

# SANITARY SEWER IMPROVEMENTS RECONSTRUCTION OF PART OF SANITARY SEWER NO. 22 FROM SEWAGE TREATMENT PLANT NO. 1 TO NORTH OF PAWNEE

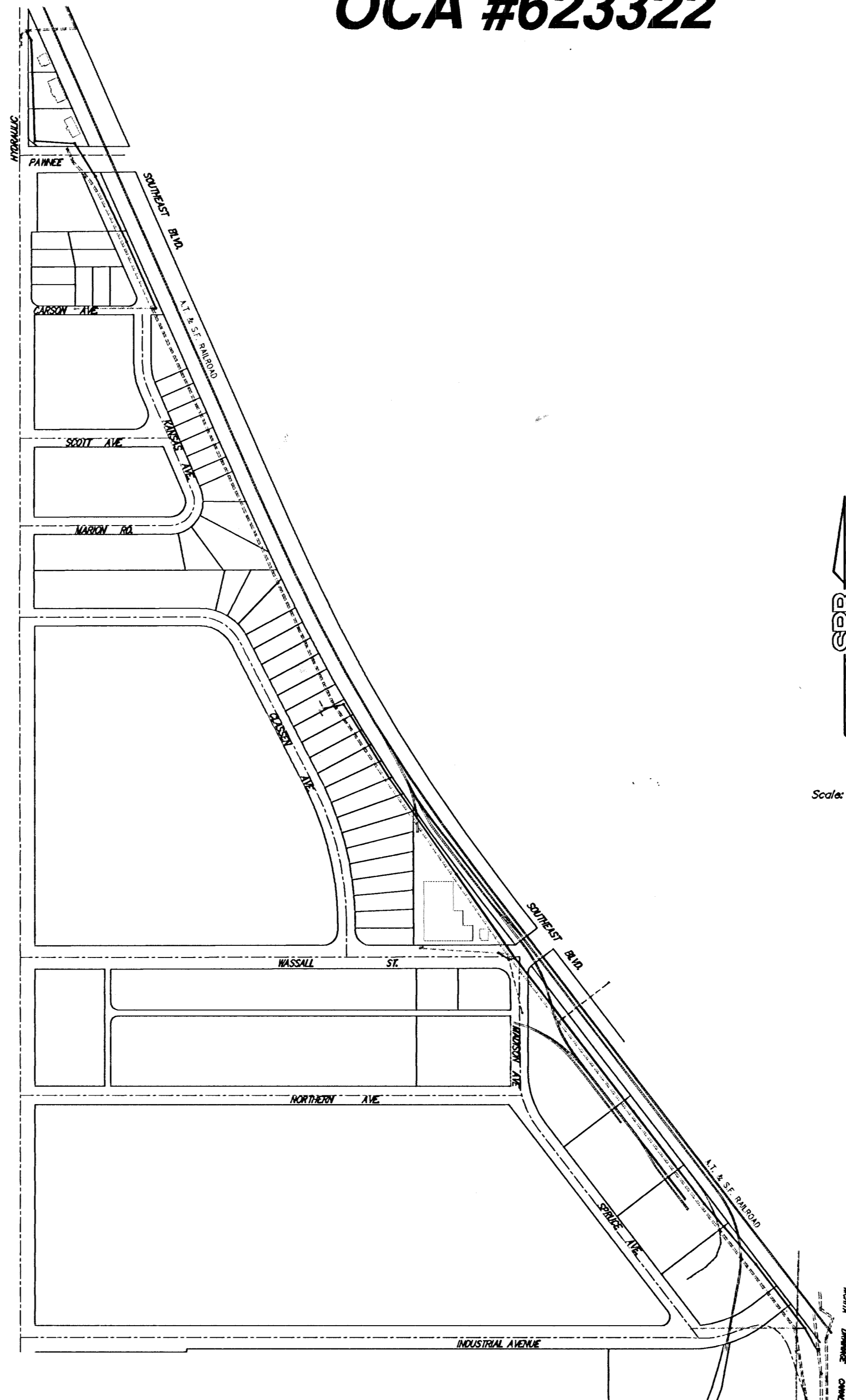
**CITY OF WICHITA, KANSAS**  
**MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER**  
**PROJECT NO. 468-82834**  
**OCA #623322**

### GENERAL NOTES

1. Contractor will be required to provide a minimum advance notice of twenty-four (24) hours to utility companies prior to starting any excavation as follows:
 

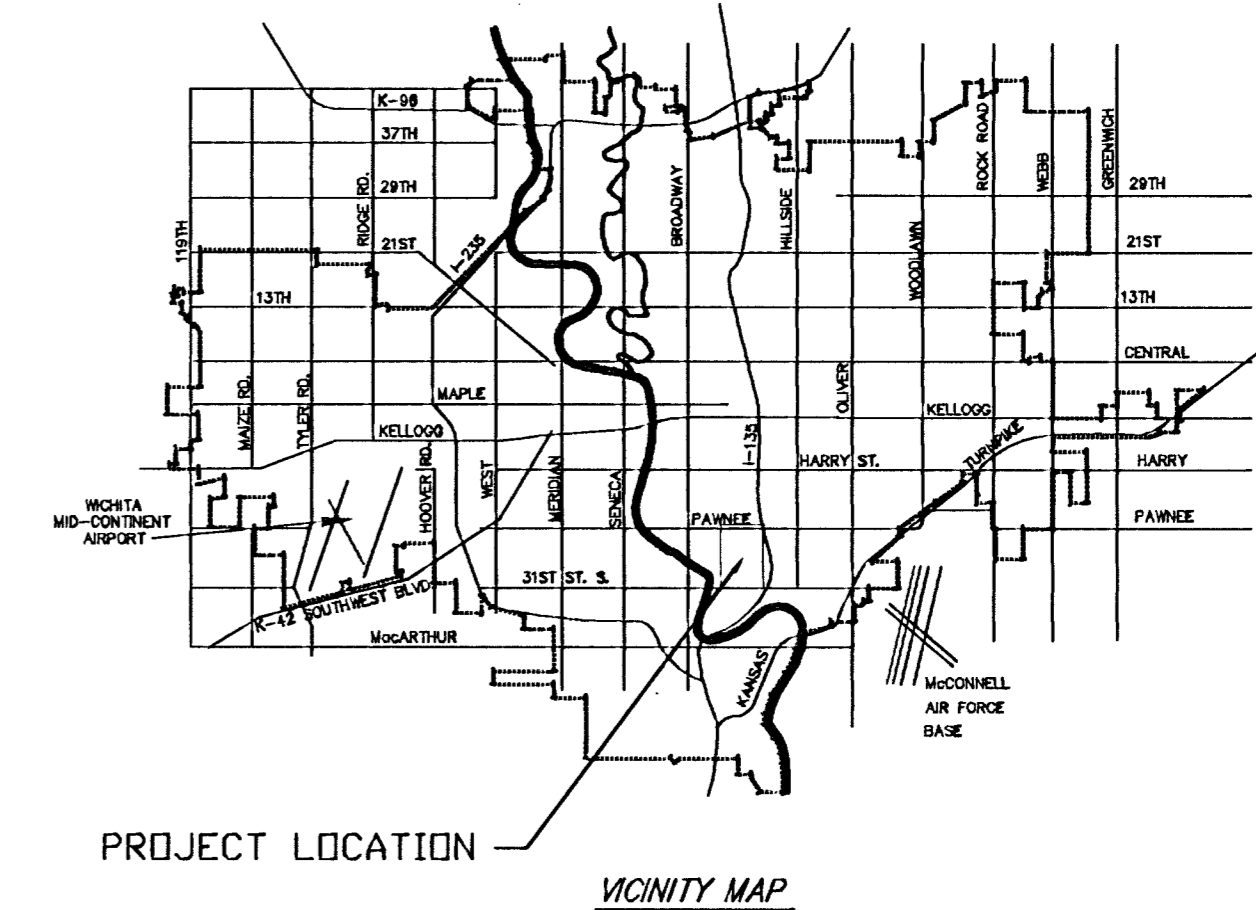
Kansas One-Call	687-2470
-----------------	----------
2. The Contractor must notify the following in case of an emergency:
 

Cablevision	262-0661
Kansas Gas Service	383-8600
KCE	383-8600
Peoples Natural Gas Company	1-800-303-0357
Southwestern Bell Telephone Company	1-800-286-8313
City of Wichita Water Department	262-6000
City of Wichita Sewer Maintenance	262-6000
3. Contractor shall not start work on the project until the project inspector is assigned to the project and is present on the site. Any work done without inspection will be required to be uncovered for inspection.
4. Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of on sites to be provided by the Contractor. These sites shall be approved by the Engineer as to suitability, appearance and site location. Locations that, in the opinion of the Engineer, will leave an unsightly appearance will not be approved.
5. All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas State Board of Agriculture permit. Any material dumped in waters of the United States or wetlands is subject to U.S. Corps of Engineers permitting regulations. Any material buried or stockpiled beyond approved construction limits would require additional archeological investigations unless buried in a previously approved borrow location.
6. Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.
7. The Contractor shall be responsible for preserving property irons. The Contractor will be required to re-establish any property irons which are damaged or destroyed by his construction operations. Such irons shall be re-established by a licensed land surveyor in accordance with state laws.
8. The Contractor shall be responsible for maintaining continuous flow of sewage through construction. Contractor's proposed method for maintaining sewage flow shall be approved by the Engineer. Cost of maintaining flow of sewage through construction will not be paid for directly and this cost shall be considered subsidiary to other pay items of work.
9. All construction involving the new sewer system shall be in accordance with City of Wichita Standard Specifications dated March 1998.
10. Backfill above a depth of 12" over top of sewer pipe shall be compacted to 95% of standard density.
11. Traffic will need to be maintained at all times throughout the project.
12. Removal and resetting of fences on project will be subsidiary to bid item 'Site Clearing and Restoration'.
13. Parking lot striping on project shall be subsidiary to bid item 'Concrete Parking Lot Removed and Replaced'.
14. Contractor shall open the 60" sewer every two hundred feet to verify visually that the pipe is completely filled. Arrangements for access to rear yards shall be Contractors's responsibility.



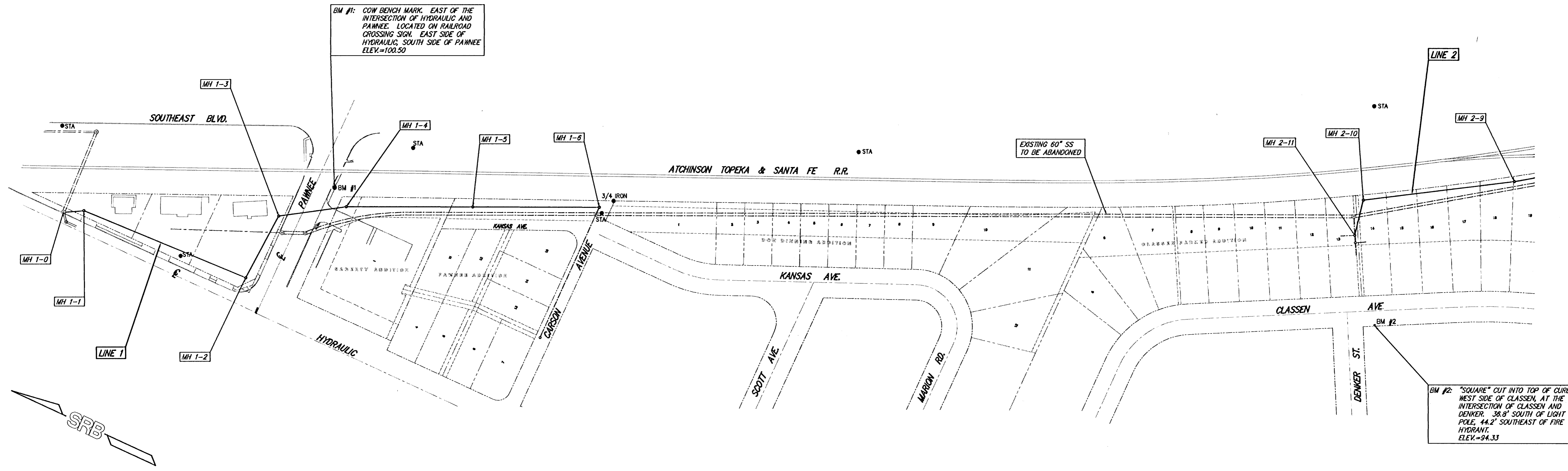
### INDEX

1. TITLE SHEET
2. BENCHMARKS / OVERVIEW
- 3-4. LINE 1
- 5-9. LINE 2
- 10-12. 60" ABANDONMENT (CONT.)
13. LINE 3, LINE 4, LINE 5
14. STANDARD TYPE 'P' MANHOLE
15. SQUARE MANHOLE
16. MANHOLE FRAME AND COVER



Booked  
P-231  
8-2-02  
RDL  
Per Plan

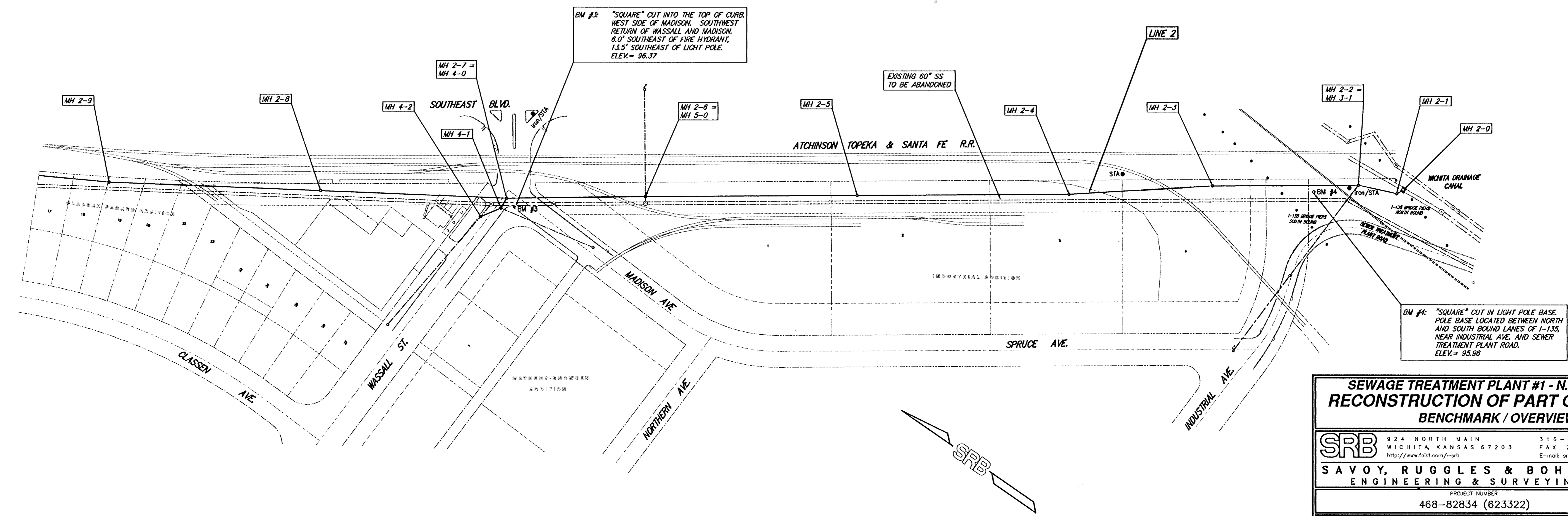




BM #1: COW BENCH MARK, EAST OF THE INTERSECTION OF HYDRAULIC AND PAWNEE. LOCATED ON RAILROAD CROSSING SIGN, EAST SIDE OF HYDRAULIC, SOUTH SIDE OF PAWNEE. ELEV.=100.50

BM #2: "SQUARE" CUT INTO TOP OF CURB, WEST SIDE OF CLASSEN, AT THE INTERSECTION OF CLASSEN AND DENVER. 38.8' SOUTH OF LIGHT POLE, 44.2' SOUTHEAST OF FIRE HYDRANT. ELEV.=94.33

\*\*\* BASELINE FOLLOWS THE CENTER OF EXISTING MANHOLES ON THE 60" SANITARY SEWER LINE \*\*\*  
 \*\*\* BASELINE-1 STA. 20+48.71 = BASELINE-2 STA. 51+51.16 \*\*\*



BM #3: "SQUARE" CUT INTO THE TOP OF CURB, WEST SIDE OF MADISON, SOUTHWEST RETURN OF MASSALL AND MADISON. 6.0' SOUTHEAST OF FIRE HYDRANT, 13.5' SOUTHEAST OF LIGHT POLE. ELEV.= 96.37

BM #4: "SQUARE" CUT IN LIGHT POLE BASE, POLE BASE LOCATED BETWEEN NORTH AND SOUTH BOUND LANES OF I-135, NEAR INDUSTRIAL AVE. AND SEWER TREATMENT PLANT ROAD. ELEV.= 93.98

MANHOLE DIRECTORY	
MANHOLE	SHEET
1-0	3
1-1	3
1-2	3
1-3	3.5
1-4	3.5
1-5	4
1-6	4
2-0	5
2-1	5
2-2	5
2-3	5
2-4	6
2-5	6
2-6	7
2-7	7
2-8	8
2-9	9
2-10	9
2-11	9
3-1	13
4-0	13
4-1	13
4-2	13
5-0	13

**SEWAGE TREATMENT PLANT #1 - N. OF PAWNEE  
 RECONSTRUCTION OF PART OF SS NO. 22  
 BENCHMARK / OVERVIEW**

**SRB** 924 NORTH MAIN 316-264-8008  
 WICHITA, KANSAS 67203 FAX 264-4621  
 http://www.feist.com/~srb E-mail: srb@feist.com

