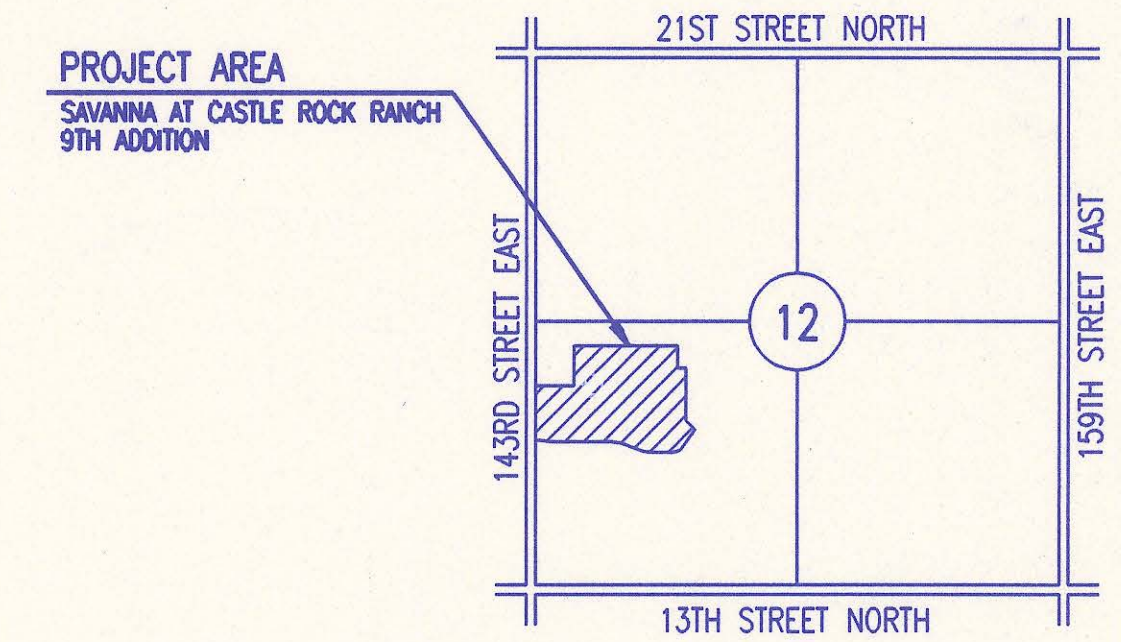


4MC-112

BUREAU OF PUBLIC SERVICES



LOCATION MAP
NOT TO SCALE

INDEX OF SHEETS

SHEET NO. 1	TITLE SHEET
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SHEET NO. 3	PLAT
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SHEET NO. 5	PRECAST MANHOLE DETAILS
SHEET NO. 6	TRENCH AND BACKFILL DETAILS
SHEET NO. 7	SERVICE CONNECTION DETAILS
SHEET NO. 8-10	PLAN/PROFILE

CONSTRUCTION PLANS FOR SANITARY SEWER IMPROVEMENTS IN SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION

PHASE 1
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:

W.H. Johnson
CHAIR, BOARD OF COUNTY COMMISSIONERS
DATE: 4/24/98

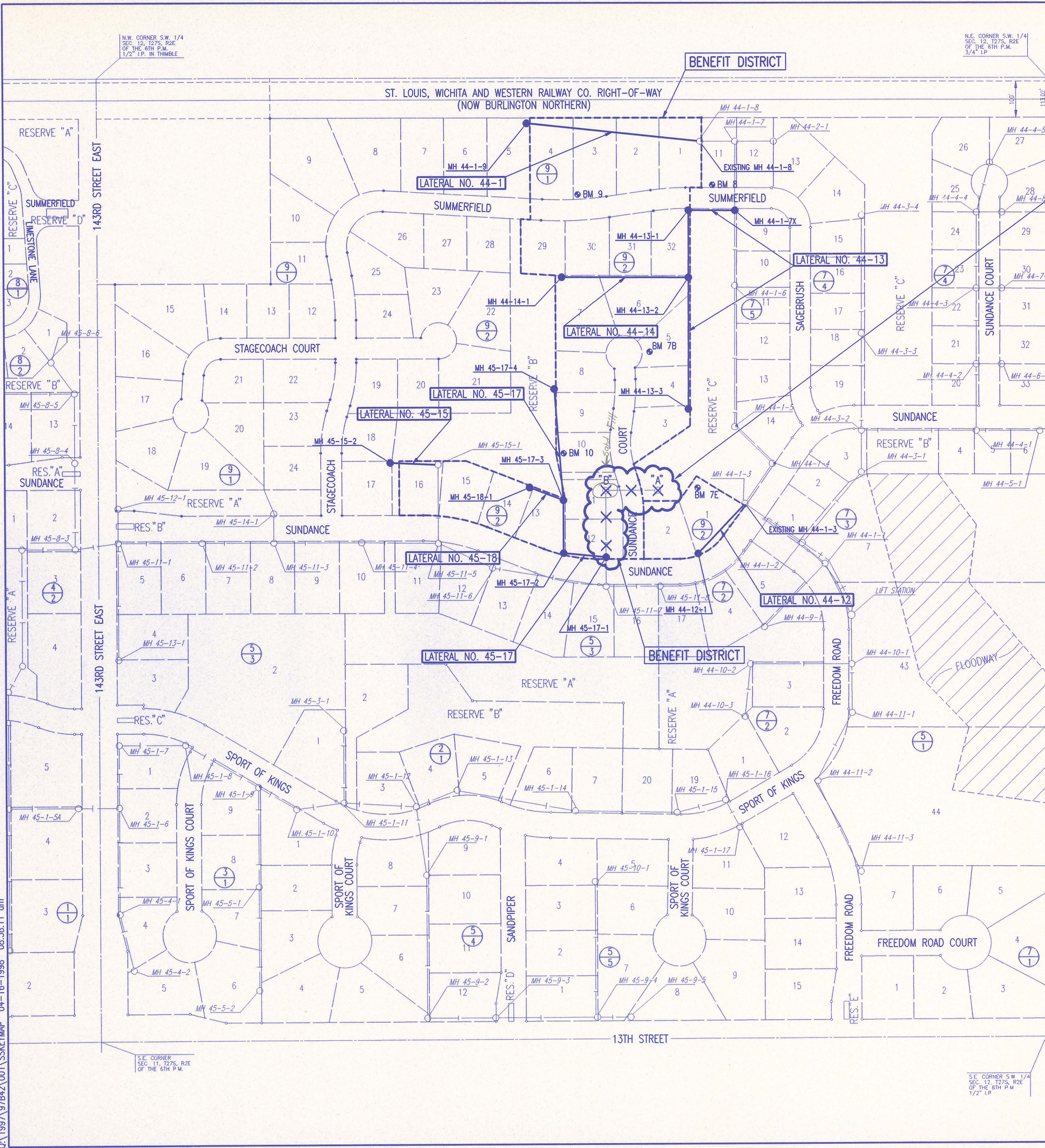
RECORD DRAWING

Buddy Johnson
28 JUNE 00

FILED IN THE OFFICE OF
THE SEDGWICK COUNTY CLERK
James Moore
COUNTY CLERK
DATE: 4/28/98

4mc-112

DSNR: MDK OPER: AMB SCALE: 1"=150.00
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REMOVE EXISTING MANHOLE "A".
 ABANDON IN PLACE EXISTING MANHOLE "B".
 REMOVE 15' OF EXISTING 8" PIPE EXTENDING WEST FROM EXISTING MH "A".
 REMAINING PIPE (APPROXIMATELY 315' OF 8" PIPE) EAST AND SOUTH OF
 EXISTING MH "B" TO PROPOSED MH 45-17-1 SHALL BE ABANDONED IN
 PLACE.

BOTH ENDS OF PIPE TO BE ABANDONED SHALL BE PLUGGED WITH A
 MINIMUM OF 3' LONG CONCRETE PLUGS.
 MANHOLE TO BE ABANDONED SHALL BE COMPLETELY REMOVED TO AN
 ELEVATION 4' BELOW EXISTING GROUND. THE REMAINING PORTION OF
 THE ABANDONED MANHOLE SHALL BE BACKFILLED WITH FLOWABLE FILL
 THE TOP 4' OF THE EXCAVATION SHALL BE BACKFILLED WITH COMPACTED
 MATERIAL SIMILAR TO THE ADJACENT SURFACE TO 95% OF ASTM D698.

MANHOLE TO BE REMOVED SHALL BE COMPLETELY REMOVED. THE
 EXCAVATION SHALL BE BACKFILLED WITH EARTH BACKFILL COMPACTED
 TO 95% OF ASTM D698.

MH RINGS AND COVERS SHALL BE SALVAGED TO THE SEDGWICK COUNTY
 BUREAU OF PUBLIC SERVICES. CONTACT MR. DARRYL OSBURN AT 733-0202
 FOR DELIVERY INSTRUCTIONS.

ALL COSTS ASSOCIATED WITH THE ABOVE PIPE AND MANHOLE
 ABANDONMENT/REMOVAL, INCLUDING ALL MATERIALS, EQUIPMENT,
 LABOR, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK, SHALL
 BE CONSIDERED SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SANITARY
 SEWER ABANDONMENT/REMOVAL".

- 9/3 ADDITION NUMBER
 (i.e. Savanna at Castle Rock Ranch 9th Addition)
 BLOCK NUMBER
- XXXXX EXISTING SANITARY SEWER
 TO BE REMOVED/
 ABANDONED IN PLACE

BENCH MARK LIST

- BM 7B - T-POST WEST SIDE LOT 5, BLOCK 2, SAVANNA AT CASTLE
 ROCK RANCH 9TH ADDITION. ELEV.=1351.21
- BM 7E - T-POST NORTH SIDE LOT 1, BLOCK 2, SAVANNA AT CASTLE
 ROCK RANCH 9TH ADDITION. ELEV.= 1352.65
- BM 8 - CHISELED "d" NORTH BACK OF CURB SUMMERFIELD STREET,
 30' EAST OF SOUTHEAST CORNER LOT 1, BLOCK 1,
 SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION. ELEV.= 1349.83
- BM 9 - RAILROAD SPIKE IN WEST FACE 24" HACKBERRY NEAR SOUTHWEST CORNER
 LOT 3, BLOCK 1, SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION.
 ELEV.= 1356.29
- BM 10 - RAILROAD SPIKE IN EAST FACE 24" HACKBERRY IN WEST SIDE
 LOT 10, BLOCK 2, SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION.
 ELEV.= 1358.93

GENERAL NOTES

1. ALL ELEVATIONS SHOWN ARE USGS DATUM.
2. 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 THE FOLLOWING UTILITY COMPANIES TO LOCATE ANY EXISTING LINES WITHIN THE PROJECT AREA: MULTIMEDIA CABLE TV, WICHITA WATER, SOUTHWESTERN BELL TELEPHONE, KANSAS GAS SERVICE, AND KGE-ELECTRIC.
3. 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.
4. 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 TELEVISIONING.
5. 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 ACCORDING TO SPECIFICATIONS AT THE CONTRACTOR'S EXPENSE.
6. EXCESS EXCAVATED MATERIAL AND OTHER DEBRIS SHALL BE WASTED ON SITES TO BE PROVIDED BY THE CONTRACTOR AS APPROVED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
7. 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.
8. 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 REFERENCE OF ALL DISTURBED PROPERTY CORNERS SHALL BE SUBMITTED TO THE ENGINEER.
9. 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. THE REPLACEMENT OF ALL THE AFOREMENTIONED ITEMS, INCLUDING SEEDING, FERTILIZER, AND MULCHING SHALL BE CONSIDERED SUBSIDIARY TO "SITE CLEARING AND RESTORATION".
10. 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.
11. POSITIVE DRAINAGE SHALL BE PROVIDED FOR ALL AREAS ON OR NEAR SPOIL AREAS. NATURAL DRAINAGE WAYS SHALL BE MAINTAINED.
12. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
13. 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.
14. ALL TRENCH BACKFILL SHALL BE EITHER TYPE I OR TYPE III UNLESS NOTED OTHERWISE. TYPE I BACKFILL SHALL BE USED AT ALL EXISTING AND PROPOSED STREETS, SEE SHT. 6 OF 10.
15. THE CONTRACTOR SHALL ALSO 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
16. THE CONTRACTOR SHALL AVOID REMOVAL OR TRIMMING OF ANY TREES WHERE POSSIBLE. WHERE THE CONTRACTOR BELIEVES THE REMOVAL OR TRIMMING IS UNAVOIDABLE, HE SHALL OBTAIN THE CONCURRENCE OF THE ENGINEER BEFORE PROCEEDING WITH SUCH WORK.
17. 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. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOODPLAIN WILL REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT AND A FLOODPLAIN DEVELOPMENT PERMIT FROM SEDGWICK COUNTY. ANY MATERIALS DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIALS BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS MAY REQUIRE ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED DISPOSAL LOCATION.
18. EACH BIDDER SHALL VISIT THE SITE OF THE PROJECT BEFORE SUBMITTING THE PROPOSAL FOR THIS WORK SO THAT HE WILL BE FULLY INFORMED OF THE EXISTING FIELD CONDITIONS AND THE OBSTACLES WHICH MIGHT BE ENCOUNTERED. UPON AWARD OF THE CONTRACT, THE CONTRACTOR WILL NOT BE GRANTED ANY ADDITIONAL COMPENSATION WITH REGARDS TO TIME AND MONEY FOR CONDITIONS THAT MAY HAVE BEEN EVALUATED DURING AN INSPECTION OF THE SITE.
19. ALL GRASSED AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE REPLANTED WITH GRASS AND FERTILIZED IN ACCORDANCE WITH THE SPECIFICATIONS FOR SUCH WORK. ALL COSTS FOR SEEDING AND FERTILIZING SHALL BE CONSIDERED SUBSIDIARY TO "SITE CLEARING AND RESTORATION".
20. PROPERTIES WITHIN THE PROJECT LIMITS MAY HAVE UNDERGROUND SPRINKLER SYSTEMS IN PUBLIC RIGHT-OF-WAY WHICH CONFLICT WITH NEW CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO REMOVE SUCH IMPROVEMENTS SHOULD THEY NOT BE REMOVED BY THEIR OWNER AT THE TIME OF CONSTRUCTION OF THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO SALVAGE ALL SPRINKLER HEADS AND/OR VALVES AND GIVE SUCH MATERIAL TO THEIR OWNER. PORTIONS OF UNDERGROUND SPRINKLER SYSTEMS NOT IN CONFLICT WITH NEW CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND SHALL REMAIN IN PLACE. ALL WORK IN CONNECTION WITH UNDERGROUND SPRINKLER SYSTEMS SHALL BE CONSIDERED AS SUBSIDIARY TO PRICE BID FOR PIPE IN PLACE.
21. APPROVED EXCESS EXCAVATED MATERIAL FROM CONSTRUCTION ACTIVITIES SHALL BE WASTED AT A LOCATION APPROVED BY THE DEVELOPER AND IN ACCORDANCE WITH NOTE 17.
22. THE CONTRACTOR SHALL NOT BURY MANHOLES THAT HAVE RIM ELEVATIONS WHICH ARE LOWER THAN EXISTING GROUND. THE GROUND SHALL BE GRADED AS INDICATED ON THE PLAN/PROFILE SHEETS. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM SUCH MANHOLES.

