

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA
Sanitary & Storm Sewers *VRH 8/26/03*
NOTE TO CONTRACTORS
Installation, inspection and testing for this project is 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. All Construction and Materials shall comply with the City of Wichita Specifications and Standards (on file and available in the City Engineer's Office).

Benchmarks
#1 - "C" Chiseled on Top of Curb at W. end of median located in 34th St. North approx. 100' E of the NE Cor. of Lot 1, Block G, Ridge Port North 3rd Addition.
Elev. = 142.80 (City Datum)
#2 - "C" Chiseled on Top of Curb at East end of curb radius located near NW corner of Lot 1, Block G, Ridge Port North 3rd Addition.
Elevation = 144.87 (City Datum)

STORM SEWER IMPROVEMENTS & SANITARY SEWER IMPROVEMENTS TO SERVE RIDGE PORT NORTH 3RD ADDITION

LOT 1

Private Project Number: 1872 PPS (607861)

CITY OF WICHITA, KANSAS

Neil Cable, P.E. City Engineer

AUGUST 2003

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Copy of plat	

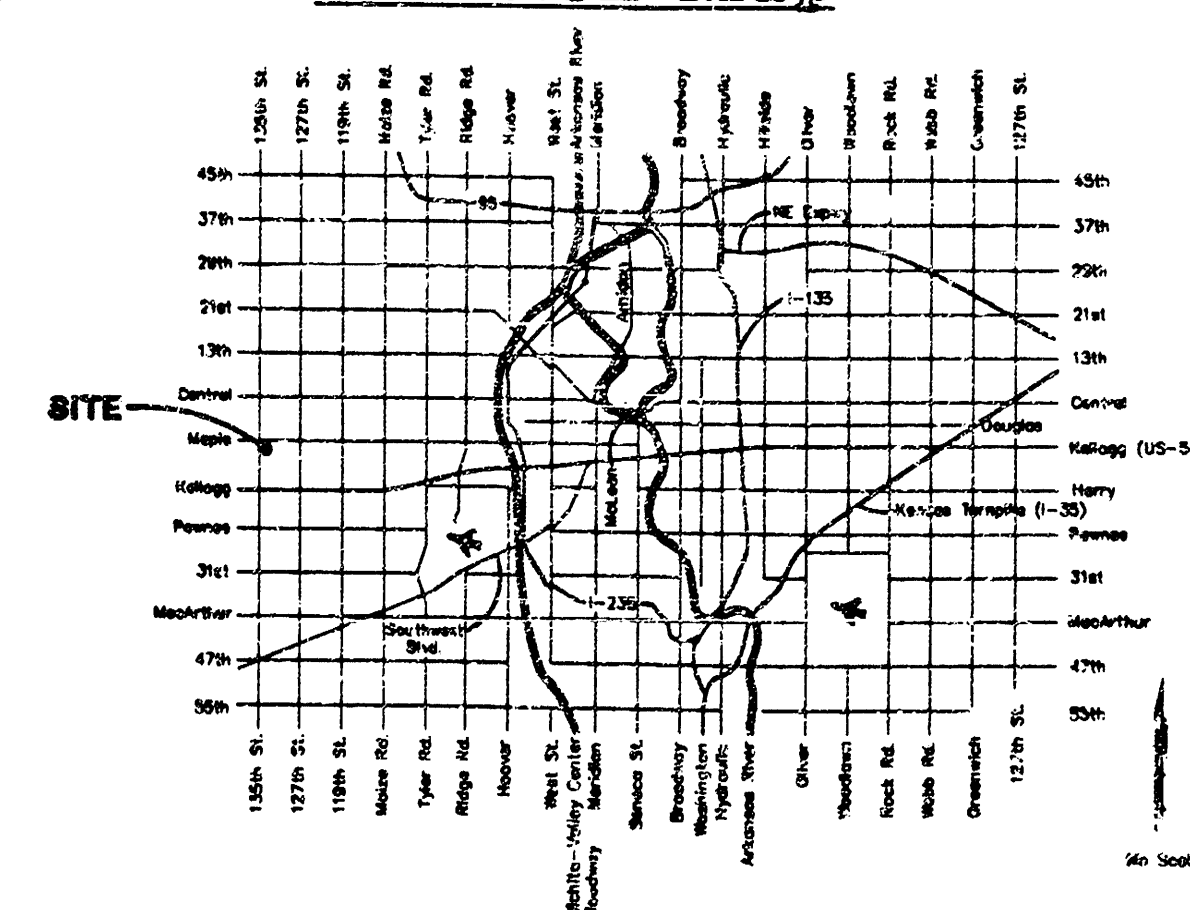
Legal Description

Lot 1, Block G, Ridge Port North 3rd Addition, Wichita, Sedgewick County, Kansas.

General Notes

- Contractor will be required to provide notice to utility companies a minimum of forty-eight (48) hours prior to any excavation, as follows:
Kansas One-Call 687-2470
The Contractor must notify the following in case of an emergency:
Cox Communications 262-4270
Kansas Gas Service Company 1-888-482-1950
Westar Energy (Electric) 383-8650
Aquila Energy (Gas) 1-800-303-0357
SBC (Telephone) 1-800-285-8313
City of Wichita Water Dept. (Water) 268-4908
City of Wichita Sewer Maint. (SS) 268-4024
City of Wichita Storm Sewer Maint. 268-4090
City of Wichita Traffic Maint. 258-4034
- Utility service lines, poles, valve boxes, meters, et cetera are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their location, as shown on the plans represent the best information obtainable for design and shall be field verified. The contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.
- Contractor shall not start work on the project until the project inspector is assigned to the project and is present on the site. Contractor shall not start on the project until all necessary bonds and permits have been obtained. Any work done without inspection will be required to be uncovered for inspection.
- 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. 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 archaeological investigations unless buried in a previously approved borrow location.
- All sewers & appurtenances shall be installed in accordance with the most recent edition of City of Wichita, Kansas Standard Specifications for the Construction of City Projects.
- All disturbed R/W areas not intended for pavement or sidewalk construction shall be seeded with Kansas Premium Fescue Blend at a rate of 8 lb./1000 Sq. Ft., fertilized with a 16-20-6 ratio at a rate of 4 lb./1000 Sq. Ft., and mulched with Prairie Hay at a rate of 92 lb./1000 Sq. Ft. Mulch shall be "patted" with forks or punched into soil to reduce loss due to wind.
- 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 as subsidiary to the other pay items of work.
- Trees and shrubs 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.
- The Contractor shall give all property owners/or tenants of developed property directly abutting the construction of this project a minimum of ten (10) days notice prior to start of construction.
- No land clearing or grading shall begin until all applicable erosion control measures have been installed. This project is subject to this SWPP Plan. The Contractor shall comply with any unusual requirements as necessary for the site to be in compliance during construction, as per this plan and Local City specifications.
- An NSPDE Permit Application has been submitted to the State. A copy of this application and the SWPP plan can be found at the job site office for the duration of the construction process.

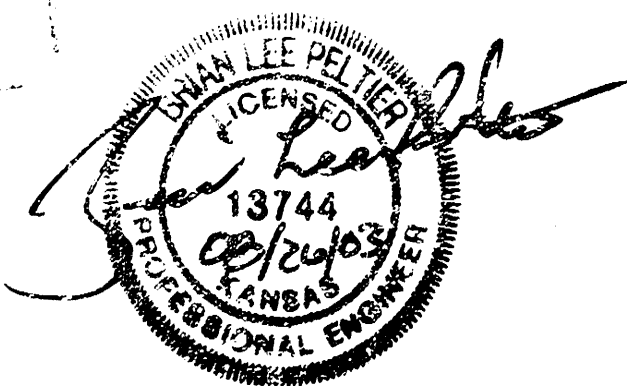
Location Map



Legend

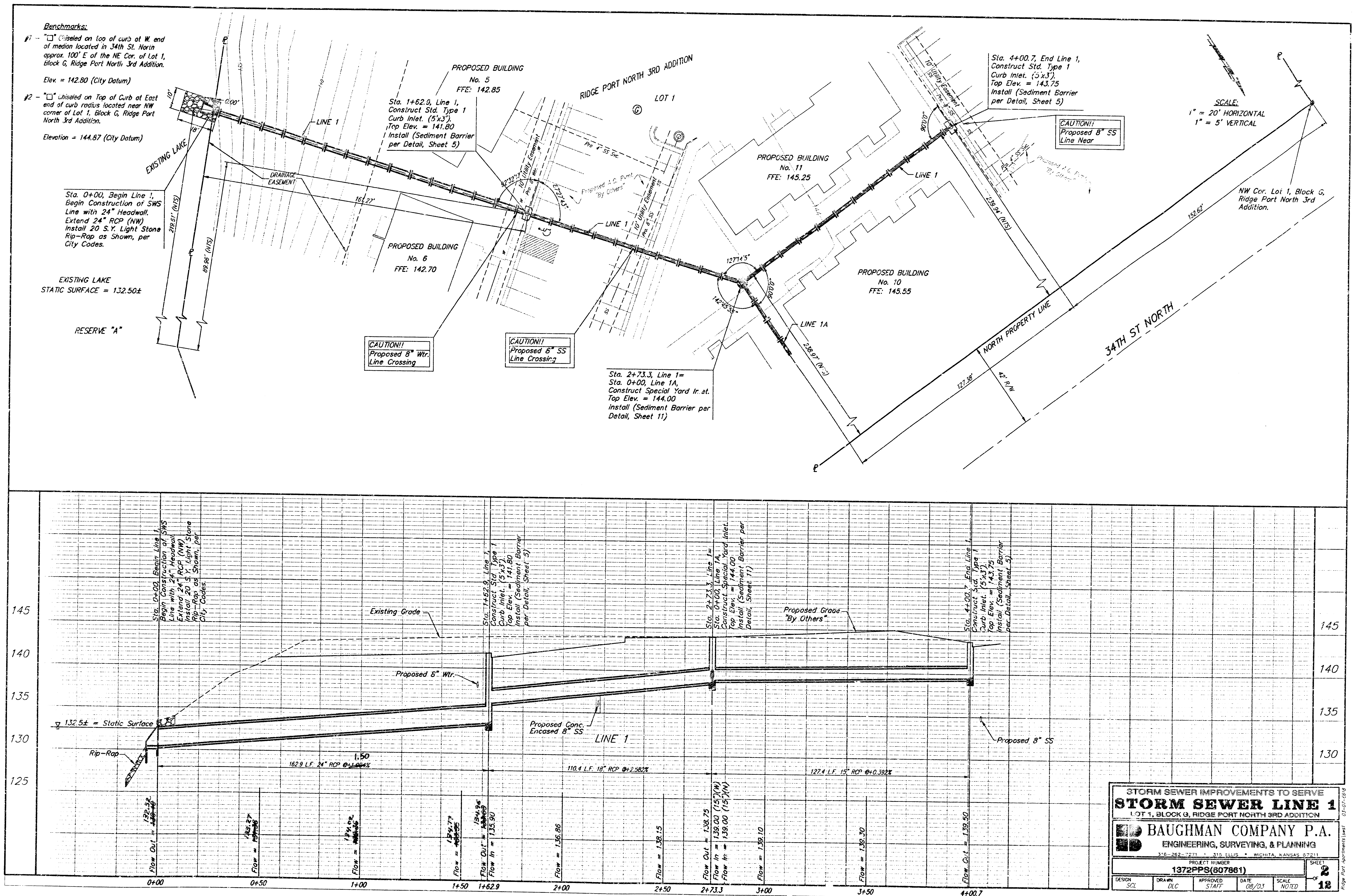
SS	Existing Sanitary Sewer Line
---	Proposed Sanitary Sewer
---	Proposed Storm Sewer
---	Existing Storm Sewer
---	Existing Water
---	Proposed Water Line

AS-BUILT
12/12/03
E-7
12/12/03
RDL



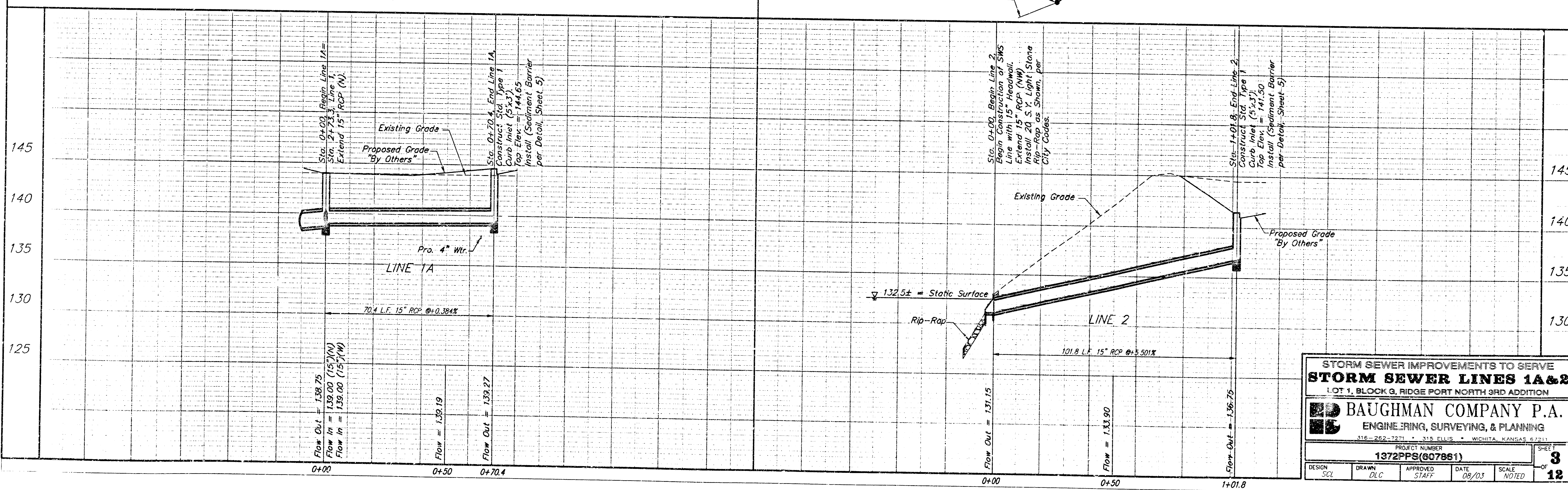
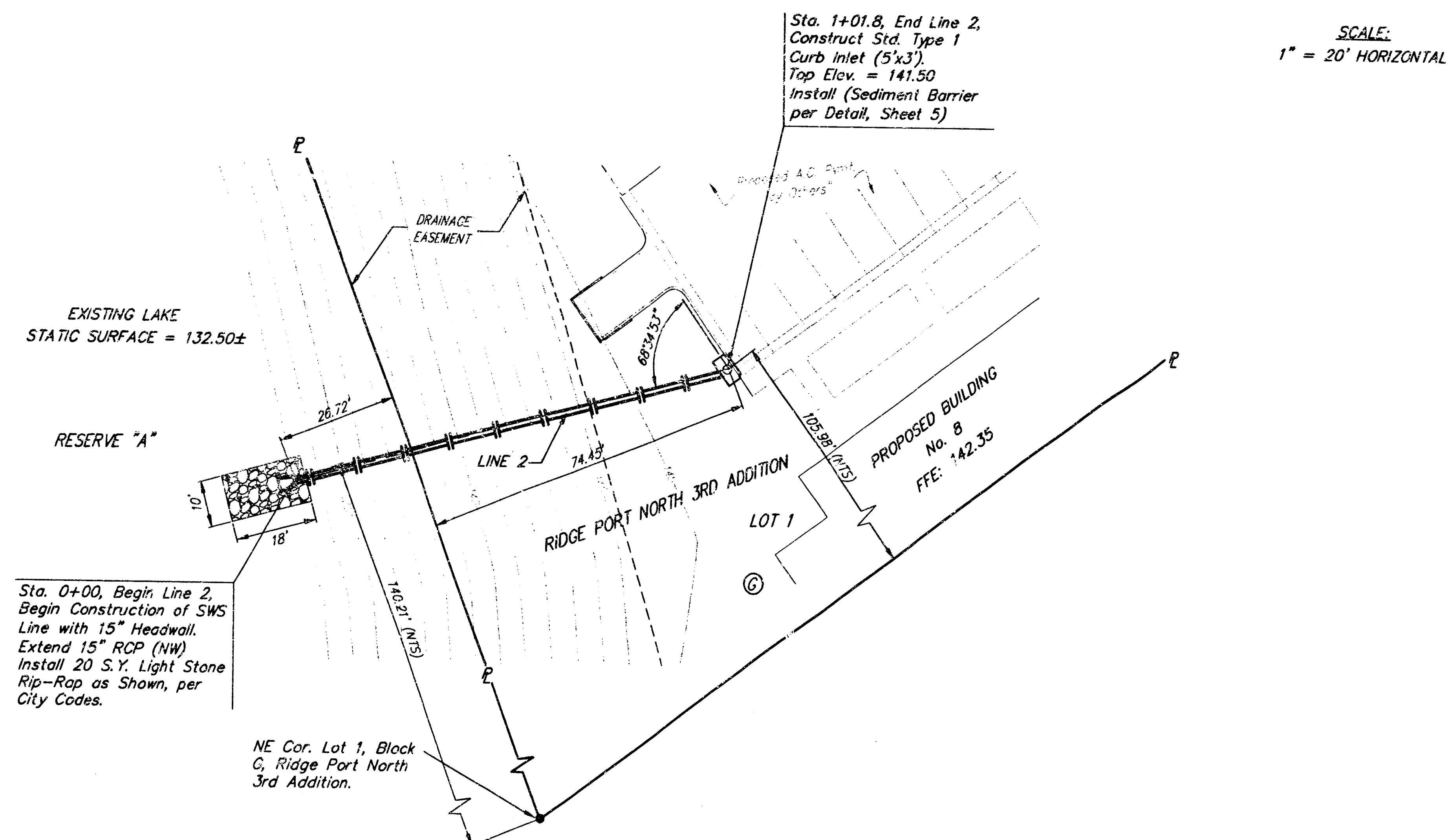
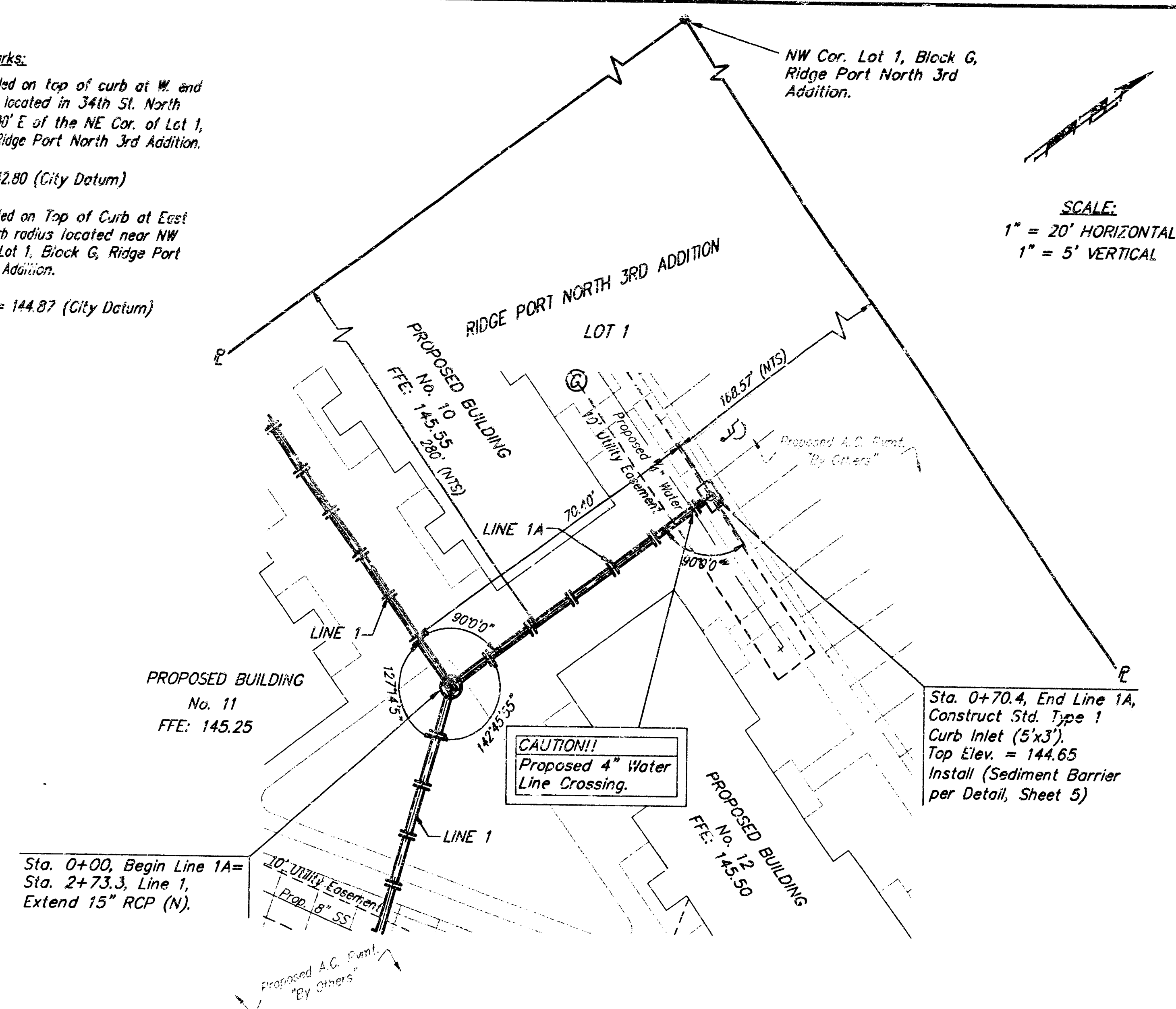
BAUGHMAN COMPANY
ENGINEERING, SURVEYING & PLANNING
210-252-7271 • 210 ELLIS • WICHITA, KANSAS 67211

