

# PRIVATE SANITARY SEWER EXTENSION

## TO SERVE WICHITA MID-CONTINENT AIRPORT

PRIVATE PROJECT NO. 2025 PPS (607861)

## CITY OF WICHITA, KANSAS

JAMES L. ARMOUR, P.E. - CITY ENGINEER

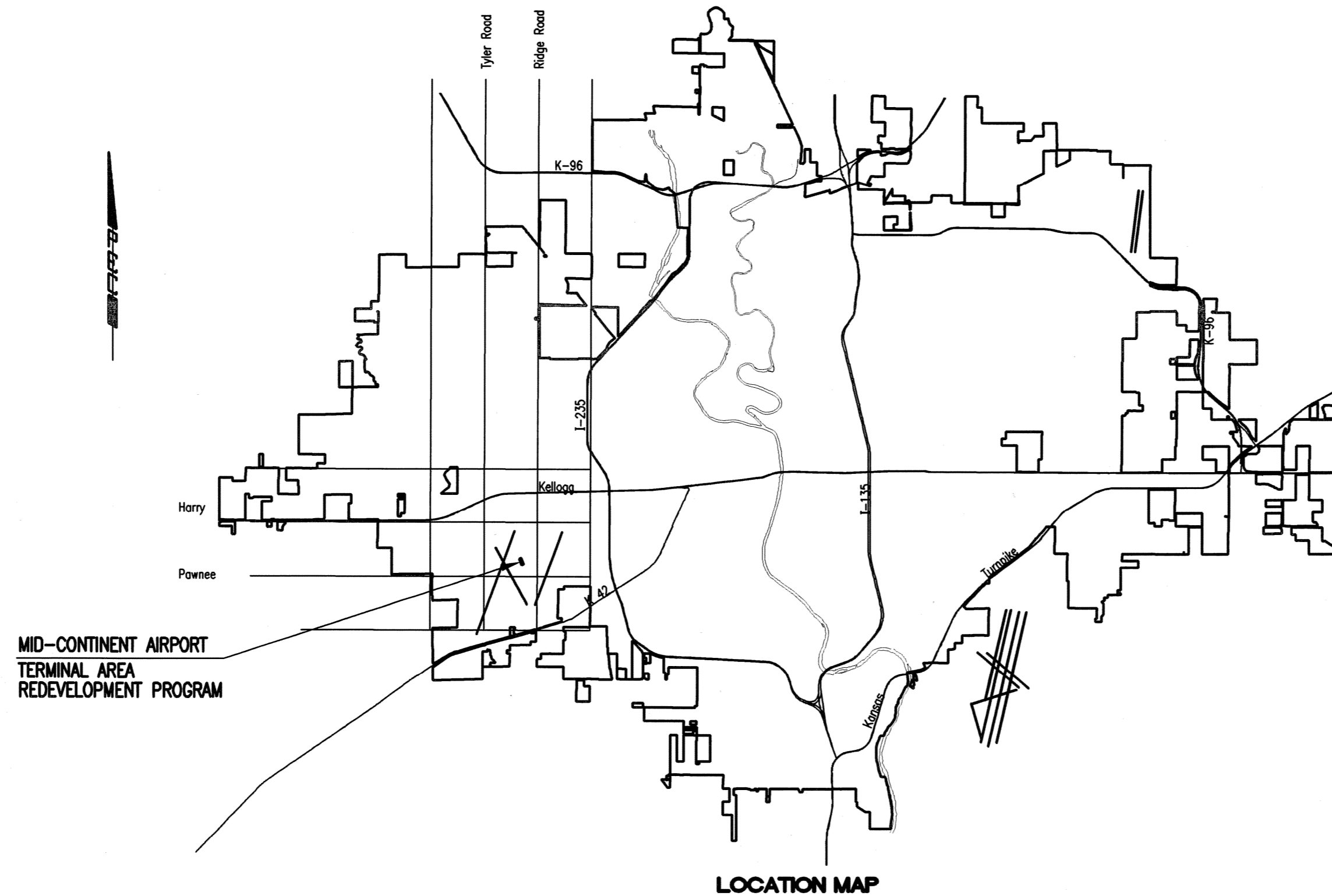
### AS BUILT PLANS

Contractor: Utilities Plus  
Inspector: Fred Smith, Baughman Co.  
pdf's by: KEK, 3/1/13

T. Mason - City of Wichita, Inspector  
Release Date: 04/25/2013  
APRosas 04/25/2013

**INDEX OF SHEETS**

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APPROVED AS NOTED  
By CITY ENGINEER OF WICHITA

Sanitary Sewers *Julianne Bellman 3-9-10*

Storm Sewers \_\_\_\_\_

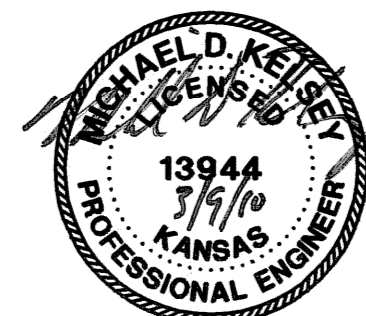
Driveway Approaches \_\_\_\_\_

Paving \_\_\_\_\_

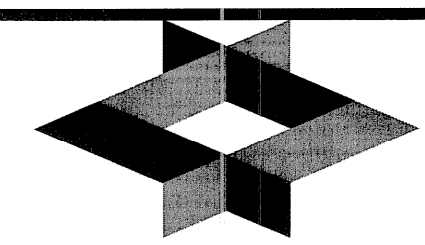
**NOTE TO CONTRACTOR**

INSPECTION AND TESTING FOR THIS PROJECT IS TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM CONTRACTED BY THE OWNER/DEVELOPER. SAID INSPECTION TO BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD CONSTRUCTION ENGINEERING PRACTICES AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. NO WORK SHALL BE PERFORMED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY BY THE CONTRACTOR UNTIL SUCH INSPECTION IS ARRANGED FOR AND REQUIRED BONDS HAVE BEEN SUBMITTED TO AND APPROVED BY THE CITY NOR SHALL ANY WORK BE COMMENCED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY WITHOUT WRITTEN AUTHORIZATION BY THE CITY ENGINEER. IMPROVEMENTS PERFORMED UNDER THIS PROJECT SHALL NOT BE ACCEPTED BY THE CITY UNTIL ALL APPLICABLE DOCUMENTATION HAS BEEN SUBMITTED TO THE CITY ENGINEER. THIS MAY INCLUDE: RECORD DRAWINGS, INSPECTION LOGS, TEST DOCUMENTATION, TV TAPES, AND A CERTIFICATE OF COMPLETION. THE ABOVE SHALL BE PERFORMED BY THE CONSULTING FIRM CONTRACTED TO INSPECT THIS PROJECT.

**MARCH 2010**  
PLANS PREPARED BY  
**PROFESSIONAL ENGINEERING CONSULTANTS, P.A.**  
ENGINEERS  
WICHITA, KANSAS



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**WICHITA**  
**MID-CONTINENT AIRPORT**  
Air Capital Terminal 3  
PACKAGE #12  
TERMINAL BUILDING

ISSUE: PERMIT / BID  
CONSTRUCTION DOCUMENTS

DATE: MARCH 26, 2010  
HNTB PROJECT NO.: 34912  
CLIENT PROJECT NO.: 06178

CHECKED BY: \_\_\_\_\_

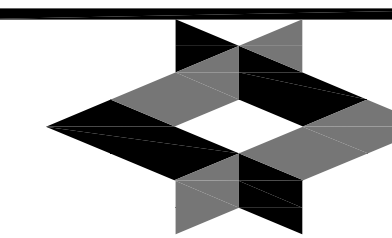
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SANITARY SEWER  
TITLE SHEET

**CU200**

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ISSUE: PERMIT / BID  
CONSTRUCTION DOCUMENTS

DATE: MARCH 26, 2010  
HNTB PROJECT NO.: 34912  
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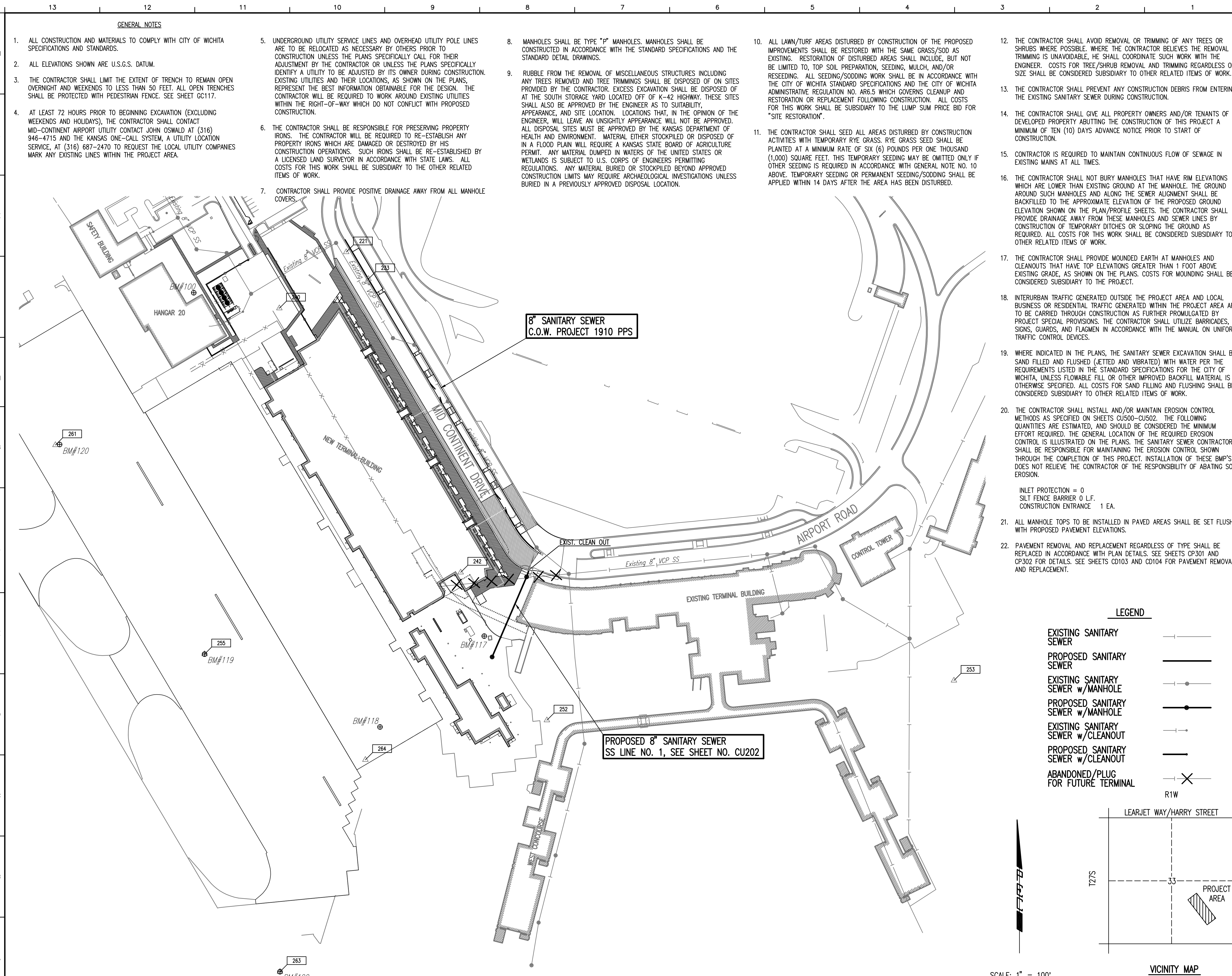
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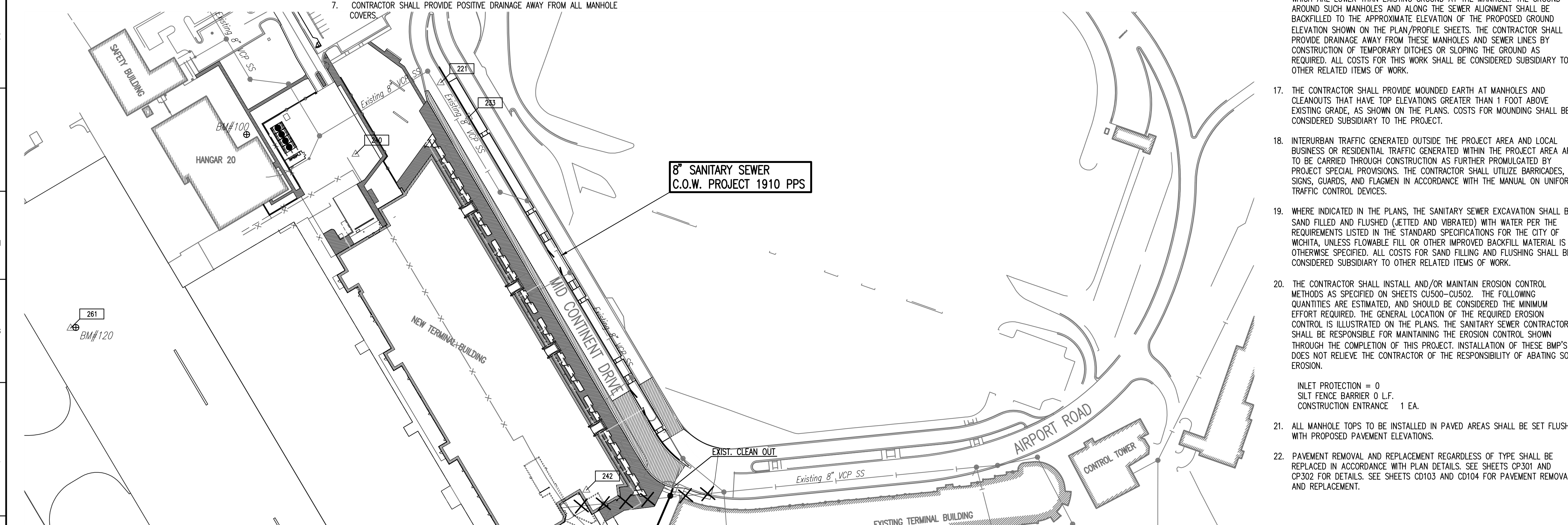
**SANITARY SEWER KEY MAP AND GENERAL NOTES**

