

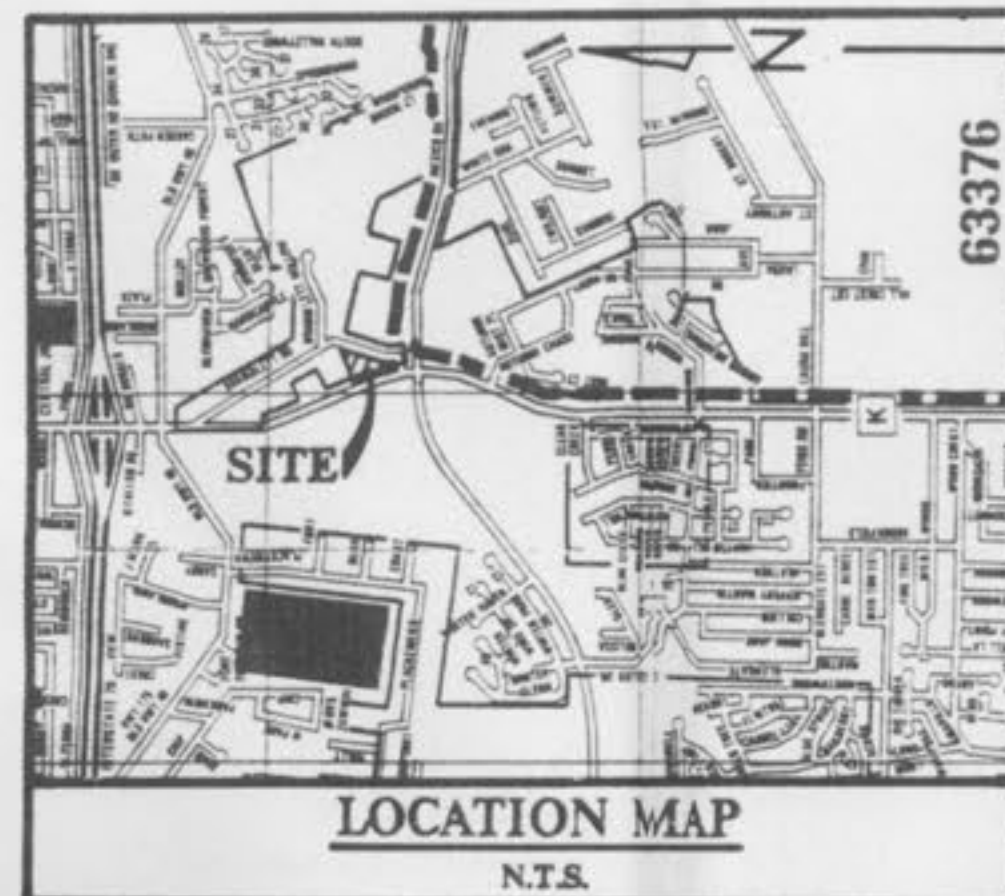
GENERAL NOTES

- Underground utilities have been plotted from available information and therefore their locations shall be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans, shall be the responsibility of the contractor, and shall be located prior to any grading and/or construction of improvements.
- Erosion control shall not be limited to what is shown on the plans. The contractor shall take whatever means necessary to prevent siltation from entering adjacent roadways, properties, and ditches. Such control might include channeling runoff into sediment basins, channeling runoff into areas where an extra row of straw bales are used. A silt fence might be considered, if necessary.
- No area shall be cleared without permission of the developer.
- Owner/Developer assumes full responsibility as to the performance of the grading operation and assurance that all properties and County and State roads will be adequately protected.
- Soil preparation and re-vegetation shall be performed according to Appendix A of the Model Sediment and Erosion Control Regulations for Urban Development.
- Where natural vegetation is removed during grading, vegetation shall be re-established in such a density as to prevent erosion. Permanent type grasses shall be established as soon as possible or during the next seeding period after grading has been completed. Refer to Appendix A of St. Charles Soil and Water Conservation District - Model Sediment and Erosion Control Regulations.
- Site preparation includes the clearance of all stumps, trees, bushes, shrubs, and weeds; the grubbing and removal of roots and other surface obstructions from the site; and the demolition and removal of any man-made structures. The unsuitable material shall be properly disposed of off-site. Topsoil and grass in the fill areas shall be thoroughly diced prior to the placement of any fill. The Soils Engineer shall approve the dicing operation.
- Compaction equipment shall consist of tamping rollers, pneumatic-tired rollers, vibratory rollers or high speed impact type drum rollers acceptable to the Soils Engineer. The rollers shall be designed so as to avoid the creation of a layered fill without proper blending of successive fill layers.
- The Soils Engineer shall observe and test the placement of the fill to verify that specifications are met. A series of fill density tests will be determined on each lift of fill. Interim reports showing fill quality will be made to the Owner at regular intervals.
- The Soils Engineer shall notify the Contractor of rejections of a lift of fill or portion thereof. The Contractor shall rework the rejected portion of fill and obtain notification from the Soils Engineer of its acceptance prior to the placement of additional fill.
- All Areas to receive fill shall be scarified to a depth of not less than 6 inches and then compacted to at least 85 percent of the maximum density as determined by the Modified AASHTO T-180 Compaction Test (ASTM-D1557). Natural slopes steeper than 1 vertical to 5 horizontal to receive fill shall have horizontal benches cut into the slopes before the placement of any fill. The width and height to be determined by the Soils Engineer. The fill shall be loosely placed in horizontal layers not exceeding 8 inches in thickness and compacted in accordance with the specifications given below. The Soils Engineer shall be responsible for determining the acceptability of soils placed. Any unacceptable soils placed shall be removed at the Contractor's expense.
- The sequence of operation in the fill areas will be: fill, compact, verify acceptable soil density, and repetition of the sequence. The acceptable moisture contents during the filling operation are those at which satisfactory dry densities can be obtained. The acceptable moisture contents during the filling operation in the remaining areas are from 2% to 8% above the optimum moisture content.
- The surface of the fill shall be finished so that it will not impound water. If at the end of a days work it would appear that there may be rain prior to the next working day, the surface shall be finished smooth. If the surface has been finished smooth for any reason, it shall be scarified before proceeding with the placement of succeeding lifts. Fill shall not be placed on frozen ground, nor shall filling operations continue when the temperature is such as to permit the layer under placement to freeze.
- All cut and fill slopes should be a maximum of 33% slope (3:1) after grading.
- All fill including filled places under proposed storm and sanitary sewer lines and paved areas including trench backfills within and off the road right-of-way shall be compacted to 90% of maximum density as determined by the "Modified AASHTO T-180 Compaction Test (ASTM D1557)". All tests shall be verified by a Soils Engineer concurrent with grading and backfilling operations. The compacted fill shall be free of rutting and shall be non-yielding and non-pumping during proofrolling and compaction.
- Fill placed within proposed street R.O.W. shall be compacted to 90% M.O.D. Proctor and be 2% below to 4% above optimum moisture content.
- Soft soil in the bottom and banks of any existing or former pond site should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed right-of-way locations or on storm sewer locations.
- Any wells and/or springs which may exist on this property should be located and sealed in a manner acceptable to the City of O'Fallon.
- Temporary siltation control measures (structural) shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.
- If straw bales or silt fences are destroyed by heavy rains, vandalism, etc., they are to be replaced immediately by contractor.
- When grading operations are completed or suspended for more than thirty (30) days, permanent grass must be established at sufficient density to provide erosion control on the site. Between permanent grass seeding periods, temporary cover shall be provided according to the Designated Official's recommendation. Refer to Appendix A of St. Charles Soil and Water Conservation District - Model Sediment and Erosion Control Regulations. All finished grades (areas not to be disturbed by improvement) in excess of 20% slopes (5:1) shall be mulched and tacked at the rate of 100 pounds per 1000 square feet when seeded.
- All existing trash and debris on-site must be removed and disposed of off-site.
- Debris and foundation material from any existing on-site building or structure which is scheduled to be razed for this development must be disposed of off-site.
- The total yardage of this project is based on a 15% shrinkage factor.
- The shrinkage factor is subject to change, due to soil conditions (types and moisture content), weather conditions, and the percentage of compaction actually achieved at the time of the year grading is performed. As a result, adjustments in final grade may be required. If adjustments need to be made, the contractor shall contact St. Charles Engineering and Surveying prior to completion of the grading.

- Earth quantities were obtained from field information by others with contours at two foot intervals, with a tolerance of plus or minus one foot or one-half (1/2) contour intervals.
- The vertical grading tolerance shall be plus or minus 0.2 feet for all rough grading.
- All construction and materials shall conform to the City of O'Fallon Standards and Specifications.
- All storm sewers shall be Reinforced A.S.T.M. C-76, Class III minimum, unless otherwise shown on the plans.
- All storm sewer pipe in the right-of-way shall be reinforced concrete pipe (A.S.T.M. C-76, Class III minimum).
- All corrugated steel pipe shall conform to the requirements of AASHTO M-36 and shall be fully coated with bituminous material conforming to the requirements of AASHTO M-190. Corrugated steel pipe shall be helical pipe with reformed ends. Pipes shall be joined using either hugger bands with rubber o-ring gaskets or universal corrugated bands with sponge neoprene gaskets. All gasket materials shall conform to ASTM D-1056.
- Concrete Pipe Joints shall be M.S.D. Type "A" Approved Compression Joints and shall conform to the requirements of the Specification for Joints and Circular Concrete Sewer and Culvert Pipes, using flexible, watertight, rubber-type gaskets A.S.T.M. C-443, Band-Type Gaskets depending entirely on cement for adhesion and resistance to displacement during jointing shall not be used.
- All grout for rip-rap shall be high slump ready-mix concrete.
- 8" P.V.C. sanitary sewer pipe shall meet the following standards: A.S.T.M. D-3034 SDR35, with wall thickness compression joint A.S.T.M. D-3212. An appropriate rubber seal waterstop as approved by the sewer district shall be installed between P.V.C. pipe and masonry structures.
- The Contractor shall prevent all storm/surface water, mud or construction debris from entering the existing sanitary sewer system.
- The minimum vertical distance from the low point of the building to the flowline of the sanitary sewer at the corresponding building connection shall not be less than two and one half feet (2 1/2') plus the diameter of the sanitary sewer.
- The sanitary lateral shown on this plan is to be constructed of 6 inch P.V.C. pipe. Lateral to be placed at 2% minimum.
- All PVC sanitary sewer pipe is to be SDR-35 or equal with "clean" 1/2 inch to 1 inch granular stone bedding uniformly graded. This bedding shall extend from 4 inches below the pipe to springline of pipe. Immediate backfill over pipe shall consist of some size "clean" or "minus" stone from springline of pipe to 12 inches above the top of pipe.
- Brick shall not be used on sanitary manholes.
- All sanitary sewer manholes shall be waterproofed on the exterior in accordance with Missouri D.N.R. Specification 10CSR-8.120 (7) (E).
- All sanitary sewer construction shall conform to current City of O'Fallon Sewer District Standards and Specifications.
- All pipes shall have positive drainage through manholes. No flat base structures are allowed.
- All trench backfills under paved areas shall be granular backfill, and water jetted. All other trench backfills may be earth material (free of large clods or stones) and shall be water jetted.
- All sewer tops built without elevations furnished by the Engineer will be the responsibility of the sewer contractor.
- Easements shall be provided for storm sewers, sanitary sewers, and all utilities on the record plat. See record plat for location, size, and width of easements.
- Gas, water, and other underground utilities shall not conflict with the depth or horizontal location of existing and proposed sanitary and storm sewers including laterals.
- All waterline construction shall conform to current City of O'Fallon Water District Standards and Specifications.
- The contractor shall place all fire hydrants (3") three feet from back of curb.
- The contractor shall place the "steamer" outlet of the fire hydrant toward the pavement.
- The City of O'Fallon Sewer District shall be notified at least 48 hours prior to construction of sanitary sewers for coordination and inspections.
- Sidewalk curb ramps, ramp and accessible parking spaces shall be constructed in accordance with the current approved "Americans with Disabilities Act Accessibility Guidelines" (ADAAG) along with the required grades, construction materials, specifications and signage. If any conflict occurs between the above information and the plans, the ADAAG guidelines shall take precedence and the Project Engineer shall be notified by the contractor prior to any construction.
- The use of High Density Polyethylene Corrugated Pipe with smooth interior wall will be permitted as an acceptable alternative to R.C.P. outside of the Public R/W. Pipe shall meet A.S.T.M. D-2321 A.A.S.H.T.O. M-294-921. Concrete Flared End Sections, Manholes and Inlet Structures shall be required.
- The most stringent of the above requirements shall apply.

IMPROVEMENT PLANS FOR O'FALLON CENTER

A TRACT OF LAND BEING PART OF THE NW
CORNER OF THE NW 1/4 OF SECTION 33 AND
THE WESTERN CORNER OF U.S. SURVEY 1766
TOWNSHIP 47 NORTH, RANGE 3 EAST
CITY OF O'FALLON ST. CHARLES COUNTY, MO.



DEVELOPMENT NOTES

- Proposed Use: Lot 1 - Proposed Shopping Center
Lot 2 - Future Development
- Present Zoning: C-2 General Business District
- Total area of site = Lot 1 = 2.118 Acres
Lot 2 = 0.818 Acres
- This site is served by:
Union Electric Co. 272-6203
St. Charles Gas Co. 946-8937
GTE Telephone 332-7623
City of O'Fallon Sewer District 281-2858
City of O'Fallon Water District 281-2858
O'Fallon Fire Protection District 272-3493
Fort Zumwalt School District 272-6620
- Sufficient lighting will be provided for the parking area so that all locations will have at least one quarter of a foot candle of light. Light standards will be the down cast type of standard.
- Site Setbacks:
Front - 25 Feet
Rear - No Rear Yard
Side - No Side Yard Set Back Required
- The developer shall comply with current tree preservation ordinance No. 1689 and provide landscaping as set forth in article 23 of the City of O'Fallon Zoning Ordinance.
- According to the preliminary flood insurance rate map for St. Charles County (Dated August 2, 1996) Map Number 29183C0237E, This site is not in the 100 year flood plain.

LEGEND

- BUILDING LINE
- O — EXISTING SANITARY SEWER
- ● — PROPOSED SANITARY SEWER
- [] — EXISTING STORM SEWER
- [] — PROPOSED STORM SEWER
- 340' — EXISTING CONTOUR
- 540.0 — PROPOSED CONTOUR
- [] — EXISTING WOOD AREA
- [] — SILTATION CONTROL
- [] — CREEK OR DITCH
- FL — FLOWLINE
- [] — GAS MAIN
- [] — TELEPHONE CABLE
- [] — WATER MAIN
- [] — UNDERGROUND ELECTRIC
- [] — OVERHEAD ELECTRIC
- [] — STREET SIGN
- [] — GENERAL SURFACE DRAINAGE
- [] — LIGHT STANDARD
- [] — CLEARING AND GRADING LIMITS
- [] — STORM SEWER DESIGNATOR
- [] — SANITARY MANHOLE DESIGNATOR
- [] — LATERAL TAIL STAKE
- [] — F.H. FIRE HYDRANT
- [] — 8" W.M. WATER MAIN
- [] — B.O. BLOW-OFF VALVE
- [] — DENOTES STREET ADDRESS
- [] — CLEAN-OUT

INDEX

DESCRIPTION	SHEET #
COVER SHEET	1
FLAT PLAN	2
GRADING PLAN	3
SEWER PROFILES	4
DRAINAGE AREA PLAN	5
CONSTRUCTION DETAILS	6 - 9

File
APPROVED
12/10/97
Aron Cuthip

IMPROVEMENT PLANS FOR
O'FALLON CENTER

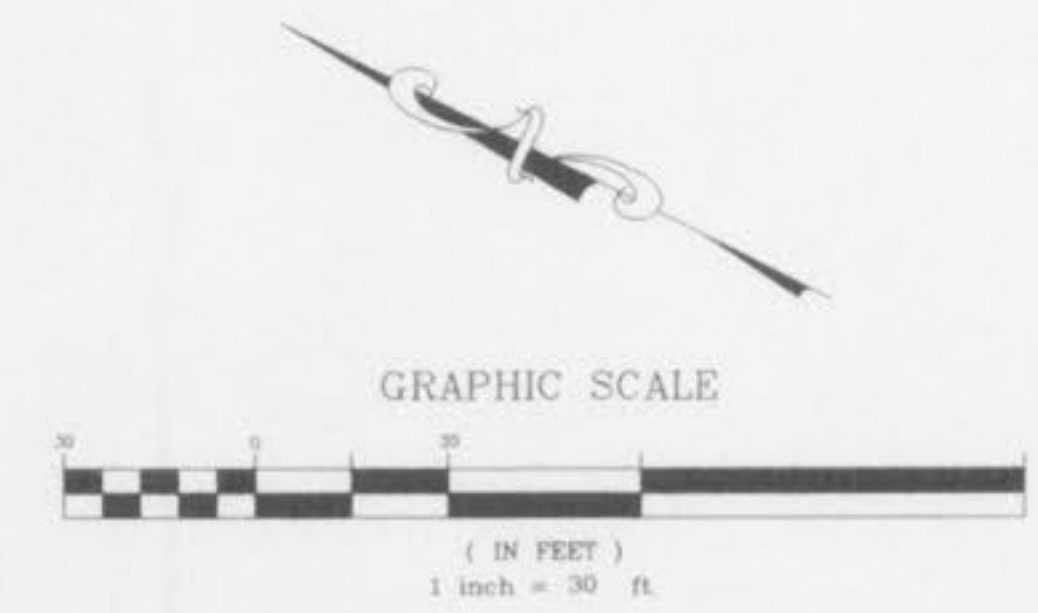
ENGINEERS AUTHENTICATION

The responsibility for professional engineering liability on this project is hereby limited to the set of plans authenticated by the seal, signature and date hereunder attached. Responsibility is disclaimed for all other engineering plans involved in the project and specifically excludes revisions after this date unless reauthenticated.

