SANITARY SEWER IMPROVEMENTS

TO SERVE

SEDGWICK COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY

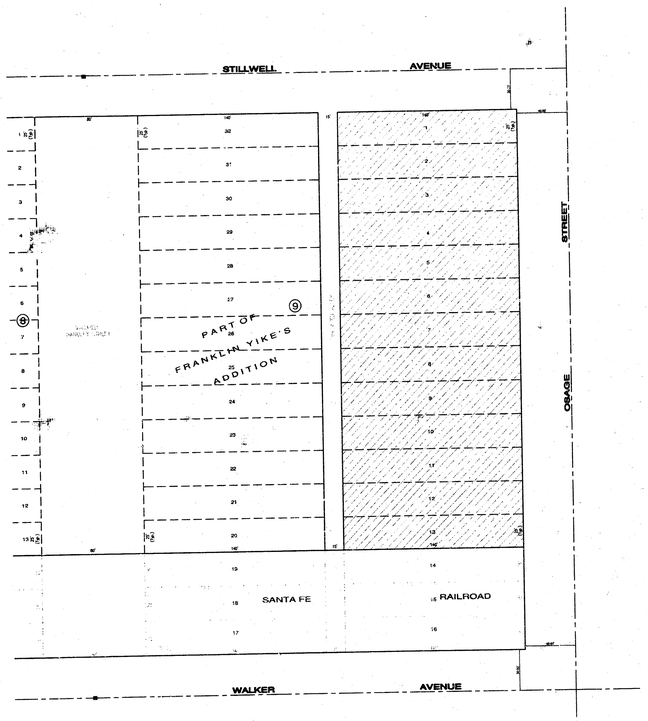
OSAGE STREET AND STILLWELL

PRIVATE PROJECT NO. 1160 PPS (607861)

City of Wichita

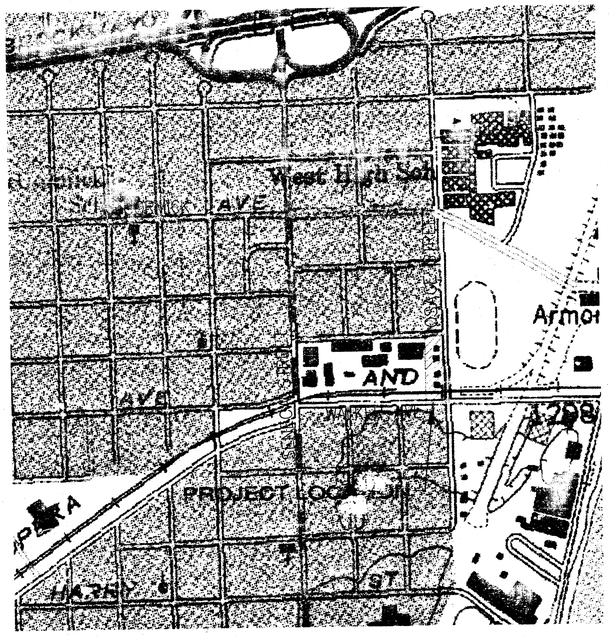
Sedgwick County, Kansas

MICHAEL E. LINDEBAK, PE, CITY ENGINEER



SANITARY SEWER BENEFIT DISTRICT AREA

KEY MAP



VICINITY MAP

NO SCALE

NOVEMBER 2001

PLANS PREPARED BY:

YOUNG & ASSOCIATES, P.A.
Civil and Environmental Engineers

100 South Georgie * Derby, Kansas * 67037

INDEX OF SHEETS:

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AS-BUILT
3/15/02
Date
Signed

Booked
P-217
RPL
4/22/02

APPROVED AS NOTED
BY CITY ENGINEERS OF WICHITA

SANITARY SEWERS VRH 11/28/01

STORM SEWERS

DRIVEWAY APPROACHES

WATER MAINS

PAVING

NOTE TO CONTRACTORS

INSPECTION AND TESTING FOR THIS PROJECT ARE TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM UNDER CONTRACT WITH THE OWNER/DEVELOPER. SAID INSPECTION TO BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD CONSTRUCTION ENGINEERING PRACTICE AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. NO WORK SHALL BE PERFORMED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY BY THE CONTRACTOR WITHOUT SUCH INSPECTION, NOR SHALL ANY WORK BE COMMENCED WITHOUT WRITTEN AUTHORIZATION BY THE CITY ENGINEER.

