

# STORM WATER SEWER SYSTEM

TO SERVE CENTRAL MAIZE MIDDLE SCHOOL

PRIVATE PROJECT NUMBER: 1183 PPS

OCA # 607861

## GENERAL NOTES

- Contractor will be required to provide a minimum notice of 48 hours to utility companies prior to starting any excavation as follows:

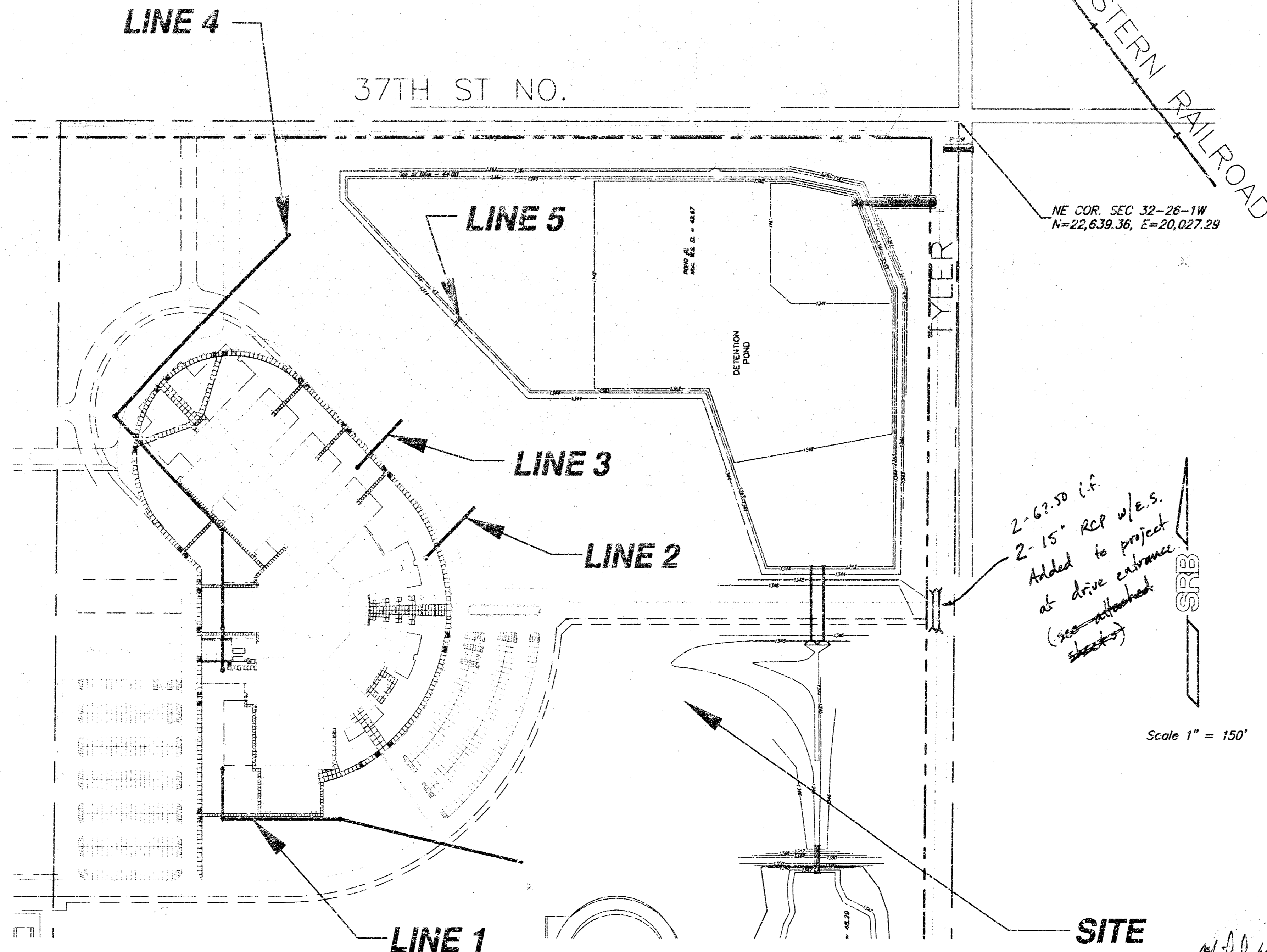
Kansas One-Call 627-2470

The Contractor must notify the following in case of an emergency:

Cox Communications	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	268-6000
City of Wichita Sewer Maintenance	268-6000

- The Contractor shall give all property owners and/or tenants of developed property directly abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.
- 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.
- The Contractor shall seed and fertilize all disturbed turf areas upon completion of construction.
- Traffic will not be affected by construction of this project.
- Polyvinyl Chloride Pipe (PVC) installed on this project shall conform to the City of Wichita Standard Specifications for Sewer Line Construction. The PVC pipe shall be rated for SDR-35. All PVC pipe shall be installed in accordance with the manufacturer's recommendations. Waterstop gaskets around the pipe shall be installed in all manhole walls.
- Reinforced Concrete Pipe (RCP) installed on this project shall conform to the City of Wichita Standard Specifications for Sewer Line Construction. RCP pipe for storm sewer shall be Class III pipe. Joints shall be tongue and groove joints sealed with either flexible plastic gaskets or cement mortar.
- Storm sewer Contractor shall confirm with roof drain contractor the size, location and pipe material of roof drain pipes into manholes prior to manhole construction. Storm sewer Contractor shall plug drain connections into manhole since roof drains shall be installed by drain contractor.

NW COR. NE 1/4 SEC. 32  
N=22,639.36, E=17,397.74



2-62.50 (i.f.)  
2-15" RCP w/e.s.  
Added to project  
at drive entrance  
(see attached sheets)

Scale 1" = 150'

## INDEX OF SHEETS

- COVER SHEET
- LINE 1 & 5 PLAN/PROFILE
- LINE 2 & 3 PLAN/PROFILES
- LINE 4 PLAN/PROFILE
- TYPE 'P' STANDARD/SPECIAL SHALLOW MANHOLES
- TYPE 'B' STANDARD/SPECIAL SHALLOW MANHOLES
- MANHOLE FRAME AND COVER

## BENCH MARKS

- BM #1 60 d SPIKE IN NORTH POLE OF "H" FRAME TRANSMISSION LINE, EAST OF S.E. COR., N.E. 1/4, SEC. 32. ELEV. = 1363.49 N.G.V.D.
- BM #2 TOP OF IRON, N.W. COR., N.E. 1/4, SECTION 32. ELEV. = 1333.38 N.G.V.D.

03/09/2002  
AS-BUILT SWS Plans (built per plan + additions)  
Inspector: Tim Kelly / Mike Stump  
Inspection Firm: Ruggles & Bohm  
Contractor: Mics Construction  
Lines T'd: 03/25/2002 - Passed

APPROVED AS NOTED  
BY CITY ENGINEER OF WICHITA

Sanitary Sewers \_\_\_\_\_  
Storm Sewers VRH 11/27/01  
Driveway Approaches \_\_\_\_\_  
Water Mains \_\_\_\_\_  
Paving \_\_\_\_\_

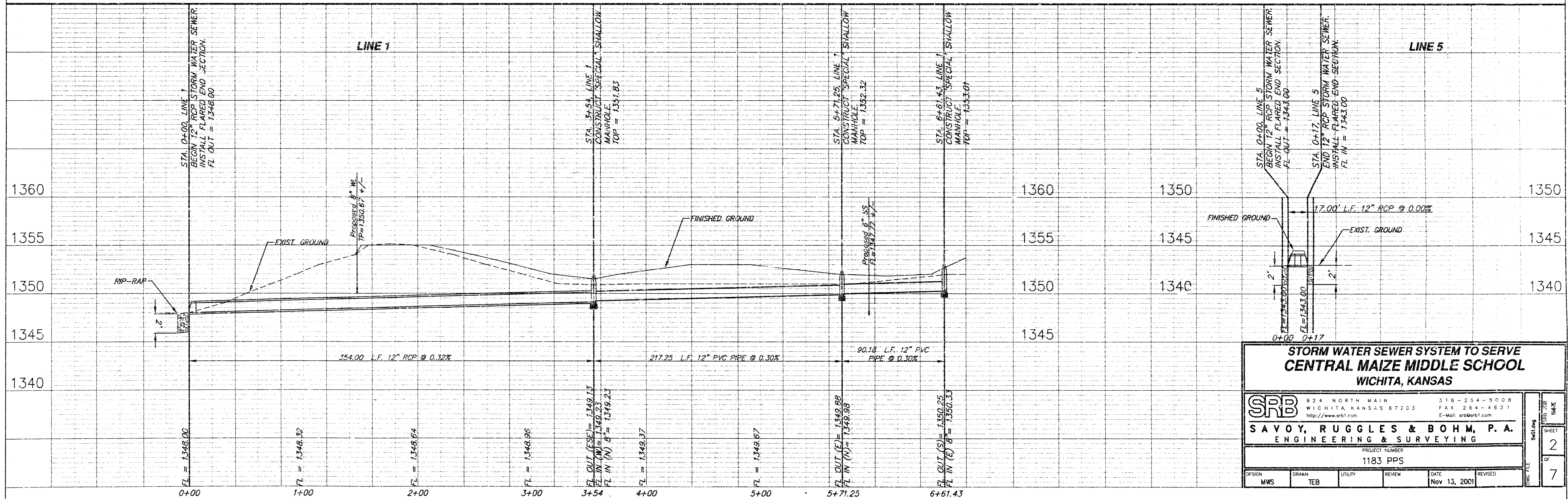
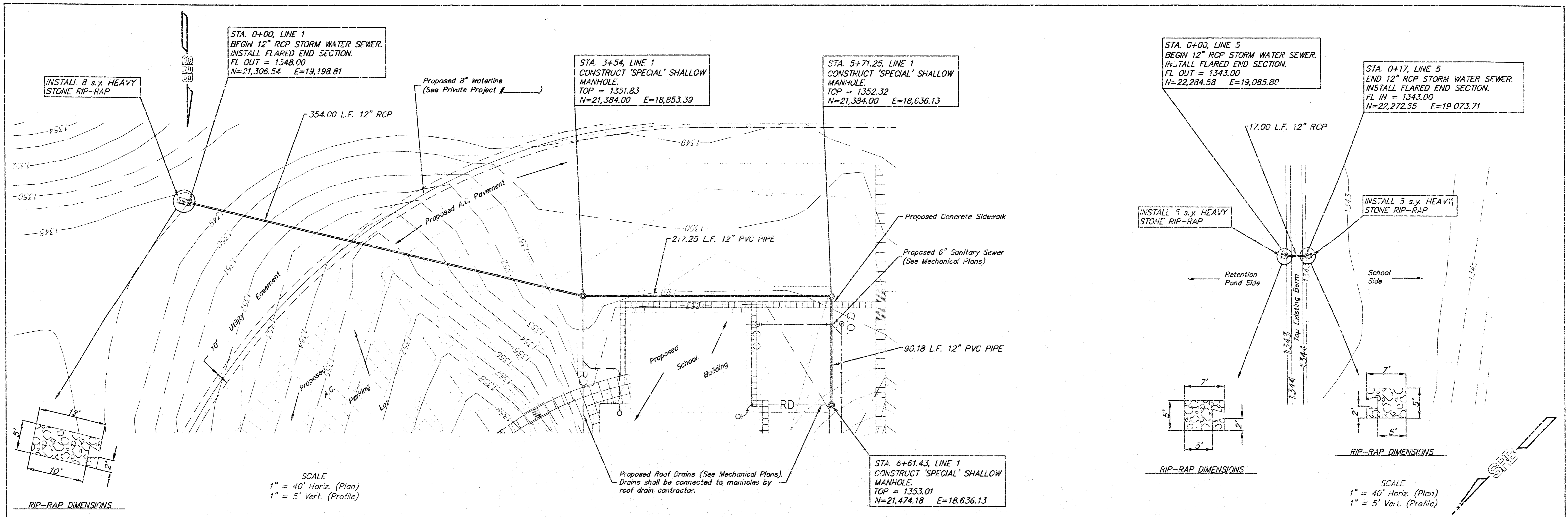
## NOTE TO CONTRACTORS

Inspection and testing for this project are to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita standard construction engineering practices and certified by a Licensed Professional Engineer. No work shall be performed in dedicated easements or public right-of-way by the Contractor without such inspection, nor shall any work be commenced without written authorization by the City Engineer.

CITY OF WICHITA, KANSAS  
MICHAEL E. LINDEBAK - CITY ENGINEER

SE COR. NE 1/4 SEC. 32  
N=20,000.00, E=20,000.00

SRB 824 NORTH MAIN WICHITA, KANSAS 67203 316-264-8008 FAX 764-4421  
SAVOY, RUGGLES & BOHM, P.A.  
ENGINEERING & SURVEYING 1967E



