

GENERAL NOTES

- UNLESS SHOWN OR STATED OTHERWISE ON THESE DRAWINGS, MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF WICHITA STANDARD SPECIFICATIONS.
- CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF SEVENTY-TWO (72) HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:

KANSAS ONE-CALL 1-800-344-7233
or 687-2470 (LOCAL WICHITA)

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

AT&T (TELEPHONE) 800-870-8390
COX COMMUNICATIONS (CABLE) 262-0661
KANSAS GAS SERVICE (GAS) 832-3101
CITY OF WICHITA WATER & SEWER 262-6000
WESTAR (ELECTRIC) 383-8600
BLACK HILLS ENERGY (GAS) 800-303-0357

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.
- EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE PLAN LOCATIONS SHOWN ARE NOT GUARANTEED. ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED.
- RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.
- COST OF EXCAVATION, HAULING, AND DUMPING OF EXCESS EXCAVATION SHALL BE SUBSIDIARY TO THE PROJECT.
- A PORTION OF EXCESS EXCAVATED MATERIAL SHALL BE MOUNDED AROUND MANHOLES WHICH EXTEND MORE THAN ONE (1) FOOT ABOVE THE EXISTING GROUND. SUCH MOUNDS SHALL BE CONSTRUCTED WITH A SIX (6) FOOT DIAMETER FLAT TOP WITH 4 TO 1 SIDE SLOPES DOWN TO THE ORIGINAL GROUND. THE ELEVATION OF THE FLAT TOP OF THE MOUND SHALL BE 0.4 FOOT BELOW THE TOP OF THE MANHOLE.
- ALL STUBS AND PLUGGED PIPES SHALL BE LOCATED WITH GREEN PLASTIC TAPE IN THE SAME MANNER AS RISERS.
- CONNECTING TO EXISTING MANHOLES:
PRIOR TO LAYING SEWER LINES USING EXISTING STUBS IN EXISTING MANHOLES, THE CONTRACTOR SHALL EXPOSE AND VERIFY THE ELEVATION, GRADE AND ALIGNMENT OF EXISTING STUBS AND NOTIFY THE ENGINEER OF ANY DEVIATION FROM THE PLAN. WHERE CONNECTION TO AN EXISTING MANHOLE THAT DOES NOT HAVE AN EXISTING STUB OR THE STUB IS UNUSABLE DUE TO ELEVATION GRADE OR ALIGNMENT, THE CONTRACTOR SHALL BORE CUT INTO EXISTING MANHOLE WALL TO MAKE CONNECTION USING APPROVED WATER STOP GASKET, AND RESHAPE THE EXISTING MANHOLE INVERT TO PROVIDE SMOOTH FLOW. THE COST OF CONNECTING TO EXISTING MANHOLES IS INCIDENTAL TO THE PROJECT.
- 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.
- ALL DISTURBED AREAS TO BE SEEDED WITH RYE GRASS AT A RATE OF 200 LBS. PER ACRE WITHIN 10 DAYS OF CONSTRUCTION. CONTRACTOR TO PREPARE GROUND PER CITY SPECIFICATIONS. COST IS SUBSIDIARY TO SITE PREPARATION AND RESTORATION.
- CONTRACTOR TO COORDINATE CONSTRUCTION OF SANITARY SEWER WITH OTHER CONSTRUCTION ACTIVITIES ON SITE. THIS INCLUDES WATER, STORM WATER SEWER AND MASS GRADING PROJECTS.
- THE WORK ON THIS PROJECT IS SUBJECT TO THE CITY OF WICHITA REQUIREMENTS FOR "CONSTRUCTION OF INFRASTRUCTURE IMPROVEMENTS BY PRIVATE CONTRACT". THE CONTRACTOR SHALL FAMILIARIZE HERSELF/HIMSELF WITH, AND COMPLY WITH ALL THE REQUIREMENTS, INCLUDING BONDING, INSPECTION, TESTING, NOTIFICATION, PROVIDING AS-BUILT DRAWINGS, PAYING ALL NECESSARY CONNECTION AND/OR STREET REPAIR FEES, AND PROVIDING PIPE MATERIALS AND OTHER CERTIFICATIONS AS REQUIRED.

NOTES:
1. CONTRACTOR TO VERIFY DEPTH & LOCATION OF EXISTING UTILITIES AND SANITARY LINES PRIOR TO CONSTRUCTION.

