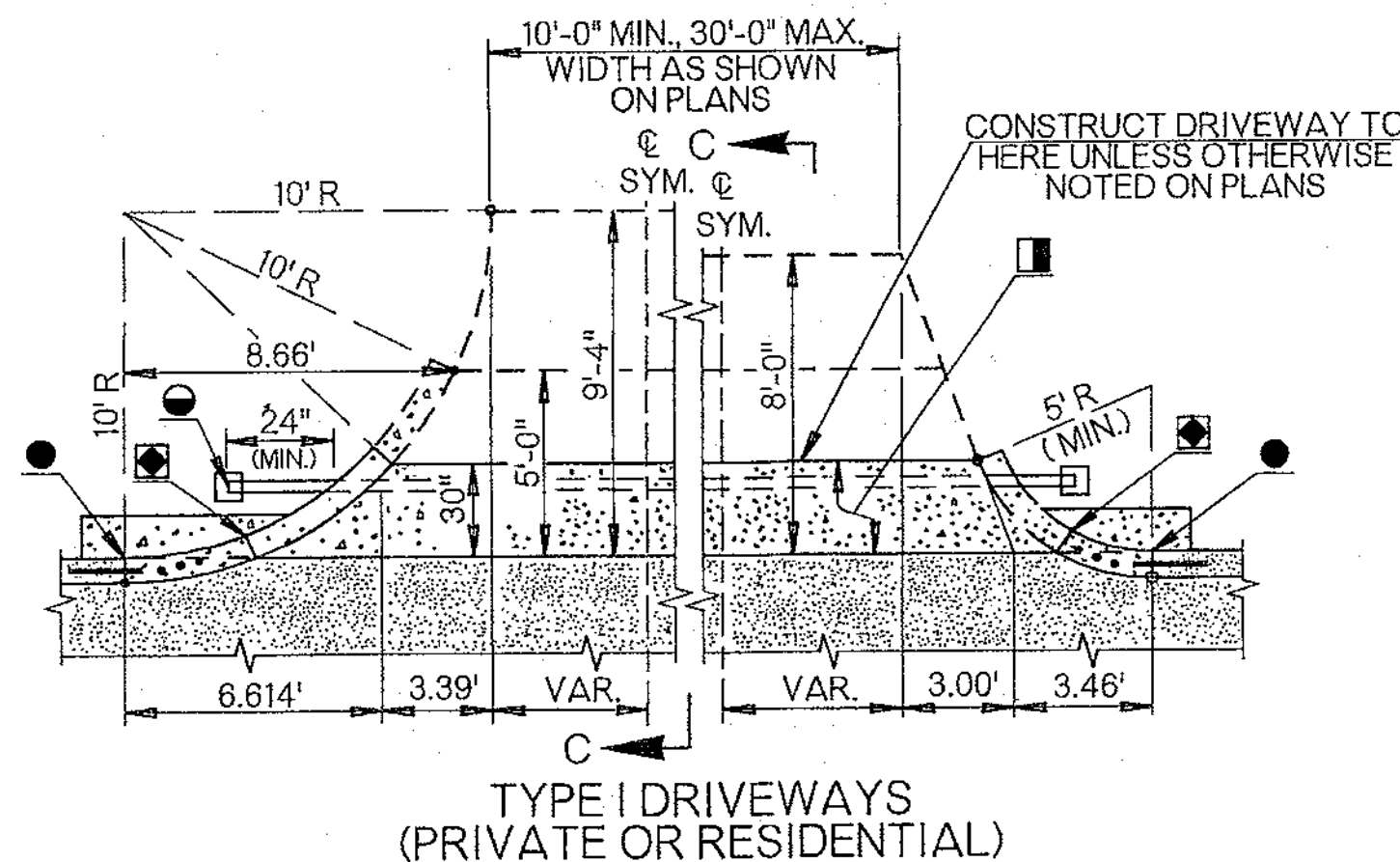
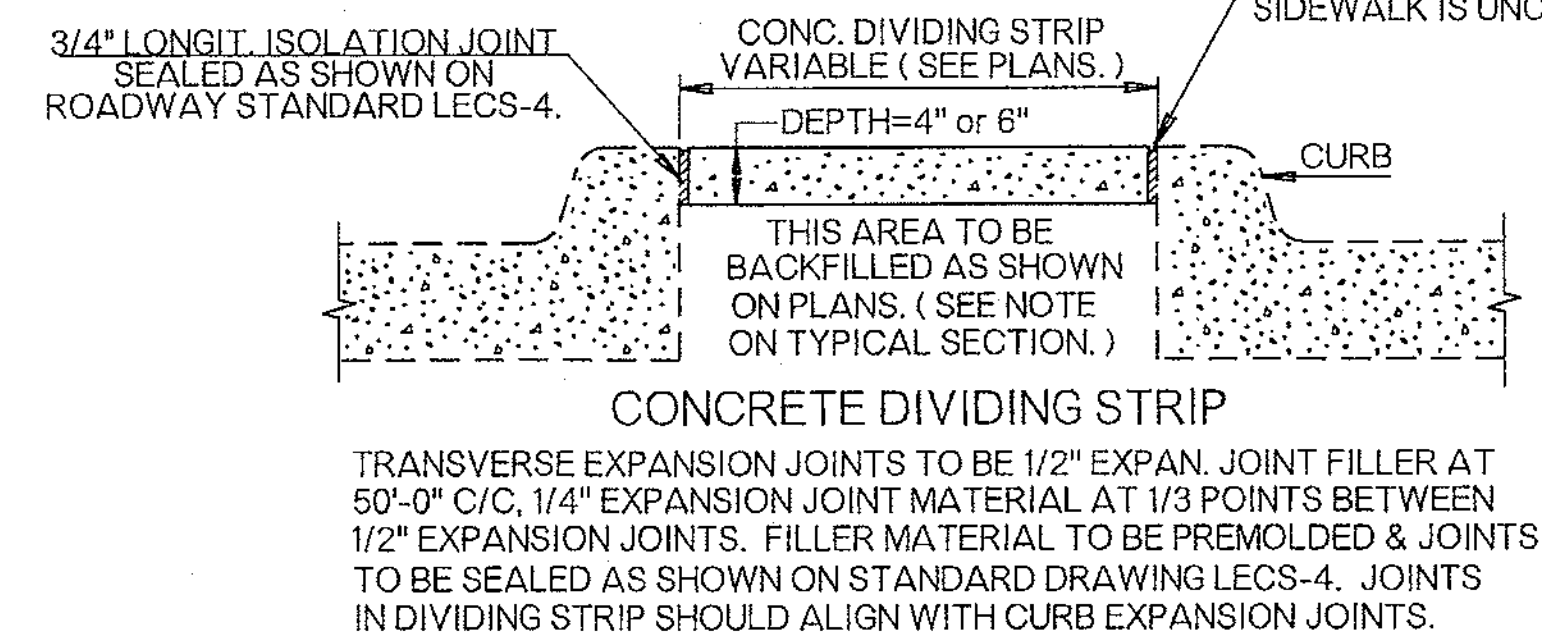
2

R-8

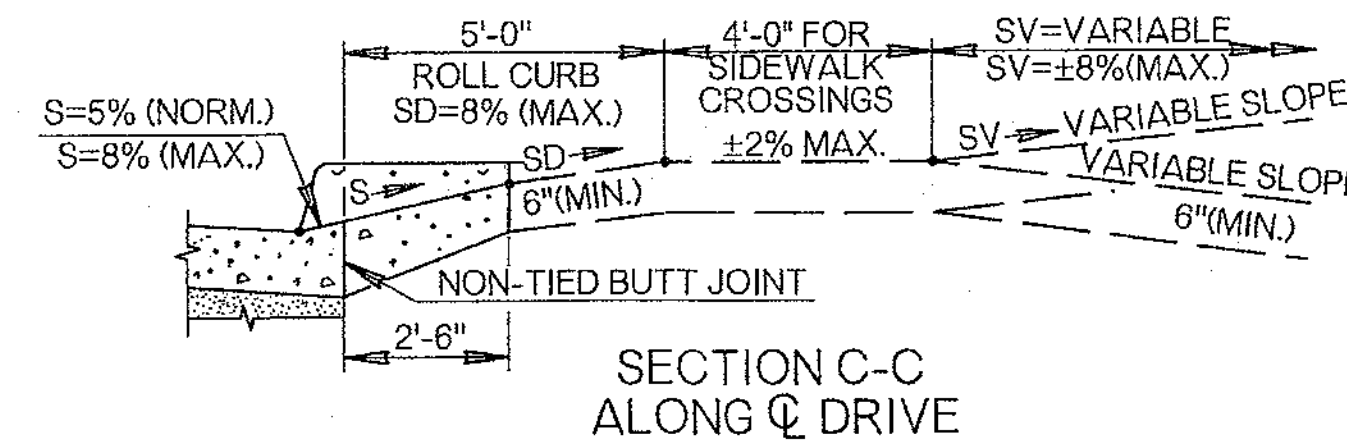
| OKLAHOMA DEPARTMENT OF TRANSPORTATION |      |  |
|---------------------------------------|------|--|
| STANDARD REVISIONS                    |      |  |
| DESCRIPTION                           | DATE |  |
|                                       |      |  |
|                                       |      |  |



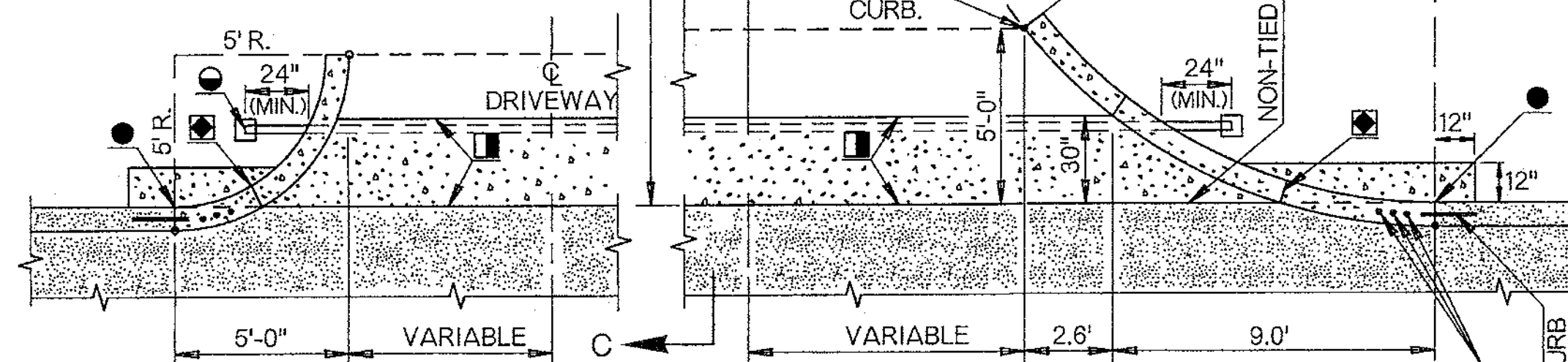
IN CURB/SIDEWALK APPLICATIONS SEALANT & EXPANSION MATERIAL NOT REQUIRED BETWEEN STRAIGHT SECTIONS OF CURB/SIDEWALK COMBINATIONS WHEN OPPOSING EDGE OF SIDEWALK IS UNCONSTRAINED



- 3/4\"
- PAID FOR AS CONCRETE DRIVEWAY (INCLUDES CURB)
- BEGIN ROLL CURB & TERMINATE INTEGRAL CURB. POUR APRON & CURB INTEGRAL WITH DRIVEWAY
- IF SPECIFIED IN THE PLANS, CONSTRUCT CONDUIT CROSSING OF THE SAME SIZE & TYPE SPECIFIED AT APPROXIMATELY 30\"

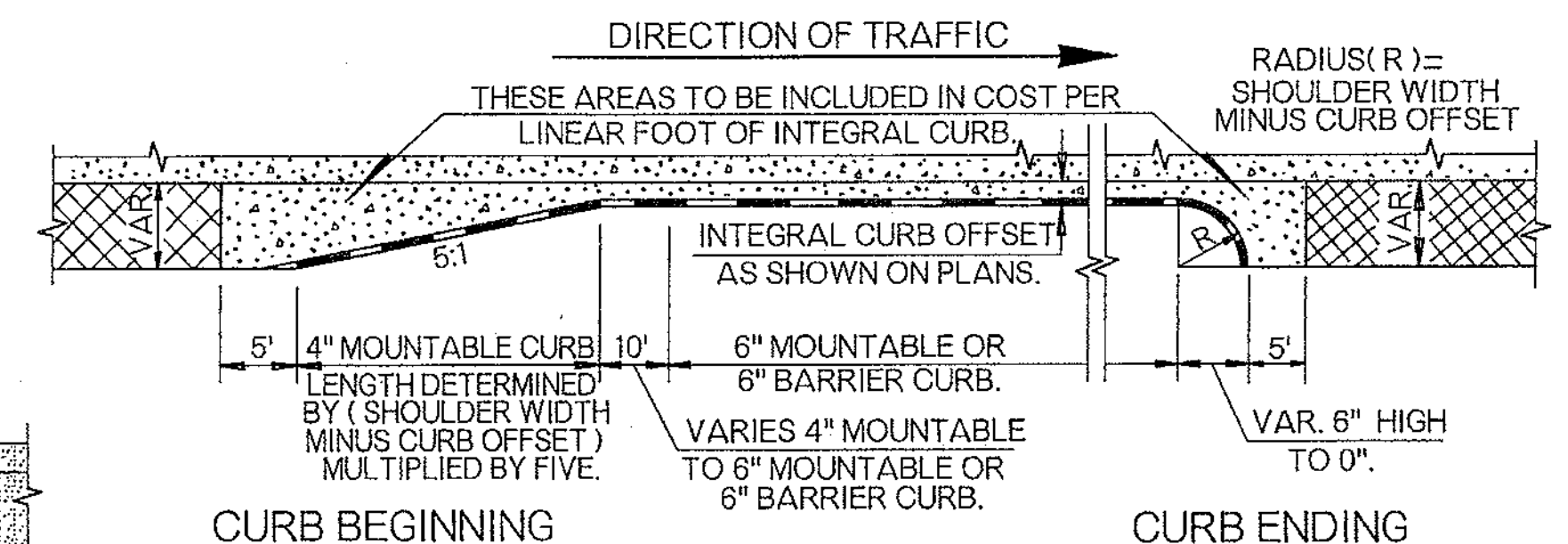
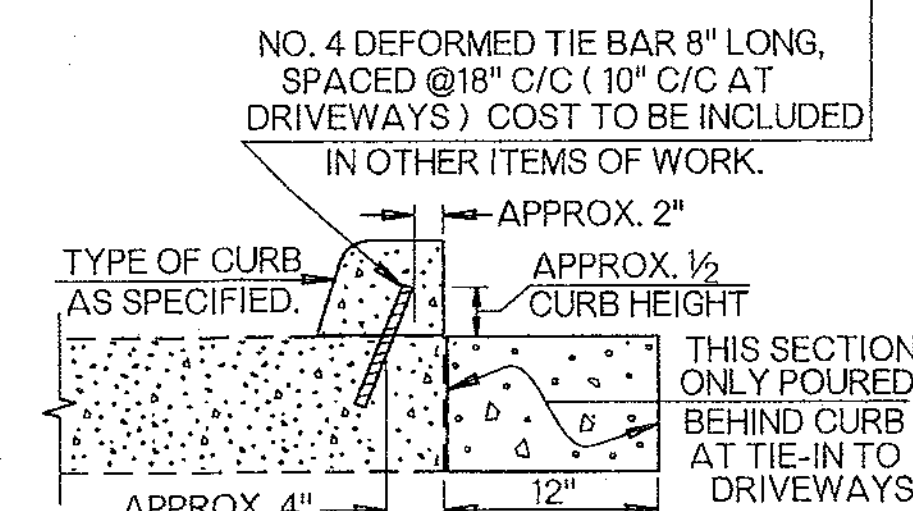


FOR STREET RETURN DETAILS SEE ROADWAY STD. ASCD-5.



