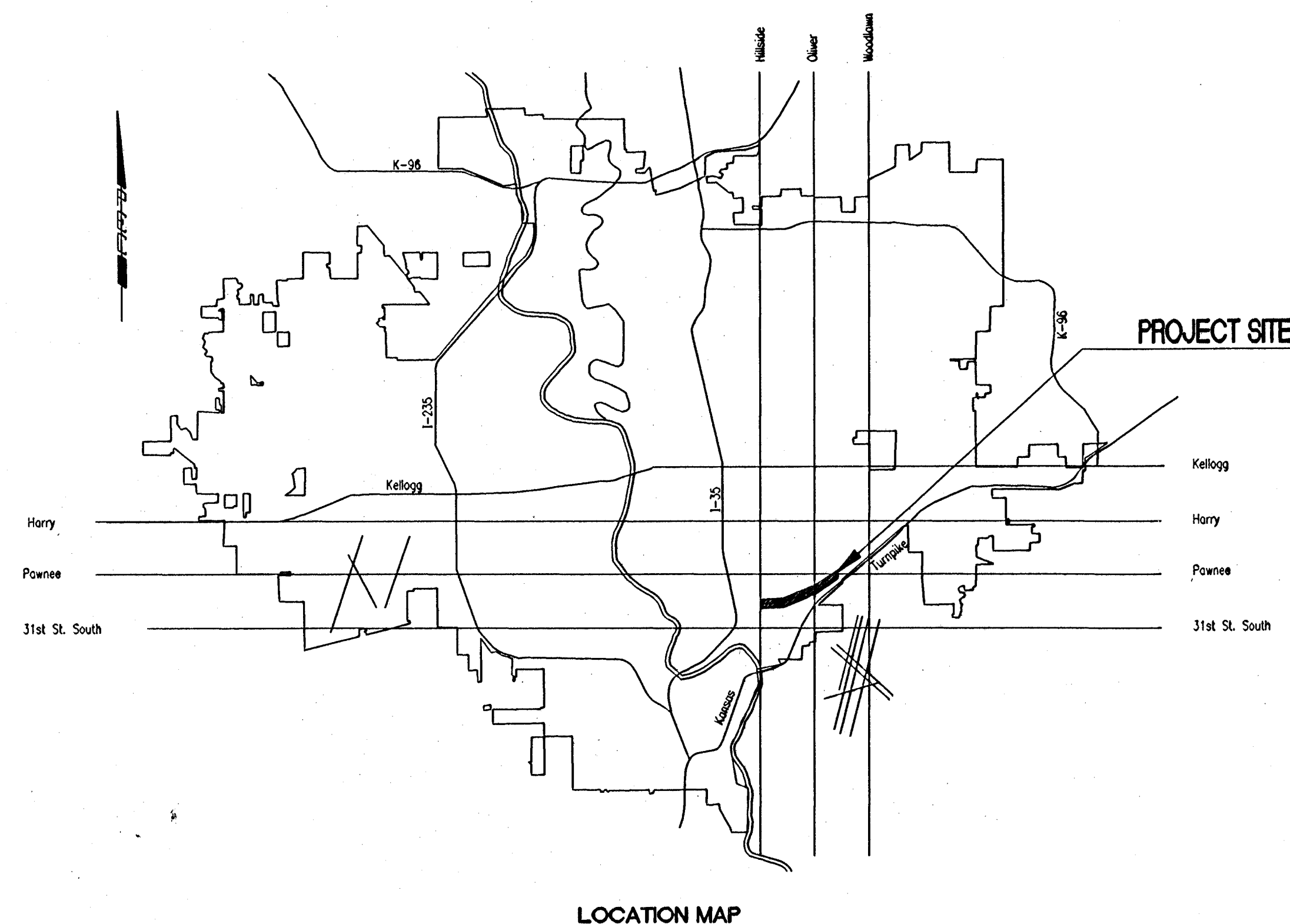


CONSTRUCTION PLANS FOR
WAR INDUSTRIES RELIEF SEWER
(PHASE 2)

FOR
THE CITY OF WICHITA,
SEDGWICK COUNTY, KANSAS
MICHAEL E. LINDEBAK, P.E.-CITY ENGINEER

468-~~82929~~
82981



LOCATION MAP

INDEX OF SHEETS

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SHEET NO. 14	TYPE "P" MANHOLE DETAILS
SHEET NO. 15	MANHOLE FRAME AND COVER
SHEET NO. 16	EROSION CONTROL AND SEDIMENT BARRIER DETAILS
SHEET NO. 17-19	SPECIAL REINFORCED CONCRETE MANHOLE DETAILS
SHEET NO. 20	REINFORCED CONCRETE MANHOLE FOR SANITARY SEWER
SHEET NO. 21	PIPE CONNECTION PLASTIC LINED CONCRETE MANHOLE

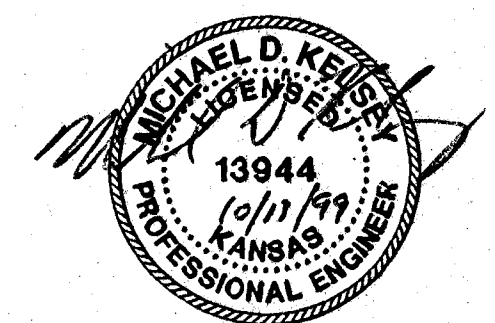
Booked
7-5-01
P-174- P-175
per As Built
R. D. L.

INDEX CODE 623306

CITY OF WICHITA PROJECT NO. 468-76-245-82929-000-000-001

OCTOBER 1999

PLANS PREPARED BY
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS



DSNR: MDK OPER: REJ SCALE: 1"=250.00
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BENCH MARKS

- BM #3 - CITY OF WICHITA BENCH MARK DISC AT NORTHEAST CORNER OF BRIDGE OVER GYPSUM CREEK ON HILLSIDE AVENUE, SOUTH OF WASSALL STREET. ELEV. = 104.50
- BM #4 - RAILROAD SPIKE IN SOUTH FACE DOUBLE ELM TREE ALONG SOUTH PROPERTY LINE LOT 18, BLOCK J, PLANEVIEW SUBDIVISION NO. 1. ELEV. = 108.60
- BM #5 - CHISELED "d" AT WEST END ON NORTH HEADWALL OF PEDESTRIAN BRIDGE OVER GYPSUM CREEK, SOUTH OF ROSEBERRY COURT. ELEV. = 102.71
- BM #6 - STEP NAIL IN SOUTH FACE LIGHT POLE AT SOUTH END OF VASSAR COURT ON NORTH SIDE OF GYPSUM CREEK. ELEV. = 108.86
- BM #7 - "T" POST 0.5' ± BELOW SURFACE NEAR WEST TOP BANK OF DRAINAGE WAY INTO GYPSUM CREEK, 120' ± NORTH OF PROPOSED SANITARY SEWER MH NO. 7. ELEV. = 107.93
- BM #8 - CITY OF WICHITA BENCH MARK DISC AT NORTHWEST CORNER ROOSEVELT STREET BRIDGE OVER GYPSUM CREEK. ELEV. = 113.02
- BM #9 - RAILROAD SPIKE IN WEST FACE 45° OAK EAST OF THE EAST PROPERTY LINE LOT 10, BLOCK F, PLANEVIEW SUBDIVISION NO. 1. ELEV. = 110.45
- BM #10 - RAILROAD SPIKE IN SOUTH FACE UTILITY POLE WEST OF SOUTH END OF CESSNA STREET, NORTH BANK OF GYPSUM CREEK. ELEV. = 115.39
- BM #11 - CITY OF WICHITA BENCH MARK DISC ON SE CORNER OF GEORGE WASHINGTON BOULEVARD BRIDGE OVER GYPSUM CREEK. ELEV. = 118.19
- BM #12 - "T" POST AT SURFACE 102' ± EAST OF THE SOUTHWEST CORNER OF LOT 2, BLOCK A, SPENCER GARDENS ADDITION. ELEV. = 115.95
- BM #13 - CHISELED "d" IN TOP CENTER OF CONCRETE ENCASUREMENT AT DISCHARGE (SOUTH) END OF A 30" RCP SWS AT GYPSUM CREEK, SOUTH OF LOT 4, BLOCK A, SPENCER GARDENS ADDITION. ELEV. = 107.07
- BM #14 - CITY OF WICHITA BENCH MARK DISC ON NE CORNER OF OLIVER STREET BRIDGE OVER GYPSUM CREEK. ELEV. = 121.68

Remove 18 LF of standard curb and gutter and replace with 18 LF of roll type curb and gutter in accordance with City of Wichita Standards and Specifications. Install approximately 32 SY of Synthetic Load Support System as shown, see General Notes, Sheet No. 2. Replace length of sidewalk as described in General Notes to support sewer maintenance equipment.

Property Corner to E of New Curb @ 1,671,800 N

@ 30' Ingress-Egress Easement by separate instrument. 1,671,400 N

KEY MAP

HORIZONTAL CONTROL POINTS

- CP #151 N-1,669,839.741 E-1,660,129.184 (W 1/4 CORNER, SEC. 2, T28S, R1E)
(3/4" IP IN THIMBLE, CENTER HILLSIDE, 0.3' BELOW SURFACE)
42.33' SW TO CHISELED "x" AT TOP BACK CONCRETE CURB RETURN
41.53' SE TO PK NAIL ON NE FACE TELEPHONE POLE
31.66' NE TO CHISELED "x" AT TOP BACK CONCRETE CURB
48.95' NW TO TOP CENTER OF FIRE HYDRANT
- CP #150 N-1,667,188.528 E-1,660,141.324 (SW CORNER, SEC. 2, T28S, R1E)
(1/2" IP IN THIMBLE, CENTER INTERSECTION 31ST S. AND HILLSIDE)
69.69' NE TO CHISELED "x" AT TOP BACK CONCRETE CURB
38.60' SSE TO CHISELED "x" AT TOP BACK CONCRETE CURB
37.89' SSW TO CHISELED "x" AT TOP BACK CONCRETE CURB
61.23' NW TO CHISELED "x" AT TOP BACK CONCRETE CURB
- CP #152 N-1,672,630.985 E-1,660,101.102 (NW CORNER, SEC. 2, T28S, R1E)
(1/2" IP IN THIMBLE, CENTER INTERSECTION PAWNEE AND HILLSIDE)
63.30' NW TO CHISELED "x" AT TOP BACK CONCRETE CURB
63.57' NE TO CHISELED "x" AT TOP BACK CONCRETE CURB
62.84' SE TO CHISELED "x" AT TOP BACK CONCRETE CURB
63.89' SW TO CHISELED "x" AT TOP BACK CONCRETE CURB
- CP #157 N-1,672,735.677 E-1,665,408.870 (NW CORNER, SEC. 1, T28S, R1E)
3/4" IP IN THIMBLE, CENTER INTERSECTION PAWNEE AND OLIVER)
50.49' SE TO CHISELED "x" AT TOP BACK CONCRETE CURB
52.25' SW TO CHISELED "x" AT TOP BACK CONCRETE CURB
46.48' NW TO CHISELED "x" AT TOP BACK CONCRETE CURB
46.36' NE TO CHISELED "x" AT TOP BACK CONCRETE CURB

- CP #158 N-1,669,935.612 E-1,665,432.475 (W 1/4 CORNER, SEC. 1, T28S, R1E)
(3/4" IP ± 6" BELOW SURFACE)
48.34' SW TO CHISELED "x" AT TOP BACK CONCRETE CURB
41.11' NW TO CHISELED "x" AT TOP BACK CONCRETE CURB
35.54' SE TO CHISELED "x" AT TOP BACK CONCRETE CURB
44.79' SE TO CHISELED "x" AT TOP BACK CONCRETE CURB
(@ OLIVER JUST S. OF THE KANSAS TURNPIKE)
- CP #161 N-1,672,762.244 E-1,668,051.354 (N 1/4 CORNER, SEC. 1, T28S, R1E)
(1/2" REBAR IN THIMBLE CENTER PAWNEE JUST EAST OF THE KANSAS TURNPIKE)
26.43' S TO CHISELED "x" AT TOP BACK CONCRETE CURB
34.68' SW TO CHISELED "x" AT TOP BACK CONCRETE CURB
30.57' NE TO CHISELED "x" AT TOP BACK CONCRETE CURB
32.08' NW TO CHISELED "x" AT TOP BACK CONCRETE CURB
- CP #103 N-1,670,038.335 E-1,660,411.557
(#4 BAR FLUSH WITH SURFACE)
54.38' EAST TO 60D NAIL IN SOUTH FACE 30" COTTONWOOD
77.90' SW TO 60D NAIL IN SOUTH FACE 18" ELM
107.68' NW TO 60D NAIL IN SOUTH FACE OAK
35' ± SOUTH TO E-W FENCE LINE
- CP #1347 N-1,670,353.671 E-1,661,337.422
(#4 BAR FLUSH WITH SURFACE)
63.57' SW TO @ METAL POST AT NE END BASEBALL BACKSTOP
46.94' NW TO 60D NAIL IN EAST FACE 18" OAK
58' ± NW TO TOP BANK, SOUTH SIDE CREEK
111.45' ENE TO 60D NAIL IN SOUTH FACE 30" COTTONWOOD

- CP #1432 N-1,670,333.672 E-1,661,717.493
(#4 BAR FLUSH WITH SURFACE)
172.30' WSW TO @ METAL POST AT NE END BASEBALL BACKSTOP
109' ± NORTH TO TOP BANK, SOUTH SIDE CREEK
143.63' SE TO @ METAL POST AT NORTH END BASEBALL BACKSTOP
- CP #104 N-1,671,076.801 E-1,662,026.638
(PAINTED + WITH PK NAIL IN CENTER)
15.34' EAST TO CHISELED + IN CENTER FACE STORM DRAIN CURB INLET
15.46' WEST TO CHISELED + IN CENTER FACE STORM DRAIN CURB INLET
49.90' SOUTH TO EDGE WEARING SURFACE BRIDGE OVER GYPSUM CREEK
- CP #105 N-1,671,881.598 E-1,662,701.943
(#4 BAR FLUSH WITH SURFACE)
66.93' SW TO CHISELED + ON NE SIDE EXISTING SANITARY SEWER MH
73.54' NE TO 60D NAIL IN SOUTH FACE POWER/TELEPHONE POLE
20' ± SE TO HIGH BANK CREEK
59' ± NW TO NE-SW FENCE LINE
- CP #106 N-1,671,726.183 E-1,664,057.543
(PAINTED + WITH CHISELED + IN CENTER, IN CENTER SIDEWALK EAST OF GEORGE WASHINGTON BOULEVARD)
47.0' SW TO @ GEORGE WASHINGTON BOULEVARD
25.08' SSE TO CHISELED + IN CENTER FACE OF STORM DRAIN CURB INLET
64.05' NW TO 60D NAIL IN WEST FACE 20" OAK
31.41' WNW TO CHISELED + ON TOP OF CURB

- CP #108 N-1,671,830.563 E-1,665,890.968
(#4 BAR FLUSH TO SURFACE)
14.22' SW TO 60D NAIL IN SOUTH FACE POWER POLE
7.92' SSE TO CHISELED + ON TOP OF CURB
23.58' NNW TO CHISELED + ON SE SIDE CONCRETE BASE TO EXISTING MANHOLE
20' ± EAST OF WEST FACE BUILDING #2, SUGAR CREEK APARTMENTS
- CP #109 N-1,672,552.342 E-1,667,243.964
(PAINTED + WITH CHISELED + IN CENTER ON TOP OF 10' X 7' RASED CONCRETE VAULT ON EAST CREEK BANK SOUTH OF PAWNEE)
106.50' ESE TO 60D NAIL IN WEST FACE 14" LOCUST
87.30' NORTH TO CHISELED + IN SW CORNER RAISED CONCRETE VAULT
16' ± NW TO TOP HIGH BANK OF CREEK
- CP #2600 N-1,672,243.494 E-1,666,504.192
(1" POST AT SOUTHWEST CORNER ASPHALT PARKING LOT FOR WILDWOOD APARTMENTS AT 5001 EAST PAWNEE) (SAME AS BM #16)

1. ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
2. ALL ELEVATIONS SHOWN ARE BASED ON CITY OF WICHITA DATUM.
3. THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
4. AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 687-2470 TO REQUEST THE LOCAL UTILITY COMPANIES MARK ANY EXISTING LINES WITHIN THE PROJECT AREA.
5. UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR OR UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR THE DESIGN. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
6. 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 HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".
7. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
8. MANHOLES SHALL BE TYPE "P" MANHOLES. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.
9. ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE RESTORED WITH THE SAME GRASS/SOD AS EXISTING. RESTORATION OF DISTURBED AREAS SHALL INCLUDE, BUT NOT BE LIMITED TO, TOP SOIL PREPARATION, SEEDING, MULCH, AND/OR RESEEDING. ALL SEEDING/SODDING WORK SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD SPECIFICATIONS AND THE CITY OF WICHITA ADMINISTRATIVE REGULATION NO. AR78 WHICH GOVERN CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".
10. THE CONTRACTOR SHALL PREVENT ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION.
11. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF PROPERTY ADJUTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.
12. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED, TREE TRIMMINGS, AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES PROVIDED BY THE CONTRACTOR. THESE SITES SHALL ALSO BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE, AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WILL REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS. OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS MAY REQUIRE ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED DISPOSAL LOCATION.

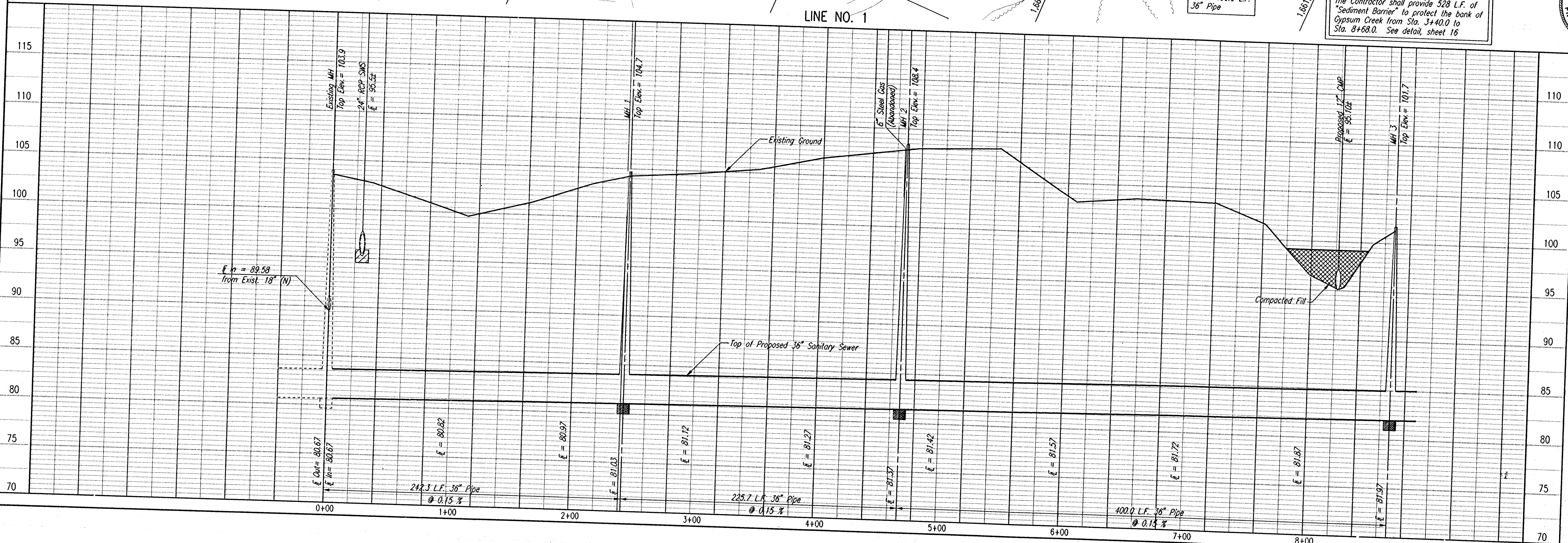


No.	Revision	By	Date
WAR INDUSTRIES RELIEF SEWER (PHASE 2)			
KEY MAP			
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-78-245-82929-000-000-001			
Professional Engineering Consultants, P.A. 303 S. TOPEKA • WICHITA, KANSAS 67202 316-262-2691 • FAX 316-262-3003			
Designed by	MDK, GM	Job No.	34-98249-3
Drawn by	GM	Date	October 1998
			Sht. 2 of 21

DSNR: MDK OPER. REF. SCALE: 1"=40.00
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PROFILE	CHECKED	BY	DATE

PLAN	CHECKED	BY	DATE



Remove 18 LF of standard curb and gutter and replace with 18 LF of roll type curb and gutter in accordance with City of Wichita Standards and Specifications. Install approximately 50 SY of Synthetic Load Support System as shown. See General Notes, Sheet No. 2.

LINE NO. 1
War Industries Relief Sewer (Phase 1A)
COW Proj. No. 468-76-245-82928-000-000-001
(By others)

N-1,669,977.6615 E-1,660,197.7013
Sta. 0+00.0
Existing MH
Connect to Exist. 36" Stub
(Fittings and Adaptors as required)

N-1,670,074.7720 E-1,660,419.7320
Sta. 2+42.3
Construct MH 1
Standard MH, Plastic Lined (5' Dia.)

N-1,670,111.0805 E-1,660,642.5007
Sta. 4+68.0
Construct MH 2
Standard MH, Plastic Lined (6' Dia.)

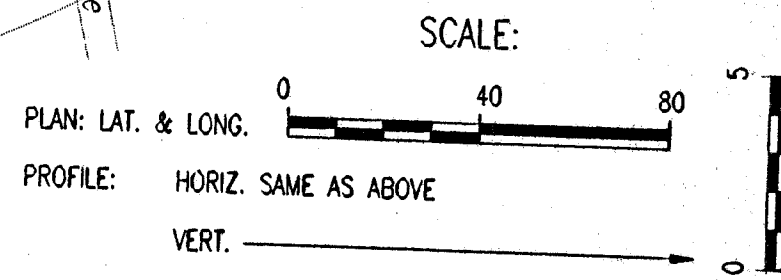
N-1,670,368.4376 E-1,660,948.7152
Sta. 8+68.0
Construct MH 3
Standard MH, Plastic Lined (5' Dia.)

CAUTION !!!
24" RCP Storm Sewer
(City of Wichita)
Construct 31" L.F. Reinforced
Concrete Cradle on existing 24"
SWS. See detail, sheet 13

CAUTION !!!
6" Steel Gas - (abandoned)
(KGS)

Place approx. 25 LF of 24" CMP w/End
Sections at flowline of ditch
(Min. pipe grade = 0.60%).
Place compacted compacted fill over
top of pipe to enable sewer/maintenance
access.
Install approx. 60 SY of Synthetic Load
Support System as shown. See
General Notes, Sheet No. 2.
Place 25 SY (Total) Light Stone rip-rop
at ends of new pipe to protect against erosion.

The Contractor shall provide 528 L.F. of
"Sediment Barrier" to protect the bank of
Gypsum Creek from Sta. 3+40.0 to
Sta. 8+68.0. See detail, sheet 16



WAR INDUSTRIES RELIEF SEWER
(PHASE 2)
LINE NO. 1

Professional Engineering Consultants, P.A.
303 S. TORRELLA - WICHITA, KANSAS 67202
316-262-2601 • FAX 316-262-3023

Designed By: MDK, CM
Drawn By: CM, TWF

Job No. 34-98249-3
Date October 1998

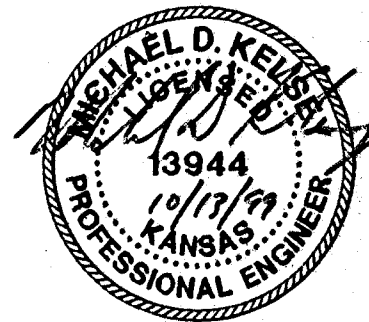
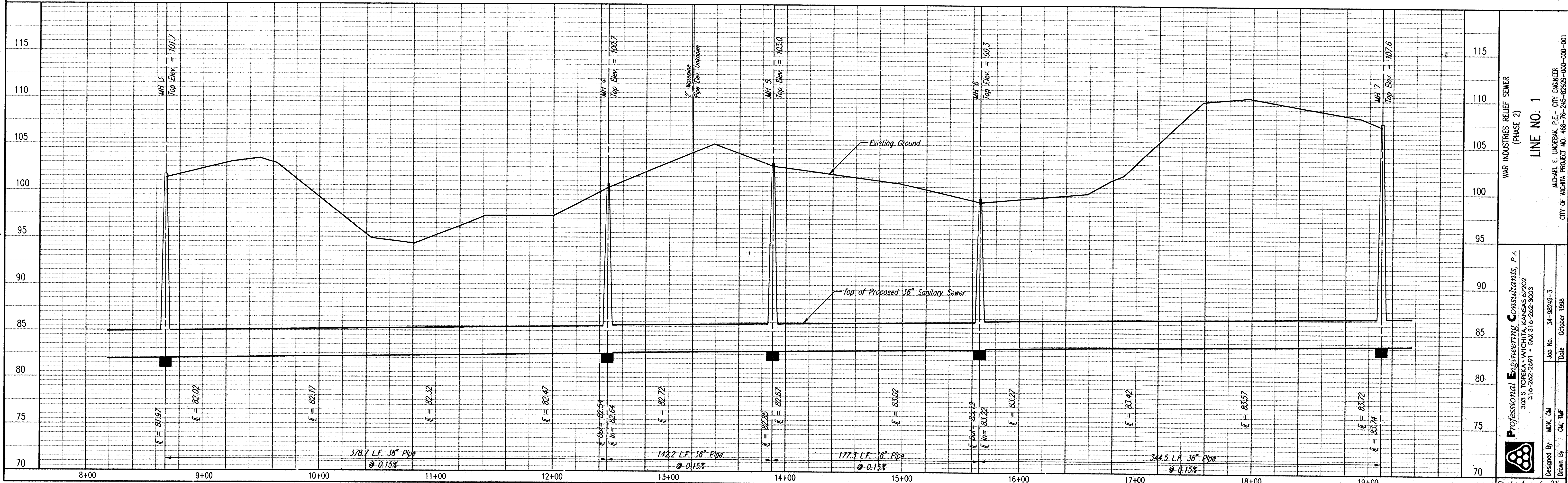
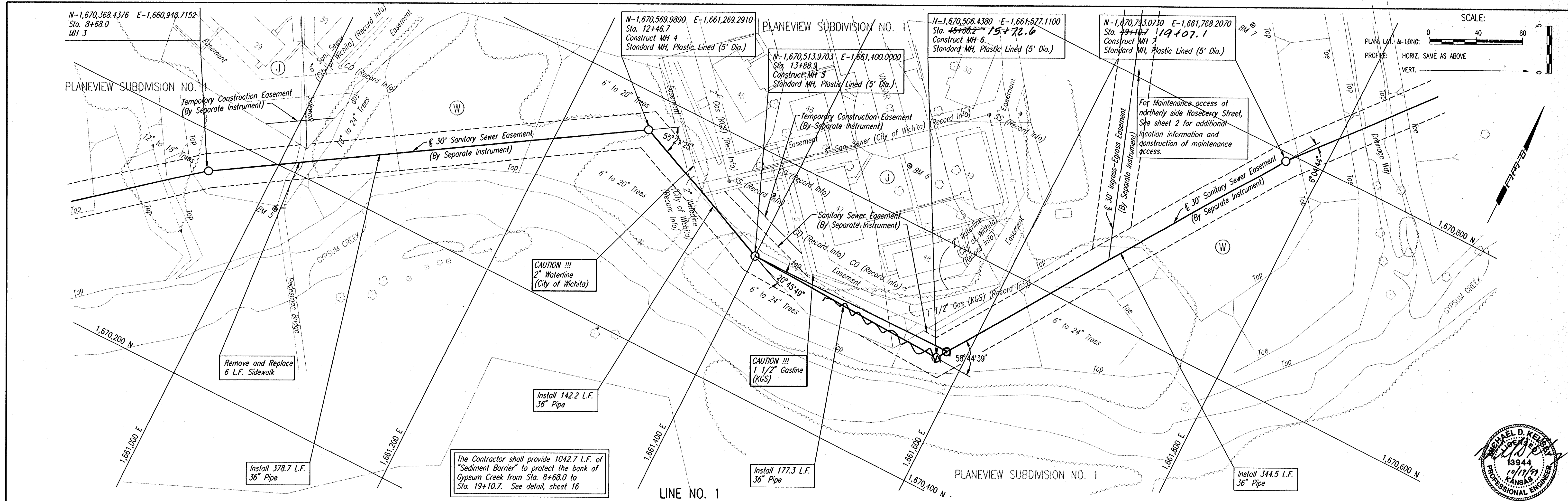
MICHAEL E. UNDERBARK, P.E., CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-76-245-82928-000-000-001

Sheet 3 of 21

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Professional Engineering Consultants, P.A.
303 S. TORREY - WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed By: MDK, GM
Drawn By: GM, TMF

Job No. 34-98249-3
Date October 1998

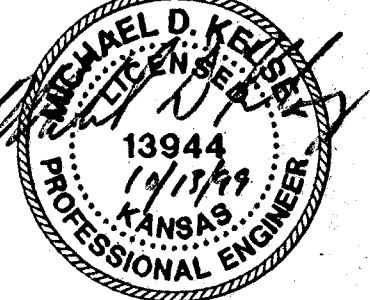
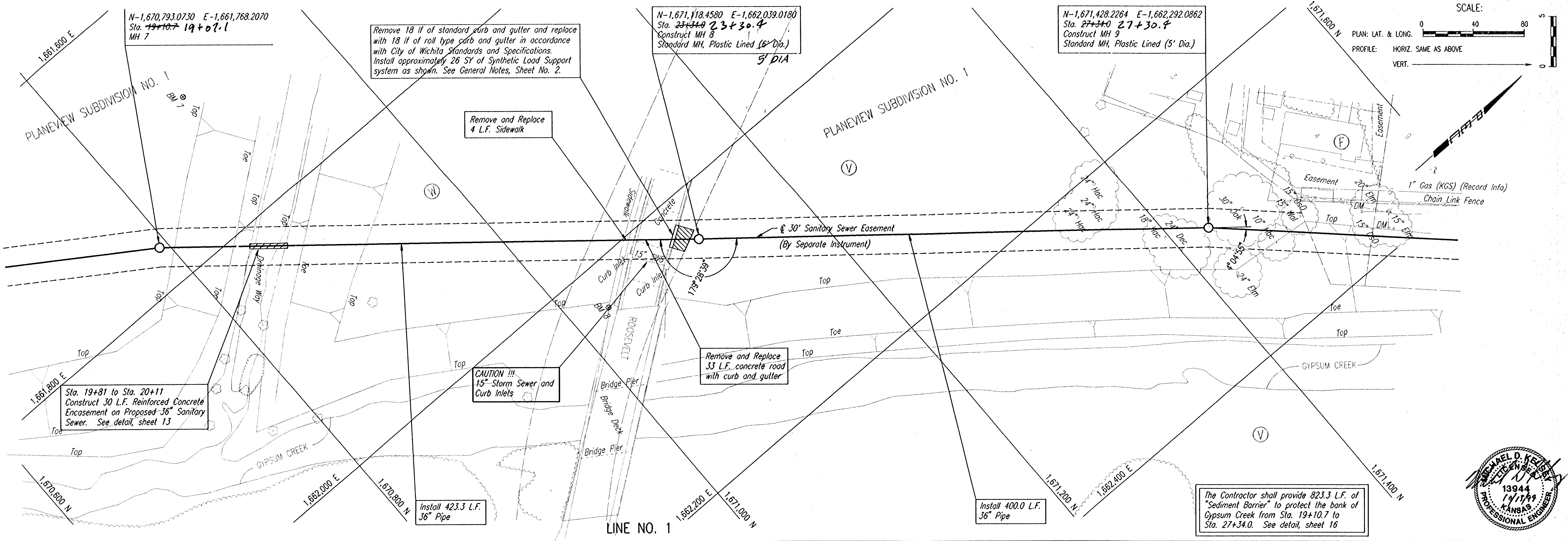
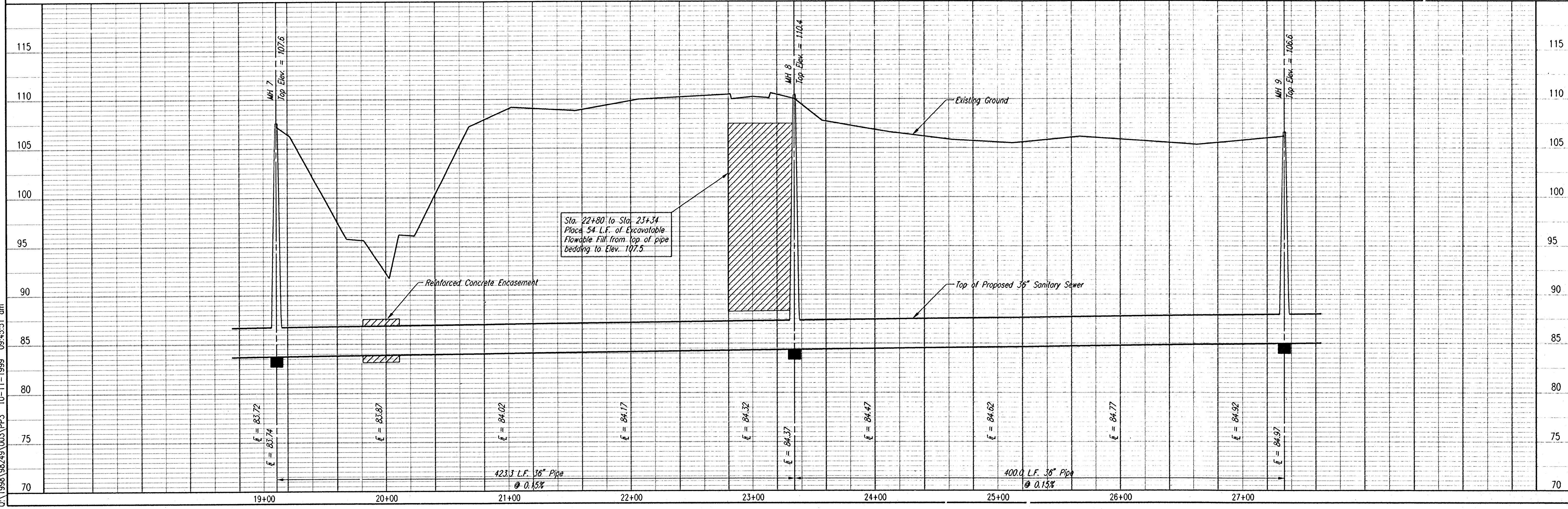
Michael E. Linderbak, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 488-76-245-82523-000-001

