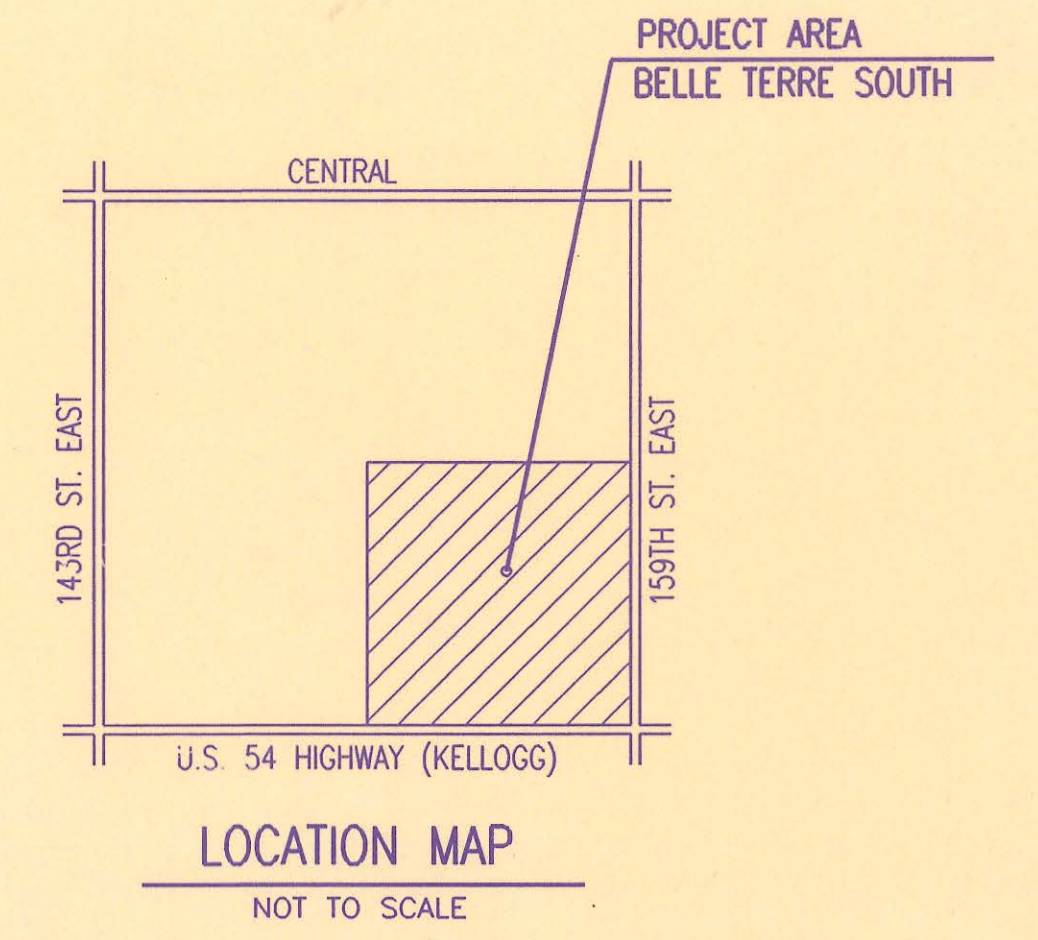


4MC-072

BUREAU OF PUBLIC SERVICES



INDEX OF SHEETS

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SHEET NO. 8-13	PLAN/PROFILE

CONSTRUCTION PLANS FOR SANITARY SEWER IMPROVEMENTS

RECORD DRAWING

IN
BELLE TERRE SOUTH
(PHASE 4 AND 5)
TO SEDGWICK COUNTY, KANSAS



APRIL 1998

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

APPROVED:

David C. Spears

DAVID C. SPEARS, P.E.
DIRECTOR OF PUBLIC SERVICES/COUNTY ENGINEER

DATE: 4/24/98

APPROVED:

Walter D. Schick

CHAIR, BOARD OF COUNTY COMMISSIONERS

DATE: 4/24/98

FILED IN THE OFFICE OF
THE SEDGWICK COUNTY CLERK

James M. ...

COUNTY CLERK

DATE: 4/28/98

DSNR: MDK OPER: AMB SCALE: 1=1.00
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 4MC-072

GENERAL NOTES

- ALL ELEVATIONS SHOWN ARE USGS DATUM.
- AT LEAST 72 HOURS PRIOR TO BEGINNING ANY EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT 687-2470 TO REQUEST THAT THE LOCAL UTILITY COMPANIES MARK ANY EXISTING LINES WITHIN THE PROJECT AREA.
- THE BURIED UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE LOCATIONS ONLY. IT SHOULD BE NOTED THAT OTHER BURIED LINES AND CABLES MAY EXIST WHICH ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING TRENCHING OPERATIONS TO AVOID DAMAGING THESE LINES. ANY LINES DAMAGED SHALL BE REPLACED OR REPAIRED IMMEDIATELY AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- AT LEAST 24 HOURS BEFORE CONNECTING NEW SEWER PIPE TO THE EXISTING SEWAGE SYSTEM, THE CONTRACTOR SHALL CONTACT THE SEDGWICK COUNTY EASTERN SEWER DISTRICT (733-0202). THE CONTRACTOR SHALL KEEP ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION. TO PREVENT WATER OR DEBRIS FROM ENTERING THE EXISTING SEWER, A MECHANICAL PLUG SHALL BE INSTALLED AND MAINTAINED TO ISOLATE THE EXISTING SEWER FROM THE NEW CONSTRUCTION UNTIL THE NEW CONSTRUCTION IS CLEANED, TESTED, AND HAS BEEN ACCEPTED. THE WATER USED FOR CLEANING SHALL NOT BE ADDED TO THE FLOW OF THE EXISTING SEWER. THE CLEANING OR OTHERWISE ACCUMULATED WATER SHALL BE PUMPED OR OTHERWISE REMOVED PRIOR TO TRENCHING.
- ALL PIPE JOINTS SHALL BE LAID AND PUSHED 'FULL HOME', WITH THE BEVELED END OF THE SPIGOT MAKING FULL CONTACT WITH THE CHAMFERED AREA AT THE THROAT OF THE BELL OR SOCKET, WITH NO SEPARATION BETWEEN THEM. IF SEPARATION IS DETERMINED, THE PIPE SHALL BE EXCAVATED AND RE-LAID AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL CONTAIN HIS OPERATIONS TO PERMIT TRAFFIC THROUGH AND ACROSS CONSTRUCTION AT EXISTING ROADWAYS AT ALL TIMES. THE CONTRACTOR SHALL ERECT WARNING SIGNS, FLASHING LIGHTS, AND BARRICADES IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES TO ENSURE SAFETY AS DIRECTED IN THE GENERAL CONDITIONS. THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR SHALL 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. PRIOR TO START OF CONSTRUCTION THE CONTRACTOR SHALL FLAG AND REFERENCE ALL PROPERTY CORNERS THAT MAY BE DISTURBED BY CONSTRUCTION OPERATIONS, AND VERIFY THESE IN THE FIELD IN THE PRESENCE OF THE ENGINEER AND THE CONTRACTOR'S SURVEYOR. AFTER CONSTRUCTION AND BEFORE THE FINAL INSPECTION, A LETTER SIGNED AND SEALED BY THE LICENSED LAND SURVEYOR CERTIFYING REPLACEMENT OF ALL DISTURBED PROPERTY CORNERS SHALL BE SUBMITTED TO THE ENGINEER.
- THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, AND BANKS TO THEIR ORIGINAL SLOPES AND GRADES. WHERE EXISTING ENTRANCE PIPE, DRAINAGE PIPE, SIGNS, FENCES, ETC., CONFLICT WITH THE PROPOSED WORK HEREIN, THEY SHALL BE REMOVED AND REPLACED OR RESET UNLESS OTHERWISE INDICATED ON THE PLANS. REPLACEMENT OF ALL THE AFORESAID ITEMS, INCLUDING SEEDING, FERTILIZER, AND MULCHING SHALL BE CONSIDERED SUBSIDIARY TO "SITE CLEARING AND RESTORATION".
- EASEMENTS AND RIGHTS-OF-WAY PROVIDED BY THE OWNER FOR THE PROJECT ARE SHOWN IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION OF ANY ADDITIONAL TEMPORARY EASEMENTS OR RIGHTS-OF-WAY THAT HE DESIRES TO USE IN COMPLETING THE WORK.
- POSITIVE DRAINAGE SHALL BE PROVIDED FOR ALL AREAS ON OR NEAR SPOIL AREAS. NATURAL DRAINAGE WAYS SHALL BE MAINTAINED.
- THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
- THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ADJUTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF 10 DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION IN THE VICINITY OF THE AFFECTED PROPERTY.
- ALL TRENCH BACKFILL SHALL BE EITHER TYPE I OR TYPE III UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT THE FOLLOWING AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION TO ADVISE THEM OF THE INTENDED WORK AND OF HIS PROPOSED SCHEDULE:

SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 1250 S. SENECA
 WICHITA, KS 67213
 MR. JIM WEBER
 (316) 383-7901

No.	Revision	By	Date

SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DAVID C. SPEARS, P.E.
 DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

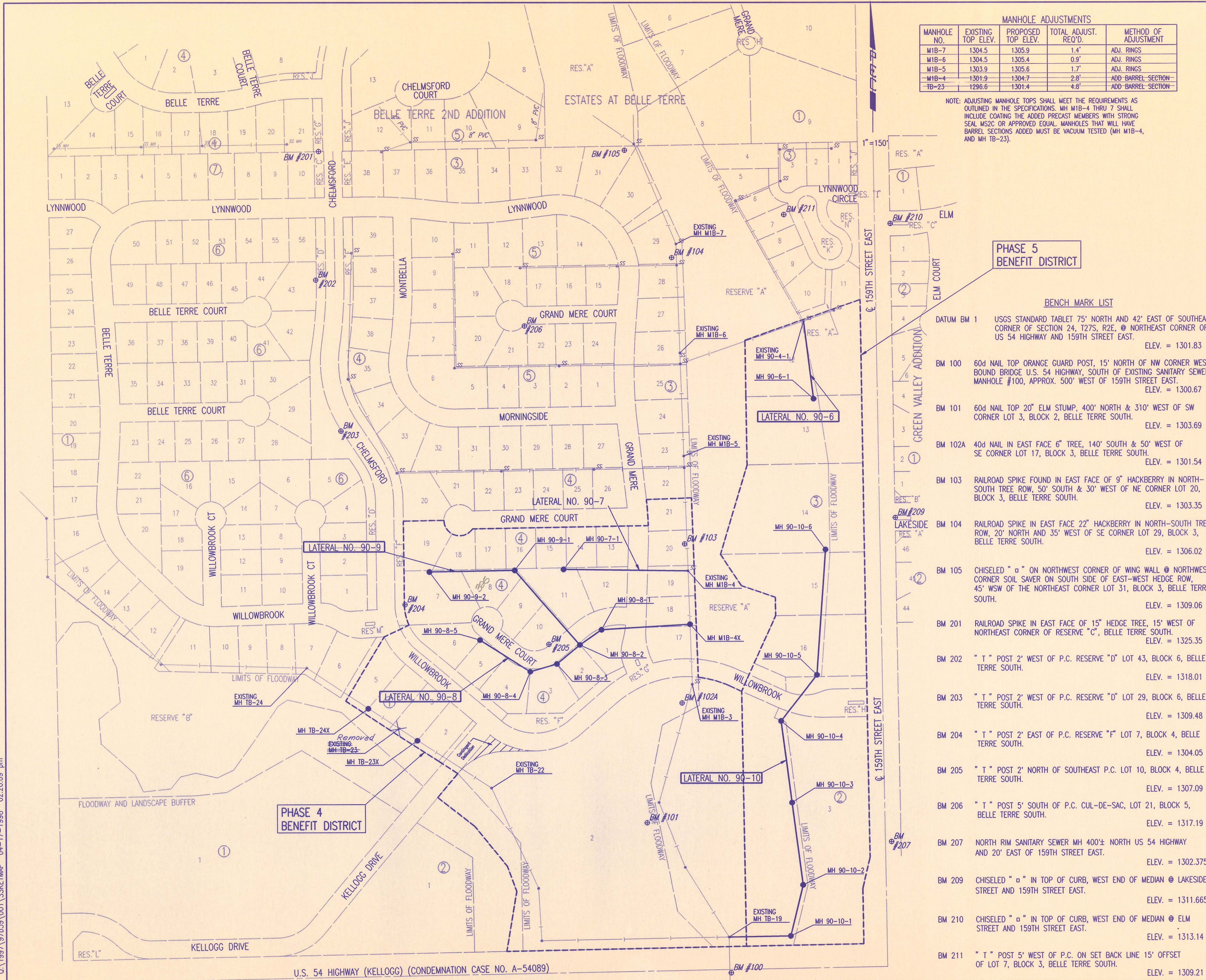
KEY MAP
 SANITARY SEWER IMPROVEMENTS
 BELLE TERRE SOUTH (PHASE 4 AND 5)

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS

Designed by	MDK	Job No.	34-97B39-1	Sht. 2 of 13
Drawn by	DMM	Date	December 1997	

MANHOLE NO.	EXISTING TOP ELEV.	PROPOSED TOP ELEV.	TOTAL ADJUST. REQ'D.	METHOD OF ADJUSTMENT
M1B-7	1304.5	1305.9	1.4'	ADJ. RINGS
M1B-6	1304.5	1305.4	0.9'	ADJ. RINGS
M1B-5	1303.9	1305.6	1.7'	ADJ. RINGS
M1B-4	1301.9	1304.7	2.8'	ADD BARREL SECTION
TB-23	1296.6	1301.4	4.8'	ADD BARREL SECTION

NOTE: ADJUSTING MANHOLE TOPS SHALL MEET THE REQUIREMENTS AS OUTLINED IN THE SPECIFICATIONS. MH M1B-4 THRU 7 SHALL INCLUDE COATING THE ADDED PRECAST MEMBERS WITH STRONG SEAL MS2C OR APPROVED EQUAL. MANHOLES THAT WILL HAVE BARREL SECTIONS ADDED MUST BE VACUUM TESTED (MH M1B-4, AND MH TB-23).



PHASE 5 BENEFIT DISTRICT

BENCH MARK LIST

DATUM BM 1	USGS STANDARD TABLE 75' NORTH AND 42' EAST OF SOUTHEAST CORNER OF SECTION 24, T27S, R2E, @ NORTHEAST CORNER OF US 54 HIGHWAY AND 159TH STREET EAST.	ELEV. = 1301.83
BM 100	60d NAIL TOP ORANGE GUARD POST, 15' NORTH OF NW CORNER WEST BOUND BRIDGE U.S. 54 HIGHWAY, SOUTH OF EXISTING SANITARY SEWER MANHOLE #100, APPROX. 500' WEST OF 159TH STREET EAST.	ELEV. = 1300.67
BM 101	60d NAIL TOP 20" ELM STUMP, 400' NORTH & 310' WEST OF SW CORNER LOT 3, BLOCK 2, BELLE TERRE SOUTH.	ELEV. = 1303.69
BM 102A	40d NAIL IN EAST FACE 6" TREE, 140' SOUTH & 50' WEST OF SE CORNER LOT 17, BLOCK 3, BELLE TERRE SOUTH.	ELEV. = 1301.54
BM 103	RAILROAD SPIKE FOUND IN EAST FACE OF 9" HACKBERRY IN NORTH-SOUTH TREE ROW, 50' SOUTH & 30' WEST OF NE CORNER LOT 20, BLOCK 3, BELLE TERRE SOUTH.	ELEV. = 1303.35
BM 104	RAILROAD SPIKE IN EAST FACE 22" HACKBERRY IN NORTH-SOUTH TREE ROW, 20' NORTH AND 35' WEST OF SE CORNER LOT 29, BLOCK 3, BELLE TERRE SOUTH.	ELEV. = 1306.02
BM 105	CHISELED "□" ON NORTHWEST CORNER OF WING WALL @ NORTHWEST CORNER SOIL SAVER ON SOUTH SIDE OF EAST-WEST HEDGE ROW, 45' WSW OF THE NORTHEAST CORNER LOT 31, BLOCK 3, BELLE TERRE SOUTH.	ELEV. = 1309.06
BM 201	RAILROAD SPIKE IN EAST FACE OF 15" HEDGE TREE, 15' WEST OF NORTHEAST CORNER OF RESERVE "C", BELLE TERRE SOUTH.	ELEV. = 1325.35
BM 202	" T " POST 2' WEST OF P.C. RESERVE "D" LOT 43, BLOCK 6, BELLE TERRE SOUTH.	ELEV. = 1318.01
BM 203	" T " POST 2' WEST OF P.C. RESERVE "D" LOT 29, BLOCK 6, BELLE TERRE SOUTH.	ELEV. = 1309.48
BM 204	" T " POST 2' EAST OF P.C. RESERVE "F" LOT 7, BLOCK 4, BELLE TERRE SOUTH.	ELEV. = 1304.05
BM 205	" T " POST 2' NORTH OF SOUTHEAST P.C. LOT 10, BLOCK 4, BELLE TERRE SOUTH.	ELEV. = 1307.09
BM 206	" T " POST 5' SOUTH OF P.C. CUL-DE-SAC, LOT 21, BLOCK 5, BELLE TERRE SOUTH.	ELEV. = 1317.19
BM 207	NORTH RIM SANITARY SEWER MH 400± NORTH US 54 HIGHWAY AND 20' EAST OF 159TH STREET EAST.	ELEV. = 1302.375
BM 209	CHISELED "□" IN TOP OF CURB, WEST END OF MEDIAN @ LAKESIDE STREET AND 159TH STREET EAST.	ELEV. = 1311.665
BM 210	CHISELED "□" IN TOP OF CURB, WEST END OF MEDIAN @ ELM STREET AND 159TH STREET EAST.	ELEV. = 1313.14
BM 211	" T " POST 5' WEST OF P.C. ON SET BACK LINE 15' OFFSET OF LOT 7, BLOCK 3, BELLE TERRE SOUTH.	ELEV. = 1309.21

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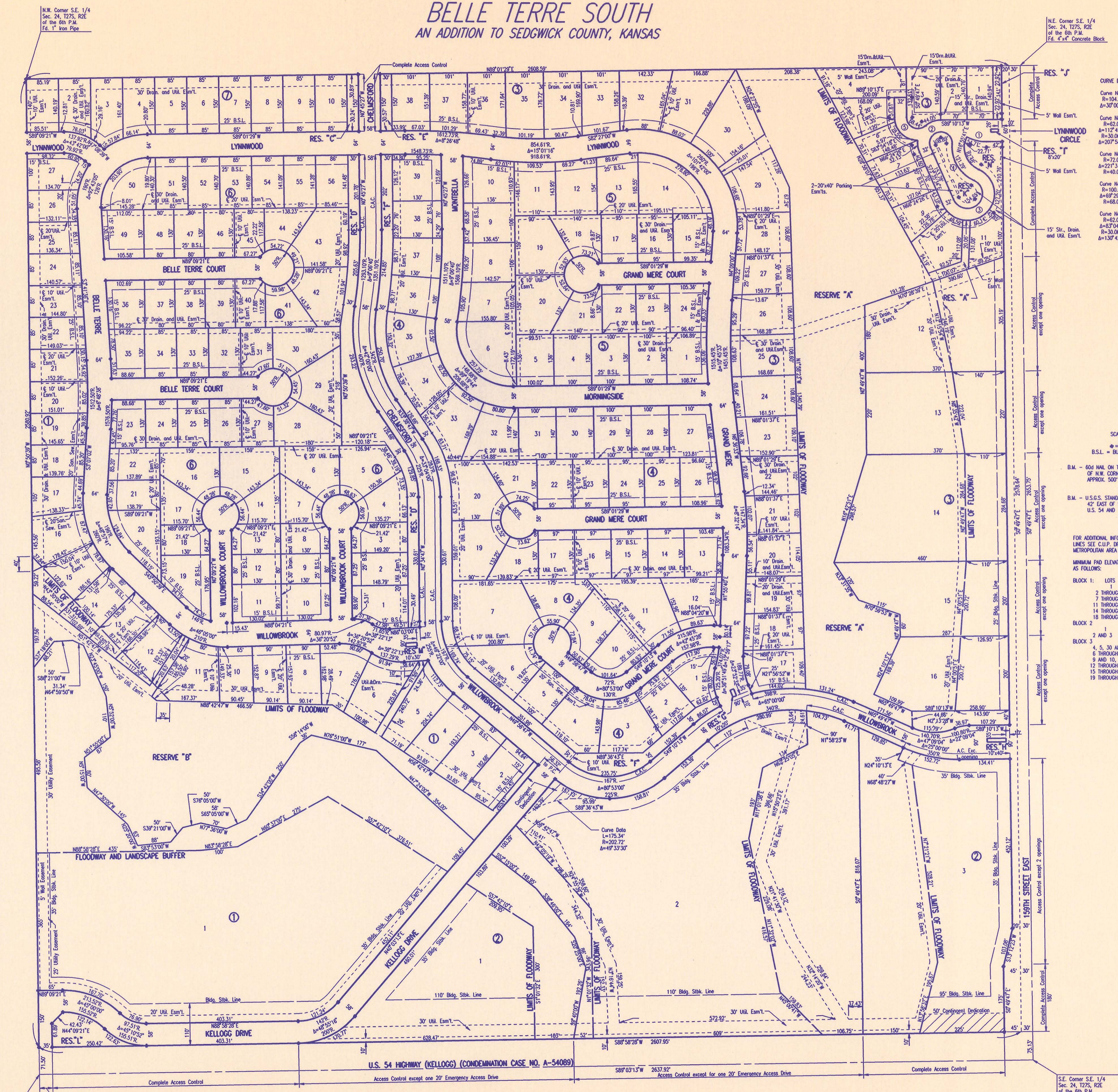
PHASE 4 BENEFIT DISTRICT

