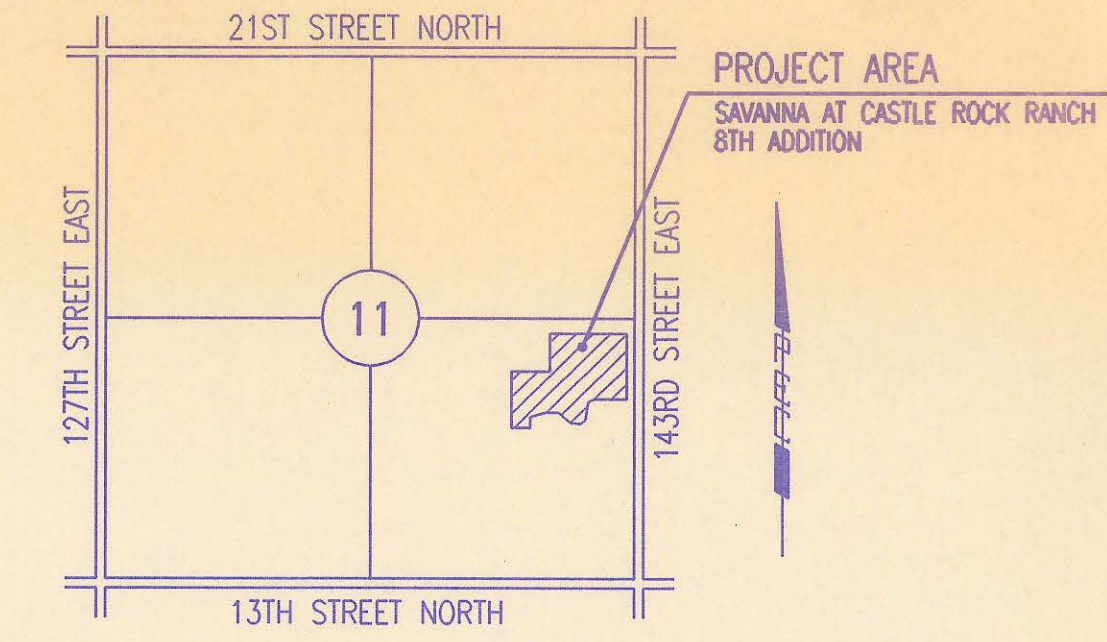
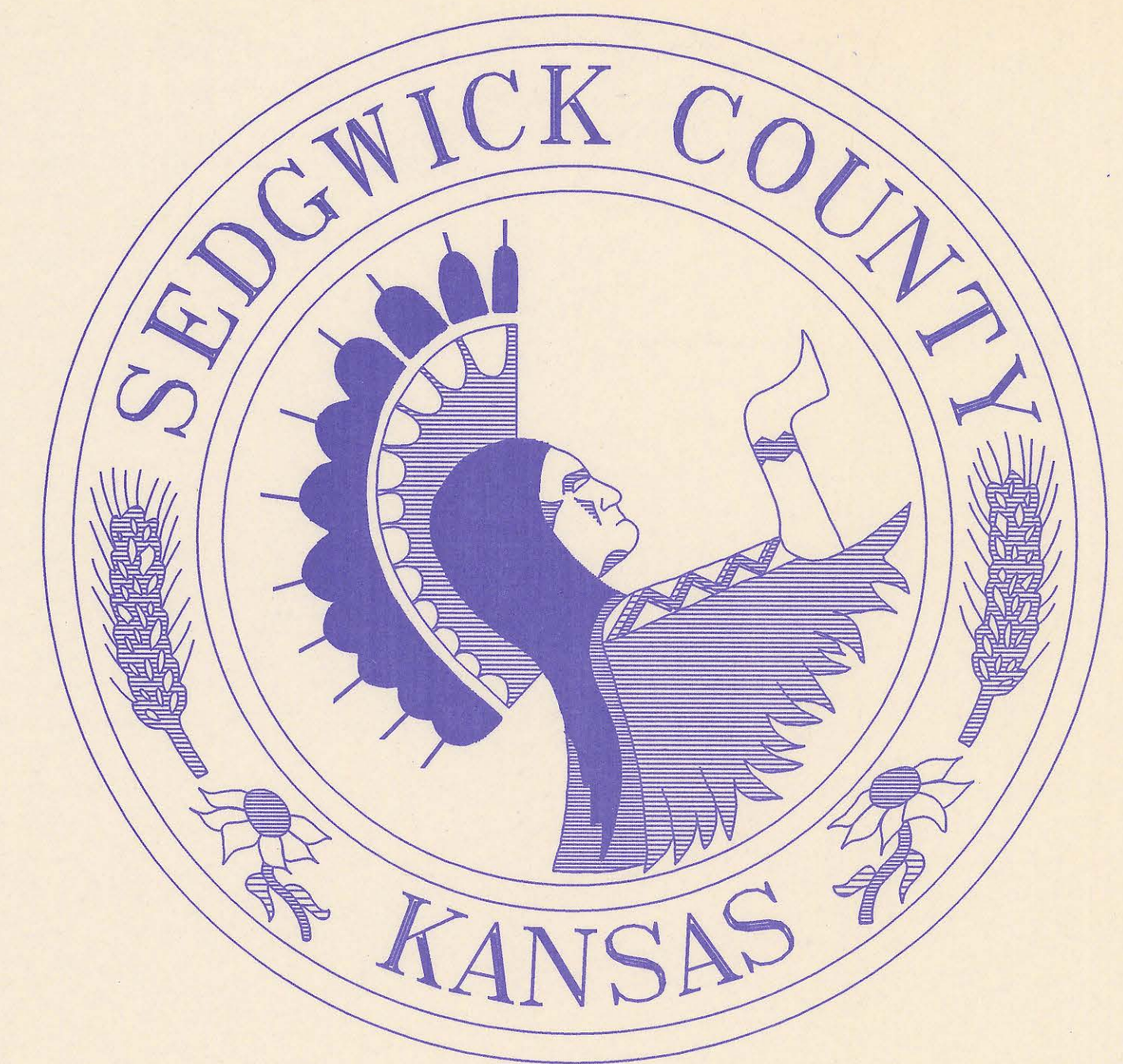


4MC-110

BUREAU OF PUBLIC SERVICES



LOCATION MAP
NOT TO SCALE

INDEX OF SHEETS

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	KEY MAP
SHEET NO. 3	PLAT
SHEET NO. 4	PRECAST MANHOLE DETAILS
SHEET NO. 5	BACKFILL DETAILS
SHEET NO. 6	SERVICE CONNECTION DETAILS
SHEET NO. 7-8	PLAN/PROFILE

CONSTRUCTION PLANS FOR SANITARY SEWER IMPROVEMENTS

IN
SAVANNA AT CASTLE ROCK RANCH
8TH ADDITION

TO SEDGWICK COUNTY, KANSAS

JULY 1996

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

RECORD DRAWING

MDK PROJ. ENG. 2/21/97 DATE
RES. ENG. DATE

APPROVED:

David C. Spears
DAVID C. SPEARS, P.E.
DIRECTOR OF PUBLIC SERVICES/COUNTY ENGINEER
DATE: 8/5/96

APPROVED:

Thomas Swintan
CHAIR, BOARD OF COUNTY COMMISSIONERS
DATE: 8-5-96



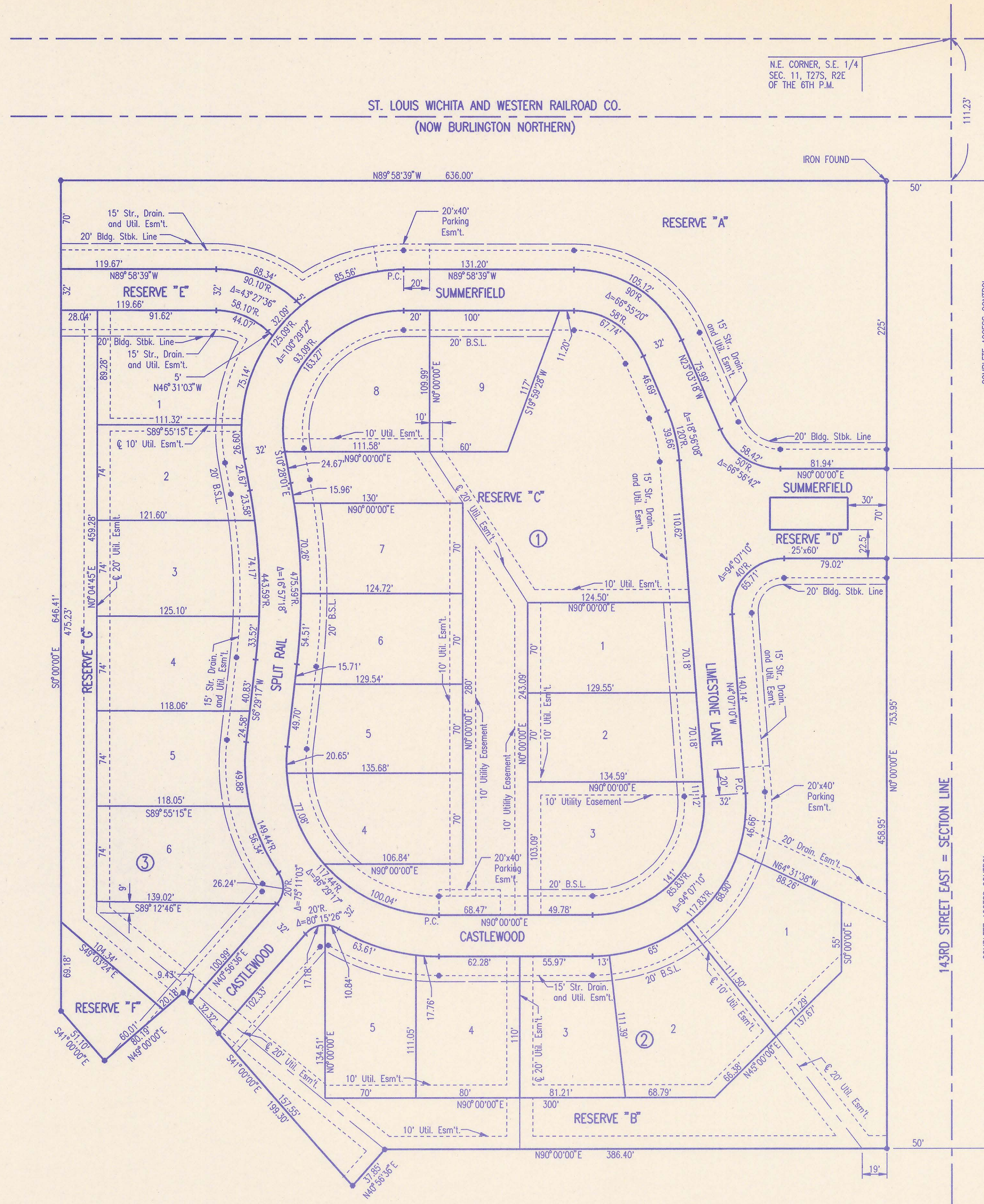
FILED IN THE OFFICE OF
THE SEDGWICK COUNTY CLERK

David M. Heber
COUNTY CLERK
DATE: 8/7/96

D:\1996\96267\001\TITLE.DWG 07-24-1996 9:07:56 am

4MC-110

SAVANNA AT CASTLE ROCK RANCH 8TH ADDITION TO SEDGWICK COUNTY, KANSAS



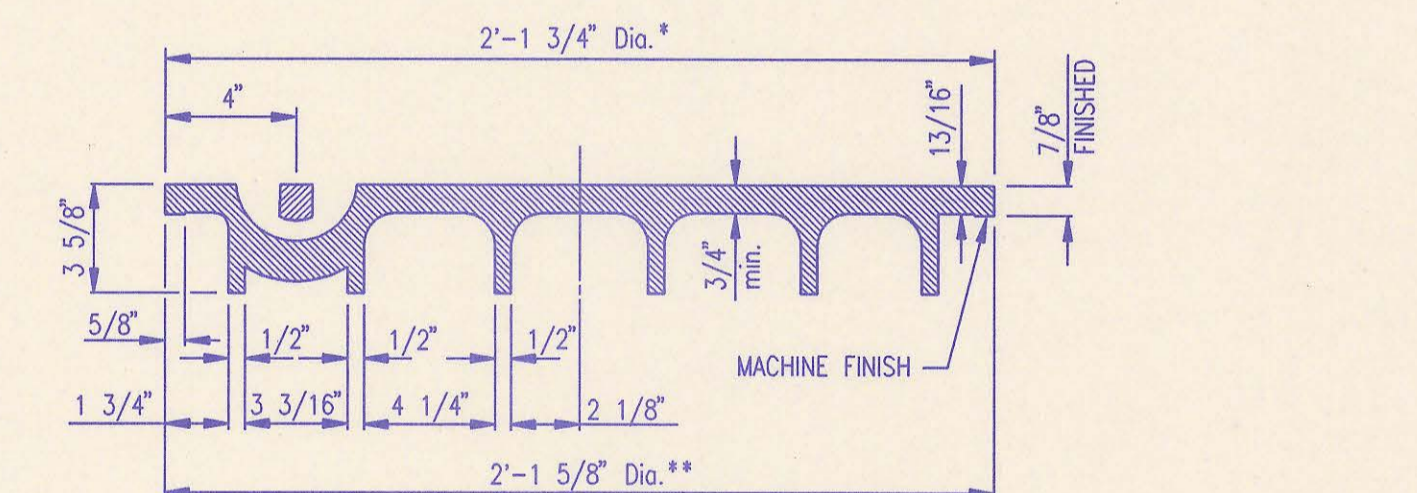
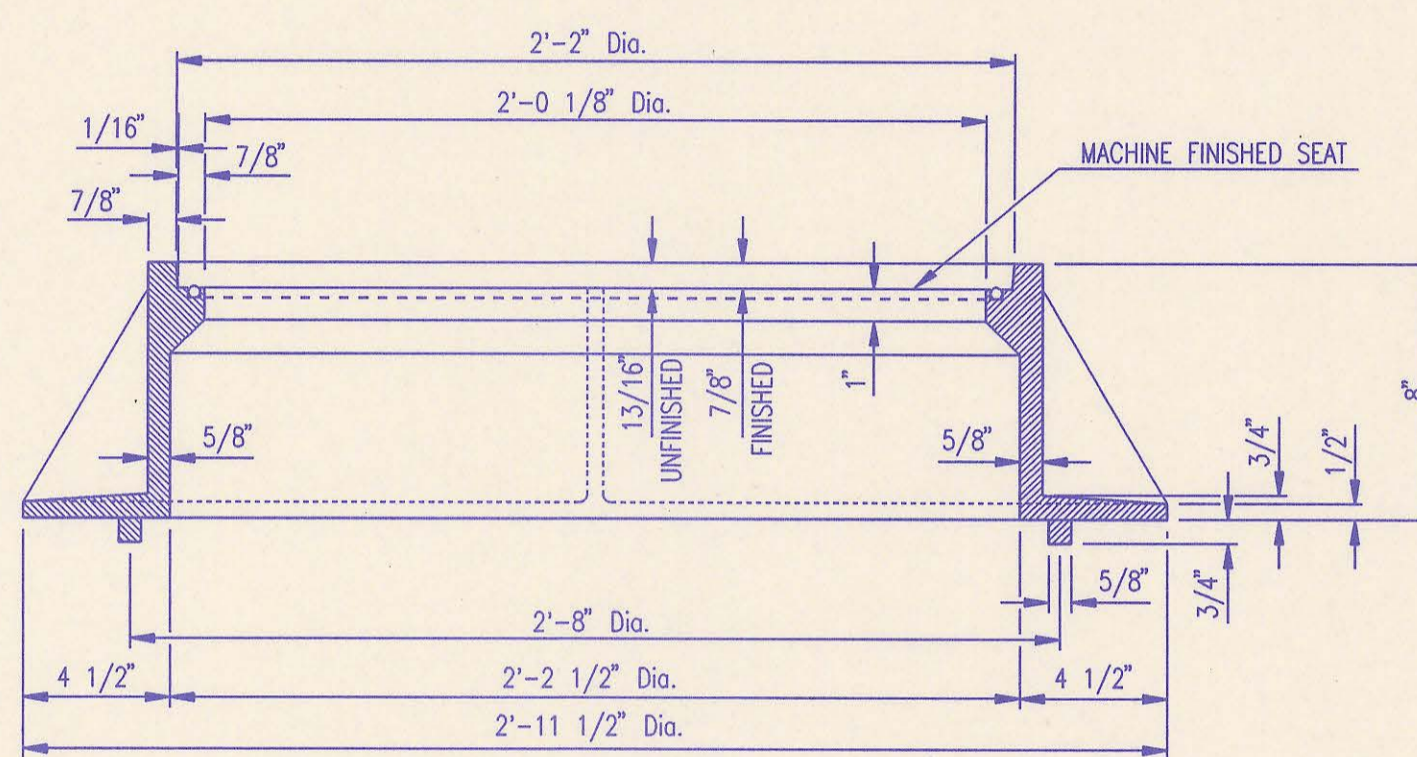
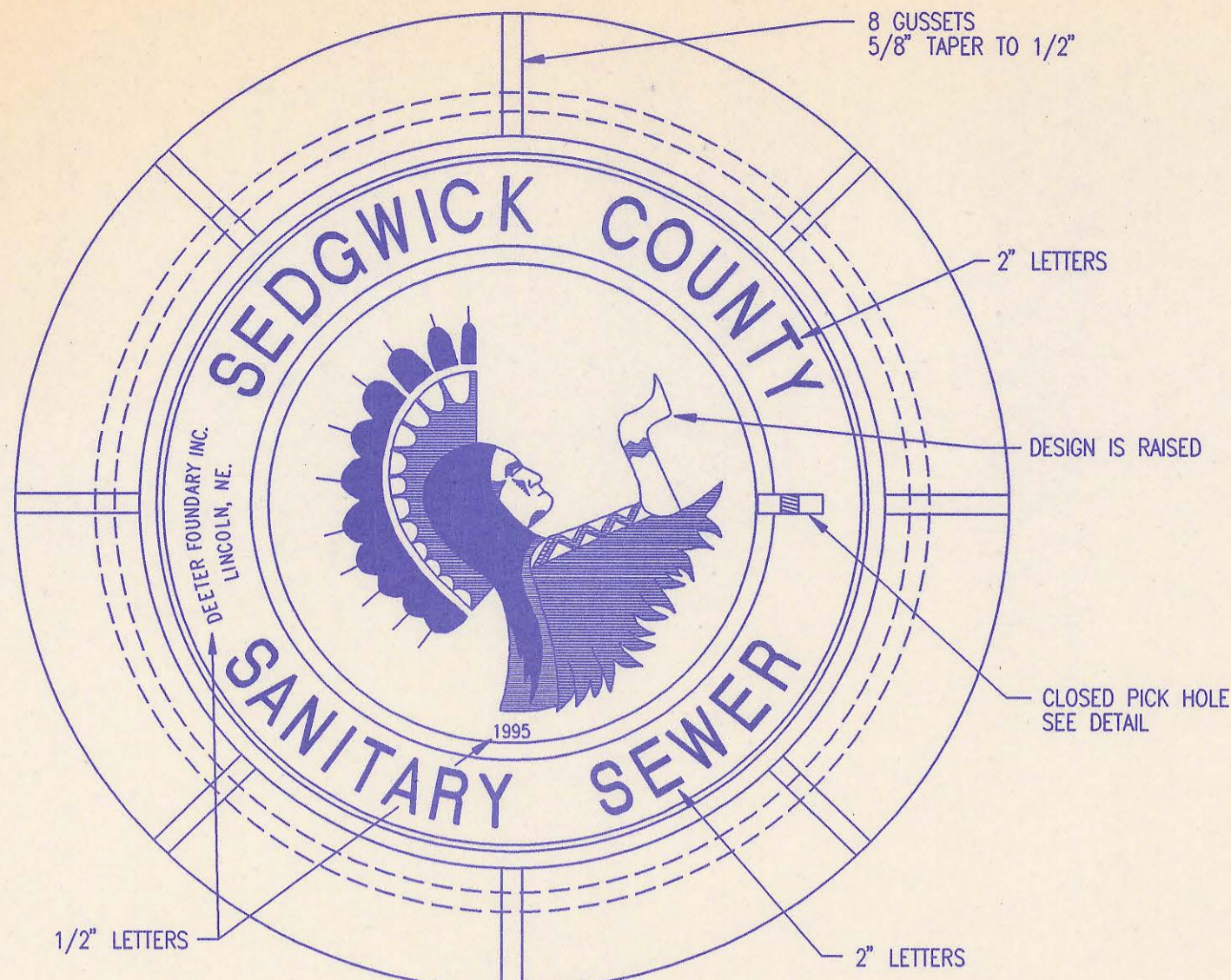
N.E. CORNER, S.E. 1/4
SEC. 11, T27S, R2E
OF THE 6TH P.M.

ST. LOUIS WICHITA AND WESTERN RAILROAD CO.
(NOW BURLINGTON NORTHERN)

