

CONSTRUCTION STANDARDS AND DETAILS



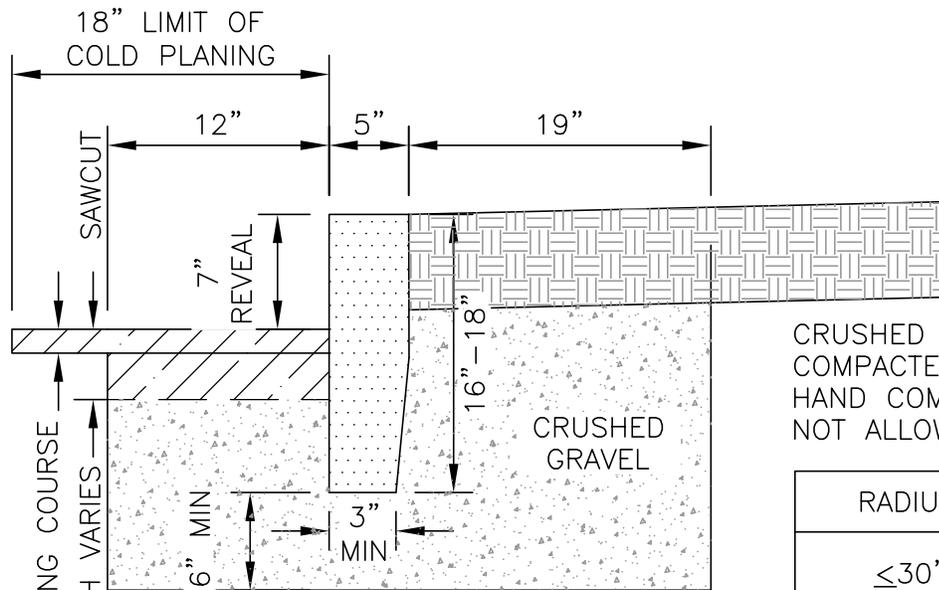
CITY OF CONCORD
NEW HAMPSHIRE

2016

COMMUNITY DEVELOPMENT DEPARTMENT
ENGINEERING SERVICES DIVISION
CITY OF CONCORD, NEW HAMPSHIRE

CONSTRUCTION STANDARDS

THESE ARE TYPICAL ENGINEERING DRAWINGS
AND ARE NOT INTENDED FOR A SPECIFIC
APPLICATION. THE CITY MAKES NO
REPRESENTATION OR GUARANTEE OF THEIR
SUITABILITY FOR USE. USERS OTHER THAN
THE CITY, DO SO AT THEIR OWN RISK.



CRUSHED GRAVEL TO BE COMPACTED TO 95% MIN HAND COMPACTION IS NOT ALLOWED

RADIUS	MAX LENGTH
$\leq 30'$	CURVED CURB
31' - 35'	5'
36' - 42'	6'
43' - 49'	7'
50' - 56'	8'
57' - 60'	9'
OVER 60'	10'

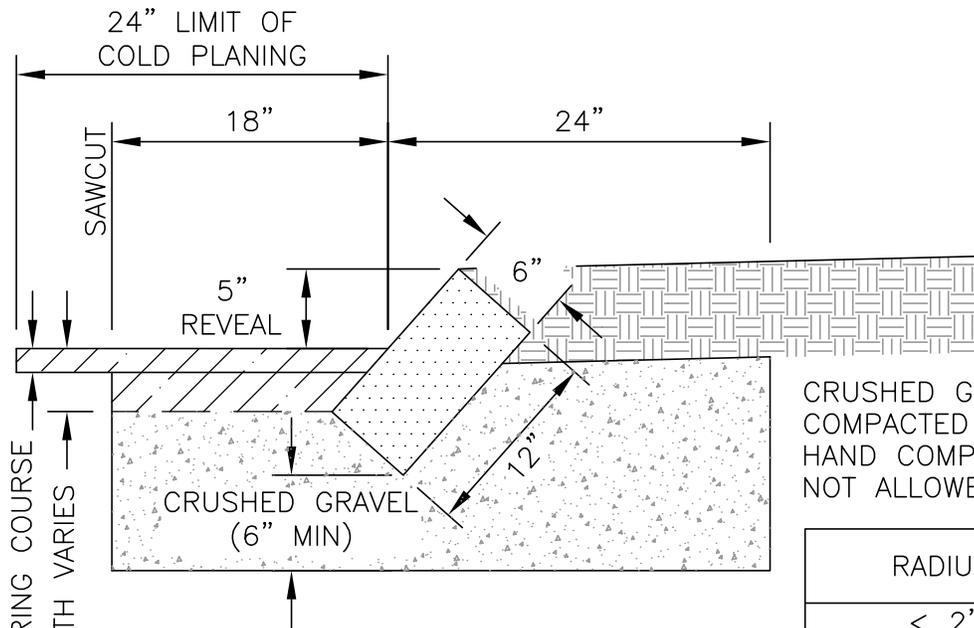
MIN LENGTH OF CURB STONES 3'
 MAX LENGTH OF CURB STONES 10'
 MAX LENGTH OF STRAIGHT CURB STONES LAID ON CURVES - SEE CHART

ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATE LENGTH.

FINISH SURFACE AND TOLERANCES FOR VERTICAL GRANITE CURB

AREA	FINISH SURFACE	TOLERANCE
TOP	5" WIDE OR AS OTHERWISE SHOWN, SAWN TRUE PLANE.	$+\frac{1}{8}"$ TO $+\frac{1}{8}"$
	FRONT AND BACK ARRIS LINES PITCHED STRAIGHT AND PARALLEL.	$+\frac{1}{8}"$ TO $+\frac{1}{8}"$
FRONT FACE	RIGHT ANGLE TO TOP, APPROXIMATELY TRUE PLANE. NO DRILL HOLES SHOWING IN TOP 10"	$+1"$ TO $-\frac{1}{2}"$
BACK FACE EXPOSED	PLANE PARALLEL WITH FRONT FACE. STRAIGHT SPLIT TO $1\frac{1}{2}"$ BELOW EXPOSED SURFACE. NO LARGER THAN $\frac{1}{4}"$ SEGMENT OF DRILL HOLES SHOWING IN ARRIS LINES.	$+1"$ TO $-1"$
	CONCEALED	BELOW $1\frac{1}{2}"$ FROM EXPOSED SURFACE.
BOTTOM	APPROXIMATELY PARALLEL TO TOP. MINIMUM WIDTH: 3"	SEE PLANS
ENDS EXPOSED PORTION	SQUARE WITH PLANES OF TOP AND FACE	
	JOINTS EXPOSED	OPTIMUM WIDTH: 1"
CONCEALED	TO BREAK BACK NO MORE THAN 4"	$+\frac{3}{4}"$ TO $-\frac{3}{4}"$

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET		
1	DRAFTING	12.15		VERTICAL GRANITE CURB	DRAWING NO.	C-1
-	-	-			DATE: 12/08	PAGE: 1
-	-	-				
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1 1/2" WEARING COURSE
PAVEMENT DEPTH VARIES

MIN LENGTH OF STRAIGHT CURB STONES 18"
MAX LENGTH OF STRAIGHT CURB STONES 8'
MAX LENGTH OF STRAIGHT CURB STONES LAID ON CURVES - SEE CHART

ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATE LENGTH.