**CU201**



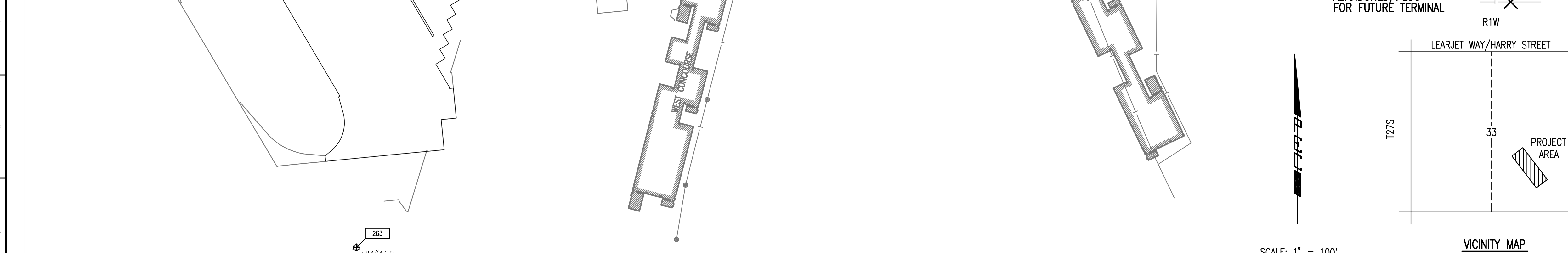
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- GENERAL NOTES**
- ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
  - ALL ELEVATIONS SHOWN ARE U.S.G.S. DATUM.
  - THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET. ALL OPEN TRENCHES SHALL BE PROTECTED WITH PEDESTRIAN FENCE. SEE SHEET GC117.
  - AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT MID-CONTINENT AIRPORT UTILITY CONTACT JOHN OSWALD AT (316) 946-4715 AND THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 687-2470 TO REQUEST THE LOCAL UTILITY COMPANIES MARK ANY EXISTING LINES WITHIN THE PROJECT AREA.
  - UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE RELOCATED 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 LOCATIONS, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR THE DESIGN. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
  - 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. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE OTHER RELATED ITEMS OF WORK.
  - CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
  - MANHOLES SHALL BE TYPE "F" MANHOLES. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.
  - RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED AND TREE TRIMMINGS SHALL BE DISPOSED OF ON SITES PROVIDED BY THE CONTRACTOR. EXCESS EXCAVATION SHALL BE DISPOSED OF AT THE SOUTH STORAGE YARD LOCATED OFF OF K-42 HIGHWAY. THESE SITES SHALL ALSO 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 WILL 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 MAY REQUIRE ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED DISPOSAL LOCATION.
  - ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE RESTORED WITH THE SAME GRASS/SOD AS EXISTING. RESTORATION OF DISTURBED AREAS SHALL INCLUDE, BUT NOT BE LIMITED TO, TOP SOIL PREPARATION, SEEDING, MULCH, AND/OR RESEEDING. ALL SEEDING/SODDING WORK SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD SPECIFICATIONS AND THE CITY OF WICHITA ADMINISTRATIVE REGULATION NO. AR6.5 WHICH GOVERNS CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".
  - THE CONTRACTOR SHALL SEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WITH TEMPORARY RYE GRASS. RYE GRASS SEED SHALL BE PLANTED AT A MINIMUM RATE OF SIX (6) POUNDS PER ONE THOUSAND (1000) SQUARE FEET. THIS TEMPORARY SEEDING MAY BE OMITTED ONLY IF OTHER SEEDING IS REQUIRED IN ACCORDANCE WITH GENERAL NOTE NO. 10 ABOVE. TEMPORARY SEEDING OR PERMANENT SEEDING/SODDING SHALL BE APPLIED WITHIN 14 DAYS AFTER THE AREA HAS BEEN DISTURBED.
  - THE CONTRACTOR SHALL AVOID REMOVAL OR TRIMMING OF ANY TREES OR SHRUBS WHERE POSSIBLE. WHERE THE CONTRACTOR BELIEVES THE REMOVAL OR TRIMMING IS UNAVOIDABLE, HE SHALL COORDINATE SUCH WORK WITH THE ENGINEER. COSTS FOR TREE/SHRUB REMOVAL AND TRIMMING REGARDLESS OF SIZE SHALL BE CONSIDERED SUBSIDIARY TO OTHER RELATED ITEMS OF WORK.
  - THE CONTRACTOR SHALL PREVENT ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION.
  - THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ADJUTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.
  - CONTRACTOR IS REQUIRED TO MAINTAIN CONTINUOUS FLOW OF SEWAGE IN EXISTING MAINS AT ALL TIMES.
  - THE CONTRACTOR SHALL NOT BURY MANHOLES THAT HAVE RIM ELEVATIONS WHICH ARE LOWER THAN EXISTING GROUND AT THE MANHOLE. THE GROUND AROUND SUCH MANHOLES AND ALONG THE SEWER ALIGNMENT SHALL BE BACKFILLED TO THE APPROXIMATE ELEVATION OF THE PROPOSED GROUND ELEVATION SHOWN ON THE PLAN/PROFILE SHEETS. THE CONTRACTOR SHALL PROVIDE DRAINAGE AWAY FROM THESE MANHOLES AND SEWER LINES BY CONSTRUCTION OF TEMPORARY DITCHES OR SLOPING THE GROUND AS REQUIRED. ALL COSTS FOR THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO OTHER RELATED ITEMS OF WORK.
  - THE CONTRACTOR SHALL PROVIDE MOUNDED EARTH AT MANHOLES AND CLEANOUTS THAT HAVE TOP ELEVATIONS GREATER THAN 1 FOOT ABOVE EXISTING GRADE, AS SHOWN ON THE PLANS. COSTS FOR MOUNDING SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT.
  - 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 FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS. THE CONTRACTOR SHALL UTILIZE BARRICADES, SIGNS, GUARDS, AND FLAGMEN IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
  - WHERE INDICATED IN THE PLANS, THE SANITARY SEWER EXCAVATION SHALL BE SAND FILLED AND FLUSHED (JETTED AND VIBRATED) WITH WATER PER THE REQUIREMENTS LISTED IN THE STANDARD SPECIFICATIONS FOR THE CITY OF WICHITA, UNLESS FLOWABLE FILL OR OTHER IMPROVED BACKFILL MATERIAL IS OTHERWISE SPECIFIED. ALL COSTS FOR SAND FILLING AND FLUSHING SHALL BE CONSIDERED SUBSIDIARY TO OTHER RELATED ITEMS OF WORK.
  - THE CONTRACTOR SHALL INSTALL AND/OR MAINTAIN EROSION CONTROL METHODS AS SPECIFIED ON SHEETS CU500-CU502. THE FOLLOWING QUANTITIES ARE ESTIMATED, AND SHOULD BE CONSIDERED THE MINIMUM EFFORT REQUIRED. THE GENERAL LOCATION OF THE REQUIRED EROSION CONTROL IS ILLUSTRATED ON THE PLANS. THE SANITARY SEWER CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE EROSION CONTROL SHOWN THROUGH THE COMPLETION OF THIS PROJECT. INSTALLATION OF THESE BMP'S DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF ABATING SOIL EROSION.



- LEGEND**
- EXISTING SANITARY SEWER
  - PROPOSED SANITARY SEWER
  - EXISTING SANITARY SEWER w/MANHOLE
  - PROPOSED SANITARY SEWER w/MANHOLE
  - EXISTING SANITARY SEWER w/CLEANOUT
  - PROPOSED SANITARY SEWER w/CLEANOUT
  - ABANDONED/PLUG FOR FUTURE TERMINAL
- INLET PROTECTION = 0  
SILT FENCE BARRIER 0 L.F.  
CONSTRUCTION ENTRANCE 1 EA.
21. ALL MANHOLE TOPS TO BE INSTALLED IN PAVED AREAS SHALL BE SET FLUSH WITH PROPOSED PAVEMENT ELEVATIONS.
22. PAVEMENT REMOVAL AND REPLACEMENT REGARDLESS OF TYPE SHALL BE REPLACED IN ACCORDANCE WITH PLAN DETAILS. SEE SHEETS CP301 AND CP302 FOR DETAILS. SEE SHEETS CD103 AND CD104 FOR PAVEMENT REMOVAL AND REPLACEMENT.

SCALE: 1" = 100'



VICINITY MAP

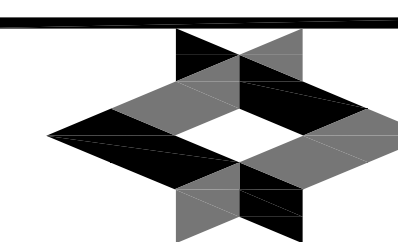
LEARJET WAY/HARRY STREET  
T2/S  
33  
PROJECT AREA

12/15/10

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PLOT SCALE 1:100 03-19-2010 8:22:12 AM BY N. CLAYTON LEWIS  
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ISSUE: PERMIT / BID  
CONSTRUCTION DOCUMENTS

DATE: MARCH 26, 2010  
HNTB PROJECT NO.: 34912  
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PROJECT  
HORIZONTAL AND  
VERTICAL CONTROL

**CU201A**

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CITY OF WICHITA PROJECT NO. 2025 PPS (607861)

TRANSFORMATION PROCEDURES FOR CONVERTING MCA TARP COORDINATES TO GEOGRAPHIC NAD83 LATITUDE AND LONGITUDE VALUES:  
THE DATA SET OF TARP COORDINATES TO BE TRANSFORMED SHOULD INCLUDE THE TARP VALUES FOR CP-270 AND CP-271 AND THE KANSAS STATE PLANE VALUES SOUTH ZONE (1502) FOR ICT-G AND ICT-J IN THE DATA SET. THE TARP COORDINATES CAN THEN BE TRANSFORMED TO KANSAS STATE PLANE COORDINATES BY ROTATING THE TARP DATA SET COUNTERCLOCKWISE BY (- 00°01'07.54") AND SCALING DOWN THE DATA SET BY A COMBINED ADJUSTMENT FACTOR OF 0.999887994 TO REFLECT KANSAS STATE PLANE GRID COORDINATES, U.S. SURVEY FOOT DEFINITION. THE RESULTANT KANSAS STATE PLANE COORDINATES CAN THEN BE CONVERTED TO GEOGRAPHIC NAD83 LATITUDE AND LONGITUDE VALUES BY USING THE NGS TRANSFORMATION PROGRAM "CORPSCON."

TARP BENCHMARKS		
LAND-SIDE AREA MID-CONTINENT AIRPORT - WICHITA, KANSAS		
TARP VERTICAL DATUM IS BASED ON NGVD-29 (NATIONAL GEODETIC VERTICAL DATUM OF 1929)		
DATUM BENCHMARK: ELEV. 1324.835 BM-19		
NGS BENCHMARK		
DESIGNATION: ARP RESET 1984		
PID: HF1496		
BRASS DISC SET IN THE NORTHEAST CORNER OF CURB INLET, NORTH OF THE WEST END OF THE TERMINAL BUILDING, IN A GRASSY AREA BETWEEN THE SHORT TERM PARKING LOT AND THE TAXI-CAB DRIVE, ABOUT MIDWAY THROUGH A CURVE IN THE TAXI-CAB DRIVE, 251.15 FT. NORTHEAST FROM THE NORTHEAST CORNER OF THE AIRLINE MAINTENANCE BUILDING, 147.41 FT. NORTHWEST OF THE NORTHWEST CORNER OF THE OLDER PART OF THE TERMINAL BUILDING, 15.49 FT. NORTHEAST FROM THE CENTERLINE OF THE TAXI-CAB DRIVE.		
BM #	ELEVATION	DESCRIPTION
BM-100:	1325.18	CHISELED SQUARE ON NE. CORNER ELECTRICAL TRANSFORMER CONCRETE PAD, ON E. SIDE OF BUILDING # 2203 AIR CARGO RD.
BM-117:	1326.01	CHISELED SQUARE ON TOP OF CURB LOCATED 30' SW. OF W. SIDE OF SECURITY GATE "C".
BM-118	1322.33	CHISELED SQUARE ON NE. CORNER OF ELECTRICAL VAULT LOCATED 120' SW. OF SE. CORNER OF TANK STORAGE AREA.
BM-119	1322.02	CHISELED SQUARE ON EDGE OF CONCRETE JOINT INTERSECTION IN SE. CORNER OF AIR CRAFT PARKING AREA. 300± S. OF U.S. CUSTOMS BUILDING.
BM-120	1322.10	CHISELED SQUARE ON TOP OF CURB INLET CENTER NE. FACE. 310' SW. OF WESTERLY CORNER OF AIR CARGO BUILDING ON THE SW. SIDE OF CONCRETE ROADWAY.
BM-122	1317.49	BRASS DISC ON W. END OF 23' x 7' CONCRETE STORM WATER INLET LOCATED IN GRASS AREA, N. OF TAXIWAY "C", SE. OF TAXIWAY C-1, W. OF AIRCRAFT RAMP AND 447' W. OF SW. CORNER OF THE W. CONCOURSE.

