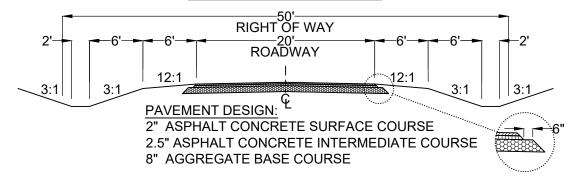
# RIGHT OF WAY 2.5' ROADWAY 3:1 MAX PAVEMENT DESIGN: 2" ASPHALT CONCRETE SURFACE COURSE

8" AGGREGATE BASE COURSE

2.5" ASPHALT CONCRETE INTERMEDIATE COURSE

#### RURAL RESIDENTIAL STREET



## ALLEY 26' RIGHT OF WAY 16' \* ALLEY

PAVEMENT DESIGN:

- 3" ASPHALT CONCRETE SURFACE COURSE
- 8" AGGREGATE BASE COURSE
- \* ONE WAY ALLEY OPTIONAL WITH VALLEY GUTTER (16' B-B)

#### NOTE:

- NORMAL CROWN (REVERSE CROWN FOR ALLEYS) OF 1/4 INCH PER FOOT SHALL BE USED UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
- 2. WATER AND SEWER UTILITIES SHALL NOT BE SERVED FROM THE ALLEY RIGHT OF WAY.
- 3. RURAL RESIDENTIAL STREET MAY BE USED WHERE PERMITTED BY THE UDO.
- 4. GRASSED SWALES SHALL MEET THE APPLICABLE DESIGN REQUIREMENTS SET FORTH IN THE DWQ BMP MANUAL.
- 5. GRASSED SWALES MAY BE SUBJECT TO THE REQUIREMENTS SET FORTH IN UDO SECTION 6.1.12.

TOWN OF APEX STANDARDS

STREET TYPICAL SECTIONS RESIDENTIAL

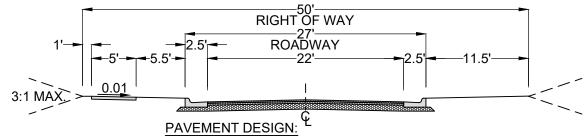
STD. NO.

300.01

SHEET 1 OF 4

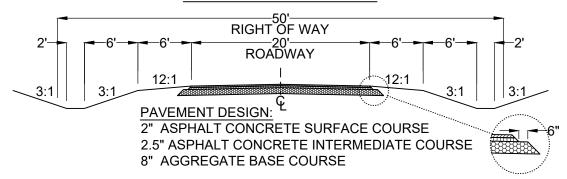
| EFFECTIVE: NOVEMBER 19, 2019 |

#### RESIDENTIAL STREET



2" ASPHALT CONCRETE SURFACE COURSE 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE 8" AGGREGATE BASE COURSE

#### **RURAL RESIDENTIAL STREET**



## ALLEY 26'RIGHT OF WAY 16' \* ALLEY

#### PAVEMENT DESIGN:

- 3" ASPHALT CONCRETE SURFACE COURSE
- 8" AGGREGATE BASE COURSE
- \* ONE WAY ALLEY OPTIONAL WITH VALLEY GUTTER (16' B-B)

#### NOTE:

- NORMAL CROWN (REVERSE CROWN FOR ALLEYS) OF 1/4 INCH PER FOOT SHALL BE USED UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
- 2. WATER AND SEWER UTILITIES SHALL NOT BE SERVED FROM THE ALLEY RIGHT OF WAY.
- 3. RURAL RESIDENTIAL STREET MAY BE USED WHERE PERMITTED BY THE UDO.
- 4. GRASSED SWALES SHALL MEET THE APPLICABLE DESIGN REQUIREMENTS SET FORTH IN THE DWQ BMP MANUAL.
- 5. GRASSED SWALES MAY BE SUBJECT TO THE REQUIREMENTS SET FORTH IN UDO SECTION 6.1.12.

TOWN OF APEX STANDARDS

STREET TYPICAL SECTIONS RESIDENTIAL

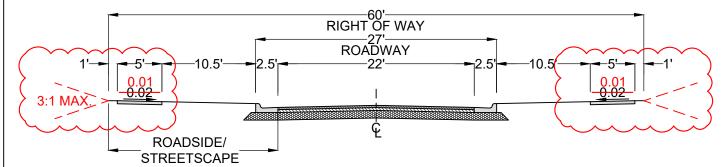
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300.01

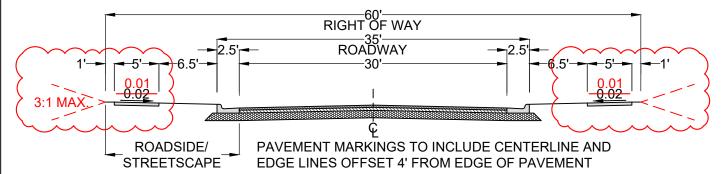
SHEET 1 OF 4

EFFECTIVE: APRIL 12, 2022

#### MINOR COLLECTOR STREET



#### MAJOR COLLECTOR STREET / 2-LANE URBAN THOROUGHFARE



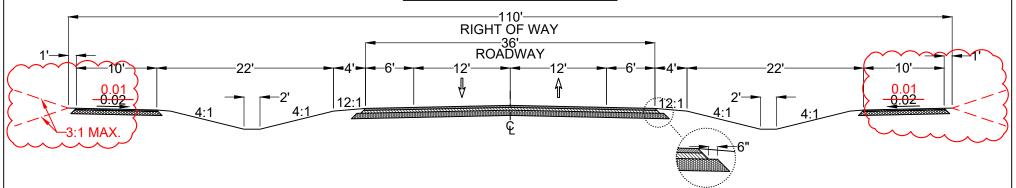
#### NOTE:

- 1. PAVEMENT DESIGN SHOWN IS THE MINIMUM FOR THE RESPECTIVE TYPICAL SECTION. CALCULATED PAVEMENT DESIGN MAY DIFFER.
- NORMAL CROWN OF 1/4 INCH PER FOOT SHALL BE USED UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
- 3. ROADSIDE / STREETSCAPE
  TREATMENTS ARE CONTEXT
  SENSITIVE. REFER TO ADVANCE
  APEX: THE 2045 TRANSPORTATION
  PLAN FOR APPROPRIATE CONTEXT,
  AND BICYCLE AND PEDESTRIAN
  PLANNED FACILITIES MAP.

#### PAVEMENT DESIGN:

- 3" ASPHALT CONCRETE SURFACE COURSE
- 4" ASPHALT CONCRETE INTERMEDIATE COURSE
- 10" AGGREGATE BASE COURSE

#### 2-LANE RURAL THOROUGHFARE



TOWN OF APEX STANDARDS

STREET TYPICAL SECTIONS
COLLECTOR/2-LANE THOROUGHFARE

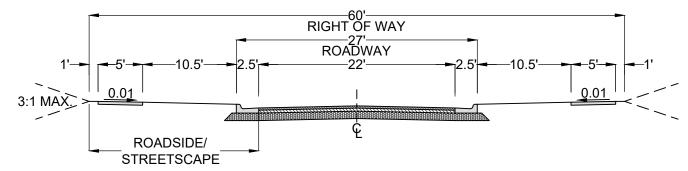
STD. NO.

300.01

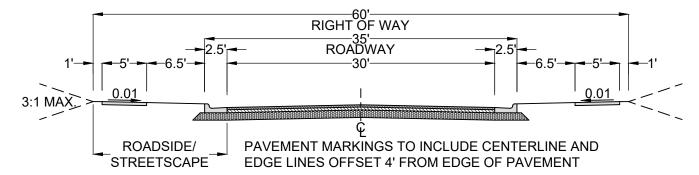
SHEET 2 OF 4

EFFECTIVE: NOVEMBER 19, 2019

#### MINOR COLLECTOR STREET



#### MAJOR COLLECTOR STREET / 2-LANE URBAN THOROUGHFARE



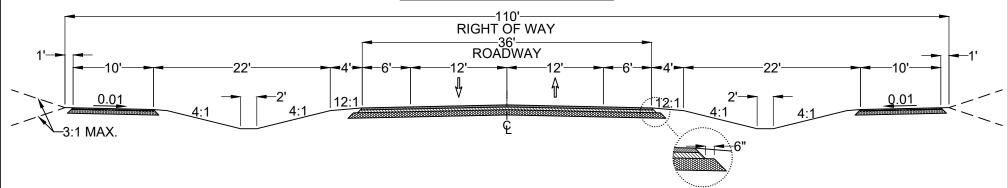
#### NOTE:

- 1. PAVEMENT DESIGN SHOWN IS THE MINIMUM FOR THE RESPECTIVE TYPICAL SECTION. CALCULATED PAVEMENT DESIGN MAY DIFFER.
- NORMAL CROWN OF 1/4 INCH PER FOOT SHALL BE USED UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
- 3. ROADSIDE / STREETSCAPE
  TREATMENTS ARE CONTEXT
  SENSITIVE. REFER TO ADVANCE
  APEX: THE 2045 TRANSPORTATION
  PLAN FOR APPROPRIATE CONTEXT,
  AND BICYCLE AND PEDESTRIAN
  PLANNED FACILITIES MAP.

#### PAVEMENT DESIGN:

- 3" ASPHALT CONCRETE SURFACE COURSE
- 4" ASPHALT CONCRETE INTERMEDIATE COURSE
- 10" AGGREGATE BASE COURSE

#### 2-LANE RURAL THOROUGHFARE



TOWN OF APEX STANDARDS

EFFECTIVE: APRIL 12, 2022

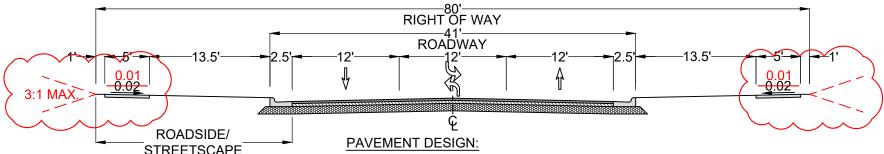
### STREET TYPICAL SECTIONS COLLECTOR/2-LANE THOROUGHFARE

STD. NO.

300.01

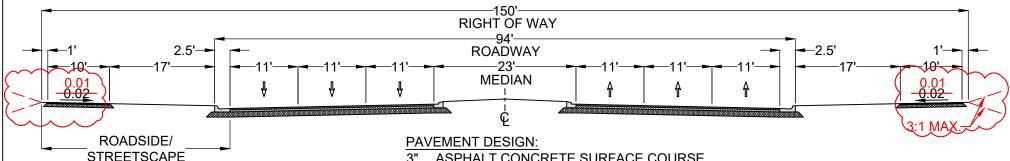
SHEET 2 OF 4

#### 3-LANE THOROUGHFARE



- ASPHALT CONCRETE SURFACE COURSE
- ASPHALT CONCRETE INTERMEDIATE COURSE
- 10" AGGREGATE BASE COURSE

#### **6-LANE THOROUGHFARE**



- ASPHALT CONCRETE SURFACE COURSE
- 4" ASPHALT CONCRETE INTERMEDIATE COURSE
- 10" AGGREGATE BASE COURSE

#### NOTE:

- PAVEMENT DESIGN SHOWN IS THE MINIMUM FOR THE RESPECTIVE TYPICAL SECTION. CALCULATED PAVEMENT DESIGN MAY DIFFER.
- 2. NORMAL CROWN OF 1/4 INCH PER FOOT SHALL BE USED UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
- 3. LANE WIDTHS SHALL BE MARKED PER THE DIMENSIONS SHOWN.
- 4. ROADSIDE/STREETSCAPE TREATMENTS ARE CONTEXT SENSITIVE. REFER TO ADVANCE APEX: THE 2045 TRANSPORTATION PLAN FOR APPROPRIATE CONTEXT, AND BICYCLE AND PEDESTRIAN PLANNED FACILITIES MAP.

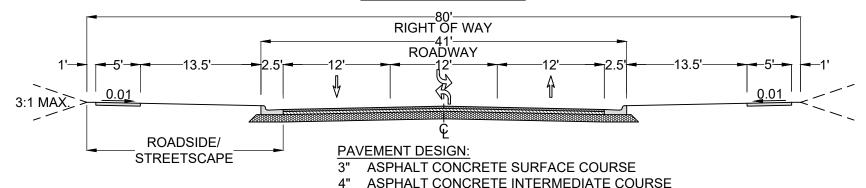
TOWN OF APEX **STANDARDS** 

STREET TYPICAL SECTIONS 3 & 6-LANE THOROUGHFARE STD. NO.

