NOTES:

1. FOR TRENCHES REQUIRING SHORING & BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING & BRACING.

2. INSTALLATIONS > 13 FEET AND < 20 FEET DEPTH SHALL BE DIP OR C900 DR 18.
DEPTH ≤ 16 FEET - CLASS "A" BEDDING
- UNDERTCUT TRENCH BOTTOM 6 INCHES MINIMUM BELOW PIPE
- FILL PIPE TO SPRING LINE WITH NO. 57 OR 67 STONE

DEPTH > 16 FEET - CLASS "B" BEDDING
- UNDERTCUT TRENCH BOTTOM 6 INCHES MINIMUM BELOW PIPE
- FILL TO 6 INCHES ABOVE PIPE WITH NO. 57 OR 67 STONE

INSTALLATIONS THAT EXCEED 20 FEET DEPTH SHALL BE DIP
NOTES:

1. FOR DEAD-END MANHOLES, THE INVERT SHALL BE EXTENDED THROUGH THE MANHOLE.

2. ON THE INTERIOR OF THE MANHOLE, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH NON-SHRINK GROUT.

3. ON THE INTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH PRECO-PLUG QUICK SETTING GROUT.

4. ON THE EXTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE CONTINUOUSLY WRAPPED WITH 12" WIDE WATERPROOF BITUMINOUS TAPE.

5. SEWER MANHOLES WITHIN 1200 FEET OF FORCE MAIN CONNECTION SHALL HAVE INTERIOR EPOXY COATED.

PRECAST MANHOLE

FRAME SHALL BE SEALED WITH RUBBER "O" RING AND BOLTED TO MANHOLE

CAST IRON RING & COVER

GRADE RINGS AS REQUIRED (2 COURSES MAX.)
MIN. HGT. = 3-1/2" MIO. MAX. HGT. = 12"

CONE SECTION
HGT. = 3' OR 4'

INTERMEDIATE SECTION
AS REQUIRED
HGT. = 16", 32", OR 48"

WATERTIGHT JOINT

MONOLITHIC LOWER BARREL & BASE SLAB SECTION VARIABLE HGT.

4" MIN

5'-0" I.D.

1'-0"

TONGUE & GROOVE JOINT WITH RUBBER "O" RING OR RAM-NECK

4000 PSI CONCRETE (REINF. NOT SHOWN) MIN. AS=0.12 IN²/FT

MANHOLE OPENING AS PER PLANS (BY MANUFACTURER)

SLOPE 1/4" PER FOOT

SHAPED INVERT CONCRETE OR MASONRY

8" NO. 57 STONE
1. FOR DEAD-END MANHOLES, THE INVERT SHALL BE EXTENDED THROUGH THE MANHOLE.

2. ON THE INTERIOR OF THE MANHOLE, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH NON-SHRINK GROUT.

3. ON THE INTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH PRECO-PLUG QUICK SETTING GROUT.

4. ON THE EXTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE CONTINUOUSLY WRAPPED WITH 12" WIDE WATERPROOF BITUMINOUS TAPE.

5. SEWER MANHOLES WITHIN 1200 FEET OF FORCE MAIN CONNECTION SHALL HAVE INTERIOR EPOXY COATED.

BOLTED FRAME & SWING LID
SEE DETAIL 700.05 (2 OF 2)

MANHOLES >3' ABOVE GRADE
REQUIRE EXTERIOR STEPS

PROPOSED GRADE

1'-4" TYP.

TONGUE & GROOVE JOINT
WITH RUBBER 'O'RING
OR RAM-NECK

4000 PSI CONCRETE
(REINFORCEMENT NOT SHOWN)
MIN AS=0.12 IN²/FT

WATERTIGHT JOINT

INTERMEDIATE SECTION
AS REQUIRED
HEIGHT= 16", 32", OR 48"

MONOLITHIC LOWER
BARREL & BASE
 SLAB SECTION
 VARIABLE HEIGHT

4" MIN

SLOPE 1/8" PER FOOT

SHAPED INVERT
CONCRETE OR MASONRY

8" NO.57 STONE

1'-0"

8" NO.57 STONE
NOTES:
1. FOR DEAD-END MANHOLES, THE INVERT SHALL BE EXTENDED THROUGH THE MANHOLE.
2. ON THE INTERIOR OF THE MANHOLE, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH NON-SHRINK GROUT.
3. ON THE INTERIOR OF ALL OUTFALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE PARGED WITH PRECO-PLUG QUICK SETTING GROUT.
4. ON THE EXTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE CONTINUOUSLY WRAPPED WITH 12" WIDE WATERPROOF BITUMINOUS TAPE.
5. SEWER MANHOLES WITHIN 1200 FEET OF FORCE MAIN CONNECTION SHALL HAVE INTERIOR EPOXY COATED.