CITY OF WICHITA PRIVATE PROJECT NO.:
1160 PPS (607861)

CHRISTOPHER R. YOUNG
LICENSED
11315
KANSAS
PROFESSIONAL ENGINEER
11-27-01

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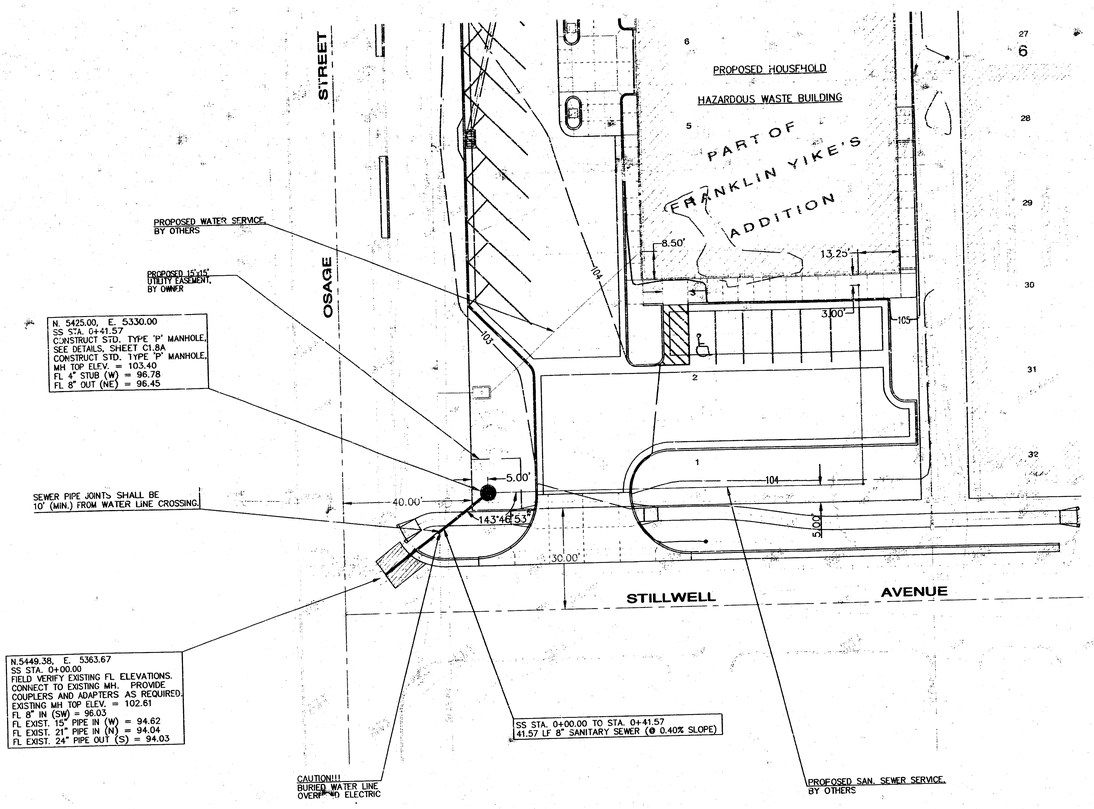
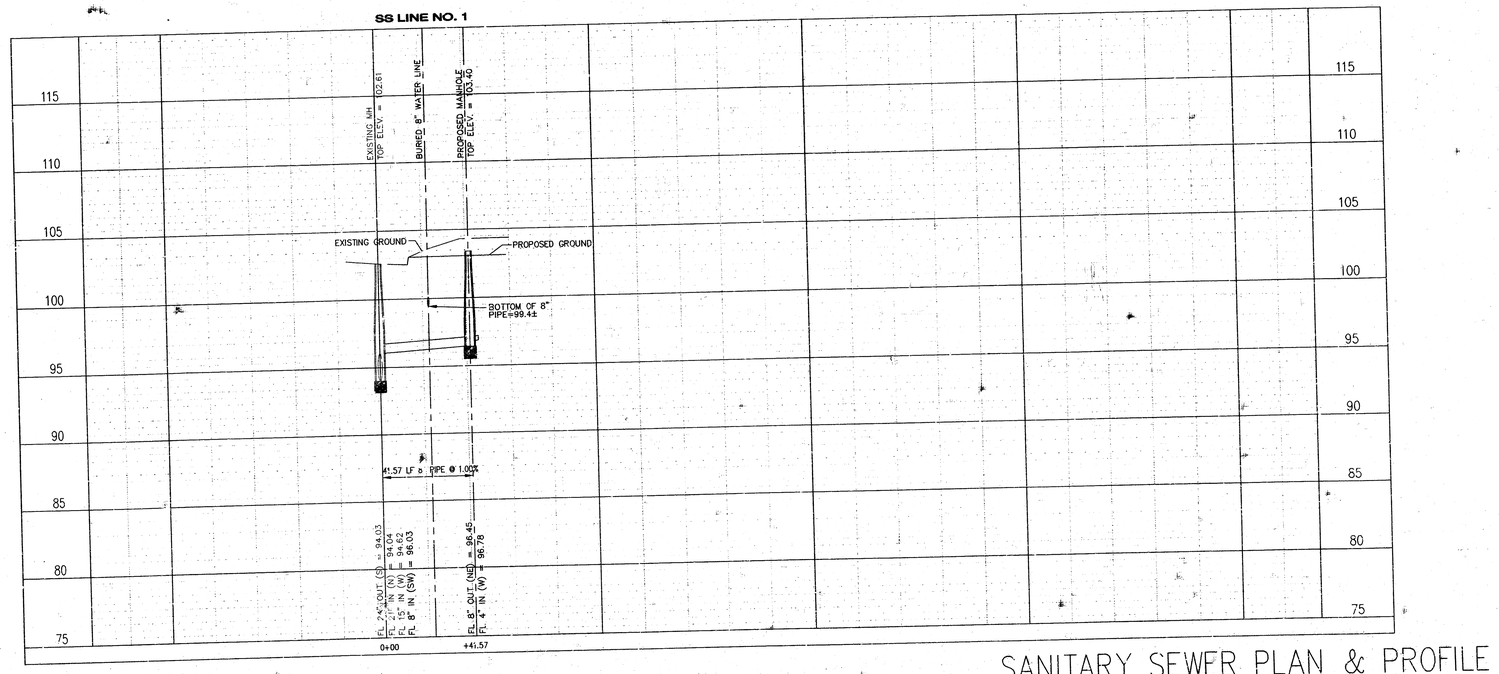
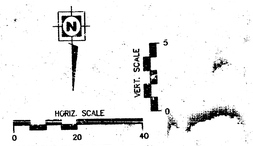