RECORD DRAWING

U.S. 54 HIGHWAY (KELLOGG) (CONDEMNATION CASE NO. A-54089)

BELLE TERRE SOUTH

AN ADDITION TO SEDGWICK COUNTY, KANSAS



CURVE DATA
 Curve No. 1
 R=104.50'
 Δ=30°00'00"
 Curve No. 2
 R=52.25'
 Δ=117°45'45"
 R=30.00'
 Δ=207°58'15"
 Curve No. 3
 R=72.00'
 Δ=21°31'28"
 R=40.00'
 Curve No. 4
 R=100.00'
 Δ=67°29'45"
 R=40.00'
 Curve No. 5
 R=62.00'
 Δ=67°01'31"
 R=30.00'
 Δ=130°42'20"

SCALE: 1"=150'

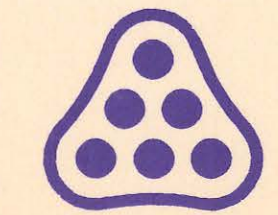
• = IRON SET
 B.S.L. = BUILDING SETBACK LINE

B.M. - 60d NAIL ON TOP OF ORANGE POST 15' NORTH
 OF N.W. CORNER WEST BOUND U.S. 54 BRIDGE,
 APPROX. 500' WEST OF 15TH STREET EAST.
 ELEV.=1301.61 M.S.L.
 B.M. - U.S.G.S. STANDARD TABLE 75' NORTH AND
 42' EAST OF S.E. CORNER SEC. 24, AT
 U.S. 54 AND 15TH STREET EAST.
 ELEV.=1301.83 M.S.L.

FOR ADDITIONAL INFORMATION AND SETBACK
 LINES SEE CLIP 189-226 ON FILE WITH THE
 METROPOLITAN AREA PLANNING DEPARTMENT.

MINIMUM PAD ELEVATIONS (LOWEST OPENING)
 AS FOLLOWS:

BLOCK 1: LOTS	ELEVATION
1	1303.2 M.S.L.
2 THROUGH 6	1303.3 M.S.L.
7 THROUGH 10	1302.5 M.S.L.
11 THROUGH 13	1303.3 M.S.L.
14 THROUGH 17	1303.6 M.S.L.
18 THROUGH 21	1304.2 M.S.L.
BLOCK 2	
2 AND 3	1300.0 M.S.L.
1304.3 M.S.L.	
BLOCK 3	
4, 5, 30 AND 31	1307.0 M.S.L.
6 THROUGH 8 AND 28, 29	1306.0 M.S.L.
9 AND 10, 26, 27	1306.5 M.S.L.
12 THROUGH 14	1305.5 M.S.L.
15 THROUGH 18	1305.3 M.S.L.
19 THROUGH 25	1305.5 M.S.L.

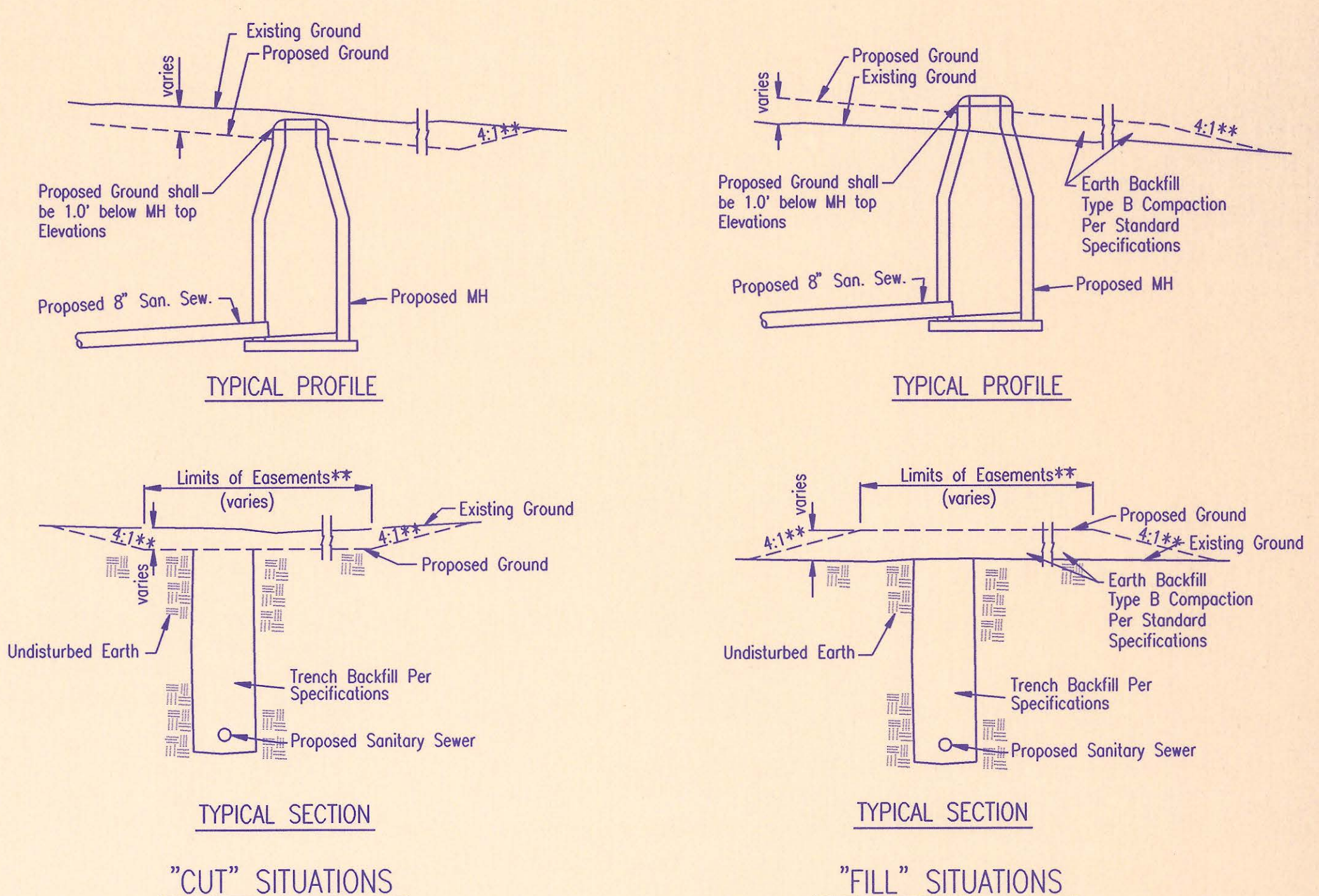
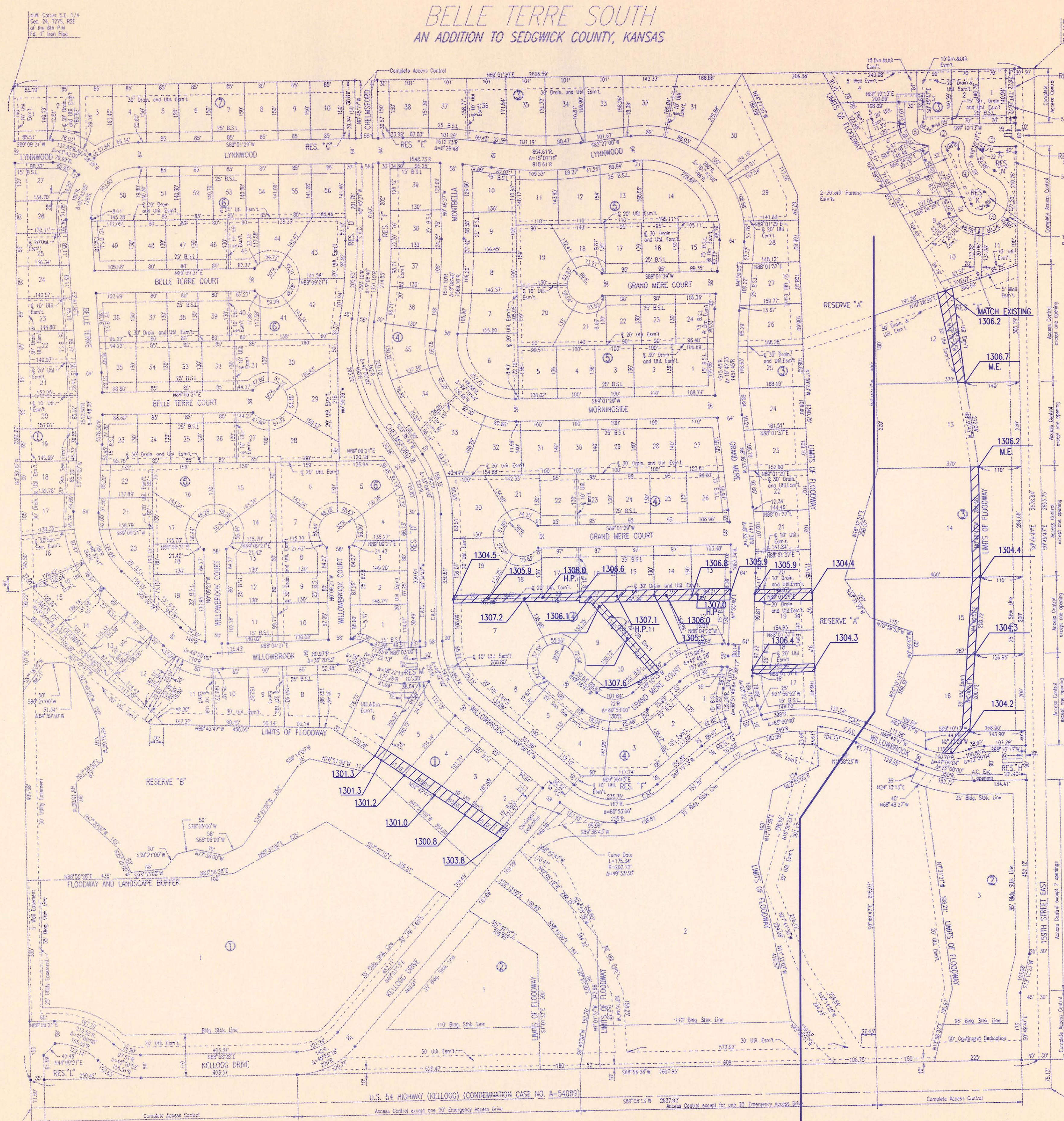


RECORD DRAWING

No.	Revision	By	Date
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER PLAT SANITARY SEWER IMPROVEMENTS BELLE TERRE SOUTH (PHASE 4 AND 5) PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS			
Designed by	RMH	Job No.	34-97B39-1
Drawn by	DEP	Date	December 1997

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BELLE TERRE SOUTH
AN ADDITION TO SEDGWICK COUNTY, KANSAS



EASEMENT GRADING DETAILS

= AREAS TO BE GRADED
 H.P. = HIGH POINT
 M.E. = MATCH EXISTING

**Graded widths and slopes may vary as approved by the Engineer to minimize conflict with existing trees.

PHASE 4

Easement Grading will be bid on a lump sum basis for grading the easements to the profile and elevations shown on the Easement Grading Plan (this sheet). Approximate quantities of earthwork for easement grading are shown below. These approximate quantities are given for information only. The Contractor should verify the quantities when preparing the proposal.

Cut 1590	C.Y. (Approximate)
Fill 3530	C.Y. (Approximate)

PHASE 5

Easement Grading will be bid on a lump sum basis for grading the easements to the profile and elevations shown on the Easement Grading Plan (this sheet). Approximate quantities of earthwork for easement grading are shown below. These approximate quantities are given for information only. The Contractor should verify the quantities when preparing the proposal.

Cut 40	C.Y. (Approximate)
Fill 3020	C.Y. (Approximate)

RECORD DRAWING



Revision	By	Date

SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DAVID C. SPEARS, P.E.
 DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

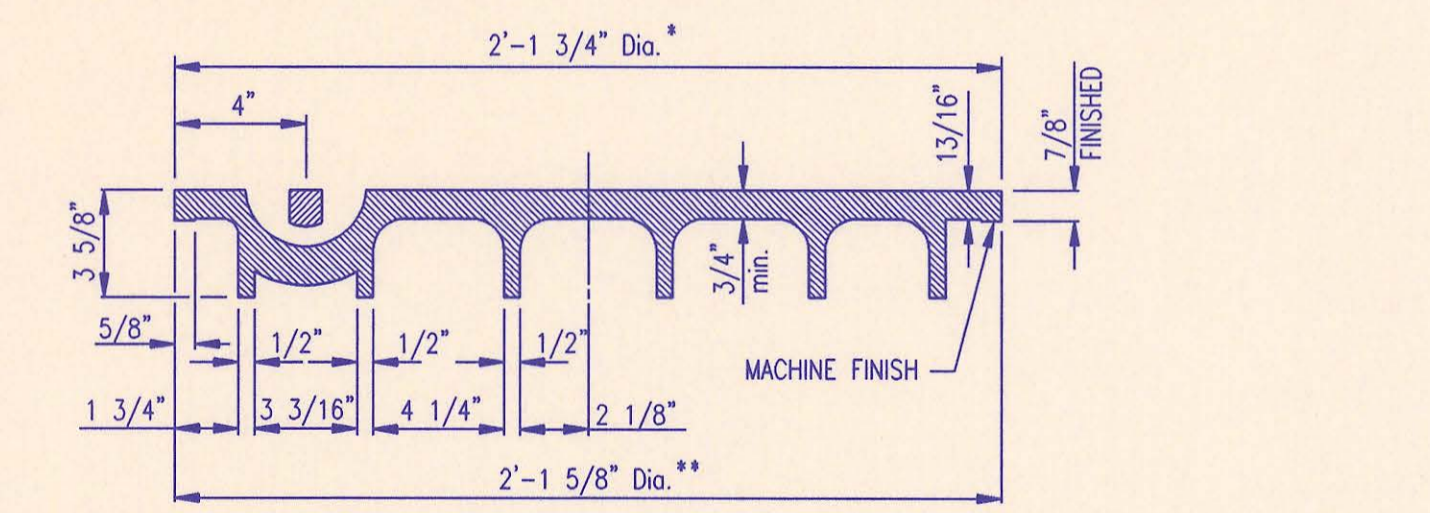
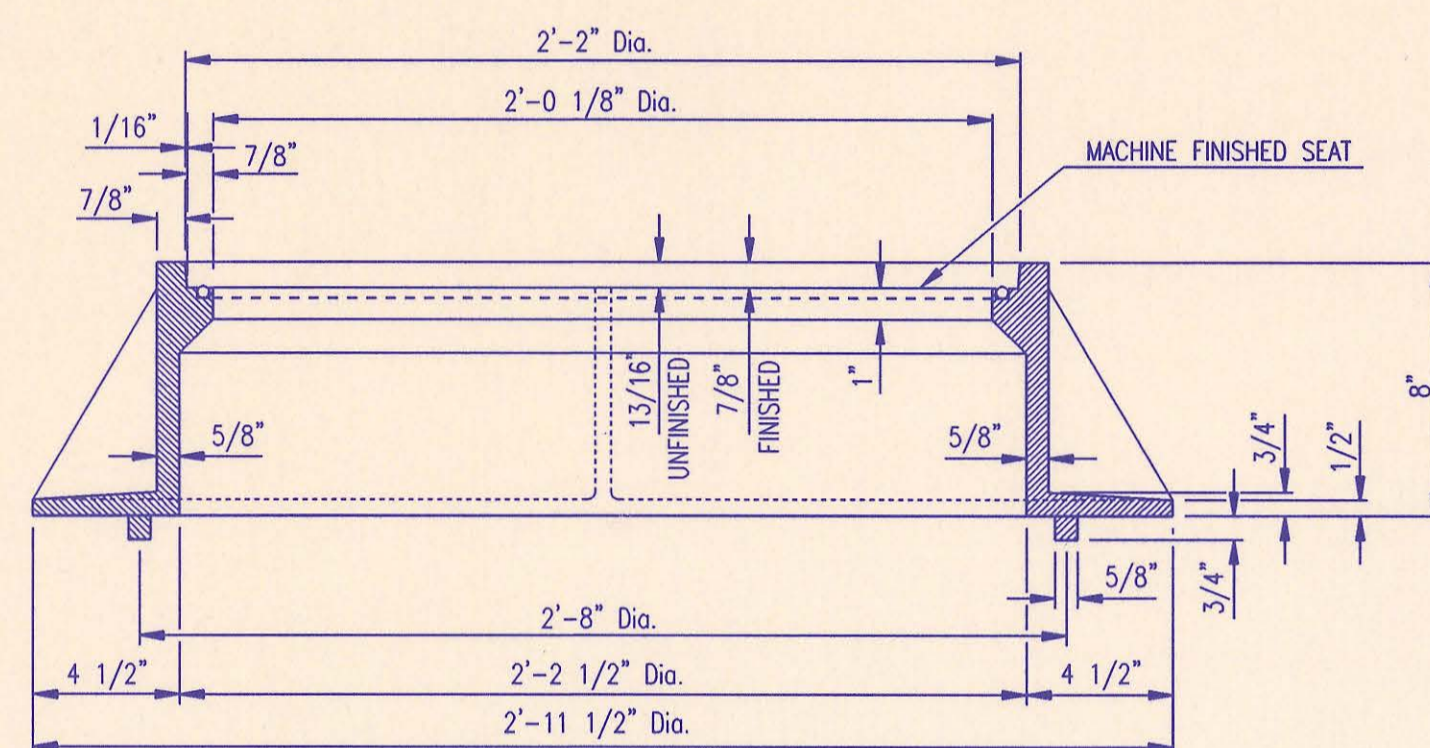
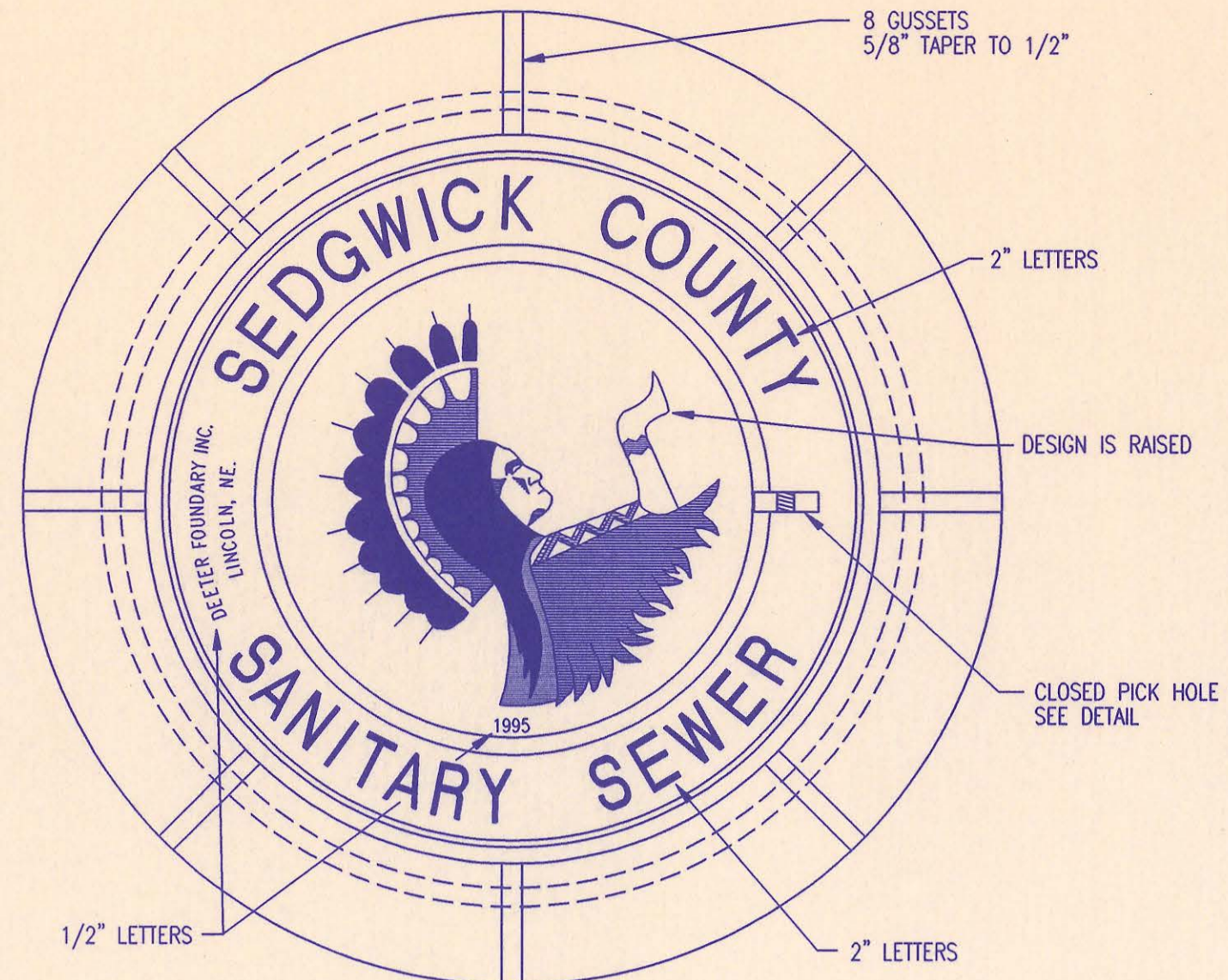
EASEMENT GRADING PLAN

