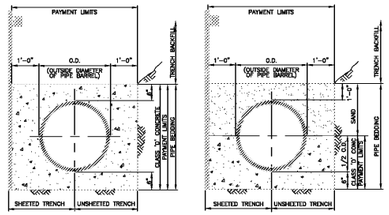
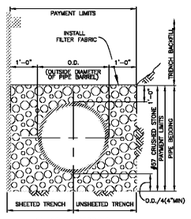


CONCRETE ENCASEMENT

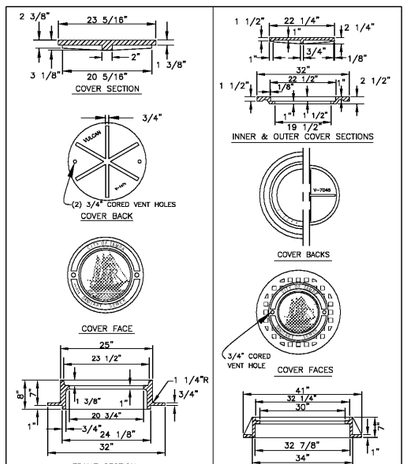
CLASS A BEDDING (CONCRETE CRADLE)

NOTES:
1. ALL TYPES OF PIPE BEDDING SHALL EXTEND TO UNDISTURBED EARTH AT SIDES AND BOTTOM OF THE TRENCH.
2. SAND AND CRUSHED STONE PIPE BEDDING SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SPECIFICATIONS.



CLASS B-I BEDDING

PIPE BEDDING DETAILS
N.T.S.

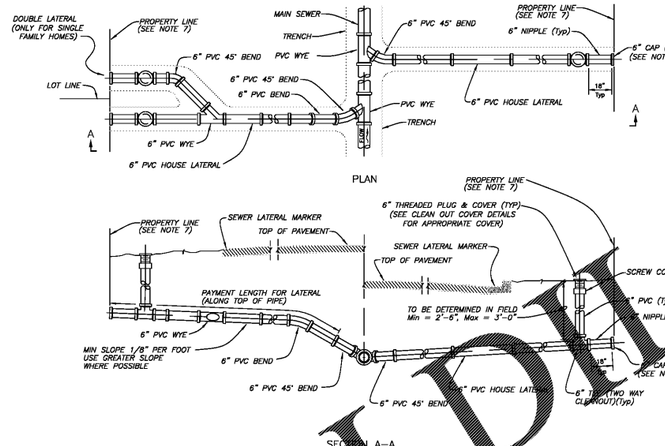


FOR MH'S OF SEWERS 24" OR LESS IN DIAMETER: VULCAN FOUNDRY NO. V-1471, U.S. FOUNDRY NO. 575-AT, OR EQUAL.

FOR MH'S OF SEWERS 27" OR GREATER IN DIAMETER: VULCAN FOUNDRY NO. V-7045, U.S. FOUNDRY NO. 230-AB-M, OR EQUAL

HEAVY DUTY CAST IRON MANHOLE FRAME & COVER DETAILS
N.T.S.

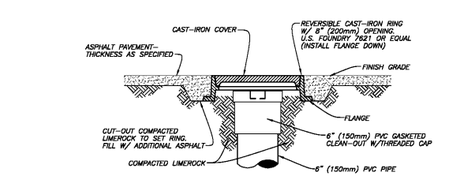
JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR DRN: BL CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS MISC. GRAVITY DETAILS	W.O. SHEET 5 OF 15
	3						
	2						
	1						



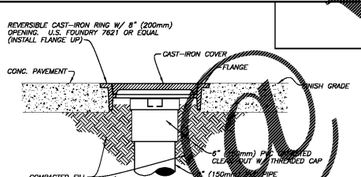
TYPE A HOUSE LATERAL DETAIL
Not to Scale