RECORD DRAWING

Buddy E. ...
 28 JUNE 00



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-PHASE 1 SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION			
PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS			
Designed by	MDK	Job No.	34-97B42-1
Drawn by	BB,DEC	Date	February 1998
			Sht. 2 of 10

SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION TO SEDGWICK COUNTY, KANSAS



SCALE: 1"=100'

● = IRON SET

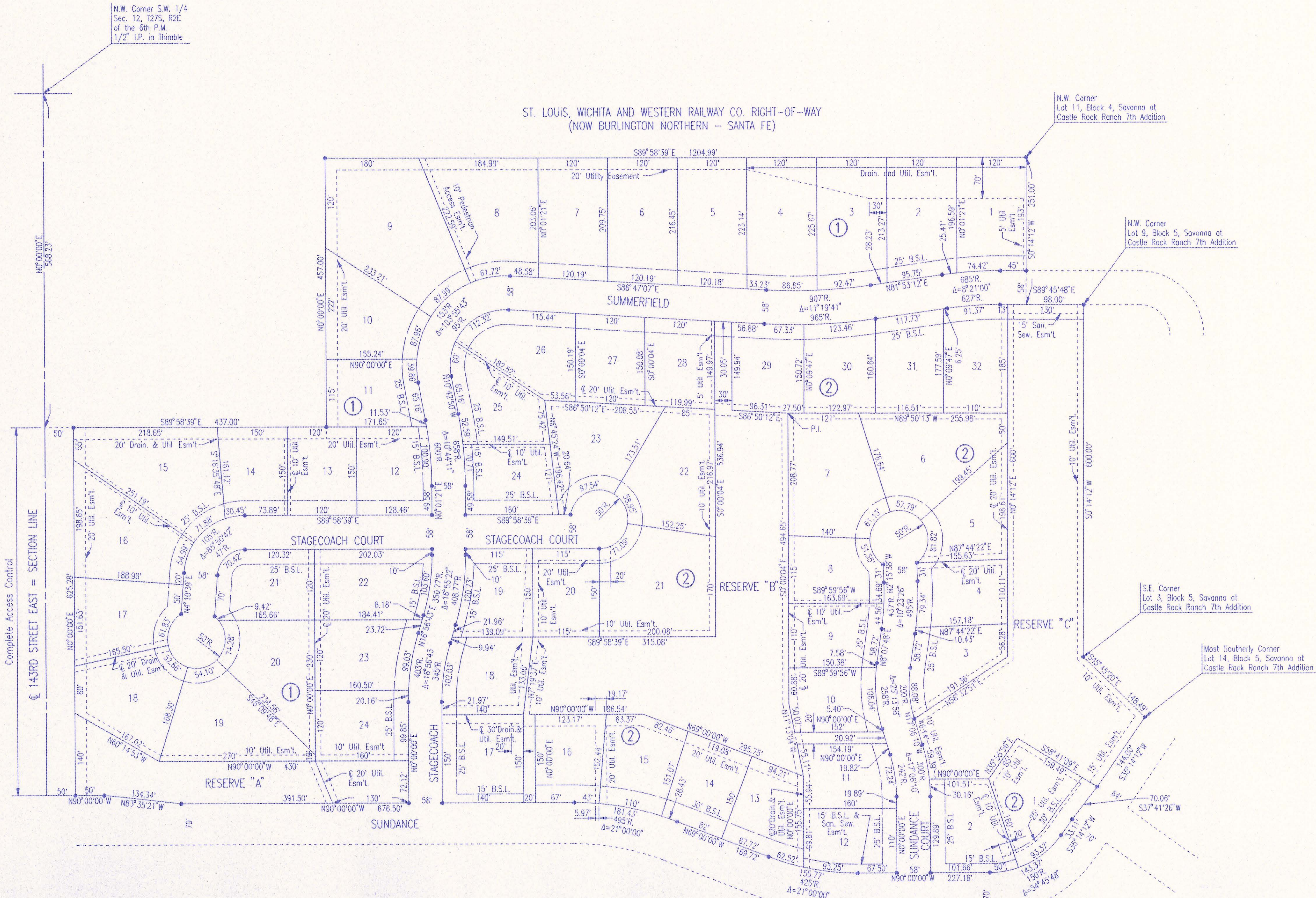
B.S.L. = BUILDING SETBACK LINE

B.M. - RAILROAD SPIKE IN H.L.P. 43' S.E. OF S.W. CORNER
SEC. 12, T27S, R2E.
ELEV.=1352.87 M.S.L.

B.M. - RAILROAD SPIKE (1.5' ABOVE GROUND) IN WEST FACE
OF POWER POLE ON EAST R/W OF 143RD STREET EAST
AT 835± NORTH OF & 13TH STREET NORTH.
ELEV.=1348.66 M.S.L.

MINIMUM PAD ELEVATIONS (LOWEST OPENING) AS FOLLOWS:

BLOCK 2 LOTS 1 THROUGH 6 AND 32 7 THROUGH 11, 13 THROUGH 22 AND LOTS 28 AND 29 LOT 12	ELEVATION 1350.2 M.S.L. 1357.7 M.S.L. 1356.5 M.S.L.
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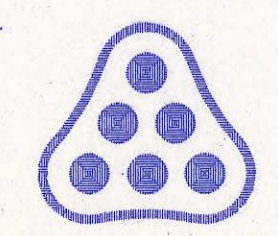


28 JUNE 00

David C. Spears
RECORD DRAWING

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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-PHASE 1 SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION			
PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS			
Designed by	RMH	Job No.	34-97B42-1
Drawn by	DEP	Date	February 1998
			Sht. 3 of 10

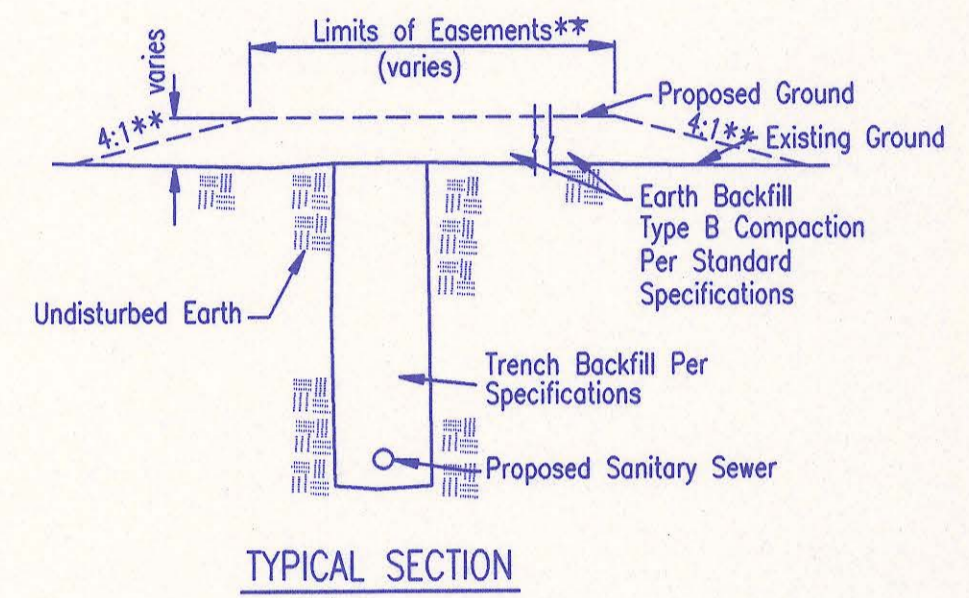
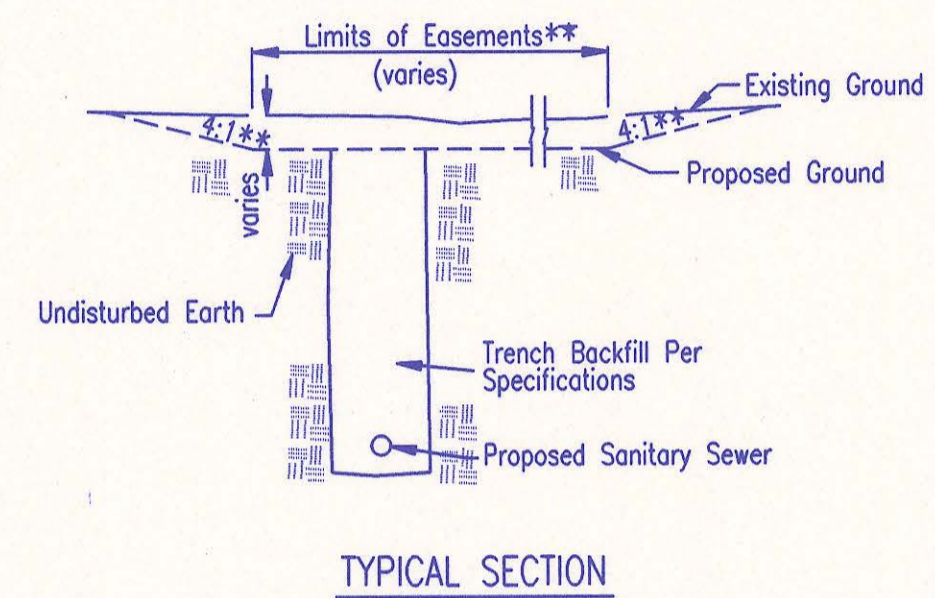
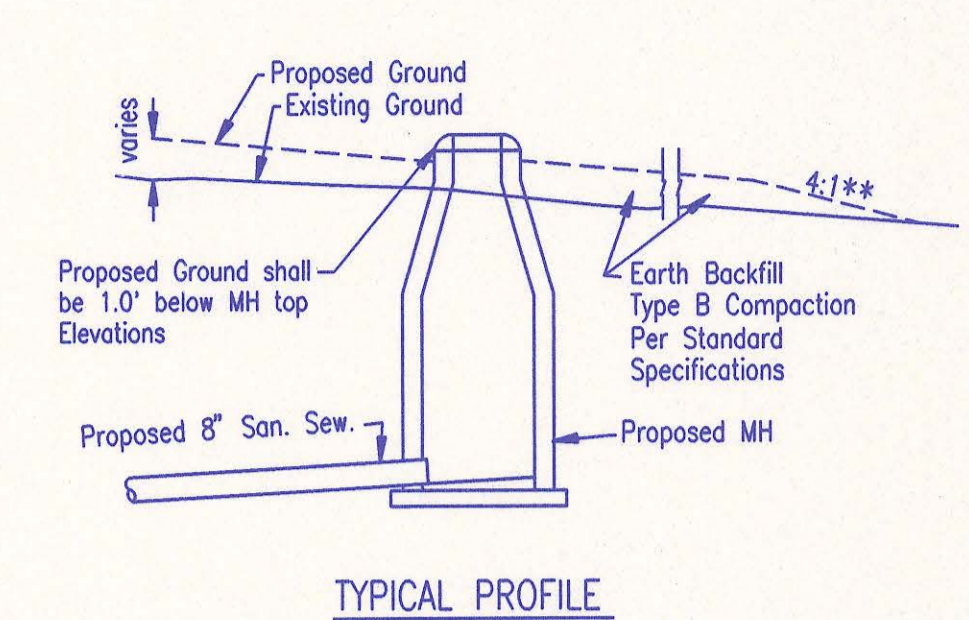
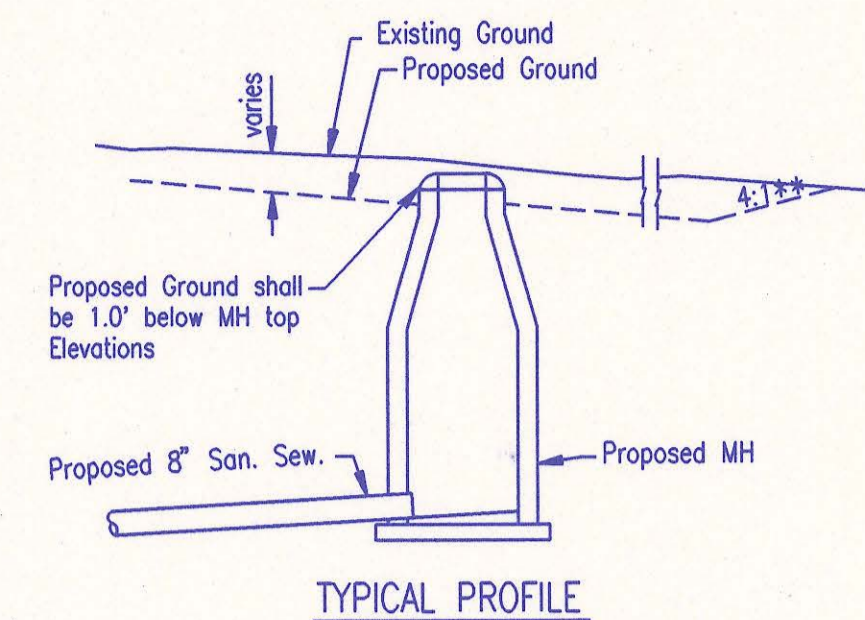
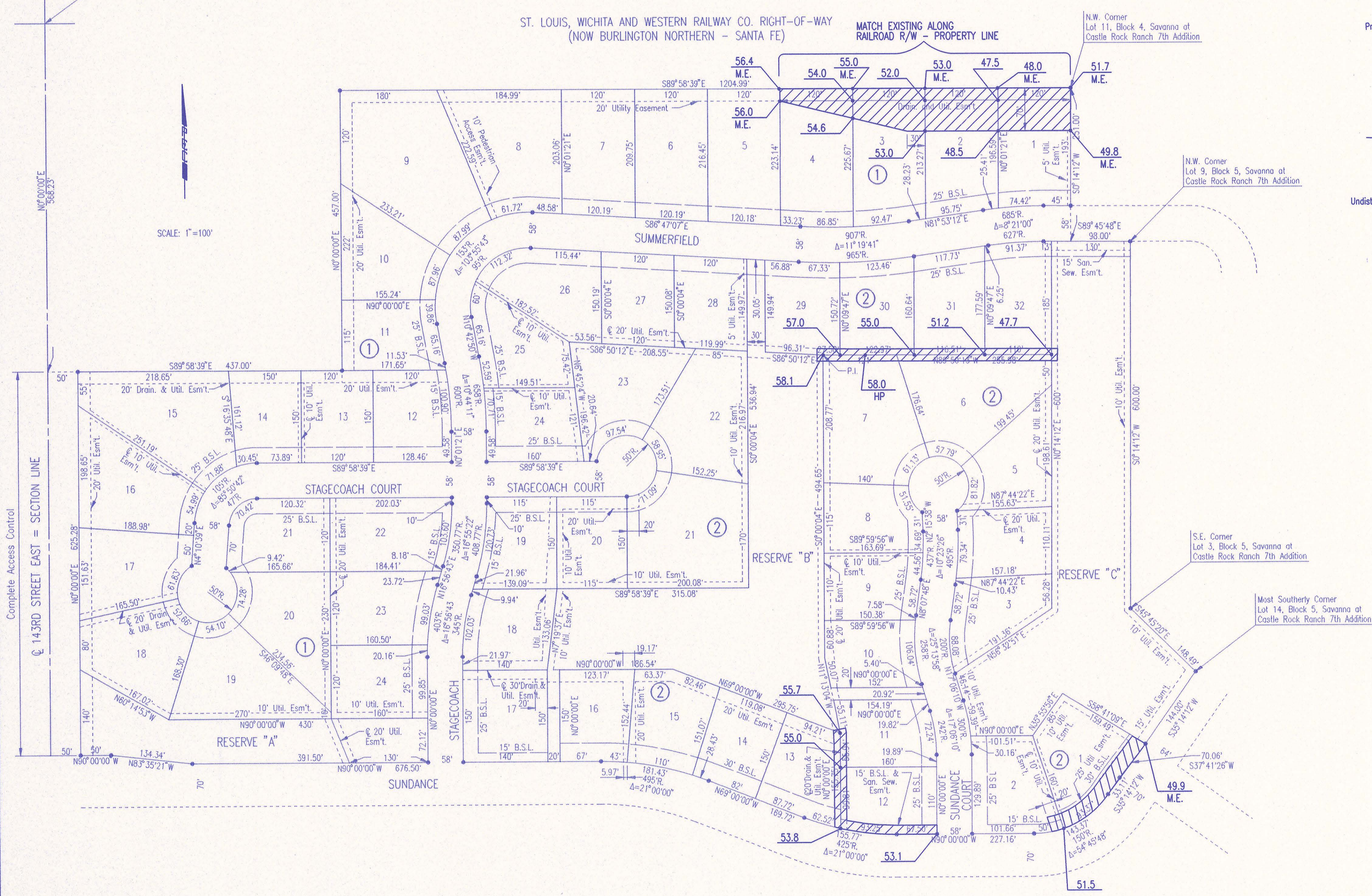


SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION TO SEDGWICK COUNTY, KANSAS

N.W. Corner S.W. 1/4
Sec. 12, T27S, R2E
of the 6th P.M.
1/2" I.P. in Thimble

SCALE: 1"=100'

ST. LOUIS, WICHITA AND WESTERN RAILWAY CO. RIGHT-OF-WAY
(NOW BURLINGTON NORTHERN - SANTA FE) MATCH EXISTING ALONG
RAILROAD R/W - PROPERTY LINE



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.

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.

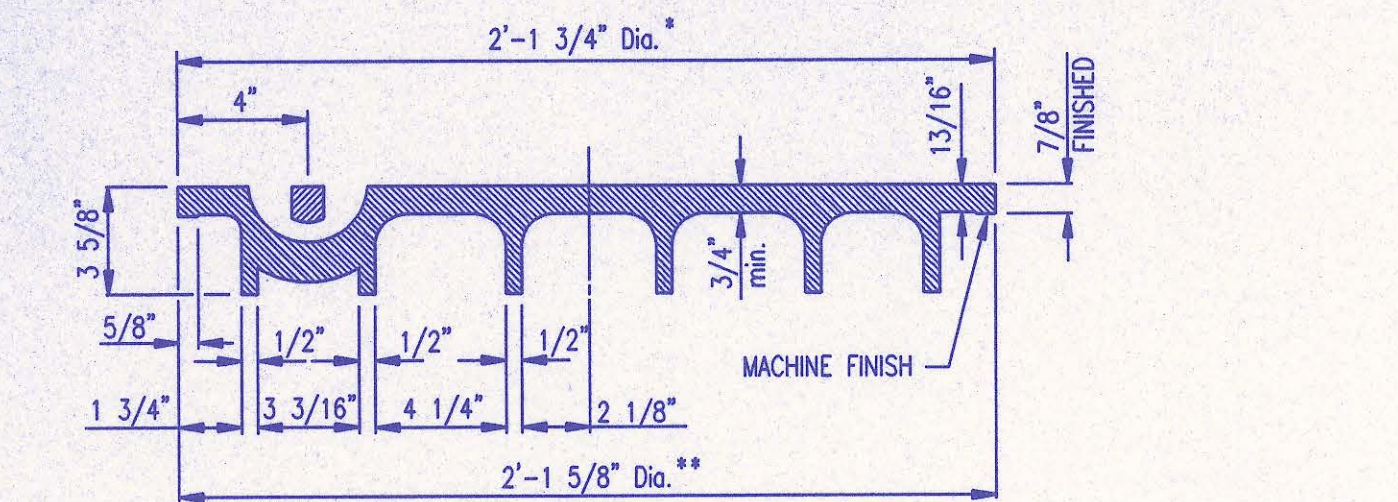
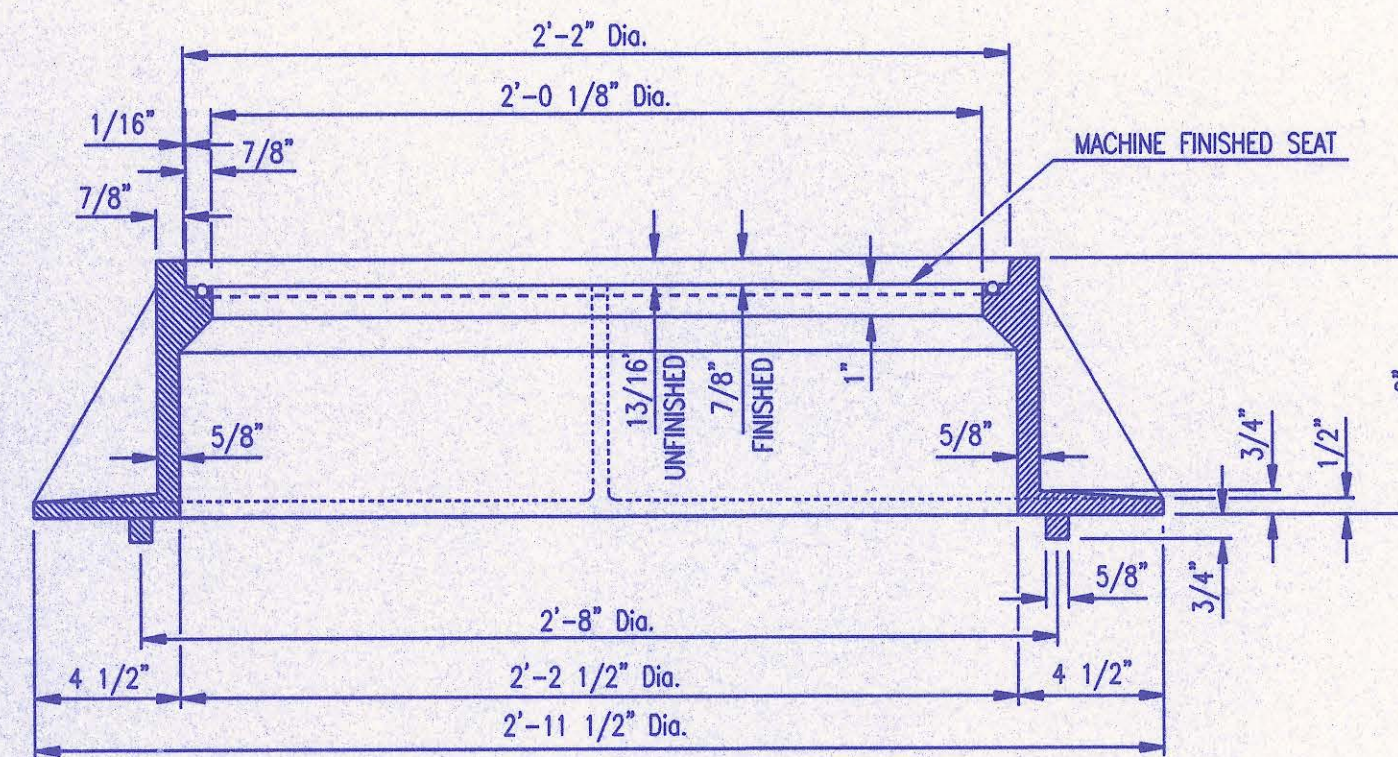
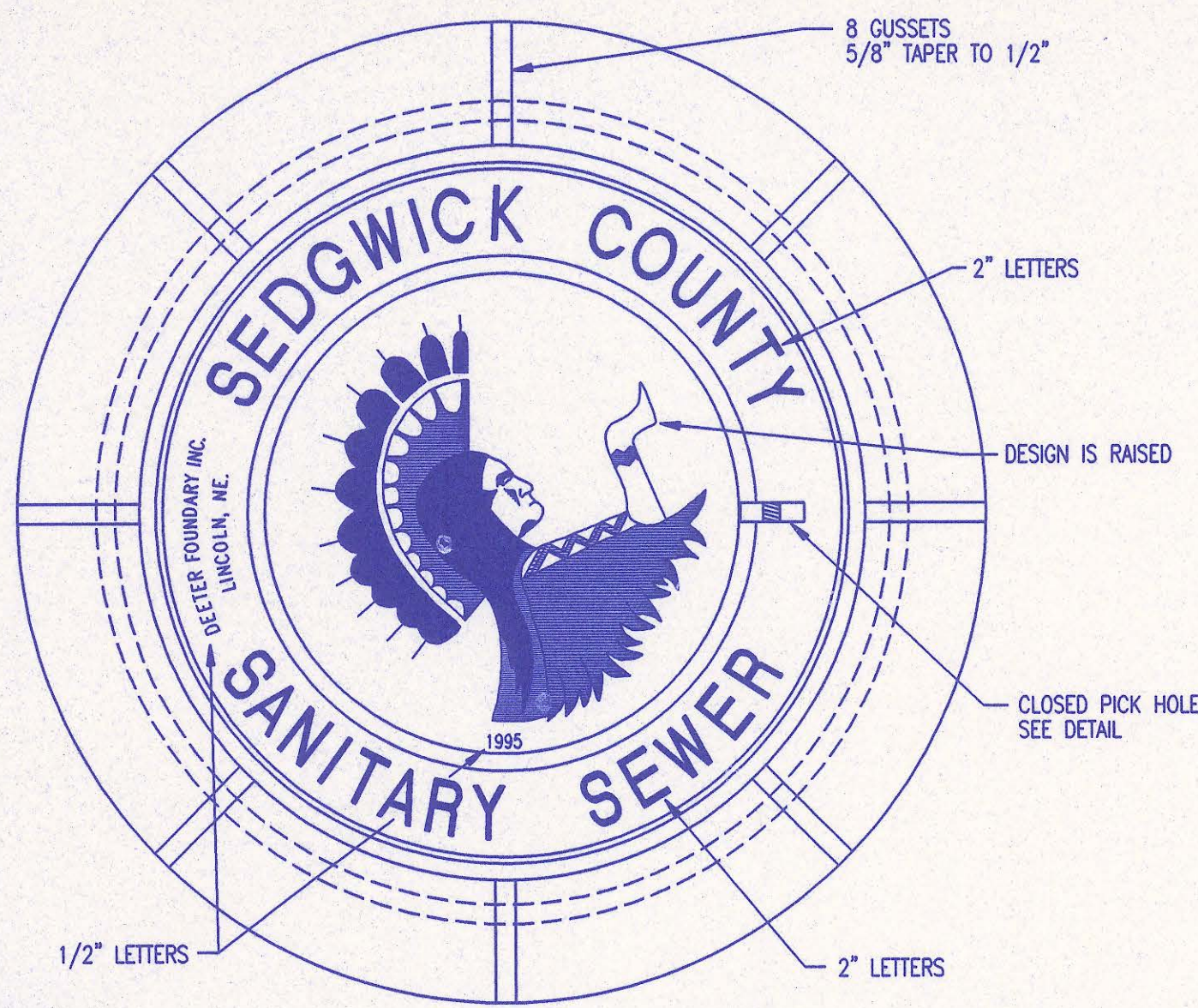
Cut 2450 C.Y. (Approximate)
Fill 1470 C.Y. (Approximate)

