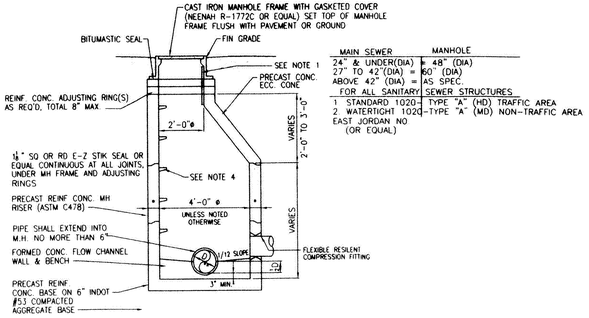


MAIN SEWER	MANHOLE
24" & UNDER(DIA) =	48" (DIA)
27" TO 42"(DIA) =	60" (DIA)
ABOVE 42" (DIA) =	AS SPEC.

FOR ALL SANITARY SEWER STRUCTURES

1 STANDARD 1020-TYPE "A" (HD) TRAFFIC AREA
2 WATERTIGHT 1020-TYPE "A" (MD) NON-TRAFFIC AREA
EAST JORDAN NO.
(OR EQUAL)

* MANHOLE WALL THICKNESS TABLE

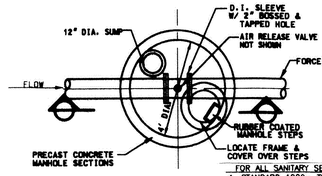
MH I.D.	WALL THICKNESS
48"	5"
60"	6"
72"	7"

TYPE "A" MANHOLE

NOTE:

1. EXTERNAL MH FRAME-CHIMNEY SEAL AS MANUFACTURED BY CRETEX SPECIALTY PRODUCTS OR EQUAL REQ'D FOR ALL MANHOLES.
2. WHERE DEPTH FROM TOP OF CASTING TO INVERT IS LESS THAN 5'-0". USE FLAT TOP MANHOLE TYPE "C" IN LIEU OF ECCENTRIC CONE.
3. WATERTIGHT SEAL IS REQ'D BETWEEN PRECAST RISER AND SEWER PIPE
4. COPOLYMER/STEEL MH STEPS AS MANUFACTURED BY M.A. INDUSTRIES, INC., OR EQUAL, AT 16" O.C. (MAX)

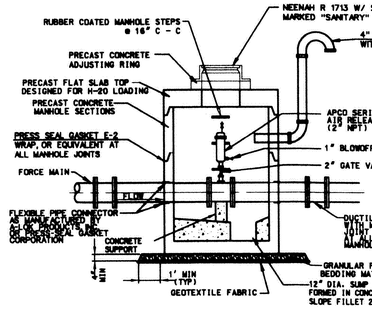
** FOR PIPE SIZE RANGING FROM8" TO 30" IN DIAMETER.



FOR ALL SANITARY SEWER STRUCTURES

1. STANDARD 1020- TYPE "A" (HD) TRAFFIC AREA
2. WATERTIGHT 1020-TYPE "A" (MD) NON-TRAFFIC AREA
EAST JORDAN NO.
(OR EQUAL)

PLAN



SECTION

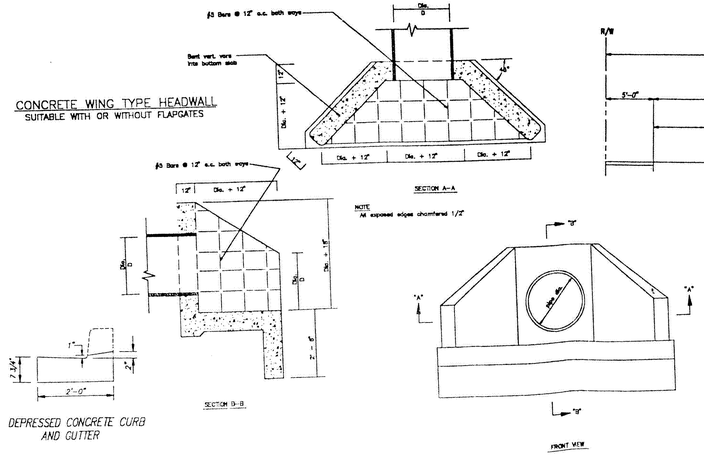
NOTES:

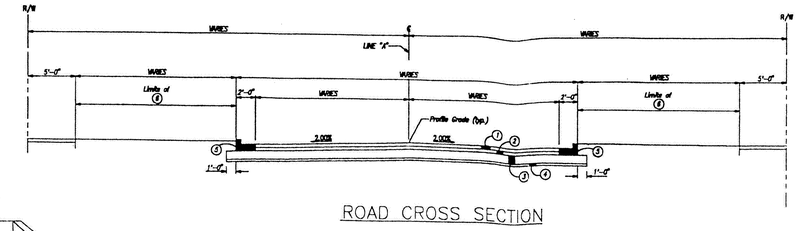
1. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO CONSTRUCTION TO VERIFY ACCESSIBILITY.
2. ALL VALVES & FITTINGS INSIDE STRUCTURE SHALL BE FLANGED.

AIR RELEASE VALVE / VAULT DETAIL

CONCRETE WING TYPE HEADWALL

SUITABLE WITH OR WITHOUT FLAPGATES

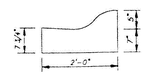




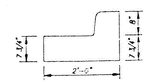
ROAD CROSS SECTION

1. 1½" BITUMINOUS SURFACE
2. 3" BITUMINOUS BINDER
3. 10" COMPACTED AGGREGATE BASE (#53)
4. TENSAR GEO GRID (OR EQUIVALENT)
5. COMBINED CONCRETE CURB AND GUTTER
6. SEEDING

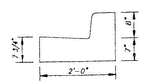
DEPRESSED CONCRETE CURB AND GUTTER



CONCRETE CURB AND GUTTER (ROLLED BACK)



CONCRETE CURB AND GUTTER (TYPE 'C')



CONCRETE CURB AND GUTTER (TYPE 'C') MODIFIED

RESTRAINED PIPE LENGTH

(FEET)

PIPE SIZE (INCHES)	TEE* BRANCH	90° ELBOW	45° ELBOW	22 1/2° ELBOW	11 1/4° ELBOW	DEAD ENDS
4	9	15	6	3	2	20
6	14	23	9	4	2	28
8	18	27	11	5	3	37
10	25	33	14	7	3	44
12	33	39	16	8	4	52
14	41	44	18	9	4	60
16	48	50	21	10	5	68
18	56	55	23	11	5	75
20	63	61	25	12	6	82
24	77	71	29	14	7	96
30	97	86	36	17	8	116
36	116	100	41	20	10	135

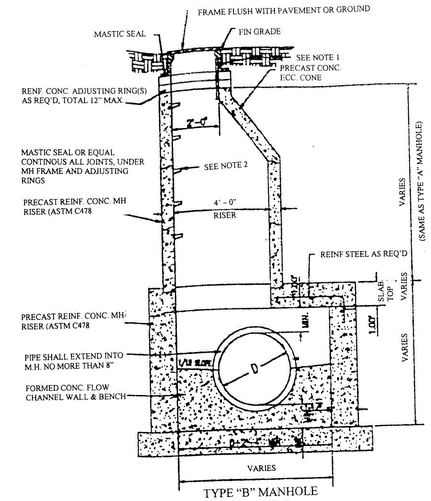
* ONE FULL LENGTH (18') OF PIPE ON BOTH SIDES OF BRANCH TO BE RESTRAINED

INCREASE ALL LENGTHS IN TABLE BY 75% FOR USE ON POLYETHELENE WRAPPED DUCTILE IRON PIPE OR PVC PIPE

TEST PRESSURE BASED ON 150 PSI

RESTRAINED PIPE LENGTH TABLE

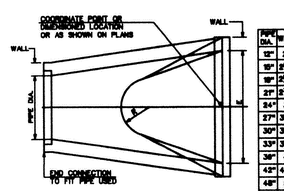
NOTE:
WATERMAIN TO USE MEG-A-LUG FIELD LOCK GASKET



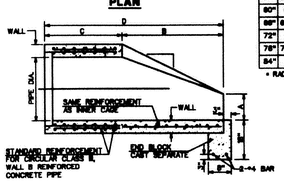
TYPE "B" MANHOLE
FOR SEWER

NOTE:

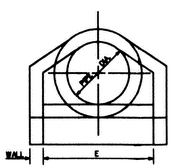
1. EXTERNAL M.H. FRAME-CHIMNEY SEAL AS MANUFACTURED BY CRETEX SPECIALTY PRODUCTS OF EQUAL REQ'D FOR ALL MANHOLES
2. COPOLYMER/STEEL M.H. STEPS AS MANUFACTURED BY M.A. INDUSTRIES, INC., OR EQUAL, AT 16" O.C.
3. MECHANICAL JOINT – MEG A LUG AND FIELD LOK 350 GASKET REQUIRED



PLAN



LONGITUDINAL SECTION



END VIEW

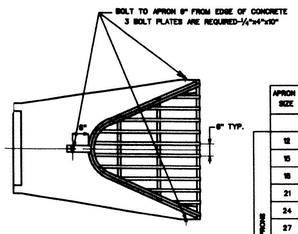
NOTES:

1. PRECAST CONCRETE FLARED END SECTION SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-170 CLASS III, WALL B REINFORCED CONCRETE PIPE.
2. LENGTHS OF PIPE WHICH TERMINATE WITH A FLARED END SECTION INCLUDE THE LENGTH OF THE FLARED END SECTION.

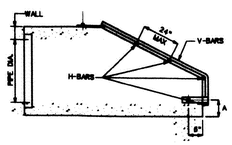
PRECAST REINFORCED CONCRETE FLARED END SECTION

PIPE DIA.	WALL	A	B	C	D	E	R	SLOPE
12"	2"	4"	2'-0"	4'-0 7/8"	8'-0 7/8"	2'-0"	9"	3:1
15"	2 1/4"	6"	2'-3"	3'-10"	6'-1"	2'-6"	11"	3:1
18"	2 1/2"	6"	2'-3"	3'-10"	6'-1"	3'-0"	12"	3:1
21"	2 3/4"	6"	2'-11"	3'-3"	6'-9"	3'-6"	13"	3:1
24"	3"	6 1/2"	3'-7 1/2"	2'-8"	6'-6 1/2"	4'-0"	14"	3:1
27"	3 1/4"	10 1/2"	4'-0"	2 5 1/2"	6'-1 1/2"	4'-6"	14 1/2"	3:1
30"	3 1/2"	12"	4'-6"	19 3/4"	6'-1 3/4"	5'-0"	15"	3:1
33"	3 3/4"	13 1/2"	4'-10 1/2"	36 1/4"	6'-1 3/4"	5'-6"	17 1/2"	3:1
36"	4"	15"	5'-3"	34 3/4"	6'-1 3/4"	6'-0"	20"	3:1
42"	4 1/2"	27"	5'-3"	38"	6'-2"	6'-6"	22"	3:1
48"	5"	24"	6'-0"	28"	6'-3"	7'-0"	22"	3:1
54"	5 1/2"	27"	6'-5"	35"	6'-4"	7'-6"	24"	2.4:1
60"	6"	30"	5'-0"	30"	6'-3"	8'-0"	*	2:1
66"	6 1/2"	30"	6'-0"	27"	6'-3"	8'-6"	*	2:1
72"	7"	36"	6'-6"	27"	6'-3"	9'-0"	*	2.25:1
78"	7 1/2"	36"	7'-6"	27"	6'-3"	9'-6"	*	2.12:1
84"	8"	36"	7'-6 1/2"	27"	6'-3 1/2"	10'-0"	*	1.9:1

