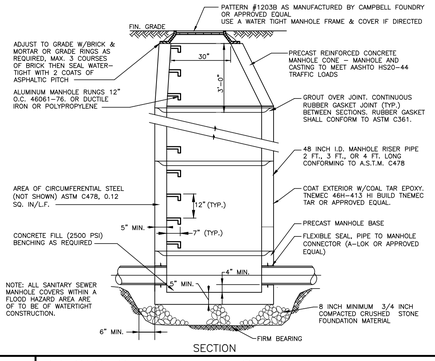
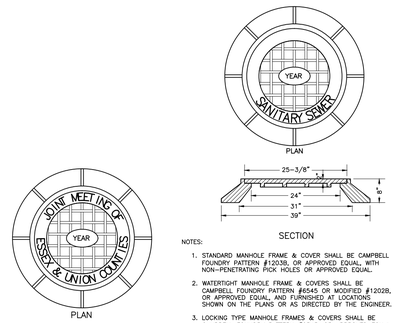
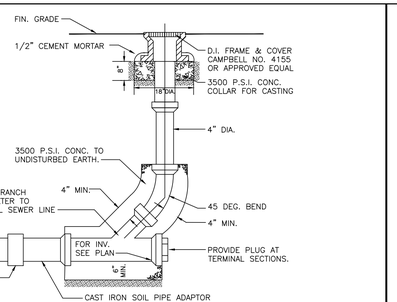


1 PRECAST SANITARY MANHOLE DETAIL
NOT TO SCALE



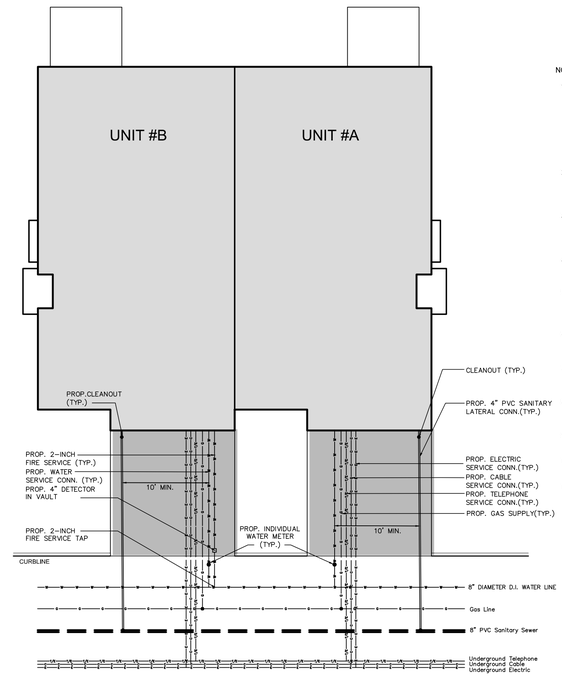
NOTES:
1. STANDARD MANHOLE FRAME & COVER SHALL BE CAMPBELL FOUNDRY PATTERN #1203B, OR APPROVED EQUAL, WITH NON-PENETRATING PICK HOLES OR APPROVED EQUAL.
2. WATERTIGHT MANHOLE FRAME & COVERS SHALL BE CAMPBELL FOUNDRY PATTERN #6545 OR MODIFIED #1202B, OR APPROVED EQUAL, AND FURNISHED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
3. LOCKING TYPE MANHOLE FRAMES & COVERS SHALL BE CAMPBELL FOUNDRY PATTERN #6545, OR APPROVED EQUAL, AND FURNISHED IN ALL EASEMENTS OR AS DIRECTED BY THE ENGINEER.

2 SANITARY MANHOLE FRAME & COVER DETAIL
NOT TO SCALE



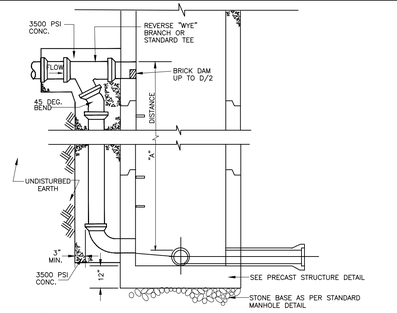
NOTE: ALL FITTINGS AND PIPE SHALL CONFORM TO THE REQUIREMENTS OF 'CAST IRON SOIL PIPE FITTINGS' A.S.T.M. DESIGNATION A-74 WITH PUSH ON JOINTS CONFORMING TO 'RUBBER GASKETS FOR CAST IRON SOIL PIPE AND FITTINGS' A.S.T.M. DESIGNATION C-564 (OR EQUIVALENT DUCTILE IRON PIPE) OR AS APPROVED BY THE GOVERNING AUTHORITY.