SANITARY SEWER IMPROVEMENTS
BELLE TERRE SOUTH (PHASE 4 AND 5)

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

Designed by	MDK	Job No.	34-97B39-1	Sht. 4 of 13
Drawn by	DMM	Date	December 1997	

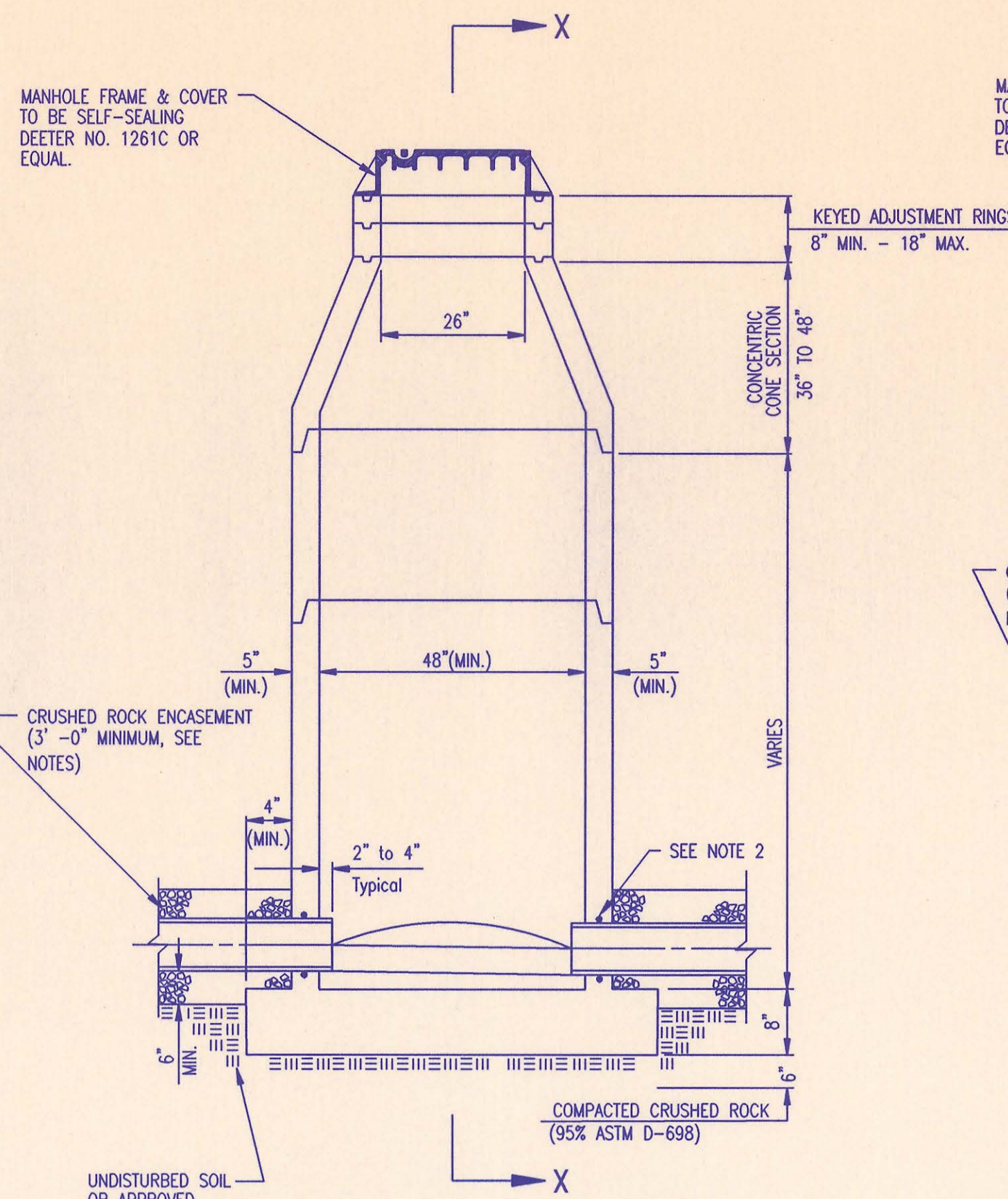
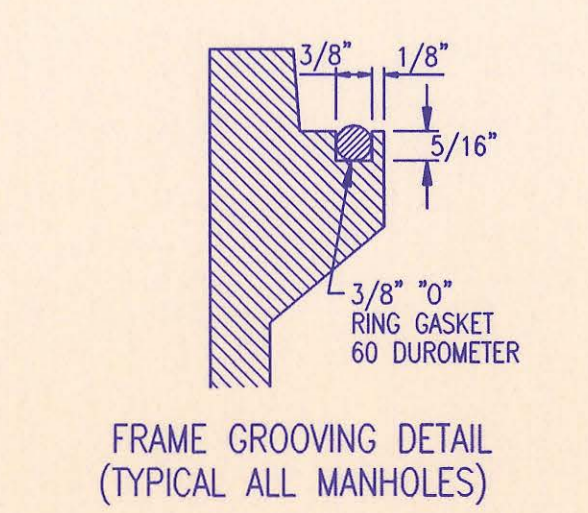
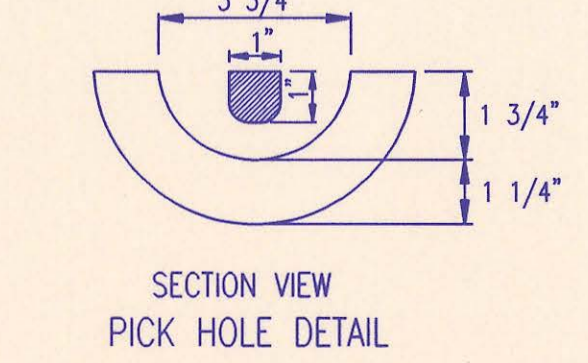
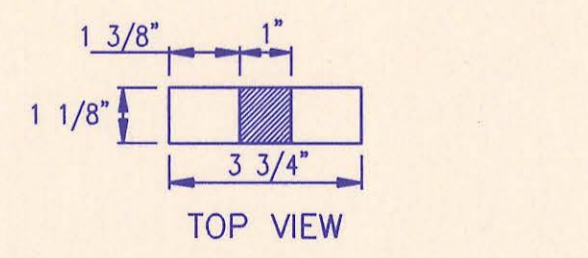
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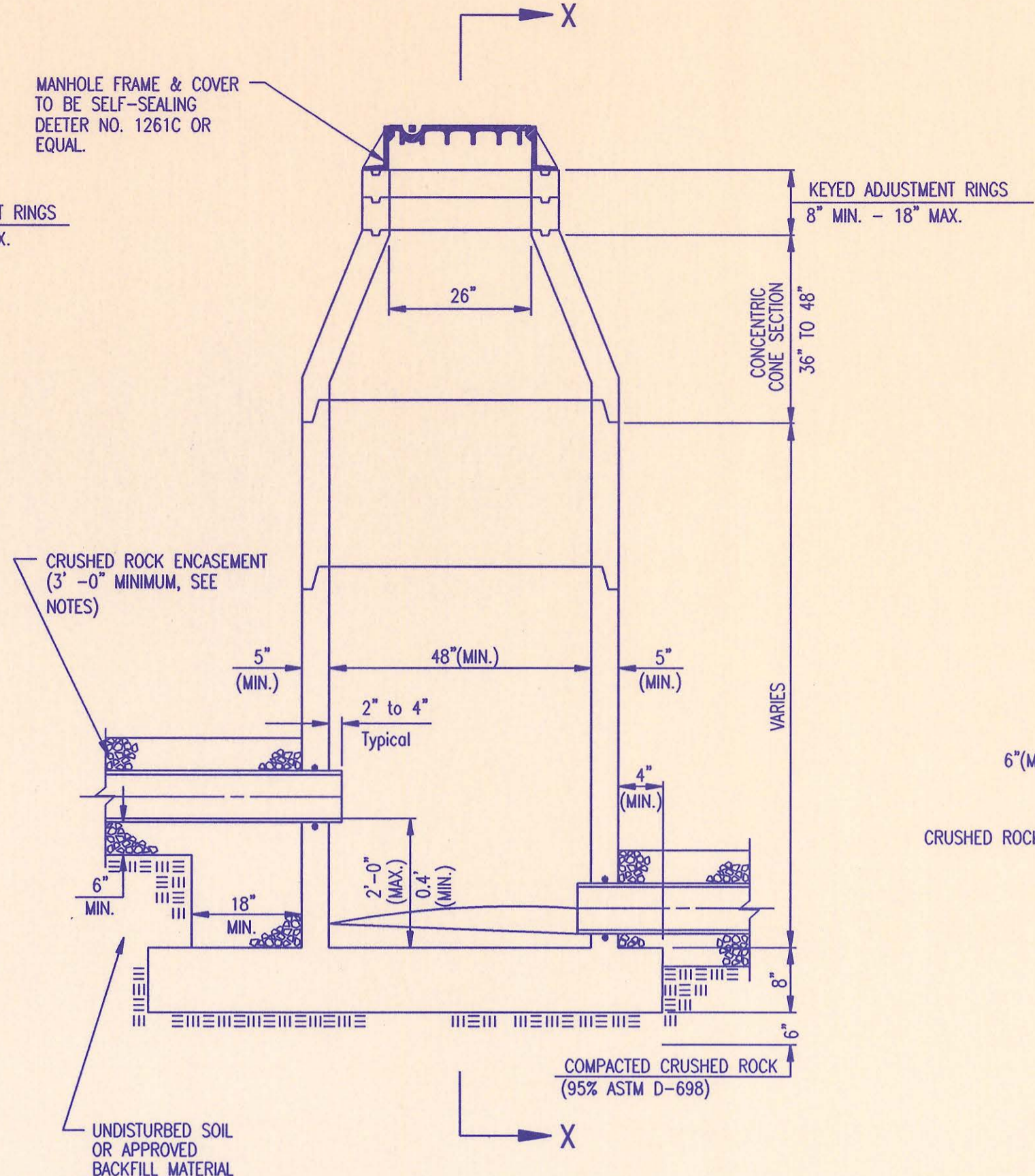
MANHOLE FRAME AND COVER
(TOTAL WEIGHT = 430 LBS.)

MANHOLE FRAME AND COVER NOTES

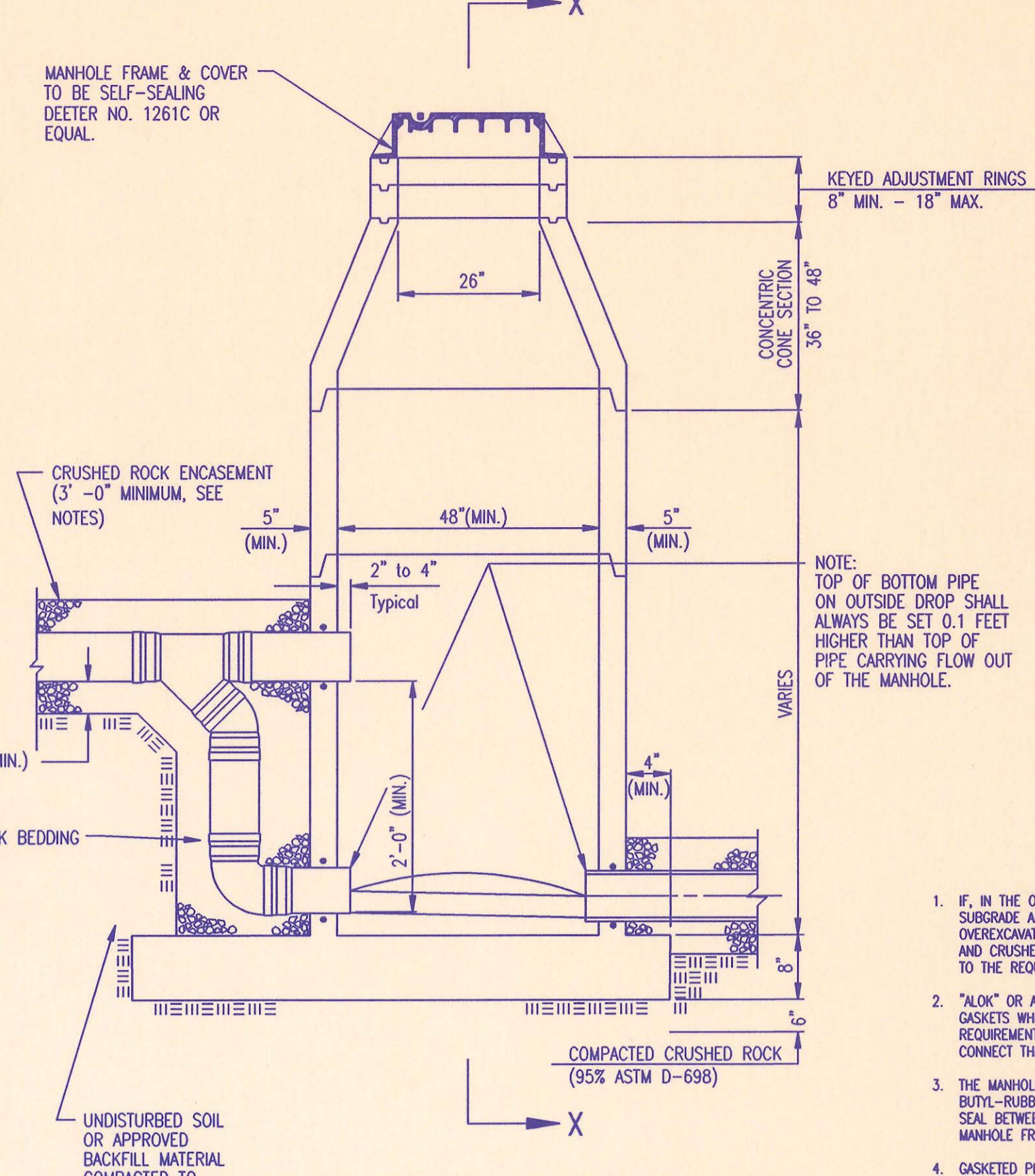
- CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 35B, OR BETTER.
- CASTINGS ARE TO BE MANUFACTURED TRUE TO PATTERN AND WITH SATISFACTORY FIT OF COMPONENT PARTS. CASTINGS SHALL BE FREE OF DEFECTS AND ALL BURRS SHALL BE GROUND SMOOTH. DIMENSIONS AS DETAIL ON PLAN SHALL NOT DEVIATE BY $\pm 1/16"$ PER FOOT.
- NO OTHER LETTERING OR MARKINGS OTHER THAN THOSE DETAILED ON PLAN WILL BE PERMITTED ON CASTINGS.
- CASTINGS MUST BE DOMESTICALLY MANUFACTURED IN THE UNITED STATES OF AMERICA.
- THE FRAMES AND COVERS SHALL BE FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES SO FITTING PARTS WILL NOT RATTLE OR ROCK UNDER TRAFFIC.
- MANHOLE CASTINGS SHALL BE SELF-SEALING DEETER FOUNDRY INC. NO. 1261C OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED IN THE SPECIAL CONDITIONS. (MINIMUM WT. = 430 LBS.) ALL MANHOLE CASTINGS SHALL BE CONSIDERED SUBSIDIARY TO THE UNIT PRICES BID FOR THE VARIOUS MANHOLE TYPES.
- THE MANUFACTURER SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO MANUFACTURE. THE ENGINEER SHALL RETAIN THE RIGHT TO REJECT CASTINGS NOT CONFORMING TO THE SPECIFICATIONS OR THE APPROVED SHOP DRAWINGS.
- THE MANHOLE FRAME SHALL BE FURNISHED WITH AN APPROVED CONTINUOUS "O" RING GASKET GROOVED INTO THE BEARING SURFACE OF THE MANHOLE FRAME (PER DETAIL). THE "O" RING GASKET SHALL BE FACTORY INSTALLED IN THE MANHOLE FRAME WITH 100% SILICON SEALANT-DOW CORNING OR EQUAL.