**SAVOY, RUGGLES & BOHM, P. A.  
 ENGINEERING & SURVEYING**

PROJECT NUMBER  
 468-82834 (623322)

DESIGN	MWS	DRAWN	MWS	UTILITY	REVIEW	DATE	01/24/00	REVISED
--------	-----	-------	-----	---------	--------	------	----------	---------

DATE: 01/24/00

PROJECT TITLE: Overview

SHEET: 2 OF 16



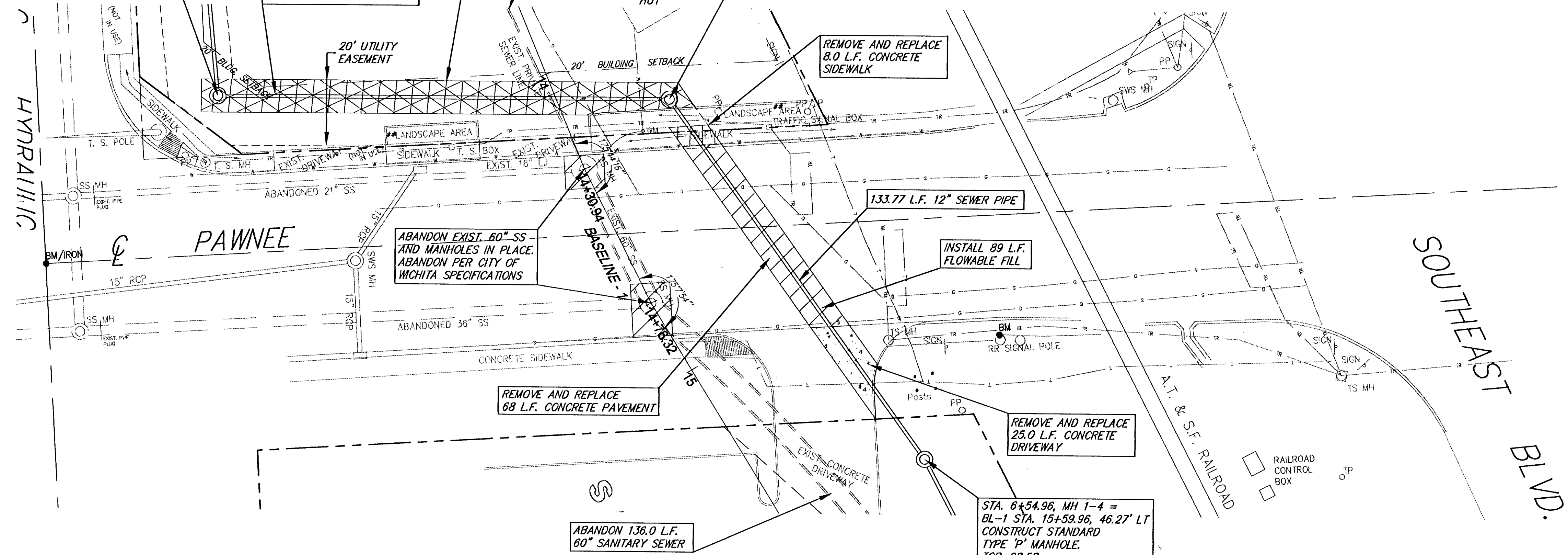
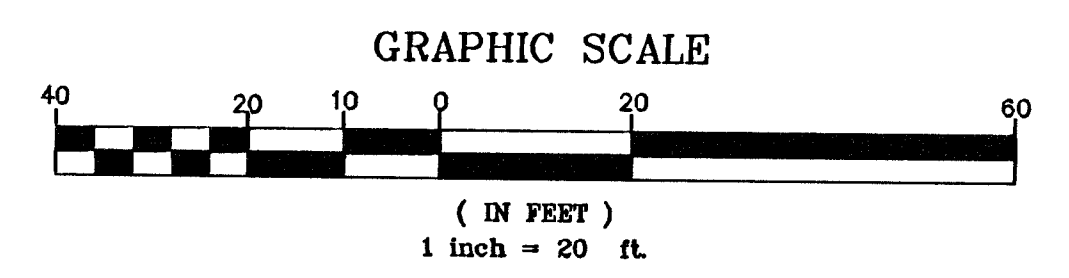
STA. 3+84.06, MH 1-2 =  
BL-1 STA. 13+68.28, 94.69' RT  
CONSTRUCT STANDARD  
TYPE 'P' MANHOLE.  
TOP=-----  
FL OUT (N)=85.10  
FL IN (E)=85.15

REMOVE AND REPLACE  
145 L.F. ASPHALT PAVEMENT

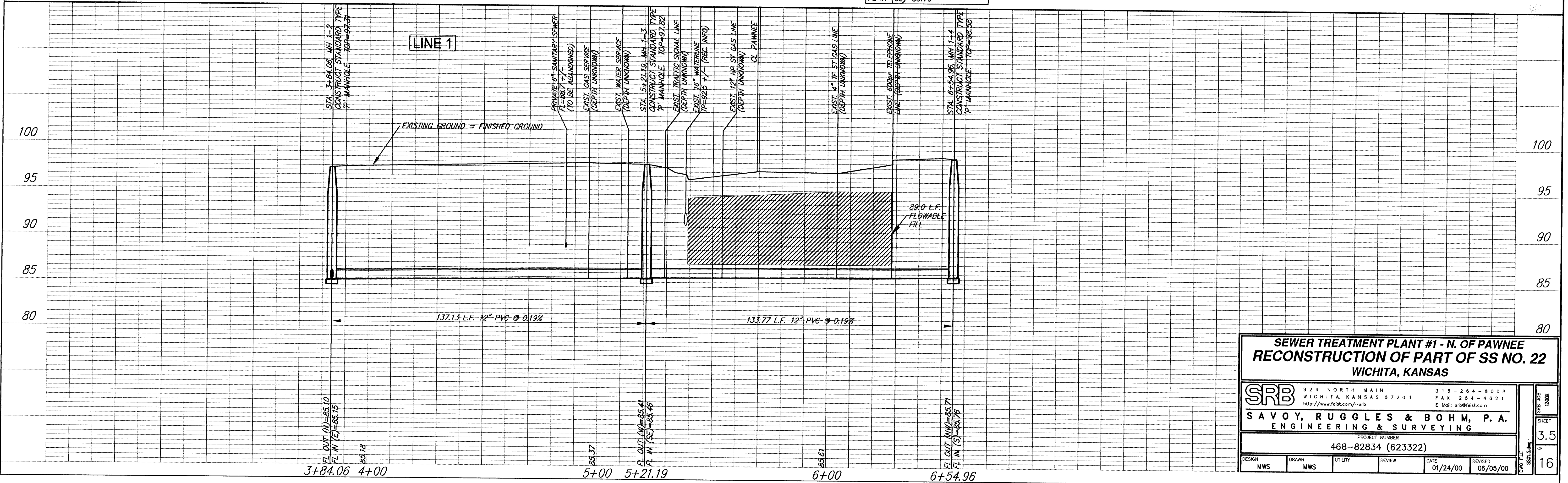
ABANDON 55 L.F.  
6" SANITARY SEWER

STA. 5+21.19, MH 1-3 =  
BL-1 STA. 14+21.19, 31.82' LT  
CONSTRUCT STANDARD  
TYPE 'P' MANHOLE.  
TOP=97.82  
FL OUT (W)=85.41  
FL IN (SE)=85.46

NOTE: CONNECT ALL EXISTING BUILDING SERVICES OVER  
TO THE NEW 12" SANITARY SEWER LINE.  
ALL WYES ON EXISTING PRIVATE LINE ARE 6"  
(RECORDED CITY INFORMATION).



\*\* LANDSCAPE AREA DOES NOT  
NEED TO BE REPLACED



**SEWER TREATMENT PLANT #1 - N. OF PAWNEE  
RECONSTRUCTION OF PART OF SS NO. 22  
WICHITA, KANSAS**

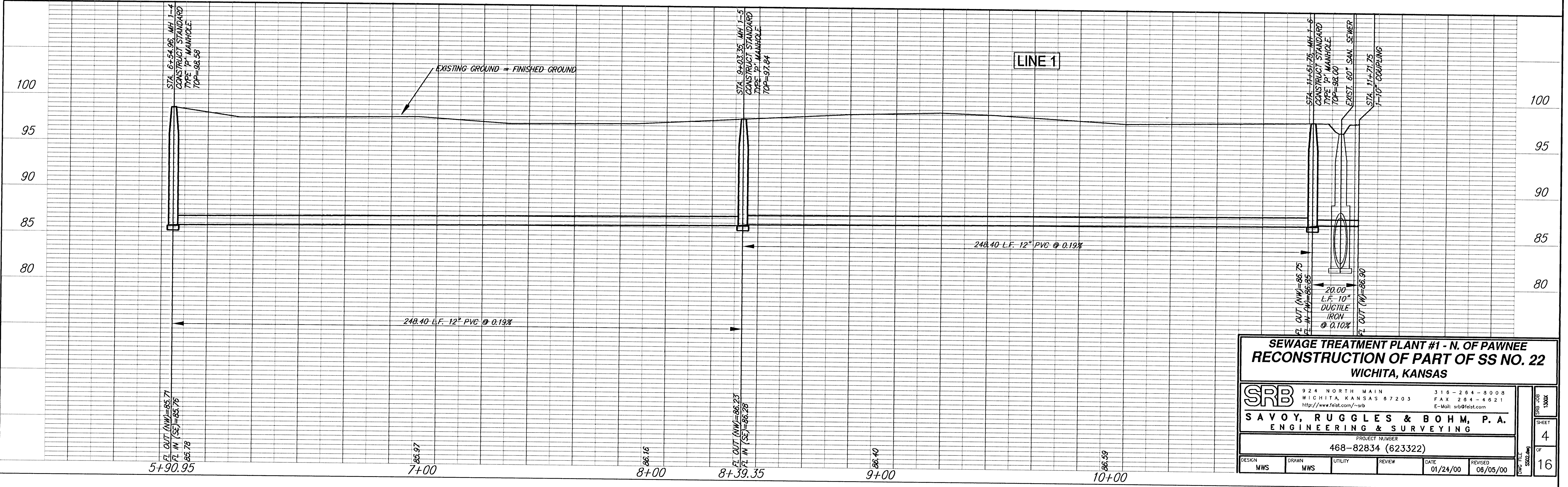
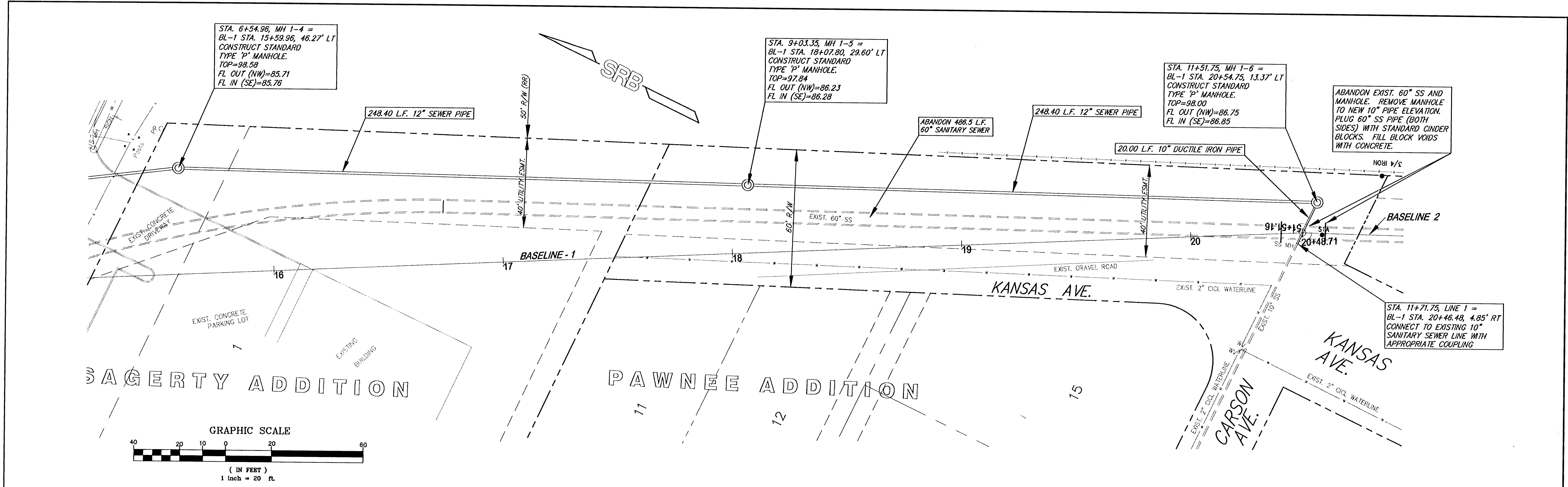
**SRB** 924 NORTH MAIN 316-284-8008  
WICHITA, KANSAS 67203 FAX 316-284-4621  
http://www.feist.com/~srb E-Mail: srb@feist.com

**SAVOY, RUGGLES & BOHM, P. A.**  
ENGINEERING & SURVEYING

PROJECT NUMBER  
468-82834 (623322)

DESIGN MWS	DRAWN MWS	UTILITY	REVIEW	DATE 01/24/00	REVISED 06/05/00
---------------	--------------	---------	--------	------------------	---------------------

SRB JOB NO. 468-82834  
SHEET 3.5 OF 16



**SEWAGE TREATMENT PLANT #1 - N. OF PAWNEE  
 RECONSTRUCTION OF PART OF SS NO. 22  
 WICHITA, KANSAS**

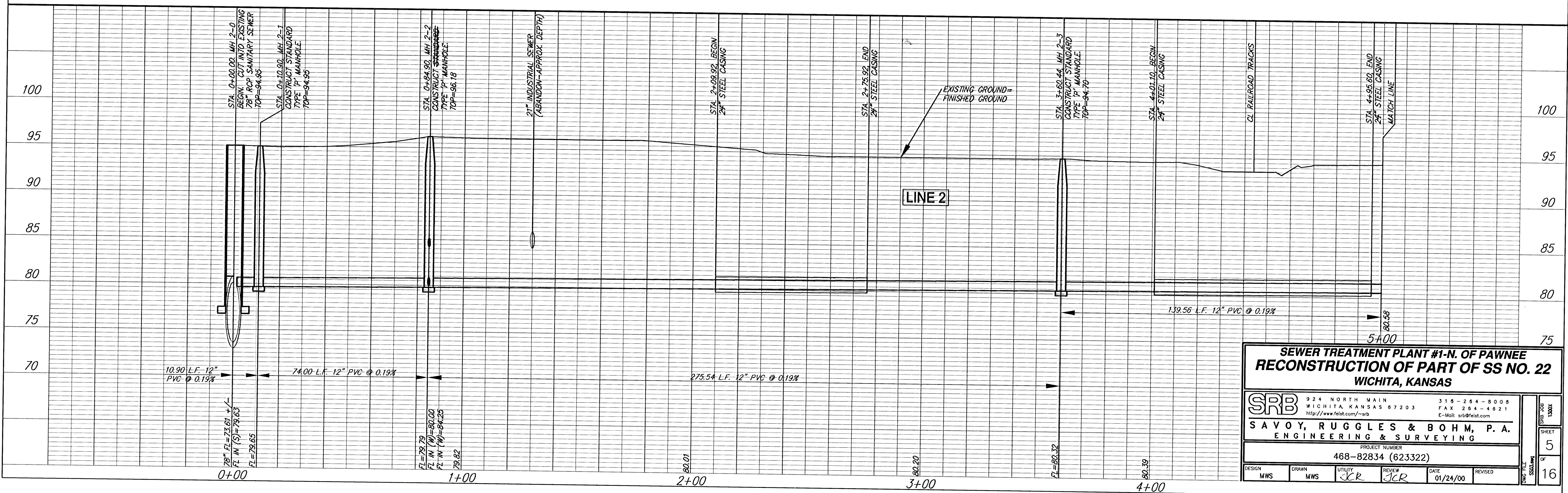
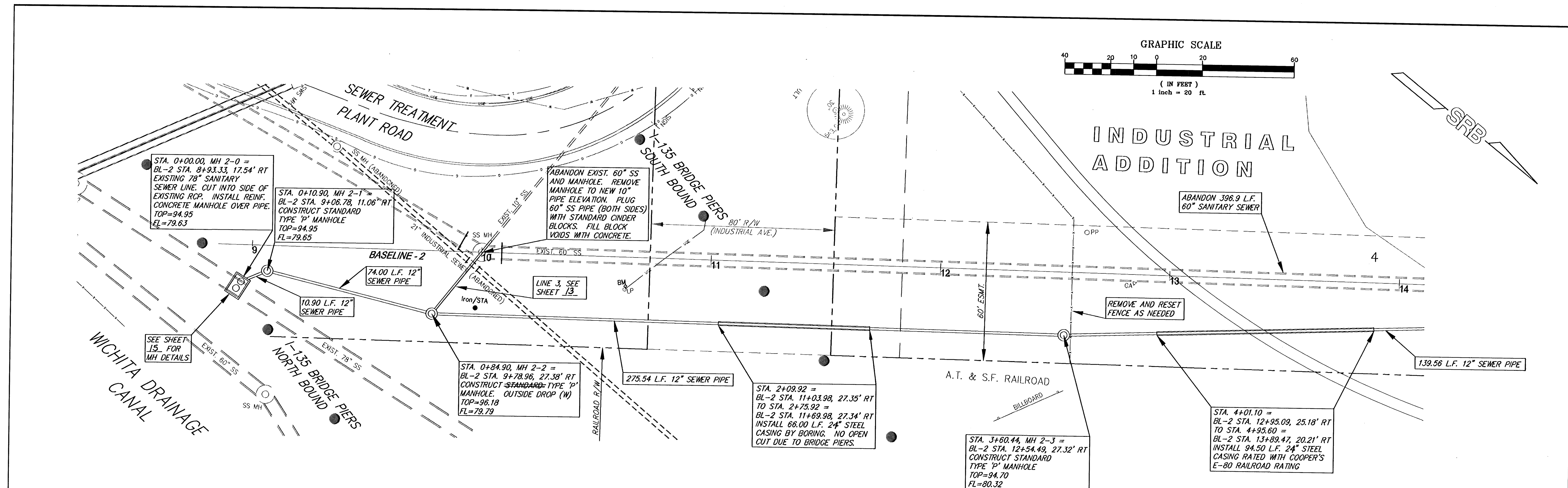
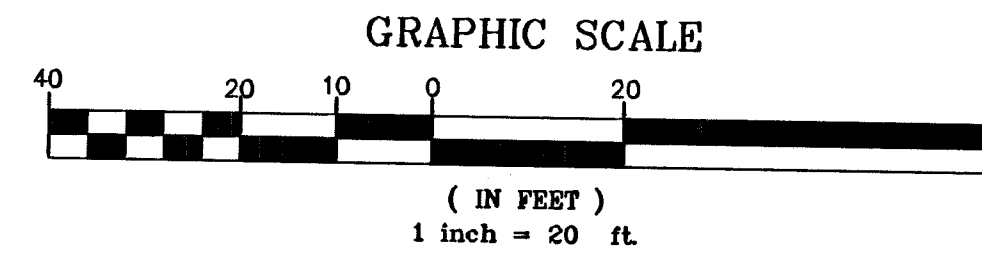
**SRB** 924 NORTH MAIN WICHITA, KANSAS 67203 316-264-8008 FAX 264-4621  
<http://www.srb.com/~srb> E-Mail: srb@st.com

