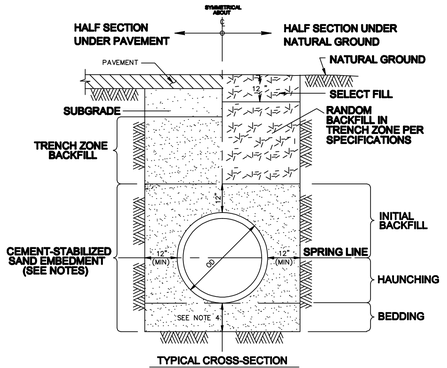


TYPICAL CROSS-SECTION

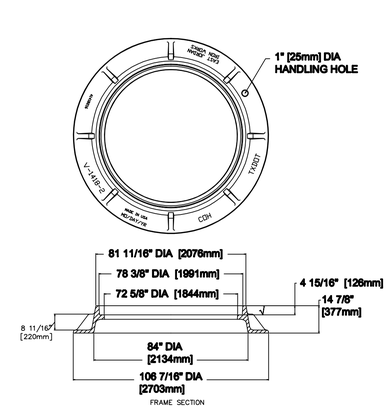
NOTES:

1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS. SEE SPECIFICATION FOR REQUIREMENTS IN OTHER CONDITIONS.
2. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:

NOMINAL PIPE SIZE	"A"
18" TO 30"	24"
OVER 30"	36"

3. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
4. MIN. BEDDING DEPTH SHALL BBE 12 INCHES.
5. ALTERNATIVE EMBEDMENT BACKFILL MATERIALS FOR FORCE MAINS MAY BE ALLOWED.

SANITARY SEWER BEDDING AND BACKFILL FOR DRY STABLE TRENCH
N.T.S.

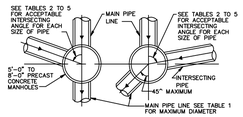


FRAME SECTION

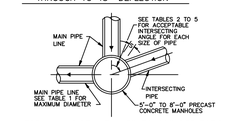
√ MACHINED SURFACE

EAST JORDAN IRON WORKS, INC. P.O. BOX 439 EAST JORDAN, MI 49727 1-800-874-4100 FAX 231-536-4458	
DRAWN SBB	DATE 01/07/00
APPROVED	DATE
V-1418-2 FRAME	
PRODUCT NO. 41418216	
CATALOG NO. V-1418-2	
REF. PRODUCT DRAWING 41418216	
EST. WT. FRAME: 105 LBS 48kg	
OPEN AREA N/A	
MAT'L SPEC. FRAME - GRAY IRON ASTM A48 CL35	
LOAD RATING HEAVY DUTY	

NOTES ON USE OF STANDARD DETAIL SAN-015



FOR MAIN PIPES FROM STRAIGHT THROUGH TO 45° DEFLECTION



FOR MAIN PIPE WITH 45^ TO 90° DEFLECTION

TABLE 1
MAXIMUM MAIN PIPE DIAMETER (I.D) IN INCHES

MANHOLE DIAMETER (FT)	STRAIGHT THROUGH TO 45° DEFLECTION	WITH 90° DEFLECTION	TABLE TO BE USED
5	36	27	2
6	42	33	3
7	48	36	4
8	60	42	5

TABLE 2
MINIMUM ANGLE AND INTERSECTING PIPE ID SIZES FOR 5'-0" DIA MANHOLE

INTERSECTING PIPE ID SIZES (INCHES)	MINIMUM INTERSECTING ANGLE IN DEGREES FOR VARIOUS MAIN PIPE ID SIZES IN INCHES											
	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"	
8	49	50	54	58	61	66	69	73	77	82	86	
10		53	57	61	64	68	71	76	79	84	88	
12			61	65	68	72	75	80	83	88	–	
15				68	71	75	79	83	87	–	–	
18					75	79	82	87	90	–	–	
21						83	86	90	–	–	–	
24							90	–	–	–	–	
27								–	–	–	–	
30									–	–	–	
33										–	–	
36											–	

TABLE 3
MINIMUM ANGLE AND INTERSECTING PIPE ID SIZES FOR 6'-0" DIA MANHOLE

INTERSECTING PIPE ID SIZES (INCHES)	MINIMUM INTERSECTING ANGLE IN DEGREES FOR VARIOUS MAIN PIPE ID SIZES IN INCHES											
	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"	42"
8	40	42	45	49	51	54	57	61	63	67	70	78
10		44	47	50	53	56	59	62	65	69	72	79
12			50	54	56	60	62	66	68	72	75	83
15				57	59	62	65	69	71	75	78	85
18					62	65	68	71	74	78	81	88
21						68	71	74	77	81	84	–
24							74	77	80	84	87	–
27								83	85	89	–	–
30									–	–	–	–
33										–	–	–
36											–	–
42												–