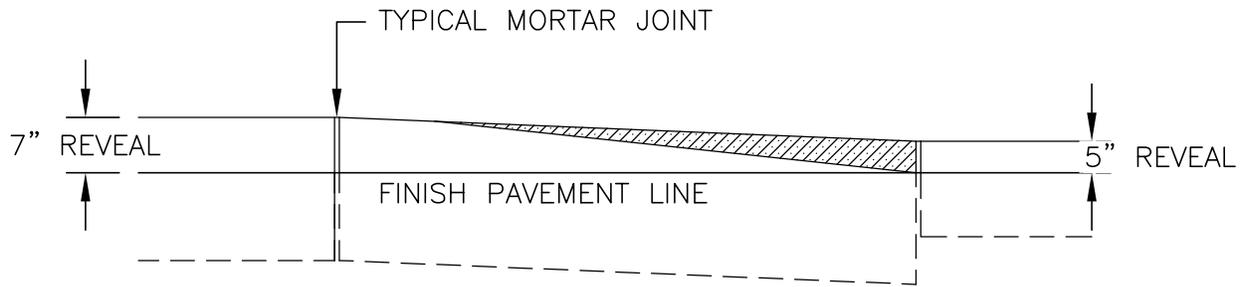
CRUSHED GRAVEL TO BE COMPACTED TO 95% MIN
HAND COMPACTION IS NOT ALLOWED

RADIUS	MAX LENGTH
≤ 2'	CURVED CURB RADIAL JOINTS
>2' - 15'	18"
16' - 28'	2'
29' - 41'	3'
42' - 55'	4'
56' - 68'	5'
69' - 82'	6'
83' - 96'	7'
97' - 110'	8'
OVER 110'	8'

FINISH SURFACE AND TOLERANCES FOR SLOPED GRANITE CURB

AREA	FINISH SURFACE	TOLERANCE
<u>ARRIS LINES</u>	STRAIGHT AND TRUE ON TOP, FRONT AND ENDS. DRILL HOLES NOT DEEPER THAN 1/4" ALLOWED IN ARRIS LINES.	+1/4" TO -1/4"
<u>FACES</u>		
EXPOSED PART	PLANES; NO DRILL HOLES IN FACES LONGER THAN 8" OR DEEPER THAN 1/4".	+1" TO -1"
CONCEALED PART	DRILL HOLES NOT OBJECTIONABLE.	
<u>ENDS</u>	SQUARE WITH FACE EXCEPT AS INDICATED.	
<u>JOINTS</u>		
	ON TANGENT, MAXIMUM WIDTH: 1".	+1/2" TO -1/2"
	ON CURVES OVER 15' RADIUS, WIDEN TOP OR BOTTOM FROM 1" AS NECESSARY.	+1/2" TO -1/2"
	ON CURVES WITH 15' RADIUS AND UNDER, USE RADIAL JOINTS OR CURVED CURB AS INDICATED. OPTIMUM WIDTH: 1"	+1/2" TO -1/2"

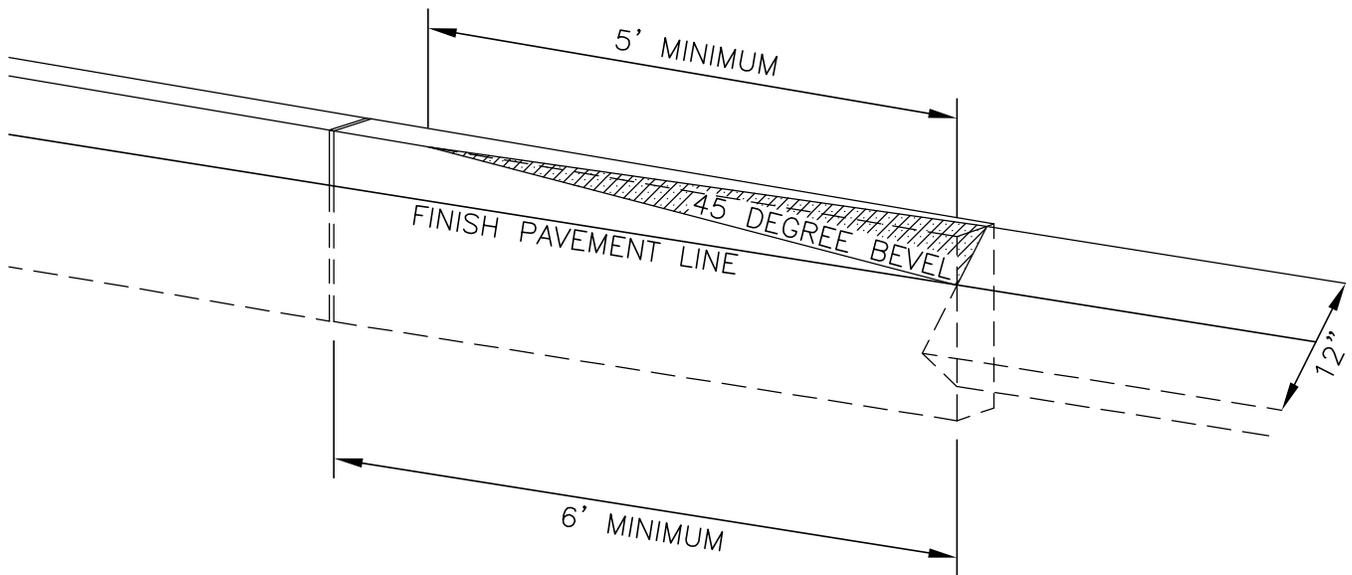
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET		
1	DRAFTING	11.11		SLOPED GRANITE CURB	DRAWING NO. C-2	
2	REMOVED FF	12.15			DATE: 12/08	PAGE: 1
APPROVED BY:						



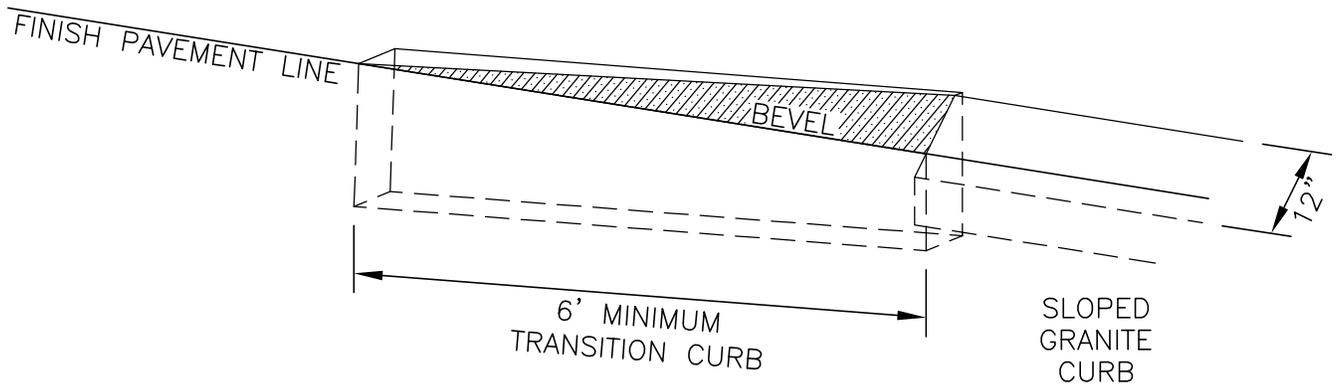
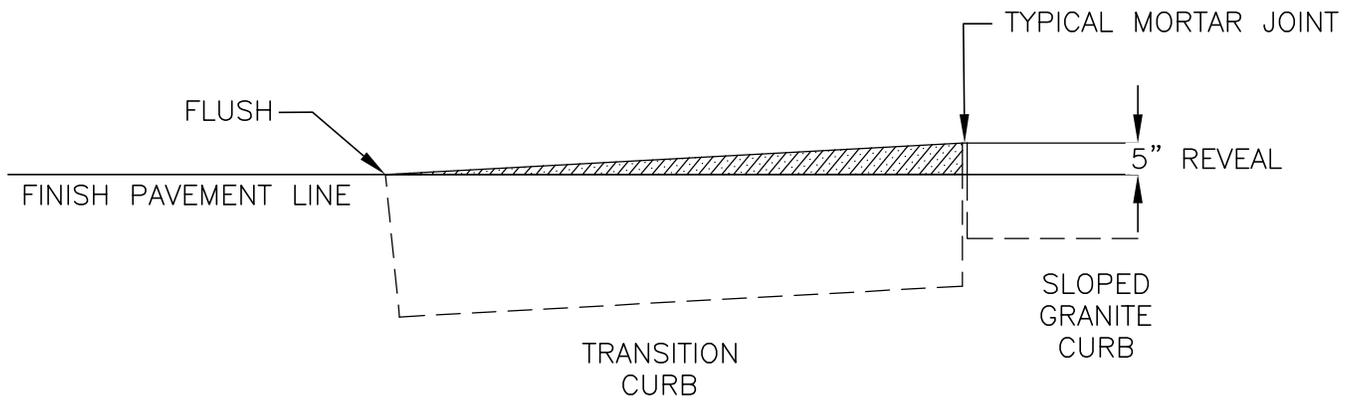
TYPICAL
VERTICAL
GRANITE
CURB
SECTION