300.01

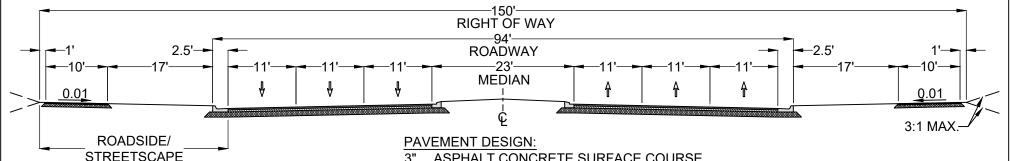
EFFECTIVE: NOVEMBER 19, 2019 SHEET 3 OF 4

#### 3-LANE THOROUGHFARE



#### **6-LANE THOROUGHFARE**

10" AGGREGATE BASE COURSE



ASPHALT CONCRETE SURFACE COURSE

ASPHALT CONCRETE INTERMEDIATE COURSE

10" AGGREGATE BASE COURSE

#### NOTE:

- PAVEMENT DESIGN SHOWN IS THE MINIMUM FOR THE RESPECTIVE TYPICAL SECTION. CALCULATED PAVEMENT DESIGN MAY DIFFER.
- 2. NORMAL CROWN OF 1/4 INCH PER FOOT SHALL BE USED UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
- LANE WIDTHS SHALL BE MARKED PER THE DIMENSIONS SHOWN.
- 4. ROADSIDE/STREETSCAPE TREATMENTS ARE CONTEXT SENSITIVE. REFER TO ADVANCE APEX: THE 2045 TRANSPORTATION PLAN FOR APPROPRIATE CONTEXT, AND BICYCLE AND PEDESTRIAN PLANNED FACILITIES MAP.

TOWN OF APEX **STANDARDS** 

STREET TYPICAL SECTIONS 3 & 6-LANE THOROUGHFARE STD. NO.

300.01

EFFECTIVE: APRIL 12, 2022 SHEET 3 OF 4

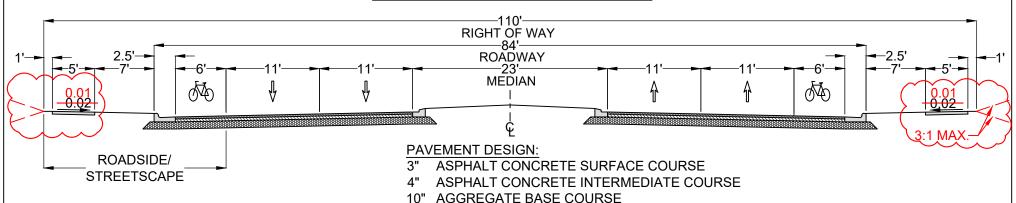
# APEX PEAKWAY RIGHT OF WAY ROADWAY 1' ROADWAY 11' ROADWAY 11' MEDIAN MULTI-USE PATH PAVEMENT DESIGN: 3" ASPHALT CONCRETE SURFACE COURSE 2" ASPHALT CONCRETE SURFACE COURSE

#### 4-LANE MEDIAN-DIVIDED THOROUGHFARE

ASPHALT CONCRETE INTERMEDIATE COURSE

10" AGGREGATE BASE COURSE

6" AGGREGATE BASE COURSE



#### NOTE:

- 1. PAVEMENT DESIGN SHOWN IS THE MINIMUM FOR THE RESPECTIVE TYPICAL SECTION. CALCULATED PAVEMENT DESIGN MAY DIFFER.
- 2. NORMAL CROWN OF 1/4 INCH PER FOOT SHALL BE USED UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
- 3. LANE WIDTHS SHALL BE MARKED PER THE DIMENSIONS SHOWN.
- 4. APEX PEAKWAY SHALL UTILIZE THE 4-LANE MEDIAN-DIVIDED THOROUGHFARE WITH MULTI-USE PATH TYPICAL.
- 5. ROADSIDE/STREETSCAPE TREATMENTS ARE CONTEXT SENSITIVE. REFER TO ADVANCE APEX: THE 2045 TRANSPORTATION PLAN FOR APPROPRIATE CONTEXT, AND BICYCLE AND PEDESTRIAN PLANNED FACILITIES MAP.
- 6. A MINIMUM 4-FOOT WIDE BIKE LANE CAN BE USED IN TOWN CENTER AND TRANSIT-ORIENTED DEVELOPMENT CONTEXT AREAS IF ADJACENT TO A STANDARD CURB AND GUTTER SECTION AND WITHOUT A PARKING LANE.

TOWN OF APEX STANDARDS

STREET TYPICAL SECTIONS
4-LANE THOROUGHFARE

STD. NO.

300.01

EFFECTIVE: NOVEMBER 19, 2019

SHEET 4 OF 4

## RIGHT OF WAY ROADWAY 1' STATE OF WAY ROADWAY 11' MEDIAN MULTI-USE PATH

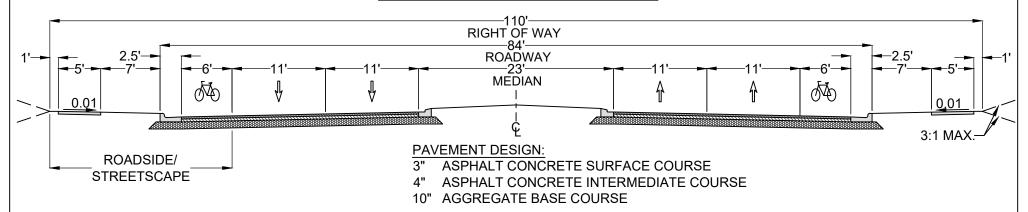
#### PAVEMENT DESIGN:

- 3" ASPHALT CONCRETE SURFACE COURSE
- 4" ASPHALT CONCRETE INTERMEDIATE COURSE
- 10" AGGREGATE BASE COURSE

#### MULTI-USE PATH PAVEMENT DESIGN:

- 2" ASPHALT CONCRETE SURFACE COURSE
- 6" AGGREGATE BASE COURSE

#### 4-LANE MEDIAN-DIVIDED THOROUGHFARE



#### NOTE:

- 1. PAVEMENT DESIGN SHOWN IS THE MINIMUM FOR THE RESPECTIVE TYPICAL SECTION. CALCULATED PAVEMENT DESIGN MAY DIFFER.
- 2. NORMAL CROWN OF 1/4 INCH PER FOOT SHALL BE USED UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
- 3. LANE WIDTHS SHALL BE MARKED PER THE DIMENSIONS SHOWN.
- 4. APEX PEAKWAY SHALL UTILIZE THE 4-LANE MEDIAN-DIVIDED THOROUGHFARE WITH MULTI-USE PATH TYPICAL.
- 5. ROADSIDE/STREETSCAPE TREATMENTS ARE CONTEXT SENSITIVE. REFER TO ADVANCE APEX: THE 2045 TRANSPORTATION PLAN FOR APPROPRIATE CONTEXT, AND BICYCLE AND PEDESTRIAN PLANNED FACILITIES MAP.
- 6. A MINIMUM 4-FOOT WIDE BIKE LANE CAN BE USED IN TOWN CENTER AND TRANSIT-ORIENTED DEVELOPMENT CONTEXT AREAS IF ADJACENT TO A STANDARD CURB AND GUTTER SECTION AND WITHOUT A PARKING LANE.

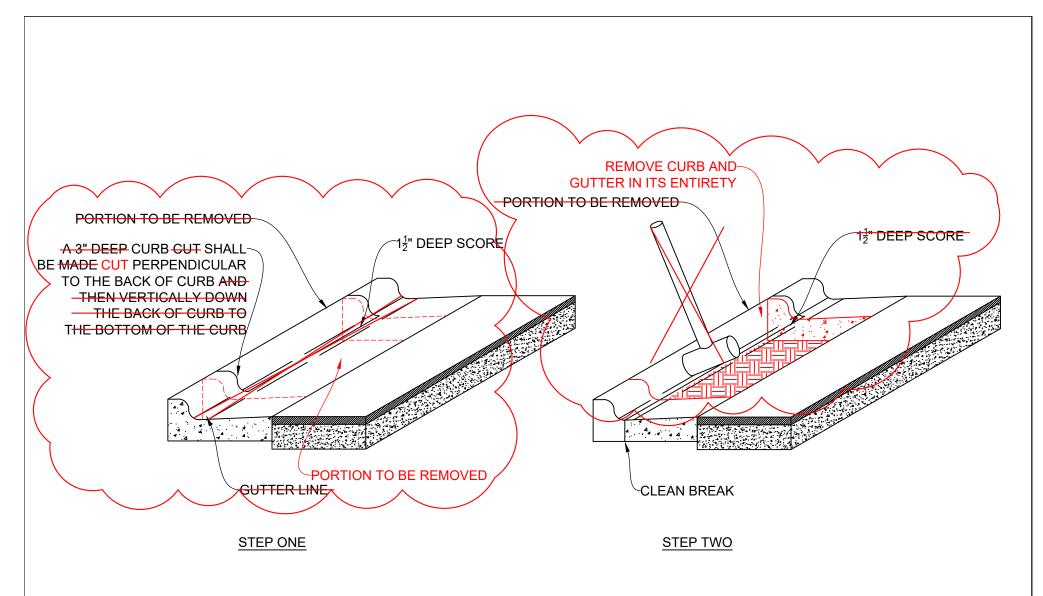
TOWN OF APEX STANDARDS

STREET TYPICAL SECTIONS
4-LANE THOROUGHFARE

STD. NO.

300.01

EFFECTIVE: APRIL 12, 2022 4-LANE THOROUGHFARE SHEET 4 OF 4



- 1. IF PERPENDICULAR CURB CUT IS WITHIN 5' FROM A JOINT, THEN THE PARALLEL CUT SHALL BE MADE TO THAT JOINT.
- 2. FOR REPAIRS TO CURB, A 5' MINIMUM SECTION MUST BE REMOVED AND REPLACED (JOINT TO JOINT.)

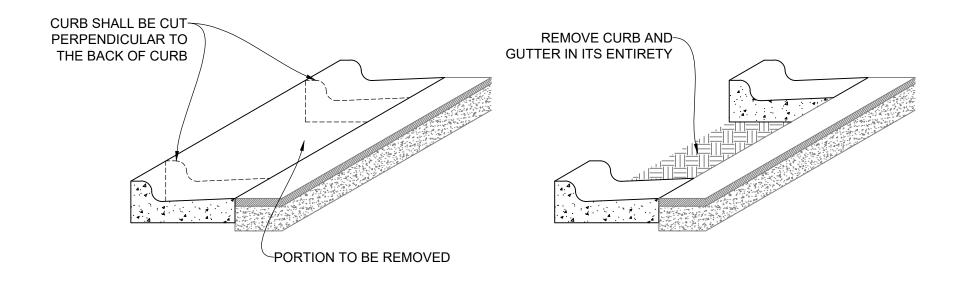
TOWN OF APEX STANDARDS

METHOD OF REMOVING EXISTING CURB

STD. NO.

300.04

EFFECTIVE: DECEMBER 3, 2002



STEP ONE STEP TWO

#### NOTES:

- 1. IF PERPENDICULAR CURB CUT IS WITHIN 5' FROM A JOINT, THEN THE CUT SHALL BE MADE AT THE JOINT.
- 2. FOR REPAIRS TO CURB, A 5' MINIMUM SECTION MUST BE REMOVED AND REPLACED (JOINT TO JOINT.)

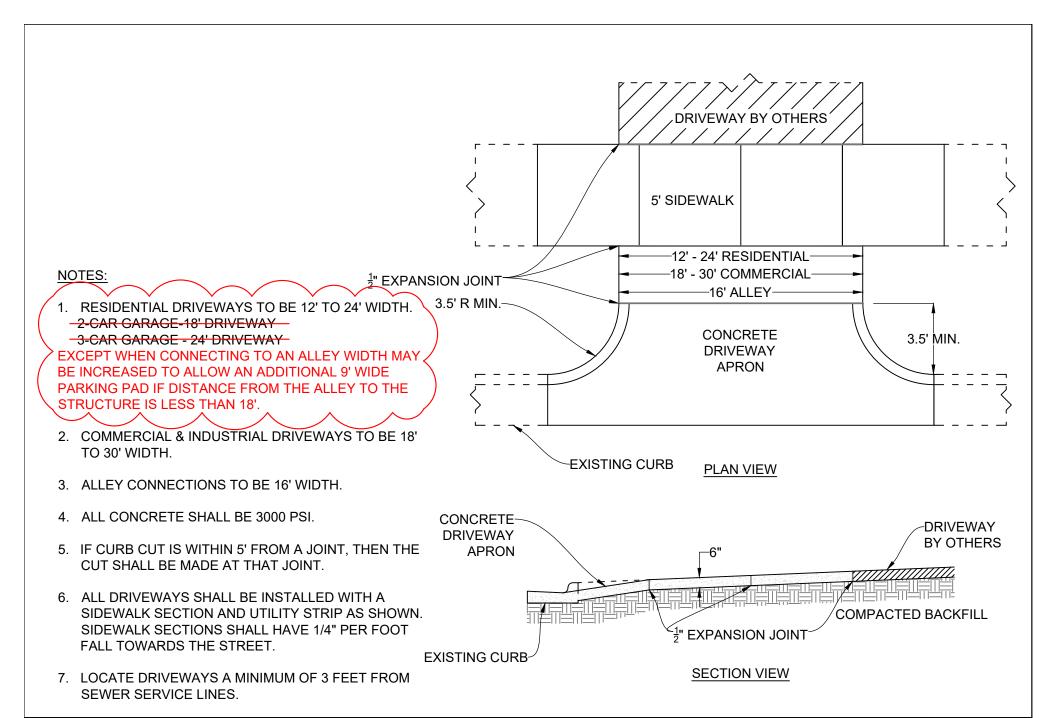
TOWN OF APEX STANDARDS

METHOD OF REMOVING EXISTING CURB

STD. NO.