**STORM WATER SEWER SYSTEM TO SERVE  
CENTRAL MAIZE MIDDLE SCHOOL  
WICHITA, KANSAS**

**SRB** 924 NORTH MAIN 316-254-3008  
WICHITA, KANSAS 67203 FAX 264-4621  
http://www.srb1.com E-Mail: srb@srb1.com

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

PROJECT NUMBER  
1183 PPS

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
MWS	TEB			Nov 13, 2001	

DATE: Nov 13, 2001

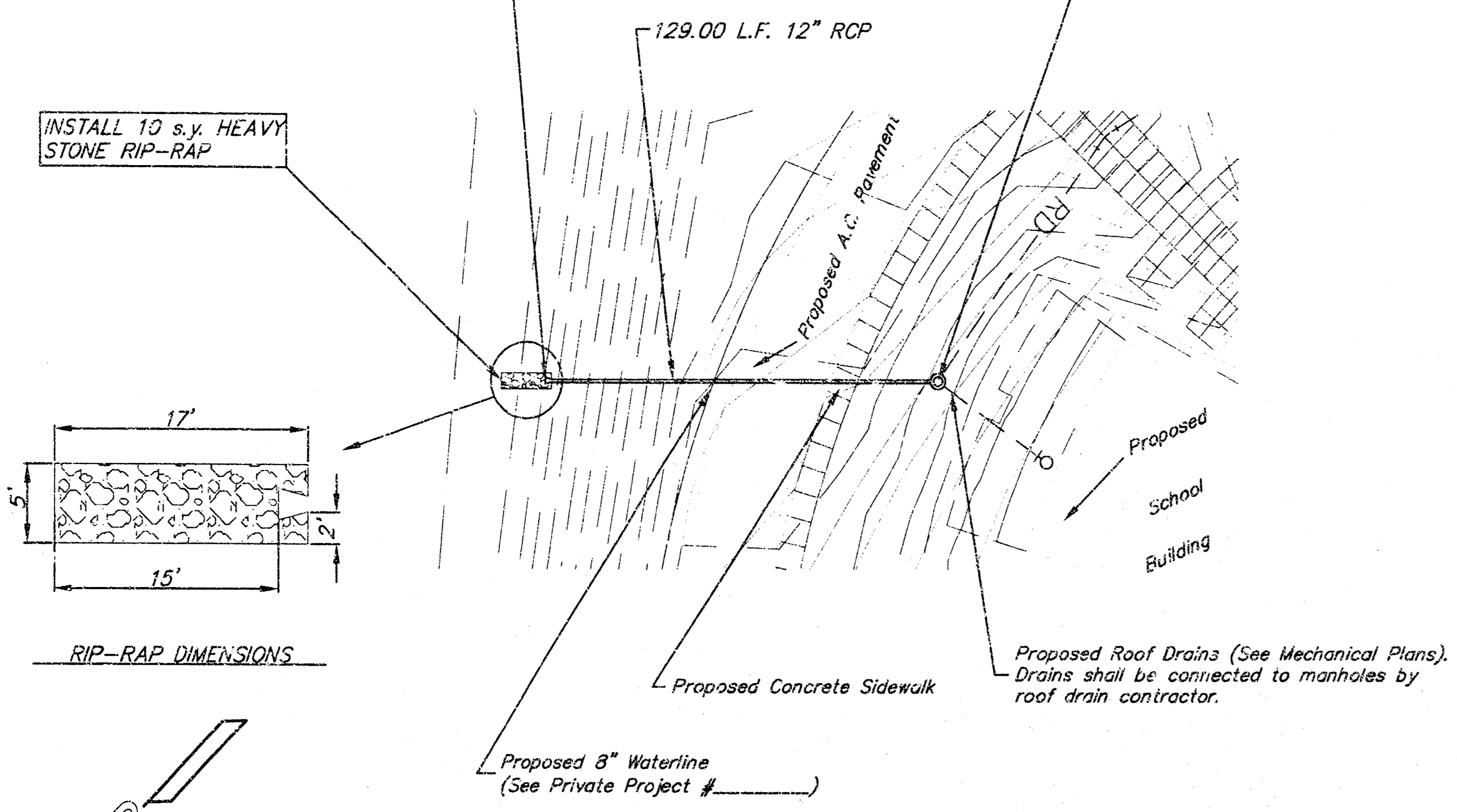
SHEET 2 OF 7

STA. 0+00, LINE 2  
 BEGIN 12" RCP STORM WATER SEWER.  
 INSTALL FLARED END SECTION.  
 FL OUT = 1347.10  
 N=21,943.85 E=19,110.44

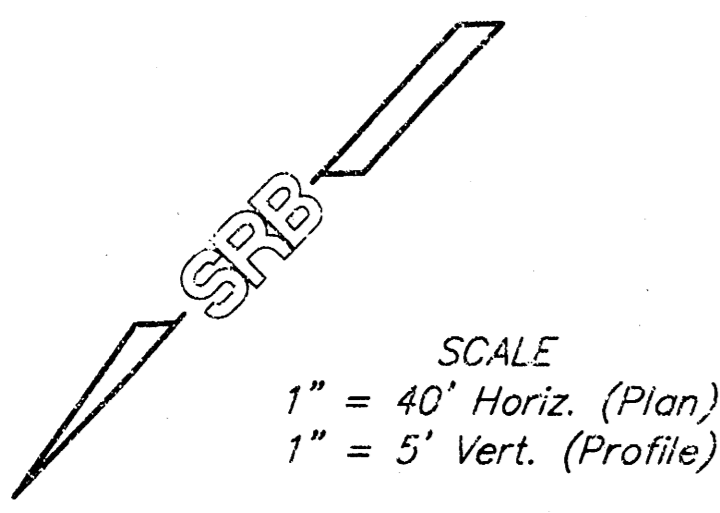
STA. 1+29, LINE 2  
 CONSTRUCT 'SPECIAL' SHALLOW  
 MANHOLE.  
 TOP = 1360.62  
 N=21,853.12 E=19,018.74

STA. 0+00, LINE 3  
 BEGIN 12" RCP STORM WATER SEWER.  
 INSTALL FLARED END SECTION.  
 FL OUT = 1349.00  
 N=22,100.70 E=18,973.24

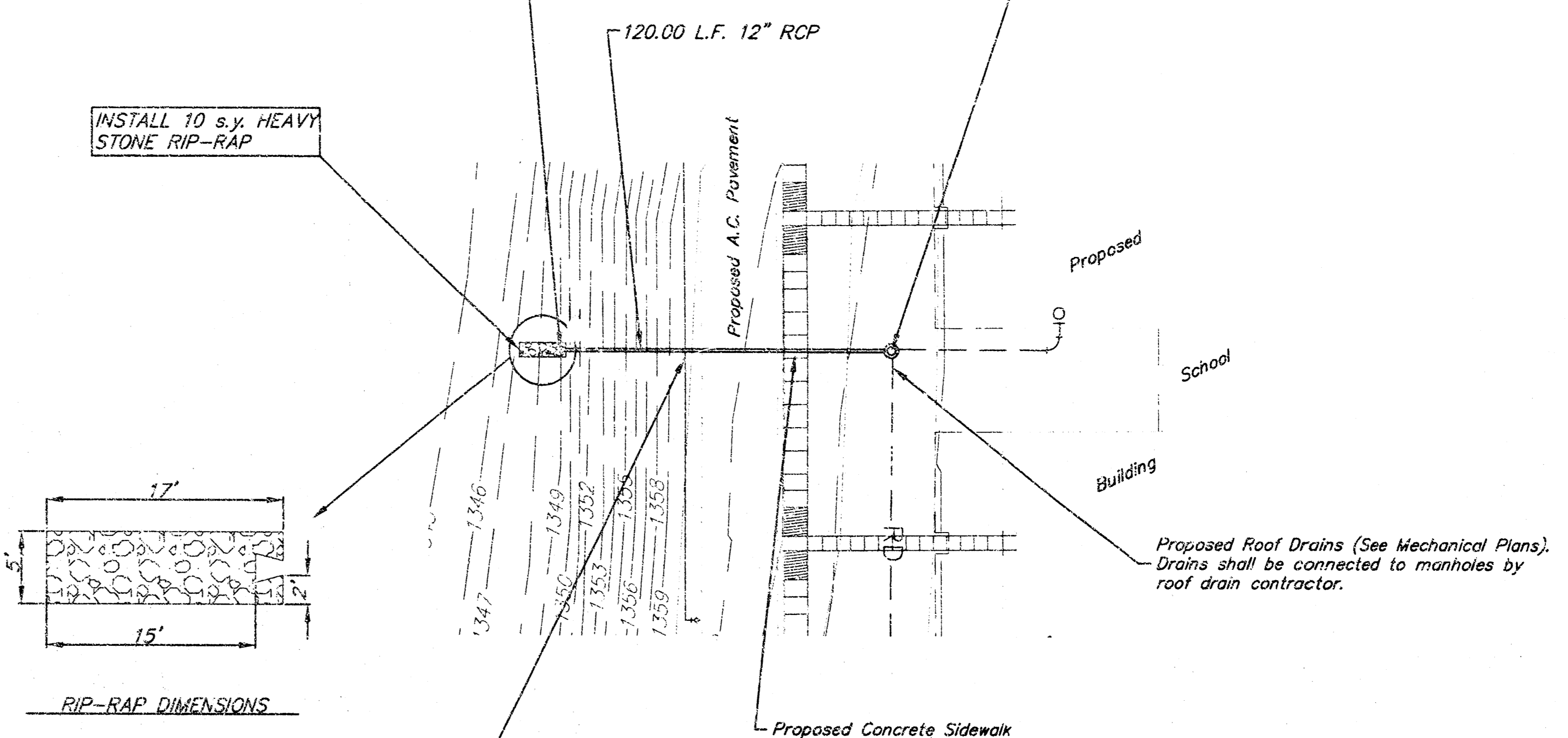
STA. 1+20, LINE 3  
 CONSTRUCT STANDARD SHALLOW  
 MANHOLE.  
 TOP = 1362.81  
 N=22,016.35 E=18,887.89



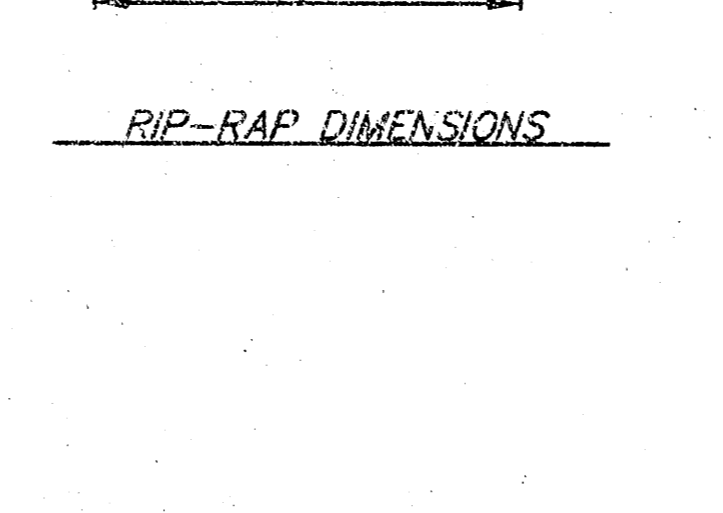
RIP-RAP DIMENSIONS



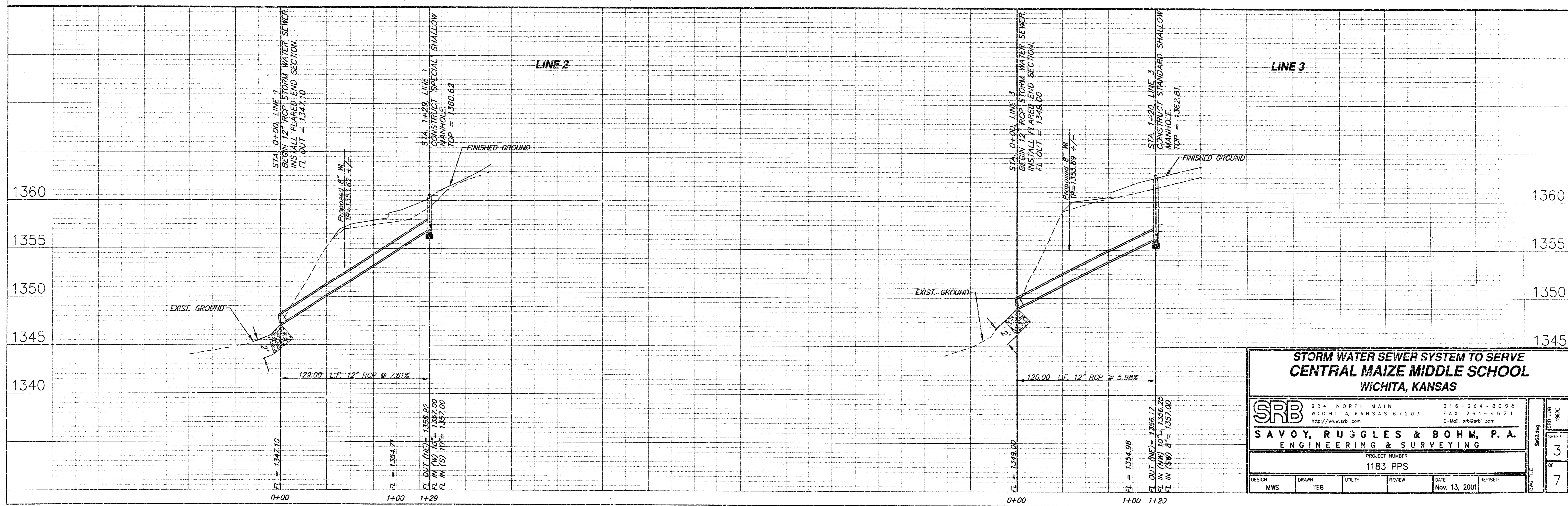
SCALE  
 1" = 40' Horiz. (Plan)  
 1" = 5' Vert. (Profile)



RIP-RAP DIMENSIONS



SCALE  
 1" = 40' Horiz. (Plan)  
 1" = 5' Vert. (Profile)



**STORM WATER SEWER SYSTEM TO SERVE  
 CENTRAL MAIZE MIDDLE SCHOOL  
 WICHITA, KANSAS**

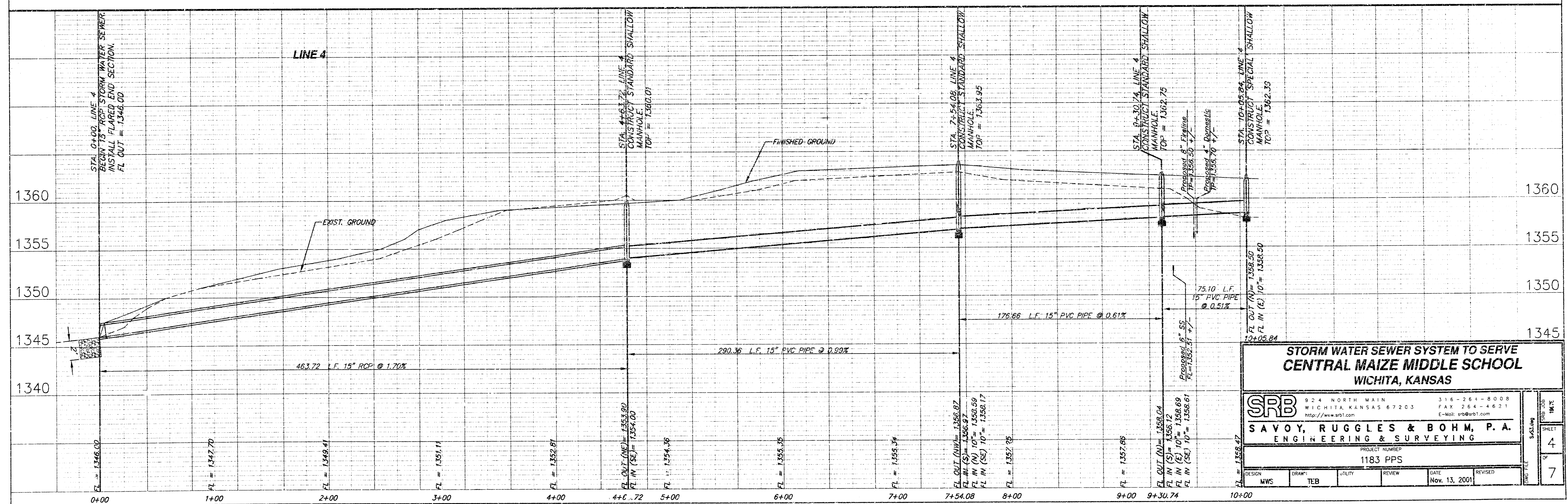
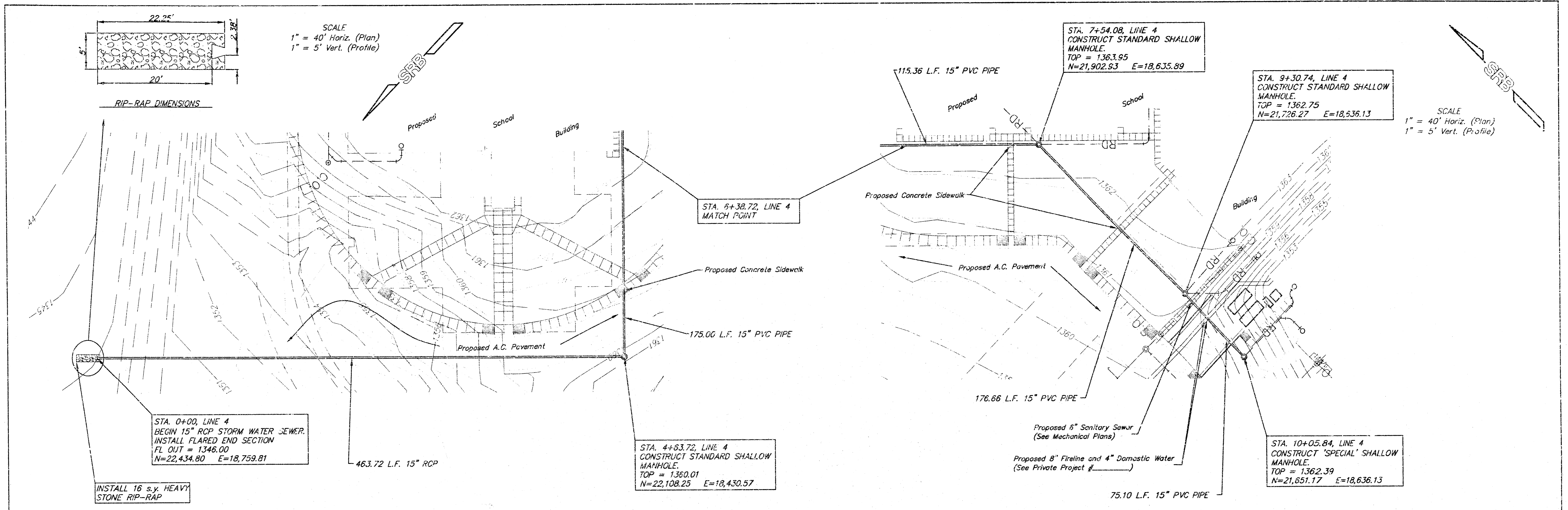
**SRB**  
 SAVOY, RUGGLES & BOHM, P.A.  
 ENGINEERING & SURVEYING