TRANSITION
CURB
SECTION
TIPPED DOWN

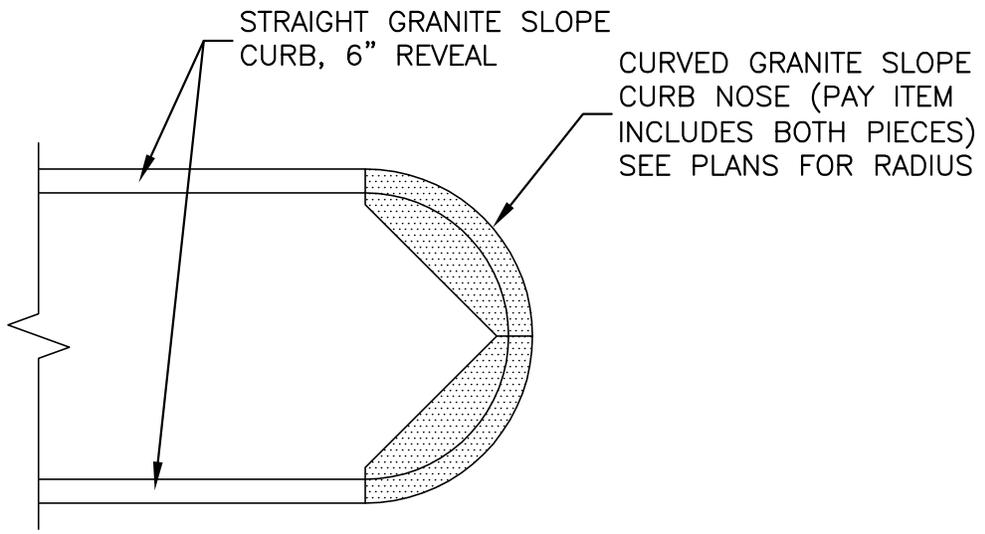
TYPICAL
SLOPED
GRANITE
CURB
SECTION



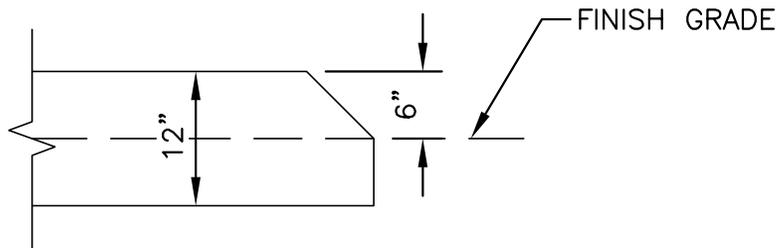
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET		
-	-	-		SLOPE TO VERTICAL GRANITE CURB TRANSITION	DRAWING NO.	C-3	
-	-	-			DATE:	12/08	PAGE: 1
-	-	-			APPROVED BY:		



NO.	REVISION	DATE	City of Concord Engineering Services Division SLOPE GRANITE CURB TRANSITION	SECTION: ROADWAY	
-	-	-		DRAWING NO. C-4	
-	-	-		DATE: 01/12	PAGE: 1
APPROVED BY:					

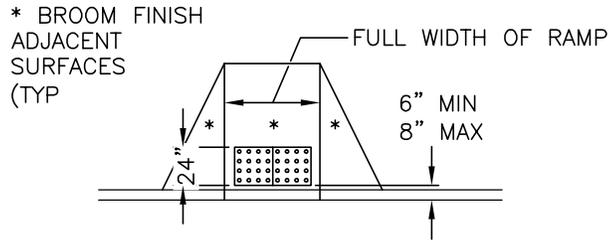


PLAN

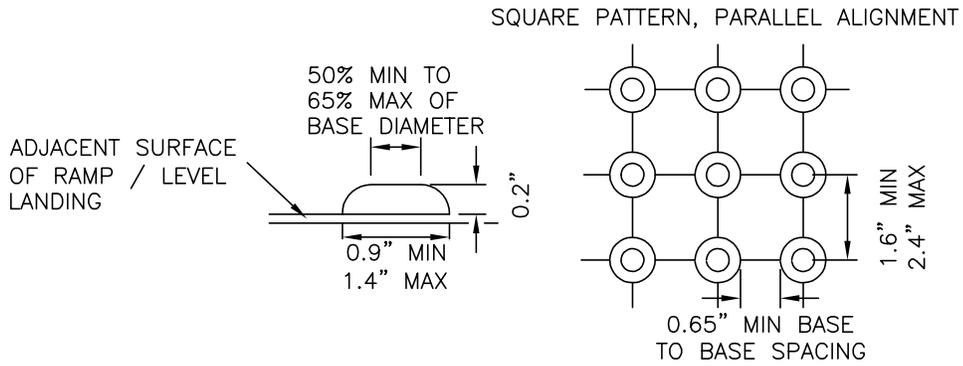


SECTION

NO.	REVISION	DATE	City of Concord Engineering Services Division CURVED GRANITE SLOPE CURB NOSE	SECTION: SITE/STREET	
-	-	-		DRAWING NO.	C-5
-	-	-		DATE:	01/15
-	-	-		PAGE:	1
APPROVED BY:					



DETECTABLE WARNING PLACEMENT



DETECTABLE WARNING DETAILS

NOTES:

1. DETECTABLE WARNING SURFACES SHALL BE CAST IRON WITHIN THE CITY R.O.W.
2. CONCRETE ADJACENT TO ALL DETECTABLE WARNINGS SHALL HAVE A BROOM FINISH.
3. THE COLOR OF THE DETECTABLE WARNING SHALL PROVIDE A VISUAL CONTRAST TO THE SURROUNDING SURFACE AND SHALL BE AS SPECIFIED ON THE PLANS.
4. WHERE A RAMP OR LEVEL LANDING MEETS A CURB RADIUS, ALIGN THE EDGE OF THE DETECTABLE WARNING AREA PARALLEL TO THE CURB TO THE MAXIMUM EXTENT FEASIBLE.

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET		
1	REV STYLE	11-09		DETECTABLE WARNING PANEL DETAILS	DRAWING NO.	CR-1	
-	-	-			DATE:	12/08	PAGE: 1
-	-	-			APPROVED BY:		

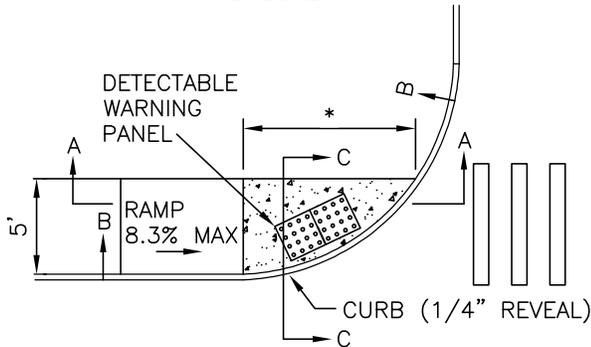
GENERAL NOTES:

1. THE DIMENSIONS AND GRADES SHOWN ON THIS STANDARD WILL BE ADHERED TO IN THE DESIGN AND THE CONSTRUCTION OF SIDEWALK RAMPS. WHERE SIDEWALKS RUN ADJACENT TO ROADWAYS ON STEEP (5% OR GREATER) GRADES, RAMP GRADES WILL BE AS FLAT AS POSSIBLE. (ON LOW SIDE OF DRIVES AND INTERSECTING SIDE STREETS, RAMPS SHALL SLOPE TOWARDS DRIVE OR SIDE STREET AT 2%)
2. NOMINAL RAMP DIMENSIONS AND GRADES:
 RAMP WIDTH – 5’ MINIMUM
 RAMP SLOPE – 8.3% MAXIMUM
 FLARE SLOPE – 10% MAXIMUM
 RAMP CROSS SLOPE – 2% MAXIMUM
3. CURB RAMPS SHALL BE CONSTRUCTED OF 6” PORTLAND CEMENT CONCRETE (CLASS AA, 4000 PSI) WITH 6”X6” W2.9XW2.9 WOVEN WIRE FABRIC REINFORCING PLACED 2½” FROM THE TOP OF THE SLAB WITH 6” CRUSHED GRAVEL SUBBASE
4. ALL SIDEWALKS AND LANDINGS SHALL HAVE A CROSS SLOPE OF 2% DRAINING TOWARD THE STREET, DRIVE, OR PARKING AREA
5. A LEVEL LANDING (NO GREATER THAN 2% SLOPE IN ANY DIRECTION) SHALL BE PROVIDED AT THE TOP OF SIDEWALK RAMPS TO ALLOW FOR STOPPING AND MANEUVERING OF WHEELCHAIRS
6. LEVEL LANDINGS (NO GREATER THAN 2% SLOPE IN ANY DIRECTION) AT THE BOTTOM OF PERPENDICULAR RAMPS SHALL BE WHOLLY CONTAINED WITHIN MARKED CROSSWALKS
7. DUMMY JOINTS SHALL BE PROVIDED AT TRANSITIONS (GRADE CHANGES) AT TOPS AND BOTTOMS OF RAMPS AND FLARES
8. VERTICAL DROP-OFF EDGES TO RAMPS WILL NOT BE BUILT UNLESS THE RAMP ABUTS AN AREA WHICH WILL NOT BE USED BY PEDESTRIANS
9. A ¼” CURB REVEAL WILL BE PROVIDED WHERE THE RAMP ADJOINS THE ROADWAY
10. AT MARKED CROSSWALKS, THE FULL WIDTH OF THE RAMP OR LANDING SHALL BE CONTAINED WITHIN THE PAVEMENT MARKINGS
11. RAMP FLARES SHOULD BE LOCATED OUTSIDE THE DIRECT LINE OF TRAVEL MOST LIKELY TO BE FOLLOWED BY THE VISUALLY IMPAIRED
12. SIGNS, POLES, PLANTERS, MAILBOXES, ETC., SHALL NOT BE LOCATED WHERE THEY WILL INTERFERE WITH THE USE OF SIDEWALK RAMPS
13. SIDEWALK RAMPS SHALL NOT BE LOCATED WHERE USERS MUST CROSS DROP INLET GRATES, MANHOLE COVERS, OR OTHER ACCESS LIDS. IF THIS CANNOT BE AVOIDED THEN GRATE DESIGN AND PLACEMENT SHALL CONFORM TO ADA REQUIREMENTS
14. CURB DRAINAGE SHOULD BE CONSTRUCTED SO AS TO PRECLUDE THE FLOW OF WATER PAST THE SIDEWALK RAMP
15. WHEREVER FEASIBLE, TWO SIDEWALK RAMPS ARE RECOMMENDED IN PREFERENCE TO A SINGLE RAMP
16. SIDEWALKS THAT ARE LESS THAN 5’ WIDE REQUIRE 5’ WIDE BY 5’ LONG PASSING AREAS (NO GREATER THAN 2% CROSS SLOPE) AT INTERVALS NOT TO EXCEED 200’
17. E.O.P. = EDGE OF PAVEMENT
18. THE PUBLIC SIDEWALK CURB RAMP STANDARDS DEPICTED HERE MAY NOT BE APPROPRIATE FOR ALL LOCATIONS. FIELD CONDITIONS AT INDIVIDUAL LOCATIONS MAY REQUIRE SPECIFIC DESIGNS. DESIGNS MUST BE CONSISTENT WITH THE PROVISIONS OF THIS SHEET TO THE MAXIMUM EXTENT FEASIBLE ON ALTERATION PROJECTS AND WHEN STRUCTURALLY PRACTICABLE ON NEW CONSTRUCTION PROJECTS AS REQUIRED BY THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES

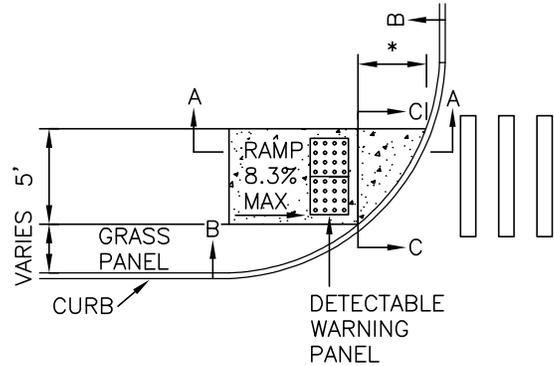
NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SITE/STREET			
1			REV STYLE			11-09			SIDEWALK RAMP GENERAL NOTES			DRAWING NO. CR-2			
-			-			-						DATE: 12/08			PAGE: 1
-			-			-						APPROVED BY:			

SINGLE WALK STRAIGHT APPROACH TO PARALLEL RAMP

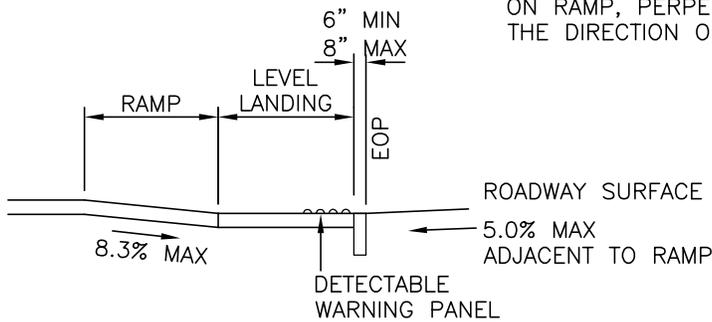
EXAMPLE 1: SIDEWALK ADJACENT TO CURB



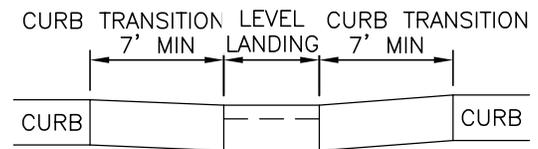
EXAMPLE 2: SIDEWALK AND CURB SEPARATED BY GRASS PANEL



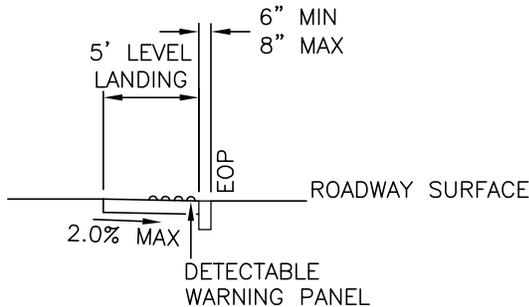
* IF LESS THEN 5', DETECTABLE WARNING PANEL MAY BE PLACED ON RAMP, PERPENDICULAR TO THE DIRECTION OF TRAVEL



SECTION A-A



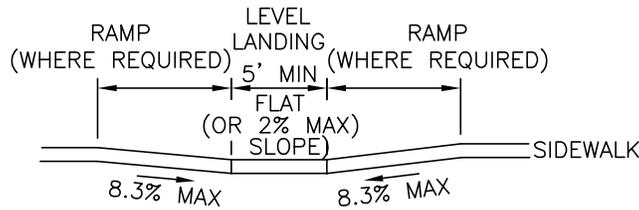
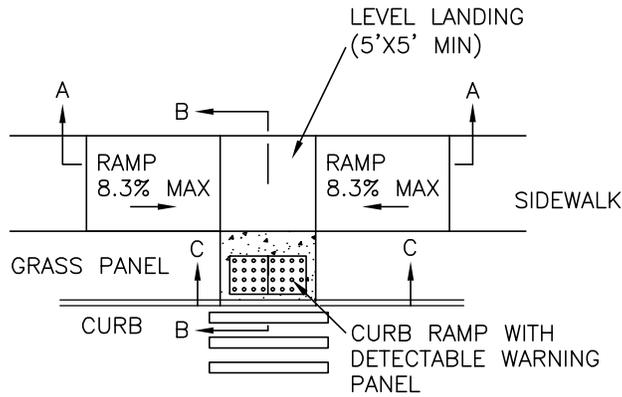
SECTION B-B



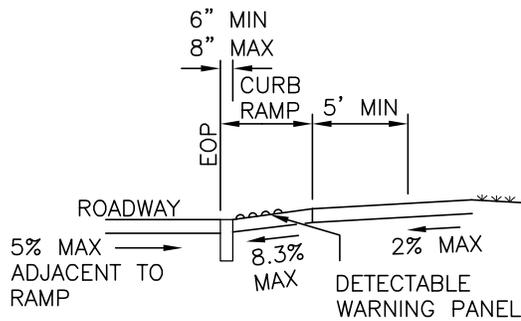
SECTION C-C

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET
1	REV STYLE	11-09	SIDEWALK RAMP TYPE 1	DRAWING NO. CR-3
2	SECT C-C	11-09		DATE: 12/08
-	-	-		PAGE: 1
APPROVED BY:				