300.04

EFFECTIVE: APRIL 12, 2022



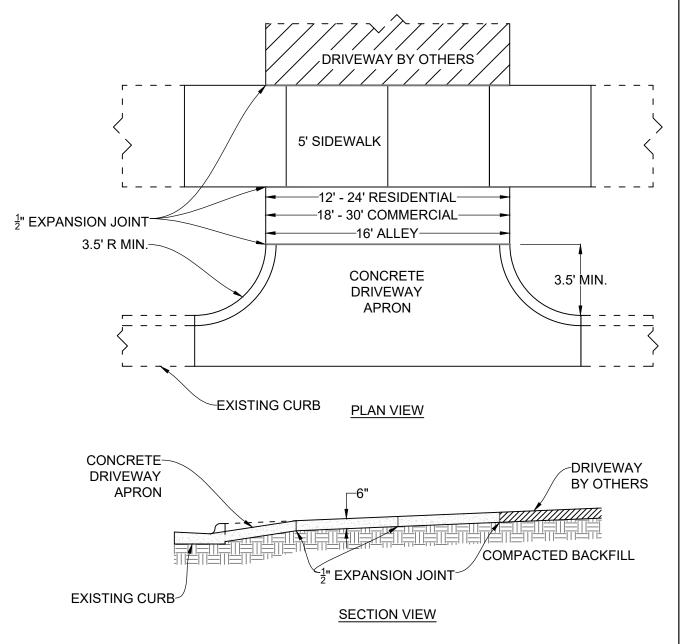
**DRIVEWAY APRON** 

STD. NO.

300.07

EFFECTIVE: JANUARY 20, 2015

- 1. RESIDENTIAL DRIVEWAYS TO BE 12' TO 24' WIDTH EXCEPT WHEN CONNECTING TO AN ALLEY WIDTH MAY BE INCREASED TO ALLOW AN ADDITIONAL 9' WIDE PARKING PAD IF DISTANCE FROM THE ALLEY TO THE STRUCTURE IS LESS THAN 18'.
- 2. COMMERCIAL & INDUSTRIAL DRIVEWAYS TO BE 18' TO 30' WIDTH.
- 3. ALLEY CONNECTIONS TO BE 16' WIDTH.
- 4. ALL CONCRETE SHALL BE 3000 PSI.
- 5. IF CURB CUT IS WITHIN 5' FROM A JOINT, THEN THE CUT SHALL BE MADE AT THAT JOINT.
- 6. ALL DRIVEWAYS SHALL BE INSTALLED WITH A SIDEWALK SECTION AND UTILITY STRIP AS SHOWN. SIDEWALK SECTIONS SHALL HAVE 1/4" PER FOOT FALL TOWARDS THE STREET.
- 7. LOCATE DRIVEWAYS A MINIMUM OF 3 FEET FROM SEWER SERVICE LINES.



TOWN OF APEX STANDARDS

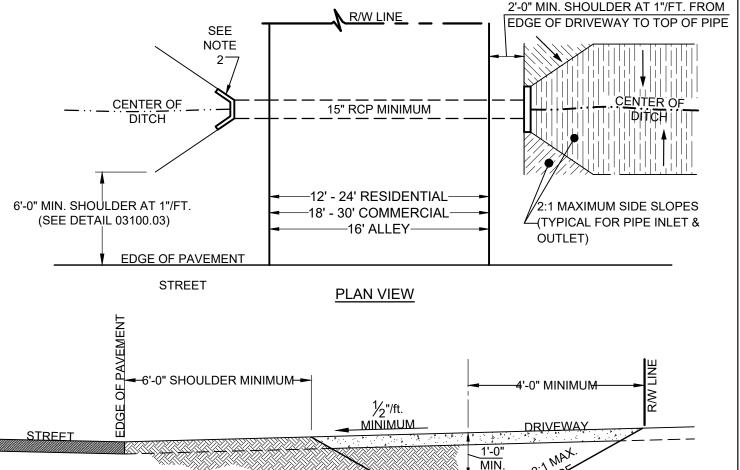
DRIVEWAY APRON (CURB & GUTTER)

STD. NO.

300.07

EFFECTIVE: APRIL 12, 2022

- 1. RESIDENTIAL DRIVEWAYS TO BE 12' TO 24' WIDTH EXCEPT WHEN CONNECTING TO AN ALLEY WIDTH MAY BE INCREASED TO ALLOW AN ADDITIONAL 9' WIDE PARKING PAD IF DISTANCE FROM THE ALLEY TO THE STRUCTURE IS LESS THAN 18'.
- COMMERCIAL & INDUSTRIAL DRIVEWAYS TO BE 18' TO 30' WIDTH.
- ALLEY CONNECTIONS TO BE 16' WIDTH.
- 4. ALL CONCRETE SHALL BE 3000 PSI.
- 5. PIPE SHALL BE SIZED BY ENGINEER.
- HEADWALLS, ENDWALLS, OR FLARED END SECTIONS SHALL BE INSTALLED AT ENDS OF DRIVEWAY PIPE.
- 7. LOCATE DRIVEWAYS A MINIMUM OF 3 FEET FROM SEWER SERVICE LINES.



SECTION VIEW

PIPE

TOWN OF APEX STANDARDS

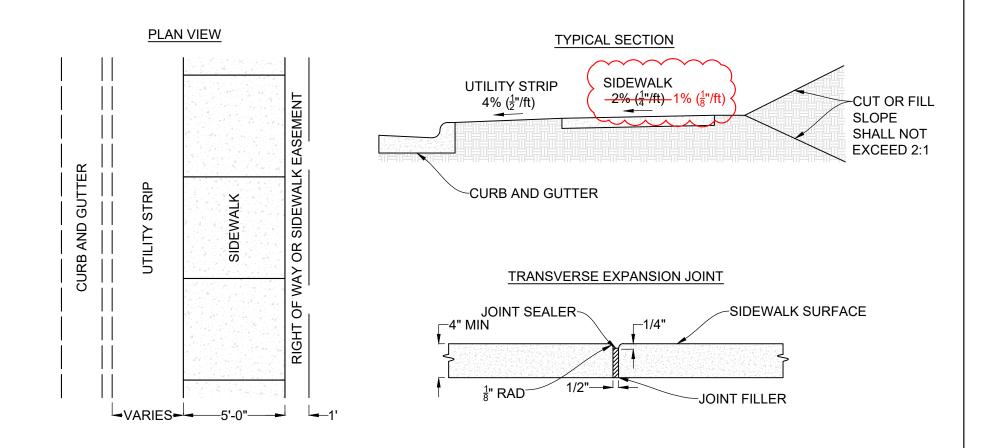
DRIVEWAY APRON (NO CURB & GUTTER)

STD. NO.

300.07

SHEET 2 OF 2

EFFECTIVE: APRIL 12, 2022



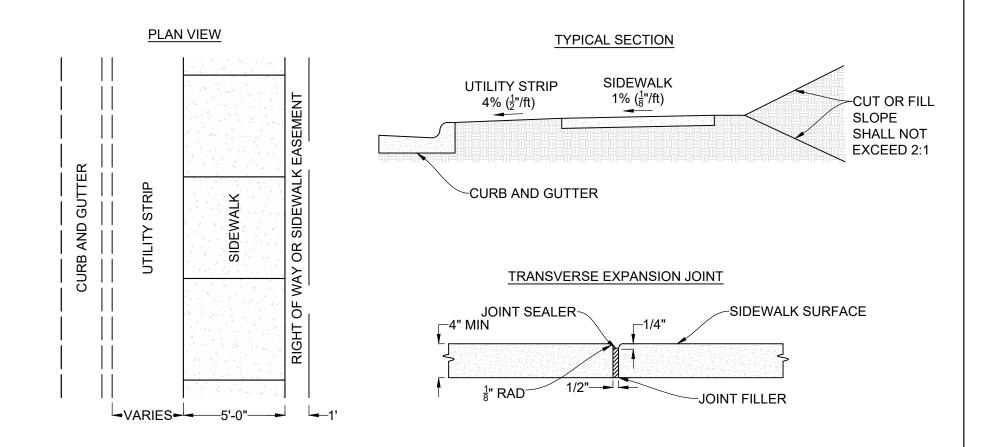
- 1. TRANSVERSE EXPANSION JOINTS SHALL BE SPACED 50' MAXIMUM.
- 2. CONTRACTION JOINTS SHALL BE SPACED 5' MAXIMUM.
- 3. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
- 4. ALL CONCRETE SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE ACI.
- 5. SIDEWALK EASEMENT REQUIRED WHEN SIDEWALK IS OUTSIDE PUBLIC RIGHT OF WAY.

TOWN OF APEX STANDARDS EFFECTIVE: MARCH 7, 2017

#### **CONCRETE SIDEWALK**

STD. NO.

300.08



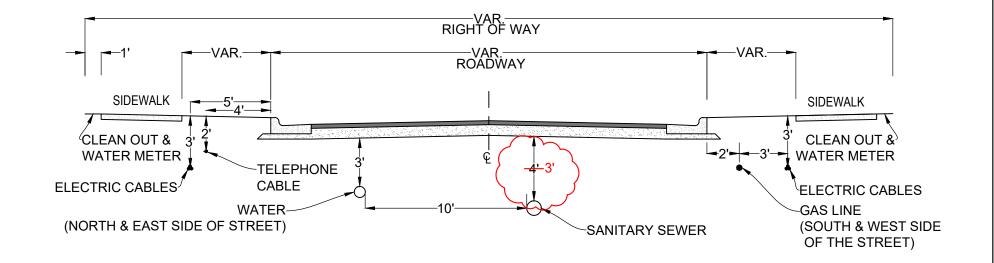
- 1. TRANSVERSE EXPANSION JOINTS SHALL BE SPACED 50' MAXIMUM.
- 2. CONTRACTION JOINTS SHALL BE SPACED 5' MAXIMUM.
- 3. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
- 4. ALL CONCRETE SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE ACI.
- 5. SIDEWALK EASEMENT REQUIRED WHEN SIDEWALK IS OUTSIDE PUBLIC RIGHT OF WAY.

TOWN OF APEX STANDARDS EFFECTIVE: APRIL 12, 2022

#### **CONCRETE SIDEWALK**

STD. NO.

300.08



THERE SHALL BE AN 18" VERTICAL SEPARATION BETWEEN WATER LINES, & OTHER UTILITIES VERTICLE SEPARATION SHALL ADHERE TO THE FOLLOWING.

VERTICAL SEPARATION			
UTILITY	DISTANCE (INCHES)		
WATER & SEWER	18		
WATER ABOVE STORM	24		
WATER BELOW STORM DRAIN	18		
SEWER & STORM	24		
ALL OTHER UTILITIES	12		

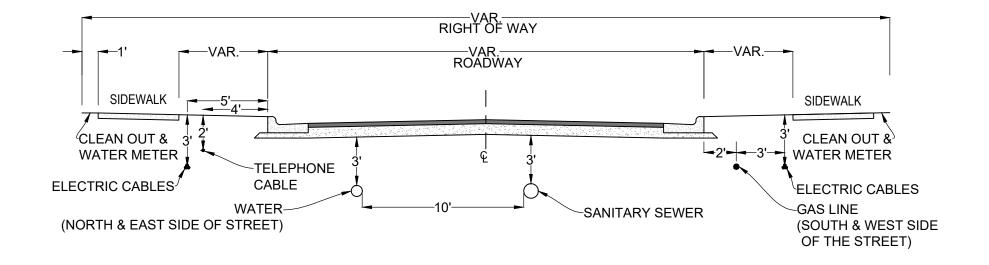
TOWN OF APEX STANDARDS

STREET CROSS SECTION SHOWING UTILITY LOCATIONS

STD. NO.