St. Charles Engineering and Surveying

Revised	Sheet 1 of 9	Order No. 96-0927-07
S C	ST. CHARLES ENGINEERING & SURVEYING	Date 09/08/97
E S	801 South Fifth Street, Suite 202 St. Charles, Missouri 63301 Off. 947-0607, Fax 947-2448	

OWNER/DEVELOPER/PREPARED FOR:
O'Fallon Properties, LLC
7777 Bonhomme Ave., Suite 2200
St. Louis, MO 63105
(314) 240-4501



DRAINAGE AREA MAP
NOT FOR CONSTRUCTION
 TO BE USED ONLY FOR DRAINAGE CALCULATIONS

STATE HWY K (VARIABLE WIDTH)

O'FALLON PROPERTIES, LLC
 7777 BONHOMME AVE, SUITE 2200
 ST. LOUIS, MO 63105
 (314) 240-4501

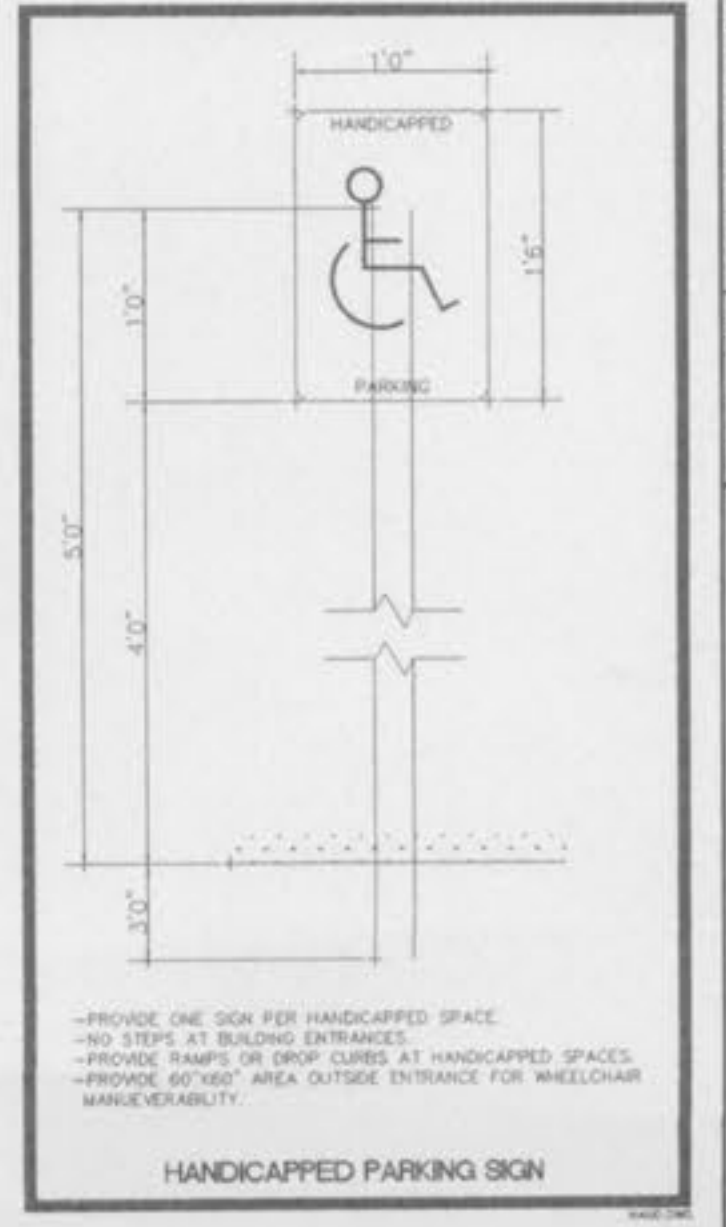
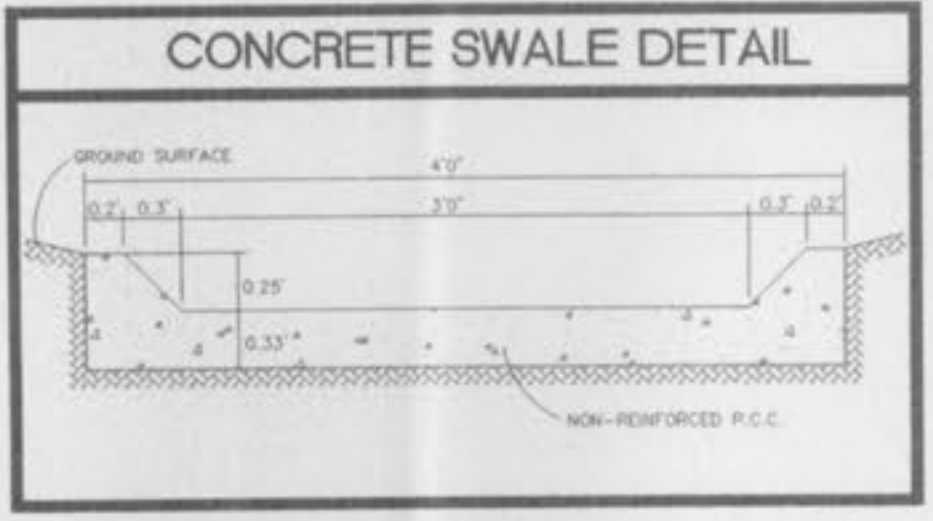
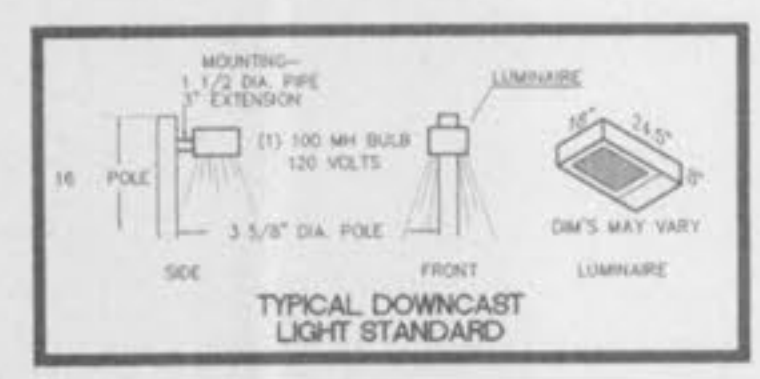
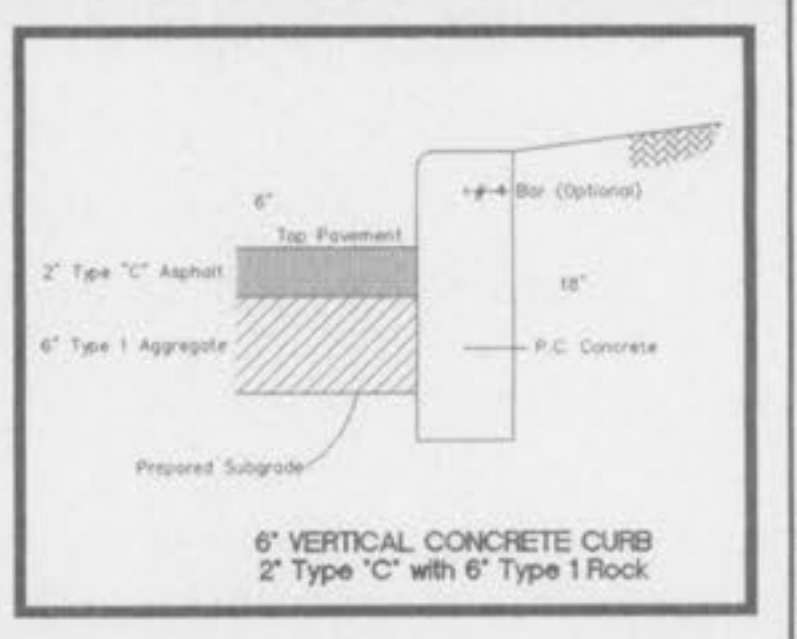
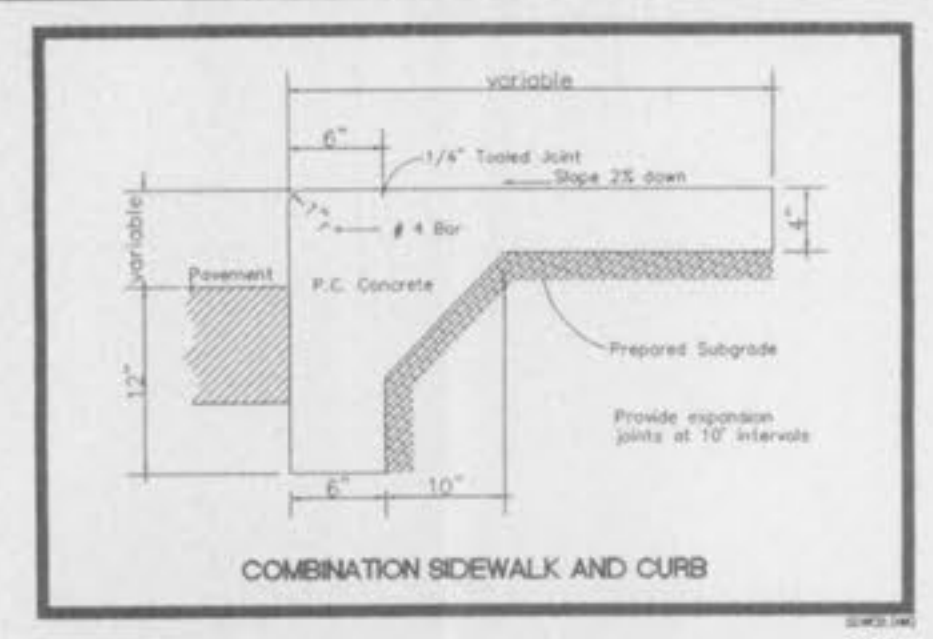
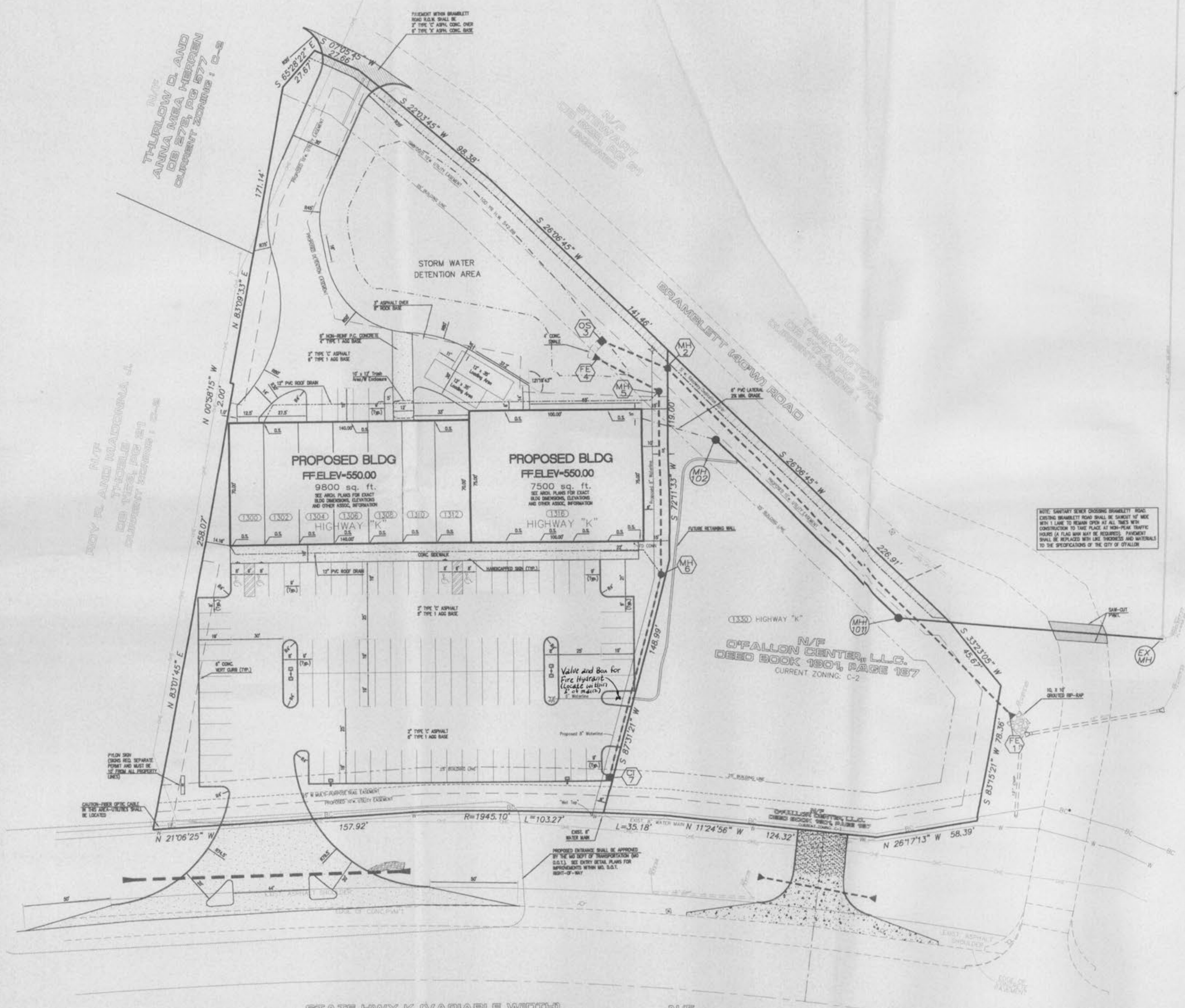
ST. CHARLES ENGINEERING & SURVEYING
 801 S. FIFTH STREET, SUITE 202
 ST. CHARLES, MO 63301
 TEL: 636 947-0697 FAX: 636 947-2448



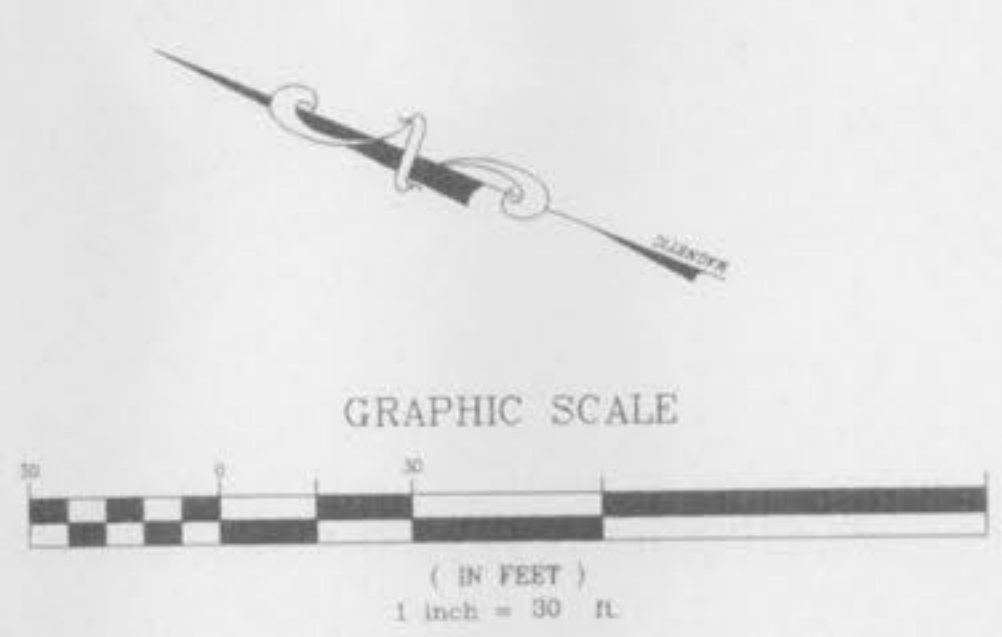
ORDER NO.
 96-0927-07
 DATE
 09/08/97

THURLOW D. AND ANNA NEA HERREN CURRENT ZONING: C-2

N/F HAROLD H. AND MARY HILL CURRENT ZONING: C-2



NOTE: SANITARY SEWER CROSSING BRAMBLETT ROAD EXISTING BRAMBLETT ROAD SHALL BE SUBJECT OF WORK WITH 1 LINE TO BEAR OPEN AT ALL TIMES WITH CONSTRUCTION TO TAKE PLACE AT NON-PEAK TRAFFIC HOURS AS FLAG SIGN MAY BE REQUIRED. PAVEMENT SHALL BE REPLACED WITH LIKE THICKNESS AND MATERIALS TO THE SPECIFICATIONS OF THE CITY OF O'FALLON



THE UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE OR NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMO.