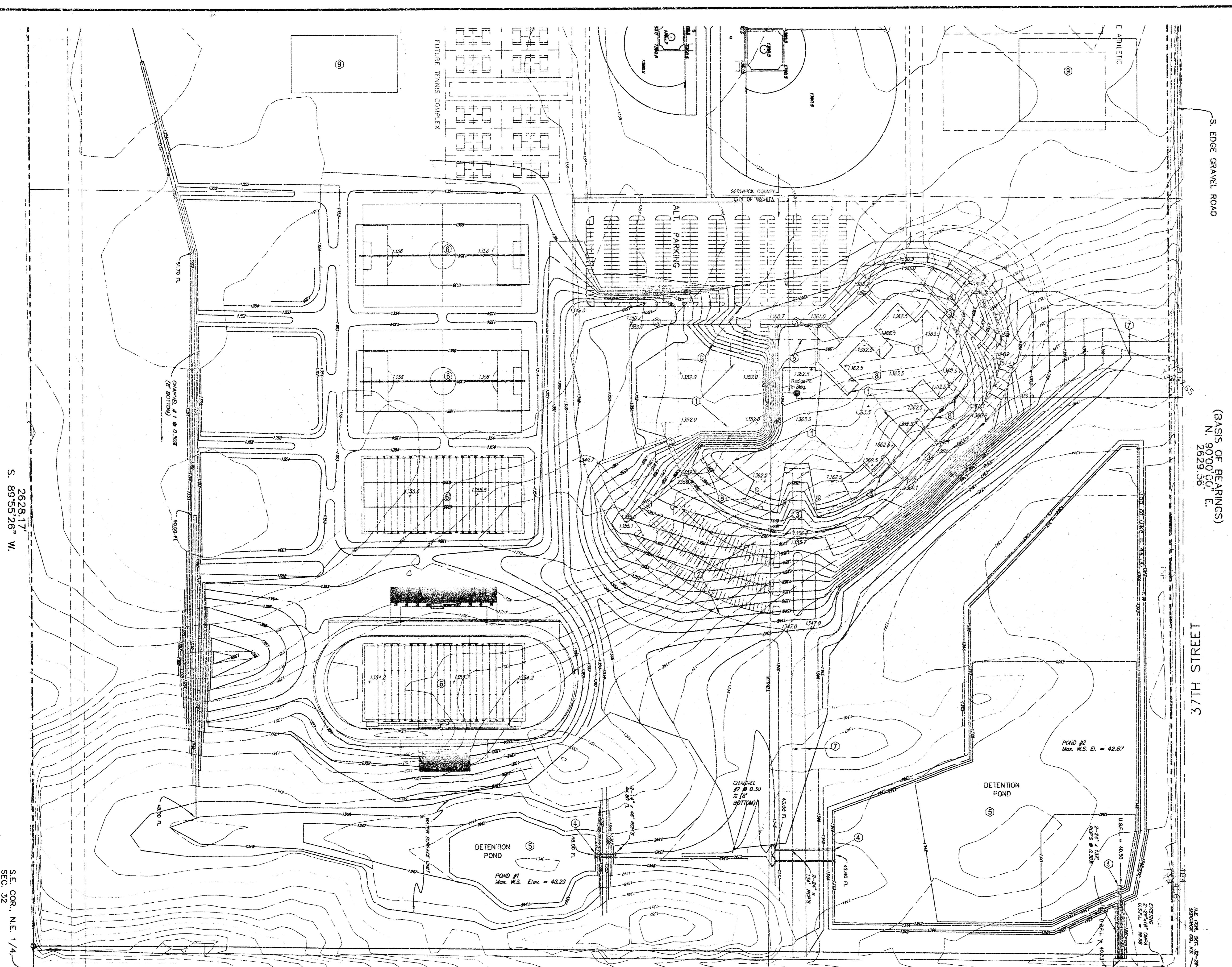
PROJECT NUMBER  
 1183 PPS

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
MWS	TGB			Nov. 13, 2001	

316-264-8088  
 WICHITA, KANSAS 67203  
 FAX 264-4621  
 http://www.srb1.com  
 E-Mail: srb@srb1.com

3  
 7





1. THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE SURVEYING ACT OF 1992 AND THE SURVEYING BOARD OF KANSAS. THE SURVEY WAS CONDUCTED BY SCHAEFER JOHNSON COX FREY & ASSOCIATES, P.A. THE SURVEY WAS CONDUCTED ON 08/13/2001. THE SURVEY WAS CONDUCTED BY TEB.

2. THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE SURVEYING ACT OF 1992 AND THE SURVEYING BOARD OF KANSAS. THE SURVEY WAS CONDUCTED BY SCHAEFER JOHNSON COX FREY & ASSOCIATES, P.A. THE SURVEY WAS CONDUCTED ON 08/13/2001. THE SURVEY WAS CONDUCTED BY TEB.

3. THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE SURVEYING ACT OF 1992 AND THE SURVEYING BOARD OF KANSAS. THE SURVEY WAS CONDUCTED BY SCHAEFER JOHNSON COX FREY & ASSOCIATES, P.A. THE SURVEY WAS CONDUCTED ON 08/13/2001. THE SURVEY WAS CONDUCTED BY TEB.

4. THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE SURVEYING ACT OF 1992 AND THE SURVEYING BOARD OF KANSAS. THE SURVEY WAS CONDUCTED BY SCHAEFER JOHNSON COX FREY & ASSOCIATES, P.A. THE SURVEY WAS CONDUCTED ON 08/13/2001. THE SURVEY WAS CONDUCTED BY TEB.

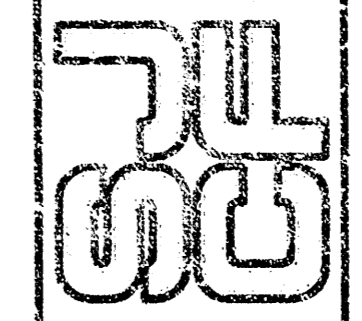
5. THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE SURVEYING ACT OF 1992 AND THE SURVEYING BOARD OF KANSAS. THE SURVEY WAS CONDUCTED BY SCHAEFER JOHNSON COX FREY & ASSOCIATES, P.A. THE SURVEY WAS CONDUCTED ON 08/13/2001. THE SURVEY WAS CONDUCTED BY TEB.

6. THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE SURVEYING ACT OF 1992 AND THE SURVEYING BOARD OF KANSAS. THE SURVEY WAS CONDUCTED BY SCHAEFER JOHNSON COX FREY & ASSOCIATES, P.A. THE SURVEY WAS CONDUCTED ON 08/13/2001. THE SURVEY WAS CONDUCTED BY TEB.

7. THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE SURVEYING ACT OF 1992 AND THE SURVEYING BOARD OF KANSAS. THE SURVEY WAS CONDUCTED BY SCHAEFER JOHNSON COX FREY & ASSOCIATES, P.A. THE SURVEY WAS CONDUCTED ON 08/13/2001. THE SURVEY WAS CONDUCTED BY TEB.

8. THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE SURVEYING ACT OF 1992 AND THE SURVEYING BOARD OF KANSAS. THE SURVEY WAS CONDUCTED BY SCHAEFER JOHNSON COX FREY & ASSOCIATES, P.A. THE SURVEY WAS CONDUCTED ON 08/13/2001. THE SURVEY WAS CONDUCTED BY TEB.

SCHAEFER JOHNSON COX FREY & ASSOCIATES, P.A.  
 250 SOUTH MAIN STREET, SUITE 100  
 WICHITA, KANSAS 67203  
 (316) 264-0771



UNIFIED SCHOOL DISTRICT 266  
 MAIZE, KANSAS

**CENTRAL MAIZE MIDDLE SCHOOL**  
**SITE PLAN / GRADING PLAN**  
 WICHITA, KANSAS

REVISION DATE: 31 AUGUST 2001  
 PROJECT NO.: 273021  
 DATE: 14 AUGUST 2001  
**Q2.01R**

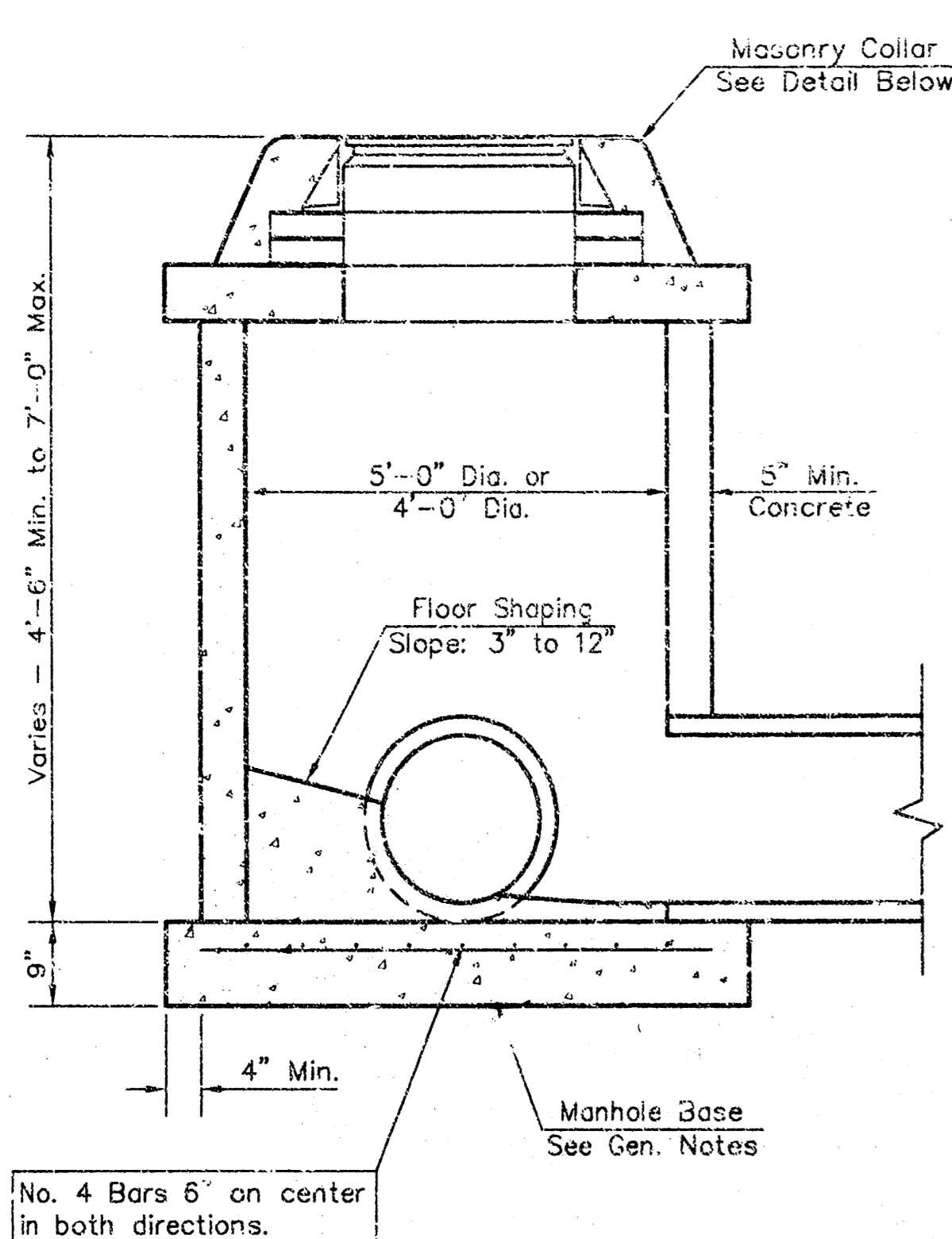
**CENTRAL MAIZE MIDDLE SCHOOL**  
**SITE PLAN / GRADING PLAN**  
 WICHITA, KANSAS