300.10

EFFECTIVE: NOVEMBER 20, 2007 SHEET 1 OF 1



NOTE: VERTICLE SEPARATION SHALL ADHERE TO THE FOLLOWING.

VERTICAL SEPARATION			
UTILITY	DISTANCE (INCHES)		
WATER & SEWER	18		
WATER ABOVE STORM	24		
WATER BELOW STORM DRAIN	18		
SEWER & STORM	24		
ALL OTHER UTILITIES	12		

TOWN OF APEX STANDARDS

EFFECTIVE: APRIL 12, 2022

STREET CROSS SECTION SHOWING UTILITY LOCATIONS

STD. NO.

300.10

	CLASSIFICATION	DESIGN SPEED (MPH)	MAX. GRADE (%)	HORIZONTAL CURVE CONTROLS		VERTICAL CURVE CONTROLS	
				MAX. SUPER ELEVATION (%)	MIN. CL RADIUS (FT)	MIN. LENGTH CREST (FT)	MIN. LENGTH SAG (FT)
	THOROUGHFARE	50	7	4	926	84A	96A
	MAJOR COLLECTOR	35	10	4	371	29A	49A
	MINOR COLLECTOR	30	10	NC	333	19A	37A
	MINOR COLLECTOR RESIDENTIAL STREET	25	10	NC	198	12A	26A
	ALLEY		10	RC	50	12A	26A

- 1. A = ALGEBRAIC DIFFERENCE IN GRADES
- 2. NC / RC = NORMAL CROWN / REVERSE CROWN
- 3. THIS TABLE OUTLINES MINIMUMS FOR ROADWAY DESIGN. SOUND ENGINEERING JUDGEMENT SHOULD BE EXERCISED WHEN USING MINIMUM DESIGN STANDARDS FOR ROADS.
- 4. ALTERNATE DESIGNS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION PUBLISHED BY AASHTO: A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.
- 5. GRADES SHALL NOT EXCEED 5% WITHIN 100 FEET OF STOP OR YIELD CONDITION.

TOWN OF APEX STANDARDS

EFFECTIVE: MARCH 6, 2018

STREET GEOMETRIC STANDARDS

STD. NO.

300.14

	DESIGN SPEED (MPH)	MAX. GRADE (%)	HORIZONTAL CURVE CONTROLS		VERTICAL CURVE CONTROLS	
CLASSIFICATION			MAX. SUPER ELEVATION (%)	MIN. CL RADIUS (FT)	MIN. LENGTH CREST (FT)	MIN. LENGTH SAG (FT)
THOROUGHFARE	50	7	4	926	84A	96A
MAJOR COLLECTOR	35	10	4	371	29A	49A
MINOR COLLECTOR	30	10	NC	333	19A	37A
RESIDENTIAL STREET	25	10	NC	198	12A	26A
ALLEY		10	RC	50	12A	26A

- 1. A = ALGEBRAIC DIFFERENCE IN GRADES
- 2. NC / RC = NORMAL CROWN / REVERSE CROWN
- 3. THIS TABLE OUTLINES MINIMUMS FOR ROADWAY DESIGN. SOUND ENGINEERING JUDGEMENT SHOULD BE EXERCISED WHEN USING MINIMUM DESIGN STANDARDS FOR ROADS.
- 4. ALTERNATE DESIGNS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION PUBLISHED BY AASHTO: A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.
- 5. GRADES SHALL NOT EXCEED 5% WITHIN 100 FEET OF STOP OR YIELD CONDITION.

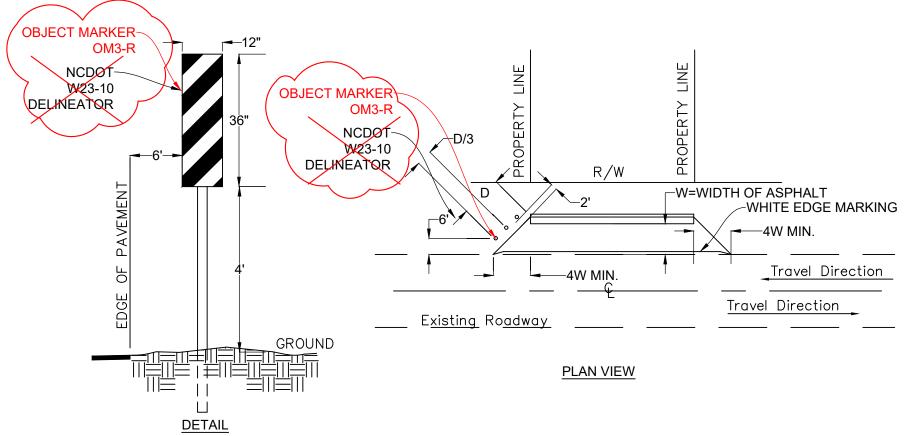
TOWN OF APEX STANDARDS

STREET GEOMETRIC STANDARDS

STD. NO.

300.14

EFFECTIVE: APRIL 12, 2022



- A. BOTTOM EDGE OF DELINEATOR 4' ABOVE ROADWAY.
- B. THE DELINEATOR STRIPES SHALL SLOPE UPWARD
- C. DELINEATORS TO BE SPACED ON CENTERS AT 1/3
  OF THE DISTANCE D SHOWN BELOW FOR NEW
  ASPHALT WIDTHS < 15 FT. OR AT 1/4 OF D FOR
  NEW ASPHALT WIDTHS > 15 FT.
- D. DELINEATORS SHALL BE MOUNTED ON BREAKAWAY POSTS.
- E. DELINEATORS SHALL BE REFLECTORIZED.

- 1. TAPER ON BOTH ENDS OF ROADWAY WIDENING SHALL BE A MINIMUM 4:1. THE TOWN ENGINEER AND/OR NCDOT RESERVE THE RIGHT TO REQUIRE A LONGER TAPER IF DEEMED NECESSARY FOR THE SAFETY OF THE PUBLIC.
- 2. A SOLID WHITE EDGE MARKING SHALL BE EXTENDED ALONG WIDENING AT EXISTING PAVEMENT.
- 3. DELINEATORS SHALL ONLY BE REQUIRED AT TAPER FROM CURB TO EXISTING PAVEMENT IN DIRECTION OF TRAVEL.
- 4. DELINEATORS SHALL BE ORIENTED SUCH THAT THE FACE OF THE SIGN IS PERPENDICULAR TO TRAVEL LANE.

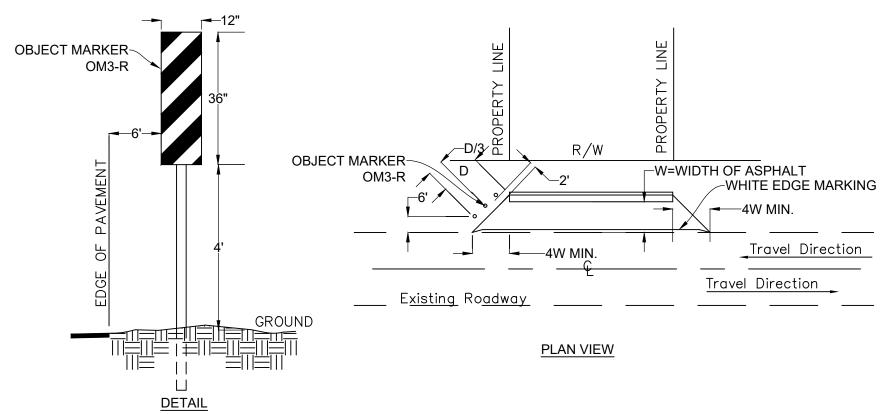
TOWN OF APEX STANDARDS

PAVEMENT WIDENING TAPER & MARKING

STD. NO.

300.16

EFFECTIVE: NOVEMBER 20, 2007



- A. BOTTOM EDGE OF DELINEATOR 4' ABOVE ROADWAY.
- B. THE DELINEATOR STRIPES SHALL SLOPE UPWARD
- C. DELINEATORS TO BE SPACED ON CENTERS AT 1/3
  OF THE DISTANCE D SHOWN BELOW FOR NEW
  ASPHALT WIDTHS < 15 FT. OR AT 1/4 OF D FOR
  NEW ASPHALT WIDTHS > 15 FT.
- D. DELINEATORS SHALL BE MOUNTED ON BREAKAWAY POSTS.
- E. DELINEATORS SHALL BE REFLECTORIZED.

- 1. TAPER ON BOTH ENDS OF ROADWAY WIDENING SHALL BE A MINIMUM 4:1. THE TOWN ENGINEER AND/OR NCDOT RESERVE THE RIGHT TO REQUIRE A LONGER TAPER IF DEEMED NECESSARY FOR THE SAFETY OF THE PUBLIC.
- 2. A SOLID WHITE EDGE MARKING SHALL BE EXTENDED ALONG WIDENING AT EXISTING PAVEMENT.
- 3. DELINEATORS SHALL ONLY BE REQUIRED AT TAPER FROM CURB TO EXISTING PAVEMENT IN DIRECTION OF TRAVEL.
- 4. DELINEATORS SHALL BE ORIENTED SUCH THAT THE FACE OF THE SIGN IS PERPENDICULAR TO TRAVEL LANE.

TOWN OF APEX STANDARDS

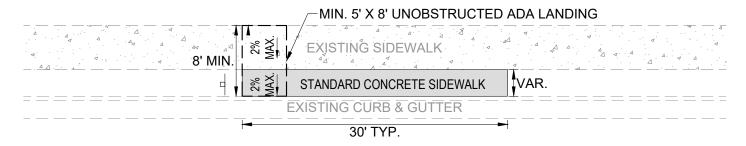
PAVEMENT WIDENING TAPER & MARKING

STD. NO.

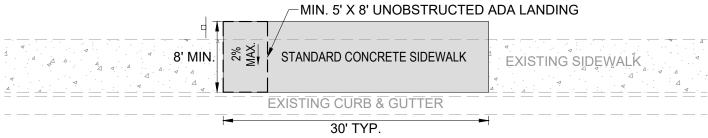
| 300.16

EFFECTIVE: APRIL 12, 2022 SHEET 1 OF 1

#### LANDING PAD W/ SIDEWALK & UTILITY STRIP



#### LANDING PAD W/ SIDEWALK AT BACK OF CURB



#### NOTES:

- EVALUATE EXISTING SIDEWALK FOR ADA COMPLIANCE, REMOVE AND REPLACE AS NEEDED.
- 2. EXISTING SIDEWALK SHALL BE REMOVED AND REPLACED AT THE DISCRETION OF THE ENGINEER.
- 3. GRADE TO DIVERT STORMWATER AWAY FROM THE LANDING PAD.
- 4. INSTALL EXPANSION JOINT BETWEEN ALL NEW AND EXISTING CONCRETE.
- 5. IN CONSTRAINED AREAS THE LANDING PAD LENGTH MAY BE NARROWED TO THE 5 FEET ADA MINIMUM SUBJECT TO REVIEW AND APPROVAL.
- 6. A FLAT CLEARED AREA 1 FOOT MINIMUM WIDTH SHALL BE ESTABLISHED AROUND THE LANDING PAD.

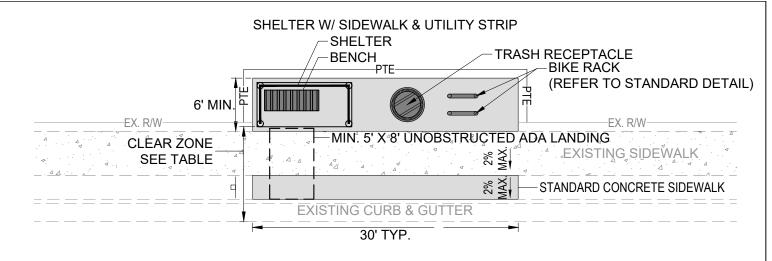
TOWN OF APEX STANDARDS

BUS STOP LANDING PAD STD. NO.