28 JUNE 00
Buddy [Signature]
RECORD DRAWING

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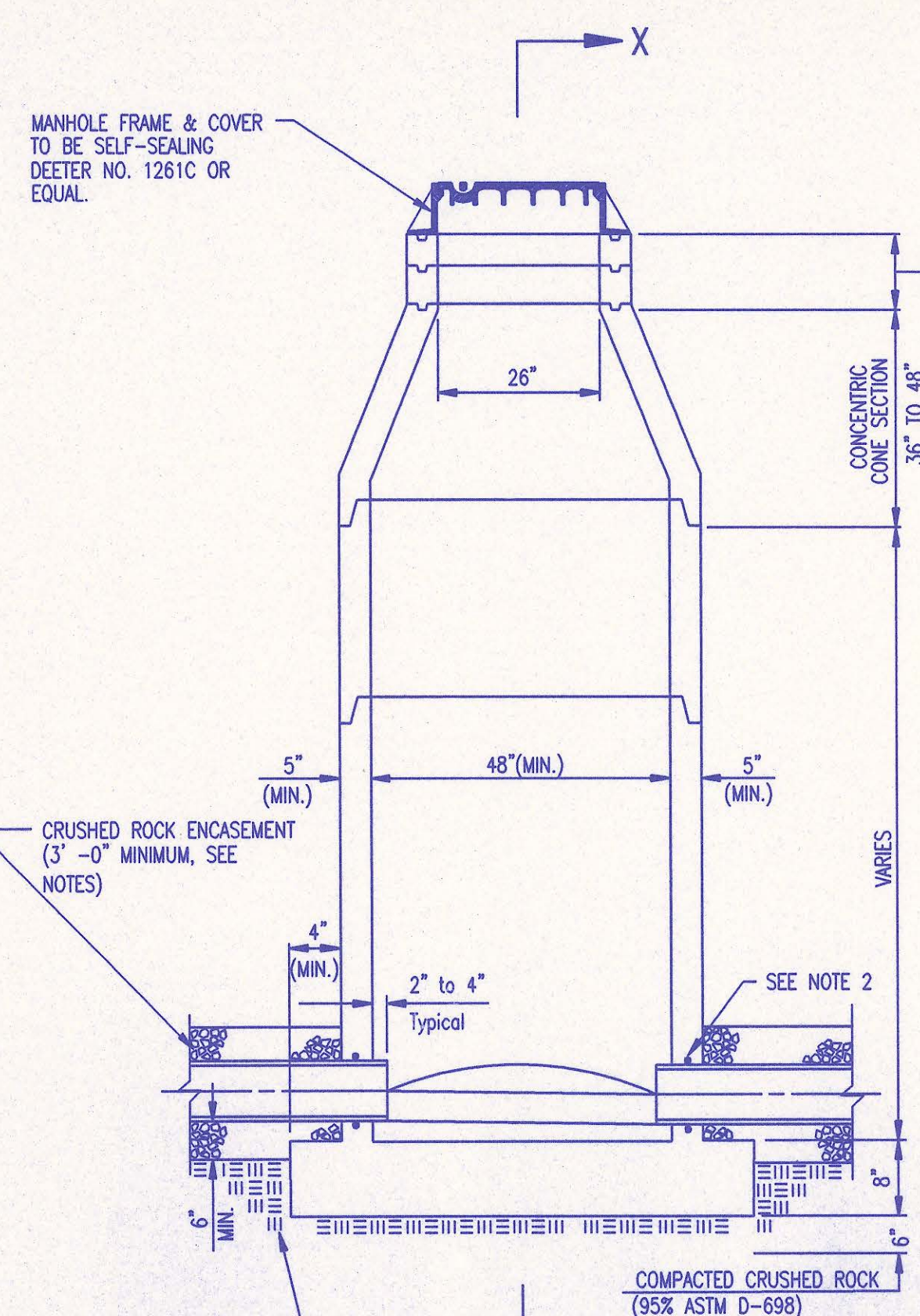
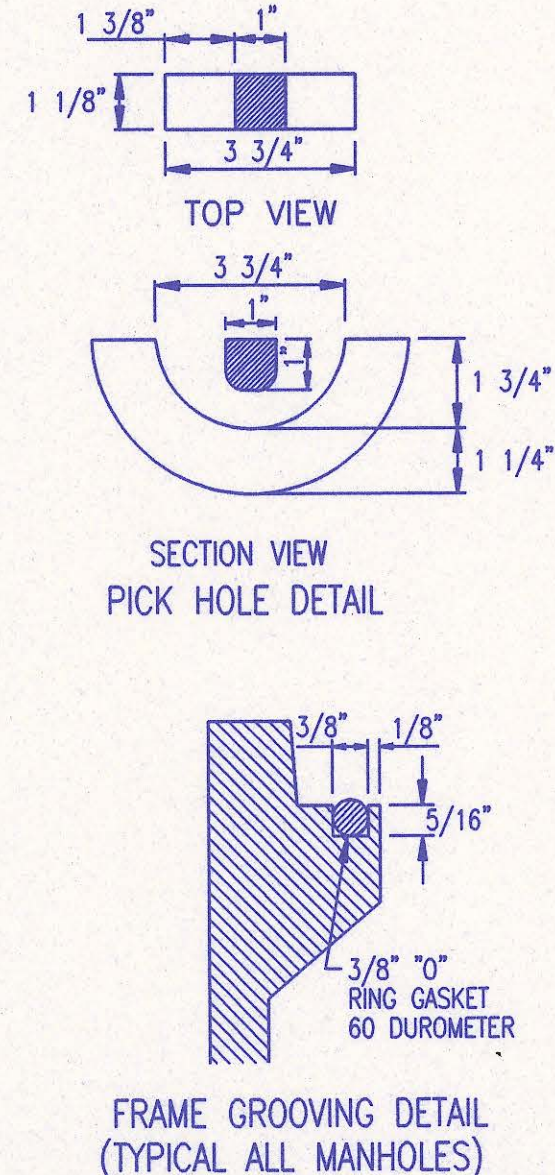
No.	Revision	By	Date
	SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER		
EASEMENT GRADING			
SANITARY SEWER IMPROVEMENTS-PHASE 1 SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION			
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.			
ENGINEERS WICHITA, KANSAS			
Designed by	BDB	Job No.	34-97B42-1
Drawn by	DEG	Date	March 1998
			Sht. 4 of 10



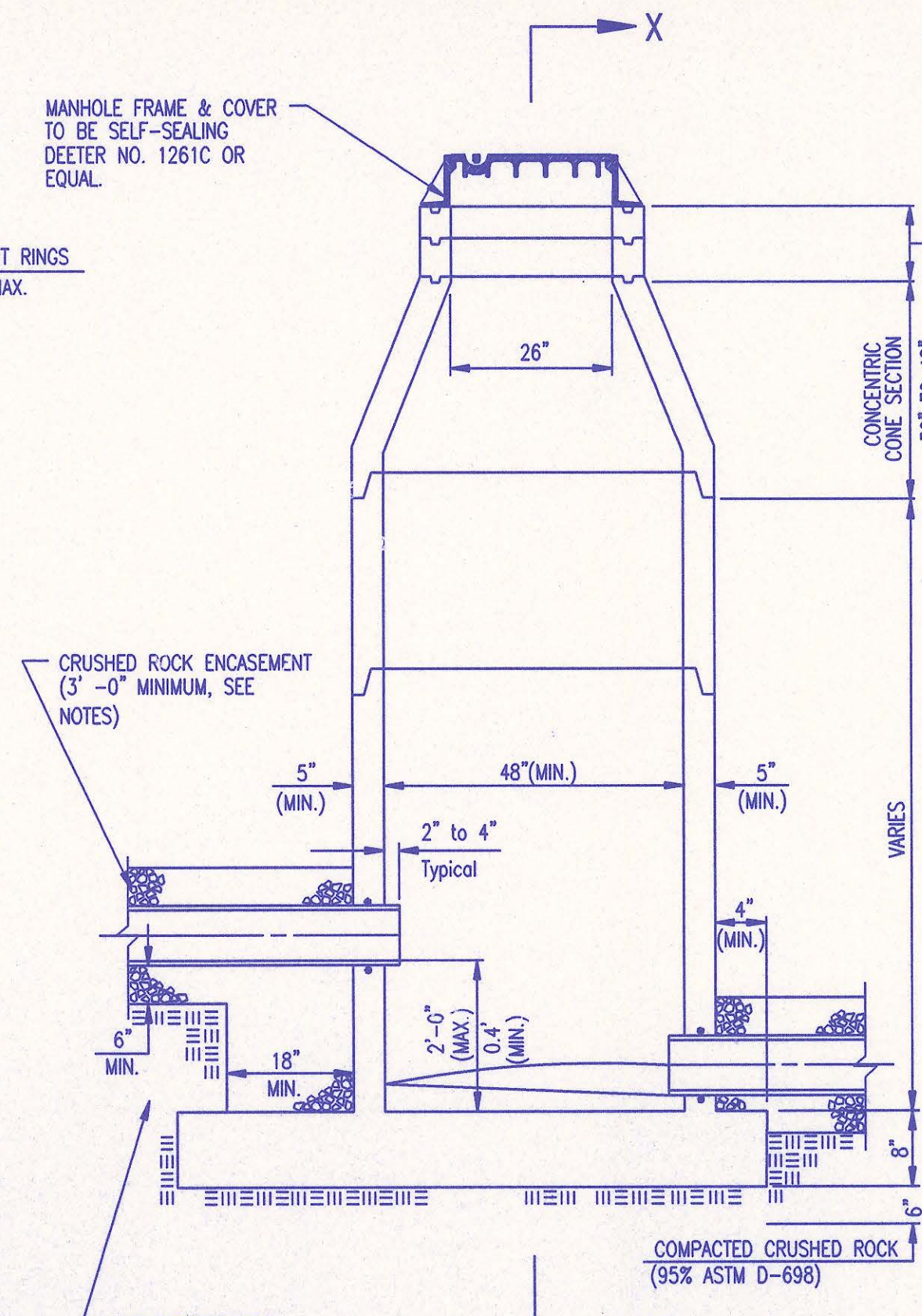
* OUTSIDE DIA. TOP OF COVER
** OUTSIDE DIA. BOTTOM OF COVER

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

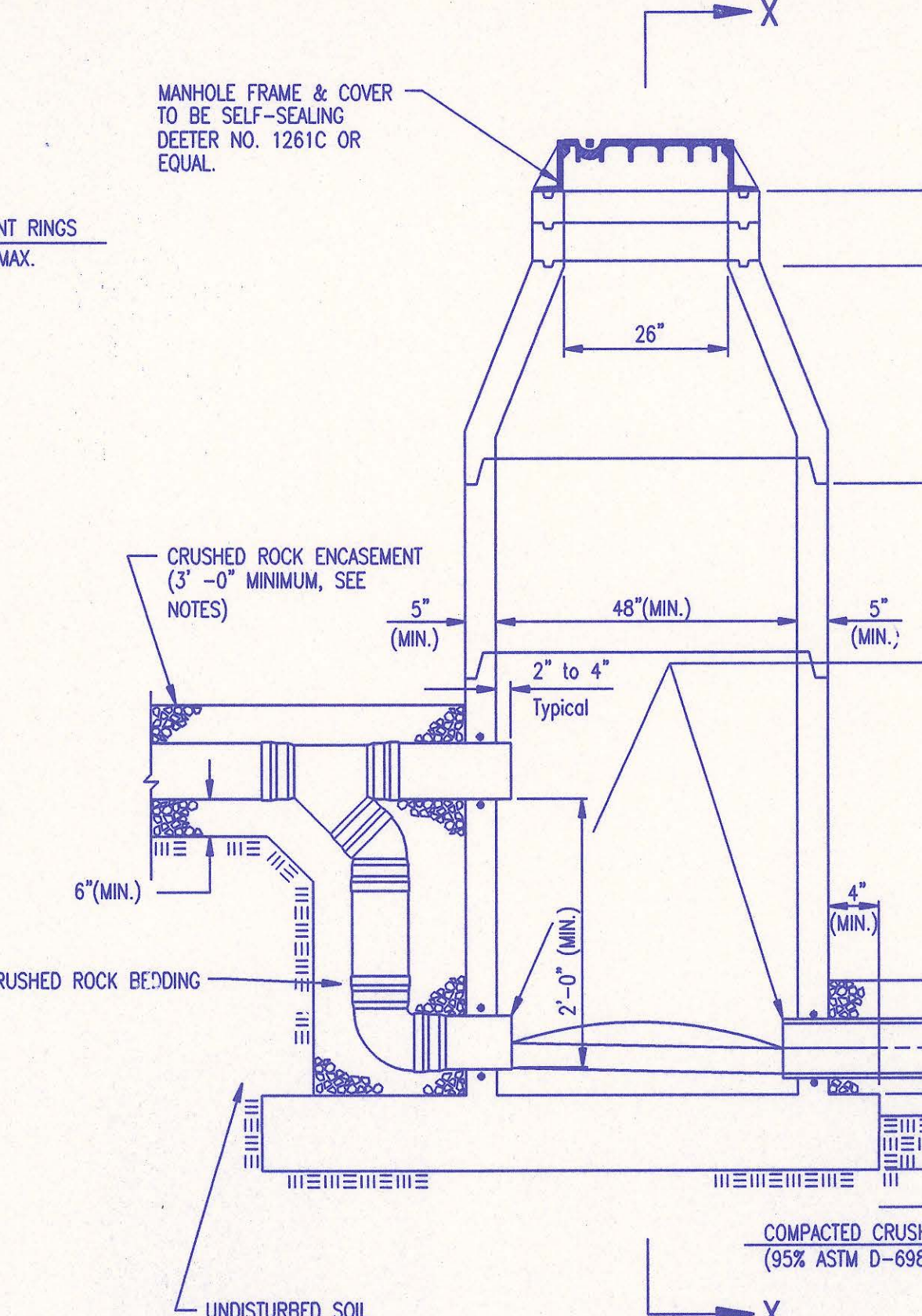
- MANHOLE FRAME AND COVER NOTES**
1. CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 35B, OR BETTER.
 2. CASTINGS ARE TO BE MANUFACTURED TRUE TO PATTERN AND WITH SATISFACTORY FIT OF COMPONENT PARTS. CASTINGS SHALL BE FREE OF DEFECTS AND ALL SURFS SHALL BE GRIND SMOOTH. DIMENSIONS AS DETAILED ON PLAN SHALL NOT DEVIATE BY ± 1/16" PER FOOT.
 3. NO OTHER LETTERING OR MARKINGS OTHER THAN THOSE DETAILED ON PLAN WILL BE PERMITTED ON CASTINGS.
 4. CASTINGS MUST BE DOMESTICALLY MANUFACTURED IN THE UNITED STATES OF AMERICA.
 5. THE FRAMES AND COVERS SHALL BE FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES SO FITTING PARTS WILL NOT RATTLE OR ROCK UNDER TRAFFIC.
 6. 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.
 7. 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.
 8. 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.