Sheet 4 of 21

PLAN	CHECKED	DATE

PROFILE	CHECKED	DATE

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WAR INDUSTRIES RELIEF SEWER
(PHASE 2)
LINE NO. 1

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

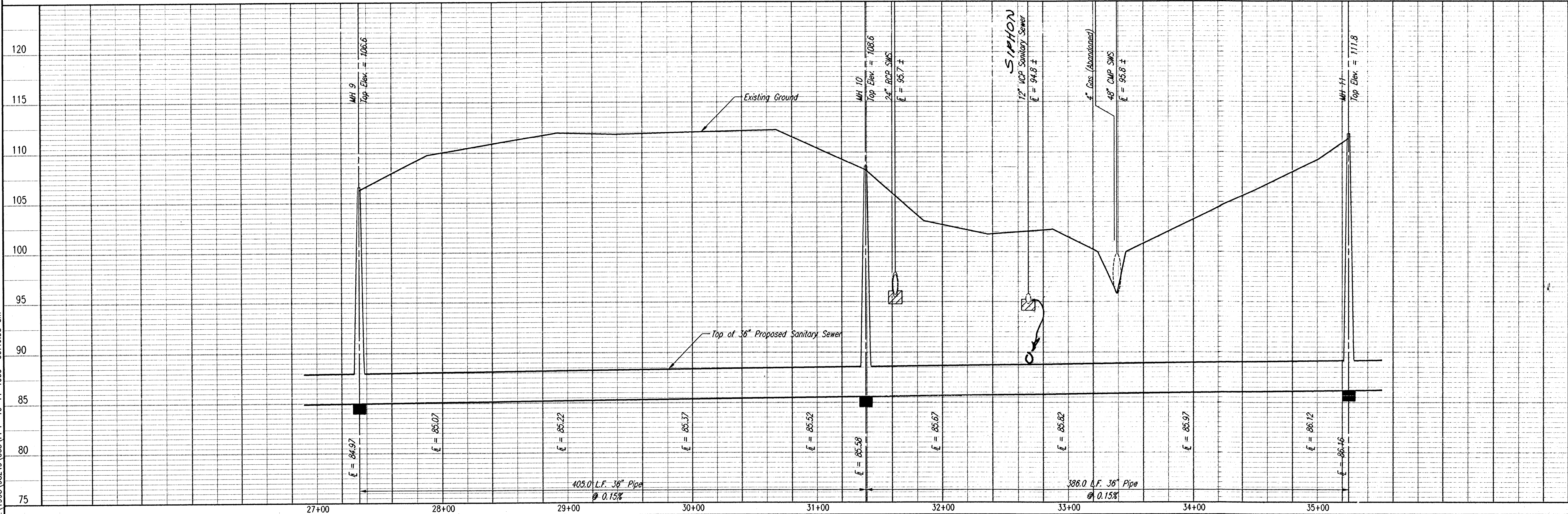
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Job No. 34-98249-3
Date October 1998

Sheet 5 of 21

PLAN	CHECKED	DATE

PROFILE	CHECKED	DATE

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Professional Engineering Consultants, P.A.
303 S. TORREDA - WICHITA, KANSAS 67202
316-262-2091 • FAX 316-262-3003

WAR INDUSTRIES RELIEF SEWER
(PHASE 2)
LINE NO. 1

Michael E. Underbank, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-76-245-0229-000-000-001

Designed By: MDK, CM
Drawn By: CM, TUF
Job No.: 34-98249-3
Date: October 1998

Sheet 6 of 21

N-1,671,428.2264 E-1,662,292.0862
Sta. 27+34.0 27+30.4
MH 9

CAUTION !!!
Power Pole & Deadmans
Pole & Deadmans to be removed and reset or
restrained in place by KGE. Coordinate with KGE
Electric, Mr. Russ Chilwood at 261-6251.
(Provide at least 2 weeks notice)
Costs to be borne by KGE.

N-1,671,722.8322 E-1,662,569.9935
Sta. 31+35.0 31+35.4
Construct MH 10
Standard MH, Plastic Lined (5' Dia.)

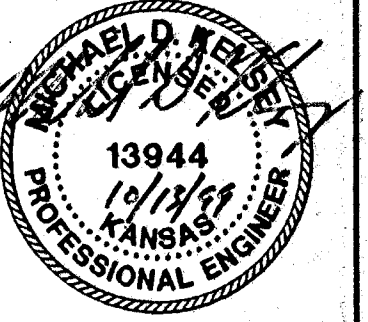
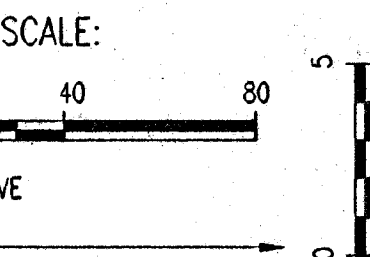
N-1,671,917.2440 E-1,662,903.4350
Sta. 35+25.0 35+21.4
Construct MH 11
Standard MH, Plastic Lined (6' Dia.)

CAUTION !!!
12" VCP Sanitary Sewer
(City of Wichita)
Construct 30 L.F. Reinforced
Concrete Cradle on existing 12"
San. Sewer See detail, sheet 13

CAUTION !!!
48" CMP SWS
(City of Wichita)
Remove and Replace
48" SWS as required
with headwall.

CAUTION !!!
4" Steel Gas (KGS)
(Abandoned)

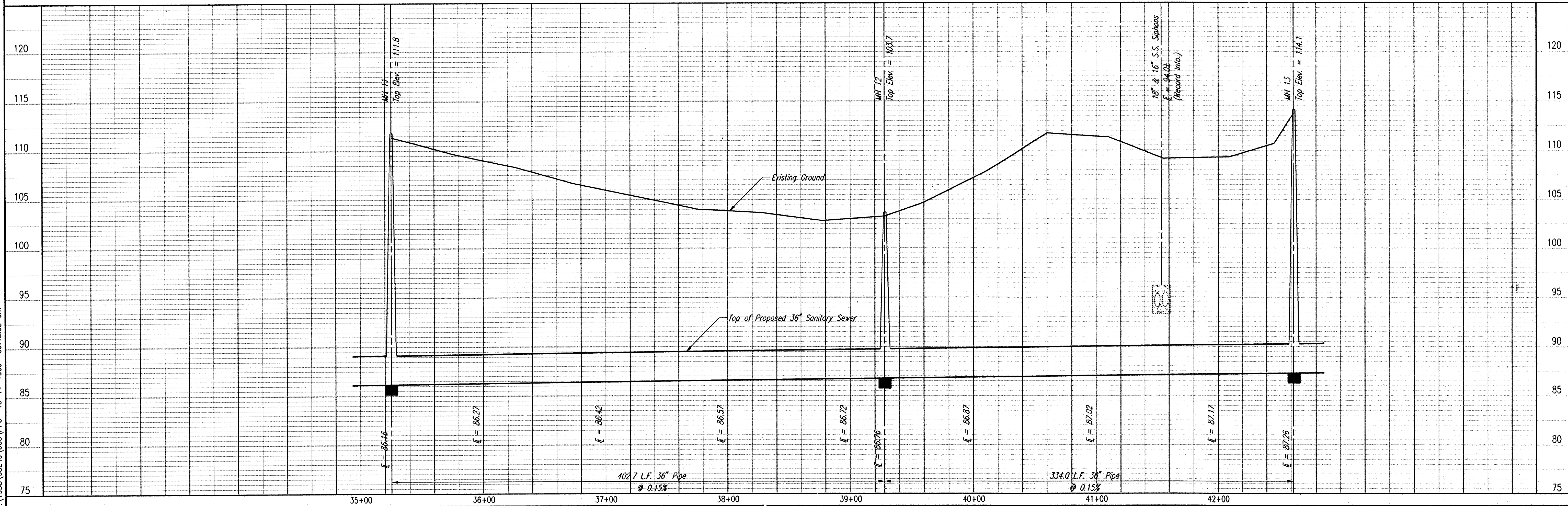
The Contractor shall provide 791 L.F. of
"Sediment Barrier" to protect the bank of
Gypsum Creek from Sta. 27+34.0 to
Sta. 35+25.0. See detail, sheet 16



PLAN	CHECKED	DATE

PROFILE	CHECKED	DATE

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Professional Engineering Consultants, P.C.
 303 S. TOPERA • WICHITA, KANSAS 67202
 316-262-2691 • FAX 316-262-3003

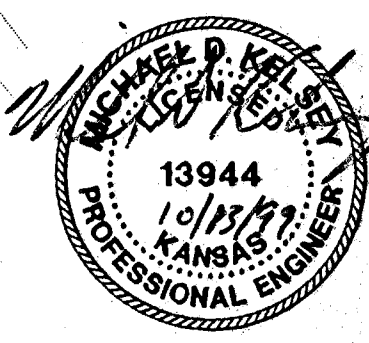
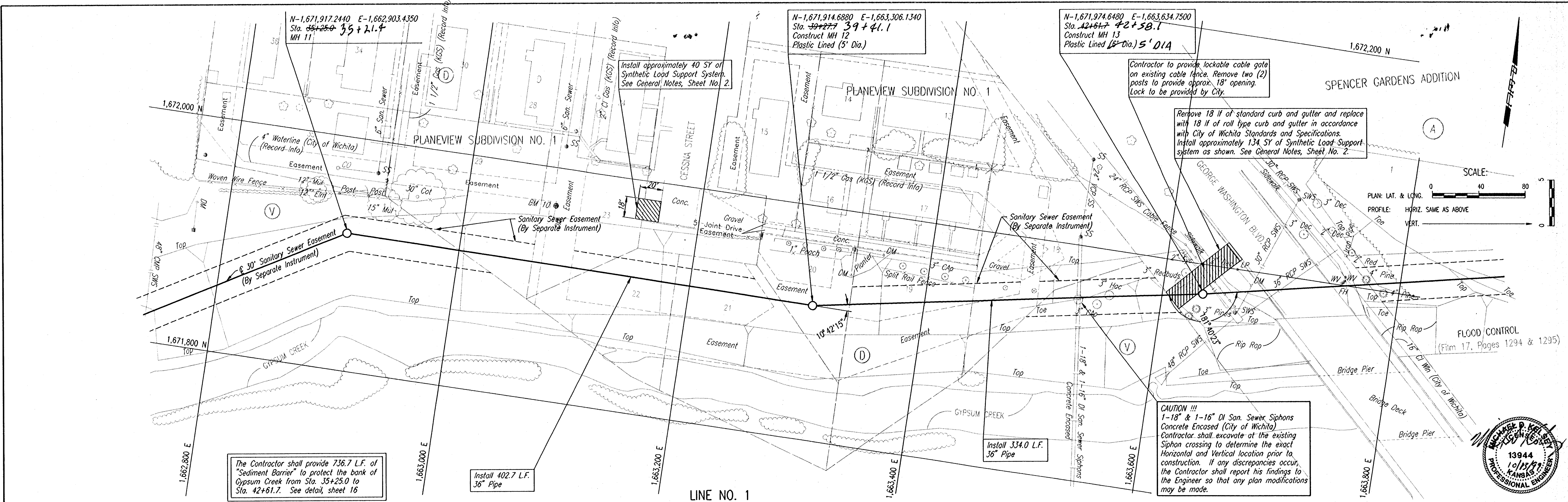
Designed By: MDK, CM
 Drawn By: CM, TMF

Job No. 34-98249-3
 Date October 1998

WAR INDUSTRIES RELIEF SEWER
 (PHASE 2)
LINE NO. 1

MICHAEL E. UNDERBARK, P.E. - CITY ENGINEER
 CITY OF WICHITA PROJECT NO. 488-76-245-82525-000-000-001

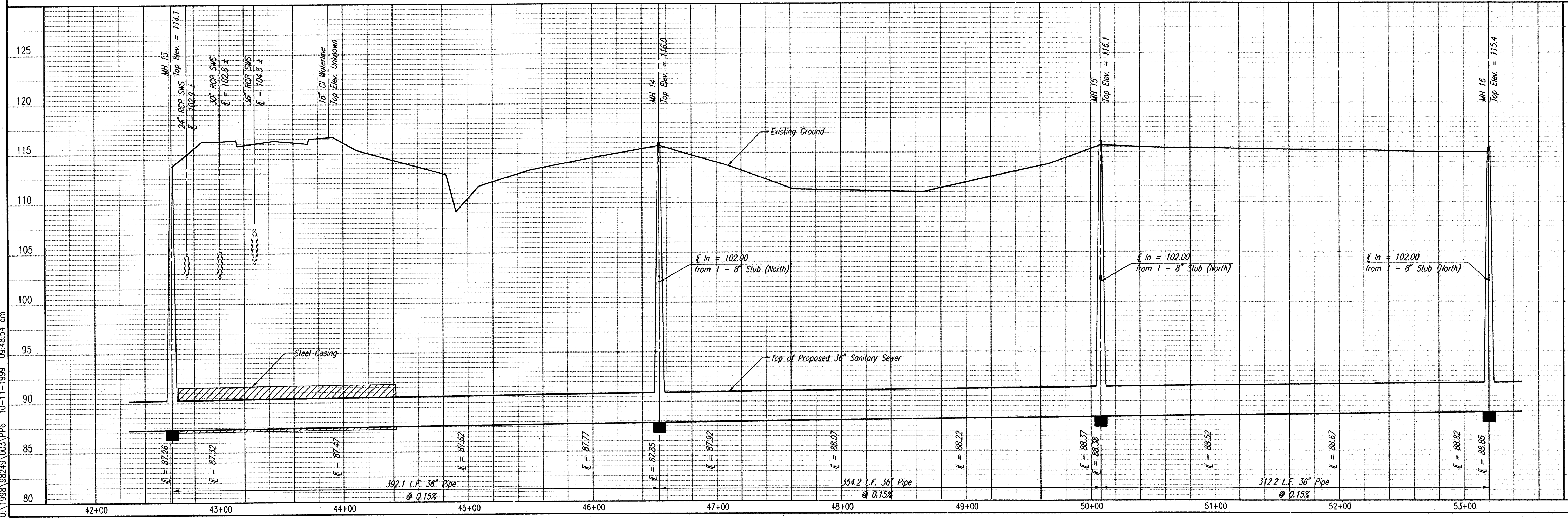
Sheet 7 of 21



PLAN	CHECKED	DATE

PROFILE	CHECKED	DATE

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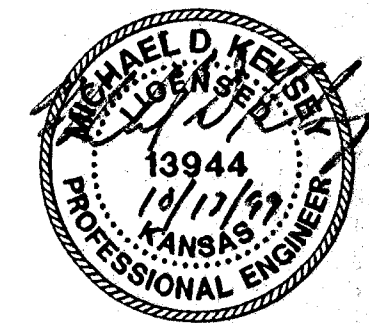
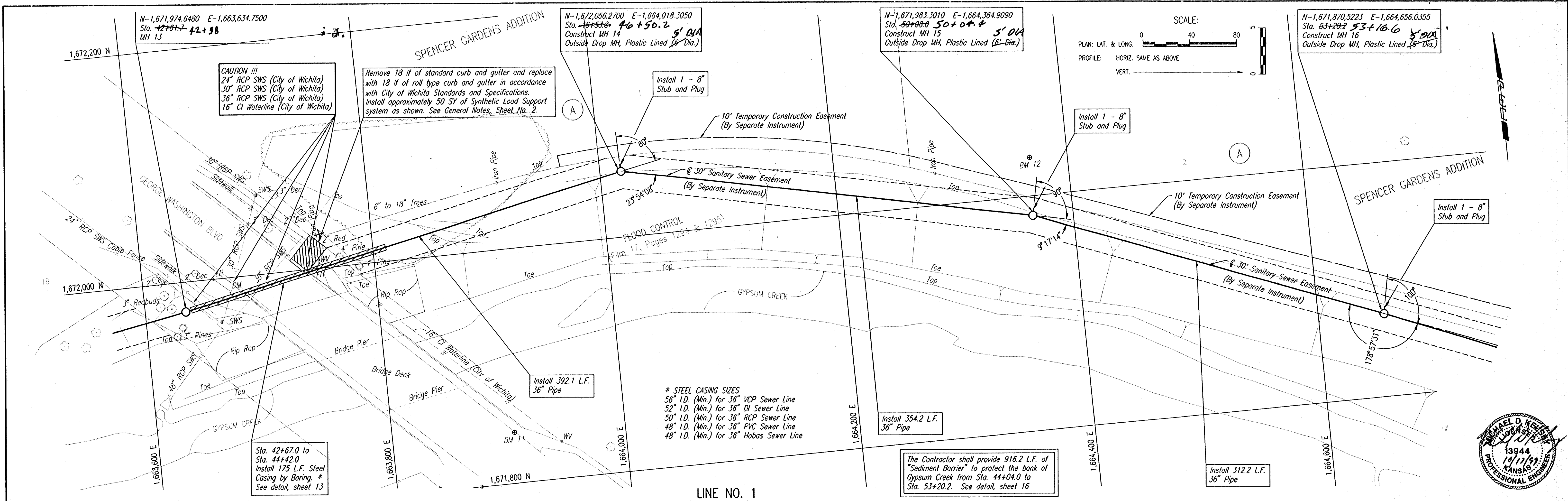
Professional Engineering Consultants, P.A.
 303 S. TOPKA • WICHITA, KANSAS 67202
 316-262-2691 • FAX 316-262-3003

Designed By: MDK, CM
 Drawn By: CM, TMR

Job No. 34-98249-3
 Date October 1998

WAR INDUSTRIES RELIEF SEWER
 (PHASE 2)
 LINE NO. 1

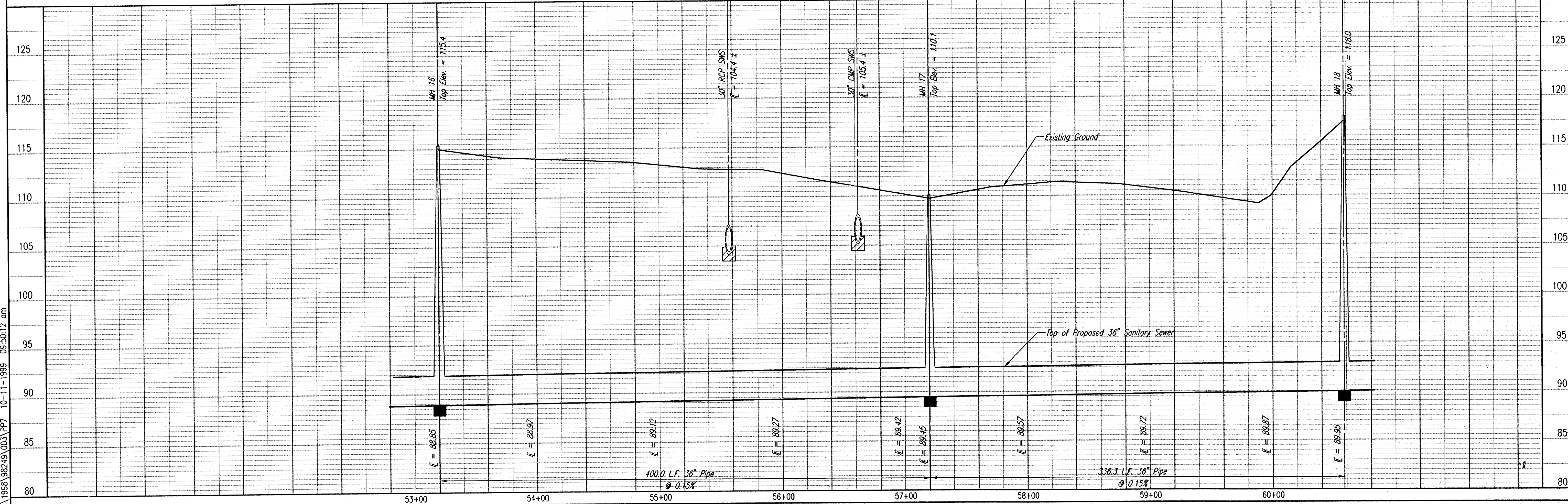
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PLAN	CHECKED	DATE

PROFILE	CHECKED	DATE

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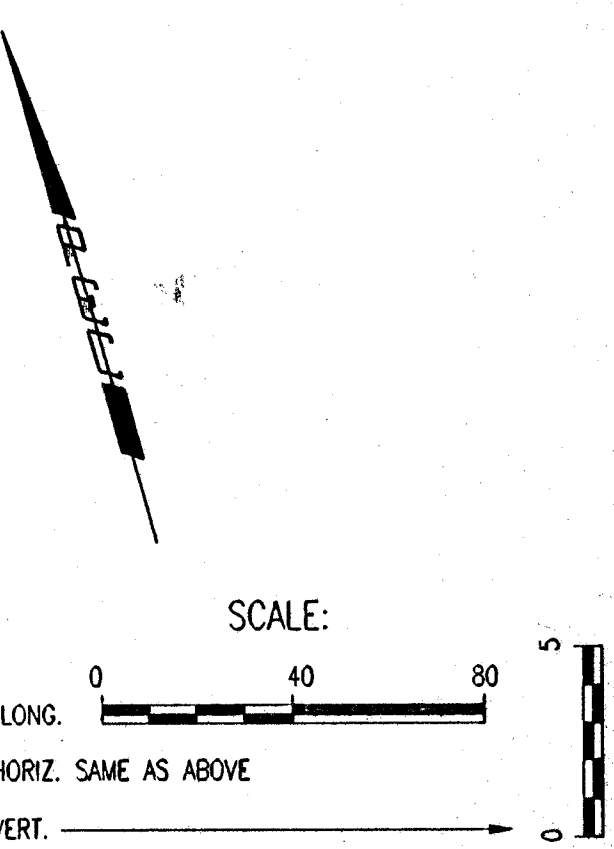
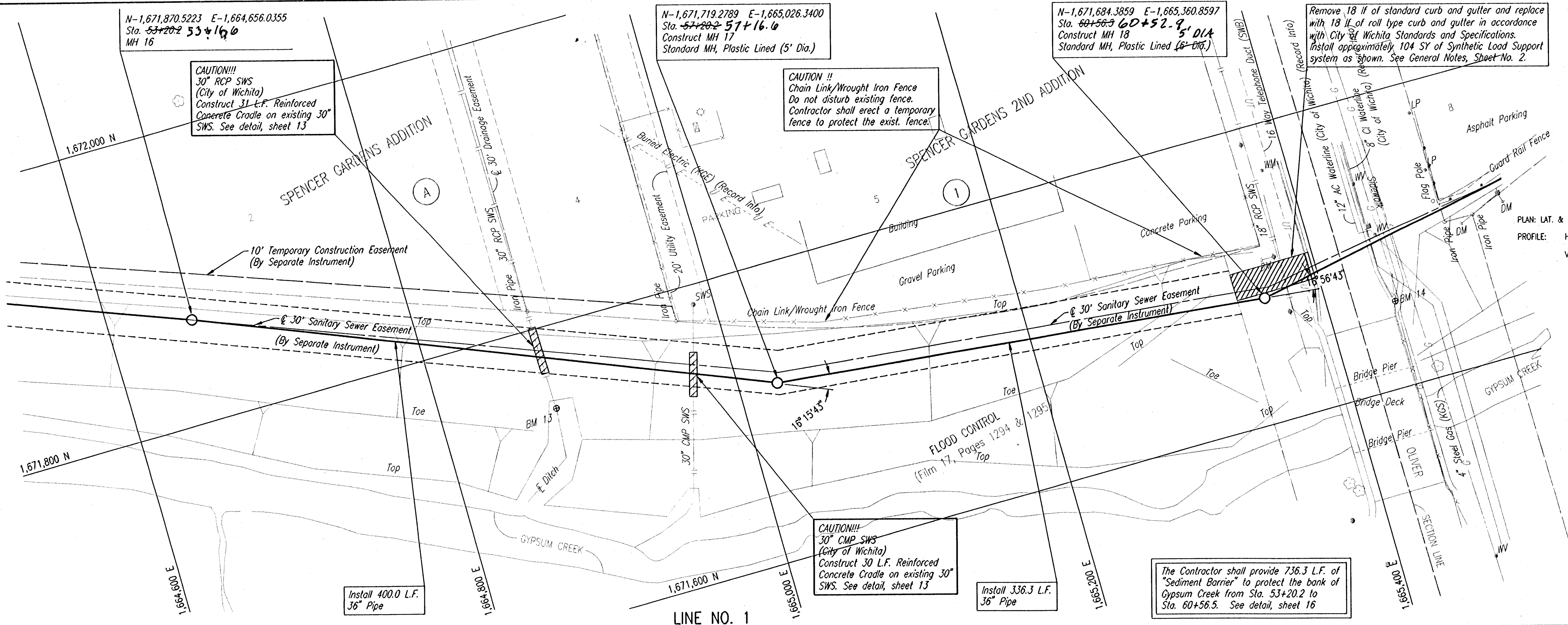
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 (PHASE 2)
LINE NO. 1

Professional Engineering Consultants, P.A.
 303 S. TORPES - WICHITA, KANSAS 67202
 316-262-2091 • FAX 316-262-3003

Designed By: MDK, CA
 Drawn By: CM, TUF

Job No. 34-98249-3
 Date October 1998

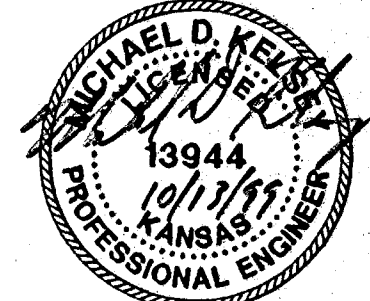
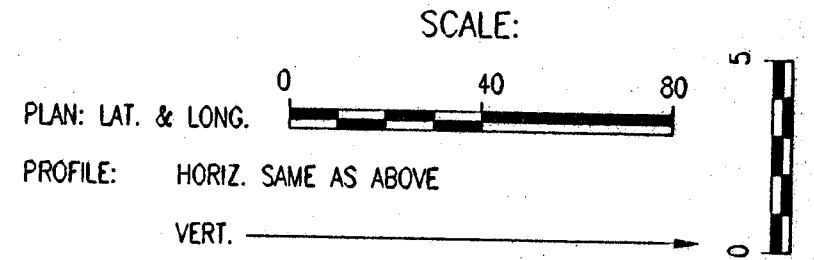
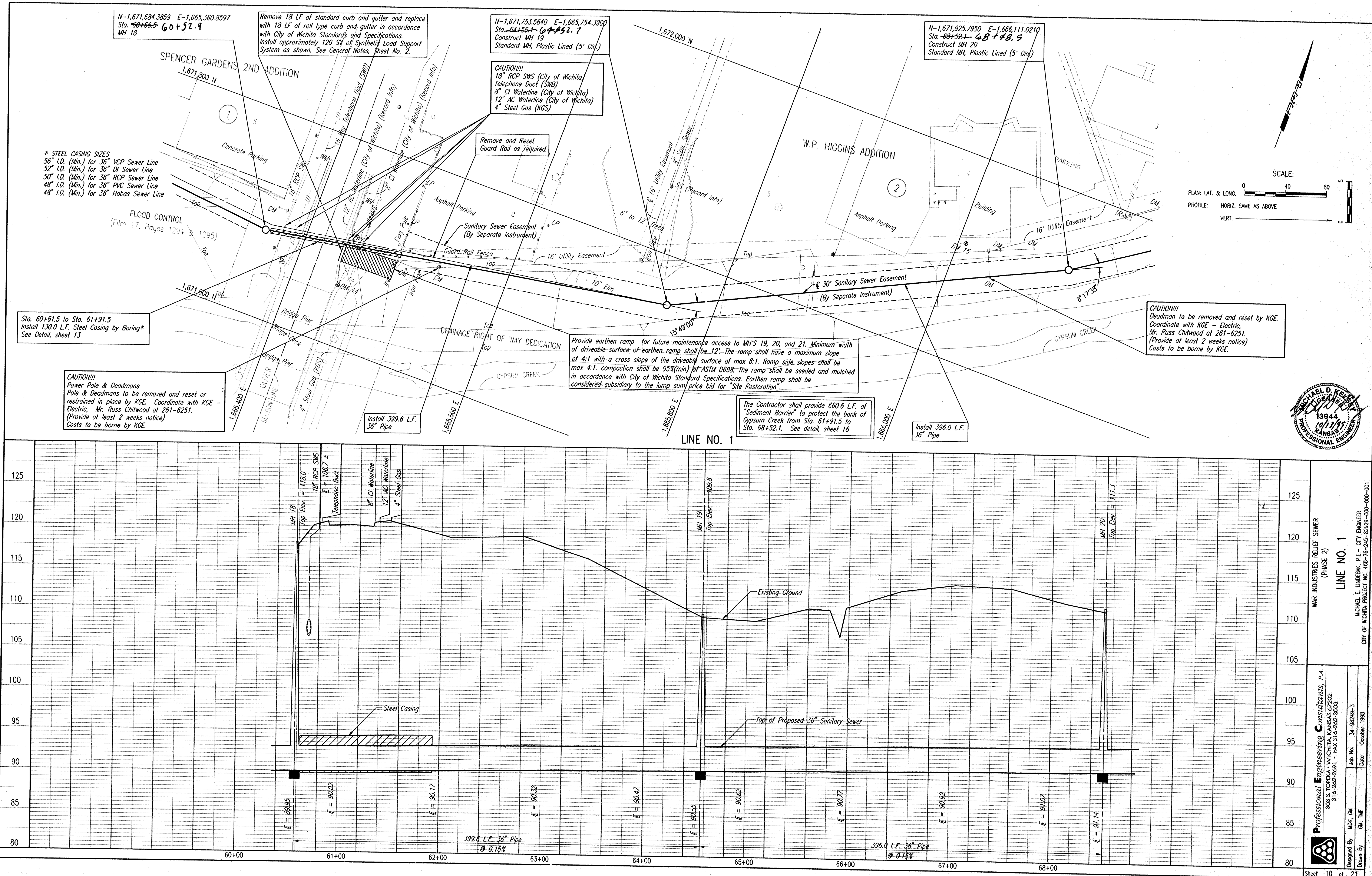
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PROFILE	CHECKED	DATE

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WAR INDUSTRIES RELIEF SEWER
(PHASE 2)
LINE NO. 1
MICHAEL E. LINDEMAN, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-76-245-82323-000-001

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Job No. 34-98249-3
Date October 1998