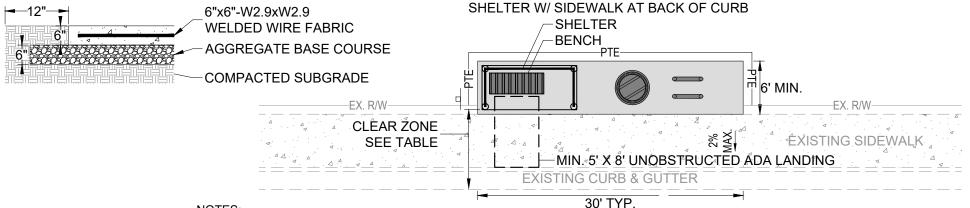
300.32

SHEET 1 OF 3

EFFECTIVE: APRIL 12, 2022



#### AMENITY PAD TYPICAL SECTION



#### NOTES:

- 1. BUS STOP LOCATIONS WITH NO CURB AND GUTTER REQUIRE PROPOSED SHELTERS TO BE LOCATED OUTSIDE THE CLEAR RECOVERY AREA AS DEFINED BY THE LATEST VERSION OF THE AASHTO ROADSIDE DESIGN GUIDE.
- 2. ANY AMENITIES PROPOSED WILL REQUIRE REVIEW AND APPROVAL BY TOWN OF APEX. IF A CUSTOM SHELTER IS PROPOSED WITHIN NCDOT RIGHT-OF-WAY, THE SHELTER MUST BE ADDED TO NCDOT'S APPROVED PRODUCTS LIST PRIOR TO INSTALLATION.
- 3. ANY REQUIRED STRUCTURAL CALCULATIONS FOR CUSTOM SHELTERS ARE TO BE PROVIDED TO TOWN OF APEX PRIOR TO APPROVAL.
- 4. BUS SHELTERS SHALL BE LOCATED A MINIMUM OF 15 FEET FROM FIRE HYDRANTS AND UTILITY POLES.
- 5. BUS SHELTERS AT NEAR SIDE STOPS ARE TO BE LOCATED ON SIDE OF PAD FARTHEST FROM THE INTERSECTION
- 6. A MINIMUM 6 FEET WIDE PEDESTRIAN PATH IS TO BE RETAINED BETWEEN THE BACK OF CURB AND ANY AMENITIES WHERE SIDEWALK IS PLANNED. A MINIMUM 8 FEET WIDE PEDESTRIAN PATH IS TO BE RETAINED BETWEEN THE BACK OF CURB AND ANY AMENITIES WHERE SIDE PATH OR STREET-SIDE GREENWAY IS PLANNED.
- 7. A PERMANENT TRANSIT EASEMENT (PTE) OR PUBLIC RIGHT-OF-WAY IS TO BE PROVIDED FOR THE AMENITY AREA IF LOCATED OUTSIDE OF EXISTING RIGHT-OF-WAY, AT A MINIMUM 1' OFFSET FROM THE AMENITY AREA.
- 8. A FLAT CLEARED AREA 1 FOOT MINIMUM WIDTH SHALL BE ESTABLISHED AROUND THE LANDING PAD.

CLEAR ZONE MIN. DISTANCE TO SHELTER		
25 MPH 8'		
35 MPH	10'	
45 MPH	12'	

### TOWN OF APEX STANDARDS

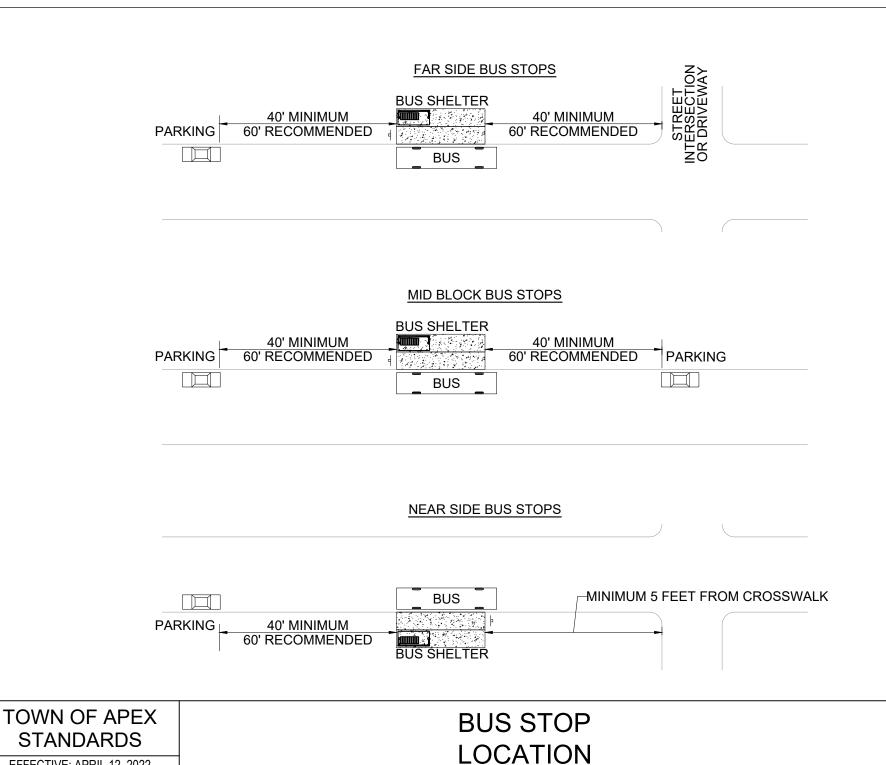
EFFECTIVE: APRIL 12, 2022

#### BUS STOP AMENITY PAD

STD. NO.

300.32

SHEET 2 OF 3

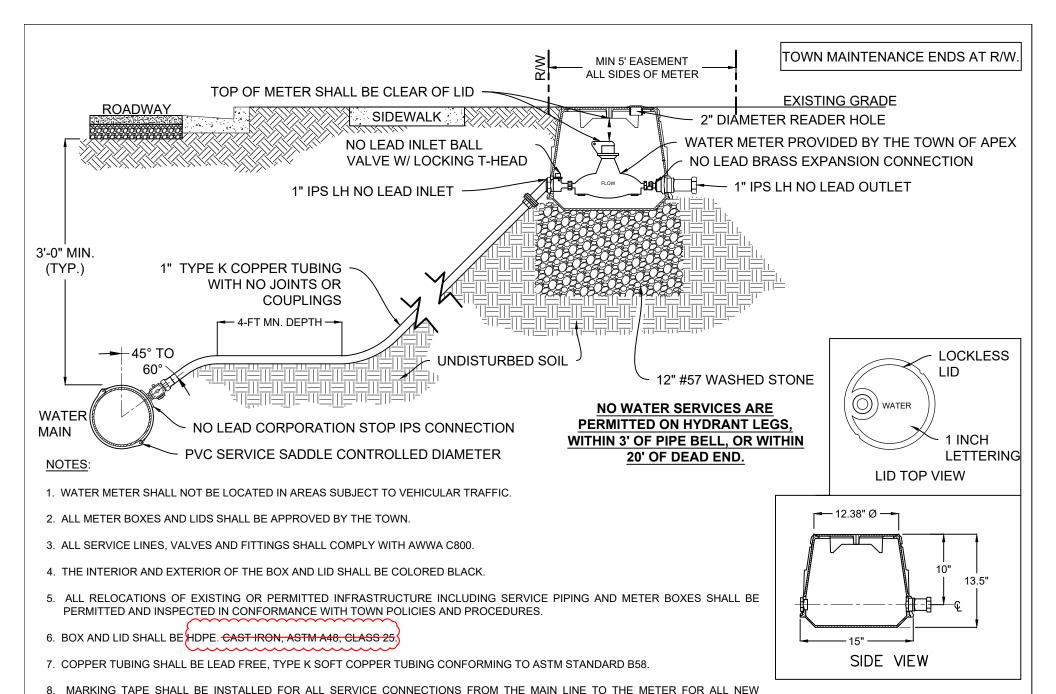


EFFECTIVE: APRIL 12, 2022

SHEET 3 OF 3

STD. NO.

300.32



3/4" & 1" WATER SERVICE & METER BOX

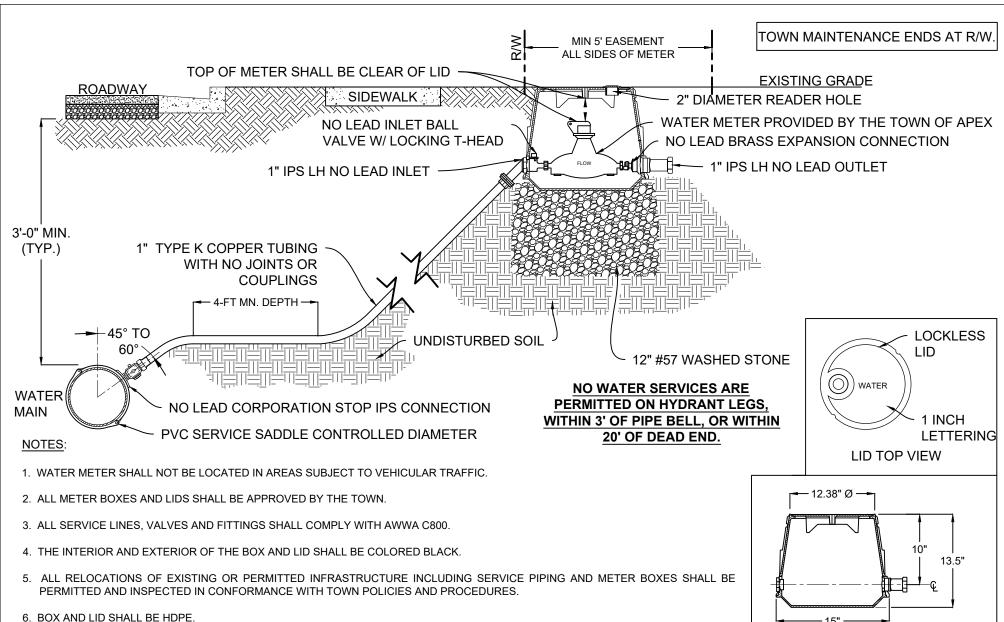
STD. NO.

600.01

EFFECTIVE: FEBRUARY 23, 2021

CONSTRUCTION OR RETROFIT INSTALLATIONS USING OPEN TRENCH METHODS.

SHEET 2 OF 2



- O. BOX AND EID ONALE BE HIS E.
- 7. COPPER TUBING SHALL BE LEAD FREE, TYPE K SOFT COPPER TUBING CONFORMING TO ASTM STANDARD B58.
- 8. MARKING TAPE SHALL BE INSTALLED FOR ALL SERVICE CONNECTIONS FROM THE MAIN LINE TO THE METER FOR ALL NEW CONSTRUCTION OR RETROFIT INSTALLATIONS USING OPEN TRENCH METHODS.

3/4" & 1" WATER SERVICE & METER BOX

STD. NO.

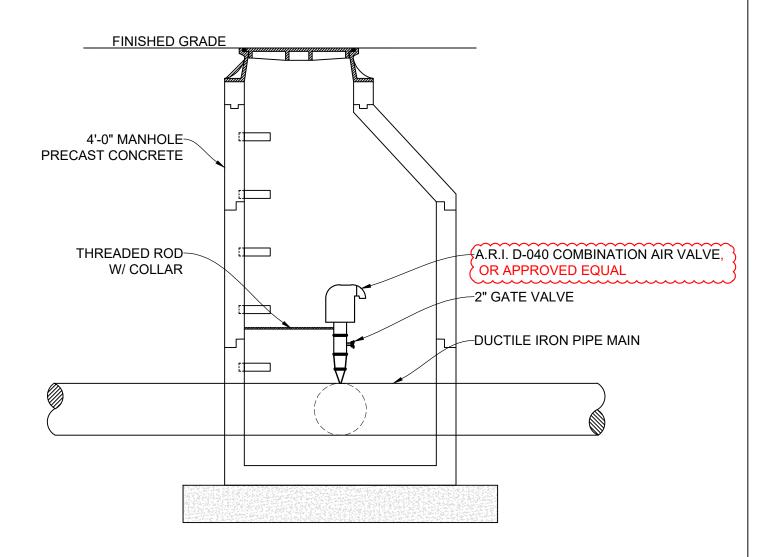
SIDE VIEW

600.01

SHEET 2 OF 2

EFFECTIVE: APRIL 12, 2022

- 1. TAP SIZE AND ISOLATION VALVE TO BE SAME SIZE AS AIR VALVE.
- 2. ALL PIPING AND FITTINGS IN THE MANHOLE SHALL BE BRASS OR BRONZE UNLESS NOTED OTHERWISE.
- 3. MANHOLE STEPS SHALL BE PLACED 16" O.C. WHEN DEPTH OF MANHOLE EXCEEDS 4 FEET.
- 4. MANHOLE INTERIOR SHALL BE EPOXY COATED IN THE CASE OF SEWER.
- 5. WATER MAINS 16" AND LARGER OR IN OUTFALLS MAY REQUIRE 5 FOOT DIAMETER MANHOLES AND/OR FLAT TOP MANHOLES.