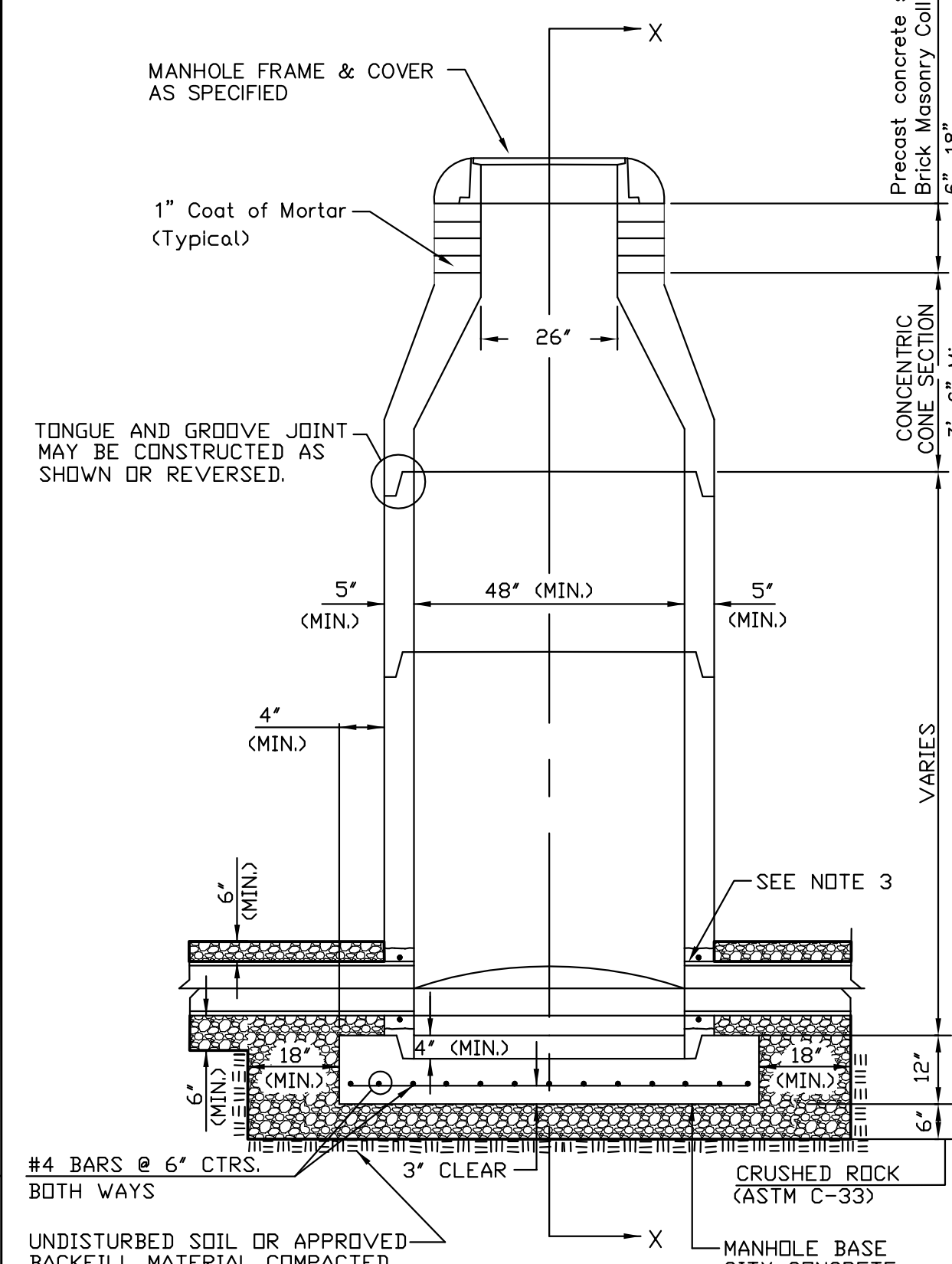
TARP HORIZONTAL CONTROL			
MID-CONTINENT AIRPORT - WICHITA, KANSAS			
TARP HORIZONTAL COORDINATES ARE BASED ON AN ASSUMED HORIZONTAL NETWORK UTILIZED BY MID-CONTINENT AIRPORT ENGINEERING CIRCA 1970'S			
THE BASIS OF BEARING FOR THE MID-CONTINENT AIRPORT, TARP HORIZONTAL CONTROL SYSTEM, IS EXISTING MCA HCP POINT NUMBERS 16 AND 20. HCP-16 AND HCP-20 ARE 1/2" IRON PIPES SET IN 4" STEEL THIMBLES LOCATED ON THE CENTERLINE OF THE AIR CARGO SERVICE RD. THE RECORD HORIZONTAL COORDINATES OF HCP-16 WAS HELD FIXED, TOGETHER WITH THE RECORD AZIMUTH FROM HCP-16 TO HCP-20. NEW HORIZONTAL COORDINATES OF HCP-20 WERE ESTABLISHED USING A MEASURED DISTANCE OF 1460.95' AND A RECORD AZIMUTH OF 199°21'20". 2 HORIZONTAL TRAVERSES WERE PERFORMED (MIDDLE TRAVERSE & NORTH TRAVERSE). A COMPASS RULE ADJUSTMENT USING FIELD MEASURED ANGLES AND EDM DISTANCES WAS PERFORMED ON BOTH TRAVERSES YIELDING THE FOLLOWING CLOSURE COMPUTATIONS: MIDDLE TRAVERSE: TRAVERSE LENGTH = 7,275.711 FT, HORIZONTAL ERROR = 0.087 FT, RATIO OF PRECISION = 1/ 66,953 NORTH TRAVERSE: TRAVERSE LENGTH = 8,195.883 FT, HORIZONTAL ERROR = 0.043 FT, RATIO OF PRECISION = 1/158,363 SOUTH TRAVERSE: TRAVERSE LENGTH = 2,747.241 FT, HORIZONTAL ERROR = 0.129 FT, RATIO OF PRECISION = 1/21,380			
POINT #	NORTHING	EASTING	DESCRIPTION
CP-221	11648.1280	9749.3050	1/2" IRON PIPE MCA HCP-21 - FOUND PER MCA AIRPORT TIES (TERMINAL LOOP PI STA. 115+61.82) 6.92' W. TO CENTER OF MONITORING WELL LID 9.32' S. TO BACK OF CURB OF CONNECTING ROAD - TERMINAL LOOP TO AIR CARGO RD.
CP-233	11591.6150	9796.1850	1/2" IRON PIPE MCA HCP-33 - FOUND PER MCA AIRPORT TIES (PARKING LOT BASELINE STA 9+15) 13.40' NE. TO CENTER OF LID ON CURB INLET 20.75 NW. TO SE. BOLT ON PARKING LOT LIGHT BASE #89
CP-240	11529.8370	9608.3990	3/4" IRON PIPE WITH PEC CAP - SET 0.65' E. TO BACK OF CURB AIR CARGO RD. 7.0' NW. TO SOUTHERLY LINE BUILDING 2203 AIR CARGO RD. EXTEND. 14.38' W. TO NE. CORNER PARKING LOT BACK OF CURB
CP-242	10973.6310	9990.2650	3/4" IRON PIPE WITH PEC CAP - SET 157.18' W. OF W. END EXISTING TERMINAL BUILDING 25.40' E. TO FIRE HYDRANT 1.95' S. TO BACK OF CURB
CP-252	10662.2963	10171.7553	6" CHISELED "+" ON CONCRETE PAVEMENT - SET 13.22' NE. TO 3" CHISELED "+" 58.90' SSE. TO W. END CENTERLINE OF 14"x18" SLOTTED DRAIN 112.40' SSE. TO CENTER OF THE S. END OF THE E. RETAINING WALL OF BASEMENT DRIVE ENTRANCE
CP-253	10745.9462	11028.9558	6" CHISELED "+" ON CONCRETE PAVEMENT 200'+/- E. OF GATE #2 300'+/- S. OF CONTROL TOWER
CP-255	10801.5075	9450.9384	60d NAIL IN CONCRETE JOINT - SET 300'+/- S. OF U.S. CUSTOMS OFFICE IN SE. CORNER OF ASPHALT AIR CRAFT PARKING AREA
CP-261	11241.8937	9136.9489	1/2" BAR - SET AT NW. CORNER OF AIR CRAFT PARKING AREA 310' SW. OF WESTERLY CORNER OF AIR CARGO BUILDING 5' SW. OF W. CORNER OF CURB INLET
CP-263	10132.6918	9609.7302	CENTER PUNCH MARK ON BRASS DISC ON THE W. END OF 23'x7' CONCRETE STORM DRAIN BOX 447' W. OF SW. CORNER OF THE W. CONCOURSE 100' N. OF N. EDGE OF TAXIWAY "C" 71' SE. OF S. EDGE TAXIWAY "C-1"
CP-264	10579.0484	9789.6305	1/2" BAR - SET 264' S. OF SW. CORNER OF LANDSCAPE BUILDING 361' W. OF NW. CORNER OF W. CONCOURSE 5' W. OF NW. CORNER OF A 5'x5' ELECTRICAL VAULT 22.7' W. OF W. EDGE OF CONCRETE AIRCRAFT RAMP
CP-270	12125.5340 (NOT SHOWN)	7816.5650	ICT-G NGS SECONDARY AIRPORT CONTROL STATION PID AJ8087 FIRST ORDER HORIZONTAL ORDER NAD 83 LATITUDE 37° 39' 22.64036"N LONGITUDE 097° 26' 16.61042"W SPC KS S NORTH: 1674427.39 EAST: 1619778.04 STATION DESCRIPTION: DESCRIBED BY MOUNTAIN SURVEYING AND MAPPING INC 2001 (KCH) THE STATION IS LOCATED ABOUT (5.5 MI) SOUTHWEST OF WICHITA, KANSAS, AT THE MID-CONTINENT AIRPORT. IT IS IN THE NORTHWEST AREA ON THE AIRPORT, NORTHEAST OF RUNWAY 14-32, SOUTHWEST OF TAXIWAY C AND NORTHWEST OF RUNWAY 1L-19R. THIS IS A CONTROLLED AIRPORT. AN ESCORT IS REQUIRED FOR ACCESS TO THIS STATION. PERMISSION TO USE THIS STATION MUST BE OBTAINED FROM THE DIRECTOR OF AIRPORT ENGINEERING AND PLANNING. CONTACT MR. JOHN OSWALD 316-946-4715. OWNERSHIP-WICHITA AIRPORT AUTHORITY. TO REACH THE STATION FROM THE INTERCHANGE OF INTERSTATE HIGHWAY 235 (EXIT 5) AND STATE HIGHWAY 42 IN WICHITA, KANSAS GO SOUTHWEST ON STATE HIGHWAY 42 (SOUTHWEST BOULEVARD) FOR (2.1 MI) TO A DRIVE WAY ON THE RIGHT, TO THE AIRPORT MAINTENANCE AREA. TURN RIGHT, NORTH, (0.1 MI) TO THE MAINTENANCE YARD. KEEP RIGHT, GO NORTHEAST ON THE SOUTH YARD MAINTENANCE ROAD FOR (0.3 MI) TO THE FIRE PIT ROAD. TURN LEFT, WEST, GO WEST AND NORTHWESTERLY ON THE FIRE PIT ROAD FOR (0.9 MI) TO TAXIWAY D. TURN RIGHT, NORTHEAST ON TAXIWAY D FOR (0.6 MI) TO RUNWAY 32-14. CONTINUE NORTHEAST ON TAXIWAY D FOR (0.5 MI) TO TAXIWAY C. TURN LEFT, NORTHWEST, ON TAXIWAY C FOR (0.1 MI) TO RUNWAY 1L-19R. CONTINUE NORTHWEST ON TAXIWAY C FOR (295 FT) TO THE STATION ON YOUR LEFT. THE MARK IS A NGS BRASS HORIZONTAL CONTROL DISK SET IN THE TOP CENTER OF A CONCRETE POST FLUSH WITH THE GROUND. IT IS (160.8 FT) NORTHEAST OF THE CENTER OF THE NORTHEAST PAPI BASE ALONG RUNWAY 14-32, (160.8 FT) NORTH-NORTHEAST OF A CHISELED SQUARE IN THE NORTHERN MOST CORNER OF A CONCRETE PAD ADJACENT TO RUNWAY 14-32 AND (91.9 FT) NORTHWEST OF A SMALL WINDSOCK. THIS STATION IS DESIGNATED AS A SECONDARY AIRPORT CONTROL STATION (SACS).
CP-271	6994.7230 (NOT SHOWN)	10135.3640	ICT-J NGS PRIMARY AIRPORT CONTROL STATION PID DE8254 B HORIZONTAL ORDER NAD 83 LATITUDE 37° 38' 31.66702"N LONGITUDE 097° 25' 48.49046"W SPC KS S NORTH: 1669297.91 EAST: 1622098.26 STATION DESCRIPTION: DESCRIBED BY NATIONAL GEODETIC SURVEY 2002 (DJA) THE STATION IS LOCATED ABOUT 8.9 KM (5.5 MI) SOUTHWEST OF WICHITA, KANSAS, AT THE MID-CONTINENT AIRPORT. IT IS JUST SOUTH OF RUNWAY END 32 AND WEST OF A PERIMETER (MAINTENANCE) ROAD. THIS IS A CONTROLLED AIRPORT. PERMISSION TO USE THIS STATION MUST BE OBTAINED FROM THE DIRECTOR OF AIRPORT ENGINEERING AND PLANNING. CONTACT MR. JOHN OSWALD 316-946-4715. OWNERSHIP-WICHITA AIRPORT AUTHORITY. TO REACH THE STATION FROM THE INTERCHANGE OF INTERSTATE HIGHWAY 235(EXIT 5) AND STATE HIGHWAY 42 (SOUTHWEST BOULEVARD) GO FOR (2.1 MI) TO A DRIVEWAY ON THE RIGHT, TO THE AIRPORT MAINTENANCE AREA. TURN RIGHT, NORTH, (0.1 MI) TO THE MAINTENANCE YARD. KEEP RIGHT, GO NORTHEAST ON THE SOUTH YARD MAINTENANCE ROAD FOR (0.7 MI) TO TAXIWAY E1. TURN LEFT, WEST, AND CROSS RWY END 32 FOR (0.12 MI) TO THE STATION ON-LINE WITH THE EDGE OF RUNWAY END 32. THE STATION IS A PUNCH HOLE, TOP OF CENTER ON A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH OF (55.7 FT), ENCASED IN A (3.0 FT) LONG FINNED GREASED SLEEVE, ENCLOSED IN A PVC PIPE WITH LOGO LID, SURROUNDED BY A CONCRETE COLLAR FLUSH WITH THE GROUND. THE STATION IS (239.5 FT) SOUTHWEST OF THE SOUTHWEST CORNER OF RUNWAY END 32, (169.3 FT) WEST OF THE SOUTHWEST REIL 32, (32.8 FT) SOUTHWEST OF A TRACK ROAD THAT IS SOUTH OF RUNWAY END 32 AND RUNS PARALLEL WITH RUNWAY 32. THIS STATION IS DESIGNATED AS A PRIMARY AIRPORT CONTROL STATION (PACS).

Sheet 01 of 08 - 2010 3:55:37 PM by N. CLAYTON LEWIS  
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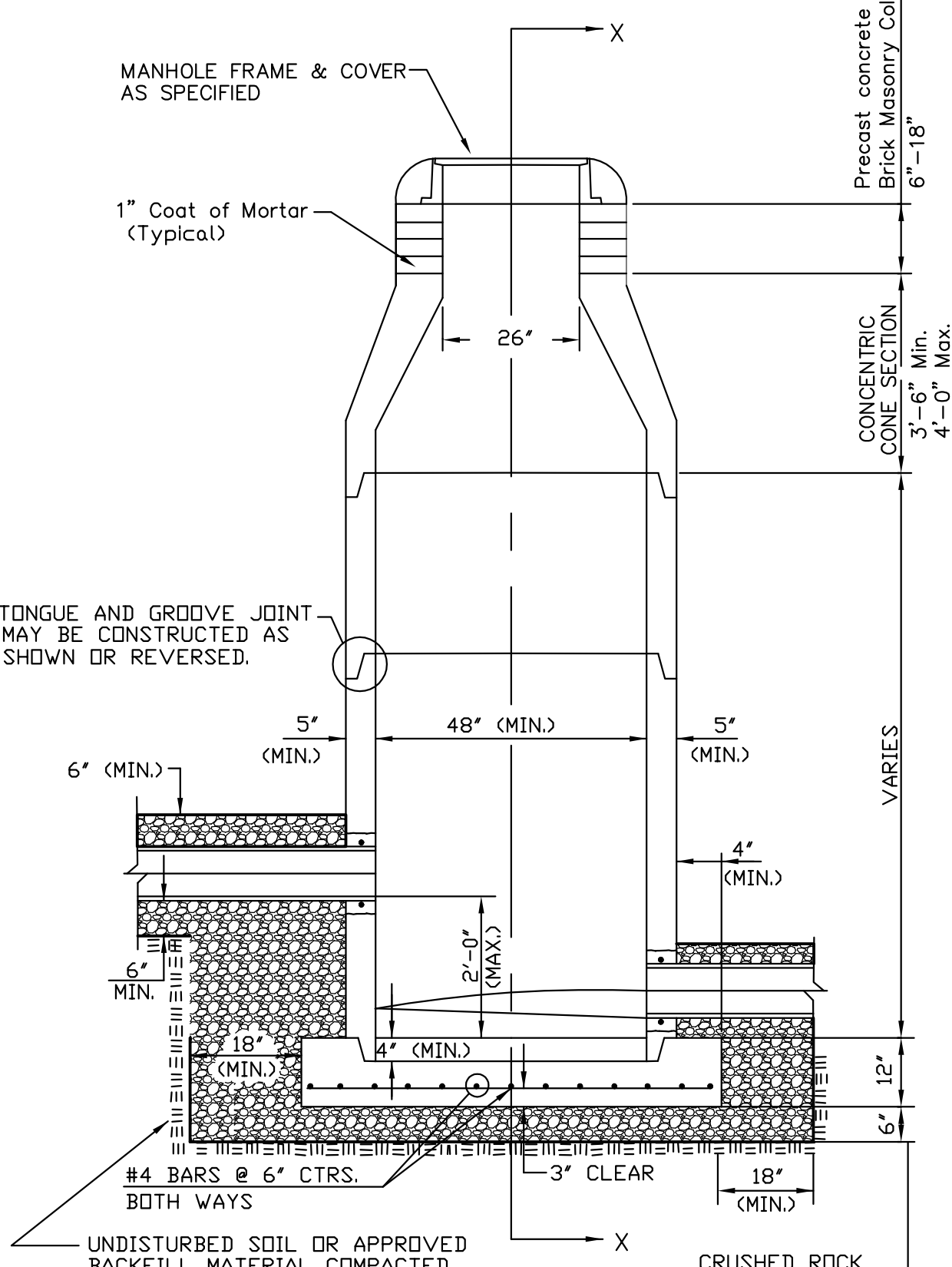