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Benchmarks:
 #1 - "□" Chiseled on top of curb at W. end of median located in 34th St. North approx. 100' E of the NE Cor. of Lot 1, Block G, Ridge Port North 3rd Addition.
 Elev. = 142.80 (City Datum)

#2 - "□" Chiseled on Top of Curb at East end of curb radius located near NW corner of Lot 1, Block G, Ridge Port North 3rd Addition.
 Elevation = 144.87 (City Datum)



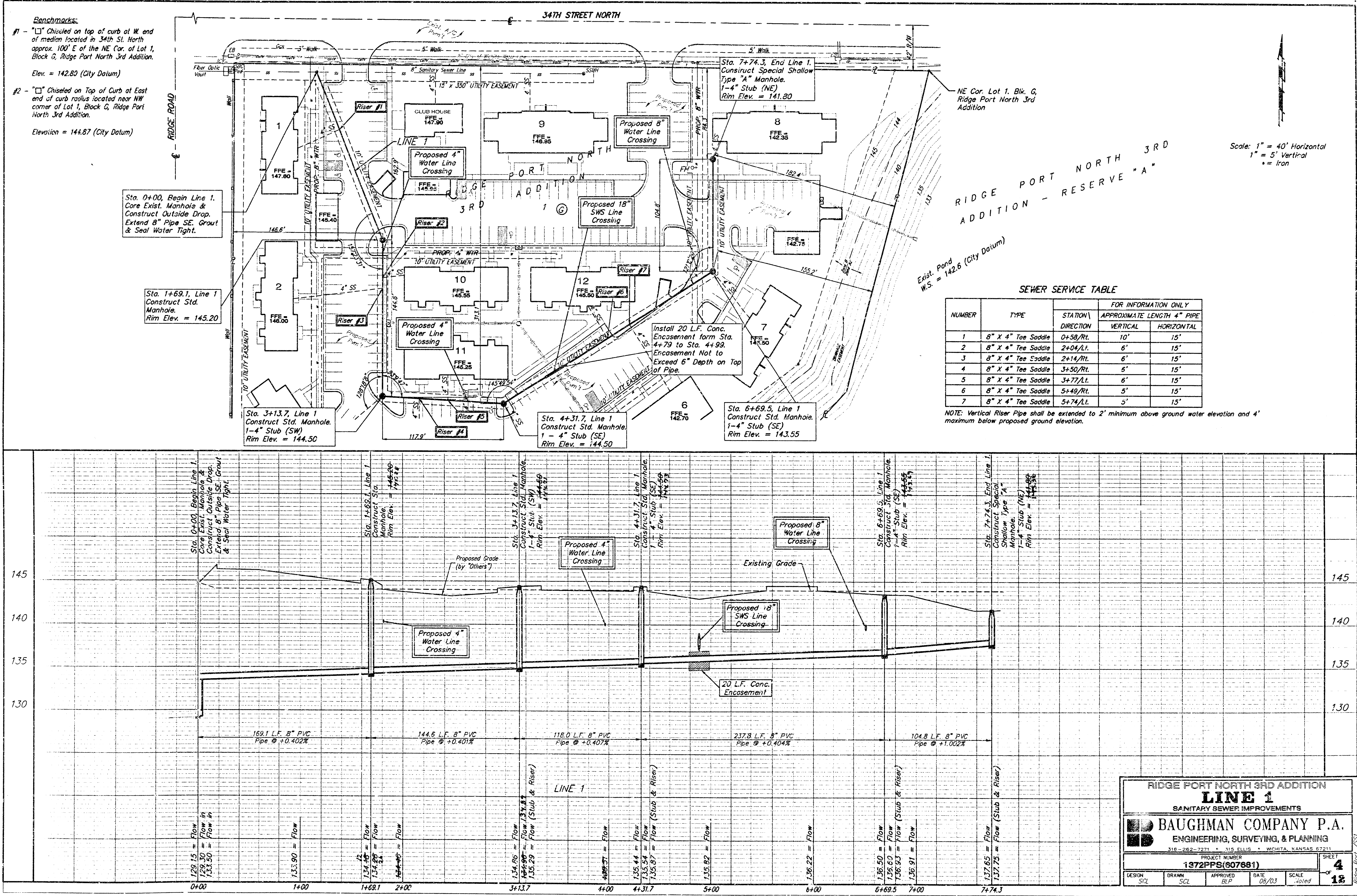
STORM SEWER IMPROVEMENTS TO SERVE
STORM SEWER LINES 1A&2
 LOT 1, BLOCK G, RIDGE PORT NORTH 3RD ADDITION

BAUGHMAN COMPANY P.A.
 ENGINEERING, SURVEYING, & PLANNING
 316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER
1372PPS(607861)

DESIGN: SCL DRAWN: DLC APPROVED: STAFF DATE: 08/03 SCALE: NOTED

SHEET
3
 OF
12



Benchmarks:
#1 - "I" Chiseled on top of curb at W. end of median located in 34th St. North approx. 100' E of the NE Cor. of Lot 1, Block G, Ridge Port North 3rd Addition.
Elev. = 142.80 (City Datum)
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Elevation = 144.87 (City Datum)

NE Cor. Lot 1, Blk. G, Ridge Port North 3rd Addition
Exist. Pond W.S. = 142.6 (City Datum)

RIDGE PORT NORTH 3RD ADDITION - RESERVE "A"

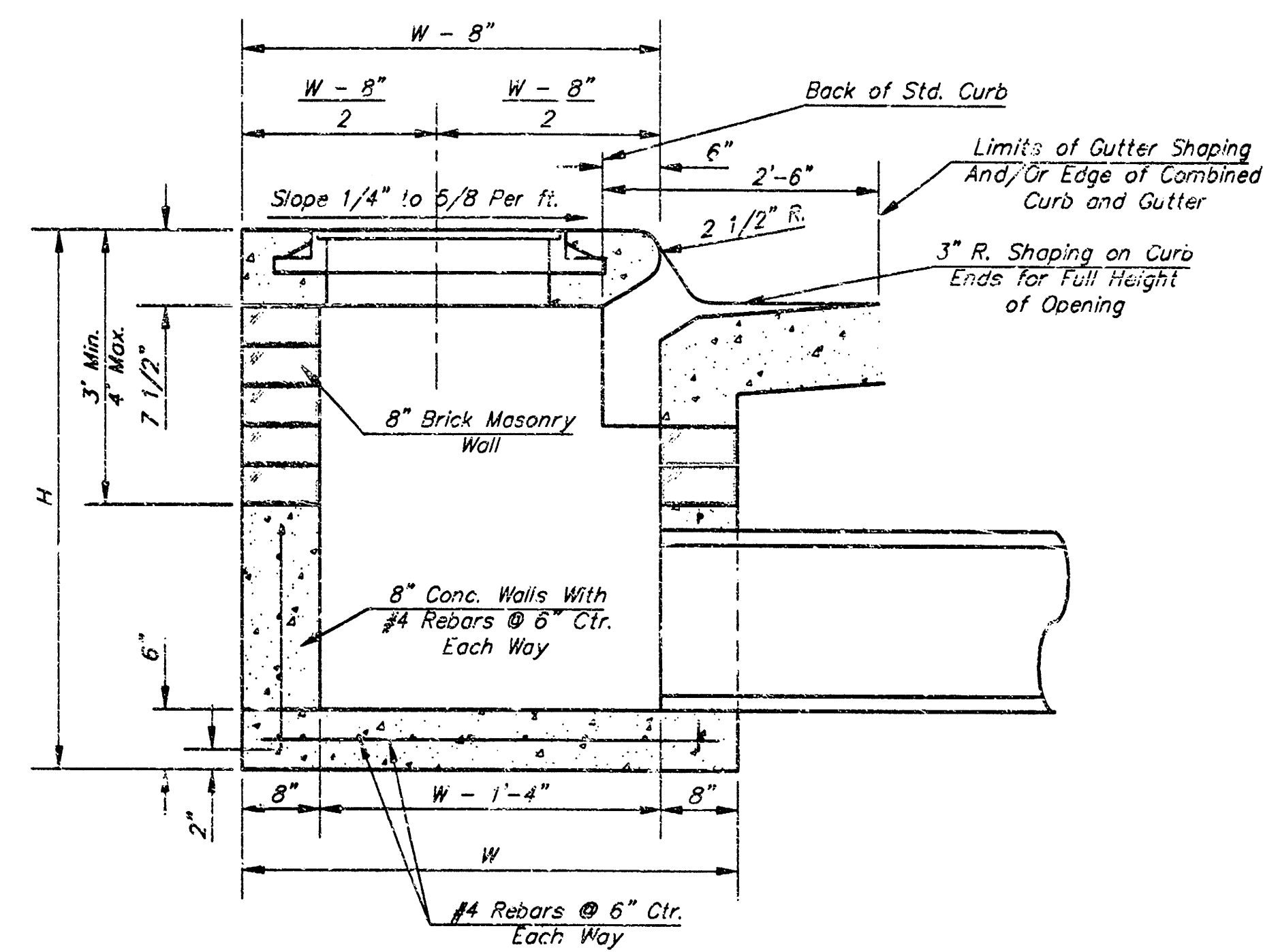
Scale: 1" = 40' Horizontal
1" = 5' Vertical
• = Iron

SEWER SERVICE TABLE

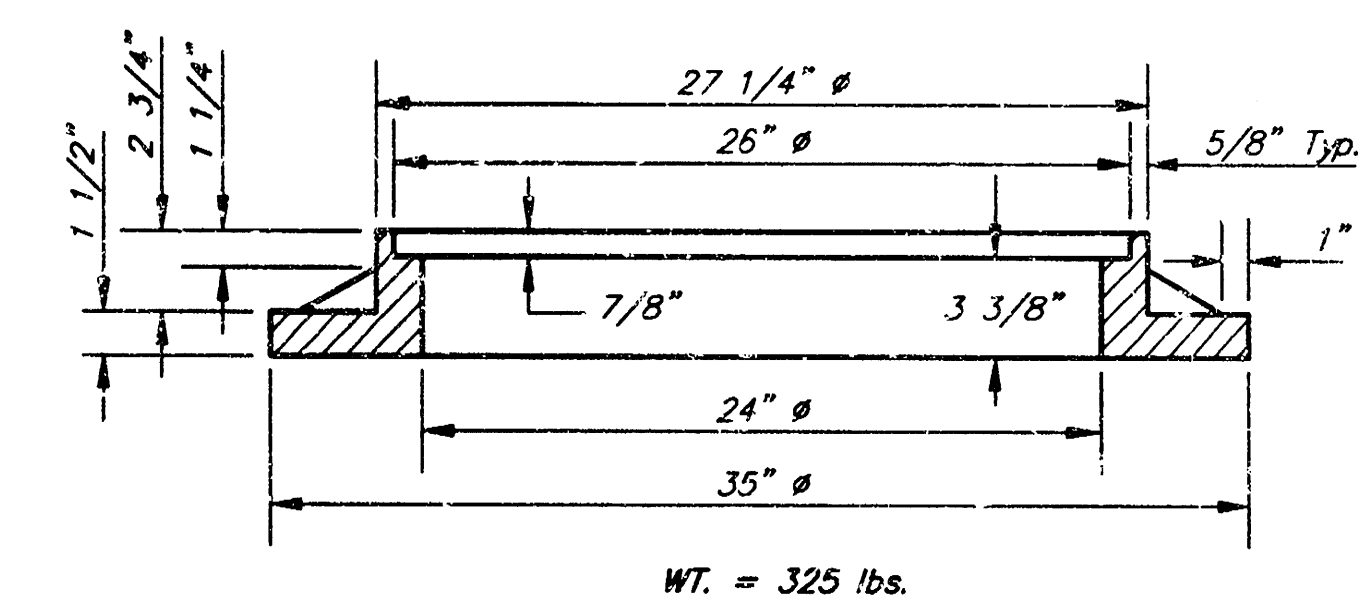
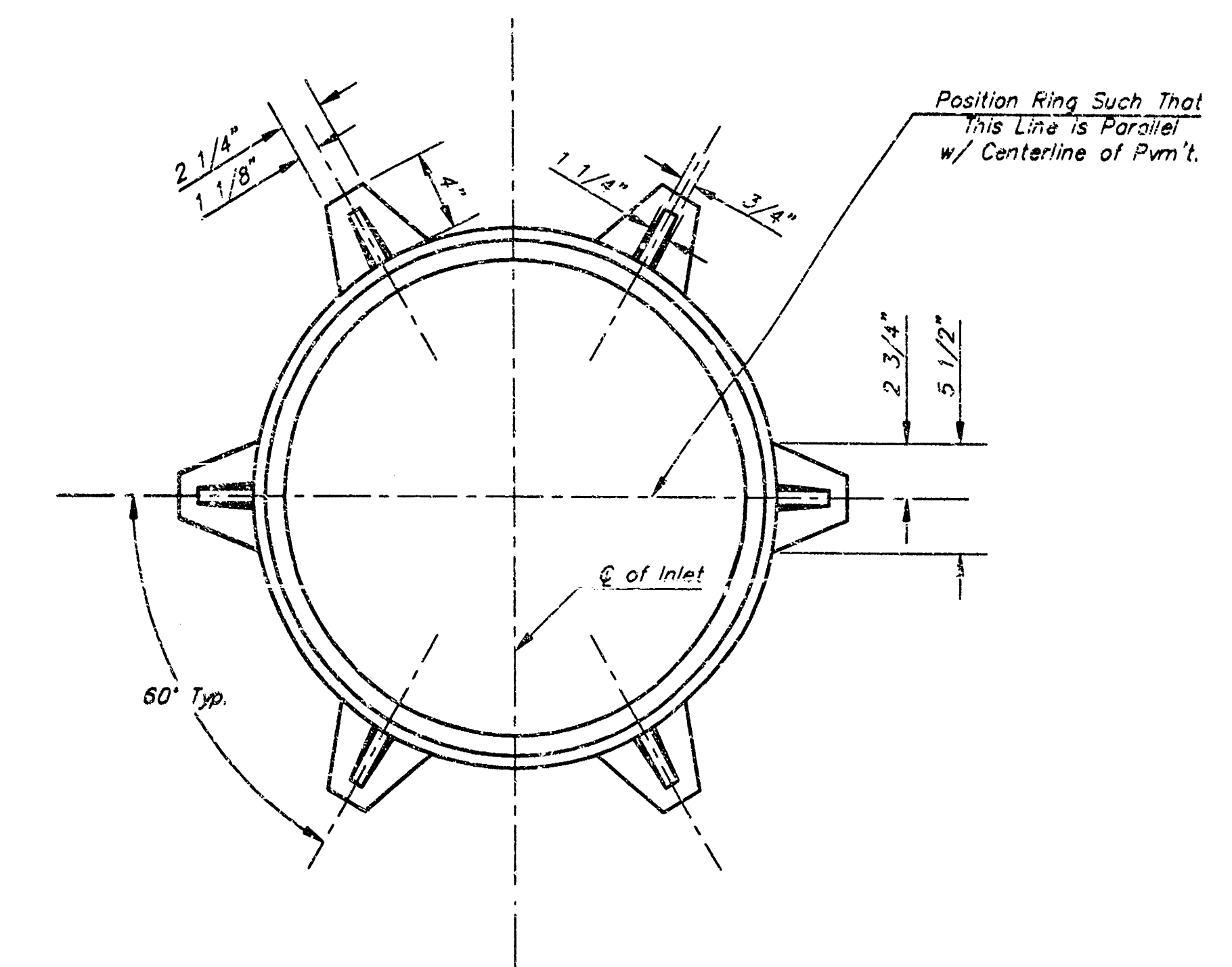
NUMBER	TYPE	STATION DIRECTION	FOR INFORMATION ONLY	
			APPROXIMATE LENGTH 4" PIPE	
			VERTICAL	HORIZONTAL
1	8" X 4" Tee Saddle	0+50/Rt.	10'	15'
2	8" X 4" Tee Saddle	2+04/Lt.	6'	15'
3	8" X 4" Tee Saddle	2+14/Rt.	6'	15'
4	8" X 4" Tee Saddle	3+50/Rt.	5'	15'
5	8" X 4" Tee Saddle	3+77/Lt.	6'	15'
6	8" X 4" Tee Saddle	5+49/Rt.	5'	15'
7	8" X 4" Tee Saddle	5+74/Lt.	5'	15'

NOTE: Vertical Riser Pipe shall be extended to 2' minimum above ground water elevation and 4' maximum below proposed ground elevation.