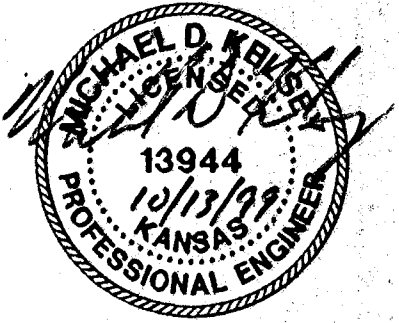
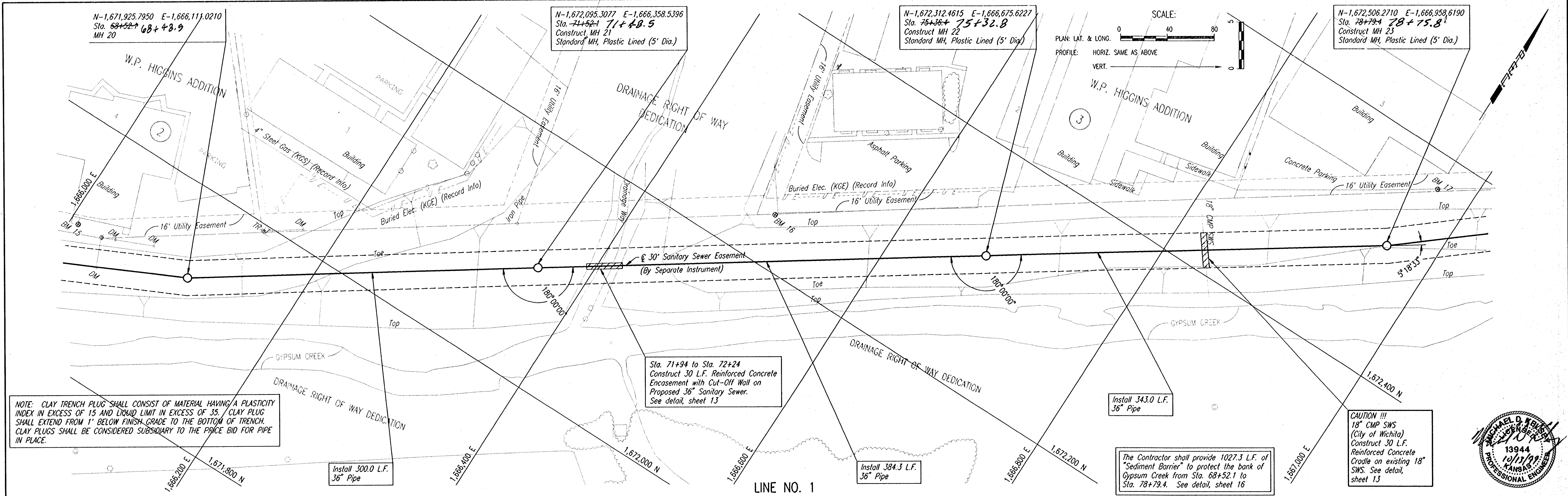
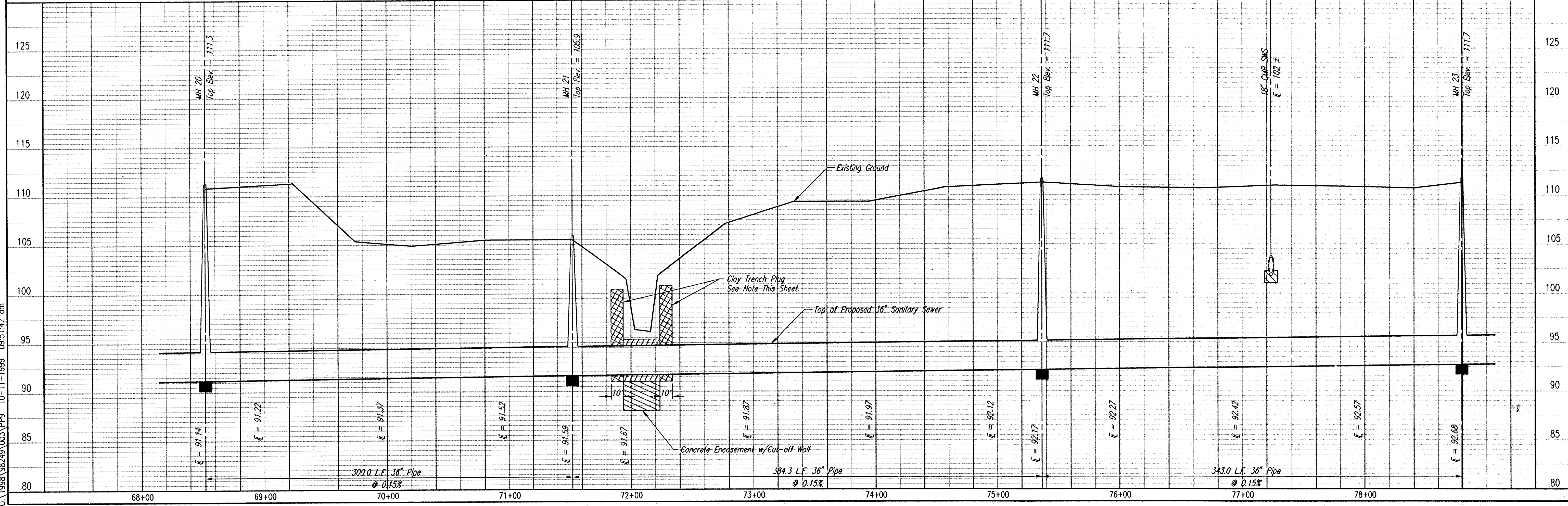
Designed By MDK, CM
Drawn By CM, TME

Sheet 10 of 21

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PROFILE	CHECKED	DATE

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WAR INDUSTRIES RELIEF SEWER
 (PHASE 2)
LINE NO. 1
 MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER
 CITY OF WICHITA PROJECT NO. 468-76-245-8229-000-001

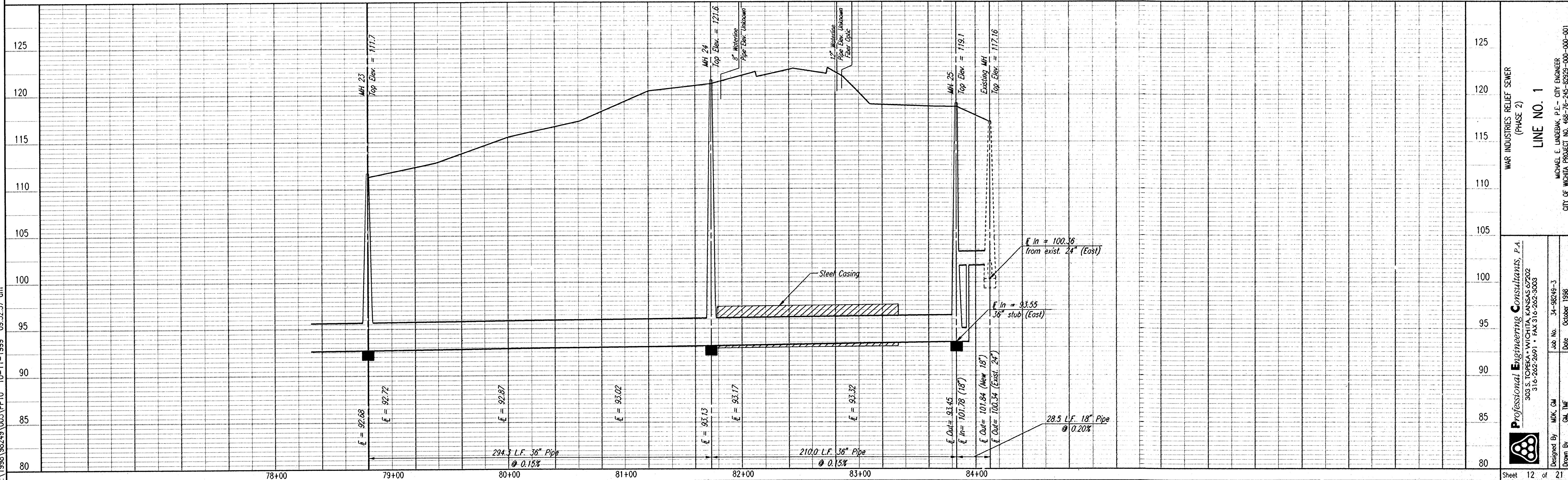
Professional Engineering Consultants, P.A.
 303 S. TOPEKA • WICHITA, KANSAS 67202
 316-262-2691 • FAX 316-262-3003

Designed By: MDK, CM
 Drawn By: CM, TMF
 Job No. 34-98249-3
 Date: October 1998

PLAN	CHECKED	CHECKED
BY		
DATE		

PROFILE	CHECKED	CHECKED
BY		
DATE		

DSNR MDK OPER: BEJ SCALE: 1"=40.00
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N-1,672,506.2710 E-1,666,958.6190
Sta. 78+79.4 78+75.8
MH 23

N-1,672,694.3100 E-1,667,184.9980
Sta. 81+73.7 81+70.1 3' DIA
Construct MH 24
Standard MH, Plastic Lined (6' Dia.)

Remove 18 LF of standard curb and gutter and replace with 18 LF of roll type curb and gutter in accordance with City of Wichita Standards and Specifications. Install approximately 50 SY of Synthetic Load Support System as shown. See General Notes, Sheet No. 2.

CAUTION !!!
8" Waterline (Cessna)
12" Waterline (City of Wichita)
Fiber Optic Telephone (SWB)

N-1,672,873.7001 E-1,667,294.1731
Sta. 83+33.7 83+30.1
Construct MH 25
Outside Drop MH, Plastic Lined (6' Dia.)

MH MOVED 4' W. of Riser Location

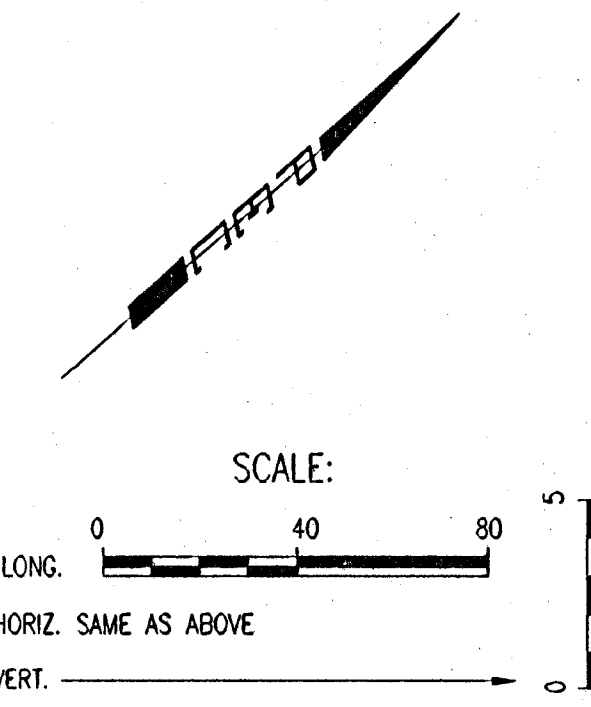
N-1,672,898.0530 E-1,667,308.9940
Sta. 84+12.2 84+08.6
Existing Sanitary Sewer MH #5845-445
Break into existing brick MH Wall and
Install new 18" pipe. Seal new 18"
pipe to MH wall with an approved
Waterstop Gasket and Non-Shrink
Grout. Construct a minimum of
3' Reinforced Concrete Encasement
on new 18" pipe from MH wall.
This work shall be considered subsidiary
to the price bid for pipe in place.

* STEEL CASING SIZES
56" I.D. (Min.) for 36" VCP Sewer Line
52" I.D. (Min.) for 36" DI Sewer Line
50" I.D. (Min.) for 36" RCP Sewer Line
48" I.D. (Min.) for 36" PVC Sewer Line
48" I.D. (Min.) for 36" Hobas Sewer Line

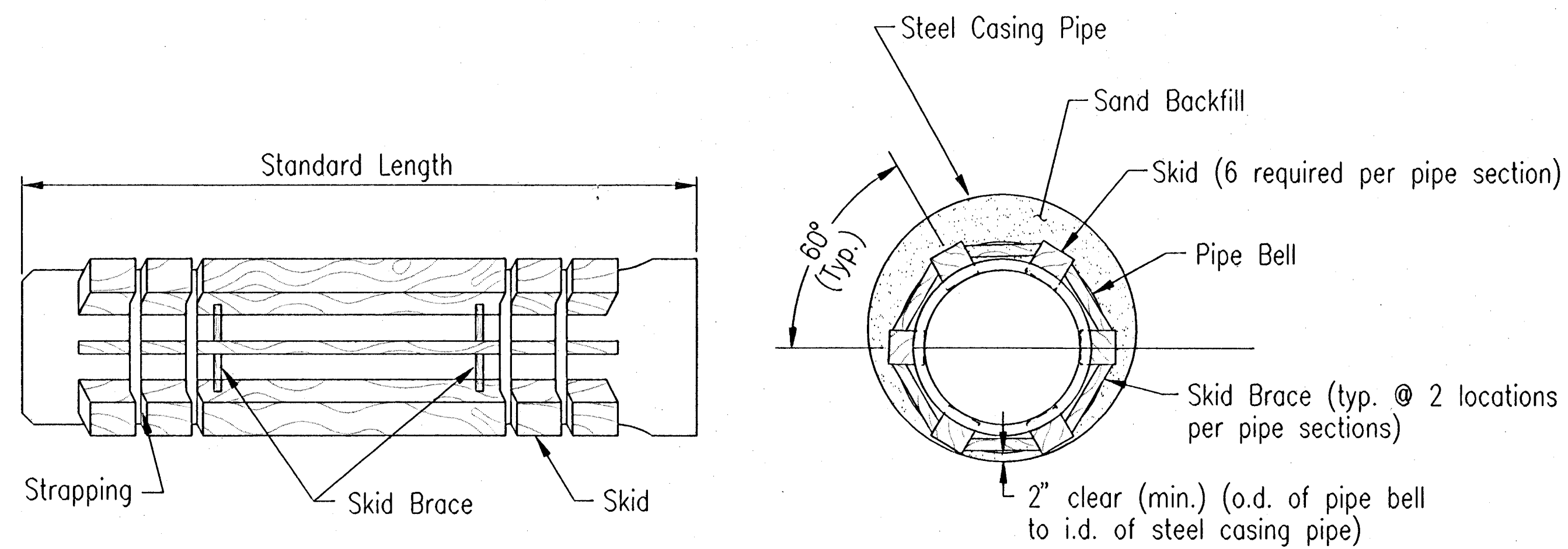
Install 28.5 L.F.
18" Pipe

LINE NO. 1
War Industries Relief Sewer (Phase 3)
COW Proj. No. 468-76-254-82930-000-001
(By Others)

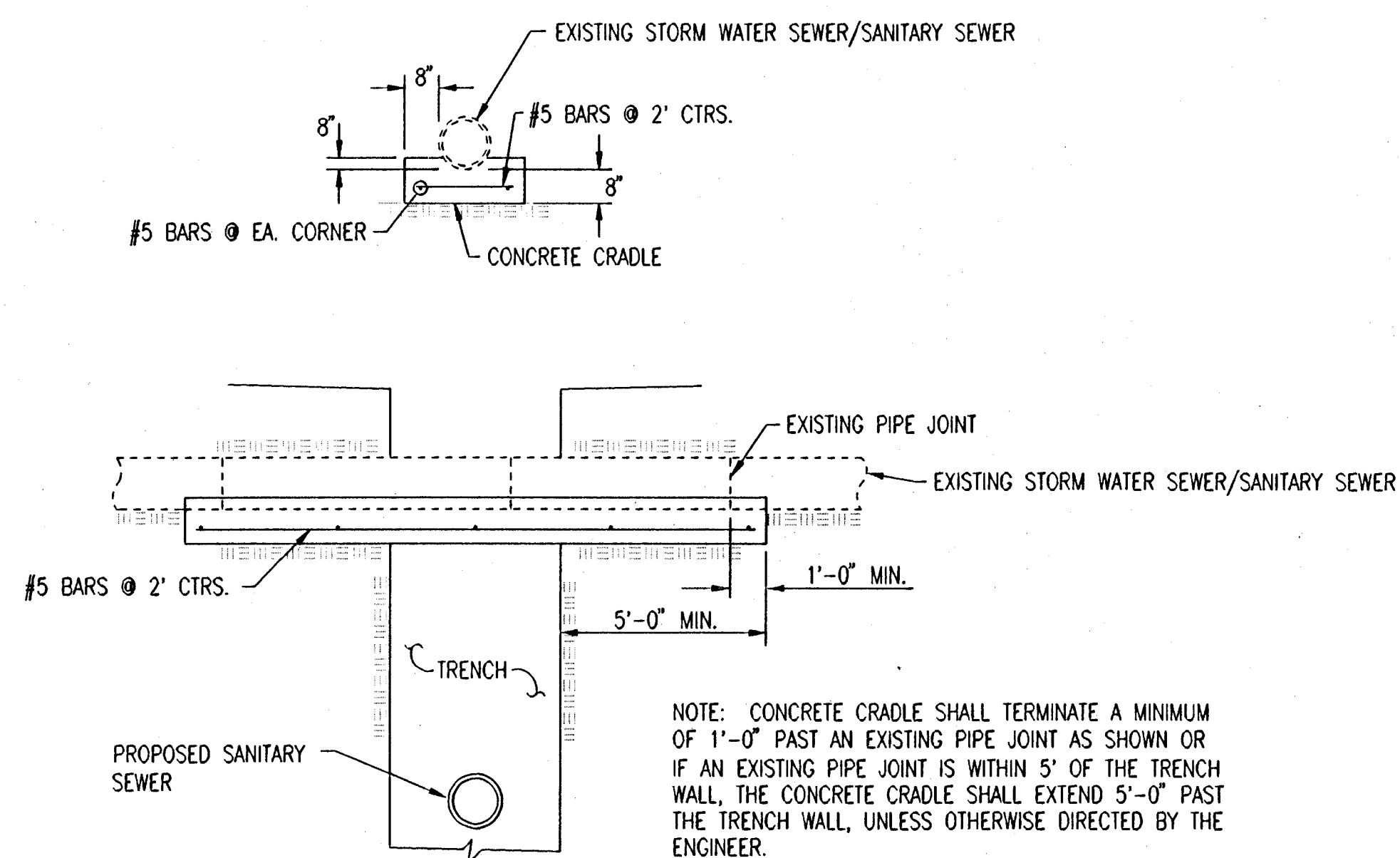
The Contractor shall provide 372.8 L.F. of
"Sediment Barrier" to protect the bank of
Gypsum Creek from Sta. 78+79.4 to
Sta. 81+73.7 and from Sta. 83+33.7
to Sta. 84+12.2. See detail, sheet 16



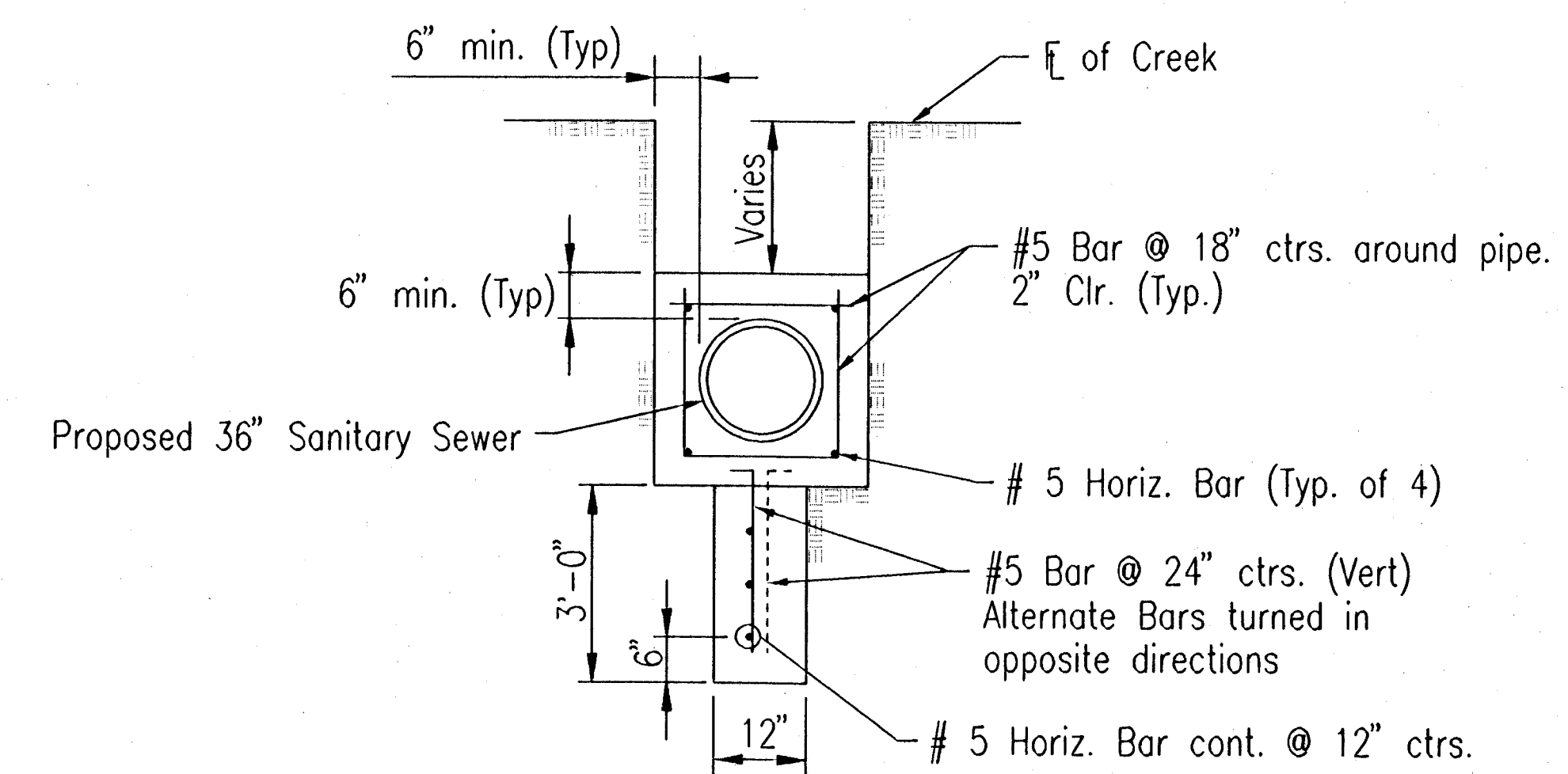
WAR INDUSTRIES RELIEF SEWER
(PHASE 2)
LINE NO. 1
Professional Engineering Consultants, P.A.
303 S. TORREY • WICHITA, KANSAS 67202
316-262-2891 • FAX 316-262-5003
Designed By: MDK, CM
Drawn By: CM, TMR
Job No.: 34-98249-3
Date: October 1998
Sheet 12 of 21



STEEL ENCASEMENT DETAIL

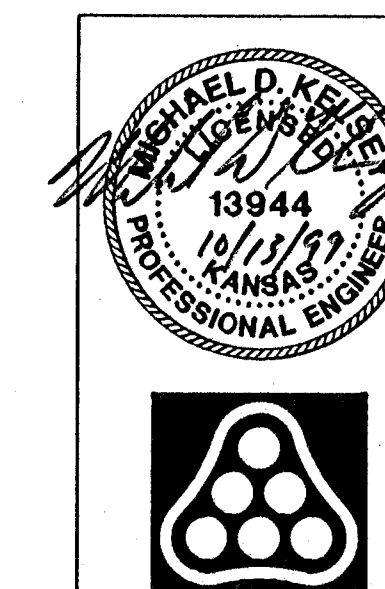


CONCRETE CRADLE DETAIL



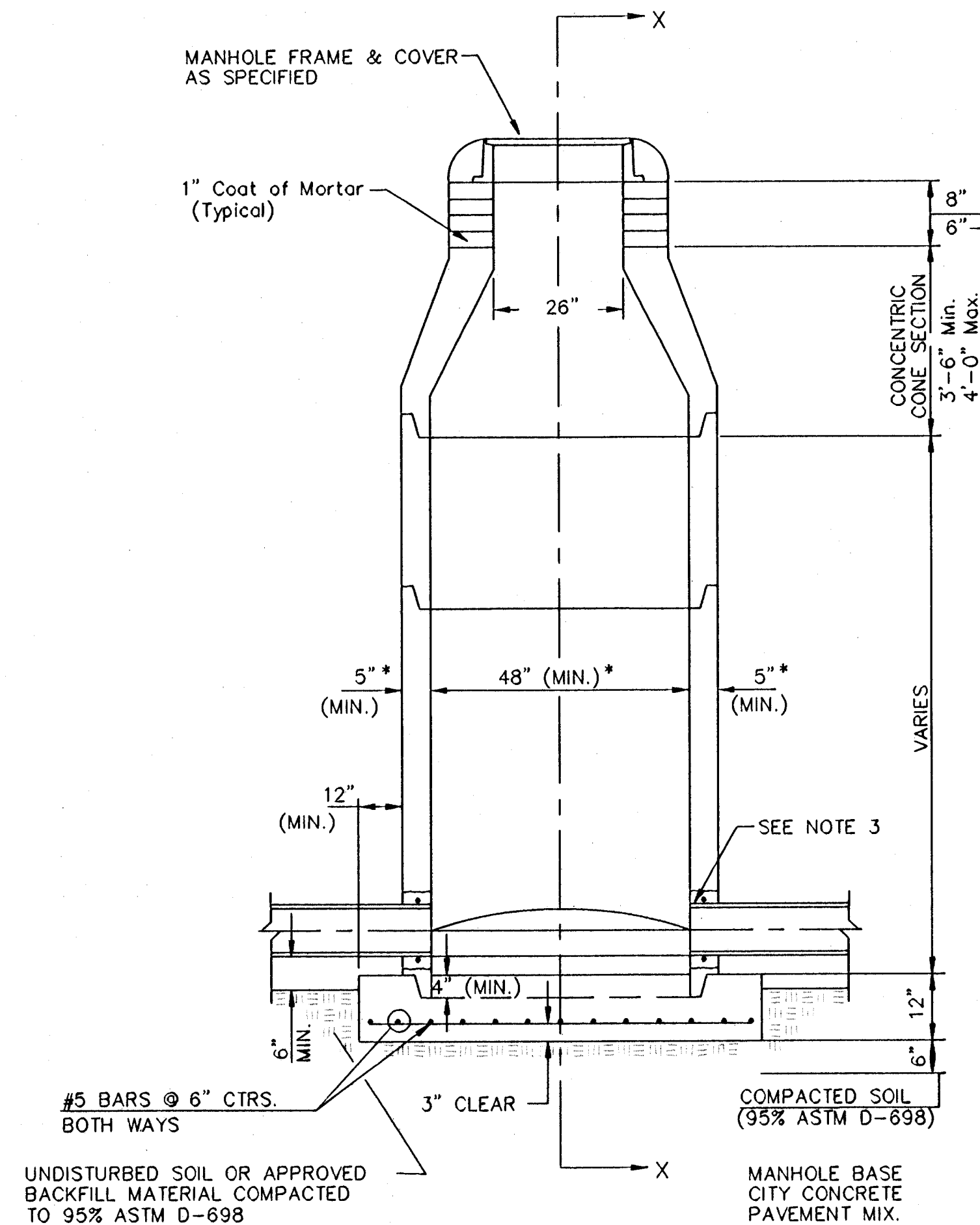
CONCRETE ENCASEMENT W/CUT-OFF WALL DETAIL

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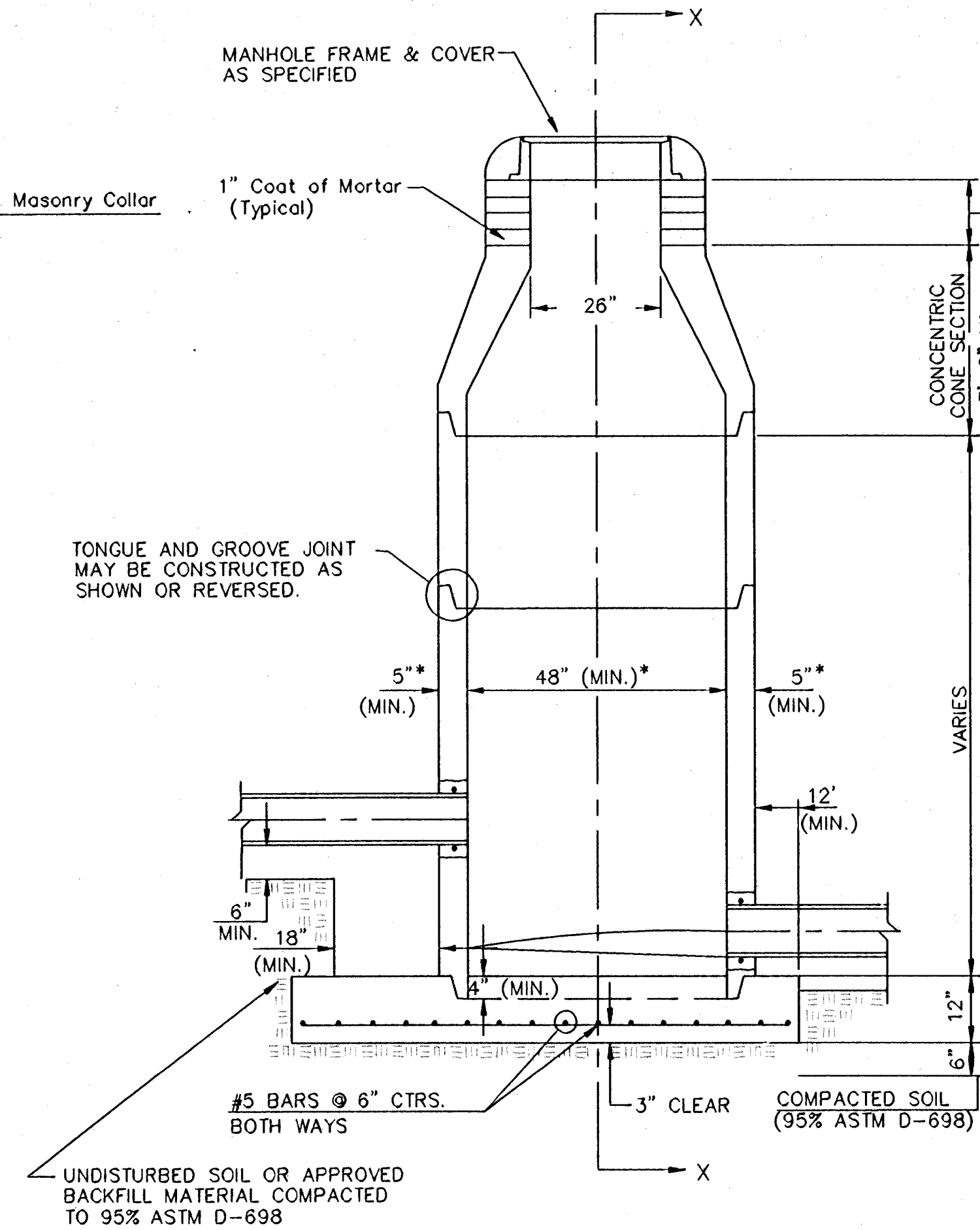


No.	Revision	By	Date
WAR INDUSTRIES RELIEF SEWER (PHASE 2)			
SANITARY SEWER DETAILS			
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-82923-000-000-001			
Professional Engineering Consultants, P.A. 303 S. TOPEKA • WICHITA, KANSAS 67202 316-262-2691 • FAX 316-262-3003			
Designed by	MDK, GM	Job No.	34-98249-3
Drawn by	GM	Date	October 1998
			Sht. 13 of 21

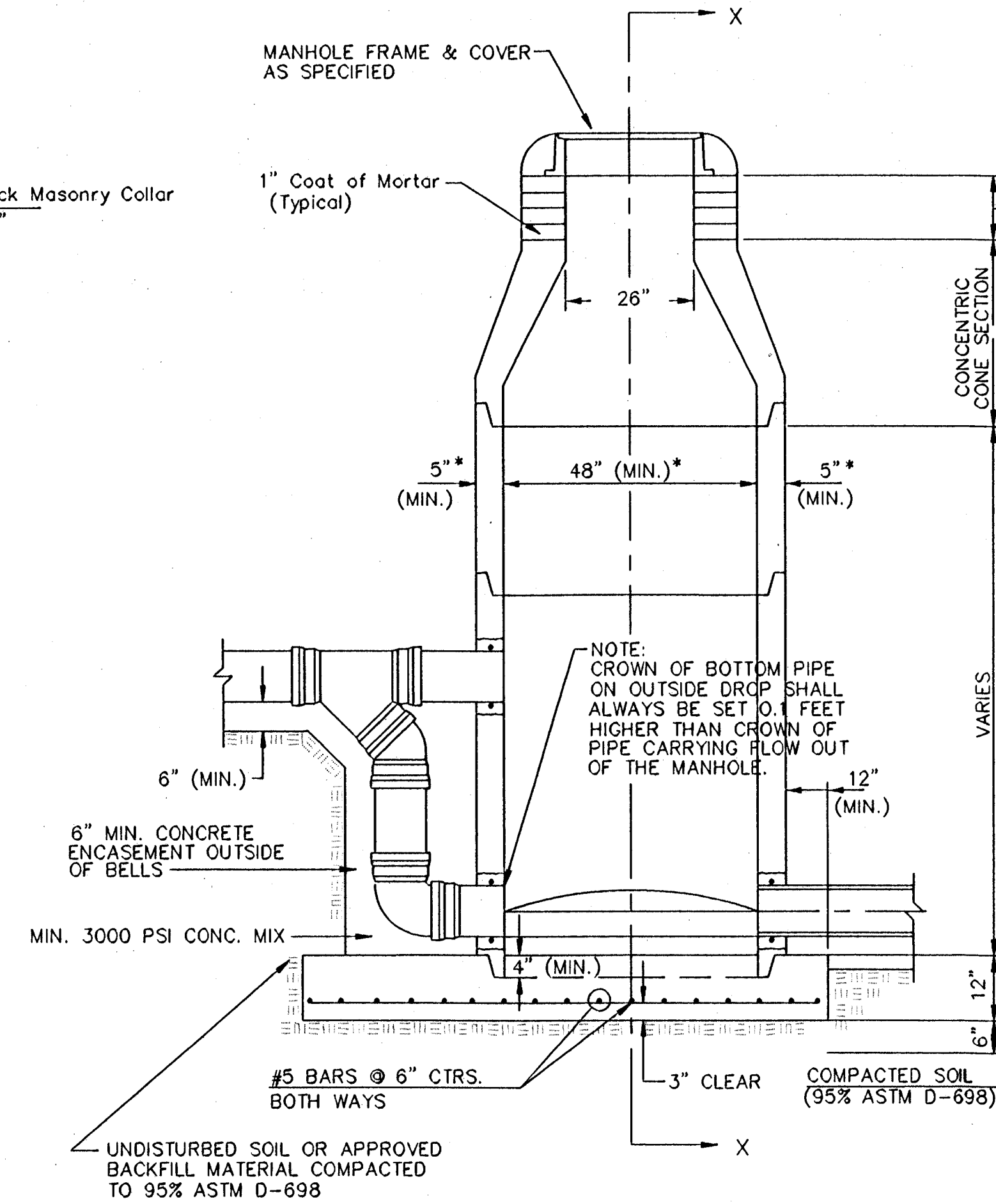
SEWER APPURTENANCES DETAILS



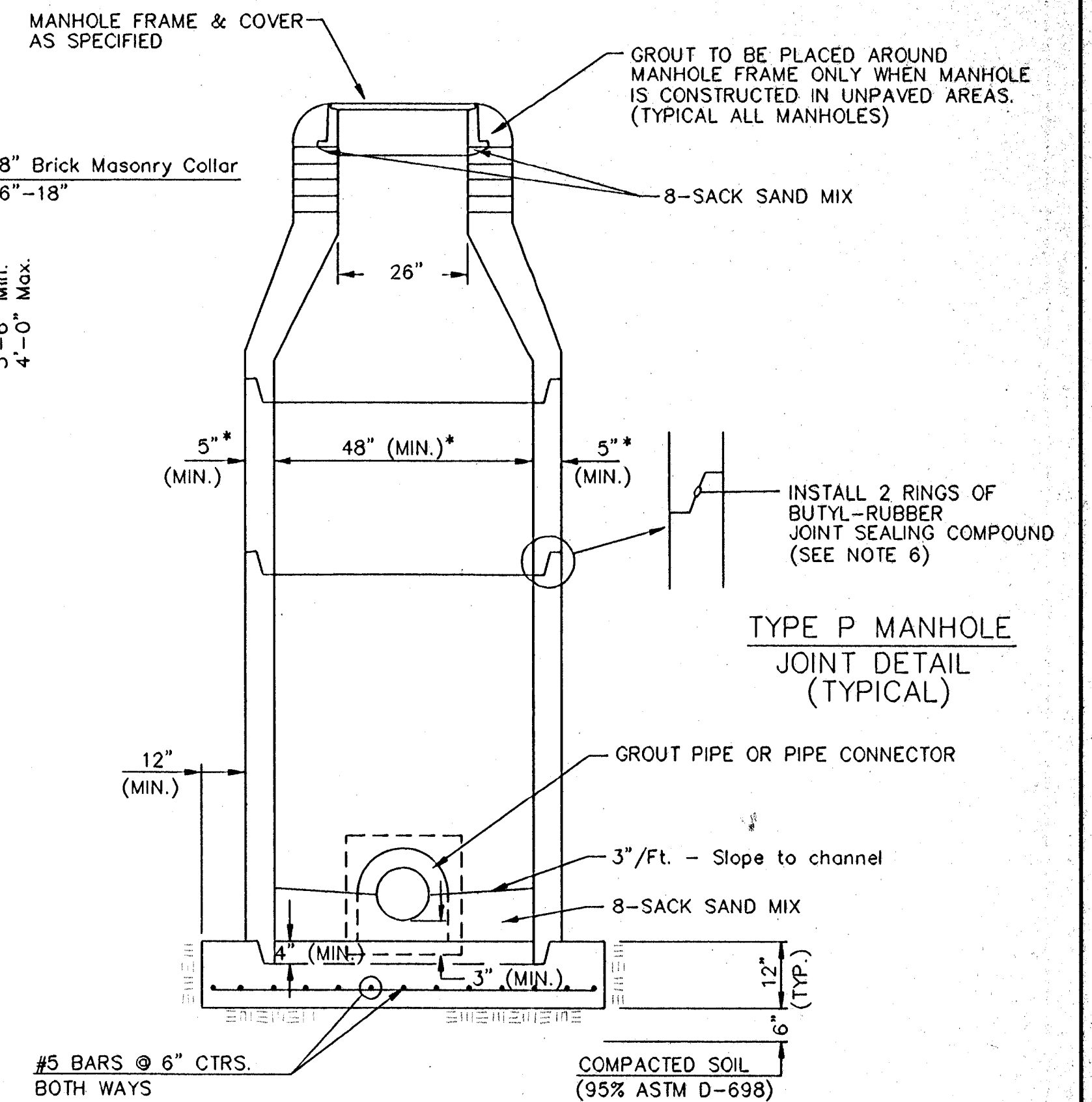
TYPE P
STANDARD MANHOLE



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 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 LINED WITH A PLASTIC LINER PER THE CITY OF WICHITA STANDARD SPECIFICATIONS.
- 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. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.

- REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 5 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 MANHOLE. 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.

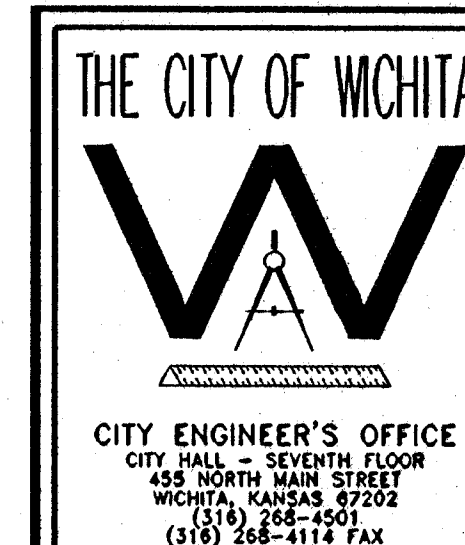
SPECIAL PROJECT NOTES

- * TYPE P MANHOLES HAVING A 5' INSIDE DIAMETER BARREL SHALL HAVE 6" THICK (MIN) REINFORCED CONCRETE WALLS.
- * TYPE P MANHOLES HAVING A 6' INSIDE DIAMETER BARREL SHALL HAVE 7" THICK (MIN) REINFORCED CONCRETE WALLS.

PRECAST MANHOLE BASES SHALL HAVE A MINIMUM THICKNESS OF 12" AND SHALL EXTEND A MINIMUM OF 12" BEYOND THE OUTSIDE WALL OF THE MANHOLE BARREL.

TYPE "P" MANHOLES SHALL HAVE ALL AREAS OF CONCRETE THAT WOULD OTHERWISE BE EXPOSED TO SEWER GASES, EXCEPT THE FLOORS, PROTECTED WITH PLASTIC LINING. THE PLASTIC LINING SHALL CONFORM TO THE SAME REQUIREMENTS AS SPECIFIED FOR PLASTIC LINING FOR REINFORCED CONCRETE SANITARY SEWER PIPE.

(REVISED OCT 1999 SPECIFICALLY FOR WAR INDUSTRIES RELIEF SEWER - PHASE 2)



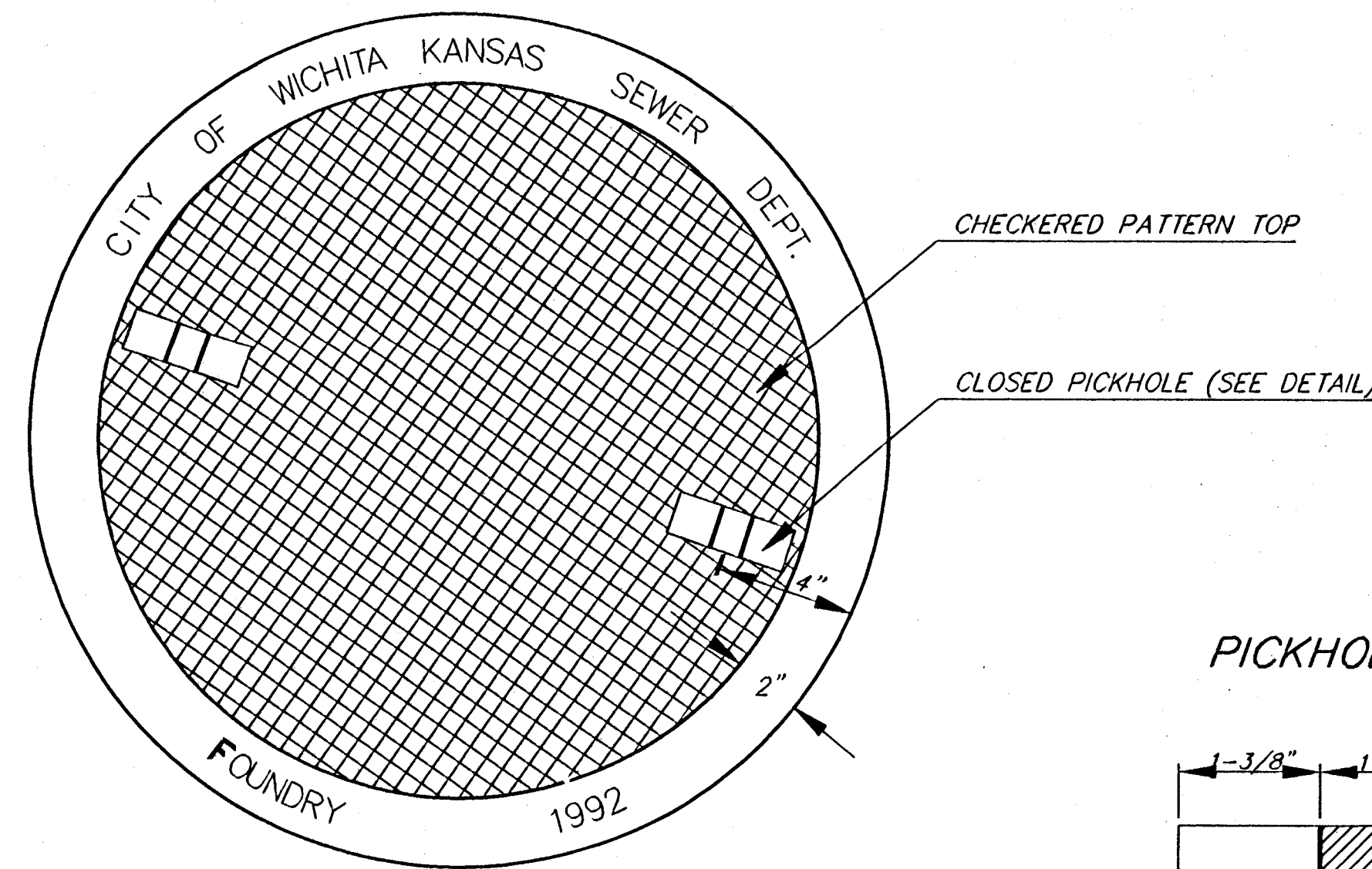
STANDARD TYPE 'P' MANHOLES

M. E. LINDEBAK P.E. - CITY ENGINEER

PROJECT NUMBER 468-82929 INDEX CODE 623306

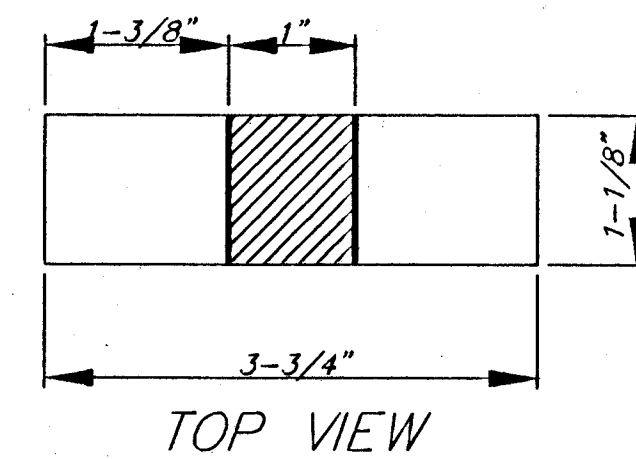
DATE MAR 96 SHEET 14 OF 21

MANHOLE COVER
Weight = 180 Lbs.

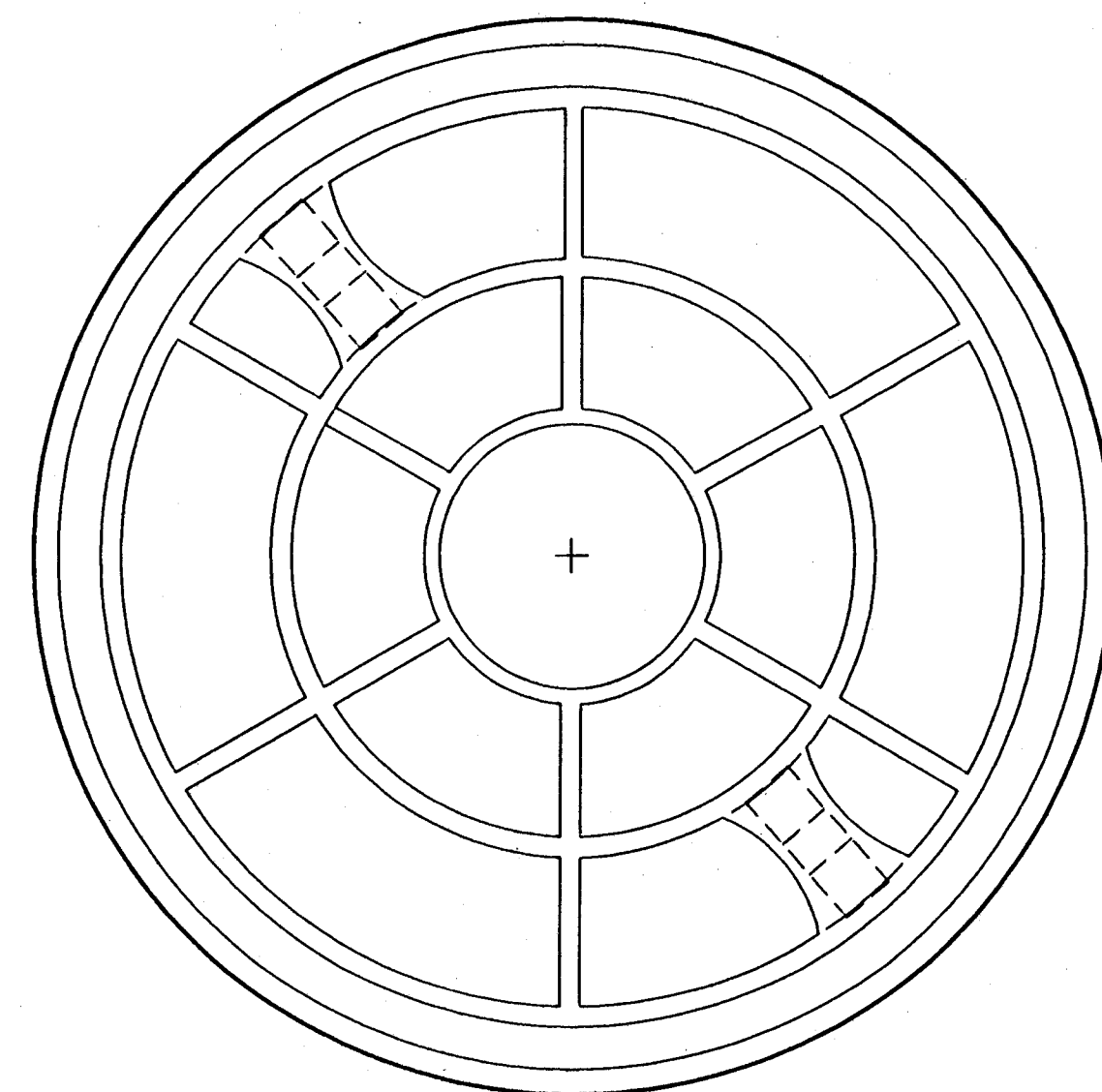


TOP VIEW

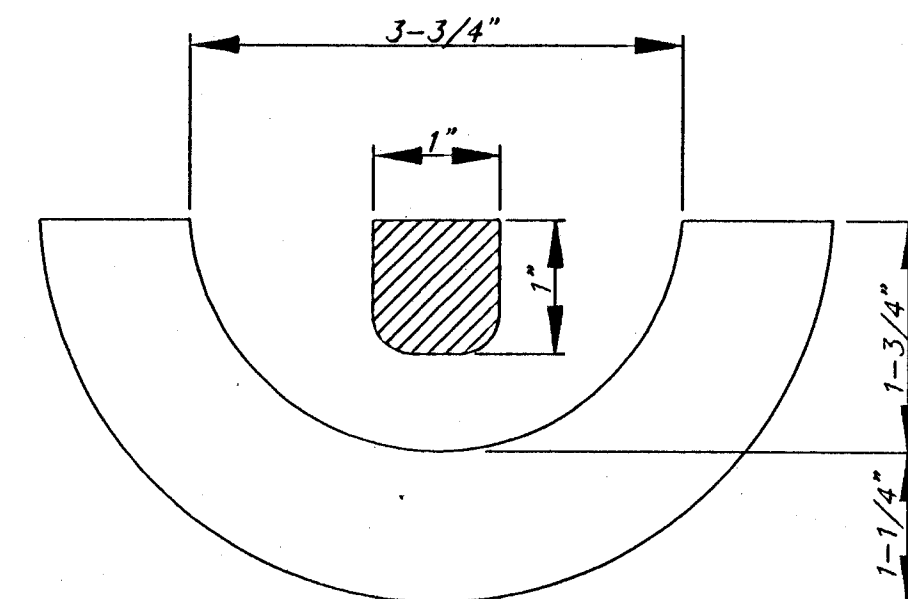
PICKHOLE DETAIL



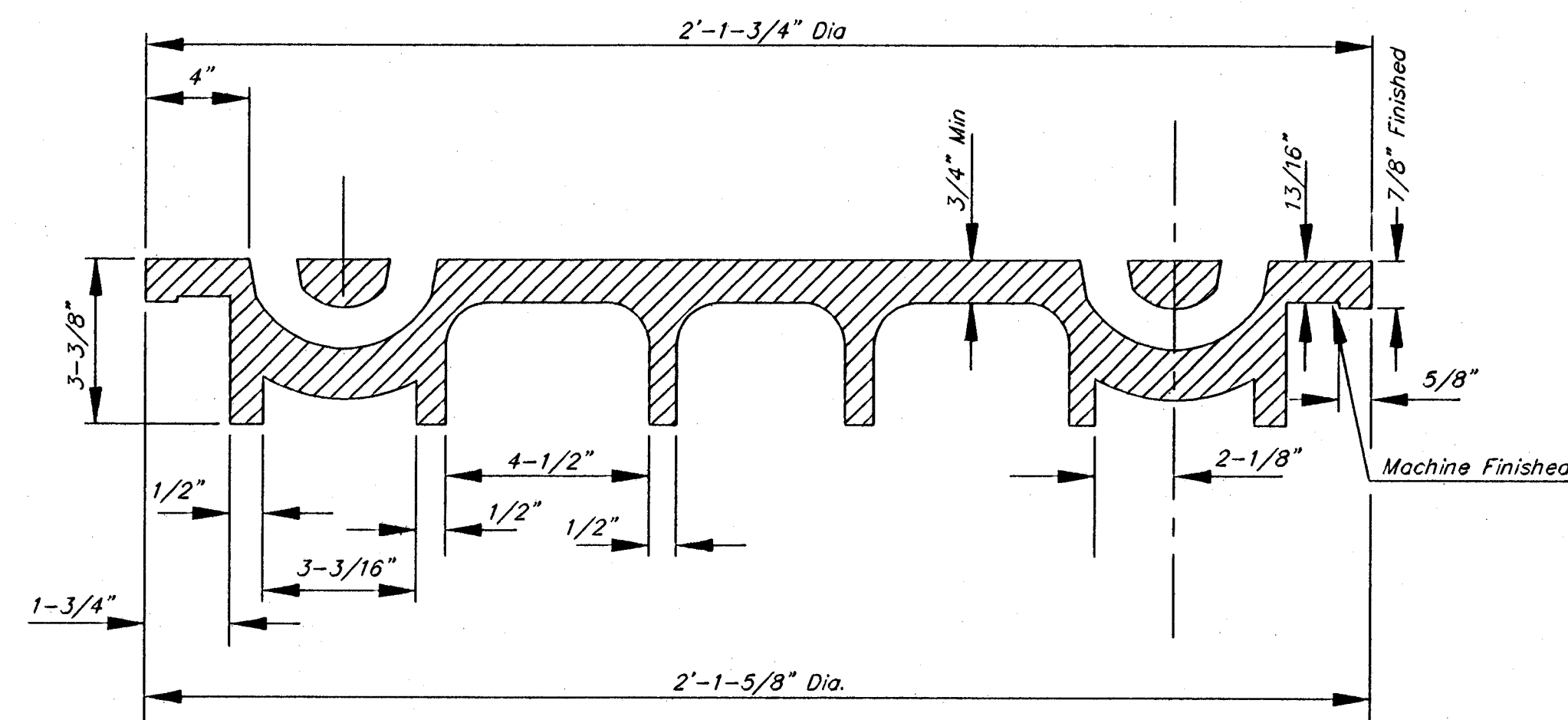
TOP VIEW



BOTTOM VIEW



SECTION VIEW

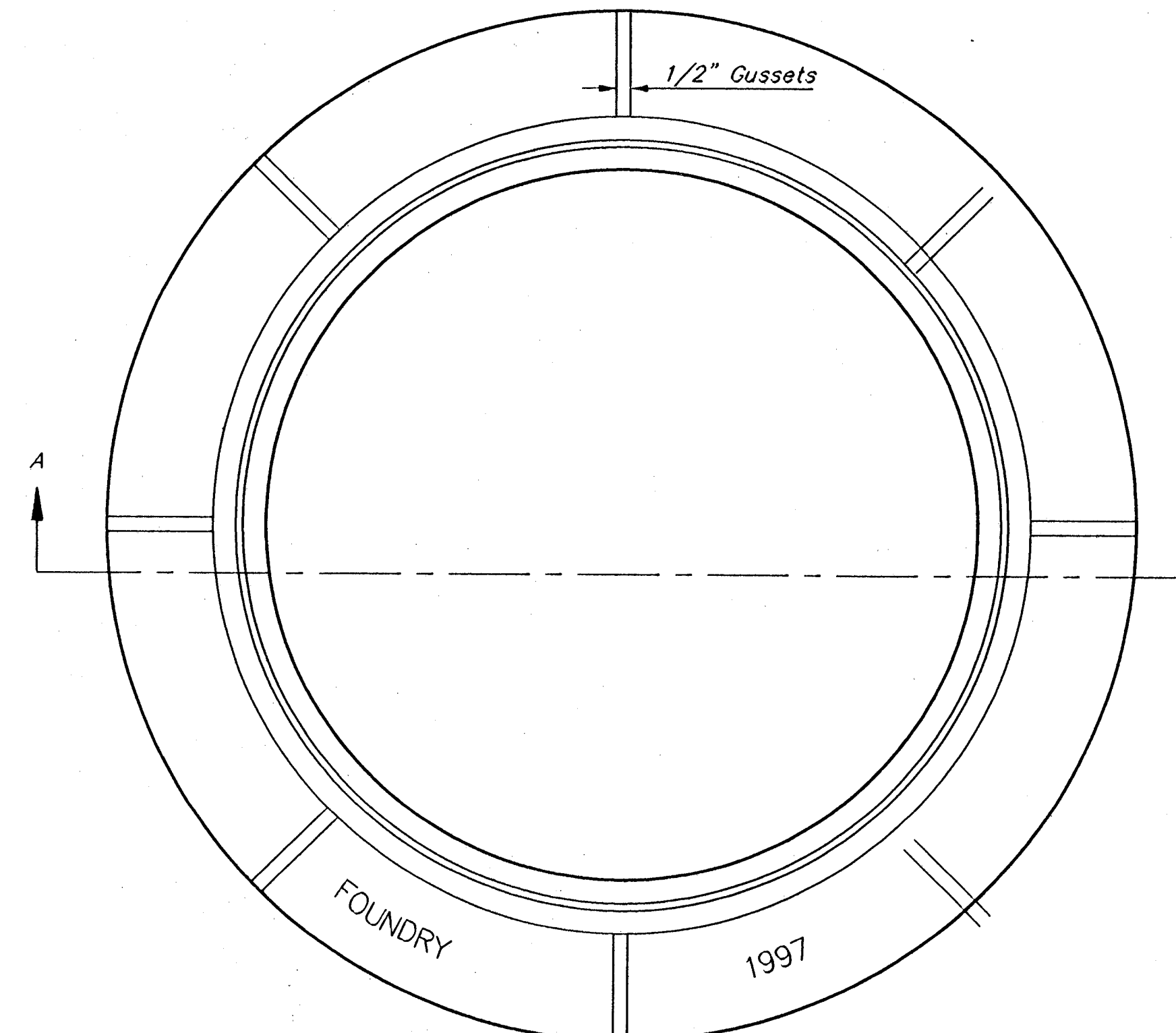


SECTION VIEW

MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

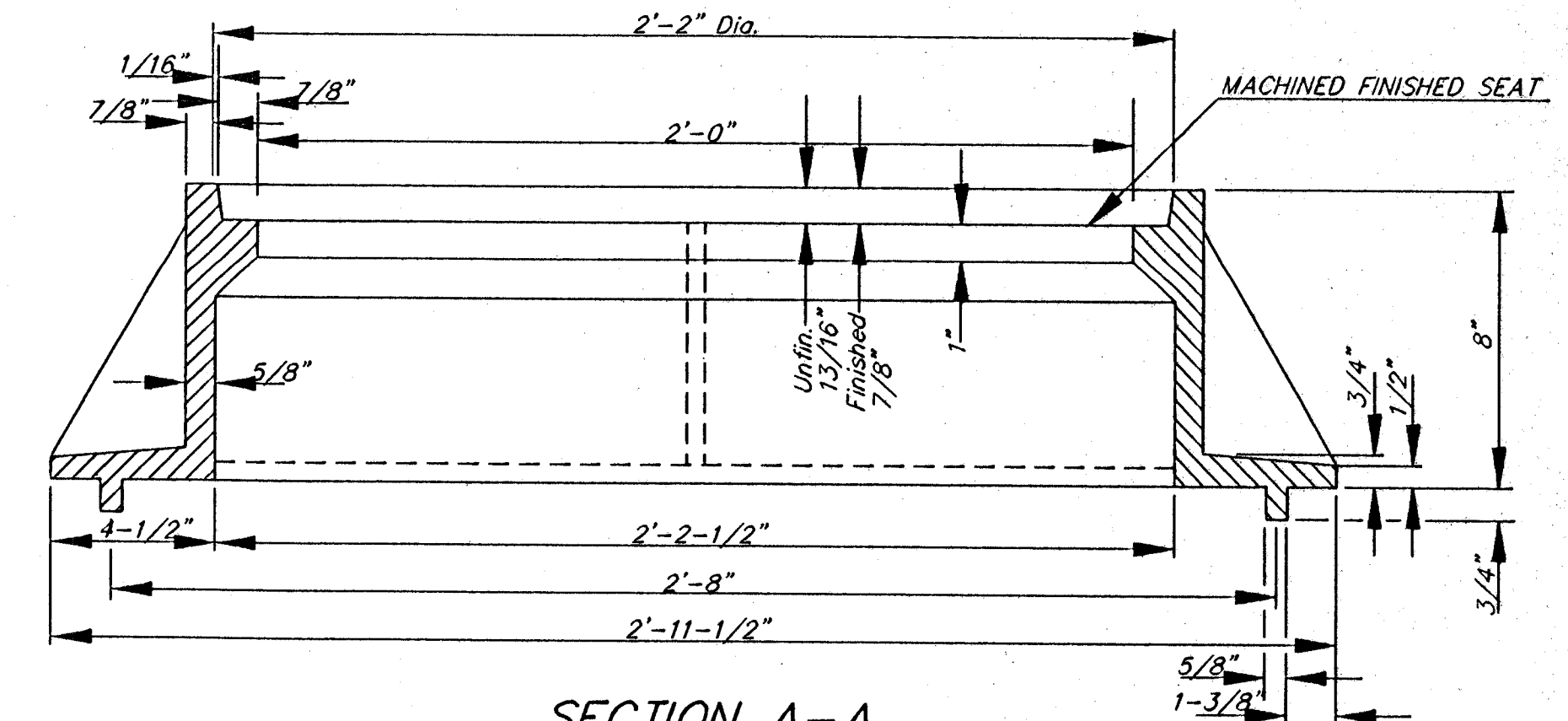
MANHOLE FRAME
Weight = 240 Lbs.



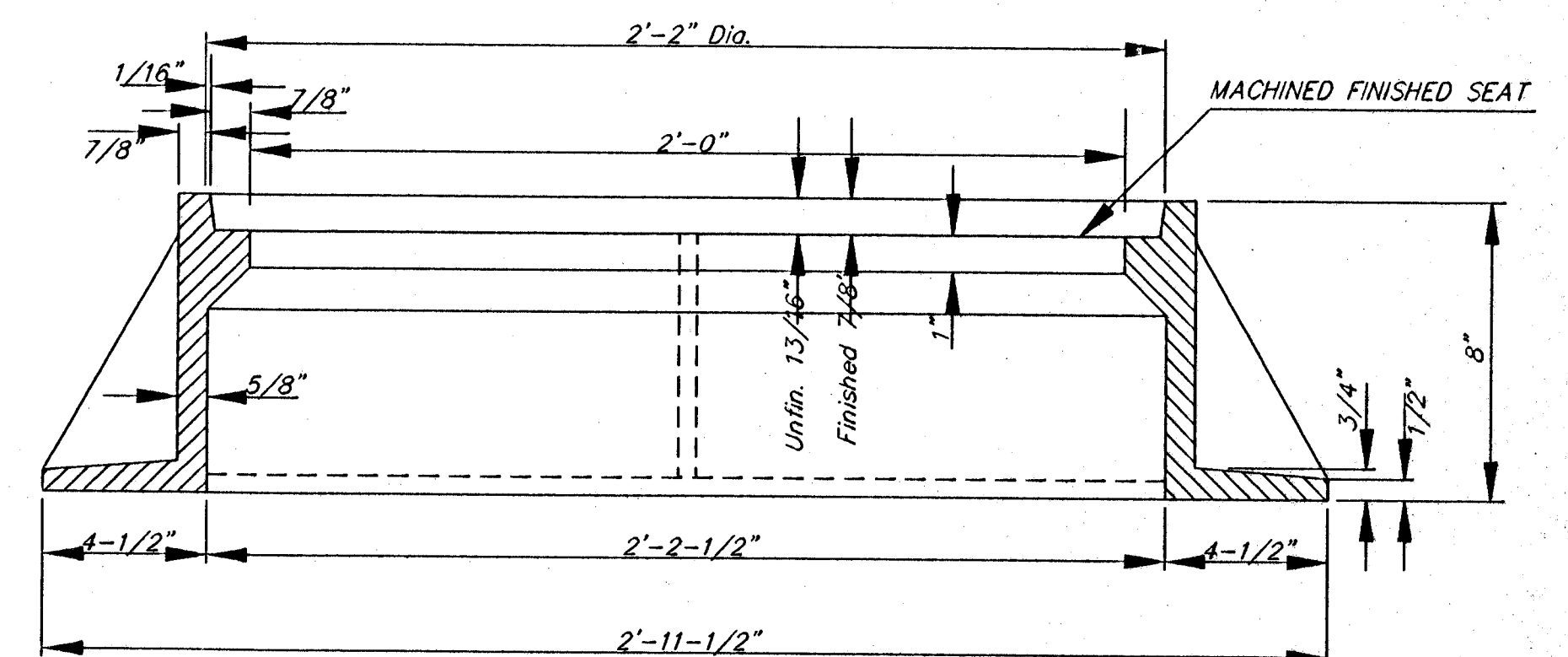
TOP VIEW

GENERAL NOTES

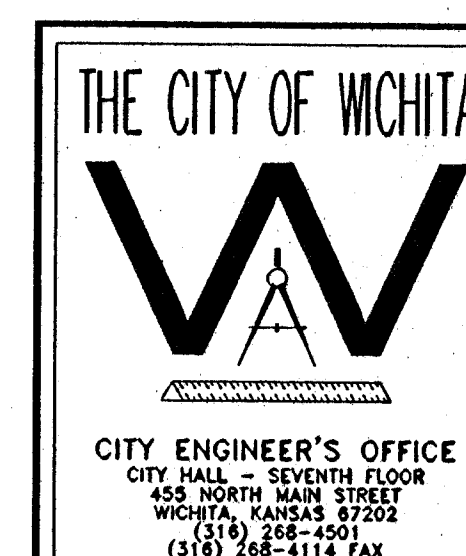
- MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.
- MANHOLE CASTINGS SHALL WEIGH A MINIMUM OF 180 POUNDS ON THE SOLID COVER AND 240 POUNDS ON THE MANHOLE RING. THIS IS A TOTAL OF 420 POUNDS ON A RING AND COVER SET. CASTINGS WEIGHING LESS THAN THE MINIMUM SPECIFICATIONS WILL NOT BE ACCEPTED.
- MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.
- THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH THAT THESE SEATING SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.
- THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1 INCH IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.