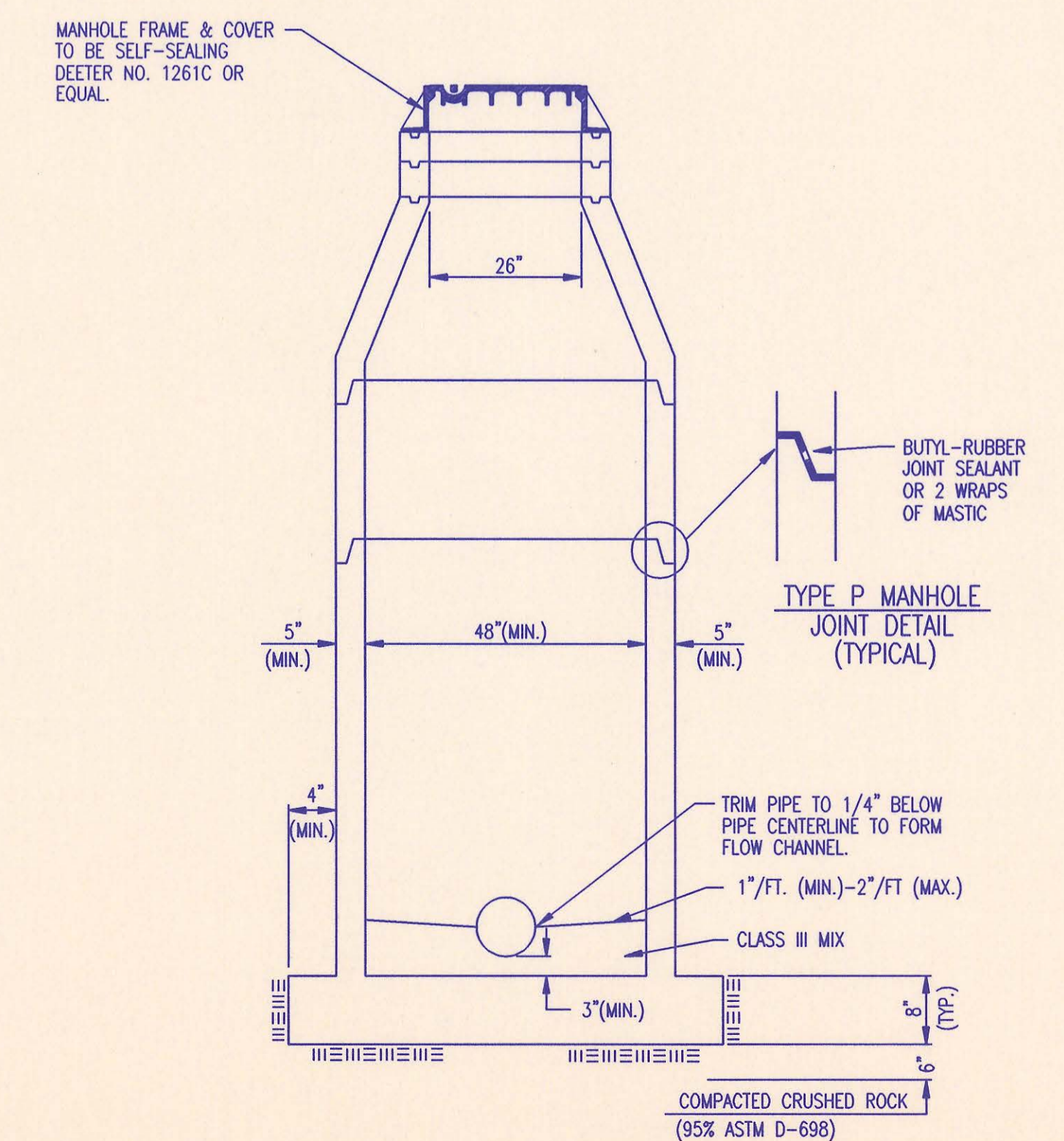
PRECAST STANDARD MANHOLE TYPE "A"



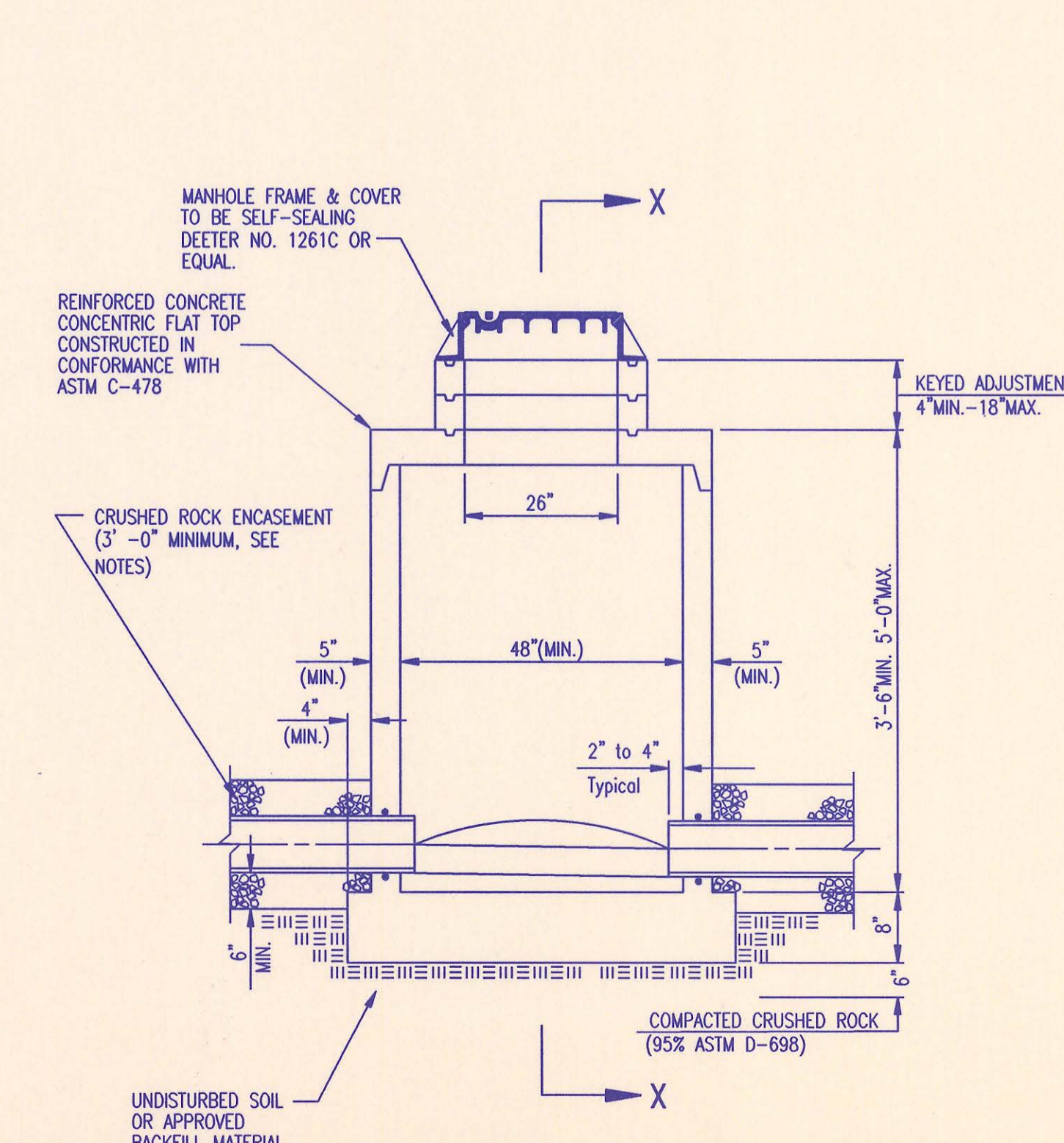
PRECAST INSIDE DROP MANHOLE TYPE "B"



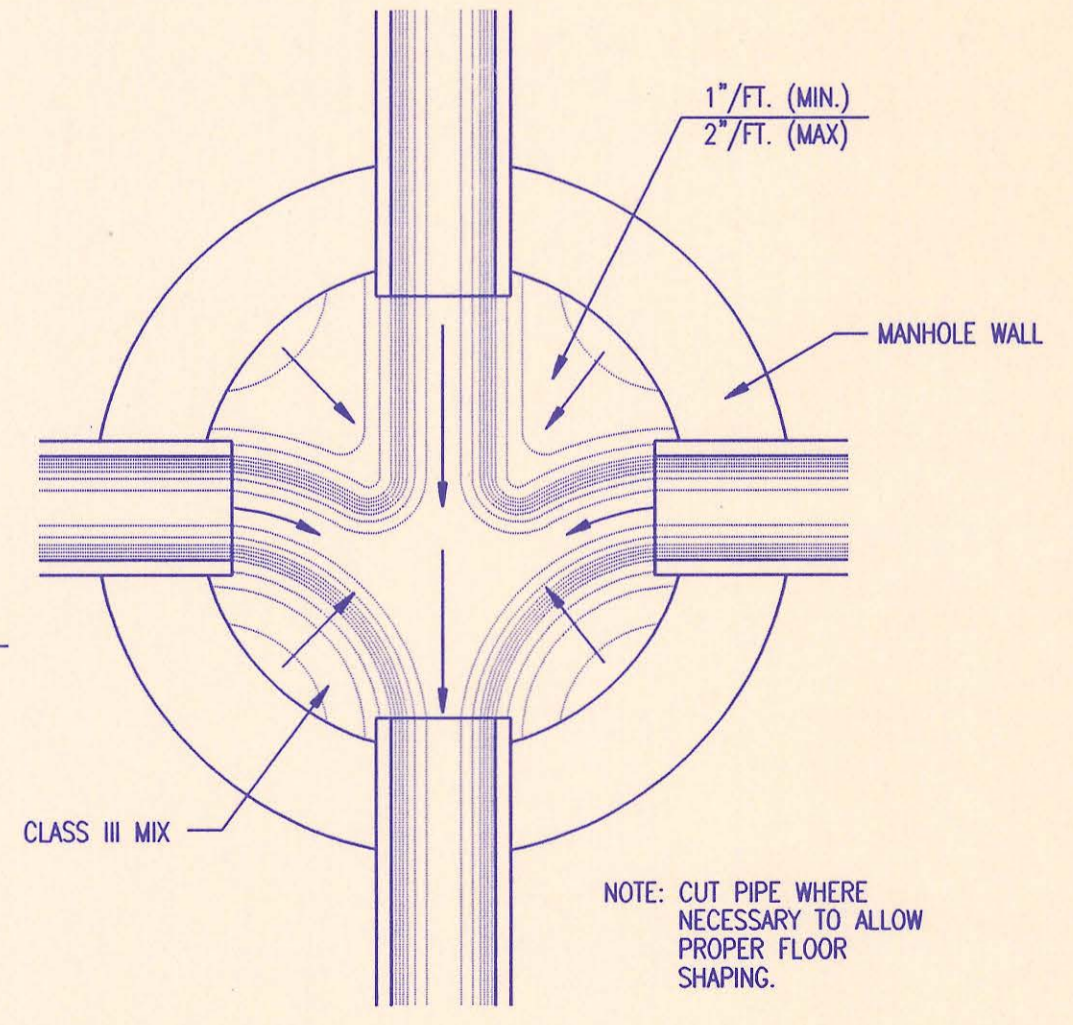
PRECAST OUTSIDE DROP MANHOLE TYPE "C"



SECTION X (TYPICAL)



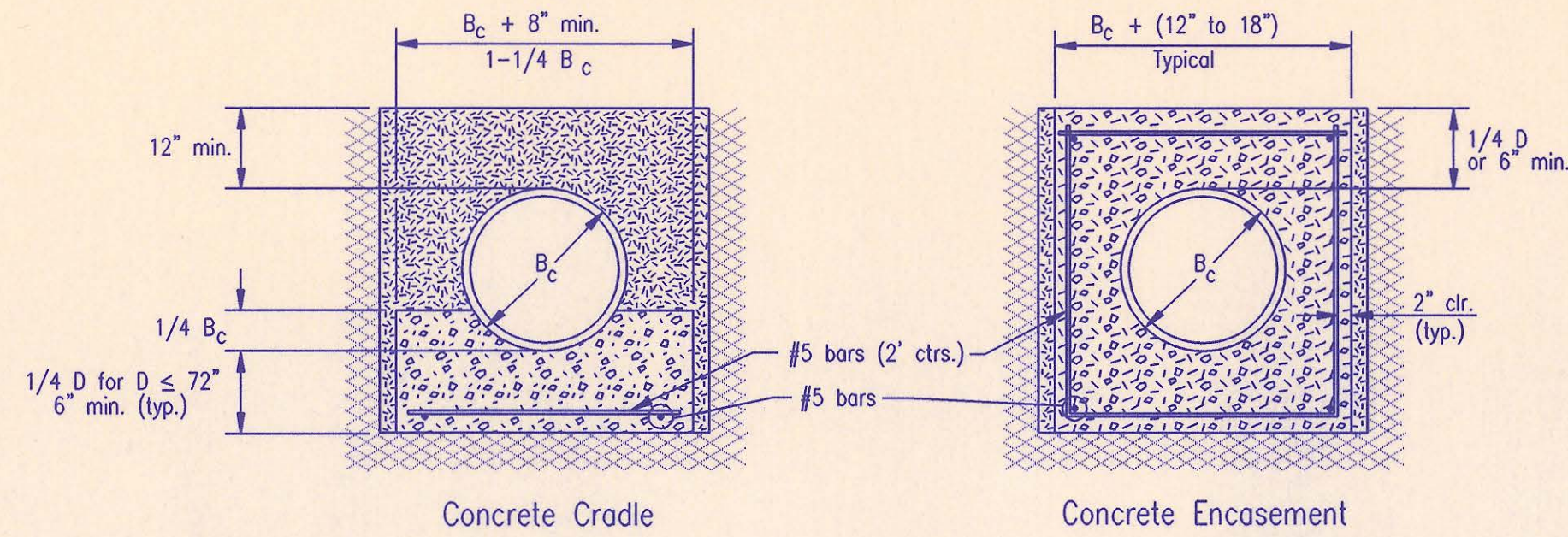
PRECAST SHALLOW MANHOLE TYPE "D"



TYPICAL MANHOLE FLOOR SHAPING

- PRECAST MANHOLE NOTES**
- IF, IN THE OPINION OF THE ENGINEER, THE MANHOLE SUBGRADE APPEARS UNSTABLE, THE CONTRACTOR WILL OVEREXCAVATE TO A SUITABLE SUBGRADE CONDITION AND CRUSHED ROCK SHALL BE PLACED AND COMPACTED TO THE REQUIRED GRADE.
 - "LOK" OR APPROVED EQUAL FLEXIBLE WATER-STOP GASKETS WHICH MEET OR EXCEED THE TEST REQUIREMENTS OF ASTM C-923 SHALL BE INSTALLED TO CONNECT THE SEWER TO THE MANHOLE WALL.
 - THE MANHOLE FRAME SHALL BE SEATED ON AN APPROVED BUTYL-RUBBER OR MASTIC SEALANT TO PROVIDE WATER-TIGHT SEAL BETWEEN THE MANHOLE ADJUSTMENT RINGS AND THE MANHOLE FRAME.
 - GASKETED PIPE CAPS SHALL BE PROVIDED BY THE PIPE SUPPLIER. GLUED OR CEMENTED CAPS WILL NOT BE ACCEPTED.
 - ALL MANHOLE CONSTRUCTION SHALL BE WATER TIGHT.
 - 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.
 - MANHOLES WITH PIPE SIZES 24" AND LARGER SHALL HAVE 5' INSIDE DIAMETER (MIN.).
 - INSIDE DIAMETER OF FIVE-FOOT DIAMETER PRECAST MANHOLES SHALL REMAIN CONSTANT TO THE LOCATION OF THE REDUCING FLAT TOP WHICH CONNECTS THE FOUR-FOOT DIAMETER CONE SECTION TO THE FIVE-FOOT DIAMETER MANHOLE BARREL.
 - MANHOLES SHALL BE SUPPLIED WITH PRECAST BASE SECTIONS UNLESS OTHERWISE APPROVED. ALL PRECAST CONCRETE MANHOLE SECTIONS AND BASES SHALL CONFORM TO THE LATEST REVISION OF ASTM C478 AS MODIFIED BY THE SPECIFICATIONS. ALL MANHOLES WITH PRECAST BASES SHALL INCLUDE A-LOCK GASKETS FOR ALL PIPE PENETRATIONS INTO THE MANHOLES.
 - WHERE MANHOLE STUDS ARE SHOWN ON THE PLANS, THE STUD SHALL EXTEND AT LEAST 5 FEET FROM THE INSIDE WALL OF THE MANHOLE.
4" STUDS SHALL BE SET AT 2.0% GRADE.
6" STUDS SHALL BE SET AT 1.0% GRADE.
 - MANHOLE SECTIONS SHALL BE SUPPLIED WITH RECESSED LIFTING EYES. LIFTING EYE RECESSES SHALL BE GROUVED FLUSH TO THE MANHOLE WALL WITH HYDRAULIC CEMENT AFTER THE MANHOLE IS IN PLACE. LIFTING HOLES THRU THE MANHOLE WALL WILL NOT BE ACCEPTED.
 - WHERE A-LOCK GASKETS ARE REQUIRED, THE CONTRACTOR SHALL UTILIZE A CRUSHED ROCK BEDDING MATERIAL. THE ROCK BEDDING MATERIAL SHALL EXTEND TO 3 FEET FROM THE MANHOLE WALL, AND SHALL BE COMPACTED IN PLACE FROM THE BOTTOM OF THE DISTURBED AREA TO 1 FOOT ABOVE THE TOP OF PIPE. THE CRUSHED ROCK WHICH IS PLACED BELOW THE PIPE BEDDING ZONE SHALL BE COMPACTED TO 95% ASTM D-698(MIN.).
 - WHERE MANHOLES ARE TO BE BUILT OVER EXISTING SANITARY SEWER LINES, SEWER PIPES SHALL BE SUPPORTED WITH CLASS I CONCRETE ENCASEMENT A MINIMUM OF 3 FEET OUTSIDE THE MANHOLE WALL.
 - CRUSHED ROCK SHALL MEET THE REQUIREMENTS FOR GRANULAR BEDDING MATERIAL, AS OUTLINED IN THE SPECIFICATIONS.

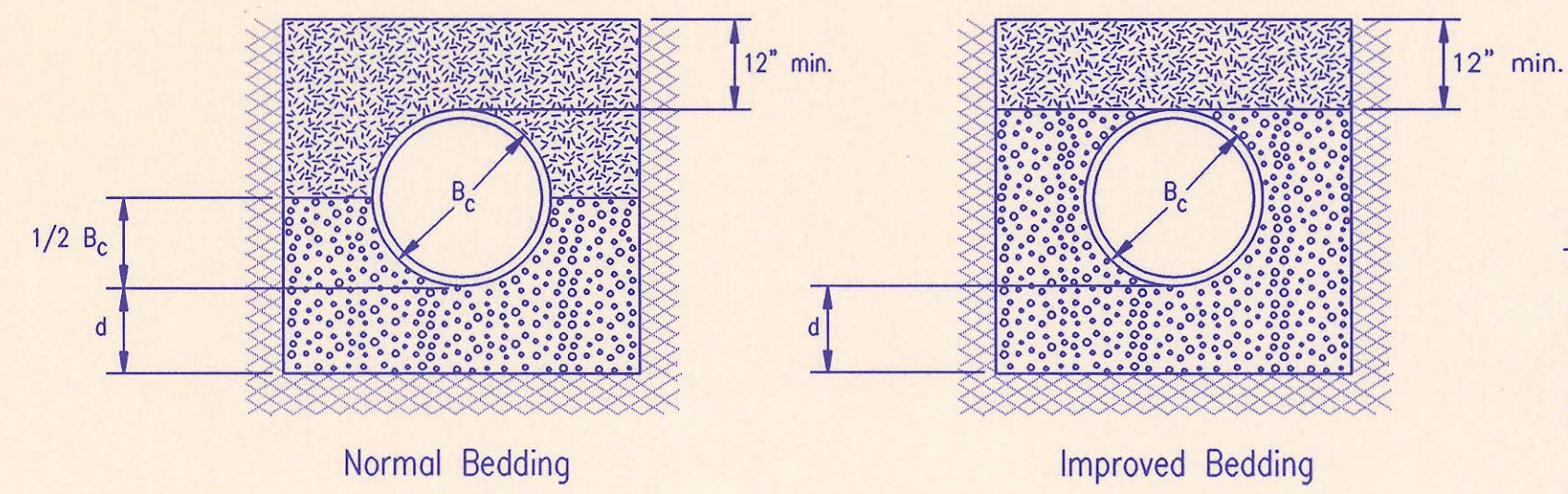
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CLASS A

- B_c = Outside Pipe Diameter
- H = Backfill from Top of Pipe to Existing Ground
- D = Inside Pipe Diameter
- d = Depth of Bedding Material Below Pipe
- [Granular Bedding Material or Sand-Gravel Bedding]
- [Compacted Embedment]
- [Concrete]

Depth of Bedding Material Below Pipe		
D	d(min) Soil	d(min) Rock
27" & smaller	4"	6"
30" to 60"	5"	9"
66" & larger	6"	12"

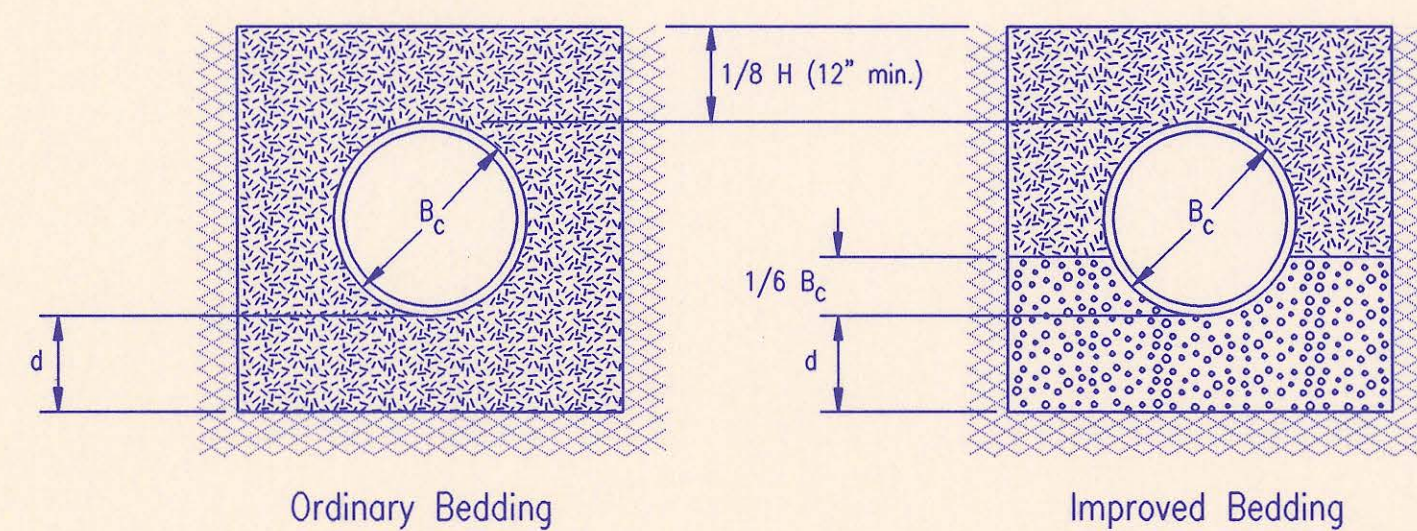


CLASS B

Granular Bedding Material shall be an approved material consisting of durable crushed rock conforming with the requirements of the latest revision of ASTM C-33 Size No. 67 (3/4" to No. 4); to be placed in not more than 6" layers and compacted by slicing with a shovel or vibrating. Soundness, abrasion, and absorption limits shall be as required for coarse aggregates in Section 03010-Concrete Work in the specifications.