924 NORTH MAIN WICHITA, KANSAS 67203 316-254-8008 FAX 264-4621  
 www.srb1.com C-mail: srb@srb1.com

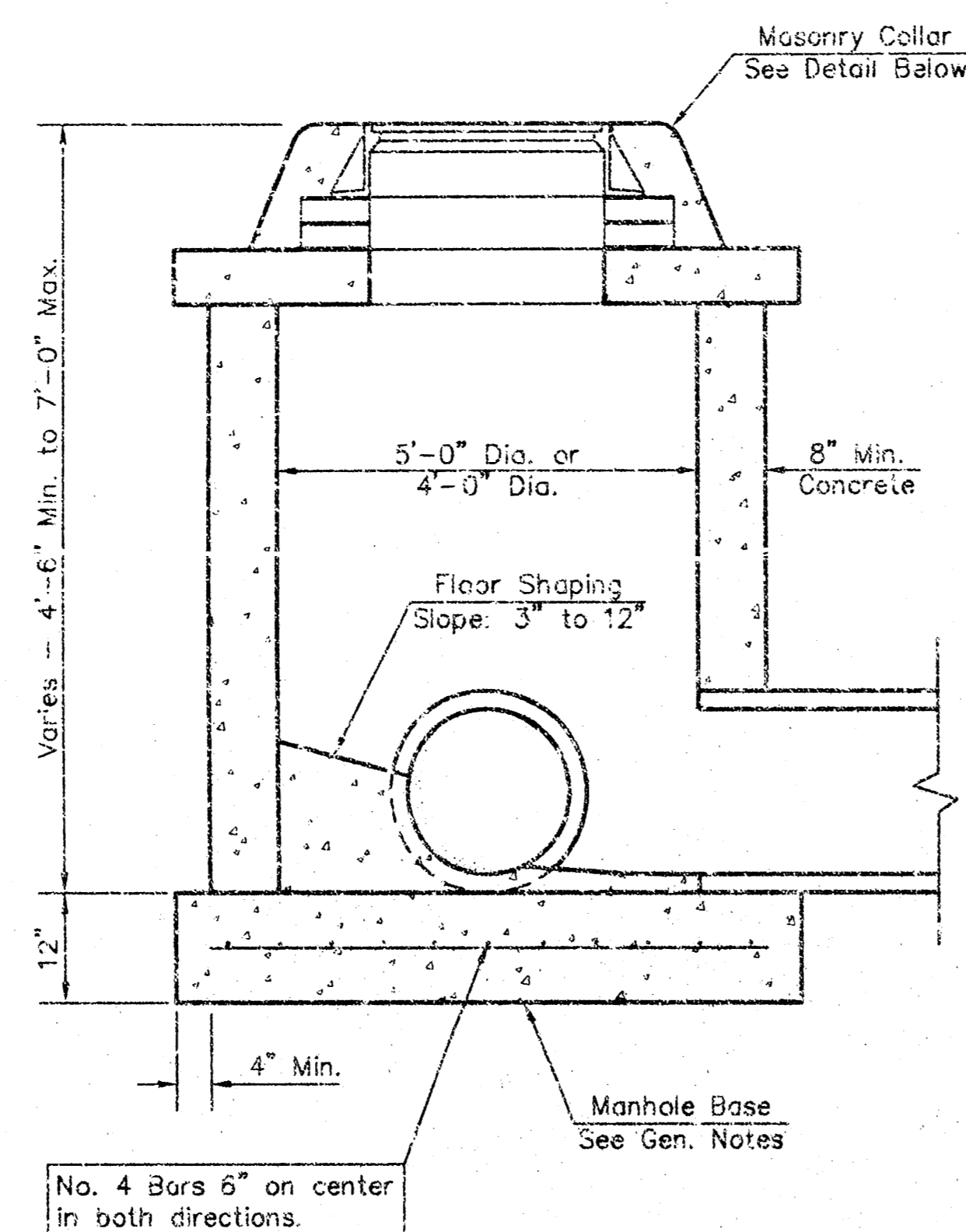
PROJECT NUMBER: 1183 PPS

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
MWS	TEB			Nov. 13, 2001	

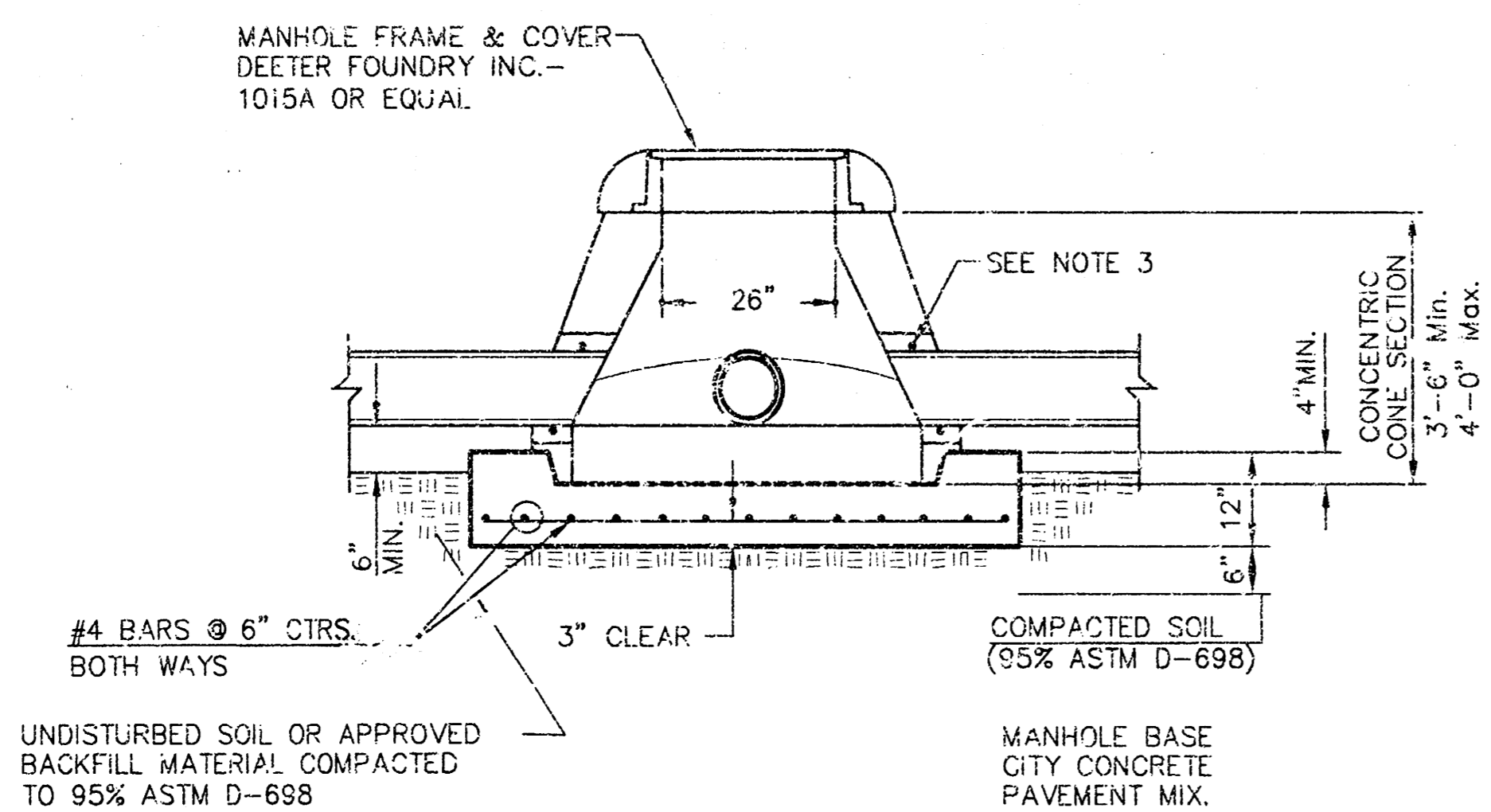
SHEET 4A OF 7



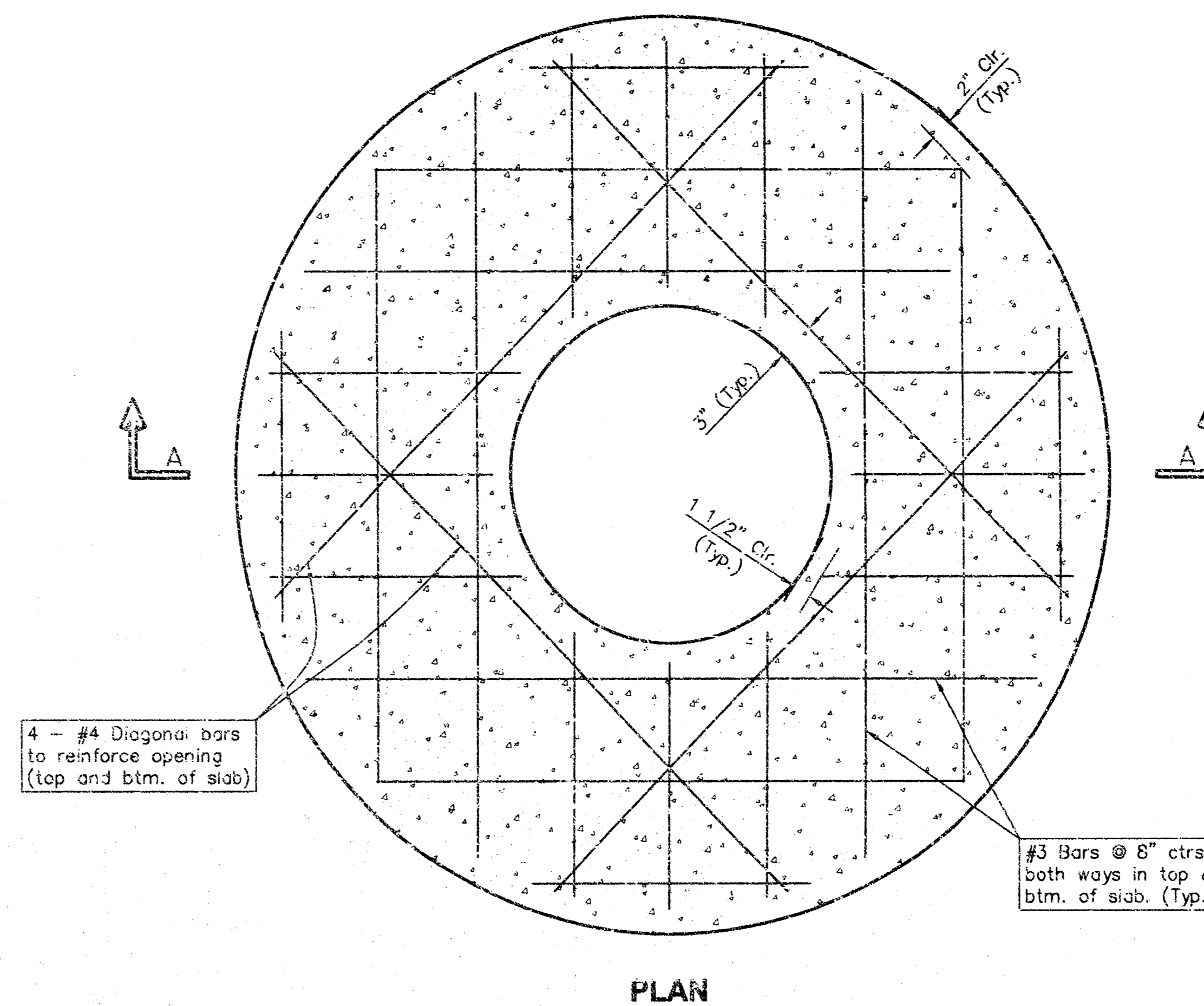
**SHALLOW TYPE "P" MANHOLE**



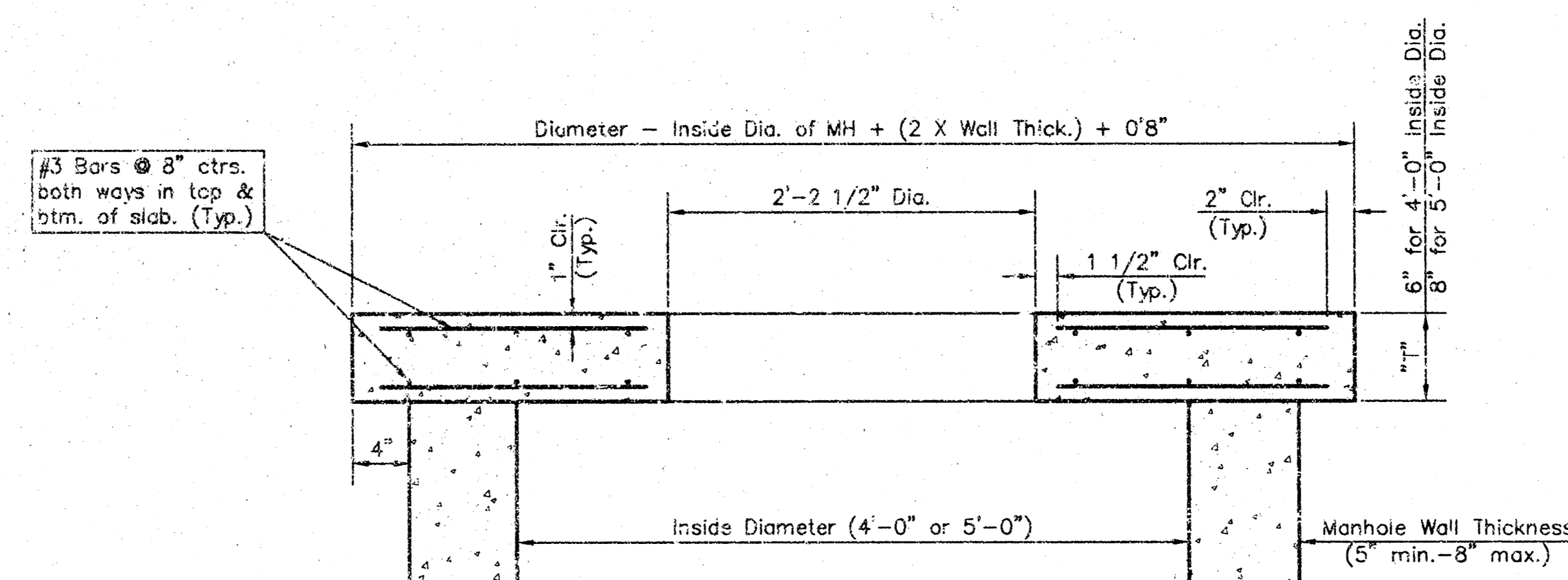
**SHALLOW TYPE "C" MANHOLE**



**SPECIAL SHALLOW TYPE "P" MANHOLE**

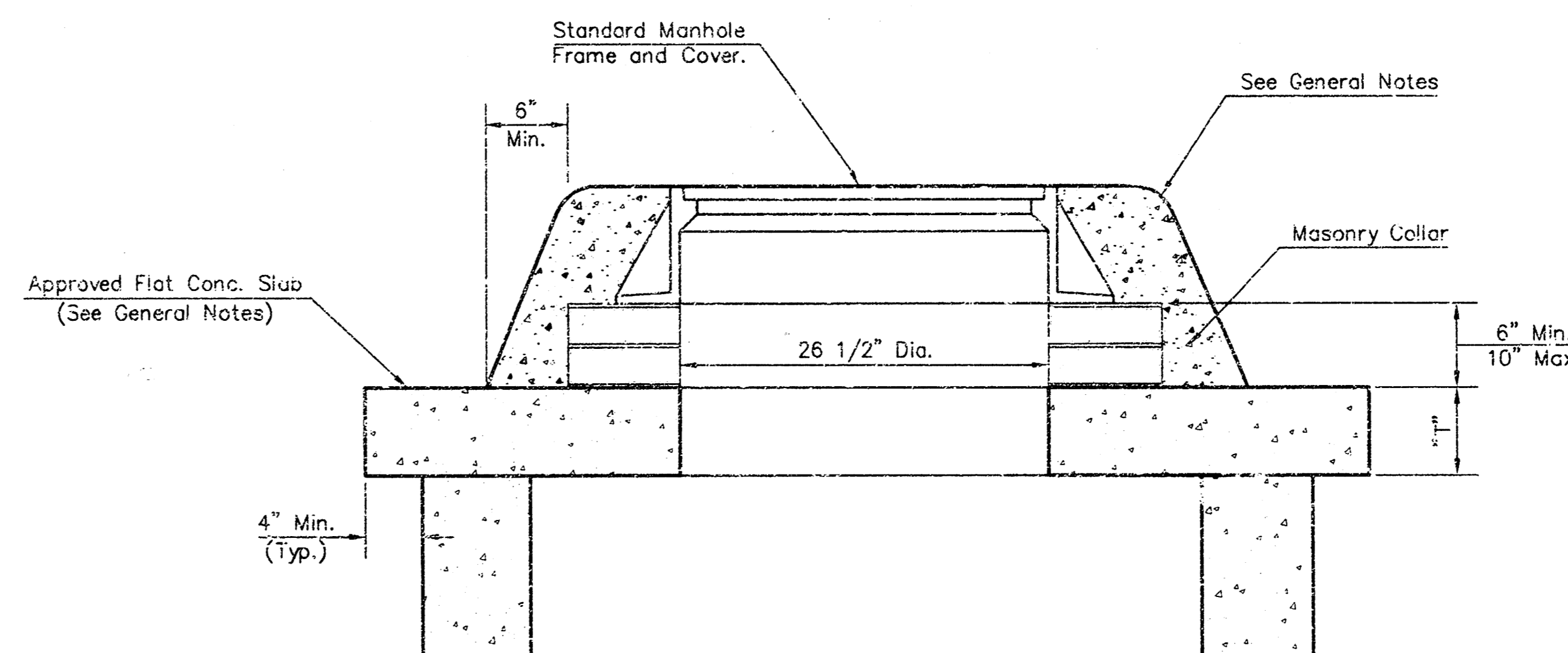


**PLAN**



**SECTION A-A**

**FLAT CONCRETE SLAB DETAILS**

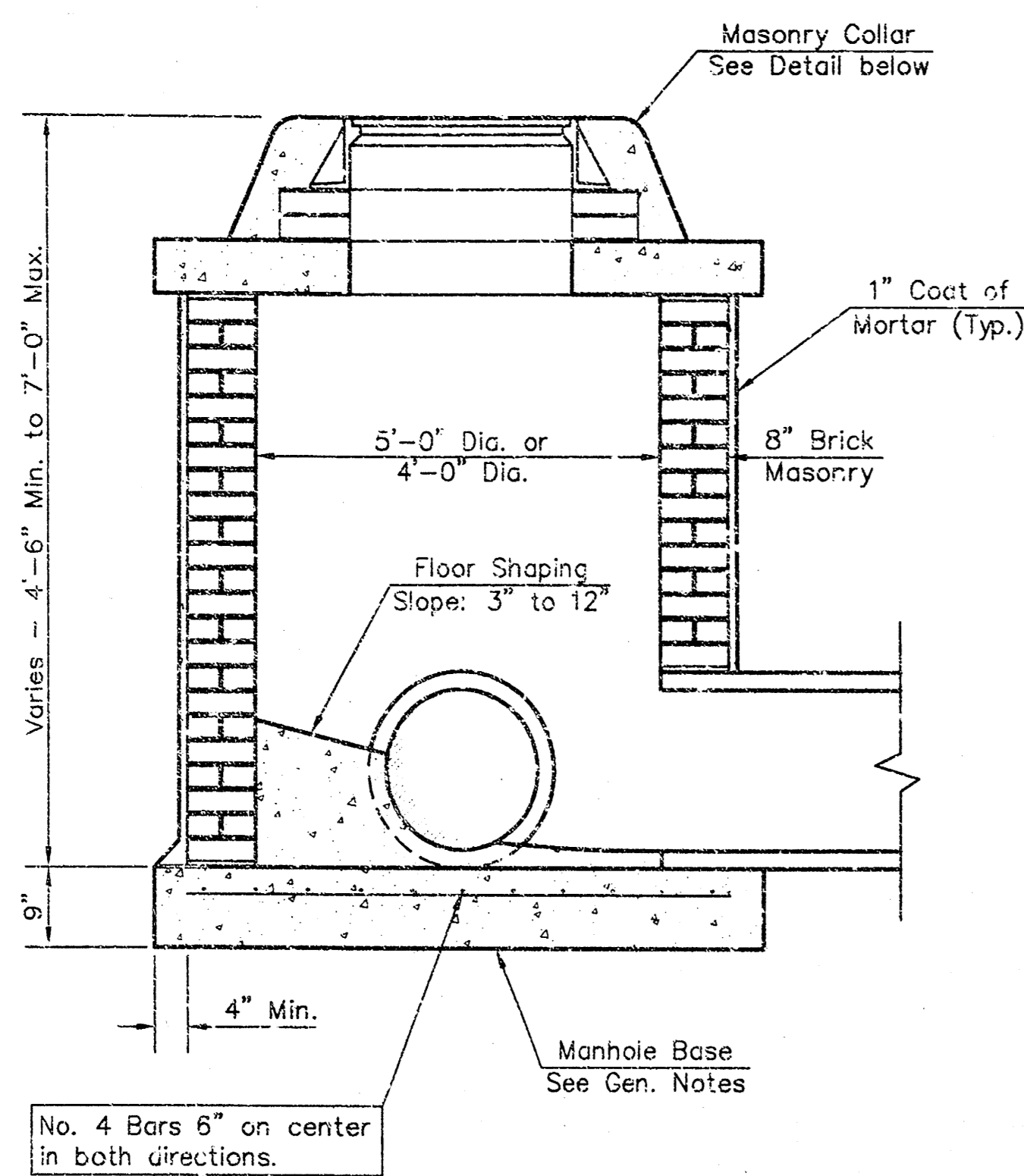


**MASONRY COLLAR DETAIL**

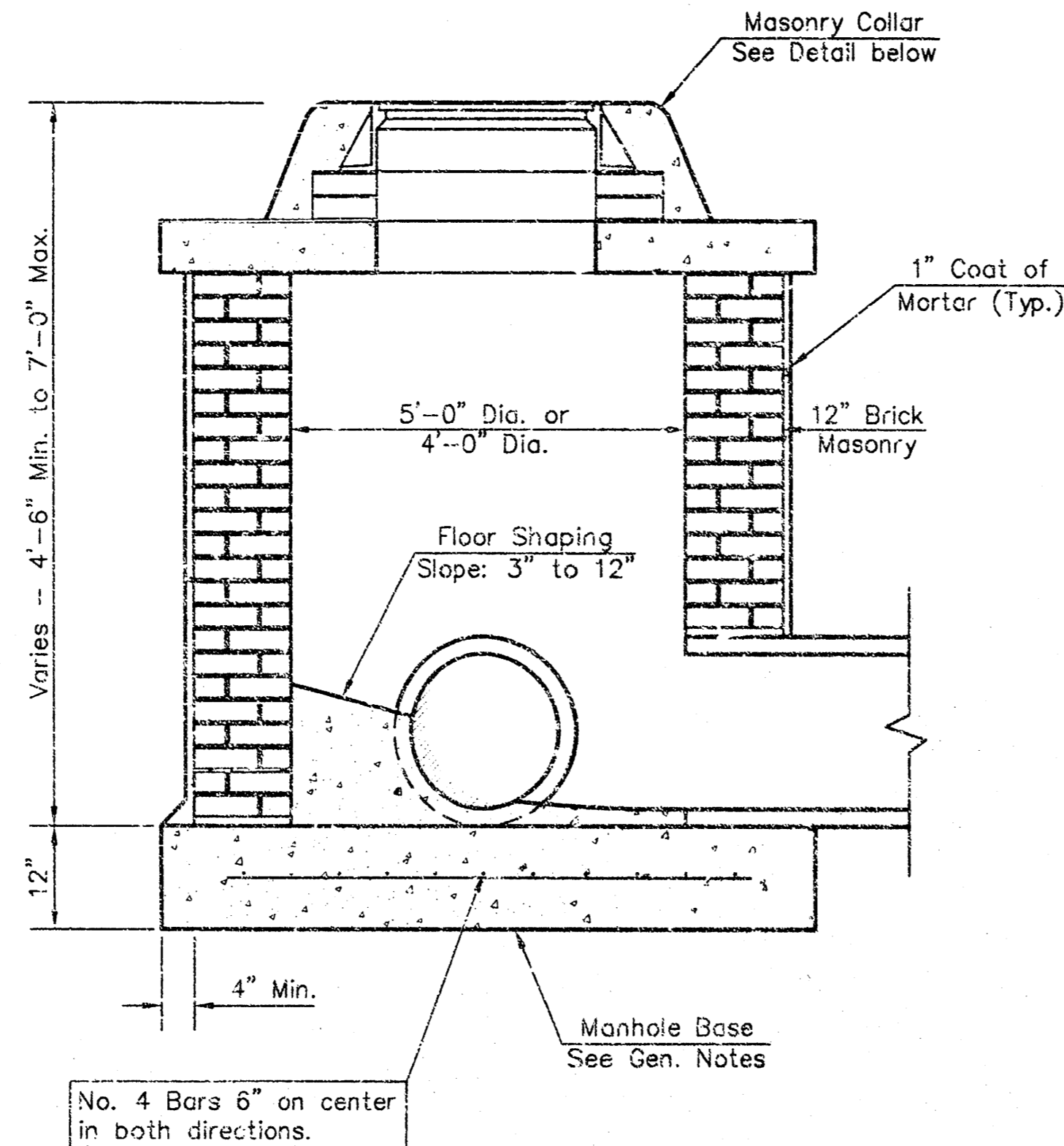
**GENERAL NOTES**

- 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 cement mix without or 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 6" 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.
- 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. Manhole floors shall have slopes of 3 inches per foot in the areas outside of the flow channels sloped toward the flow channels. Pipes laid through manholes shall have the top half removed to neat lines for the full inside diameter of the manhole. Manhole floors shall then be shaped around the bottom half of the pipe which forms the flow channel.