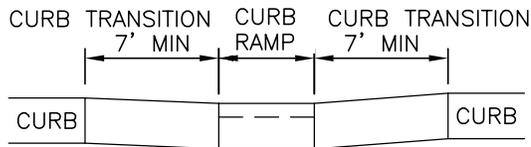
SINGLE PERPENDICULAR RAMP FROM LEVEL LANDING TANGENT SECTION



SECTION A-A



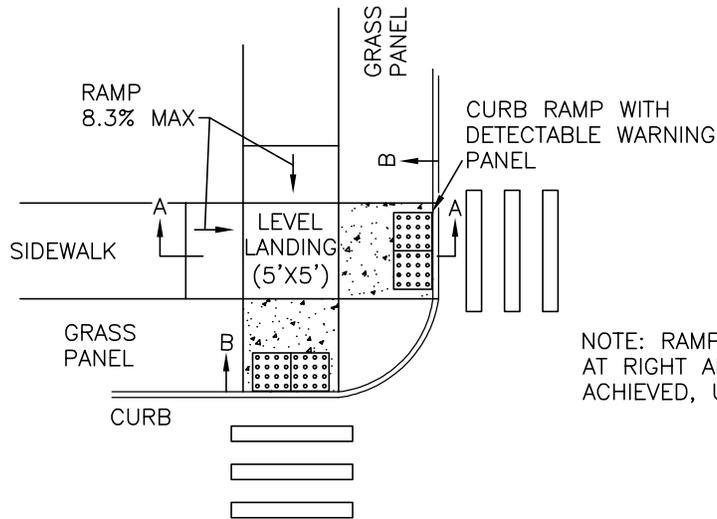
SECTION B-B



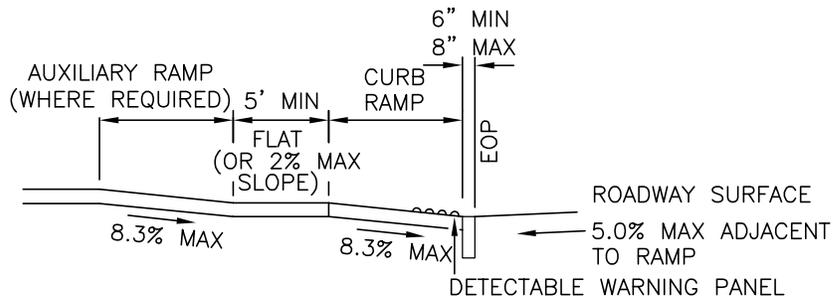
SECTION C-C

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET		
1	REV STYLE	11-09		SIDEWALK RAMP TYPE 2	DRAWING NO. CR-4	
-	-	-			DATE: 12/08	PAGE: 1
-	-	-				
APPROVED BY:						

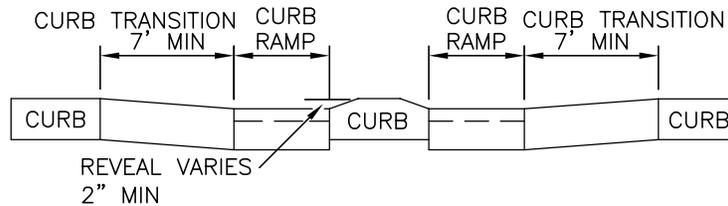
TWO PERPENDICULAR RAMPS FROM LEVEL LANDING



NOTE: RAMPS MUST INTERSECT CURB AT RIGHT ANGLE. IF THIS CANNOT BE ACHIEVED, USE RAMP TYPE 6



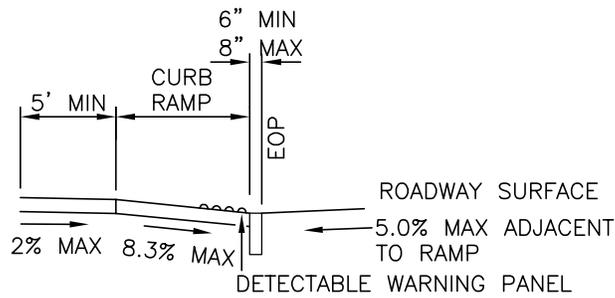
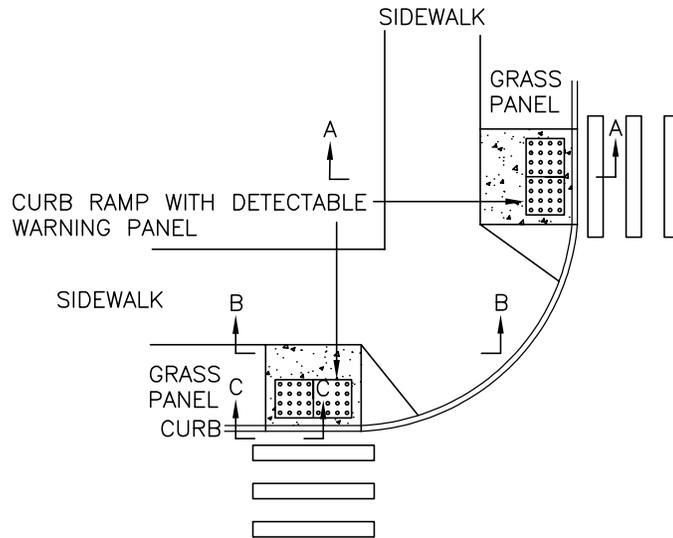
SECTION A-A



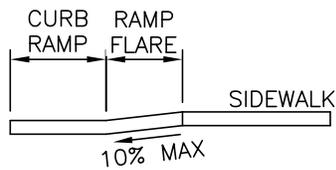
SECTION B-B

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET	
1	REV STYLE	11-09	<h1 style="margin: 0;">SIDEWALK RAMP TYPE 3</h1>	DRAWING NO. CR-5	
-	-	-		DATE: 12/08	PAGE: 1
-	-	-			
APPROVED BY:					

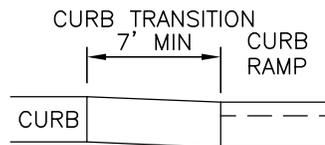
RAMP OFFSET FROM DIRECT LINE OF PEDESTRIAN TRAVEL



SECTION A-A



SECTION B-B

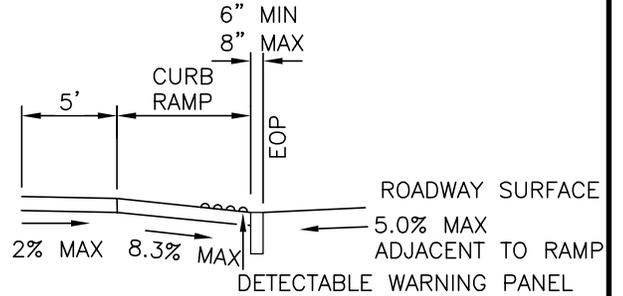
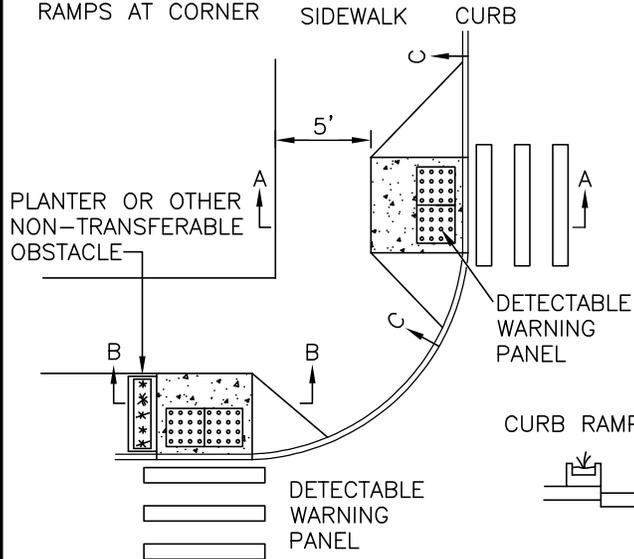


SECTION C-C

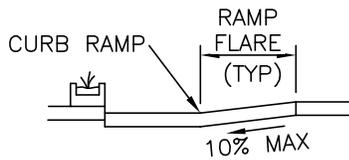
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET		
1	REV STYLE	11-09		SIDEWALK RAMP TYPE 4	DRAWING NO.	CR-6
-	-	-			DATE: 12/08	PAGE: 1
-	-	-				
APPROVED BY:						