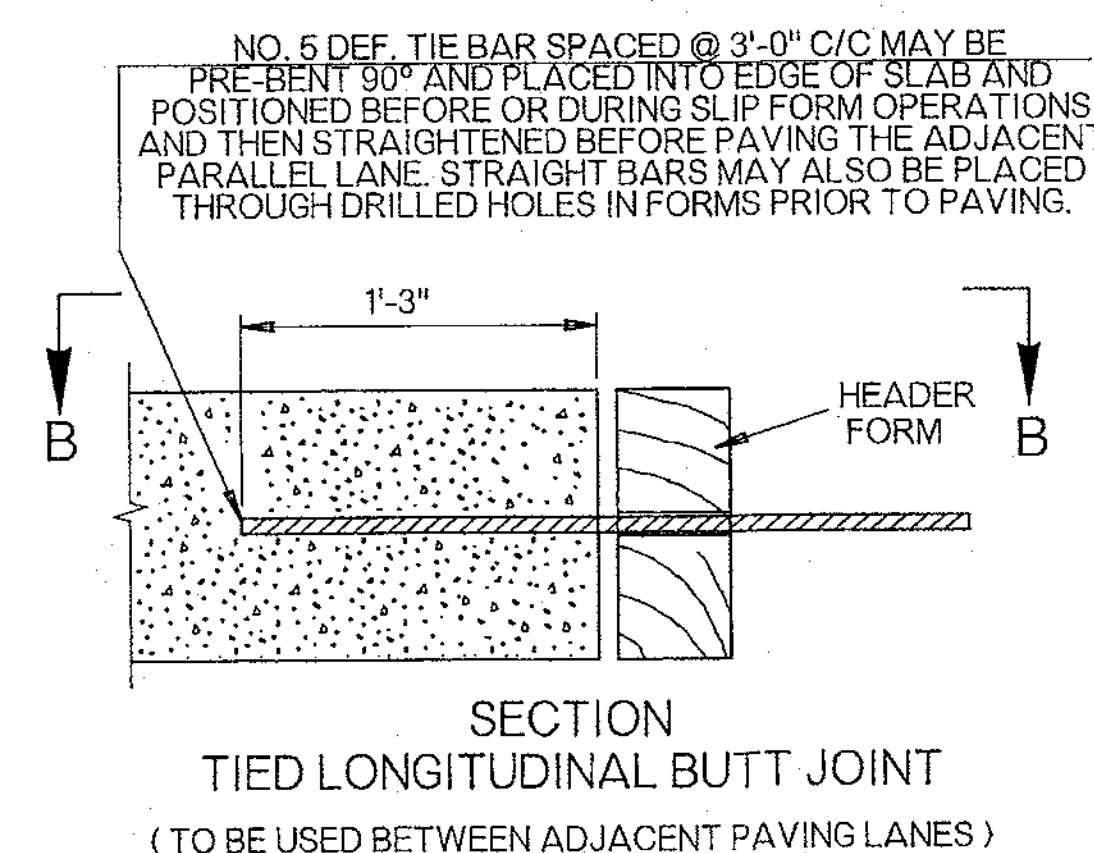
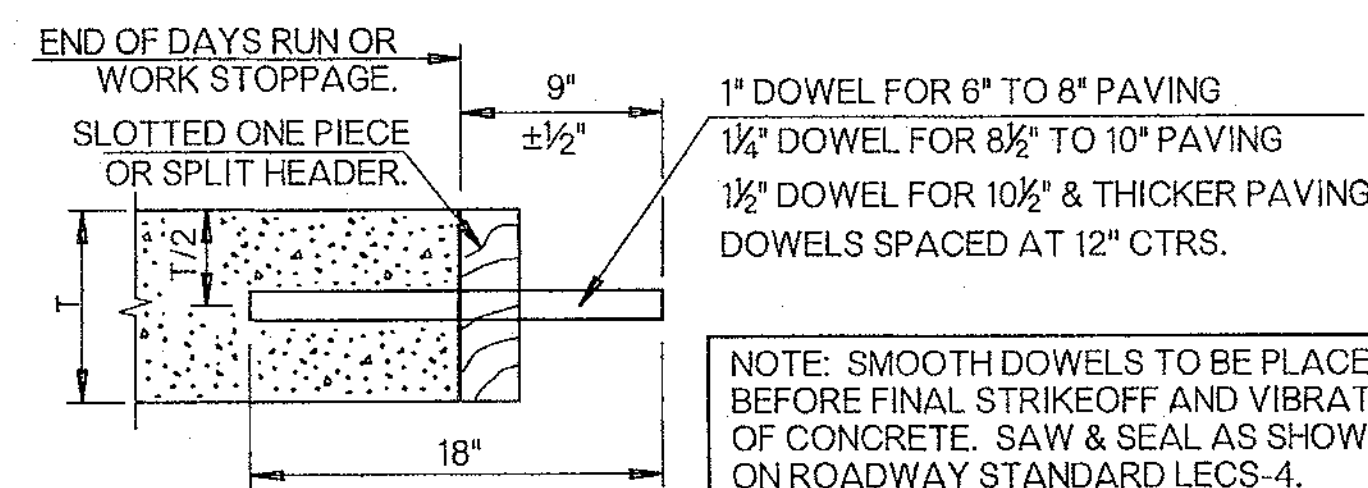
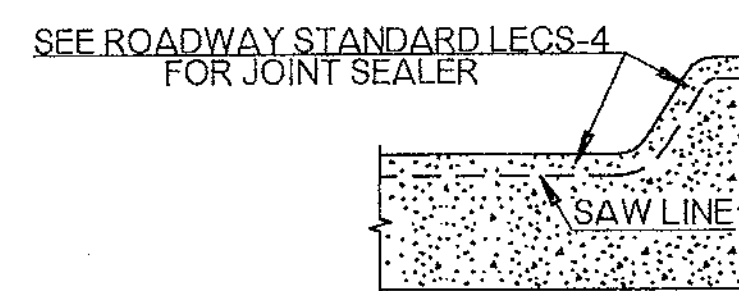
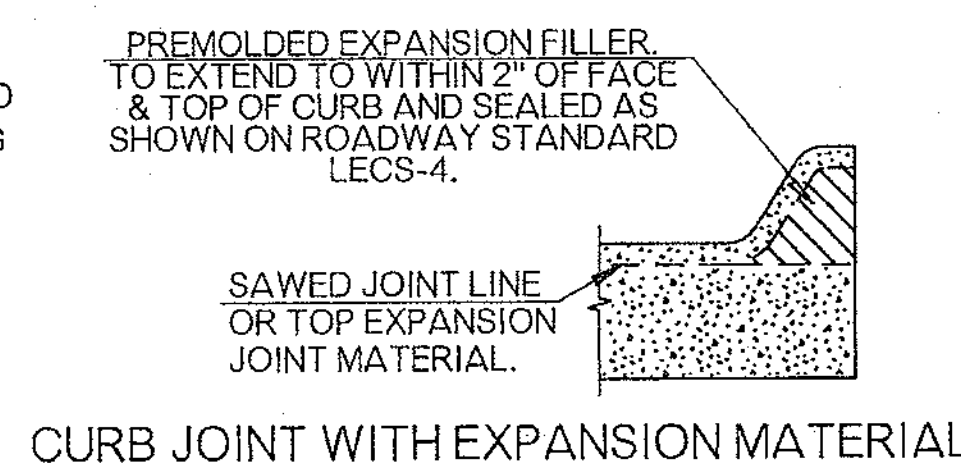
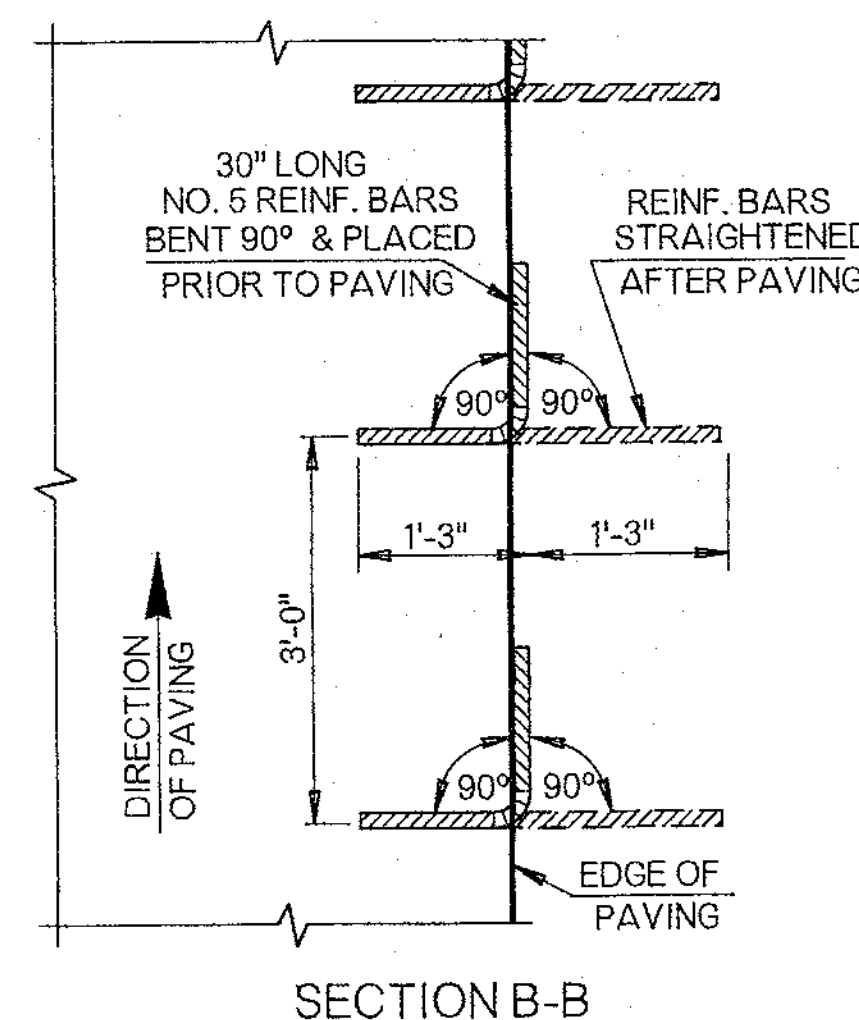
- 3/4\"
- PAID FOR AS CONCRETE DRIVEWAY (INCLUDES CURB)
- BEGIN ROLL CURB & TERMINATE INTEGRAL CURB. POUR APRON & CURB INTEGRAL WITH DRIVEWAY
- IF SPECIFIED IN THE PLANS, CONSTRUCT CONDUIT CROSSING OF THE SAME SIZE & TYPE SPECIFIED AT APPROXIMATELY 30\"

NOTE: WHEN SIDEWALK IS BUILT DIRECTLY BEHIND THE CURB THE CONCRETE DRIVEWAY SHOULD BE CONSTRUCTED AND EXTENDED TO THE BACK EDGE OF SIDEWALK.

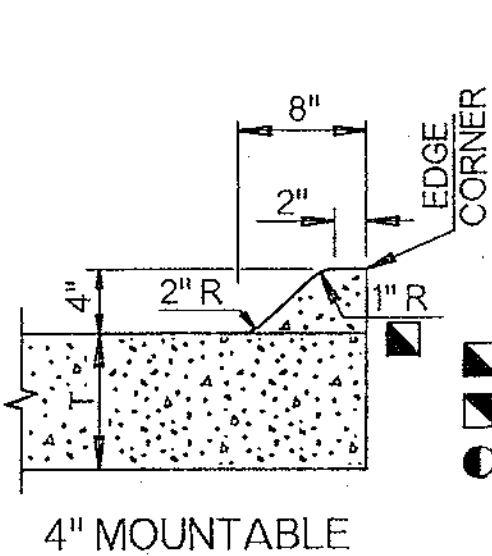
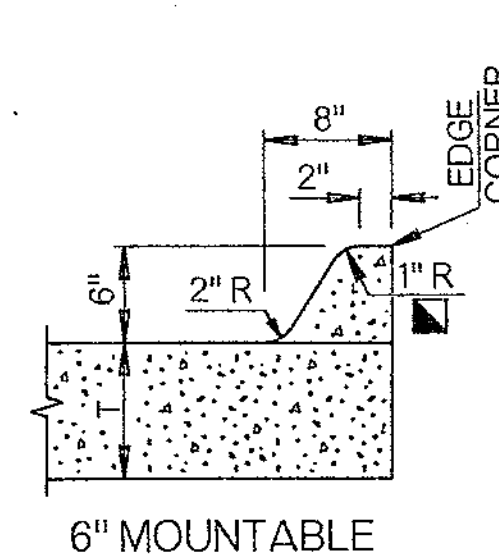
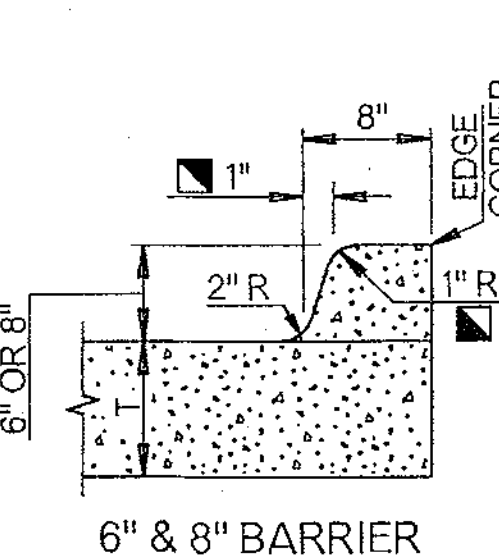
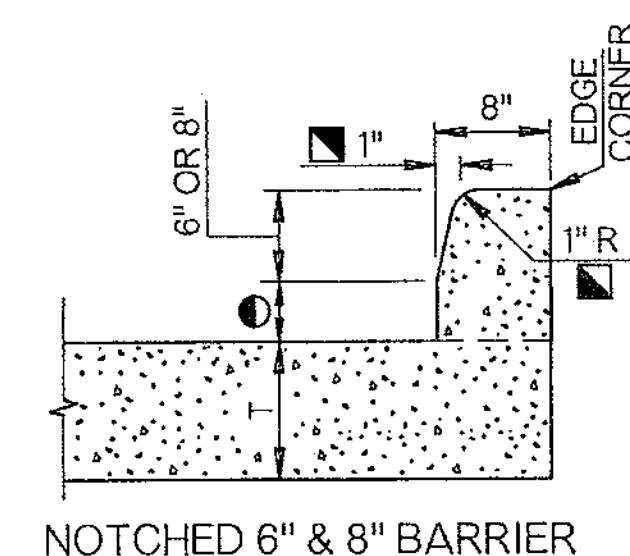


