PLAN NOTES

SVA

SYMBOL	DESCRIPTION
1	NEW LIFT STATION CONTROL PANEL TO INCLUDE THE FOLLOWING BREAKERS: (2) 60/3 FOR PUMPS (1) 20/1 FOR GENERATOR BATTERY CHARGER (1) 20/1 FOR JACKET WATER HEATER (1) 20/1 FOR SCADA CONTROL PANEL PROVIDE ALL WIRING AND CONNECTIONS PER MANUFACTURERS REQUIREMENTS. PROVIDE COMPLETE UNIT PER CITY OF WICHITA SPECIFICATIONS AND REQUIREMENTS
2	NEW AUTOMATIC TRANSFER SWITCH. 200 AMP, 3 POLE, 208 VOLT, 3 PHASE WITH SOLID NEUTRAL AND GROUND BAR. PROVIDE WITH AUTOMATIC WEEKLY EXERCISER. PROVIDE COMPLETE UNIT PER CITY OF WICHITA SPECIFICATIONS AND REQUIREMENTS.
3	NEW EMERGENCY GENERATOR. NATURAL GAS, 80 KW, 120/208 VOLT, 3 PHASE, 4 WIRE PLUS GROUND WITH AUTO START. WEATHERPROOF ENCLOSURE AND ALL ASSOCIATED EQUIPMENT TO PROVIDE AUTOMATIC EMERGENCY BACKUP POWER. PROVIDE COMPLETE UNIT PER CITY OF WICHITA SPECIFICATIONS AND REQUIREMENTS.
4	NEW SCADA (SITE CONTROL AND DATA ACQUISITION) SYSTEM. PROVIDE COMPLETE SYSTEM WITH CONTROL PANEL, ANTENNAE, TOWER AND RADIO TRANSMITTER. PROVIDE WIRING AND CONNECTION OF ALL REQUIRED POINTS TO GIVE A COMPLETE AND FUNCTIONAL SYSTEM. PROVIDE COMPLETE UNIT PER CITY OF WICHITA SPECIFICATIONS AND REQUIREMENTS.

FEEDER SCHEDULE

SVA

FEEDER IDENT.	CONDUCTORS SETS	CONDUCTORS QUANT. PER SET	CONDUCTORS SIZE	GROUND SIZE PER SET	ISOLATED GRD. SIZE PER SET	CONDUIT SIZE PER SET
1	1	2	#12	#12	-------	3/4"
2	1	6	#12	#12	-------	3/4"
3	1	4	#3/0	-------	-------	3"
4	1	4	#3/0	#6	-------	2"
5	1		(1)		-------	3/4"
6	1	5	#6	#10	-------	1"

(1) WIRING AS REQUIRED FOR ALL ALARM CONDITIONS AND TIE-INS PLUS 20% SPARES. VERIFY WITH MANUFACTURERS AND OWNER PRIOR TO BID.

SYMBOL LIST

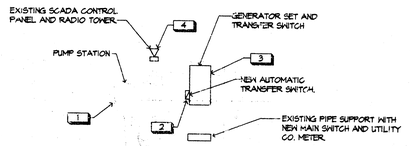
SVA

SYMBOL	DESCRIPTION	MOUNTING
(A)	FLUORESCENT FIXTURE & FIXTURE LETTER	CEILING
(A)	FLUORESCENT FIXTURE & FIXTURE LETTER	CEILING
(A) (A)	INCAND. OR H.I.D. FIXTURE & FIXT. LETTER	SURF./RECESSED
(A)	INCAND. OR H.I.D. FIXTURE & FIXT. LETTER	WALLBRACKET
	EXIT FIXT. - SHADING DENOTES FACE(S)	CEIL./WALL
	GFCI DUPLEX GROUNDED RECEPTACLE	1'-3" AFF
	DUPLEX GROUNDED RECEPTACLE	1'-3" AFF
WP	EXTERIOR GFCI RECEPT. WEATHERPROOF	1'-3" AFF
	SPECIAL OUTLET, SEE SCHEDULE OR AS NOTED	
T, TV, TP	TELEPHONE OUTLET (P=PAY, 48"X(H= 48")	1'-3" AFF
$ $3 $4 $5 $K	SWITCHES (1-POLE,3-WAY,4-WAY,PILOT,KEY)	4'-0" TO TOP
J	JUNCTION BOX	
T	FUSTAT	
D	SPECIAL DEVICE AS NOTED ON PLAN	
A	BRANCH CIRCUIT PANEL & PANEL DESIG.	6'-6"TO TOP
30/3/240	H.D. SAFETY SWITCH (AMPS,POLE,VOLTAGE)	6'-6"TO TOP
0/3/240	STARTER (SIZE,POLE,VOLTAGE)	6'-6"TO TOP
T	THERMOSTAT (BY M.C.)	4'-0" TO TOP
M	MOTOR	
	CONDUIT RUN 2#12 & 1#12 GRD.-1/2"C.	CEIL./WALL
	CONDUIT RUN 2 CIRCUIT,3#12 & 1#12 GRD.-1/2"C.	EARTH/FLOOR
	PARTIAL HOMERUN (MULTIPLE LOAD LOCATIONS)	
#6 3/3	SEE NOTE #7	
(1)	FEEDER IDENTIFICATION, SEE SCHEDULE	
WP	WEATHERPROOF	
a,b,c	INDICATES SWITCHING SCHEME	

GENERAL NOTES

SVA

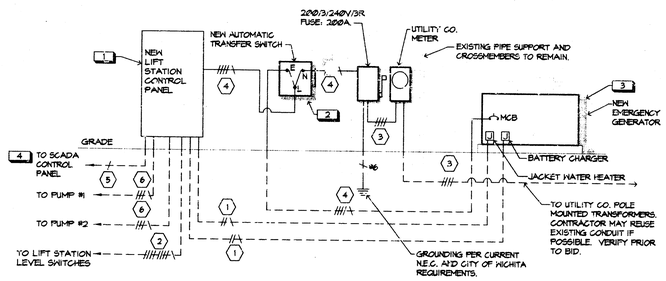
1. VERIFY ALL OUTLET LOCATIONS ON THE JOB PRIOR TO ROUGH-IN.
2. REFER TO RELATED ARCHITECTURAL, MECHANICAL, AND STRUCTURAL DRAWINGS FOR RELATED INFORMATION.
3. REFER TO THE SPECIFICATIONS FOR DATA NOT ON THE DRAWINGS.
4. COORDINATE OUTLET BOX LOCATIONS WITH MASONRY TO MINIMIZE CUTTING OF BRICK OR BLOCK.
5. ALL MOUNTING HEIGHTS TO BOTTOM OF ITEM UNLESS OTHERWISE NOTED.
6. E.C. SHALL REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR THE REQUIREMENTS ASSOCIATED WITH WIRING AND CONNECTION OF INTERLOCKING AND CONTROLS OF MECHANICAL UNITS AND THERMOSTAT LOCATIONS.
7. CONDUIT RUN W/CONDUCTORS AS INDICATED, CONDUIT SIZE AS REQUIRED. CONDUIT RUN TO PANEL DEVICE SIZE AS INDICATED (AMP/POLE). CIRCUIT WITHOUT INDICATION IS ROUTED TO 20A/1P. BREAKER.
8. A GROUND CONDUCTOR SIZED PER N. E. C. ARTICLE 250 IS REQUIRED IN ALL POWER, RECEPTACLE, AND LIGHTING CIRCUITS. GROUND CONDUCTORS ARE NOT SHOWN ON DRAWINGS.



GOLDEN HILLS LIFT STATION (NO. 18)

1099 N. SHEFFORD

Scale: 1" = 10'



GOLDEN HILLS LIFT STATION ELECTRICAL RISER DIAGRAM

NOT TO SCALE

VOLTAGE: 277/480V 3Ø 4 WIRE

NOTES: 1. VERIFY ALL PRIMARY AND SECONDARY ELECTRICAL SERVICE ENTRANCE REQUIREMENTS WITH LOCAL UTILITY CO. CODES AND ORDINANCES PRIOR TO BID.