RIDGE PORT NORTH 3RD ADDITION
LINE 1
SANITARY SEWER IMPROVEMENTS
BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-282-7271 • 315 ELLIS • WICHITA, KANSAS 67211
PROJECT NUMBER
1372PPS(807681)
DESIGN: SCL DRAWN: SCL APPROVED: BLP DATE: 08/03 SCALE: Noted
SHEET
4
OF
18

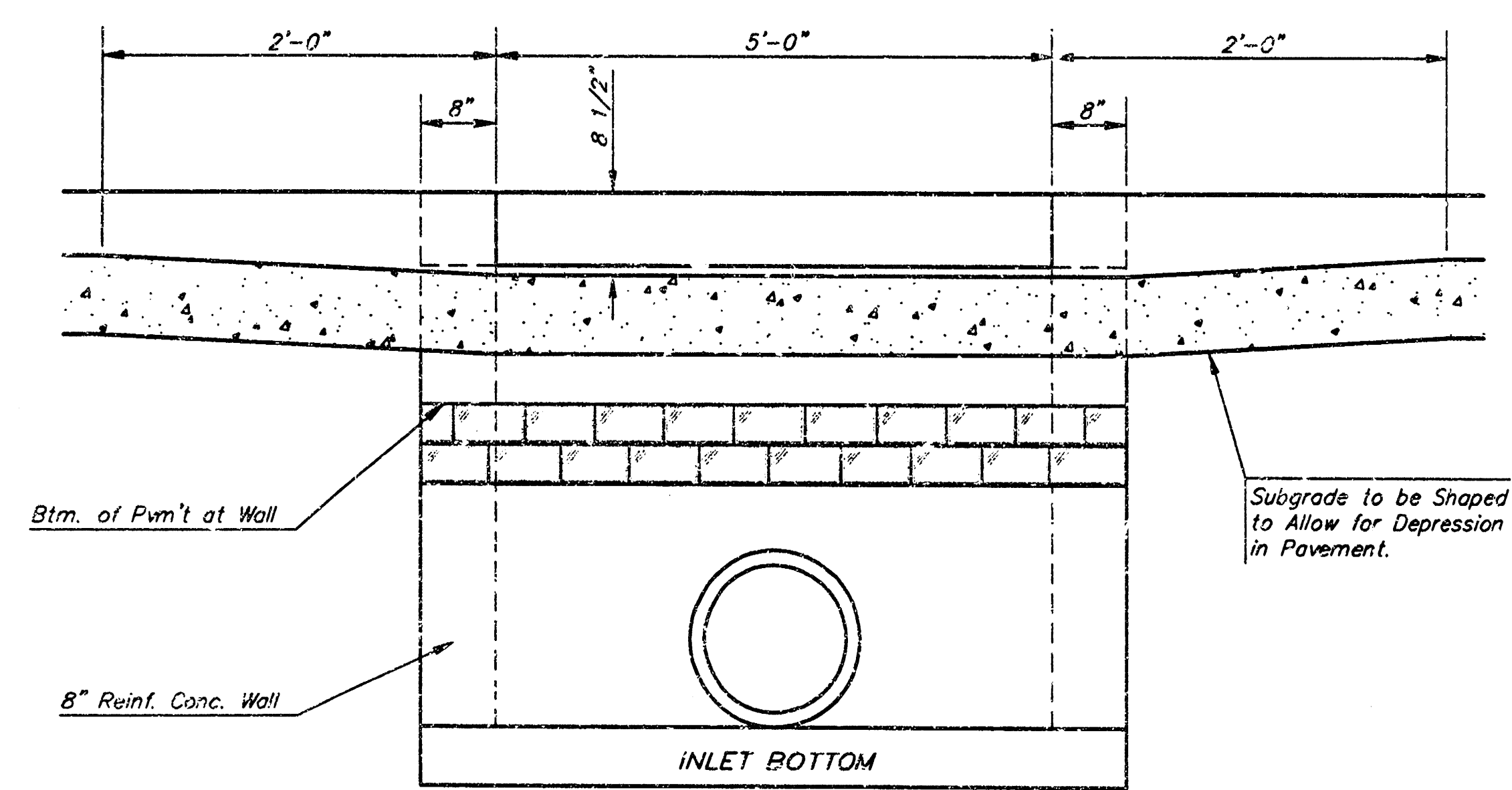


SECTION A-A

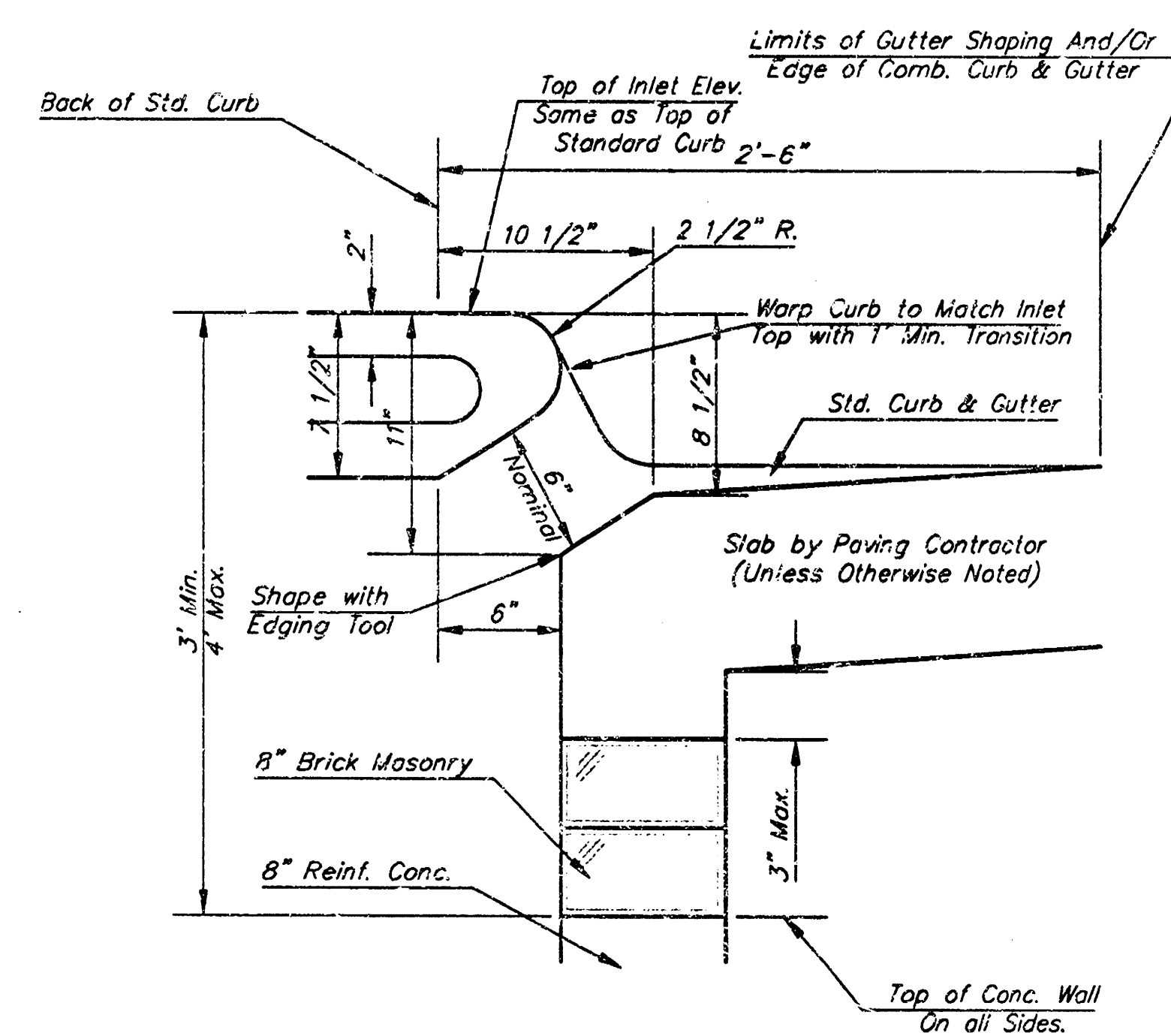


MANHOLE RING AND COVER

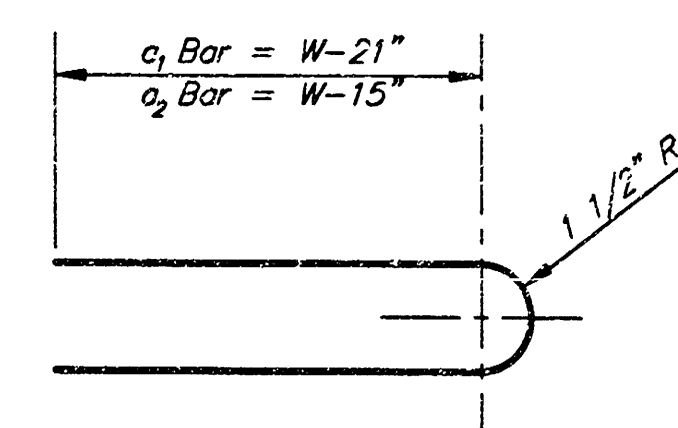
*See City of Wichita Standard Manhole Ring and Cover Detail Sheet for Cover Details to Be Used With Inlet Frame.



SECTION C--C



SECTION B-B



BENDING DIAGRAM

STEEL SCHEDULE

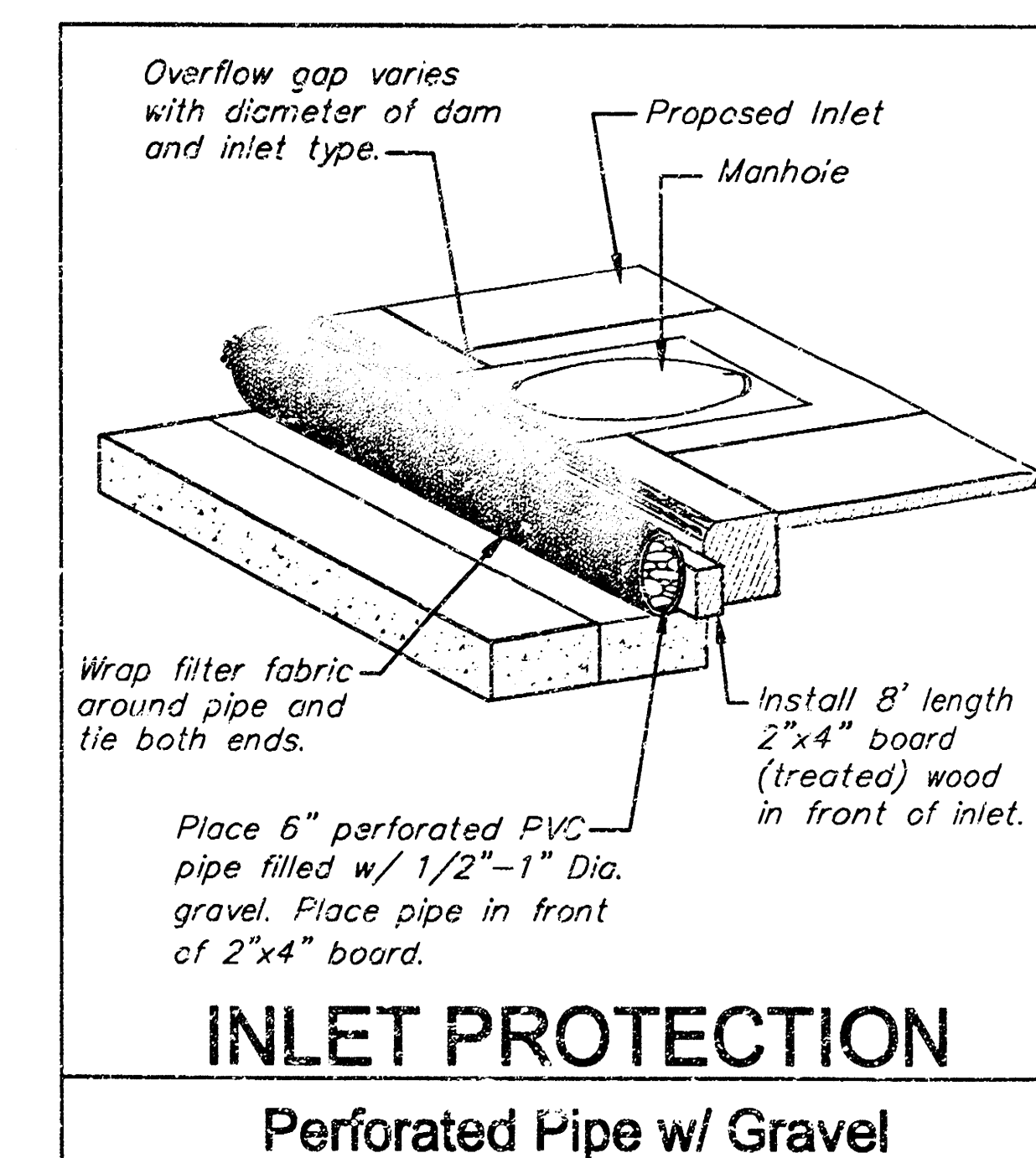
BAR		q_1	q_2	q_3	b_1					b_2	b_3	b_4	WL. LOS.
					$W_1-4"$	$W_2-6"$	$W_3-4"$	$W_4-7"$	$W_5-8"$				
NUMBER		4	4	2	1	3	5	7	9	6	1	1	
SIZE		#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#6	
LENGTH	$W_4-4"$	$5'-5"$	$6'-7"$	$4'-0"$	$6'-1"$	-	-	-	-	$1'-9"$	$6'-2"$	$4'-8"$	60±
	$W_5-4"$	$7'-7"$	$8'-7"$	$5'-0"$	-	$6'-1"$	-	-	-	$1'-9"$	$6'-2"$	$5'-8"$	81±
	$W_6-4"$	$8'-7"$	$10'-7"$	$6'-0"$	-	-	$6'-1"$	-	-	$1'-9"$	$6'-2"$	$4'-8"$	101±
	$W_7-4"$	$11'-7"$	$12'-7"$	$7'-0"$	-	-	-	$6'-1"$	-	$1'-9"$	$6'-2"$	$4'-9"$	121±
	$W_8-4"$	$13'-7"$	$14'-7"$	$8'-0"$	-	-	-	$6'-1"$	-	$1'-9"$	$6'-2"$	$4'-8"$	141±

Note: a₃ Bars to be Placed Approx. 2" Below Top of Inlet Cover.

STANDARD CURB INLET PRECAST TOPS				
W	PRE-CAST TOP SIZE		PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8"	6'-4" 7 1/2"	21" & SMALLER	0.38±
5'-4"	4'-8"	6'-4" 7 1/2"	24" & 30"	0.51±
6'-4"	5'-8"	6'-4" 7 1/2"	36" & 42"	0.64±
7'-4"	6'-8"	6'-4" 7 1/2"	48" & 54"	0.77±
8'-4"	7'-8"	6'-4" 7 1/2"	60" & 66"	0.90±

GENERAL NOTES

1. Concrete tops to be installed on thin mortar cushion to insure full support along brick walls. Concrete tops may be cast in place or precast. Concrete used for inlet construction shall be concrete pavement mix.
2. Contractor shall have the option of constructing 8" brick masonry walls between the concrete inlet base and top on this inlet when $W=5'-4"$ and $H=7'-0"$ or less.
3. Inlet invert shall be shaped with 8 sack sand mix concrete to create flow channels and to increase hydraulic efficiency such that the inlet will be self cleaning between all inlet and/or outlet pipes.
4. The ends of all pipes installed in inlets shall be cut off flush with the inside face of the inlet wall.



INLET PROTECTION

Perforated Pipe w/ Gravel

Revised - Dec. 21, 1984

CITY OF WICHITA, KANSAS
TYPE 1 CURB INLET
INLET OPENING = 6"X5'-0"



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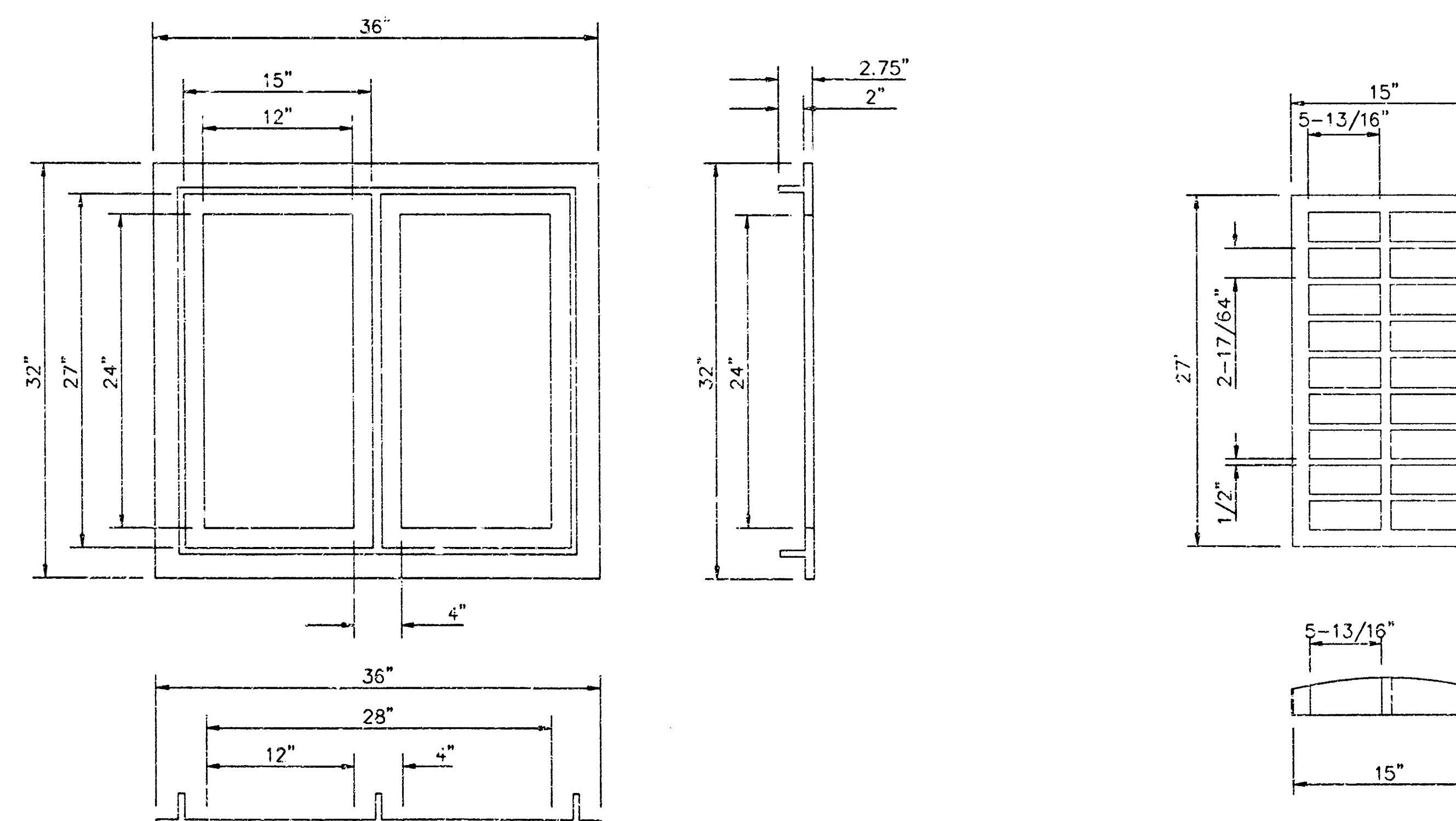
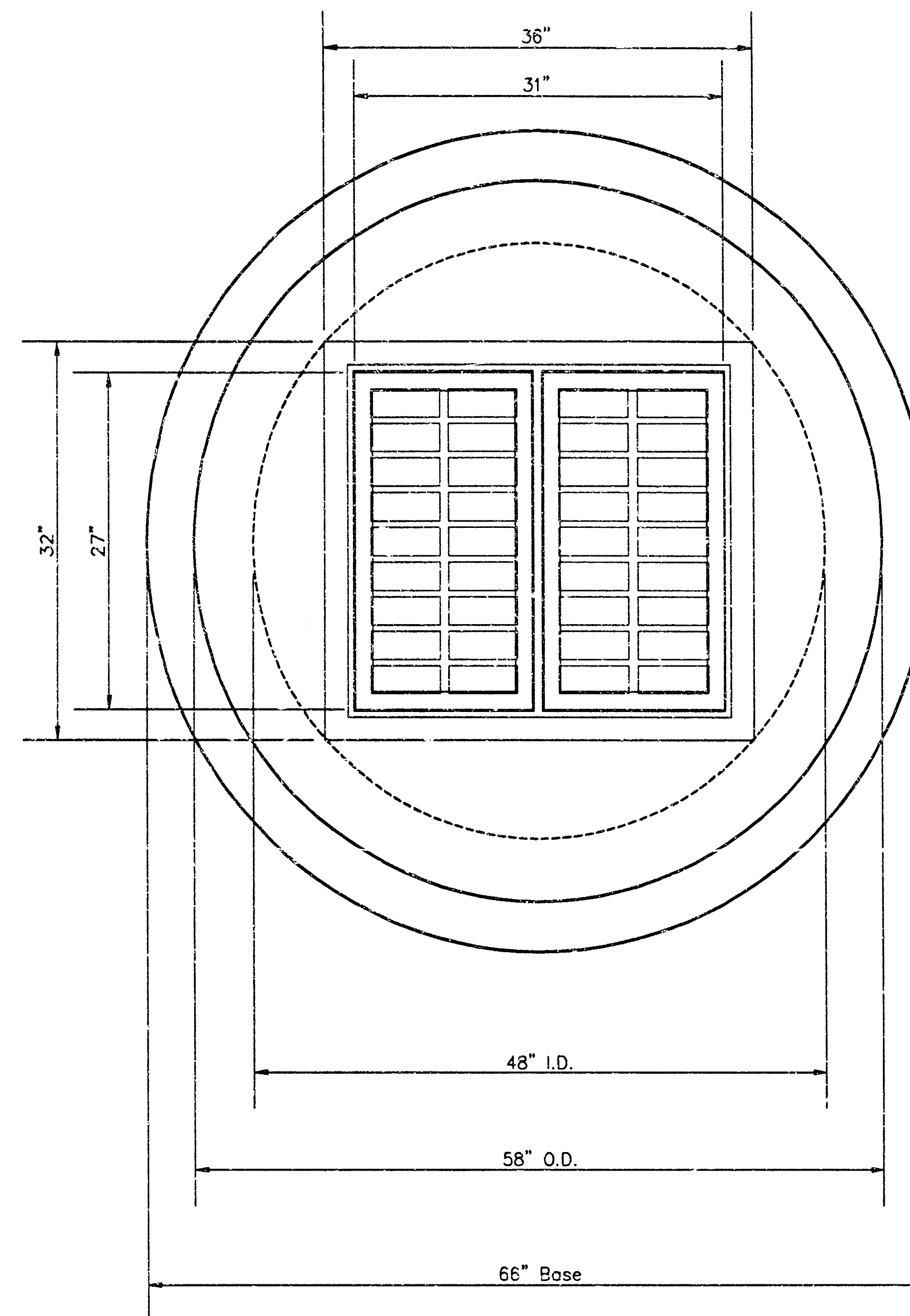
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PROJECT NUMBER
1372PPS(807861)