**SAVOY, RUGGLES & BOHM, P.A.**  
 ENGINEERING & SURVEYING

PROJECT NUMBER  
 468-82834 (623322)

DESIGN	MWS	DRAWN	MWS	UTILITY	REVIEW	DATE	01/24/00	REVISED	06/05/00
--------	-----	-------	-----	---------	--------	------	----------	---------	----------

DESIGNER: MWS  
 DRAWN: MWS  
 SHEET: 4 OF 16



**SEWER TREATMENT PLANT #1-N. OF PAWNEE  
 RECONSTRUCTION OF PART OF SS NO. 22  
 WICHITA, KANSAS**

**SRB** 924 NORTH MAIN 316-264-8008  
 WICHITA KANSAS 67203 FAX 264-4621  
 http://www.fest.com/~srb E-Mail: srb@fest.com

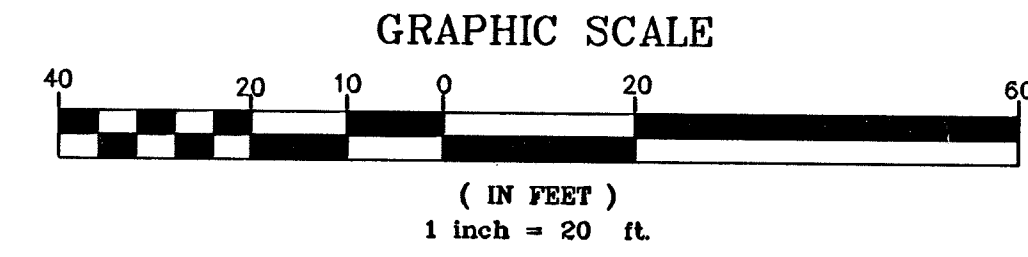
**SAVOY, RUGGLES & BOHM, P.A.**  
 ENGINEERING & SURVEYING

PROJECT NUMBER  
 468-82834 (623322)

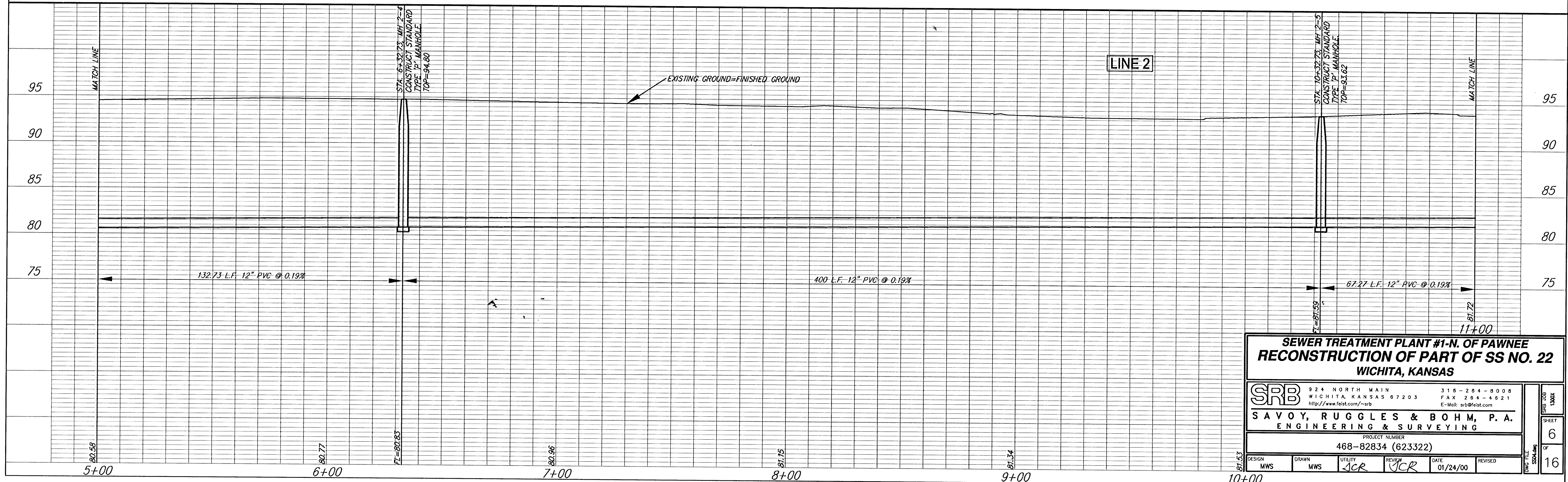
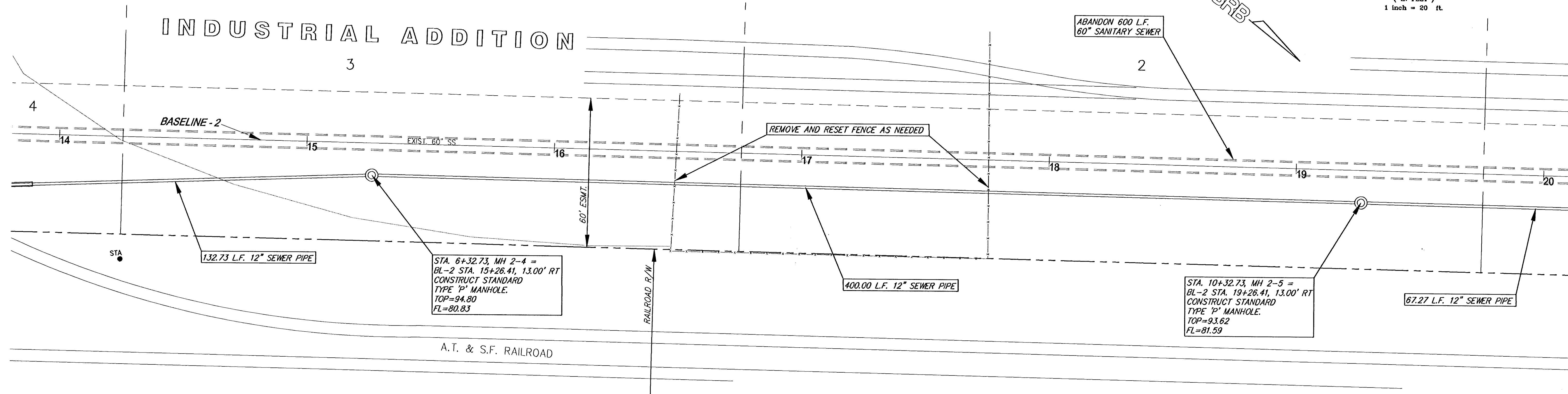
DESIGN	MWS	DRAWN	MWS	UTILITY	JCR	REVIEW	JCR	DATE	01/24/00	REVISED	
--------	-----	-------	-----	---------	-----	--------	-----	------	----------	---------	--

PROJECT NUMBER  
 468-82834 (623322)

SRB JOB 13001  
 SHEET 5 OF 16



# INDUSTRIAL ADDITION



**SEWER TREATMENT PLANT #1-N. OF PAWNEE  
 RECONSTRUCTION OF PART OF SS NO. 22  
 WICHITA, KANSAS**

**SRB** 924 NORTH MAIN 316-264-8008  
 WICHITA, KANSAS 67203 FAX 264-4921  
 http://www.feist.com/~srb E-Mail: srb@feist.com

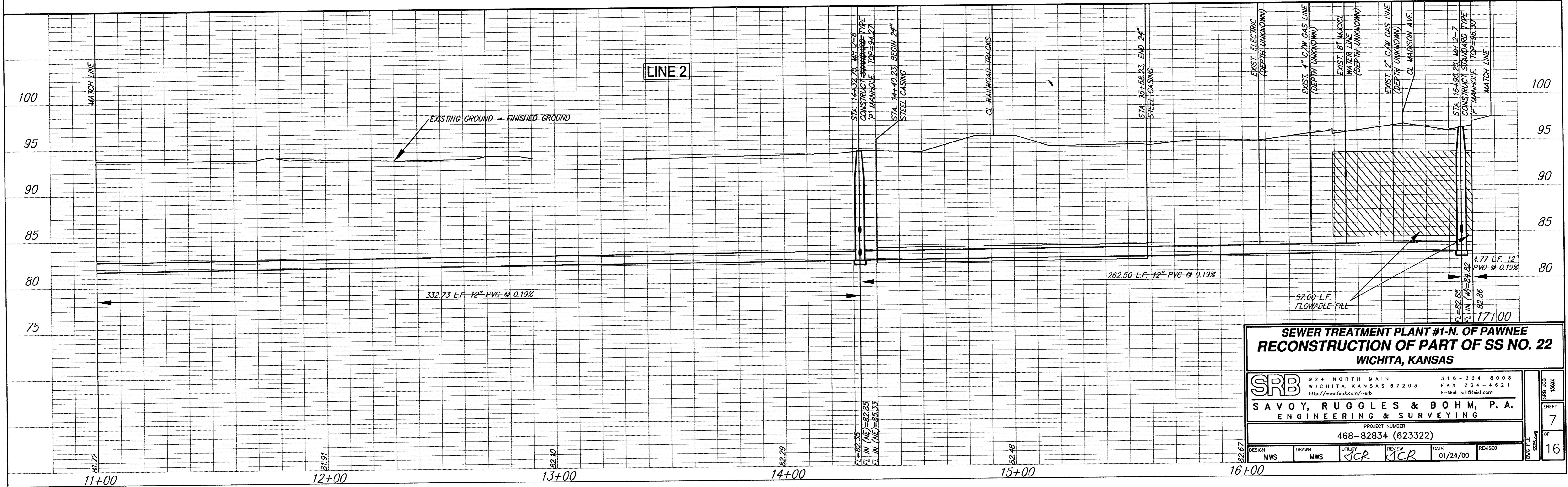
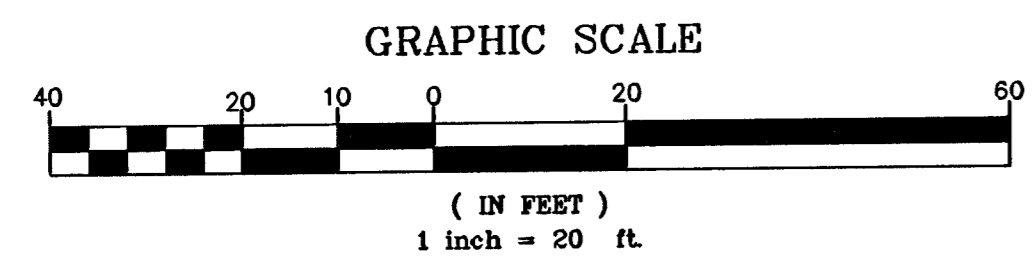
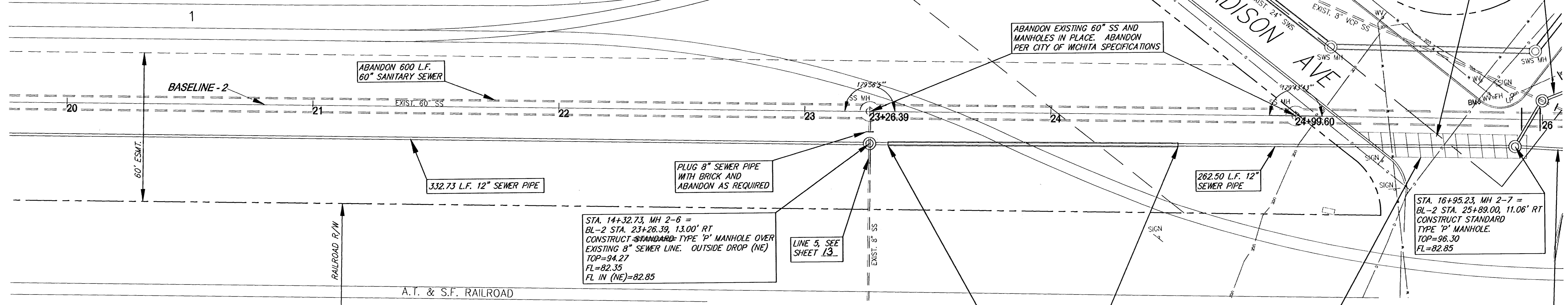
**SAVOY, RUGGLES & BOHM, P. A.  
 ENGINEERING & SURVEYING**

PROJECT NUMBER  
 468-82834 (623322)

DESIGN MWS	DRAWN MWS	UTILITY JCR	REVISION JCR	DATE 01/24/00	REVISED
---------------	--------------	----------------	-----------------	------------------	---------

DESIGNER: MWS  
 DRAWN: MWS  
 UTILITY: JCR  
 REVISION: JCR  
 DATE: 01/24/00  
 SHEET 6 OF 16

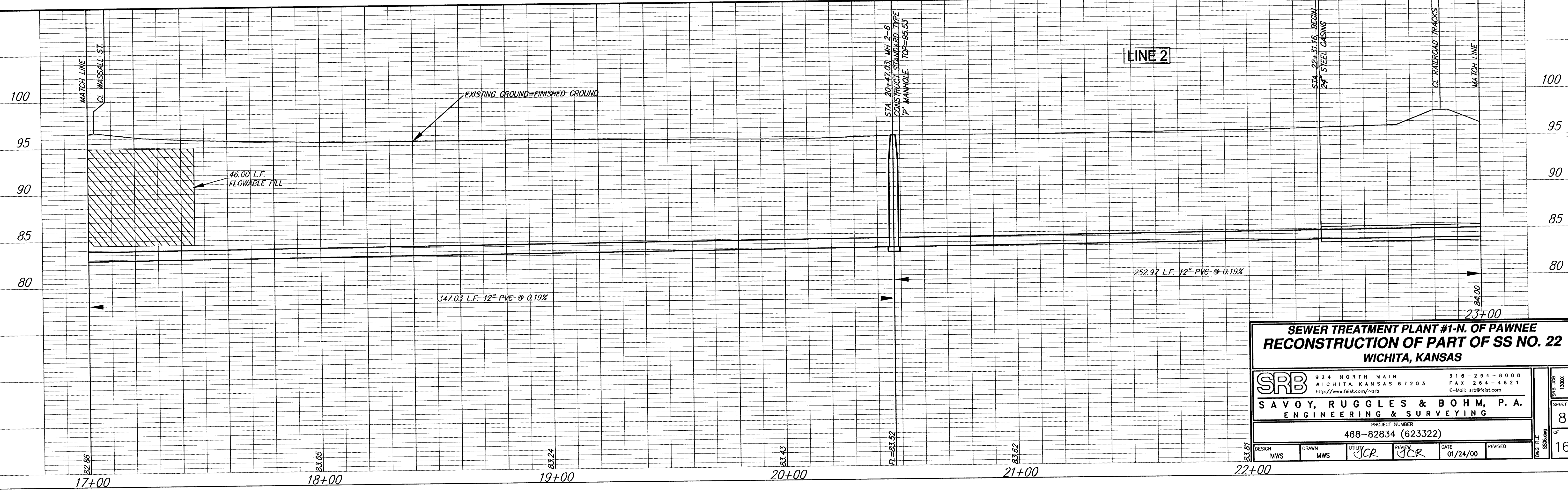
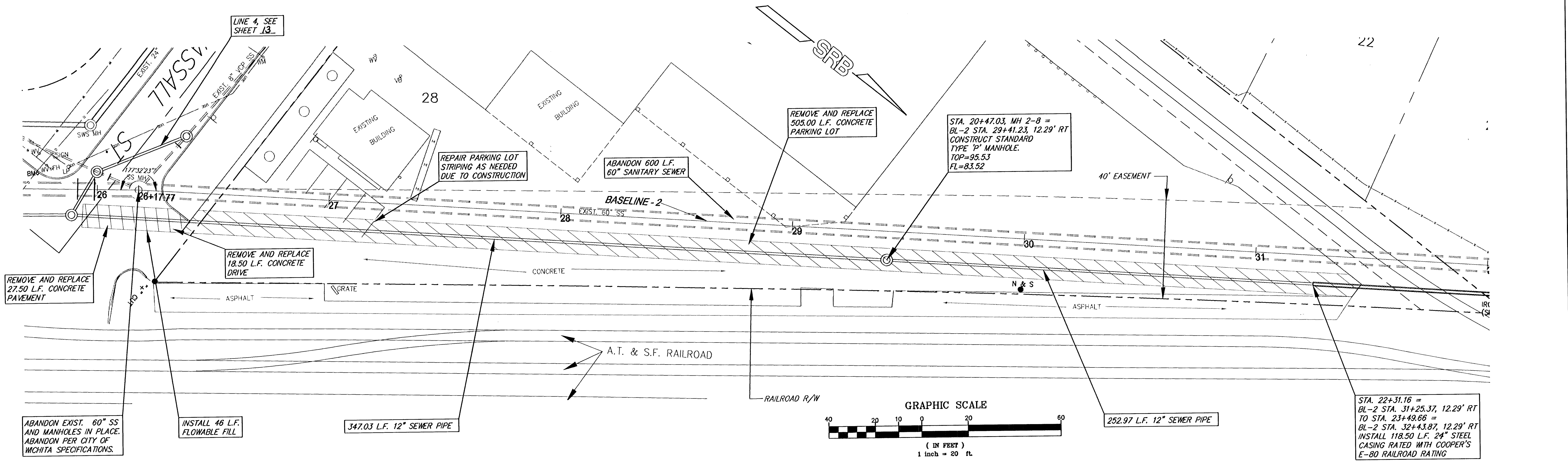
# INDUSTRIAL ADDITION