Sand-Gravel Bedding Material - sand-gravel mix meeting Type UD-1 of the 1990 Kansas Standard Specifications for State Road and Bridge Construction.

Compacted Embedment shall be an approved sand material free from debris, organic material, and stones with 100% passing the 3/4" sieve to be placed in uniform layers not more than 6" thick and compacted to 95 percent maximum density as determined by ASTM D698. Granular Bedding Material may be substituted for all or part of Compacted Embedment Materials.



CLASS C

Class A "Concrete Cradle" and/or Class A "Concrete Encasement" is not required unless specified on the plans. However, where unexpected trench conditions exist or improper trenching is performed Class A Bedding may be required as determined by the Engineer.

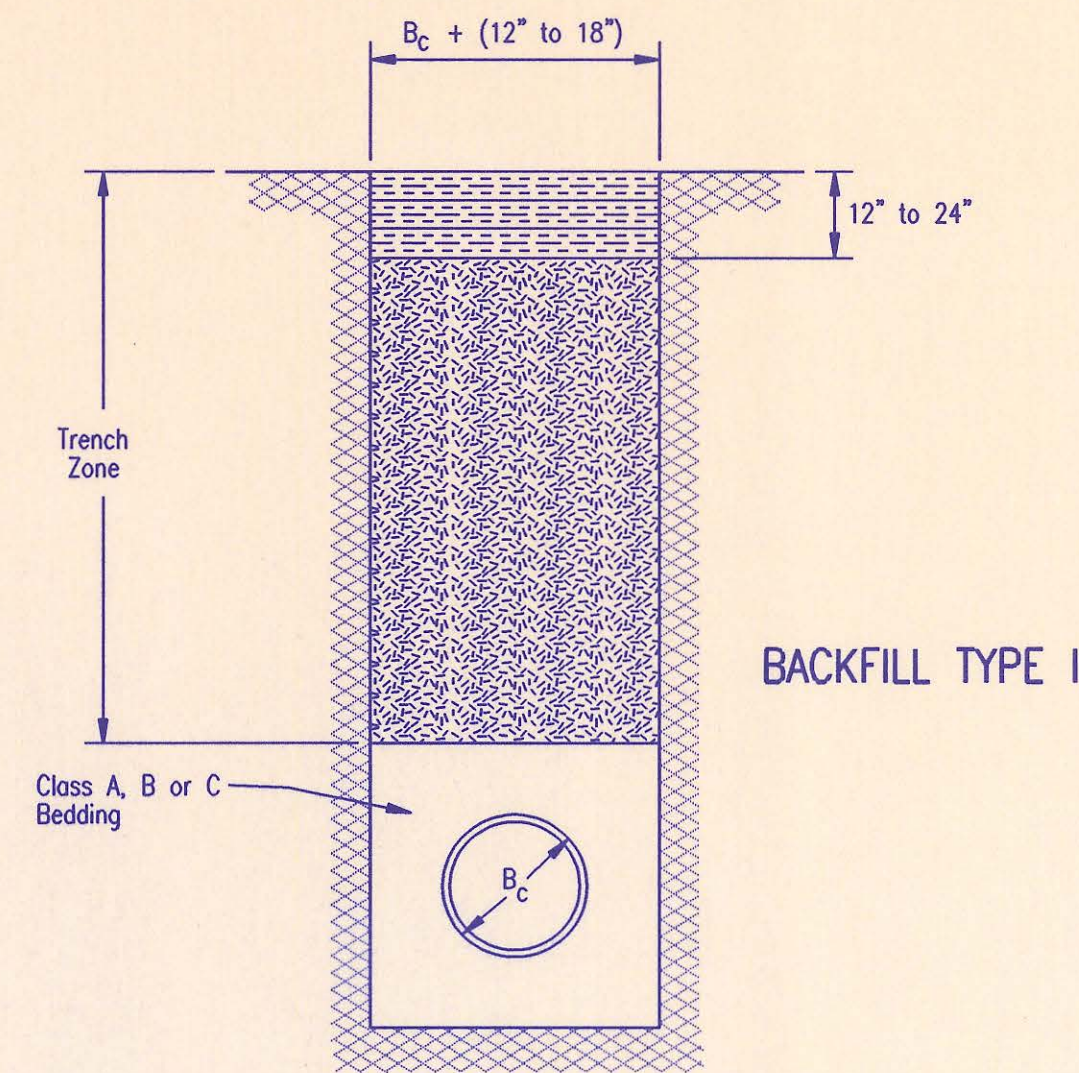
Class B Bedding shall be used for all flexible pipe.

- a. Class B Normal Bedding shall be used for PVC Pipe unless wet conditions are encountered.
- b. Class B Improved Bedding shall be used for other flexible pipe, and for PVC pipe in wet conditions.

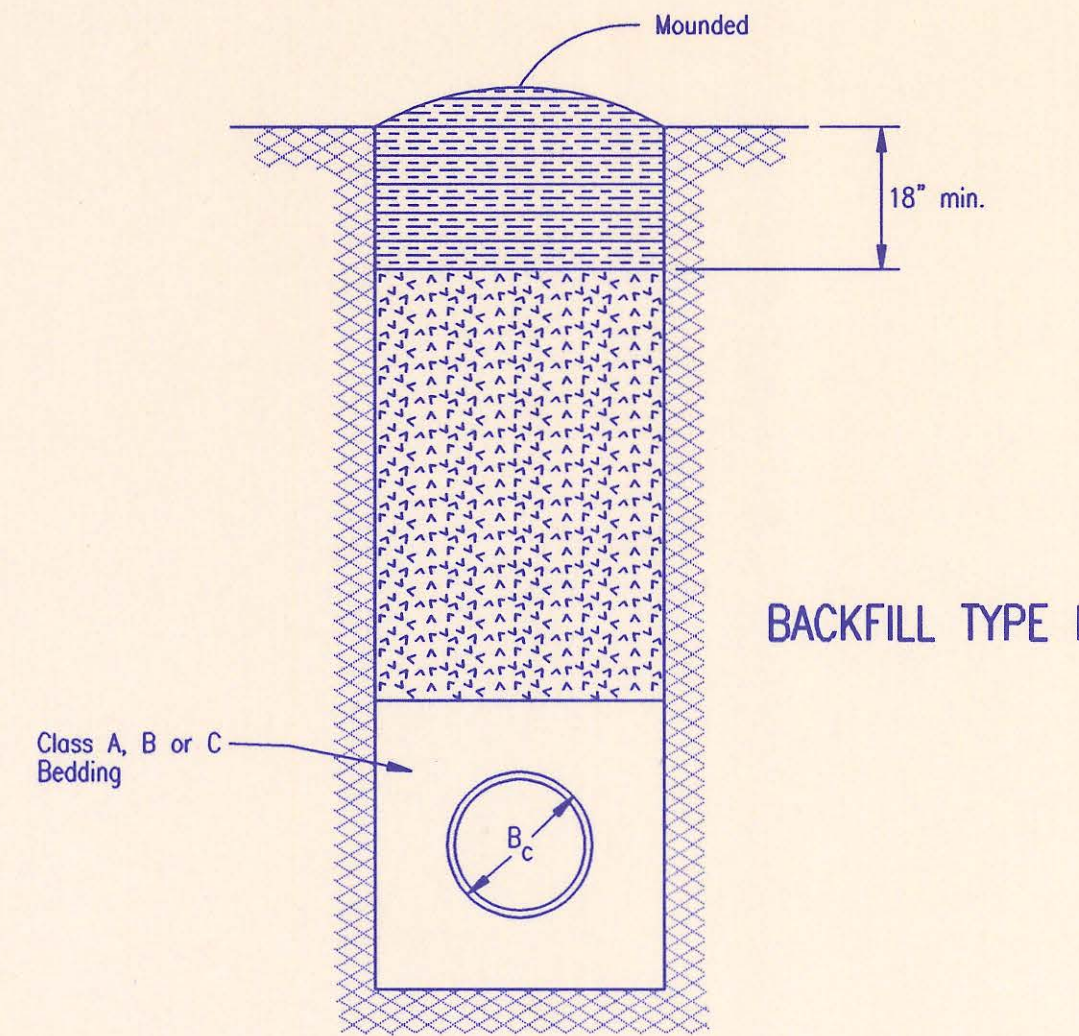
Class C Bedding shall be used for all rigid pipe.

- a. Class C Ordinary Bedding shall be used for all rigid pipe unless wet conditions are encountered.
- b. Class C Improved Bedding shall be used for wet conditions existing in the trench, as directed by the Engineer, at no additional cost to the Owner. The dimensions shall be equal to that required for "rock" excavation (see specifications).

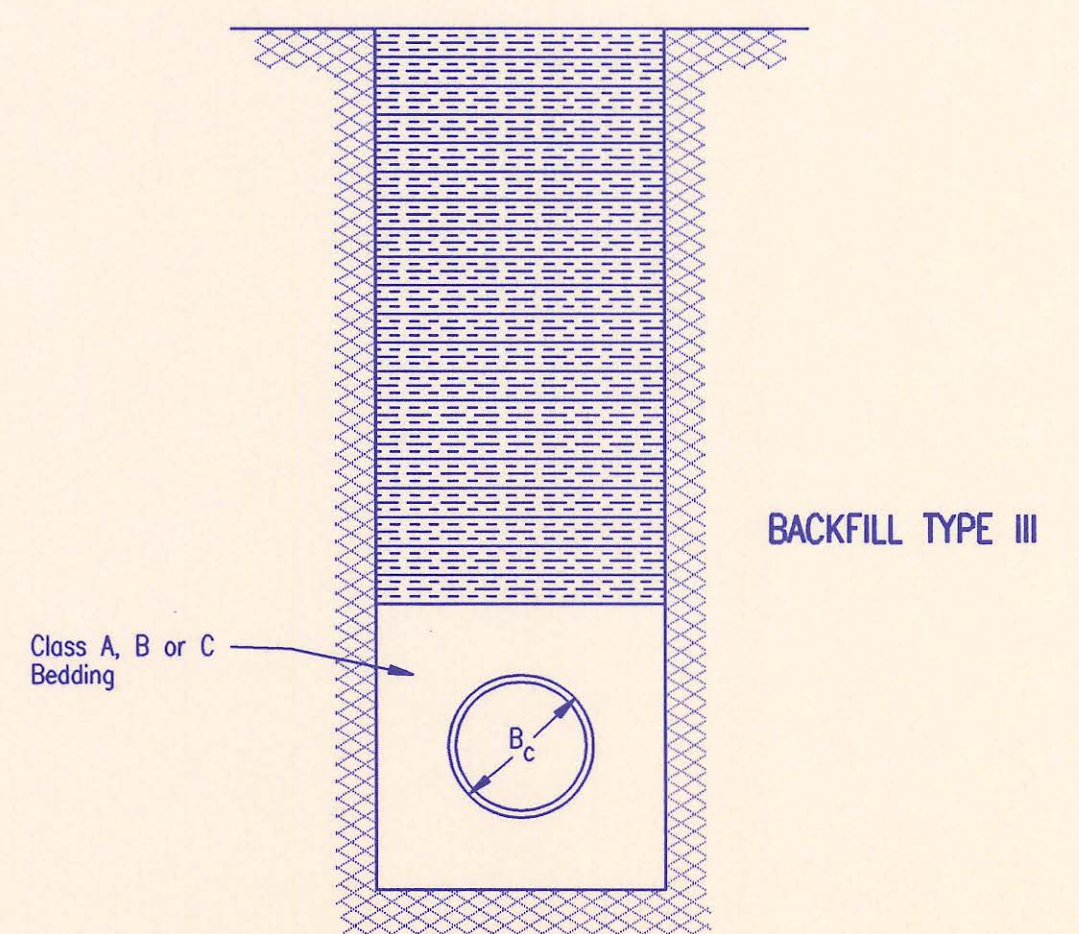
PIPE ZONE BACKFILLING



BACKFILL TYPE I



BACKFILL TYPE II



BACKFILL TYPE III

- B_c = Outside Pipe Diameter
- [Compacted Granular Backfill]
- [Uncompacted Earth Backfill]
- [Compacted Earth Backfill]

Compacted Granular Backfill material shall be an approved sand material free from debris, organic material and stones with 100% passing the 3/4" sieve and not more than 15% passing a No. 200 sieve; to be jetted and mechanically vibrated into place and compacted to 95% density as determined by ASTM D698.

Uncompacted Earth Backfill material may be natural soil free from large clods or stones, brush, roots more than 2 inches in diameter, debris, and junk. Flooding with water shall be provided as directed by the Engineer.

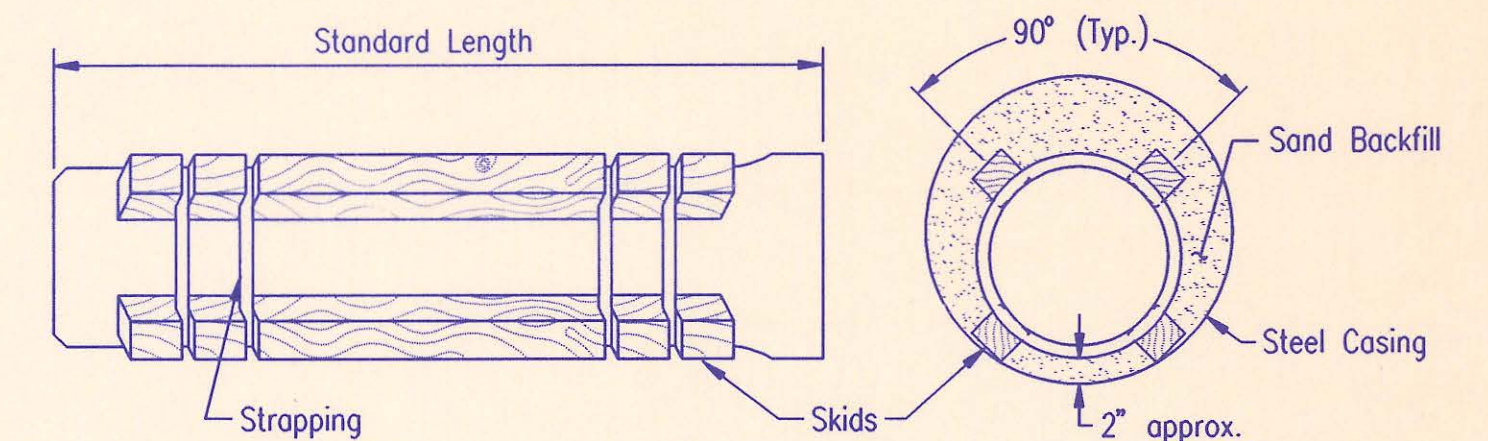
Compacted Earth Backfill shall consist of material existing prior to trenching or selected material as directed by the Engineer, and shall be compacted to 90% density as determined by ASTM D698.

Backfill: Backfill material and compaction requirements shall conform to either Type I, Type II or Type III as specified in the plans. One years maintenance will be required on all backfill.

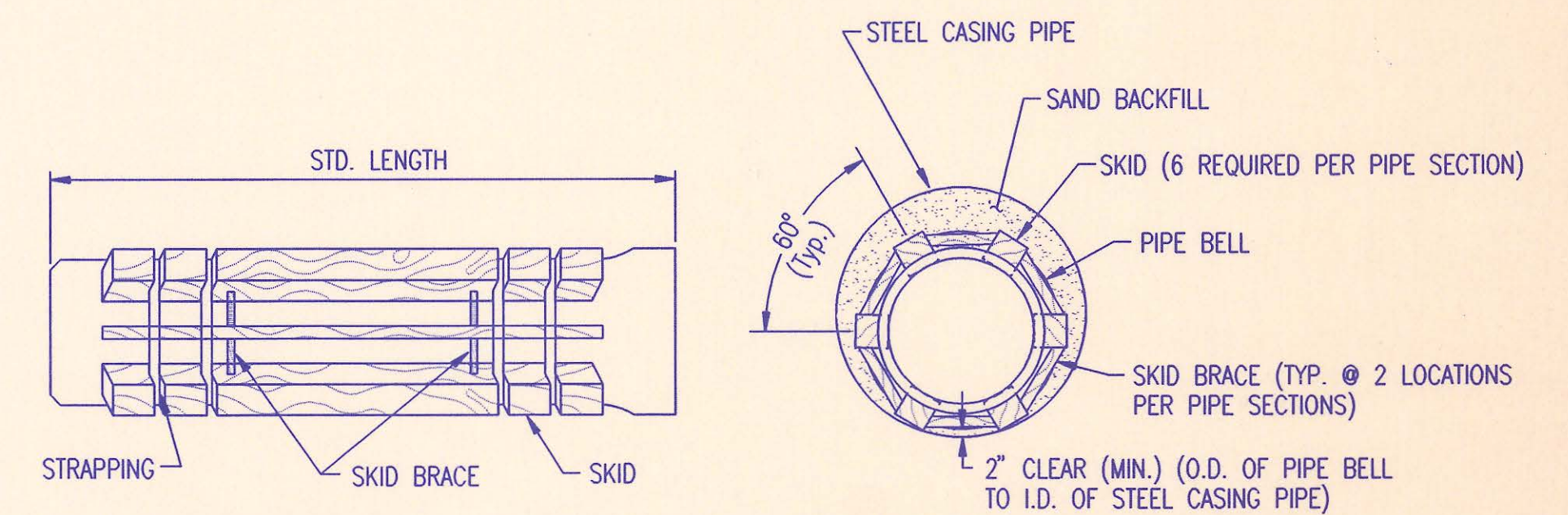
Backfilling Through Rock: Backfilling through rock shall be performed as specified in the paragraph Backfill above, except that the Pipe Zone is increased to provide eighteen (18) inches of cover over the pipe. When approved by the Engineer the remainder of the backfill may be excavated rock provided the excavated rock has been broken up so that earth and rock will thoroughly mix and not result in voids around the larger pieces of rock. Any excess rock remaining after the trench has been backfilled shall be removed or wasted as directed by the Engineer.

Backfilling Under Pavement: Backfilling under existing or proposed pavement shall be performed as Backfill Type I to a level of two (2) feet from the bottom of the pavement. The remainder of the trench shall be backfilled with selected material, sufficiently damp to be properly compacted in layers not exceeding six (6) inches in depth, compaction shall be performed with mechanical tampers and continued until a relative density of 100 percent of standard density, in conformance with ASTM D698 is attained.

Backfilling Under Gravel Streets: Where the trench crosses or is in existing gravel surfaced streets, the backfill shall be compacted as provided in the paragraph "Backfilling Under Pavement".