* RADIUS AS FURNISHED BY MANUFACTURER



PLAN



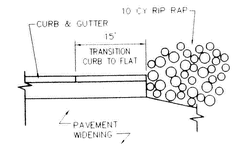
LONGITUDINAL SECTION

	APRON SIZE	V-BAR SIZE	H-BAR SIZE	NO. OF H-BARS REQ'D	BOLT DIA	"A" DIM
	INCHES				INCHES	
APRONS	12	½ DIA	⅝ DIA	3	½	4
	15	½ DIA	⅝ DIA	3	½	4½
	18	½ DIA	⅝ DIA	4	½	4½
	21	½ DIA	⅝ DIA	4	½	5
	24	⅝ DIA	¾ DIA	4	½	5
	27	⅝ DIA	¾ DIA	4	½	5½
	30	⅝ DIA	¾ DIA	4	½	5½
PIPE	36	¾ DIA	1 DIA	4	¾	6
	42	¾ DIA	1 DIA	4	¾	6
ROUND	48	¾ DIA	1 DIA	5	¾	6
	54	¾ DIA	1½ PIPE	5	¾	6
	60	¾ DIA	1½ PIPE	5	¾	6
	66	¾ DIA	1½ PIPE	6	¾	8
	72	¾ DIA	1½ PIPE	6	¾	8
	84	¾ DIA	1½ PIPE	7	¾	10
	90	¾ DIA	1½ PIPE	7	¾	14

NOTES:

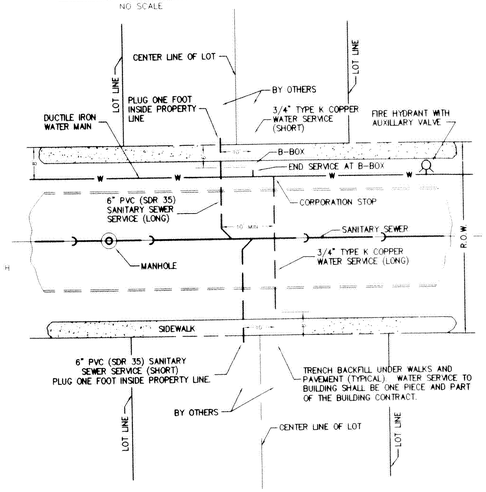
1. BARS AND PLATES ARE HOT-ROLLED STEEL.
2. BARS, PLATES AND PIPE ARE FINISHED WITH 2 COATS OF ALUMINUM PAINT.
3. BOLTS ARE GALVANIZED.

GRATE FOR FLARED END SECTION



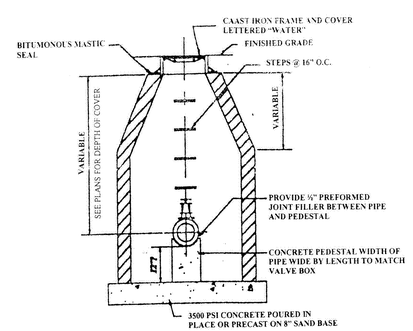
CURB OUTLET

NO SCALE



TYPICAL SANITARY SEWER AND WATER SERVICE CONNECTION

ASBUILT DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR AT THE COMPLETION OF THE PROJECT. DRAWINGS SHALL INCLUDE LENGTH OF MAINS BETWEEN STRUCTURES, WYE LOCATIONS AND SERVICE LENGTH AS WELL AS BUFFALO BOX LOCATION.



VALVE VAULT DETAIL

NOTE: VALVE VAULT DIA. SHALL BE 48" FOR 8" AND SMALLER VALVES AND 60" FOR 10" AND LARGER VALVES.

WILLIAM J. MEEKS REGISTERED No. PE 20958 STATE OF INDIANA PROFESSIONAL ENGINEER

CITY OF CROWN POINT

ENGINEERING DEPARTMENT
101 N EAST ST
CROWN POINT, IN 46307
(219) 662-3242

DRAWN BY: G. ABRAHAM	DATE: 5-1-07
FILED: APPENDIX "A"	SHEET: 2 OF 2