STATE HWY K (VARIABLE WIDTH) N/F HAROLD H. HILL AND MARY HILL

Dec. 5, 1997 Revised per City of O'Fallon comments

O'FALLON PROPERTIES, LLC
7777 BONHOMME AVE, SUITE 2200
ST. LOUIS, MO 63105
(314) 240-4501

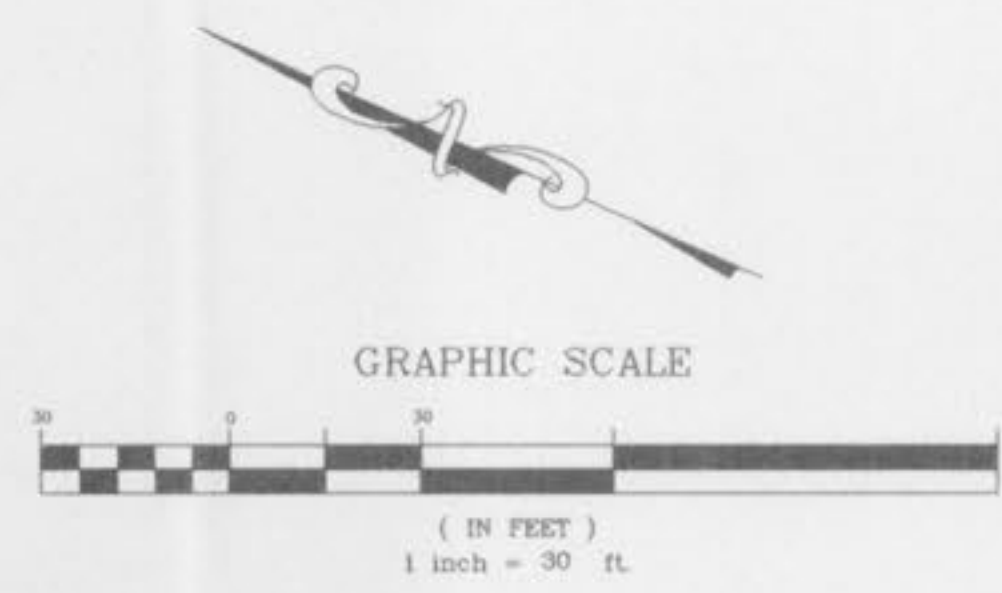
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S E C F S

ORDER NO. 96-0927-07
DATE 09/08/97

FLAT PLAN 2 of 9

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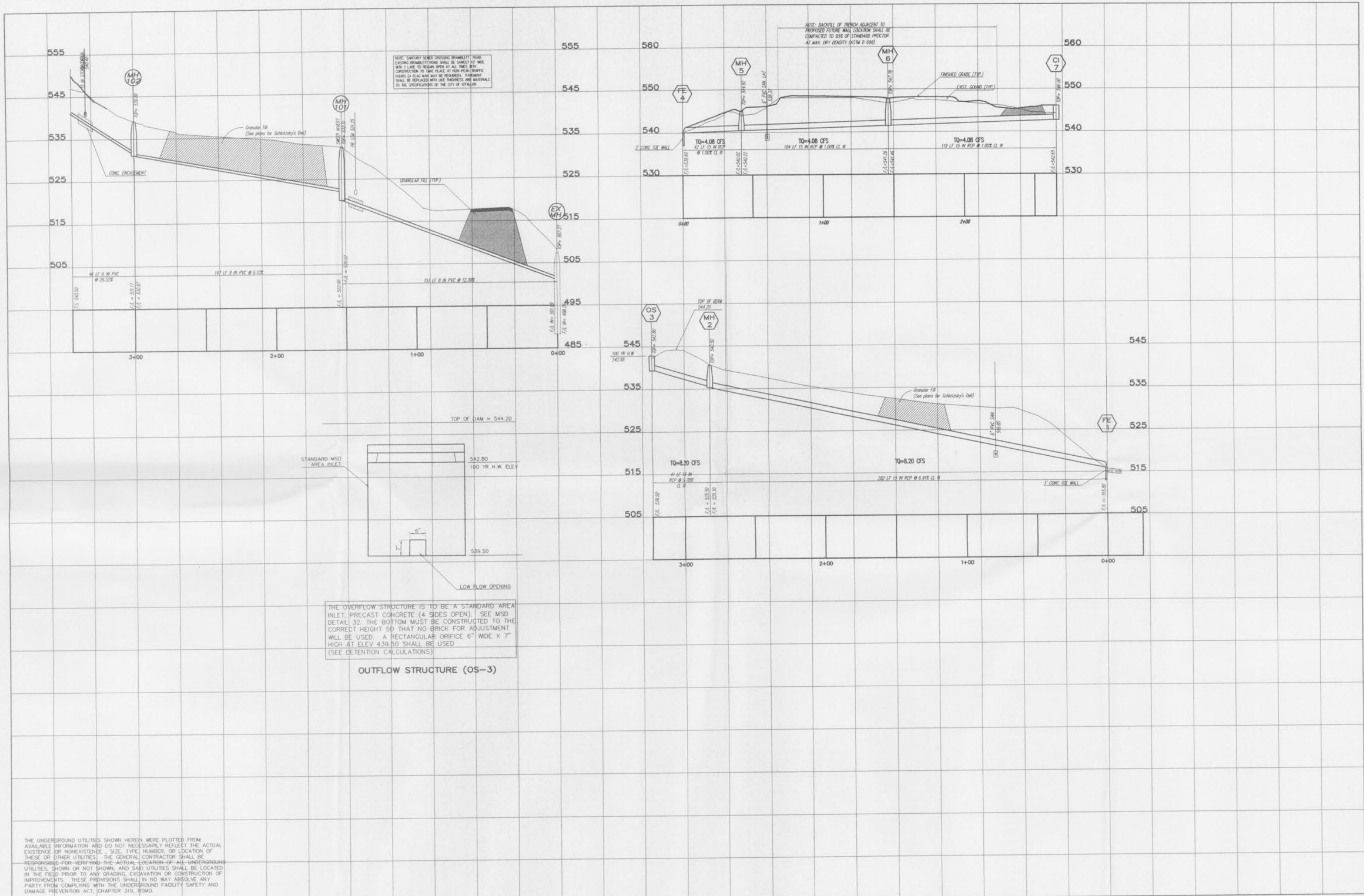
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STATE HWY K (VARIABLE WIDTH)

GRADING PLAN

O'FALLON PROPERTIES, LLC 7777 BONHOMME AVE, SUITE 2200 ST. LOUIS, MO 63105 (314) 240-4501	
ST. CHARLES ENGINEERING & SURVEYING 801 S. FIFTH STREET, SUITE 202 ST. CHARLES, MO 63301 TEL: (314) 947-0897 FAX: (314) 947-2448	
ORDER NO.	96-0927-07
DATE	09/08/97
3 of 9	

Dec. 5, 1997
 Revis per City of O'Fallon comments



NOTE: SANITARY SEWER CROSSING BRIMBLETT ROAD EXISTING BRIMBLETT ROAD SHALL BE SANDCAST PIPE WITH 1" LIME TO REINFORCE AT ALL TIMES WITH CONSTRUCTION TO TAKE PLACE AT NON-PEAK TRAFFIC HOURS (A FLAME MARK SHALL BE INDICATED). PIPEMENT SHALL BE REPLACED WITH LIKE THICKNESS AND MATERIALS TO THE SPECIFICATIONS OF THE CITY OF FALLON.

NOTE: BACKFILL OF TRENCH ADJACENT TO PROPOSED TRENCH WALL LOCATION SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR AT MAX. DRY DENSITY (ASTM D 698)

THE OVERFLOW STRUCTURE IS TO BE A STANDARD AREA INLET, PRECAST CONCRETE (4 SIDES OPEN). SEE MSD DETAIL 32. THE BOTTOM MUST BE CONSTRUCTED TO THE CORRECT HEIGHT SO THAT NO BRICK FOR ADJUSTMENT WILL BE USED. A RECTANGULAR ORIFICE 6" WIDE X 7" HIGH AT ELEV. 439.50 SHALL BE USED (SEE DETENTION CALCULATIONS).

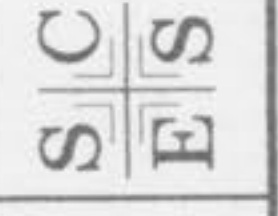
OUTFLOW STRUCTURE (OS-3)

THE UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE OR NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMO.

Dec. 5, 1997 Revise per City of Fallon comments

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ORDER NO. 96-0927-07
 DATE 09/08/97

SCALES: 1"=30' HORIZ
 1"=10' VERT
STORM / SANITARY SEWER PROFILES

INSIDE FOULWATER DROP MANHOLE
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. P.G.W. / Ch. J.C.K. 1992 SHEET 15

INSIDE FOULWATER DROP MANHOLE (FOR FREE-FALL)
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. / Ch. J.C.K. 1992 SHEET 16

'ROLL-IN' (FOR EXISTING CLAY OR CONCRETE PIPE)
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. D.A.B. / Ch. J.C.K. 1992 SHEET 43

PRE-CAST CONCRETE MANHOLE FOR SEWERS 8" THROUGH 18"
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. / Ch. J.C.K. 1992 SHEET 18

HOUSE CONNECTION TO EXISTING TEE OR WYE
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. D.A.B. / Ch. J.C.K. 1992 SHEET 59

MACHINE TAP
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. / Ch. J.C.K. 1992 SHEET 60

HOUSE CONNECTIONS ALLOWED BY TEE SADDLE
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. D.A.B. / Ch. J.C.K. 1992 SHEET 61

8" (& LARGER) CONNECTION TO PLASTIC MAIN
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. D.A.B. / Ch. J.C.K. 1992 SHEET 62

TERMINAL MANHOLE
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. / Ch. J.C.K. 1992 SHEET 17

CONNECTIONS TO LARGE SEWERS
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. / Ch. J.C.K. 1992 SHEET 64

FORCE MAIN CLEANOUT (6" DIA. & SMALLER)
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. P.G.W. / Ch. J.C.K. 1992 SHEET 55

CAST IRON MANHOLE FRAME
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. D.A.B. / Ch. J.C.K. 1992 SHEET 48

CAST IRON COVERS MANHOLES AND INLETS
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. P.G.W. / Ch. J.C.K. 1992 SHEET 49

CAST IRON MANHOLE COVERS (LOCK TYPE)
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. / Ch. J.C.K. 1992 SHEET 50

LOCKING DEVICE FOR TYPE 'T' LOCK TYPE MANHOLE COVER
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. P.G.W. / Ch. J.C.K. 1992 SHEET 51

LOCKING DEVICE FOR TYPE 'N' LOCK TYPE MANHOLE COVER
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. J.L.G. / Ch. J.C.K. 1992 SHEET 52

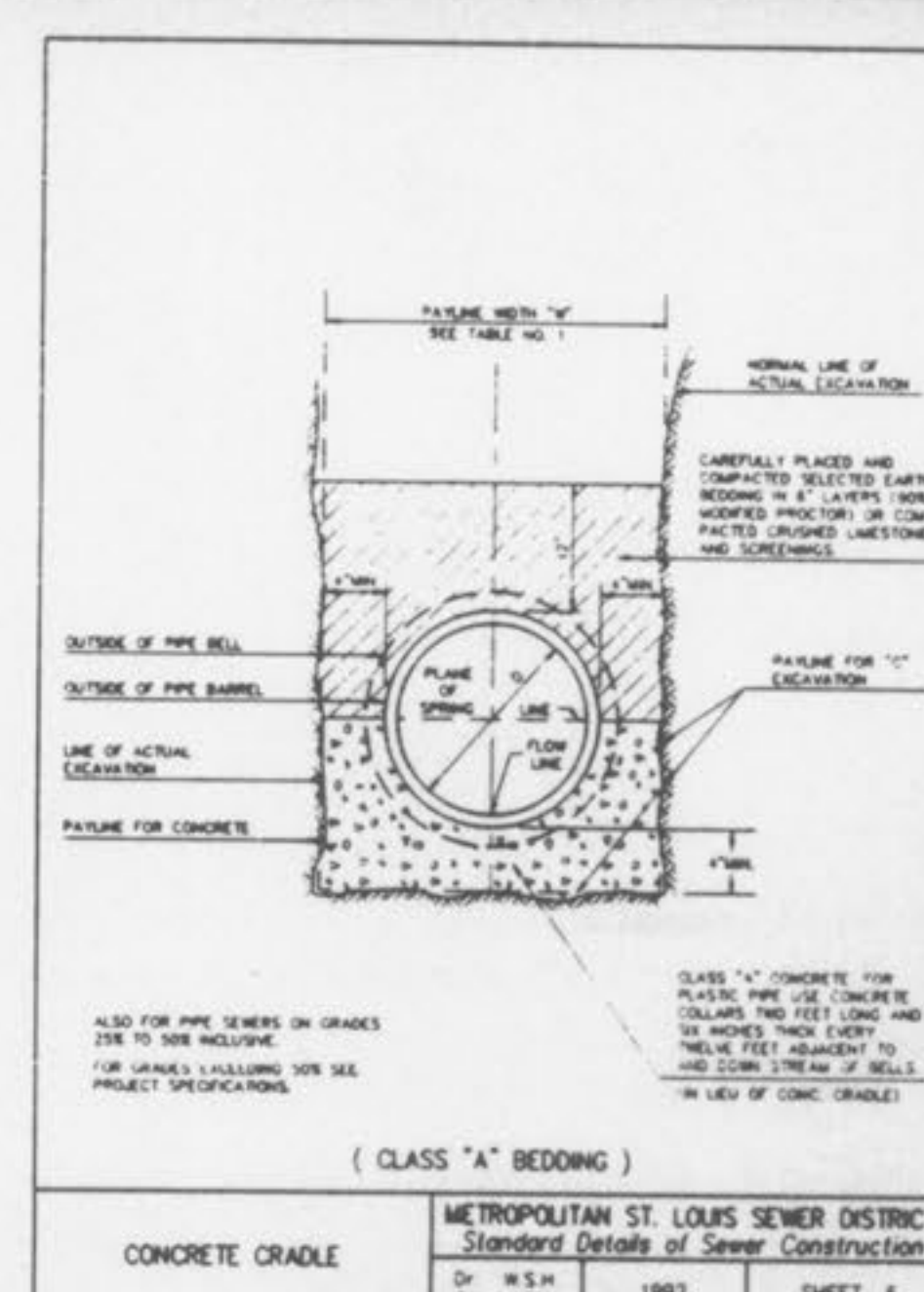
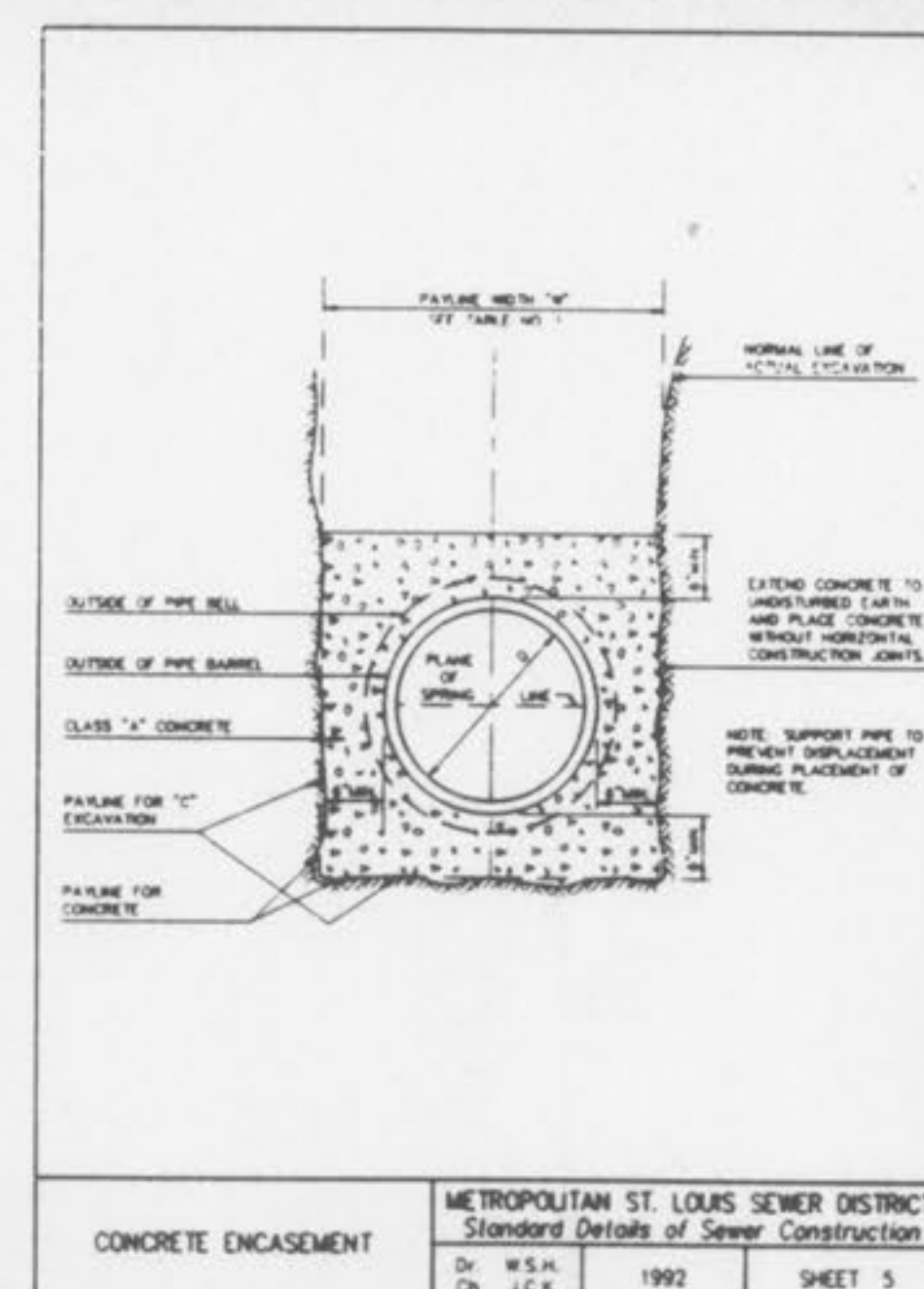
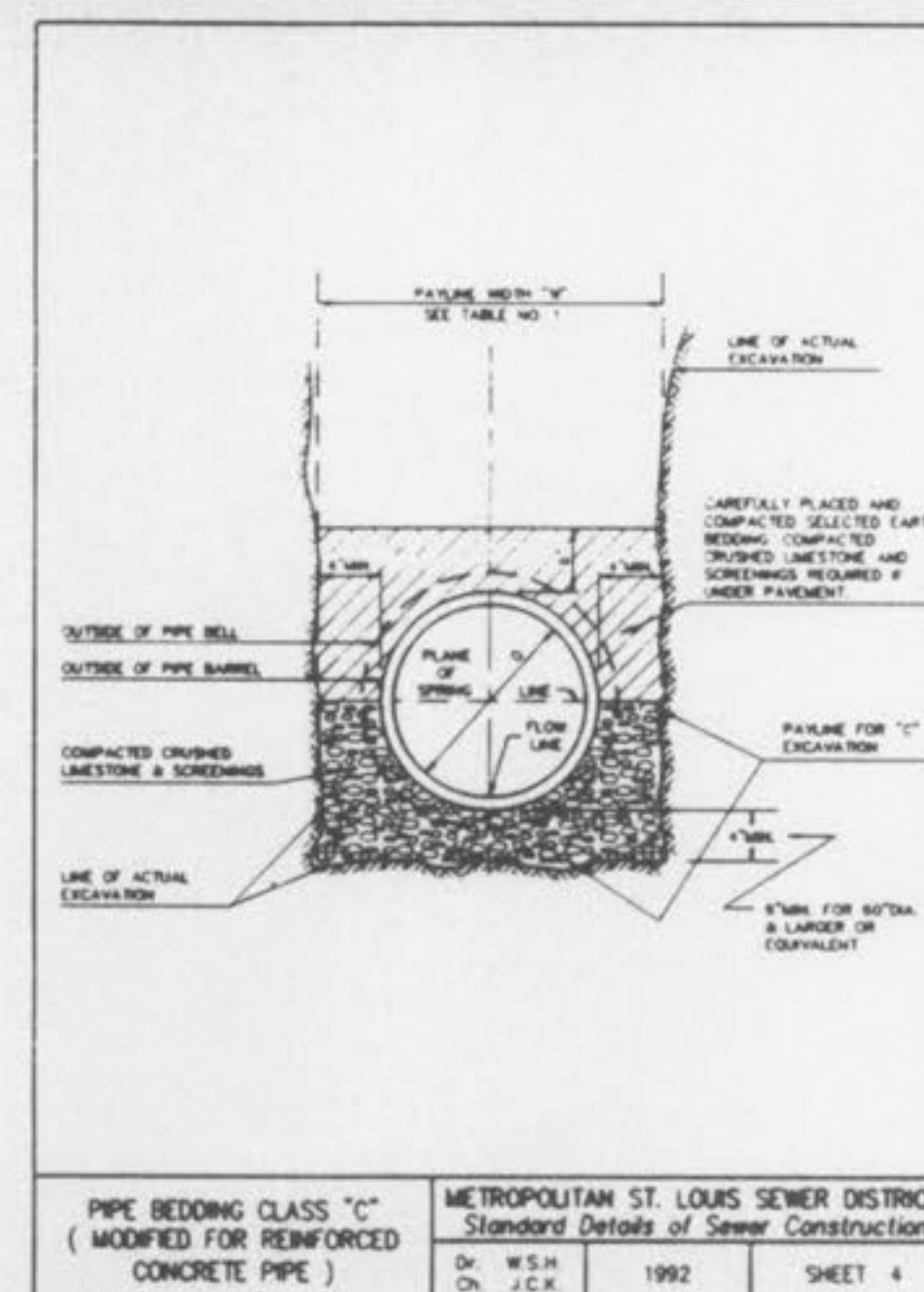
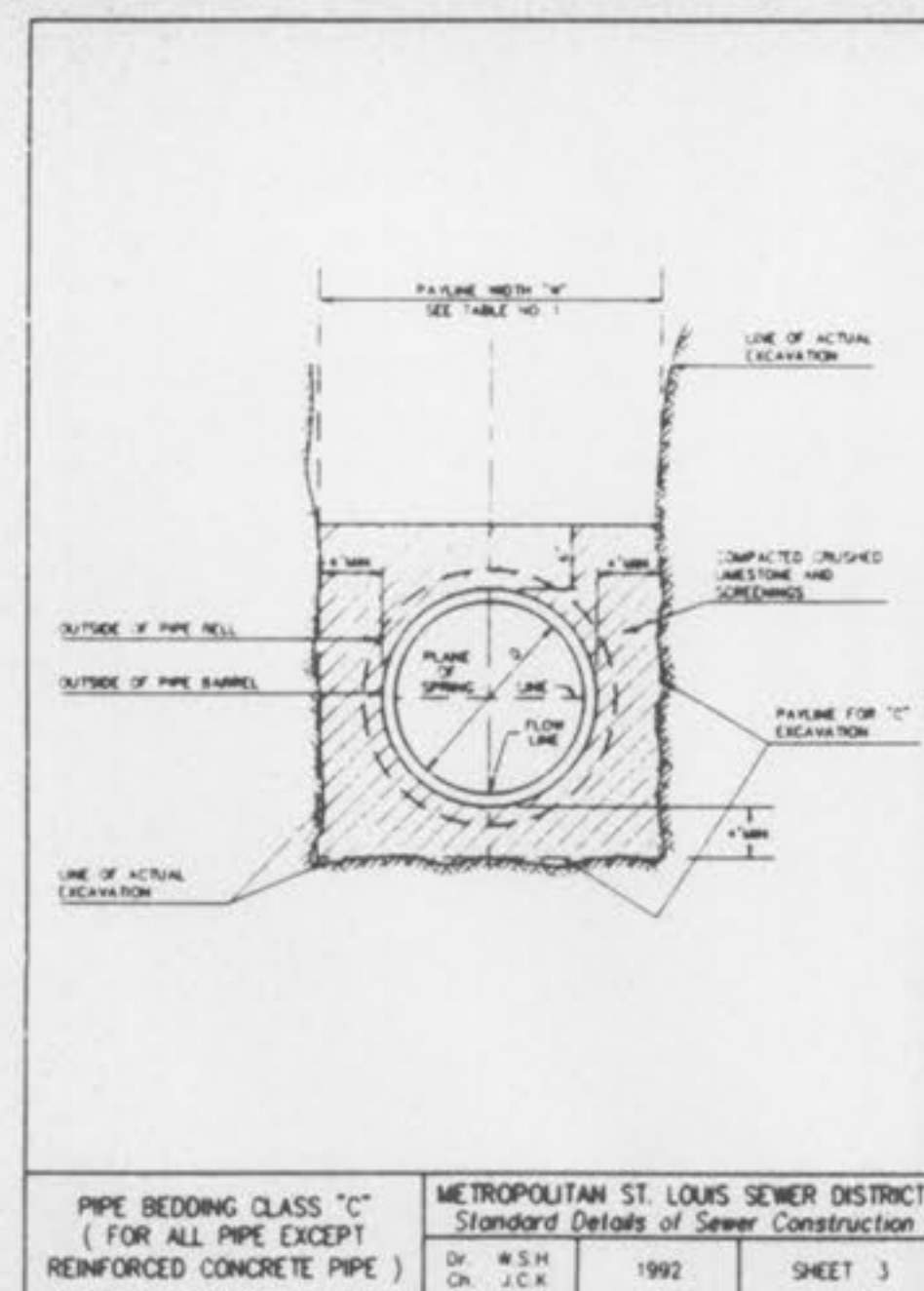
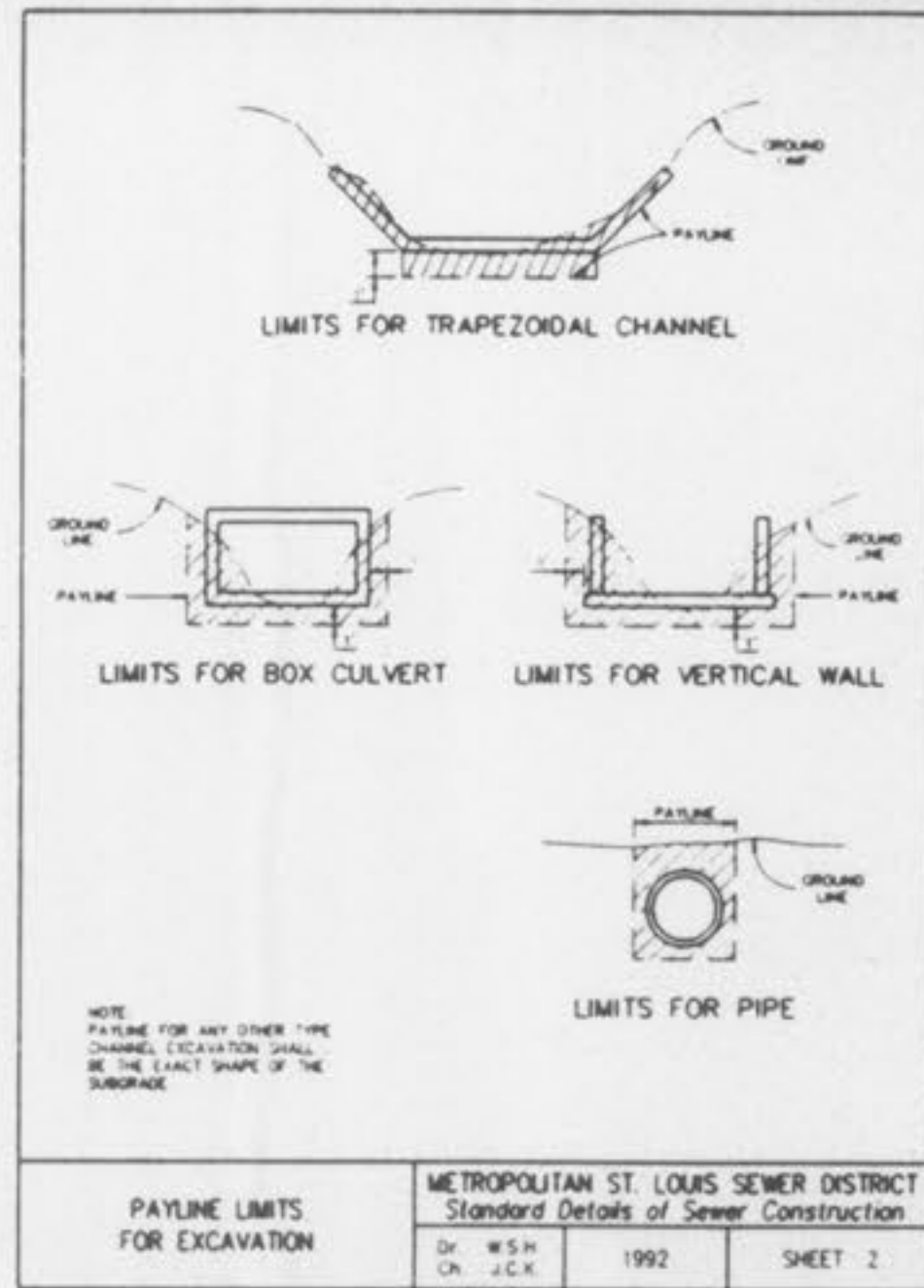
PSI-B MANHOLE STEP INTO JOINT
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. / Ch. J.C.K. 1992 SHEET 53