YOUNG & ASSOCIATES, P.A.
Civil and Environmental Engineers
100 S. George, Derby, KS 67037

SANITARY SEWER PLAN & PROFILE



TOPOGRAPHIC SURVEY DATE: 4-17-01

LEGEND:

- CL ROW
- POWER POLE
- STREET LIGHT POLE
- WATER METER
- WATER VALVE
- STREET/TRAFFIC SIGN
- TREE/BUSH
- EXISTING CONTOURS, (@ 1-FT. INTERVALS)
- EXISTING CONTOURS, (@ 5-FT. INTERVALS)

SITE BENCHMARK:

BM 1 – CHIS. "O" IN CONCRETE CURB AT THE SOUTHWEST CORNER OF THE INTERSECTION OF OSAGE ST. AND STILLWELL AVE.
ELEV. 102.96 (CITY DATUM)

BM 2 – CHIS. "+" LOCATED 35' E. AND 30' S. OF CL SENECA ST. AND STILLWELL AVE.
ELEV. 106.19 (CITY DATUM)

HORIZONTAL CONTROL:

IRON BAR IN THIMBLE AT THE INTERSECTION OF WALKER AVE. AND WALNUT.
N. 5000.000
E. 4624.885

IRON BAR IN THIMBLE AT THE INTERSECTION OF WALKER AVE. AND HANDLEY ST.
N. 5000.000
E. 5000.000

GENERAL NOTES:

1. ELEVATIONS SHOWN ARE CITY DATUM. (USGS ELEVATIONS = CITY DATUM + 1197.40)
2. AT LEAST 72 HOURS PRIOR TO BEGINNING ANY EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 667-2470 TO REQUEST THE LOCAL UTILITY COMPANIES TO LOCATE ANY EXISTING LINES WITHIN THE PROJECT AREA.
3. THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