SCALE: 1"=50'
● = IRON SET

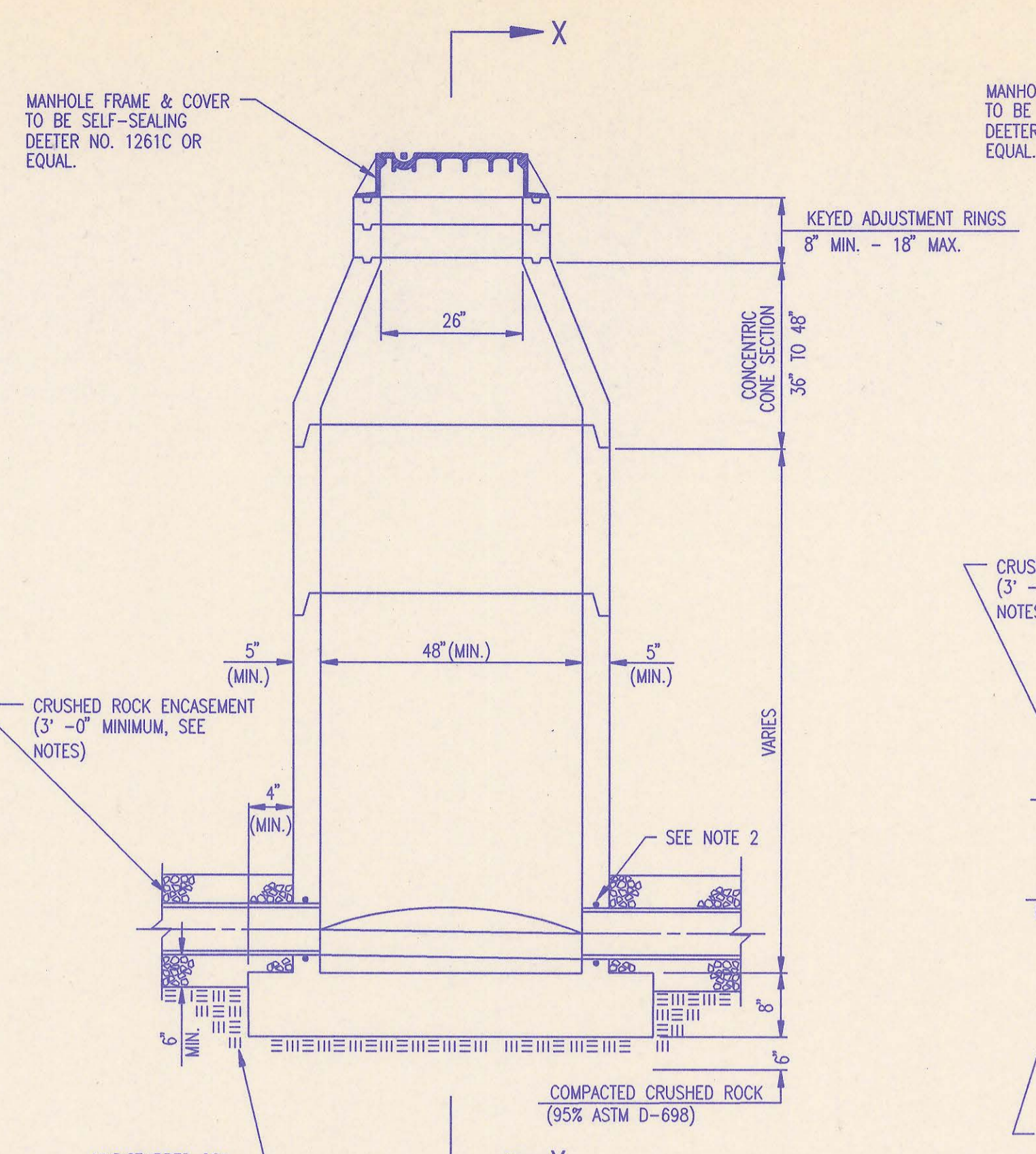
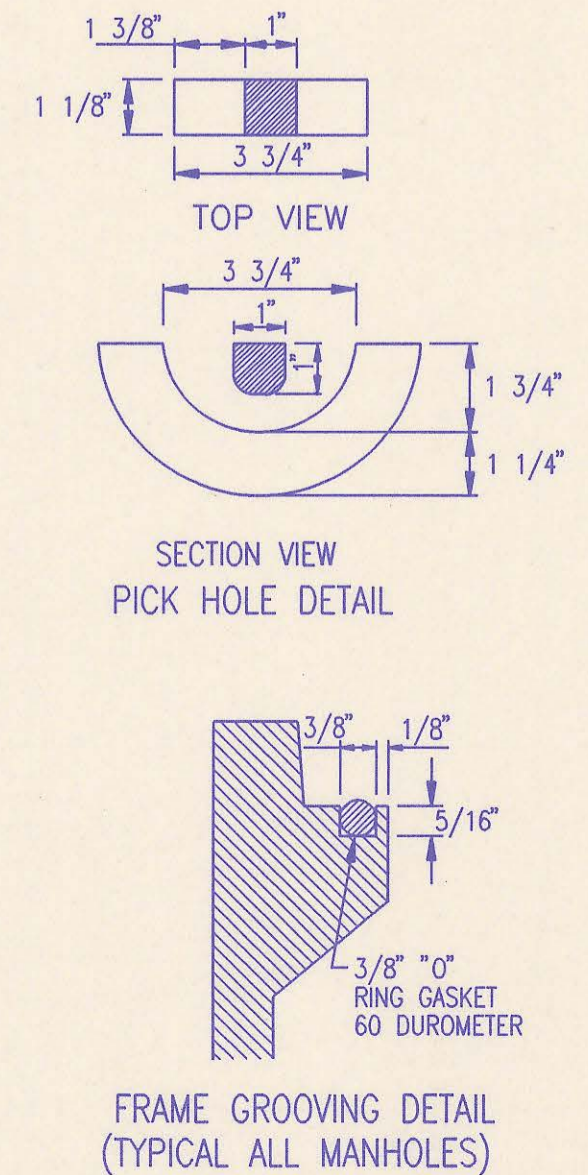
NO. ALIGNMENT CHECKED RT. OF WAY CHECKED

DSNR: SANCHEZ OPER: CKH SCALE: 1"=50.00
Q:\1996\96267\001\PLAT.DWG 07-24-1996 9:17:31 am

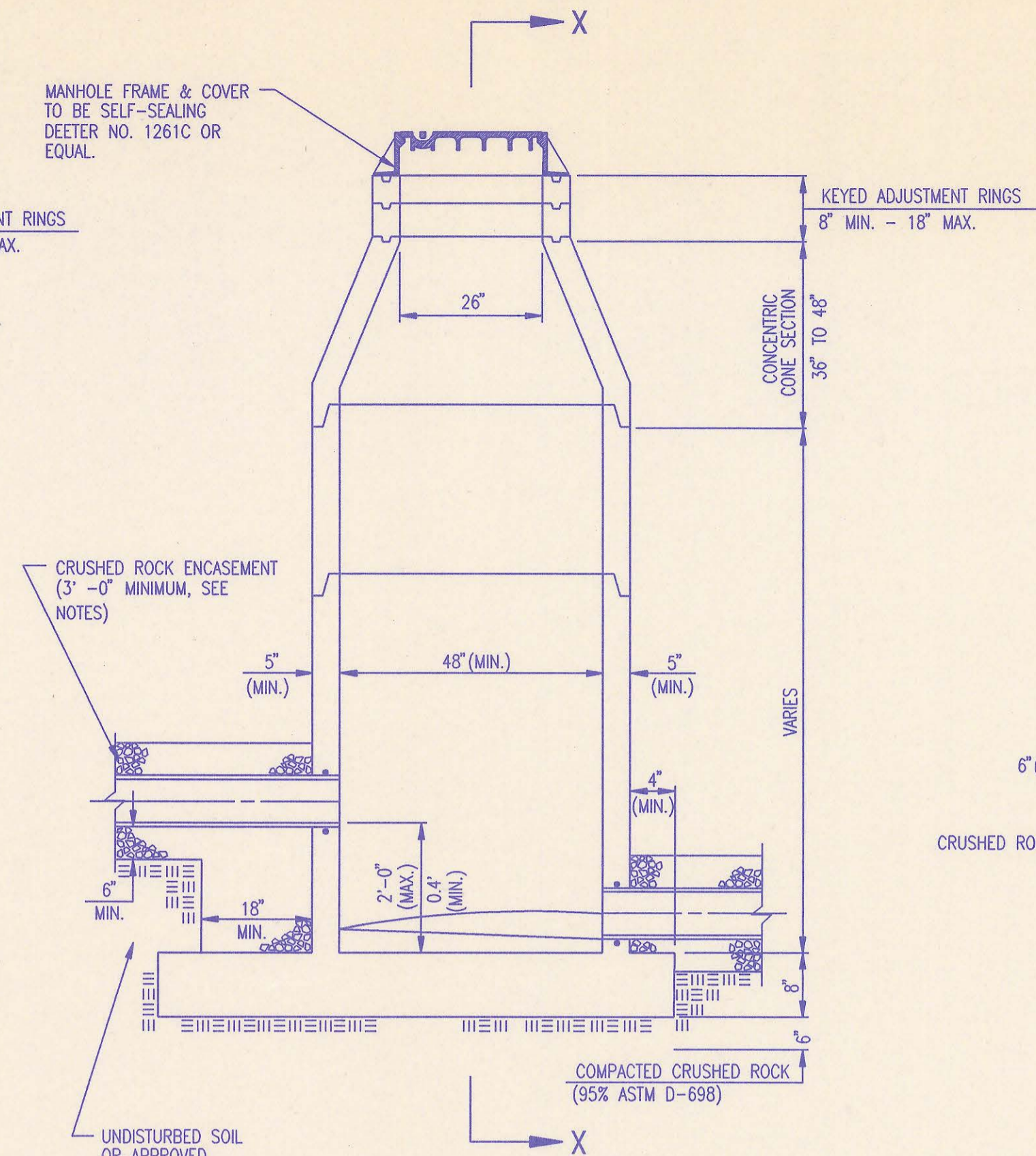


MANHOLE FRAME AND COVER
(TOTAL WEIGHT = 430 LBS.)

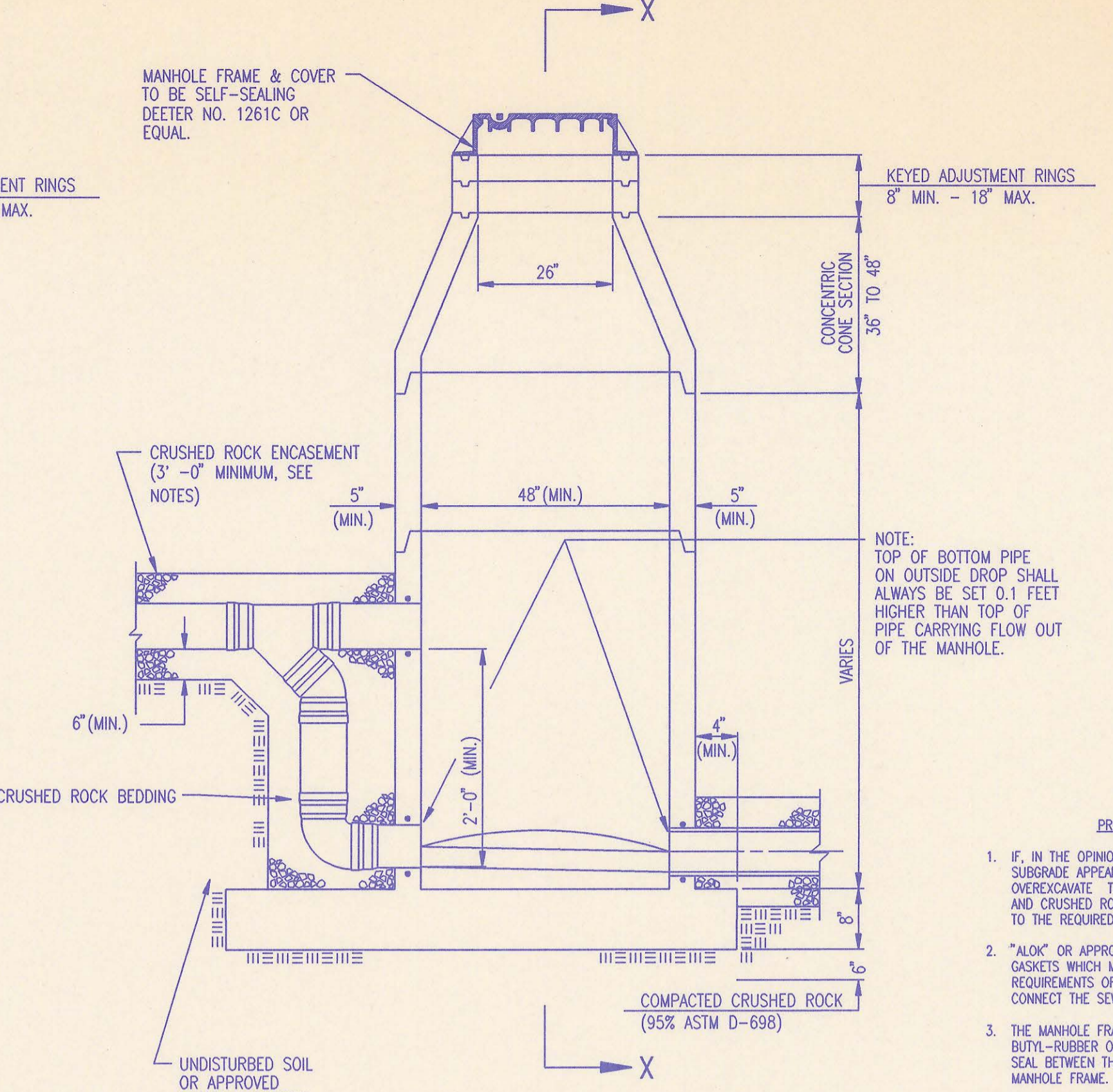
- MANHOLE FRAME AND COVER NOTES**
- CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 35B, OR BETTER.
 - CASTINGS ARE TO BE MANUFACTURED TRUE TO PATTERN AND WITH SATISFACTORY FIT OF COMPONENT PARTS. CASTINGS SHALL BE FREE OF DEFECTS AND ALL BURS SHALL BE GROUND SMOOTH. DIMENSIONS AS DETAILED 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"