3 SANITARY SEWER CLEANOUT DETAIL
NOT TO SCALE



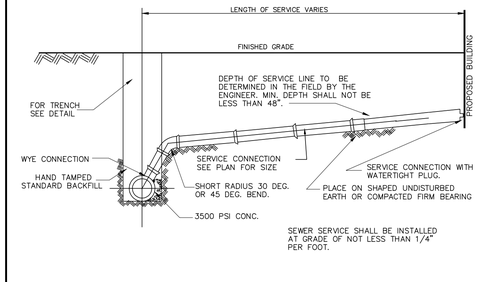
NOTES:
1. WHERE APPROPRIATE SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER SHALL BE ENCASED IN CONCRETE OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF CROSSING. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER SHALL BE PROVIDED. THE DEPARTMENT MAY ALSO REQUIRE ADDITIONAL STRUCTURAL SUPPORT FOR STORM SEWERS CROSSING OVER SEWER LINES. (N.J.A.C. 7:14A-23.6(B)4.J)
2. AN 18" MINIMUM VERTICAL CLEARANCE IS TO BE MAINTAINED AT ALL SANITARY SEWER/WATER MAIN CROSSINGS. IF THE CLEARANCE IS LESS THAN 18" A CONCRETE ENCASEMENT IS TO BE PROVIDED FOR THE SANITARY SEWER AS PER N.J.A.C.7:14A-23.6(B)4.J.
3. WATER SUPPLY SYSTEM MAINS AND SERVICE LINES SHALL CONFORM TO N.J.A.C.7:10 (NEW JERSEY SAFE DRINKING WATER ACT), N.J.A.C. 5:21 (RESIDENTIAL SITE IMPROVEMENT STANDARDS), AND N.J.A.C. 5:23 (PLUMBING SUBCODE OF THE UNIFORM CONSTRUCTION CODE).
4. HYDRANTS AND VALVES TO BE LOCATED AS SHOWN OR AS DIRECTED BY THE MUNICIPAL WATER DEPARTMENT.
5. EXISTING SEWER LATERALS TO BE REMOVED TO THE EXISTING BRANCH CONNECTION AT THE SEWER MAIN AND CAPPED AT THE BRANCH CONNECTION. CONTRACTOR SHALL NOTIFY THE GOVERNING UTILITY DEPARTMENT AT LEAST 72 HOURS BEFORE BEGINNING ABANDONMENT WORK FOR THE PURPOSES OF SCHEDULING AN INSPECTION.
6. TELEPHONE, ELECTRIC & CABLE TV WILL BE PROVIDED TO THE PROJECT SITE VIA EXISTING CONNECTIONS AND CO-ORDINATED WITH APPROPRIATE UTILITY COMPANY FOR UNDERGROUND SERVICE ACCROSS THE LOT. PER R.S.I.S. SECTION 5:21-4.12(b).
7. DEVELOPER TO COMPLY WITH RULES AND REGULATIONS OF THE MUNICIPAL UTILITIES DEPARTMENT AND THE JOINT MEETING OF ESSEX AND UNION COUNTIES INCLUDING CONNECTION FEES.
8. SANITARY SEWER LATERALS TO BE PROVIDED WITH A MINIMUM OF 4 FT. OF COVER. LATERALS TO BE PLACED IN A MINIMUM OF 6-INCHES OF CLEAN CRUSHED STONE UP TO THE SPRING LINE.
9. PROPOSED IMPROVEMENTS, WHERE APPLICABLE, TO BE IN ACCORDANCE WITH ADA REGULATIONS.
10. SEWER INFORMATION BASED ON FIELD SURVEY AS WELL AS INFORMATION FROM THE TOWNSHIP OF MILLBURN.
11. CONTRACTOR TO UTILIZE THE "CALL BEFORE YOU DIG" SYSTEM (1-800-272-1000) FOR UTILITY LOCATIONS AND TO EXCAVATE TEST PITS AS MAY BE NECESSARY.