**SEWER TREATMENT PLANT #1-N. OF PAWNEE  
RECONSTRUCTION OF PART OF SS NO. 22  
WICHITA, KANSAS**

<b>SRB</b>	924 NORTH MAIN WICHITA, KANSAS 67203 http://www.feist.com/~srb	316-264-8008 FAX 264-4621 E-Mail: srb@feist.com
<b>SAVOY, RUGGLES &amp; BOHM, P. A.</b> ENGINEERING & SURVEYING		
PROJECT NUMBER 468-82834 (623322)		
DESIGN MWS	DRAWN MWS	UTILITY KCR
REVIEW KCR	DATE 01/24/00	REVISED

DATE PLOTTED: 02/05/00 1:00X  
SHEET 7 OF 16



**SEWER TREATMENT PLANT #1-N. OF PAWNEE  
RECONSTRUCTION OF PART OF SS NO. 22  
WICHITA, KANSAS**

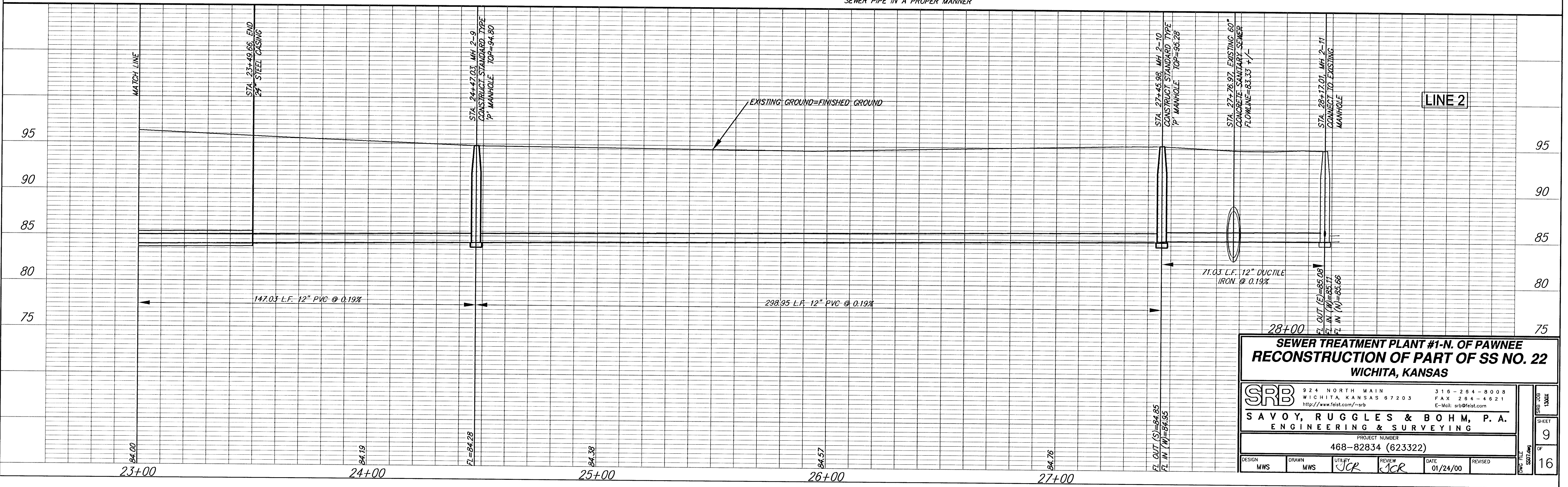
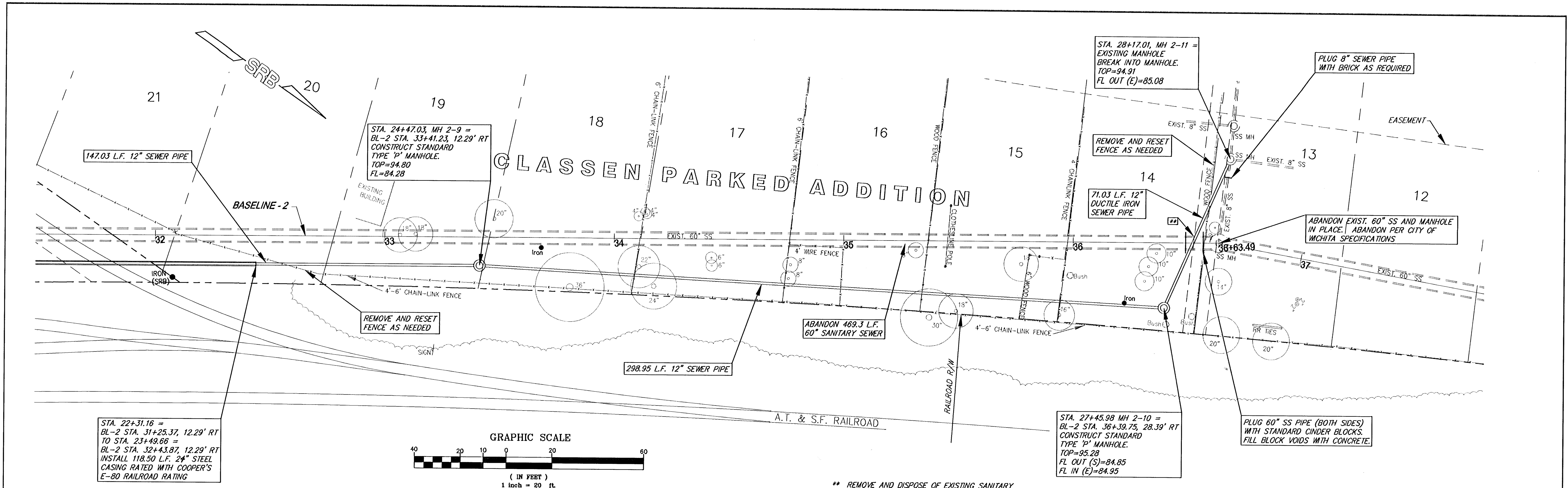
**SRB** 924 NORTH MAIN WICHITA, KANSAS 67203 316-264-8008  
http://www.feist.com/~srb E-Mail: srb@feist.com

**SAVOY, RUGGLES & BOHM, P. A.  
ENGINEERING & SURVEYING**

PROJECT NUMBER: 468-82834 (623322)

DESIGN: MWS	DRAWN: MWS	UTILITY: JCR	REVIEW: JCR	DATE: 01/24/00	REVISED:
-------------	------------	--------------	-------------	----------------	----------

DATE PLOTTED: 01/24/00  
SHEET NO. 8 OF 16



**SEWER TREATMENT PLANT #1-N. OF PAWNEE  
RECONSTRUCTION OF PART OF SS NO. 22  
WICHITA, KANSAS**

**SRB** 324 NORTH MAIN 316-264-8008  
WICHITA, KANSAS 67203 FAX 264-4621  
http://www.feist.com/~srb E-Mail: srb@feist.com

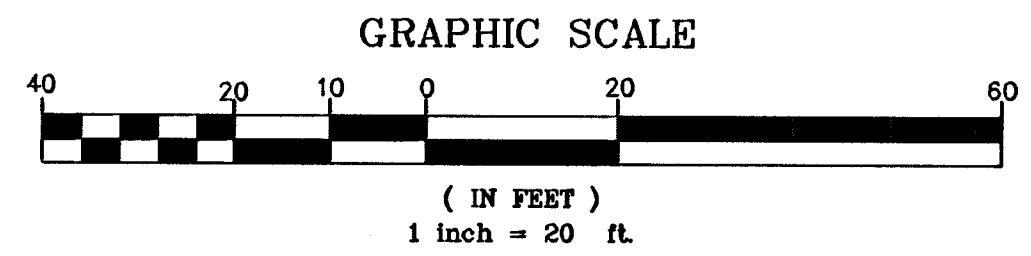
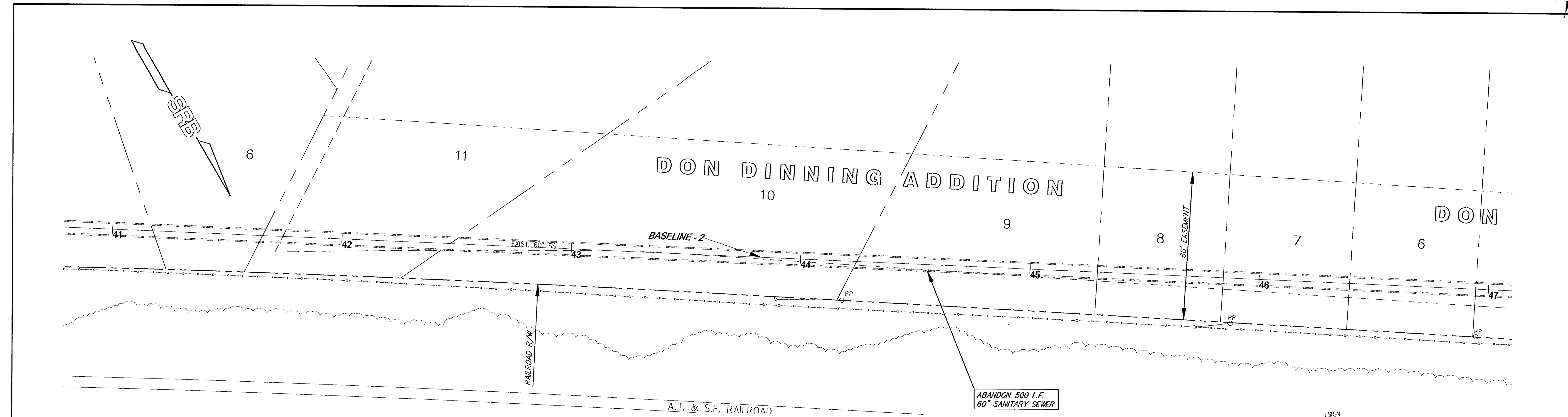
**SAVOY, RUGGLES & BOHM, P.A.**  
ENGINEERING & SURVEYING

PROJECT NUMBER  
468-82834 (623322)

DESIGN MWS	DRAWN MWS	UTILITY JCR	REVIEW JCR	DATE 01/24/00	REVISED
---------------	--------------	----------------	---------------	------------------	---------

PROJECT JOB BOOK  
SHEET 9 OF 16

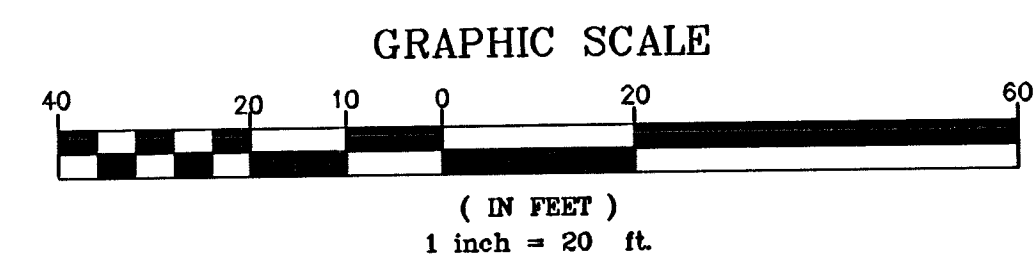
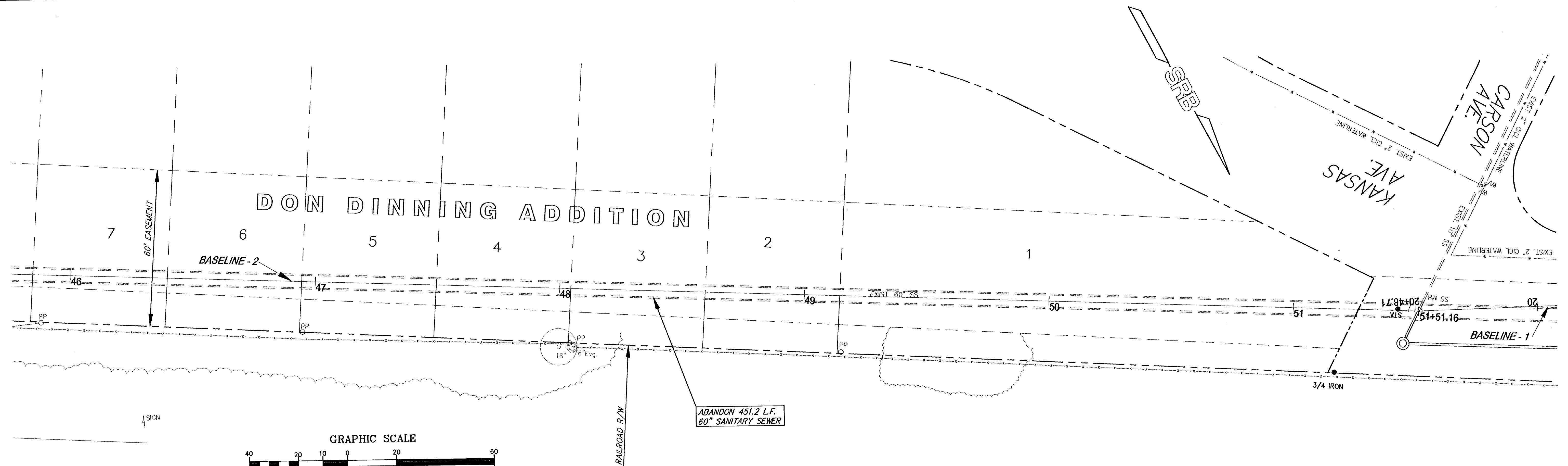




**SEWAGE TREATMENT PLANT #1 - N. OF PAWNEE  
 RECONSTRUCTION OF PART OF SS NO. 22  
 WICHITA, KANSAS**

<b>SRB</b>	924 NORTH MAIN WICHITA, KANSAS 67203 <a href="http://www.feist.com/~srb">http://www.feist.com/~srb</a>	316-264-8008 FAX 316-264-4621 E-Mail: <a href="mailto:srb@feist.com">srb@feist.com</a>
	<b>SAVOY, RUGGLES &amp; BOHM, P. A. ENGINEERING &amp; SURVEYING</b>	
PROJECT NUMBER 468-82834 (623322)		
DESIGN MWS	DRAWN MWS	UTILTY JCR
REVIEW JCR	DATE 01/24/00	REVISED

SRB JOB NUMBER	11
SHEET	OF
16	16



<b>SEWAGE TREATMENT PLANT #1 - N. OF PAWNEE RECONSTRUCTION OF PART OF SS NO. 22 WICHITA, KANSAS</b>					
<b>SRB</b>		924 NORTH MAIN WICHITA, KANSAS 67203 <a href="http://www.festat.com/~srb">http://www.festat.com/~srb</a>	316-264-8008 FAX 264-4821 E-Mail: <a href="mailto:srb@festat.com">srb@festat.com</a>	SHEET <b>12</b> OF <b>16</b>	
<b>SAVOY, RUGGLES &amp; BOHM, P. A. ENGINEERING &amp; SURVEYING</b>					
PROJECT NUMBER 468-82834 (623322)					
DESIGN MWS	DRAWN MWS	UTILITY JCR	REVIEW JCR	DATE 01/24/00	REVISED