SECTION A-A
MUD RING



SECTION A-A



MANHOLE FRAME AND COVER

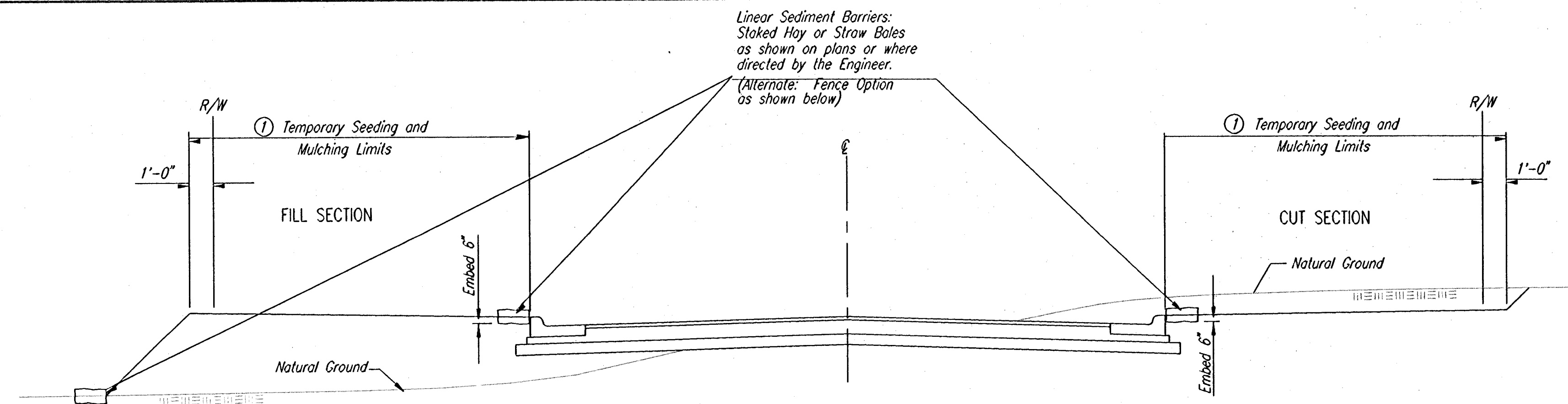
M. E. LINDEBAK P.E. - CITY ENGINEER

PROJECT NUMBER
468-82929

INDEX CODE
623306

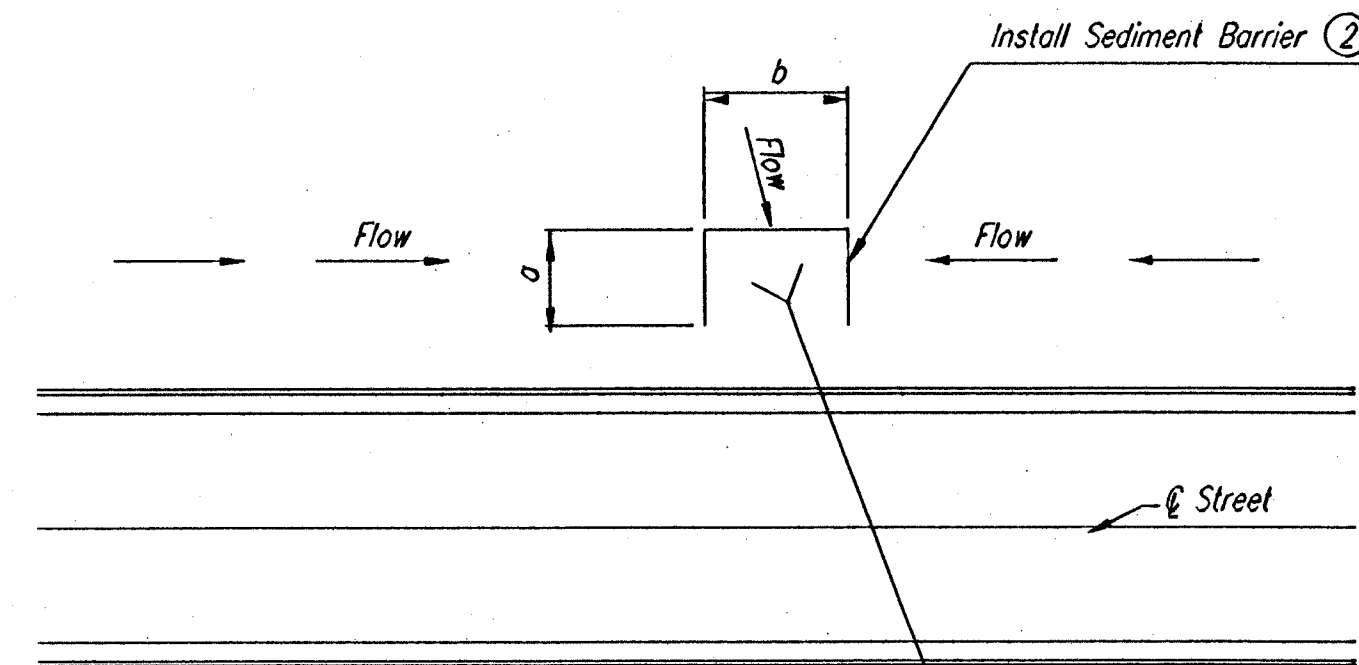
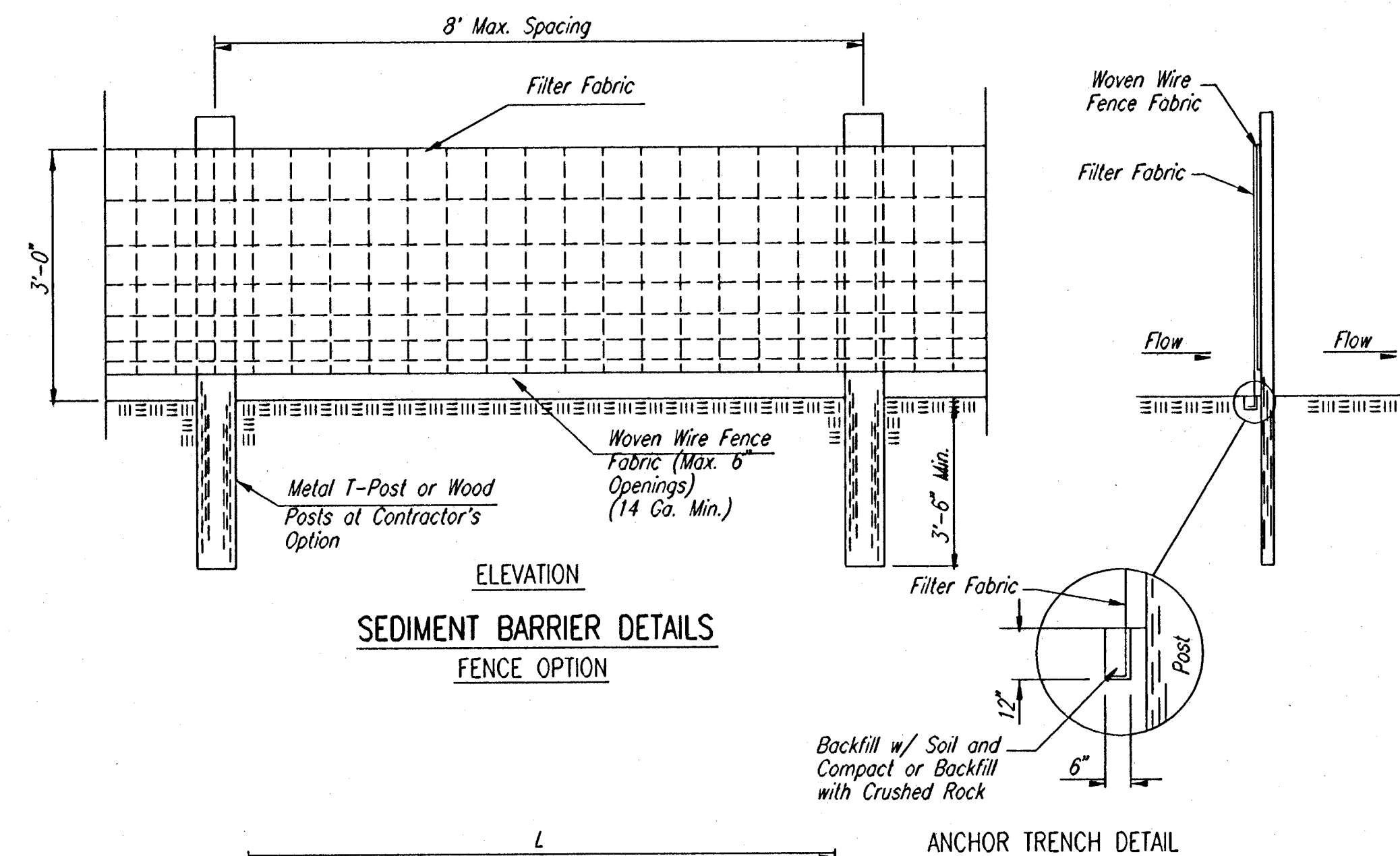
DATE
MAR 96

SHEET 15 OF 21

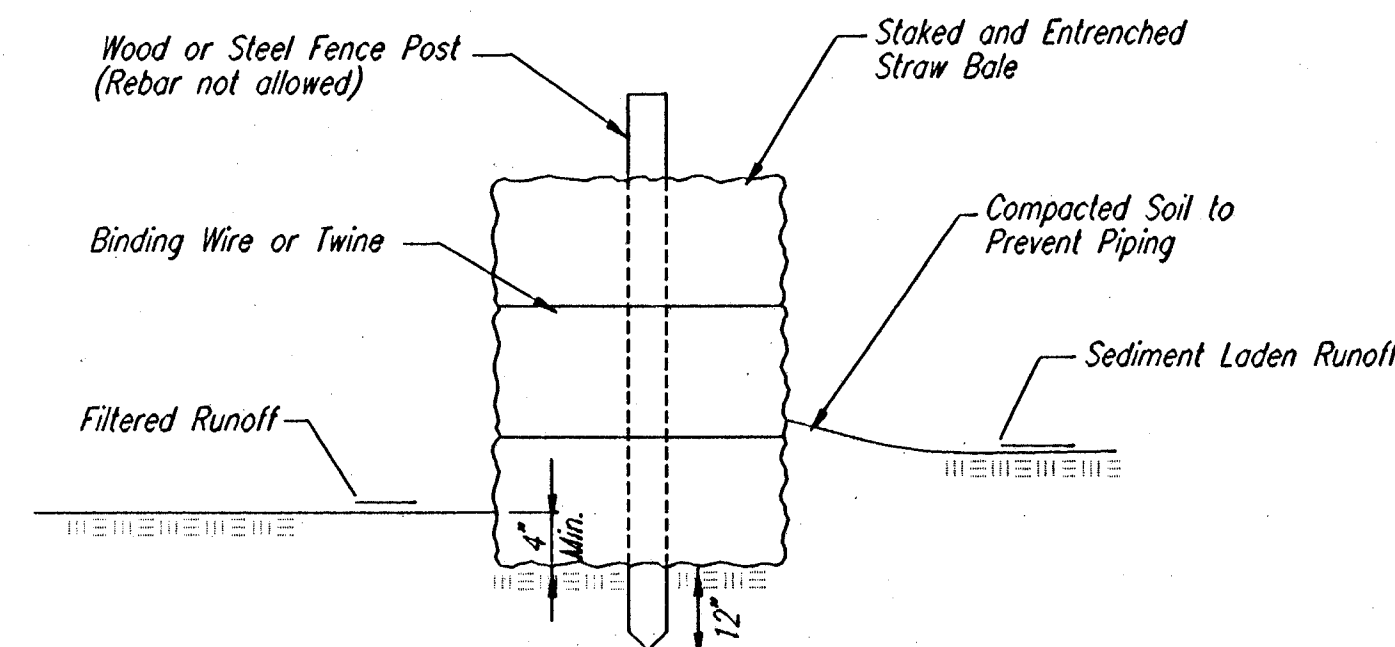
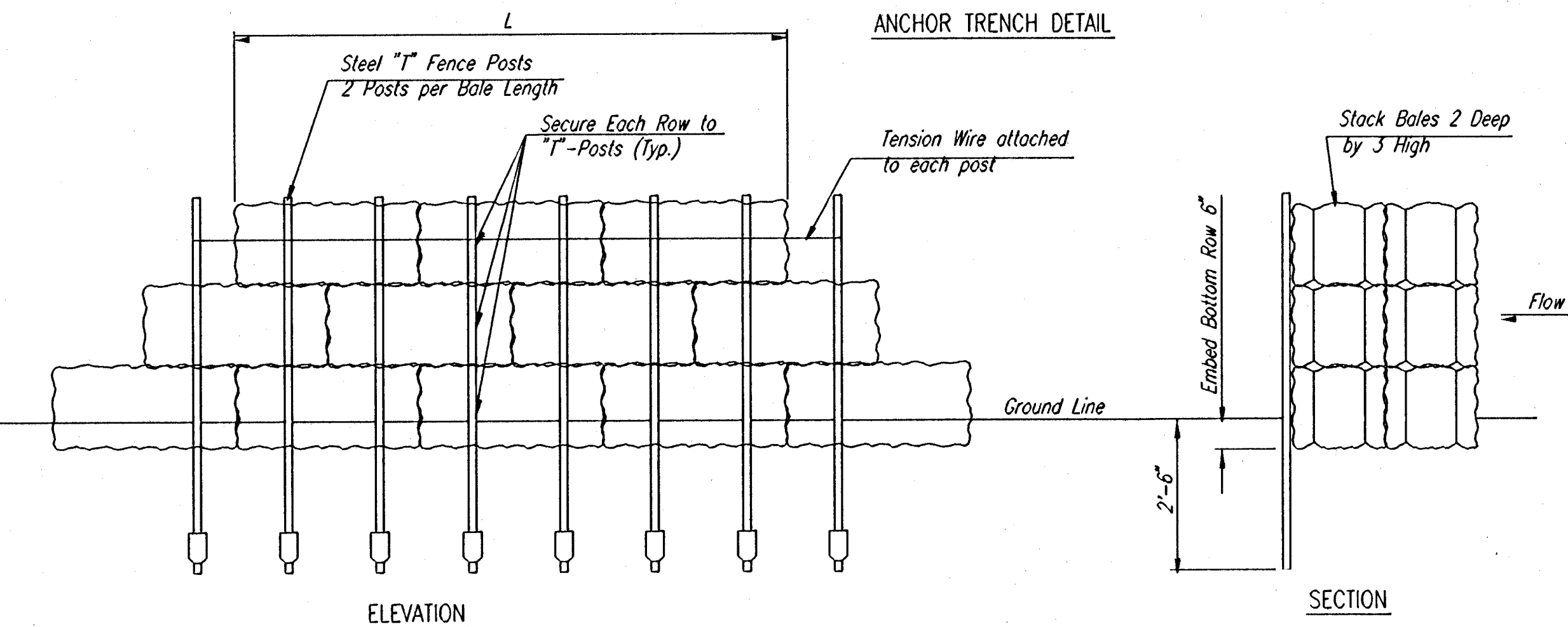


① Seed with Annual Rye at the rate of 4 lbs./1000 S.F.
Mulch with Hay at the rate of 90 lbs./1000 S.F.

SEDIMENT CONTROL CURB AND GUTTER STREET SECTION



② "a" Dimension = Ditch bottom width +10'
"b" Dimension = End Section or Headwall width +10'



LINEAR SEDIMENT BARRIER

- SEDIMENT BARRIERS SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. ADDITIONAL SEDIMENT BARRIERS WILL BE INSTALLED AT LOCATIONS AS DIRECTED BY THE ENGINEER WITH NO ADJUSTMENT IN PRICE.
- SEDIMENT BARRIERS SHALL BE ERECTED PRIOR TO THE COMMENCEMENT OF EARTHWORK OPERATIONS IN A GIVEN BASIN. REMOVAL AND DISPOSAL OF ACCUMULATED SILT AND DEBRIS AND/OR REMOVAL AND RECONSTRUCTION OF SEDIMENT BARRIERS WILL BE PERFORMED THROUGHOUT THE PROJECT LIFE WHEN DEBRIS REACHES ONE-THIRD THE FENCE HEIGHT OR AS DEEMED NECESSARY BY THE ENGINEER. SEDIMENT BARRIERS AND ACCUMULATED DEBRIS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AFTER TURF COVER HAS BEEN ESTABLISHED, UNLESS OTHER ARRANGEMENTS HAVE BEEN AGREED TO.
- FILTER FABRIC FOR FENCE OPTION SEDIMENT BARRIERS SHALL BE RESISTANT TO ULTRAVIOLET LIGHT. MATERIALS MAY BE SUPPLIED BY THE FOLLOWING MANUFACTURERS:

MIRAFI, INC.	-	100X
HOECHST FIBERS INDUSTRIES	-	TREVIRA 1115
EXXON	-	TYPAR 3301 W

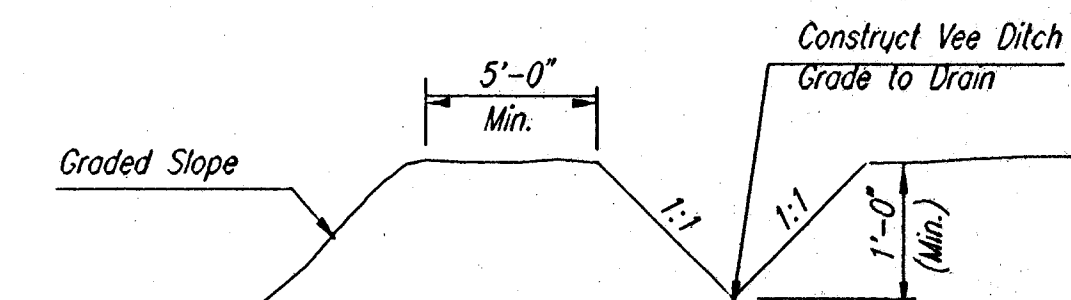
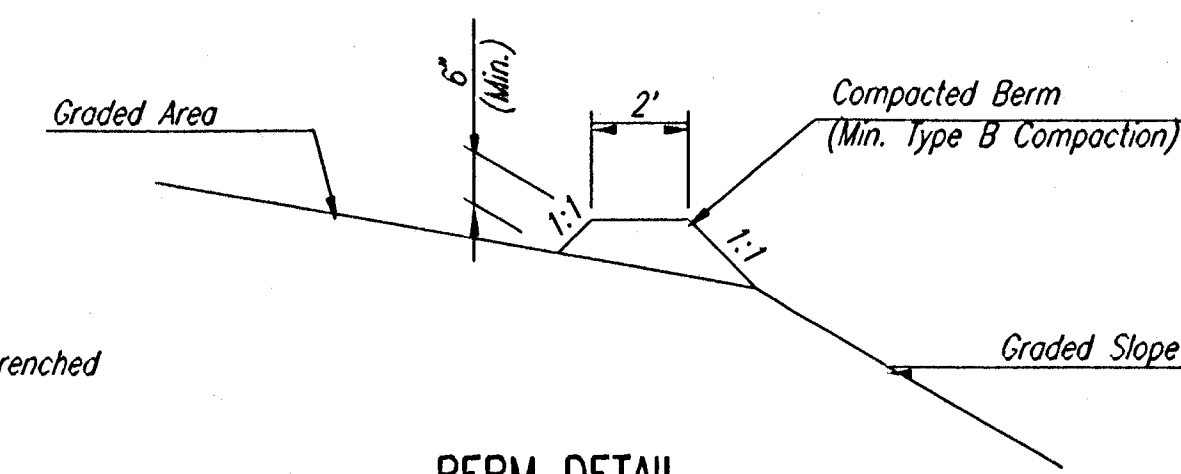
MATERIALS SUPPLIED BY THE ABOVE NAMED MANUFACTURERS SHALL BE ACCEPTED UPON VISUAL INSPECTION BY THE ENGINEER. OTHER COMPARABLE MATERIALS MAY BE USED IF APPROVED BY THE ENGINEER.

FILTER FABRIC SHALL BE ATTACHED TO FENCE FABRIC BY MEANS OF TIE WIRES OR HOG RINGS PRIOR TO ATTACHMENT OF FENCE/FABRIC COMBINATION ONTO THE POSTS.

- BALES USED FOR SEDIMENT BARRIERS MAY BE EITHER HAY OR STRAW, PROVIDED THEY ARE SOUND AND INTACT.
- TEMPORARY EROSION CONTROL BERMS AND/OR INTERCEPT DITCHES SHALL BE CONSTRUCTED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. ADDITIONAL BERMS AND/OR DITCHES MAY BE REQUIRED AT NO ADJUSTMENT IN PRICE.

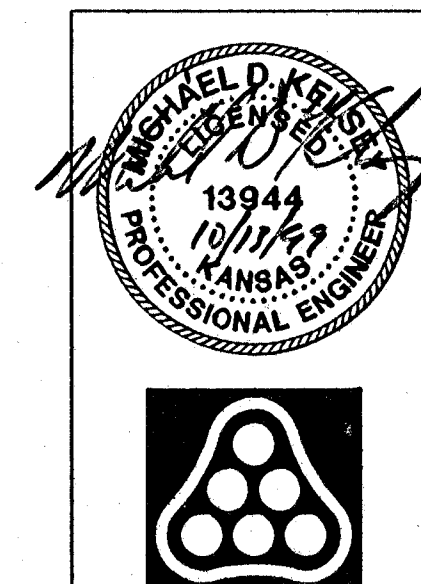
WHERE TEMPORARY EROSION CONTROL BERMS AND/OR INTERCEPT DITCHES ARE USED, ALL AREAS WHERE FLOW IS CONCENTRATED SHALL BE PROTECTED BY SILTATION BARRIERS PRIOR TO DISCHARGING INTO ANY DITCH, STORM SEWER, OR WATERCOURSE.

- PAYMENT: THE ITEM "SEDIMENT BARRIERS" SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAL FOOT COMPLETE IN PLACE. SAID PRICE SHALL BE CONSIDERED FULL COMPENSATION FOR EXCAVATION, COMPACTION, BACKFILL, SEDIMENT AND DEBRIS REMOVAL AND DISPOSAL, AND ALL MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. RECONSTRUCTION OF EROSION CONTROL MEASURES WHICH ARE DESTROYED BY WIND, FLOOD, FIRE, OR BY THE ACTIONS OF THE CONTRACTOR OR OTHERS SHALL BE PERFORMED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST. WHERE ADJUSTMENTS IN QUANTITIES ARE REQUIRED BY FIELD CONDITIONS, THERE SHALL BE NO ADJUSTMENTS IN UNIT PRICE.

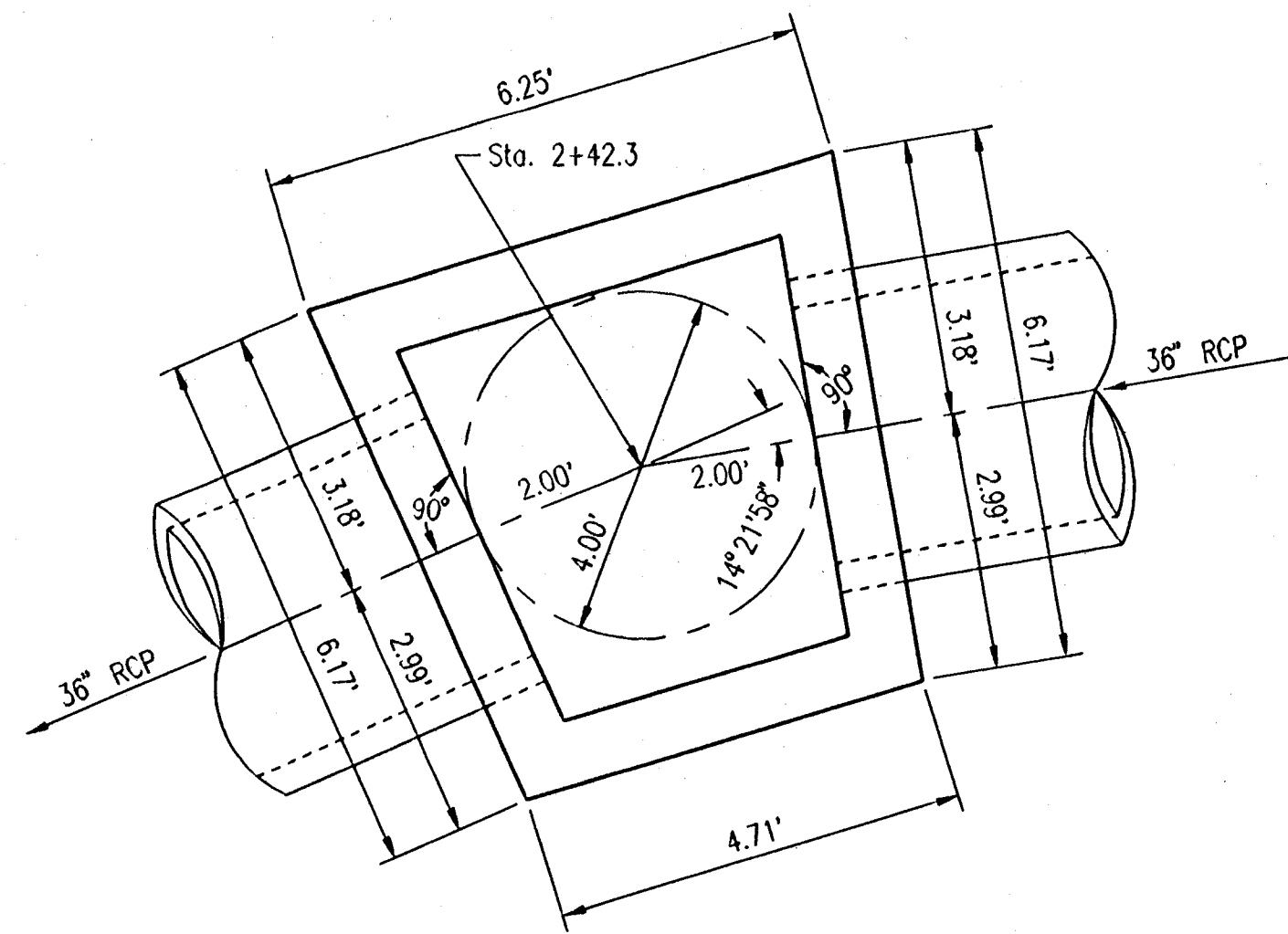


TEMPORARY EROSION CONTROL DETAILS FOR SLOPE PROTECTION

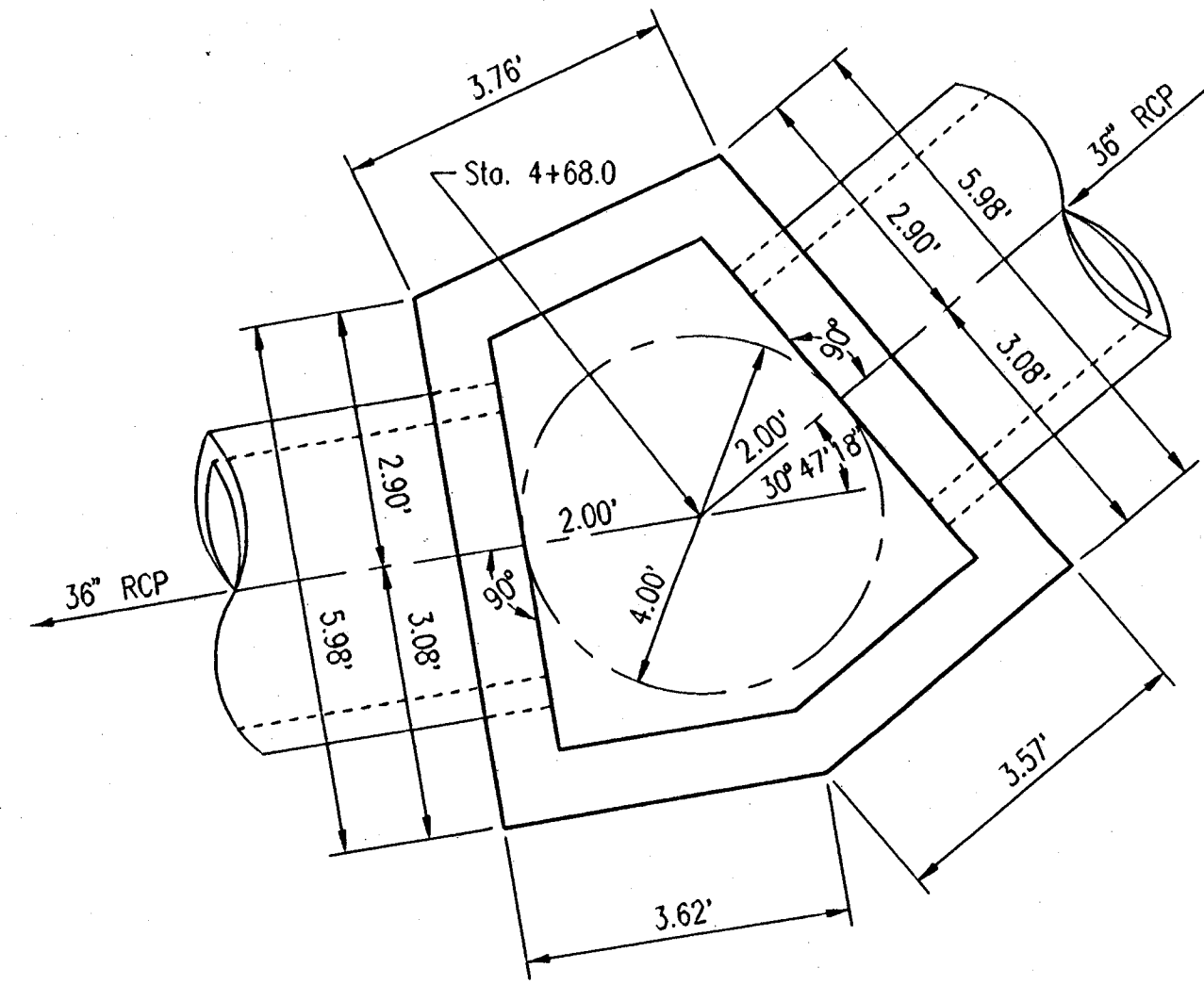
The Engineer may determine that the height of Berm or depth of Ditch should be increased over that shown if drainage conditions are producing Slope Erosion.