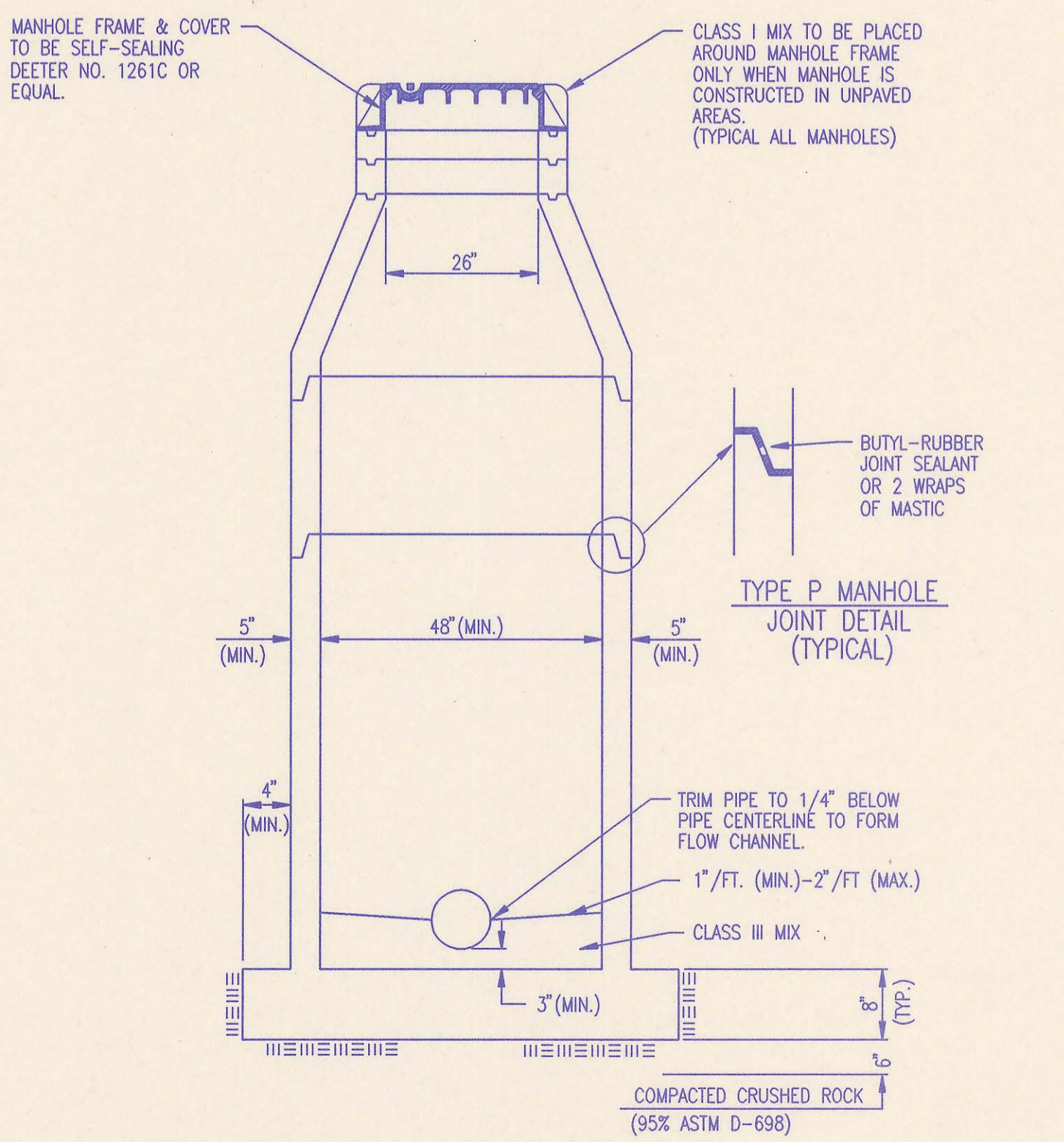


PRECAST OUTSIDE DROP MANHOLE TYPE "C"

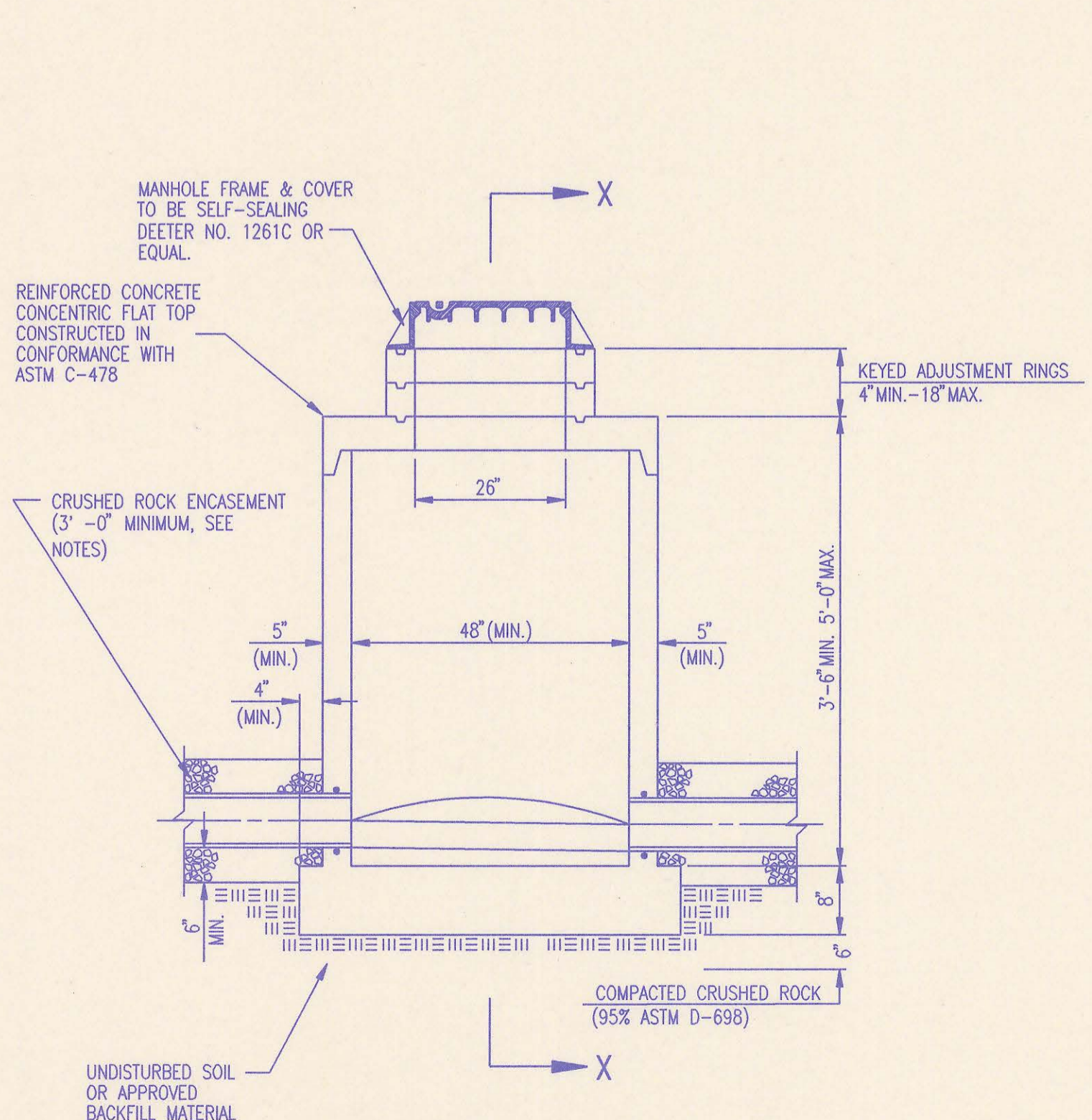
NOTE: TOP OF BOTTOM PIPE ON OUTSIDE DROP SHALL ALWAYS BE SET 0.1 FEET HIGHER THAN TOP OF PIPE CARRYING FLOW OUT OF THE MANHOLE.

PRECAST MANHOLE NOTES

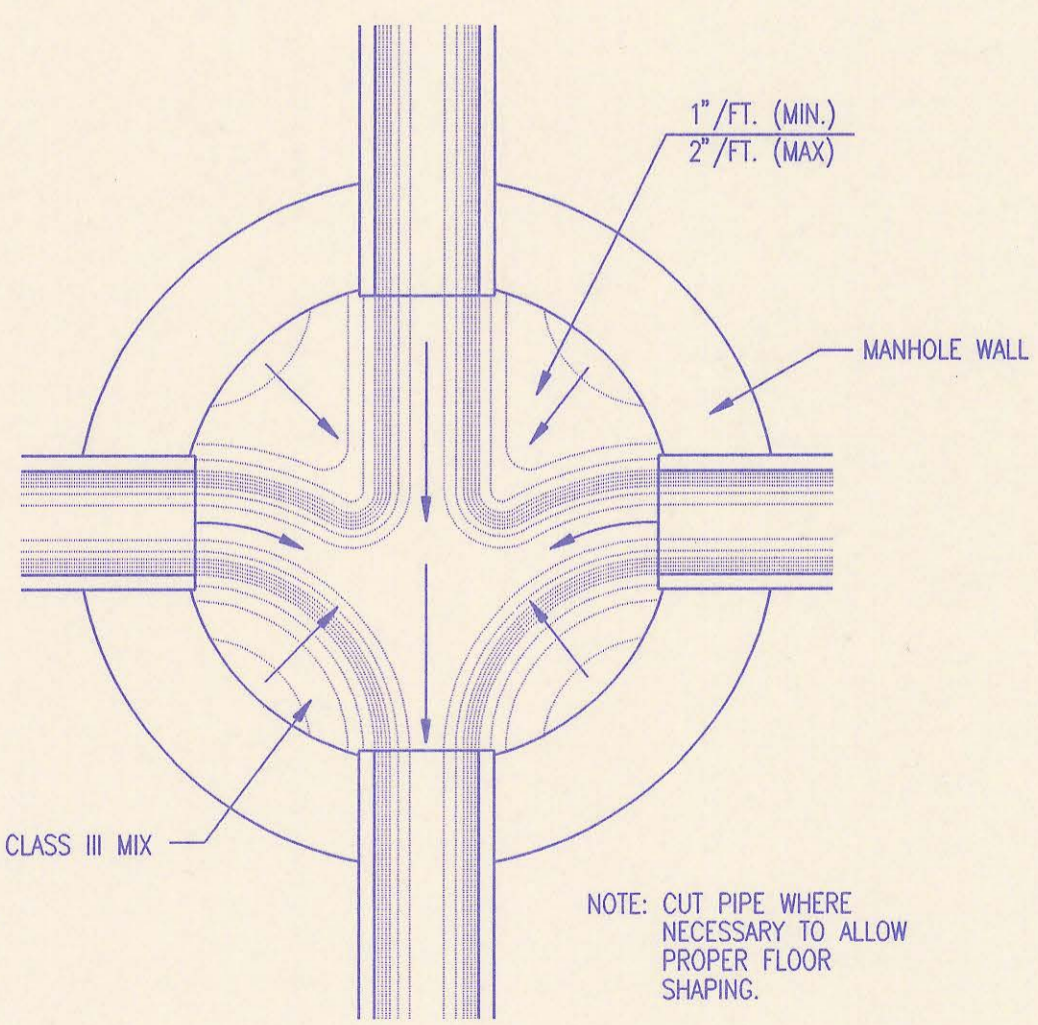
- IF, IN THE OPINION OF THE ENGINEER, THE MANHOLE SUBGRADE APPEARS UNSTABLE, THE CONTRACTOR WILL OVEREXCAVATE TO A SUITABLE SUBGRADE CONDITION AND CRUSHED ROCK SHALL BE PLACED AND COMPACTED TO THE REQUIRED GRADE.
- "A-LOK" OR APPROVED EQUAL FLEXIBLE WATER-STOP GASKETS WHICH MEET OR EXCEED THE TEST REQUIREMENTS OF ASTM C-923 SHALL BE INSTALLED TO CONNECT THE SEWER TO THE MANHOLE WALL.
- THE MANHOLE FRAME SHALL BE SEALED 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.
- WHERE MANHOLE STUBS ARE SHOWN ON THE PLANS, THE STUB SHALL EXTEND AT LEAST 5 FEET FROM THE INSIDE WALL OF THE MANHOLE. 4" STUBS SHALL BE SET AT 2.0% GRADE. 6" STUBS SHALL BE SET AT 1.0% GRADE.
- MANHOLE SECTIONS SHALL BE SUPPLIED WITH RECESSED LIFTING EYES. LIFTING EYE RECESSES SHALL BE GROUTED 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-LOK 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.