DESIGN	DRAWN	APPROVED	DATE	SCALE
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19

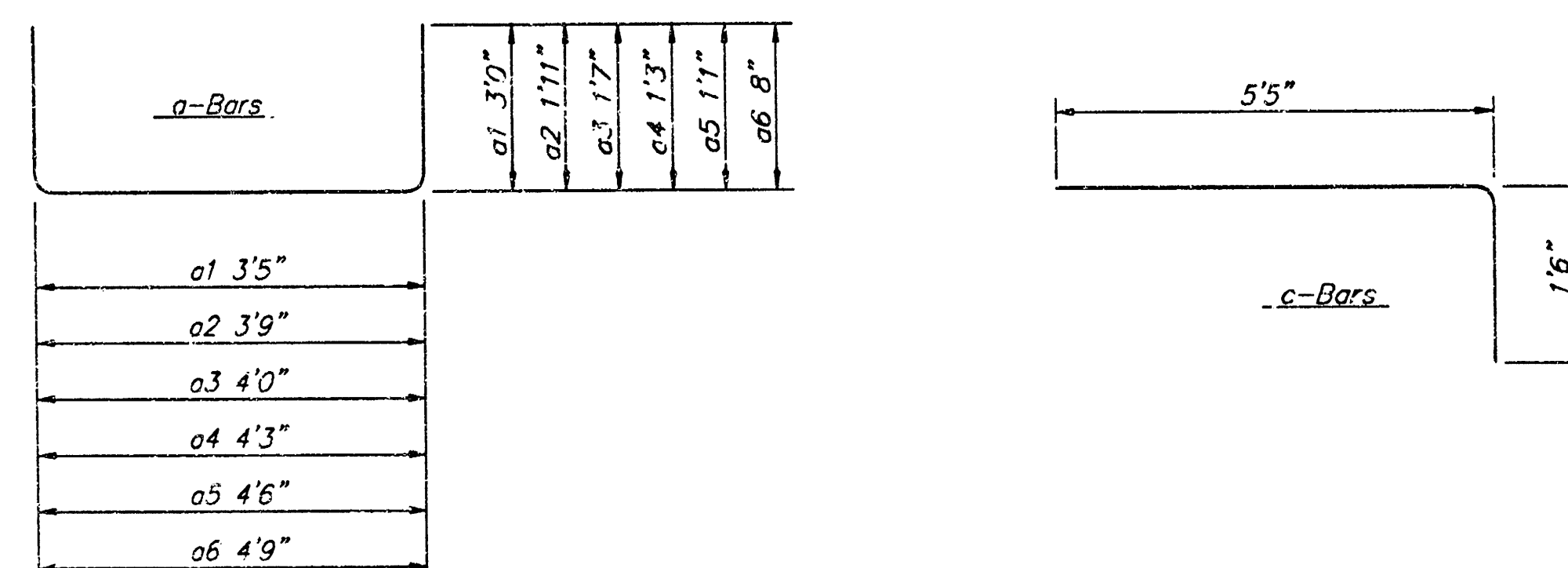
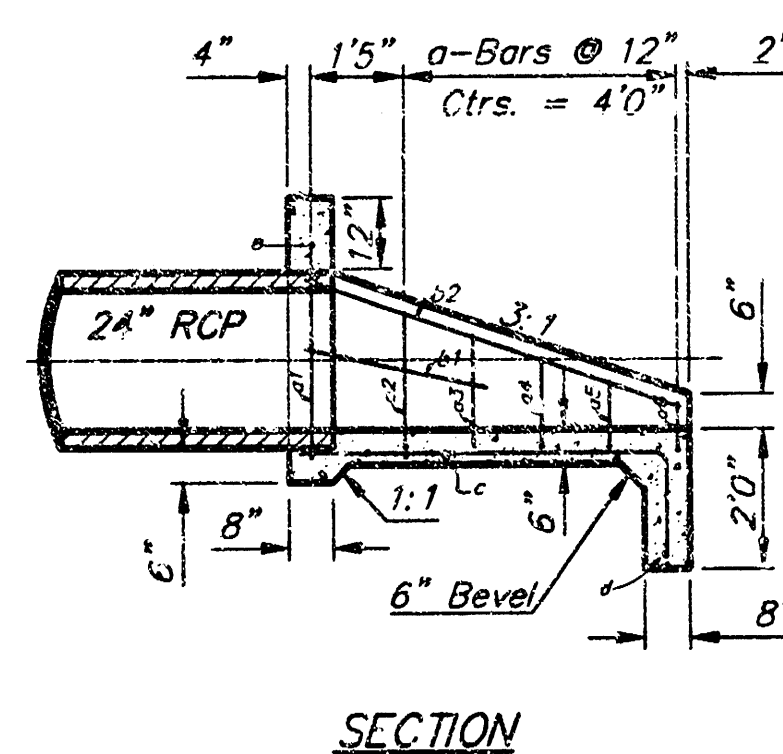
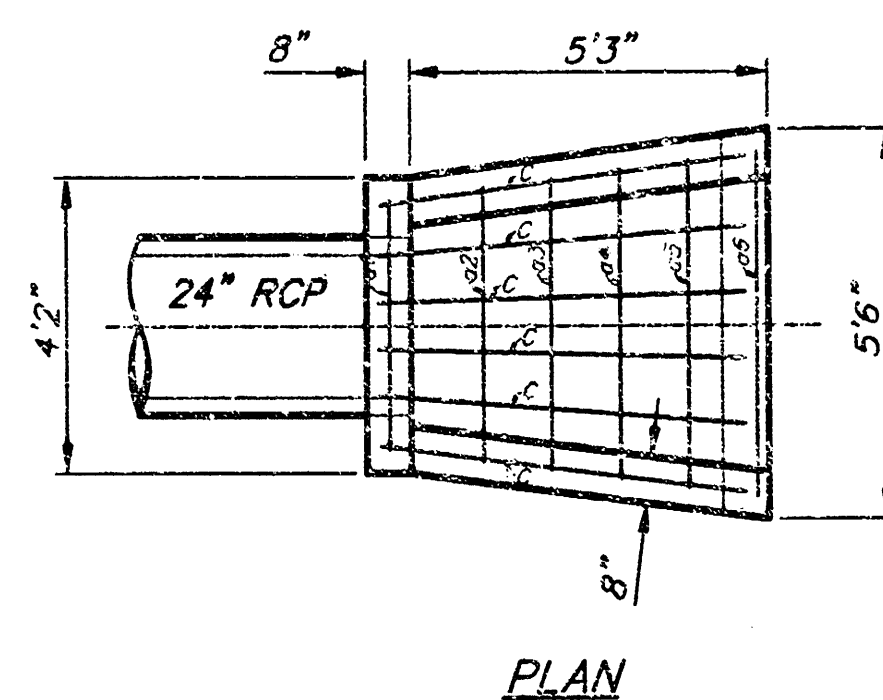
12

[illegible]

1. Mortar used in masonry construction shall contain 8 sacks of cement per cubic yard. Concrete used in yard inlet 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.
2. Reinforcing steel shall be installed in the yard inlet bases and shall consist of no. 4 bars placed on 6" centers in both directions. The yard inlet base reinforcement shall be placed 6" above the bottom of the yard inlet base. All costs for furnishing and installing reinforcing steel shall be included in the unit price bid for the yard inlet.
3. The floors of all yard inlet shall be shaped with flow channels such that the inlets will be self cleaning and free of areas where solids could be deposited. Flow channels shall be formed to match the bottom halves of the inflowing pipes and the outflowing pipe as shown by the drawings. Inlet 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 inlets shall have the top half removed to neat lines for the full inside diameter of the inlet. Inlet floors shall then be shaped around the bottom half of the pipe which forms the flow channel.
4. Pipes installed within the excavation made for the inlet shall be cradled with concrete to the limits of the inlet excavation. When clay pipe is used, the cradle shall extend to the first joint outside the inlet. 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 inlet excavation or to clay pipe joints adjacent to inlet shall be included in the unit price bid for the inlet.
5. Inlet grate castings and inlet frame castings shall conform to the requirements as indicated in the standard specifications and as shown in the standard detail drawing.
6. The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.
7. Joints between inlet sections to be sealed with two wraps of extruded butyl rubber joint mastic meeting City of Wichita Type "P" Manhole Specifications.
8. Special yard inlet shall be paid for at the unit price bid per each. All standard yard inlet diameters will be 4'.

SPECIAL YARD INLET				
WICHITA, KANSAS				
BAUGHMAN COMPANY P.A.				
ENGINEERING, SURVEYING, & PLANNING				
316-262-7271		315 ELLIS • WICHITA, KANSAS 67211		
PROJECT NUMBER 1372PPS(607861)				SHEET 6
DESIGN SCALE	DRAWN SCALE	APPROVED	DATE 10/03	SCALE 1"=20'

DEETER #2512 CATCH BASIN INLET GRATE & FRAME

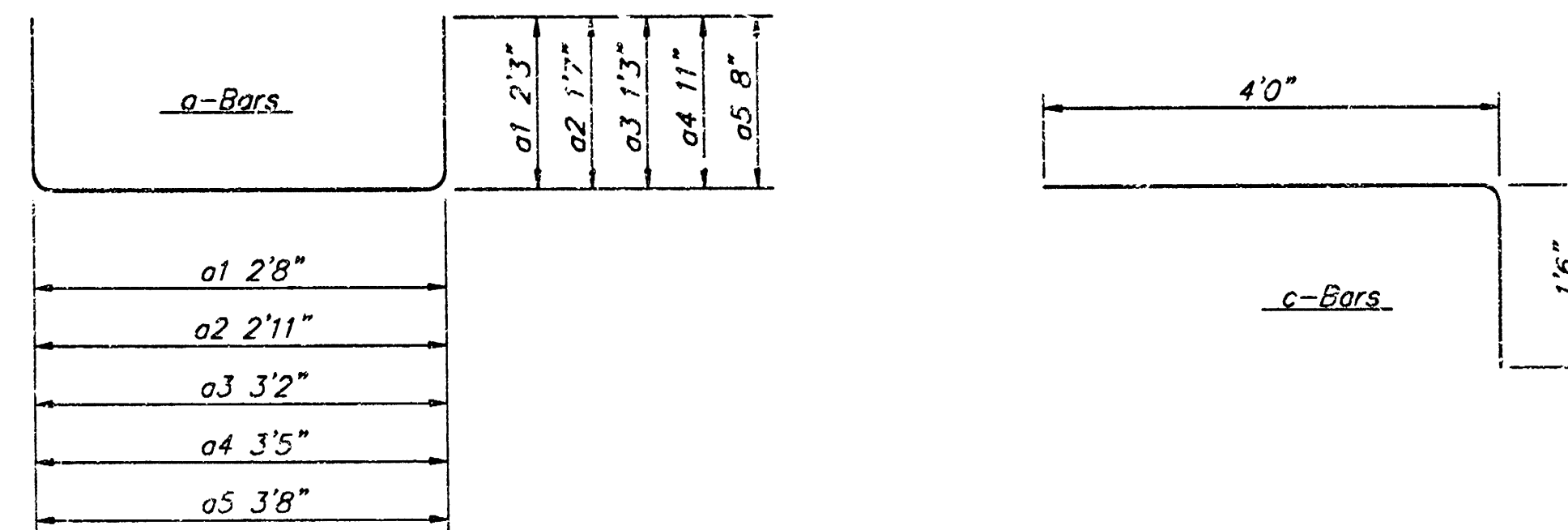
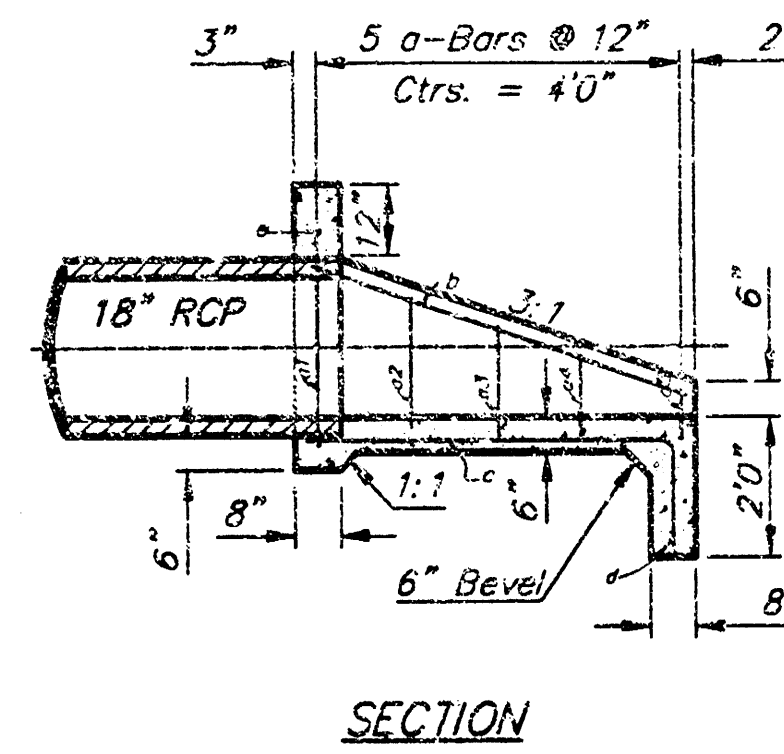
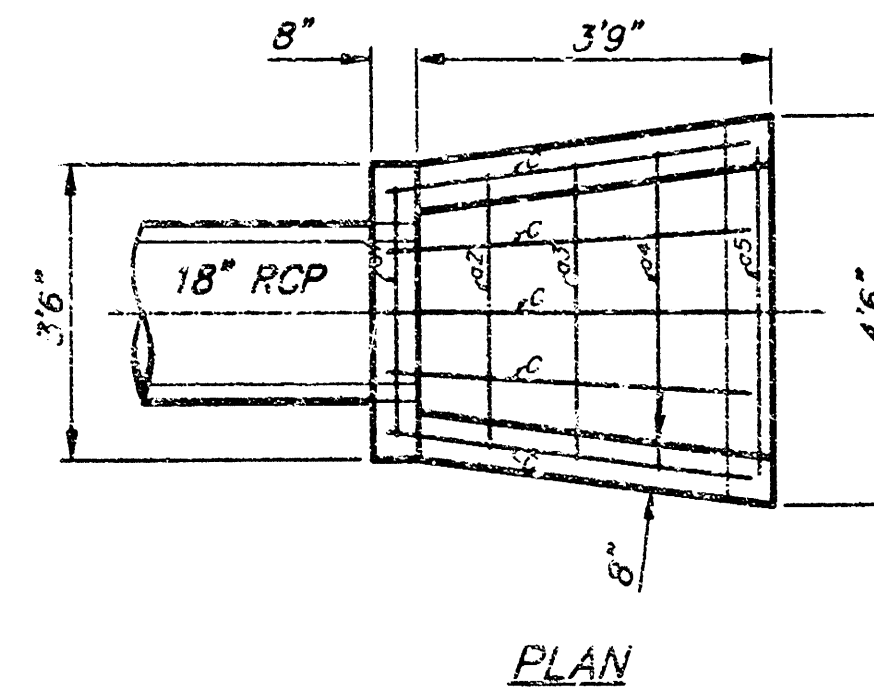


REBAR SCHEDULE

Bar	Shape	No.	Length	Weight
a1		1	9'5"	6.29
a2		1	7'7"	5.07
a3		1	7'2"	4.79
a4		1	6'9"	4.51
a5		1	6'4"	4.23
a6		1	6'1"	4.06
b1		2	2'5"	3.67
b2		2	5'10"	7.79
c		6	6'11"	27.72
d		1	3'0"	3.37
e		1	3'10"	2.56
Total Rebar			74.03 Lbs.	
Concrete			1.40 C.Y.	

A Deduction in Concrete Quantities Has Been Made for Pipe Openings Through the Headwall.
 * Field Bend or Cut Reinforcing as Required for Clearance.
 All Concrete Reinforcement to be #4 Rebar.
 All Rebar to Have Min. of 1 1/2" Conc. Cover

HEADWALL FOR 24" RCP

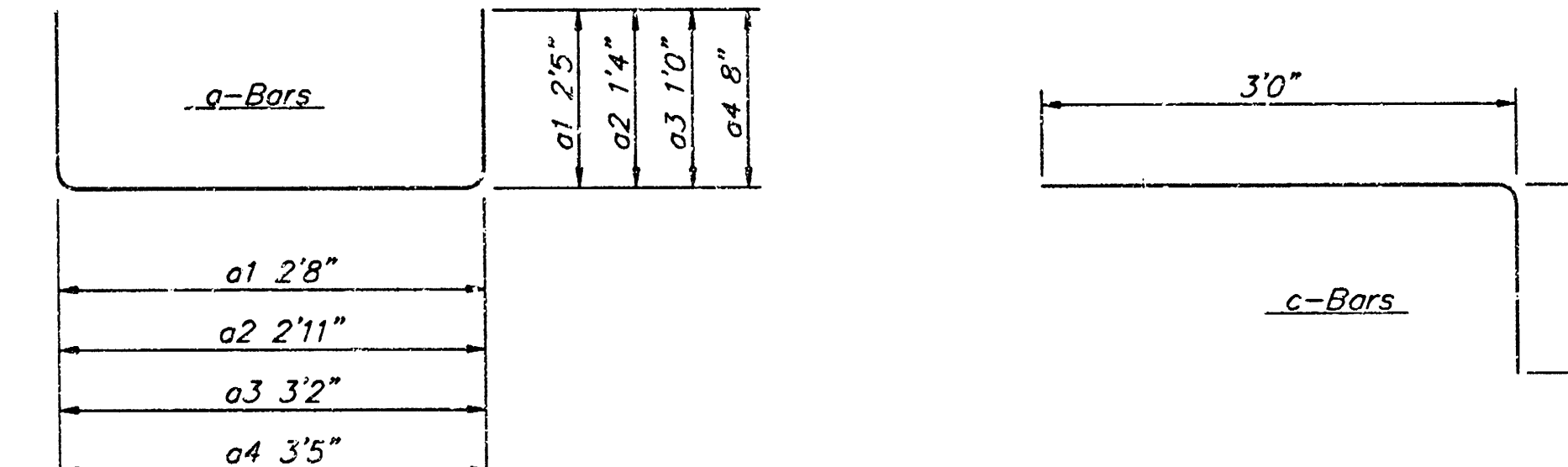
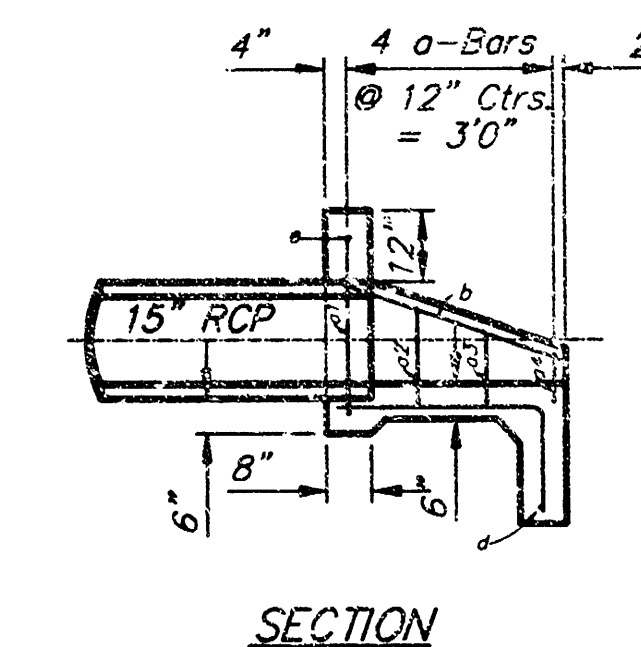
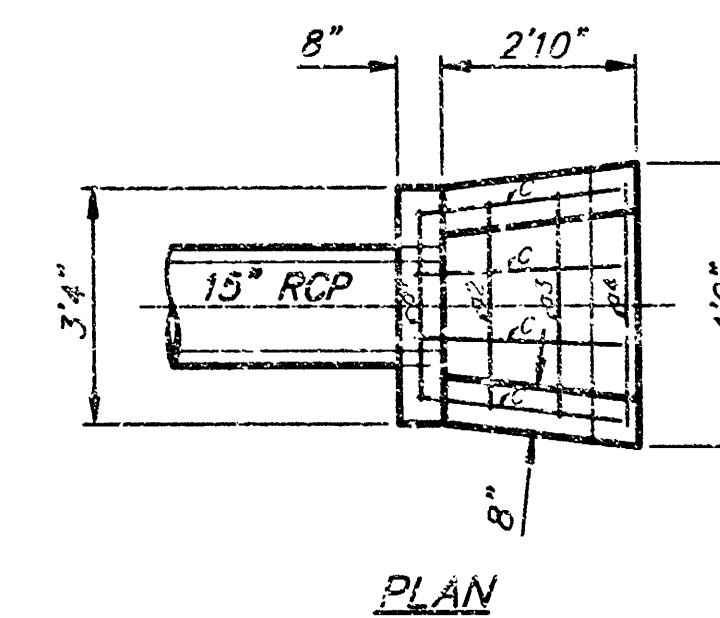


REBAR SCHEDULE

Bar	Shape	No.	Length	Weight
a1		1	7'2"	4.79
a2		1	6'1"	4.06
a3		1	5'8"	3.79
a4		1	5'3"	3.51
a5		1	5'0"	3.34
b		2	4'0"	5.34
c		5	5'6"	18.37
d		1	4'0"	2.67
e		1	3'2"	2.12
Total Rebar			47.99 Lbs.	
Concrete			0.91 C.Y.	