STEEL ENCASEMENT DETAIL
SEWER MAIN 12" AND UNDER

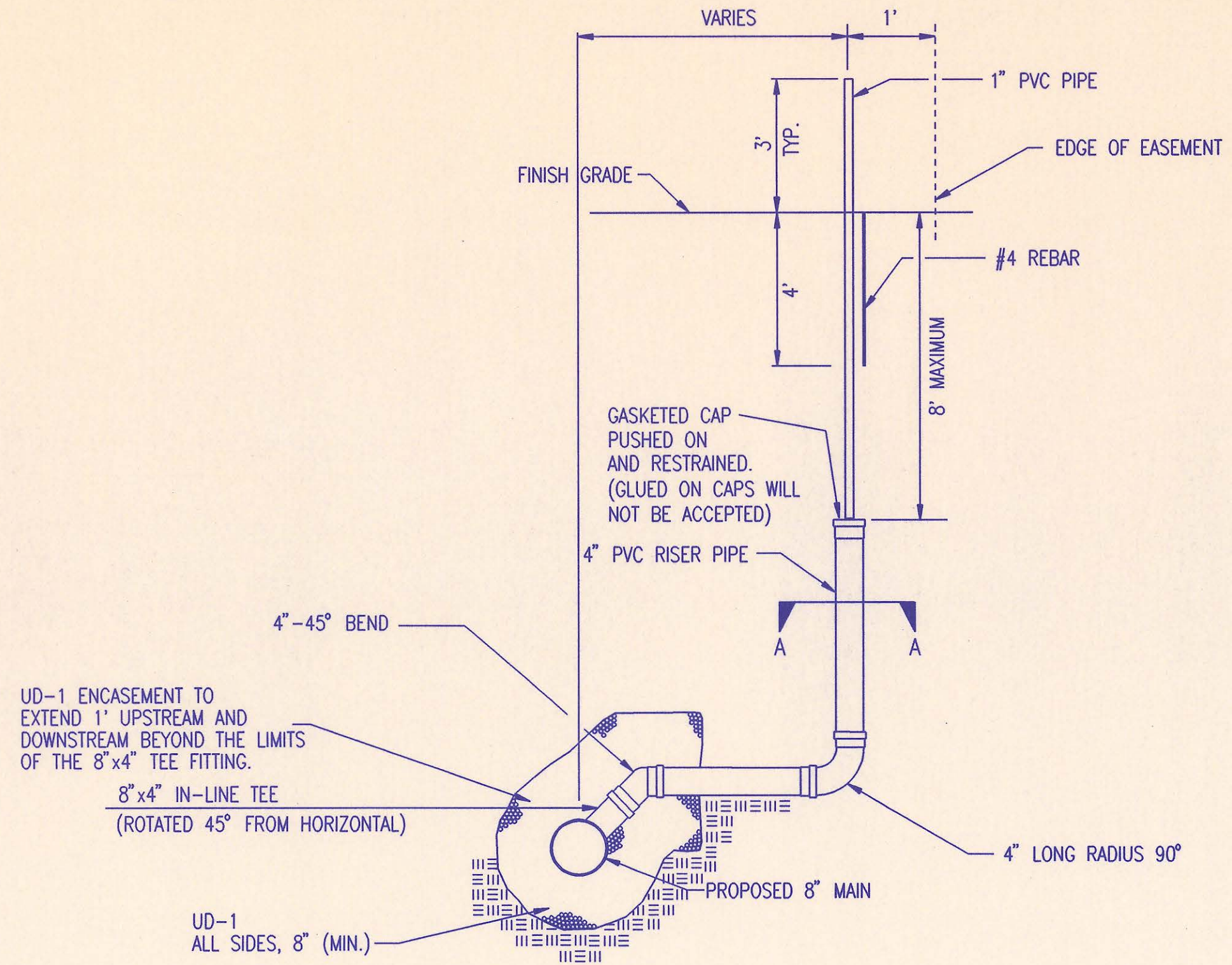


STEEL ENCASEMENT DETAIL
SEWER MAIN OVER 12"

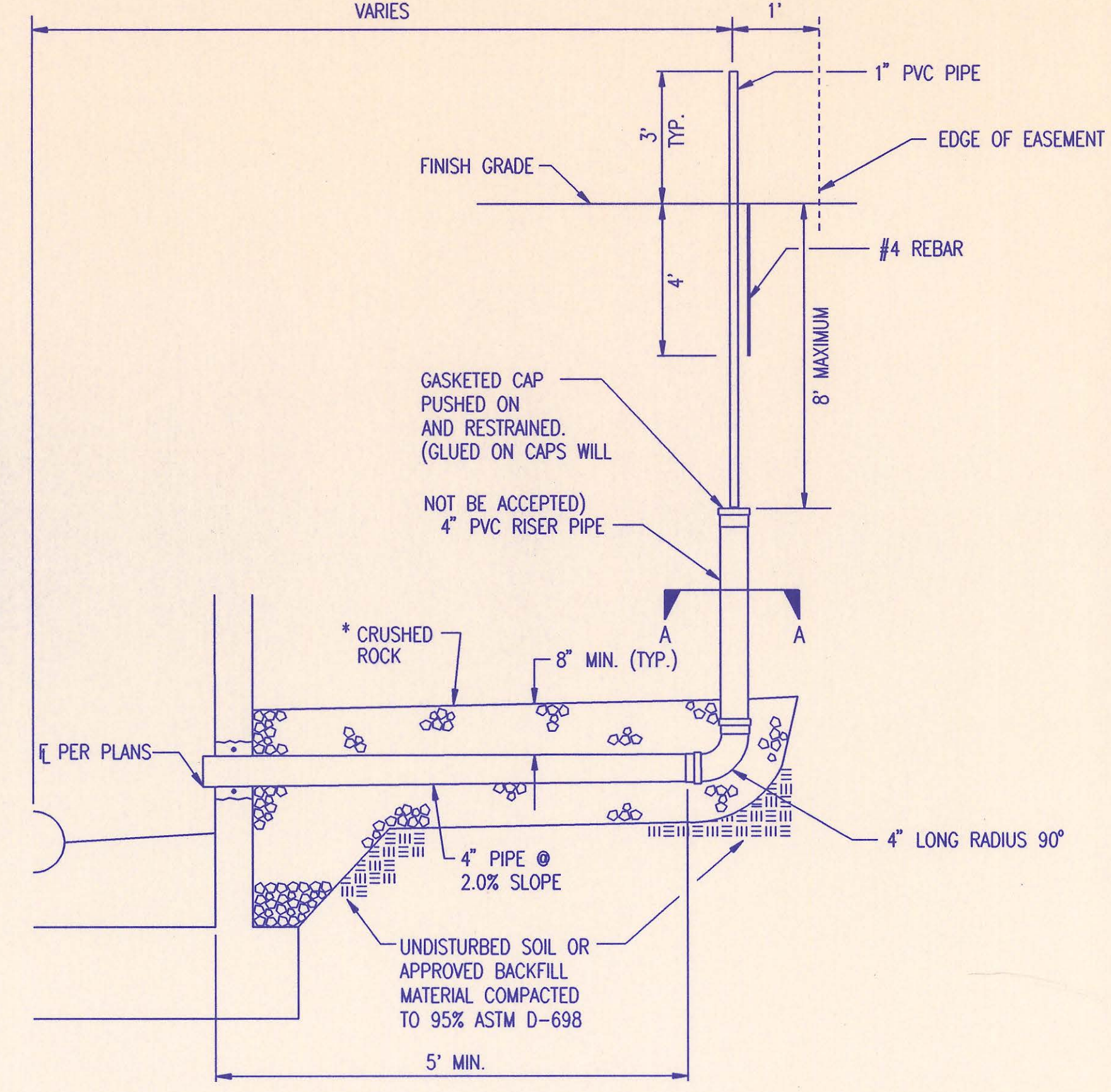
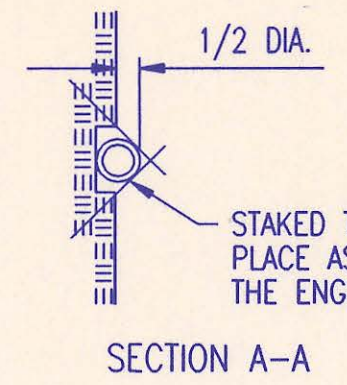
RECORD DRAWING

BACKFILL DETAILS

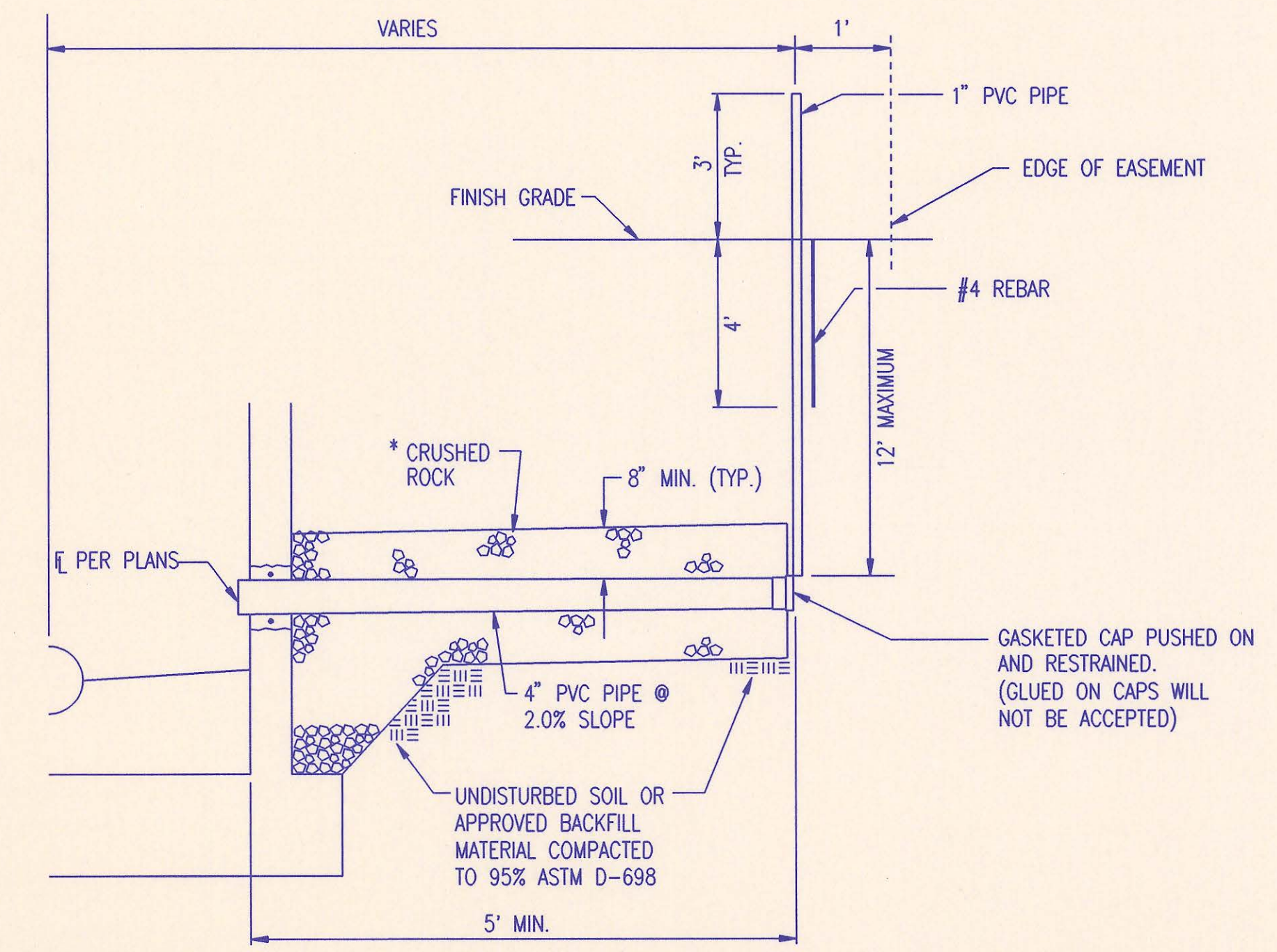
ADOPTED AS STANDARD DESIGN OCTOBER 1997
BY
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER



TEE SERVICE CONNECTION



MH SERVICE CONNECTION



4" STUB

* CRUSHED ROCK SHALL MEET THE REQUIREMENTS FOR GRANULAR BEDDING MATERIAL, AS OUTLINED IN THE SPECIFICATIONS.

SERVICE CONNECTIONS ARE TO BE INSTALLED WHERE PROPOSED SEWER MAIN IS 12' OR MORE BELOW PROPOSED GROUND OR AS SHOWN IN THE PLANS.

X = Riser Marker Missing as of 8-23-99

Replat - Belle Terre, South 1/2 1/4

SEWER SERVICE TABLE									
LOCATION					FOR INFORMATION ONLY		RECORD INFORMATION (TO BE COMPLETED BY PROJECT INSPECTOR)		
NO.	TYPE	LOT NO.	BLOCK NO.	LATERAL NO.	STATION/DIRECTION	APPROXIMATE LENGTH 4" PIPE	DISTANCE FROM NEAREST MANHOLE UPSTREAM	DISTANCE FROM NEAREST MANHOLE DOWNSTREAM	NO.
1	TEE SERVICE CONNECTION	12	3	90-6	0+75/LT.	16'			1
2	MH SERVICE CONNECTION	13	3	90-6	2+50/SE	24'			2
3	TEE SERVICE CONNECTION	19	3	90-7	0+50/LT.	7'			3
4	TEE SERVICE CONNECTION	20	3	90-7	0+70/RT.	28'			4
5	TEE SERVICE CONNECTION	13	4	90-7	2+25/RT.	28'			5
6	TEE SERVICE CONNECTION	12	4	90-7	2+50/LT.	7'			6
7	TEE SERVICE CONNECTION	14	4	90-7	3+20/NW	25'			7
8	MH SERVICE CONNECTION	15	4	90-7	3+99/RT.	25'			8
9	MH SERVICE CONNECTION	11	4	90-7	3+99/S	8'			9
10	TEE SERVICE CONNECTION	17	3	90-8	0+50/LT.	17'			10
11	TEE SERVICE CONNECTION	18	3	90-8	0+60/RT.	10'			11
12	TEE SERVICE CONNECTION	1	4	90-8	2+50/LT.	12'			12
13	TEE SERVICE CONNECTION	2	4	90-8	3+94/LT.	19'			13
14	TEE SERVICE CONNECTION	3	4	90-8	4+91/LT.	24'			14
15	TEE SERVICE CONNECTION	4	4	90-8	5+70/LT.	20'			15
16	TEE SERVICE CONNECTION	5	4	90-8	6+65/LT.	24'			16
17	MH SERVICE CONNECTION	6	4	90-8	7+45/NW	18'			17
18	TEE SERVICE CONNECTION	10	4	90-9	0+90/LT.	9'			18
19	TEE SERVICE CONNECTION	9	4	90-9	2+05/LT.	8'			19
20	MH SERVICE CONNECTION	16	4	90-9	3+19/N	16'			20
21	TEE SERVICE CONNECTION	17	4	90-9	3+80/RT.	17'			21
22	TEE SERVICE CONNECTION	8	4	90-9	4+00/LT.	7'			22
23	TEE SERVICE CONNECTION	18	4	90-9	4+48/RT.	17'			23
24	TEE SERVICE CONNECTION	7	4	90-9	5+18/LT.	6'			24
25	4" STUB	19	4	90-9	5+92/N	11'			25
26	MH SERVICE CONNECTION	3	2	90-10	3+63/E	15'			26
27	MH SERVICE CONNECTION	3	2	90-10	6+29/E	14'			27
28	TEE SERVICE CONNECTION	16	3	90-10	11+52/RT.	14'			28
29	TEE SERVICE CONNECTION	15	3	90-10	13+52/RT.	14'			29
30	4" STUB	14	3	90-10	14+87/NE	26'			30
31	MH SERVICE CONNECTION	2	1	TB-	64+41/NE	17'			31
32	MH SERVICE CONNECTION	3	1	TB-	64+41/NW	16'			32
33	MH SERVICE CONNECTION	4	1	TB-	66+29/NE	17'			33
34	MH SERVICE CONNECTION	5	1	TB-	66+29/NW	16'			34

SEWER SERVICE TABLE									
LOCATION					FOR INFORMATION ONLY		RECORD INFORMATION (TO BE COMPLETED BY PROJECT INSPECTOR)		
NO.	TYPE	LOT NO.	BLOCK NO.	LATERAL NO.	STATION/DIRECTION	APPROXIMATE LENGTH 4" PIPE	DISTANCE FROM NEAREST MANHOLE UPSTREAM	DISTANCE FROM NEAREST MANHOLE DOWNSTREAM	NO.
1	TEE SERVICE CONNECTION	12	3	90-6	0+80/LT.	16'	170'	80'	1
2	MH SERVICE CONNECTION	13	3	90-6	2+50/SE	23'	23'	250'	2
3	TEE SERVICE CONNECTION	19	3	90-7	0+57/LT.	4'	342'	57'	3
4	TEE SERVICE CONNECTION	20	3	90-7	0+70/RT.	24'	329'	70'	4
5	TEE SERVICE CONNECTION	13	4	90-7	2+25/RT.	24'	174'	225'	5
6	TEE SERVICE CONNECTION	12	4	90-7	2+52/LT.	4'	147'	252'	6
7	TEE SERVICE CONNECTION	14	4	90-7	3+20/RT.	21'	79'	320'	7
8	MH SERVICE CONNECTION	15	4	90-7	3+99/NW	26'	4'	399'	8
9	MH SERVICE CONNECTION	11	4	90-7	3+99/S	4'	4'	399'	9
10	TEE SERVICE CONNECTION	17	3	90-8	0+57/LT.	13'	227'	57'	10
11	TEE SERVICE CONNECTION	18	3	90-8	0+69/RT.	6'	215'	69'	11
12	TEE SERVICE CONNECTION	1	4	90-8	2+54/LT.	6'	30'	254'	12
13	TEE SERVICE CONNECTION	2	4	90-8	3+97/LT.	14'	69'	28'	13
14	TEE SERVICE CONNECTION	3	4	90-8	4+94/LT.	19'	60'	28'	14
15	TEE SERVICE CONNECTION	4	4	90-8	5+68/LT.	16'	177'	15'	15
16	TEE SERVICE CONNECTION	5	4	90-8	6+61/LT.	19'	84'	107'	16
17	MH SERVICE CONNECTION	6	4	90-8	7+45/NW	8'	8'	190'	17
18	TEE SERVICE CONNECTION	10	4	90-9	0+92/LT.	4'	227'	92'	18
19	TEE SERVICE CONNECTION	9	4	90-9	2+07/LT.	4'	112'	207'	19
20	MH SERVICE CONNECTION	16	4	90-9	3+19/N	20'	20'	319'	20
21	TEE SERVICE CONNECTION	17	4	90-9	3+85/RT.	14'	207'	66'	21
22	TEE SERVICE CONNECTION	18	4	90-9	3+98/LT.	4'	273'	79'	22
23	TEE SERVICE CONNECTION	18	4	90-9	4+50/RT.	14'	142'	131'	23
24	TEE SERVICE CONNECTION	7	4	90-9	5+16/LT.	4'	75'	197'	24
25	4" STUB	19	4	90-9	5+92/N	14'	14'	273'	25
26	MH SERVICE CONNECTION	3	2	90-10	3+63/E	15'	15'	363'	26
27	MH SERVICE CONNECTION	3	2	90-10	6+29/E	14'	14'	266'	27
28	TEE SERVICE CONNECTION	16	3	90-10	11+62/RT.	14'	325'	80'	28
29	TEE SERVICE CONNECTION	15	3	90-10	13+52/RT.	14'	130'	275'	29
30	4" STUB	14	3	90-10	14+87/NE	26'	24'	405'	30
31	MH SERVICE CONNECTION	2	1	TB-	64+41/NE	14'	188'	282'	31
32	MH SERVICE CONNECTION	3	1	TB-	64+41/NW	11'	188'	282'	32
33	MH SERVICE CONNECTION	4	1	TB-	66+29/NE	12'	236'	188'	33
34	MH SERVICE CONNECTION	5	1	TB-	66+29/NW	10'	236'	188'	34