TOWN OF APEX STANDARDS

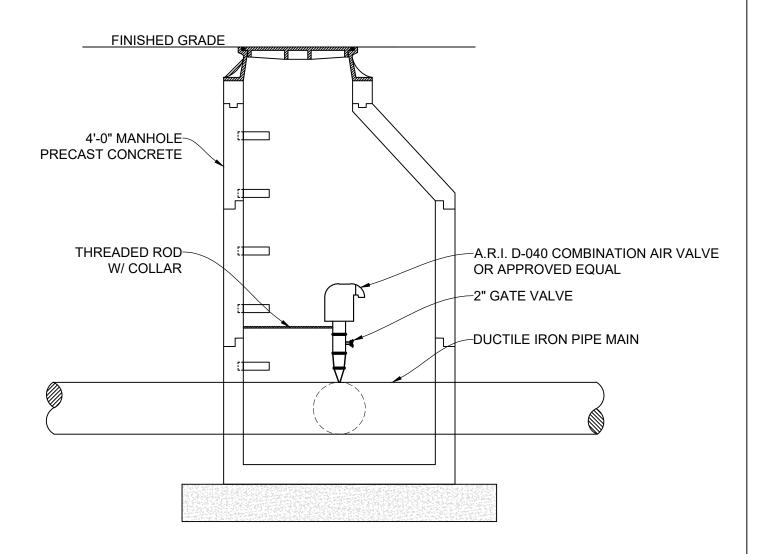
AIR RELEASE MANHOLE FOR WATER MAINS

STD. NO.

600.12

EFFECTIVE: FEBRUARY 23, 2021 SHEET 1 OF 2

- 1. TAP SIZE AND ISOLATION VALVE TO BE SAME SIZE AS AIR VALVE.
- 2. ALL PIPING AND FITTINGS IN THE MANHOLE SHALL BE BRASS OR BRONZE UNLESS NOTED OTHERWISE.
- 3. MANHOLE STEPS SHALL BE PLACED 16" O.C. WHEN DEPTH OF MANHOLE EXCEEDS 4 FEET.
- 4. MANHOLE INTERIOR SHALL BE EPOXY COATED IN THE CASE OF SEWER.
- 5. WATER MAINS 16" AND LARGER OR IN OUTFALLS MAY REQUIRE 5 FOOT DIAMETER MANHOLES AND/OR FLAT TOP MANHOLES.

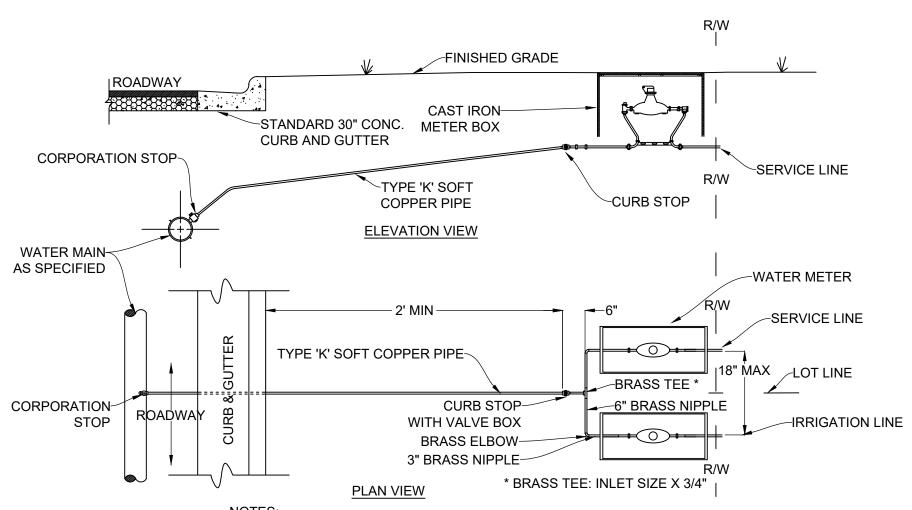


TOWN OF APEX STANDARDS

AIR RELEASE MANHOLE FOR WATER MAINS

STD. NO.

600.12



- 1. (THÉRE SHALL BE NO MULTIPLE CONNECTIONS FOR SERVICES OTHER THAN 3/4" AND (1" (FOR RESIDENTIAL ONLY).
- 2. GATE VALVE REQUIRED ON SERVICE LINE 2" OR GREATER.
- 3. CURB STOPS SHALL BE AS MANUFACTURED BY FORD OR APPROVED EQUAL.
- METER BOXES SHALL BE AS DESCRIBED IN THE STANDARD SPECIFICATIONS UNDER WATER DISTRIBUTION; HOWEVER, THE INLET SHALL BE IRON PIPE THREADED INLETS.
- 5. CURB STOPS SHALL BE CENTERED ON MULTIPLE BRANCH SERVICE AND CONTAINED WITHIN A VALVE BOX.

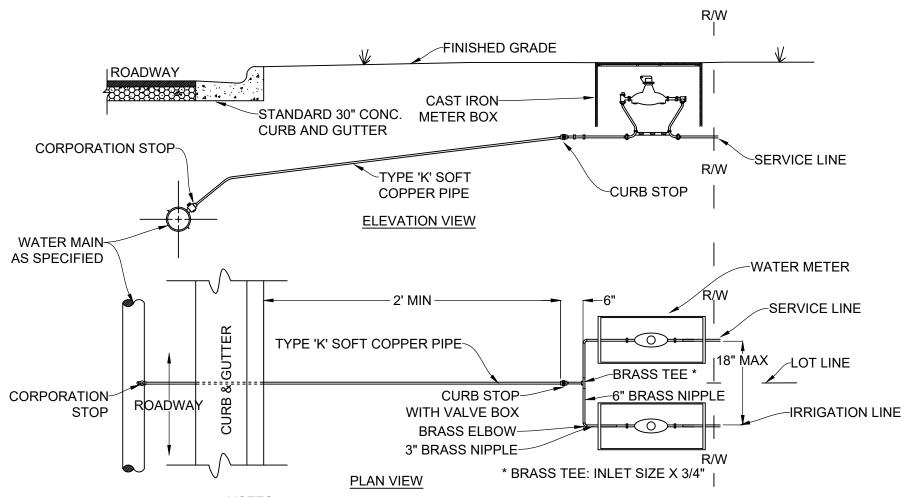
TOWN OF APEX STANDARDS

MULTIPLE BRANCH SERVICES

STD. NO.

|600.14|

EFFECTIVE: DECEMBER 21, 2010



- 1. THERE SHALL BE NO MULTIPLE CONNECTIONS FOR SERVICES OTHER THAN 3/4" AND 1" (FOR RESIDENTIAL ONLY).
- 2. GATE VALVE REQUIRED ON SERVICE LINE 2" OR GREATER.
- 3. CURB STOPS SHALL BE AS MANUFACTURED BY FORD OR APPROVED EQUAL.
- METER BOXES SHALL BE AS DESCRIBED IN THE STANDARD SPECIFICATIONS UNDER WATER DISTRIBUTION; HOWEVER, THE INLET SHALL BE IRON PIPE THREADED INLETS.
- 5. CURB STOPS SHALL BE CENTERED ON MULTIPLE BRANCH SERVICE AND CONTAINED WITHIN A VALVE BOX.

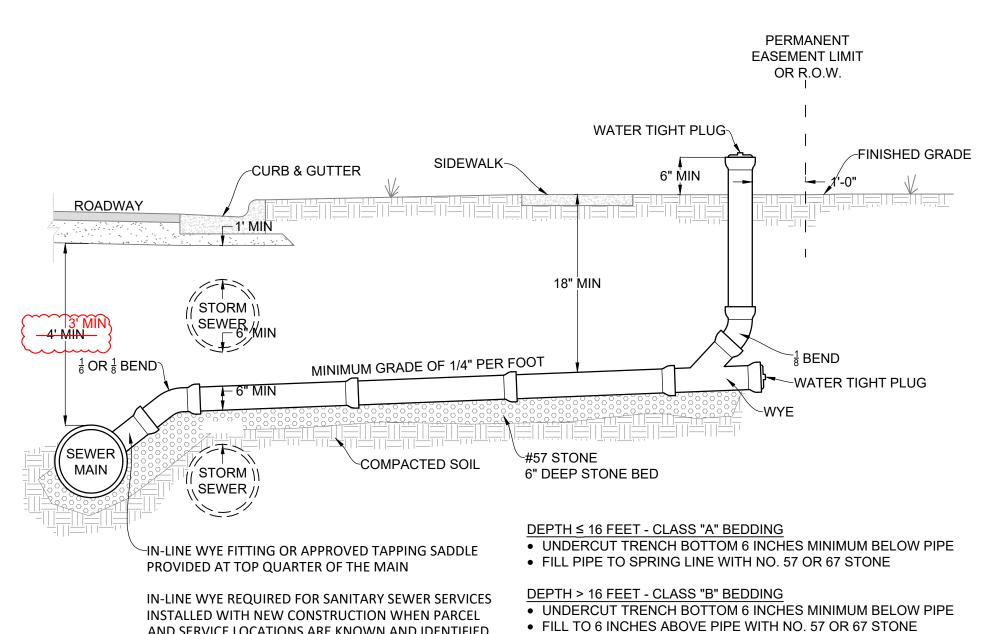
TOWN OF APEX STANDARDS

#### MULTIPLE BRANCH SERVICES

STD. NO.

|600.14|

EFFECTIVE: APRIL 12, 2022



AND SERVICE LOCATIONS ARE KNOWN AND IDENTIFIED ON APPROVED PLANS

INSTALLATIONS THAT EXCEED 20 FEET DEPTH SHALL BE DIP

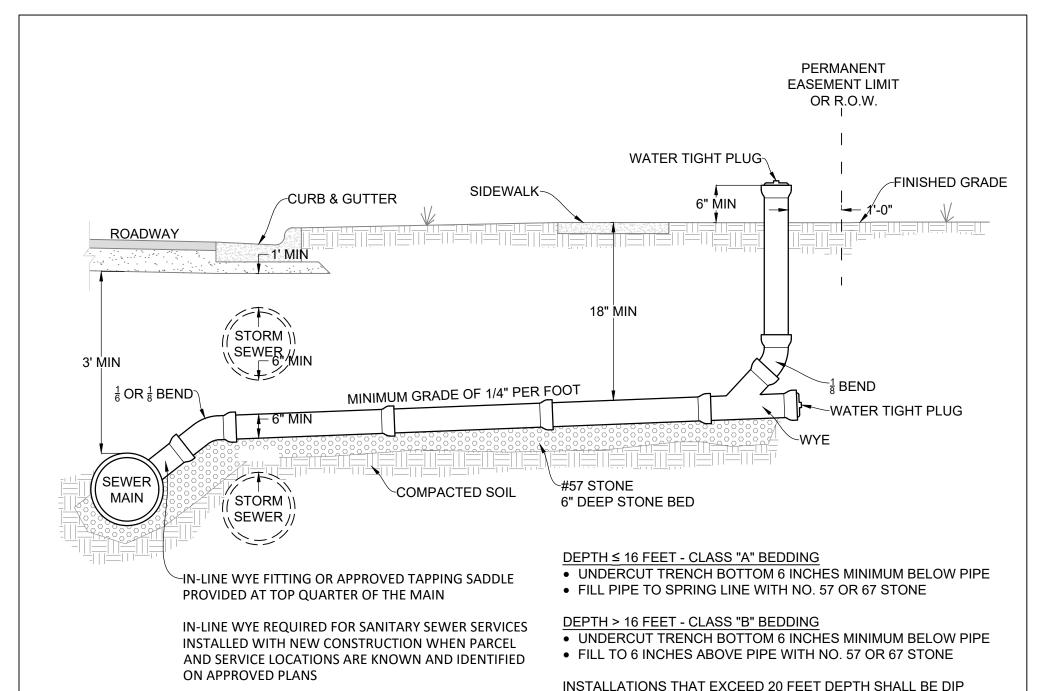
TOWN OF APEX **STANDARDS** 

SANITARY SEWER TAP & SERVICE

STD. NO.

700.02

EFFECTIVE: JULY 17, 2018

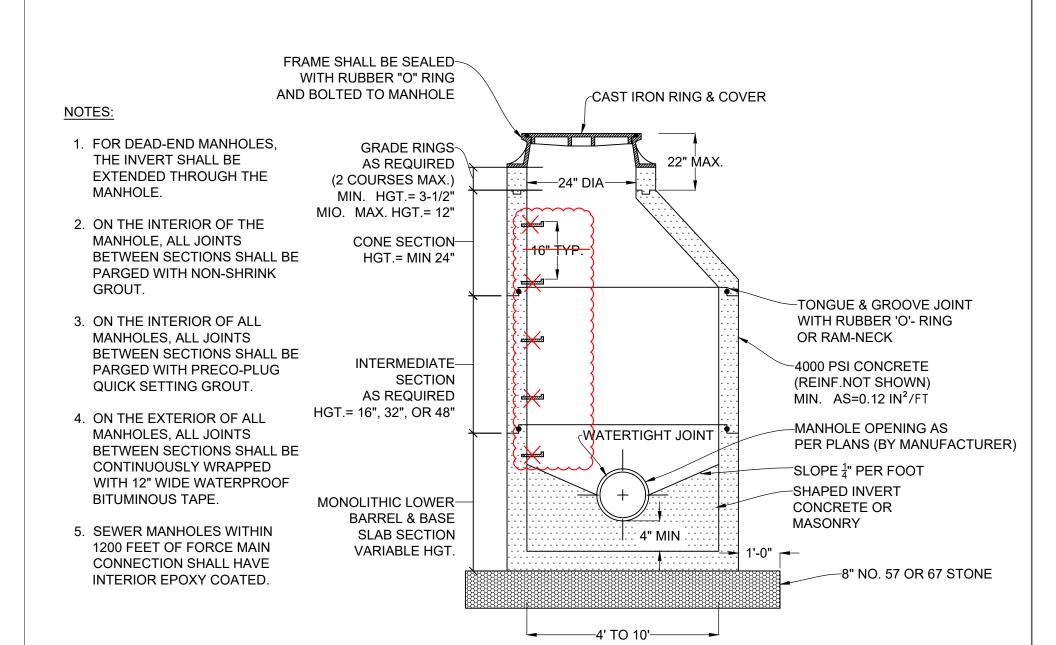


EFFECTIVE: APRIL 12, 2022

SANITARY SEWER TAP & SERVICE

STD. NO.