PERPENDICULAR RAMP IN URBAN SETTING – WIDE SIDEWALK

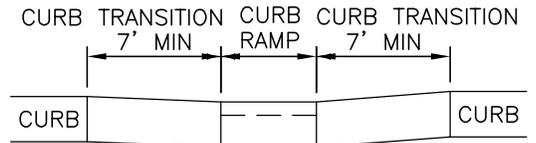
EXAMPLE 1: PAIRED RAMPS AT CORNER



SECTION A-A

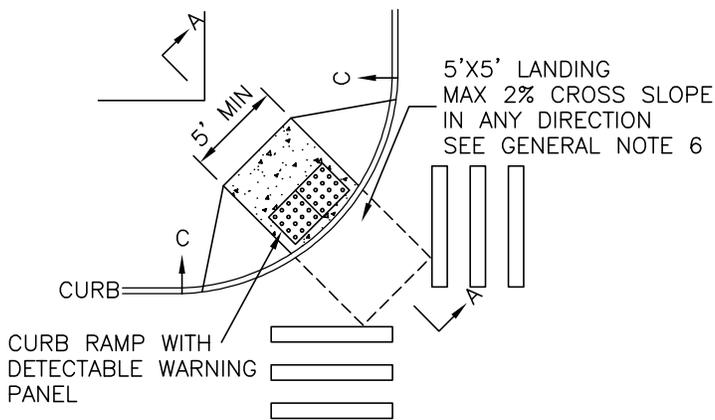


SECTION B-B

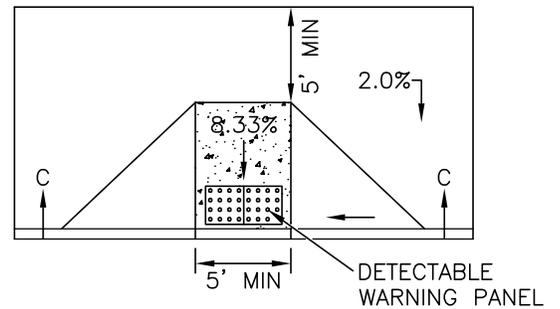


SECTION C-C

EXAMPLE 2: SINGLE RAMP ON CORNER RADIUS



EXAMPLE 3: RAMP ON TANGENT SECTION



NO.	REVISION	DATE
1	REV STYLE	11-09
-	-	-
-	-	-

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City of Concord Engineering Services Division

SIDEWALK RAMP TYPE 5

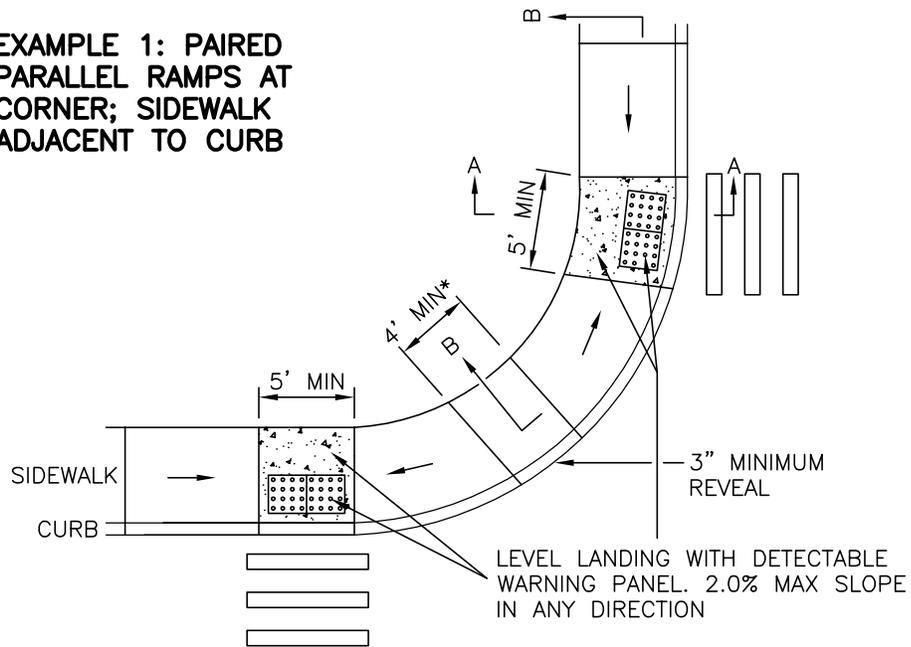
SECTION: SITE/STREET

DRAWING NO. CR-7

DATE: 12/08

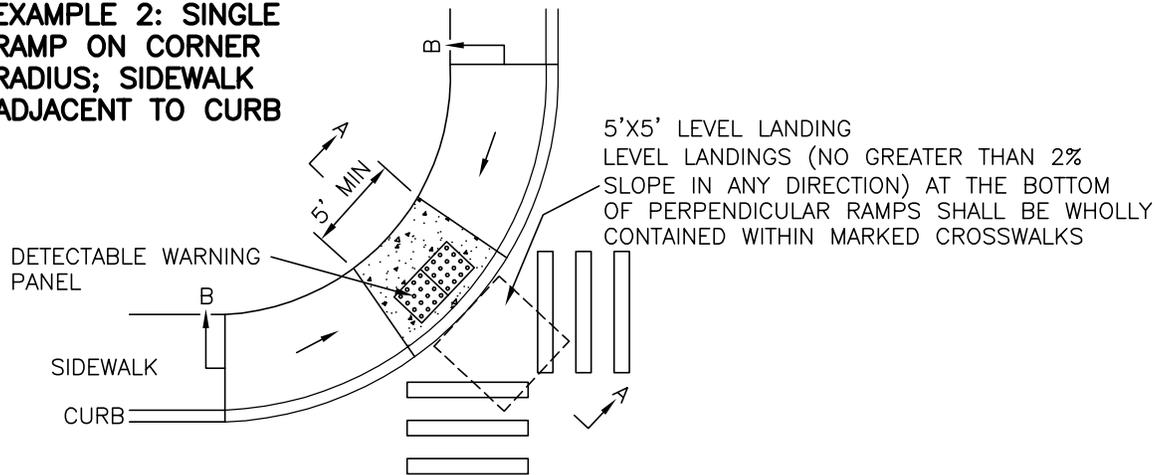
PAGE: 1

EXAMPLE 1: PAIRED PARALLEL RAMPS AT CORNER; SIDEWALK ADJACENT TO CURB



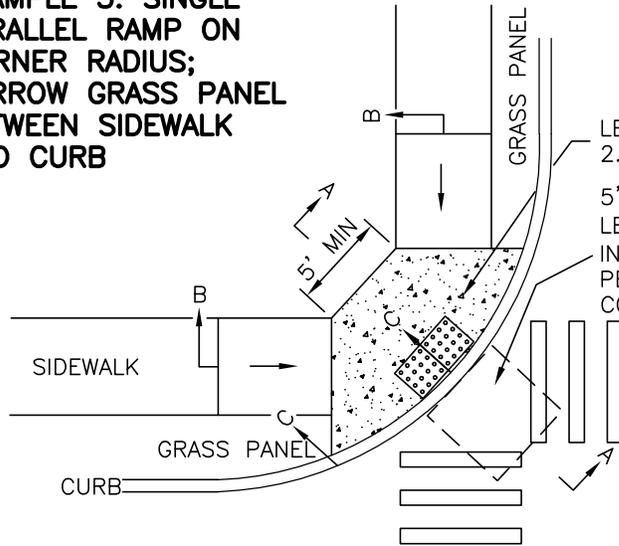
* WHERE A 4' MINIMUM SEPARATION BETWEEN RAMPS CANNOT BE ATTAINED, THE SIDEWALK SHOULD REMAIN AT THE SAME ELEVATION AS ADJOINING LEVEL LANDINGS

EXAMPLE 2: SINGLE RAMP ON CORNER RADIUS; SIDEWALK ADJACENT TO CURB



NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET	
1	DRAFTING	12.15		SIDEWALK RAMP TYPE 6, EXAMPLES 1 & 2	
-	-	-			
-	-	-		DATE: 12/08	PAGE: 1
APPROVED BY:					

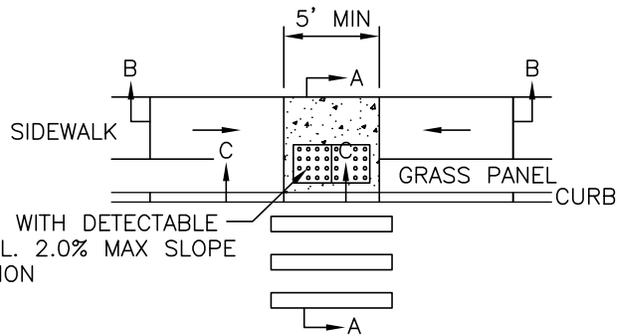
**EXAMPLE 3: SINGLE
PARALLEL RAMP ON
CORNER RADIUS;
NARROW GRASS PANEL
BETWEEN SIDEWALK
AND CURB**