A Deduction in Concrete Quantities Has Been Made for Pipe Openings Through the Headwall.
 * Field Bend or Cut Reinforcing as Required for Clearance.
 All Concrete Reinforcement to be #4 Rebar.
 All Rebar to Have Min. of 1 1/2" Conc. Cover

HEADWALL FOR 18" RCP



REBAR SCHEDULE

Bar	Shape	No.	Length	Weight
a1		1	7'6"	5.01
a2		1	5'7"	3.73
a3		1	5'2"	3.45
a4		1	4'9"	3.17
b		2	4'0"	5.34
c		4	5'6"	14.70
d		1	3'5"	2.28
e		1	2'8"	1.78
Total Rebar			39.46 Lbs.	
Concrete			0.67 C.Y.	

A Deduction in Concrete Quantities Has Been Made for Pipe Openings Through the Headwall.
 * Field Bend or Cut Reinforcing as Required for Clearance.
 All Concrete Reinforcement to be #4 Rebar.
 All Rebar to Have Min. of 1 1/2" Conc. Cover

HEADWALL FOR 15" RCP

- GENERAL NOTES
- ALL PIPES SHALL BE FLUSH CUT PRIOR TO BEING CAST INTO CONCRETE HEADWALL.
 - CONCRETE USED IN HEADWALL CONSTRUCTION SHALL BE SAME AS PER CITY STANDARD PAVING MIX EXCEPT THAT IT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.
 - ALL EXPOSED EDGES SHALL BE BEVELED 1/2" .
 - REINFORCING STEEL SHALL COMPLY TO A.S.T.M. DESIGNATION A615 GRADE 60. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BAR UNLESS OTHERWISE NOTED.
 - THE "REIN. CONC. HEADWALL" SHALL BE PAID FOR AT THE UNIT PRICE BID PER EACH IN PLACE WHICH SHALL INCLUDE ALL LABOR, MATERIALS, EXCAVATION, CONCRETE, REINFORCING STEEL AND ALL OTHER INCIDENTAL ITEMS NECESSARY TO COMPLETE THE WORK. MATERIAL QUANTITIES SHOWN ARE FOR INFORMATION ONLY.

HEADWALL DETAIL

BAUGHMAN COMPANY P.A.
 ENGINEERING, SURVEYING, & PLANNING

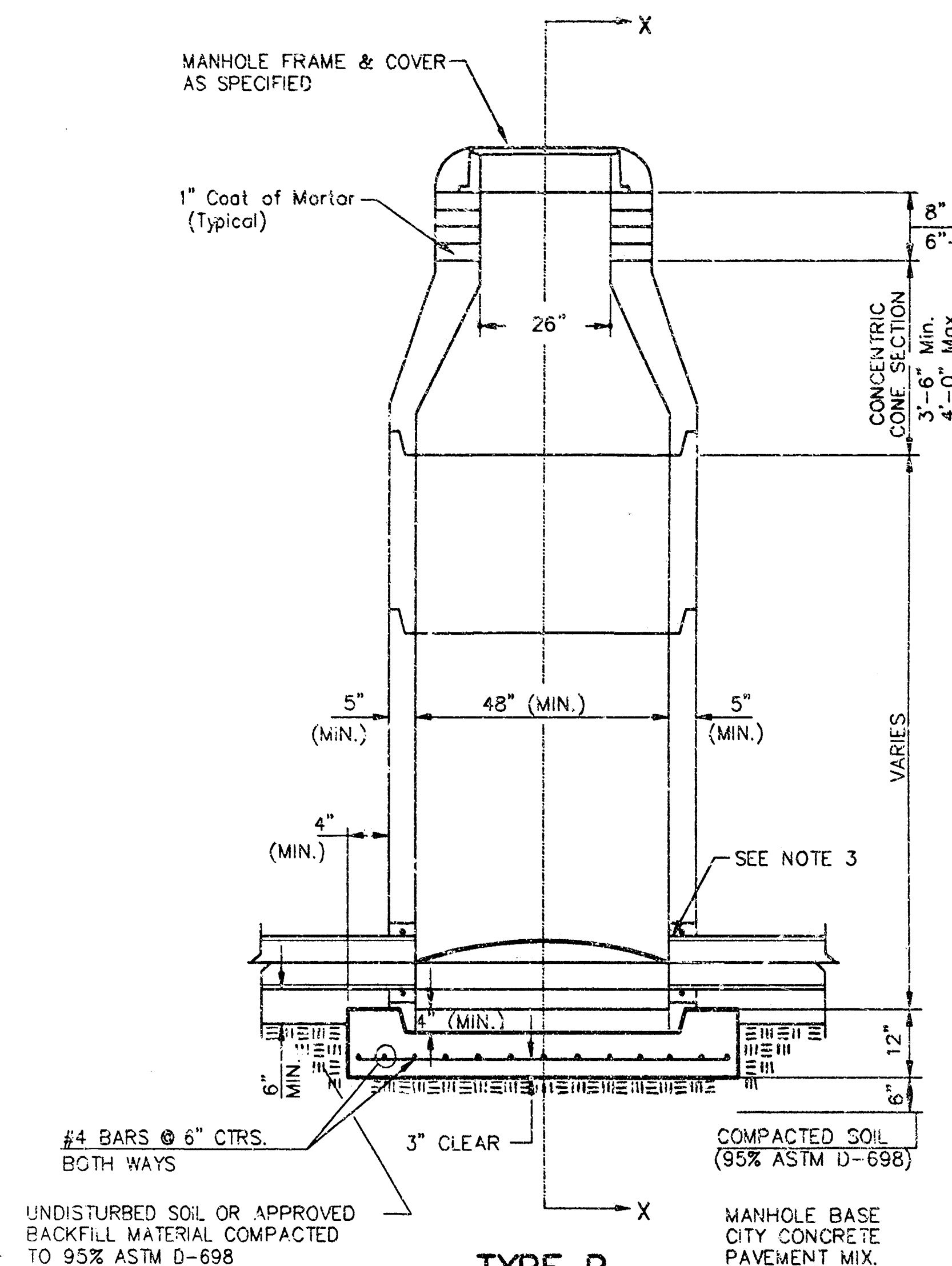
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PROJECT NUMBER 1372PPS(607881)

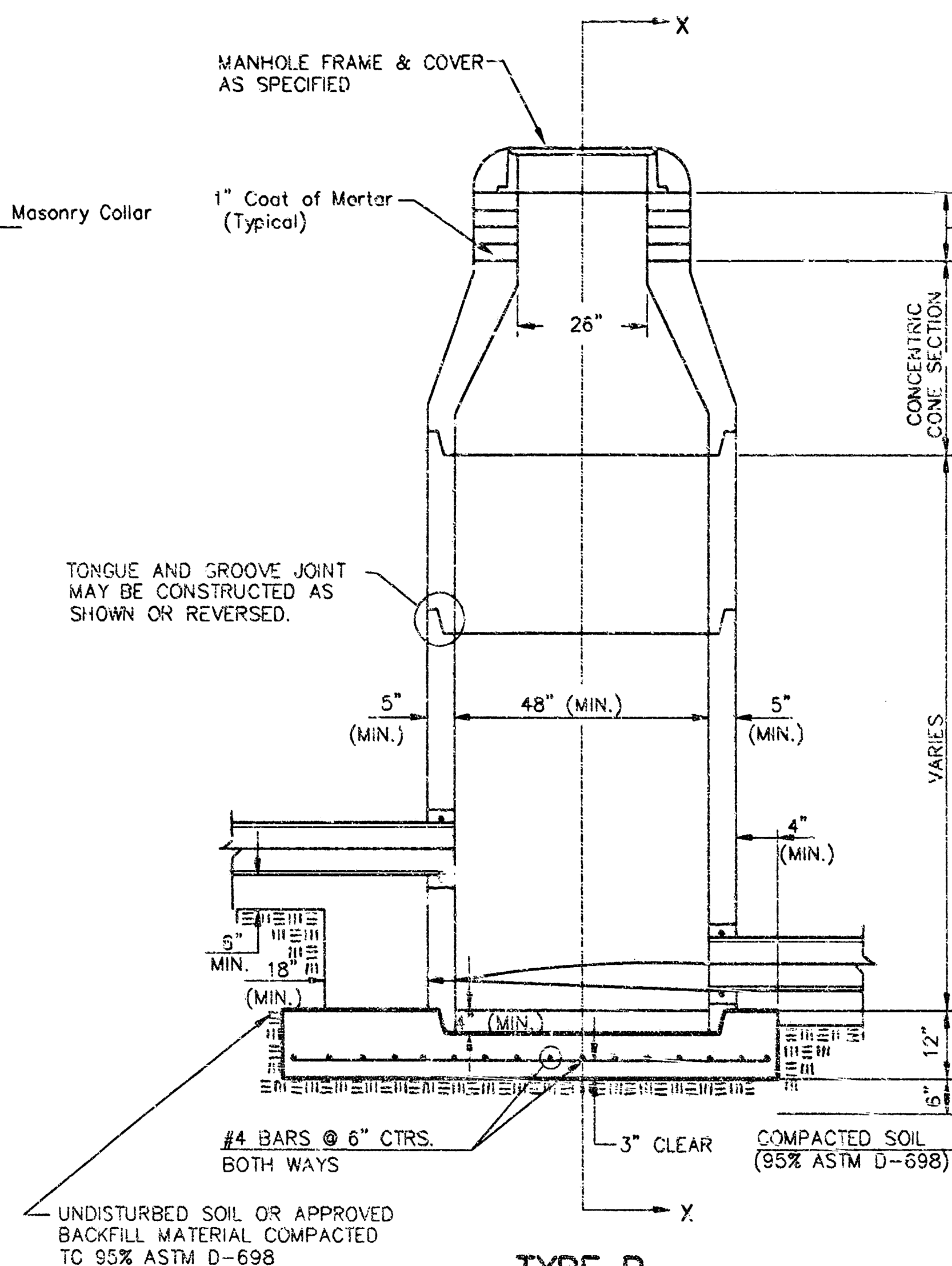
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SHEET 7 OF 12