#### GENERAL NOTES

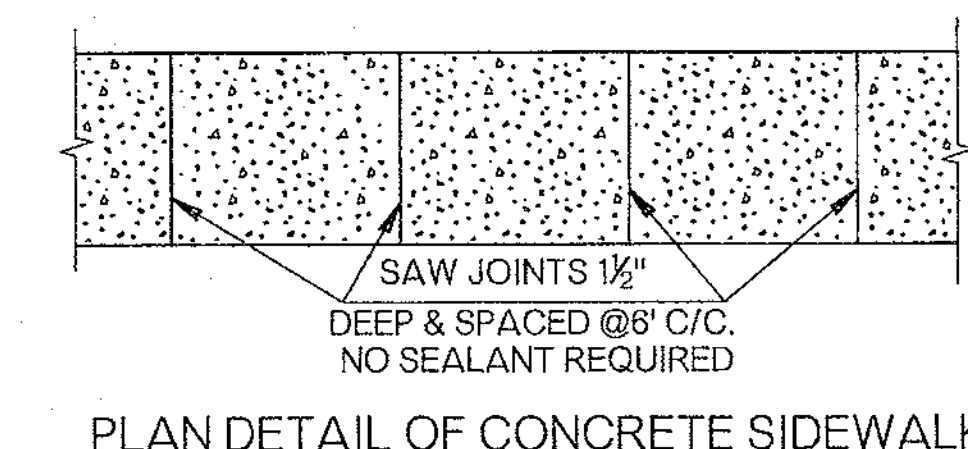
- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ODOT STANDARD SPECIFICATIONS.
- ALL COST OF CLASS A CONCRETE & REINFORCING STEEL IN THICKENED EDGE AT RAILROAD CROSSINGS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR APPROACH SLAB-RAILROAD.
- COST OF JOINT FILLERS, SEALING AND REINFORCING STEEL SHALL BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.
- CONTRACTION JOINTS IN JOINTED P.C. PAVEMENT SHALL BE AT APPROXIMATELY 15'-0\"
- CURB & GUTTER SHALL BE PLACED INTEGRAL WITH THE PAVING SLAB UNLESS OTHERWISE SHOWN IN THE PLANS. TRANSVERSE JOINTS SHALL MATCH PAVEMENT JOINTS AND PLACED AT DRAINAGE STRUCTURES. LONGITUDINAL JOINTS SHALL BE TIED WITH #5 DEFORMED TIE BARS 2'-6\"
- ALL CONDUIT CROSSINGS ARE TO BE TRENCHED, PLACED, BACKFILLED, AND COMPACTED PRIOR TO SURFACING. BORING OR PUSHING PROCEDURES MAY BE USED WHERE SURFACING IS ALREADY IN PLACE AND IF APPROVED BY THE ENGINEER.
- IF CONDUIT IS NOT CONTINUOUS BETWEEN DRIVEWAYS/RAMPS, CAP BOTH ENDS OF EACH CONDUIT CROSSING AND PLACE MARKER TO PREVENT DAMAGE DURING CONSTRUCTION.
- CONDUIT SHALL NOT TERMINATE BELOW A SURFACED AREA, BUT SHALL EXTEND MINIMUM OF 24\"
- FOR PULL BOX INSTALLATION DETAILS, SEE TRAFFIC STANDARD PBD1-1.



NOTE: LONGITUDINAL BUTT JOINT TIE BAR STEEL AND PLACEMENT METHOD NOT COVERED ON THIS STANDARD SHALL BE APPROVED BY THE ENGINEER.



#### INTEGRAL CURB TYPICAL SECTIONS



- RADIUS OF 2\"
- BATTER OF 2\"
- DIMENSION EQUALS THICKNESS OF ASPHALT CONCRETE SHOWN ON TYPICAL SECTION AS PAVED THICKNESS (2\"

#### BASIS OF PAYMENT

| ITEM NO. | ITEM                          | UNIT |
|----------|-------------------------------|------|
| 414 (H)  | P. C. RAILROAD APPROACH SLABS | SY   |
| 609 (A)  | CONCRETE CURB (INTEGRAL)      | LF   |
| 610 (A)  | CONCRETE SIDEWALK             | SY   |
| 610 (B)  | CONCRETE DRIVEWAY             | SY   |
| 610 (C)  | CONCRETE DIVIDING STRIP       | SY   |

- HEIGHT & TYPE OF CURB SHALL BE SPECIFIED.
- THICKNESS SHALL BE SPECIFIED IN INCHES.



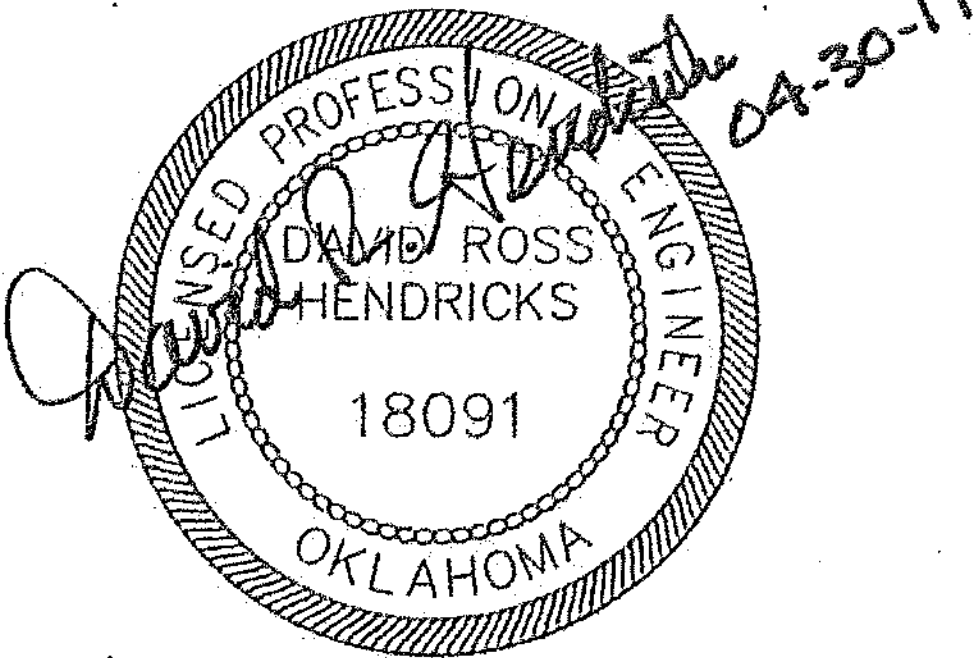
APPROVED BY  
ROADWAY ENGINEER  
DATE: 04/14/15  
ROADWAY DESIGN DIVISION STANDARD

#### CONCRETE SURFACING CONSTRUCTION DETAILS

| REV. NO. | DESCRIPTION | DATE |
|----------|-------------|------|
|          |             |      |

GENERAL CONSTRUCTION NOTES

- ALL MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH THE CURRENT EDITION OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE CITY OF NORMAN AT LEAST FOURTEEN DAYS BEFORE BEGINNING WORK USING THE FOLLOWING CONTACT INFORMATION.  
  
OWNER:  
STEVE RICH  
PH: 580-678-4823
- THE CONTRACTOR SHLL COMPLY WITH THE OKLAHOMA UNDERGROUND UTILITIES DAMAGE PREVENTION ACT BY CONTACTING "CALL OKIE" AT 800-522-6543 OR 811 A MINIMUM OF 48 HOURS PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL UPDATE ALL UTIL;ITY LOCATES BY CONTACTING "CALL OKIE" A MINIMUM OF ONCE EVERY TEN (10) CALENDAR DAYS.
- THE CONTRACTOR SHALL PROVIDE MEASURES AS NECESSARY TO PROTECT THE POND AND THE SURROUNDING AREA FROM SAND, DEBRIS AND OTHER FOREIGN OBJECTS AND MATERIALS. ANY DAMAGE OR CONTAMINATION SHALL BE REMOVED BY THE CONTRACTOR AT HIS EXPENSE.
- IN ORDER TO ALLEVIATE DUST CONDITIONS DURING GRADING OPERATIONS AND BEFORE PAVEMENT WORK IS COMPLETED, GRADING SHALL BE SPRINKLED WITH CLEAN WATER AT A SUITABLE INTERVAL TO INSURE DUST SUPPRESSION. ALL COSTS SHALL BE INCLUDED IN OTHER ITEMS OF WORK.
- ANY EXCAVATIONS, INCLUDING TRENCHES, FOOTINGS, ETC., SHALL BE KEPT FREE FROM STANDING WATER.
- TEMPORARY CONSTRUCTION TRAFFIC CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- WITH THE EXCEPTION OF THE BEAMS ALL STEEL SHALL BE NEW.
- ALL NUT, BOLTS AND WASHERS SHALL BE HOT DIP GALVANIZED AND MEET OR EXCEED ANSI/ASME B18.2.6. ALL BOLTS SHALL BE GRADE ASTM A325. TIGHTEN BOLTS AND NUTS BY THE TURN OF THE NUT METHOD.
- THE CONTRACTOR SHALL MAINTAIN A FOOTBRIDGE FOR THE OWNER TO ACCESS BOTH SIDES OF THE CREEK. COST FOR THIS ITEM SHALL BE INCLUDED IN OTHER ITEMS OF WORK.
- STEEL PILES SHALL BE DRIVEN TO A MINIMUM BEARING OF 30 TONS. BEARING VALUE TO BE DETERMINED IN ACCORDANCE WITH SECTION 514.04 OF THE LATEST EDITION OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- THE CONCRETE DECK SURFACE SHALL HAVE A BURLAP OR ARTIFICIAL TURF DRAG FINISH.
- THE COST FOR ALL STIFFENER PLATES SHALL BE INCLUDED IN OTHER ITEMS OF WORK.



|                   |     |  |                                                                                                |
|-------------------|-----|--|------------------------------------------------------------------------------------------------|
| DESIGN            | DRH |  | GENERAL CONSTRUCTION NOTES<br>SINGLE SPAN STEEL I-BEAM<br>WEST MAIN STREET<br>NORMAN, OKLAHOMA |
| DRAWN             | DRH |  |                                                                                                |
| CHECKED           |     |  |                                                                                                |
| REVISED           |     |  |                                                                                                |
| SCALE             |     |  |                                                                                                |
| PROJECT NO. 16010 |     |  | SHEET NO. B9                                                                                   |

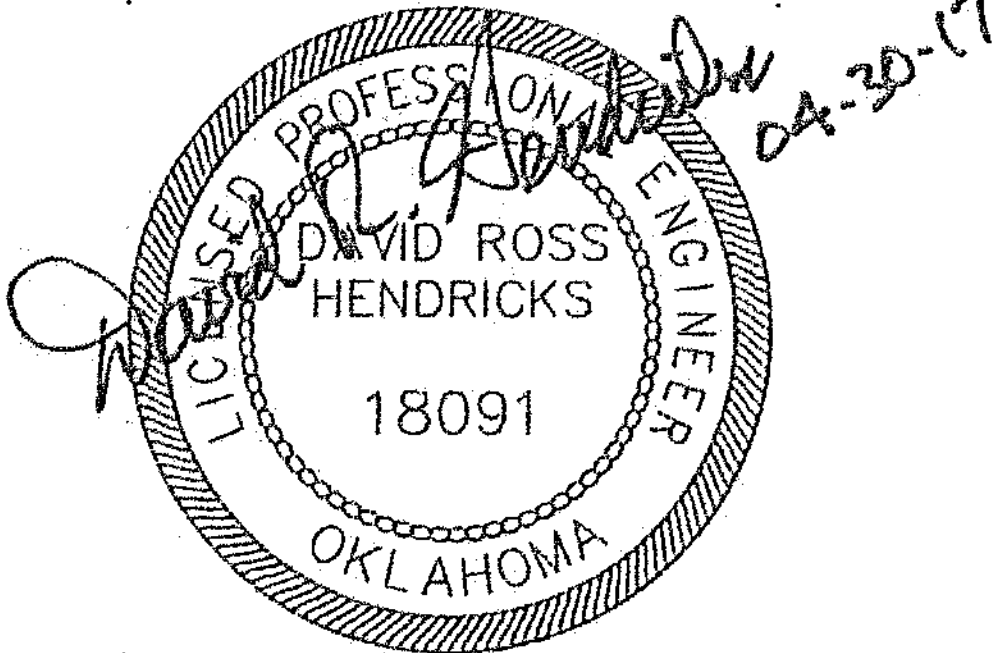
DRAWN BY: DRH

| REV. NO. | DESCRIPTION | DATE |
|----------|-------------|------|
|          |             |      |

PAY QUANTITY NOTES

- 1) DECK FORMS AND ANCHOR STUDS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CLASS 'AA' CONCRETE.
- 2) THE UNIT PRICE BID FOR GUARDRAIL SHALL INCLUDE ALL W-BEAM SECTION RAIL, STRUCTURAL TUBING, BOLTS, PIPE SLEEVES, POSTS, SPLICE BARS, WELDED LUGS AND OTHER APPURTENANCES NECESSARY TO INSTALL THE GUARDRAIL.
- 3) THE TYPE 'B' ANCHOR UNIT SHALL BE CONSTRUCTED USING ODOT STANDARD GRAU1-1.
- 4) ALL ABUTMENT BRACING AND WING CAPS SHALL BE INCLUDED INT HE UNIT PRICE BID FOR SHEET PILING.
- 5) THE ABUTMENT CAPS, SHEAR STUDS AND DIAPHRAGMS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL STEEL.
- 6) THE COST OF ALL STIFFENERS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL STEEL.
- 7) SPLICES FOR PILING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PILES DRIVEN.
- 8) THE BEAMS FOR THE SUPERSTRUCTURE WERE PURCHASED BY OTHERS AND SHALL BE HAULED BY THE CONTRACTOR FROM THE RAILROAD YARD, INC. IN STILLWATER, OK.