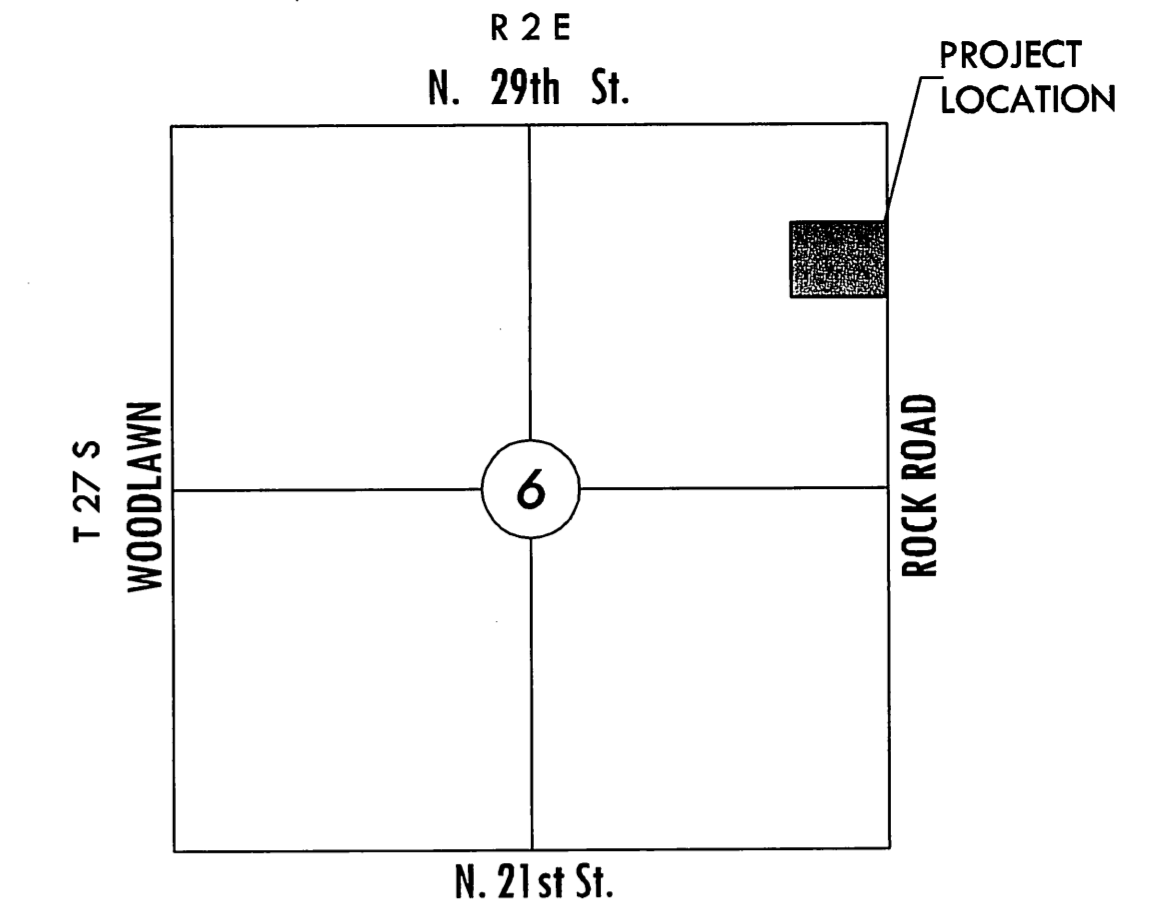
AS BUILT PLANS

Contractor: Mies Const.
Inspector: Schwab-Eaton
pdf by: BDB 9-13-10
Project was constructed as shown on as built plans.

**SANITARY SEWER PLANS FOR
LARKSFIELD EAST**

2727 N. ROCK ROAD, WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER

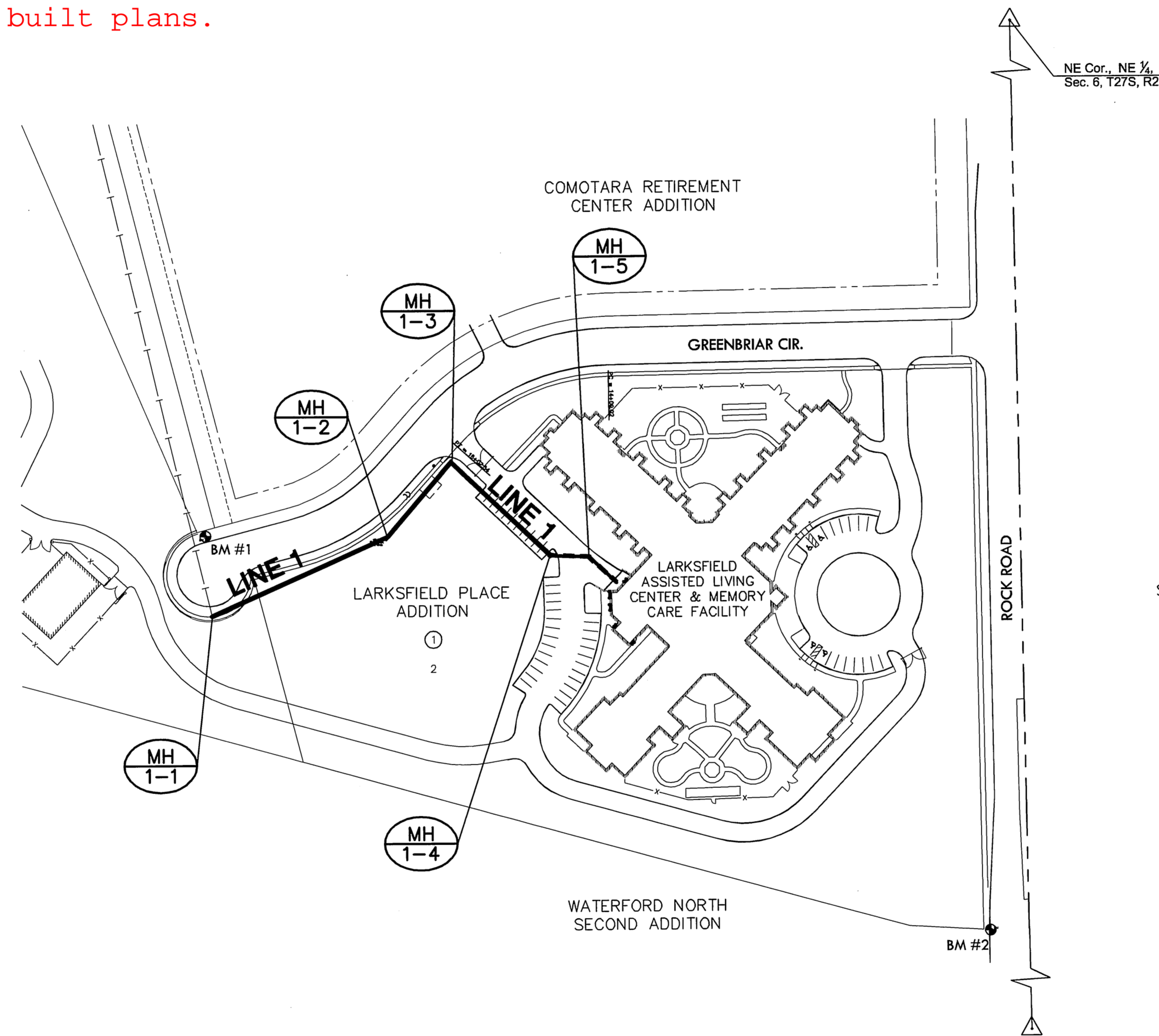
**CITY OF WICHITA PRIVATE PROJECT
NO. 2059PPS (607861)**