SECTION X (TYPICAL)



PRECAST SHALLOW MANHOLE TYPE "D"

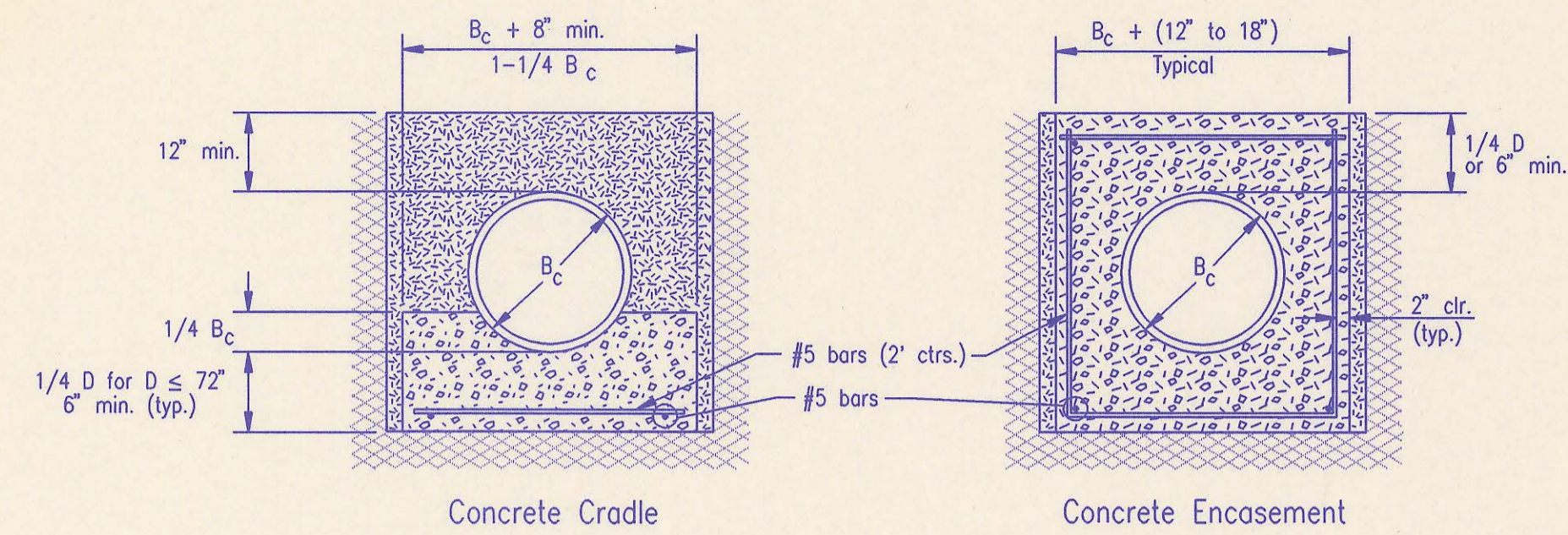


TYPICAL MANHOLE FLOOR SHAPING

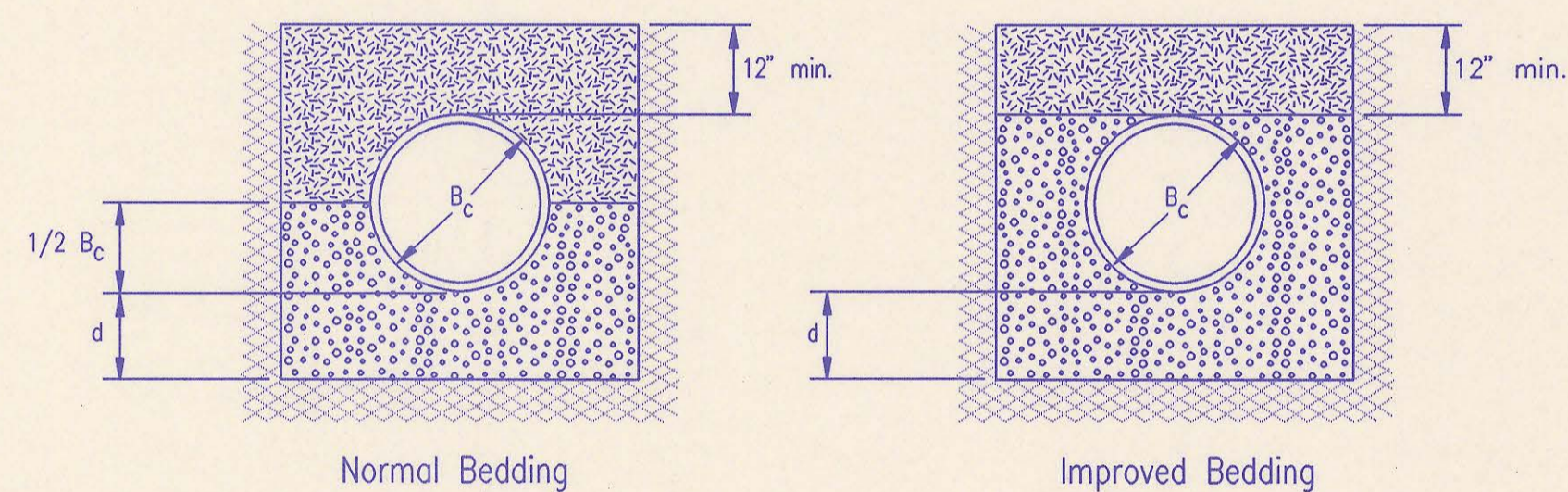
No.	Revision	By	Date
2	Revised casting to Deeter Foundry Inc., No. 1261C	MK	12/20/95
1	Add mastic callout at joint	RJ	1/19/95

PRECAST MANHOLE DETAILS
ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989
BY
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

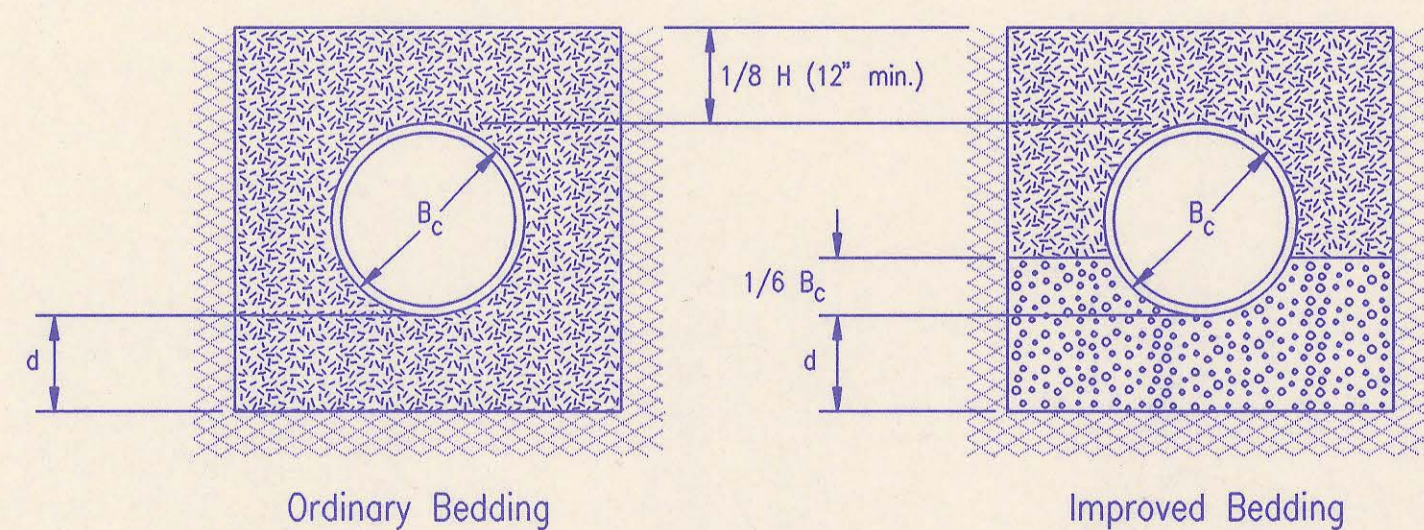
DSNR: MDK OPER: CKH SCALE: 1"=1'-0"
 Q:\1996\96267\001\SEDPREH.DWG 07-24-1996 9:13:21 am



CLASS A



CLASS B



CLASS C

PIPE ZONE BACKFILLING

- 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"

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.

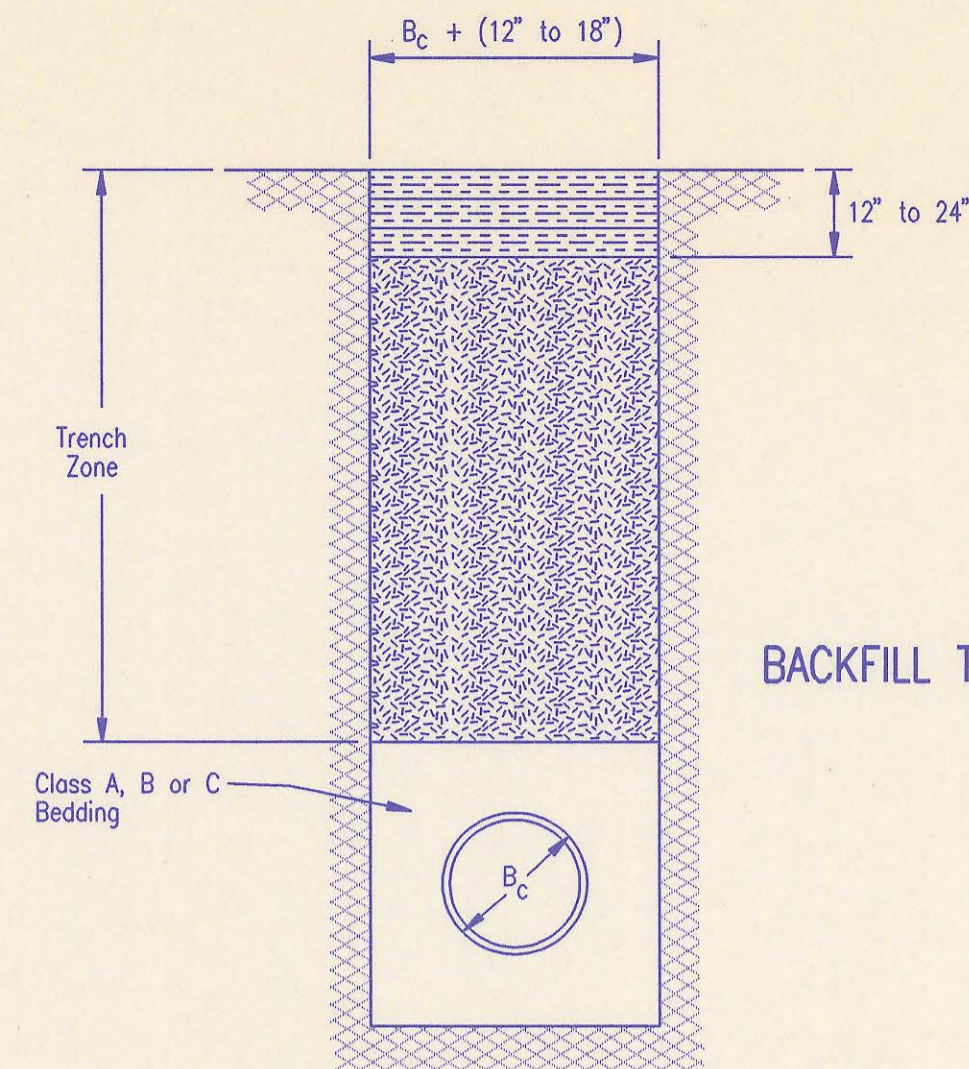
Class A "Concrete Cradle" and/or Class A "Concrete Encasement" is not required unless specified on the plans. However, where unexpected trench conditions exist or improper trenching is performed Class A Bedding may be required as determined by the Engineer.