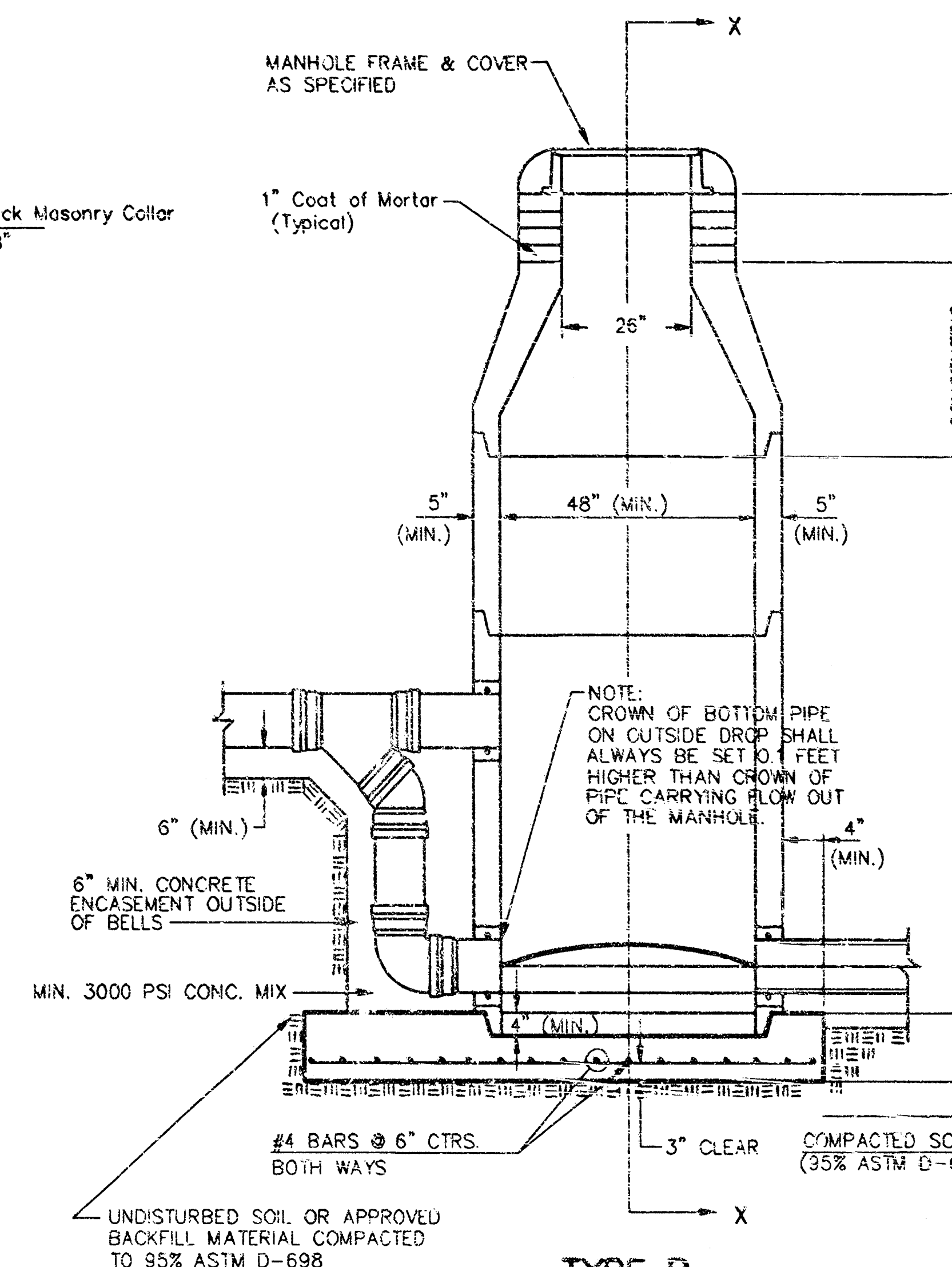
SEWER APPURTENANCES DETAILS



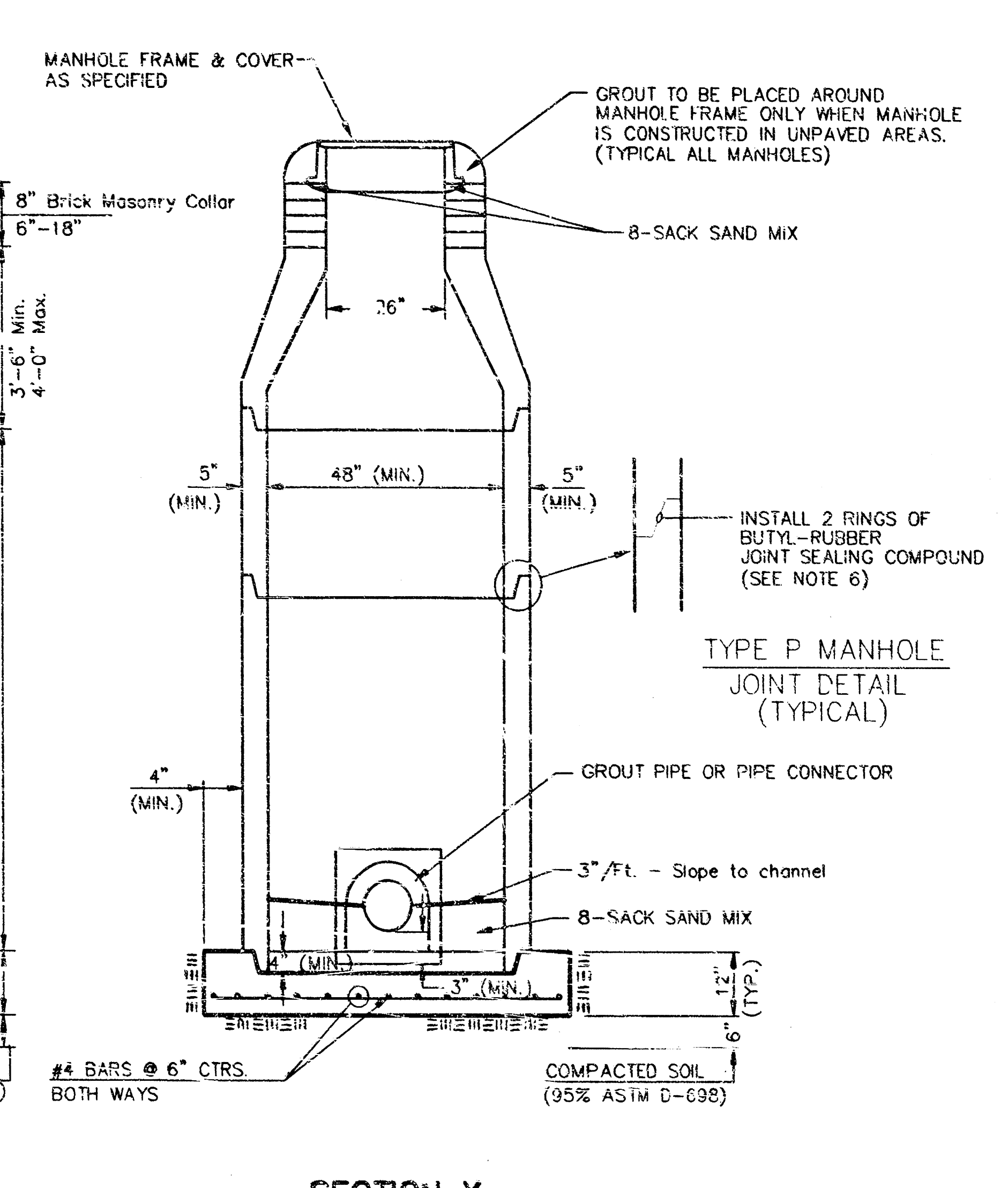
**TYPE P
STANDARD MANHOLE**



**TYPE P
INSIDE DROP MANHOLE**



**TYPE P
OUTSIDE DROP MANHOLE**



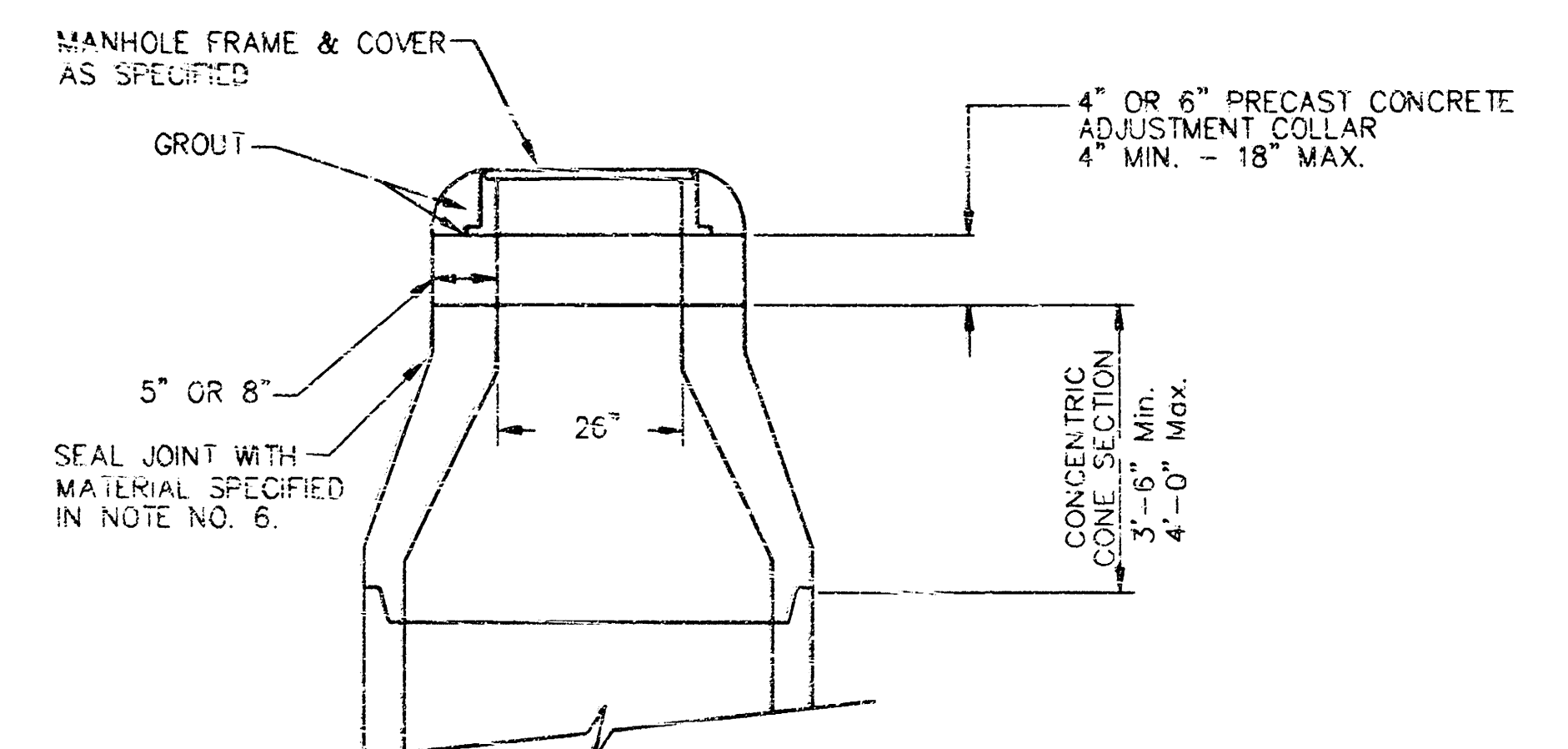
**SECTION X
(TYPICAL)**

GENERAL NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. 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 GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE CHASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL, AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS INEMEC SERIES 66 HI-BUILD EPOXYURE, DRY THICKNESS OF 8 MILS (MIN.)
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. 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.
9. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. 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 UNPAED 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.

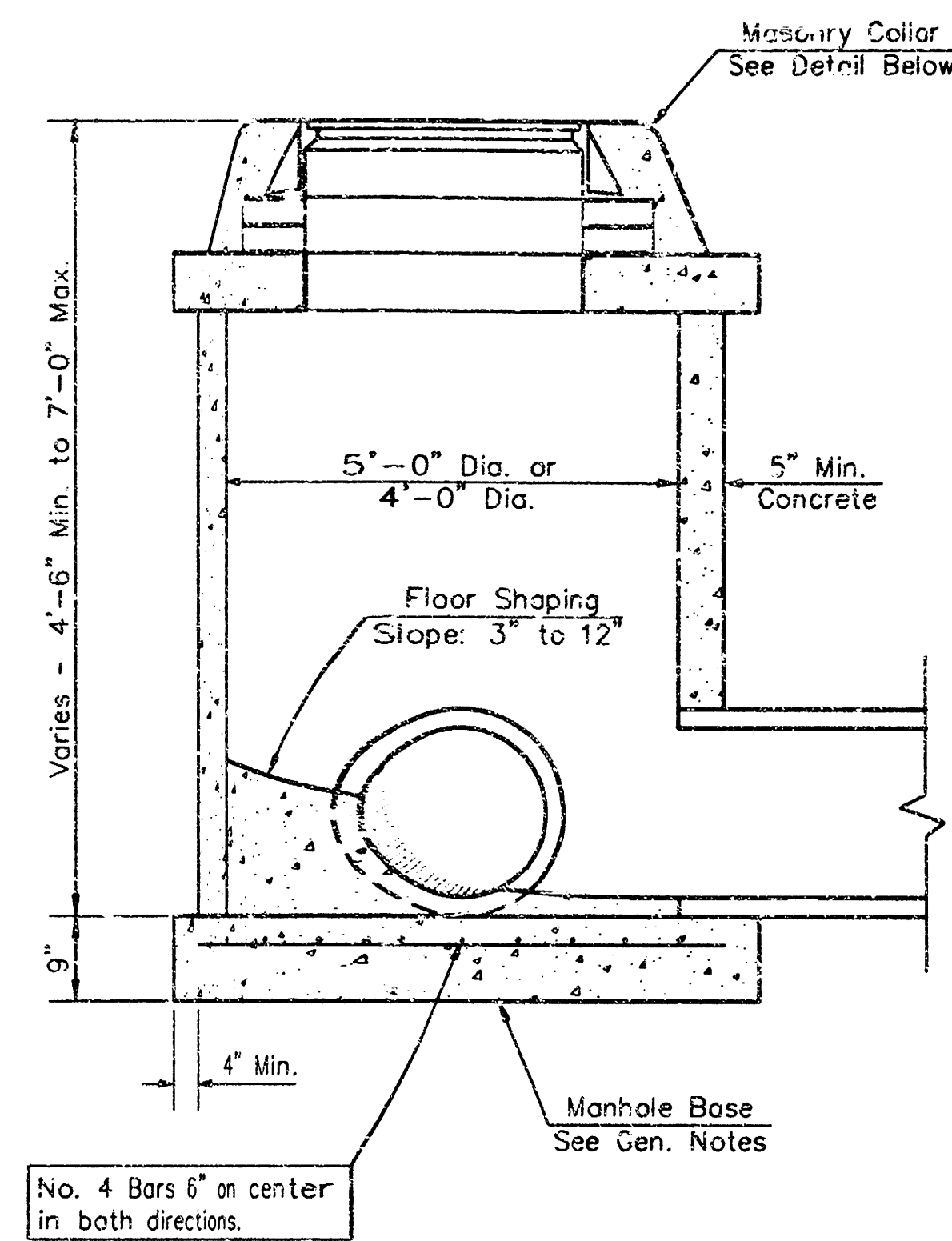
11. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
12. 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 GROUTING 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 GROUTED INTO THE OPENING USING AN APPROVED NON-SHRINK 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.
13. 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 INFLUING 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 C. 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.
14. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE GRADLED 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.

15. 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.
16. 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.
17. 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.
18. 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 SHALL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.

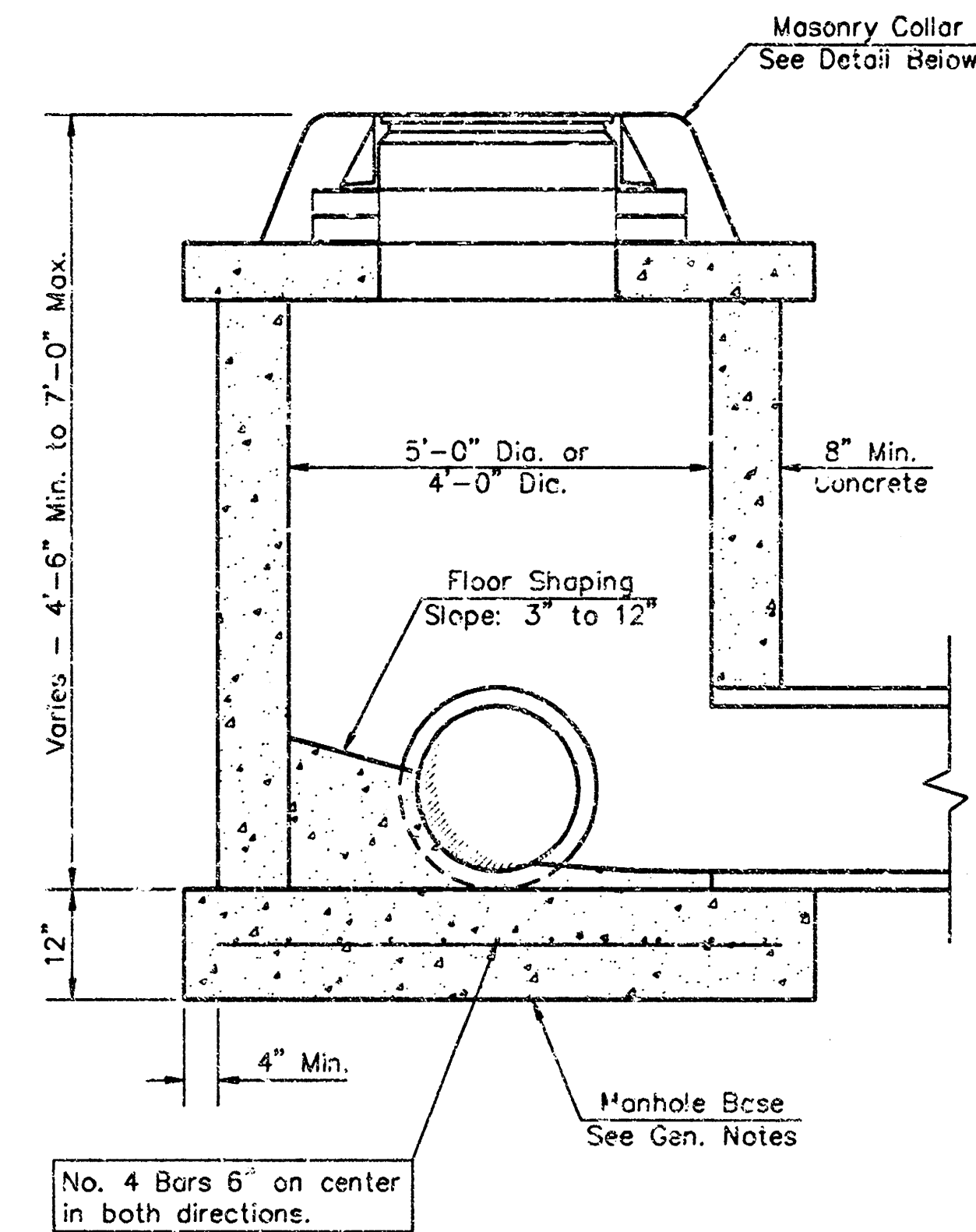


**ALTERNATE CONSTRUCTION
IN UNPAED AREAS**

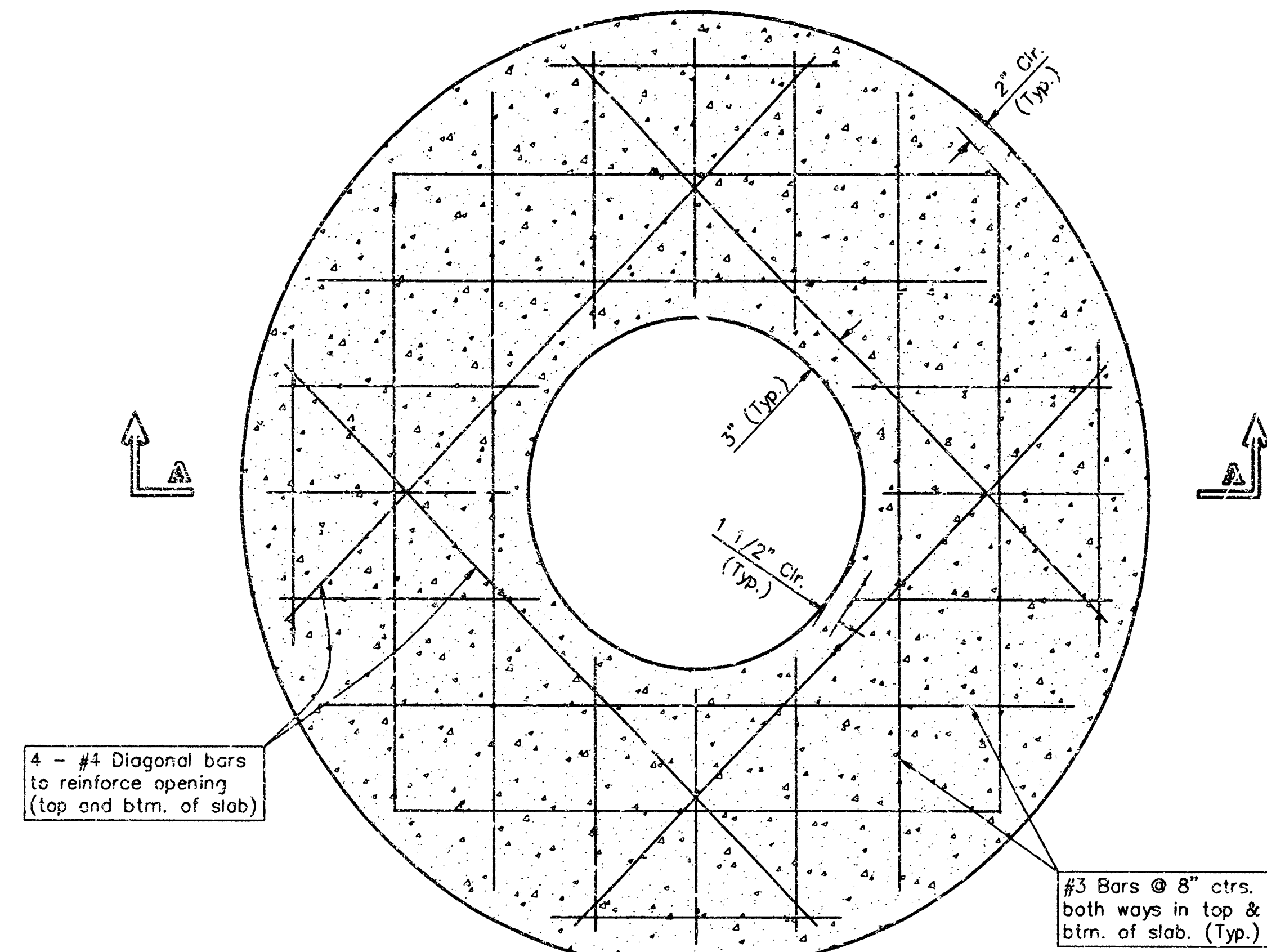
STD. MANHOLE DETAILS			
SEWER APPURTENANCES			
BAUGHMAN COMPANY P.A.			
ENGINEERING, SURVEYING, & PLANNING			
316-262-7221 • 315 ELLIS • WICHITA, KANSAS 67211			
PROJECT NUMBER 1372PPS(507881)		SHEET 8	
DESIGN STAFF	DRAWN STAFF	APPROVED	DATE 08/03
SCALE NONE		12	