3-15-96

Stefan, Vorgeti & Associates Inc

Electrical Engineering and Design

626 N. Broadway, Suite B
Wichita, Ks. 67214-3597
(316) 264-3081
FAX: (316) 264-3542

GOLDEN HILLS

RISER AND SITE PLAN

BAUGHMAN COMPANY P.A.

ENGINEERING, SURVEYING, & PLANNING

316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER				SHEET E1 OF 8
DESIGN SVA	DRAWN SVA	APPROVED	DATE	SCALE 1"=10'-0"

Main 18, S.W.I.

SANITARY SEWER IMPROVEMENTS & GOLDEN HILLS LIFT STATION No. 18 MODIFICATIONS

to serve

Hickory Creek Estates, Buckhead Addition & Unplatted Area

CITY OF WICHITA, KANSAS

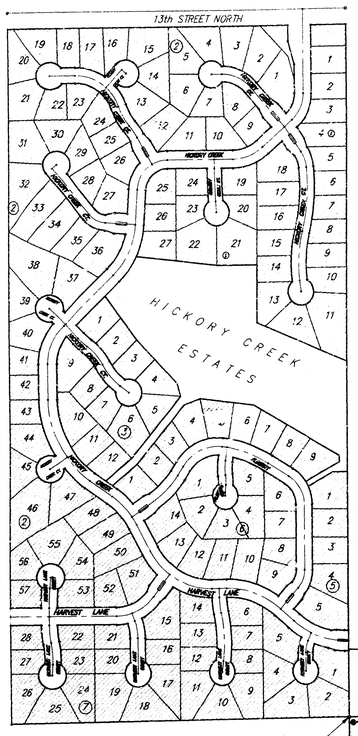
Michael E. Lindebak, City Engineer

Project Number

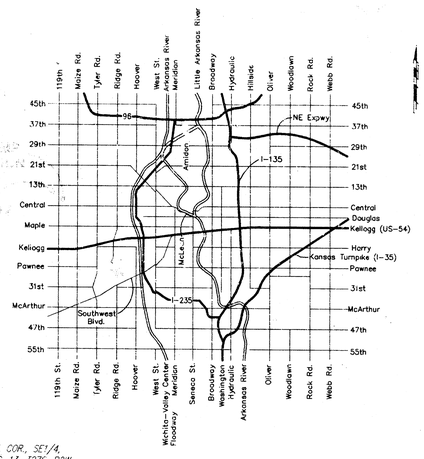
468-76-245-82560-000-000-001

Index Code:

742585



Scale: 1" = 250'



Benefit District

Benchmarks

City Disc Located 40' East and 46' South of Centerlines of Both 119th Street West and Central.

Elevation = 156.93 City Datum

"□" Cut in Top of Curb on North Side of Hickory Street, 56.5' East of the Centerline of 119th Street West.

Elevation = 158.97 City Datum

GENERAL NOTES:

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

   Kansas One-Call 687-2470

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

Multimedia Cablevision	*262-0661*
K.P.L. Gas Service Company	*383-8650*
Kansas Gas & Electric Company	*383-8600*
Peoples Gas Company	*942-8350*
Southwestern Bell Telephone Company	*1-571-2611*
City of Wichita Water Dept.	*268-4908*
City of Wichita Traffic Engineering	*269-4446*

2. *Underground utility service lines and overhead utility pole lines 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. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.*

3. *Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.*

4. *The Contractor shall give all property owners and/or tenants of developed property abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.*

5. *Contractor shall grade the sanitary sewer alignment to the profile and elevations shown. All costs for grading shall be paid as lump sum for easement grading.*

6. *All areas disturbed by construction operations shall by seeded with rye grass at a rate of 300 lbs/acre immediately following construction in that area. Prior to seeding, area shall be prepared per City specs.*

7. *Manholes specified to have watertight covers shall be constructed using a watertight bolted and gasketed ring and cover.*

8. *The bid item for pump station modifications shall include but not be limited to the furnishing and installation of all motors, impellers, overload coils, circuit breakers, and any other components required by the lift station upgrade and shall also include the activation and necessary work to fully implement the enhancements to full operational conditions acceptable to the City of Wichita.*

9. *The contractor shall make arrangements to provide for continuous flow of sewage at this Golden Hills pump station No. 18 at all times during the modification process. Cost of the temporary sewage movement shall be considered as incidental to lump sum lift station modifications.*

10. *The contractor shall coordinate with construction of lift station and force main improvements for Hickory Creek Estates, Project # 468-82561.*

Sheet Index

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

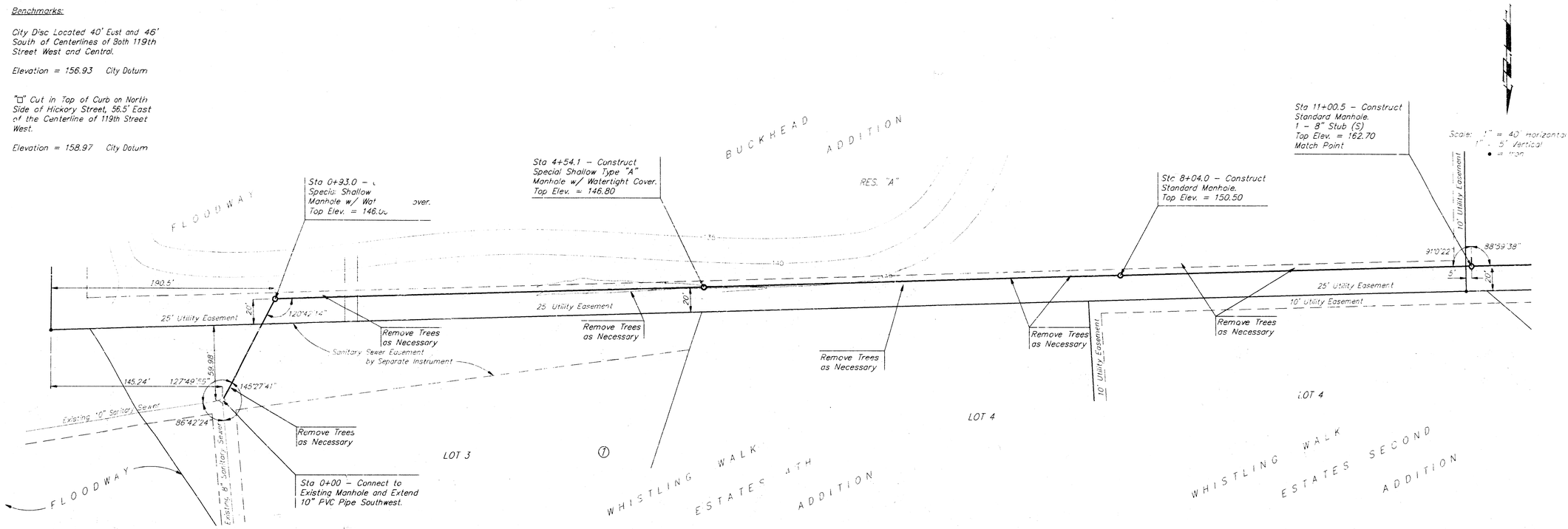
Benchmarks:

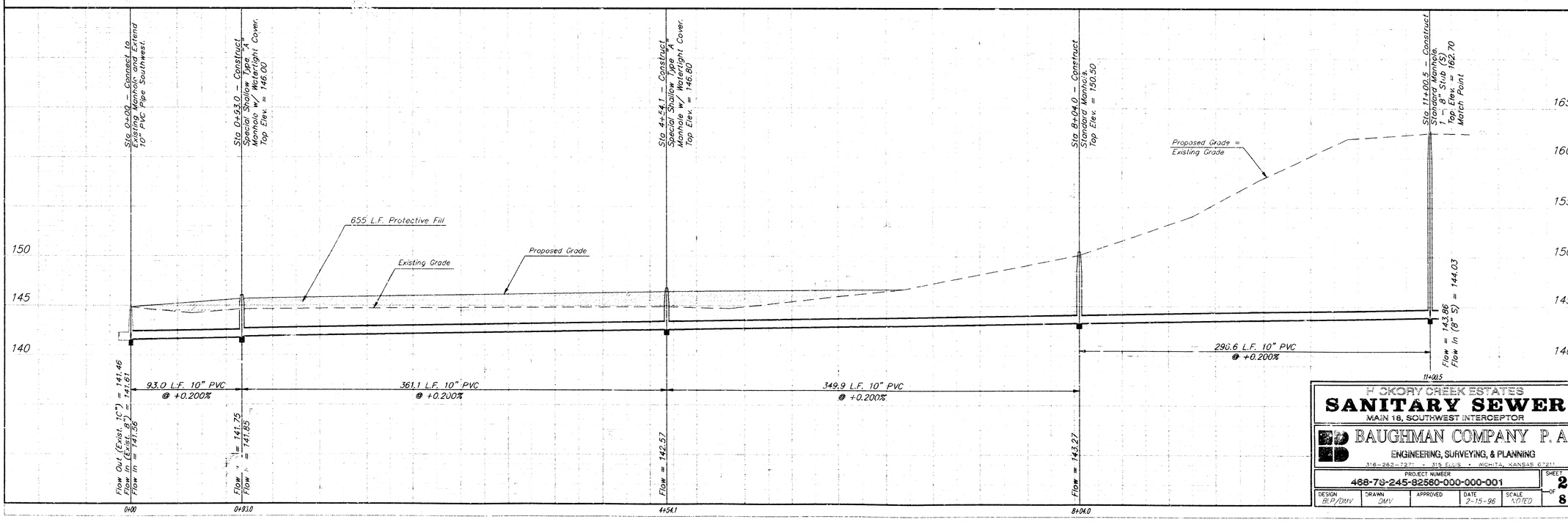
City Disc Located 40' East and 46' South of Centerlines of Both 119th Street West and Central.

Elevation = 156.93 City Datum

"□" Cut in Top of Curb on North Side of Hickory Street, 56.5' East of the Centerline of 119th Street West.

Elevation = 158.97 City Datum





HICKORY CREEK ESTATES

SANITARY SEWER

MAIN 18, SOUTHWEST INTERCEPTOR

BAUGHMAN COMPANY P. A.

ENGINEERING, SURVEYING, & PLANNING

316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
468-78-245-82560-000-000-001	2 OF 8

DESIGN	DRAWN	APPROVED	DATE	SCALE
BLP/DMV	DMV		2-15-96	NOTED

HICKORY\005T 95 12 2017

Benchmarks:

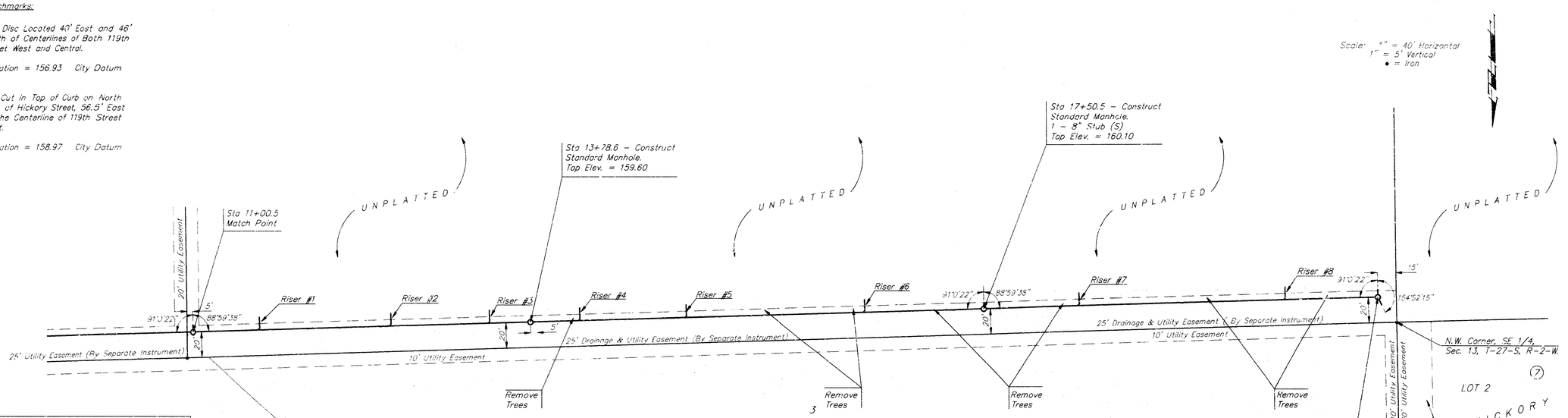
City Disc Located 40' East and 46' South of Centerlines of Both 119th Street West and Central.

Elevation = 156.93 City Datum

"□" Cut in Top of Curb on North Side of Hickory Street, 56.5' East of the Centerline of 119th Street West.

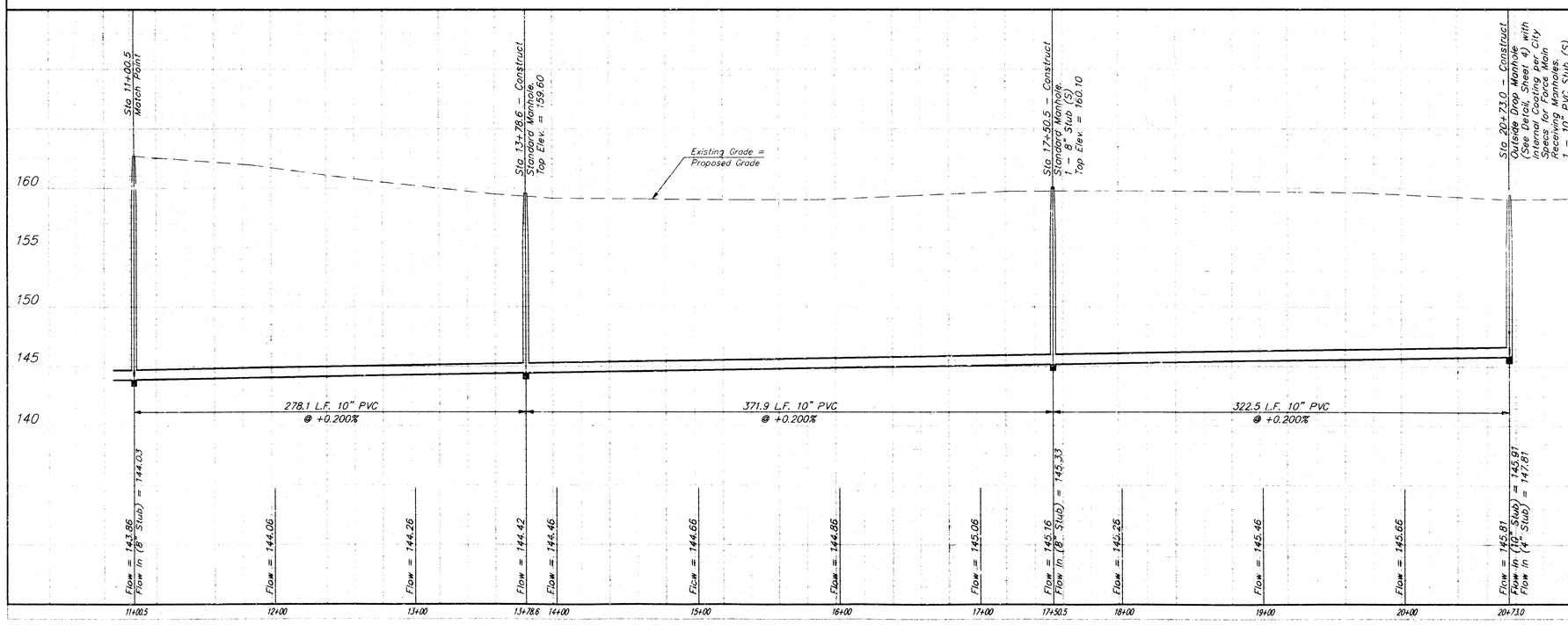
Elevation = 158.97 City Datum

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



RISER LOCATION TABLE

Number	Station	Direction	L.F. 4" Riser
1	11+55.0	Lt.	10.5
2	12+63.5	Lt.	8.5
3	13+44.0	Lt.	7.5
4	14+17.5	Lt.	7.0
5	15+06.0	Lt.	6.5
6	16+51.0	Lt.	6.5
7	18+28.0	Lt.	6.5
8	19+97.0	Lt.	6.0