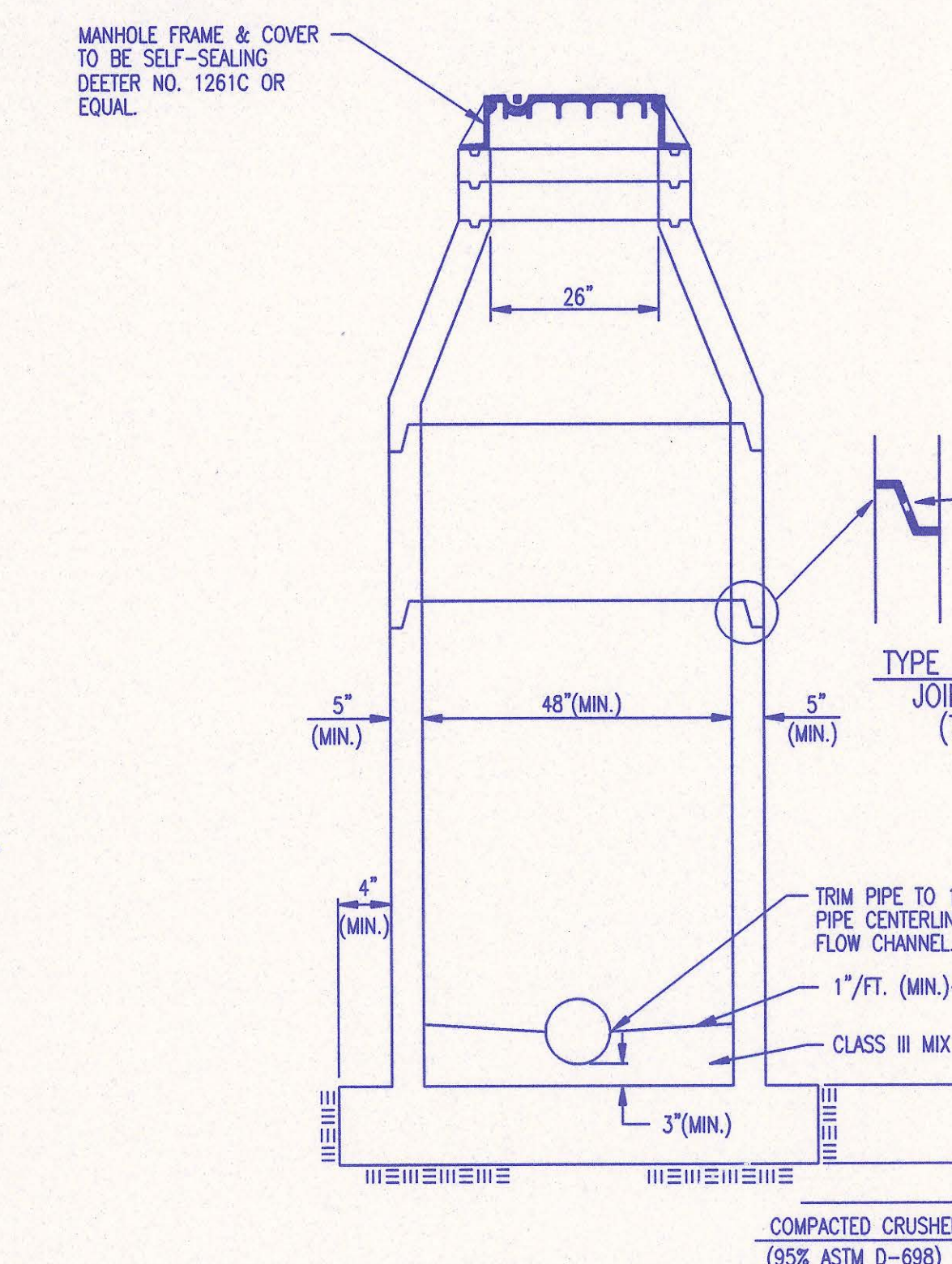
PRECAST STANDARD MANHOLE TYPE "A"



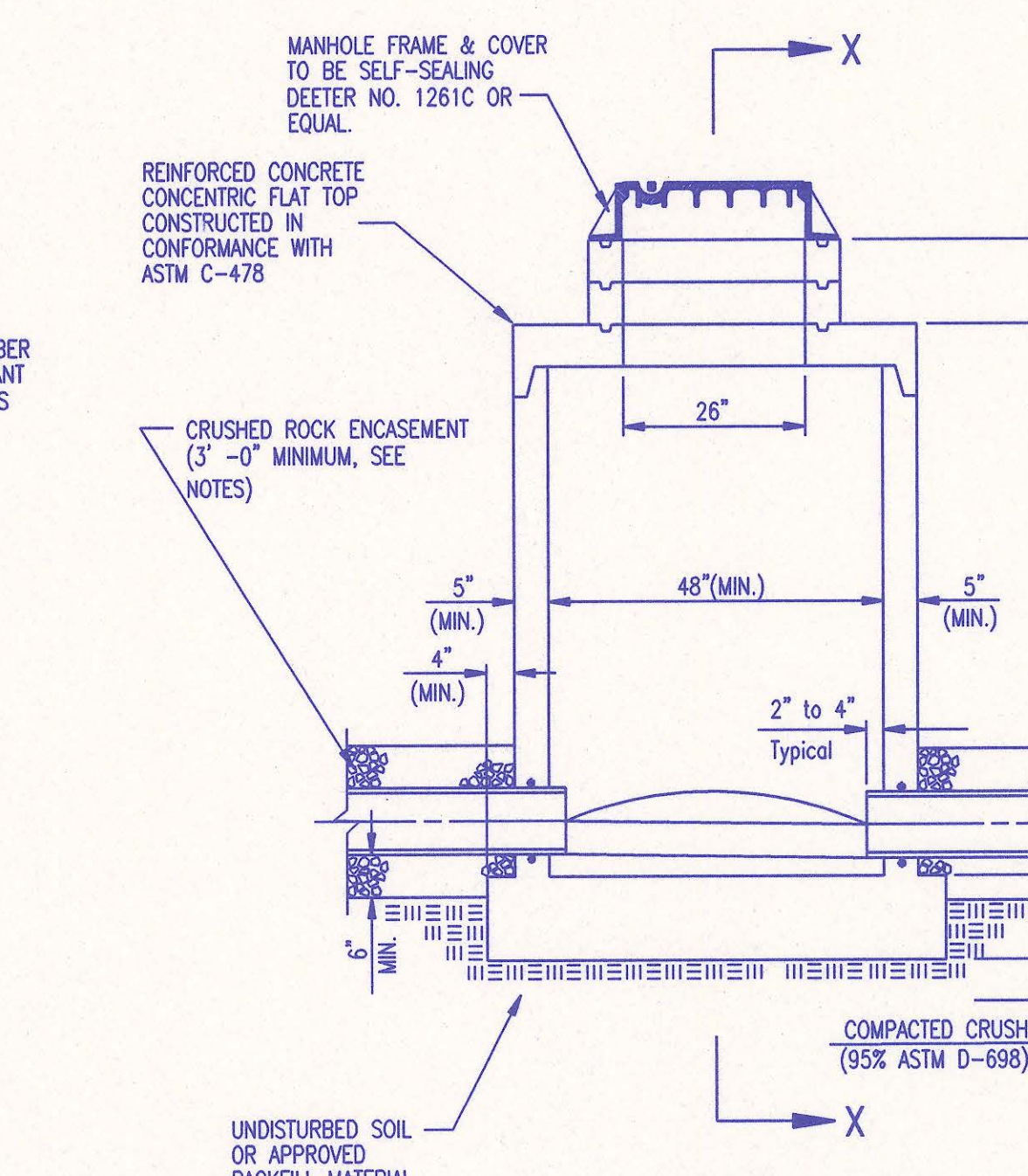
PRECAST INSIDE DROP MANHOLE TYPE "B"



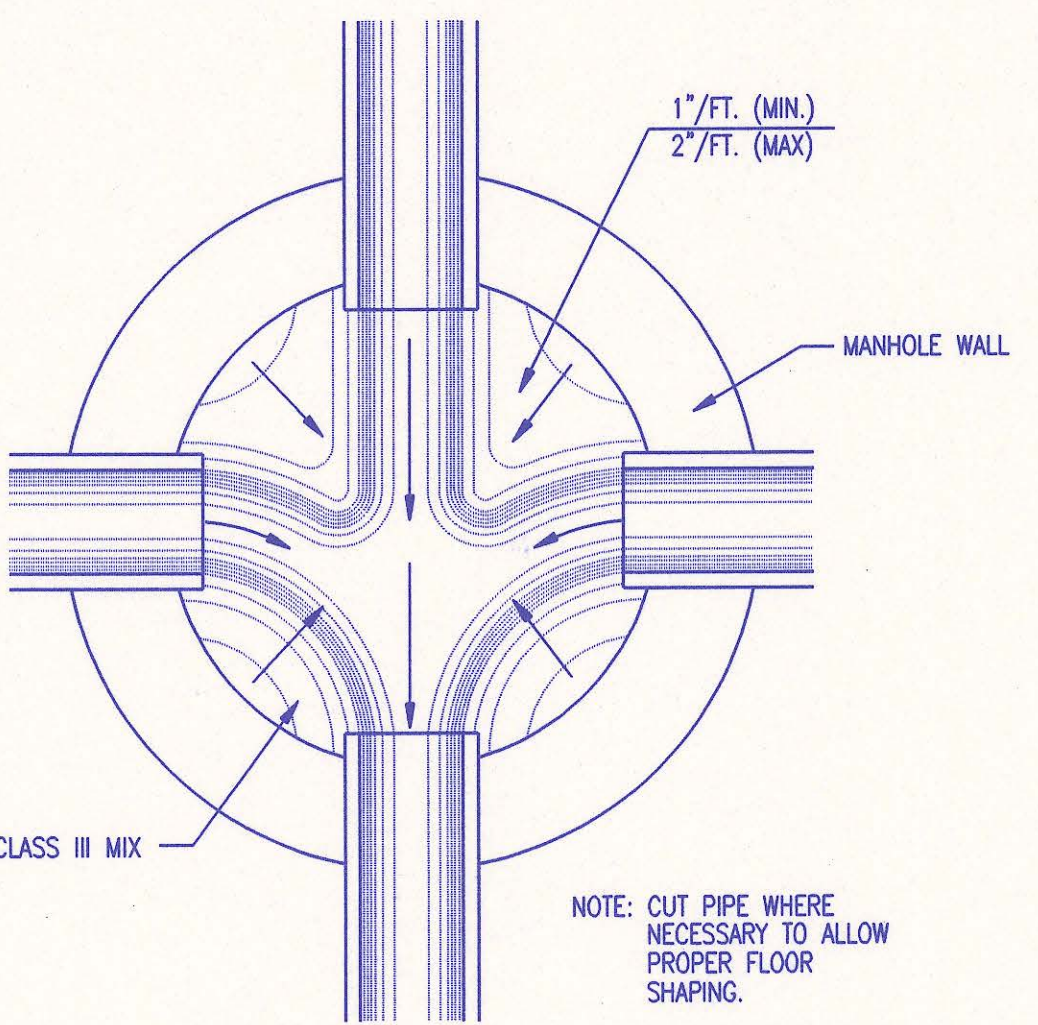
PRECAST OUTSIDE DROP MANHOLE TYPE "C"



SECTION X (TYPICAL)



PRECAST SHALLOW MANHOLE TYPE "D"