# SEWER APPURTENANCES DETAILS

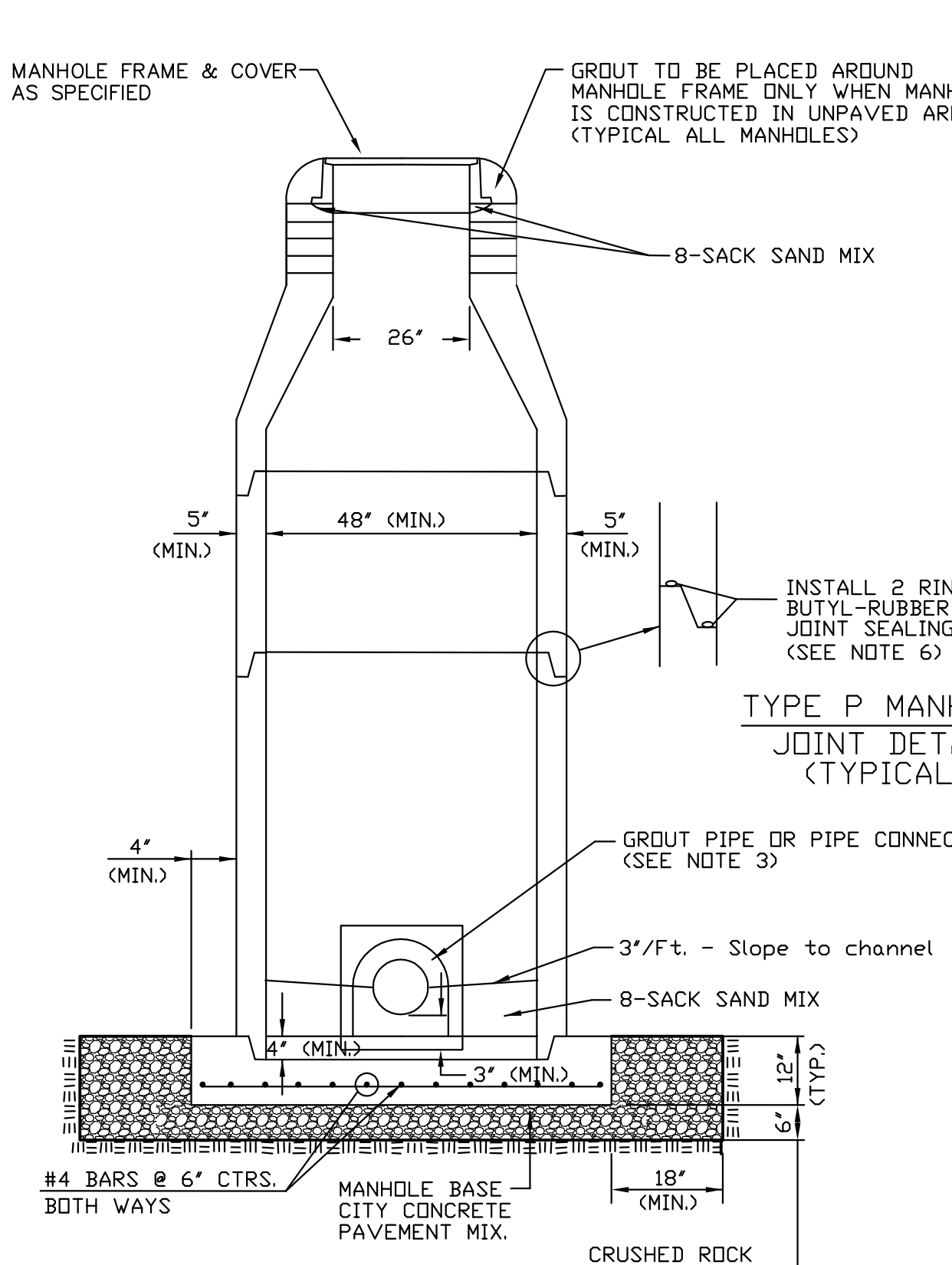
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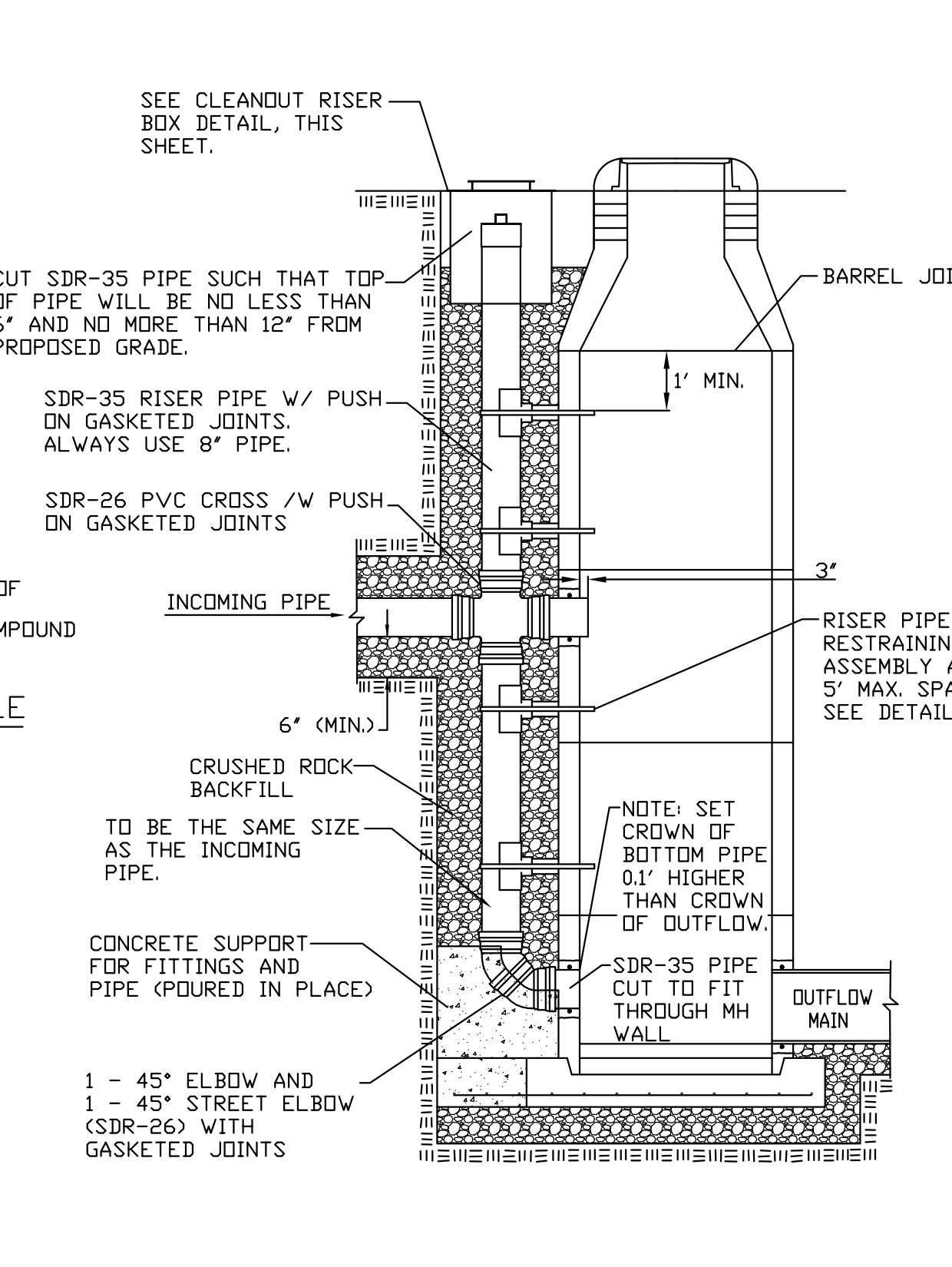
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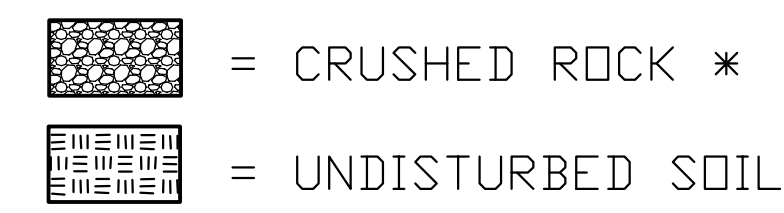
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INSIDE DROP MANHOLE**  
Not to Scale



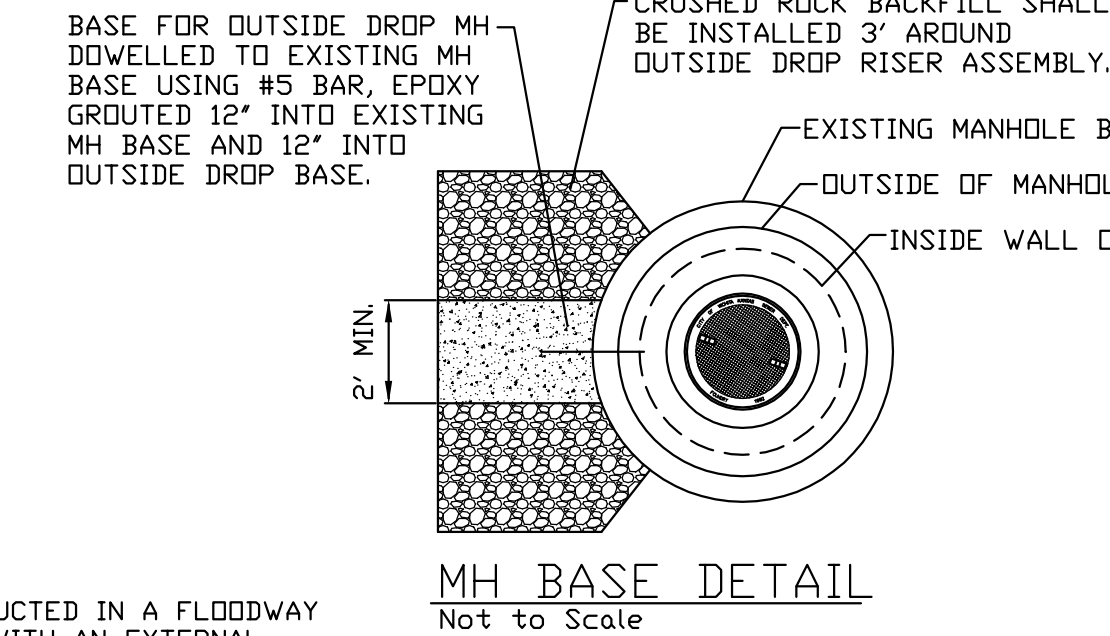
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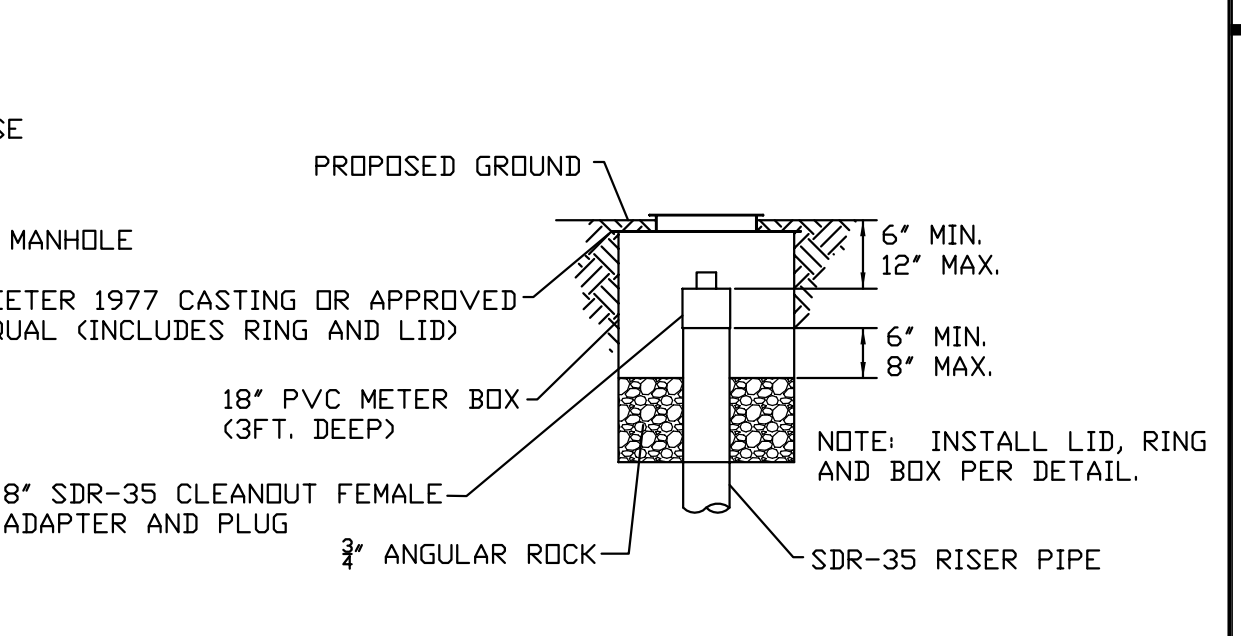
**TYPE P  
OUTSIDE DROP MANHOLE**  
Not to Scale



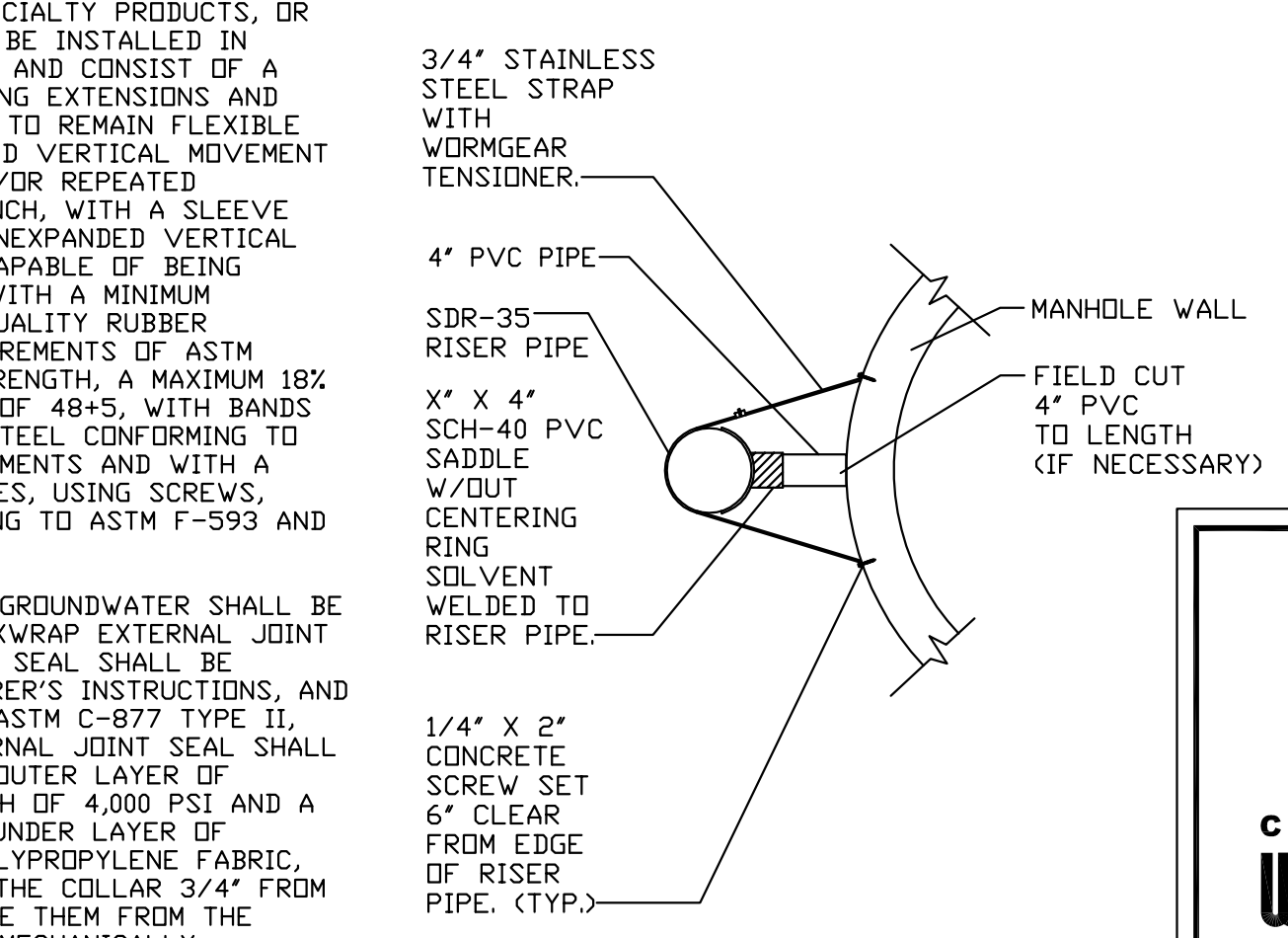
\* CRUSHED ROCK USED FOR ENCASEMENT AND BEDDING SHALL CONFORM TO ASTM C-33, GRADATION NO. 67, AND SHALL MEET ALL REQUIREMENTS FOR PORTLAND CEMENT CONCRETE PAVEMENT COARSE AGGREGATE, SECTION 406.2, CITY OF WICHITA STANDARD SPECIFICATIONS. ALL CRUSHED ROCK FOR BEDDING AND ENCASEMENT SHALL EXTEND TO THE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



**MH BASE DETAIL**  
Not to Scale



**CLEAN-OUT RISER BOX DETAIL**  
Not to Scale



**SUPPORT/SPACER DETAIL**  
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 GROUTED 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 GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. 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 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 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.
- 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 PLASTERED 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 CRETEX 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 (DURMETER) OF 48+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, CRETEXWRAP 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 STRAPS 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.