TOWN OF APEX STANDARDS
EFFECTIVE: DECEMBER 21, 2010

PRECAST MANHOLE

FLANGE

GASKET

STAINLESS STEEL BOLTS

FACTORY CAST IN PLACE PIPE FLANGE 12" ABOVE MH TOP
FACTORY CAST IN PLACE WATERTIGHT FRAME & COVER, SEE DETAIL 7.05, SEE PLANS FOR TOP ELEVATION
SWING LID

PROPOSED GRADE

VENT DETAIL

INTERMEDIATE SECTION AS REQUIRED HEIGHT= 16", 32", OR 48"

WATERTIGHT JOINT

MONOLITHIC LOWER BARREL & BASE SLAB SECTION VARIABLE HEIGHT

4" HOT DIPPED GALV PIPE
STANDARD TYPICAL VENT
VENT OPENING TO BE 2' MIN ABOVE 100 YEAR FLOOD ELEVATION (OPENING TO BE SCREENED)

TONGUE & GROOVE JOINT WITH RUBBER 'O' RING OR RAM-NECK

4000 PSI CONCRETE (REINF NOT SHOWN) MIN AS=0.12

MANHOLE OPENING AS PER PLANS (BY MANUFACTURER)
SLOPE 1/4 PER FOOT

SHAPED INVERT CONCRETE OR MASONRY

1'-0"

8" NO. 57 STONE

4'-0" to 8'-0" I.D.
NAME OF MANUFACTURER

1 1/2" LETTERING RECESS

3/4" LETTERING RECESS

(2) OPEN PICKHOLES

(2) 1" DIA. VENT HOLES

1" LETTERING RECESS

NAME OF MANUFACTURER

THE FOLLOWING MANHOLE COVERS SHALL HAVE VENT HOLES:
- SANITARY SEWER
- STORM SEWER

THE FOLLOWING MANHOLE COVERS SHALL NOT HAVE VENT HOLES:
- WATER VALVES
- WATER AIR-RELEASE VALVES
- FORCEMAIN AIR-RELEASE VALVES

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<th>MIN. AVG. WT.</th>
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MANHOLE RING & ROTATING COVER FOR WATERTIGHT MANHOLES (NON-TRAFFIC ONLY)

3/4" RAISED LETTERING (RECESSED FLUSH)

(3) HEX HEAD 3/8"-24X1 3/8" LONG STAINLESS STEEL BOLTS WITH WASHERS & NUTS

(4) 1" DIA. HANDLING HOLES ON A 29 3/4" DIA. B.C.

3/4" RAISED LETTERING (RECESSED FLUSH)

MIN. AVG. WT.

| FRAME     | 85 LBS |
| COVER     | 65 LBS |
| TOTAL     | 150 LBS |

COVER SECTION A-A

FRAME SECTION B-B

CAST-IN STAINLESS STEEL ROD

CAST-IN GROOVE FOR 1/4" DIA. NEOPRENE GASKET

COVER SECTION B-B

FRAME SECTION A-A
FOR MANHOLES LOCATED OUTSIDE OF THE PAVEMENT ONLY
NOTES:

1. THE SEWER LINE ENTERING A DROP MANHOLE SHALL BE CONTINUOUS MATERIAL FROM THE UPSTREAM MANHOLE.

2. ONE INSIDE DROP PERMITTED WITHIN A 5'Ø MANHOLE. TWO INSIDE DROPS PERMITTED WITHIN A 6'Ø MANHOLE.

3. A DROP MANHOLE IS REQUIRED WHEN THE DIFFERENCE BETWEEN INVERTS EXCEEDS 24".

4. ALL JOINTS WITHIN THE MANHOLE SHALL BE OF THE MECHANICAL JOINT TYPE.

5. INSIDE DROP PIPE DIAMETER SHALL BE THE SAME AS THE INFLOW SEWER LINE DIAMETER.

6. STAINLESS STEEL STRAPPING SHALL BE 1" WIDE BY 1/8" THICK AND ATTACHED TO THE MANHOLE WALL WITH MASONRY ANCHORS.
NOTES:

1. PIPING CONFIGURATION TO BE USED ON ALL DROPS EXCEEDING 24".

2. DROPS TO BE CONSTRUCTED OF A.B.S. OR P.V.C. PIPE.

3. PIPING CONFIGURATION TO BE INSTALLED WITHIN 3" OF MANHOLE WALL.

4. SERVICE LINE MAY NOT ENTER MANHOLE THROUGH CONE SECTION OR ANY JOINT.

5. STAINLESS STEEL STRAPPING SHALL BE 1" WIDE BY 1/8" THICK AND ATTACHED TO THE MANHOLE WALL WITH MASONRY ANCHORS.
STANDARD CAST IRON RING & COVER

2" OPENING

MANHOLE STEPS AT 16" OC

2" GATE VALVE

FORCE MAIN

12" Ø OPENING

END VIEW

5'-0" MIN COVER REQ'D

5'-0" I.D. PRECAST MANHOLE

A.R.I. TYPE D-025 COMBINATION AIR VALVE

TAPPED TEE

DUCTILE IRON PIPE-1 JOINT EACH SIDE OF TEE

5"

4" MIN

12" #67 STONE

FRONT VIEW

NOTES:
1. ALL THREADED PIPING SHALL BE BRASS W/ BRONZE FITTINGS AND VALVES.
2. MANHOLE INTERIOR SHALL RECEIVE 2 COATS SHERWIN WILLIAMS SHER-FLEX OR EQUIVALENT WITH A TOTAL DRY FILM THICKNESS OF 80-125 MILS.
NOTES:

1. ALL PIPE AND FITTINGS SHALL BE OF A CONSISTENT MATERIAL THROUGHOUT THE ENTIRE SERVICE. EXCEPTION: STAND PIPE MAY TRANSITION TO SCH 40 PVC AT TOP OF WYE.