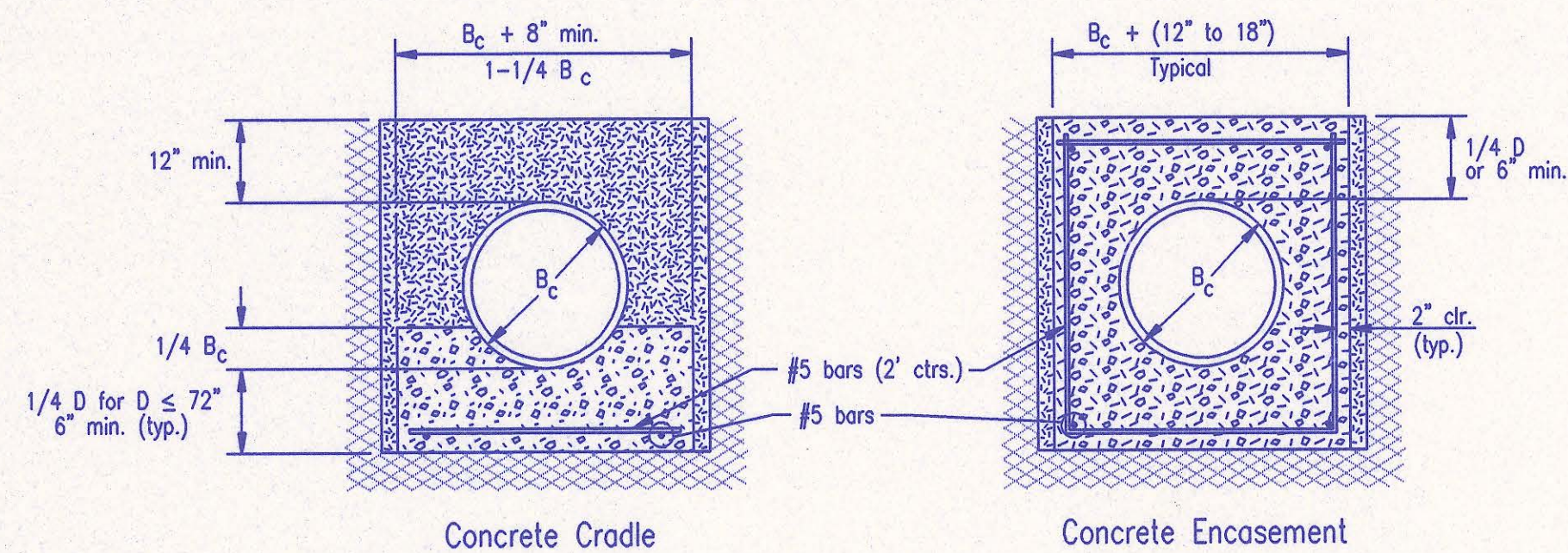
TYPICAL MANHOLE FLOOR SHAPING

- PRECAST MANHOLE NOTES**
1. 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.
 2. "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.
 3. THE MANHOLE FRAME SHALL BE SEATED ON AN APPROVED BUTYL-RUBBER OR MASTIC SEALANT TO PROVIDE WATER-TIGHT SEAL BETWEEN THE MANHOLE ADJUSTMENT RING AND THE MANHOLE FRAME.
 4. GASKETED PIPE CAPS SHALL BE PROVIDED BY THE PIPE SUPPLIER. GLUED OR CEMENTED CAPS WILL NOT BE ACCEPTED.
 5. ALL MANHOLE CONSTRUCTION SHALL BE WATER TIGHT.
 6. 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.
 7. MANHOLES WITH PIPE SIZES 24" AND LARGER SHALL HAVE 5" INSIDE DIAMETER (MIN.).
 8. 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.
 9. 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.
 10. 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.
 11. 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.
 12. 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.).
 13. 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.
 14. CRUSHED ROCK SHALL MEET THE REQUIREMENTS FOR GRANULAR BEDDING MATERIAL, AS OUTLINED IN THE SPECIFICATIONS.



28 JUL 00
Michael D. Kellogg
RECORD DRAWING

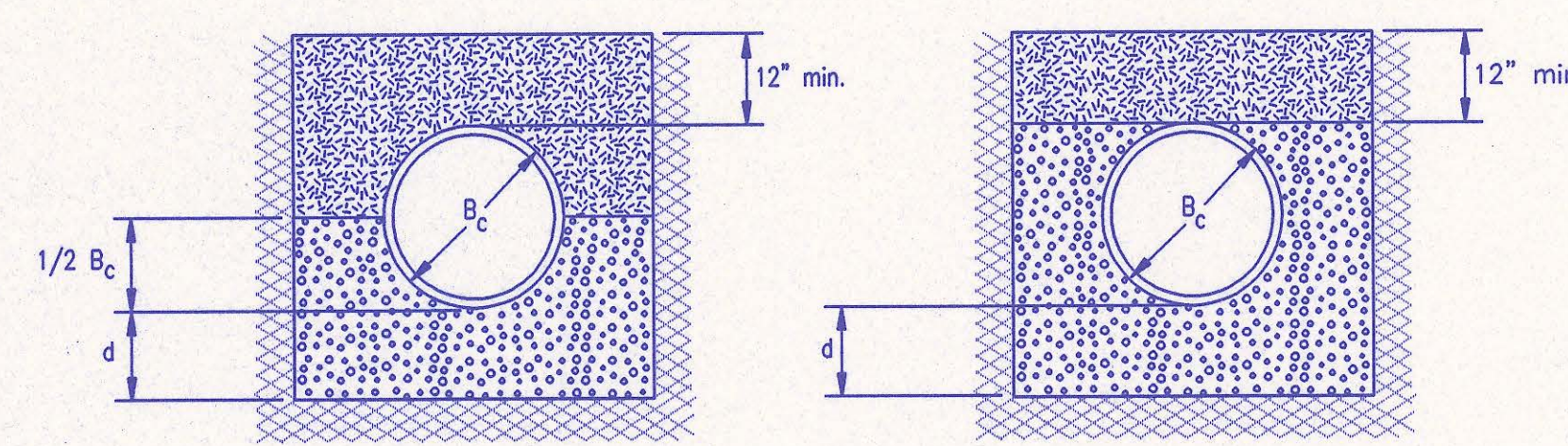
PRECAST MANHOLE DETAILS
ADOPTED AS STANDARD DESIGN JANUARY 1998
BY
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER



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
- [Symbol] = Granular Bedding Material or Sand-Gravel Bedding
- [Symbol] = Compacted Embedment
- [Symbol] = 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.

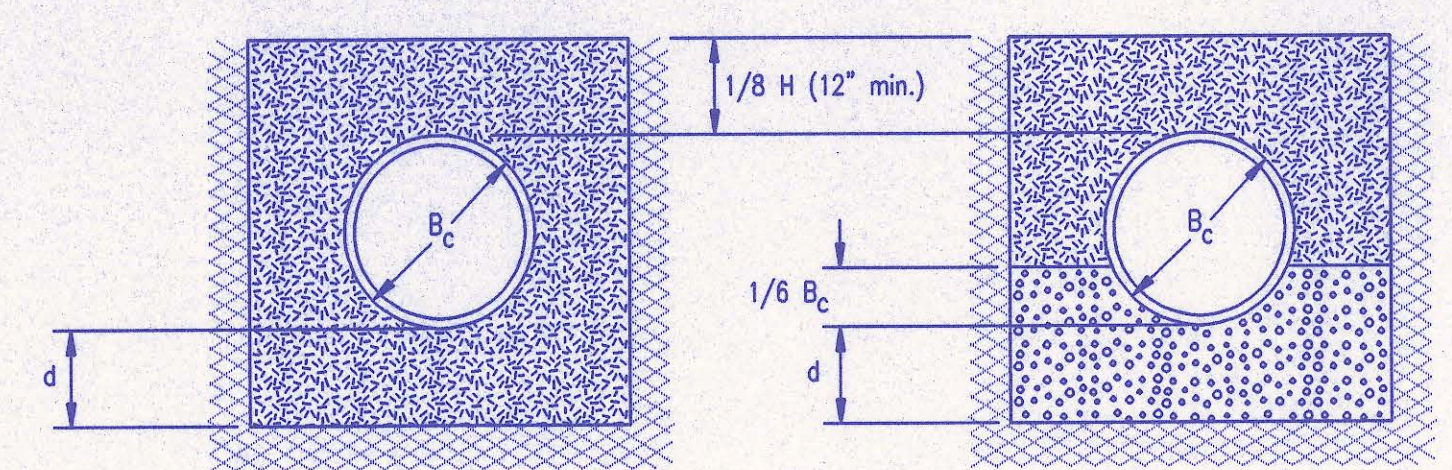
Class A "Concrete Cradle" and/or Class A "Concrete Encasement" is not required unless specified on the plans. However, where unexpected trench conditions exist or improper trenching is performed Class A Bedding may be required as determined by the Engineer.

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.

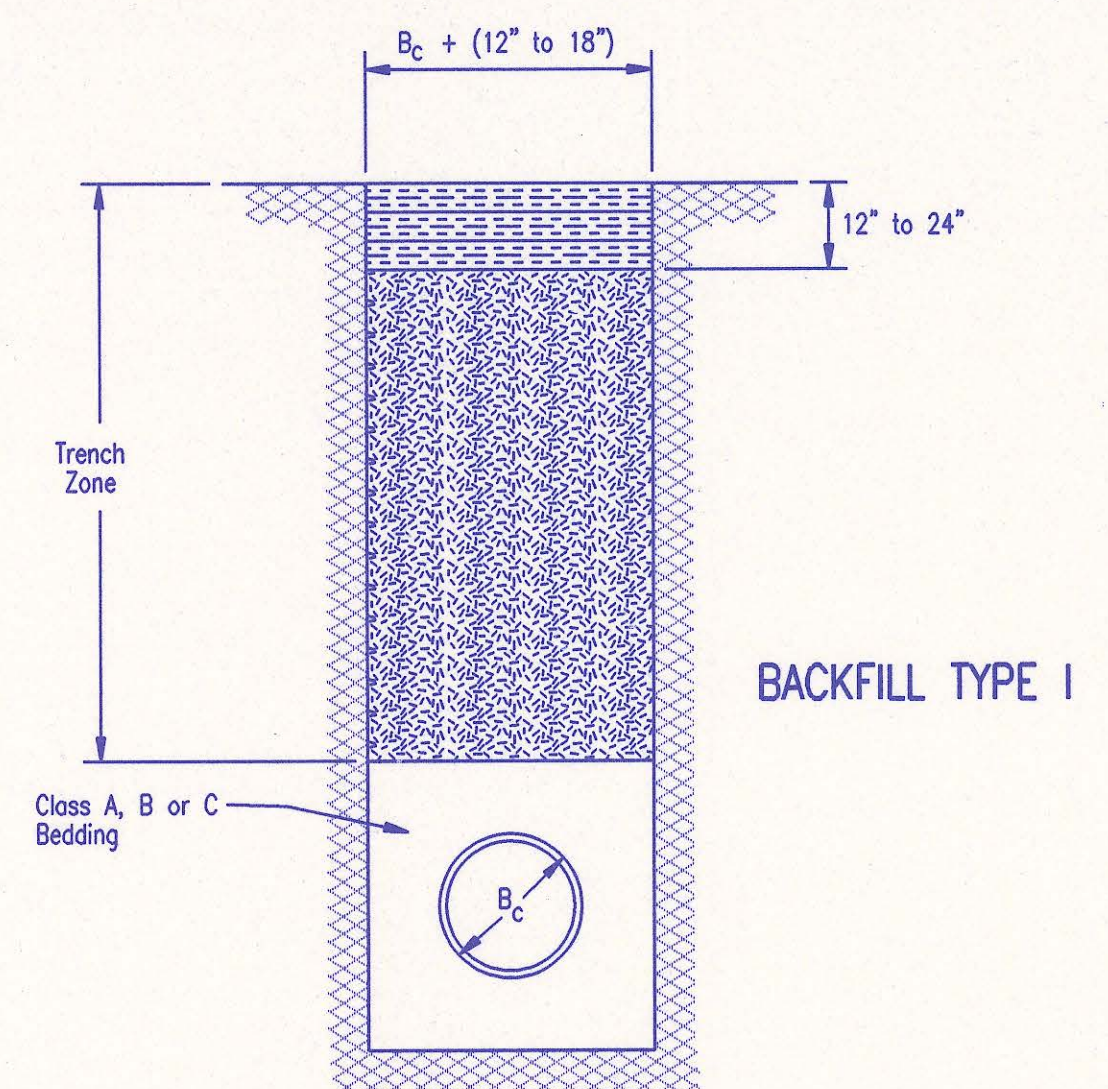
Class C Bedding shall be used for all rigid pipe.

- 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).