| BRIDGE QUANTITIES |                                    |      |          |
|-------------------|------------------------------------|------|----------|
| ITEM NO.          | DESCRIPTION                        | UNIT | QUANTITY |
| 506               | STRUCTURAL STEEL (5)(6)            | LB   | 3868     |
| 509               | CLASS 'AA' CONCRETE (1)            | CY   | 38       |
| 511               | REINFORCING STEEL                  | LB   | 6736     |
| 514(A)            | PILES FURNISHED                    | LF   | 1006     |
| 514(B)            | PILES DRIVEN (7)                   | LF   | 1006     |
| 514(H)            | SHEET PILING FURNISHED (4)         | SY   | 218      |
| 514(I)            | SHEET PILING DRIVEN                | SY   | 218      |
| 601(B)            | TYPE 1-A PLAIN RIP-RAP             | TON  | 297      |
| 601(C)            | TYPE 1-A FILTER BLANKET            | TON  | 20       |
| 623(A)            | GUARDRAIL (2)                      | LF   | 140      |
| 623(F)            | TYPE 'B' GUARDRAIL ANCHOR UNIT (3) | EA   | 4        |
| SP                | BEAM HAULING (8)                   | LS   | 1        |

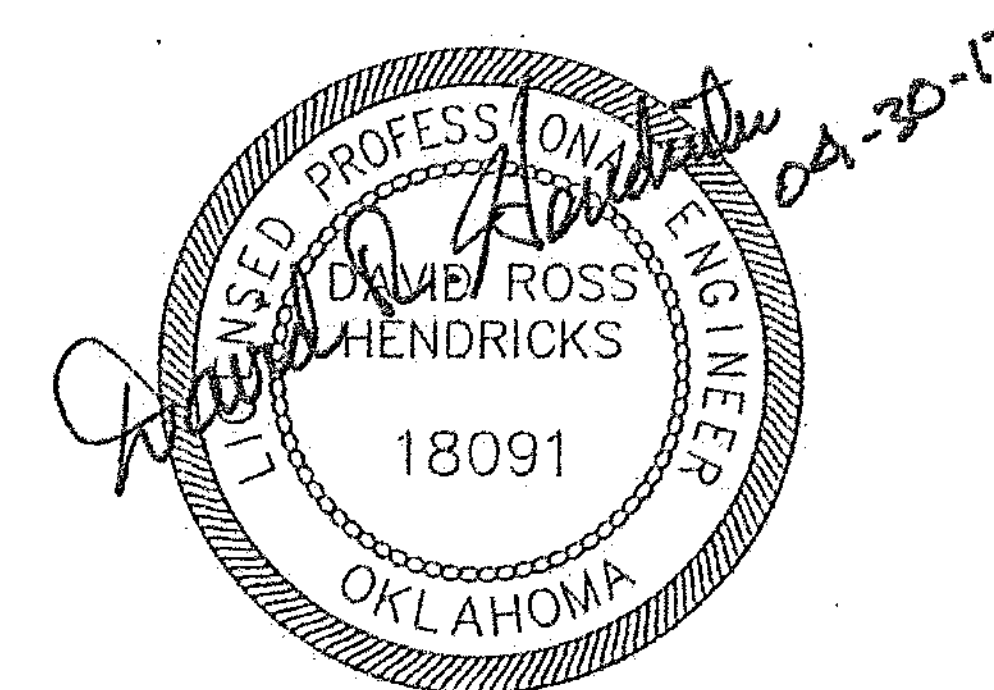
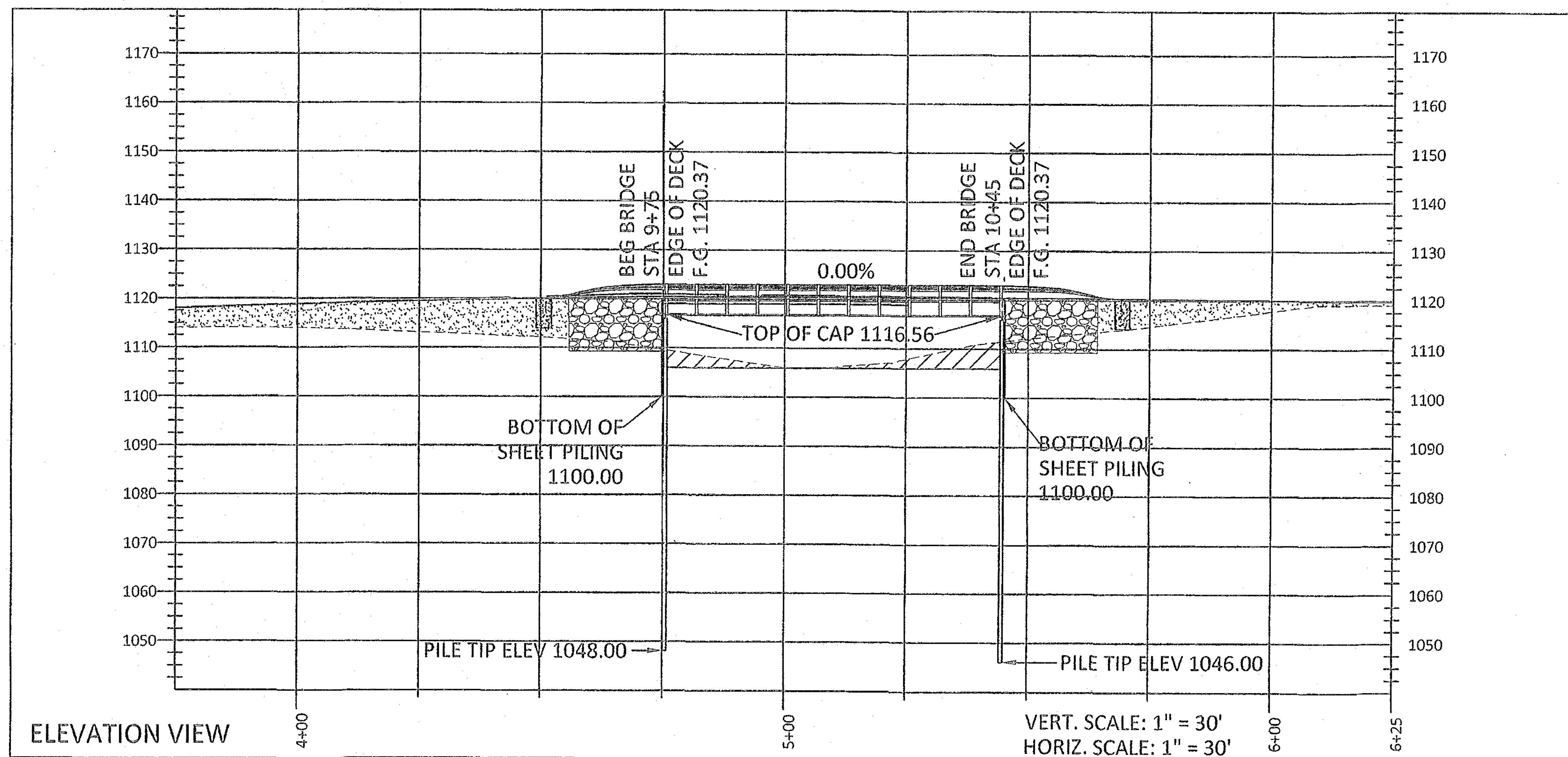
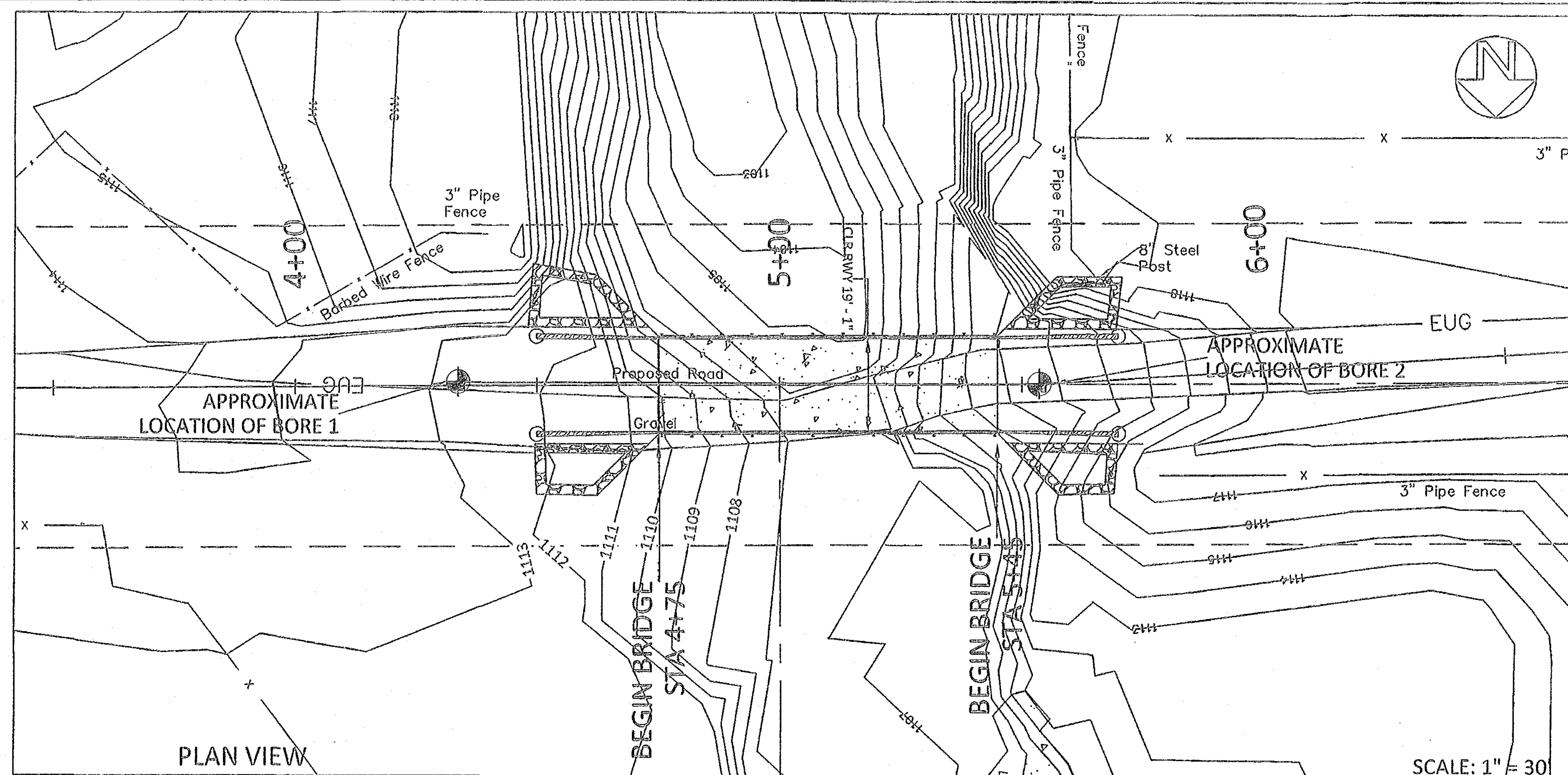


|                   |     |  |                                                                                             |
|-------------------|-----|--|---------------------------------------------------------------------------------------------|
| DESIGN            | DRH |  | PAY QUANTITIES - BRIDGE<br>SINGLE SPAN STEEL I-BEAM<br>WEST MAIN STREET<br>NORMAN, OKLAHOMA |
| DRAWN             | DRH |  |                                                                                             |
| CHECKED           |     |  |                                                                                             |
| REVISED           |     |  |                                                                                             |
| SCALE             |     |  |                                                                                             |
| PROJECT NO. 16010 |     |  | SHEET NO. B10                                                                               |

| REVISIONS |                               |          |
|-----------|-------------------------------|----------|
| REV. NO.  | DESCRIPTION                   | DATE     |
| 1         | CHANGED BRIDGE WIDTH TO 20 FT | 08-27-16 |

**DESIGN DATA**  
Concrete: (Class AA)  $f'_c = 4,000$  PSI  
(Class A)  $f'_c = 3,000$  PSI  
Reinforcing Steel: (Gr60)  $f_y = 60,000$  PSI  
Structural Steel: Superstructure (Gr33)  $f_y = 33,000$  PSI  
Substructure (Gr50)  $f_y = 50,000$  PSI  
Loading: HS20 + 20 PSF FWS + 15 PSF SIP  
Design: AASHTO LFD BRIDGE DESIGN SPECIFICATIONS, 17TH EDITION, 2002  
ANSI/AASHTO/AWS D1.5 BRIDGE WELDING  
Piling: CAPACITY SHALL BE 30 TONS/PILE.

**BENCHMARK:**  
CUT 'X' IN CONCRETE  
ON NORTH SIDE OF LOW WATER CROSSING  
AT CENTER OF CROSSING  
ELEV. 1115.00



|         |          |  |
|---------|----------|--|
| DESIGN  | DRH      |  |
| DRAWN   | DRH      |  |
| CHECKED |          |  |
| REVISED |          |  |
| SCALE   | 1" = 10' |  |