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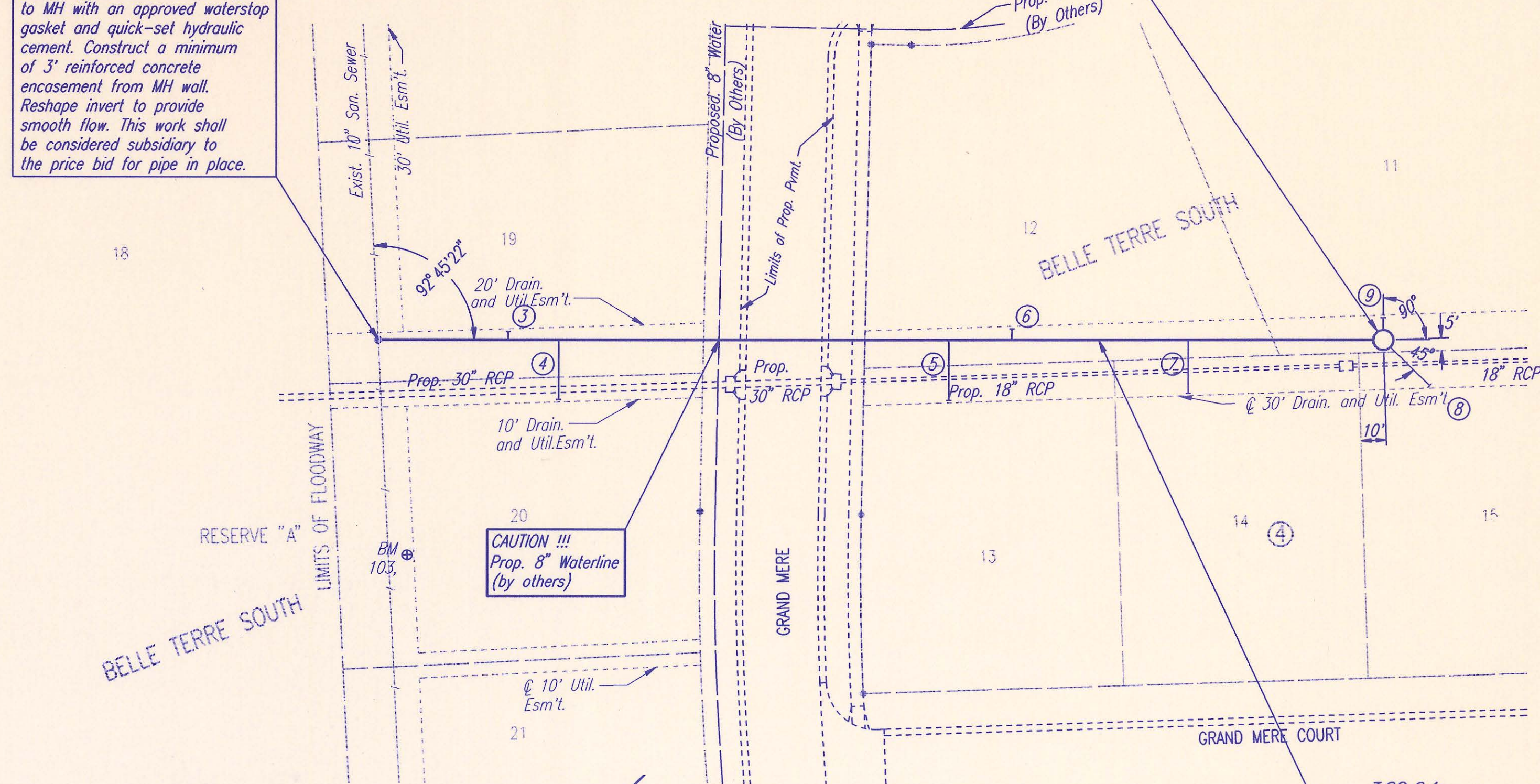
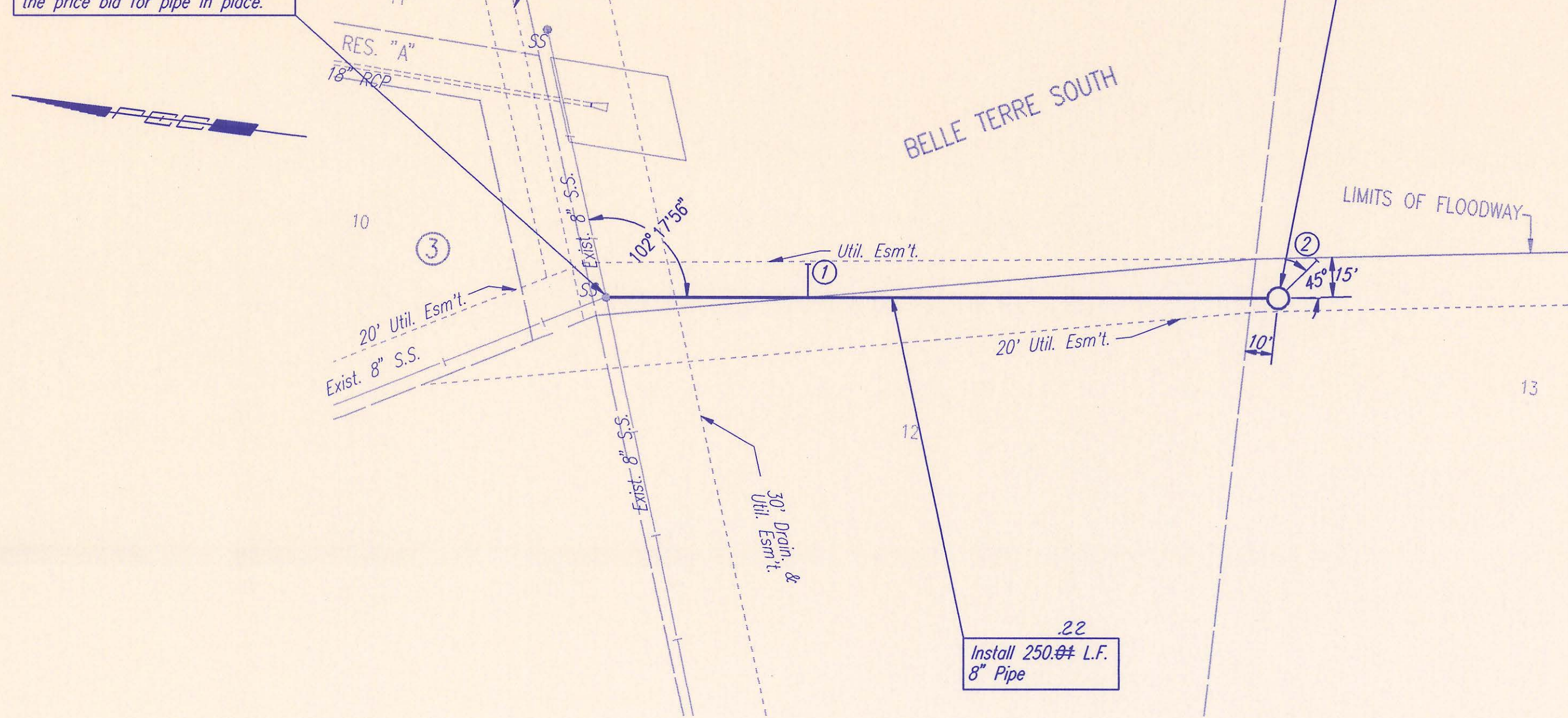
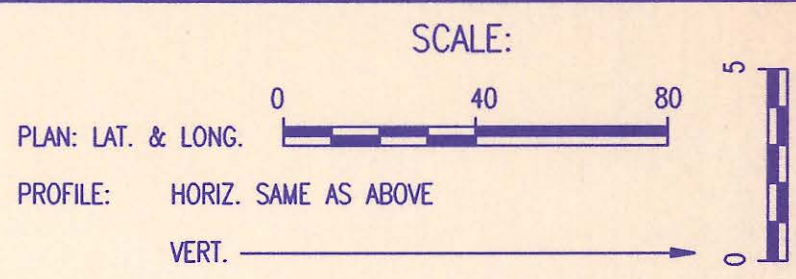
SERVICE CONNECTION DETAILS
ADOPTED AS STANDARD DESIGN OCTOBER 1997
BY
SEDCWICK COUNTY BUREAU OF PUBLIC SERVICES
DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

Sta. 0+00.00
Existing MH 90-4-1
Core concrete MH wall and install new 8" pipe. Seal new 8" Pipe to MH with an approved waterstop gasket and quick-set hydraulic cement. Construct a minimum of 3' reinforced concrete encasement from MH wall. Reshape invert to provide smooth flow. This work shall be considered subsidiary to the price bid for pipe in place.

Sta. 2+50.00
Const. MH 90-6-1
Type A

Sta. 0+00.00
Existing MH M1B-4
Construct outside drop connection to existing MH. Core concrete MH wall and install new 8" pipes. Seal new 8" Pipes to MH with an approved waterstop gasket and quick-set hydraulic cement. Construct a minimum of 3' reinforced concrete encasement from MH wall. Reshape invert to provide smooth flow. This work shall be considered subsidiary to the price bid for pipe in place.

Sta. 3+98.83
Const. MH 90-7-1
Type A



LATERAL NO. 90-6

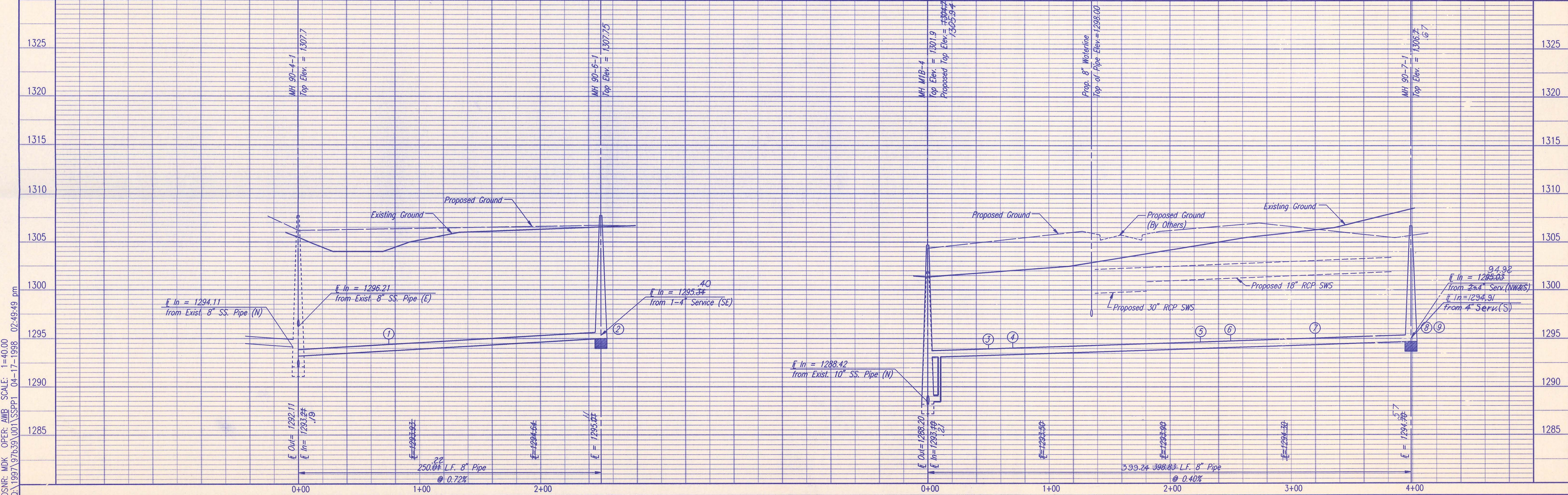
ALL PIPE INSTALLED IS PVC PIPE.

SANITARY SEWER PIPE SLOPES AND DEFLECTION ANGLES AT MANHOLES HAVE NOT BEEN REVISED TO REFLECT AS CONSTRUCTED CONDITIONS.

DENOTES SEWER SERVICE. SEE SHEET NO. 7 FOR SEWER SERVICE SCHEDULE AND DETAILS

LATERAL NO. 90-7

RECORD DRAWING

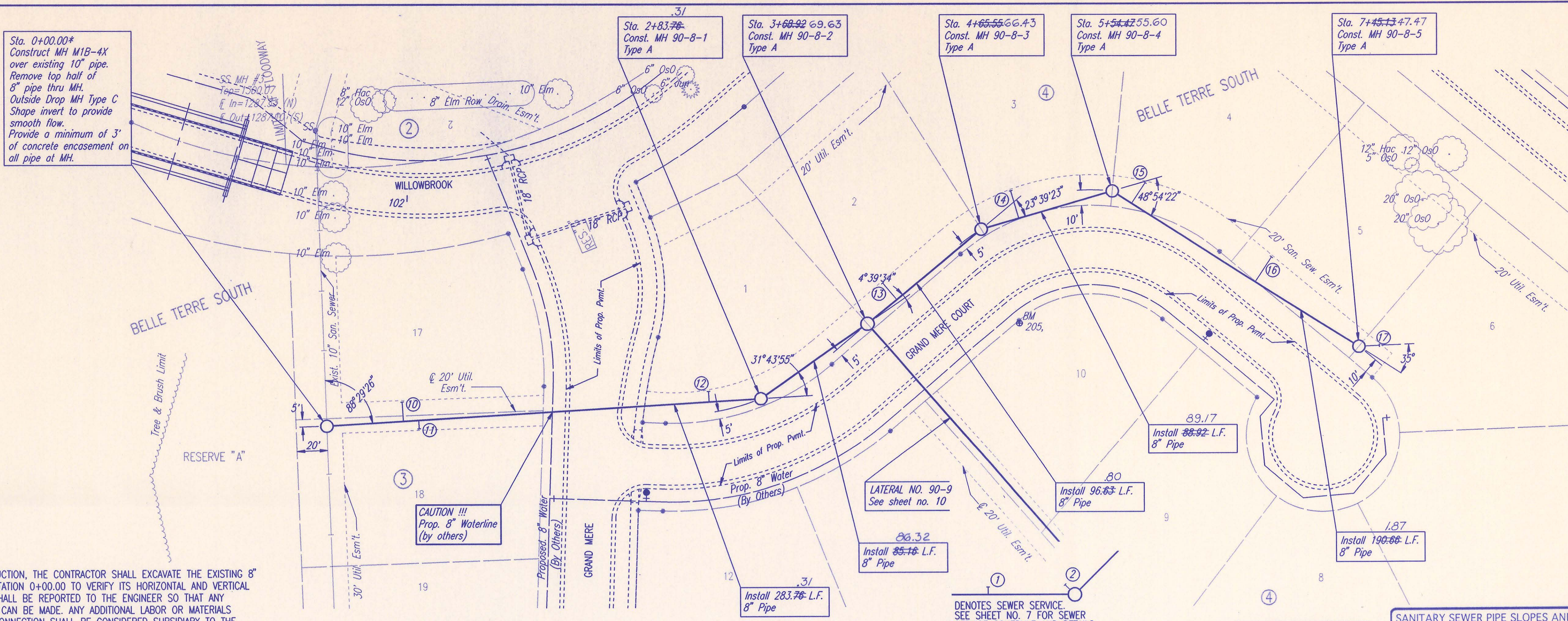
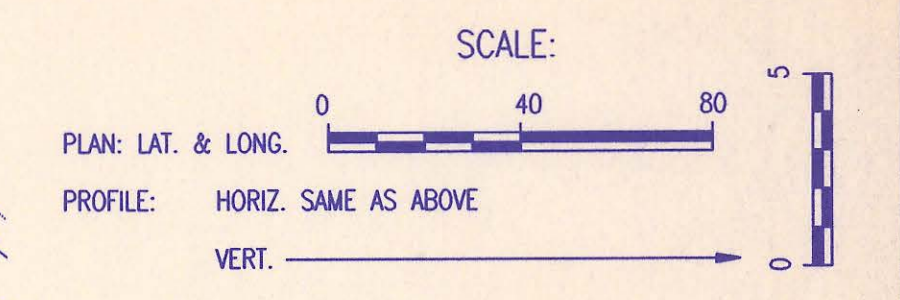


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SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
DIRECTOR: DAVID C. SPANIS, P.E.
SANTARY SEWER MAIN
LATERAL NO. 90-6 AND 90-7
BELLE TERRE SOUTH (PHASE 4 AND 5)

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
WICHITA, KANSAS
Job No. 34-97B39-1
Date: December 1997
Sheet 8 of 13

Sta. 0+00.00*
Construct MH M1B-4X
over existing 10" pipe.
Remove top half of
8" pipe thru MH.
Outside Drop MH Type C
Shape invert to provide
smooth flow.
Provide a minimum of 3'
of concrete encasement on
all pipe at MH.



* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING 8" PVC PIPE AT SANITARY SEWER STATION 0+00.00 TO VERIFY ITS HORIZONTAL AND VERTICAL LOCATION. THE PIPE LOCATION SHALL BE REPORTED TO THE ENGINEER SO THAT ANY NECESSARY PLAN MODIFICATIONS CAN BE MADE. ANY ADDITIONAL LABOR OR MATERIALS NECESSARY TO COMPLETE THE CONNECTION SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT.

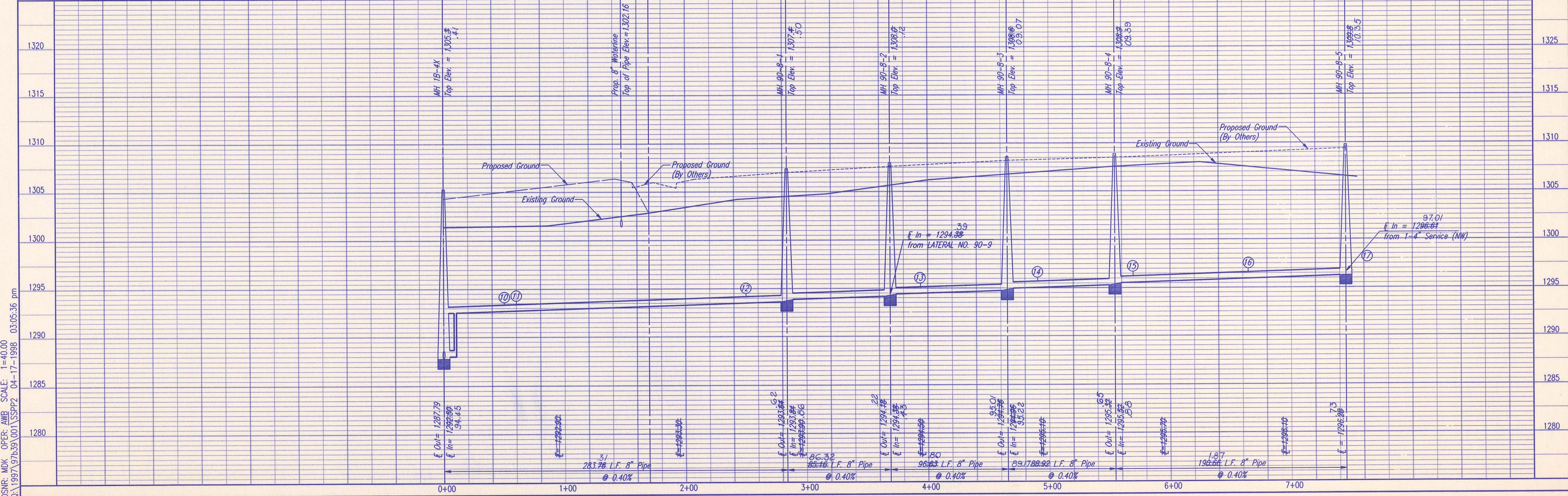
① DENOTES SEWER SERVICE. SEE SHEET NO. 7 FOR SEWER SERVICE SCHEDULE AND DETAILS.

ALL PIPE INSTALLED IS PVC PIPE.

SANITARY SEWER PIPE SLOPES AND DEFLECTION ANGLES AT MANHOLES HAVE NOT BEEN REVISED TO REFLECT AS CONSTRUCTED CONDITIONS.