**STANDARD  
TYPE 'P'  
MANHOLES**

CITY ENGINEER  
**JAMES L. ARMOUR, P.E., L.S.**

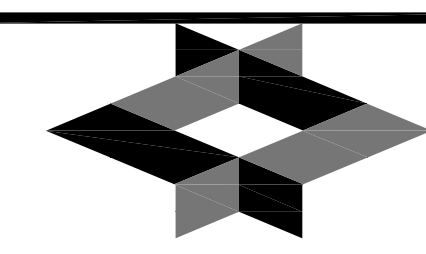
PROJECT NUMBER	OCA NUMBER	DATE
2025 PPS	607861	08/07

CITY ENGINEER'S OFFICE	DESIGN	DRAWN
CITY HALL - SEVENTH FLOOR	City	City
455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501 (316) 268-4114 FAX	SHEET	
	CU203	

**STANDARD  
TYPE 'P'  
MANHOLES DETAILS**

**CU203**

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MID-CONTINENT AIRPORT

Air Capital Terminal 3

PACKAGE #12

TERMINAL BUILDING

ISSUE: PERMIT / BID CONSTRUCTION DOCUMENTS

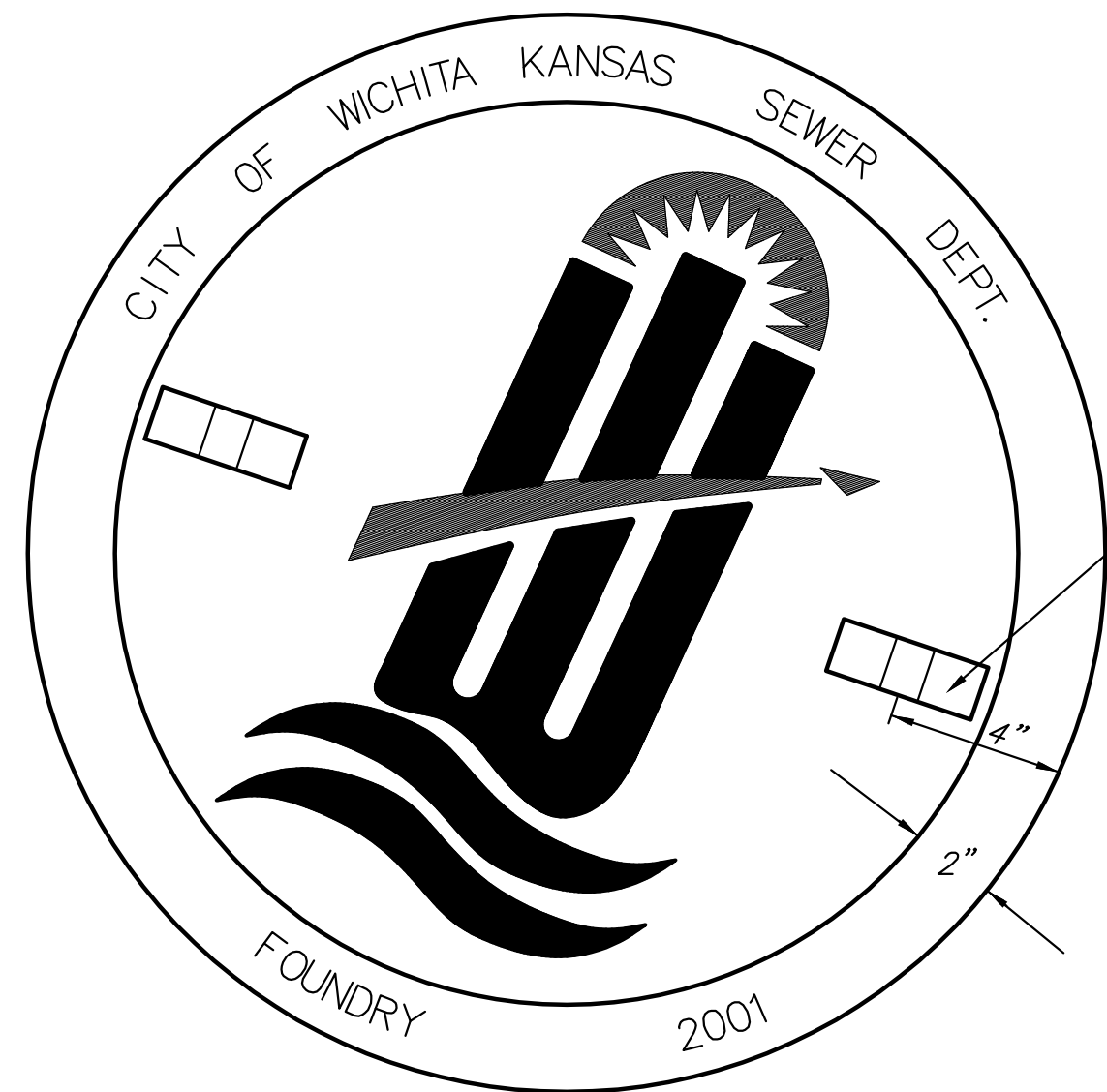
DATE: MARCH 26, 2010  
HNTB PROJECT NO.: 34912  
CLIENT PROJECT NO.: 06178

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CHECKED BY: \_\_\_\_\_  
APPROVED BY: \_\_\_\_\_

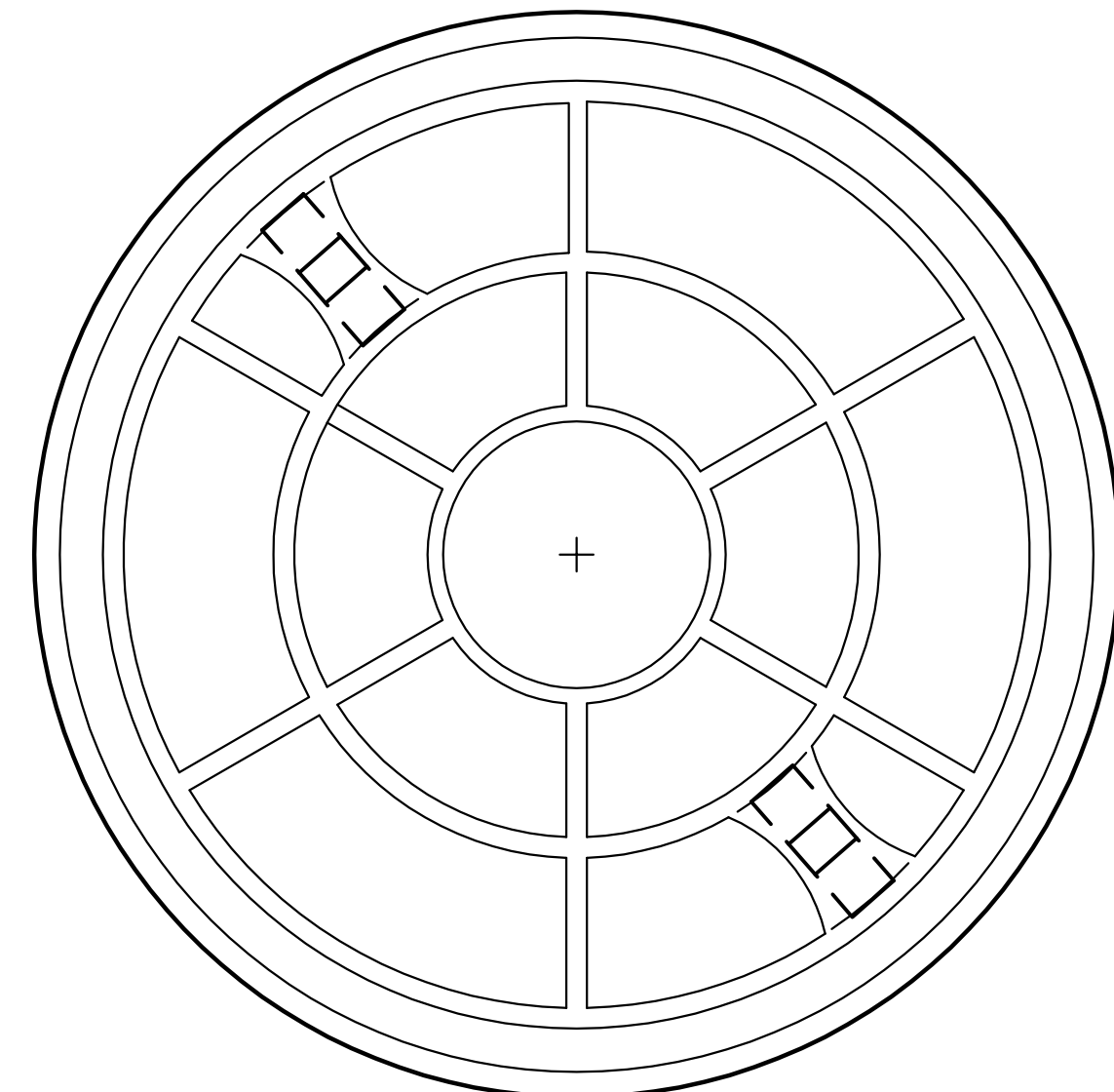
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MANHOLE COVER  
Weight = 180 Lbs.



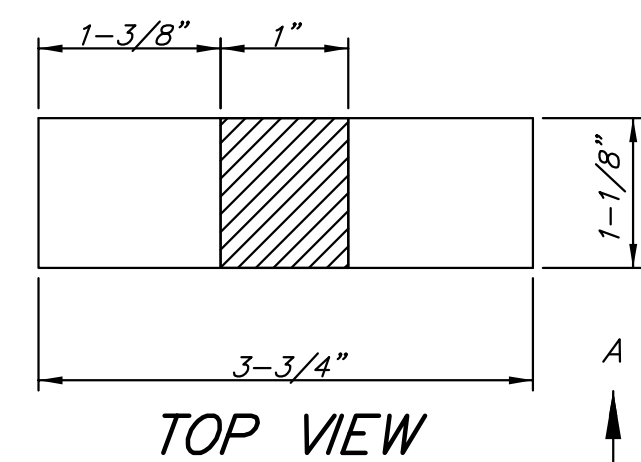
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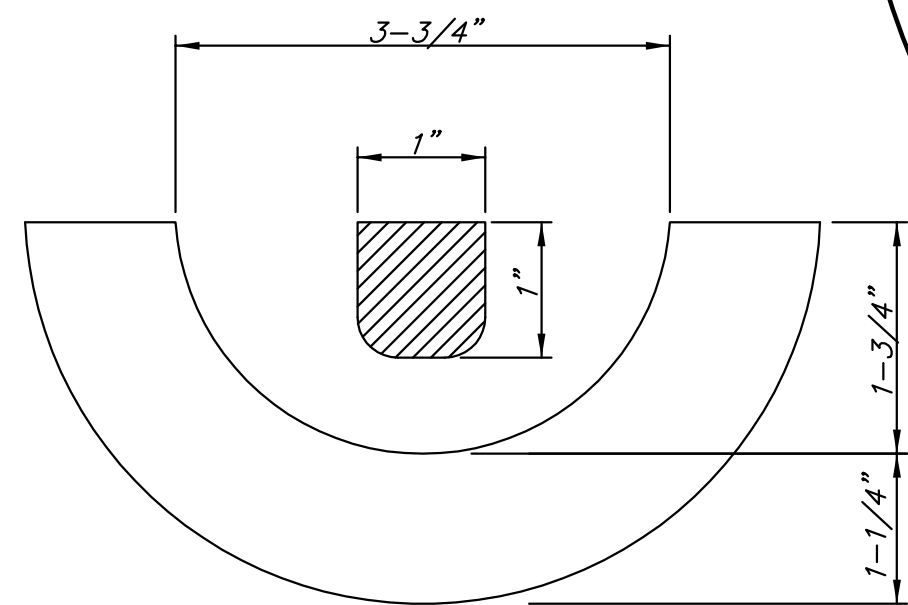
BOTTOM VIEW

CLOSED PICKHOLE (SEE DETAIL)