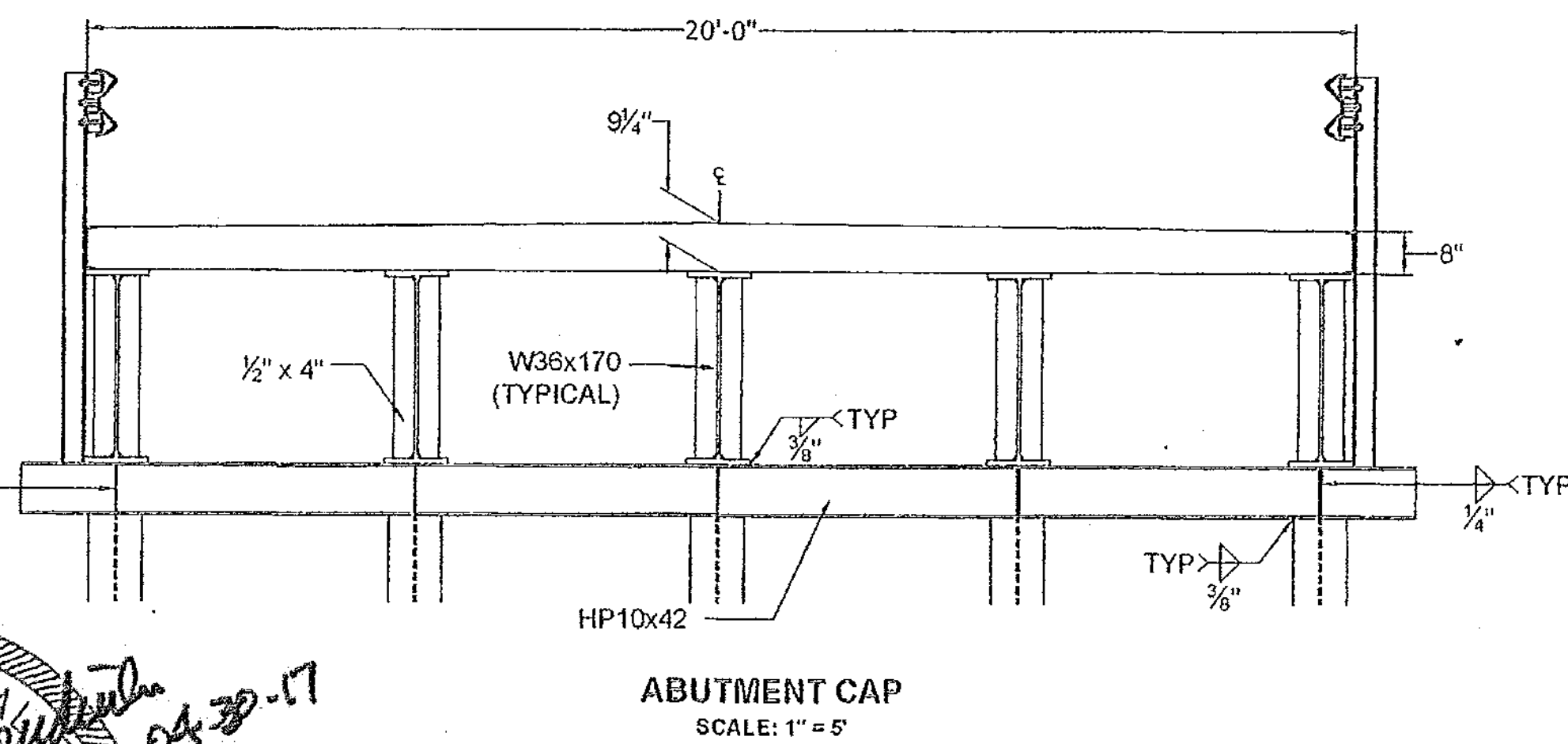
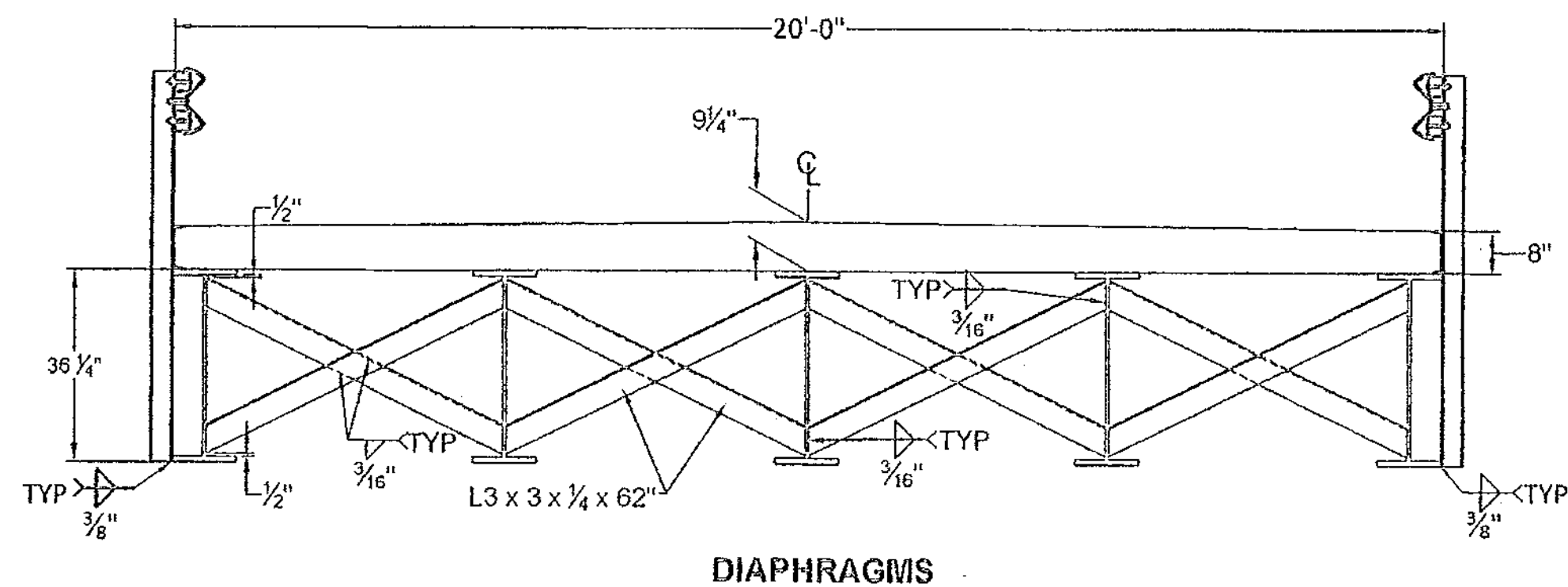
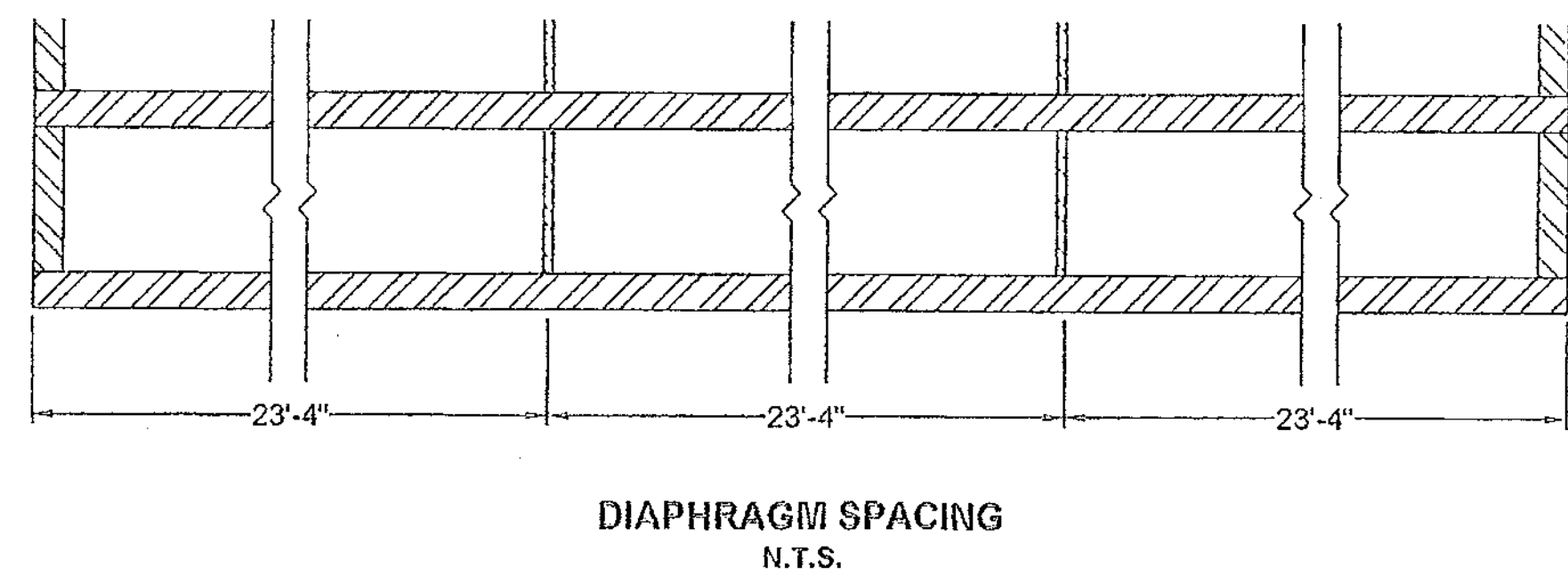
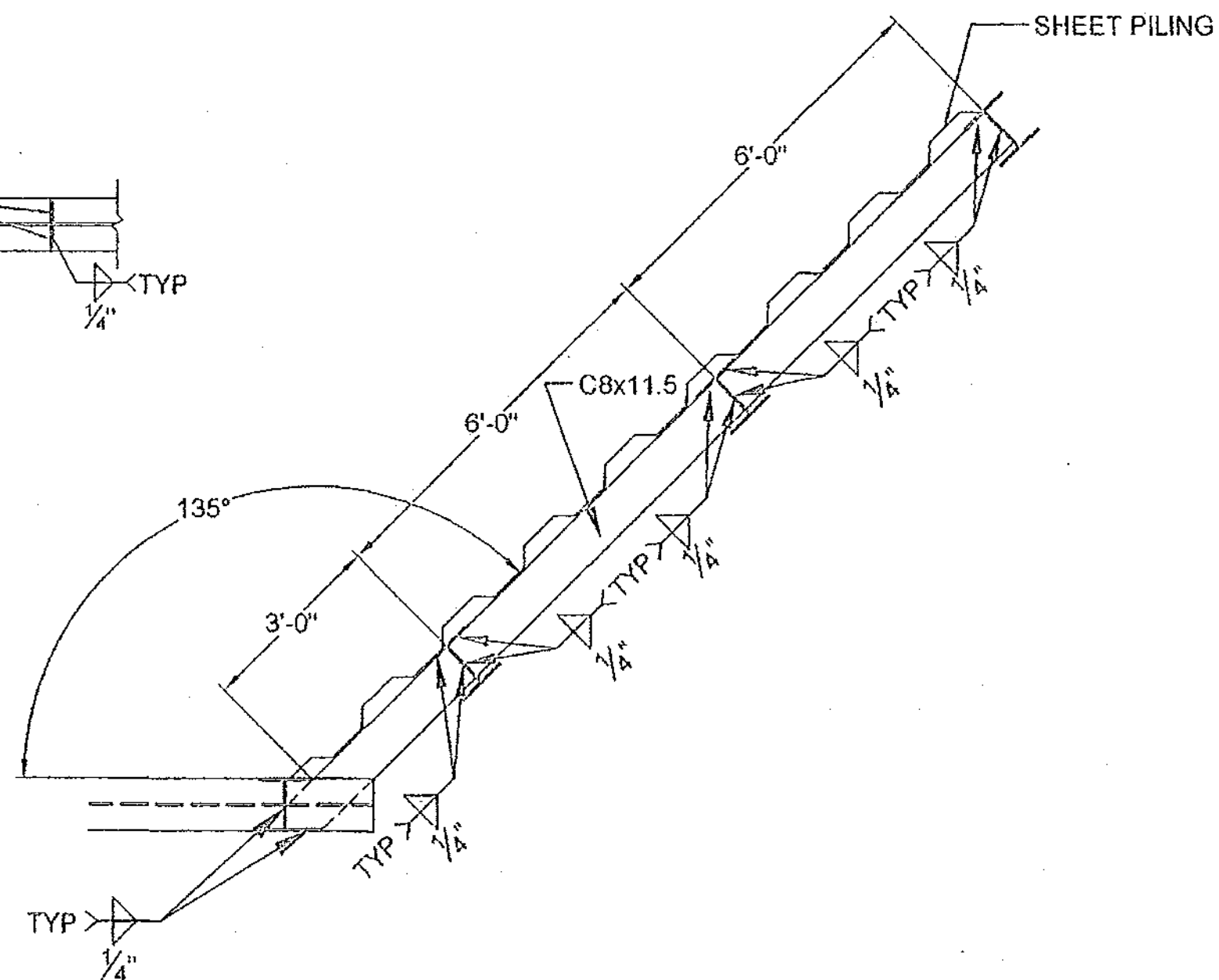
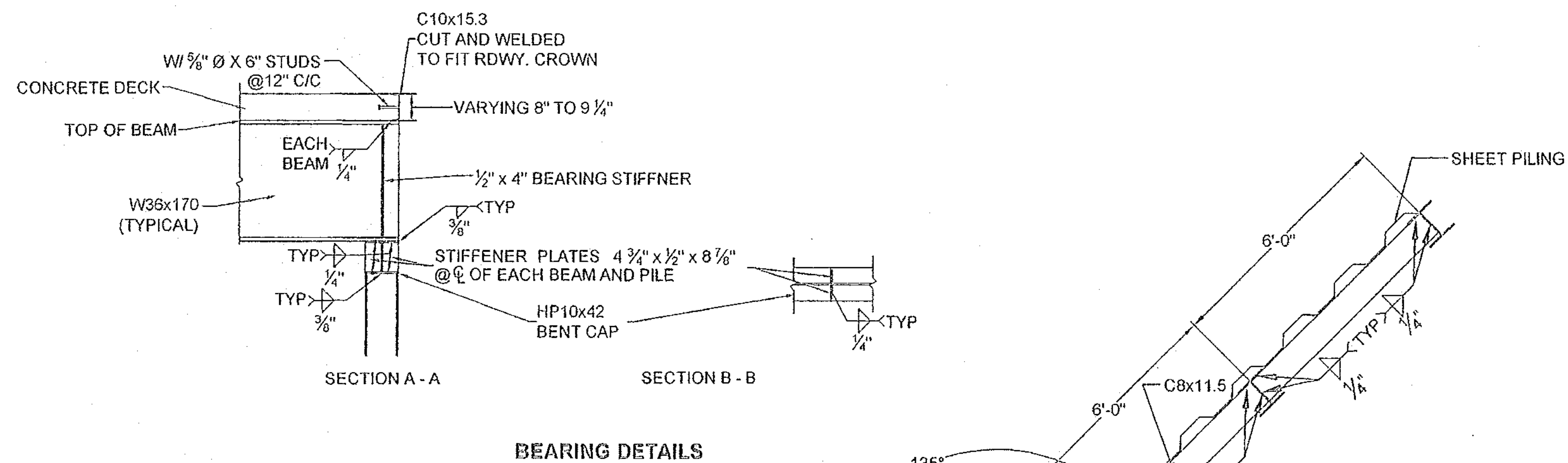
**GENERAL PLAN AND ELEVATION**  
SINGLE SPAN STEEL I-BEAM  
WEST MAIN STREET  
NORMAN, OKLAHOMA