NOTES:
1. The locations of house laterals by symbols on plans are approximate only and the actual location and slopes will be determined in the field by the contractor with the approval of the engineer.
2. The minimum diameter of all house laterals shall be 6 inches.
3. The vertical alignment of the service lateral shall be designed so that no more than two (2) vertical bends are required between the connection to the gravity main and the property line.
4. House laterals which pass under drainage ditches with less than 18" of cover or which have less than 30" of cover under pavement shall be Pressure Class 350 with 40 mils (MDFT) of Protecto 401 interior coating per specifications.
5. A minimum vertical clearance of 12–inches shall be provided when crossing above a water main. However, a vertical clearance less than 12–inches but greater than 6–inches will be allowed if the lateral is installed using one of the following criteria:
   The lateral is constructed of ductile iron pipe with a minimum pressure class of 350 with 40 mils (MDFT) of Protecto 401 interior coating. The lateral is encased in at least 4–inches of concrete.
   The lateral is installed in a casing pipe with an impact strength equal to or greater than that of pressure class 350 ductile iron.
   A minimum of 6–inches of vertical clearance shall be provided when crossing below a water main with a diameter 6–inches or less. A minimum of 12–inches of clearance shall be provided when crossing below a water main with a diameter greater than 6–inches up to a diameter of 16–inches. A minimum of 18–inches of vertical clearance will be required when crossing under a water main with diameters greater than 18–inches.
   At all water main crossings, joints of the lateral pipe at the crossing shall be arranged so that no joint is within 6–ft of a joint along the water main. If the joint spacing can not be achieved, then the gravity sewer at the crossing shall be constructed of C–900 PVC.
   A minimum vertical clearance of 6–inches shall be provided when crossing above all utilities other than a water main. A minimum of 6–inches of vertical clearance shall be provided when crossing below a utility with a diameter 6–inches or less. A minimum of 12–inches of clearance shall be provided when crossing below a utility with a diameter greater than 6–inches up to a diameter of 18–inches. A minimum of 18–inches of vertical clearance will be required when crossing under utilities with diameters greater than 18–inches.
6. Transitions from SDR 35 PVC to either C900 or ductile iron pipes shall be made with PVC rigid adaptors. Transitions from SDR 35 PVC to either existing clay or concrete pipes shall be made with a Fernco 1000 series flexible coupling with stainless steel shear ring or approved equal.
7. In sub–divisions where the Developer has provided a recorded utility easement (typically 10') beyond the property line, the clean out shall be installed within the easement away from the sidewalk.
8. At the direction of the City's inspector, the contractor shall temporarily stake the cap of all laterals at the property line with a 2"x4" treated wood stake.
9. Double laterals are only allowed for single family homes on single lots.

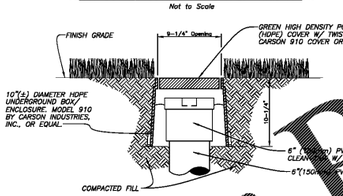
JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR DRN: BL CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS NEW LATERAL CONNECTIONS	W.O. SHEET 6 OF 15
	3						
	2						
	1						



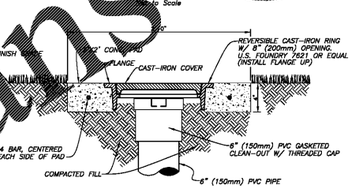
CLEAN–OUT W/ COVER FOR ASPHALT PAVED AREAS
Not to Scale