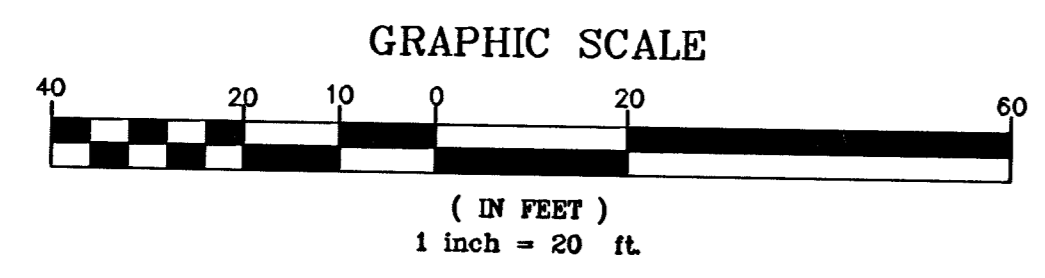
STA. 0+00.00, MH 3-1 =  
STA. 0+84.90, MH 2-2  
BL-2 STA. 9+78.96, 27.38' RT  
INSTALL OUTSIDE DROP  
TOP=96.18  
FL IN (W)=80.00  
FL IN (E)=84.25

41.00 L.F. 10"  
DUCTILE IRON  
SEWER PIPE

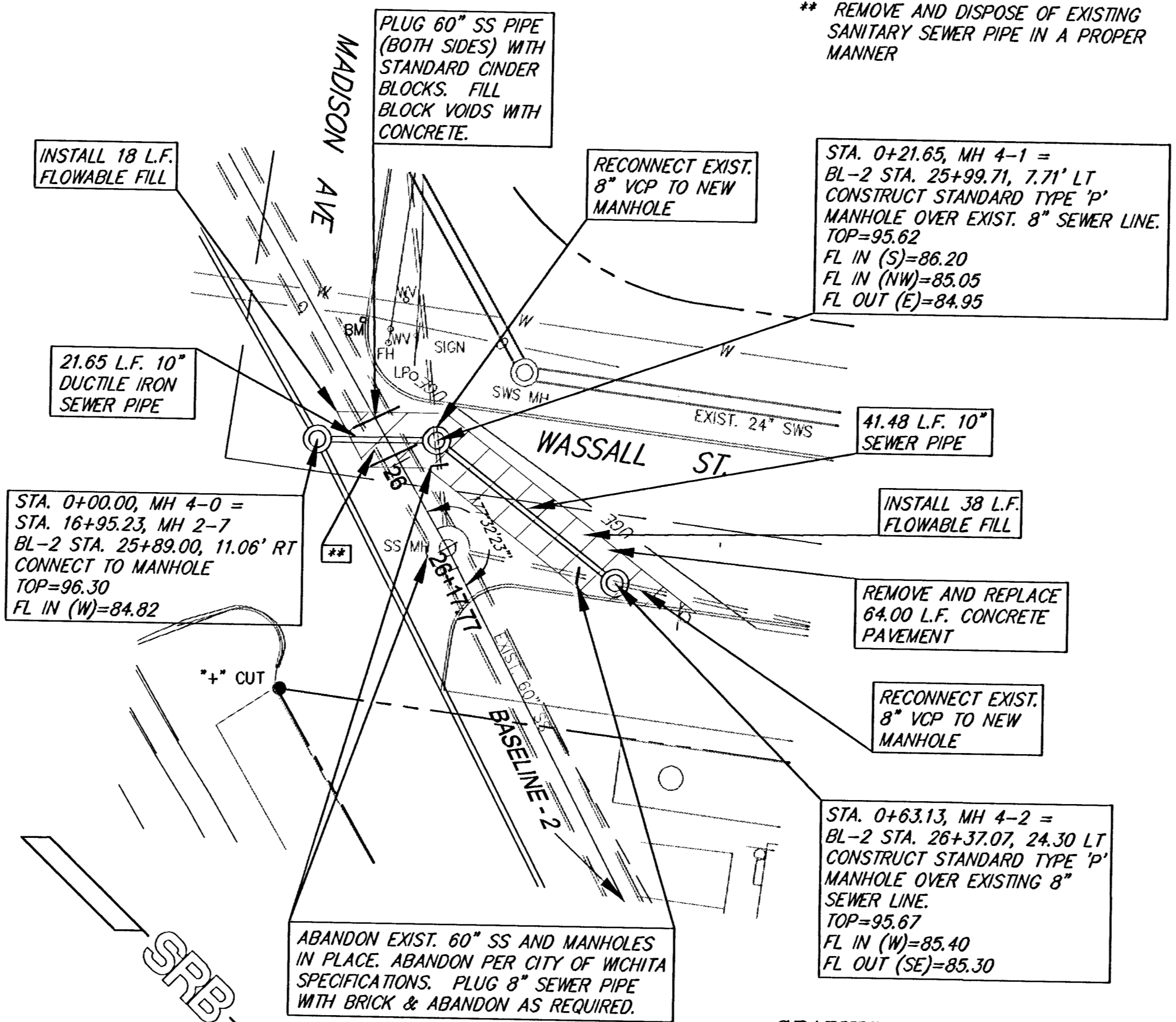
STA. 0+41.00, LINE 3  
CONNECT TO EXISTING  
10" SANITARY SEWER  
LINE WITH APPROPRIATE  
COUPLING

PLUG 21" SEWER PIPE  
(BOTH SIDES) WITH  
BRICK AS REQUIRED

ABANDON EXIST. 60" SS  
AND MANHOLE. REMOVE  
MANHOLE TO NEW 10"  
PIPE ELEVATION. PLUG  
60" SS PIPE (BOTH SIDES)  
WITH STANDARD CINDER  
BLOCKS. FILL BLOCK VOIDS  
WITH CONCRETE.



\*\* REMOVE AND DISPOSE OF EXISTING  
SANITARY SEWER PIPE IN A PROPER  
MANNER



INSTALL 18 L.F.  
FLOWABLE FILL

RECONNECT EXIST.  
8" VCP TO NEW  
MANHOLE

\*\* REMOVE AND DISPOSE OF EXISTING  
SANITARY SEWER PIPE IN A PROPER  
MANNER

STA. 0+21.65, MH 4-1 =  
BL-2 STA. 25+99.71, 7.71' LT  
CONSTRUCT STANDARD TYPE 'P'  
MANHOLE OVER EXIST. 8" SEWER LINE.  
TOP=95.62  
FL IN (S)=86.20  
FL IN (NW)=85.05  
FL OUT (E)=84.95

21.65 L.F. 10"  
DUCTILE IRON  
SEWER PIPE

41.48 L.F. 10"  
SEWER PIPE

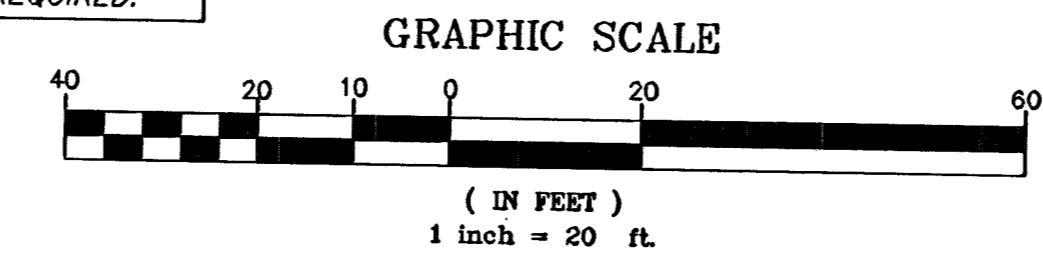
INSTALL 38 L.F.  
FLOWABLE FILL

REMOVE AND REPLACE  
64.00 L.F. CONCRETE  
PAVEMENT

RECONNECT EXIST.  
8" VCP TO NEW  
MANHOLE

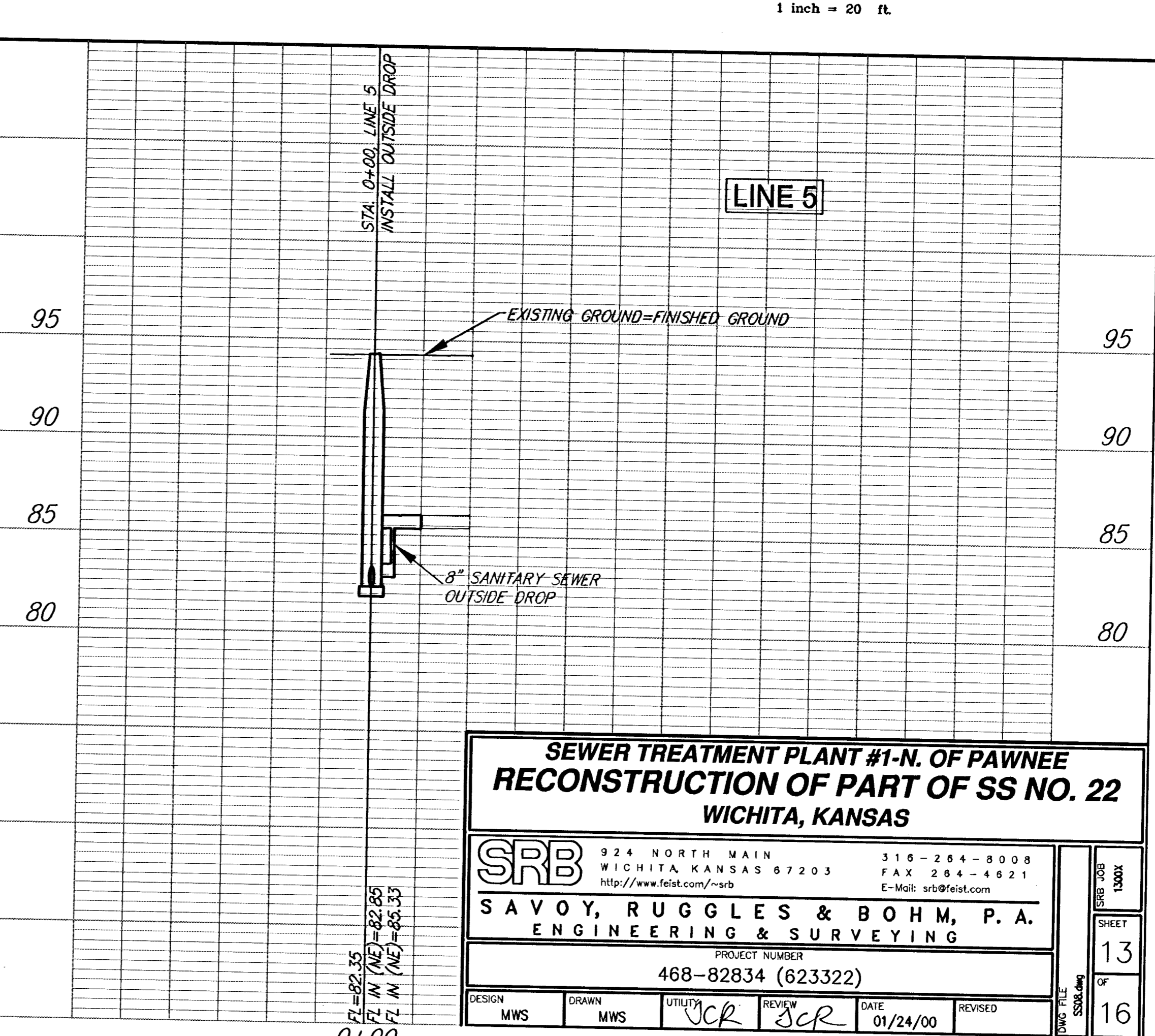
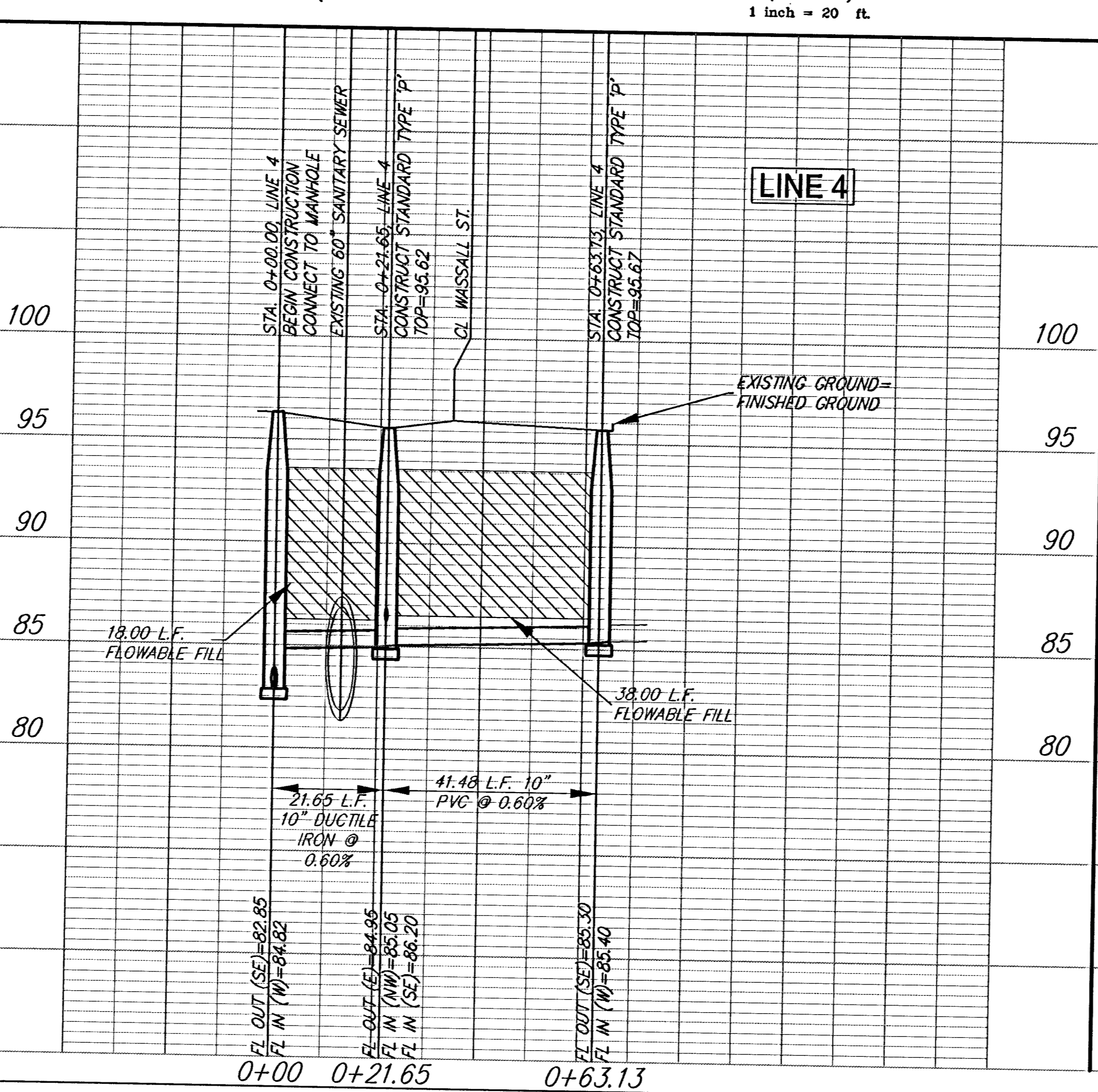
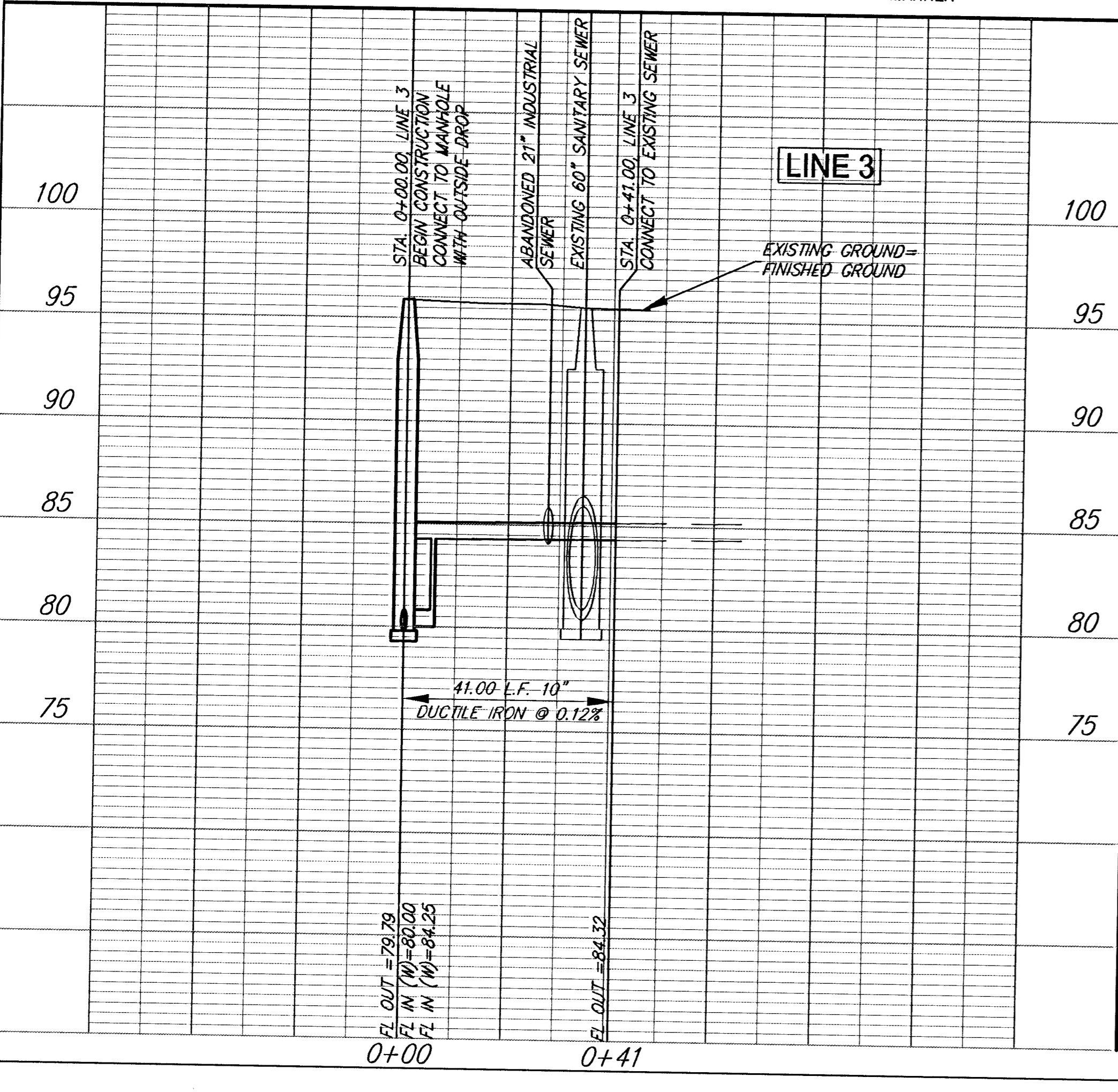
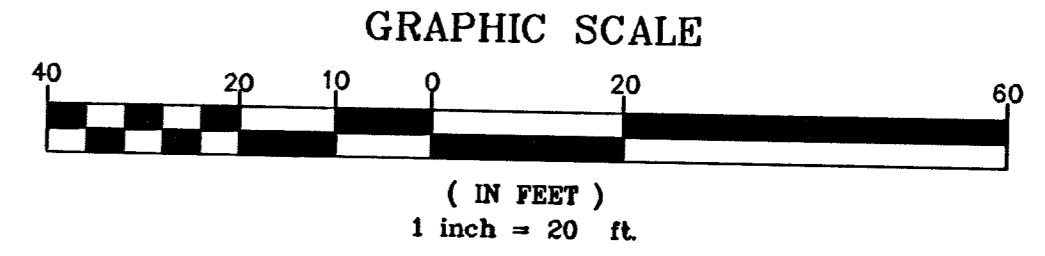
STA. 0+63.13, MH 4-2 =  
BL-2 STA. 26+37.07, 24.30 LT  
CONSTRUCT STANDARD TYPE 'P'  
MANHOLE OVER EXISTING 8"  
SEWER LINE.  
TOP=95.67  
FL IN (W)=85.40  
FL OUT (SE)=85.30