PROJECT NO. 16010

SHEET NO. B11

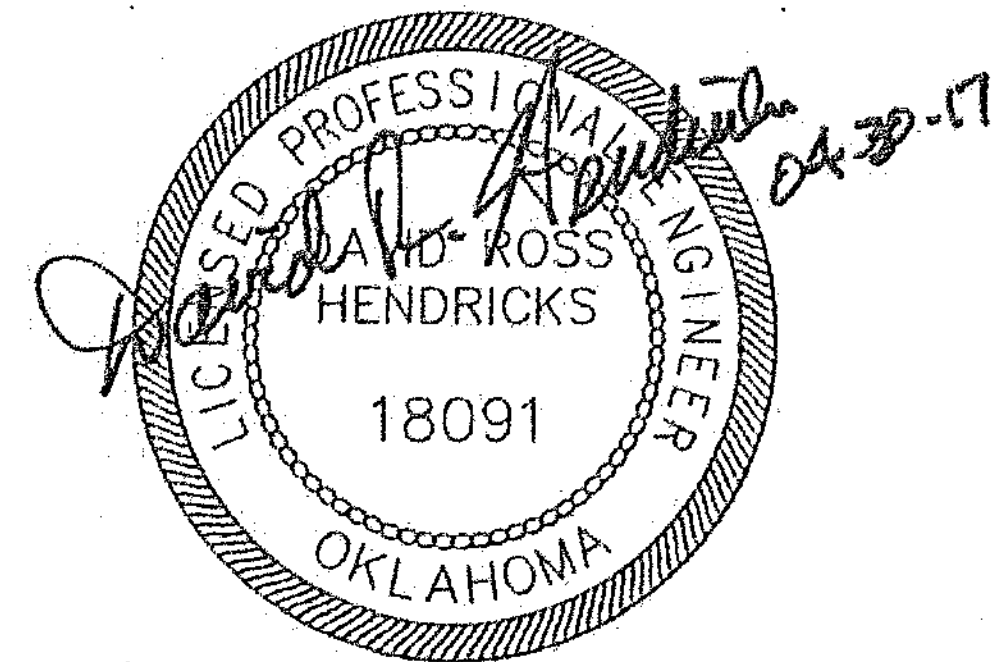
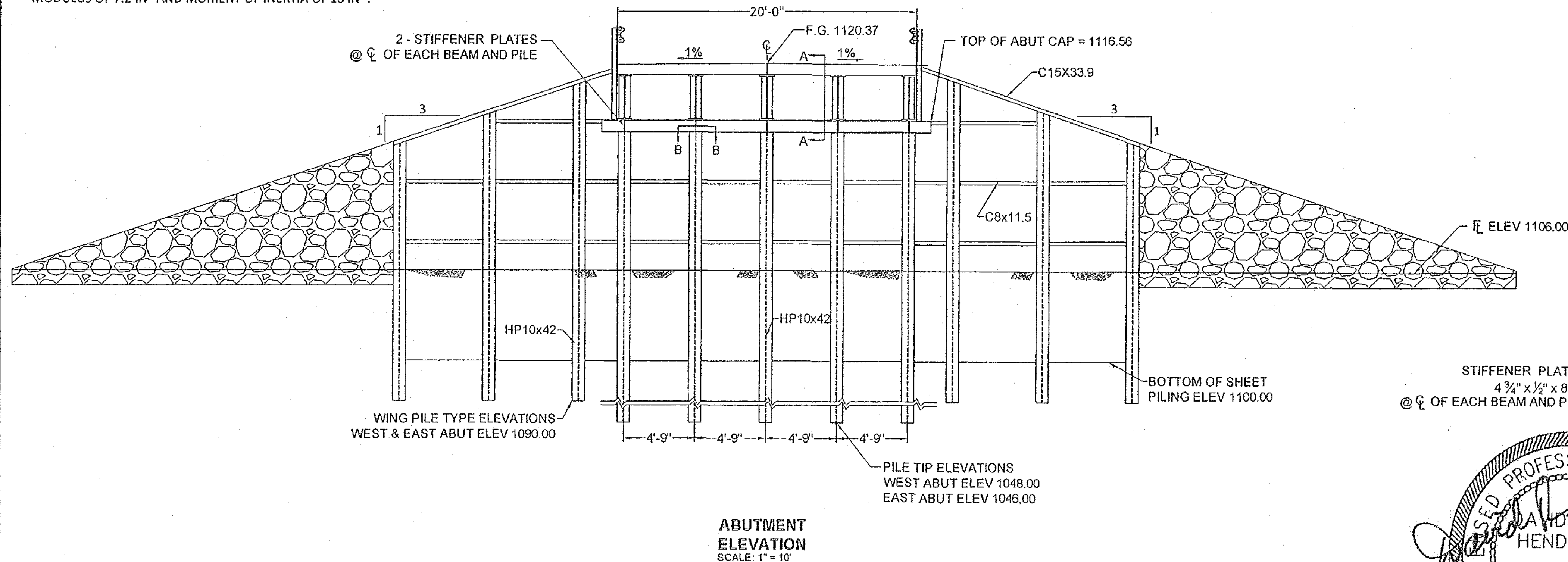
DRAWN BY: DRH

| REVISIONS |                                     |          |
|-----------|-------------------------------------|----------|
| REV. NO.  | DESCRIPTION                         | DATE     |
| 1         | CHANGED BRIDGE WIDTH TO 20 FT       | 08-27-16 |
| 2         | REVISED SHEET PILING SPECIFICATIONS | 04-30-17 |



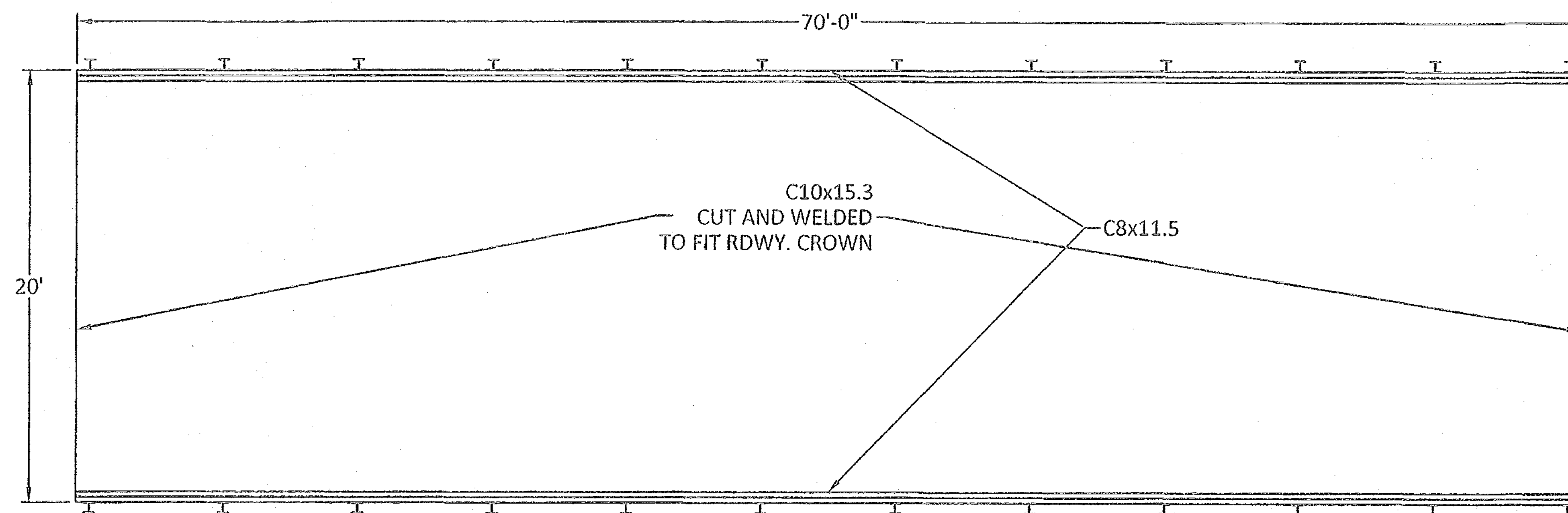
SHEET PILING:  
SHEET PILING SHALL BE 10 GAUGE WITH A WALL THICKNESS 0.1345 INCHES, SECTION MODULUS OF 2.25 IN<sup>3</sup> AND MOMENT OF INERTIA OF 3.80 IN<sup>4</sup> PER SECTION. THE SHEET PILING SHALL WEIGH 7.4 LB/SF AND BE HOT DIP GALVANIZED PER ASTM A123 AT A RATE OF 2 OZ. PER SQUARE FOOT BOTH SIDES.

AN ALTERNATIVE DESIGN IS SHOREGUARD VINYL SHEET PILING, OR APPROVED EQUAL, WITH A WALL THICKNESS OF 0.225 IN, SECTION MODULUS OF 7.2 IN<sup>3</sup> AND MOMENT OF INERTIA OF 18 IN<sup>4</sup>.



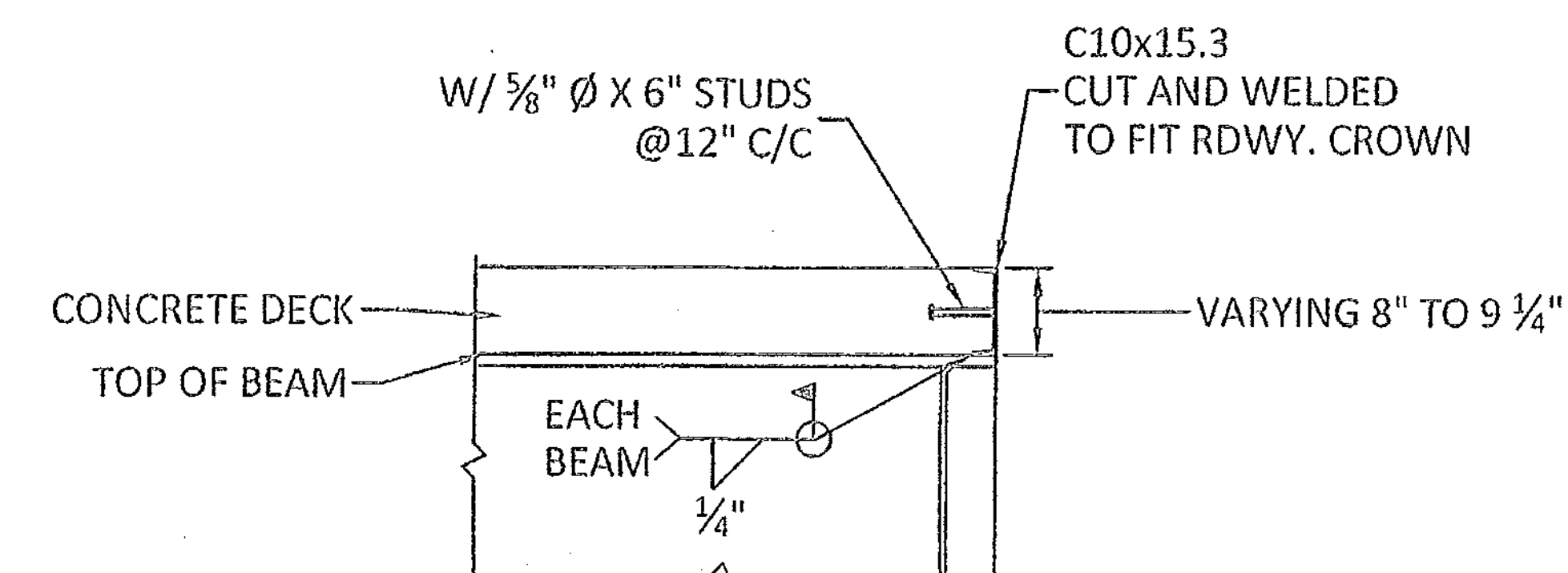
|                   |         |               |                                                                                                    |
|-------------------|---------|---------------|----------------------------------------------------------------------------------------------------|
| DESIGN            | DRH     |               | ABUTMENT AND DIAPHRAGM DETAILS<br>SINGLE SPAN STEEL I-BEAM<br>WEST MAIN STREET<br>NORMAN, OKLAHOMA |
| DRAWN             | DRH     |               |                                                                                                    |
| CHECKED           |         |               |                                                                                                    |
| REVISED           |         |               |                                                                                                    |
| SCALE             | 1" = 5' |               |                                                                                                    |
| PROJECT NO. 16010 |         | SHEET NO. B12 |                                                                                                    |

| REVISIONS |                               |          |
|-----------|-------------------------------|----------|
| REV. NO.  | DESCRIPTION                   | DATE     |
| 1         | CHANGED BRIDGE WIDTH TO 20 FT | 08-27-16 |



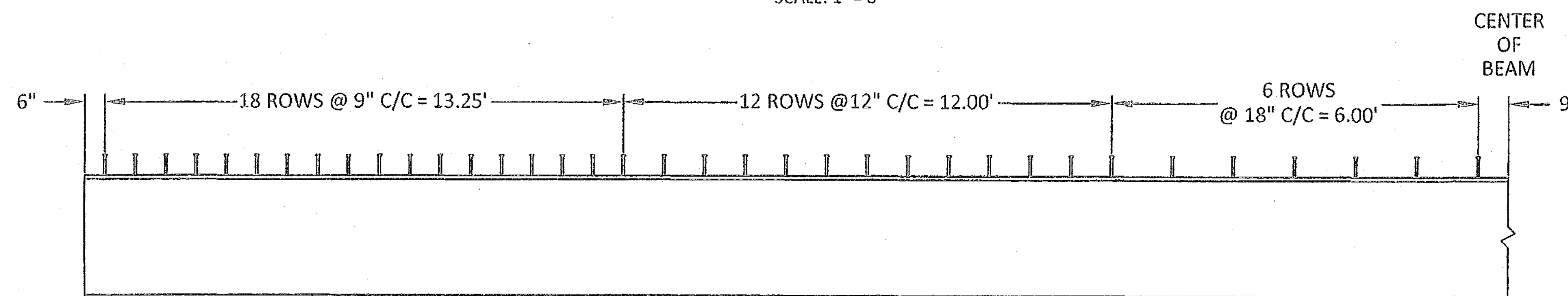
DECK PLAN VIEW

SCALE: 1" = 8'