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).



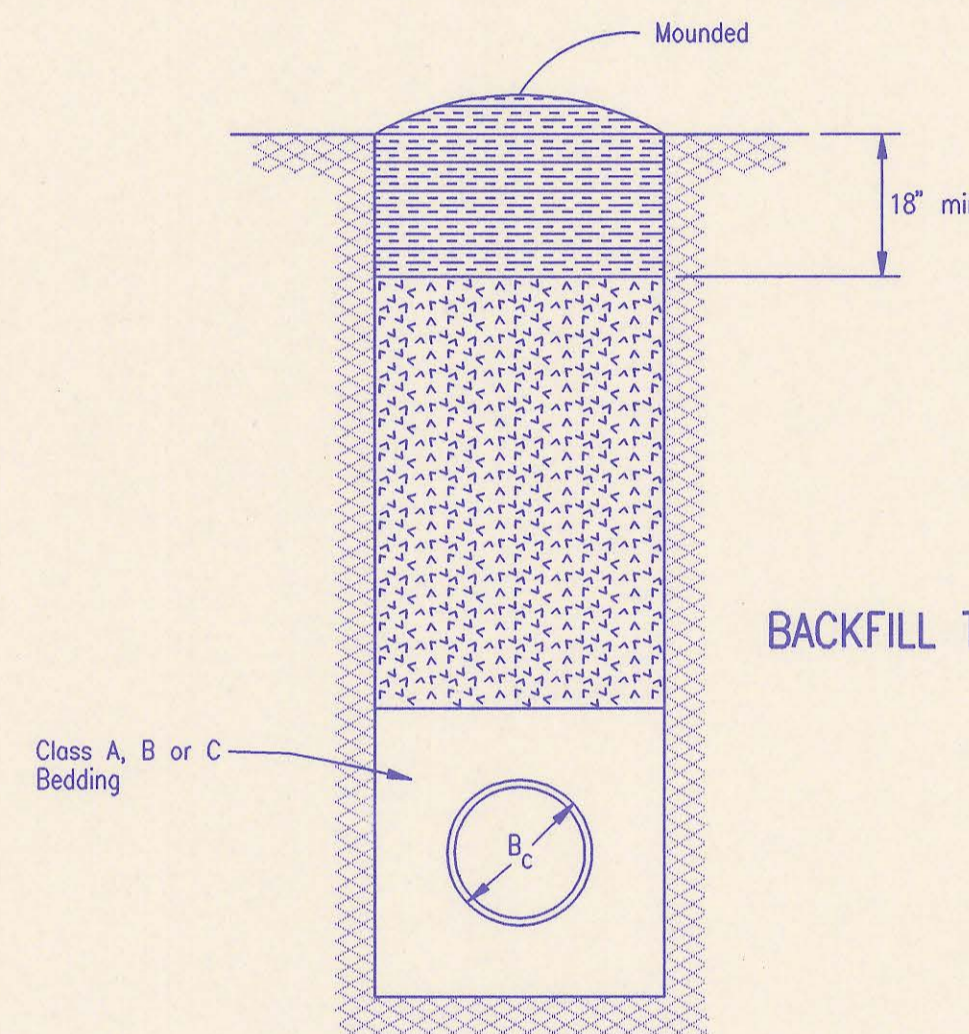
BACKFILL TYPE I

- 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.



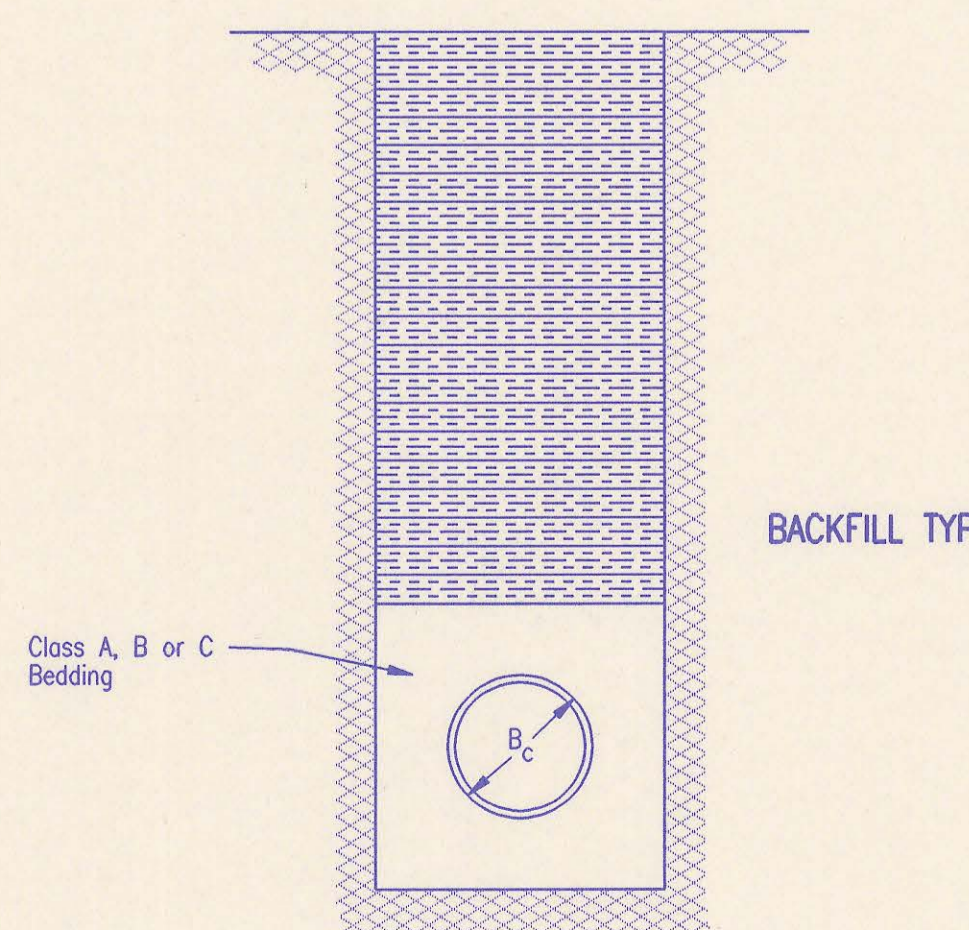
BACKFILL TYPE II

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".



BACKFILL TYPE III

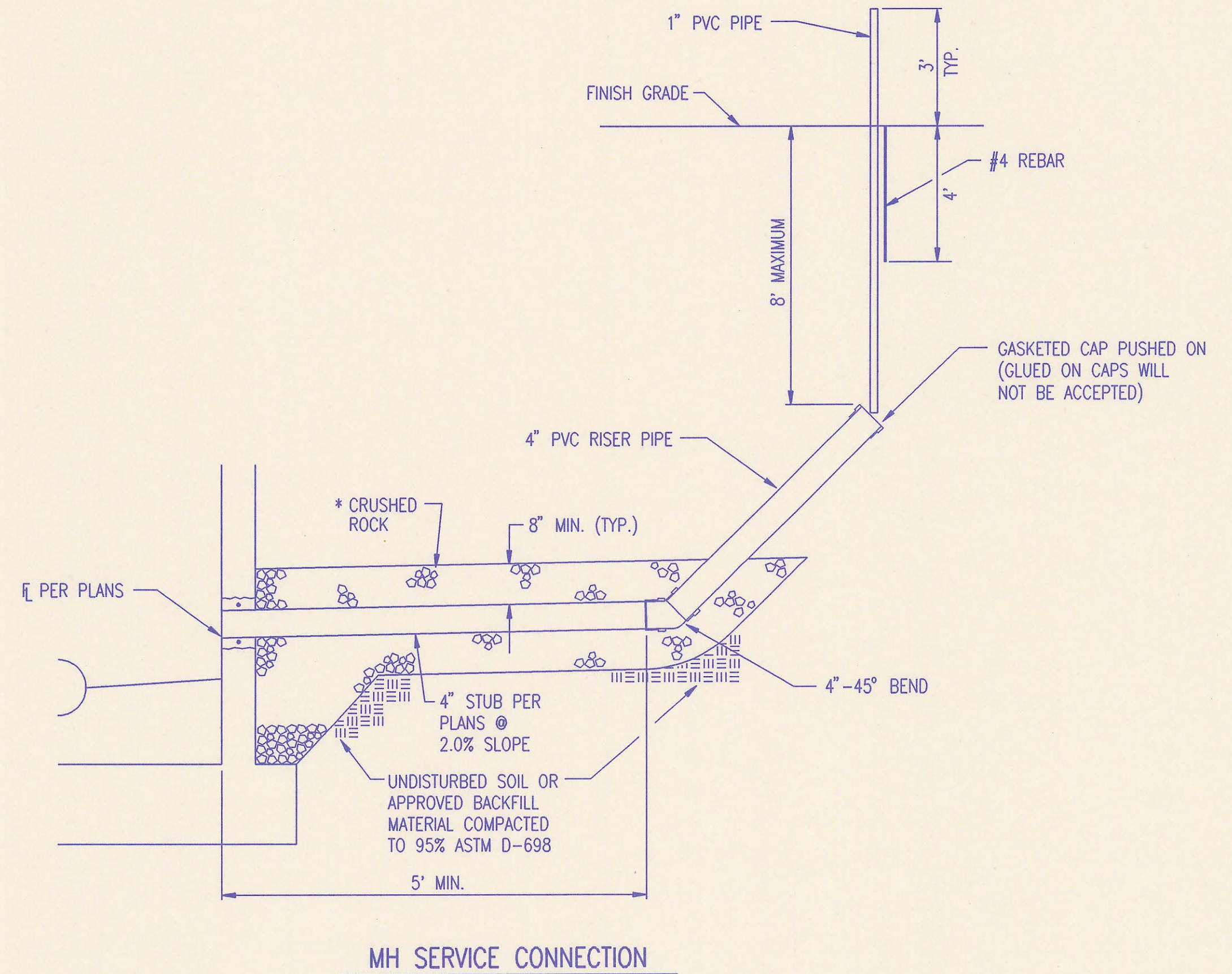
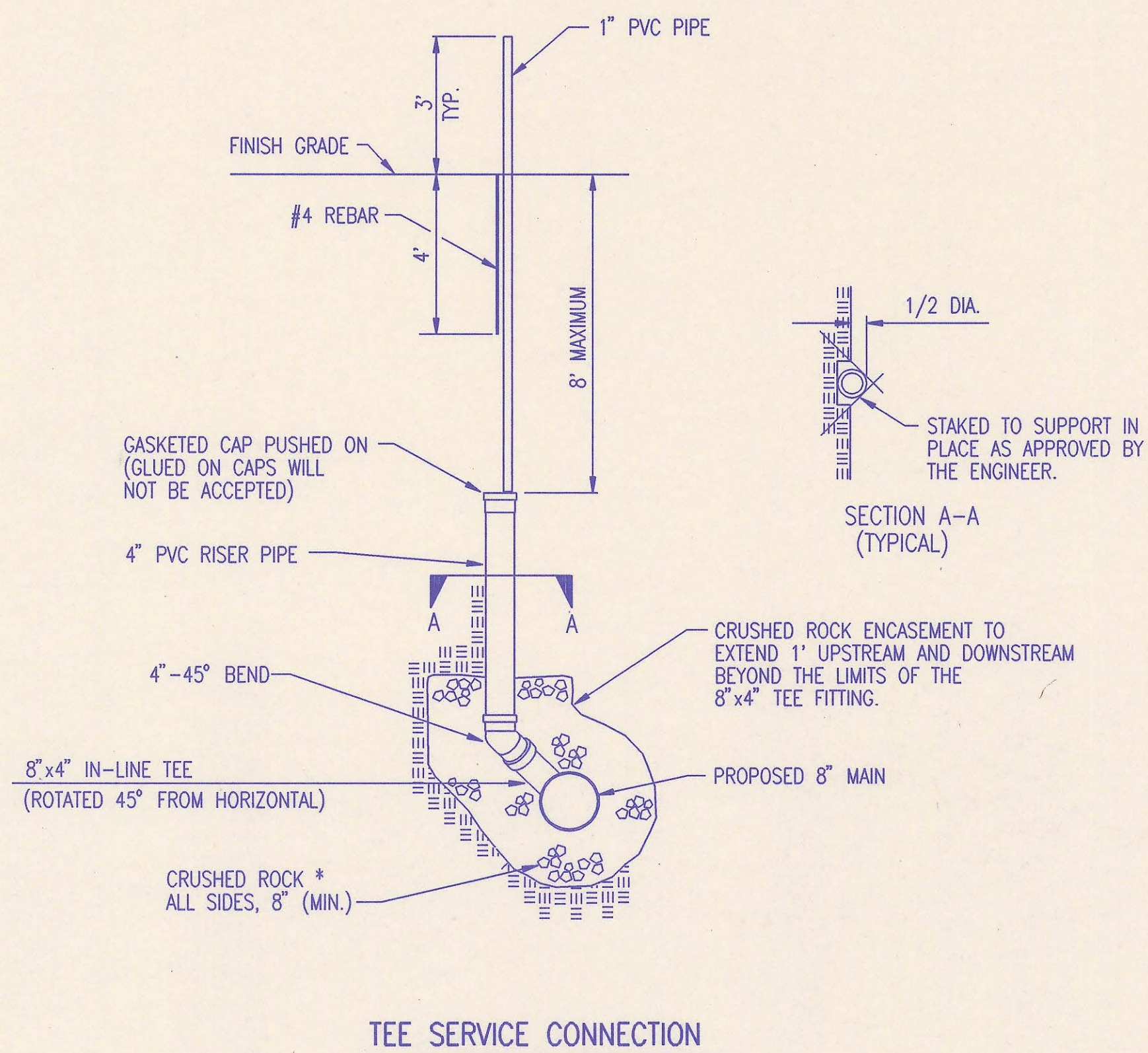
TRENCH ZONE BACKFILLING