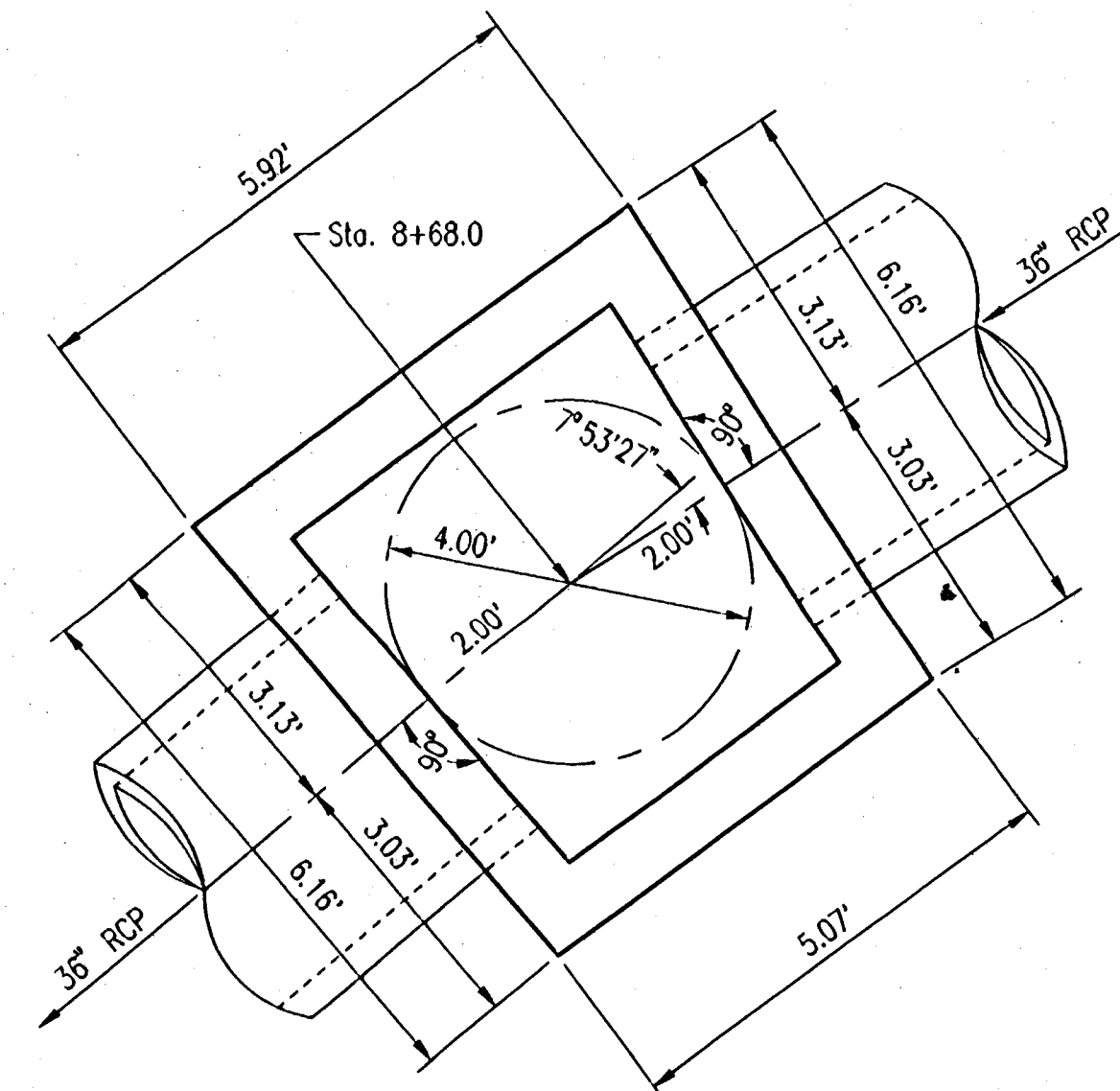
No.	Revision	By	Date
	WAR INDUSTRIES RELIEF SEWER (PHASE 2)		
EROSION CONTROL AND SEDIMENT BARRIER DETAILS			
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-82929-000-001			
Professional Engineering Consultants, P.A. 303 S. TOPEKA • WICHITA, KANSAS 67202 316-262-2691 • FAX 316-262-3003			
Designed by	MDK	Job No.	34-98249-3
Drawn by	GM	Date	October 1998
			Shl. 16 of 21



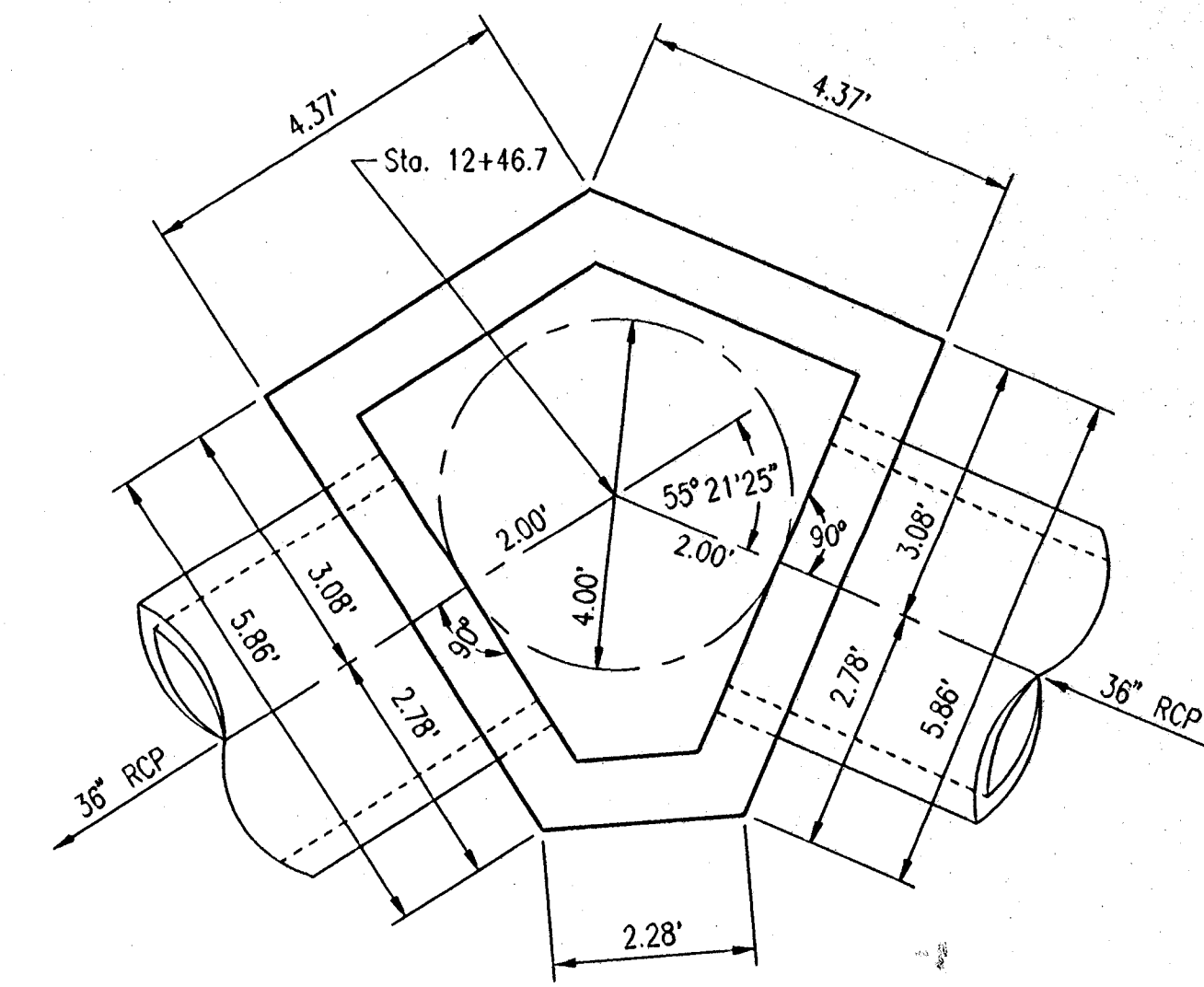
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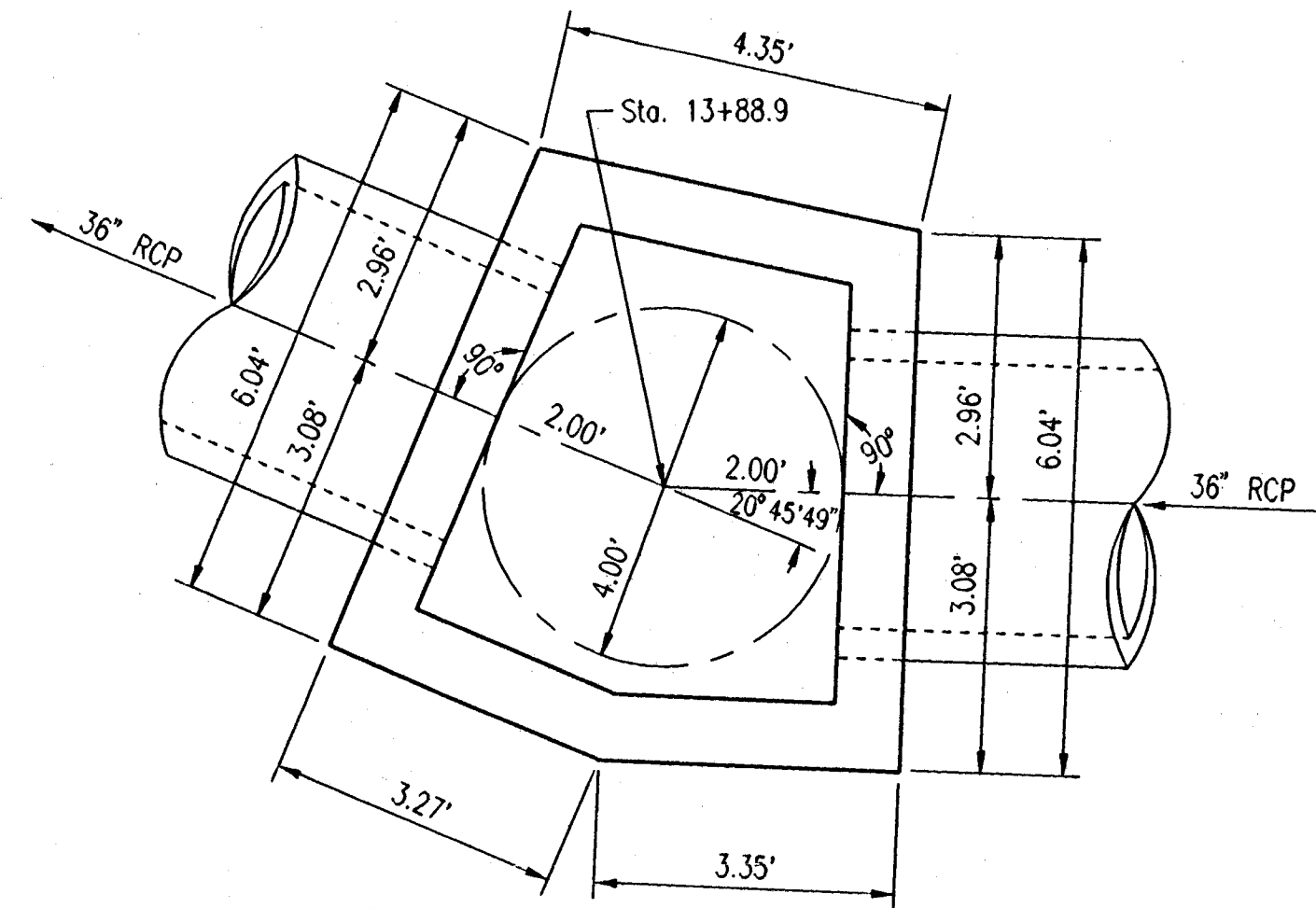
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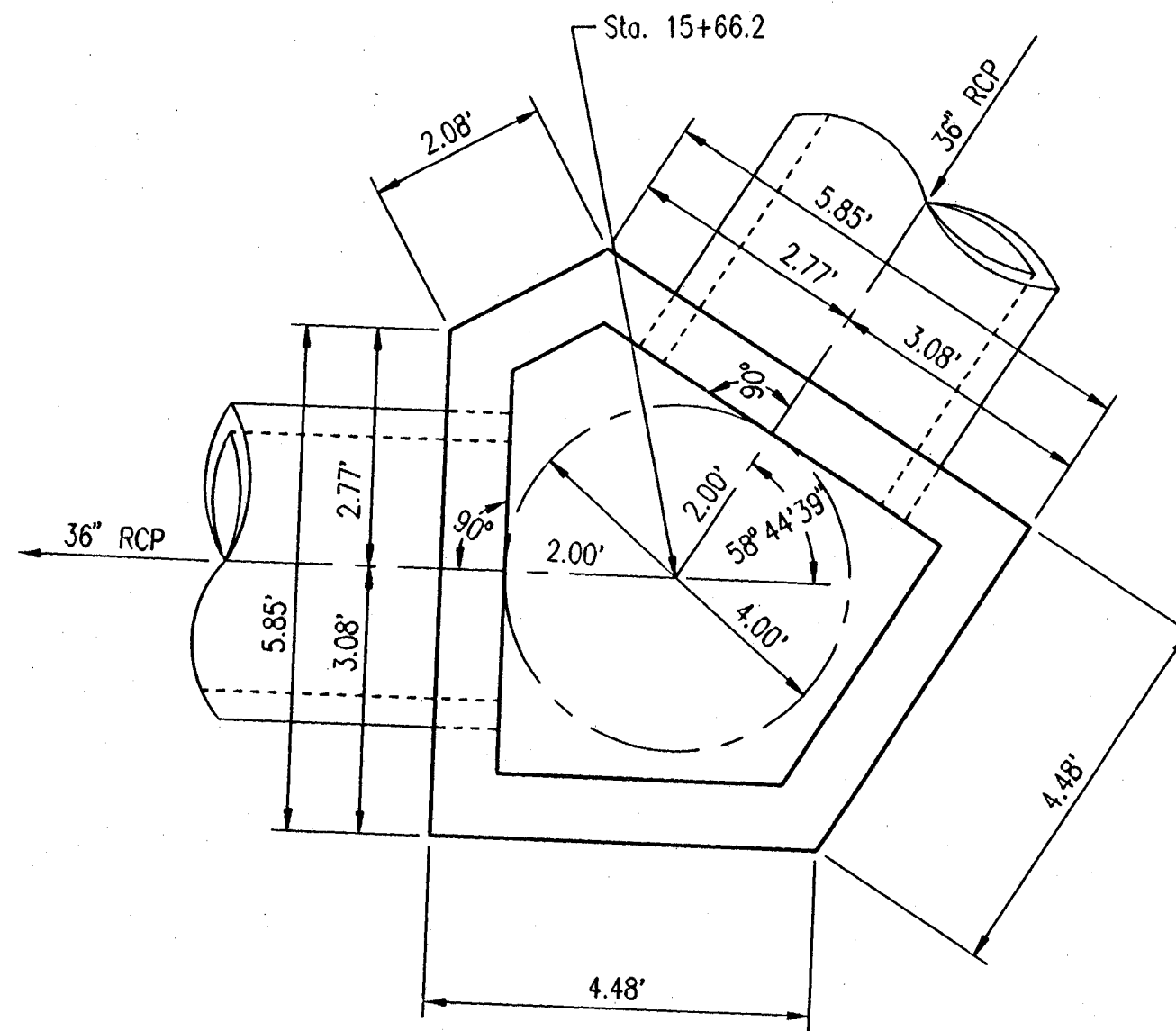
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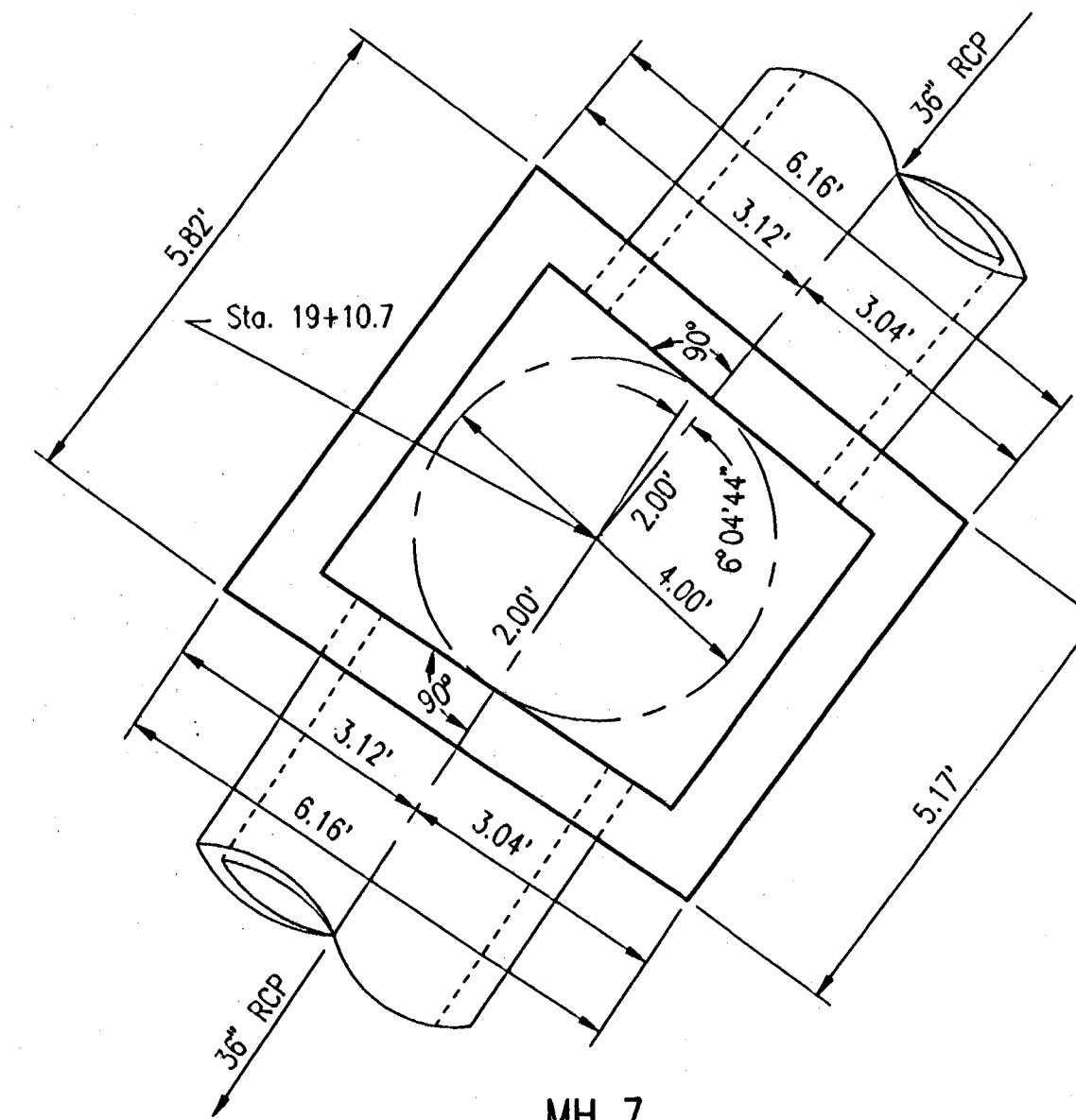
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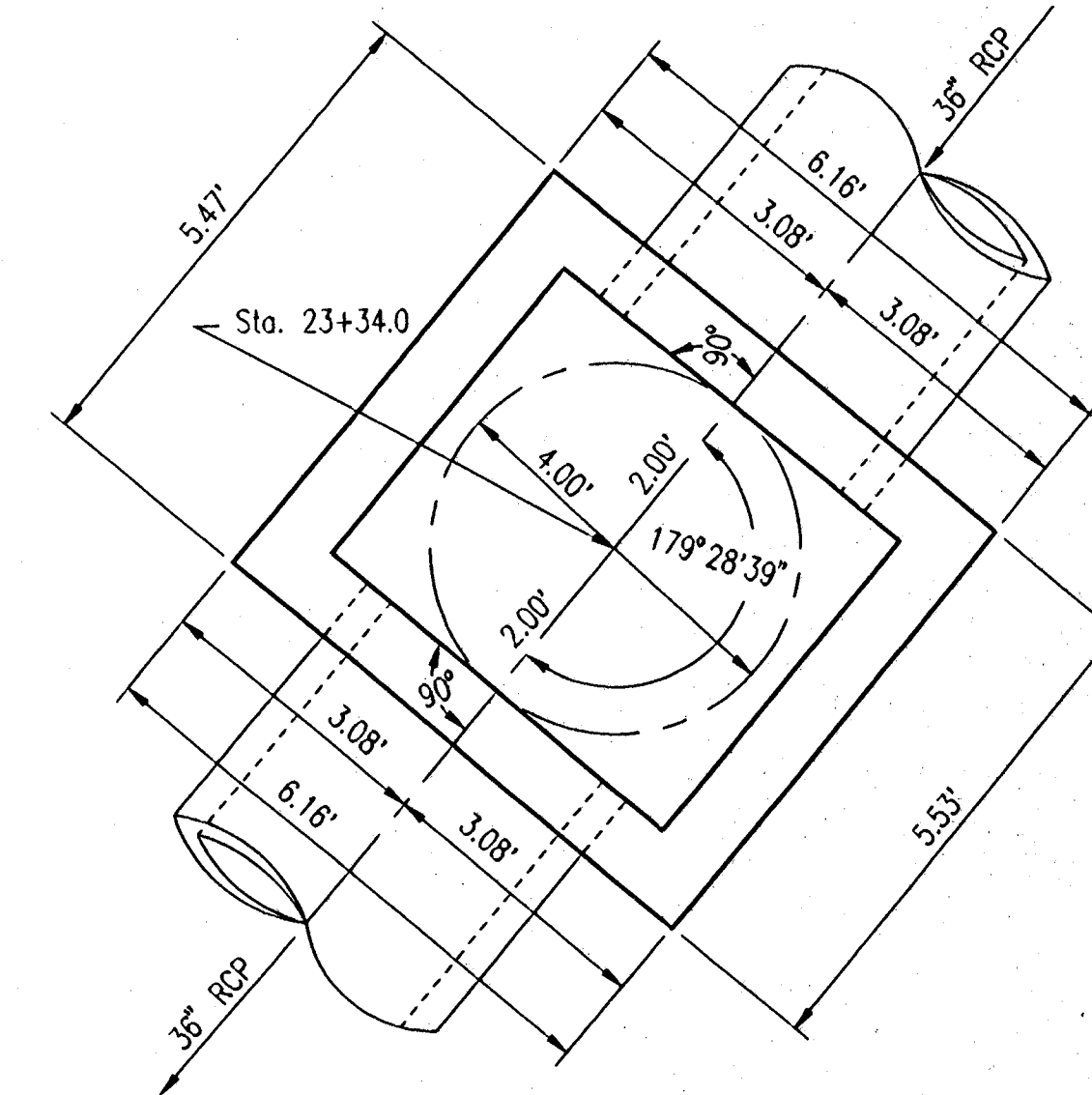
MH 5



MH 6



MH 7



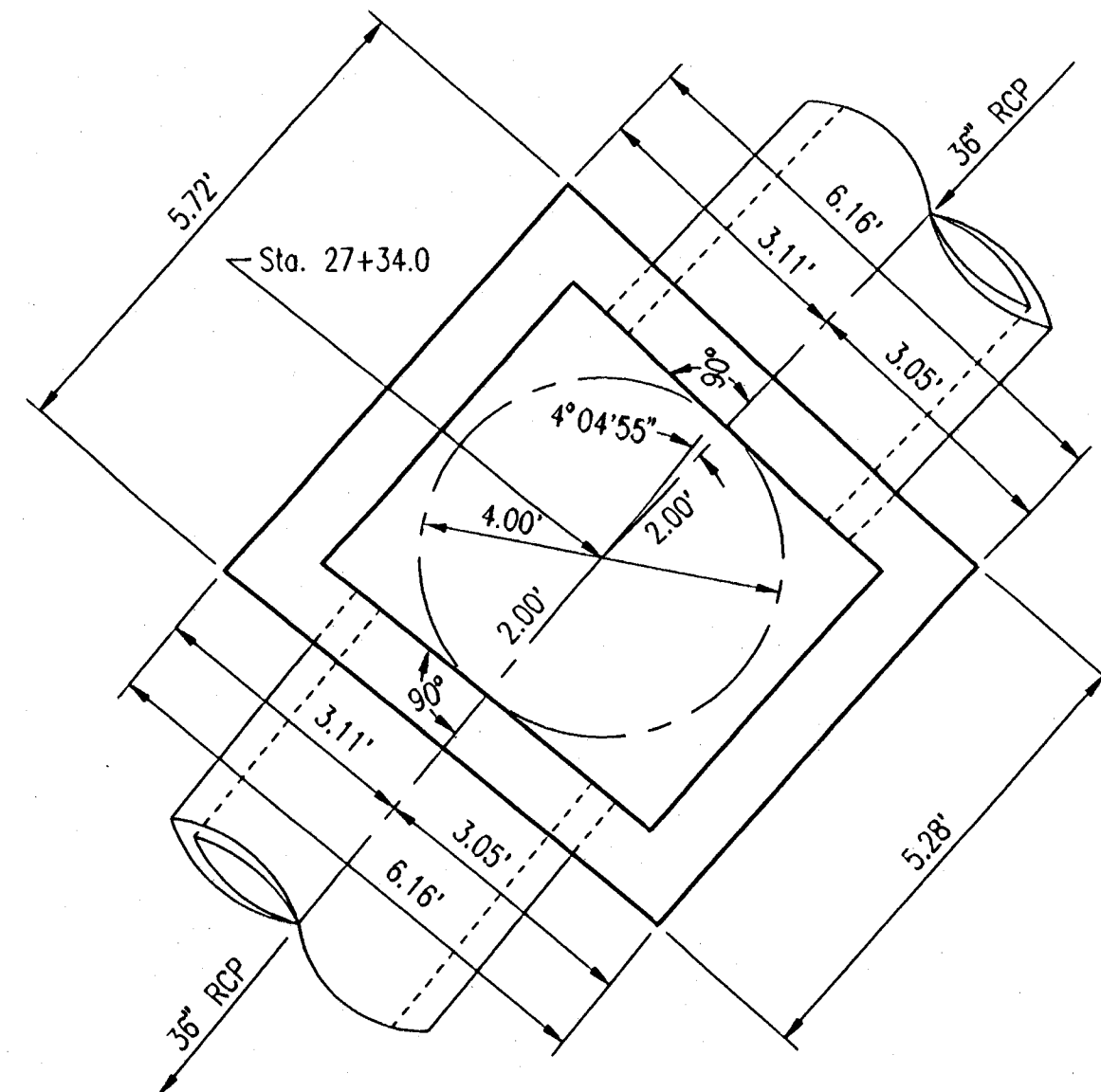
MH 8

1" = 2'

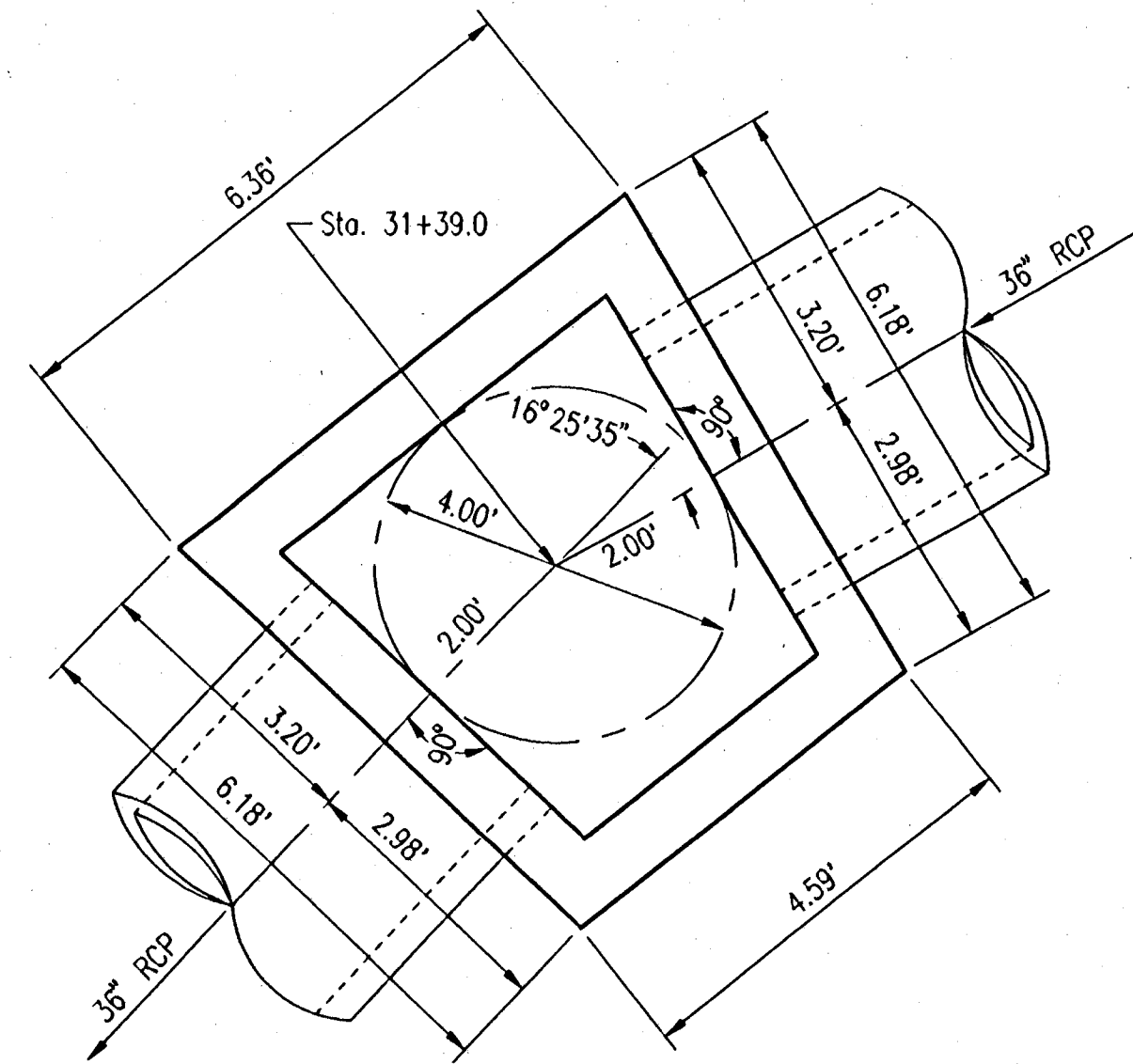
NOTES:

1. SPECIAL REINFORCED CONCRETE MANHOLES, AS DETAILED ON THIS SHEET, SHALL BE USED FOR THE REINFORCED CONCRETE PIPE OPTION ONLY.
2. REINFORCED CONCRETE MANHOLES THAT HAVE NO PIPE DEFLECTIONS THRU THE MANHOLE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD REINFORCED CONCRETE MANHOLE DETAILS AS SHOWN ON SHEET 20.
3. SEE SHEET 20 FOR ADDITIONAL REINFORCED CONCRETE MANHOLE DETAILS AND NOTES.
4. PLASTIC LINING SHALL BE INSTALLED ON THE INTERIOR SURFACES OF ALL SPECIAL REINFORCED CONCRETE MANHOLES PER THE CITY OF WICHITA STANDARD SPECIFICATIONS.

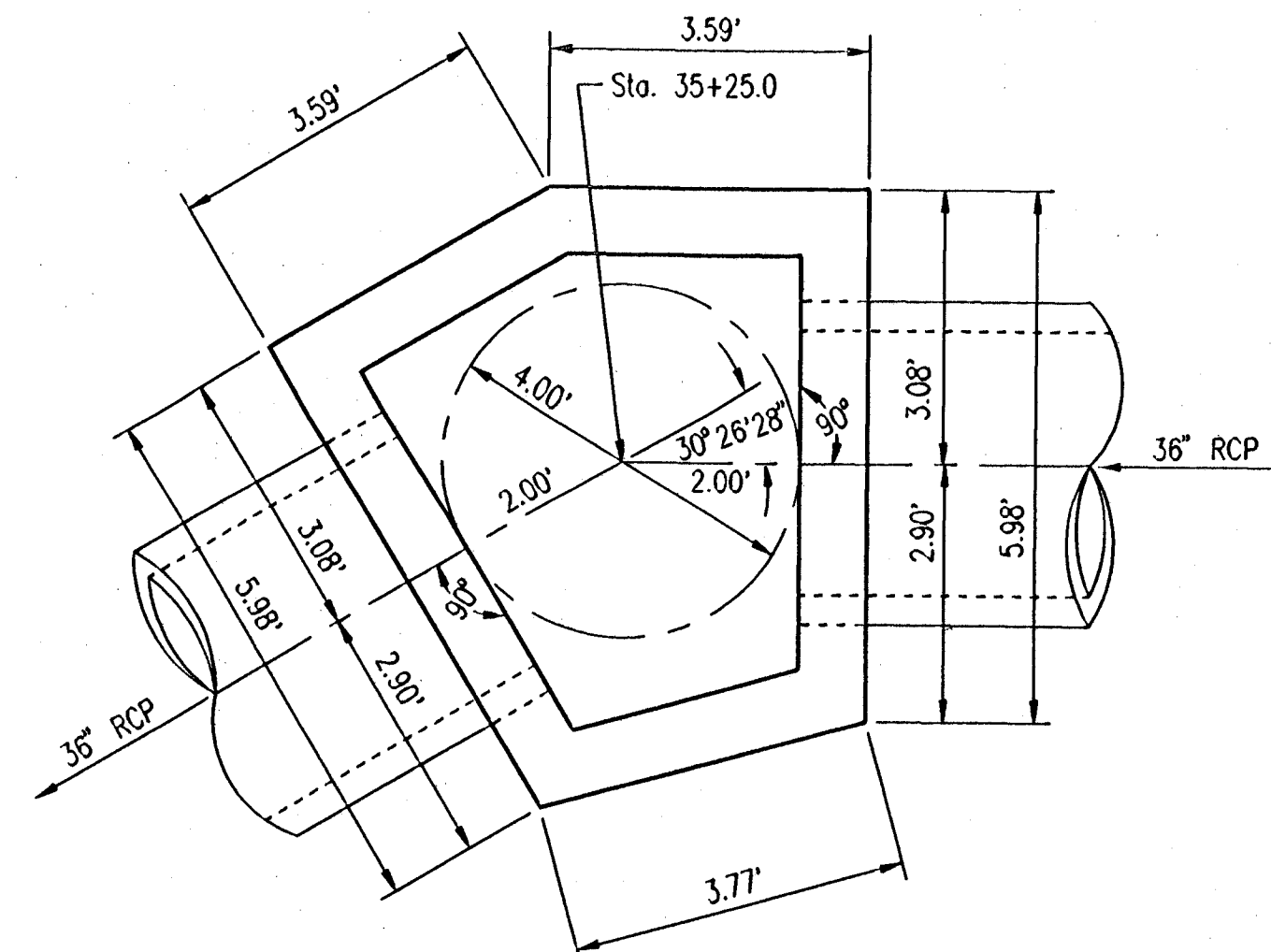
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	WAR INDUSTRIES RELIEF SEWER (PHASE 2)							
	SPECIAL REINFORCED CONCRETE MANHOLE DETAILS							
	MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-82929-000-000-001							
	Professional Engineering Consultants, P.A. 303 S. TOPEKA • WICHITA, KANSAS 67202 316-262-2691 • FAX 316-262-3003							
Designed by		MDK, GM		Job No.		34-98249-3		Sht. 17 of 21
Drawn by		GM		Date		October 1998		