2. SERVICE SADDLES SHALL BE A ROMAC INDUSTRIES STYLE 'CB' OR EQUAL.

DEPTH ≤ 16 FEET - CLASS "A" BEDDING
- UNDERCUT TRENCH BOTTOM 6 INCHES MINIMUM BELOW PIPE
- FILL PIPE TO SPRING LINE WITH NO. 57 OR 67 STONE

DEPTH > 16 FEET - CLASS "B" BEDDING
- UNDERCUT TRENCH BOTTOM 6 INCHES MINIMUM BELOW PIPE
- FILL TO 6 INCHES ABOVE PIPE WITH NO. 57 OR 67 STONE

4" C900 DR 18

MATERIAL TRANSITION

\( \frac{1}{8} \) BEND

WATER TIGHT PLUG

\( \frac{3}{8} \) OR \( \frac{1}{2} \) BEND

IN-LINE WYE FITTING OR APPROVED TAPPING SADDLE PROVIDED AT TOP QUARTER OF THE MAIN

IN-LINE WYE REQUIRED FOR SANITARY SEWER SERVICES INSTALLED WITH NEW CONSTRUCTION WHEN PARCEL AND SERVICE LOCATIONS ARE KNOWN AND IDENTIFIED ON APPROVED PLANS

TOWN OF APEX STANDARDS

4" SANITARY SEWER TAP & SERVICE FOR SEWER MAINS OVER 13' DEEP

STD. NO. 700.10

EFFECTIVE: JULY 21, 2015

SHEET 1 OF 1
NOTES:

1. NO HORIZONTAL ALIGNMENT CHANGE CAN BE MADE WITHIN THIS MANHOLE TYPE. USE ON GRADES 10% OR GREATER.

2. EACH JOINT OF PIPE BETWEEN HIGH VELOCITY MANHOLE & MANHOLE UPGRADE SHALL HAVE A THRUST COLLAR. SEE STD.NO. 6.12.
1. FLOW SHALL BE MAINTAINED DURING CONSTRUCTION.

2. THIS DETAIL TO BE USED WHEN A 6" OR LARGER LATERAL NECESSITATES CONSTRUCTION OF A NEW MANHOLE.

3. MANHOLE PAD TO REST UPON A MINIMUM 6" COMPACTED #67 STONE BASE.
NOTES:
1. LOCATION OF VENT PIPE SHALL BE AS DIRECTED BY THE CONSTRUCTION INSPECTOR.
2. WATERTIGHT RING AND COVER VENT TOP TO BE ABOVE 100 YEAR FLOOD PLAIN ELEVATION.
CLEANOUT COVER FOR VEHICLE TRAFFIC AREAS

18" SQUARE CONCRETE ENCASEMENT

CAST IRON/ DUCTILE IRON CLEANOUT COVER

FINISHED GRADE

CAP 4" MAX.

8"

6" MIN.

4" PVC PIPE

6" PVC ENCASEMENT PIPE

3000 PSI CONCRETE

PIPE SEAL GASKET

4" PANELLA TYPE CLEANOUT WITH COUNTER SUNK HEAD

SAND CUSHION

ASPHALT OR CONCRETE AS DETERMINED BY TRAFFIC SURFACE

3000 PSI CONCRETE

PROVIDE RUBBER GASKET

4"

10-3/4"

11"

18"
CROSS SECTION

CL CREEK

TOP OF BANK

VARIES

TOP OF BANK

5'-0"

18" MINIMUM

DUCTILE IRON PIPE

12"

LENGTH VARIES

CONCRETE ENCASEMENT

NOTES:

1. CONCRETE SHALL BE 3000 P.S.I.

2. CONCRETE ENCASEMENT NOT REQUIRED WHEN PIPE IS AT LEAST 3 FEET UNDER CENTERLINE OF CREEK BOTTOM.
NOTES:
1. PLUG SHALL BE INSTALLED ON THE DOWNSTREAM OUTLET.

2. PLUG SHALL BE SECURED TO A MINIMUM OF 2 MANHOLE STEPS BY STAINLESS STEEL CABLE WITH CORROSION-RESISTANT FASTENERS.

3. PLUG ASSEMBLY SHALL BE TAGGED WITH CONTRACTOR'S NAME & CONTACT NUMBER ON A CORROSION-RESISTANT PLATE.

4. PLUGGED MANHOLE SHALL BE MAINTAINED CONTINUALLY TO ALLOW ACCESS TO THE PLUG.