ABANDON EXIST. 60" SS AND MANHOLES  
IN PLACE. ABANDON PER CITY OF WICHITA  
SPECIFICATIONS. PLUG 8" SEWER PIPE  
WITH BRICK & ABANDON AS REQUIRED.



PLUG 8" SEWER PIPE  
WITH BRICK AS REQUIRED

STA. 0+00, MH 5-0 =  
STA. 14+32.73, MH 2-6  
BL-2 STA. 23+26.39, 13.00' RT  
INSTALL OUTSIDE DROP WITH  
EXIST. 8" SS INTO NEW MANHOLE  
TOP=94.27  
FL IN (NE)=82.85  
FL IN (SE)=85.33



**SEWER TREATMENT PLANT #1-N. OF PAWNEE  
RECONSTRUCTION OF PART OF SS NO. 22  
WICHITA, KANSAS**

**SRB**  
SAVOY, RUGGLES & BOHM, P. A.  
ENGINEERING & SURVEYING

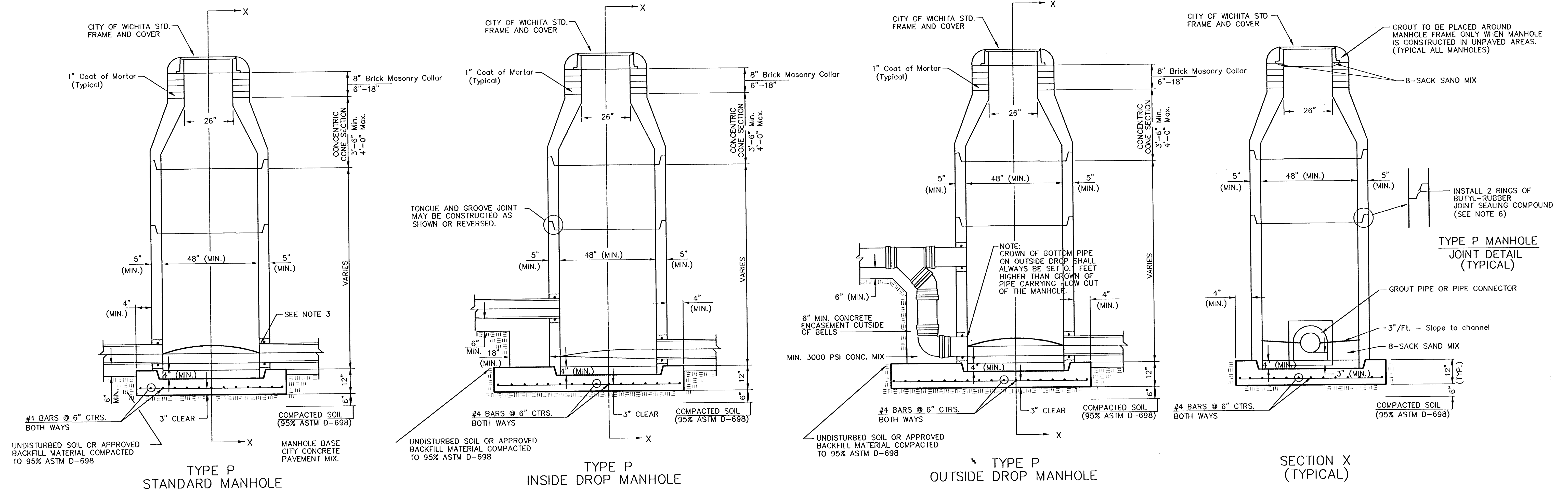
924 NORTH MAIN WICHITA, KANSAS 67203 315-254-8008  
FAX 254-44921  
http://www.feist.com/~srb E-Mail: srb@feist.com

PROJECT NUMBER  
468-82834 (623322)

DESIGN MWS DRAWN MWS UTILITY VCR REVIEW SCR DATE 01/24/00 REVISED

SHEET 13 OF 16

# SEWER APPURTENANCES DETAILS



## GENERAL NOTES

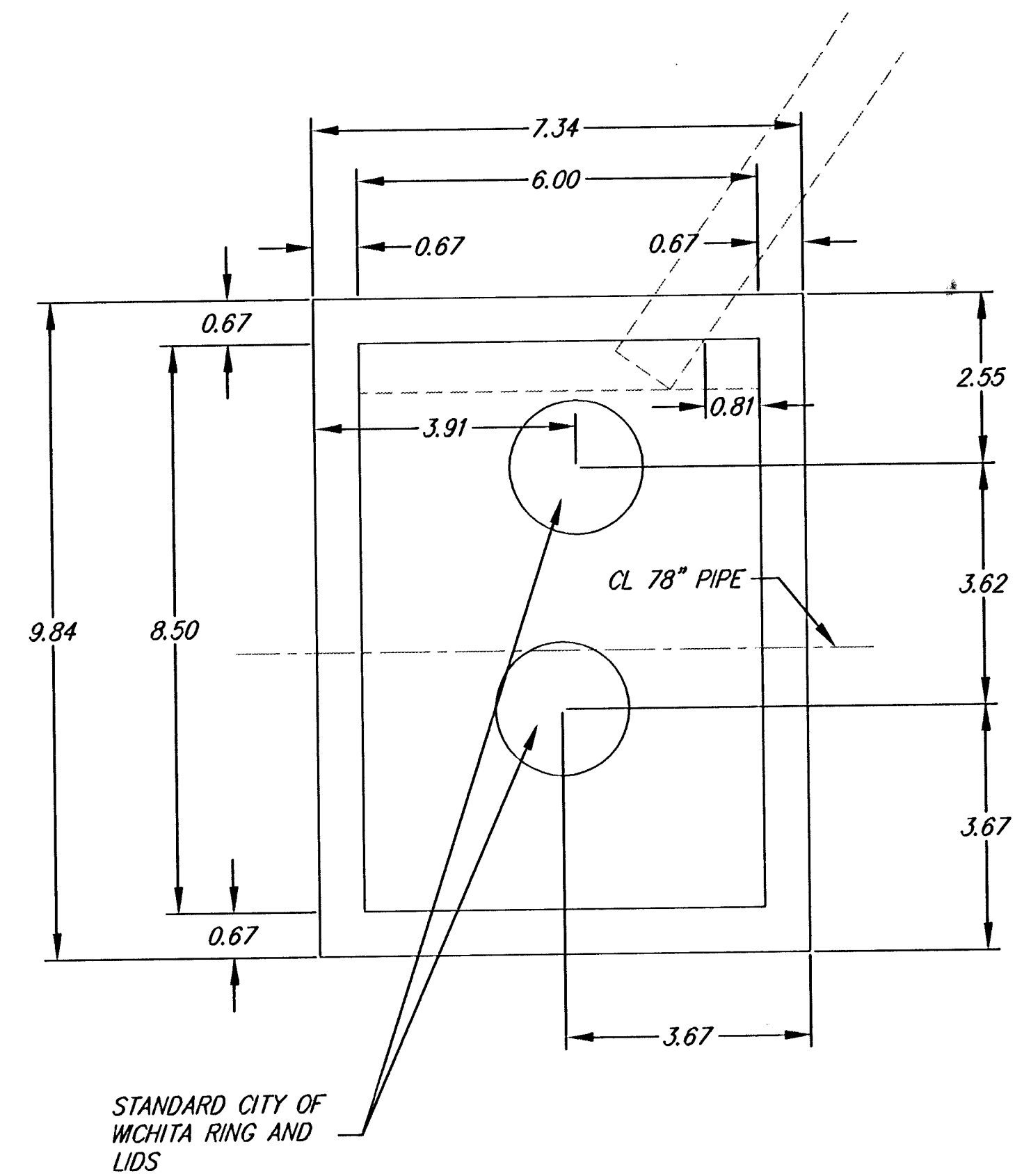
### PRECAST MANHOLE NOTES

- ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
- NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
- APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUDED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
- ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS TNE MEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.)
- EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
- JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
- PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
- TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
- LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4". MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.

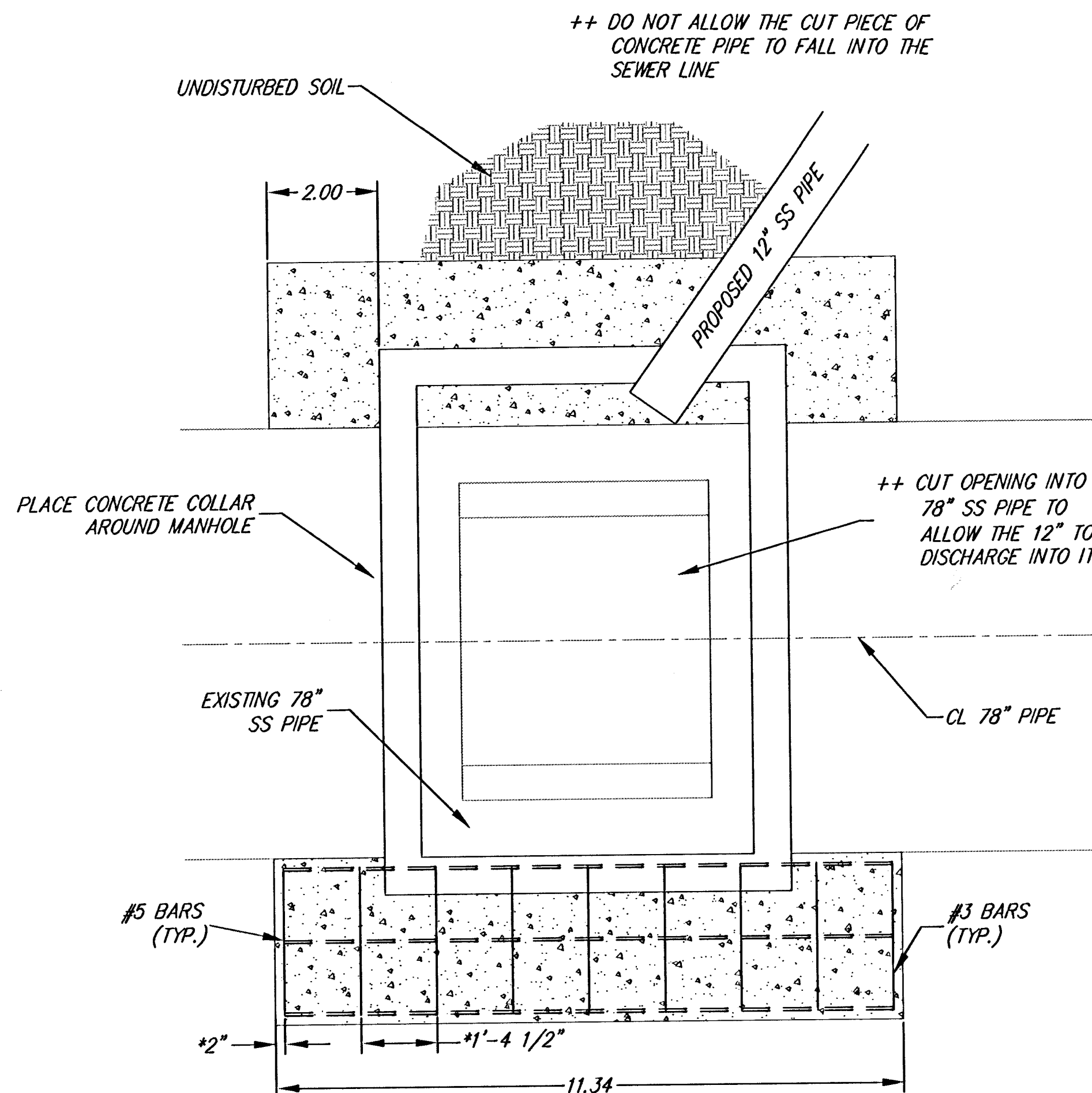
- REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUDED THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUDED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
- THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
- PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MAHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.

- MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
- A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.

<p>THE CITY OF WICHITA</p> <p>CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 453 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4500 (316) 268-4114 FAX</p>	<b>STANDARD TYPE 'P' MANHOLES</b>	
	M. E. UNDEBAK P.E. - CITY ENGINEER	
	PROJECT NUMBER 468-82834	OCA # 623322
	DATE MAR 98	SHEET 14 OF 16

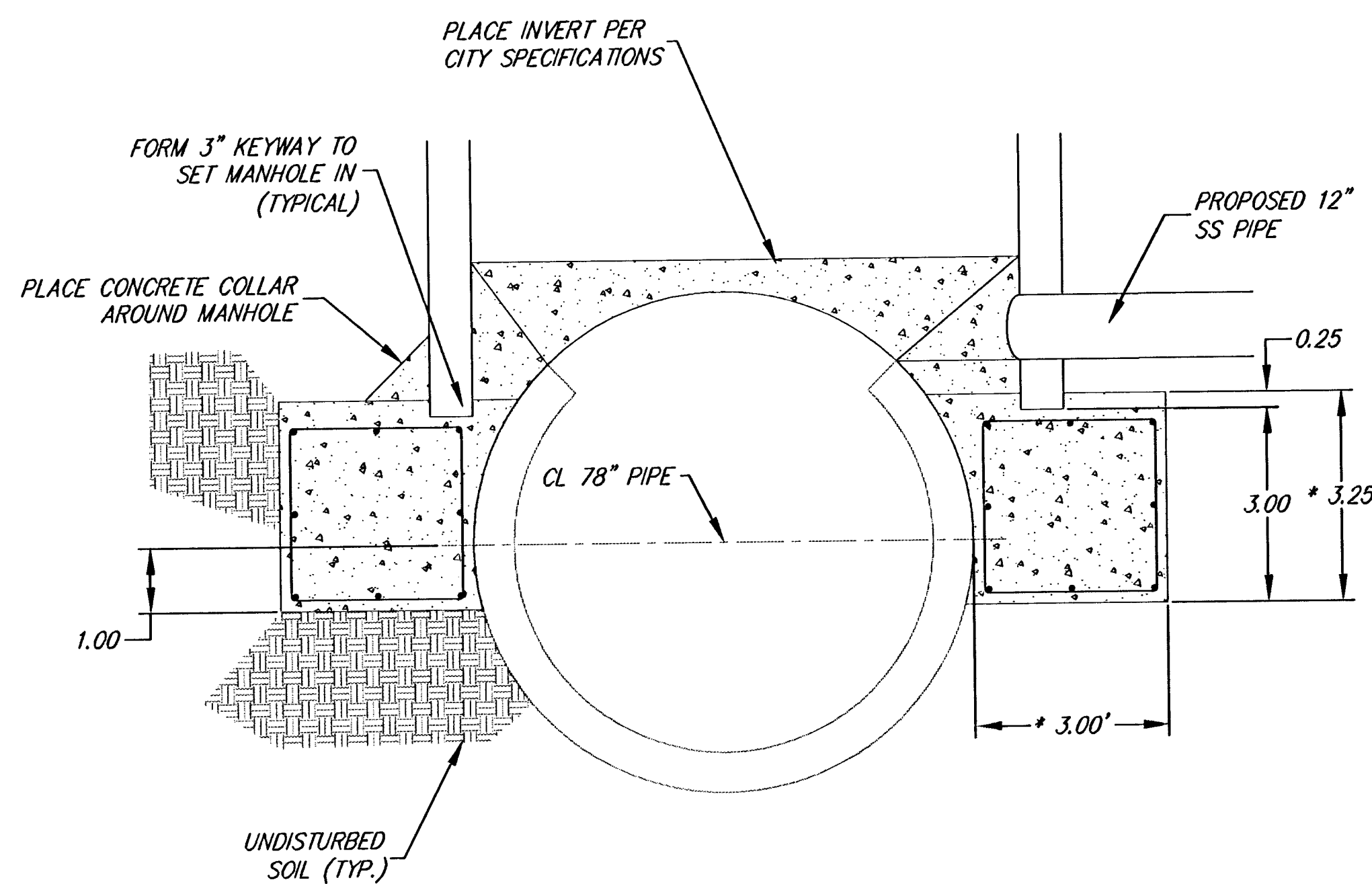
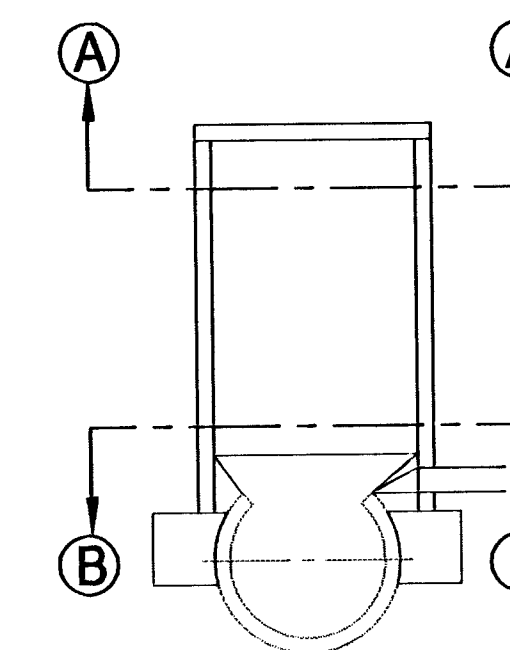