VICINITY MAP

INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LINE 1
3	DETAILS



BENCHMARKS

- BM #1 - SQUARE CUT ON NORTHWEST CORNER OF STORM INLET NORTH SIDE OF CUL-DE-SAC ON GREENBRIAR CIRCLE. Elevation=1394.58 (NAVD 88)
- BM #2 - SQUARE CHISELED ON TOP OF CURB. Elevation=1408.91 (NAVD 88)

LEGEND

- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- - - PROPOSED PRIVATE SANITARY SEWER

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA,
BY WICHITA WATER & SEWER DEPARTMENT,
& BY WICHITA FIRE DEPARTMENT

Sanitary Sewer *Julianne Kollman 7-22-10*
(Public Works)

NOTE TO CONTRACTORS

Public Property.
Inspection and testing for the sanitary sewer line is to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita Standard Construction Engineering Practices and certified by a Professional Engineer licensed in the state of Kansas. No work shall be performed in dedicated easements or public rights-of-way by the Contractor without such inspection, nor shall any work be commenced without written authorization by the City Engineer. All construction and materials shall comply with the City of Wichita Specifications and Standards (on file and available in the City Engineer's Office).

MKEC
ENGINEERING
CONSULTANTS, INC.

411 N. WEBB ROAD
WICHITA, K.S. 67206
316-684-9600

GENE RATH
REGISTERED
PROFESSIONAL ENGINEER
7683
7-22-10
KANSAS

**PRIVATE SANITARY SEWER PLANS FOR
LARKSFIELD EAST
LARKSFIELD PLACE ADDITION, WICHITA, KS**

TITLE SHEET
SHEET TITLE
10043
PROJECT NUMBER

DACR / DACR / MAB
DESIGNED DRAWN CHECKED

ISSUED
July 2010
REVISED

SHEET NO.
1 of 3

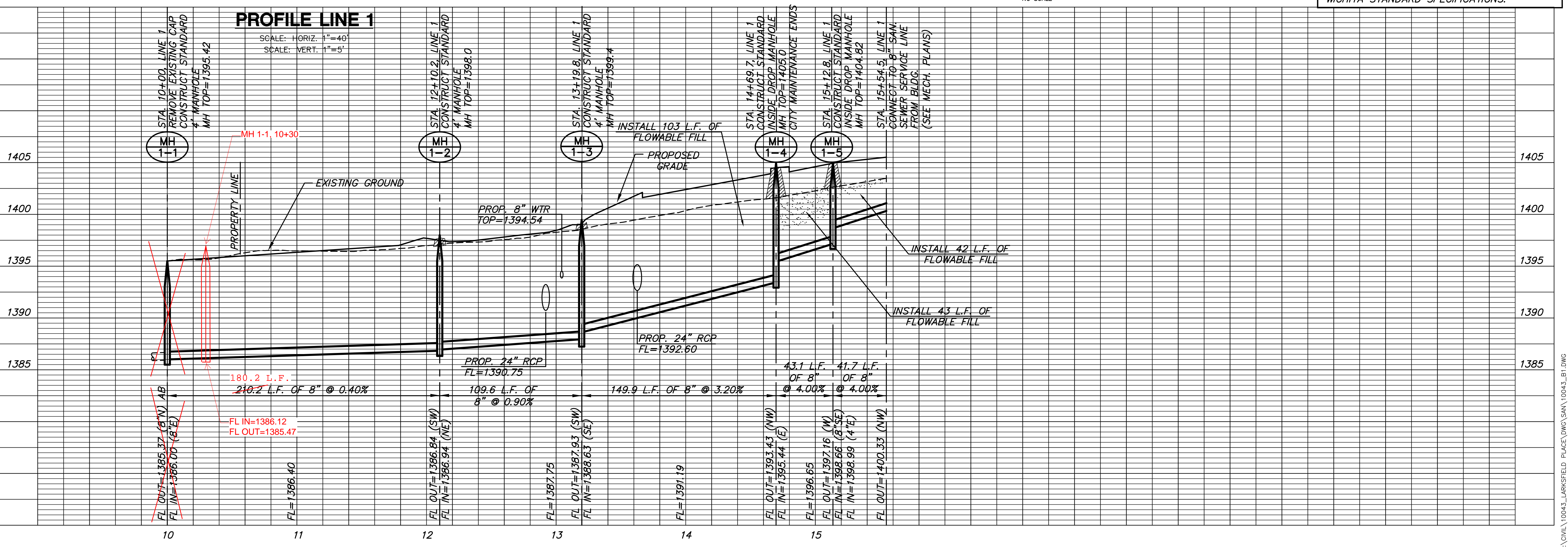
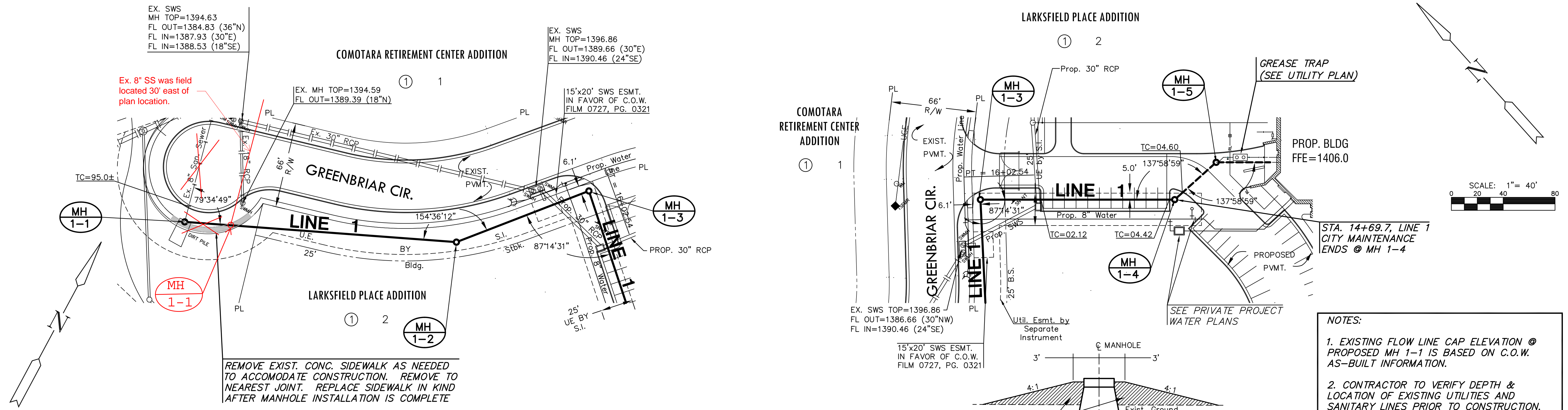
PRIVATE SANITARY SEWER PLANS FOR
LARKSFIELD EAST
LARKSFIELD PLACE ADDITION, WICHITA, KS