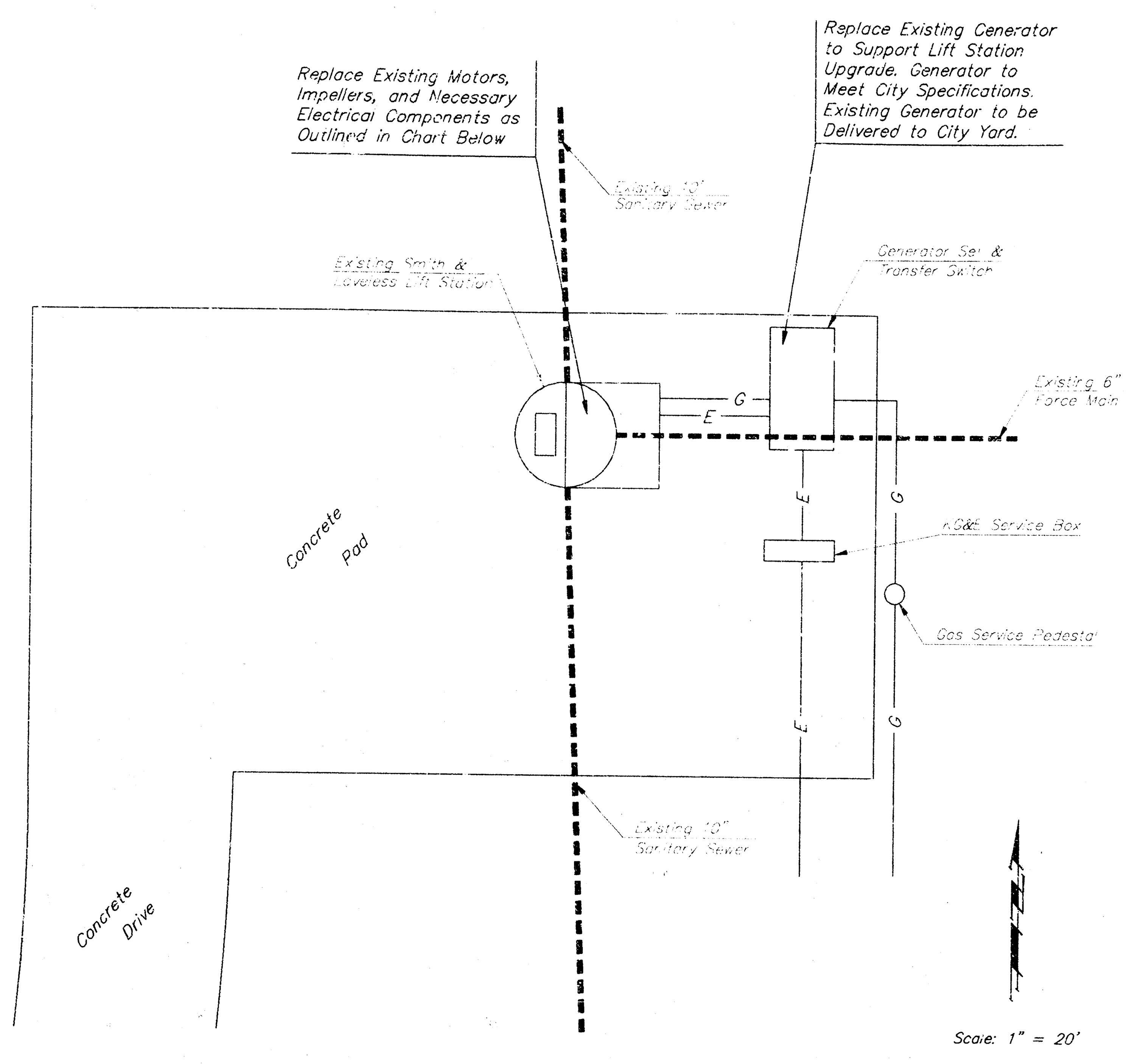
HICKORY CREEK ESTATES
SANITARY SEWER
MAIN 18, SOUTHWEST INTERCEPTOR

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-682-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER 468-78-245-82560-000-000-001

DESIGN	DRAWN	APPROVED	DATE	SCALE	SHEET
BLP/DMV	DMV		2-15-96	NOTED	3 OF 8

HICKORY\10552 95-12-200



GOLDEN HILLS LIFT STATION (NO. 18)

1099 N. SHEFFORD

GOLDEN HILLS ADDITION

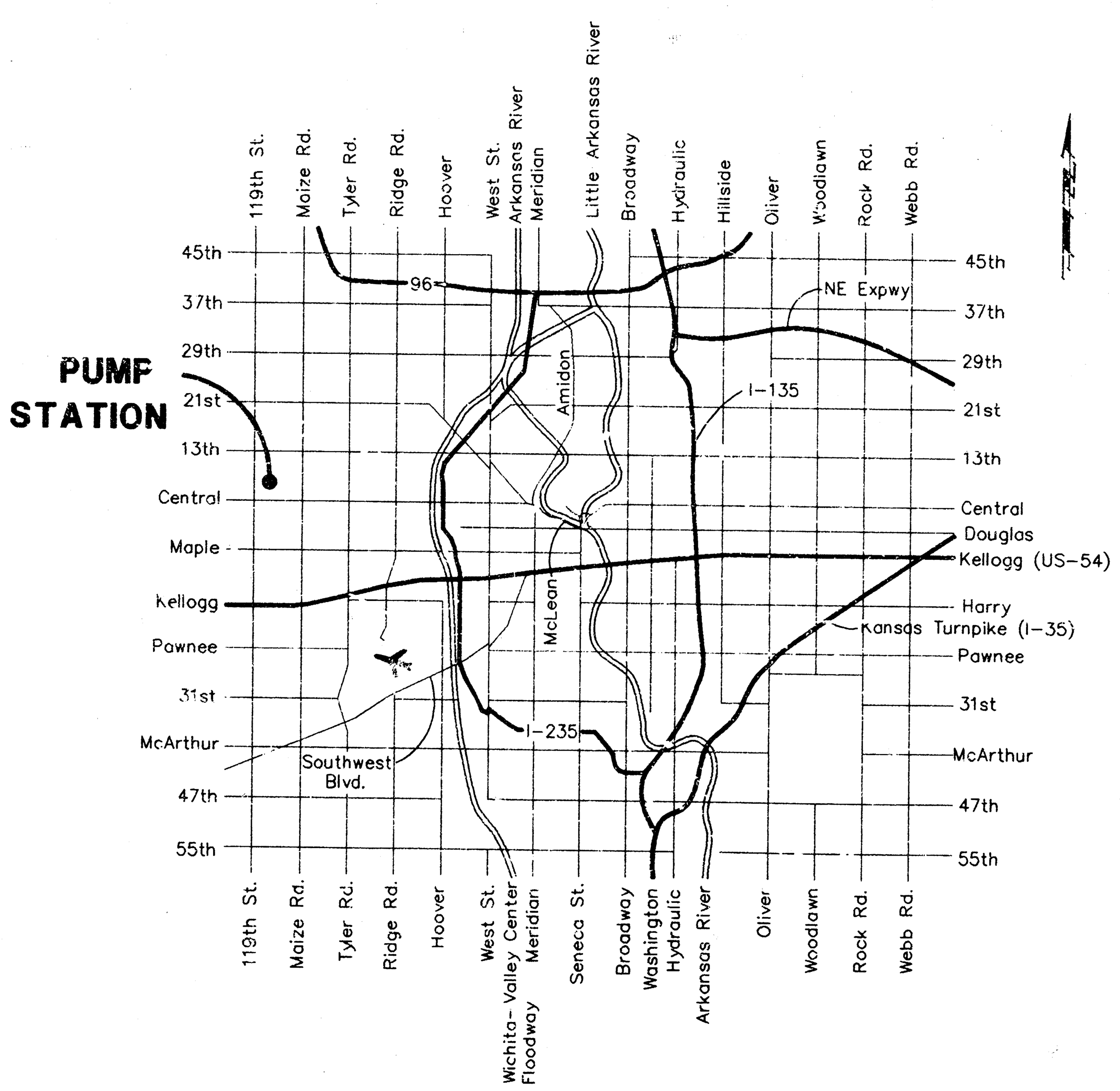
Notes:

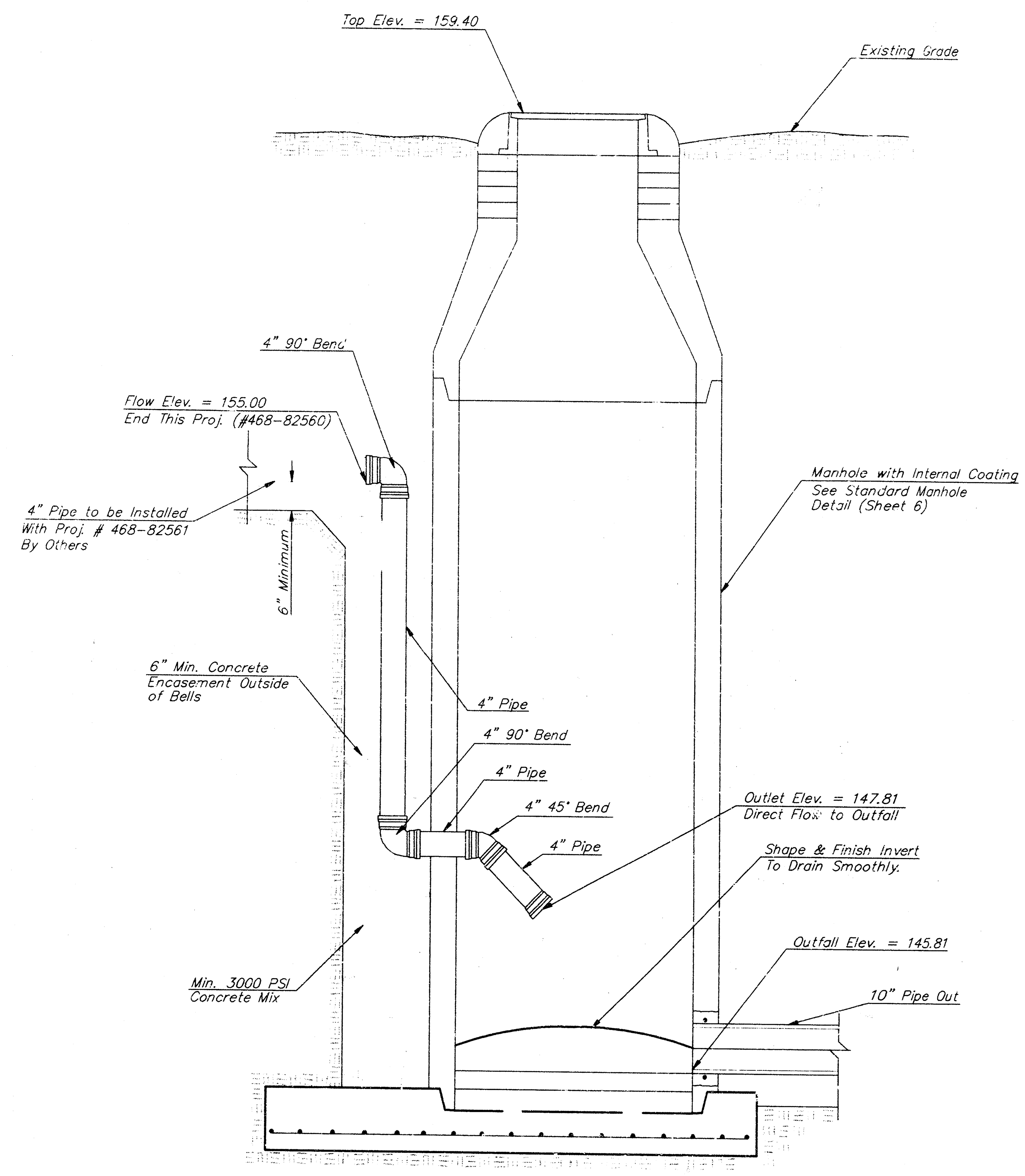
All modifications shall be made using Smith & Loveless components and shall meet City of Wichita specifications for lift stations.

The lump sum bid item "Lift Station Modifications" shall include the furnishing and installation of all new motors, impellers, overload coils, circuit breakers, and any other components required by the lift station upgrade to fully implement and activate lift station.

Contractor shall be responsible for verifying existing gas service line capacity for lift station modifications. If any changes to the existing gas service line are necessary, the cost for these changes shall be included in the lump sum bid item "Lift Station Modifications."

	Existing Conditions		Proposed Modifications	
	No. 1	No. 2	No. 1	No. 2
Pump	4B2D	4B2D	4B2D	4B2D
Flow (GPM)	340	340	466	466
TDH (Ft.)	20.11	20.11	30.50	30.50
Motor HP	3 HP	3 HP	15 HP	15 HP
Impeller Dia. (In.)	8-1/8	8-1/8	7-1/8	7-1/8
RPM	1170	1170	1750	1750





SPECIAL OUTSIDE DROP MANHOLE DETAIL

No Scale

Note:

All Costs Associated with Construction of Special Outside Drop Manhole Including But Not Limited to 4" Pipe, All 4" Fittings, and Concrete Encasement Mix Shall be Included in Price for Bid Item "Special Outside Drop Manhole."

LIFT STATION MODIFICATIONS

SANITARY SEWER

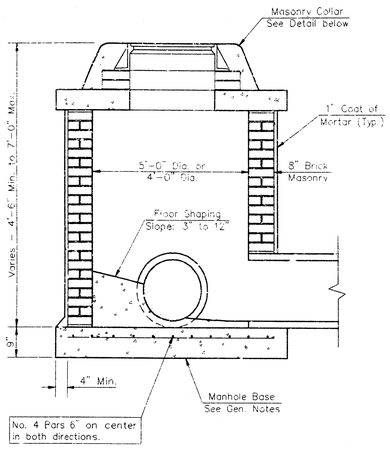
SPECIAL OUTSIDE DROP MANHOLE DETAIL

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

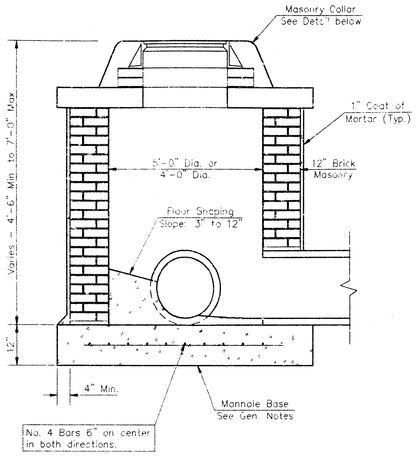
PROJECT NUMBER	SHEET
468-76-245-82560-000-000-001	4 OF 8

DESIGN	DRAWN	APPROVED	DATE	SCALE
BLP/DMV	DMV		3-6-96	NOTED

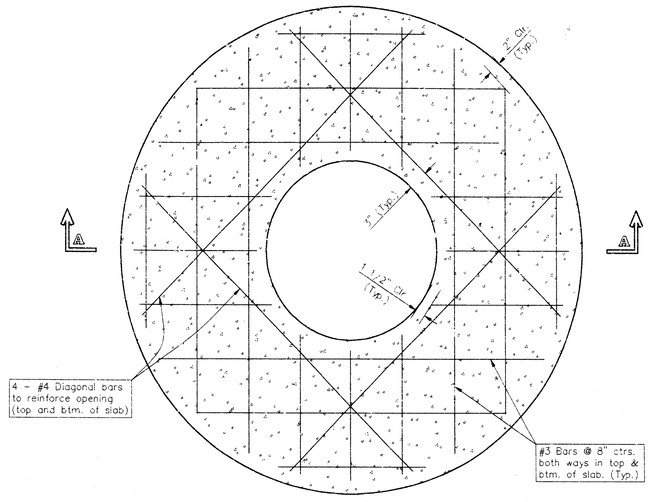
HICKCRK\PUMPMOD 95-12 F200



SHALLOW TYPE "A" MANHOLE



SHALLOW TYPE "B" MANHOLE



PLAN

GENERAL NOTES

1. 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 sewers 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.

2. 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.

3. 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.