COX COMMUNICATIONS	(316) 262-0601
KPL GAS SERVICE	(316) 383-8600
KG&E	(316) 261-6512
PEOPLES NATURAL GAS	(316) 942-8811
SOUTHWESTERN BELL TELEPHONE COMPANY	(316) 268-2245
CITY OF WICHITA WATER AND SEWER DEPARTMENT	(316) 268-4555
CITY OF WICHITA CENTRAL INSPECTION	(316) 268-4361

4. THE CONTRACTOR IS TO VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION OF THE PROJECT.
5. STORM SEWERS, WATER LINES, AND SANITARY SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "CITY OF WICHITA STANDARD SPECIFICATIONS FOR CITY CITY PROJECTS", THE DEPARTMENT OF PUBLIC WORKS, ENGINEERING DIVISION.
6. EASEMENTS AND RIGHT-OF-WAY PROVIDED BY THE OWNER FOR THE PROJECT ARE SHOWN IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION OF ANY ADDITIONAL TEMPORARY CONSTRUCTION EASEMENTS OR RIGHT-OF-WAY THAT HE DESIRES TO USE IN COMPLETING THE WORK.
7. POSITIVE DRAINAGE SHALL BE PROVIDED FOR ALL AREAS ON OR NEAR SPOIL AREAS. NATURAL DRAINAGE WAYS SHALL BE MAINTAINED.
8. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH THE PROPOSED CONSTRUCTION.
9. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, PAVEMENTS, ENTRANCES, AND BANK LINES TO THEIR ORIGINAL SLOPES AND GRADES.
10. WHERE EXISTING ENTRANCE PIPE, DRAINAGE PIPE, HEADWALLS, SIGNS, MAILBOXES, FENCES, AND LANDSCAPING CONFLICT WITH THE PROPOSED WORK HEREIN THEY SHALL BE REMOVED AND RESET OR REPLACED AS REQUIRED. THE RESETTING OR REPLACEMENT OF ALL THE AFOREMENTIONED ITEMS SHALL BE CONSIDERED SUBSIDIARY TO SITE PREPARATION COSTS.
11. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST AVAILABLE INFORMATION. IT SHOULD BE NOTED THAT OTHER BURIED LINES AND CABLE MAY EXIST WHICH ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING TRENCHING OPERATIONS TO AVOID DAMAGING THESE LINES AND CABLES. ANY UTILITIES DAMAGED SHALL BE REPLACED OR REPAIRED IMMEDIATELY AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL PROTECT FROM DAMAGE AND SUPPORT EXISTING UTILITIES THROUGH CONSTRUCTION AS APPROVED BY THE UTILITY OWNER AND THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
12. THE CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION, TYPE, SIZE, AND CLASS OF EXISTING SANITARY SEWERS PRIOR TO CONSTRUCTION. EXISTING SANITARY SEWER LOCATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL MAKE ADJUSTMENTS AS REQUIRED AND APPROVED BY THE ENGINEER. PROVISIONS FOR AND INSTALLATION OF PIPE ADAPTERS, SHORT SECTIONS OF PIPE, AND COUPLERS SHALL BE SUBSIDIARY TO OTHER PAY ITEMS OF WORK.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING EXISTING PROPERTY IRONS AND RIGHT-OF-WAY MONUMENTS. THE CONTRACTOR SHALL BE REQUIRED TO REESTABLISH ANY PROPERTY IRONS OR RIGHT-OF-WAY MONUMENTS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS OR MONUMENTS SHALL BE REESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.
14. THE CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED TO THE PROJECT AND IS PRESENT ON THE SITE. ANY WORK PERFORMED WITHOUT INSPECTION IS SUBJECT TO BE UNCOVERED FOR INSPECTION.
15. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA AND LOCAL BUSINESS OR RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA ARE TO BE CARRIED THROUGH CONSTRUCTION AS REQUIRED BY THE CITY OF WICHITA TRAFFIC ENGINEERING DEPT. THE CONTRACTOR SHALL UTILIZE BARRICADES, SIGNS, GUARDS, AND FLAG MEN IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
16. EACH BIDDER SHALL VISIT THE SITE OF THE PROJECT BEFORE SUBMITTING THE PROPOSAL FOR THIS WORK SO THAT HE WILL BE FULLY INFORMED OF THE EXISTING ABOVE GROUND AND SUBSURFACE FIELD CONDITIONS AND THE OBSTACLES WHICH MIGHT BE ENCOUNTERED. UPON AWARD OF THE CONTRACT THE CONTRACTOR SHALL NOT BE GRANTED ANY ADDITIONAL COMPENSATION WITH REGARDS TO TIME AND MONEY FOR CONDITIONS THAT MIGHT HAVE BEEN EVALUATED DURING INSPECTION OF THE SITE.
17. ANY STREET CURBS OR OTHER EXISTING PAVING IMPROVEMENTS, DAMAGED BY THE CONTRACTOR SHALL BE REPLACED IN KIND TO THE NEAREST EXISTING CONSTRUCTION POINT OR TO LIMITS APPROVED BY THE CITY ENGINEER.
18. ALL SAW CUTS SHALL BE FULL DEPTH. THIS WORK SHALL NOT BE PAID FOR DIRECTLY; BUT SHALL BE SUBSIDIARY TO SITE PREPARATION COSTS.
19. THE CONTRACTOR SHALL SATISFY HIMSELF OF THE SUBSURFACE CONDITIONS PRIOR TO CONSTRUCTION.
20. CUTS MADE TO PAVED SURFACES ON PUBLIC PROPERTY WILL BE REPAIRED BY THE CITY'S CONTRACTOR AND CHARGED AGAINST THE OWNER/APPLICANT. UNIT REPAIR PRICES ARE AVAILABLE FROM THE CITY AT 268-4418. A SURCHARGE MAY BE APPLICABLE: CALL 265-4418 FOR DETAILS. REPAIR COSTS TO BE PAID PRIOR TO RELEASE OF WATER SERVICE IF WATER SERVICE IS AFFECTED.