PLAN & PROFILE
LINE 1
SHEET TITLE
10043
PROJECT NUMBER

DESIGN BY: DACR
DRAWN BY: DACR
CHECKED BY: MAB

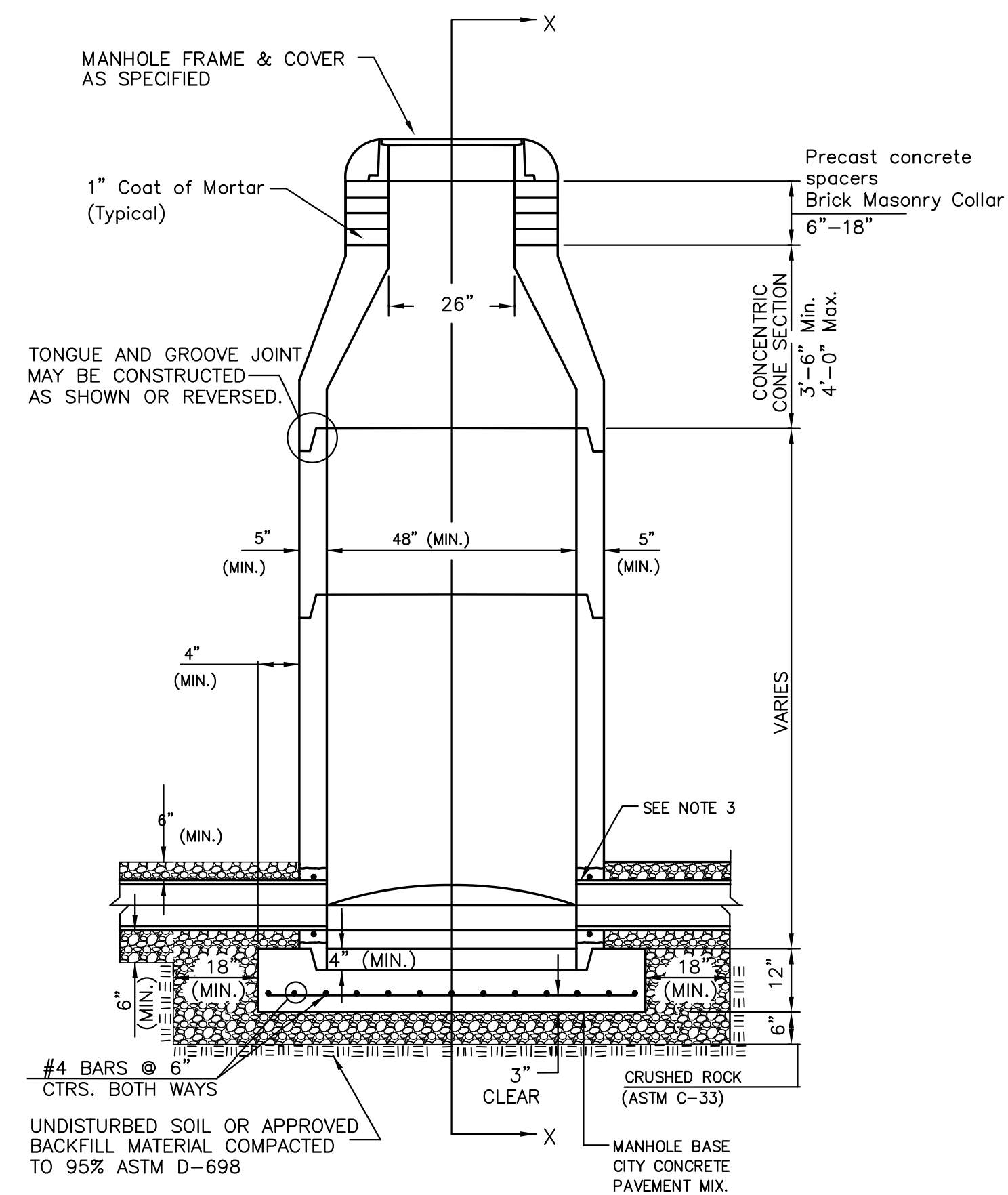
ISSUED: July 2010
REVISED:

SHEET NO.
2 of 3

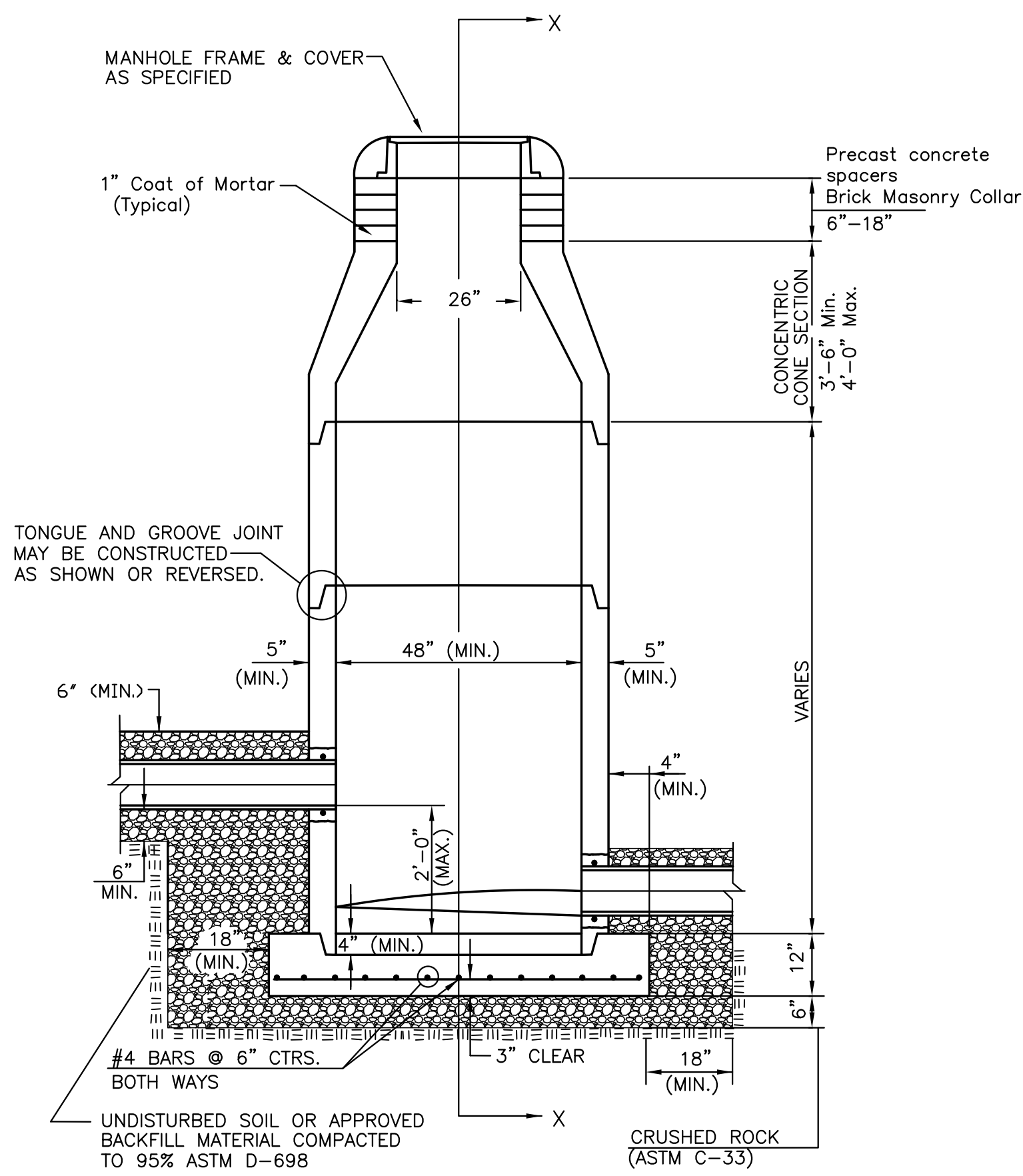


SEWER APPURTENANCES DETAILS

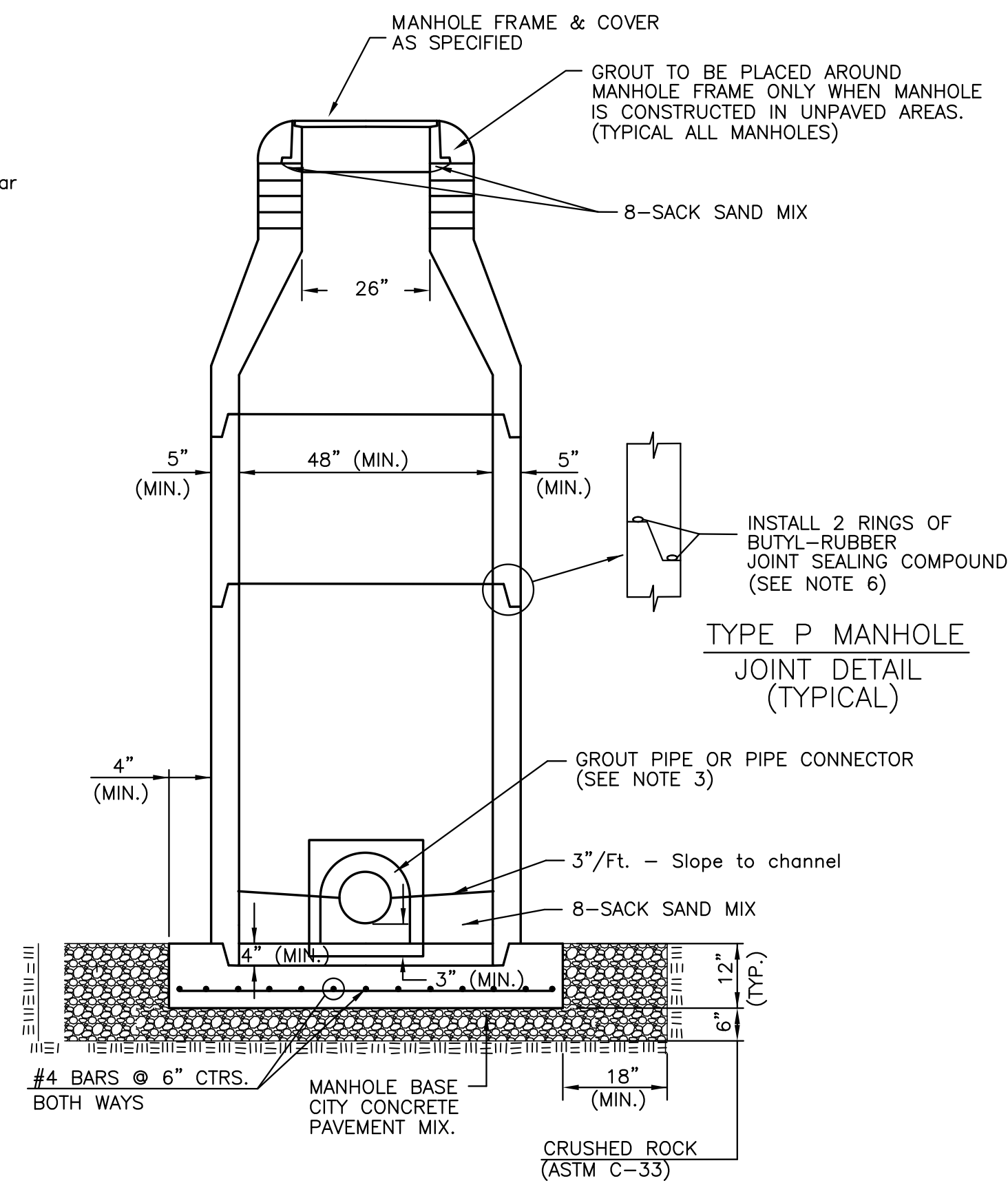
ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA, KS AUGUST 2007