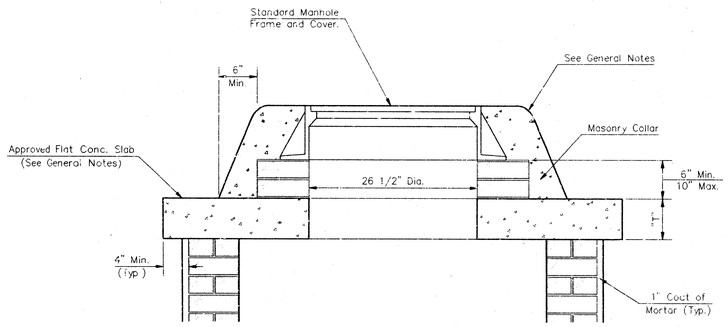
4. Pipes installed within the excavation made for the manhole shall be cradled with concrete to the limits of the manhole excavation. When clay pipe is used, the cradle shall extend to the first joint outside the manhole. The cradle shall be terminated at the clay pipe joint in a manner which will maintain 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.

5. 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.

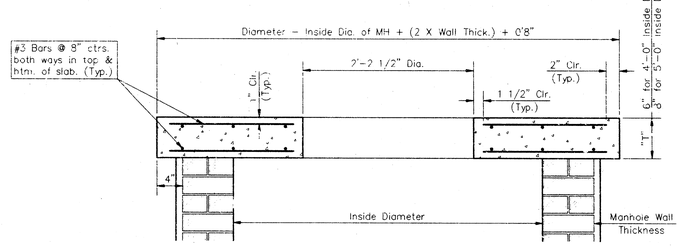
6. The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.

7. 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.

8. All brick used in manhole construction shall meet Grade SW of ASTM C652 or C62-87.

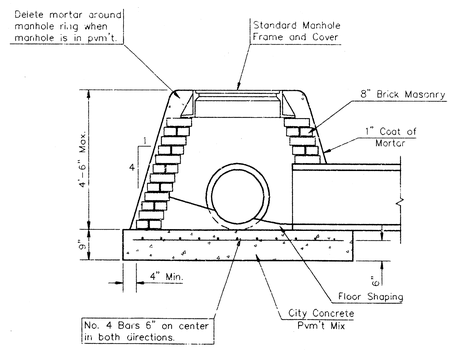


MASONRY COLLAR DETAIL

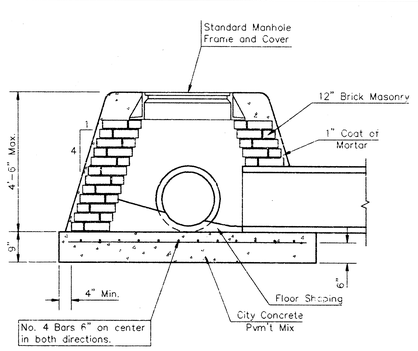


SECTION A-A

FLAT CONCRETE SLAB DETAILS



SPECIAL SHALLOW TYPE "A" MANHOLE



SPECIAL SHALLOW TYPE "B" MANHOLE

CITY OF WICHITA, KANSAS

STD. SHALLOW MANHOLES

TYPE "A" AND TYPE "B"

BAUGHMAN COMPANY P.A.

ENGINEERING, SURVEYING, & PLANNING

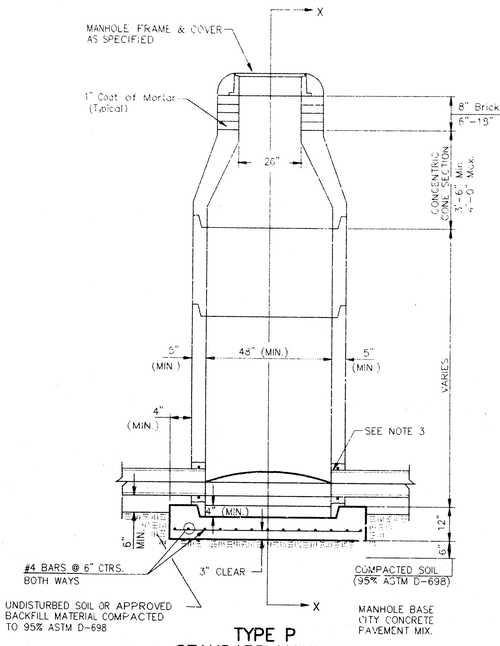
316 - 262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
488-78-245-82580-000-000-001	5 of 8

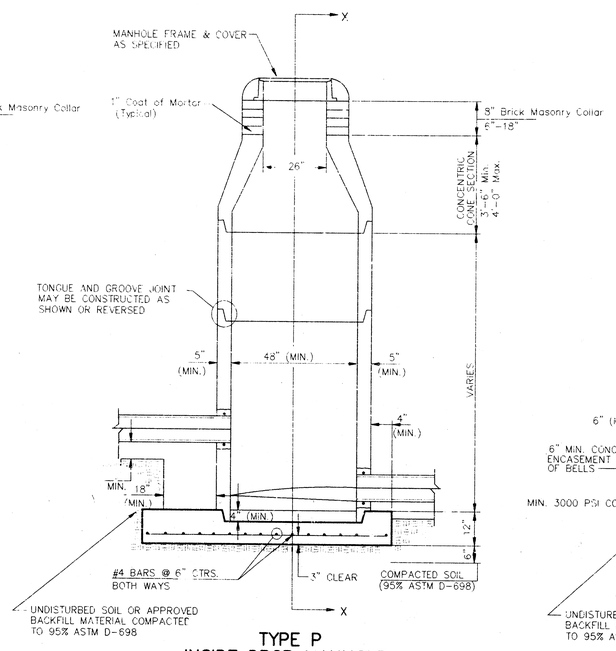
DESIGN	DRAWN	APPROVED	DATE	SCALE
C.O.W.	Staff			

DETAILS/SHALLMH

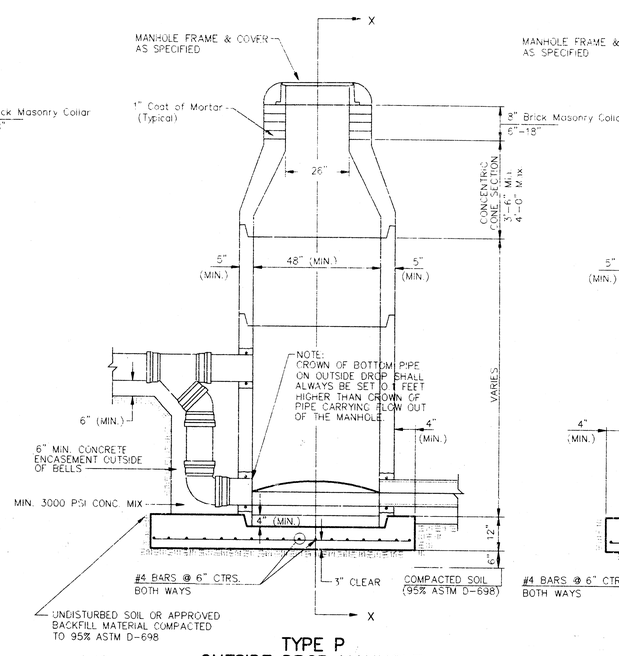
SEWER APPURTENANCES DETAILS



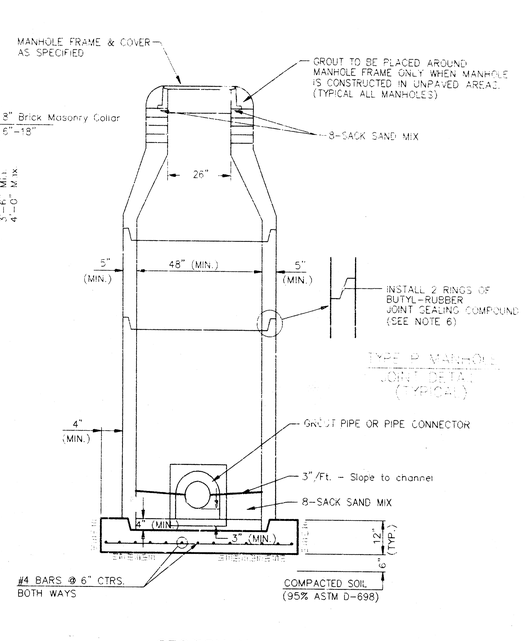
TYPE P
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE

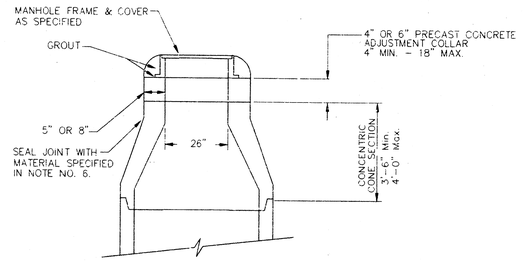


SECTION X
(TYPICAL)

GENERAL NOTES

PRECAST MANHOLE 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 ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS TNEMEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 3 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 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.
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 NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION[illegible] BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION[illegible]ILL BE PAID FOR AT THE UNIT PRICE BID [illegible] CONSTRUCTED ON EXISTING MANH[illegible]
13. THE FLOORS OF ALL MANHO[illegible]S SUCH THAT THE MANHOLES[illegible] WHERE SOLIDS COULD BE [illegible] MANHOLE FROM ALL INLET[illegible] SHALL BE FORMED TO MA[illegible] PIPES AND THE OUTFLOWI[illegible] FOR INSIDE DROP MANHOLI[illegible] MANHOLES SHALL BE CONS[illegible] MANHOLE FLOORS SHALL HA[illegible] AREAS OUTSIDE OF THE FLOW[illegible] CHANNELS. PIPES LAID THROU[illegible]ALF REMOVED TO NEAT LINES FOR THE[illegible] MANHOLE. MANHOLE FLOORS SHALL[illegible]HE BOTTOM HALF OF THE PIPE WHICH FORMS THE FL[illegible]
14. 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.
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 WILL 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 UNPAVED AREAS

CITY OF WICHITA

STD. MANHOLE DETAILS

& SEWER APPURTENANCES DETAILS

BAUGHMAN COMPANY P.A.

ENGINEERING, SURVEYING, & PLANNING

316-262-7271 • 313 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER 468-76-245-82560-000-000-C01

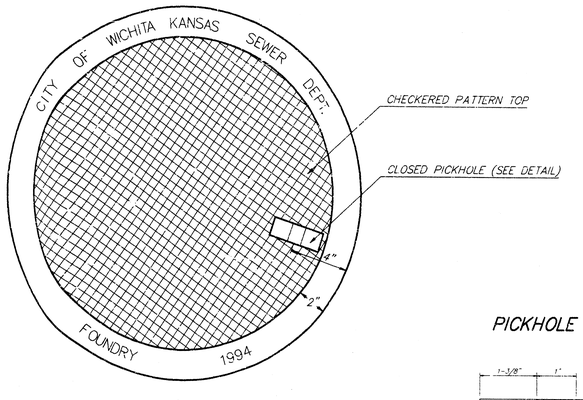
SHEET 6 OF 8

DESIGN	DRAWN	APPROVED	DATE	SCALE
	NOV. 93			

MANHOLE FRAME AND COVER DETAIL

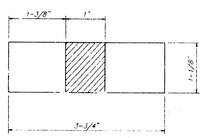
ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

MANHOLE COVER
Weight = 180 Lbs.

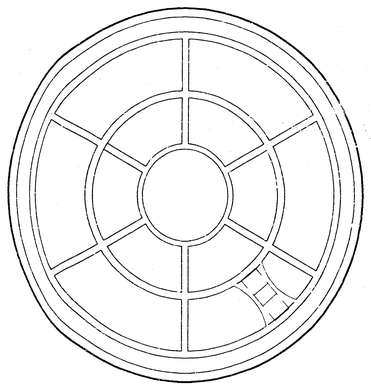


TOP VIEW

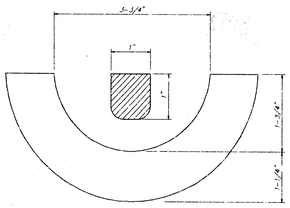
PICKHOLE DETAIL



TOP VIEW

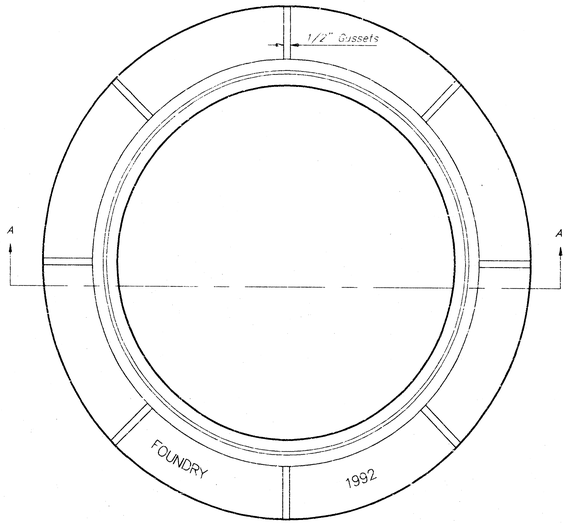


BOTTOM VIEW



SECTION VIEW

MANHOLE FRAME
Weight = 240 Lbs.



TOP VIEW

GENERAL NOTES

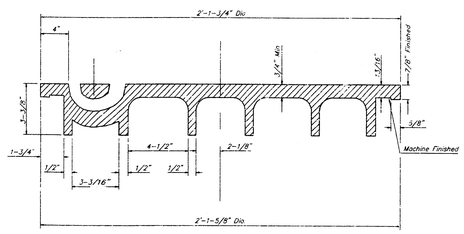
MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.

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

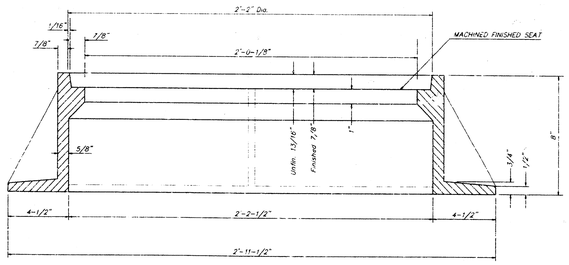
MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDARY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE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

THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH AS THESE SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING 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 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.



SECTION VIEW



SECTION A-A

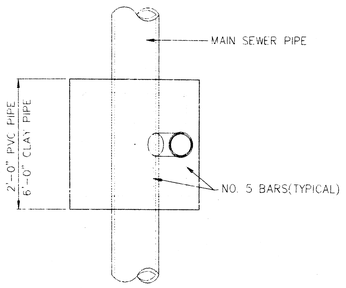
MANHOLE FRAME AND COVER DETAIL
ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

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

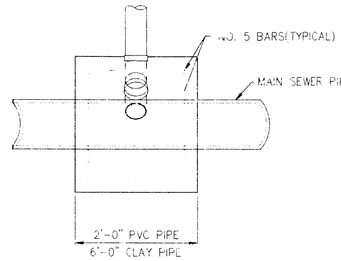
PROJECT NUMBER	SHEET
472-76-245-82560-000-000-001	7 OF 8

DESIGN	DRAWN	APPROVED	DATE	SCALE

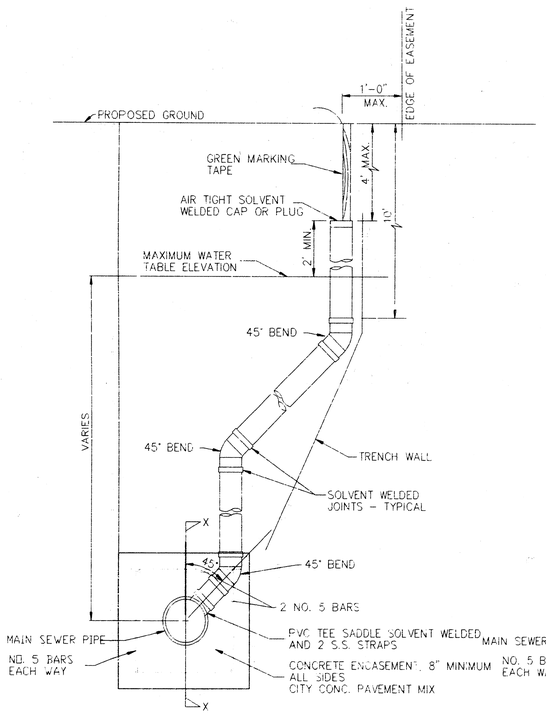
VERTICAL RISER DETAILS
ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA, KANSAS OCTOBER 1992