CLEAN–OUT W/ COVER FOR CONCRETE PAVED AREAS
Not to Scale



CLEAN–OUT W/ COVER FOR GRASS (NON–VEHICULAR TRAFFIC) AREAS
Not to Scale

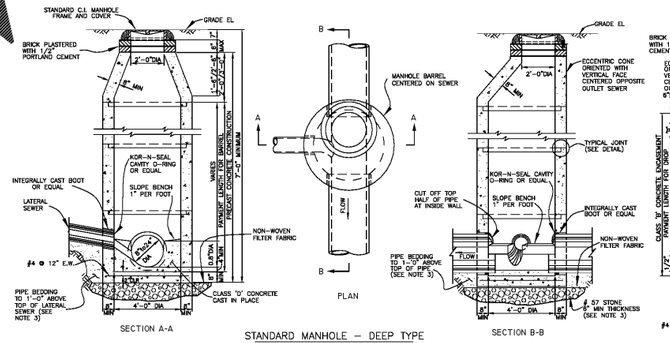


CLEAN–OUT W/COVER FOR GRASSED AREAS W/VEHICULAR TRAFFIC
Not to Scale

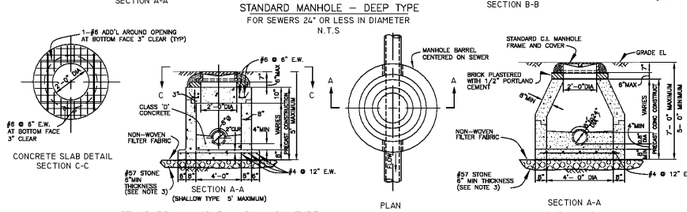
NOTES:
1. Contractor shall adjust the clean–out and cast iron ring and cover or HDPE box and cover around the cover is seated securely and the top of the cover is flush with the finish grade. The PVC pipe for the clean–out shall be no more than 4 inches deeper than the finish grade.
2. PVC pipe shall be provided with recessed cut.
3. Cast iron cover shall be provided with embossed letter "S" for identification, HDPE cover shall be marked "S" for identification.
4. Cast iron ring and cover, or HDPE box and cover, as well as the four (4 sf) square feet of material (concrete or asphalt around the clean–out), are part of the clean out installation and cost shall be included within the unit price for clean–out with no additional payment.
5. All clean–outs on this project shall be one of the four types shown on this sheet. Field conditions will determine which type.

CLEANOUT COVER DETAILS
Not to Scale

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DRN: BL CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS CLEANOUT COVER DETAILS	W.O. SHEET 8 OF 15
	3						
	2						
	1						



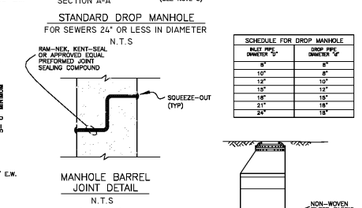
STANDARD MANHOLE – DEEP TYPE
FOR SEWERS 24" OR LESS IN DIAMETER
N.T.S



STANDARD MANHOLE – SHALLOW TYPE
FOR SEWERS 24" OR LESS IN DIAMETER
N.T.S

NOTES
1. REINFORCING STEEL FOR ALL MANHOLES SHALL CONFORM TO ASTM–C478 AND PLACED AS DESCRIBED IN THE SPECIFICATIONS.
2. ALL PIPE STUBS FROM MANHOLES FOR FUTURE CONNECTIONS OR OTHER CONTRACT DIVISIONS SHALL BE PROVIDED WITH WATER TIGHT PLUGS PLACED FROM WITHIN THE MANHOLE.
3. SEE SPECIFICATIONS FOR MATERIALS REQUIREMENTS AND PLACEMENTS AND COMPACTION OF PIPE AND STRUCTURE BEDDING.
4. STANDARD SHALLOW–TYPE MANHOLES WITH DEPTHS BETWEEN A MAXIMUM OF 7'–0" AND A MINIMUM OF 5'–0" MUST HAVE A CONCRETE CONE FOR THE TOP SECTION.
5. ALL MANHOLE JOINTS MUST BE SEALED WITH AN ACCEPTABLE JOINT SEALING COMPOUND REGARDLESS OF WHETHER AN O–RING GASKET IN A PREFORMED GROOVE IS USED.
6. FILTER FABRIC SHALL BE NON–WOVEN FABRIC PER D.O.T. SPECIFICATION SECTIONS 514 AND 985 AND SHALL BE WRAPPED ENTIRELY AROUND THE #57 STONE.

STANDARD DROP MANHOLE
FOR SEWERS 24" OR LESS IN DIAMETER
N.T.S



SCHEDULE FOR DROP MANHOLE	
INLET PIPE DIAMETER "D"	DROP PIPE DIAMETER "d"
8"	8"
10"	8"
12"	10"
15"	12"
18"	15"
21"	18"
24"	18"

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DRN: BL CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS STANDARD MANHOLE 8" TO 24"	W.O. SHEET 9 OF 15
	3						
	2						
	1						

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DPW FILE NUMBER

DPW NUMBER
17–C–00037

ISSUE DATE
???

DRAWN BY
JAM

REVISIONS

SEAL
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Jesus A. Merly, PE FL Reg No. 58113

Elevations shown within this plan set are based on North American Vertical Datum (NAVD 1988)

WASTEWATER DETAILS

SHEET NUMBER:
CD-2