SECTION A-A

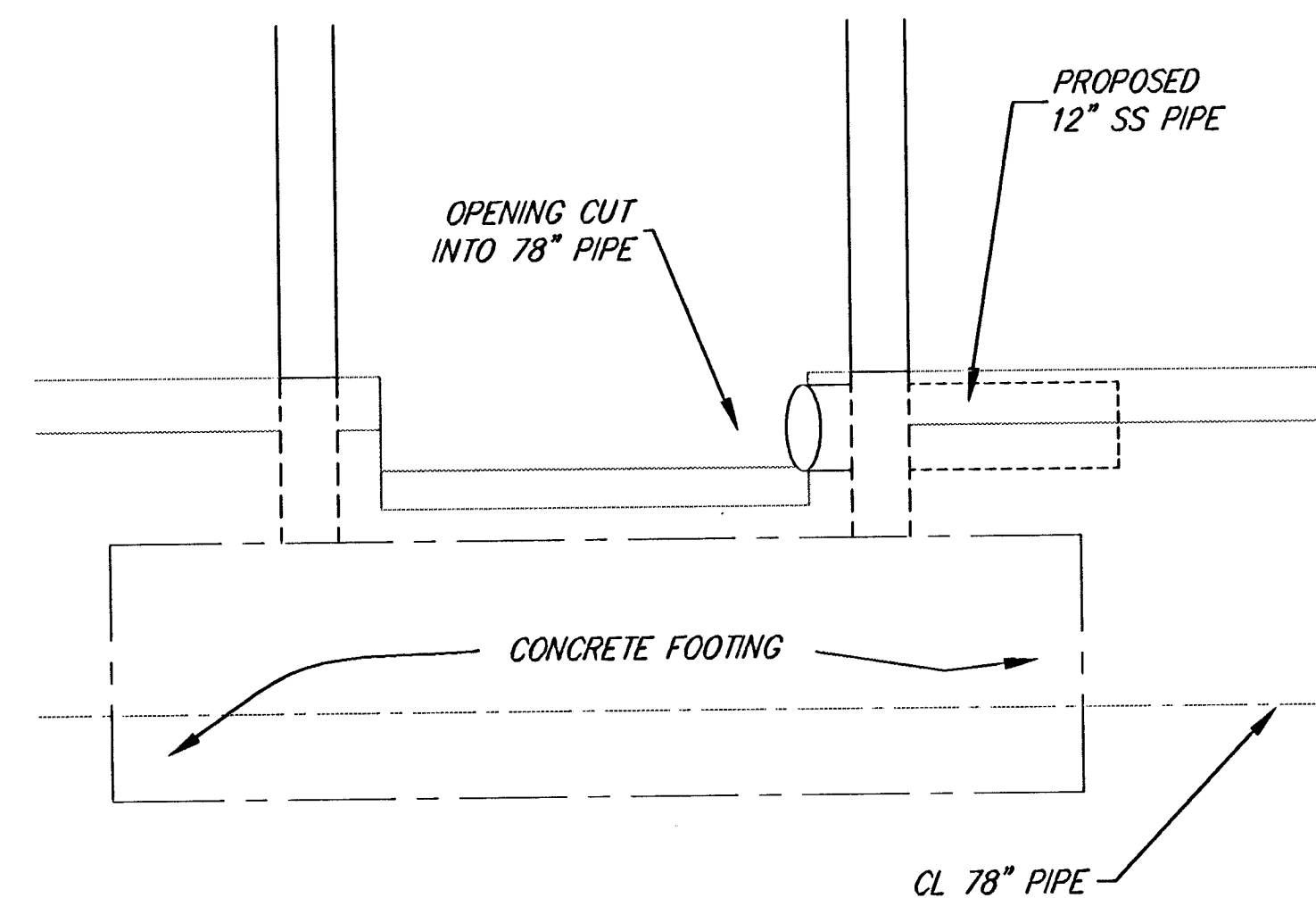


SECTION B-B

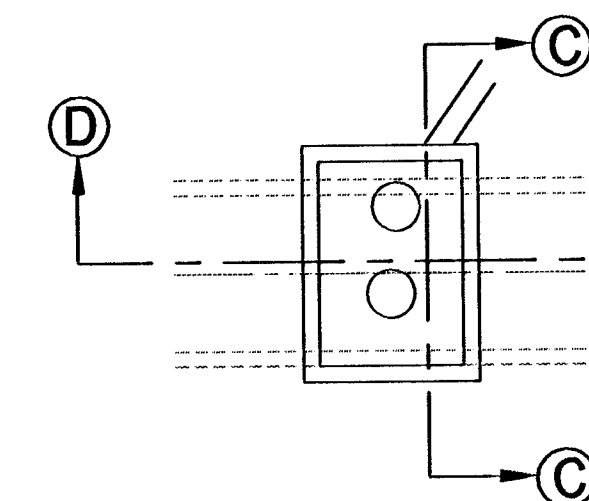
- GENERAL NOTES**
1. GENERAL NOTES FROM THE CITY OF WICHITA STANDARD TYPE 'P' MANHOLES SHALL APPLY FOR THIS MANHOLE.
  2. IF USING A PRE-CAST MANHOLE, WALL THICKNESS MAY BE ADJUSTED PER MANUFACTURERS RECOMMENDATION AND APPROVED BY THE CITY ENGINEER.
  3. THE CUT PIECE OF 78" CONCRETE PIPE SHALL BE DISPOSED OF PROPERLY.
  4. CONCRETE FOOTINGS SHALL BE PLACED ON UNDISTURBED SOIL.
  5. CONCRETE FOR THE FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 P.S.I.
  6. STEEL REINFORCING (REBAR) USED IN CONCRETE FOOTING SHALL BE EPOXY COATED.
  7. COAT INTERIOR MANHOLE WALLS WITH 'RAVEN' COATING. (THIS MANHOLE ONLY)
  8. FORM A THREE INCH (3") DEEP KEYWAY IN BOTH FOOTINGS TO SET PRECAST MANHOLE IN.
  9. PLACE A CONCRETE COLLAR AROUND PERIMETER OF MANHOLE.



SECTION C-C



SECTION D-D



\* DENOTES MINIMUM WIDTH AND HEIGHT OF FOOTING. PLACE FOOTING AGAINST UNDISTURBED SOIL.

\* 2" CLEARANCE FROM FACE OF CONCRETE TO FACE OF REBAR.

# DENOTES 3" DEEP KEYWAY TO BE PLACED IN EACH FOOTING.

**SEWAGE TREATMENT PLANT #1 - N. OF PAWNEE  
RECONSTRUCTION OF PART OF SS NO. 22  
SQUARE MANHOLE**

**SRB** 924 NORTH MAIN 316-264-8008  
WICHITA, KANSAS 67203 FAX 264-4621  
http://www.feist.com/~srb E-mail: srb@feist.com

**SAVOY, RUGGLES & BOHM, P. A.**  
ENGINEERING & SURVEYING

PROJECT NUMBER  
468-82834 (623322)

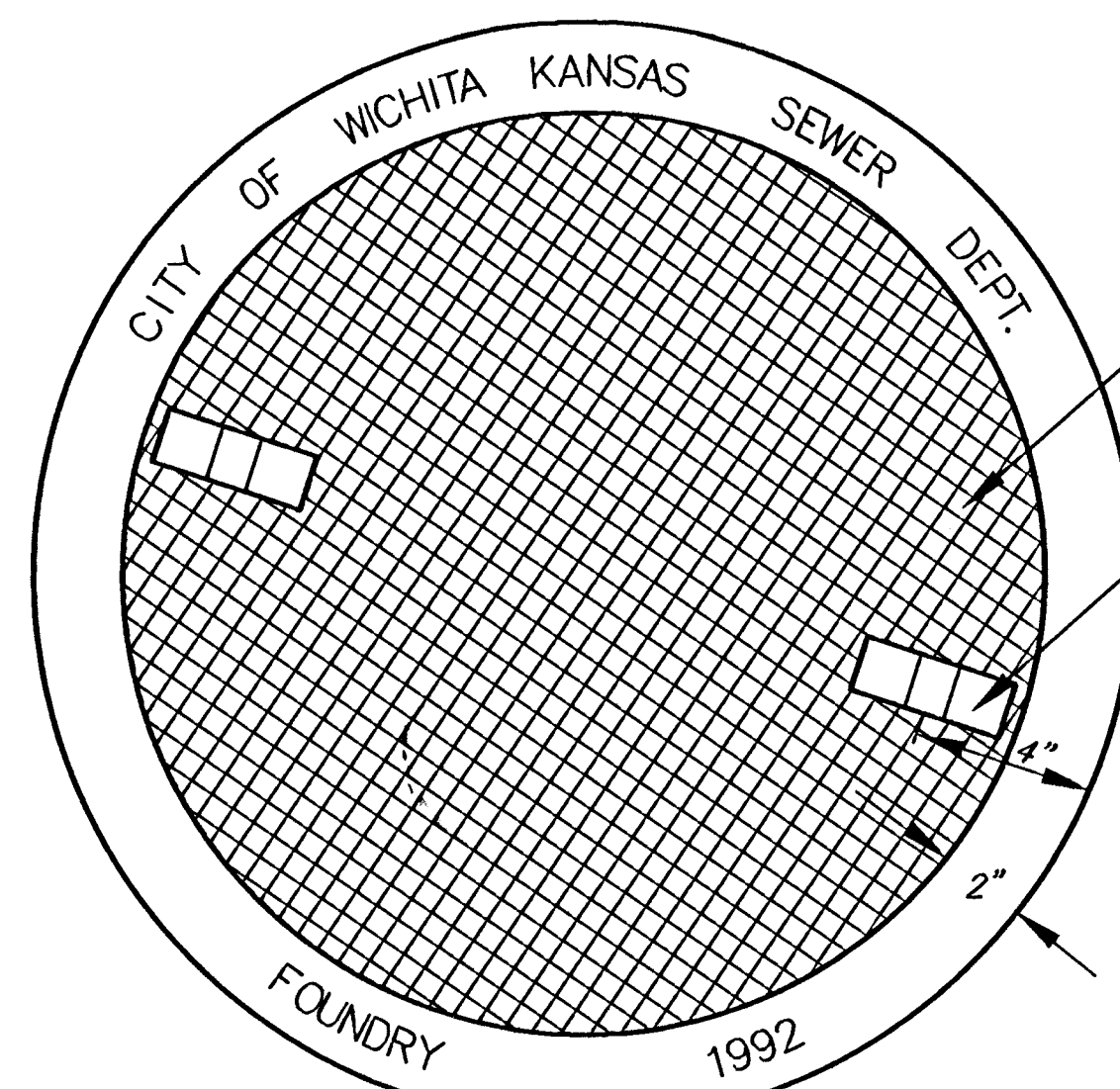
DESIGN MWS	DRAWN MWS	UTILITY	REVIEW SR	DATE 01/24/00	REVISED 03/15/00
---------------	--------------	---------	--------------	------------------	---------------------

SRB JOB 1300K  
SHEET 15 OF 16

MANHOLE COVER  
Weight = 180 Lbs.

# MANHOLE FRAME AND COVER DETAIL

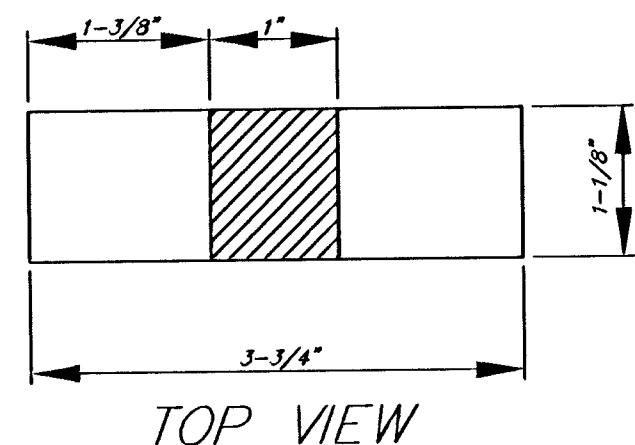
ADOPTED AS STANDARD DESIGN BY  
CITY OF WICHITA, KANSAS



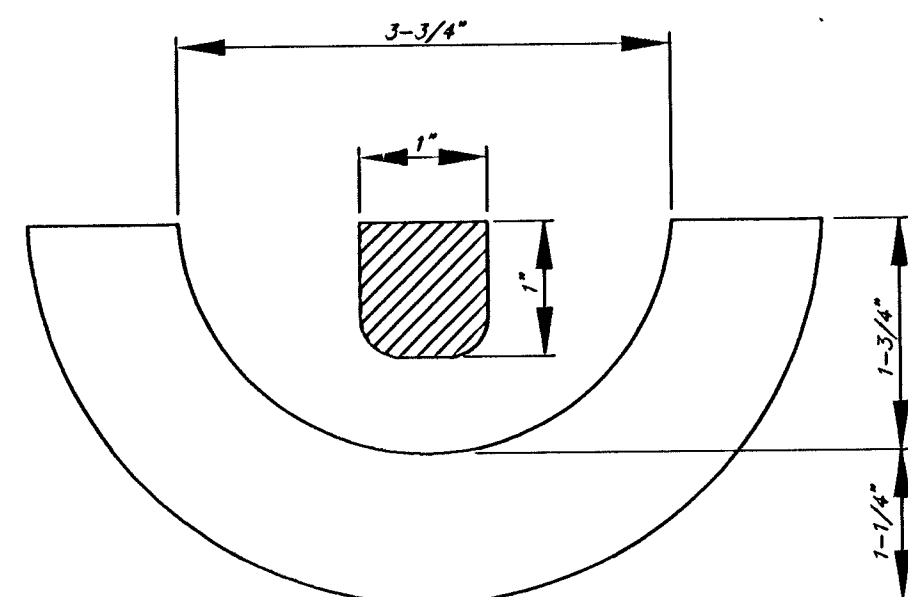
TOP VIEW

CHECKERED PATTERN TOP  
CLOSED PICKHOLE (SEE DETAIL)