7 TYPICAL UTILITY CONNECTIONS (TOWNHOUSE UNITS)
NOT TO SCALE



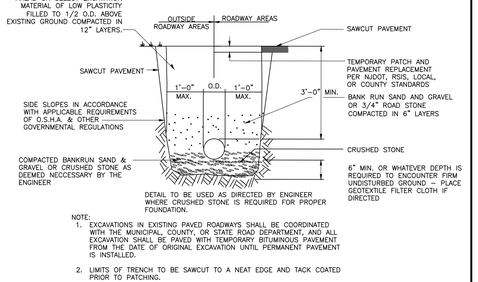
NOTES:
1. CONCRETE ENCASEMENT MAY BE ELIMINATED IF DUCTILE IRON PIPE AND FITTING ARE USED FOR DROP CONNECTION.
2. FOR DROPS INTO EXISTING MANHOLES CONTRACTOR TO EXAMINE EXISTING STRUCTURE BEFORE BEGINNING WORK AND COORDINATE WORK WITH THE MUNICIPAL ENGINEER AND/OR THE GOVERNING AGENCY.

4 SANITARY DROP CONNECTION DETAIL
NOT TO SCALE



SEWER SERVICE SHALL BE INSTALLED AT GRADE OF NOT LESS THAN 1/4" PER FOOT.

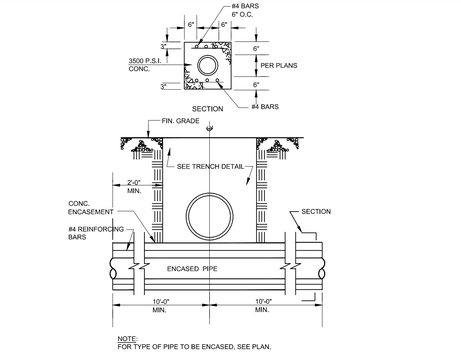
5 TYPICAL SEWER SERVICE WITH RISER DETAIL
NOT TO SCALE



DETAIL TO BE USED AS DIRECTED BY ENGINEER WHERE CRUSHED STONE IS REQUIRED FOR PROPER FOUNDATION.

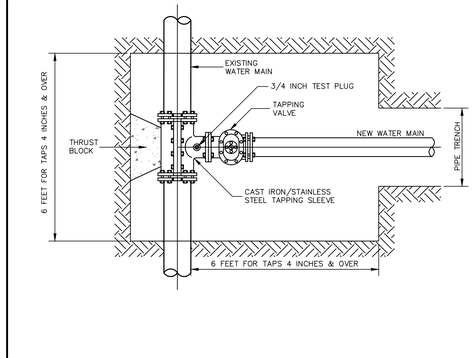
NOTE:
1. EXCAVATIONS IN EXISTING PAVED ROADWAYS SHALL BE COORDINATED WITH THE MUNICIPAL, COUNTY, OR STATE ROAD DEPARTMENT, AND ALL EXCAVATION SHALL BE PAVED WITH TEMPORARY BITUMINOUS PAVEMENT FROM THE DATE OF ORIGINAL EXCAVATION UNTIL PERMANENT PAVEMENT IS INSTALLED.
2. LIMITS OF TRENCH TO BE SAWCUT TO A NEAT EDGE AND TACK COATED PRIOR TO PATCHING.
3. HYDROHAMMER SHALL NOT BE USED WITHIN THREE (3) FEET OF PVC AND HDPE PIPE.

6 TYPICAL TRENCH DETAIL
NOT TO SCALE

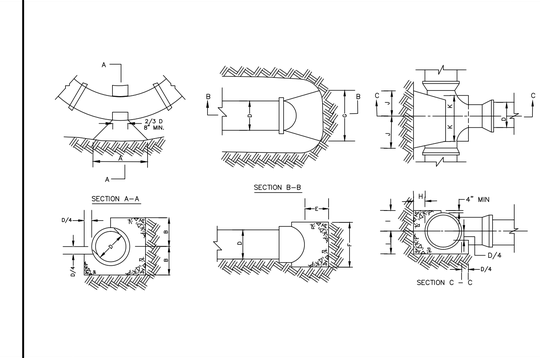


NOTE:
FOR TYPE OF PIPE TO BE ENCASED, SEE PLAN.