- Pipes installed within the excavation made for the manhole shall be cradled with concrete to the limits of the manhole excavation. When clay pipe is used, the cradle shall extend to the first joint outside the manhole. The cradle shall be terminated at the clay pipe joint in a manner which will maintain the flexibility of the joint. Cost of cradle within manhole excavation or to clay pipe joints adjacent to manhole shall be included in the unit price bid for the manhole.
- Manhole cover castings and manhole frame castings shall conform to the requirements as indicated in the standard specifications and as shown in the standard detail drawings.
- The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.
- Standard shallow manholes type "P" and "C" shall be paid for at the unit price bid per each for the type and diameter indicated. All standard shallow manhole diameters will be 4' unless indicated otherwise.
- All brick used in manhole construction shall meet Grade SW of ASTM C652 or C62-87.

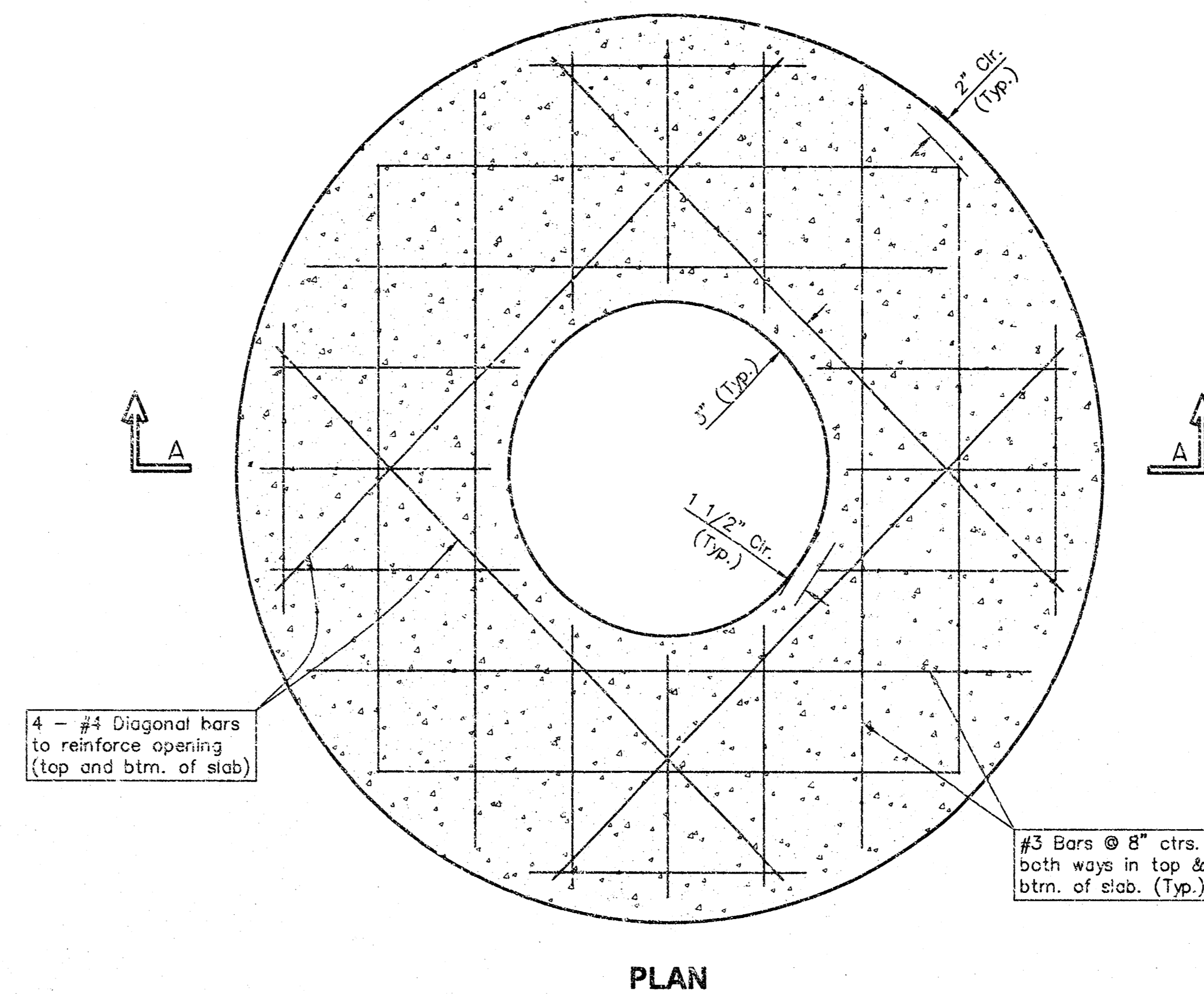
<b>CENTRAL MAIZE MIDDLE SCHOOL STANDARD / SPECIAL SHALLOW MANHOLES TYPE 'P' AND 'C'</b>			
<b>SRB</b>	924 NORTH MAIN WICHITA, KANSAS 67203 www.srb.com	313-244-8048 FAX 244-4621 E-mail: srb@st1.com	SHEET <b>5</b> OF <b>7</b>
	<b>SAVOY, RUGGLES &amp; BOHM, P. A. ENGINEERING &amp; SURVEYING</b>		
PROJECT NUMBER <b>1183 PPS</b>			
DESIGN	DRAWN	UTILITY	REVIEW
		DATE	REVISED
		Nov 15, 2001	