MANHOLE STEP FOR PRE-CAST MANHOLE
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. D.A.B. / Ch. J.C.K. 1992 SHEET 54

ROUND PIPE				HORIZONTAL ELLIPTICAL PIPE			
PIPE DIAMETER (INCHES)	PAVING WIDTH (FEET)	PAVING WIDTH (FEET)	PAVING WIDTH (FEET)	PAVING WIDTH (FEET)	PAVING WIDTH (FEET)	PAVING WIDTH (FEET)	PAVING WIDTH (FEET)
6	3.0	3.0					
8	3.0	3.0					
10	3.0	3.0					
12	3.0	3.0					
15	3.0	3.0					
18	3.0	3.0					
21	3.0	3.0					
24	3.0	3.0					
27	3.0	3.0					
30	3.0	3.0					
33	3.0	3.0					
36	3.0	3.0					
39	3.0	3.0					
42	3.0	3.0					
45	3.0	3.0					
48	3.0	3.0					
51	3.0	3.0					
54	3.0	3.0					
57	3.0	3.0					
60	3.0	3.0					
63	3.0	3.0					
66	3.0	3.0					
69	3.0	3.0					
72	3.0	3.0					
75	3.0	3.0					
78	3.0	3.0					
81	3.0	3.0					
84	3.0	3.0					
87	3.0	3.0					
90	3.0	3.0					
93	3.0	3.0					
96	3.0	3.0					
99	3.0	3.0					
102	3.0	3.0					
105	3.0	3.0					
108	3.0	3.0					
111	3.0	3.0					
114	3.0	3.0					
117	3.0	3.0					
120	3.0	3.0					
123	3.0	3.0					
126	3.0	3.0					
129	3.0	3.0					
132	3.0	3.0					
135	3.0	3.0					
138	3.0	3.0					
141	3.0	3.0					
144	3.0	3.0					