700.02

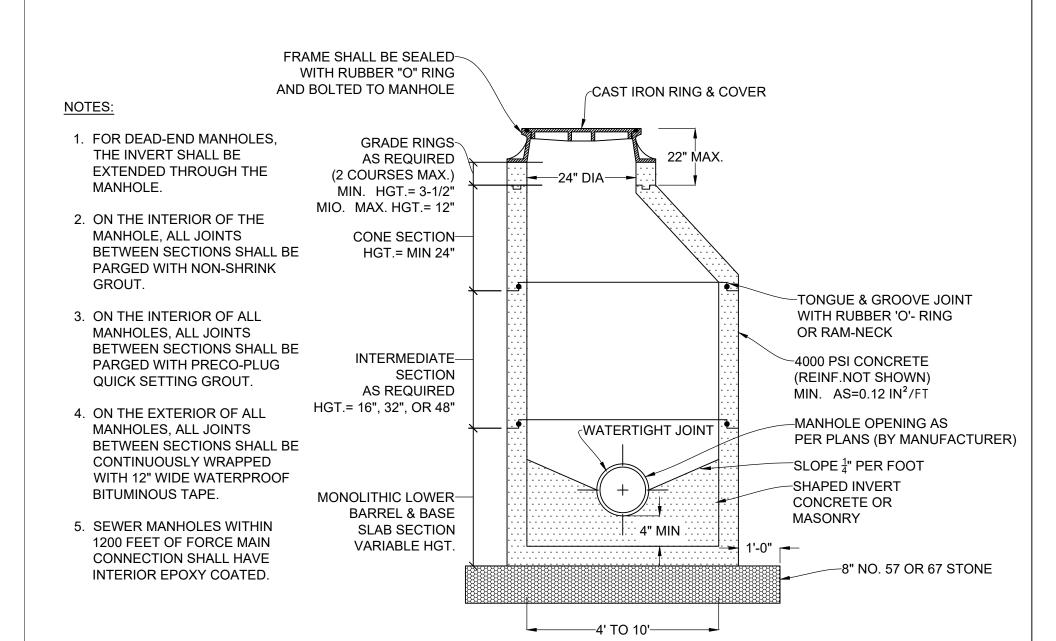


PRECAST MANHOLE TRAFFIC RATED

STD. NO.

700.04

EFFECTIVE: FEBRUARY 23, 2021



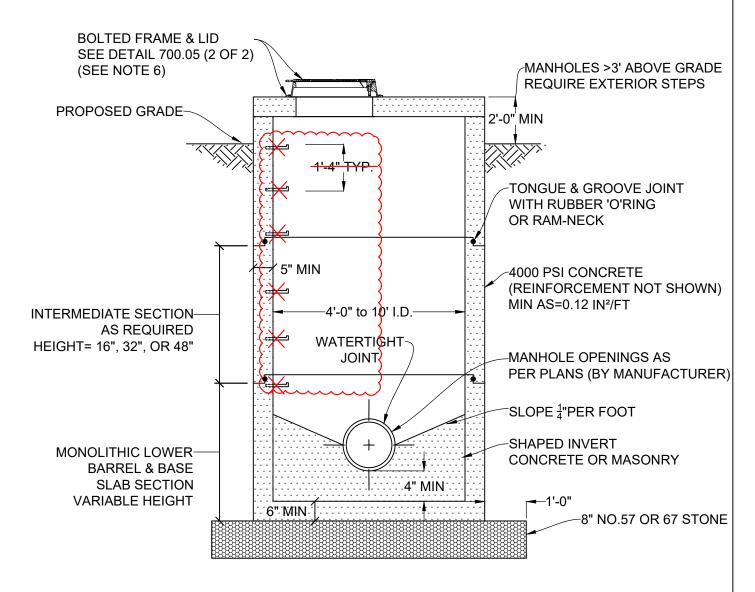
PRECAST MANHOLE TRAFFIC RATED

STD. NO.

700.04

EFFECTIVE: APRIL 12, 2022

- 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.
- SEWER MANHOLES WITHIN 1200 FEET OF FORCE MAIN CONNECTION SHALL HAVE INTERIOR EPOXY COATED.
- 6. SWING LIDS ONLY ALLOWED ON MANHOLES ELEVATED GREATER THAN 24"OR WATERTIGHT INSTALLATIONS.



TOWN OF APEX STANDARDS

PRECAST MANHOLE (OUTFALLS)

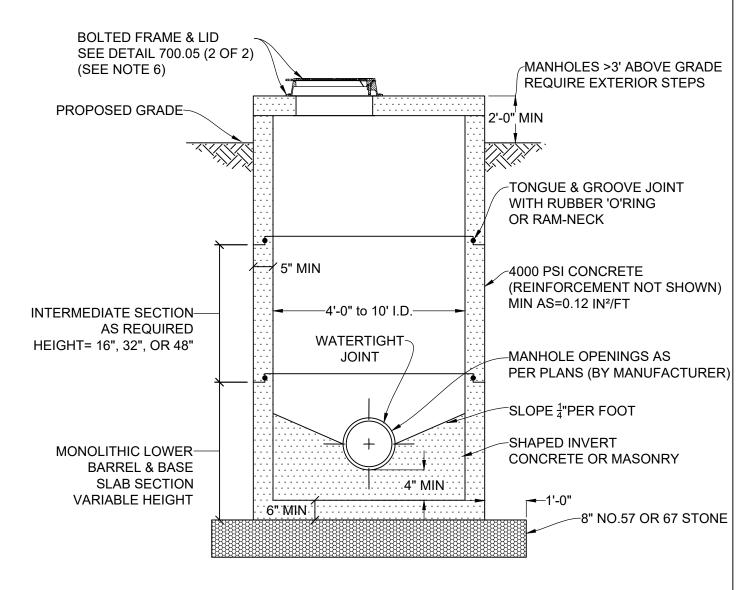
STD. NO.

700.04

EFFECTIVE: FEBRUARY 23, 2021

SHEET 2 OF 3

- 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.
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- 6. SWING LIDS ONLY ALLOWED ON MANHOLES ELEVATED GREATER THAN 24"OR WATERTIGHT INSTALLATIONS.



TOWN OF APEX STANDARDS

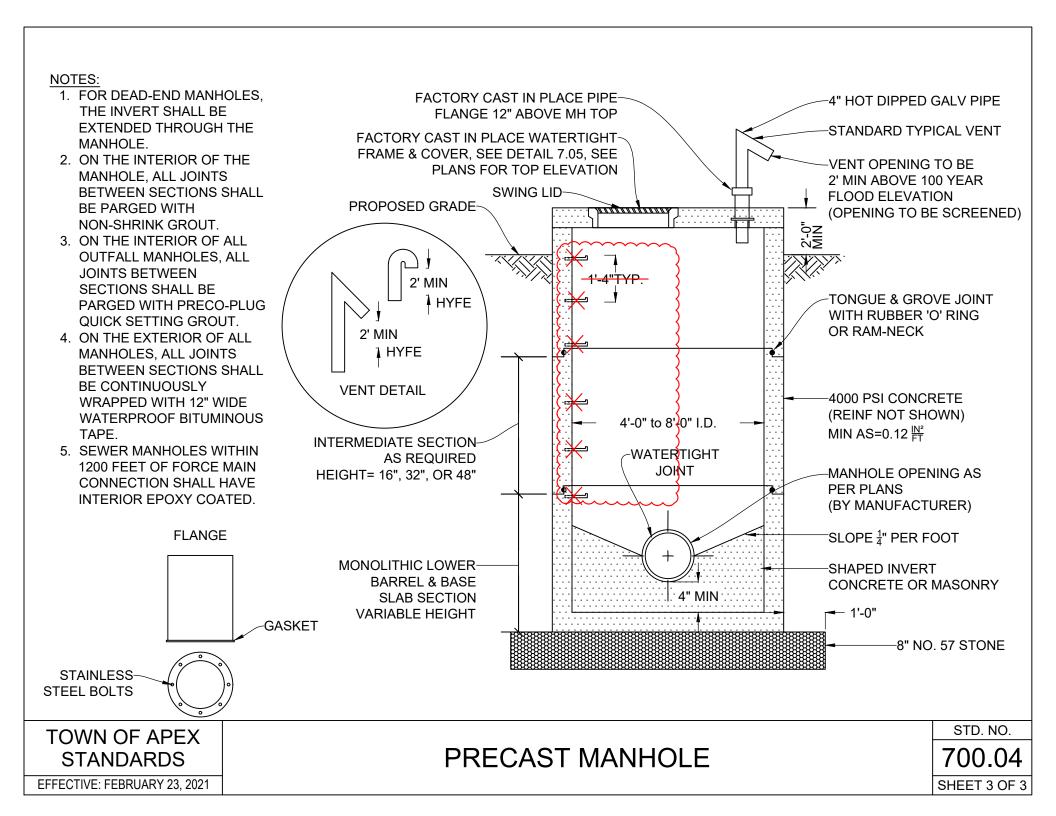
PRECAST MANHOLE (OUTFALLS)

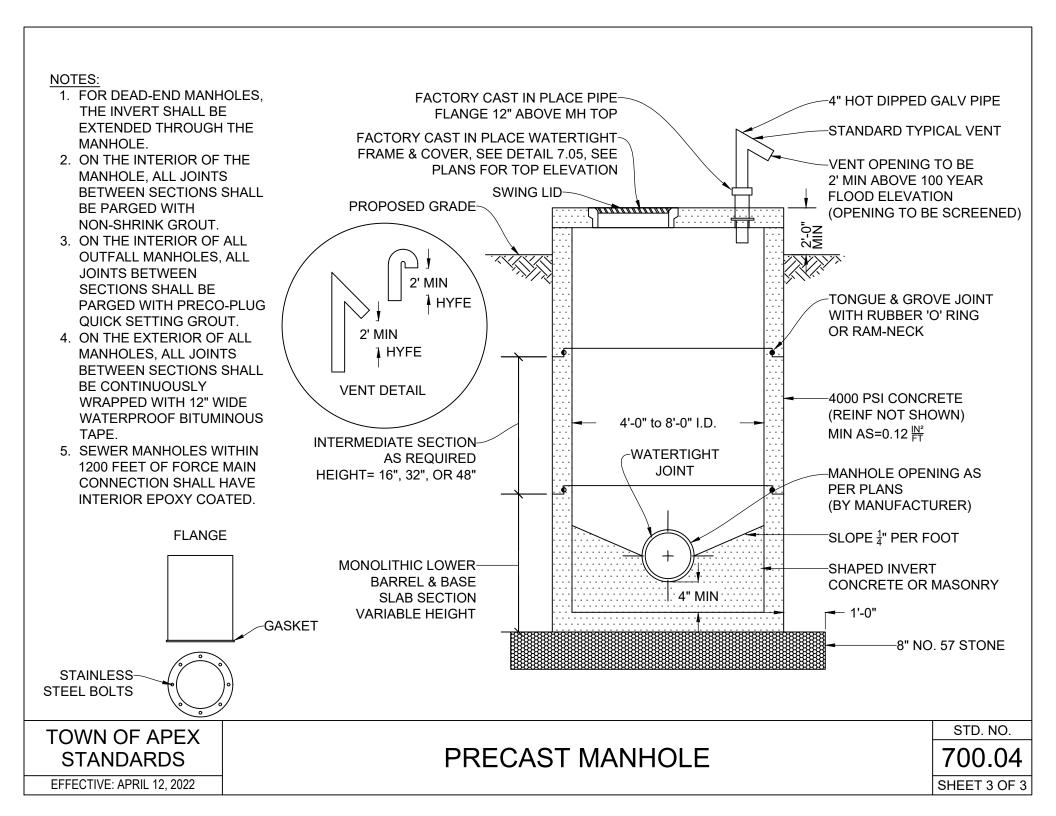
STD. NO.