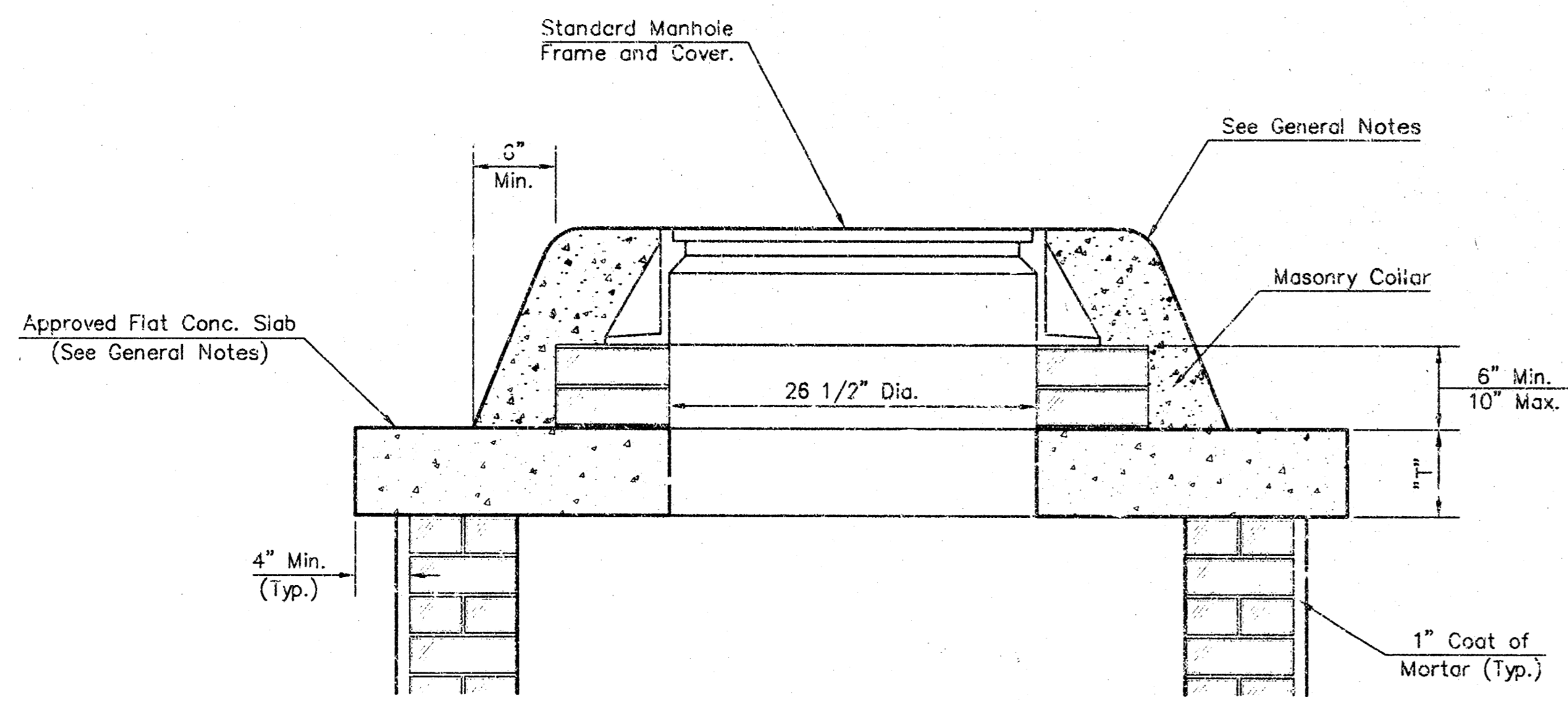
**SHALLOW TYPE "A" MANHOLE**



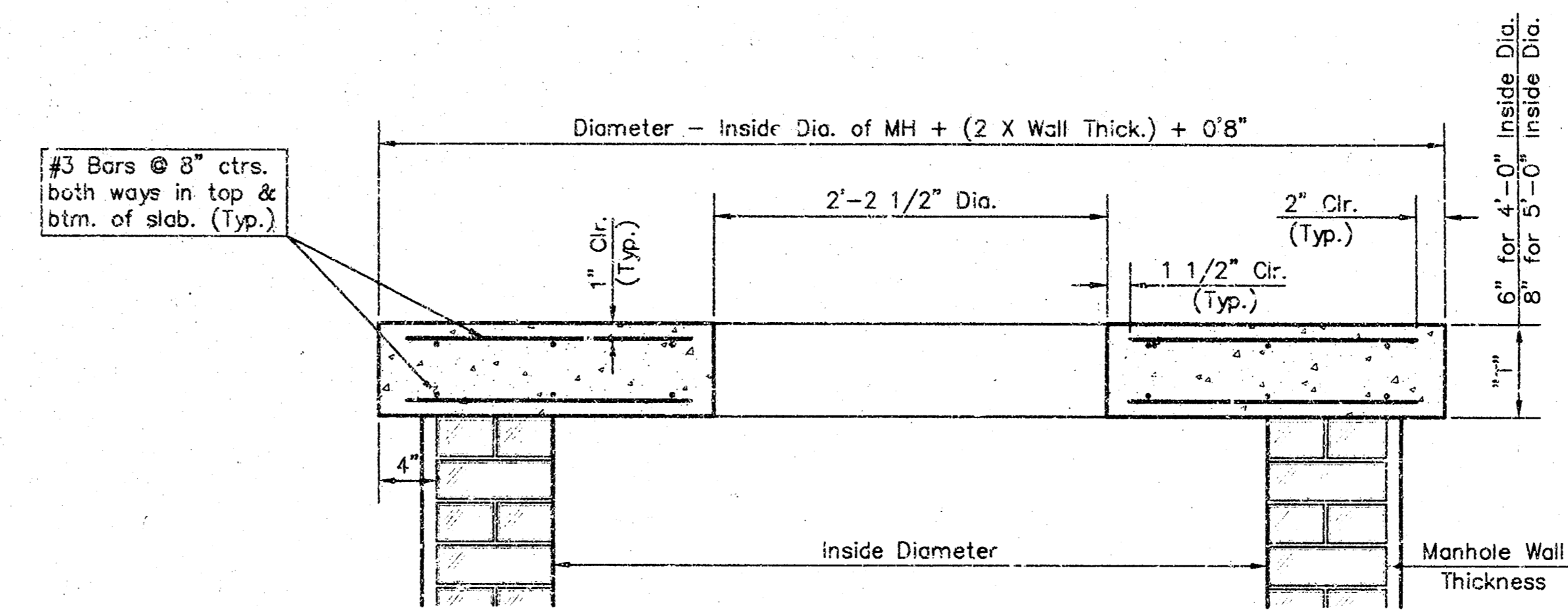
**SHALLOW TYPE "B" MANHOLE**



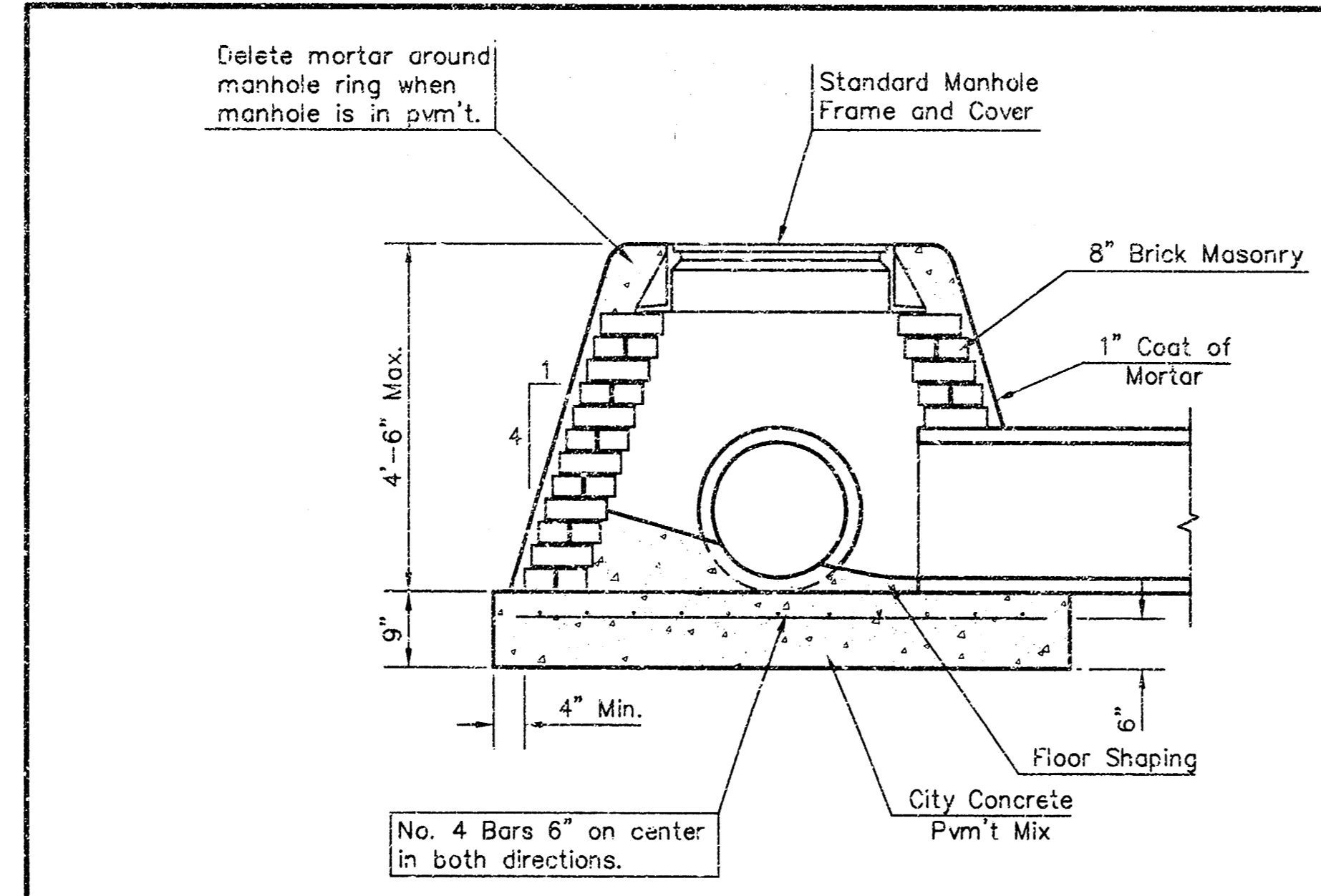
**PLAN**



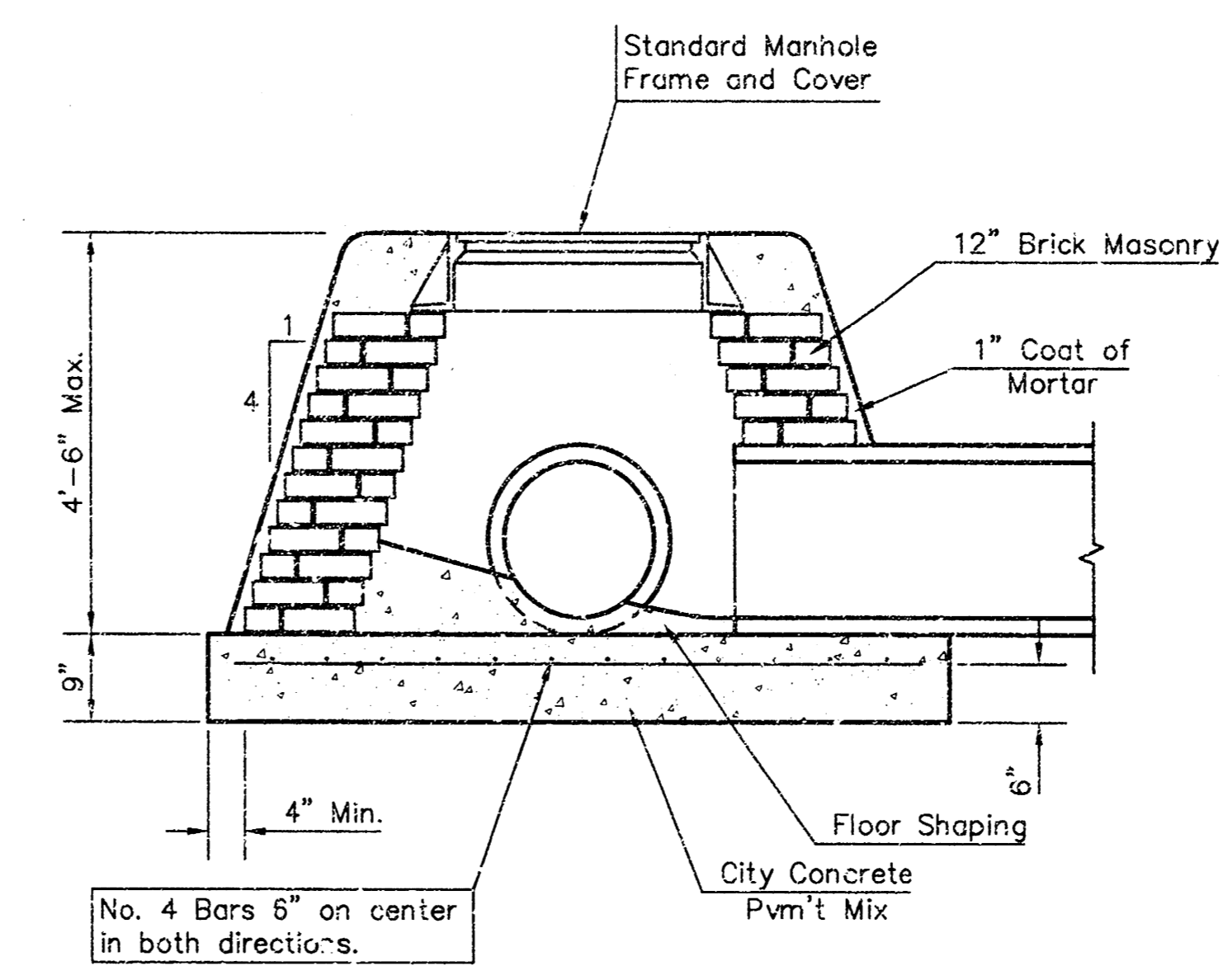
**MASONRY COLLAR DETAIL**



**FLAT CONCRETE SLAB DETAILS**



**SPECIAL SHALLOW TYPE "A" MANHOLE**



**SPECIAL SHALLOW TYPE "B" MANHOLE**

**GENERAL NOTES**

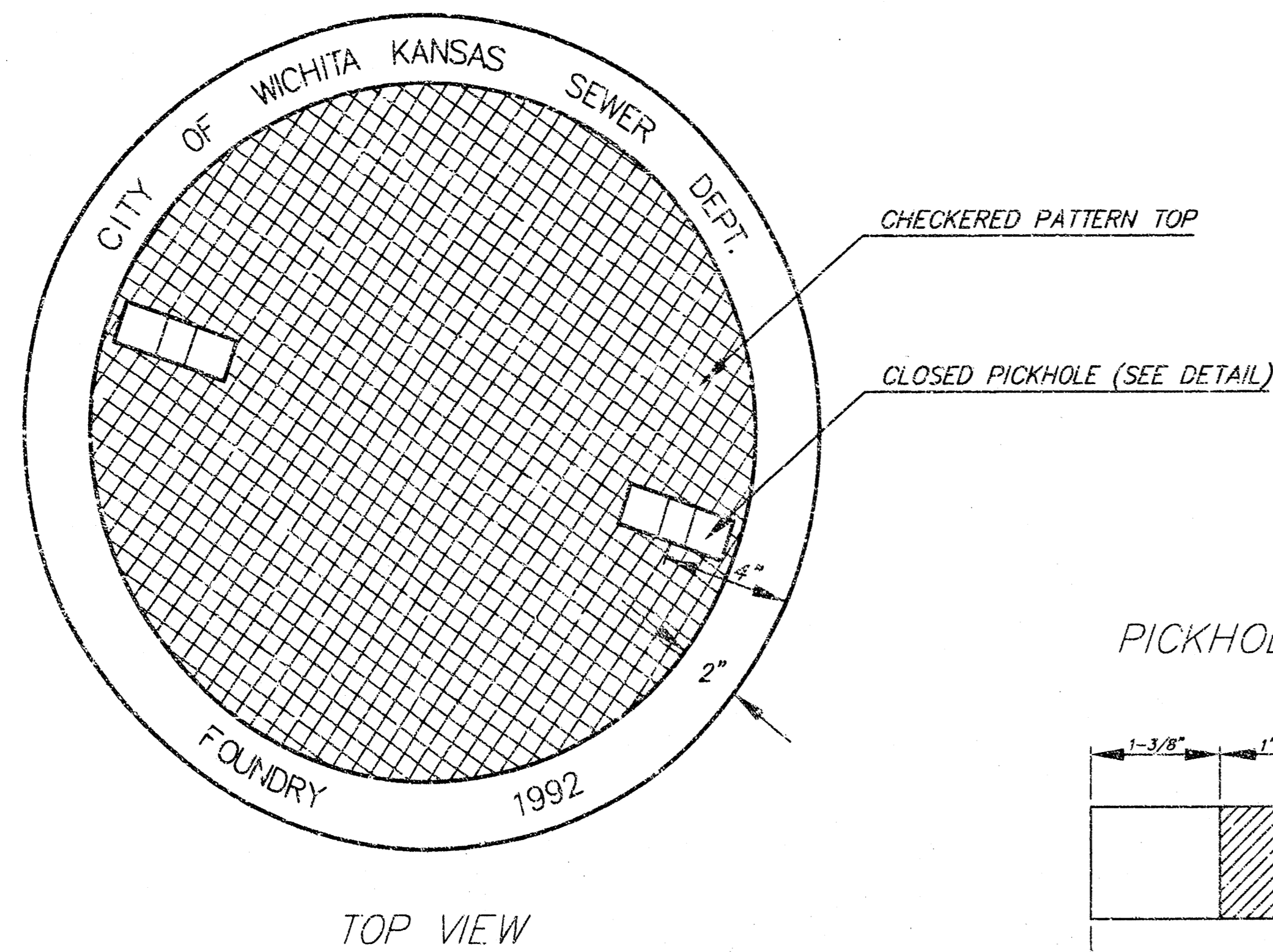
- Mortar used in masonry construction shall contain 8 sacks of cement per cubic yard. Concrete used in manhole bases shall conform to the requirements of concrete for concrete pavement construction as specified in the city standard paving specifications using city concrete cement mix without air entraining admixture. Mortar shall be placed around the manhole ring as shown on the drawings when manholes are constructed in unpaved areas. Type "A" shallow manholes can be used on crows when the manhole is not located within public street pavement. 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 6" 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.
- 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 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. Manhole floors shall have slopes of 3 inches per foot in the areas outside of the flow channels sloped toward the flow channels. Pipes laid through manholes shall have the top half removed to neat lines for the full inside diameter of the manhole. Manhole floors shall then be shaped around the bottom half of the pipe which forms the flow channel.