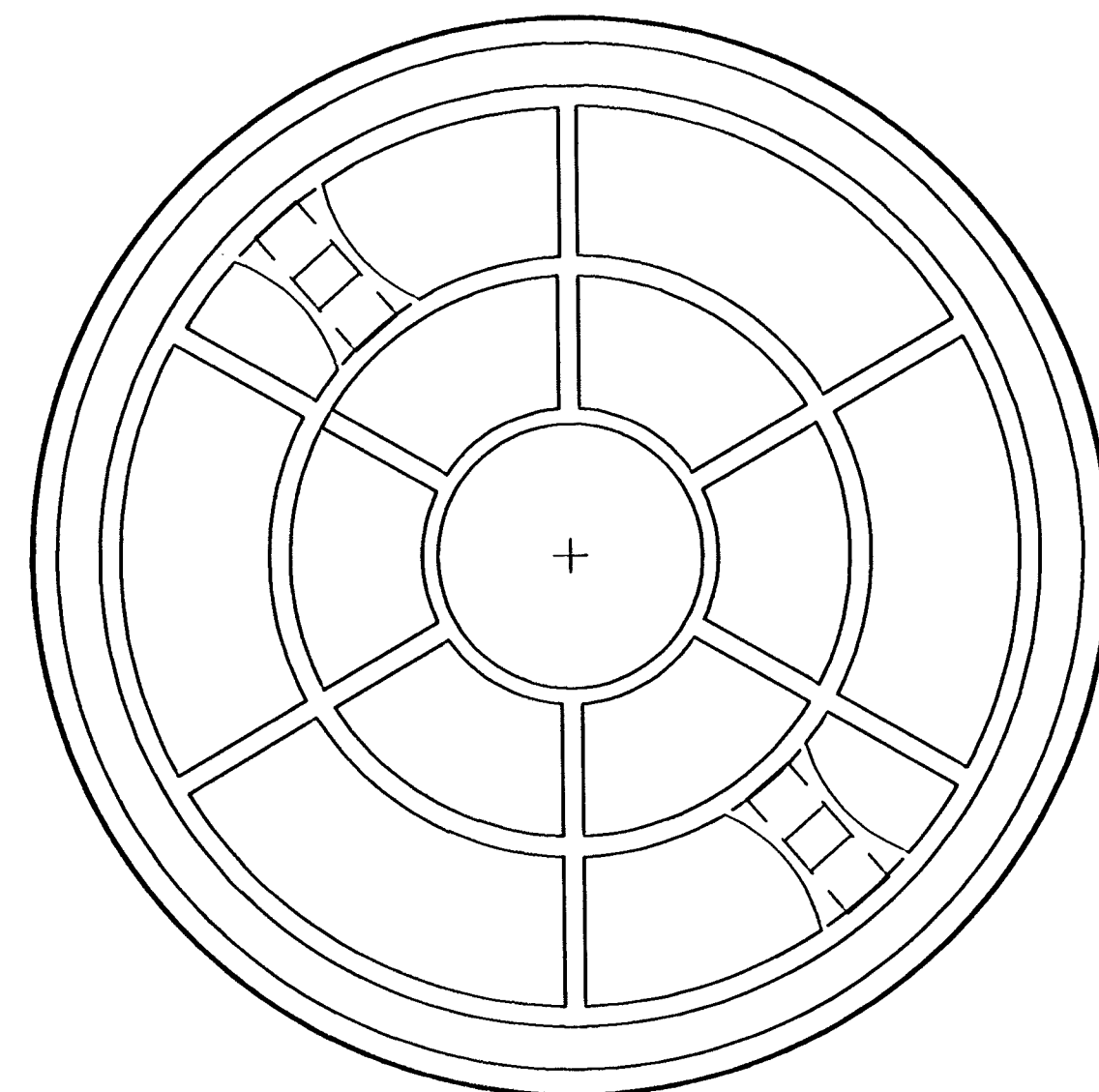
PICKHOLE DETAIL



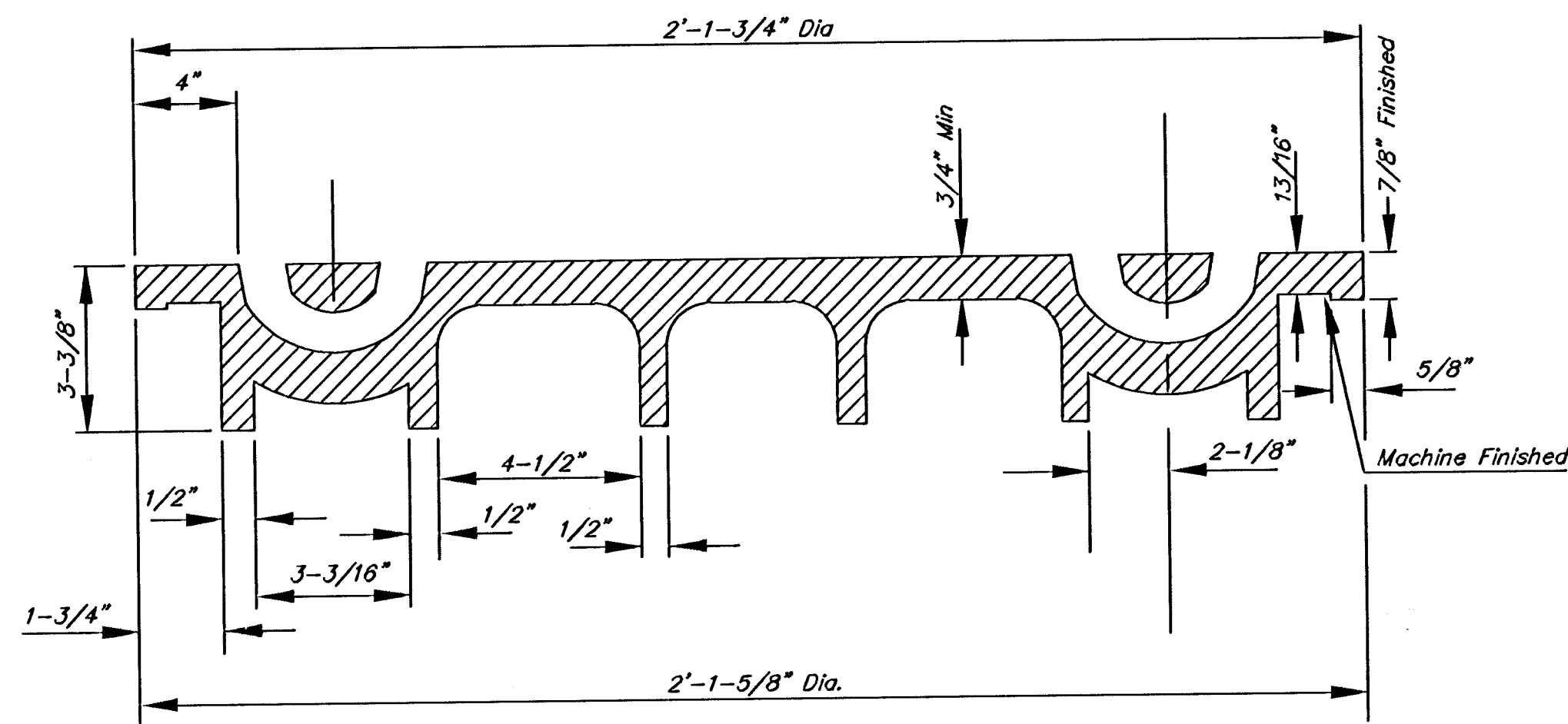
TOP VIEW



SECTION VIEW

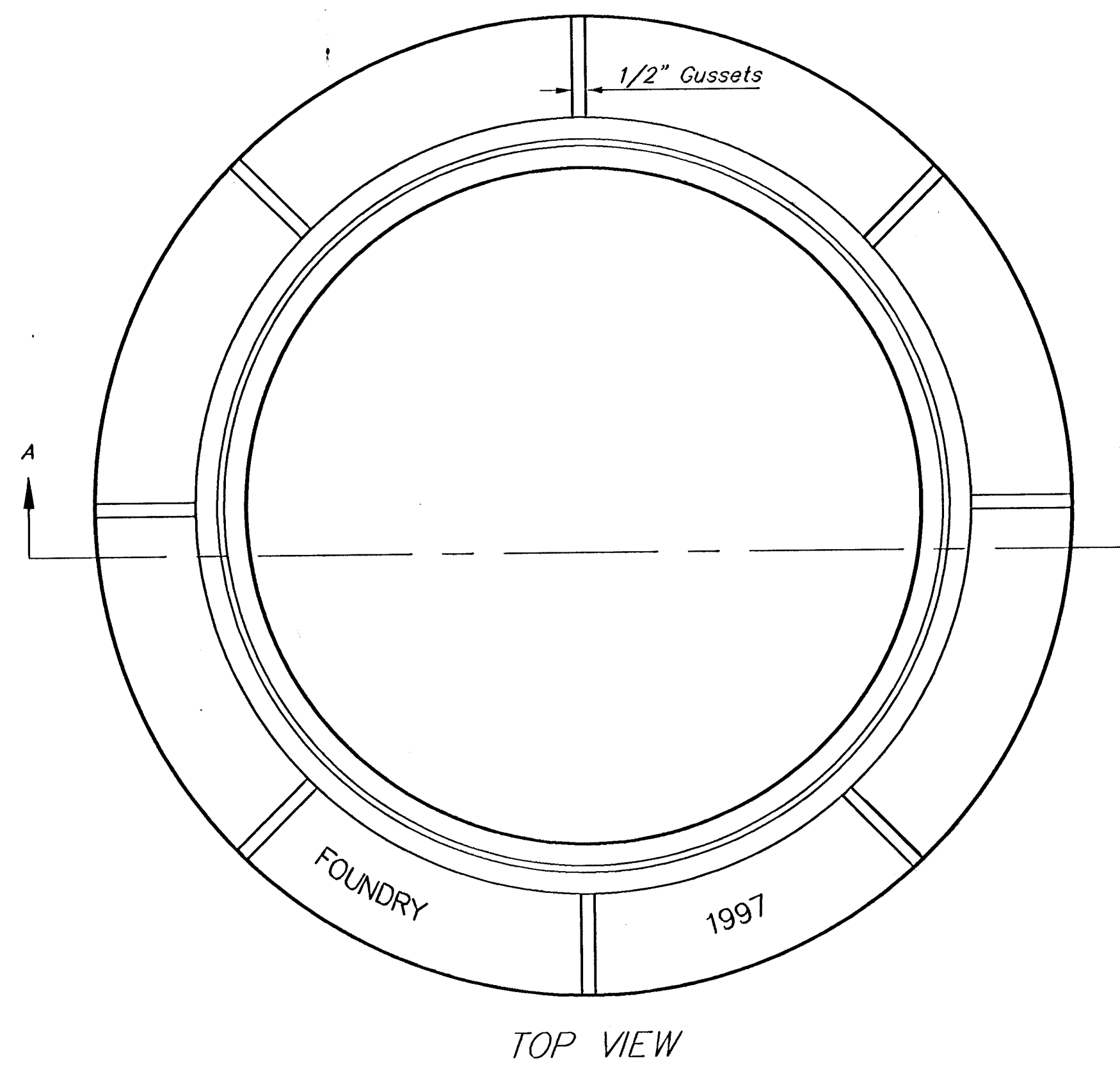


BOTTOM VIEW



SECTION VIEW

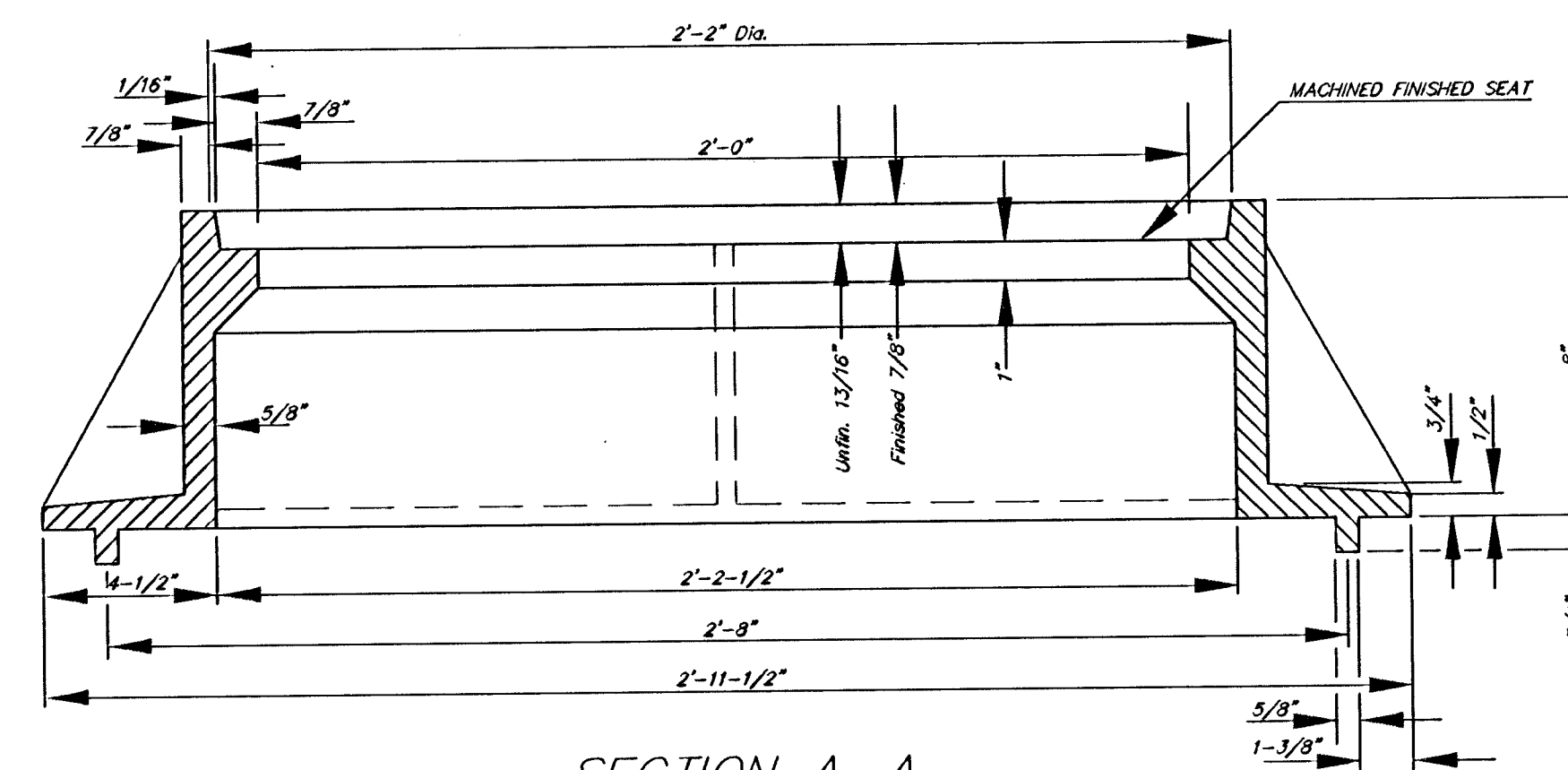
MANHOLE FRAME  
Weight = 240 Lbs.



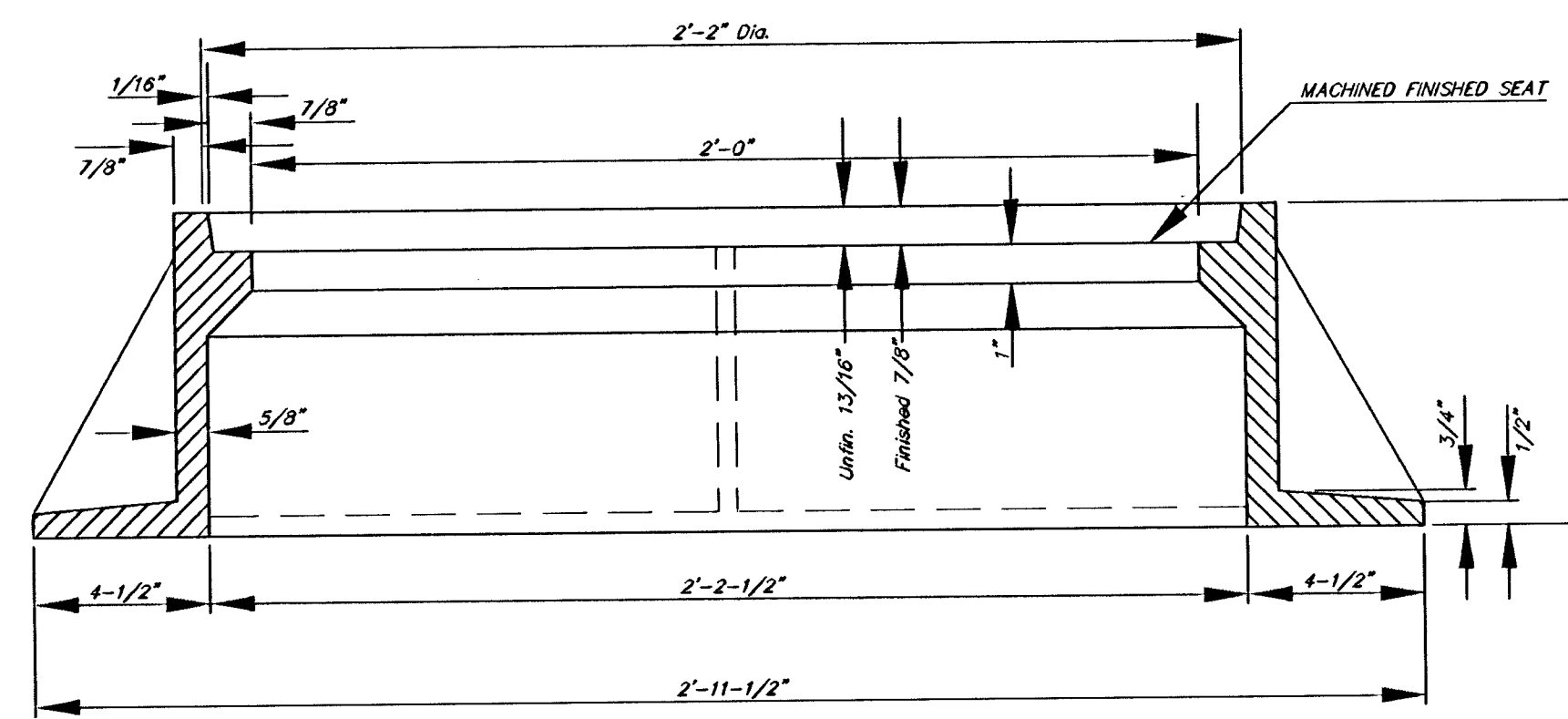
TOP VIEW

GENERAL NOTES

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



SECTION A-A  
MUD RING



SECTION A-A

<p>THE CITY OF WICHITA CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4501 (316) 268-4114 FAX</p>	<b>MANHOLE FRAME AND COVER</b>	
	M. E. LINDEBAK P.E. - CITY ENGINEER	
	PROJECT NUMBER 468-82834	OCA # 623322
	DATE MAR 96	SHEET 16 OF 16