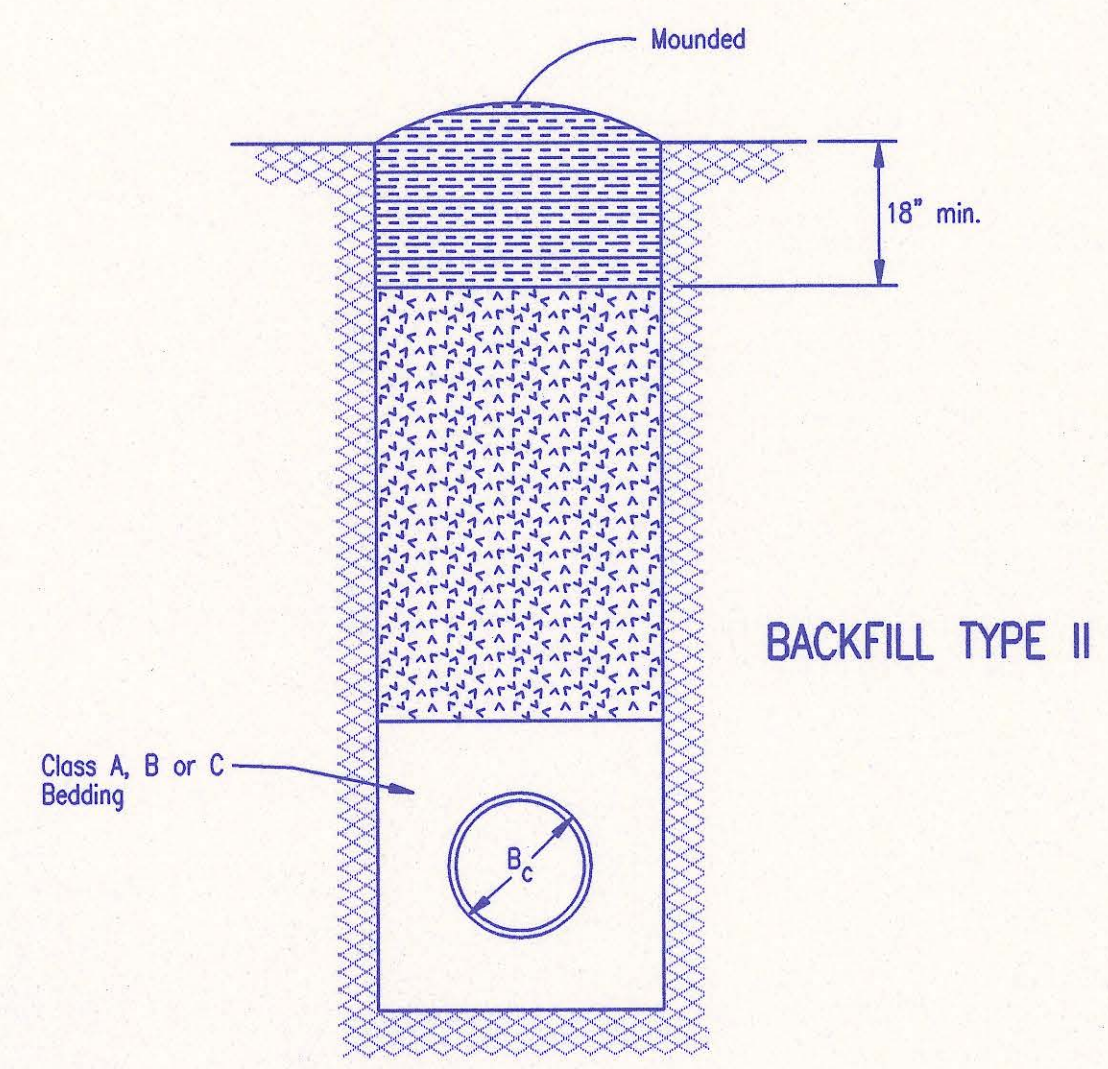


CLASS C

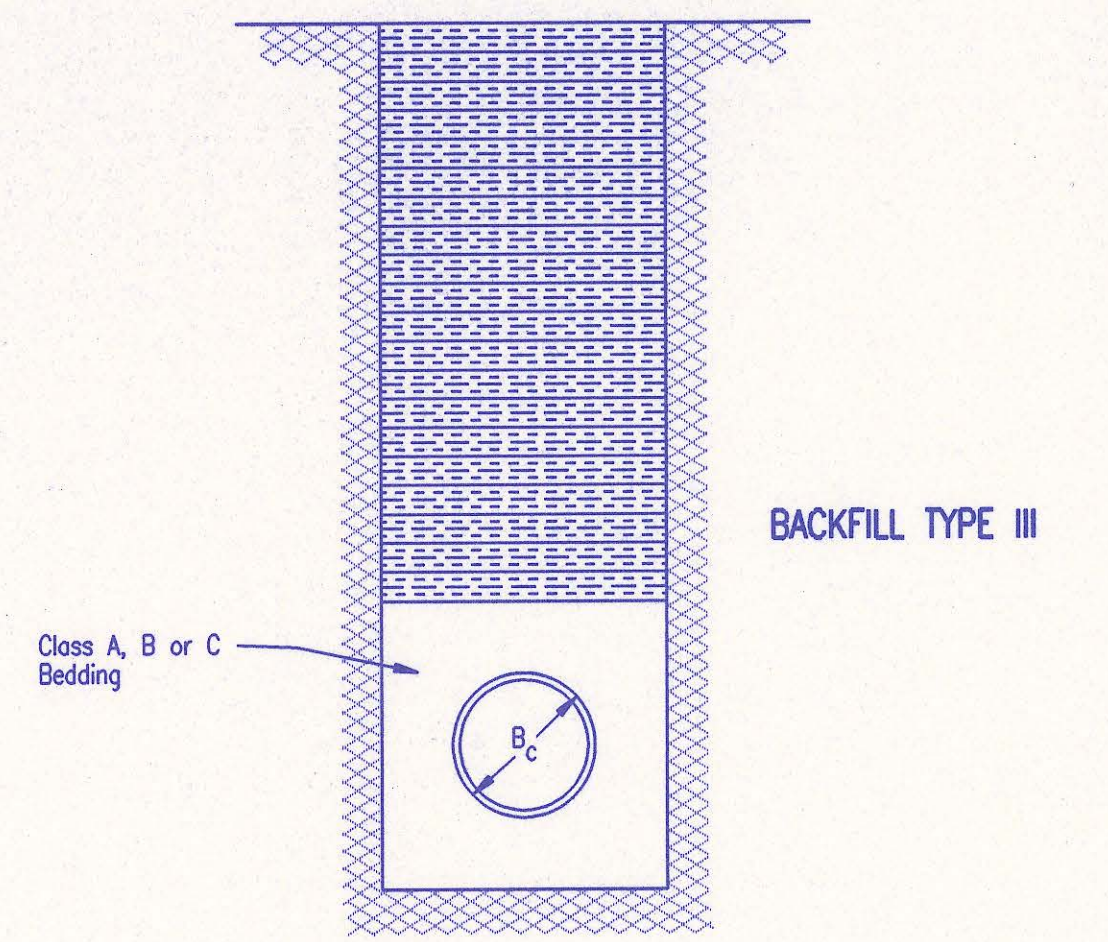
PIPE ZONE BACKFILLING



BACKFILL TYPE I



BACKFILL TYPE II



BACKFILL TYPE III

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

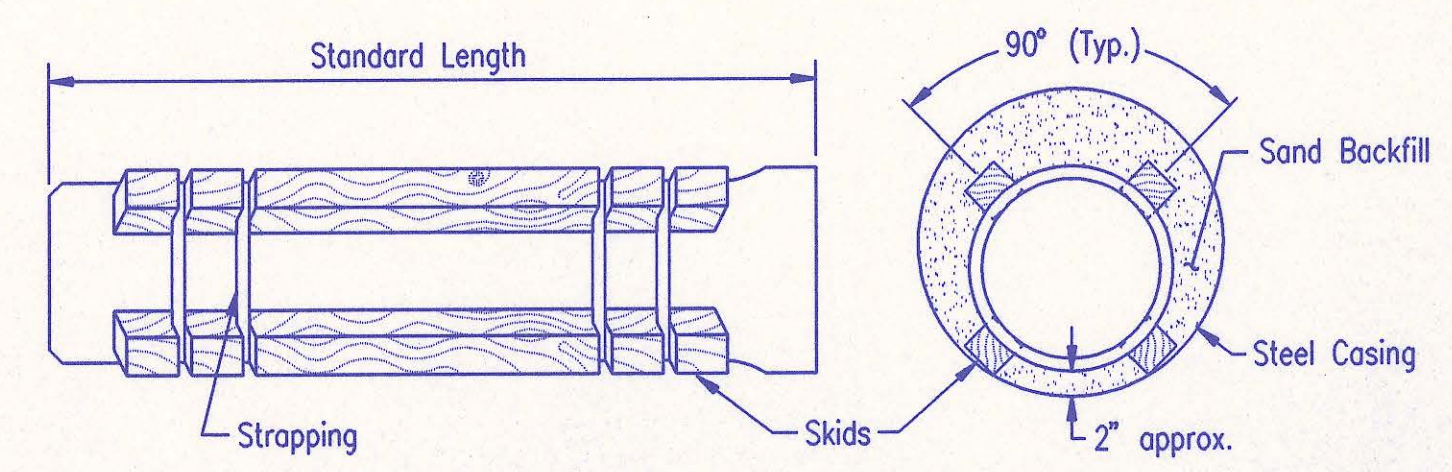
Compacted Earth Backfill shall consist of material existing prior to trenching or selected material as directed by the Engineer, and shall be compacted to 90% density as determined by ASTM D698.

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.

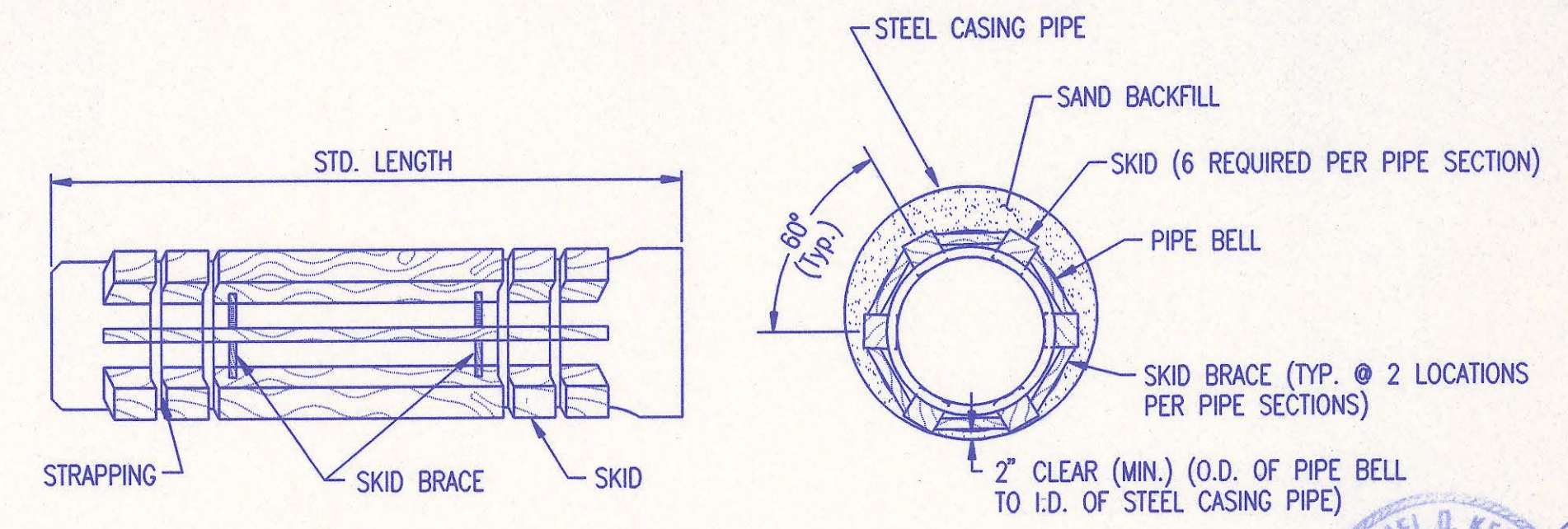
Backfilling Through Rock: Backfilling through rock shall be performed as specified in the paragraph Backfill above, except that the Pipe Zone is increased to provide eighteen (18) inches of cover over the pipe. When approved by the Engineer the remainder of the backfill may be excavated rock provided 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

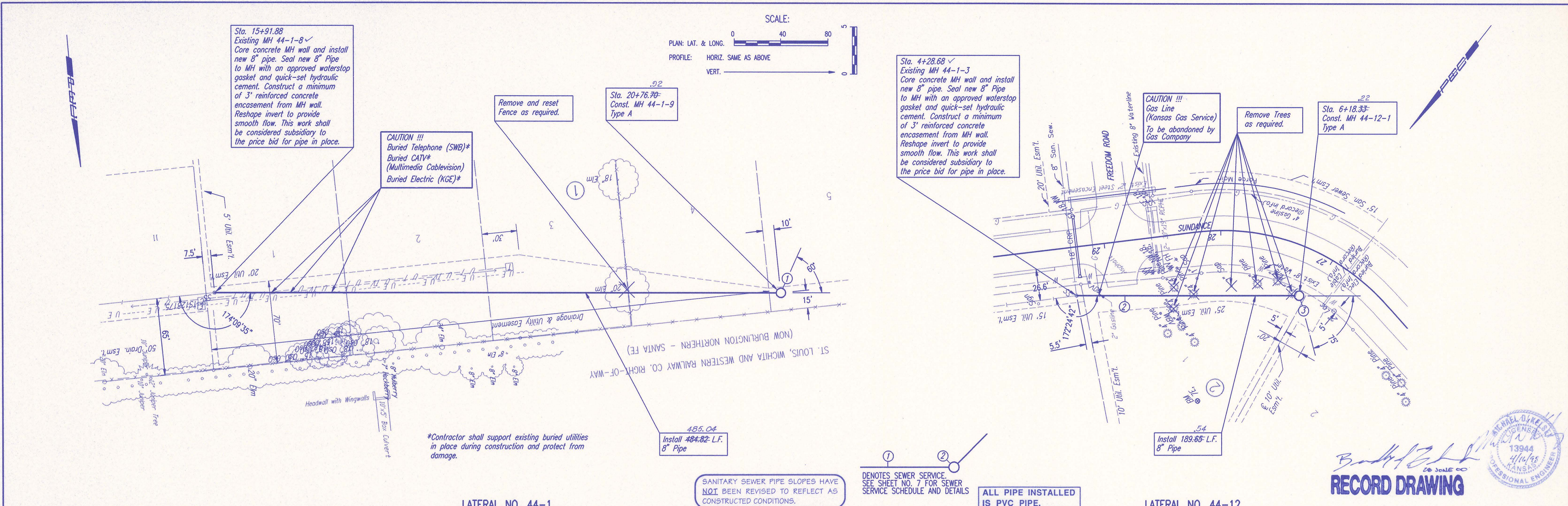


TRENCH AND BACKFILL DETAILS

ADOPTED AS STANDARD DESIGN JANUARY 1998
BY
SEDCWICK COUNTY BUREAU OF PUBLIC SERVICES
DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