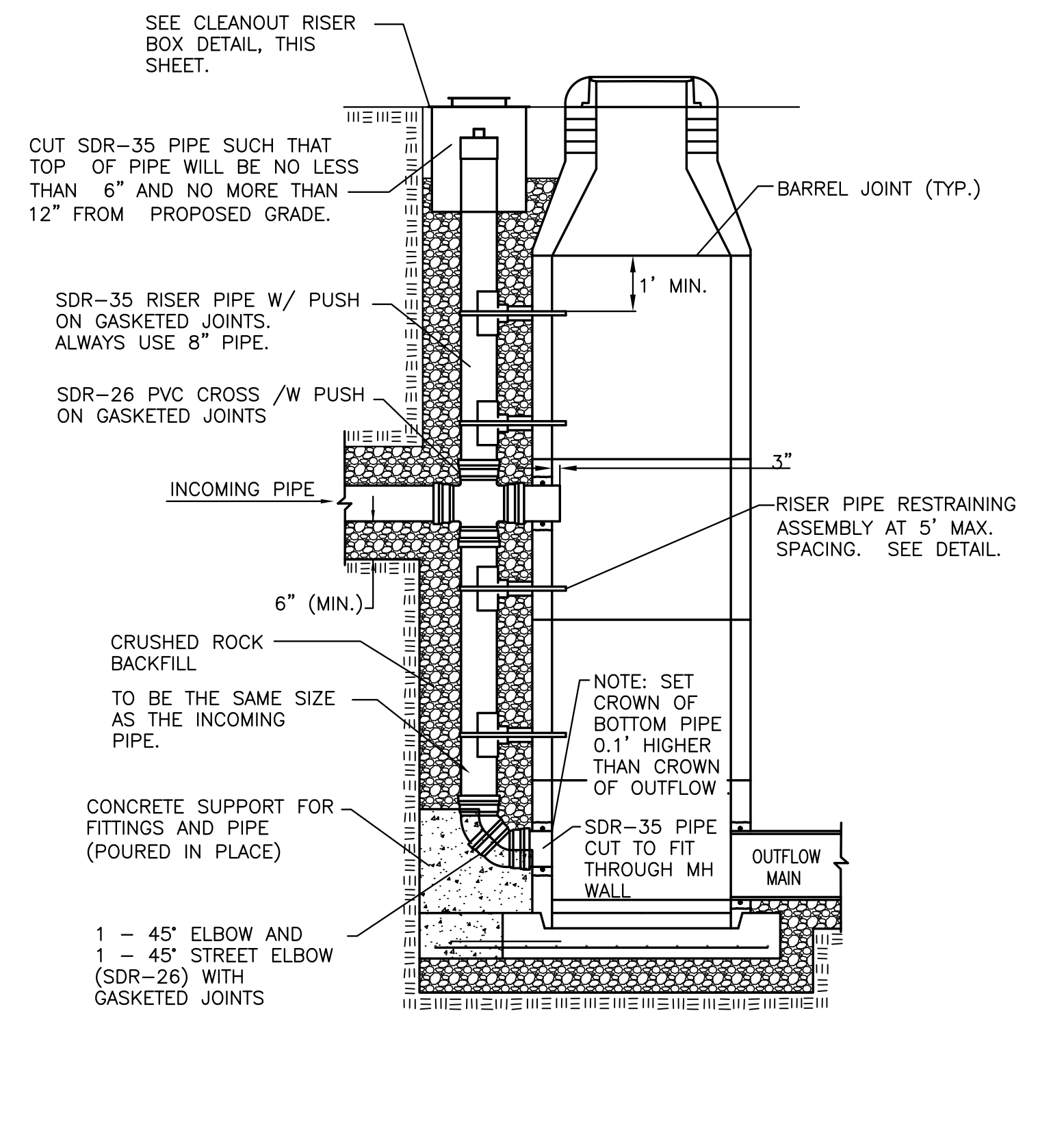
**TYPE P
STANDARD MANHOLE**
Not to Scale