TABLE 4
MINIMUM ANGLE AND INTERSECTING PIPE ID SIZES FOR 7'-0" DIA MANHOLE

INTERSECTING PIPE ID SIZES (INCHES)	MINIMUM INTERSECTING ANGLE IN DEGREES FOR VARIOUS MAIN PIPE ID SIZES IN INCHES												
	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"	42"	48"
8	35	36	39	42	44	47	49	52	54	57	59	65	71
10		38	40	43	45	48	50	53	55	59	61	67	73
12			43	46	48	51	53	56	58	61	64	70	76
15				48	50	53	55	58	61	64	66	72	78
18					58	56	58	61	63	66	69	74	81
21						58	60	63	66	69	71	77	83
24							63	66	68	71	74	79	86
27								70	72	76	78	84	90
30									78	81	83	89	–
33										86	88	–	–
36											–	–	–
42												–	–
48													–

TABLE 5
MINIMUM ANGLE AND INTERSECTING PIPE ID SIZES FOR 8'-0" DIA MANHOLE

INTERSECTING PIPE ID SIZES (INCHES)	MINIMUM INTERSECTING ANGLE IN DEGREES FOR VARIOUS MAIN PIPE ID SIZES IN INCHES													
	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"	42"	48"	54"	60"
8	30	32	34	36	38	41	43	45	47	50	52	56	61	67	74
10		33	35	38	40	42	44	46	48	51	53	58	63	68	77
12			38	40	42	44	46	49	51	53	55	60	65	71	79
15				42	44	47	48	51	53	56	58	62	67	73	81
18					46	49	51	53	55	58	66	64	70	75	83
21						51	53	55	57	60	62	67	72	77	85
24							55	57	59	62	64	69	74	79	89
27								61	63	66	68	73	78	83	–
30									67	70	72	77	82	87	–
33										74	76	81	86	–	–
36											81	86	–	–	–
42												–	–	–	–
48													–	–	–
54														–	–
60															–

*** NOT APPLICABLE (INTERSECTING PIPE GREATER THAN MAIN PIPE)**

NOTES TO SPECIFIER:

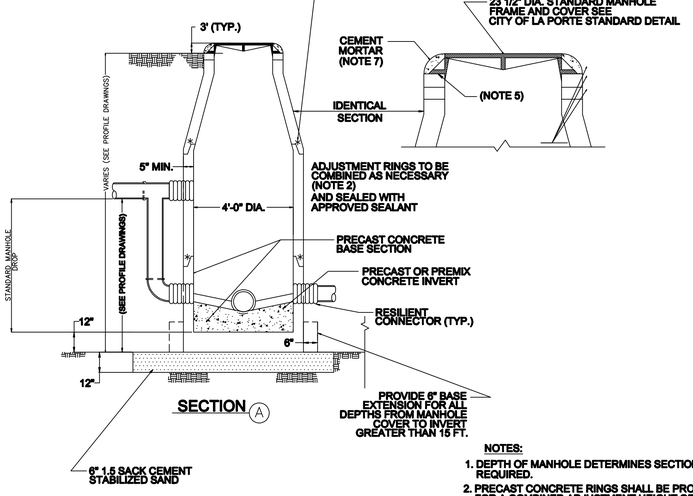
1. "-" INDICATES THAT A SPECIAL DESIGN OR THE NEXT LARGER MANHOLE SIZE SHALL BE USED.

2. TABLES 2 TO 5 ARE BASED ON A MIN SEPARATION DISTANCE "S" OF 10.5" OR INTERSECTION PIPE OD/2, WHICHEVER IS GREATER, BETWEEN MAIN AND INTERSECTING PIPES ALONG THE MANHOLE INSIDE WALL ARC.

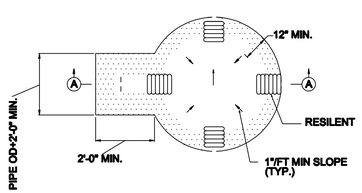
3. PIPE WALL THICKNESS USED IN TABLES 2 TO 5 ARE BASED ON ACP. THE DESIGN ENGINEER MAY CALCULATE TO SEE IF THINNER WALL PIPES CAN MEET THE SEPARATION CRITERIA FOR ANGLES SMALLER THAN THE TABLES ALLOW.

4. LIMITATIONS TO BASE HEIGHT ARE BASED ON RESISTING BUOYANT UPLIFT FORCES BASED ON WATER AT GROUND SURFACE AND A SAFETY FACTOR OF 1.20.