PICKHOLE DETAIL



TOP VIEW

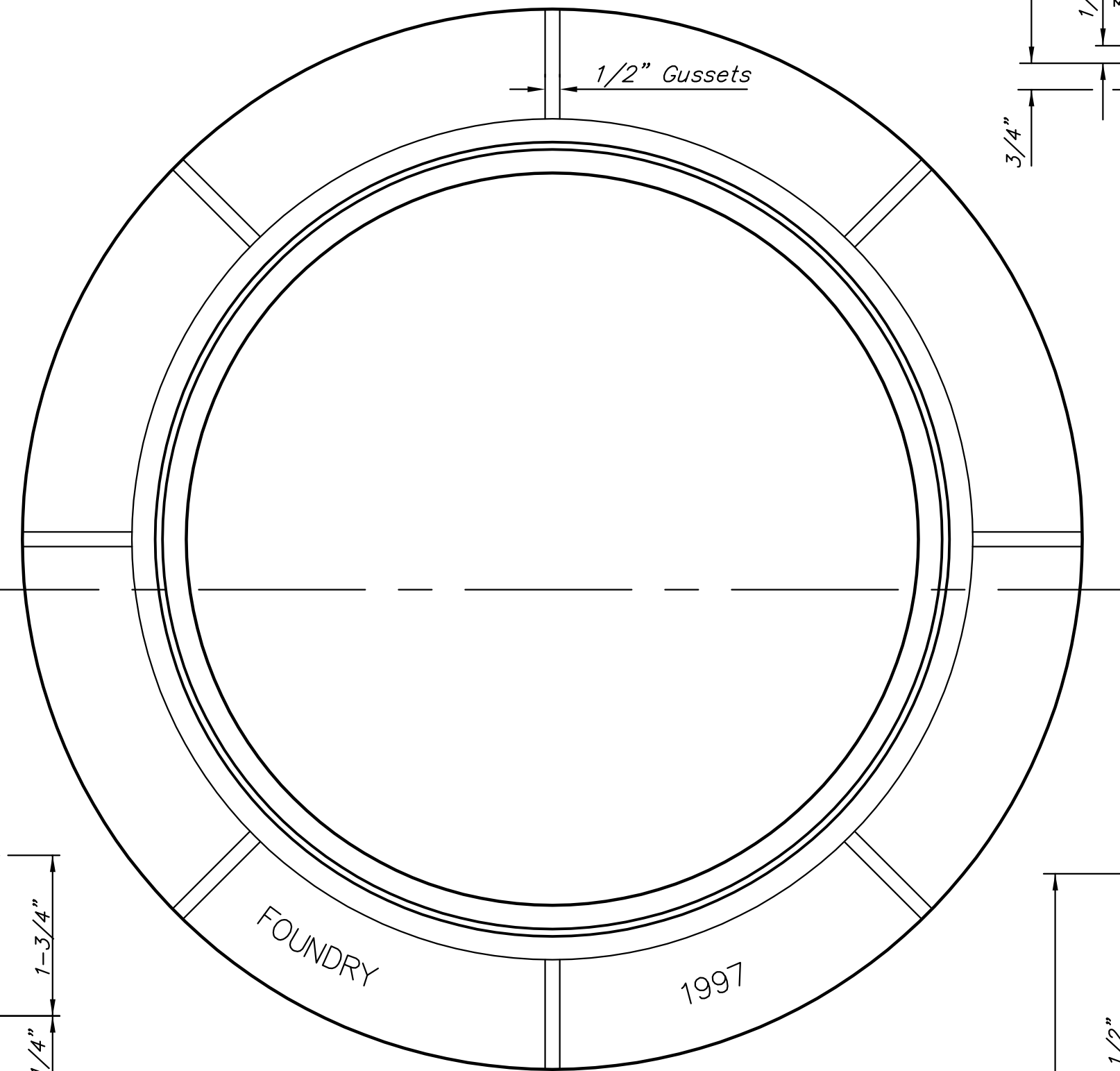


SECTION VIEW

# MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY  
CITY OF WICHITA, KANSAS

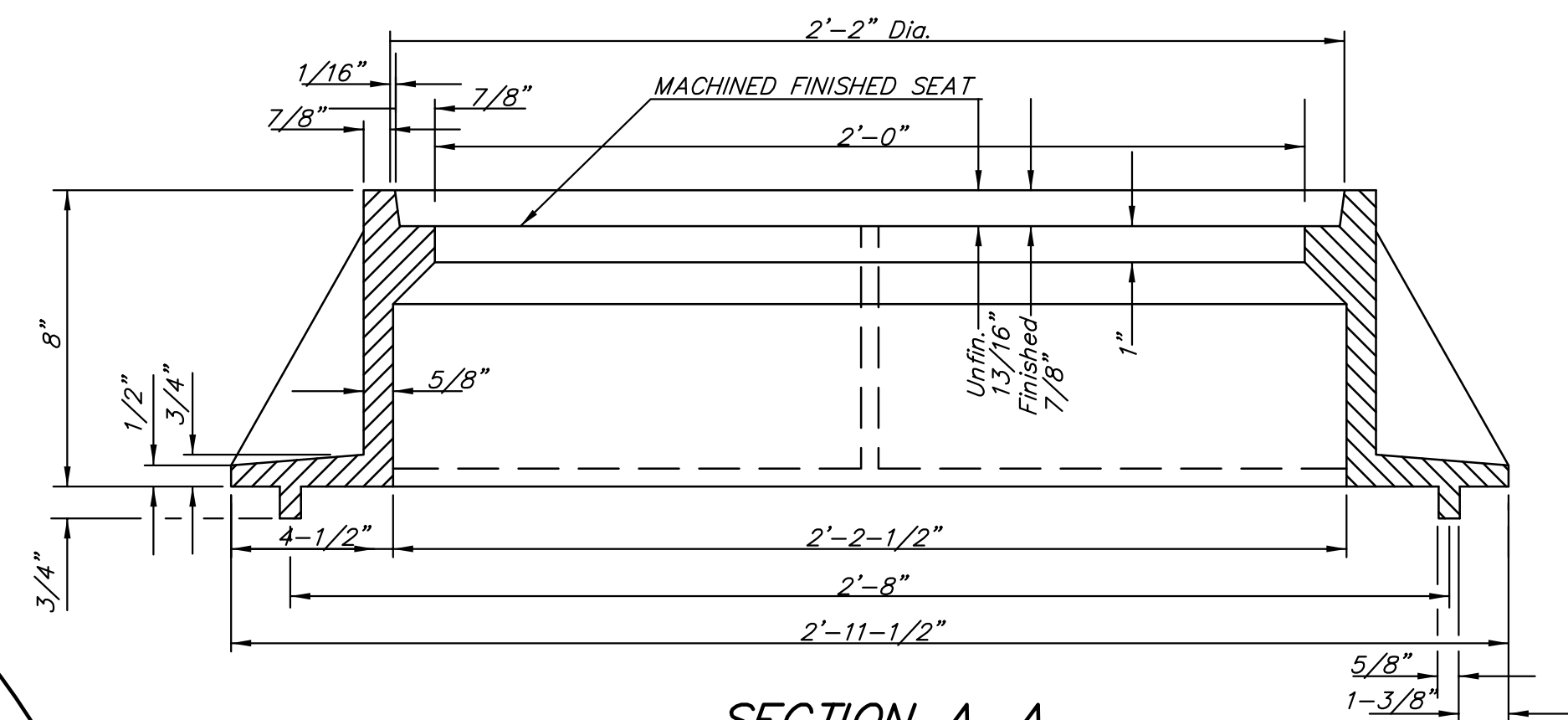
MANHOLE FRAME  
Weight = 240 Lbs.



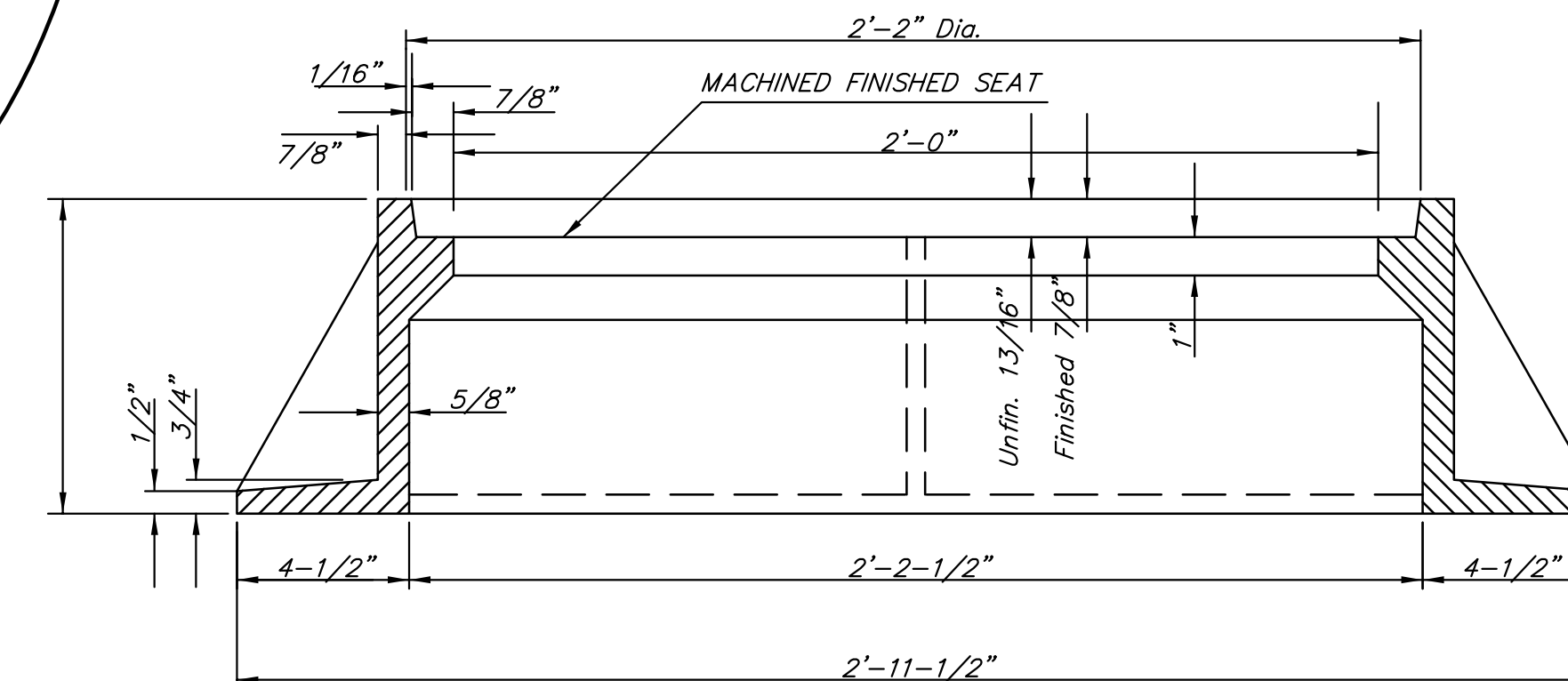
TOP VIEW

## GENERAL NOTES

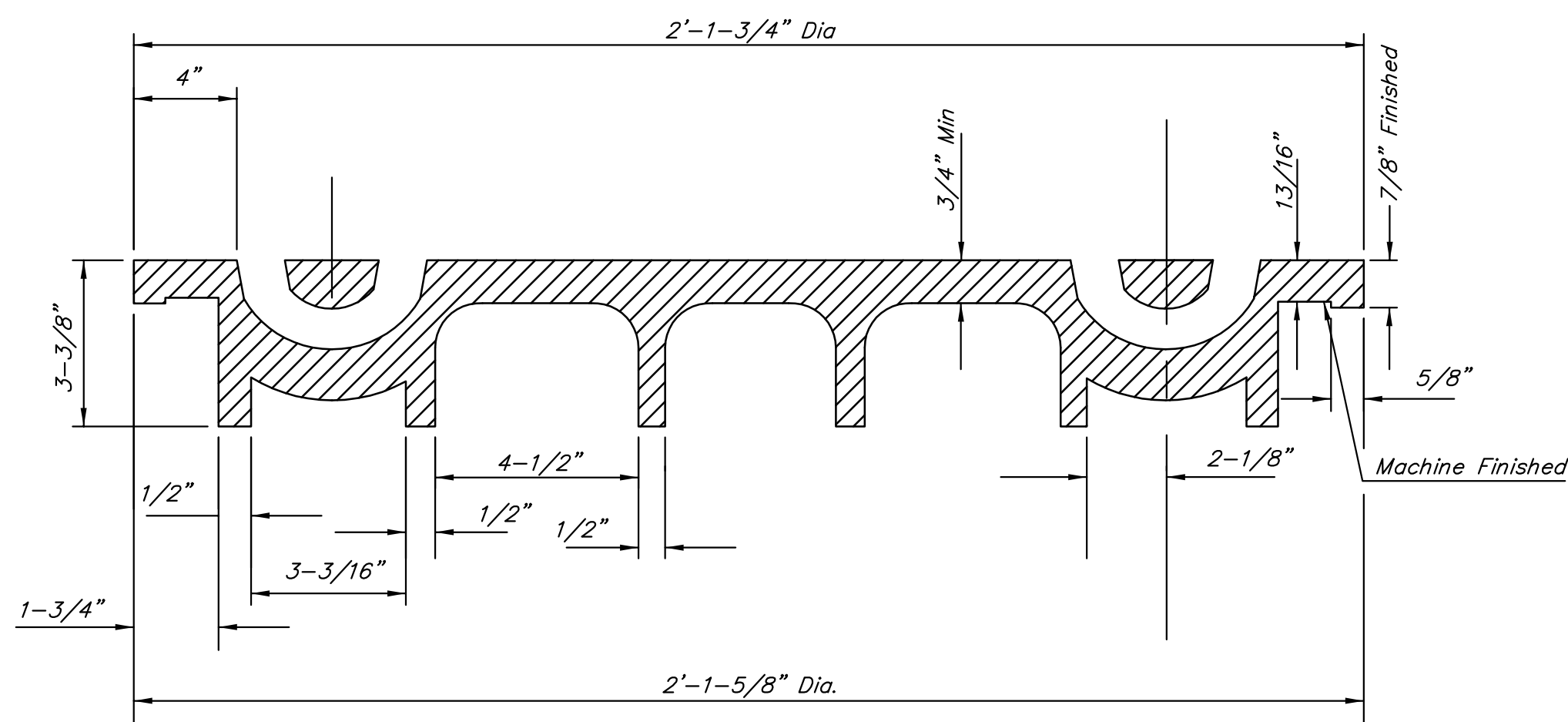
- MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.
- MANHOLE CASTINGS SHALL WEIGH A MINIMUM OF 180 POUNDS ON THE SOLID COVER AND 240 POUNDS ON THE MANHOLE RING. THIS IS A TOTAL OF 420 POUNDS ON A RING AND COVER SET. CASTINGS WEIGHING LESS THAN THE MINIMUM SPECIFICATIONS WILL NOT BE ACCEPTED.
- MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.
- THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE 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 THAT THESE SEATING 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 WITH THE CITY OF WICHITA LOGO 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 A-A  
MUD RING



SECTION A-A



SECTION VIEW

THE CITY OF WICHITA  
**W**  
CITY ENGINEER'S OFFICE  
CITY HALL - SEVENTH FLOOR  
455 NORTH MAIN STREET  
WICHITA, KANSAS 67202  
(316) 268-4501  
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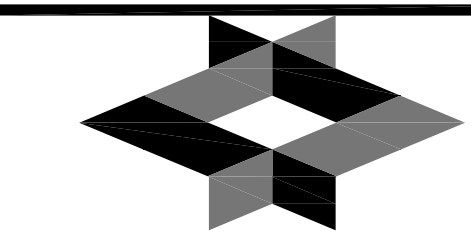
**MANHOLE FRAME AND COVER**

JAMES L. ARMOUR, P.E. - CITY ENGINEER

PROJECT NUMBER	OCA NO.
468-2025 PPS	607861
DATE	SHEET CU204
MAR 96	

**HNTB**

HNTB Corporation  
The HNTB Companies  
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Kansas City, Missouri 64105  
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**MID-CONTINENT AIRPORT**  
Air Capital Terminal 3

PACKAGE #12  
TERMINAL BUILDING

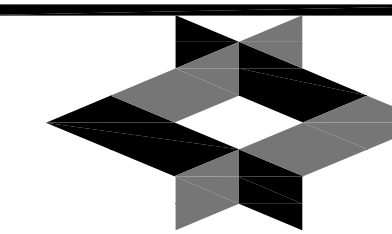
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CONSTRUCTION DOCUMENTS

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CLIENT PROJECT NO.:	06178	
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REVISION	DATE	DESCRIPTION
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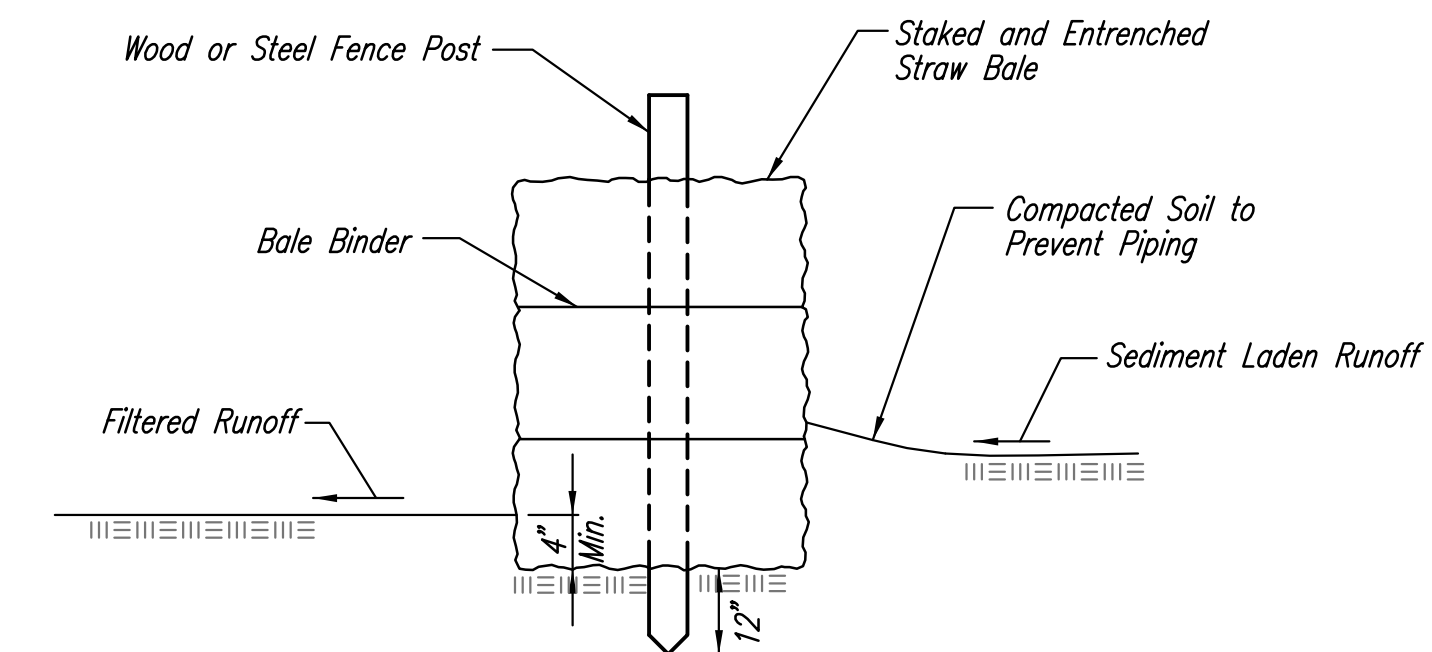
SANITARY SEWER  
MANHOLE FRAME  
AND COVER DETAIL

**CU204**





DATE:	MARCH 26, 2010	
HNTB PROJECT NO.:	34912	
CLIENT PROJECT NO.:	06178	
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APPROVED BY:		
REVISION	DATE	DESCRIPTION
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**STRAW BALE BARRIERS**

Material Specification:

Bale slope barriers may be constructed of wheat straw, oat straw, prairie hay, or brome grass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture. The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Twine should be used to bind bales. The use of wire binding is prohibited because it does not biodegrade readily.

Placement:

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

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 4" deep and a bale's width wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use. Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground. Once all the bales have been installed and anchored, place the excavated soil against the upslope side of the check and compact it. The compacted soil should be no more than 3" to 4" deep.