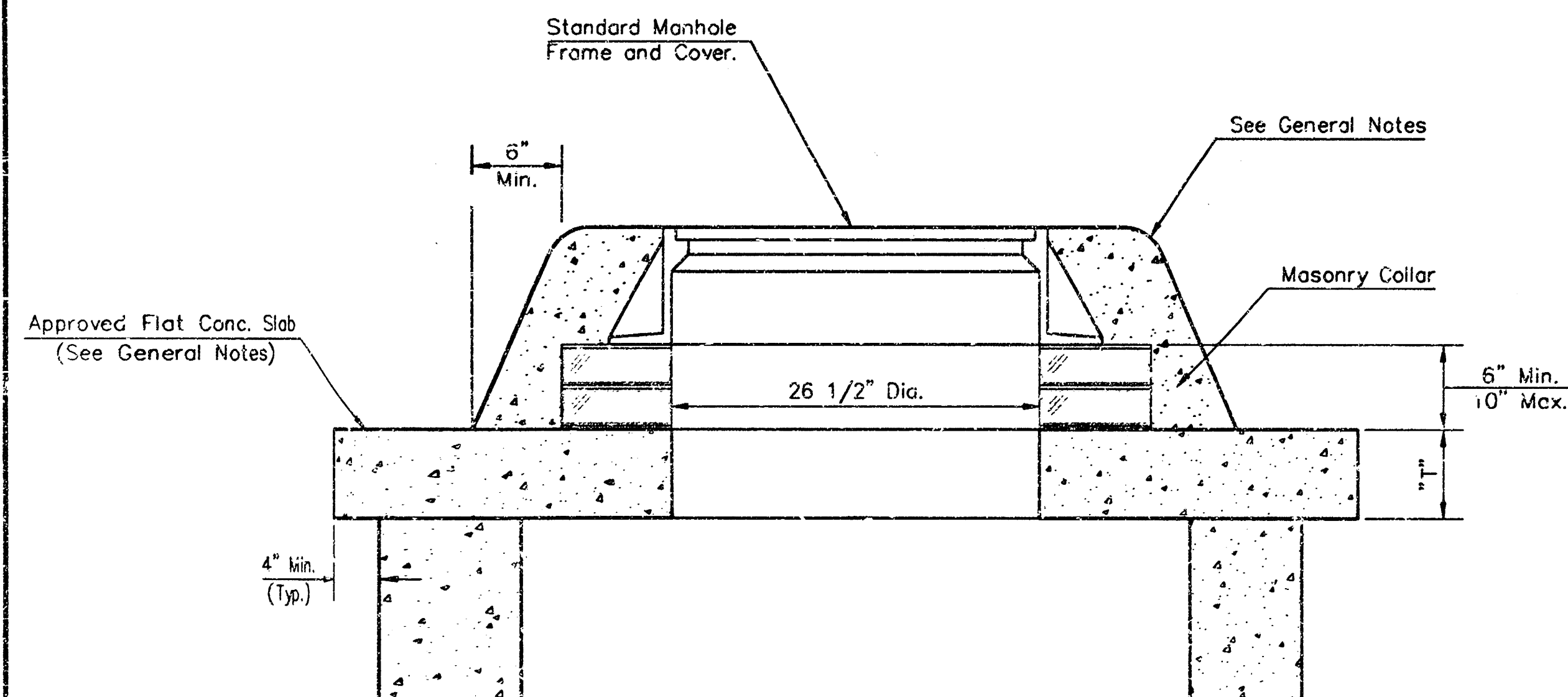
SHALLOW TYPE "P" MANHOLE



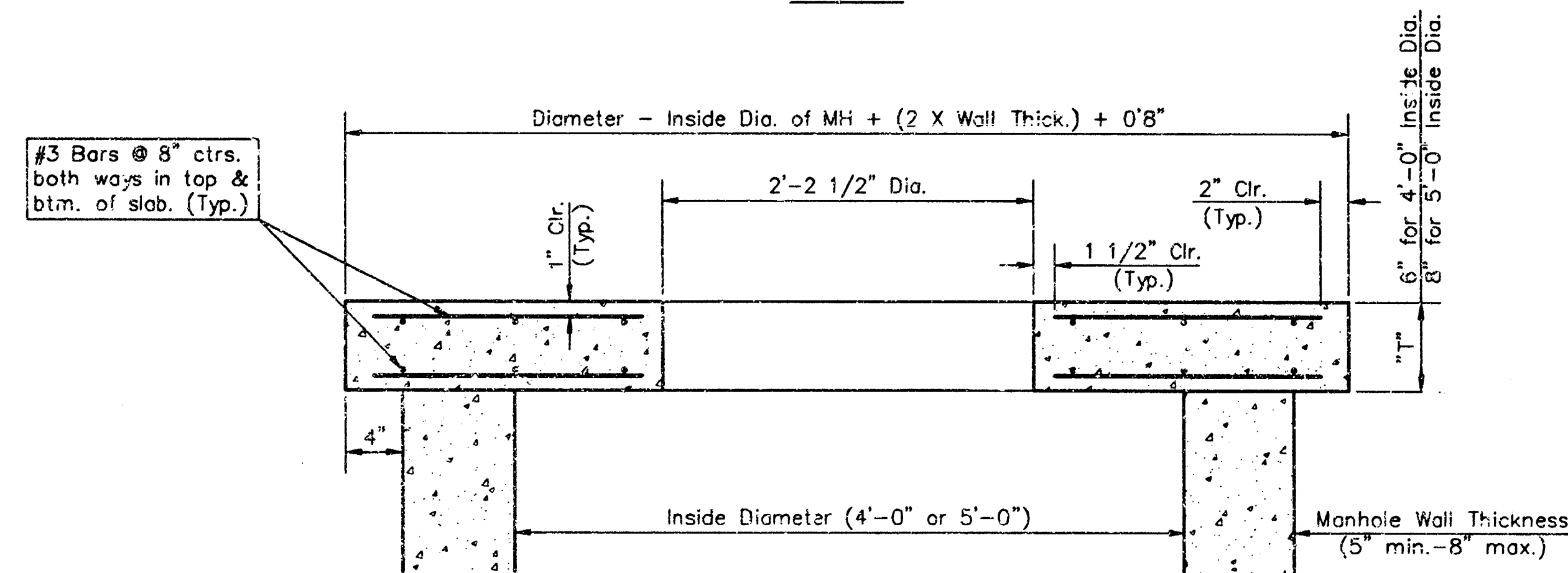
SHALLOW TYPE "C" MANHOLE



PLAN

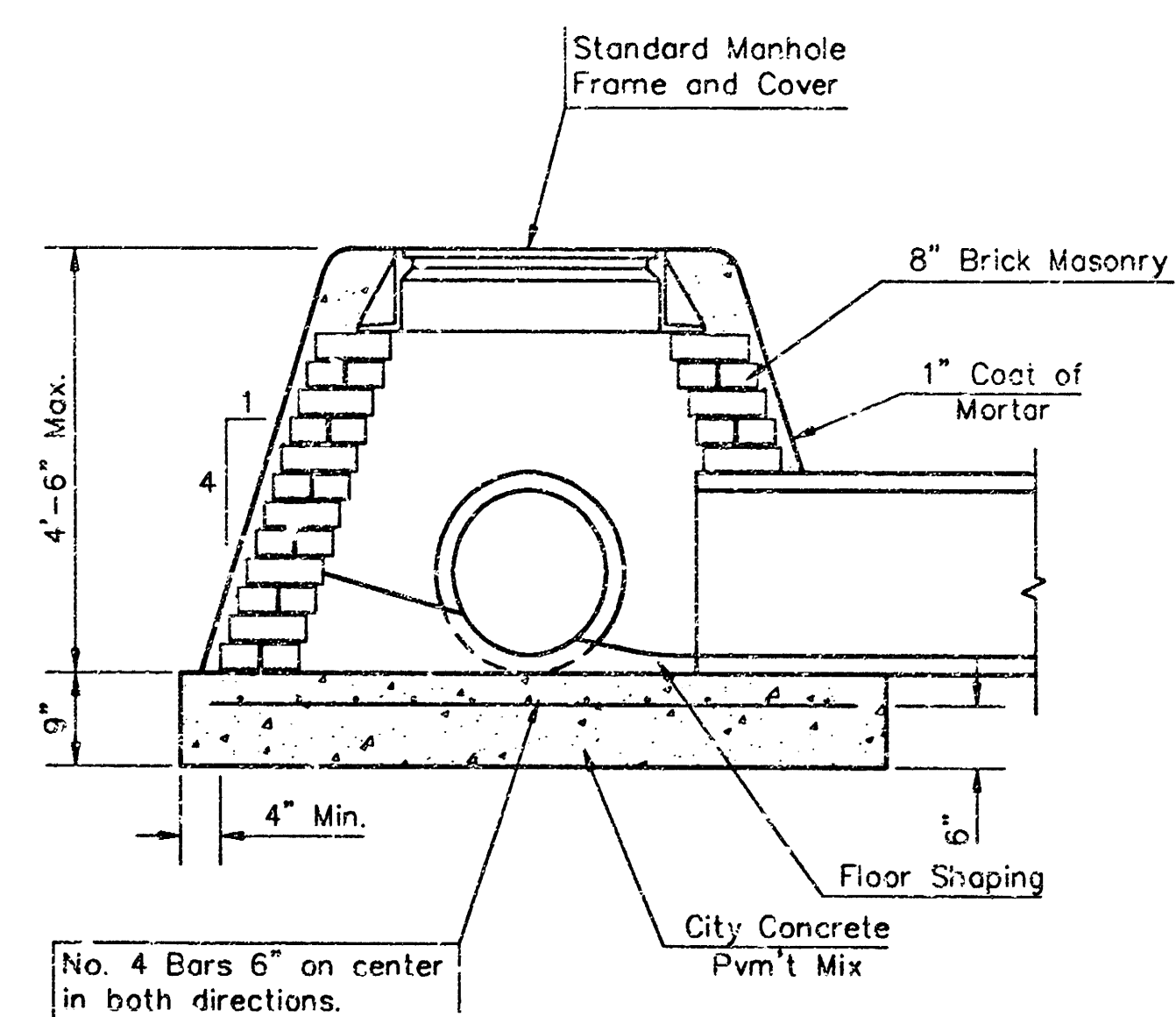


MASONRY COLLAR DETAIL

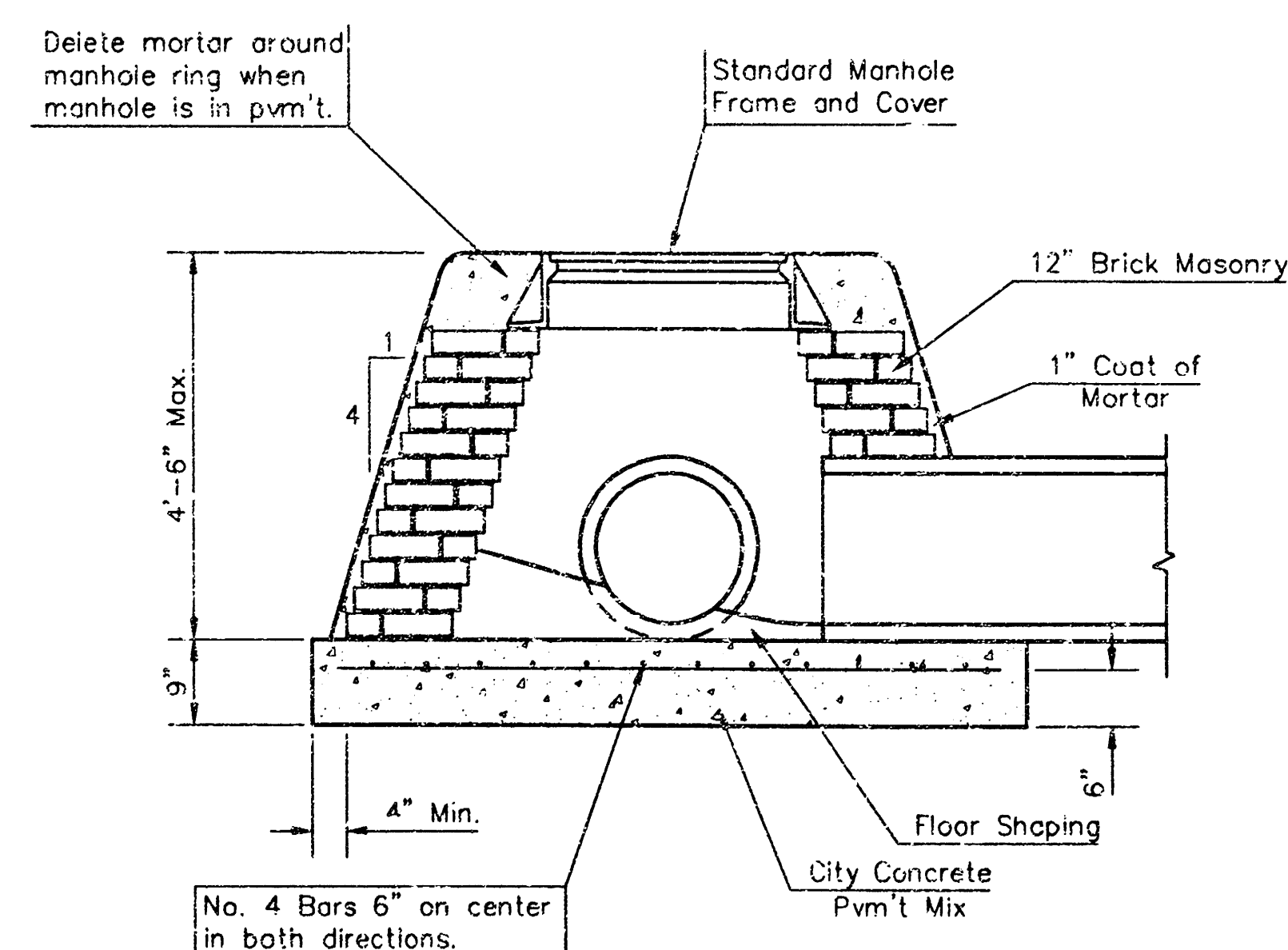


SECTION A-A

FLAT CONCRETE SLAB DETAILS



SPECIAL SHALLOW TYPE "A" MANHOLE



SPECIAL SHALLOW TYPE "B" MANHOLE

GENERAL NOTES

- Mortar used in masonry construction shall contain 6 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. 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 manholes 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 next 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.

MANHOLE FRAME AND COVER DETAIL

MANHOLE FRAME
Weight = 145 Lbs.

MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION. DIMENSIONS AND HEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS. ALL DETAIL DRAWINGS AND 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.

MANHOLE CASTINGS SHALL BE COATED WITH AN ASPHALT PAINT RESULTING IN A SMOOTH, TOUGH AND TENACIOUS COATING WHICH IS NOT BRITTLE OR TACKY.

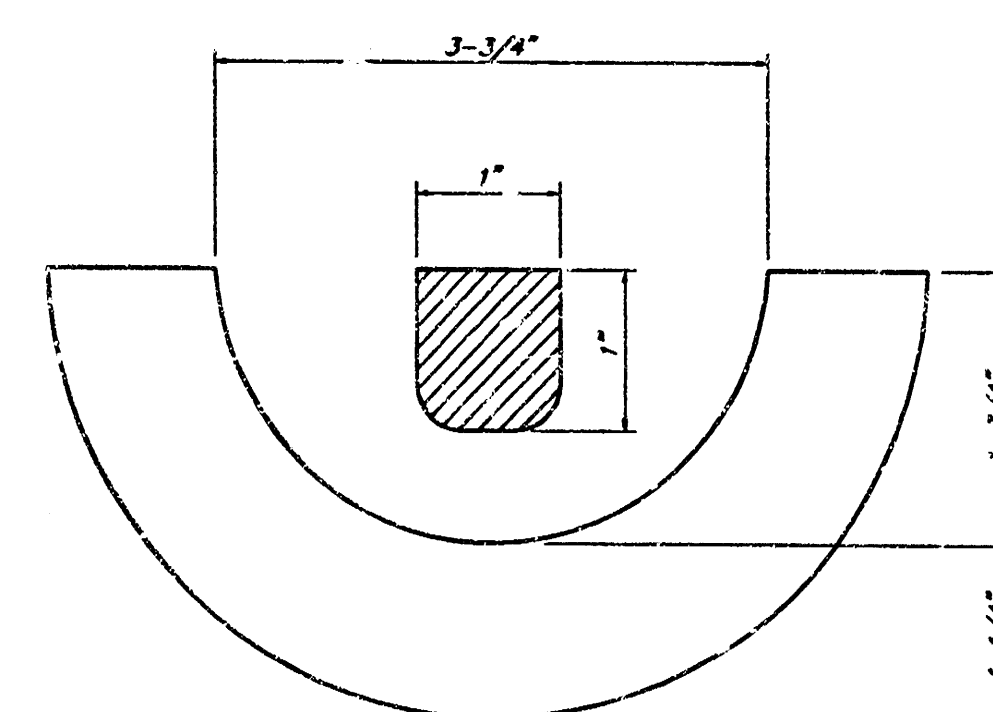
MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE
FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND
STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE
MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.

THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE FRAME SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED .001". THE CIRCUMFERENCE OF THE COVER, THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH AS THESE SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM LOCKING IN THE FRAME.

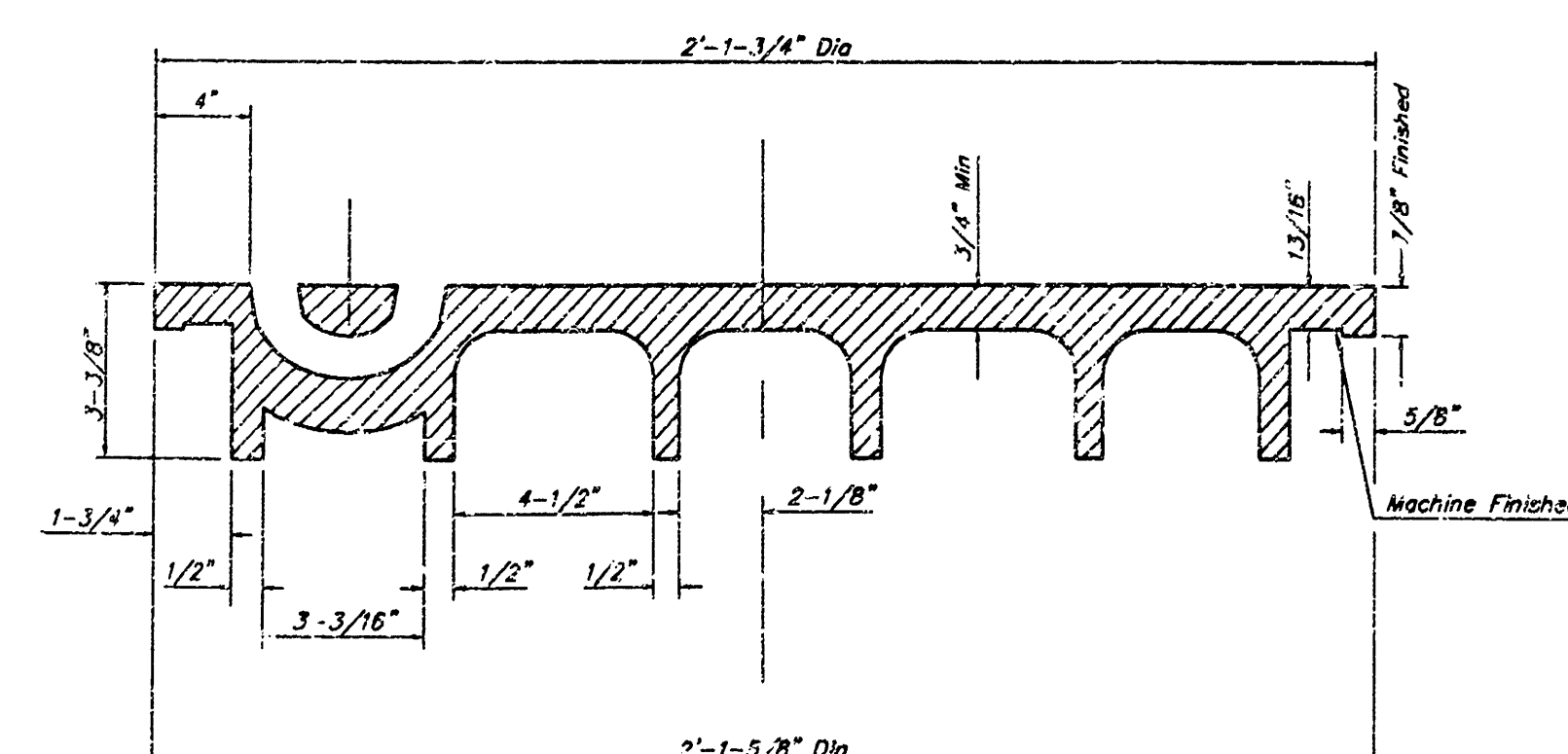
THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1 INCH IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF MICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE APPROPRIATE. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERBOARD PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE SURFACE OF THE COVER. THE TOTAL 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.



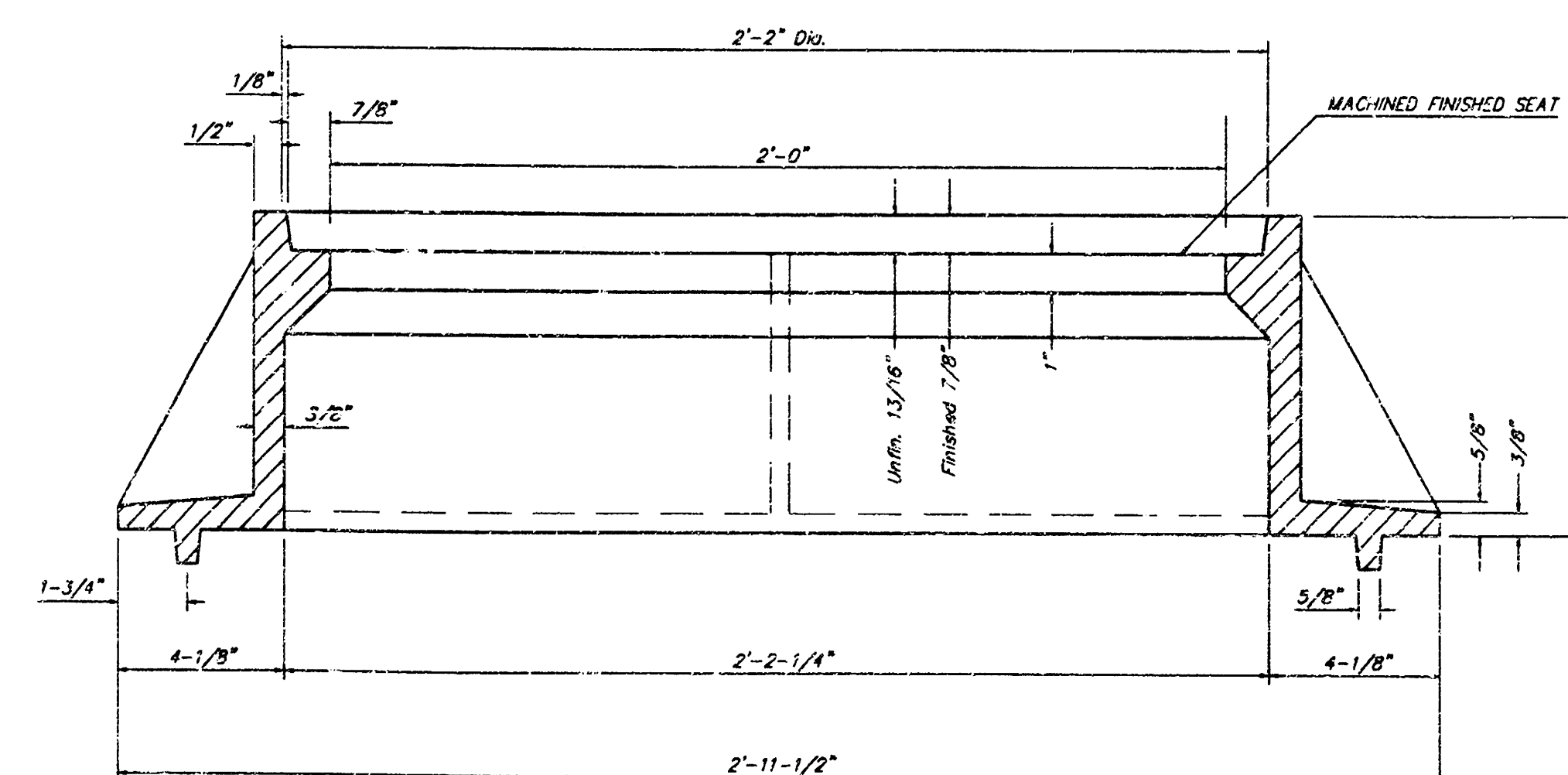
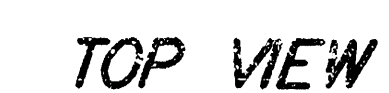
TOP VIEW