8 CONCRETE ENCASEMENT DETAIL
NOT TO SCALE



9 PIPE TAPPING
NOT TO SCALE



PIPE SIZE					
BEND		6"	8"	10"	12"
1/32	A	8"	8"	10"	12"
1/16 (22 1/2 DEG)	B	8"	8"	9"	10"
	C	7"	7"	8"	8"
1/16 (22 1/2 DEG)	A	1'-0"	1'-0"	1'-6"	1'-9"
	B	8"	8"	9"	10"
	C	6"	9"	10"	11"
1/8 (45 DEG)	A	1'-3"	1'-8"	2'-1"	2'-6"
	B	8"	8"	9"	11"
	C	6"	10"	10"	11"
1/4 (90 DEG)	A	2'-0"	2'-6"	3'-0"	3'-6"
	B	8"	9"	11"	1'-0"
	C	1'-10"	1'-9"	1'-8"	2'-0"

HORIZONTAL BEND

D	6"	8"	10"	12"
E	6"	8"	9"	10"
F	1'-3"	1'-8"	2'-1"	2'-6"
G	1'-5"	1'-11"	2'-3"	2'-10"

CAP

D*	6"	8"	10"	6"
H	8"	9"	10"	9"
I	8"	10"	12"	1'-2"
J	9"	9"	12"	1'-2"
K	6"	8"	8"	8"

* THROUGH PIPE DIAMETER

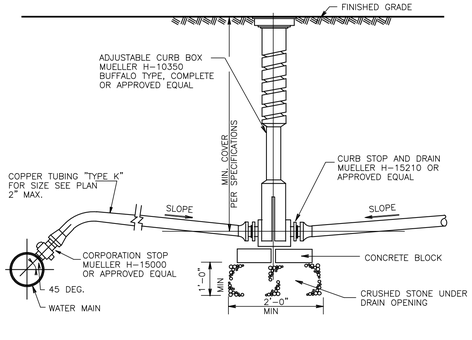
TEE

DIAMETER		6"	8"	10"	12"	18"
BEND						
1/32 (11 1/2 DEG)	A	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
	B	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
1/16 (22 1/2 DEG)	A	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
	B	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
1/8 (45 DEG)	A	2'-0"	3'-0"	4'-0"	4'-0"	4'-0"
	B	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
	C	3'-0"	4'-0"	4'-0"	4'-0"	6'-0"

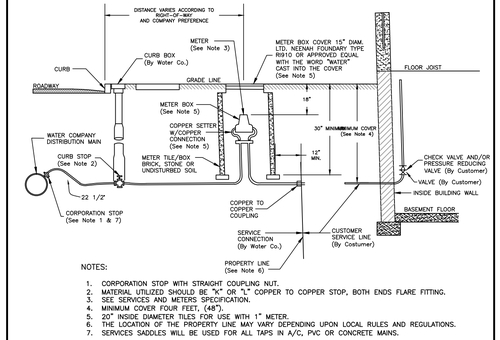
VERTICAL BEND

NOTES:
1. ALL CONCRETE TO BE 3500 P.S.I. CONC.
2. ALL THRUST BLOCKS TO BE CARRIED TO UNDISTURBED EARTH.
3. THRUST BLOCK DIMENSIONS SHOWN ARE BASED ON 150 P.S.I. TEST PRESSURE AND SOIL RESISTANCE OF 2 KIPS PER SQ. FT. CONTRACTOR SHALL ADJUST FOR OTHER CONDITIONS AND SUBMIT FOR APPROVAL.

10 THRUST BLOCKS
NOT TO SCALE

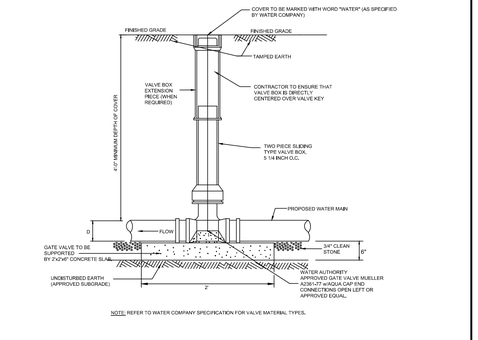


11 WATER SERVICE CONNECTION
NOT TO SCALE



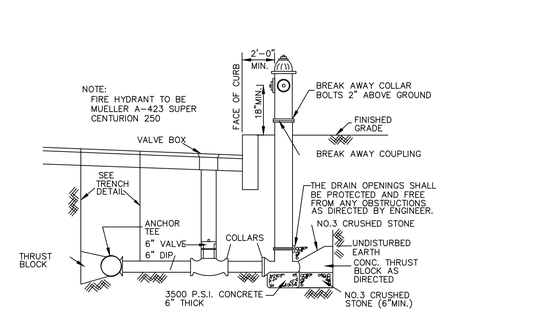
NOTES:
1. CORPORATION STOP WITH STRAIGHT COUPLING NUT.
2. MATERIAL UTILIZED SHOULD BE "K" OR "L" COPPER TO COPPER STOP, BOTH ENDS FLARE FITTING.
3. SEE SERVICES AND METERS SPECIFICATION.
4. MINIMUM COVER FOUR FEET, (48").
5. 20" INSIDE DIAMETER TILES FOR USE WITH 1" METER.
6. THE LOCATION OF THE PROPERTY LINE MAY VARY DEPENDING UPON LOCAL RULES AND REGULATIONS.
7. SERVICES SADDLES WILL BE USED FOR ALL TAPS IN A/C, PVC OR CONCRETE MAINS.