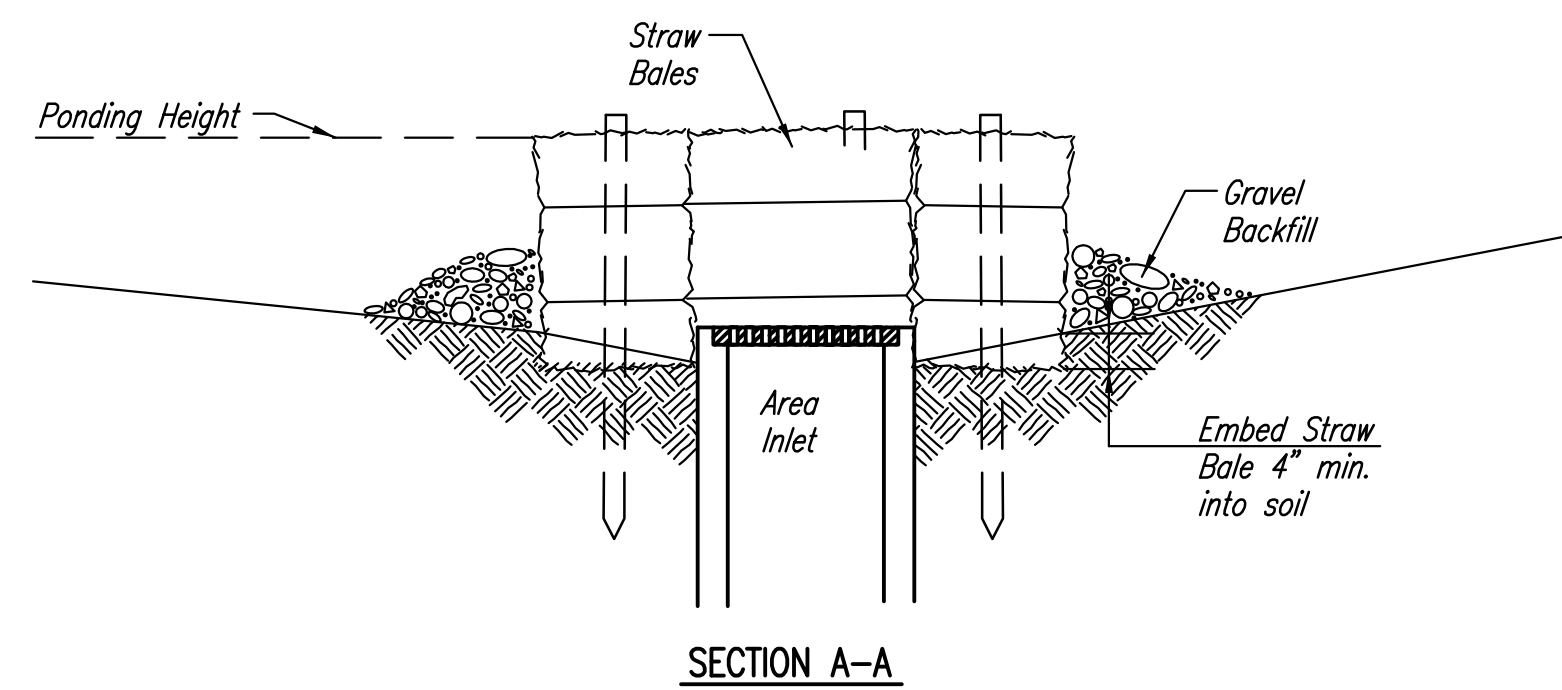
List of common placement/installation mistakes to avoid:

When practical, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier fails. Do not place bale slope barriers in areas with shallow soils underlain by rock. If the barrier is not anchored sufficiently, it will wash out. Bale slope barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

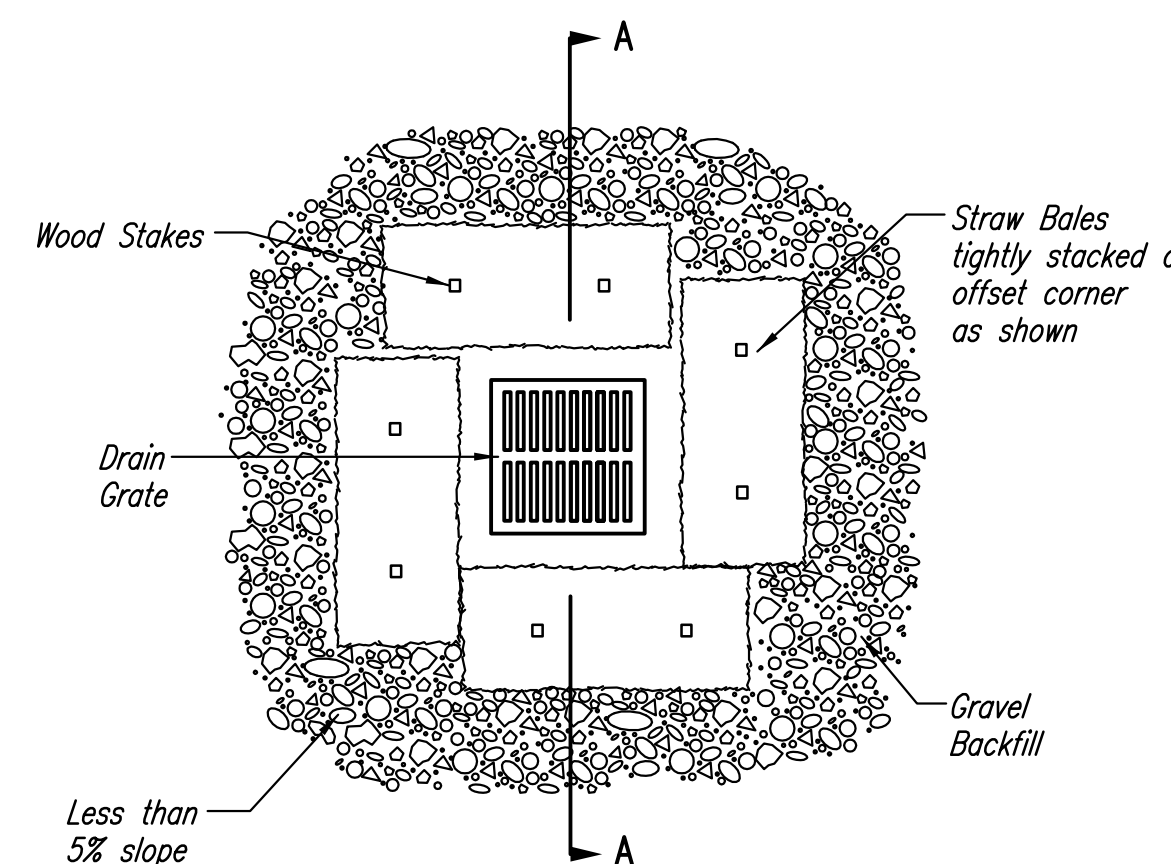
Inspection and Maintenance:

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

- Are there any points along the slope barrier where water is concentrating?
- Does water flow under the slope barrier?
- Does water flow through spaces between abutting bales?
- Are any bales dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the slope barrier?



**SECTION A-A**



**STRAW BALE BARRIERS FOR AREA INLETS  
(INLET PROTECTION)**

Material Specification:

Bale area inlet barriers should be constructed of wheat straw, oat straw, prairie hay, or brome grass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture. The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Twine should be used to bind bales. The use of wire binding is prohibited because it does not biodegrade readily.

Placement:

Bale area inlet barriers should be placed directly around the perimeter of a drop inlet. When a bale area inlet barrier is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

Proper Installation Method:

Excavate a trench around the perimeter of the area inlet that is at least 4" deep by a bale's width wide. Place the bales in the trench, making sure that they are butted tightly. Some bales may need to be shortened to fit into the trench around the area inlet. Two stakes should be driven through each bale, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground. Once all the bales have been installed and anchored, place the excavated soil against the receiving side of the barrier and compact it. The compacted soil should be no more than 3" to 4" deep. Note: When a bale area inlet barrier is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

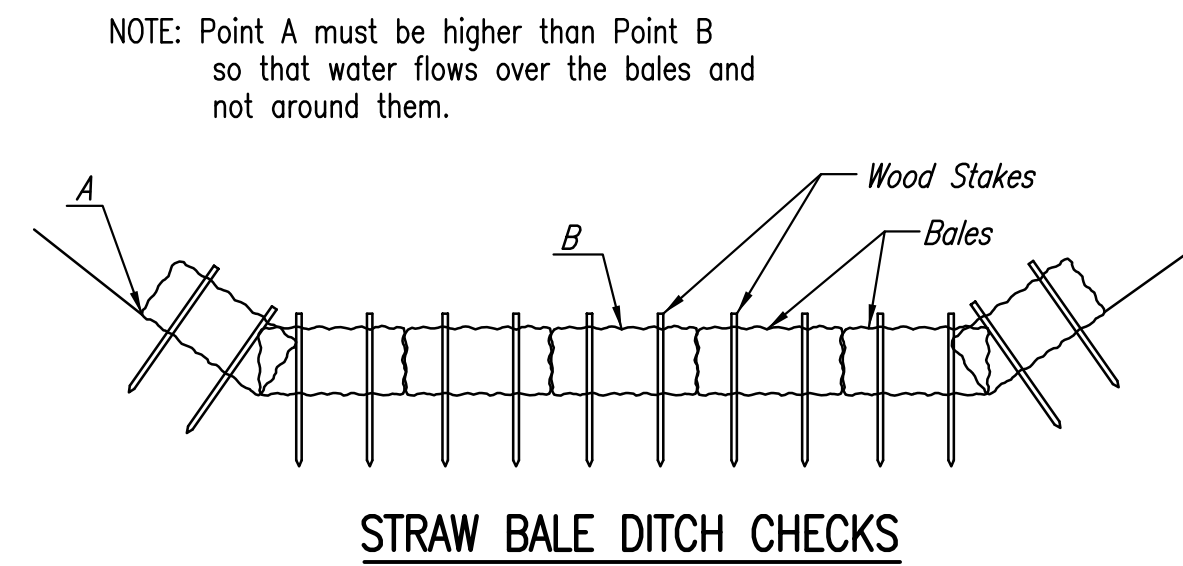
List of common placement installation mistakes to avoid:

Bales should be placed directly against the perimeter of the area inlet. This allows overtopping water to flow directly into the inlet instead of onto nearby soil causing scour. Bale area inlet barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

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

- Does water flow under the area inlet barrier?
- Does water flow through spaces between abutting bales?
- Are any bales dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the area inlet barrier?



**STRAW BALE DITCH CHECKS**

Material Specification:

Bale ditch checks may be constructed of wheat straw, oat straw, prairie hay, or brome grass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture. The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Optional: The downstream scour apron should be constructed of a double-netted straw erosion-control blanket at least 6' wide. Optional: The metal landscape staples used to anchor the erosion-control blanket should be at least 8" long.

Placement:

Bale ditch checks should be placed perpendicular to the flowline of the ditch. The ditch check should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check. Straw bale ditch checks should not be placed in ditches where high flows are expected. Rock checks should be used instead. Bales should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used. The following table provides check spacing for a given ditch grade:

Ditch grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is 4" deep and a bale's width wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench—it will be used later. Optional: On the downstream side of the trench, roll out a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion control blanket should be anchored in the trench with one row of 8" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 8" landscape staples placed around the perimeter of the blanket on 18" centers. The remainder of the blanket should be anchored using two evenly spaced rows of 8" landscape staples on 18" centers placed perpendicular to the flowline of the ditch. Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground. Once all the bales have been installed and anchored, place the excavated soil against the upstream side of the check and compact it. The compacted soil should be no more than 3" to 4" deep and extend upstream no more than 24".

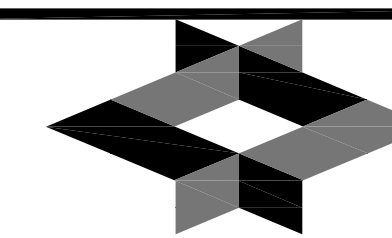
List of common placement/installation mistakes to avoid:

- Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
- Do not place bale ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
- Follow prescribed ditch-check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
- Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the check is higher than the top of the lowest center bale.
- Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.
- Bale ditch checks must be dug into the ground. Bales at ground level do not work because they allow water to flow under the check.

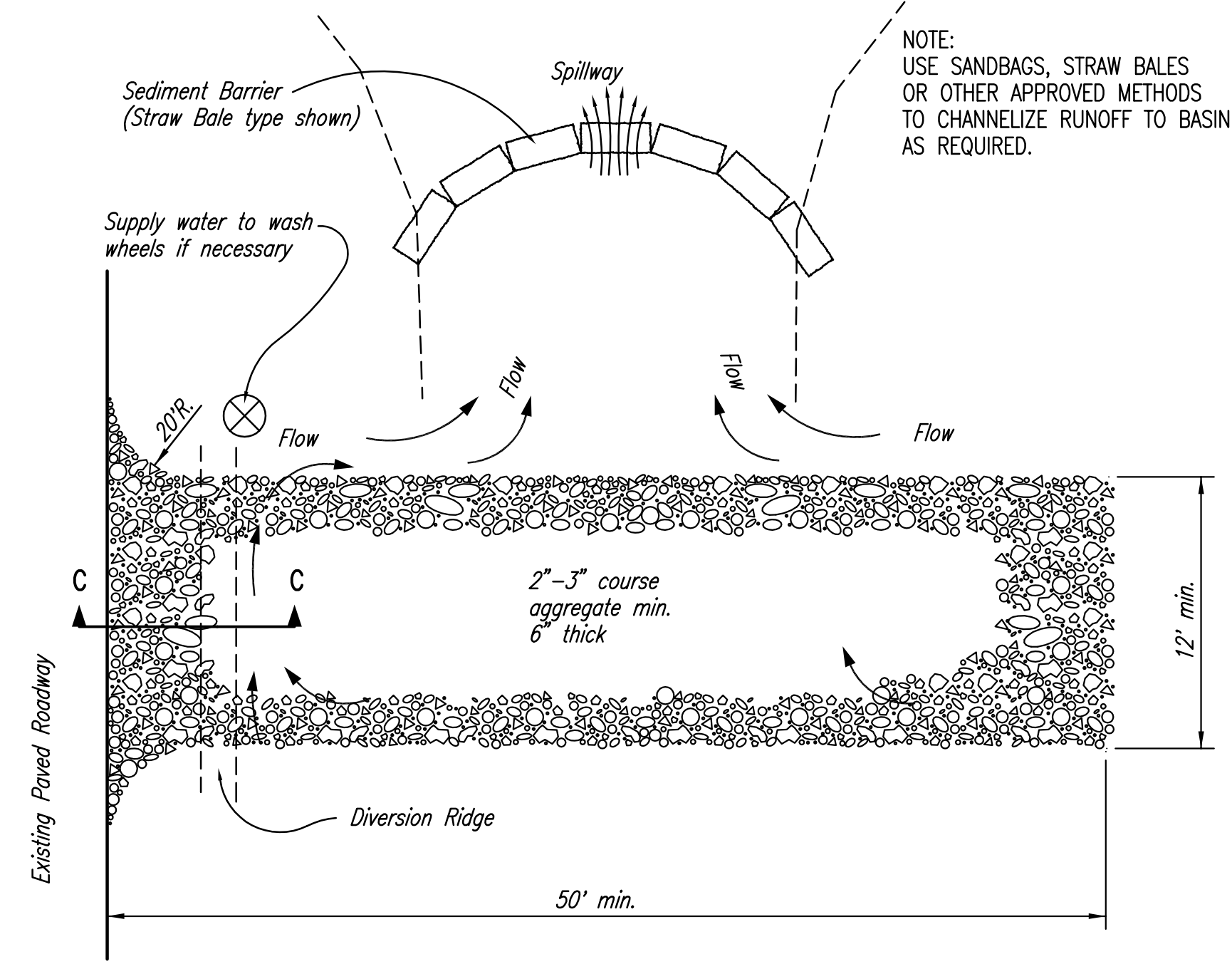
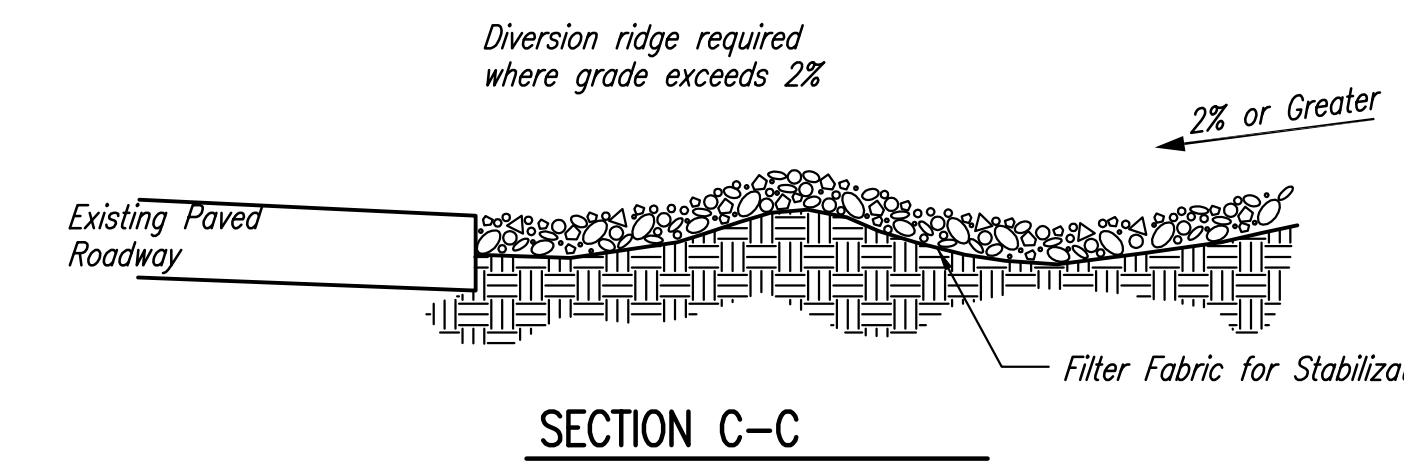
Inspection and Maintenance:

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

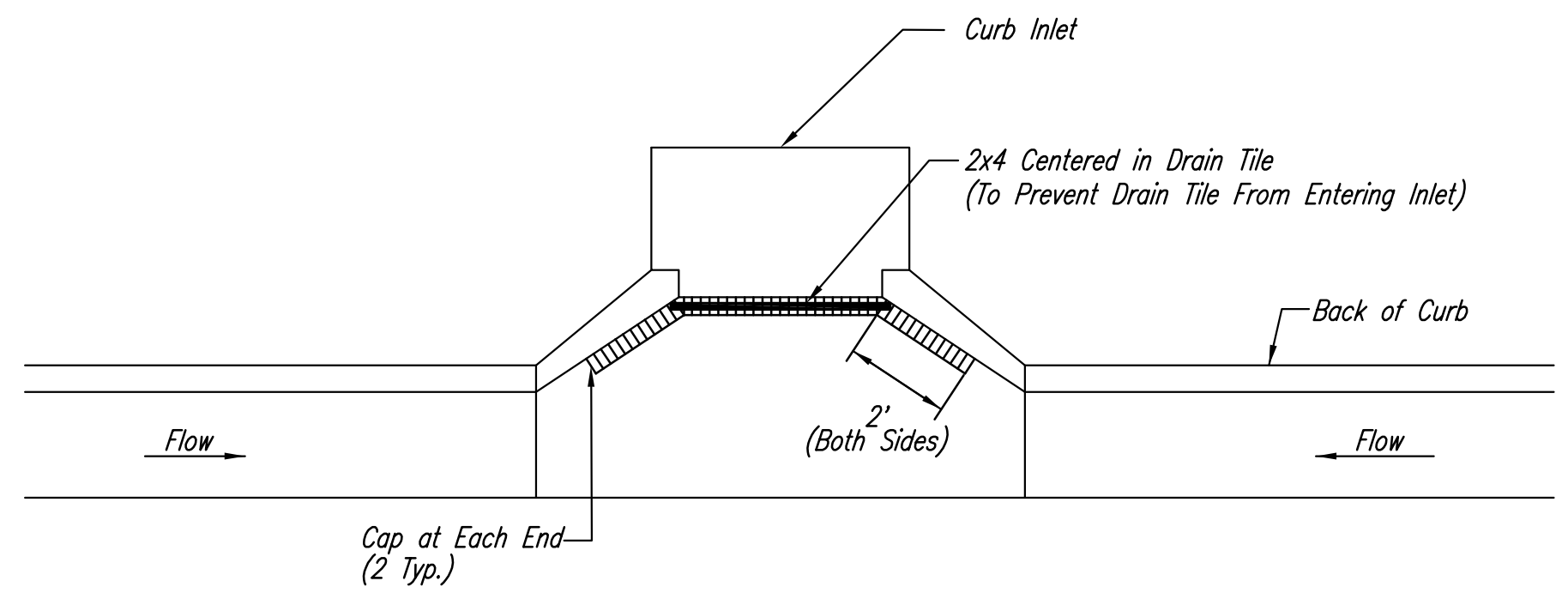
- Does water flow around the ditch check?
- Does water flow under the ditch check?
- Does water flow through spaces between abutting bales?
- Are any bales and/or scour aprons (optional) dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the ditch check?



REVISION	DATE	DESCRIPTION
△		
△		
△		
△		

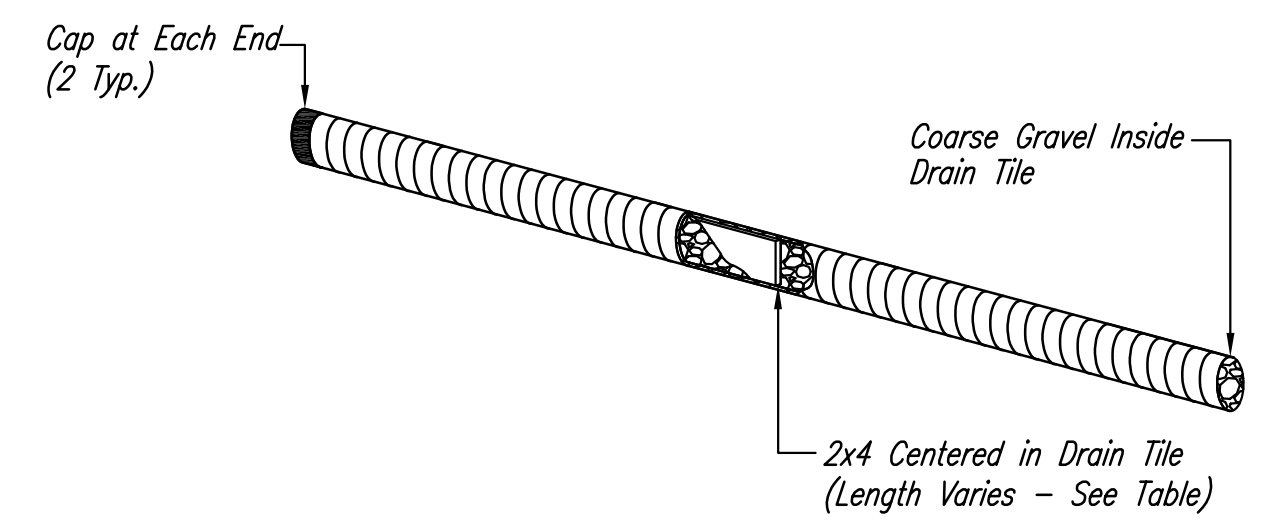


- NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
  2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC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

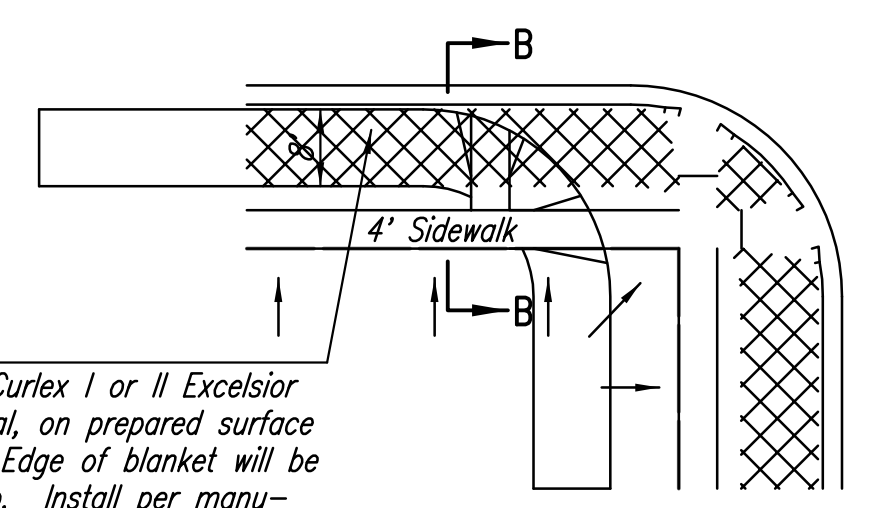
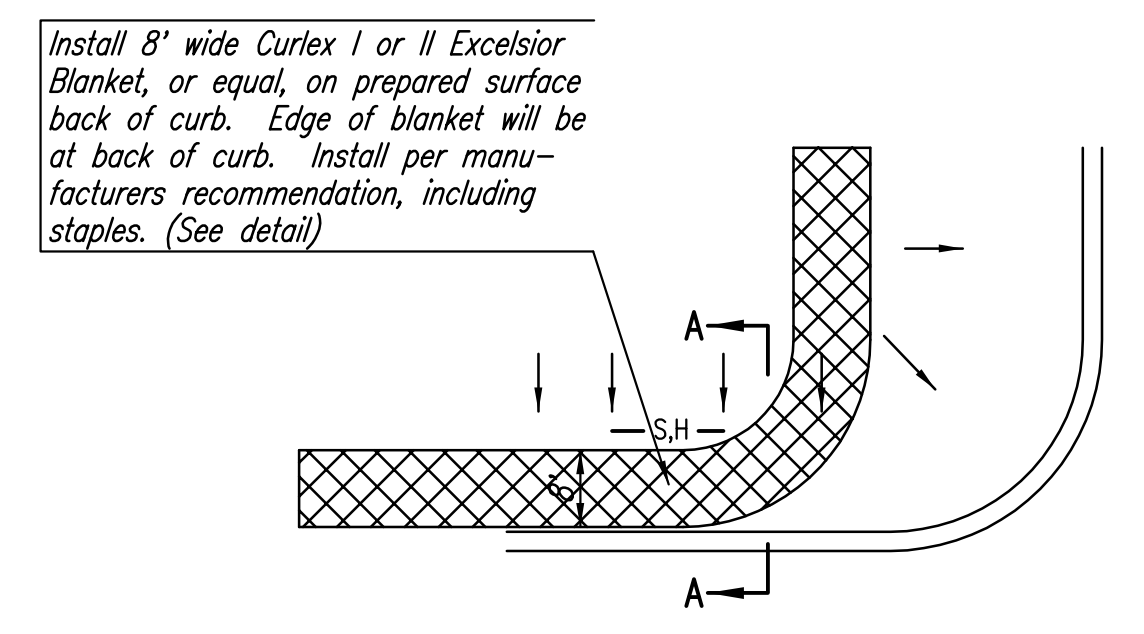
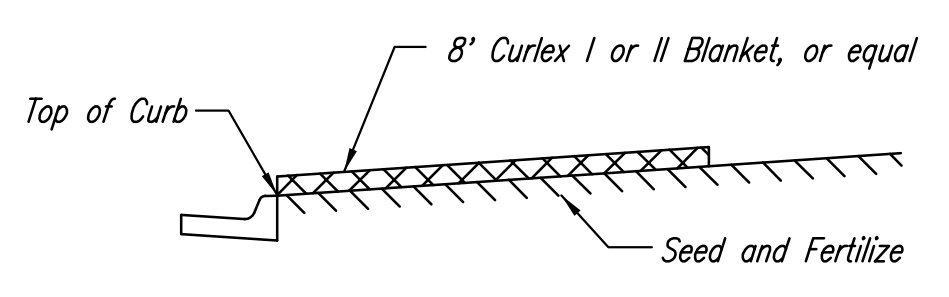
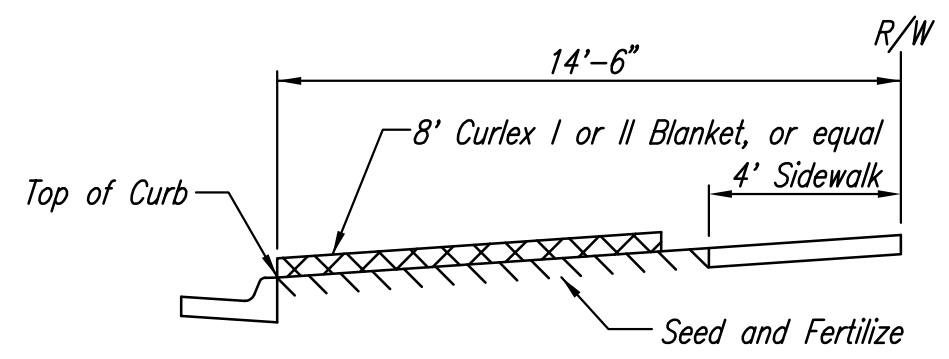


Note: Place 4" perforated PVC pipe, filled with 1/2"-1" dia. gravel, in front of curb inlet as shown.

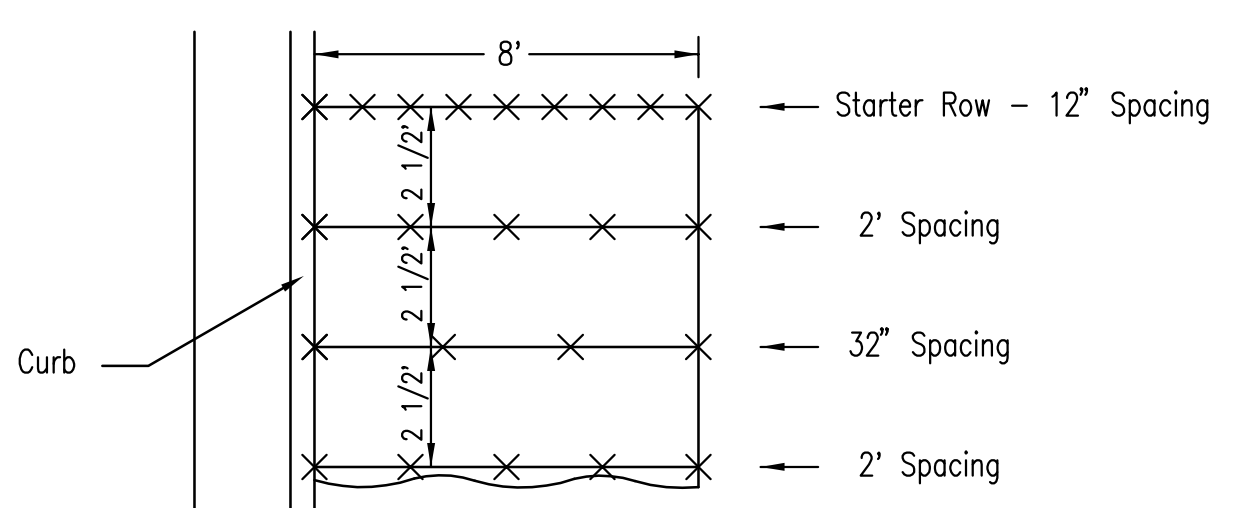
2X4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-A	5'-0"
10'-6"	1-A	10'-0"
15'-6"	1-A	15'-0"



**CURB INLET PROTECTION**  
4" PERFORATED PIPE W/ GRAVEL

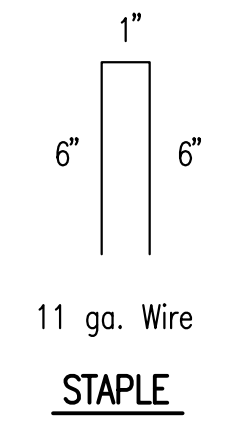


- NOTES:
1. EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
  2. EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
  3. AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER, SUPPLEMENTAL EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED, TO FIX THE PROBLEM.



NOTES: Use 6" seam overlap

**DETAILS FOR CURLEX I OR II BLANKETS**



SOIL EROSION BMPs	
<b>BACK OF CURB PROTECTION, CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE</b>	
JIM ARMOUR, P.E. CITY ENGINEER	
PROJECT NUMBER	OCA NO.
	607861
DATE	
JAN. 2007	SHEET CU502