TABLE 1
PAVING WIDTHS OF TRENCH AND PAY-QUANTITIES OF CONCRETE

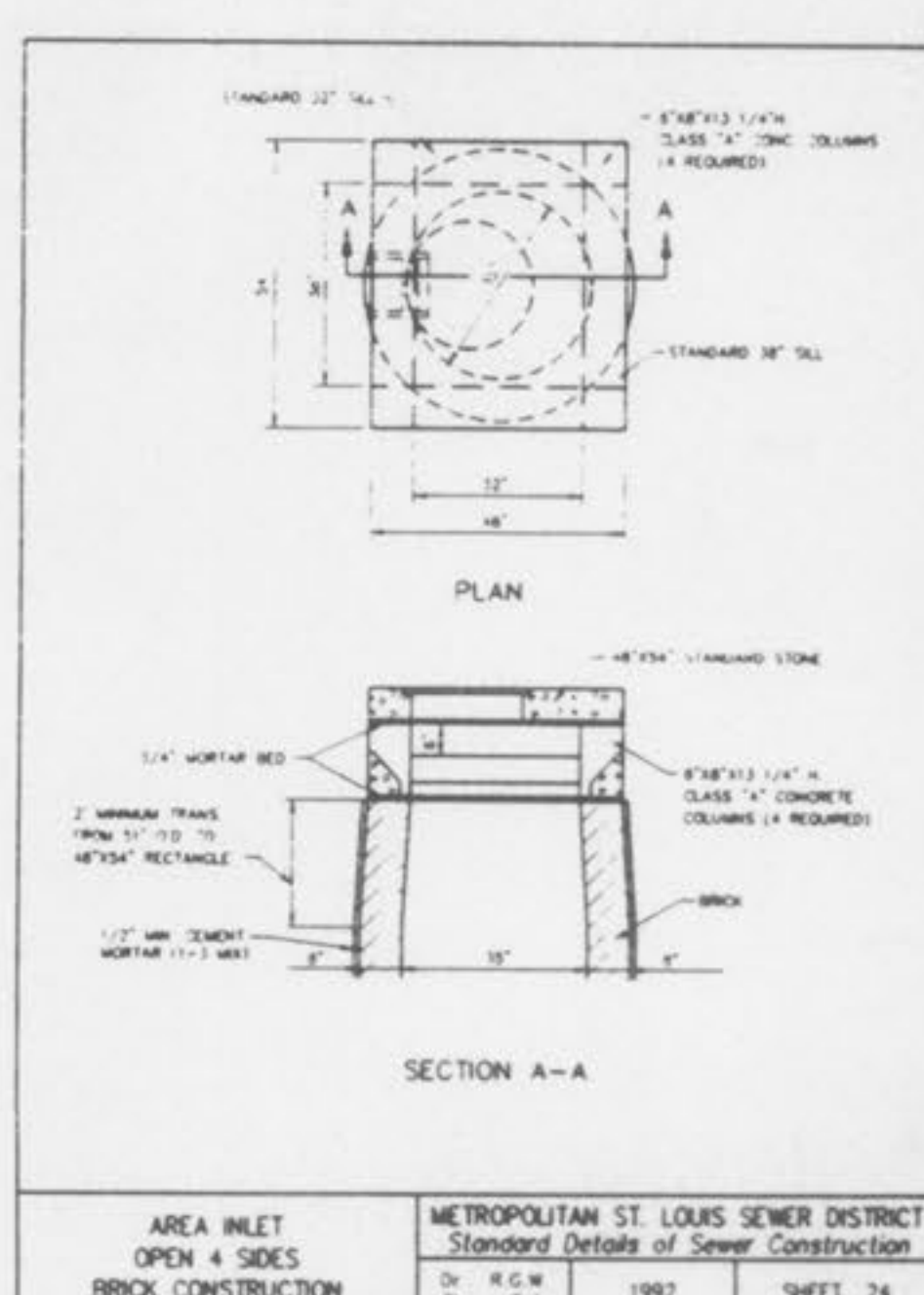
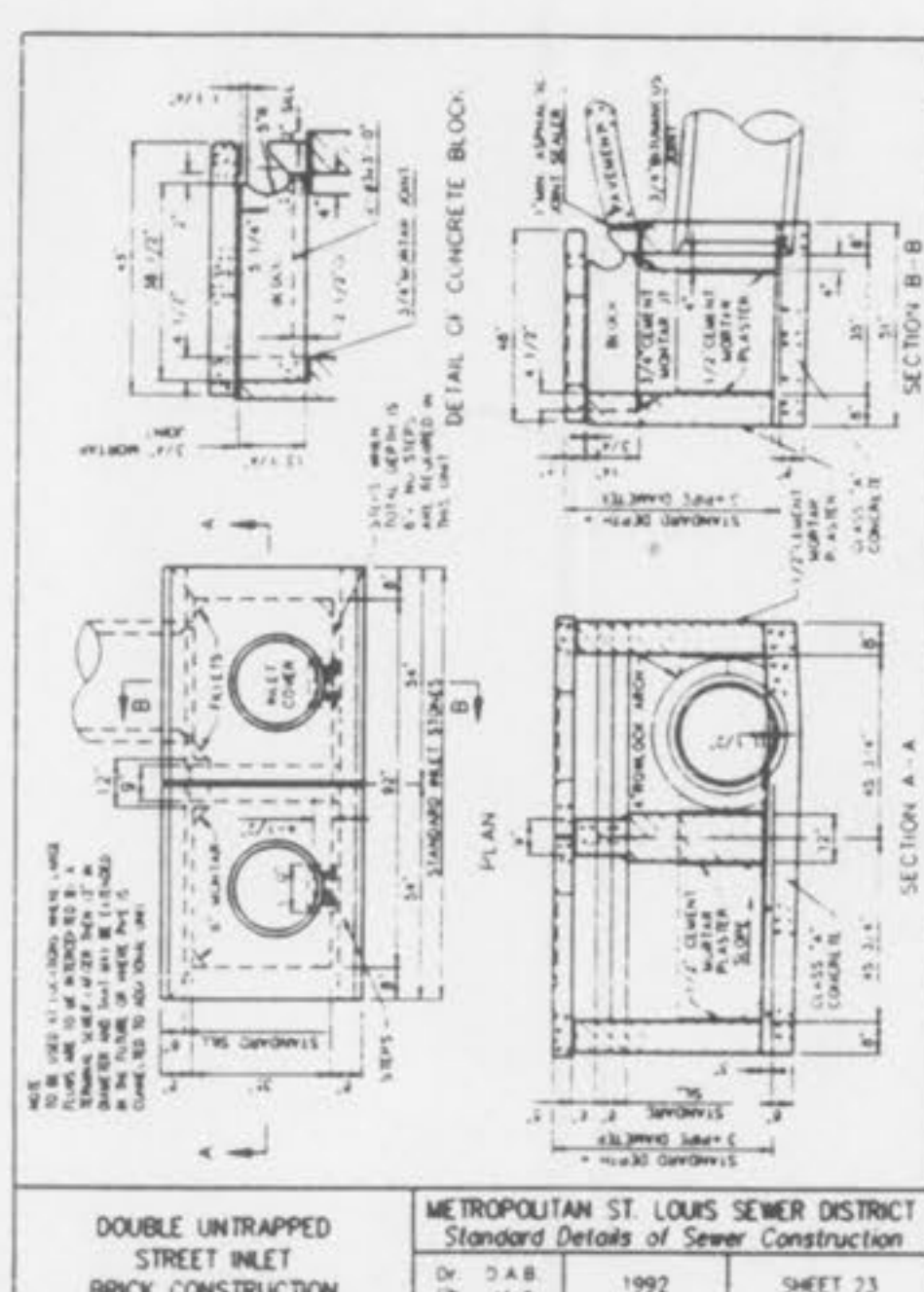
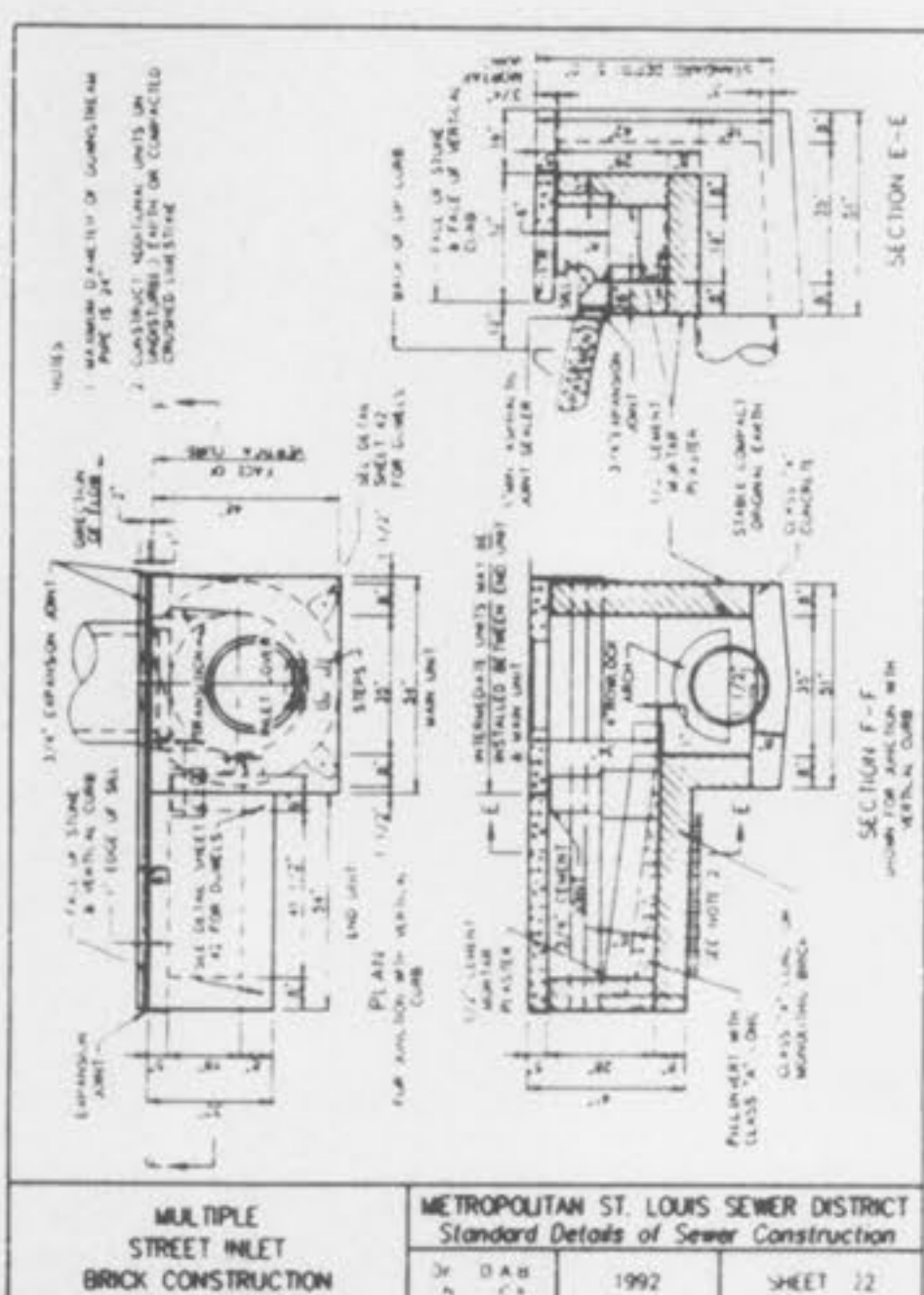
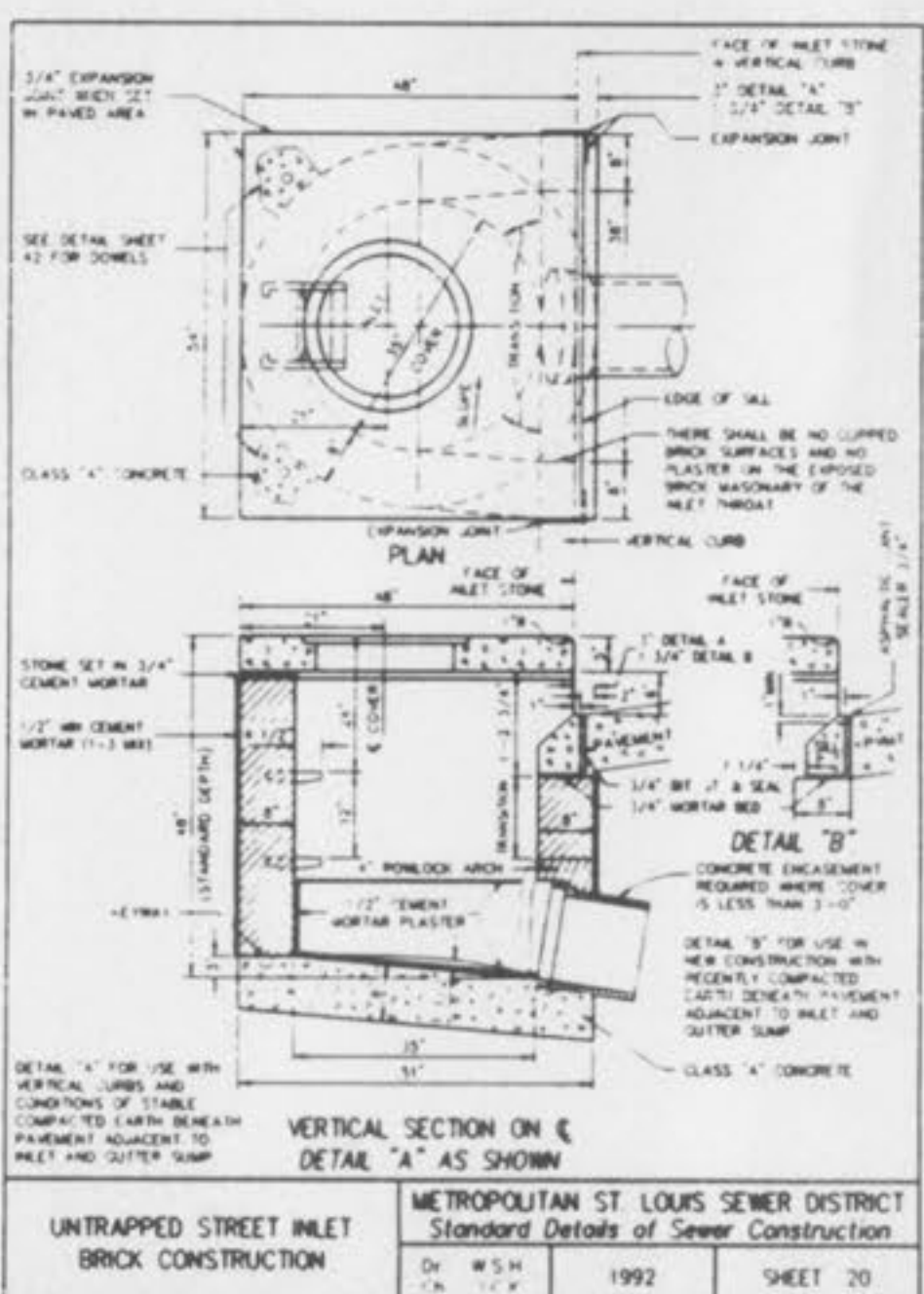
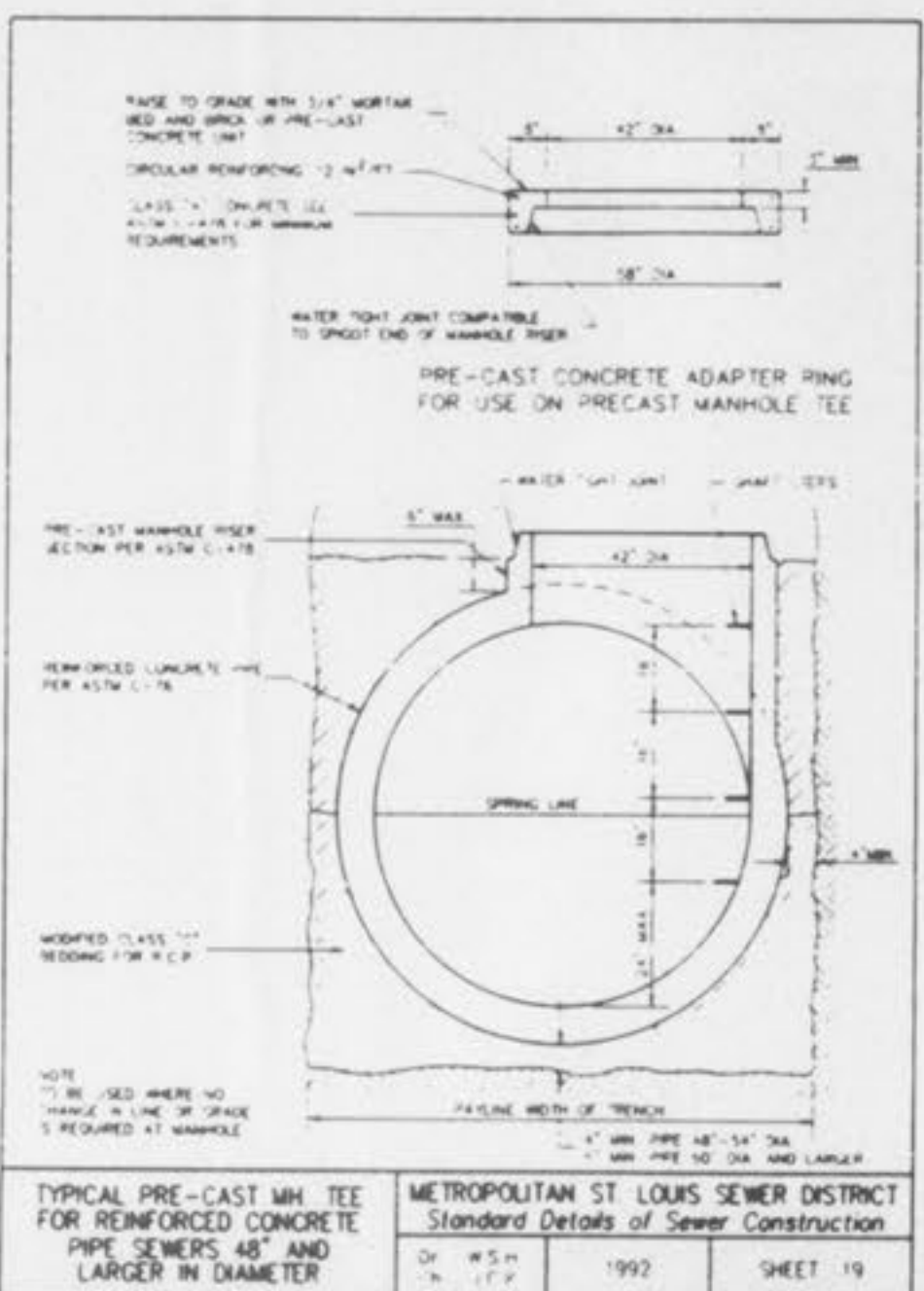
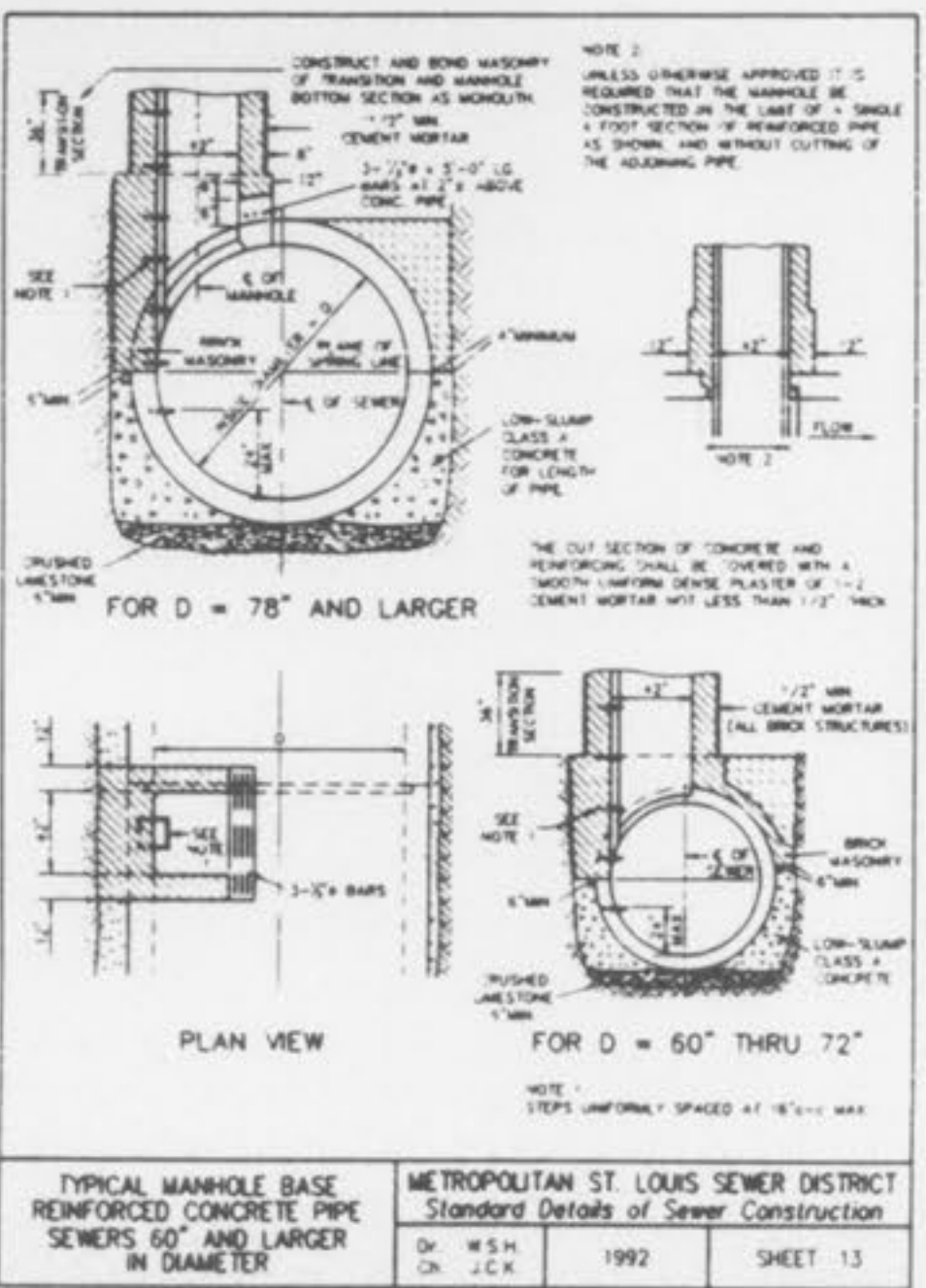
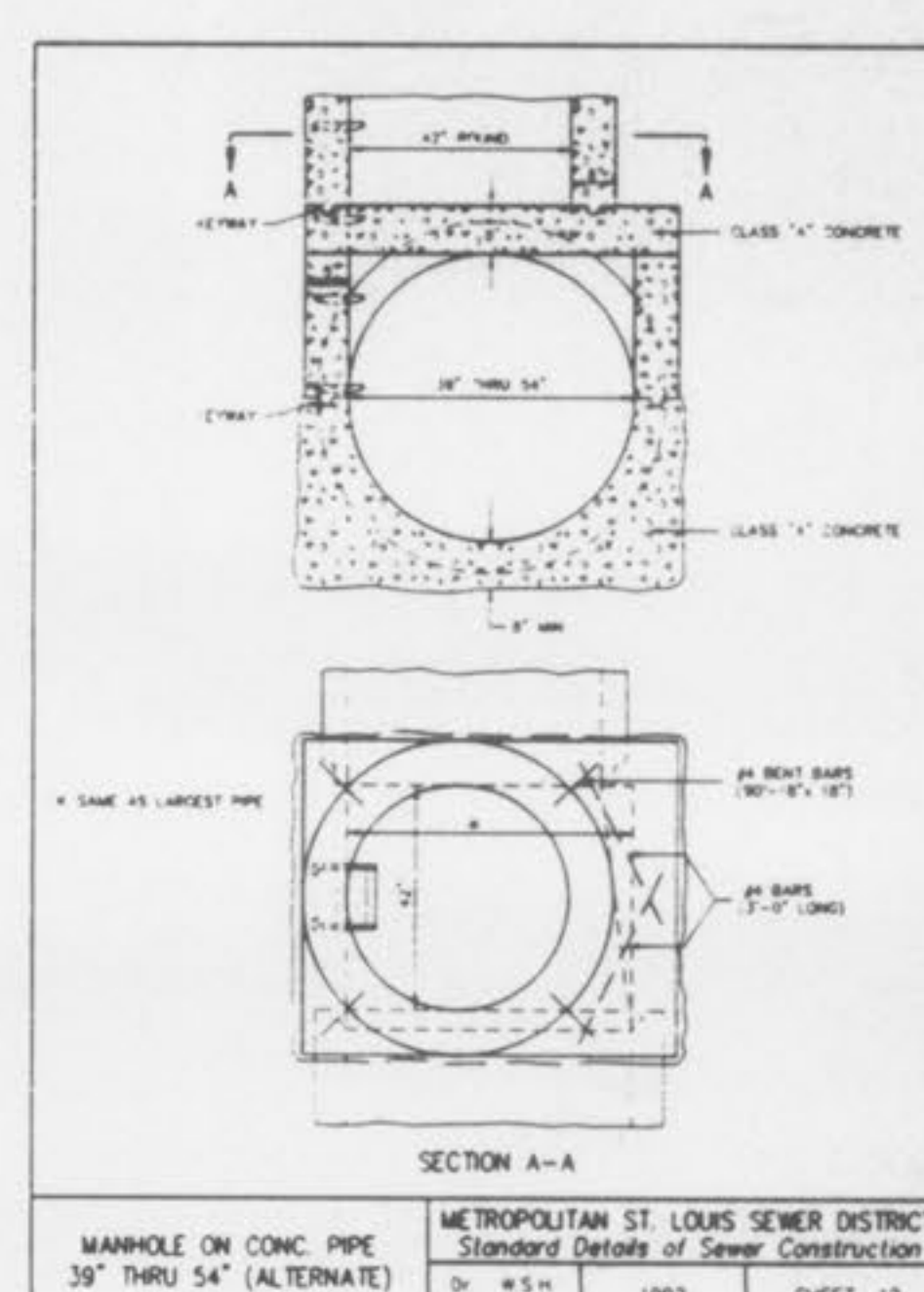
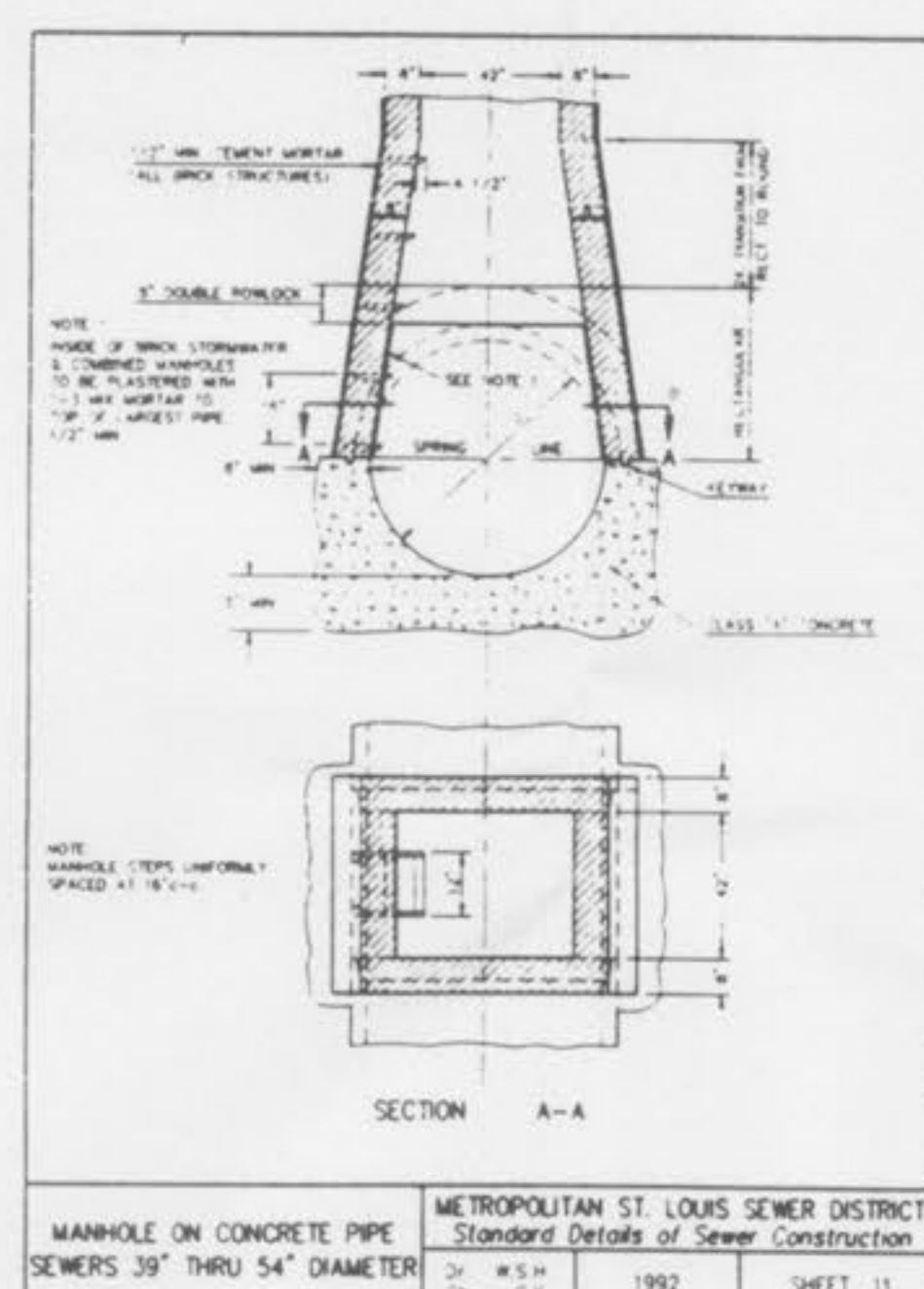
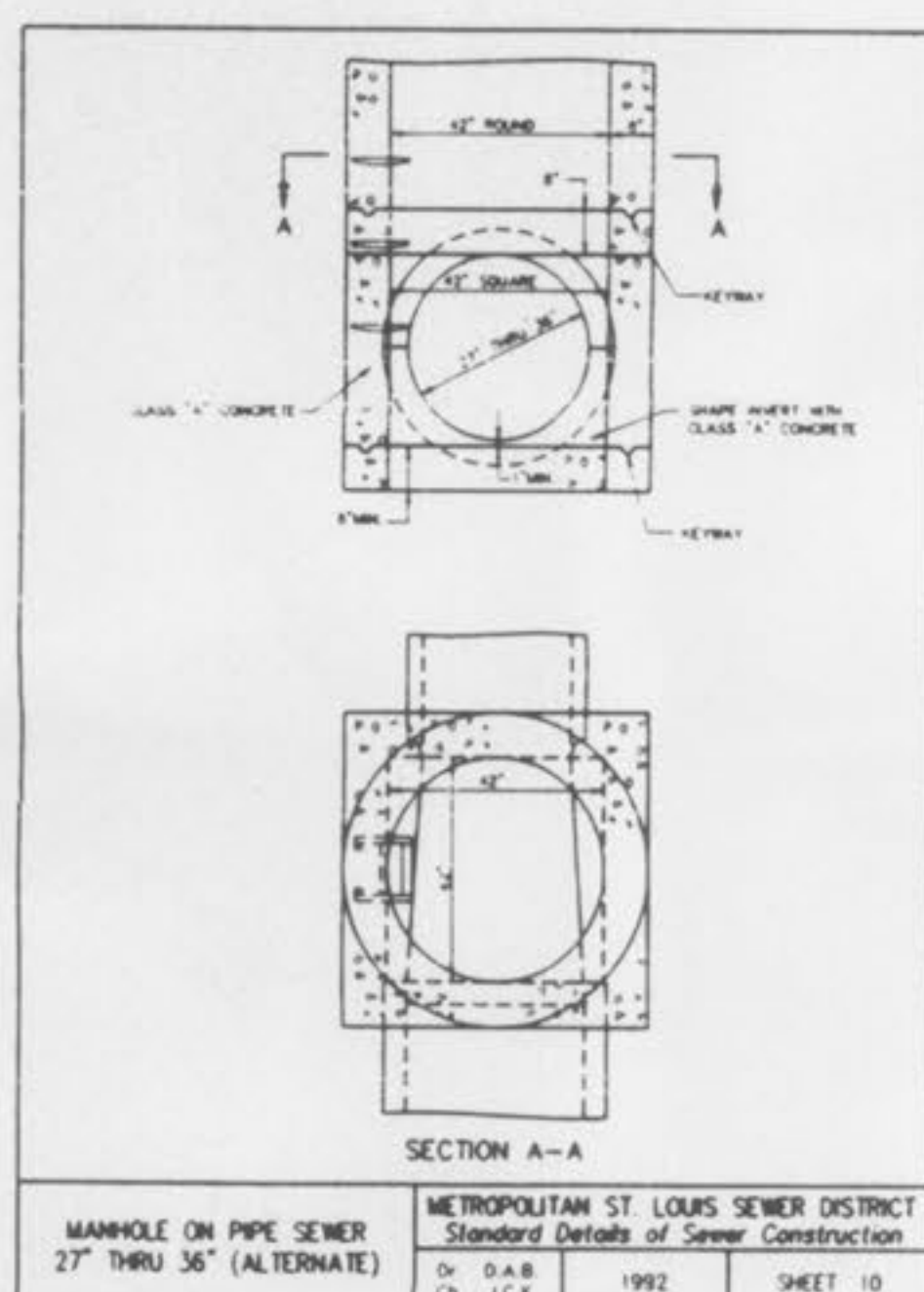
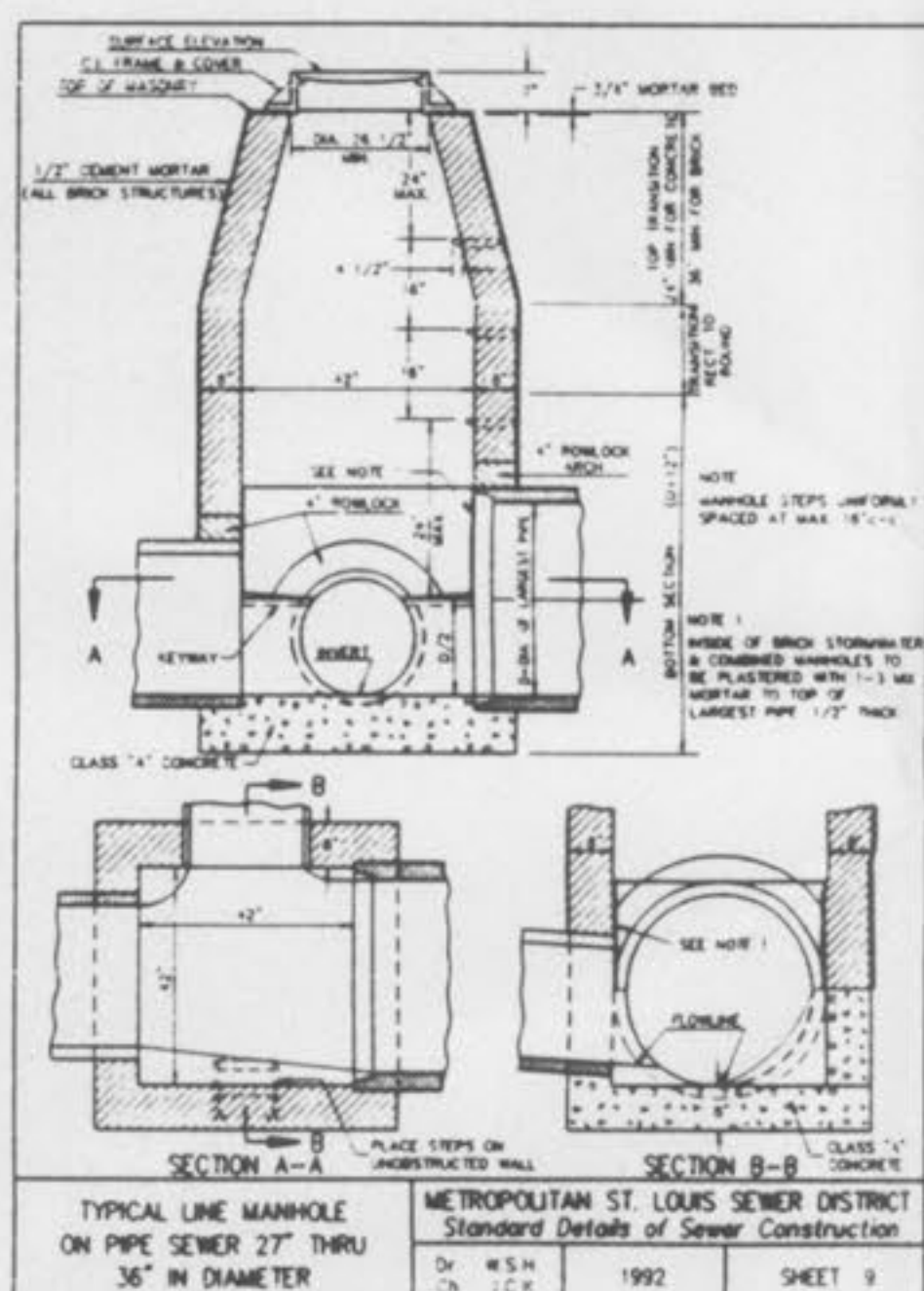
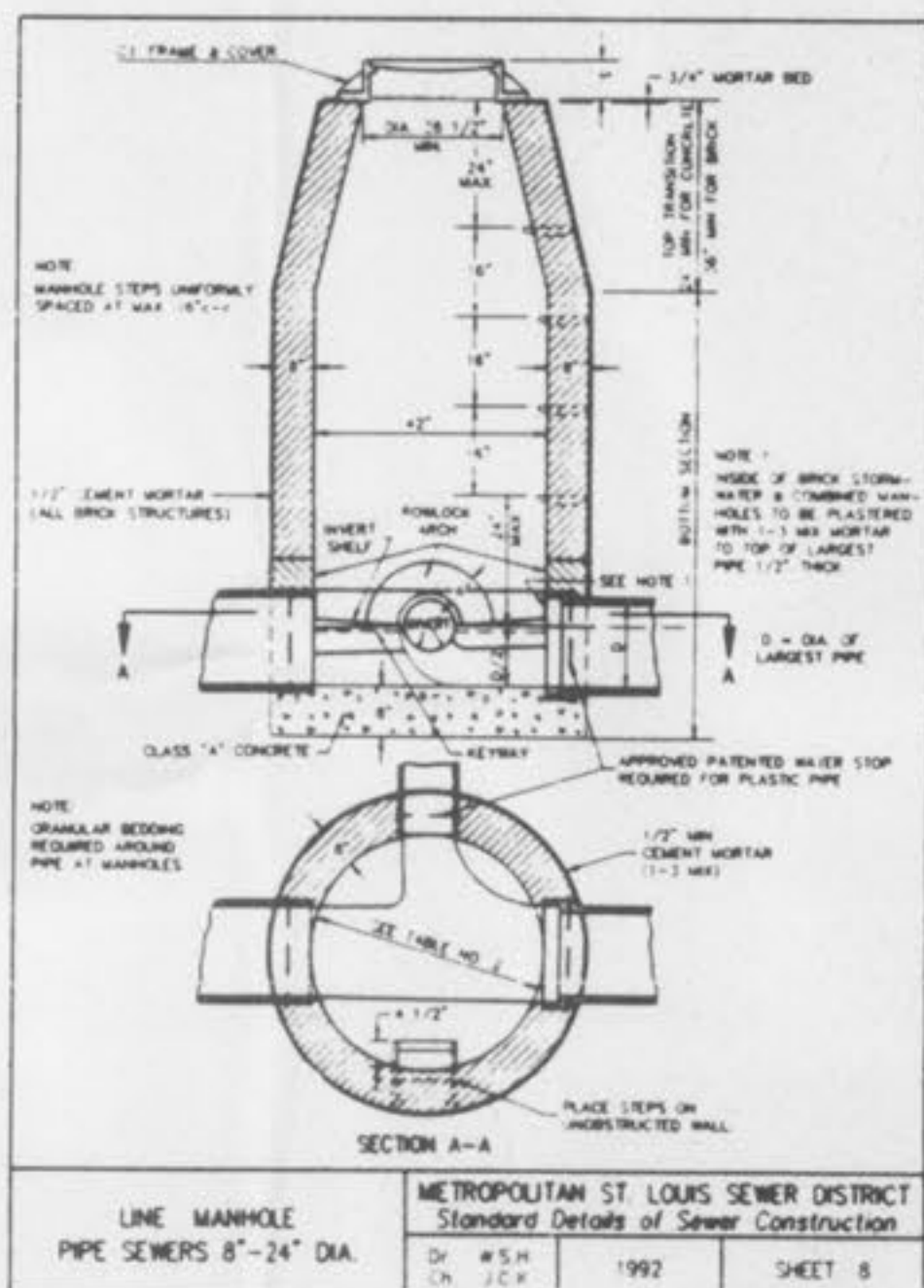
METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. On J.C.K. 1992 SHEET 1