2	Revised compaction designation-Backfilling under pavement	RJ	9/28/94
1	Revised compaction designation	RJ	3/9/94
No.	Revision	By	Date

BACKFILL DETAILS

ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989
 BY
 SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

SEWER SERVICE TABLE									
NO.	TYPE	LOCATION			STATION/DIRECTION	FOR INFORMATION ONLY APPROXIMATE LENGTH 4" PIPE	RECORD INFORMATION (TO BE COMPLETED BY PROJECT INSPECTOR)		NO.
		LOT NO.	BLOCK NO.	LATERAL NO.			DISTANCE FROM NEAREST MANHOLE UPSTREAM	DISTANCE FROM NEAREST MANHOLE DOWNSTREAM	
1	4" STUB	2	2	8	10+96.17/NW	-	MH 8-6		1
2	4" STUB	1	2	8	10+96.17/N	-	MH 8-6		2
3	TEE SERVICE CONNECTION	3	2	20	0+75/RL	6'	75' From MH 19-1X		3
4	TEE SERVICE CONNECTION	4	2	20	0+85/LL	6'	83.5' From MH 19-1X		4
5	TEE SERVICE CONNECTION	3	1	20	2+30/RL	6'	226.5' From MH 19-1X		5
6	TEE SERVICE CONNECTION	4	1	20	2+50/LL	6'	226.5' From MH 19-1X 150' W		6
7	TEE SERVICE CONNECTION	2	1	20	3+15/RL	7'	315' From MH 19-1X		7
8	TEE SERVICE CONNECTION	5	1	20	3+20/LL	7'	315' From MH 19-1X 150' W		8
9	TEE SERVICE CONNECTION	1	1	20	3+85/RL	8'	388' From MH 19-1X		9
10	TEE SERVICE CONNECTION	6	1	20	3+95/LL	8'	388' From MH 19-1X 50' W		10
11	TEE SERVICE CONNECTION	11	1	20	5+20/LL	7'	91' From MH 20-1		11
12	MH SERVICE CONNECTION	8	1	20	5+62.47/NW	6'	MH 20-2		12
13	MH SERVICE CONNECTION	9	1	20	5+62.47/NE	6'	MH 20-2		13
14	TEE SERVICE CONNECTION	5	2	21	0+60/RL	6'	59.5' From MH 19-1		14
15	TEE SERVICE CONNECTION	6	3	21	3+30/RL	8'	25' From MH 21-1		15
16	TEE SERVICE CONNECTION	5	3	21	4+00/RL	7'	100' From MH 21-1		16
17	TEE SERVICE CONNECTION	4	3	21	4+75/RL	7'	173' From MH 21-1		17
18	TEE SERVICE CONNECTION	3	3	21	5+50/RL	7'	258.5' From MH 21-1		18
19	TEE SERVICE CONNECTION	2	3	21	6+20/RL	7'	319.5' From MH 21-1		19
20	MH SERVICE CONNECTION	1	3	21	6+84.78/NE	7'	MH 21-2		20



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

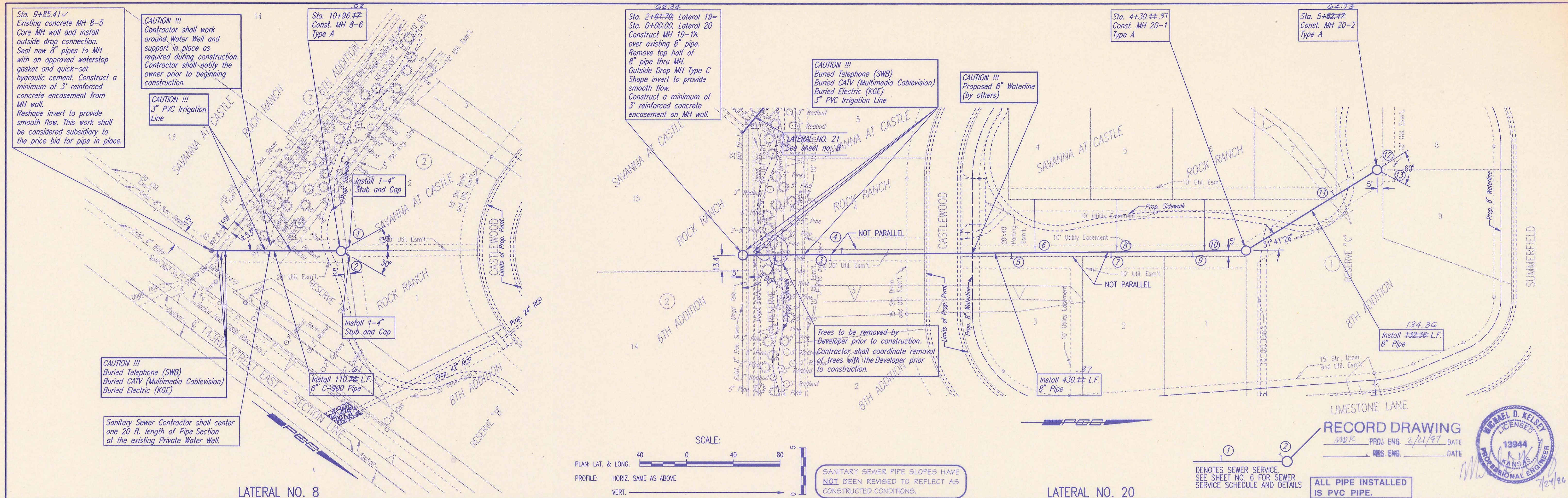
SERVICE CONNECTIONS ARE TO BE INSTALLED WHERE PROPOSED SEWER MAIN IS 12' OR MORE BELOW PROPOSED GROUND OR AS SHOWN IN THE PLANS.

RECORD DRAWING
 MDK PROJ. ENG. 2/21/97 DATE
 REB. ENG. DATE



SERVICE CONNECTION DETAILS

ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989
 BY
 SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER



CAUTION !!!
Buried Telephone (SWB)
Buried CATV (Multimedia Cablevision)
Buried Electric (KGE)

CAUTION !!!
Contractor shall work
around Water Well and
support in place as
required during construction.
Contractor shall notify the
owner prior to beginning
construction.

CAUTION !!!
3" PVC Irrigation
Line

CAUTION !!!
Buried Telephone (SWB)
Buried CATV (Multimedia Cablevision)
Buried Electric (KGE)
3" PVC Irrigation Line

CAUTION !!!
Buried Telephone (SWB)
Buried CATV (Multimedia Cablevision)
Buried Electric (KGE)
3" PVC Irrigation Line

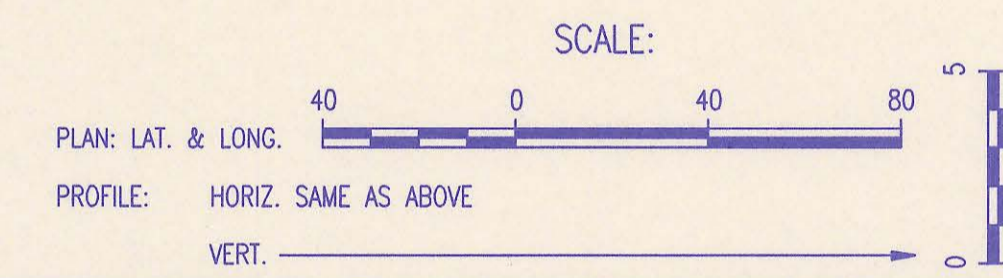
CAUTION !!!
Proposed 8" Waterline
(by others)

Sanitary Sewer Contractor shall center
one 20 ft. length of Pipe Section
at the existing Private Water Well.

SANITARY SEWER PIPE SLOPES HAVE
NOT BEEN REVISED TO REFLECT AS
CONSTRUCTED CONDITIONS.