BOTTOM VIEW

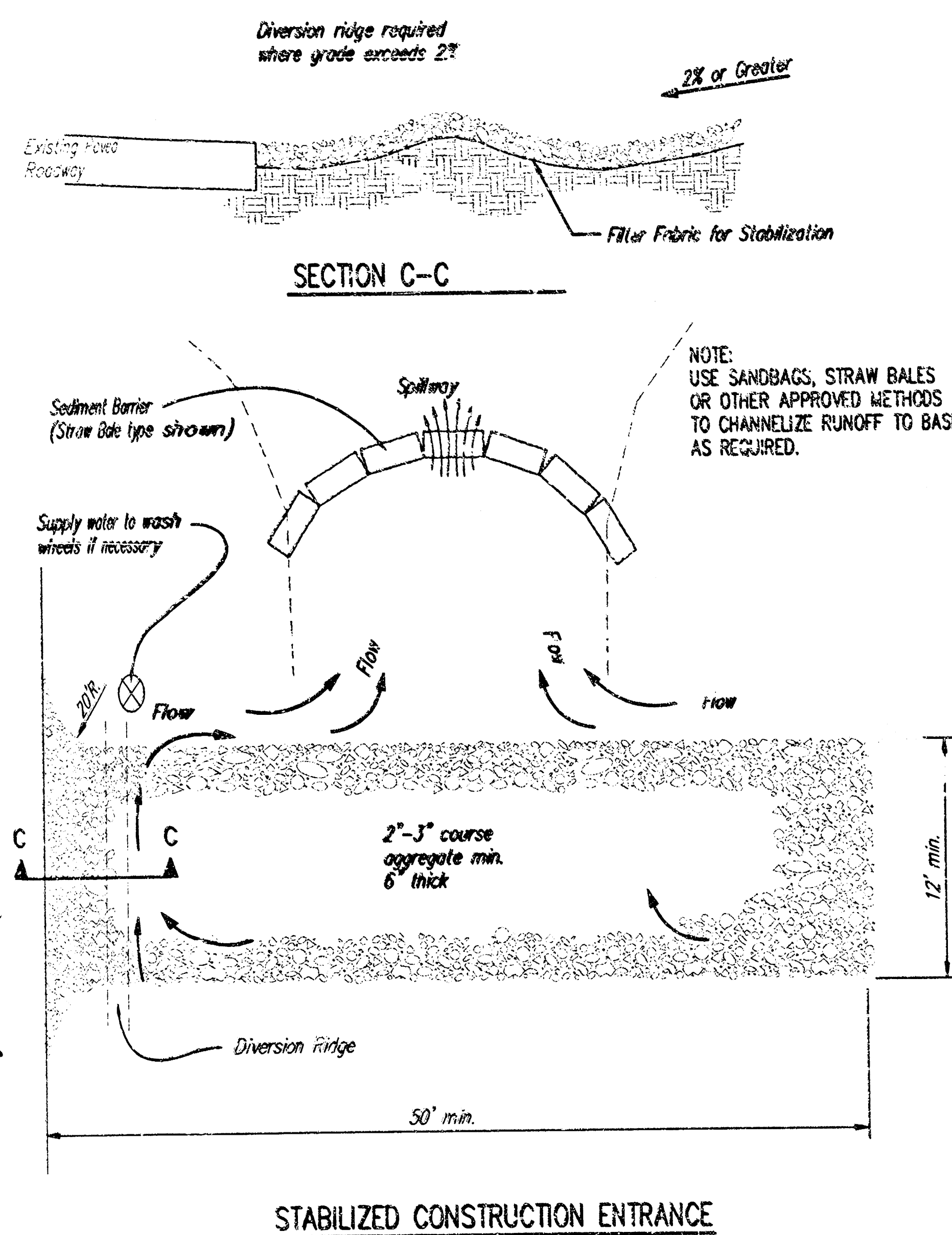


SECTION VIEW



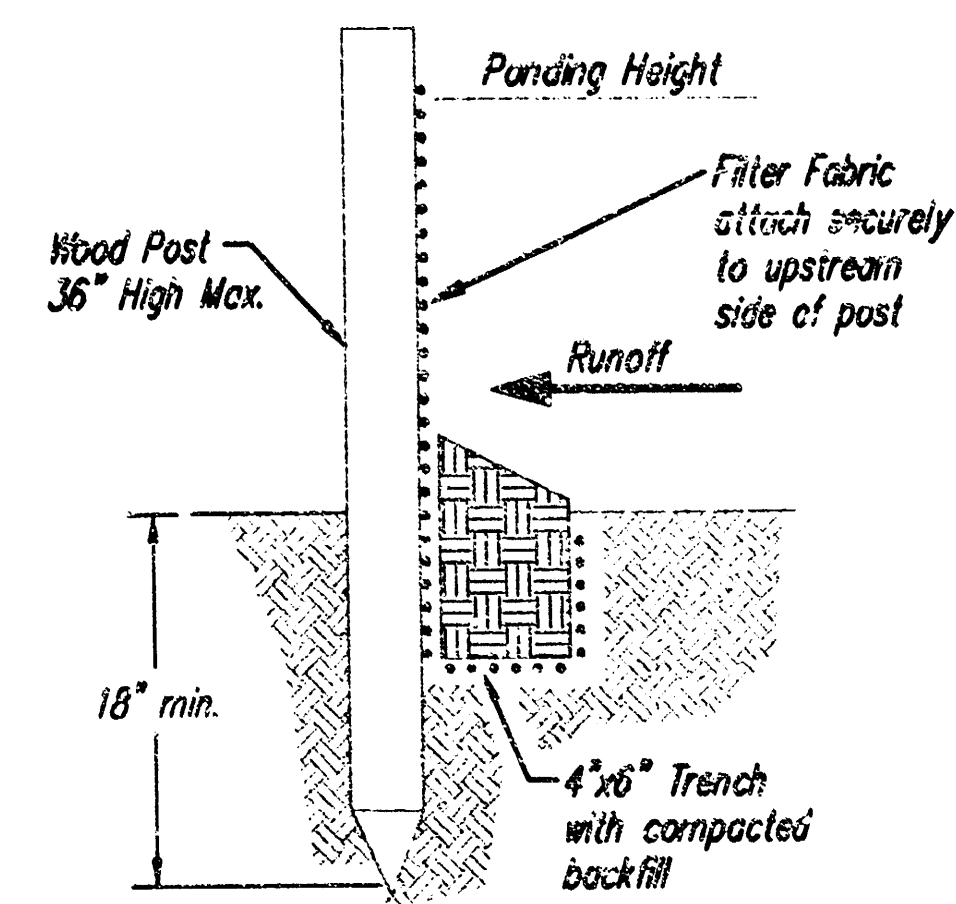
SECTION A-A

MAN-HOLE FRAME AND COVER DETAIL					
ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA, KANSAS					
 BAUGHMAN COMPANY P.A. ENGINEERING, SURVEYING, & PLANNING 316-262-7201 • 316 LELAN • WICHITA, KANSAS 67201					
PROJECT NUMBER 1372PPS(07881)					
DESIGN DATE	DRAWN DATE	APPROVED	DATE NO./YR	SCALE INCHES/FOOT	SHEET 10 of 12



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.



SILT FENCE BARRIERS

SILT FENCE BARRIERS

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification. The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for setting out sediment. When practicable, silt fence slope barriers should be placed along contours to avoid a concentration of flow. Silt fence slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 6" deep by 4" wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use. Roll out a continuous length of silt fence fabric on the downslope side of the trench. Place the edge of the fabric in the trench starting at the top upslope edge. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt-fence fabric should remain exposed. Lay the exposed silt fence upslope of the trench to clear an area for driving in the posts. Just downslope of the trench, drive posts into the ground to a depth of at least 18". Place posts no more than 4' apart. Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

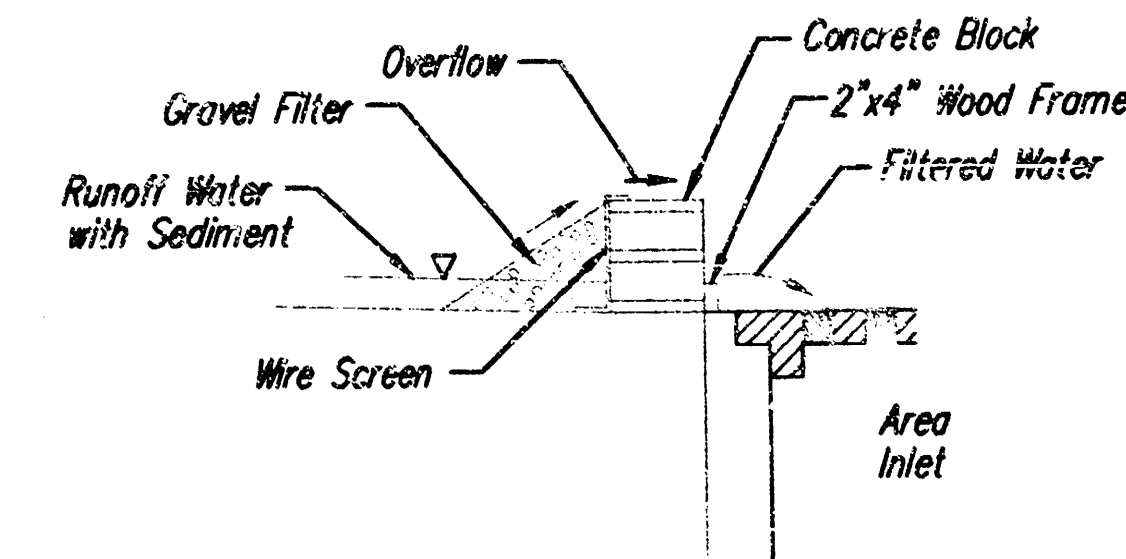
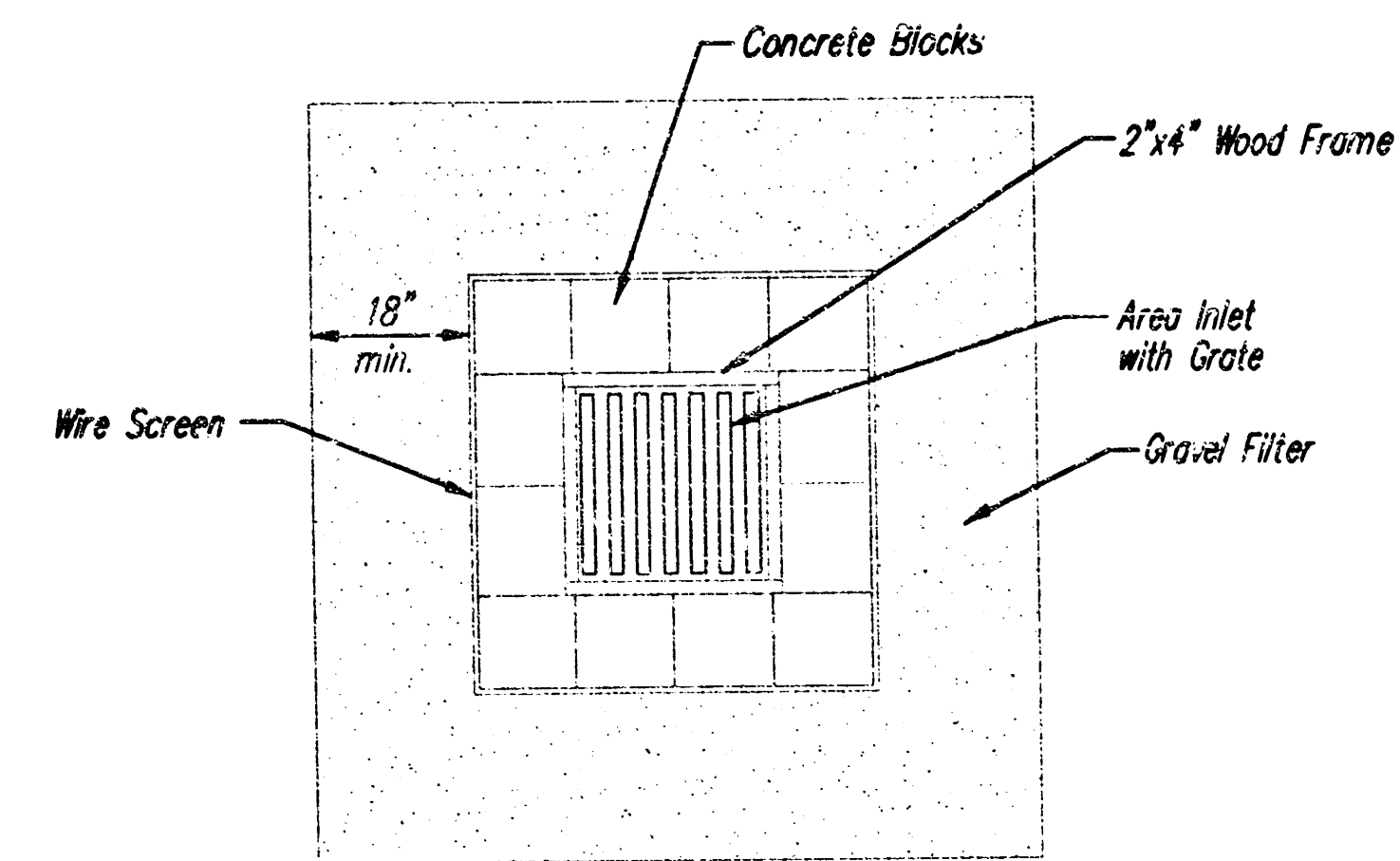
List of common placement/installation mistakes to avoid:

When practicable, do not place silt fence slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. When the flow concentrates, it overtops the barrier and the silt fence slope barrier quickly deteriorates. Do not place silt-fence posts on the upslope side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail. Do not place silt fence slope barriers in areas with shallow soils underlain by rock. If the barrier is not sufficiently anchored, it will wash out. Silt fence slope barriers must be dug into the ground—silt fence at ground level does not work because water will flow underneath.

Inspection and Maintenance:

Silt fence slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Are there any points along the slope barrier where water is concentrating?
- Does water flow under the slope barrier?
- Do the silt fences sag excessively?
- Has the silt fence torn or become detached from the posts?
- Does sediment need to be removed from behind the slope barrier?



CONCRETE BLOCK FILTER FOR AREA DRAIN (INLET PROTECTION)

Gravel barriers provide little filtering of large inflow waters. However, when installed correctly and maintained, they can effectively treat low runoff flows.

Placement of gravel filters around area drains must be completed in a manner that will not cause local flooding.

Gravel filters can be used if the immediate and adjacent area to the area drain consists of soil or pavement.

Only gravel filters are to be installed on top of the pavement.

Instructions for Installing:

- STEP 1: Place concrete blocks around the grate. The blocks can be stacked one or two high and should be supported by a 2'x4" board.
- STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
- STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
- STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary.

An alternative method is use of gravel bags that are supported to prevent collapsing.

Use of rock having diameters smaller than 1" may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All gravel filters installed around area drains should be inspected and repaired after each runoff event. Sediment should be removed when material is within 3" of the top of any block. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets after every runoff event.



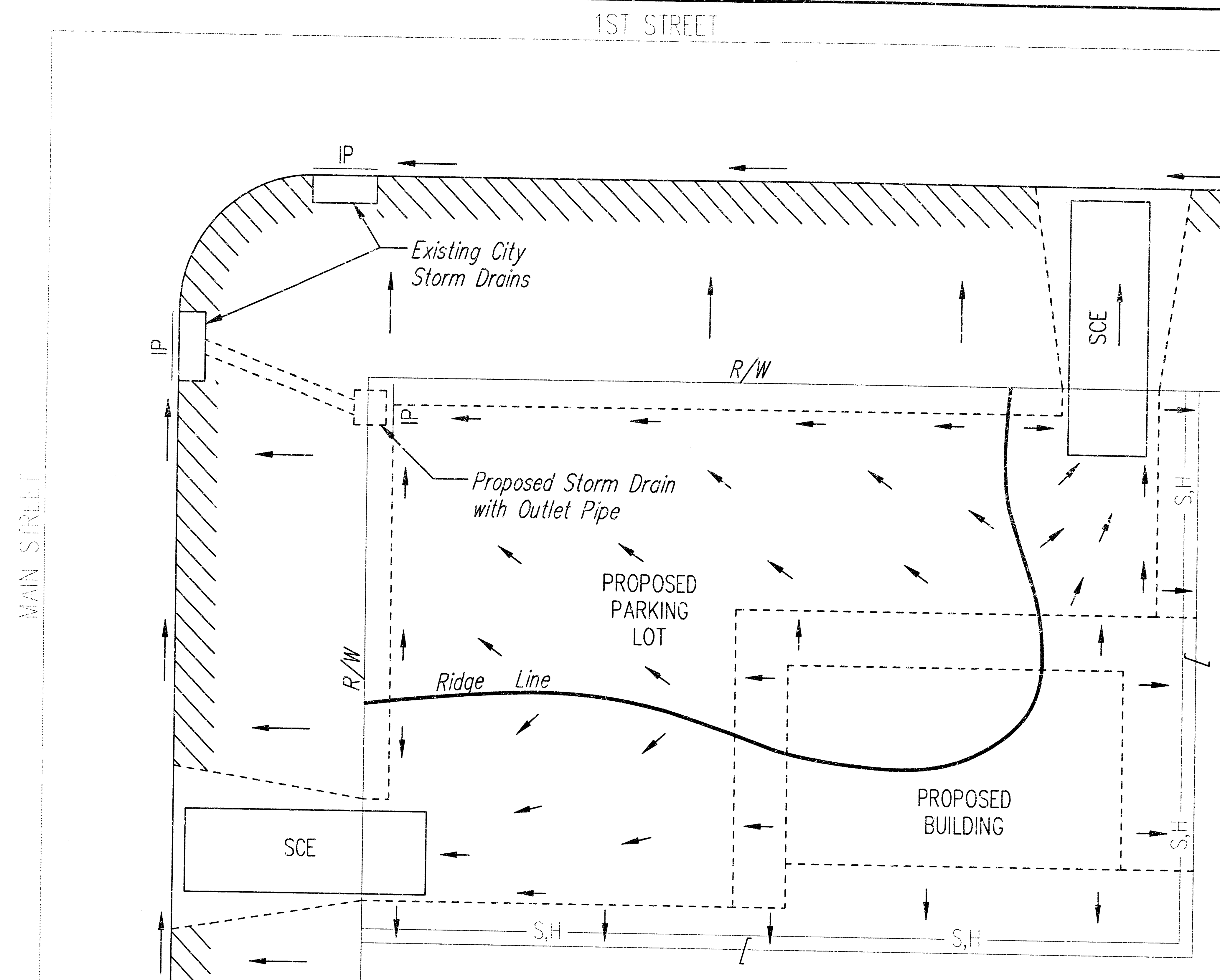
SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER P.E.
STORM WATER ENGINEER

PROJECT NUMBER 1372PPS(607661) OCA NO. -

DATE AUG. 2003

SHEET 11 OF 12



LEGEND

- Flow Direction
- IP Inlet Protection - to be provided at all inlets subject to silt laden runoff.
- S.H. - Silt Fence or Hay Bale Barrier - to be installed along property lines where runoff from construction site can run onto other properties.
- SCE Stabilized Construction Entrance - to be used at all locations where vehicles or equipment enter or exit property.
- Back of Curb Protection - to be installed whenever curb is backfilled to less than 3 inches from top and disturbed earth exists adjacent thereto. (See City Standard Details.)

General Notes

1. This standard detail sheet is a part of your building permit. The BMP's shown on this sheet are considered minimum standards. Whenever sediment enters the streets, storm sewers, ditches, or ponds, contractor will install additional BMP's, as needed, to correct the problem.
2. Follow these general principals on all commercial building sides.
3. The soil erosion BMP's shown hereon must be in place at all times during construction until such time as the site is re-established with paving or grass.
4. Failure to install, protect, and maintain BMP's are violations of Section 16.32 of the City Code and will subject the contractor to the penalties provided therein. Included with your permit is an orange "notice" sign that must be posted on-site in a conspicuous place at all times during construction. This sign is provided to assist you in the maintenance of BMP's.
5. Back of Curb Protection: Can include hay bale, silt fence, or Curlex barrier, as shown on City BMP standard details. This BMP must remain in place until the area between the curb and right-of-way line has been permanently stabilized.
6. The General Contractor is responsible for the installation and maintenance of all BMP's.
7. Should the site abut a lake, BMP's will be installed to prevent sediment from entering the lake.
8. Any mud inadvertently tracked onto any street will be cleaned up by the general contractor at the end of each day's work.

	SOIL EROSION BMP DETAILS	
	CHRISTOPHER M. CARRIER, P.E. STORM WATER ENGINEER	
	PROJECT NUMBER 1372PPS(607681)	OCA NO. -
	DATE AUG. 2003	SHEET 12 OF 12