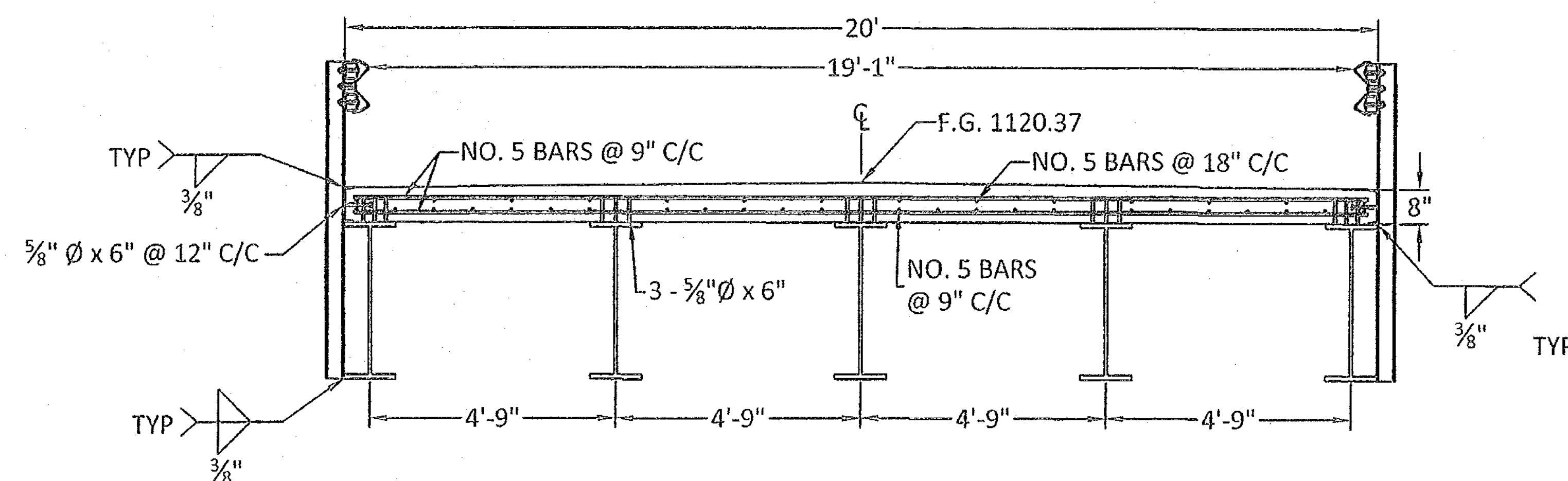


DECK HEADER AT ABUTMENT

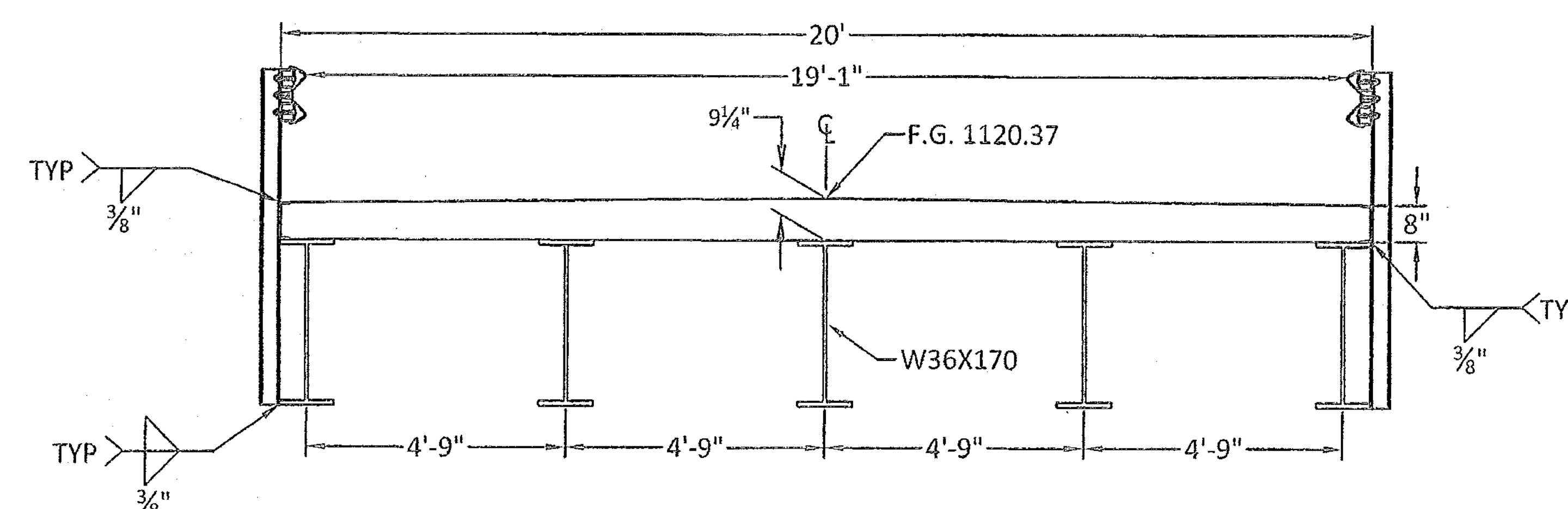
SCALE: 1" = 2'



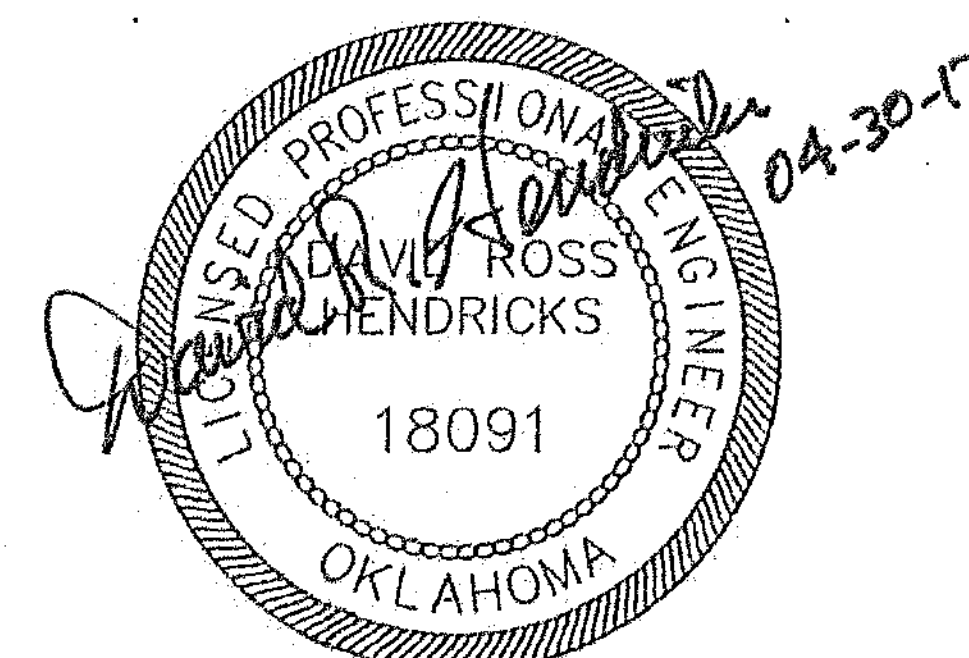
SHEAR STUD SPACING



DECK SECTION



DECK DIMENSIONS



|         |         |  |
|---------|---------|--|
| DESIGN  | DRH     |  |
| DRAWN   | DRH     |  |
| CHECKED |         |  |
| REVISED |         |  |
| SCALE   | 1" = 4' |  |

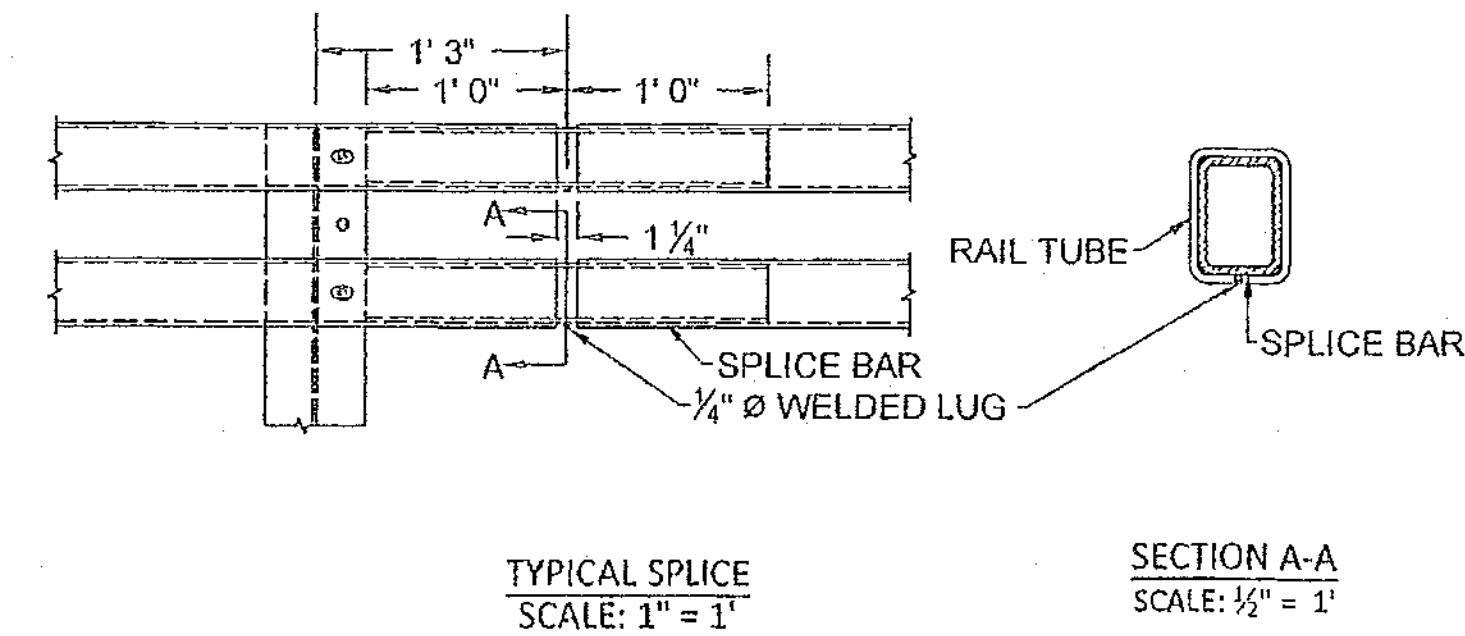
DECK DETAILS  
SINGLE SPAN STEEL I-BEAM  
WEST MAIN STREET  
NORMAN, OKLAHOMA

PROJECT NO. 16010

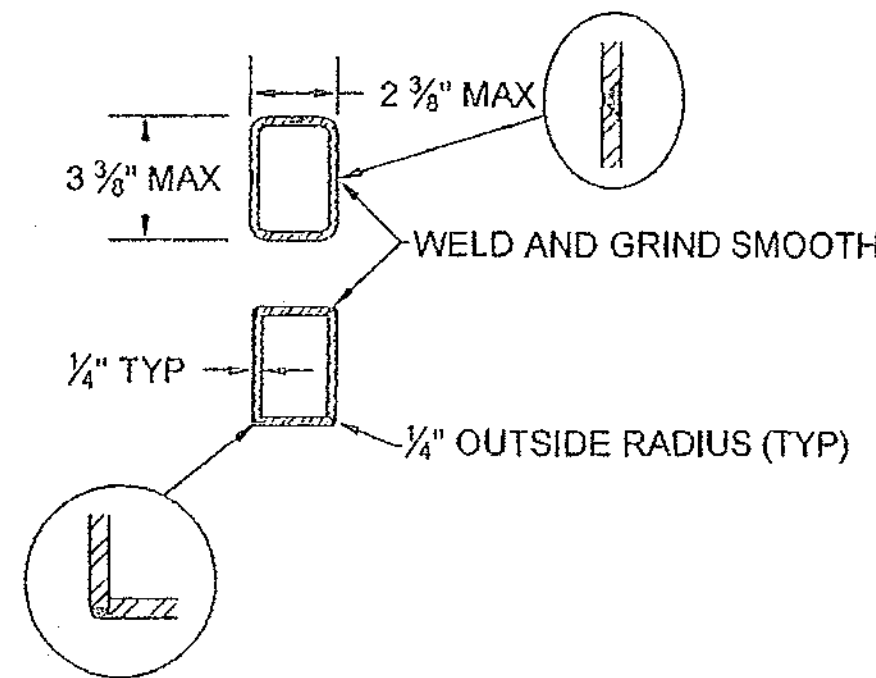
SHEET NO. B13

DRAWN BY: DRH

| REVISIONS |             |      |
|-----------|-------------|------|
| REV. NO.  | DESCRIPTION | DATE |
|           |             |      |



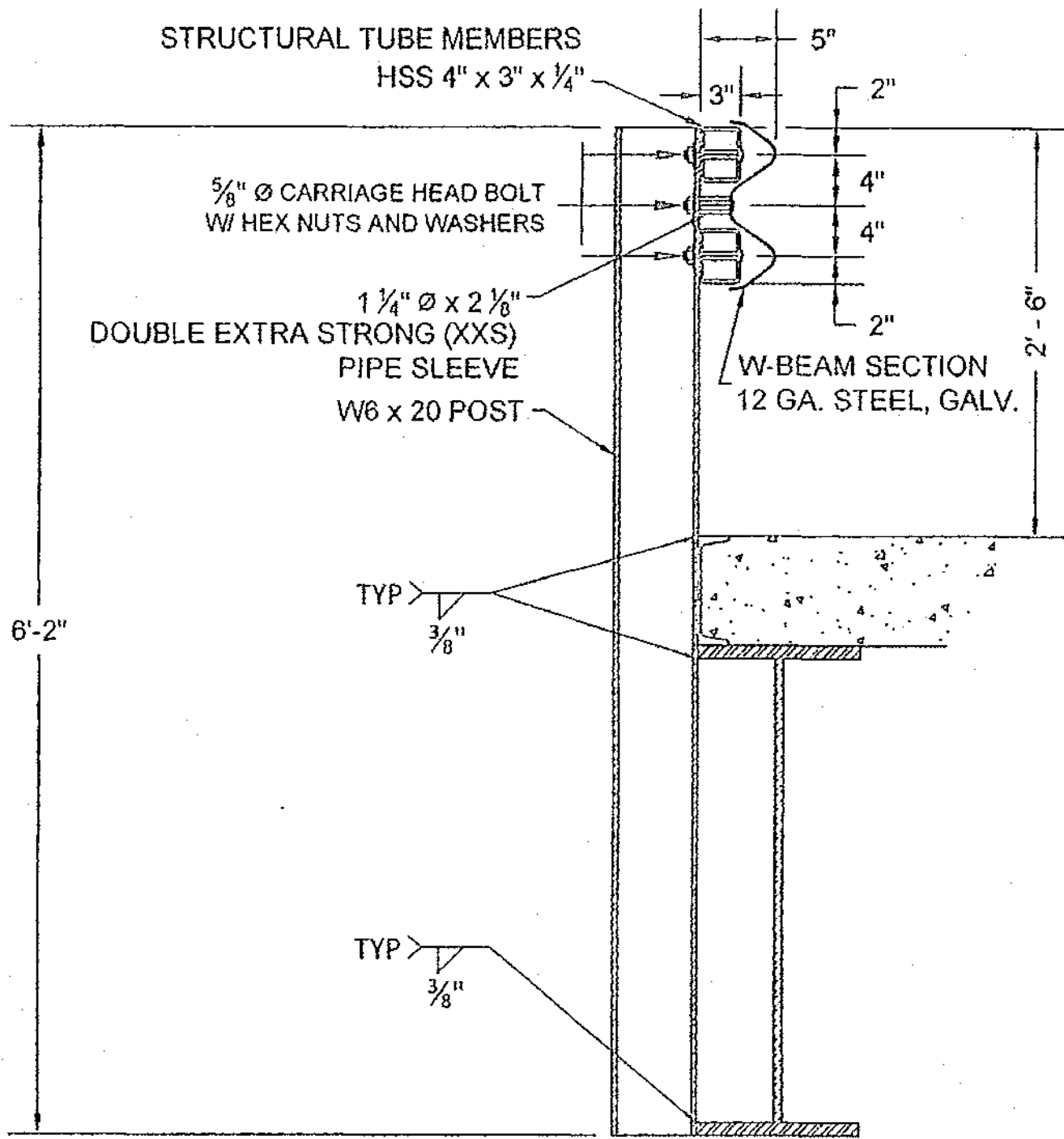
SPICE BAR DETAILS FOR  
STRUCTURAL TUBING



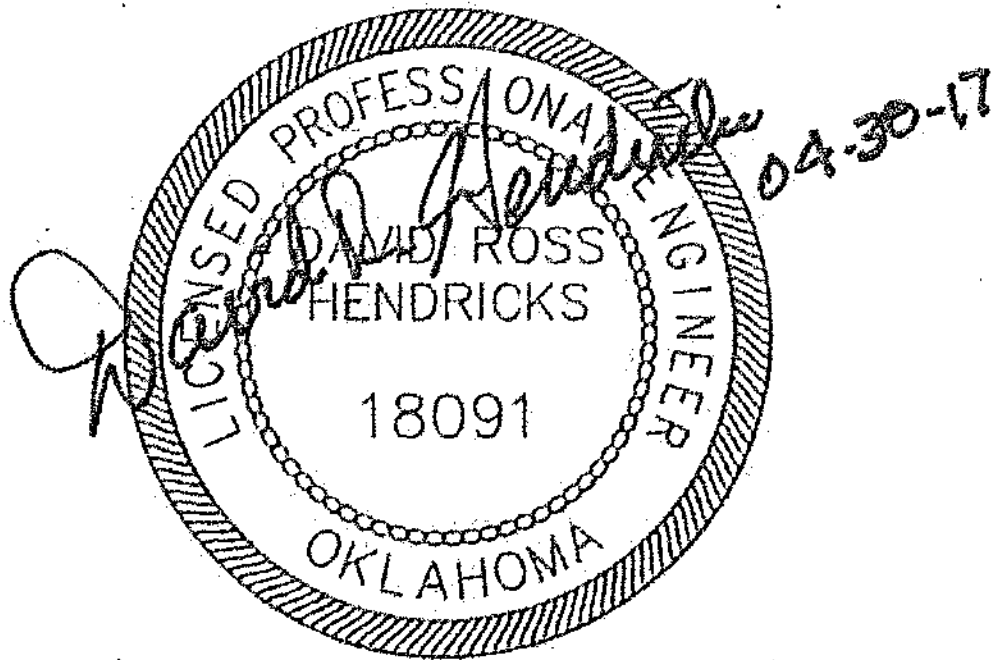
SPICE BAR FABRICATION DETAILS  
SCALE: 1" = 1'