**TYPE P
INSIDE DROP MANHOLE**
Not to Scale



**SECTION X
(TYPICAL)**
Not to Scale

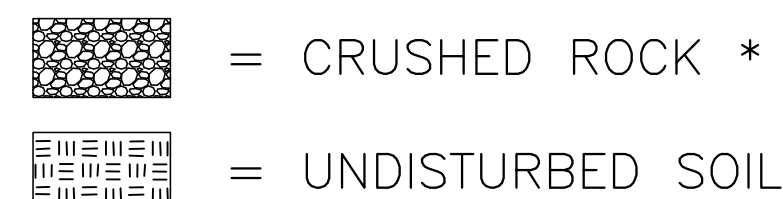


**TYPE P
OUTSIDE DROP MANHOLE**
Not to Scale

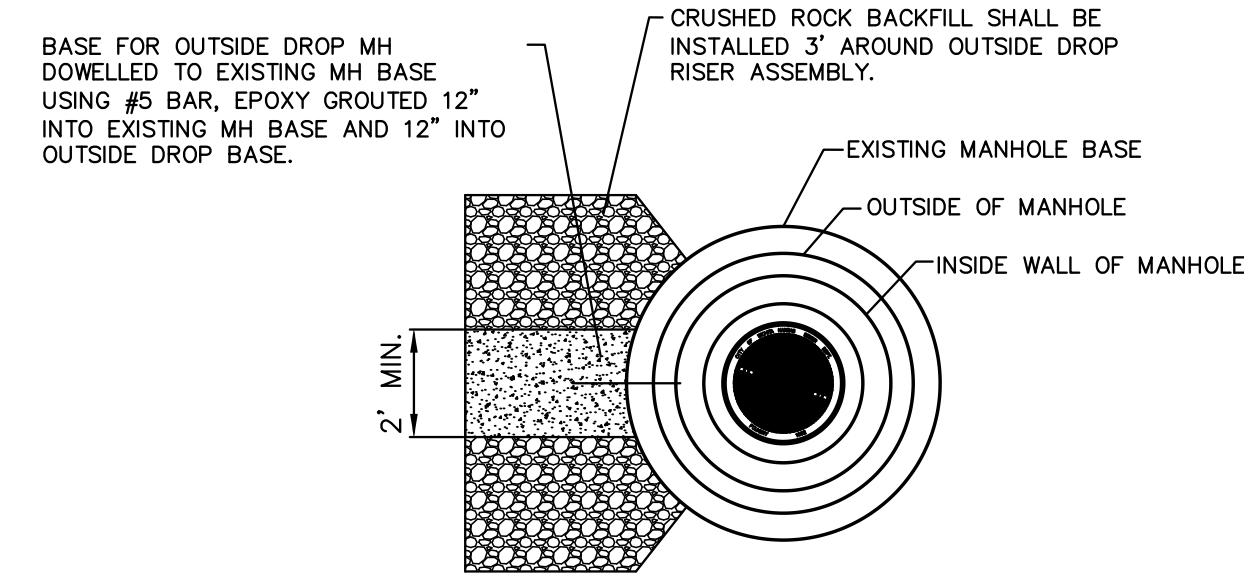
- PRECAST MANHOLE GENERAL NOTES
- ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
 - NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
 - APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUDED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CRUSHED ROCK A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
 - ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
 - EXTERIOR MANHOLE WALLS SHALL BE COATED PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
 - JOINT SEALING COMPOUND SHALL BE PER 804.4 OF STANDARD SPECIFICATIONS.
 - PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
 - 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.
 - LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
 - 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. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
 - REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED 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.
 - WALL THICKNESS SHALL BE 1" GREATER THAN MANHOLE DIAMETER IN FEET.

- OPENINGS SHALL BE CORE DRILLED INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS DRILLED INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUDED THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. PIPE. THE NEW PIPE SHALL BE GROUDED 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 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.
- 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 HEAT 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.
- 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.
- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' REGARDLESS OF PIPE SIZE. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- 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.
- 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 PLACED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.
- THE FULL DIAMETER OF THE MANHOLE SHALL EXTEND THE ENTIRE DEPTH OF THE MANHOLE TO THE CONE SECTION. NO REDUCTION IN MANHOLE DIAMETER WILL BE ALLOWED.
- REFER TO PLANS FOR SIZE OF OUTSIDE DROP RISER, SADDLES AND CROSS.

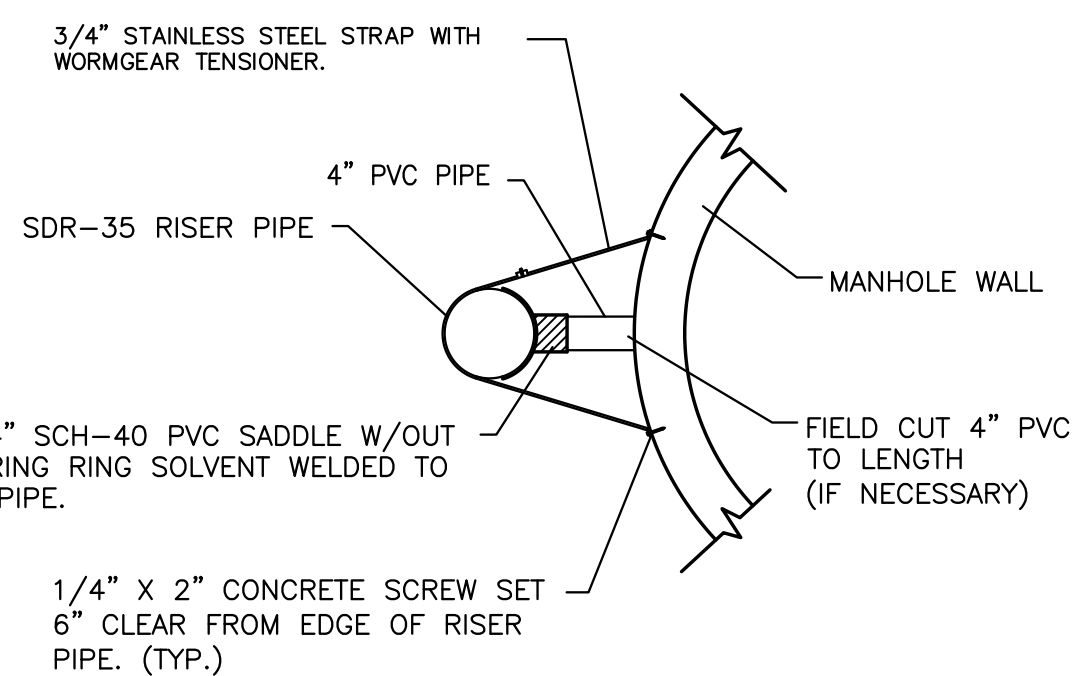
- FRAMES AND CHIMNEYS OF ALL MANHOLES CONSTRUCTED IN A FLOODWAY OR UNDER A PAVED SURFACE SHALL BE SEALED WITH AN EXTERNAL CHIMNEY SEAL, AS MANUFACTURED BY GRETEX SPECIALTY PRODUCTS, OR PRE-APPROVED EQUAL. THE CHIMNEY SEAL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND CONSIST OF A FLEXIBLE EXTERNAL RUBBER SLEEVE, INTERLOCKING EXTENSIONS AND STAINLESS STEEL COMPRESSION BANDS, DESIGNED TO REMAIN FLEXIBLE THROUGHOUT A 25-YEAR LIFE, ALLOWING REPEATED VERTICAL MOVEMENT OF THE FRAME OF NOT LESS THAN 2 INCHES AND/OR REPEATED HORIZONTAL MOVEMENT OF NOT LESS THAN 1/2 INCH. WITH A SLEEVE PORTION THAT IS CORRUGATED WITH A MINIMUM UNEXPANDED VERTICAL HEIGHT OF EITHER 6 INCHES OR 9 INCHES AND CAPABLE OF BEING MECHANICALLY LOCKED TO THE MANHOLE FRAME, WITH A MINIMUM THICKNESS OF 3/16 INCHES MADE FROM A HIGH QUALITY RUBBER COMPOUND CONFORMING TO THE APPLICABLE REQUIREMENTS OF ASTM C-923, WITH A MINIMUM OF 1500 PSI TENSILE STRENGTH, A MAXIMUM 18% COMPRESSION SET AND A HARDNESS (DUROMETER) OF 49-5, WITH BANDS INTEGRALLY FORMED FROM 16 GAUGE STAINLESS STEEL CONFORMING TO ASTM A-240, TYPE 304, WITH NO WELDED ATTACHMENTS AND WITH A MINIMUM ADJUSTMENT RANGE OF 2 DIAMETER INCHES. USING SCREWS, BOLTS AND NUTS OF STAINLESS STEEL CONFORMING TO ASTM F-593 AND 594, TYPE 304.
- ALL MANHOLE SECTION JOINTS THAT WILL BE IN GROUNDWATER SHALL BE WRAPPED WITH AN EXTERNAL JOINT SEAL, GRETEXWRAP EXTERNAL JOINT SEAL, OR PRE-APPROVED EQUAL. EXTERNAL JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM C-877 TYPE II, AND HAVE PASSED THE ASTM C-1244 TEST. EXTERNAL JOINT SEAL SHALL CONSIST OF A COLLAR 9" TO 18" WIDE WITH AN OUTER LAYER OF POLYETHYLENE WITH A MINIMUM TENSILE STRENGTH OF 4,000 PSI AND A MINIMUM TEAR RESISTANCE OF 1500 PSI, AND AN UNDER LAYER OF RUBBERIZED MASTIC REINFORCED WITH WOVEN POLYPROPYLENE FABRIC, WITH TWO 5/8" STEEL STRIPS LOCATED WITHIN THE COLLAR 3/4" FROM EACH EDGE AND CONFINED IN TUBES THAT ISOLATE THEM FROM THE MASTIC AND ALLOW THEM TO SLIP FREELY WHEN MECHANICALLY TIGHTENED AND LOCKED AROUND THE MANHOLE JOINT, AND FURNISHED WITH A MINIMUM OF 6" OVERLAP AND A CLOSING FLAP TO COVER ANY REMAINING EXPOSED STRAP.