700.04

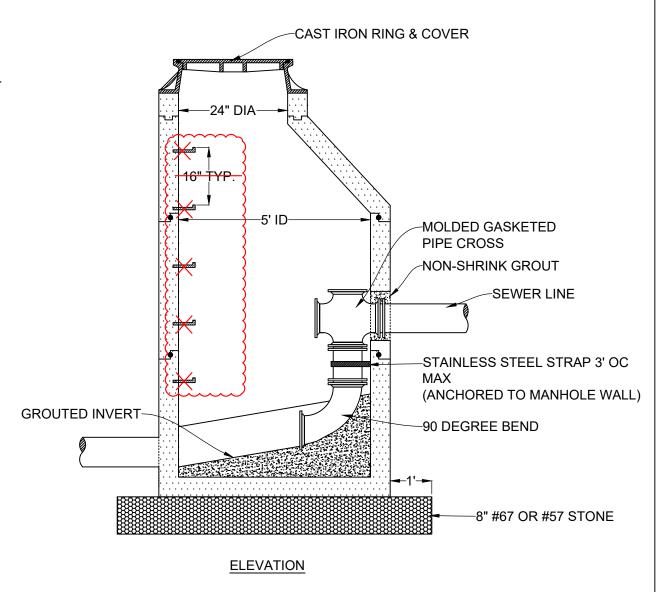
EFFECTIVE: APRIL 12, 2022

SHEET 2 OF 3





- 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 18" THICK AND ATTACHED TO THE MANHOLE WALL WITH MASONRY ANCHORS.
- 7. WHERE DROP EXCEEDS 24", A SERVICE DROP CONNECTION WITH CLEANOUT SHALL BE PROVIDED IN ACCORDANCE WITH THE STANDARD DETAIL.



TOWN OF APEX STANDARDS

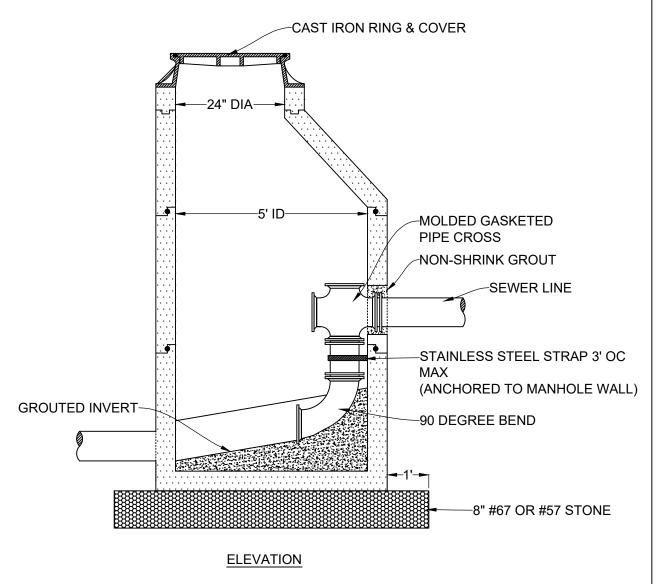
DROP MANHOLE

STD. NO.

700.07

EFFECTIVE: FEBRUARY 23, 2021 SHEET 1 OF 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 18" THICK AND ATTACHED TO THE MANHOLE WALL WITH MASONRY ANCHORS.
- 7. WHERE DROP EXCEEDS 24", A SERVICE DROP CONNECTION WITH CLEANOUT SHALL BE PROVIDED IN ACCORDANCE WITH THE STANDARD DETAIL.



TOWN OF APEX STANDARDS

DROP MANHOLE

STD. NO.

700.07

EFFECTIVE: APRIL 12, 2022 SHEET 1 OF 1

OPEN END

3"

6"

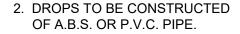
**.**⊲ .

TEE

-DOWNSPOUT

MAIN LINE

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



- 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.

MANHOLE WALL

STAINLESS-STEEL STRAPS AT 3' OC MAX 90° BEND
INVERT

W//////

NON~ SHRINK

**GROUT** 

TOWN OF APEX STANDARDS

NON SHRINK GROUT BOOT CONNECTION

SERVICE LINE

MANHOLE WALL-

90DEGREE BEND

POSITIVE GRADE TO DRAIN

MANHOLE BOTTOM-

DROP MANHOLE FOR SEWER SERVICE

STD. NO.

OPEN END

TEE

**DOWNSPOUT** 

MANHOLE BOTTOM

700.08

SHEET 1 OF 1

EFFECTIVE: DECEMBER 21, 2010

OPEN END

3"

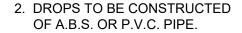
6"

TEE

-DOWNSPOUT

MAIN LINE

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



- 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.

MANHOLE WALL

STAINLESS-STEEL STRAPS AT 3' OC MAX

INVERT

MANHOLE BOTTOM

W//////

NON~ SHRINK

**GROUT** 

TOWN OF APEX STANDARDS

**BOOT CONNECTION-**

SERVICE LINE

MANHOLE WALL-

90DEGREE BEND

POSITIVE GRADE TO DRAIN

MANHOLE BOTTOM-

DROP MANHOLE FOR SEWER SERVICE

STD. NO.

OPEN END

TEE

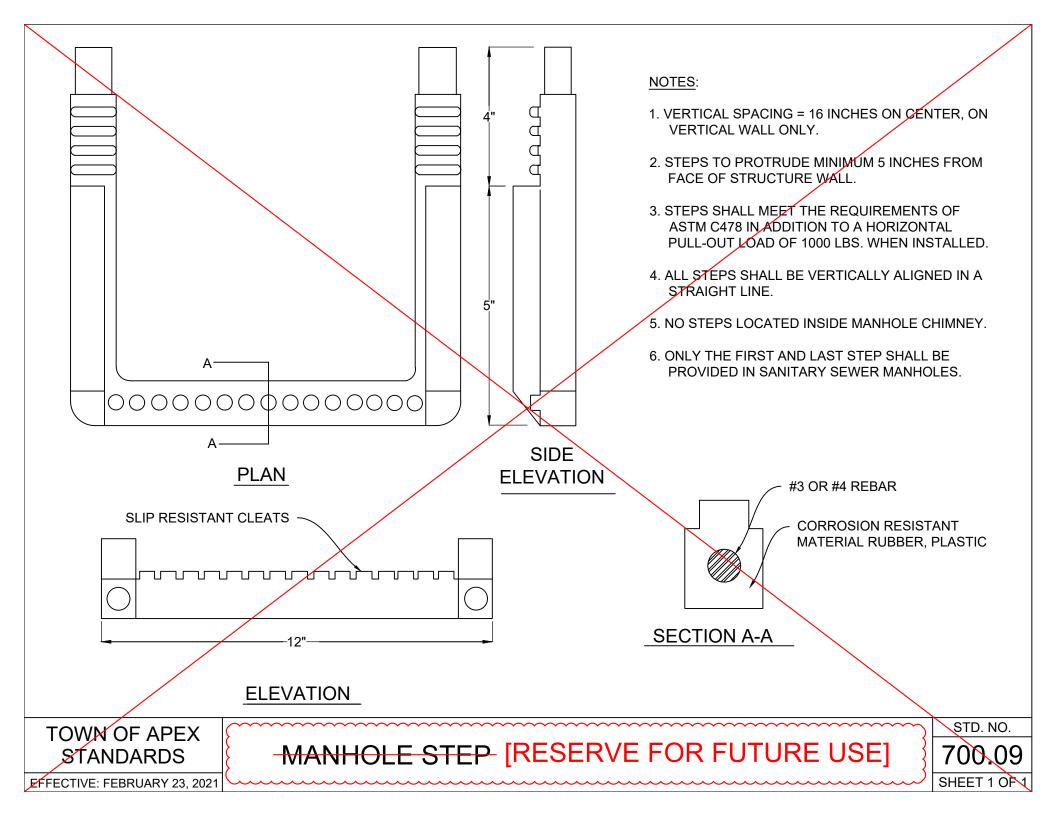
**DOWNSPOUT** 

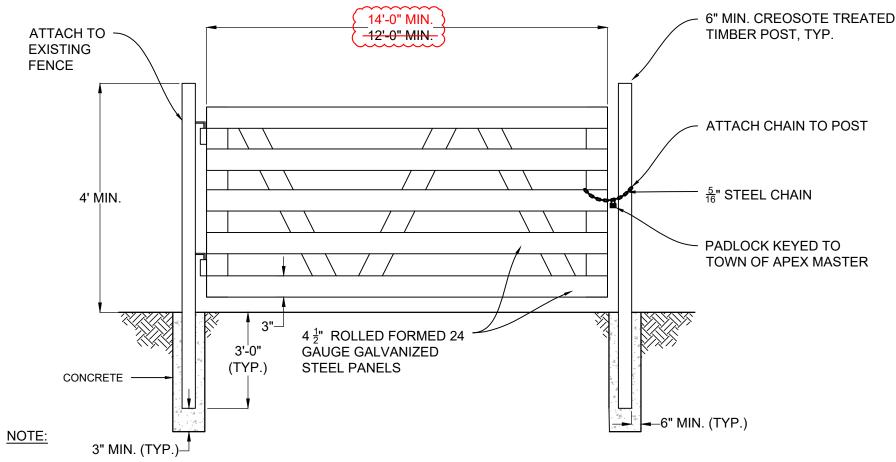
90° BEND

700.08

SHEET 1 OF 1

EFFECTIVE: APRIL 12, 2022





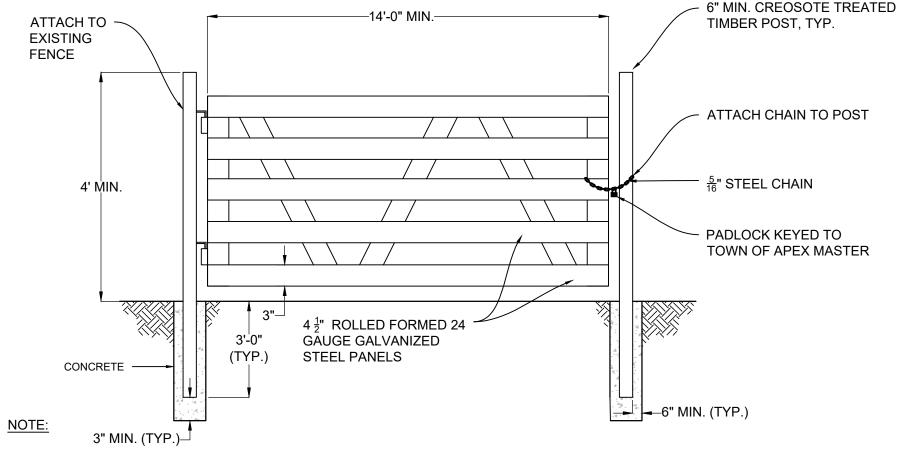
- 1. A FENCE GATE IS REQUIRED AT THE LOCATION WHERE IT CROSSES THE SANITARY SEWER EASEMENT. GATE MUST BE CENTERED ON THE SEWER PIPE. OWNER MUST APPLY FOR ENCROACHMENT AGREEMENT PRIOR TO INSTALLATION.
- 2. IN RESIDENTIAL AREAS, ALTERNATE FENCE GATES MATCHING EXISTING FENCES MAY BE USED AS APPROVED BY THE WATER RESOURCES DIRECTOR.
- 3. GATES MAY BE SINGLE OR DOUBLE PANEL AS LONG AS CENTERED ON THE PIPE.
- 4. FOR COMMERCIAL SITES, THE GATE WIDTH MUST BE AT LEAST 20'-0".

#### TYPICAL EASEMENT FENCE GATE

STD. NO.

700.20

EFFECTIVE: FEBRUARY 23, 2021



- 1. A FENCE GATE IS REQUIRED AT THE LOCATION WHERE IT CROSSES THE SANITARY SEWER EASEMENT. GATE MUST BE CENTERED ON THE SEWER PIPE. OWNER MUST APPLY FOR ENCROACHMENT AGREEMENT PRIOR TO INSTALLATION.
- 2. IN RESIDENTIAL AREAS, ALTERNATE FENCE GATES MATCHING EXISTING FENCES MAY BE USED AS APPROVED BY THE WATER RESOURCES DIRECTOR.
- 3. GATES MAY BE SINGLE OR DOUBLE PANEL AS LONG AS CENTERED ON THE PIPE.
- 4. FOR COMMERCIAL SITES, THE GATE WIDTH MUST BE AT LEAST 20'-0".

TYPICAL EASEMENT FENCE GATE

STD. NO.

700.20

EFFECTIVE: APRIL 12, 2022