5. A SPECIAL DESIGN IS REQUIRED IF MANHOLE ID IS GREATER THAN 8 FT.



SECTION (A)

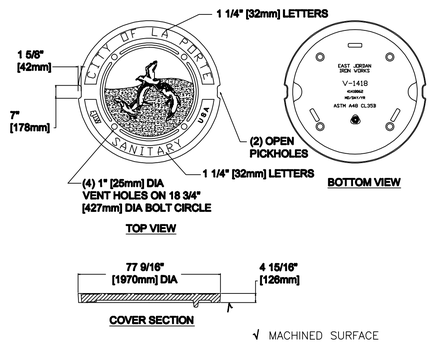


FOUNDATION PLAN

4'-0" DIA PRECAST CONCRETE MANHOLE
N.T.S.

NOTES:

1. DEPTH OF MANHOLE DETERMINES SECTIONS REQUIRED.
2. PRECAST CONCRETE RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'-6".
3. MANHOLE WALL THICKNESS FOR DEPTH EXCEEDING 12'-0" SHALL BE 12" THICK.
4. MANHOLE DROP AND INTERSECTING PIPES SHALL BE INSTALLED ONLY WHEN CALLED FOR IN PLAN AND PROFILE DRAWING.
5. SEAT MANHOLE FRAME IN SEALANT PER CITY OF LA PORTE STANDARD SPECIFICATION.
6. ECCENTRIC PRECAST CONCRETE MANHOLE MAY BE USED.
7. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREAS.
8. MIN. REINFORCING IN THE PRECAST CONCRETE BASE SHALL BE # 5 @ 8 EW.
9. PROVIDED BACKFILL TO MATCH ADJACENT PIPE TRENCH BACKFILL PER CITY OF LA PORTE STANDARD SPECIFICATION.
10. TEE INCLUDED IN PRICE OF DROP.
11. HORSE-SHOE SHAPED OPENINGS OR BREAKOUT OPENINGS SHALL NOT BE ACCEPTED.

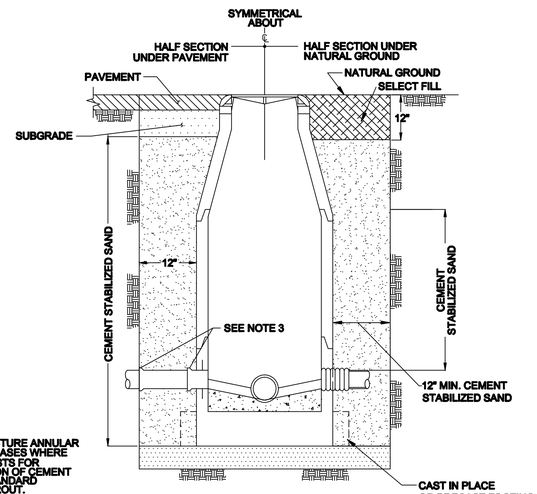


√ MACHINED SURFACE

EAST JORDAN IRON WORKS, INC. P.O. BOX 439 EAST JORDAN, MI. 49727 1-800-874-4100 FAX 231-536-4458	
DRAWN SMH	DATE 10/17/00
APPROVED	DATE
MANHOLE COVER	
PRODUCT NO. 41418062	
CATALOG NO. V-1418	
REF. PRODUCT DRAWING 41418042	
EST. WT. COVER: 160 LBS 73kg	
OPEN AREA N/A	
MAT'L SPEC. COVER - GRAY IRON ASTM A48 CL35B	
LOAD RATING HEAVY DUTY	

NOTES:

1. GROUTING OF MANHOLE STRUCTURE ANNULAR SPACE WILL BE PERMITTED IN CASES WHERE INSUFFICENT WORK SPACE EXISTS FOR PLACEMENT AND COMPACTATION OF CEMENT STABILIZED SAND. PER CLP STANDARD SPECIFICATION FOR TUNNEL GROUT.
2. THIS DETAIL ALSO APPLIES TO BACKFILL OF SHAFTS WITHOUT STRUCTURES.
3. ARRANGE PIPE JOINTS AS SHOWN WHEN USING RIGID CONNECTION TO CAST IN PLACE MANHOLE BASE.
4. NEED COAL-TAR EPOXY COATING ON INSIDE OF MANHOLE OR EQUAL.



TYPICAL CROSS - SECTION

SANITARY SEWER
MANHOLE - TYPICAL CROSS SECTION
N.T.S.

SANITARY SEWER
5'-0" TO 8'-0" DIAMETER PRECAST CONCRETE MANHOLE NOTES
N.T.S.

CITY OF LA PORTE
PLANNING DEPT.ENGINEERING DIV.
604 W. FAIRMONT PKWY.
LA PORTE. TEXAS, 77571
281-471-5020; FAX: 281-470-5005

STANDARD SANITARY SEWER DETAILS

DWN:	JR
CK'D:	RS
APP'D:	RS
Scale:	N.T.S.
Date:	MAY, 2008
Project No.:	NONE
SHEET:	1 OF 1