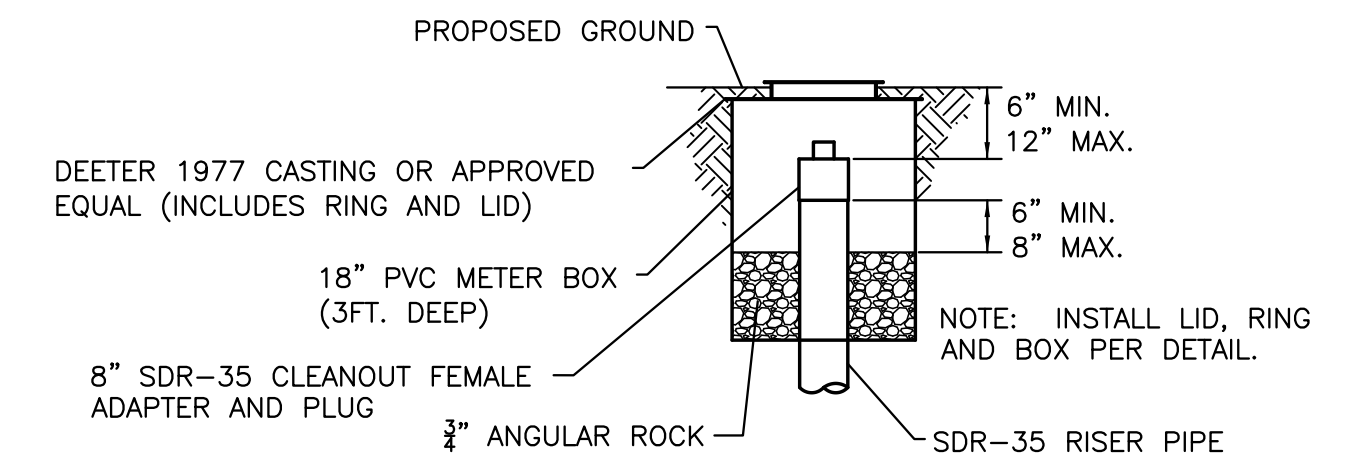
* CRUSHED ROCK USED FOR ENCASUREMENT AND BEDDING SHALL CONFORM TO ASTM C-33, GRADATION NO. 67, AND SHALL MEET ALL REQUIREMENTS FOR PORTLAND CEMENT CONCRETE PAVEMENT COARSE AGGREGATE, SECTION 406.2, CITY OF WICHITA STANDARD SPECIFICATIONS. ALL CRUSHED ROCK FOR BEDDING AND ENCASUREMENT SHALL EXTEND TO THE LIMITS OF THE MANHOLE EXCAVATION.



MH BASE DETAIL
Not to Scale



SUPPORT/SPACER DETAIL
Not to Scale



CLEAN-OUT RISER BOX DETAIL
Not to Scale

J:\CIVIL\1004-3_LARKSFIELD_PLACE.DWG(SAN)\1004-3_BD1.DWG
J:\CIVIL\1004-3_LARKSFIELD_PLACE.DWG(SAN)\1004-3_BD1.DWG

STANDARD TYPE "P" MANHOLE DETAILS	
JAMES L. ARMOUR, P.E. - CITY ENGINEER	
PROJECT NUMBER 10043	INDEX CODE 607861
DATE May 10	
Sheet 3 of 3	