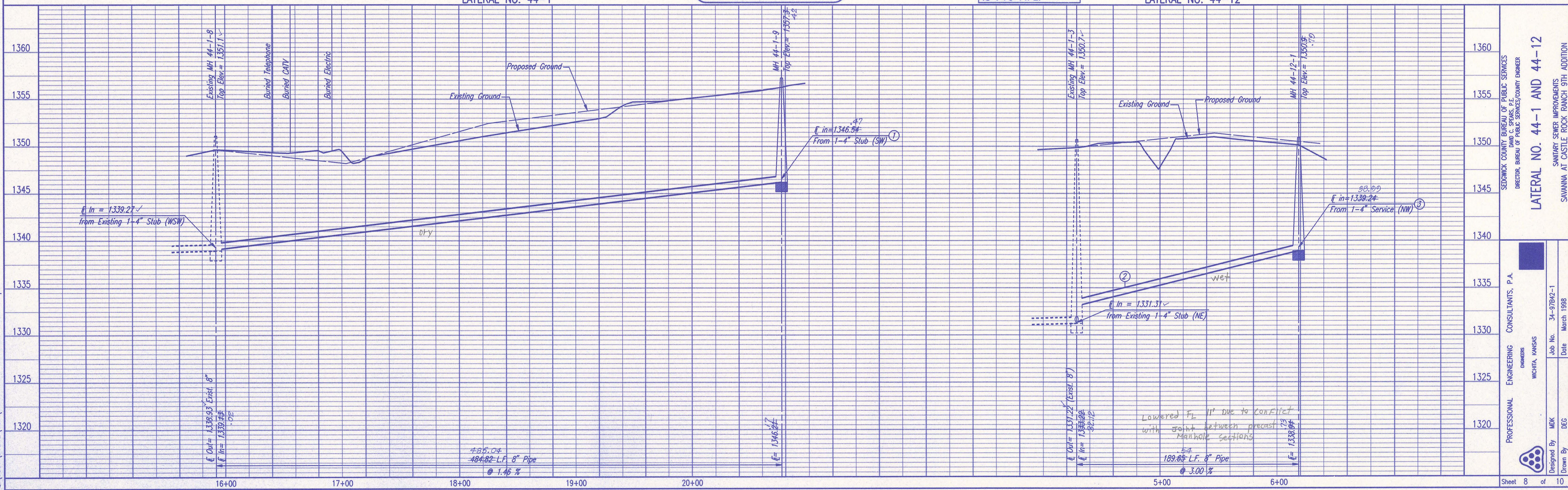
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LATERAL NO. 44-1

LATERAL NO. 44-12



Professional Engineer
 David C. Sefrus, P.E.
 License No. 13944
 State of Kansas
 4/14/98

RECORD DRAWING

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

SAVANNA AT CASTLE ROCK RANCH 9TH ADDITION

Sanitary Sewer Improvements

LATERAL NO. 44-1 AND 44-12

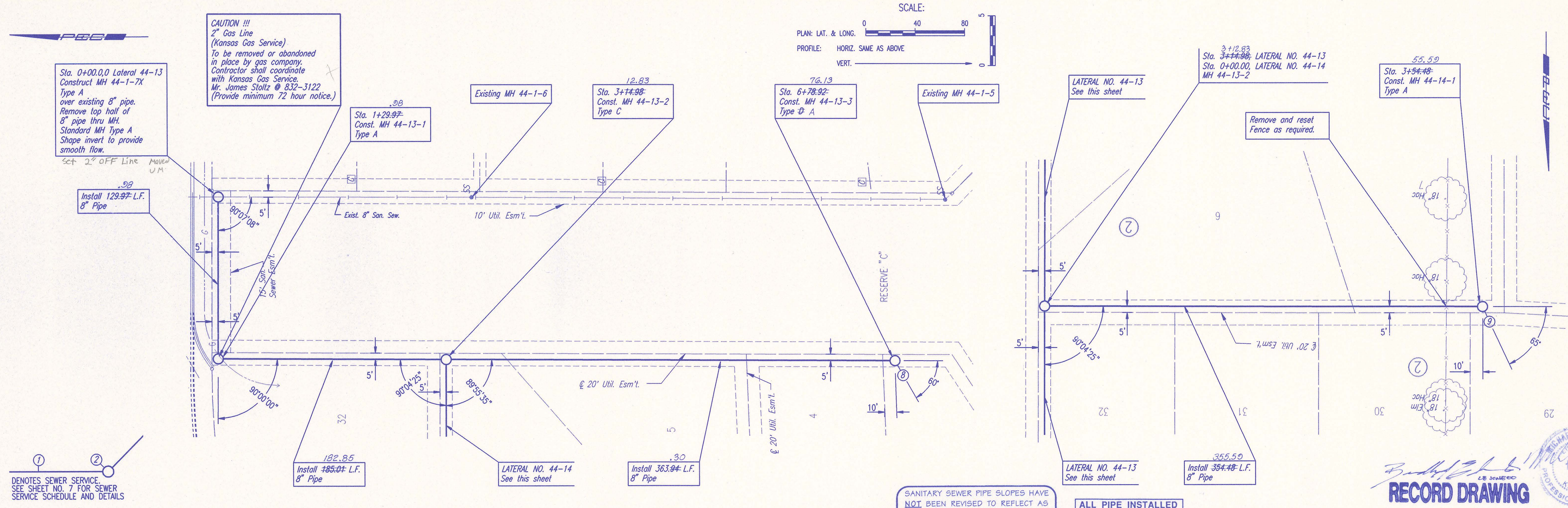
ENGINEERING CONSULTANTS, P.A.
 WICHITA, KANSAS

Job No. 34-97B42-1
 Date March 1998

Designed By MDK
 Drawn By DEC

Sheet 8 of 10

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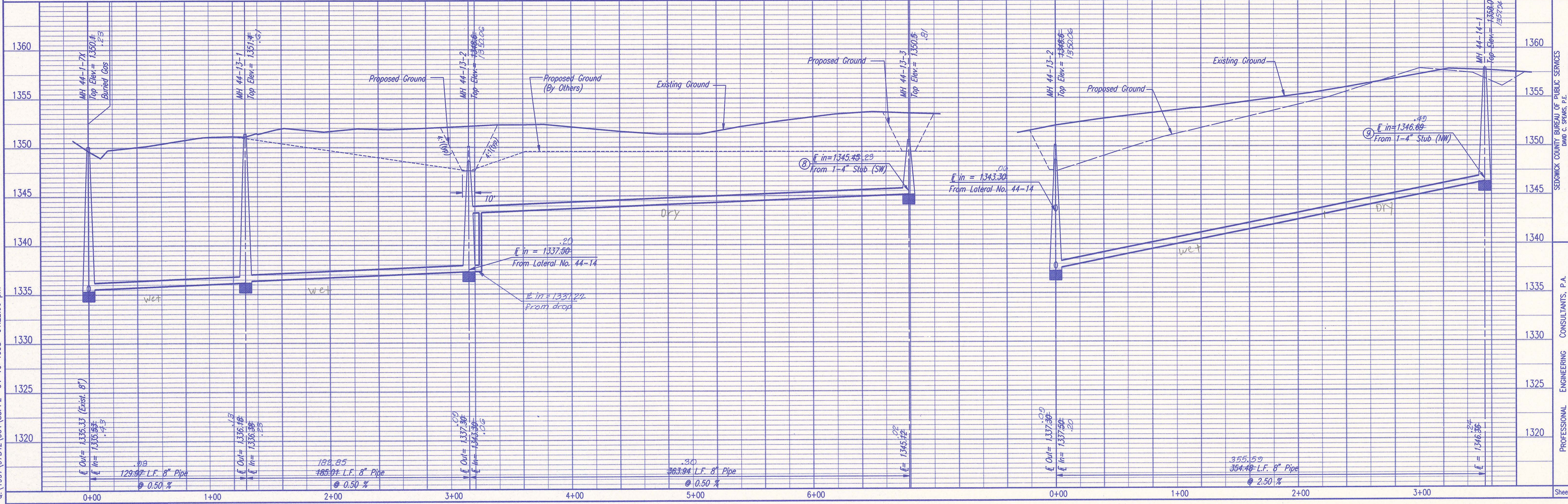
LATERAL NO. 44-13 LATERAL NO. 44-14

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

ALL PIPE INSTALLED
 IS PVC PIPE.

RECORD DRAWING

PROFESSIONAL ENGINEER
 DAVID C. BEARS, P.E.
 13944
 4/14/98
 KANSAS



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

LATERAL NO. 44-13 AND 44-14

SANITARY SEWER IMPROVEMENTS
 SWANNA AT CASTLE ROCK RANCH 9TH ADDITION

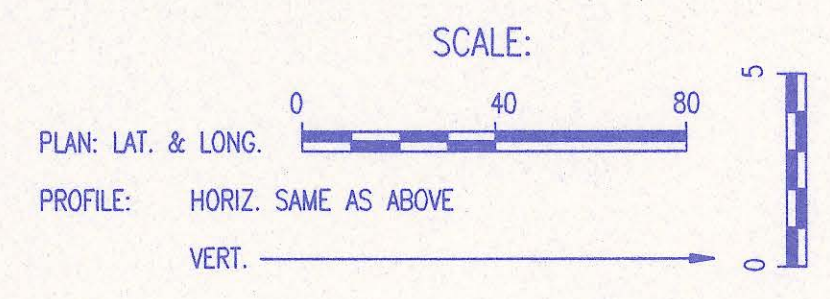
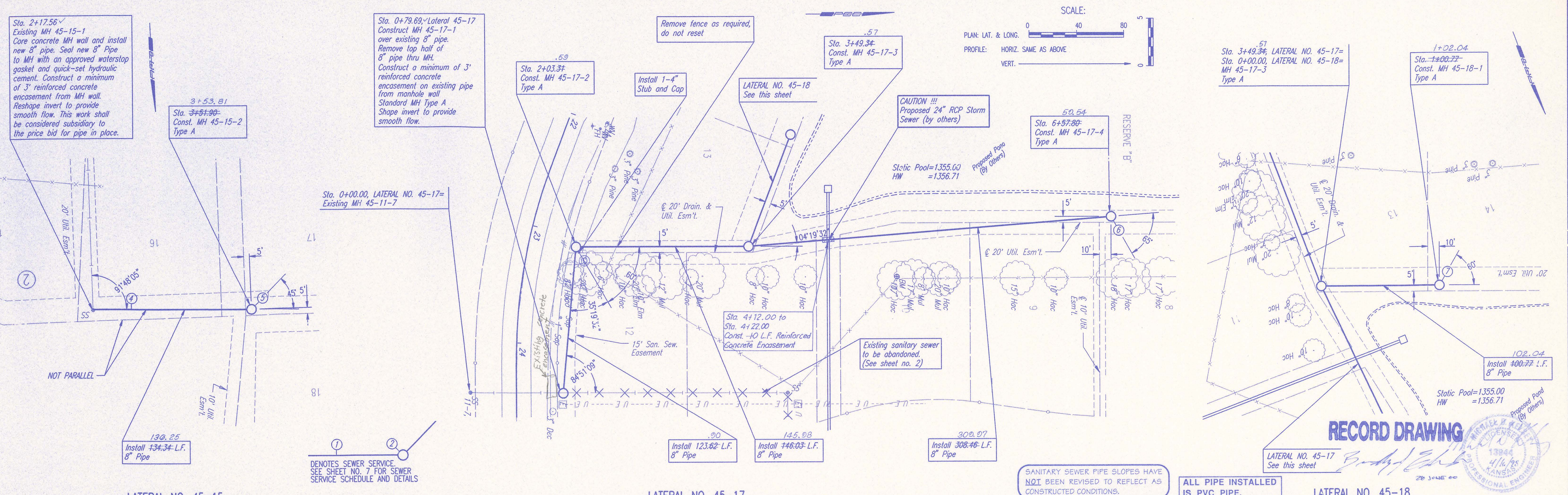
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS

Designed By MDK
 Drawn By DCS

Job No. 34-97B42-1
 Date March 1998

Sheet 9 of 10

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LATERAL NO. 45-15

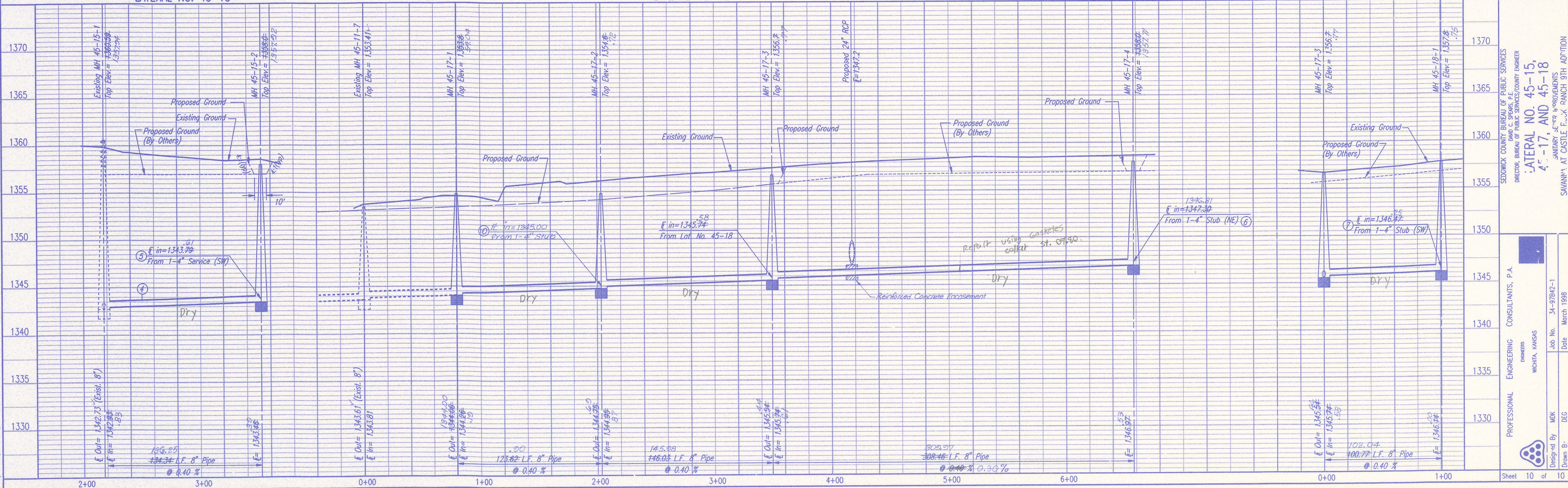
LATERAL NO. 45-17

LATERAL NO. 45-18

① DENOTES SEWER SERVICE. SEE SHEET NO. 7 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

PROFESSIONAL ENGINEER
 WICHITA, KANSAS
 4/16/98
 28 JUNE 00

SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER
LATERAL NO. 45-15, 45-17, AND 45-18
 SANITARY SEWER IMPROVEMENTS
 SAVANNAH AT CASTLE F... RANCH 9TH ADDITION

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

Design By: MDK
 Drawn By: DEG

Job No. 34-97B42-1
 Date March 1998

Sheet 10 of 10