12 TYPICAL 1" SERVICE OUTSIDE METER
NOT TO SCALE



NOTE: REFER TO WATER COMPANY SPECIFICATION FOR VALVE MATERIAL TYPES.

13 TYPICAL GATE VALVE & BOX
NOT TO SCALE



14 HYDRANT
NOT TO SCALE

COUNTY NOTES:
1. A PERMIT IS REQUIRED FROM THE OFFICE OF THE COUNTY ENGINEER BEFORE BEGINNING ANY WORK WITHIN THE COUNTY RIGHT-OF-WAY.
2. ALL WORK WITHIN THE COUNTY RIGHT-OF-WAY SHALL CONFORM TO ESSEX COUNTY STANDARDS.

GENERAL NOTES:
1. CONTRACTOR SHALL NOTIFY THE MUNICIPAL ENGINEER AT LEAST 72 HOURS IN ADVANCE OF ALL EXCAVATING WORK, UTILITY AND PIPELINE INSTALLATION, AND WALL CONSTRUCTION.
2. CONTRACTOR SHALL NOTIFY ALL OTHER AGENCIES HAVING JURISDICTION (E.G. SOIL CONSERVATION DISTRICT, NJDEP, ETC.) AS PER THEIR NOTIFICATION REQUIREMENTS.
3. CONSTRUCTION WORK TO MEET THE REQUIREMENTS OF THE RESIDENTIAL SITE IMPROVEMENT STANDARDS, THE NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AS WELL AS ALL OTHER APPLICABLE STATE AND LOCAL CODES.
4. CONTRACTOR TO PROVIDE ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNAGE AND BARRICADES, BARRELS, ETC., INCLUDING FLAG PERSONS AS MAY BE REQUIRED. SIGNS AND BARRICADES TO BE AS DESCRIBED IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. (SEE TEMPORARY PEDESTRIAN WALKWAY AND TRAFFIC SAFETY NOTES).
5. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS AND UNDER MUNICIPAL SUPERVISION.
6. ALL SPECIFICATIONS, WHETHER NOTED OR NOT, TO BE IN ACCORDANCE WITH MUNICIPAL STANDARDS AS THE SAME SHALL EXIST AT THE TIME OF CONSTRUCTION.
7. CONSTRUCTION GRADE SHEETS (CUT SHEETS) MUST BE IN ACCORDANCE WITH THE APPROVED PLANS AND BE SUBMITTED TO THE TOWNSHIP ENGINEER'S OFFICE FOR APPROVAL PRIOR TO ANY CONSTRUCTION.
8. AS-BUILT DRAWINGS MUST BE SUBMITTED TO THE TOWNSHIP ENGINEER'S OFFICE FOR APPROVAL PRIOR TO ISSUANCE OF "CERTIFICATE OF OCCUPANCY". ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APPROVED PLANS.

REVISIONS

THE VILLAS AT ORANGE LAWN

CONSTRUCTION DETAILS (UTILITIES)

305 RIDGEWOOD ROAD NORTH
TAX LOT 6, BLOCK 1304

TOWNSHIP OF WEST ORANGE
ESSEX COUNTY, NJ

CASEY & KELLER INCORPORATED
NJ State Board of Professional Engineers & Land Surveyors Certificate of Authorization # 24GA27985400

LICENSED PROFESSIONAL
CIVIL ENGINEERS
LAND SURVEYORS
PLANNERS

258 Main Street, PO Box 191
Millburn, New Jersey 07041
973-379-3280 Fax:973-379-7993

MICHAEL T. LANZAFAMA
New Jersey Professional Engineer License No.24GE04035503
New Jersey Professional Planner License No.33LI00605300
DATE 09-08-2016

REFERENCE	CHK. BY	DRAWN BY
2052	MTL	PM
MAP NO.	FIELD BOOK	DWG.NO.
1140802	CAD	17
JOB NO.	AS NOTED SCALE	

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