- Pipes installed within the excavation made for the manhole shall be cradled with concrete to the limits of the manhole excavation. When clay pipe is used, the cradle shall extend to the first joint outside the manhole. The cradle shall be terminated at the clay pipe joint in a manner which will maintain the flexibility of the joint. Cost of cradle within manhole excavation or to clay pipe joints adjacent to manhole shall be included in the unit price bid for the manhole.
- Manhole cover castings and manhole frame castings shall conform to the requirements as indicated in the standard specifications and as shown in the standard detail drawings.
- The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.
- Standard shallow manholes type "A" and "B" shall be paid for at the unit price bid per each for the type and diameter indicated. Standard special shallow manholes type "A" and "B" shall be paid for at the unit price bid per each for the type indicated. All standard shallow manhole diameters will be 4' unless indicated otherwise.
- All brick used in manhole construction shall meet Grade SW of ASTM C652 or C62-87.

<p>THE CITY OF WICHITA</p> <p>CITY ENGINEER'S OFFICE 405 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4114 FAX</p>	<b>STANDARD / SPECIAL SHALLOW MANHOLES TYPE 'A' AND 'B'</b>	
	M. E. LINDEBAK P.E. - CITY ENGINEER	
	PROJECT NUMBER 1183 PPS	O.C.A. # 607861
	DATE MAR 96	SHEET 6 OF 7

MANHOLE COVER  
Weight = 180 Lbs.

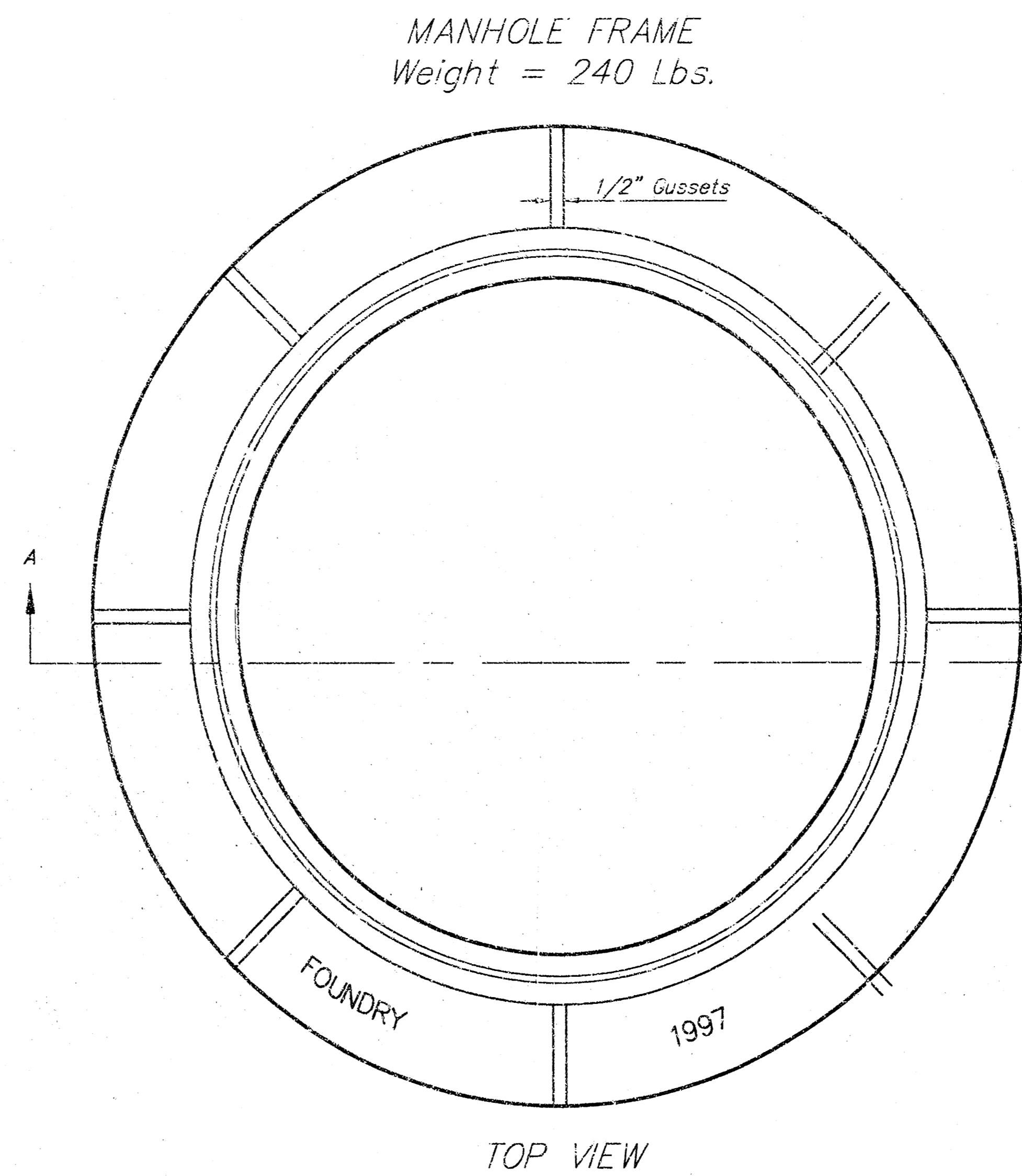
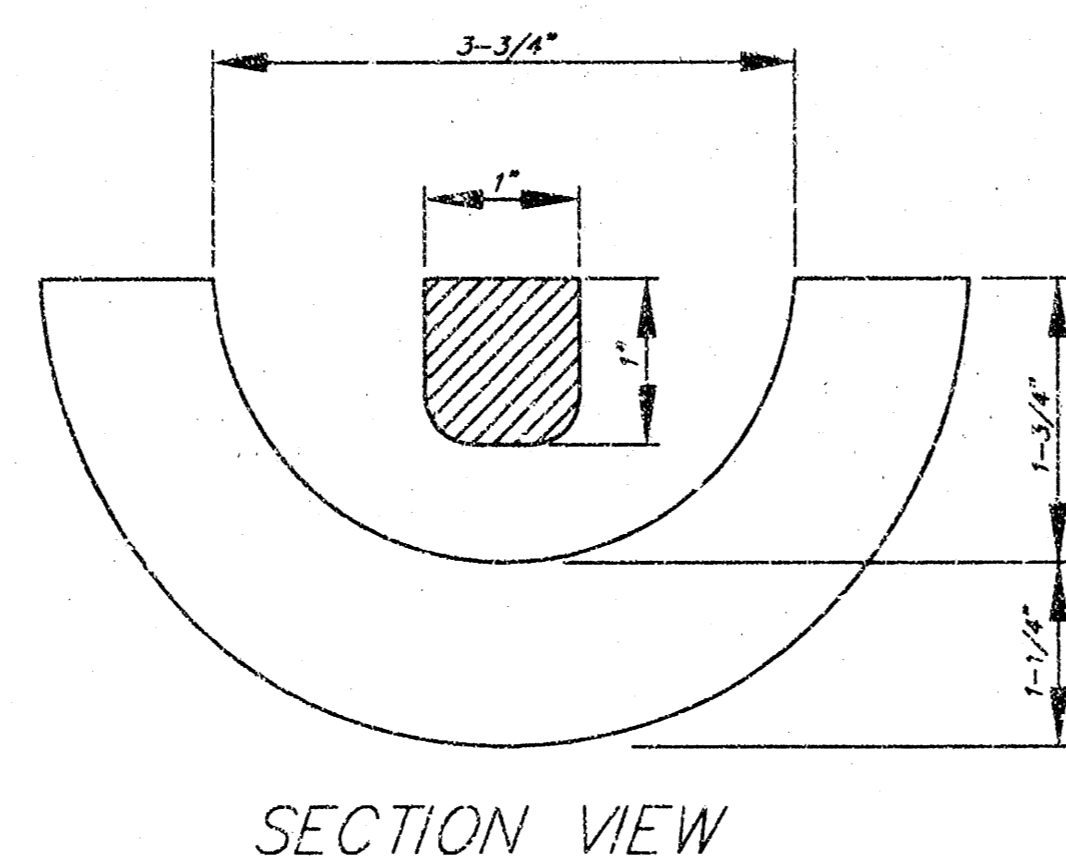
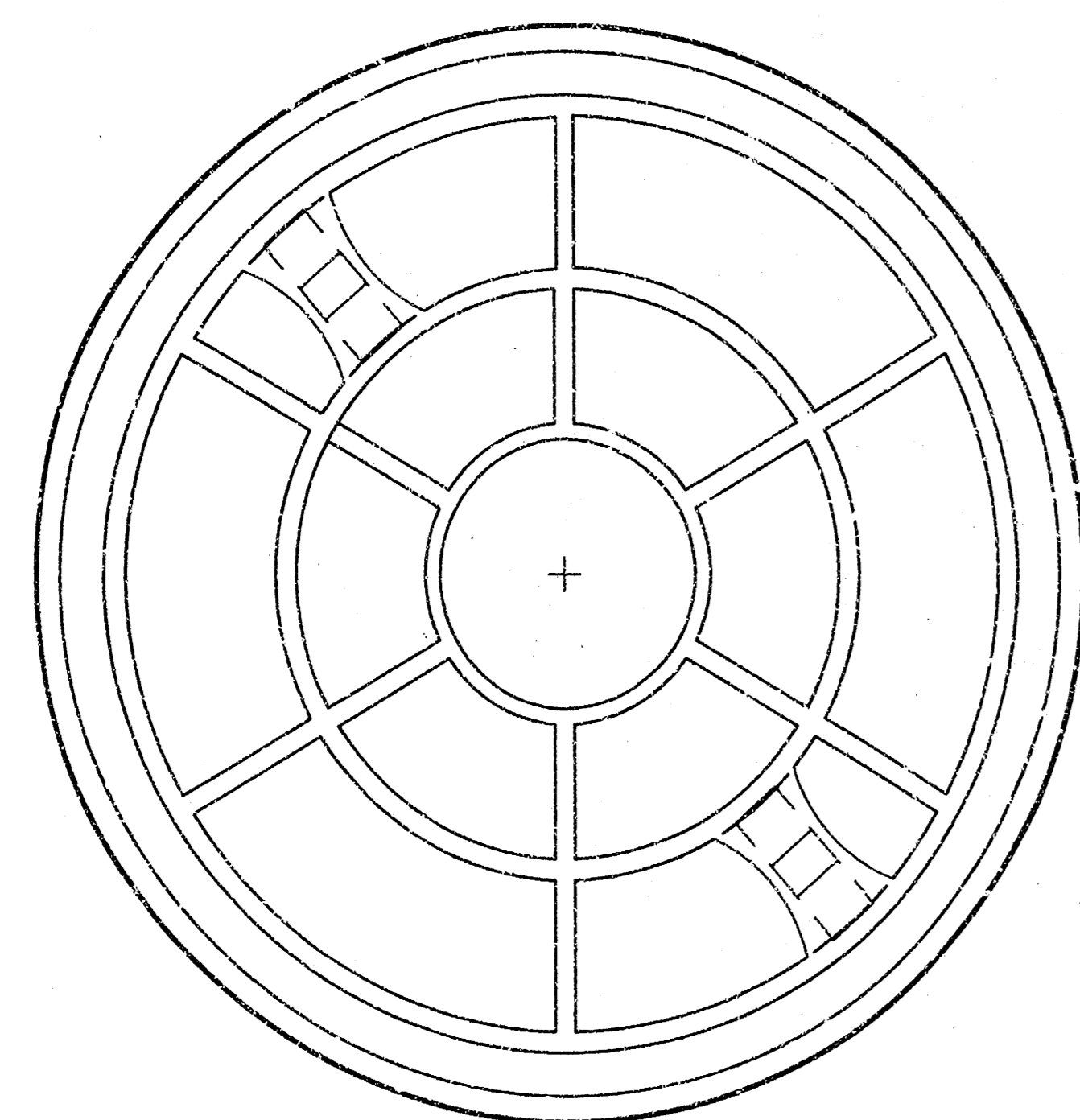
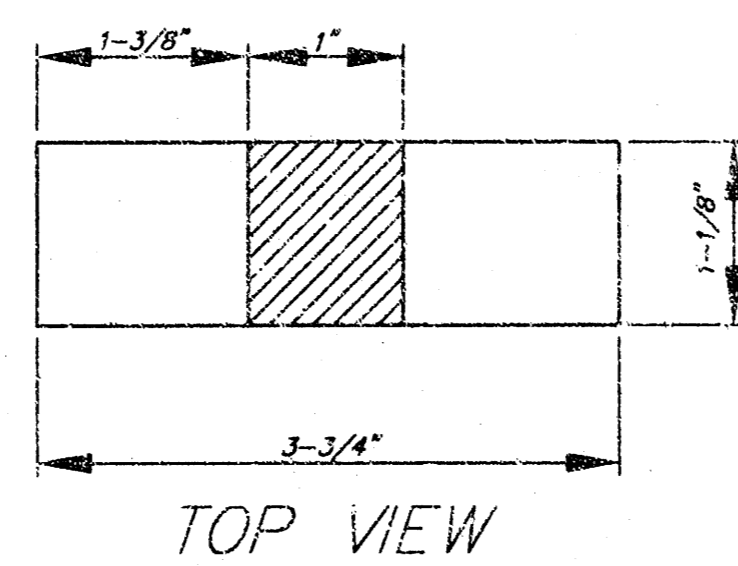
# MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY  
CITY OF WICHITA, KANSAS