SECTION OF MANHOLE	DIMENSION
TOP SECTION	UPPER 26 1/2" DIA.
TRANSITION SECTION	LOWER 42" DIA.
BOTTOM SECTION	8" THRU 24" DIA. PIPE 42" DIA.
BOTTOM SECTION	27" THRU 36" DIA. PIPE 42" SQUARE

TABLE NO. 2
STANDARD MANHOLE DIMENSIONS

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. R.G.W. On J.C.K. 1992 SHEET 7



NOTE: TOP TIE BARS (1/2" DIA) AT 24" ON CENTER SHALL BE USED TO TIE TO BOTTOM SECTION.

#5 Bar (Typ)

BRICK OR CONCRETE

STANDARD INLET STONES AND COVERS

MANHOLE

SECTION A-A

AREA INLET MANHOLE (12" THRU 24")	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 15
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8" CLASS 1 CONCRETE (FINISH AS REQUIRED)

STANDARD 24" SILL (EACH SIDE)

APPROVED TIE REQUIRED AT EACH END

SECTION A-A

DOUBLE AREA INLET OPEN 4 SIDES BRICK CONSTRUCTION	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 16
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PLAN OF GUTTER SUMP

FRONT VIEW OF GUTTER SUMP

SECTION B-B

GUTTER SUMP FOR LIP CURB	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 16
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PLAN

SECTION A-A

SECTION B-B

2 GRATE INLET WITH SIDE INTAKE BRICK CONSTRUCTION	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 18
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PLAN VIEW

SECTION A-A

END VIEW

FLARED END SECTION	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 17
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TYPICAL PLAN & SECTION AT SEWER LINE DISCHARGING INTO CHANNEL

DETAIL OF CONCRETE COLLAR

STORMWATER CHANNELS	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 18
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PRECAST CONCRETE STORMWATER STRUCTURES

MINIMUM DISTANCE FLOWLINE TO TOP OF STONE OR GRATE

TYPE OF CHANNEL	MIN. DIST. TO TOP OF STONE OR GRATE	MIN. DIST. TO TOP OF STONE OR GRATE	MIN. DIST. TO TOP OF STONE OR GRATE
4" DIA	12"	12"	12"
6" DIA	18"	18"	18"
8" DIA	24"	24"	24"
10" DIA	30"	30"	30"
12" DIA	36"	36"	36"
14" DIA	42"	42"	42"
16" DIA	48"	48"	48"
18" DIA	54"	54"	54"
20" DIA	60"	60"	60"
24" DIA	72"	72"	72"

PRECAST CONCRETE STORMWATER STRUCTURES	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 19
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SECTION A-A

AREA INLET PRECAST CONCRETE	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 20
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SECTION A-A

2 GRATE INLETS PRECAST CONCRETE	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 21
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SECTION A-A

SINGLE STREET INLETS PRECAST CONCRETE	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1991	SHEET 24
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SECTION A-A

DOUBLE UNTRAPPED STREET INLET PRECAST CONCRETE	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	SEPT 1992	SHEET 25
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SECTION A-A

PRE-CAST CONCRETE UNIT FOR SINGLE STREET INLET	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 27
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SECTION A-A

PRE-CAST CONCRETE UNIT FOR 4 WAY AREA INLET	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 28
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SECTION A-A

SECTION B-B

CONCRETE DOUBLE STREET INLET W/ PRE-CAST CONCRETE UNIT A	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 29
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SECTION A-A

PRE-CAST CONCRETE UNIT A FOR STREET DOUBLE INLET	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 40
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SECTION A-A

PRE-CAST CONCRETE UNIT B FOR STREET DOUBLE INLET	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 41
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STANDARD - INLET STONES, BLOCKS & DESIGN DETAILS