APPROVED AS NOTED
BY CITY ENGINEERS OF WICHITA

SANITARY SEWERS _____

STORM SEWERS _____

DRIVEWAY APPROACHES _____

WATER MAINS _____

PAVING _____

NOTE TO CONTRACTORS

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CITY OF WICHITA PRIVATE PROJECT NO.:
1160 PPS (607861)

wdm architects
Wilson Darnell Mann P.A.
105 N. Washington Wichita, Kansas 67202
ph 316.262.4700 fx 316.262.0002
www.wdmdesign.com

Household Hazardous Waste Facility

CSAGE AND STILLWELL
WICHITA,KANSAS

PRINTS ISSUED

WDM No. 00193
drawn: DAS
checked: CRY

Sanitary sewer plan and profile design

(c)copyright Wilson Darnell Mann P.A.

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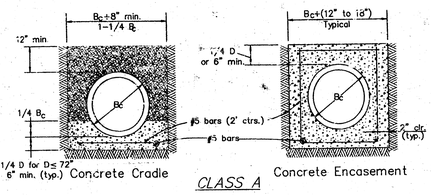
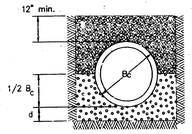
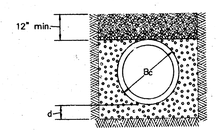


CLASS A





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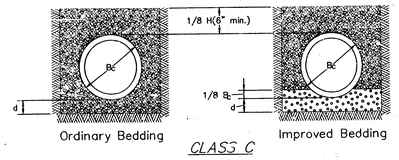


CLASS C

Depth of Bedding Material Below Pipe		
D	d (min.) Soil	d (min.) Rock
27" & smaller	4"	6"
30" to 60"	5"	9"
66" & larger	6"	12"

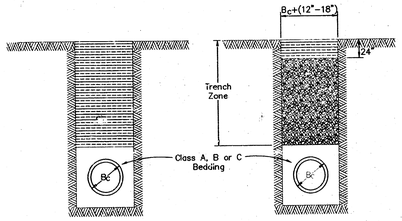
LEGEND

- B_c = Outside Pipe Diameter
- D = Inside Pipe Diameter
- d = Depth of Bedding Material Below Pipe
- H = Backfill from Top of Pipe to Existing Ground
- = Granular Bedding Material or Sand-Gravel Bedding
- = Compacted Embedment
- = Concrete (Class III)

Granular Bedding Material shall be an approved material consisting of a durable crushed rock conforming with the requirements of the latest revision of ASTM C-33 Size No. 67 (3/4" to No. 4); to be placed in not more than 6" layers and compacted by slicing with a shovel or vibrating. Soundness, abrasion, and absorption limits shall be as required for coarse aggregates in Section 03010-Concrete Work.