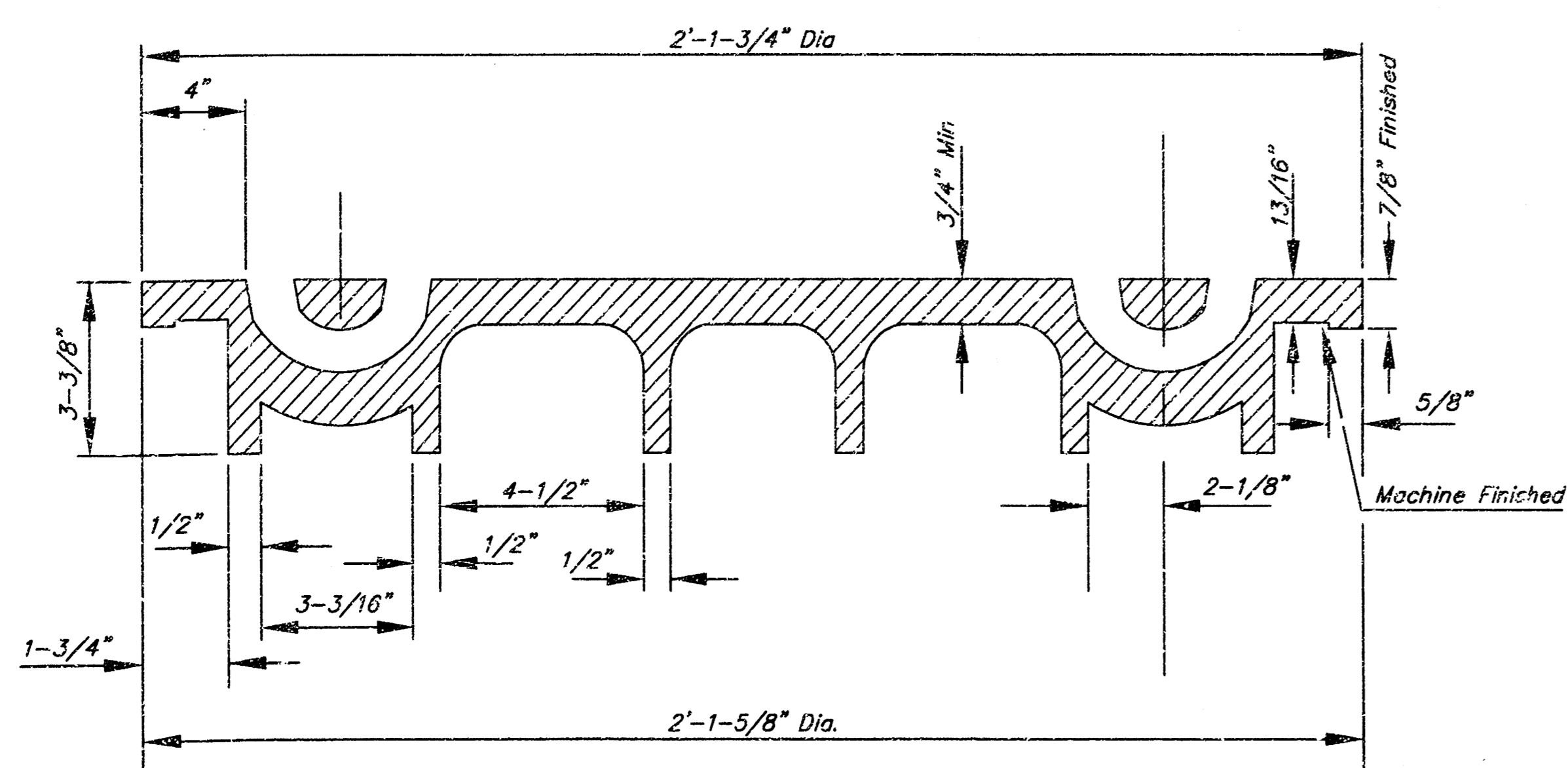
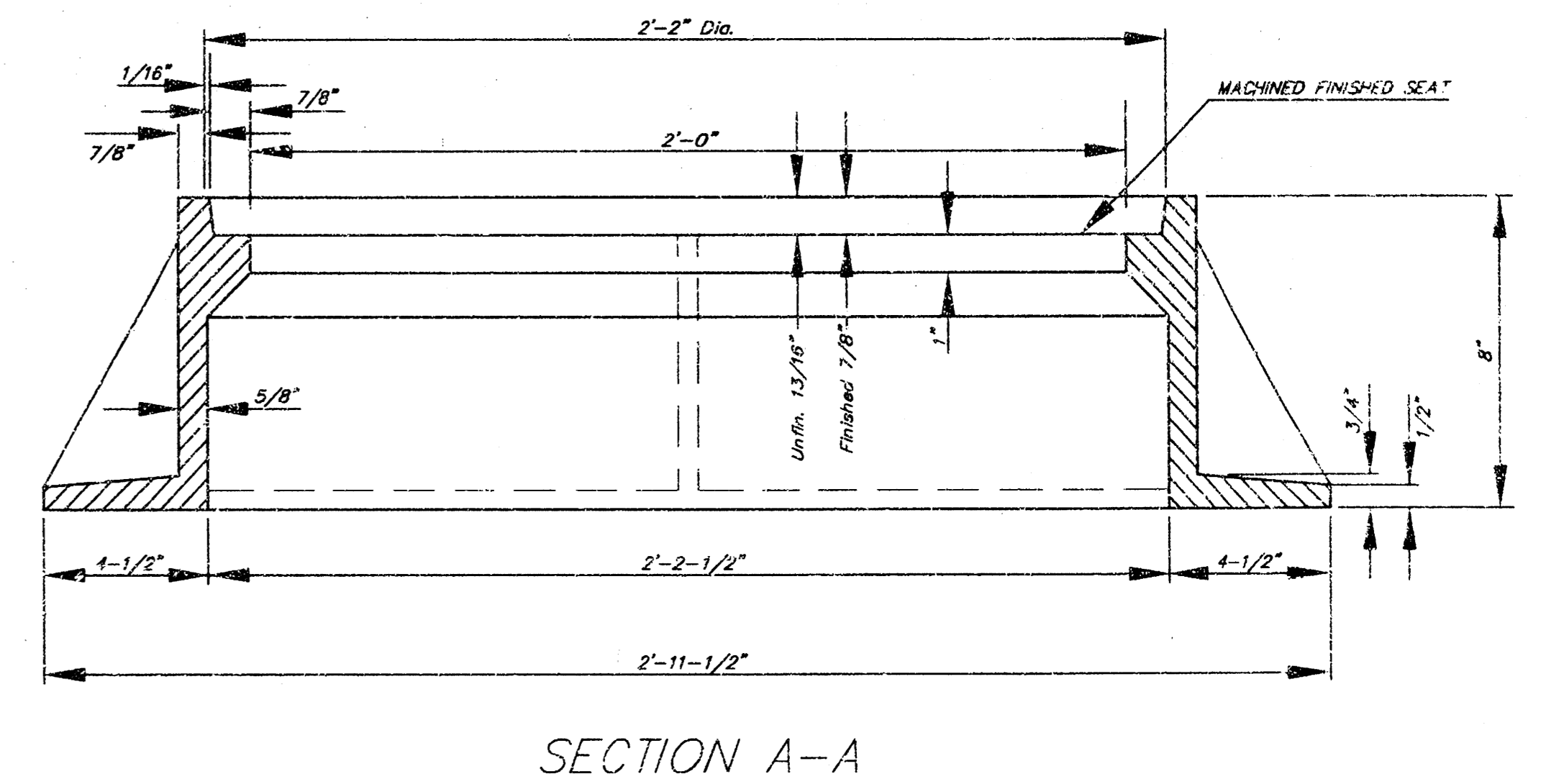
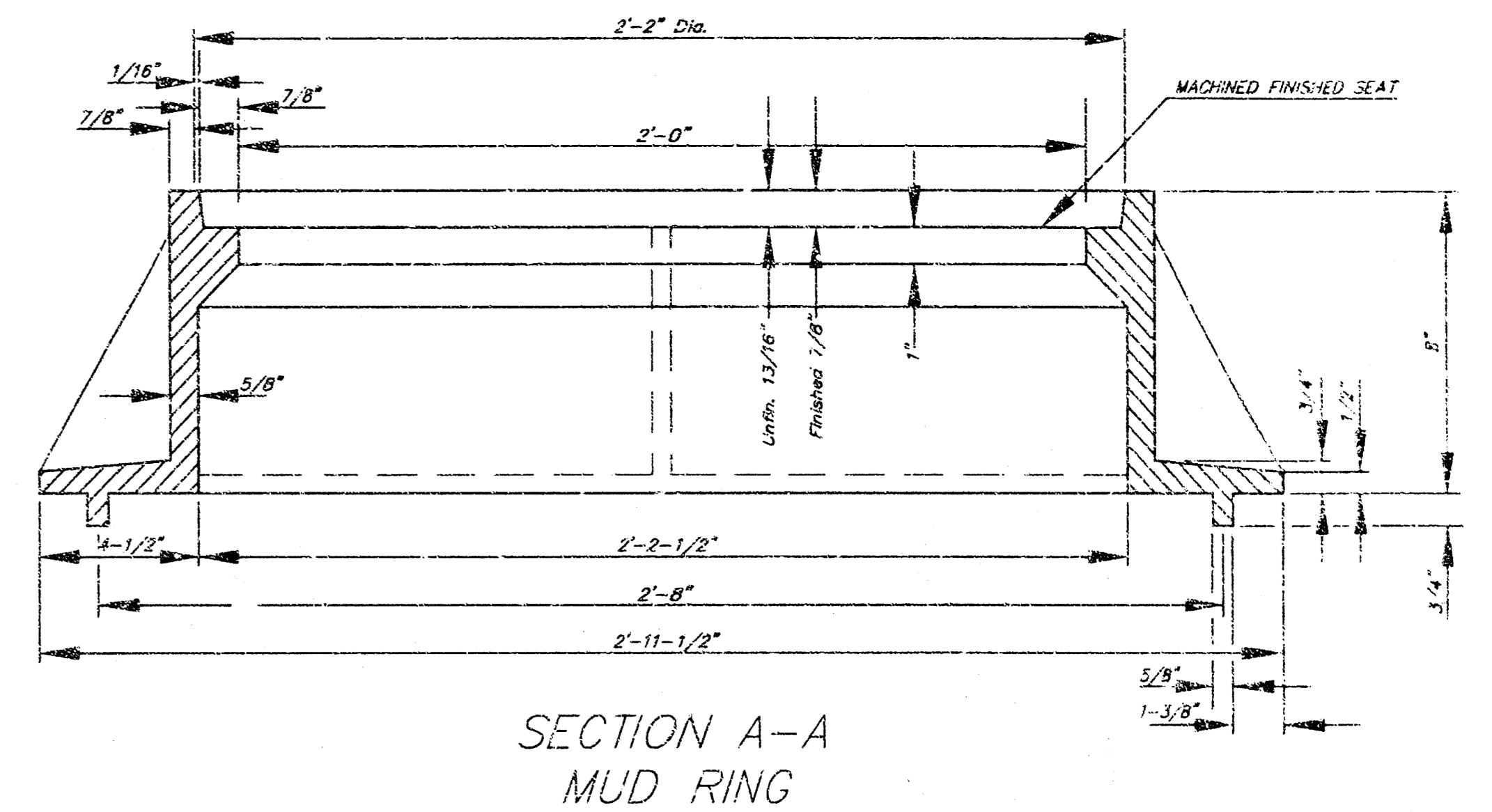


TOP VIEW

PICKHOLE DETAIL



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 OF 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 USING LETTERS AT LEAST 1 INCH IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.

<p>THE CITY OF WICHITA</p>	<b>MANHOLE FRAME AND COVER</b>	
	M. E. LINDEBAK P.E. - CITY ENGINEER	
<p>CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 655 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4500 (316) 268-4114 FAX</p>	PROJECT NUMBER 1183 PPS	OCA # 607861
	DATE MAR 96	SHEET 7 OF 7