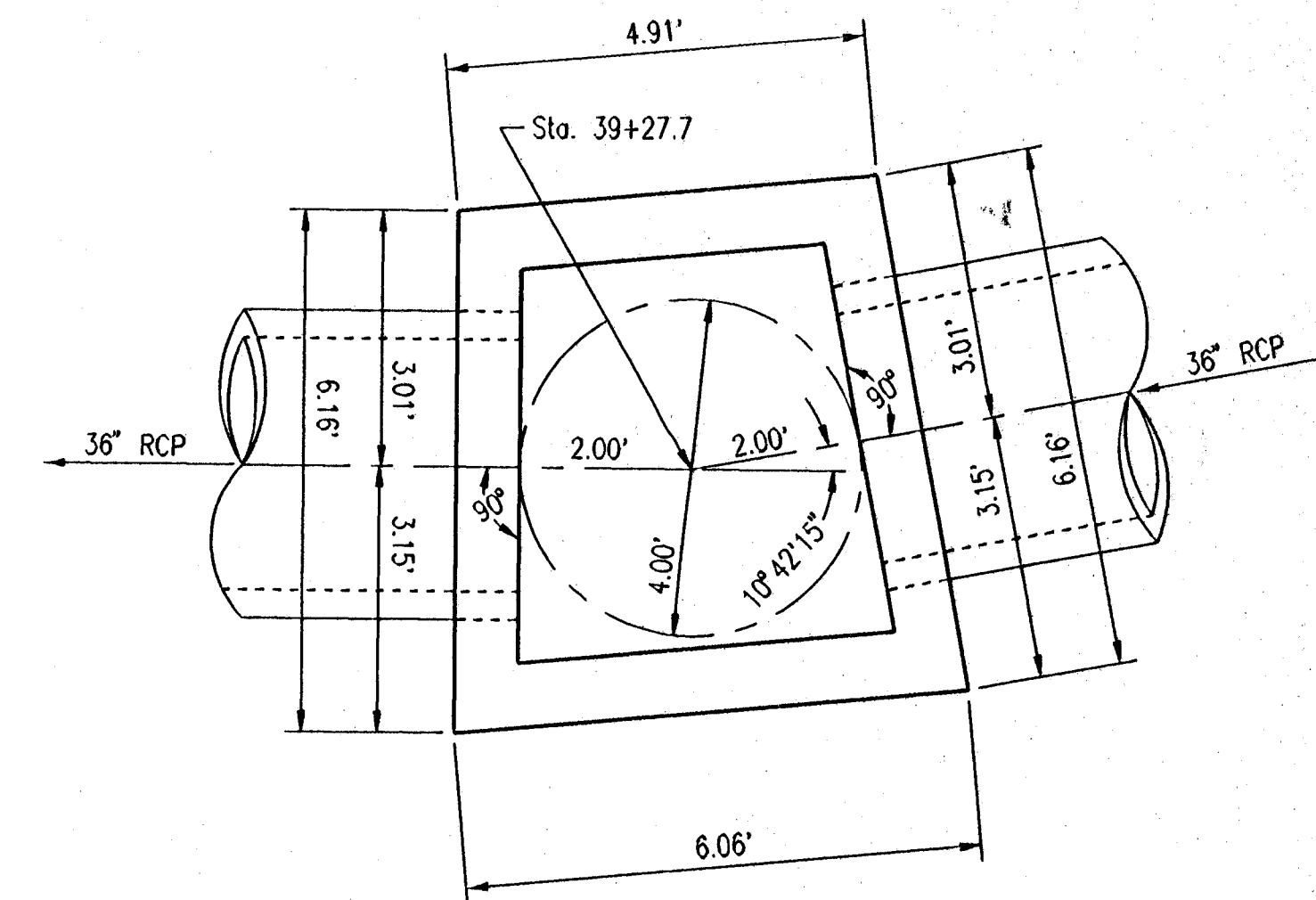
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MH 10

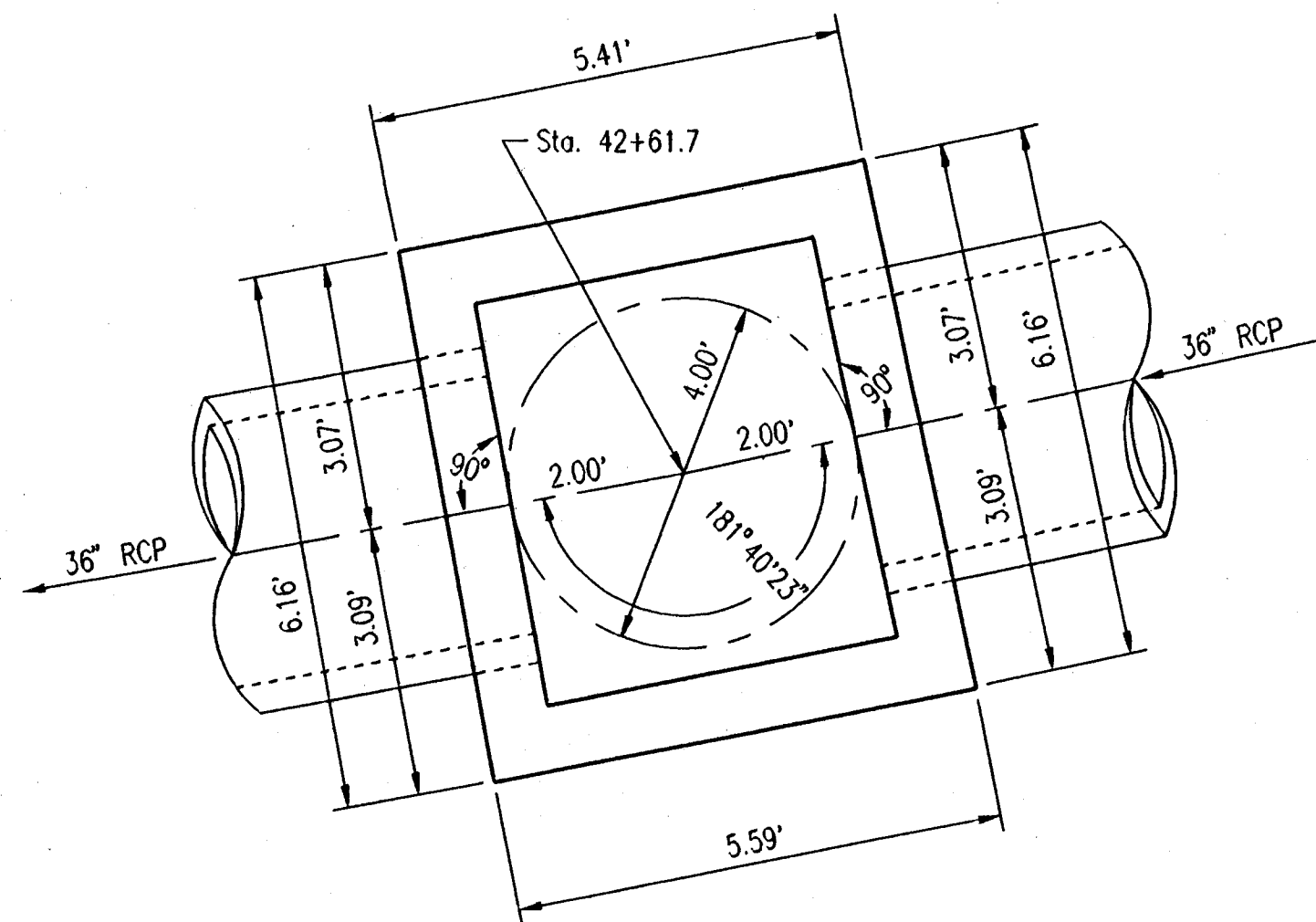


MH 11

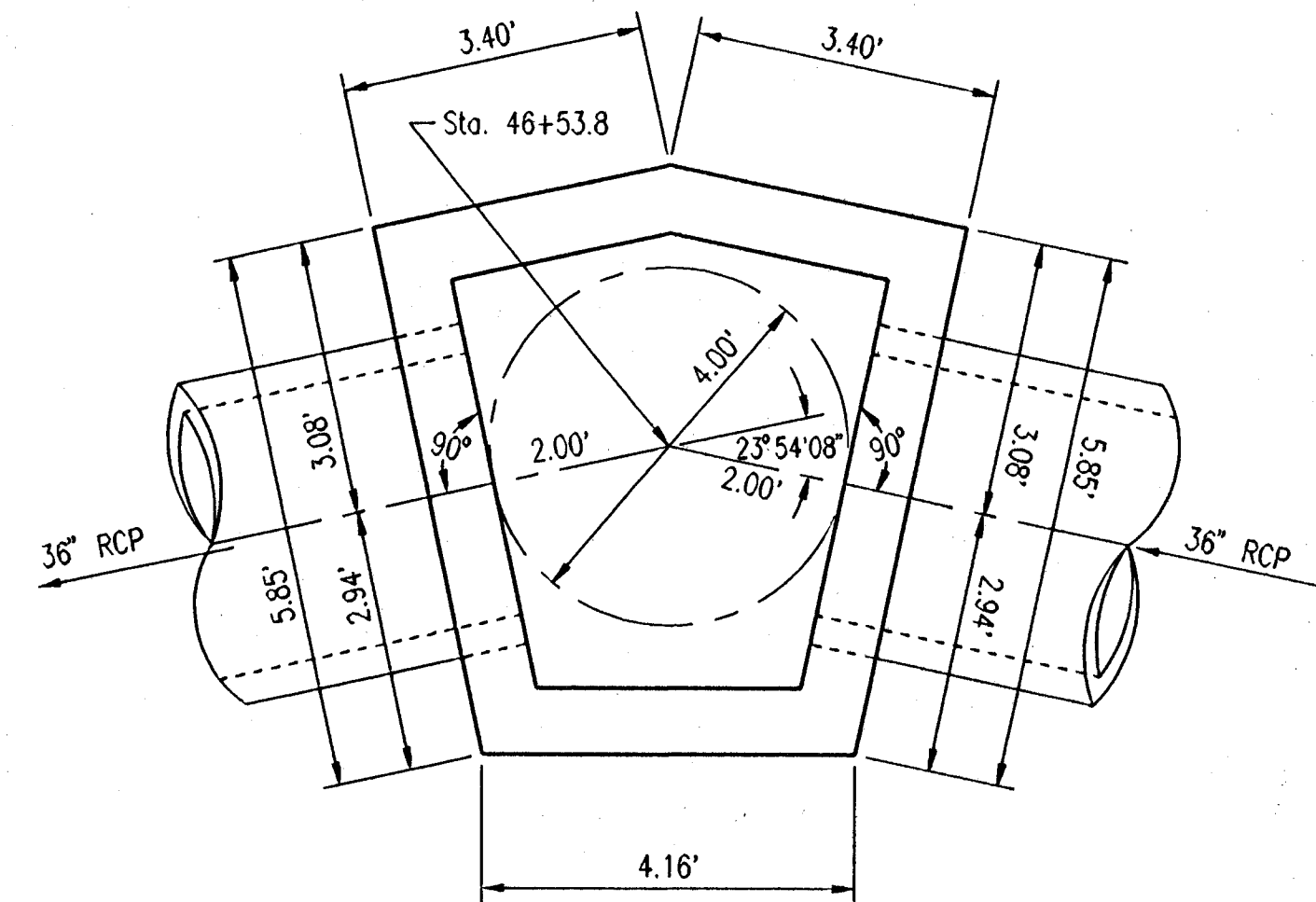


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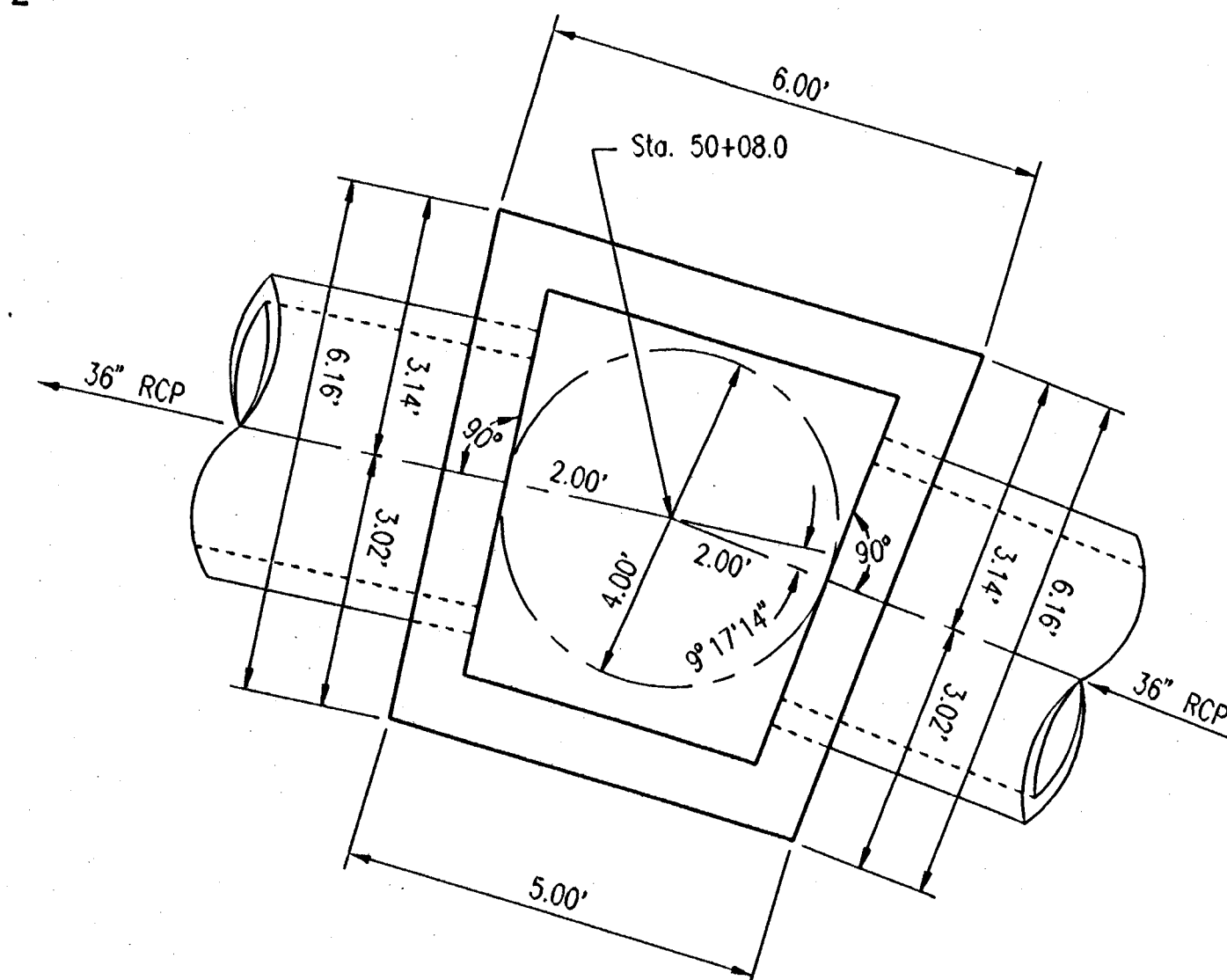
1" = 2'



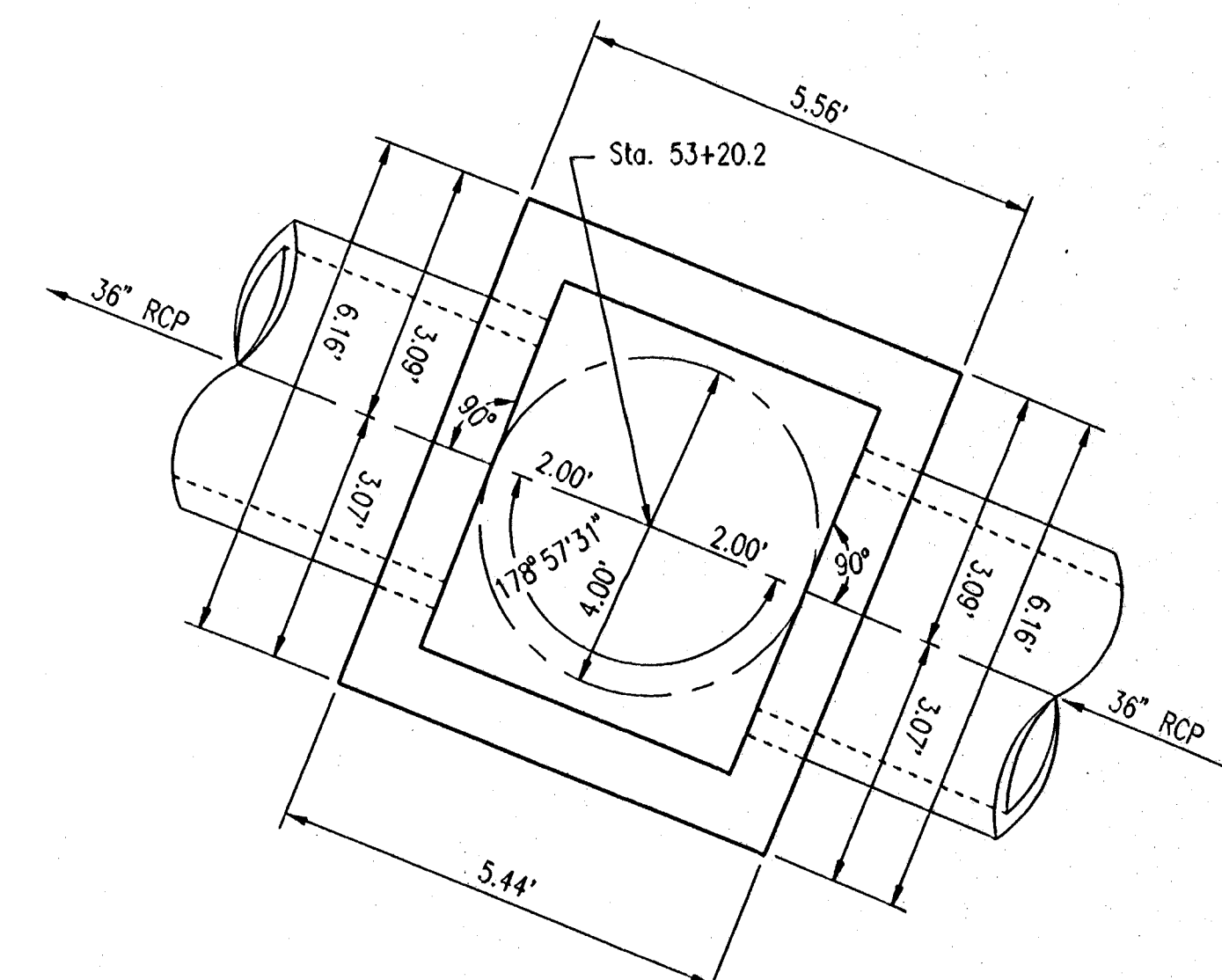
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MH 14



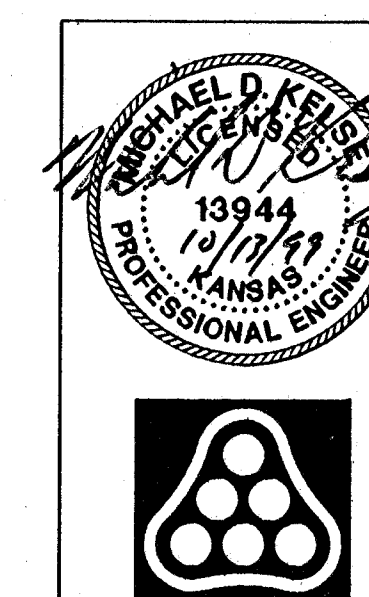
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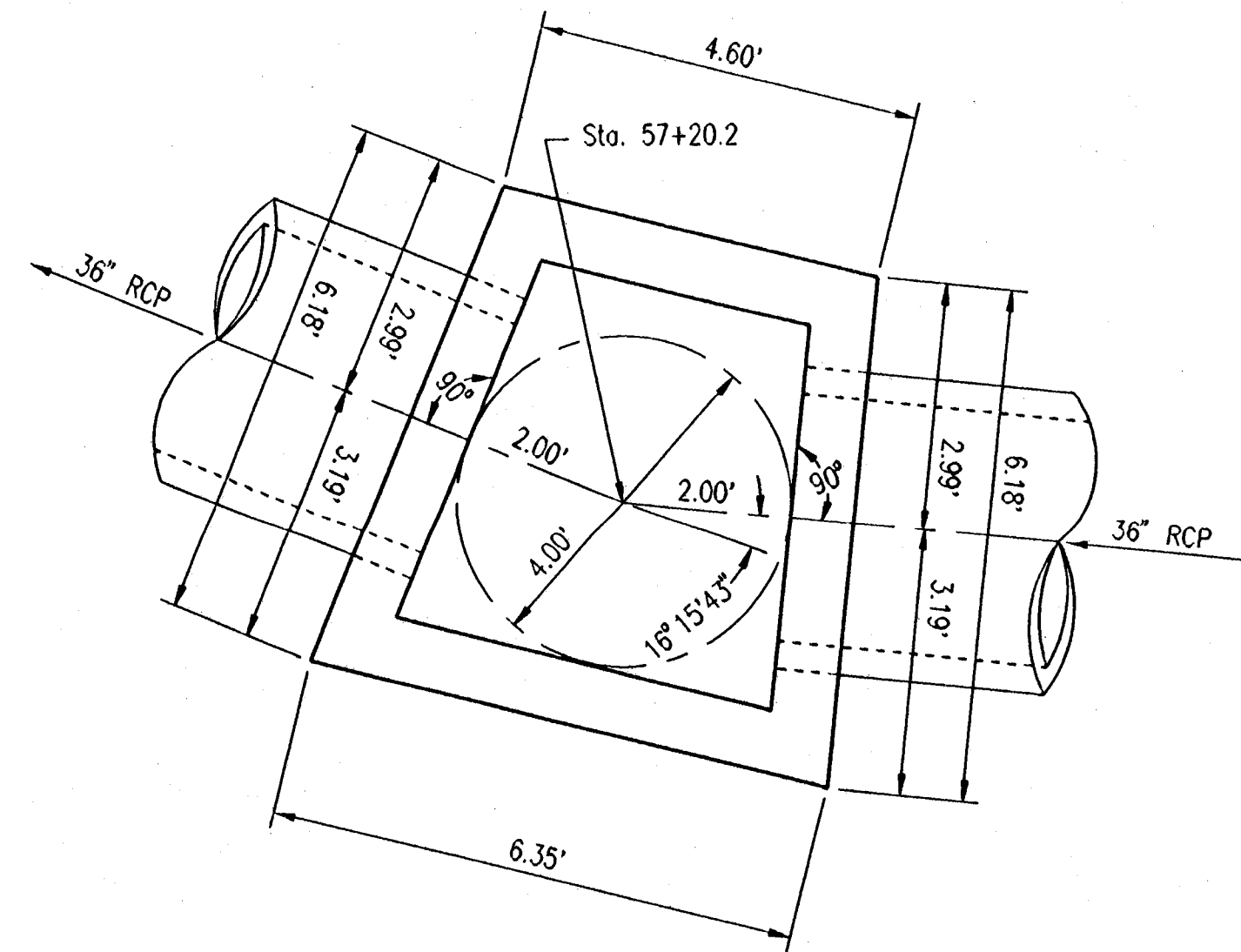
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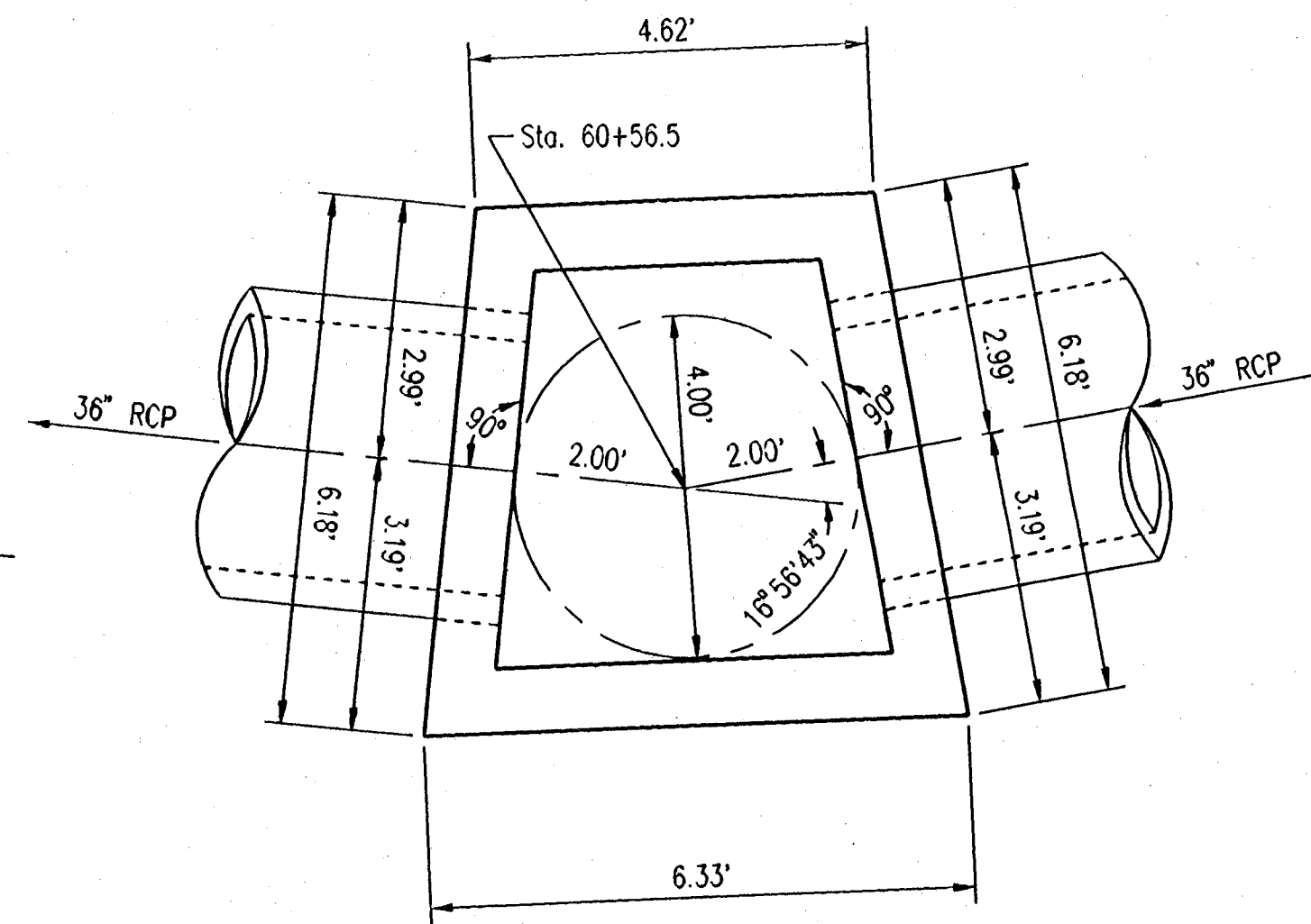
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3. SEE SHEET 20 FOR ADDITIONAL REINFORCED CONCRETE MANHOLE DETAILS AND NOTES.
4. PLASTIC LINING SHALL BE INSTALLED ON THE INTERIOR SURFACES OF ALL SPECIAL REINFORCED CONCRETE MANHOLES PER THE CITY OF WICHITA STANDARD SPECIFICATIONS.



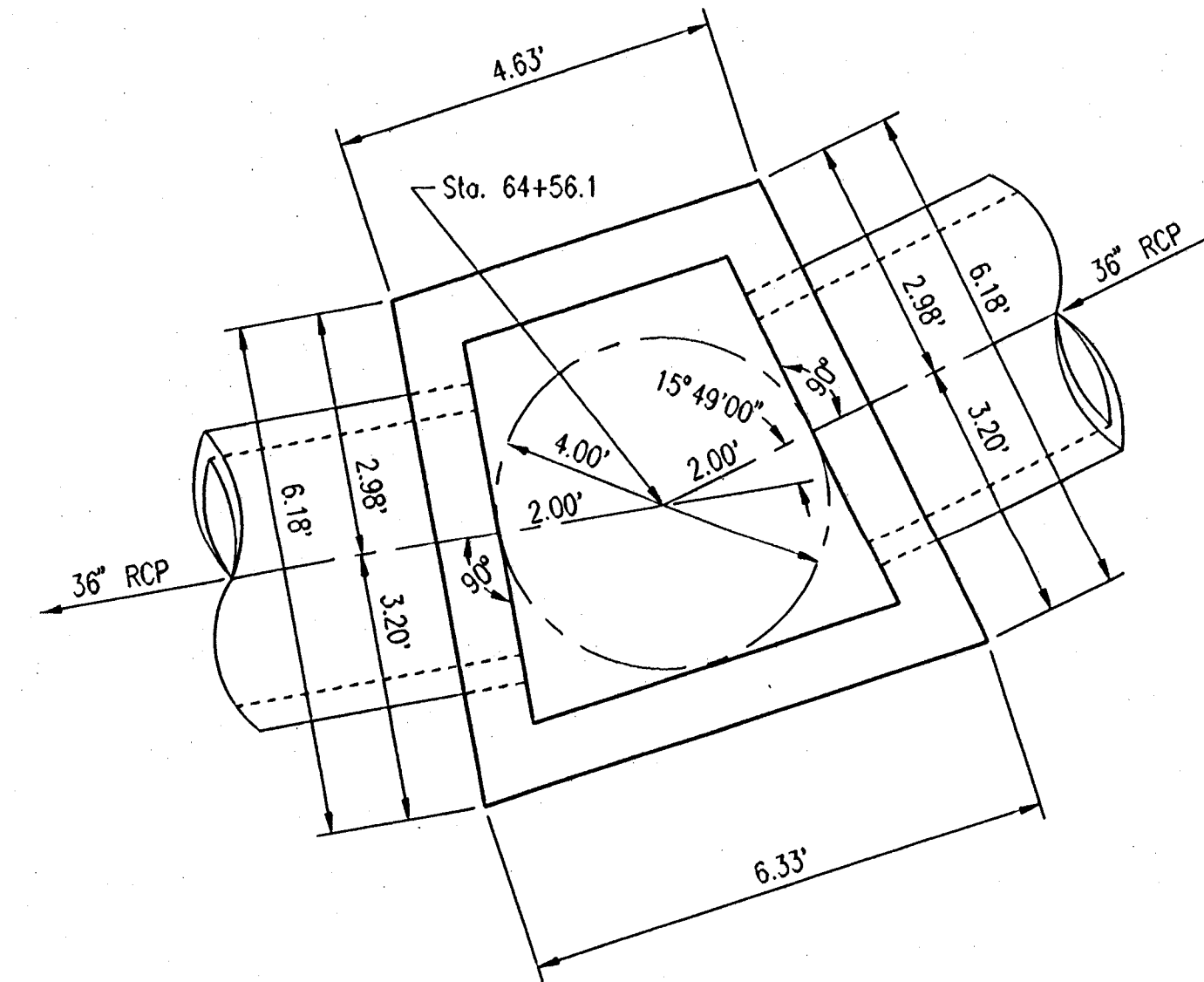
No.	Revision	By	Date
WAR INDUSTRIES RELIEF SEWER (PHASE 2)			
SPECIAL REINFORCED CONCRETE MANHOLE DETAILS			
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-78-245-82929-000-000-001			
Professional Engineering Consultants, P.A. 303 S. TOPEKA • WICHITA, KANSAS 67202 316-262-2691 • FAX 316-262-3003			
Designed by	MDK, GM	Job No.	34-98249-3
Drawn by	GM	Date	October 1998
			Sht. 18 of 21