LATERAL NO. 90-8



DSMR, MDK OPER: AMB SCALE: 1=40.00 04-17-1998 03:05:36 pm

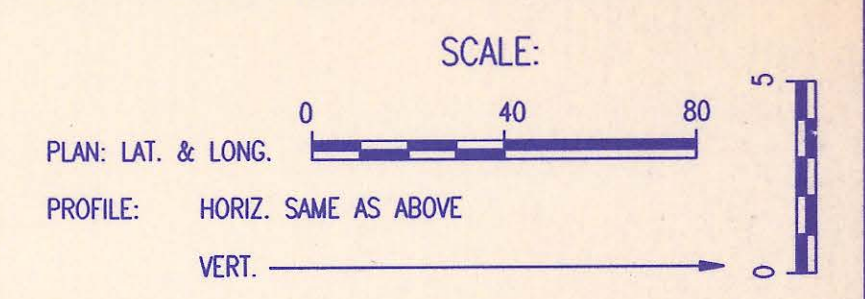
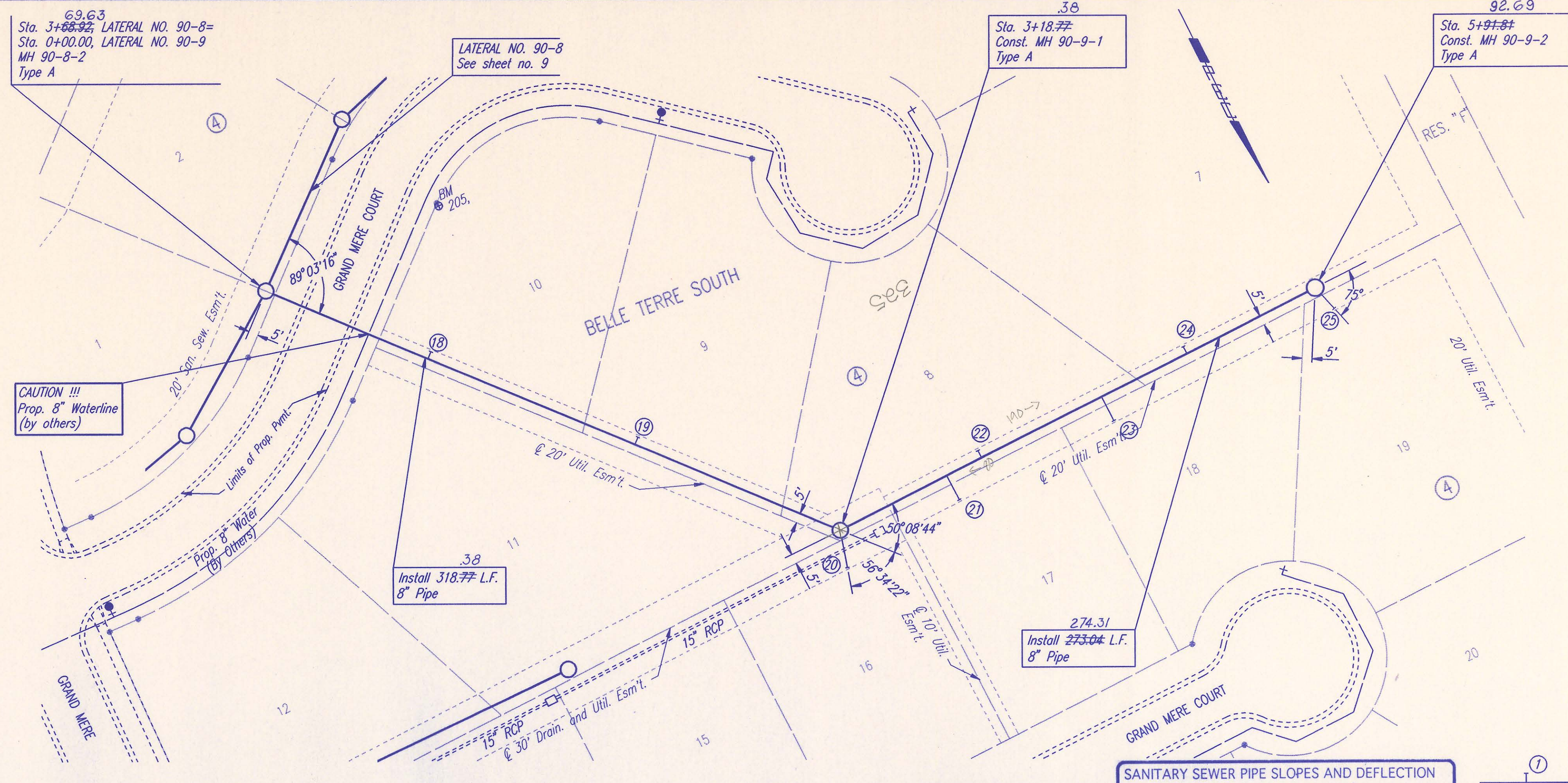
SEDMONICK COUNTY BUREAU OF PUBLIC SERVICES
DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

Job No. 34-97B39-1
Date December 1997

Designed By MDK
Drawn By DEP

Sheet 9 of 13



RECORD DRAWING

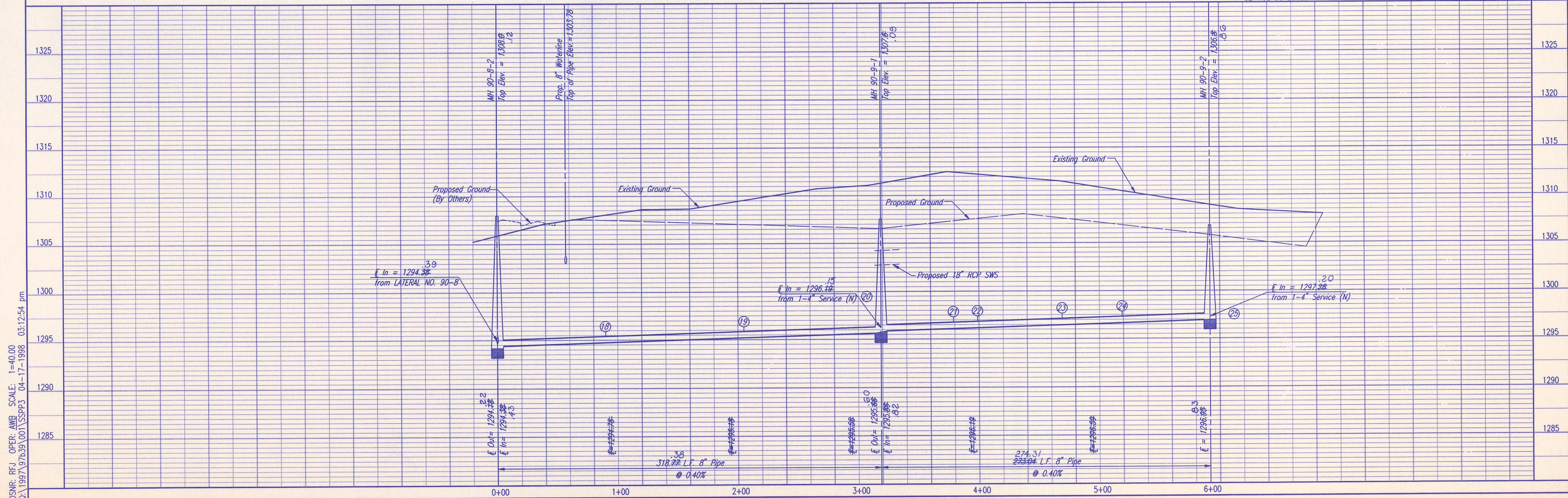


LATERAL NO. 90-9

ALL PIPE INSTALLED IS PVC PIPE.

SANITARY SEWER PIPE SLOPES AND DEFLECTION ANGLES AT MANHOLES HAVE NOT BEEN REVISED TO REFLECT AS CONSTRUCTED CONDITIONS.

DENOTES SEWER SERVICE. SEE SHEET NO. 7 FOR SEWER SERVICE SCHEDULE AND DETAILS.



DSMR, REF. OPER. AMB SCALE: 1=40.00
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SEDMICK COUNTY BUREAU OF PUBLIC SERVICES
DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

LATERAL NO. 90-9
SANITARY SEWER MAIN
BELLE TERRE SOUTH (PHASE 4 AND 5)

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

Job No. 34-9789-1
Date December 1997

Designed By MDK
Drawn By DEP

Sheet 10 of 13

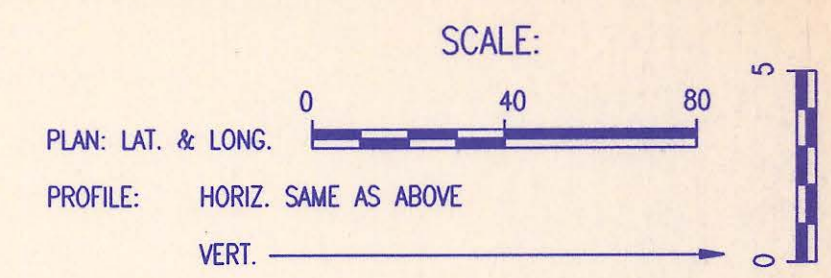
Sta. 0+00.00
Existing MH TB-19
Core concrete MH wall and install new 8" pipe. Seal new 8" Pipe to MH with an approved waterstop gasket and quick-set hydraulic cement. Construct a minimum of 3' reinforced concrete encasement from MH wall. Reshape invert to provide smooth flow. This work shall be considered subsidiary to the price bid for pipe in place.

196.79
Install 197.47 L.F. 8" Pipe

167.85
Install 165.80 L.F. 8" Pipe

266.21
Install 265.83 L.F. 8" Pipe

264.31
Install 265.83 L.F. 8" Pipe



RECORD DRAWING

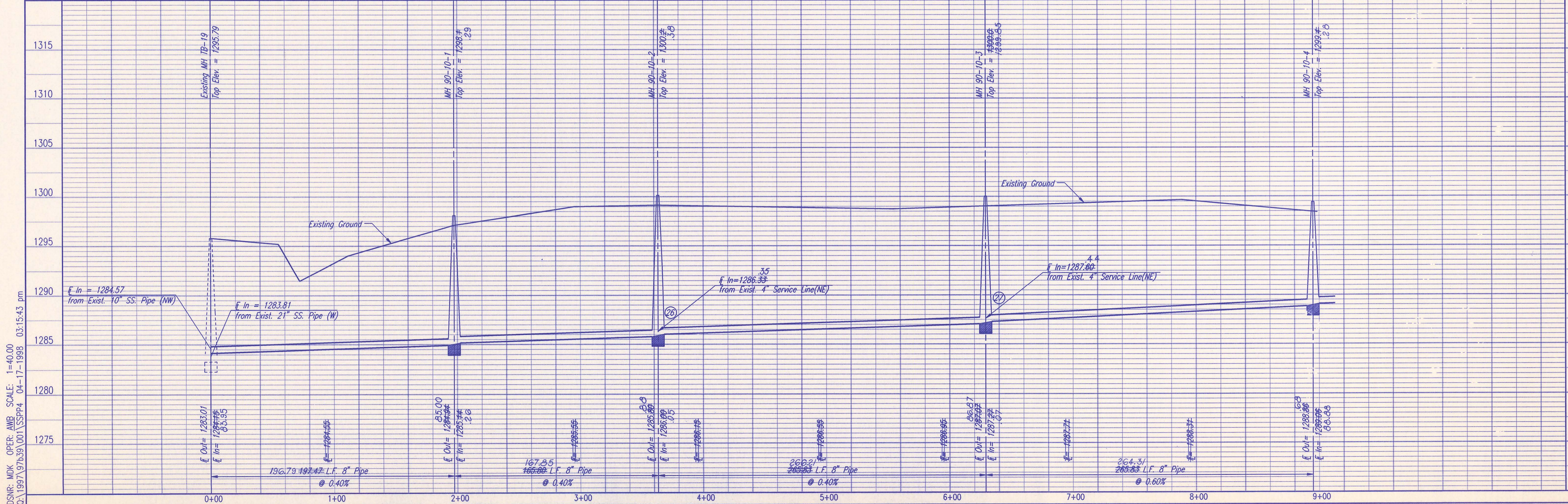


LATERAL NO. 90-10

DENOTES SEWER SERVICE. SEE SHEET NO. 7 FOR SEWER SERVICE SCHEDULE AND DETAILS.

SANITARY SEWER PIPE SLOPES AND DEFLECTION ANGLES AT MANHOLES HAVE NOT BEEN REVISED TO REFLECT AS CONSTRUCTED CONDITIONS.

ALL PIPE INSTALLED IS PVC PIPE.



DSNR: MDK OPER: AMB SCALE: 1"=40.00
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Sheet 11 of 13

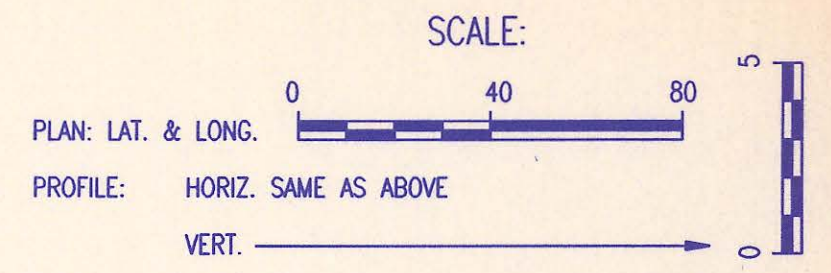
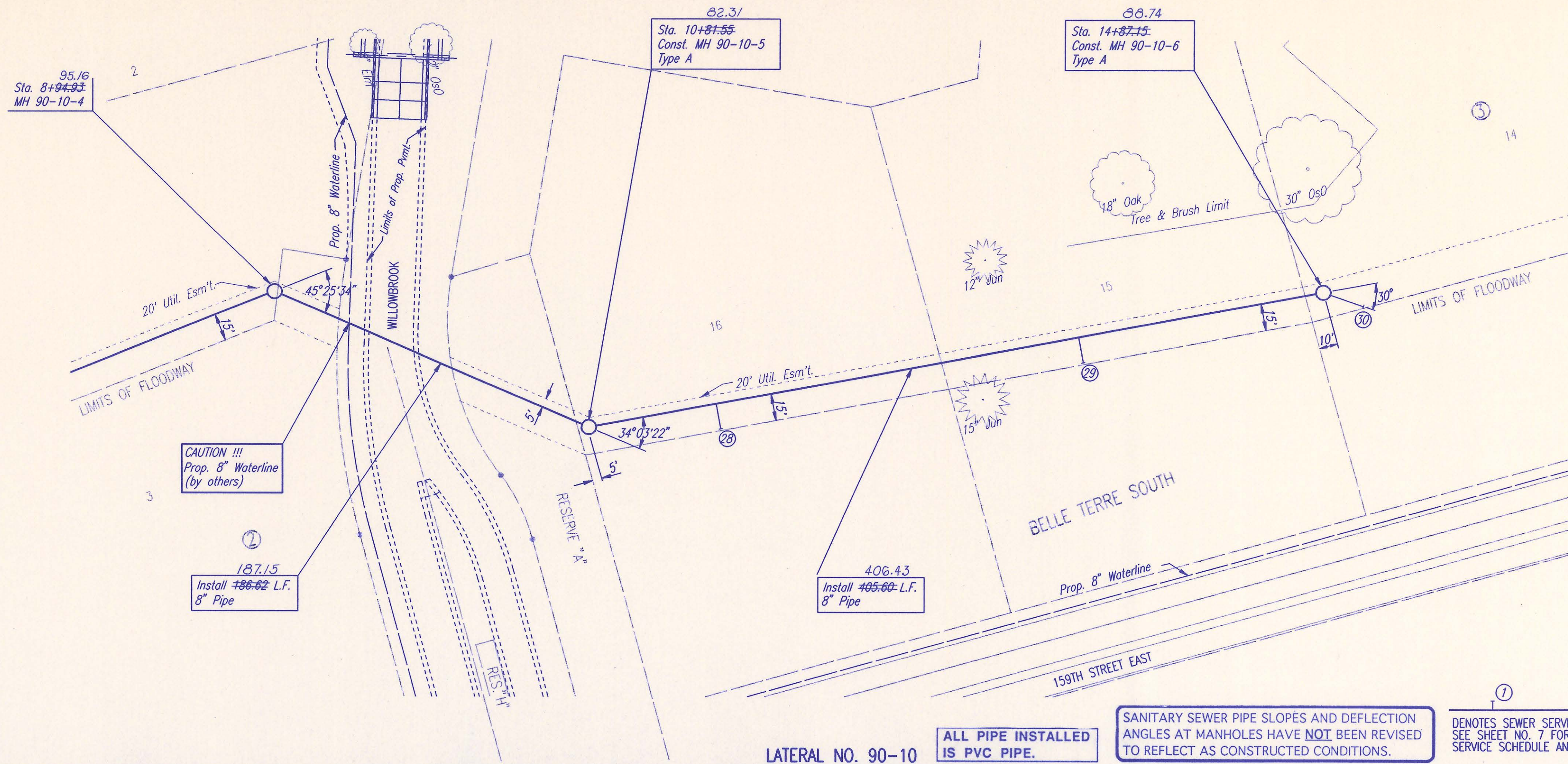
DESIGNED BY: MDK
DRAWN BY: DEP

Job No. 34-97039-1
Date December 1997

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
WICHITA, KANSAS

SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

LATERAL NO. 90-10
SANITARY SEWER MAIN
BELLE TERRE SOUTH (PHASE 4 AND 5)



CAUTION !!!
 Prop. 8" Waterline
 (by others)

187.15
 Install ~~186.62~~ L.F.
 8" Pipe

406.43
 Install ~~405.60~~ L.F.
 8" Pipe

LATERAL NO. 90-10
 ALL PIPE INSTALLED
 IS PVC PIPE.

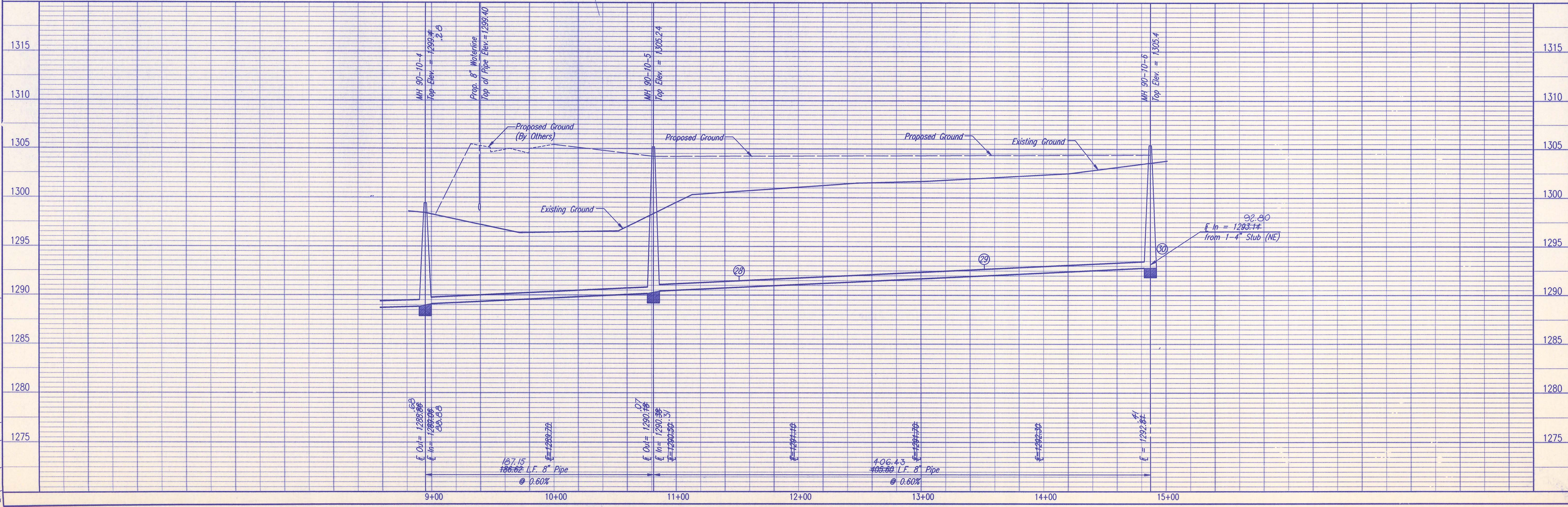
SANITARY SEWER PIPE SLOPES AND DEFLECTION
 ANGLES AT MANHOLES HAVE NOT BEEN REVISED
 TO REFLECT AS CONSTRUCTED CONDITIONS.

①
 ②
 DENOTES SEWER SERVICE.
 SEE SHEET NO. 7 FOR SEWER
 SERVICE SCHEDULE AND DETAILS

RECORD DRAWING



DSNR: MDK OPER: AMB SCALE: 1=40.00
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SEOWICK COUNTY BUREAU OF PUBLIC SERVICES
 DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS

Job No. 34-97B39-1
 Date December 1997

DESIGNED BY MDK
 DRAWN BY DEP

LATERAL NO. 90-10
 SANITARY SEWER MAIN
 BELLE TERRE SOUTH (PHASE 4, AND 5)

Sheet 12 of 13