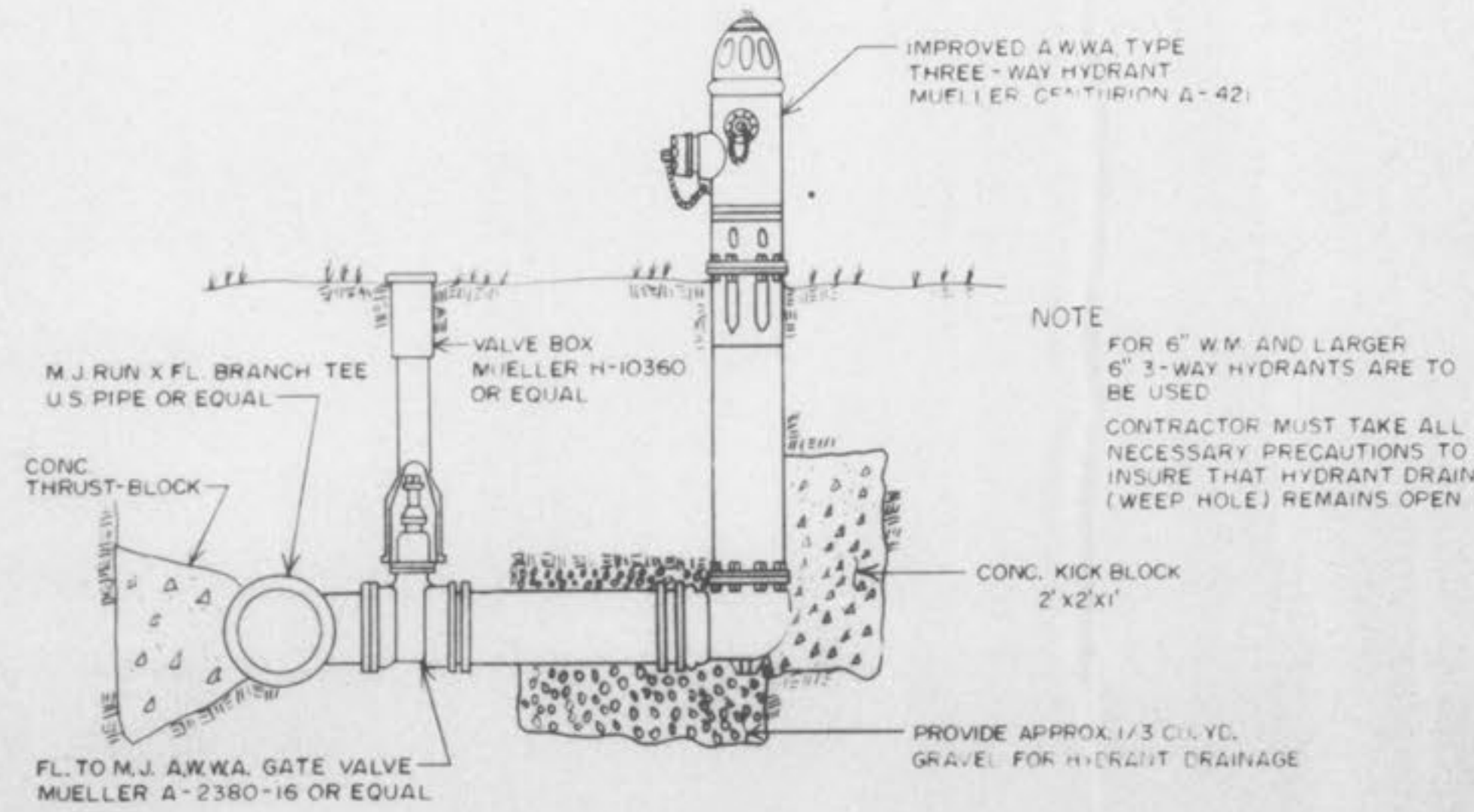
STANDARD - INLET STONES, BLOCKS & DESIGN DETAILS	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 42
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SECTION A-A

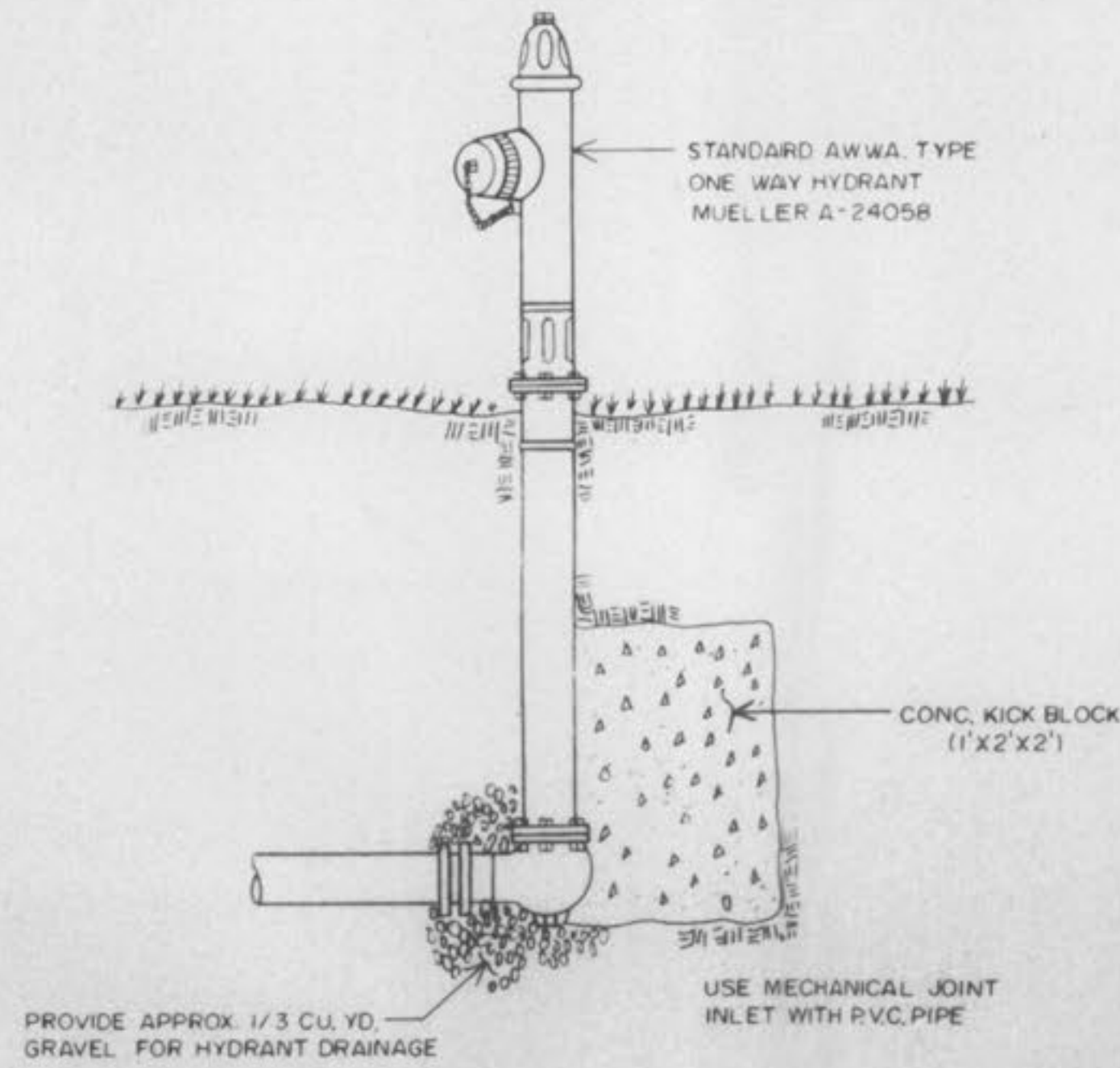
FLARED END SECTION W/ ENERGY DISSIPATOR

FLARED END SECTION W/ ENERGY DISSIPATOR	METROPOLITAN ST LOUIS SEWER DISTRICT Standard Details of Sewer Construction	APRIL 1992	SHEET 43
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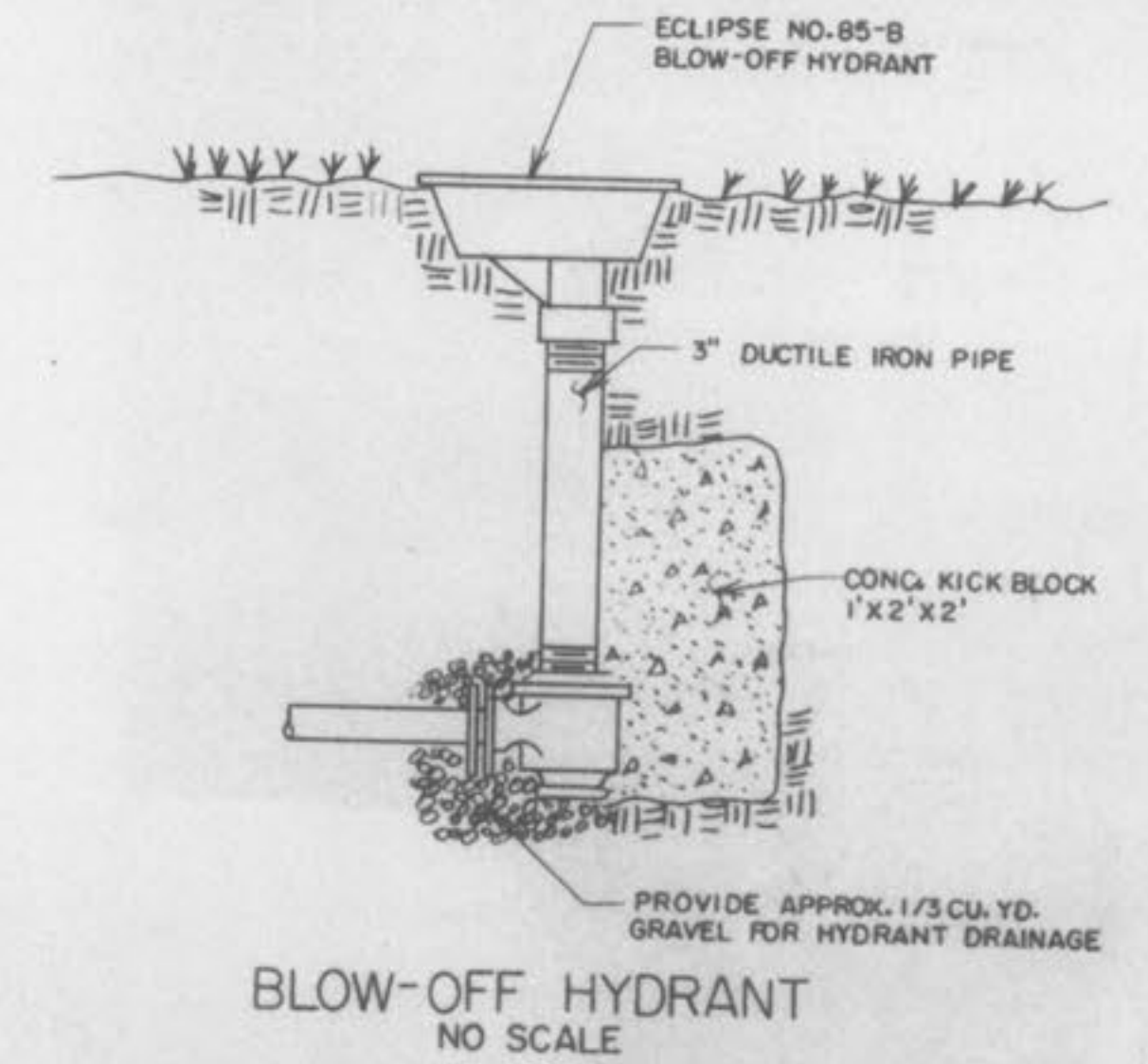
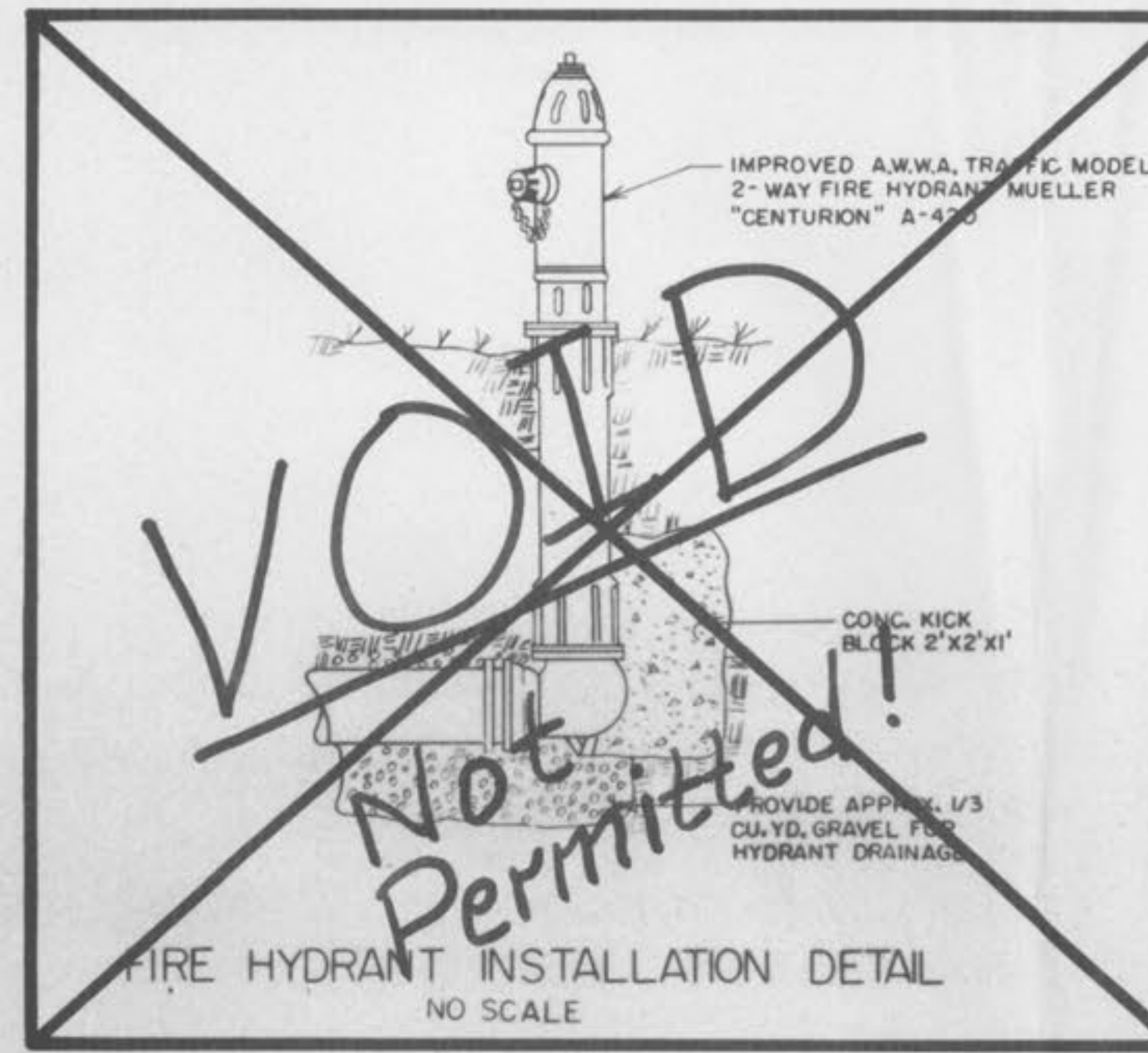
NOTE! Add #5 BAR TO THROAT OF ALL INLETS.