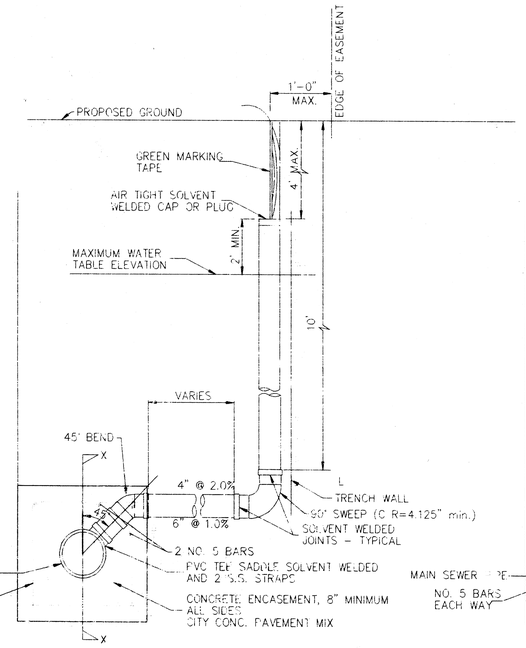
TYPICAL PLAN VIEW



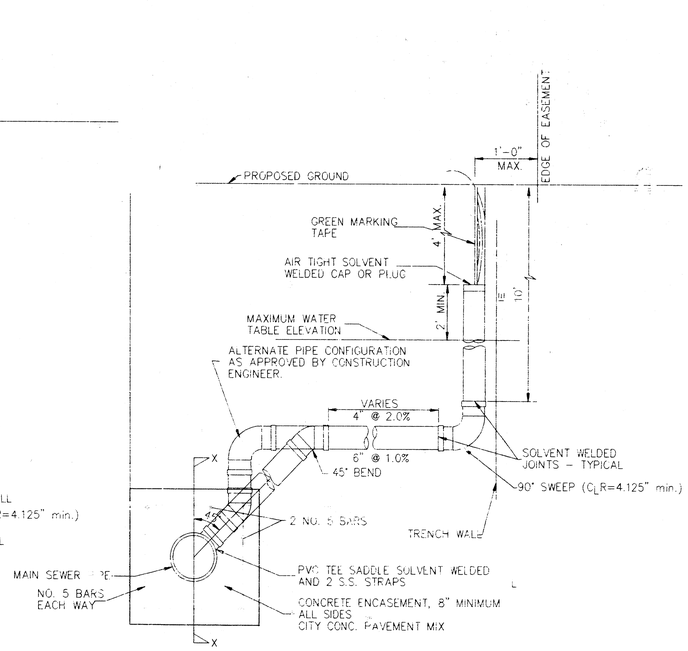
TYPICAL SECTION X-X



METHOD "A"



METHOD "B"



METHOD "C"

NOTE: RISER PIPE REQUIREMENTS AT MANHOLE STUBS SHALL BE SIMILAR TO THOSE SHOWN ABOVE.

GENERAL NOTES

1. RISERS. Risers shall be installed to serve all lots or tracts where the sanitary sewer main is below the water table. Risers shall also be installed to serve all lots and tracts where the sanitary sewer main depth is greater than 12 feet below the proposed ground elevation. Installation of risers because of field conditions shall be as approved by the Construction Engineer. The location of the risers to serve developed property shall be approved by the property owner and the Construction Engineer.

2. PIPE STUBS. Pipe stubs shall be installed in manholes where locations of manholes will provide satisfactory service connection as determined by the Construction Engineer. The vertical distance between the flowline of the manhole pipe stub and the flowline of the sanitary sewer main out of the manhole shall not exceed 2 feet. Risers shall be utilized at manhole pipe stubs as indicated in Note 1. Manhole pipe stubs shall be set such that the top of the stub is not lower than the top of the sanitary sewer main.

3. SIZING. Pipe stubs and risers shall be sized according to the plans and riser table where risers are indicated by the plans. Where risers or pipe stubs are required because of field conditions, the risers and stubs shall be six-inch diameter for commercial or industrial properties and 4" or 6" diameter for residential properties based on lot size and sanitary sewer main depth. Sizing of risers and stubs shall be approved by the Construction Engineer prior to installation.

4. RISER OR STUB MATERIAL. Risers and stubs shall be constructed of SDR 35 PVC Pipe or Schedule 40 PVC Pipe, meeting the requirements of the latest revision of A.S.T.M. All pipe joints shall be solvent welded.

5. REINFORCED CONCRETE ENCASEMENT. Riser connections to clay pipe sanitary sewers shall be reinforced concrete encased both ways from the riser centerline. The reinforced concrete encasement shall extend three feet from the riser centerline or stop at the first sanitary sewer pipe joint within three feet of the riser centerline. Riser connections to PVC Sanitary Sewer mains shall be reinforced concrete encased one foot each way from the riser centerline. The concrete encasement shall be reinforced using reinforcing steel as shown in the appropriate drawing. The concrete shall conform to the City Standard Specifications for concrete pavement.

6. BEDDING. Bedding around the sanitary sewer riser shall be compacted Pipe Bedding Type 1 or 2. The bedding shall be placed and compacted from the depth of the sanitary sewer main to the top of the sanitary sewer riser pipe. Compacted Pipe Bedding Type 1 or 2 shall be required for all risers whether constructed in vertical wall or sloped wall trenches. Bedding material and construction practices shall be approved by the Construction Engineer prior to installation.

7. SUPPORT OF RISERS. Sanitary sewer riser pipe shall be supported during trench backfill. The riser pipe shall be held in a vertical position at all times until trench backfill and compaction has been completed. Contractor's methods for supporting and backfilling the riser pipe shall be approved by the Construction Engineer.

8. PLUGGING. The ends of the riser pipes and manhole stubs shall be plugged using an airtight solvent welded cap or plug. Cap or plug fittings shall be approved by the Construction Engineer prior to installation. Caps or plugs which do not provide an airtight seal will not be accepted.

9. TOP OF THE RISER PIPE. The top elevation of the sanitary sewer riser pipe shall be built per plan elevations, unless otherwise directed by the Construction Engineer. Where riser elevations are not shown on the plans, the top of the risers shall be set at an elevation four feet below the proposed ground surface. If ground water is encountered, the top of the riser pipe shall be set at an elevation two feet (min.) above the maximum water table elevation, regardless of the riser elevation shown on the plans.

10. MARKING. Locations of the ends of the sanitary sewer riser pipe shall be marked by fastening green colored plastic tape to the end of the riser. The tape shall be supported by a length of wooden 2 x 4, extending from the top of the riser pipe to the proposed ground surface. The green tape shall be visible and extend one foot above the proposed ground surface. The green tape shall be 4 mil Polyethylene film with a minimum width of three inches, specifically manufactured for the purpose of identification of underground sewers.

11. LOCATION MEASURES. The project inspector shall record and document the location of all risers constructed as measured from the nearest manhole, indicating the direction from the manhole, the direction and distance from the main, and the elevation of the top of the riser.

12. RISER LOCATION. The riser shall be located per plan. If not shown on the plan, the riser shall be located at the center of the lot, within one foot of the property side lot line easement for the lot being served. All riser locations shall be approved by the Construction Engineer prior to installation.

13. PAYMENT. "Sanitary sewer risers" shall be paid for at the contract unit price per each, which price shall be full compensation for all pipe, fittings, marking tape, length of wooden 2 x 4, reinforced concrete encasement, support during backfill, backfill, labor, site restoration, and any other items necessary to complete the work.

"Manhole stubs" shall be paid for at the contract unit price per each, which shall be full compensation for all labor, material, and incidentals necessary to complete the work including all pipe, fittings, reinforced concrete encasement, and all other items as required and listed for "Sanitary Sewer Risers".

City of Wichita Standard
Riser Details

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

PROJECT NUMBER	SHEET
468-78-245-82580-000-000-001	8 OF 8

DESIGN	DRAWN	APPROVED	DATE	SCALE