DENOTES SEWER SERVICE.
SEE SHEET NO. 6 FOR SEWER
SERVICE SCHEDULE AND DETAILS

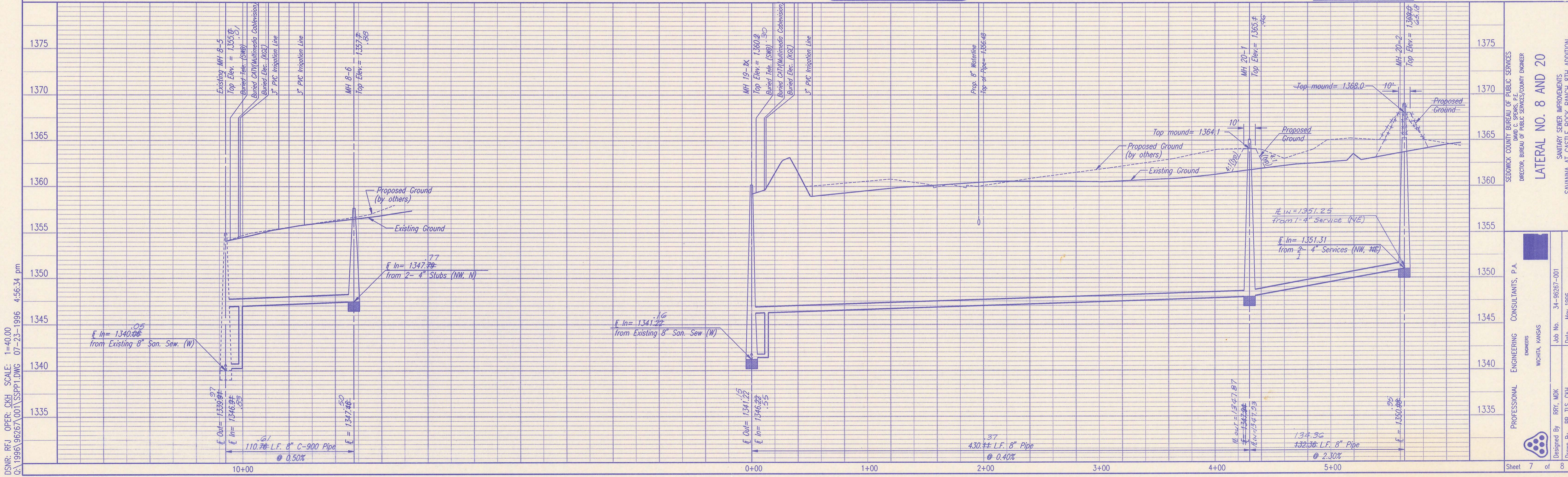
ALL PIPE INSTALLED
IS PVC PIPE.



LATERAL NO. 8

LATERAL NO. 20

LIMESTONE LANE
RECORD DRAWING
MDK PROJ. ENG. 2/21/97 DATE
RES. ENG. DATE



DSNR: REL OPER: CLK SCALE: 1=40.00
 C:\1996\96267\001\SSPP\DWG 07-23-1996 4:56:34 pm

SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DIRECTOR: BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER
 LATERAL NO. 8 AND 20
 SANITARY SEWER IMPROVEMENTS
 SAVANNA AT CASTLE ROCK RANCH 8TH ADDITION
 PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS
 Job No. 34-06267-001
 Date May 1996
 Designed By RRY, MDK
 Drawn By BB, TLS, CLK
 Sheet 7 of 8

Sta. 3+69.63, Lateral 19=
Sta. 0+00.00, Lateral 21
Existing MH 19-1
Remove 4" stub. Core MH Wall and
install Outside Drop Connection.
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.

CAUTION!!!
Buried Telephone (SWB)
Buried CATV (Multimedia Cablevision)
Buried Electric (KGE)
Prop. 8" Waterline (by others)

Trees to be removed by
Developer prior to construction.
Contractor shall coordinate removal
of trees with the Developer prior
to construction.

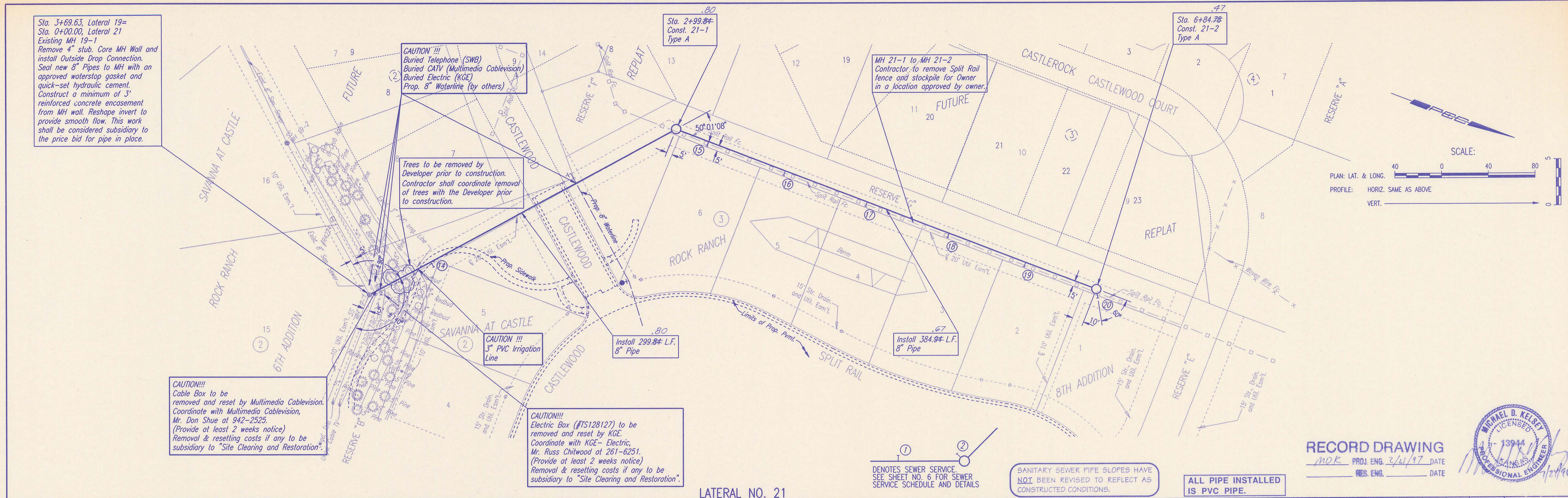
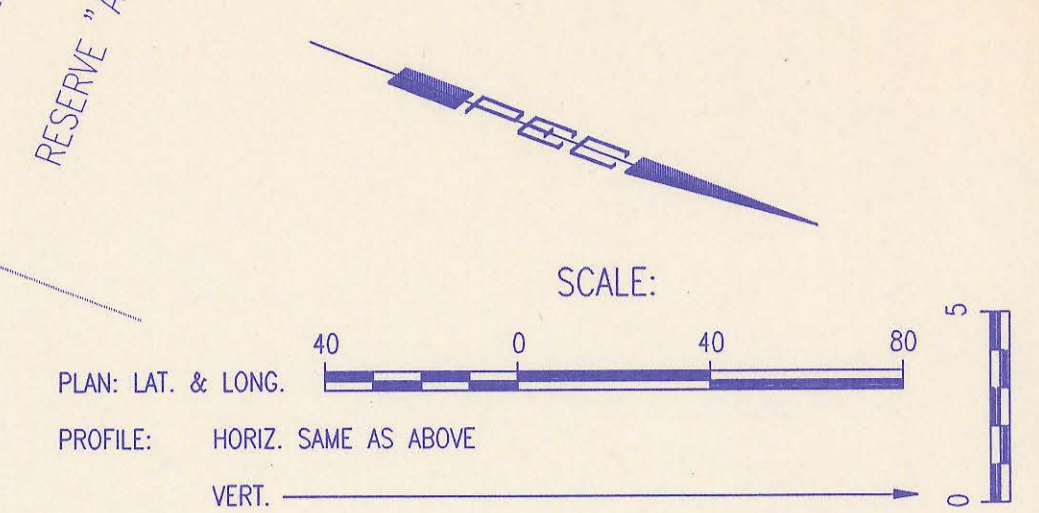
CAUTION!!!
Cable Box to be
removed and reset by Multimedia Cablevision.
Coordinate with Multimedia Cablevision,
Mr. Don Shue at 942-2525.
(Provide at least 2 weeks notice)
Removal & resetting costs if any to be
subsidiary to "Site Clearing and Restoration"

CAUTION!!!
Electric Box (#TS128127) to be
removed and reset by KGE.
Coordinate with KGE - Electric,
Mr. Russ Chitwood at 261-6251.
(Provide at least 2 weeks notice)
Removal & resetting costs if any to be
subsidiary to "Site Clearing and Restoration".

Sta. 2+99.84
Const. 21-1
Type A

MH 21-1 to MH 21-2
Contractor to remove Split Rail
fence and stockpile for Owner
in a location approved by owner.

Sta. 6+84.78
Const. 21-2
Type A



LATERAL NO. 21

① DENOTES SEWER SERVICE
SEE SHEET NO. 6 FOR SEWER
SERVICE SCHEDULE AND DETAILS

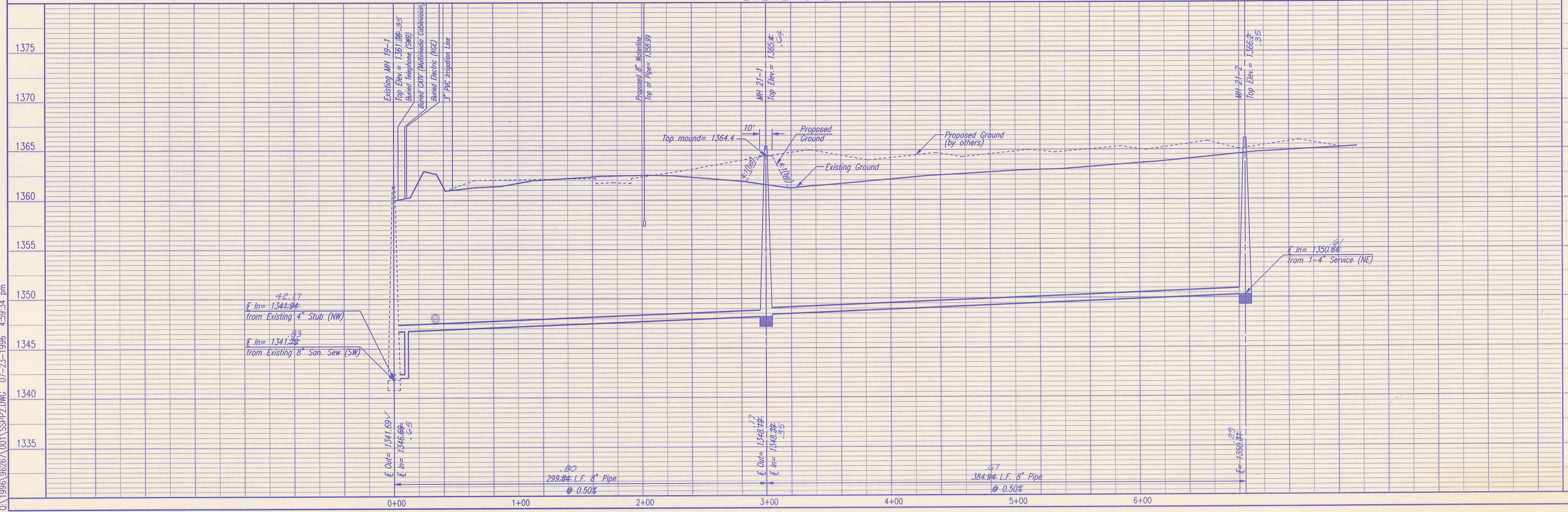
SANITARY SEWER PIPE SLOPES HAVE
NOT BEEN REVISED TO REFLECT AS
CONSTRUCTED CONDITIONS.

ALL PIPE INSTALLED
IS PVC PIPE.

RECORD DRAWING
MDK PROJ. ENG. 3/21/97 DATE
RES. ENG. DATE



DSNR: RFJ OPER_CKH SCALE: 1=40.00
03/19/96/96267/001/SSPP2.DWG 07-23-1996 4:59:34 pm



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

LATERAL NO. 21
SANITARY SEWER IMPROVEMENTS
SAVANNA AT CASTLE ROCK RANCH 8TH ADDITION

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
WICHITA, KANSAS

Designed By: RRY, MDK
Drawn By: BB, TJS, CKH

Job No. 34-96267-001
Date: May 1996

Sheet 8 of 8