Sand-Gravel Bedding Material – sand-gravel mix meeting Type BD-2 of the 1990 Kansas Standard Specifications for State Road and Bridge Construction.

Compacted Embedment shall be an approved sand material free from debris, organic material, and stones with 100% passing the 3/4" sieve to be placed in uniform layers not more than 6" thick and compacted to 95 percent maximum density as determined by ASTM D1557. Granular Bedding Material may be substituted for all or part of Compacted Embedment Materials.



BACKFILL TYPE II

BACKFILL TYPE I

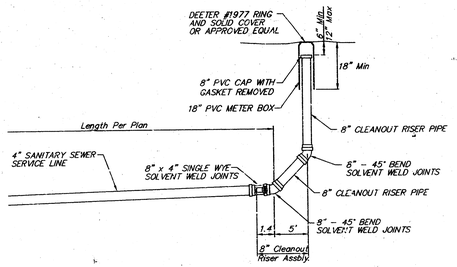
Compacted Granular Backfill material shall be an approved sand material free from debris, organic material and stones with 100% passing the 3/4" sieve and not more than 15% passing a No. 200 sieve; to be jetted and mechanically vibrated into place and compacted to 95% density as determined by ASTM D1557. Compacted granular backfill beneath existing or proposed street paving shall be compacted to 95% density as determined by ASTM D1557. See Paragraph 3.3.5.

Compacted Earth Backfill shall consist of material existing prior to trenching or selected material as directed by the Engineer, and shall be compacted to 90% density as determined by ASTM D1557. Compacted earth backfill beneath existing or proposed street paving shall be compacted to 95% density as determined by ASTM D1557. See Paragraph 3.3.5.

LEGEND

- B_c = Outside Pipe Diameter
- = Compacted Granular Backfill
- = Compacted Earth Backfill

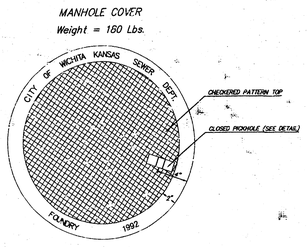
BEDDING AND BACKFILL DETAILS



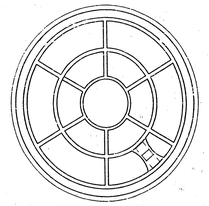
8" CLEANOUT RISER ASSEMBLY DETAIL

YOUNG & ASSOCIATES, P.A.
Civil and Environmental Engineers
100 S. Rock, Derby, KS 67037

...Sanitary Sewer\108\sscd18.dwg Mon Nov 26 11:08:16 2001

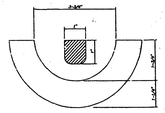


TOP VIEW



BOTTOM VIEW

PICKHOLE DETAIL



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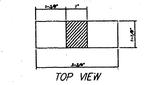

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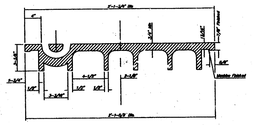

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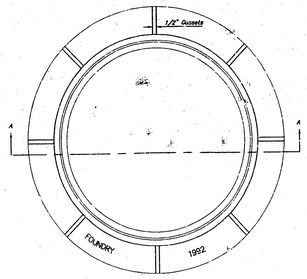

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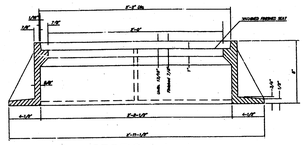

SECTION A-A

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 MANUFACTD 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.

MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

MISCELLANEOUS DETAILS

wdm architects
Wilson Darnell Mann P.A.
105 N. Washington Wichita, Kansas 67202
ph 316.262.4700 fx 316.262.0002
www.wdmdesign.com