LEVEL LANDING WITH DETECTABLE WARNING PANEL.
2.0% MAX SLOPE IN ANY DIRECTION

5'X5' LEVEL LANDING
LEVEL LANDINGS (NO GREATER THAN 2% SLOPE
IN ANY DIRECTION) AT THE BOTTOM OF
PERPENDICULAR RAMPS SHALL BE WHOLLY
CONTAINED WITHIN MARKED CROSSWALKS

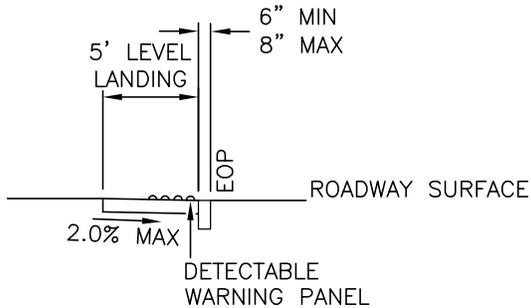
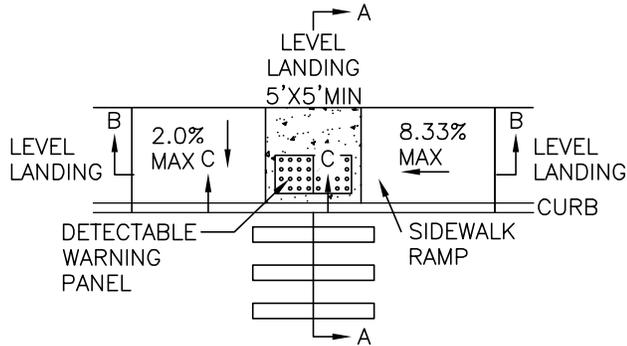
**EXAMPLE 4: SINGLE
RAMP ON TANGENT;
NARROW GRASS PANEL**



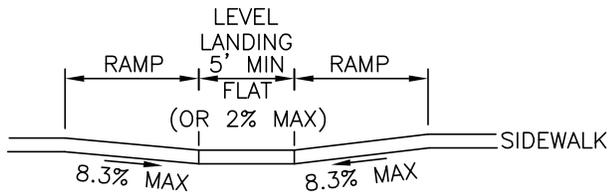
LEVEL LANDING WITH DETECTABLE
WARNING PANEL. 2.0% MAX SLOPE
IN ANY DIRECTION

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET		
1	DRAFTING	12.15		SIDEWALK RAMP TYPE 6, EXAMPLES 3 & 4		
-	-	-				DRAWING NO. CR-9
-	-	-				DATE: 12/08 PAGE: 1
APPROVED BY:						

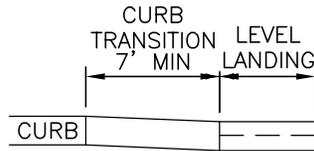
**EXAMPLE 5: SINGLE RAMP ON TANGENT:
SIDEWALK ADJACENT TO CURB**



SECTION A-A



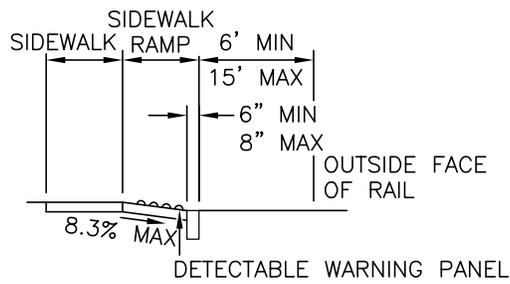
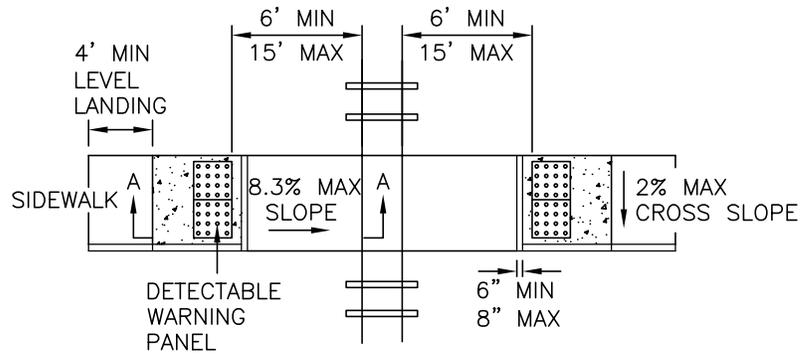
SECTION B-B



SECTION C-C

NO.	REVISION	DATE	City of Concord Engineering Services Division SIDEWALK RAMP TYPE 6, EXAMPLE 5 AND TYPE 6 SECTIONS	SECTION: SITE/STREET	
1	REV STYLE	11-11		DRAWING NO. CR-10	
2	SECT A-A	11-11		DATE: 12/08	
-	-	-		PAGE: 1	
APPROVED BY:					

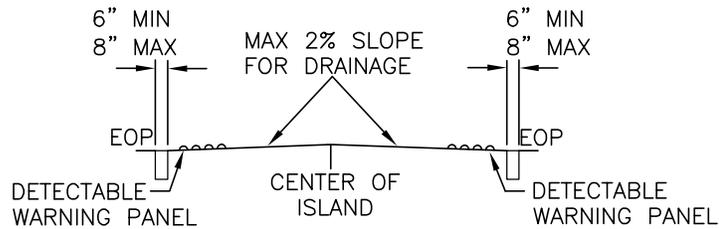
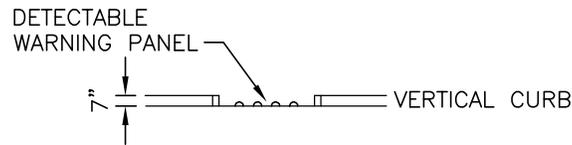
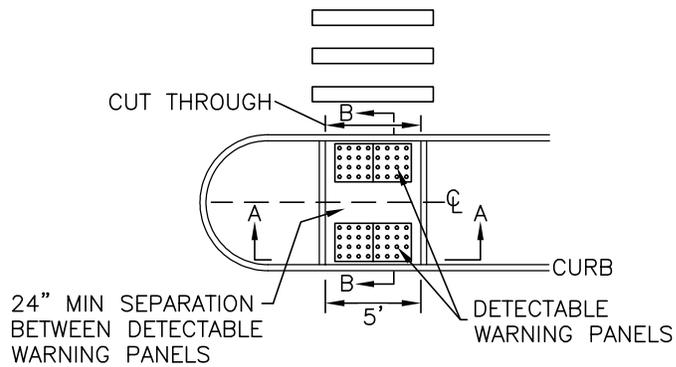
RAILROAD CROSSING



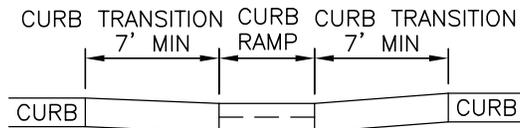
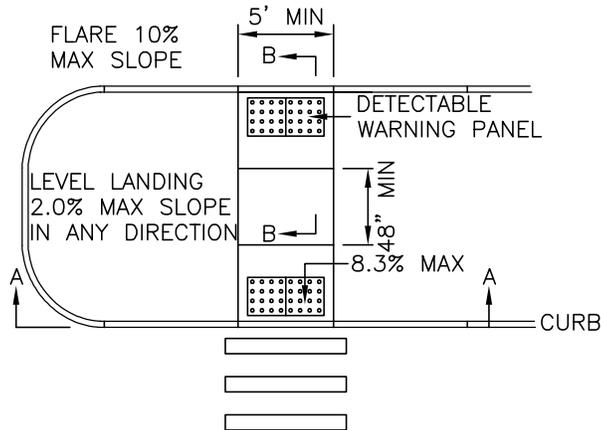
SECTION A-A

NOTE: WHERE A PEDESTRIAN GATE IS PROVIDED ACROSS THE SIDEWALK, THE NEAREST EDGE OF THE DETECTABLE WARNING PANEL SHALL BE A MINIMUM OF 2' FROM THE FACE OF THE GATE ARM.