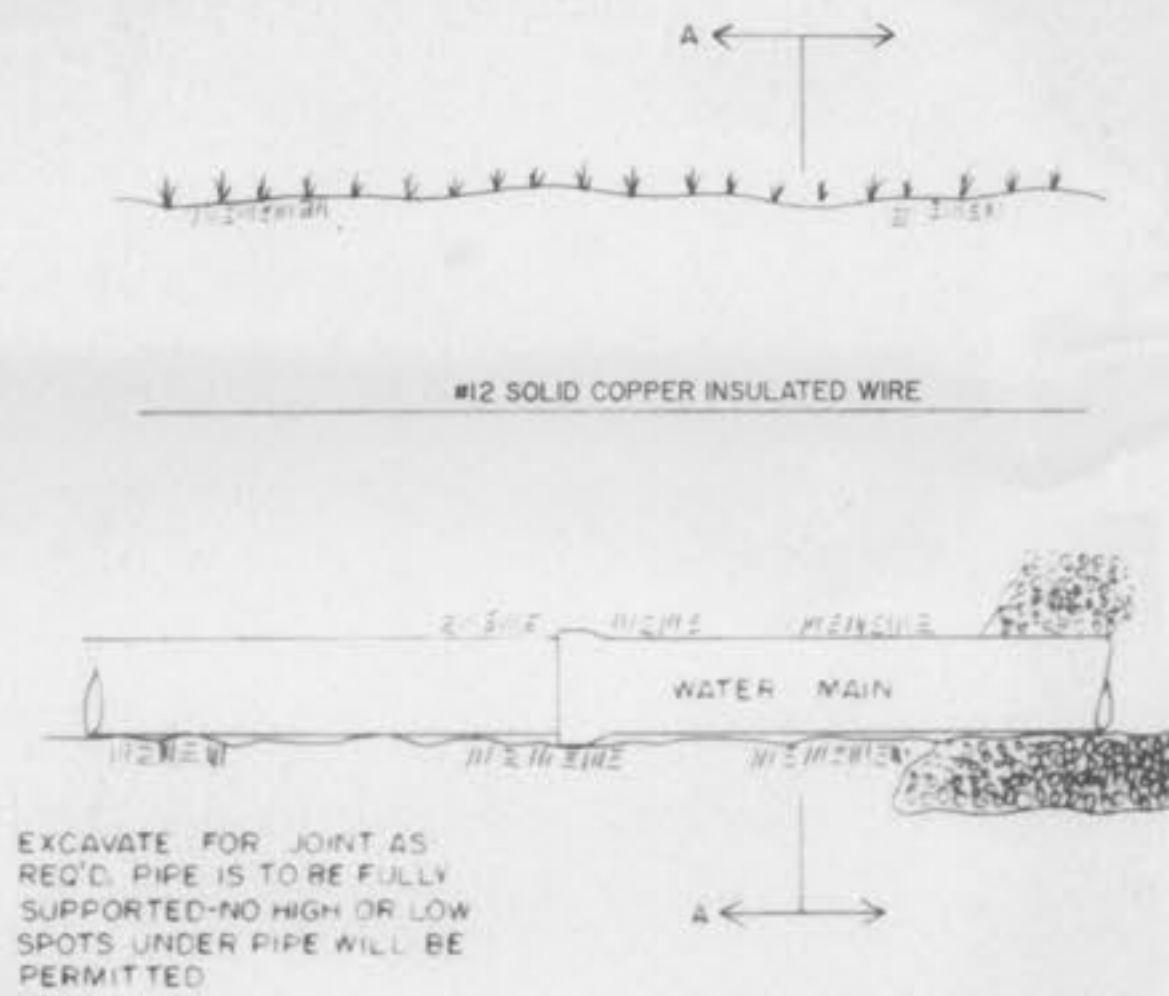
FIRE HYDRANT INSTALLATION DETAIL
NO SCALE



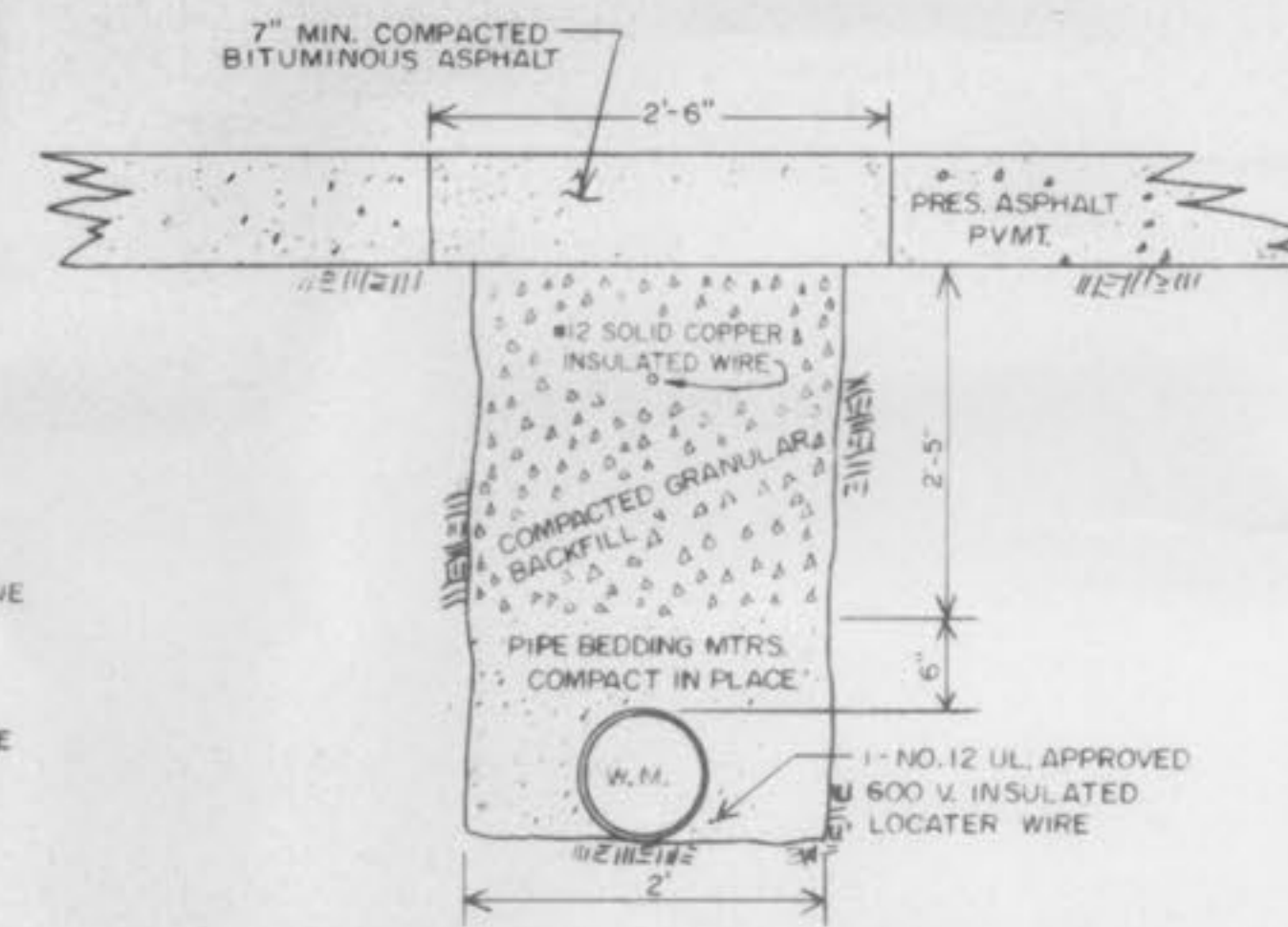
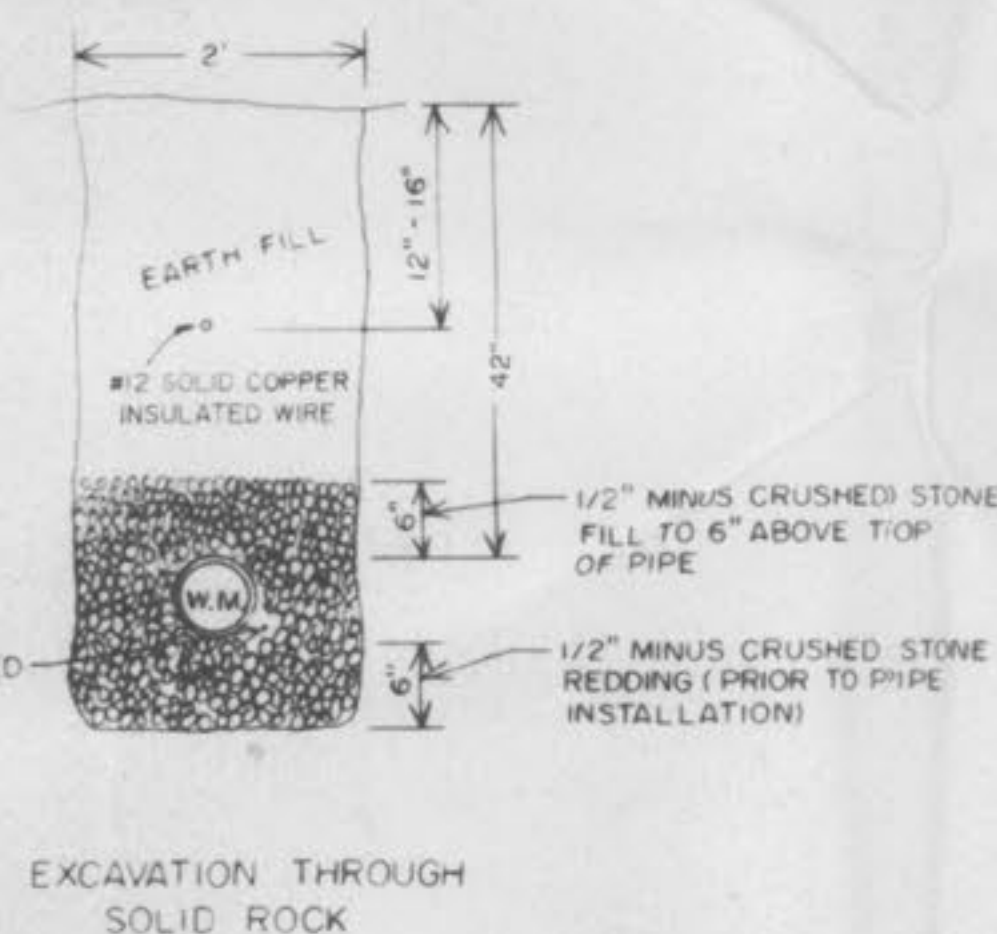
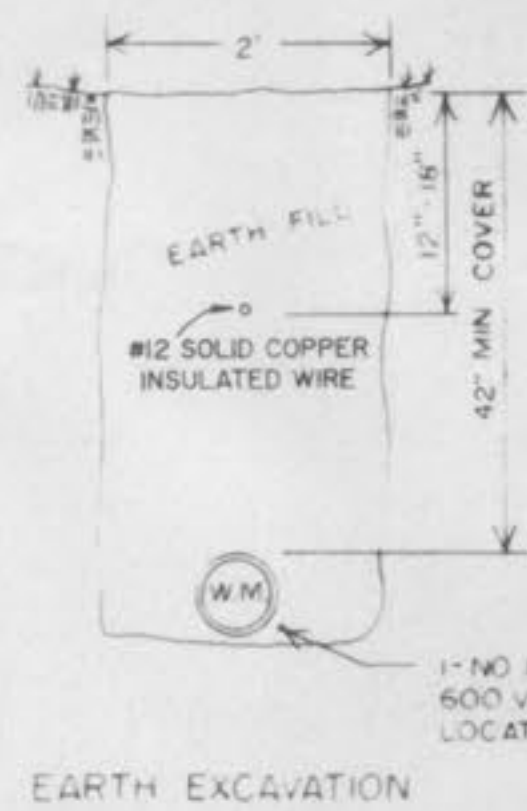
FLUSHING HYDRANT
NO SCALE



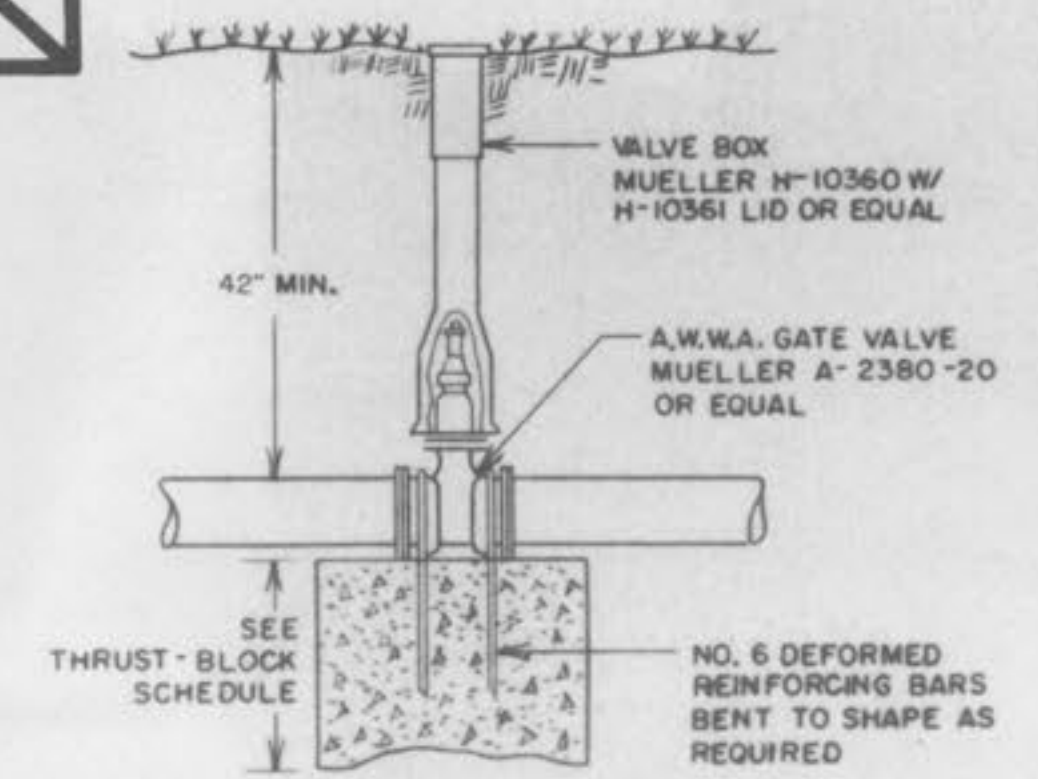
BLOW-OFF HYDRANT
NO SCALE



TYPICAL WATER MAIN TRENCHING DETAIL
NO SCALE



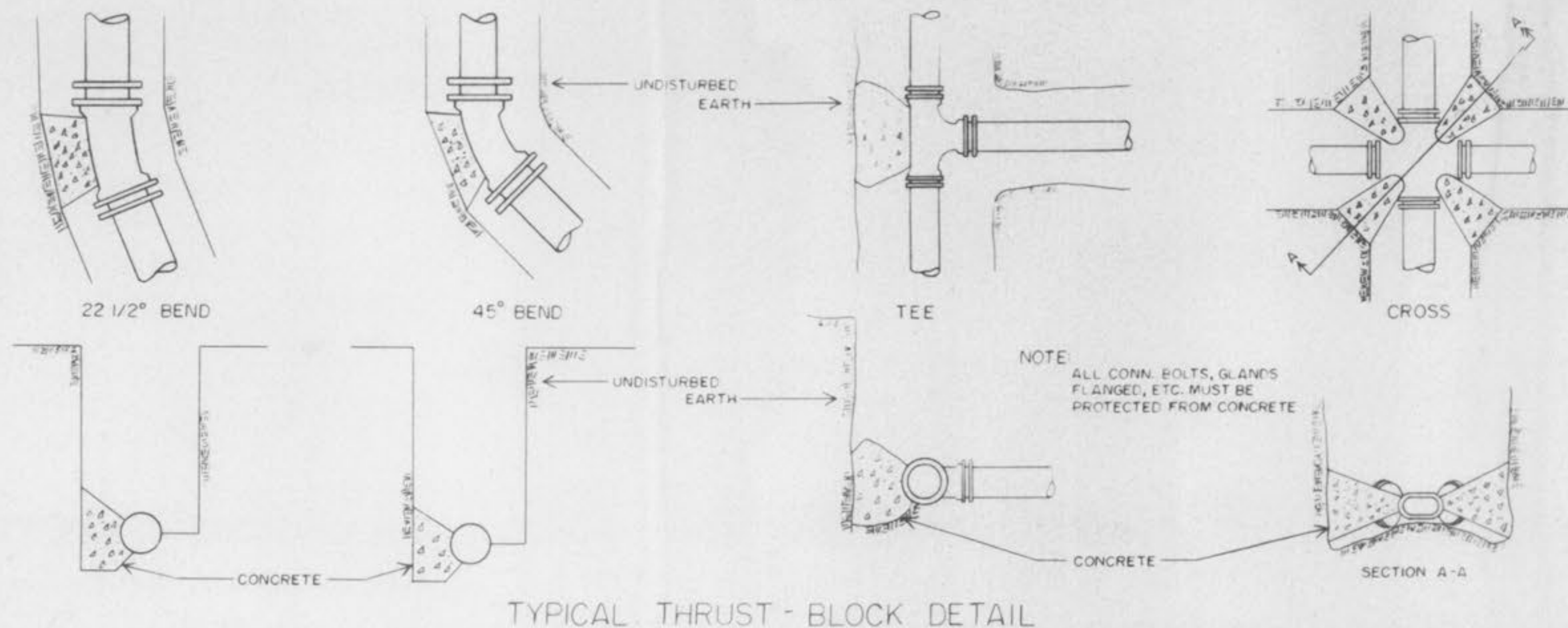
TYPICAL PAVED STREET OR ROAD TRENCH BACKFILL & SURFACE REPLACEMENT DETAIL
SCALE: 1" = 1'-0"



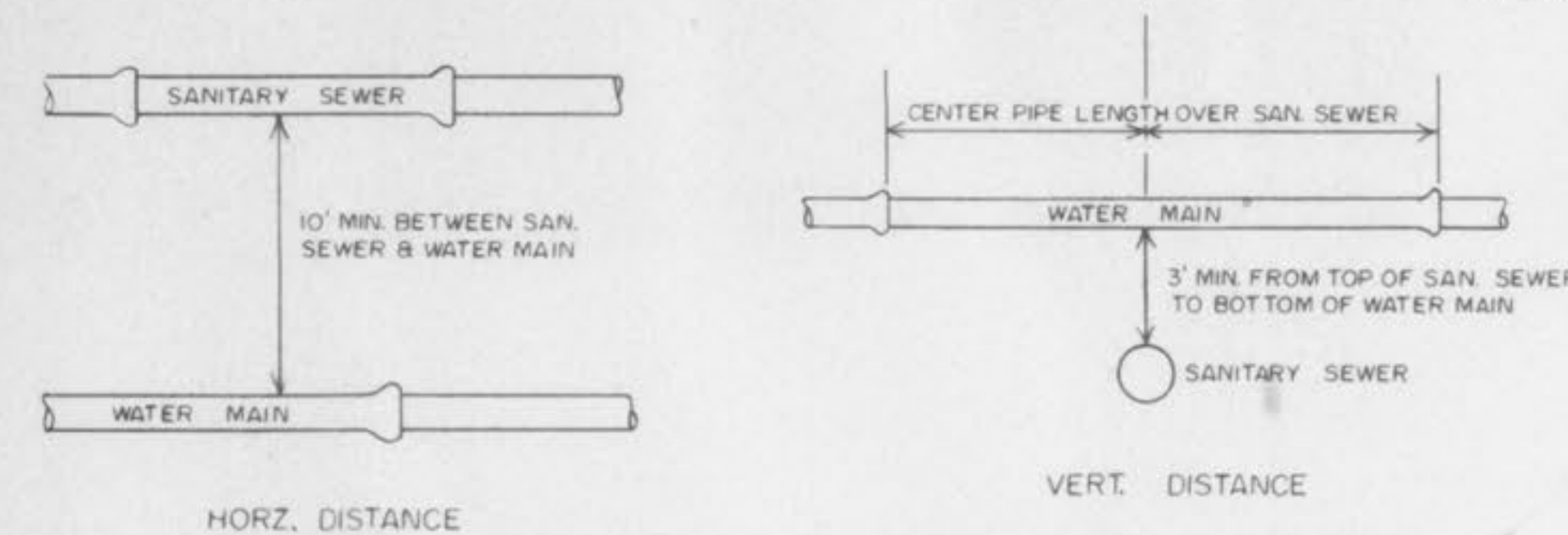
GATE VALVE W/ THRUST-BLOCK DETAIL
NO SCALE

MAIN SIZE	MIN. THRUSTBLOCK BEARING DIMENSIONS TO BEAR AGAINST UNDISTURBED EARTH				
	45° BEND	22 1/2° BEND	TEE	VALVE	CROSS
2"	.5'x1'	.5'x1'	.5'x1'	.5'x1'	.5'x1'
4"	1'x1'	1'x1'	2'x1'	2'x1'	1'x1'
6"	1.5'x1'	1'x1'	2'x1'	2'x1'	1'x1'
8"	2'x1'	1'x1'	2'x2.5'	2'x2'	1'x1.5'
10"	2'x2.5'	1.5'x2'	2'x3.5'	2'x3'	2'x2'

THRUST-BLOCK SCHEDULE



TYPICAL THRUST-BLOCK DETAIL



TYPICAL WATER & SEWER SEPARATION
NO SCALE