Household Hazardous Waste Facility

OSAGE AND STILLWELL
WICHITA, KANSAS

PRINTS ISSUED

WDM No. 00193
drawn: DAS
checked: CRY

Miscellaneous details

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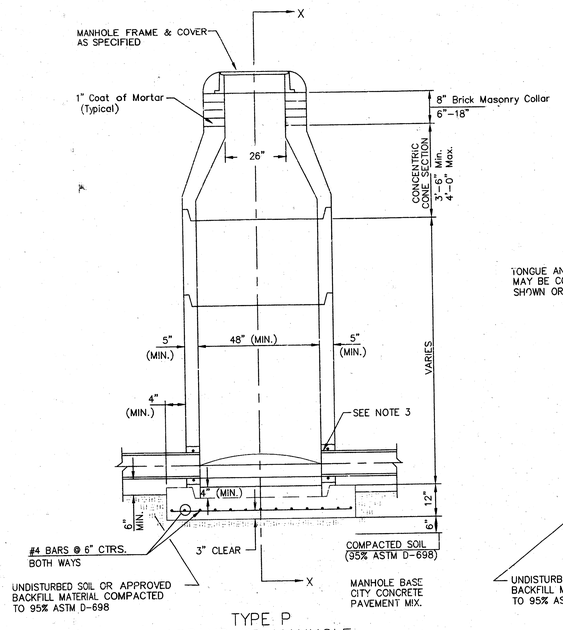
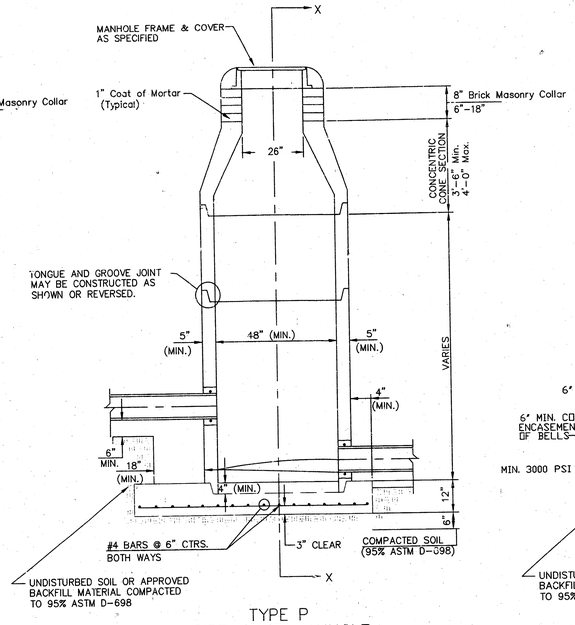
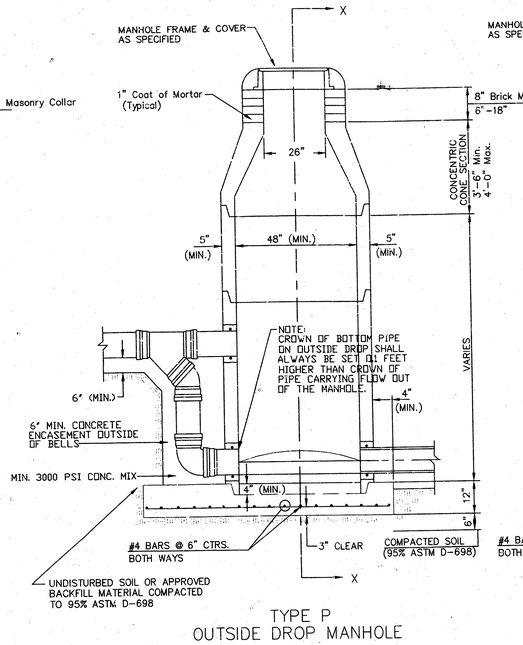
SEWER APPURTENANCES DETAILS



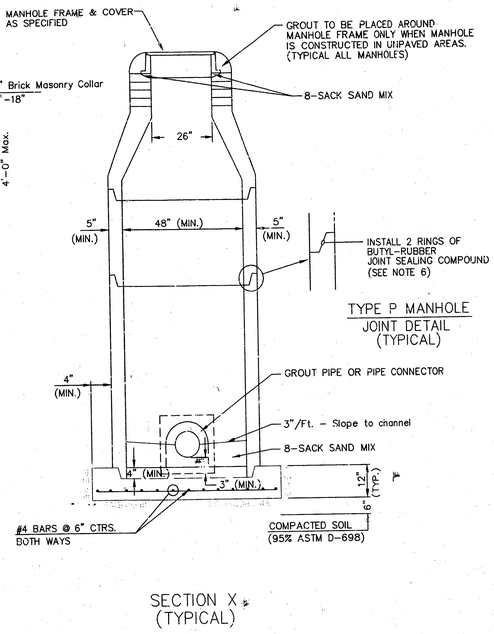
TYPE P
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE



SECTION X
(TYPICAL)

TYPE P MANHOLE
JOINT DETAIL
(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 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 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 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 INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
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 MAHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
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.

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