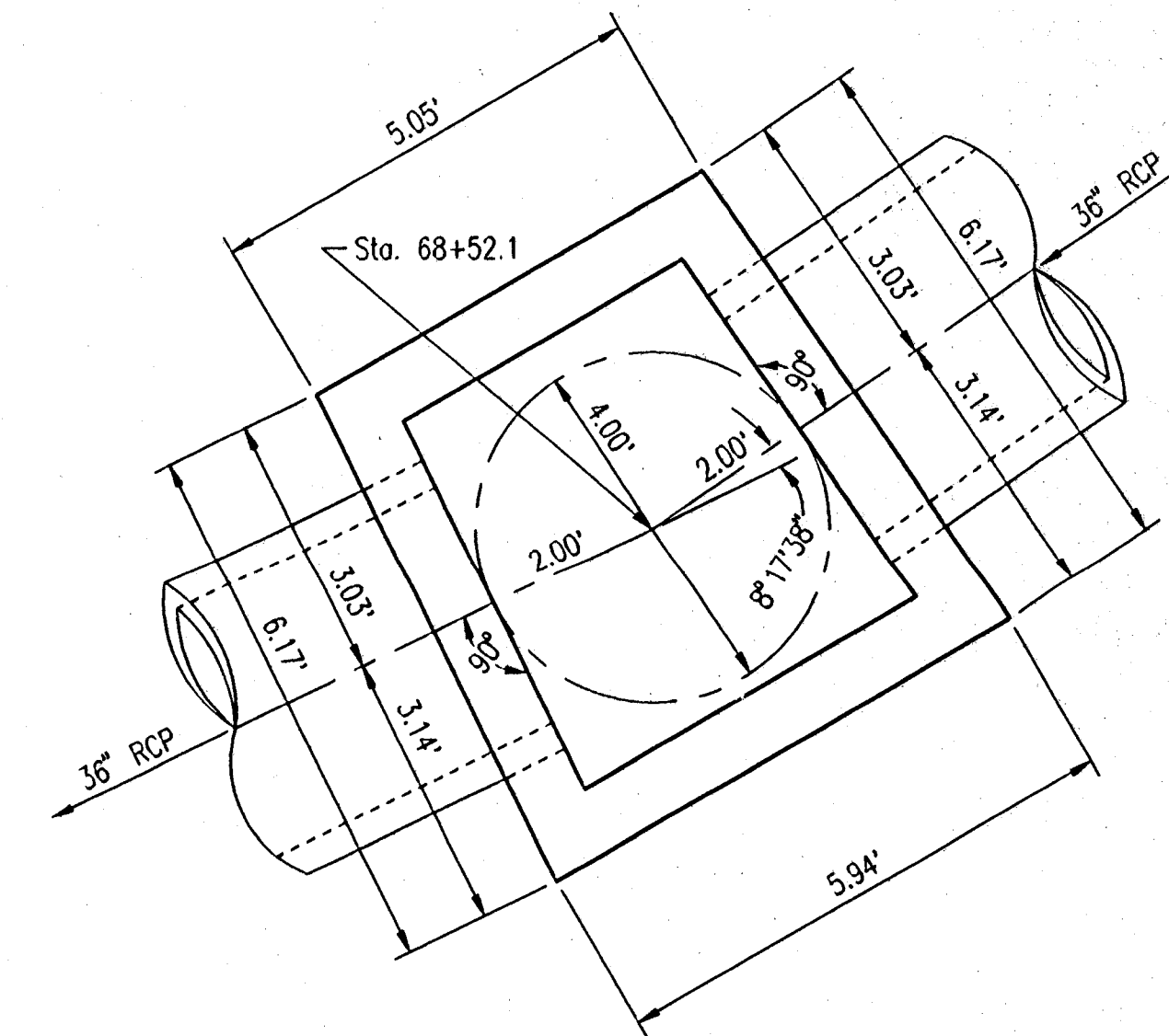
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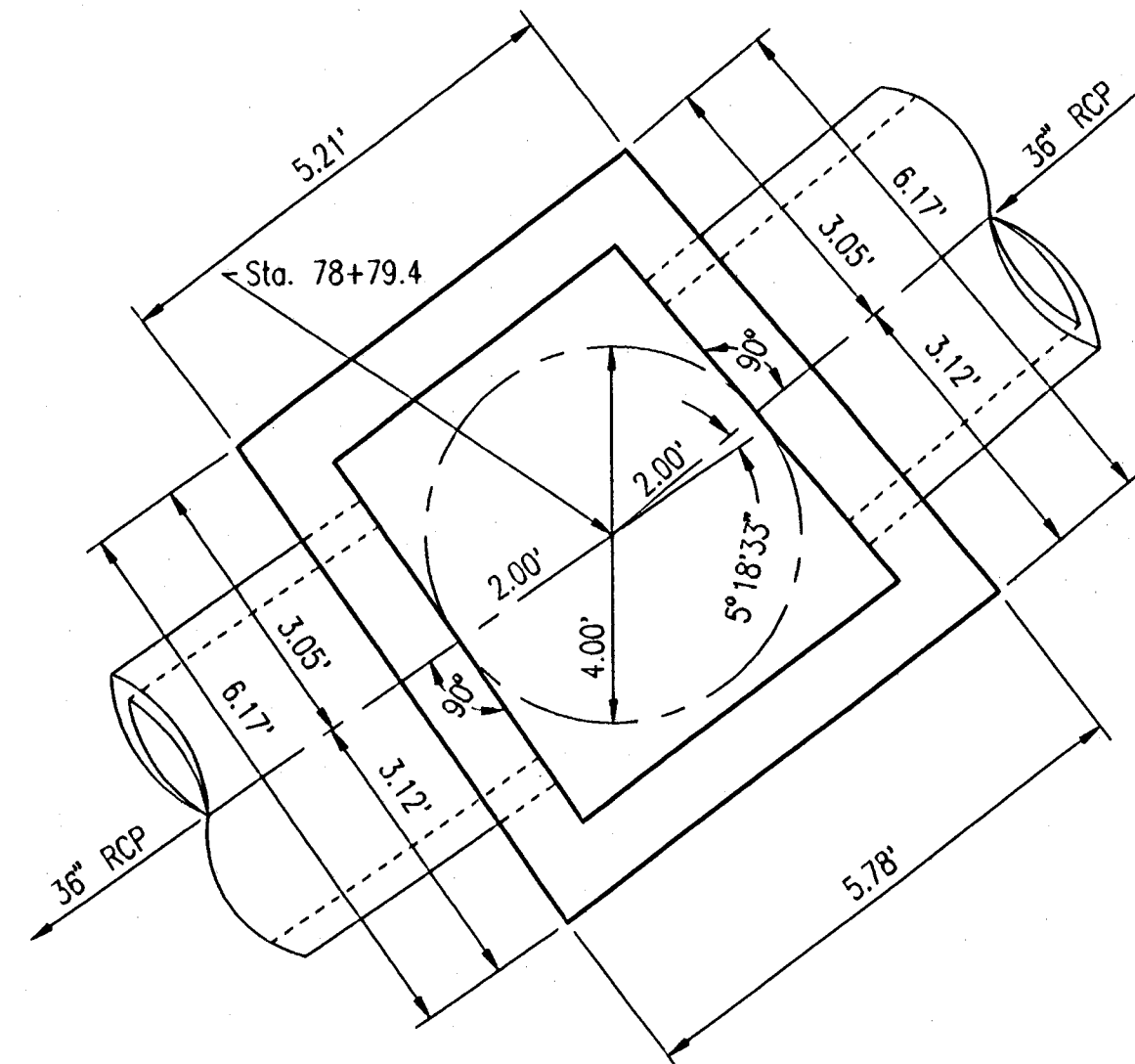
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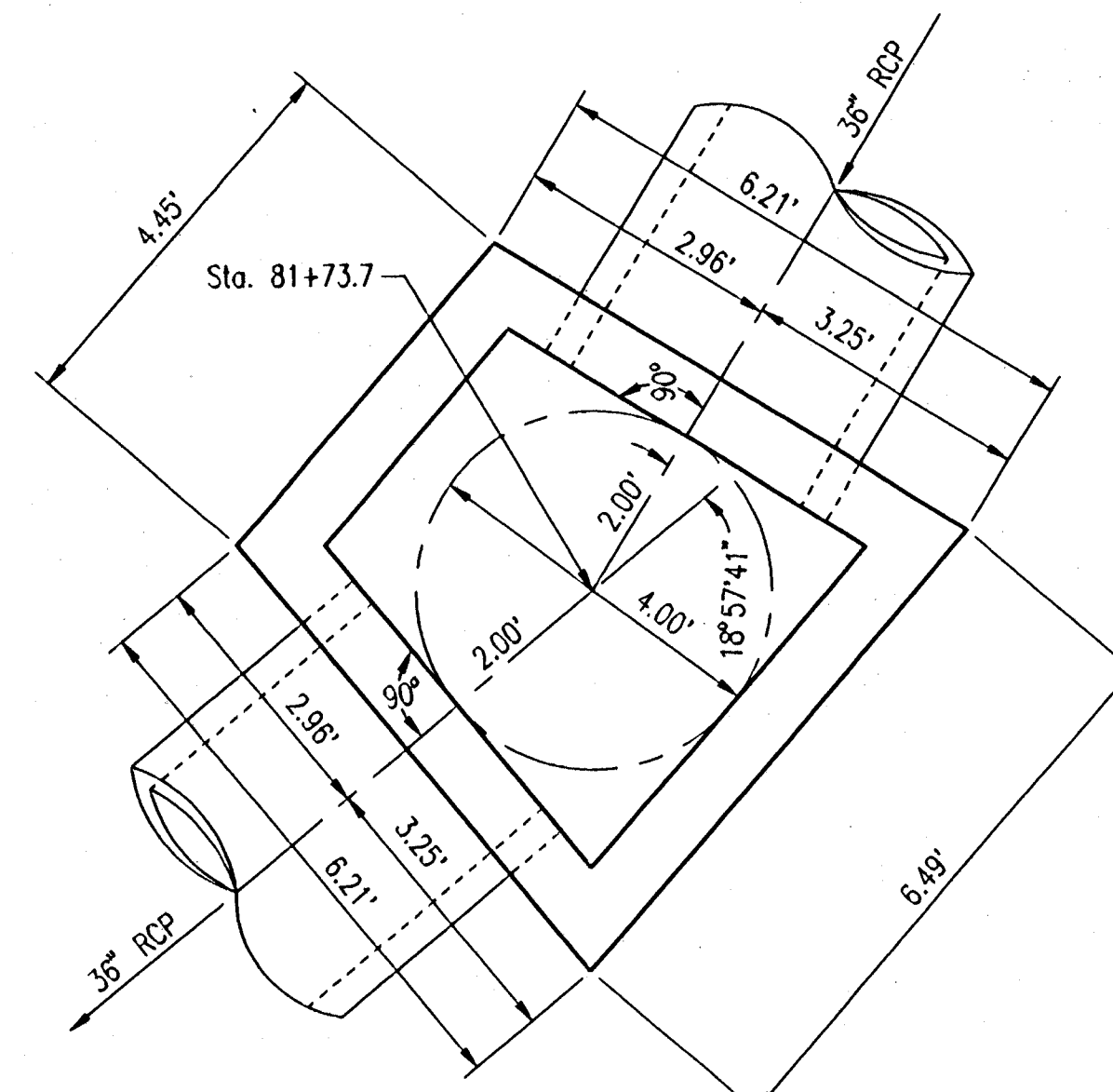
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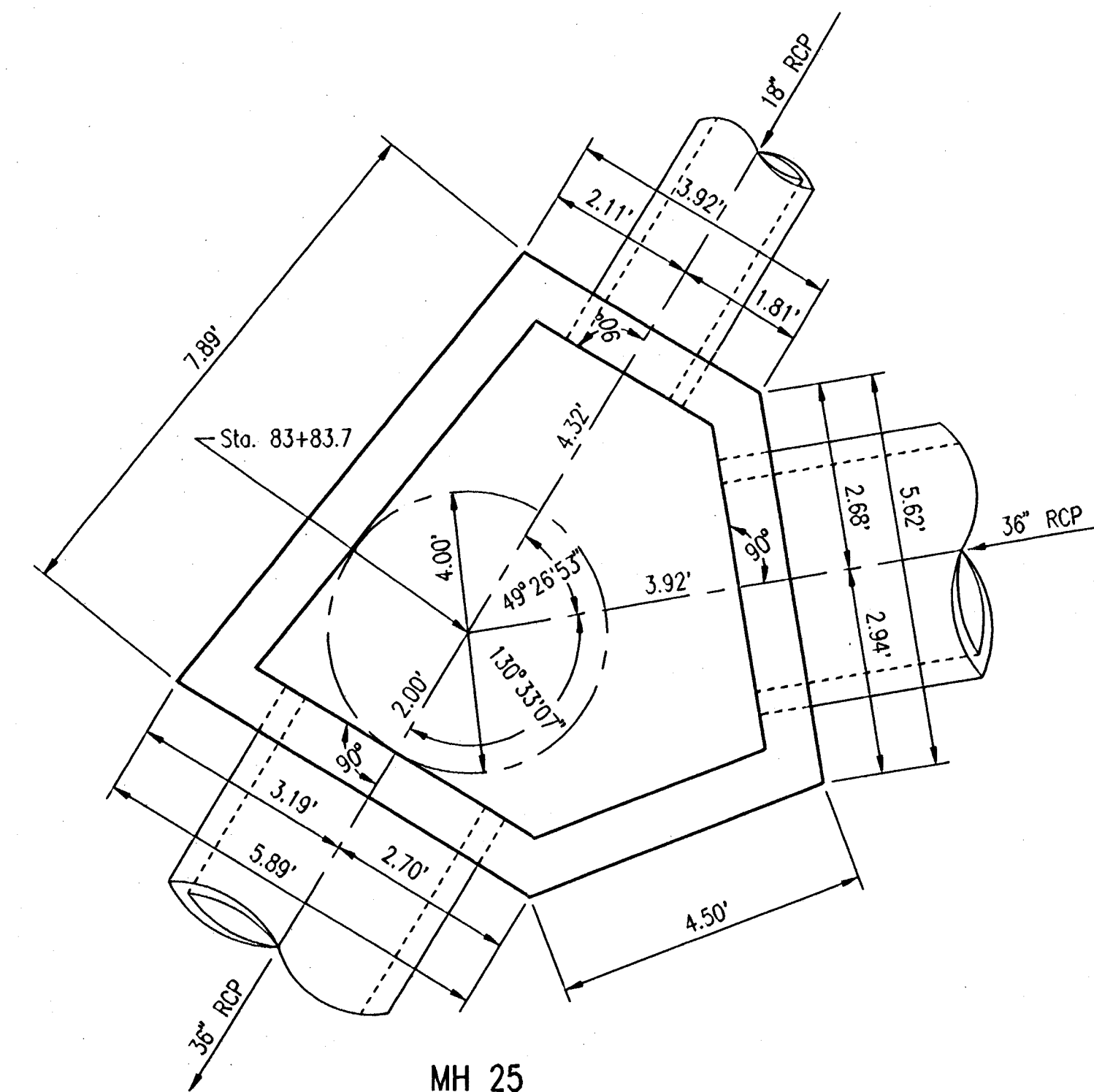
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MH 23



MH 24



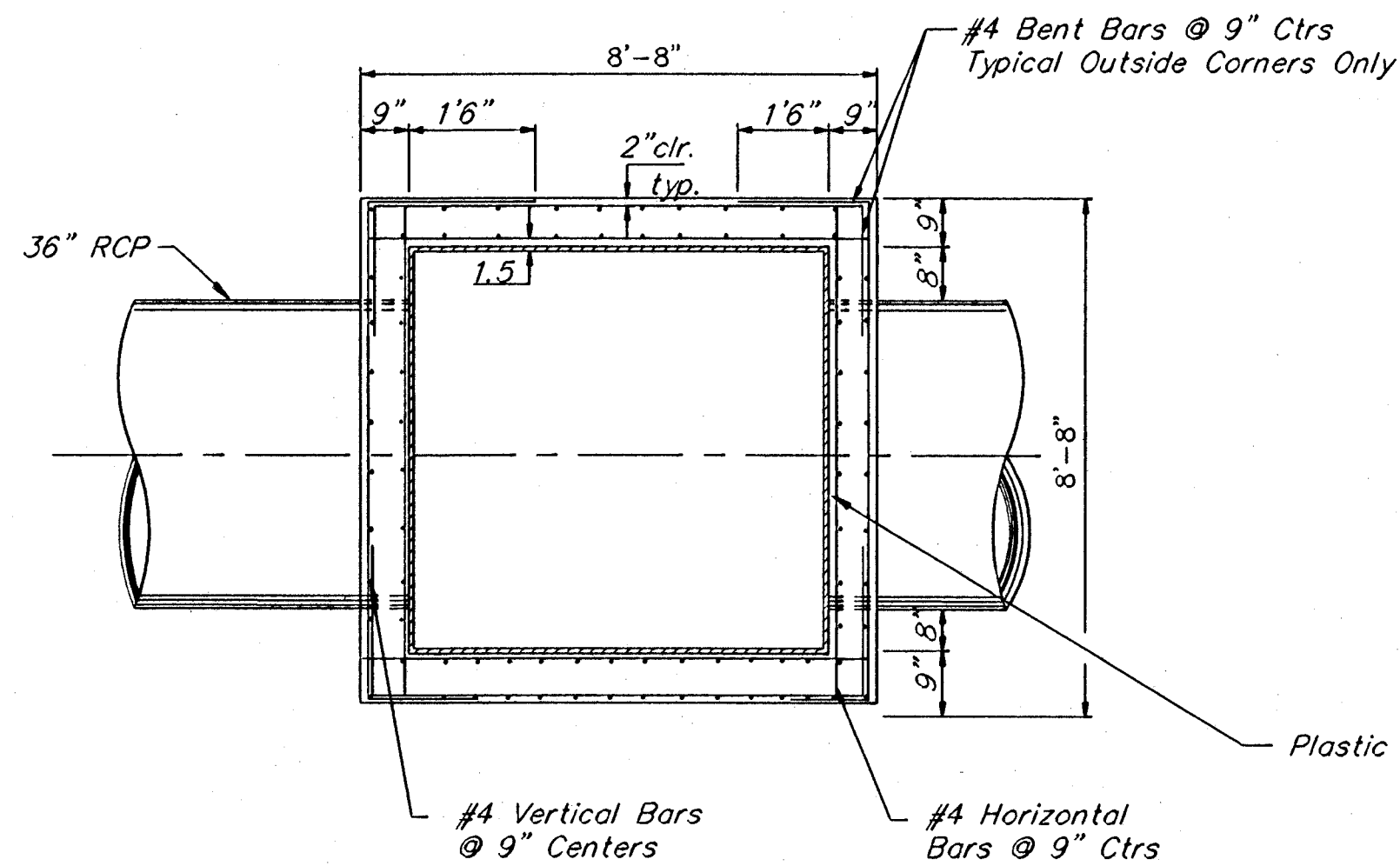
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NOTES:

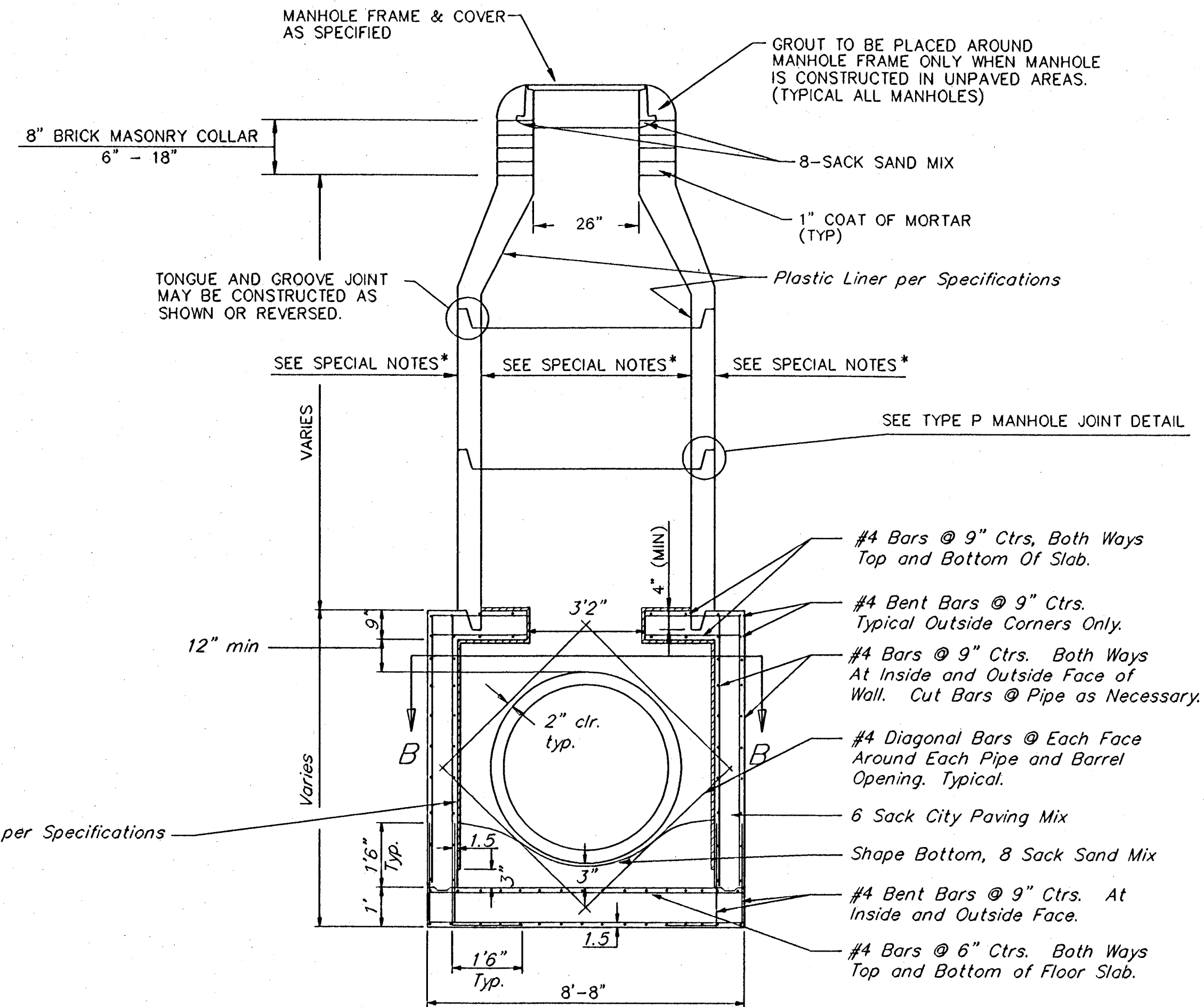
1. SPECIAL REINFORCED CONCRETE MANHOLES, AS DETAILED ON THIS SHEET, SHALL BE USED FOR THE REINFORCED CONCRETE PIPE OPTION ONLY.
2. REINFORCED CONCRETE MANHOLES THAT HAVE NO PIPE DEFLECTIONS THRU THE MANHOLE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD REINFORCED CONCRETE MANHOLE DETAILS AS SHOWN ON SHEET 20.
3. SEE SHEET 20 FOR ADDITIONAL REINFORCED CONCRETE MANHOLE DETAILS AND NOTES.
4. PLASTIC LINING SHALL BE INSTALLED ON THE INTERIOR SURFACES OF ALL SPECIAL REINFORCED CONCRETE MANHOLES PER THE CITY OF WICHITA STANDARD SPECIFICATIONS.

	No.		Revision		By		Date	
	WAR INDUSTRIES RELIEF SEWER (PHASE 2)							
	SPECIAL REINFORCED CONCRETE MANHOLE DETAILS							
	MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-82923-000-000-001 Professional Engineering Consultants, P.A. 303 S. TOPEKA • WICHITA, KANSAS 67202 316-262-2691 • FAX 316-262-3003							
Designed by		MDK, CM		Job No.		34-98249-3		Sht. 19 of 21
Drawn by		CM		Date		October 1998		



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

SECTION B-B



REINFORCED CONCRETE MANHOLE

GENERAL NOTES:

- 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.
- 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.
- 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 ENDS OF ALL PIPES IN MANHOLES SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF MANHOLE WALL.

SPECIAL PROJECT NOTES

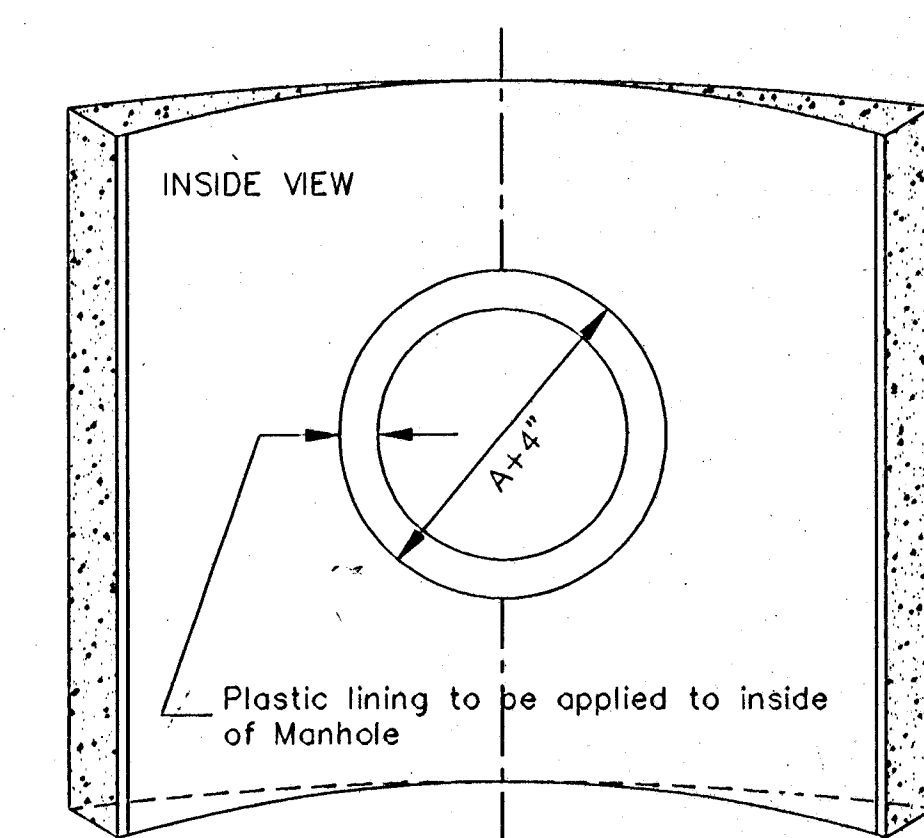
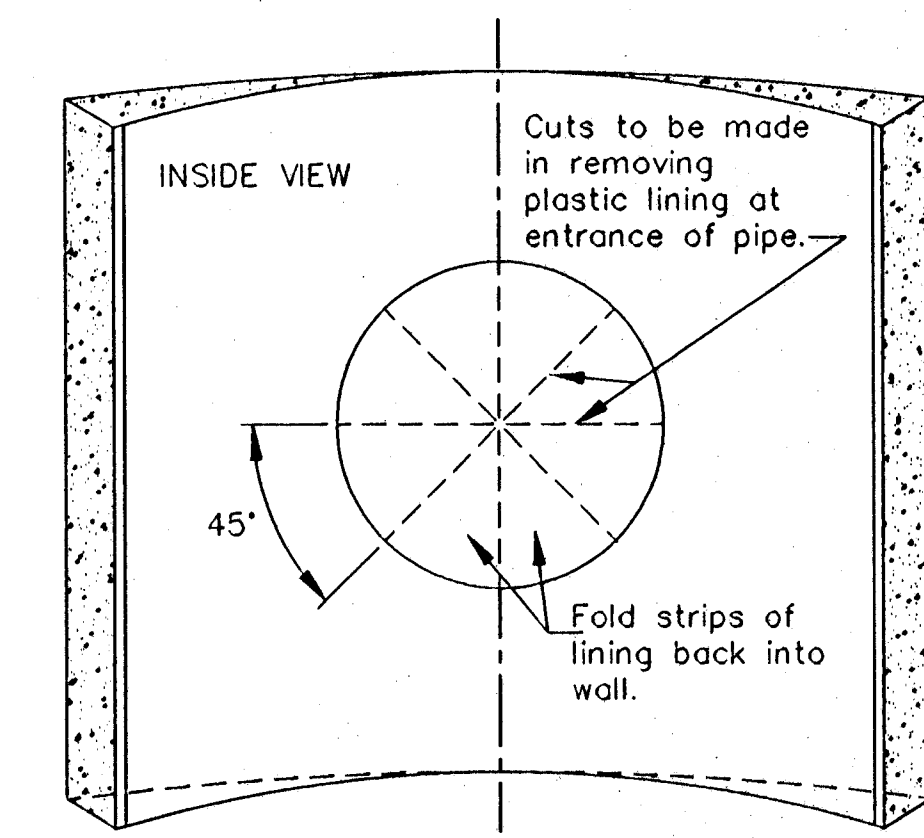
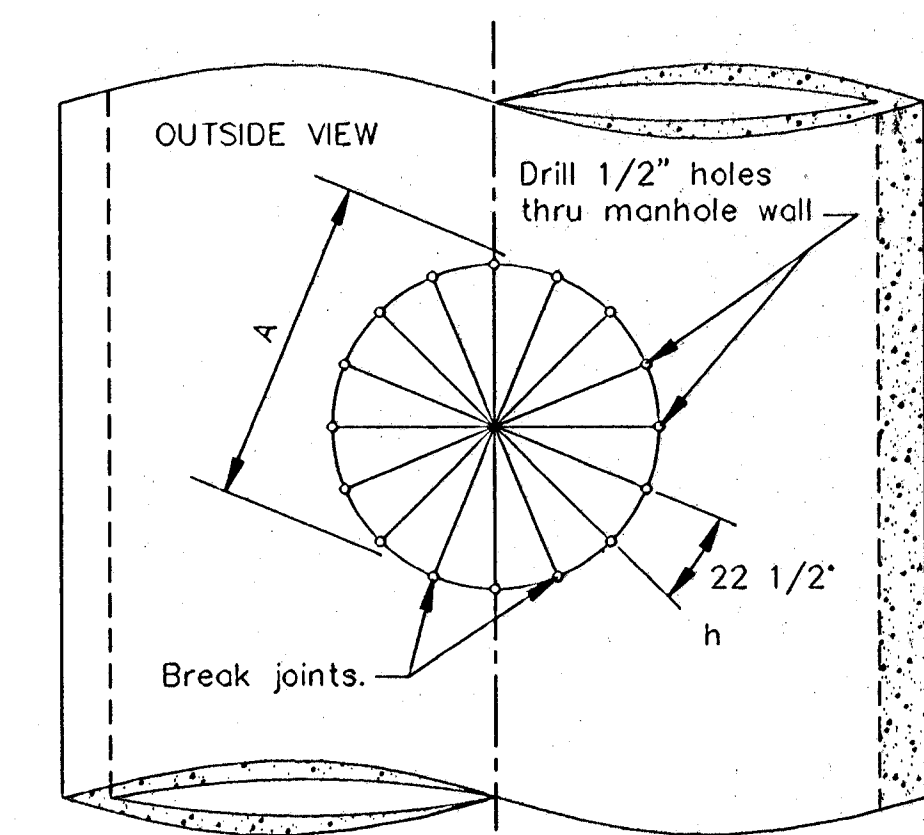
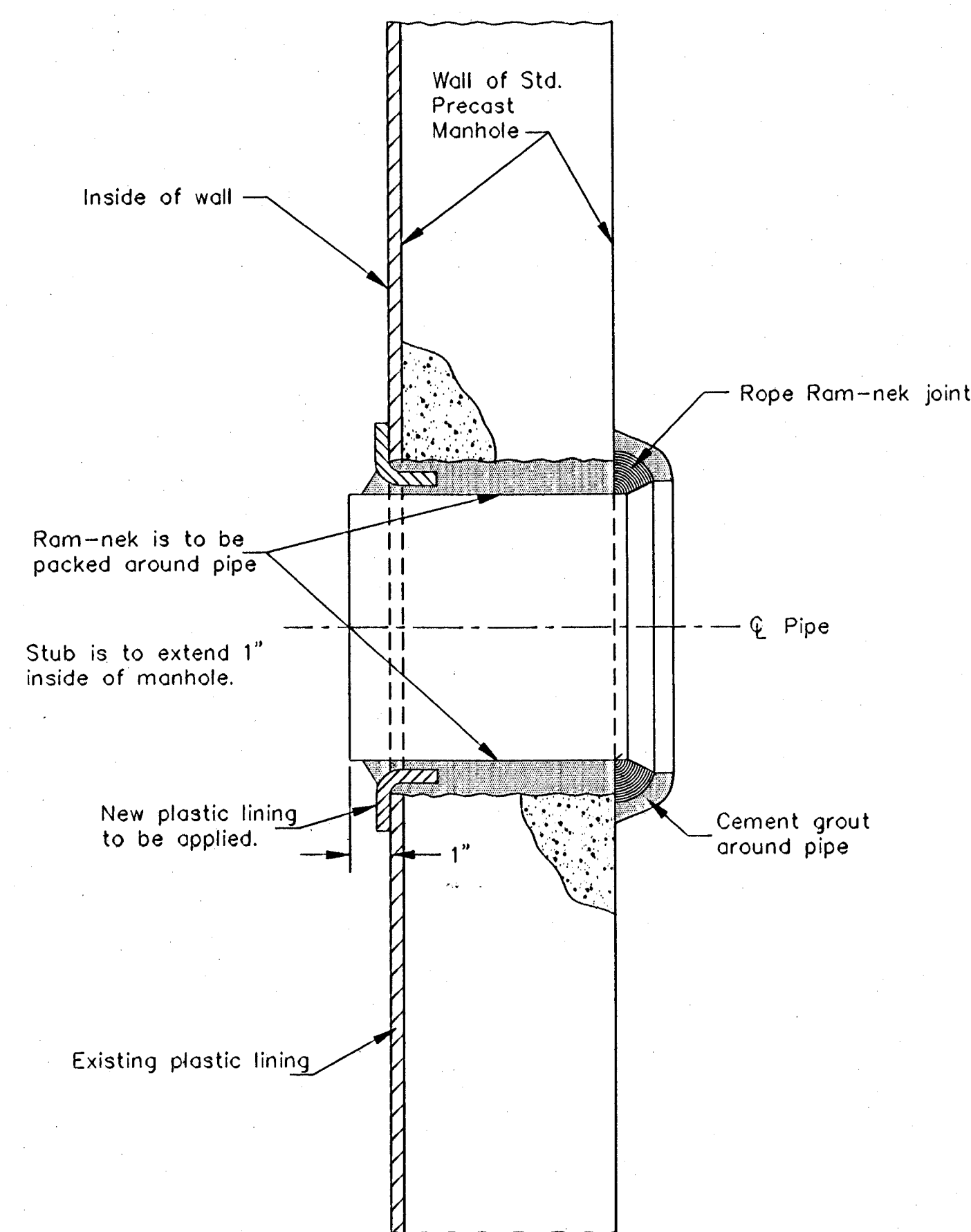
- * MANHOLE CONE SECTIONS HAVING A 5' INSIDE DIAMETER BARREL SHALL HAVE 6" THICK (MIN) REINFORCED CONCRETE WALLS.
 - * MANHOLE CONE SECTIONS HAVING A 6' INSIDE DIAMETER BARREL SHALL HAVE 7" THICK (MIN) REINFORCED CONCRETE WALLS.
- SEE MANHOLE CONSTRUCTION NOTES ON THE PLAN SHEETS FOR REFERENCE TO USING 5' OR 6' DIA. MANHOLE CONE SECTIONS.

(REVISED JAN 1999 SPECIFICALLY FOR WAR INDUSTRIES RELIEF SEWER - PHASE 2)

THE CITY OF WICHITA CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4501 FAX	REINFORCED CONCRETE MANHOLE FOR SANITARY SEWER	
	M. E. LINDEBAK P.E. - CITY ENGINEER	
	PROJECT NUMBER 468-82929	INDEX CODE 623306
	DATE DEC 15, 98	SHEET 20 OF 21

12058-2014

DSNR: CITY OPER: REJ SCALE: 1=1.00
C:\1998\98249\003\pccomp\inh 10-11-1999 10:01:27 am



A = OUTSIDE DIAMETER OF PIPE + 2"

 CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 458 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4501 (316) 268-4114 FAX	PIPE CONNECTION PLASTIC LINED CONCRETE MANHOLE	
	M. E. LINDEBAK P.E. - CITY ENGINEER	
	PROJECT NUMBER 468-82929	INDEX CODE 623308
	DATE MAR 96	SHEET 21 OF 21

10-40-01