#### GENERAL NOTES

- GUARDRAIL MATERIALS SHALL COMPLY WITH THE FOLLOWING STANDARD SPECIFICATIONS:
  - ASTM A572 GRADE 50: POSTS AND BASE PLATES
  - ASTM A500 GRADE B: STRUCTURAL TUBING
  - ASTM A36: PIPE SLEEVES, RAIL SPICE BARS AND ANCHOR PLATES
  - ASTM A449: ANCHOR STUDS WITH STANDARD NUTS AND HARDENED STEEL COMMERCIAL TYPE A PLAIN WIDE WASHERS
  - A307: RAIL BOLTS, NUTS, AND WASHERS
  - AASHTO M180 TYPE II: W-BEAM SECTIONS
- EACH PIECE OF RAIL TUBING SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.
- STRUCTURAL TUBING SHALL BE SUPPLIED AS ONE PIECE FOR BRIDGE RAIL 40 FEET OR LESS IN LENGTH. IN OTHER CASES, TUBING SHALL BE SPICED WITH A SPICE BAR (SEE SPICE BAR DETAILS). NO TRANSVERSE BUTT WELDS ARE PERMITTED ON RAIL TUBING WITHIN A CONTINUOUS LENGTH.
- THE BRIDGE RAIL POST SPACING SHALL BE 6'-3" FOR USE WITH 25' SECTIONS OF STANDARD W-BEAM RAIL.
- SYNTHETIC OR WOODEN OFFSET BLOCKS MAY USED, AS RECOMMENDED BY THE GUARDRAIL MANUFACTURER OR INDICATED IN THE LATEST REVISION OF THE ODOT GUARDRAIL STANDARD GHW1.



GUARDRAIL DETAIL



|                   |         |  |                                                                                                  |
|-------------------|---------|--|--------------------------------------------------------------------------------------------------|
| DESIGN            | DRH     |  | <b>GUARDRAIL DETAILS</b><br><br>SINGLE SPAN STEEL I-BEAM<br>WEST MAIN STREET<br>NORMAN, OKLAHOMA |
| DRAWN             | DRH     |  |                                                                                                  |
| CHECKED           |         |  |                                                                                                  |
| REVISED           |         |  |                                                                                                  |
| SCALE             | 1" = 2' |  |                                                                                                  |
| PROJECT NO. 16010 |         |  | SHEET NO. B14                                                                                    |

DRAWN BY: DRH

| REV. NO. | DESCRIPTION | DATE |
|----------|-------------|------|
|----------|-------------|------|

| SHEPHERD Geotechnical Engineering                                                        |  |                    |  |                          |  | BORING NUMBER B-1                                   |                  |  |  |  |  |  |
|------------------------------------------------------------------------------------------|--|--------------------|--|--------------------------|--|-----------------------------------------------------|------------------|--|--|--|--|--|
| 720 W. Wilshire Blvd., Suite 110<br>Oklahoma City, OK 73116<br>Telephone: (405) 840-1002 |  |                    |  |                          |  | PAGE 1 OF 1                                         |                  |  |  |  |  |  |
| CLIENT SMC Consulting Engineers, P.C.                                                    |  |                    |  |                          |  | PROJECT NAME Bird, Floyd, Gray - Main Street Bridge |                  |  |  |  |  |  |
| PROJECT NUMBER 08082                                                                     |  |                    |  |                          |  | PROJECT LOCATION Norman, Oklahoma                   |                  |  |  |  |  |  |
| DATE STARTED 10/30/08                                                                    |  | COMPLETED 11/10/08 |  | GROUND ELEVATION 1113 ft |  |                                                     | HOLE SIZE 4.5 In |  |  |  |  |  |
| DRILLING CONTRACTOR Drilling Services of Oklahoma                                        |  |                    |  |                          |  | GROUND WATER LEVELS:                                |                  |  |  |  |  |  |
| DRILLING METHOD 4.5" augers - CME 55                                                     |  |                    |  |                          |  | ▽ AT TIME OF DRILLING 19.0 ft / Elev 1094.0 ft      |                  |  |  |  |  |  |
| LOGGED BY JDS                                                                            |  |                    |  |                          |  | ▽ AT END OF DRILLING 19.0 ft / Elev 1094.0 ft       |                  |  |  |  |  |  |
| NOTES                                                                                    |  |                    |  |                          |  | AFTER DRILLING n/a                                  |                  |  |  |  |  |  |

| DEPTH (ft) | USCS | MATERIAL DESCRIPTION                                                                | SAMPLE TYPE | BLOW COUNTS | MOISTURE CONTENT (%) | ATTERBERG LIMITS |               |                  | FINES CONTENT |
|------------|------|-------------------------------------------------------------------------------------|-------------|-------------|----------------------|------------------|---------------|------------------|---------------|
|            |      |                                                                                     |             |             |                      | LIQUID LIMIT     | PLASTIC LIMIT | PLASTICITY INDEX |               |
| 0          |      | SANDY LEAN CLAY, brown, stiff                                                       | ▲ SPT       | 13          | 21                   | 27               | 15            | 12               | 53            |
|            |      | SILTY SAND, gray, medium dense                                                      | ▲ SPT       | 20          | 16                   | 20               | 20            | NP               | 7             |
| 10         | SM   |                                                                                     | ▲ SPT       | 11          | 22                   | 11               | 11            | NP               | 5             |
|            |      |                                                                                     | ▲ SPT       | 17          | 19                   | 7                | 7             | NP               | 8             |
| 20         |      | SILTY SAND, brown, medium dense                                                     | ▲ SPT       | 19          | 22                   |                  |               |                  | 5             |
|            |      |                                                                                     | ▲ SPT       | 19          | 19                   |                  |               |                  | 5             |
| 30         | SM   |                                                                                     | ▲ SPT       | 21          | 20                   |                  |               |                  | 5             |
|            |      |                                                                                     | ▲ SPT       | 17          | 17                   |                  |               |                  | 5             |
| 40         |      | POORLY GRADED SAND, with large gravel (2" to 3"), gray-brown, medium dense to dense | ▲ SPT       | 16          | 19                   |                  |               |                  | 2             |
|            |      |                                                                                     | ▲ SPT       | 25          | 19                   |                  |               |                  | 2             |
| 50         | SP   |                                                                                     | ▲ SPT       | 36          | 20                   |                  |               |                  | 3             |
|            |      | POORLY GRADED SAND, with large gravel (3" to 5"), very dense to dense               | ▲ SPT       | 69          | 12                   |                  |               |                  | 4             |
|            |      |                                                                                     | ▲ SPT       | 30          | 4                    |                  |               |                  | 0             |
| 60         | SP   |                                                                                     | ▲ SPT       | 19          | 18                   | 35               | 21            | 14               | 93            |
|            |      | SHALE, red, moderately hard to hard                                                 | TC          | 50/3.5      |                      |                  |               |                  |               |
|            |      |                                                                                     | TC          | 50/2.5      |                      |                  |               |                  |               |
|            |      |                                                                                     | TC          | 50/1.5      |                      |                  |               |                  |               |
|            |      |                                                                                     | TC          | 50/0.6      |                      |                  |               |                  |               |
|            |      |                                                                                     | TC          | 50/0.3      |                      |                  |               |                  |               |
| 80         |      |                                                                                     | TC          | 50/0.6      |                      |                  |               |                  |               |
|            |      |                                                                                     | TC          | 50/0.4      |                      |                  |               |                  |               |
|            |      |                                                                                     | TC          | 50/0.5      |                      |                  |               |                  |               |
|            |      |                                                                                     | TC          | 50/0.3      |                      |                  |               |                  |               |
| 90         |      | Boring Completed and Grouted, 11/10/08                                              | TC          | 50/0.6      |                      |                  |               |                  |               |
|            |      |                                                                                     | TC          | 50/0.1      |                      |                  |               |                  |               |

| SHEPHERD Geotechnical Engineering<br>720 W. Wilshire Blvd., Suite 110<br>Oklahoma City, OK 73118<br>Telephone: (405) 840-1002 |      |                                                        |             |             |                      | BORING NUMBER B-2                                   |               |                  |                   |  |  |
|-------------------------------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------|-------------|-------------|----------------------|-----------------------------------------------------|---------------|------------------|-------------------|--|--|
| CLIENT SMC Consulting Engineers, P.C.                                                                                         |      |                                                        |             |             |                      | PROJECT NAME Bird, Floyd, Gray - Main Street Bridge |               |                  |                   |  |  |
| PROJECT NUMBER 08082                                                                                                          |      |                                                        |             |             |                      | PROJECT LOCATION Norman, Oklahoma                   |               |                  |                   |  |  |
| DATE STARTED 10/31/08 COMPLETED 11/11/08                                                                                      |      |                                                        |             |             |                      | GROUND ELEVATION 1119 ft HOLE SIZE .45 in           |               |                  |                   |  |  |
| DRILLING CONTRACTOR Drilling Services of Oklahoma                                                                             |      |                                                        |             |             |                      | GROUND WATER LEVELS:                                |               |                  |                   |  |  |
| DRILLING METHOD 4.5" augers - CME 55                                                                                          |      |                                                        |             |             |                      | ▽ AT TIME OF DRILLING 24.0 ft / Elev 1095.0 ft      |               |                  |                   |  |  |
| LOGGED BY JDS CHECKED BY JDS                                                                                                  |      |                                                        |             |             |                      | ▽ AT END OF DRILLING 24.0 ft / Elev 1095.0 ft       |               |                  |                   |  |  |
| NOTES                                                                                                                         |      |                                                        |             |             |                      | AFTER DRILLING n/a                                  |               |                  |                   |  |  |
| DEPTH (ft)                                                                                                                    | USCS | MATERIAL DESCRIPTION                                   | SAMPLE TYPE | BLOW COUNTS | MOISTURE CONTENT (%) | LIQUID LIMIT                                        | PLASTIC LIMIT | PLASTICITY INDEX | FINES CONTENT (%) |  |  |
| 0                                                                                                                             | SC   | CLAYEY SAND, red-brown, loose                          | SPT         | 6           | 6                    | 8                                                   | 6             | NP               | 23                |  |  |
|                                                                                                                               |      | POORLY GRADED SAND, brown, medium dense                | SPT         | 17          | 7                    |                                                     |               |                  | 5                 |  |  |
| 10                                                                                                                            | SP   |                                                        | SPT         | 16          | 15                   |                                                     |               |                  | 4                 |  |  |
|                                                                                                                               |      |                                                        | SPT         | 11          | 21                   |                                                     |               |                  | 2                 |  |  |
| 20                                                                                                                            |      | SILTY SAND, gray-brown, loose to medium dense          | SPT         | 9           | 24                   |                                                     |               |                  | 16                |  |  |
|                                                                                                                               | SM   |                                                        | SPT         | 20          | 23                   |                                                     |               |                  | 11                |  |  |
| 30                                                                                                                            |      |                                                        | SPT         | 8           | 31                   |                                                     |               |                  | 54                |  |  |
|                                                                                                                               |      | POORLY GRADED SAND and SILTY SAND, brown, medium dense | SPT         | 30          | 21                   |                                                     |               |                  | 4                 |  |  |
| 40                                                                                                                            | SP   |                                                        | SPT         | 20          | 22                   |                                                     |               |                  | 6                 |  |  |
|                                                                                                                               |      | SILTY SAND, with large gravel (2" to 3"), tan, dense   | SPT         | 30          | 13                   |                                                     |               |                  | 7                 |  |  |
| 50                                                                                                                            | SM   |                                                        | SPT         | 36          | 18                   |                                                     |               |                  | 6                 |  |  |
|                                                                                                                               |      | POORLY GRADED SAND, tan, medium dense to dense         | SPT         | 39          | 15                   |                                                     |               |                  | 1                 |  |  |
| 60                                                                                                                            | SP   |                                                        | SPT         | 17          | 12                   |                                                     |               |                  | 4                 |  |  |
|                                                                                                                               |      |                                                        | SPT         | 18          | 9                    |                                                     |               |                  | 0                 |  |  |
| 70                                                                                                                            |      | SHALE, red, hard                                       | SPT TC      | 48          | 13                   |                                                     |               |                  | 84                |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/0.3      |                      |                                                     |               |                  |                   |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/0.4      |                      |                                                     |               |                  |                   |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/0.6      |                      |                                                     |               |                  |                   |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/0.4      |                      |                                                     |               |                  |                   |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/1.0      |                      |                                                     |               |                  |                   |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/0.5      |                      |                                                     |               |                  |                   |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/0.8      |                      |                                                     |               |                  |                   |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/0.3      |                      |                                                     |               |                  |                   |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/0.6      |                      |                                                     |               |                  |                   |  |  |
|                                                                                                                               |      |                                                        | TC          | 50/0.3      |                      |                                                     |               |                  |                   |  |  |
| Boring Completed and Grouted, 11/11/08                                                                                        |      |                                                        |             |             |                      |                                                     |               |                  |                   |  |  |

|                   |     |               |                                                                                                                                   |
|-------------------|-----|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| DESIGN            | DRH |               | <p align="center"><b>BORING LOGS</b></p> <p align="center">SINGLE SPAN STEEL I-BEAM<br/>WEST MAIN STREET<br/>NORMAN, OKLAHOMA</p> |
| DRAWN             | DRH |               |                                                                                                                                   |
| CHECKED           |     |               |                                                                                                                                   |
| REVISED           |     |               |                                                                                                                                   |
| SCALE             |     |               |                                                                                                                                   |
| PROJECT NO. 16010 |     | SHEET NO. B15 |                                                                                                                                   |