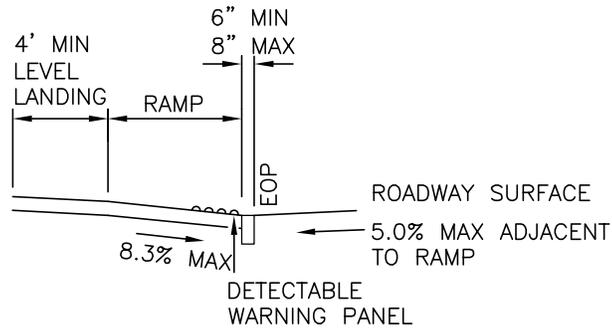
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET	
1	UPDATE DIMS	11-11	<h1 style="margin: 0;">RAILROAD CROSSING</h1>	DRAWING NO. CR-11	
-	-	-		DATE: 12/08	PAGE: 1
-	-	-			
APPROVED BY:					



NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET			
1	REV STYLE	11-09		MEDIAN ISLAND CUT THROUGH	DRAWING NO.	CR-12		
-	-	-			DATE:	12/08	PAGE:	1
-	-	-			APPROVED BY:			



SECTION A-A



SECTION B-B

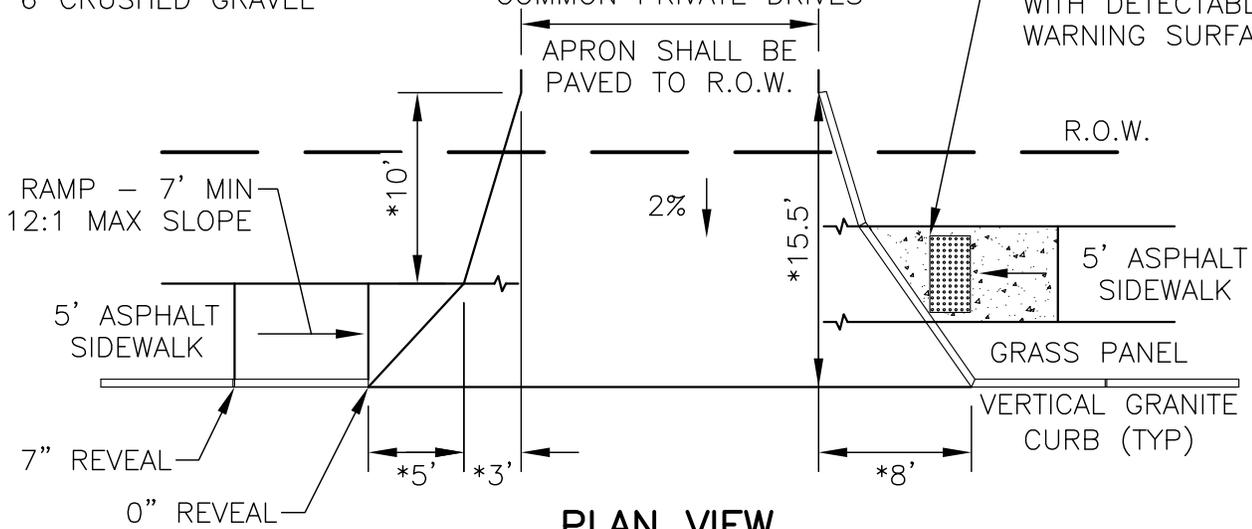
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET			
1	REV STYLE	11-09		RAMPS AT WIDE MEDIAN ISLANDS	DRAWING NO.	CR-13		
-	-	-			DATE:	12/08	PAGE:	1
-	-	-			APPROVED BY:			

MINIMUM MATERIAL VALUES

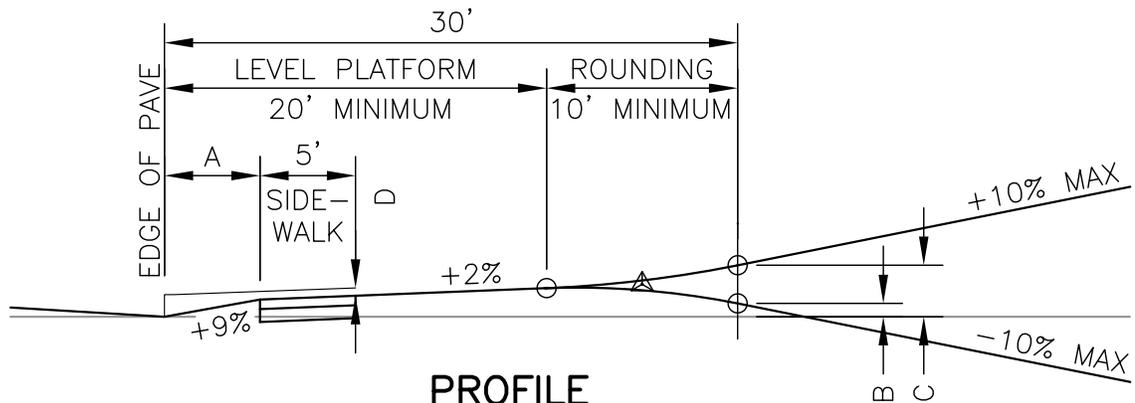
- 1½" WEAR COURSE PAVEMENT
- 1½" BASE COURSE PAVEMENT
- 6" CRUSHED GRAVEL

MEASURED AT R.O.W.
 12' MIN/28' MAX
 18' MIN FOR RESIDENTIAL
 COMMON PRIVATE DRIVES

COMMERCIAL DRIVES IF
 REQUIRED: CONSTRUCT
 CONCRETE CURB RAMP
 WITH DETECTABLE
 WARNING SURFACE



PLAN VIEW



PROFILE

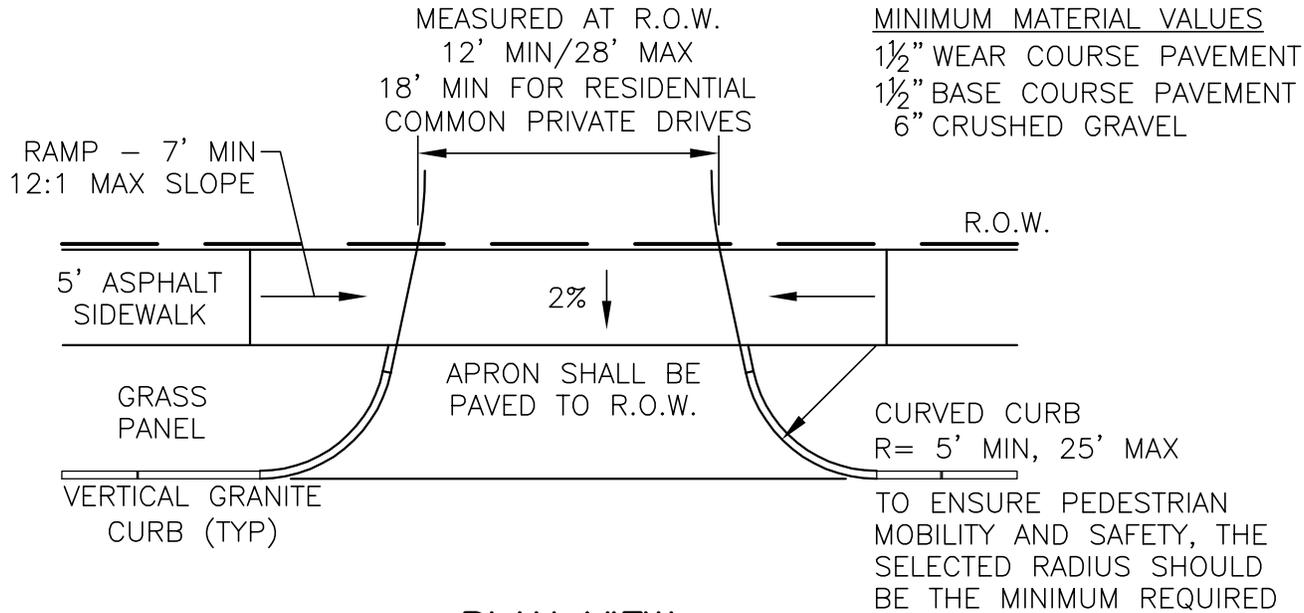
- A -WIDTH OF GRASS PANEL
- B -VERTICAL OFFSET AT 30' FOR DRIVES IN FILL
- C -VERTICAL OFFSET AT 30' FOR DRIVES IN CUT
- D -VERTICAL DROP OF SIDEWALK

VERTICAL CURB			
A	B	C	D
0	0	1'-0"	7"
1'	¾"	1'-¾"	6"
2'	1¾"	1'-1¾"	5¼"
3'	2½"	1'-2½"	4¼"
4'	3¼"	1'-3¼"	3½"

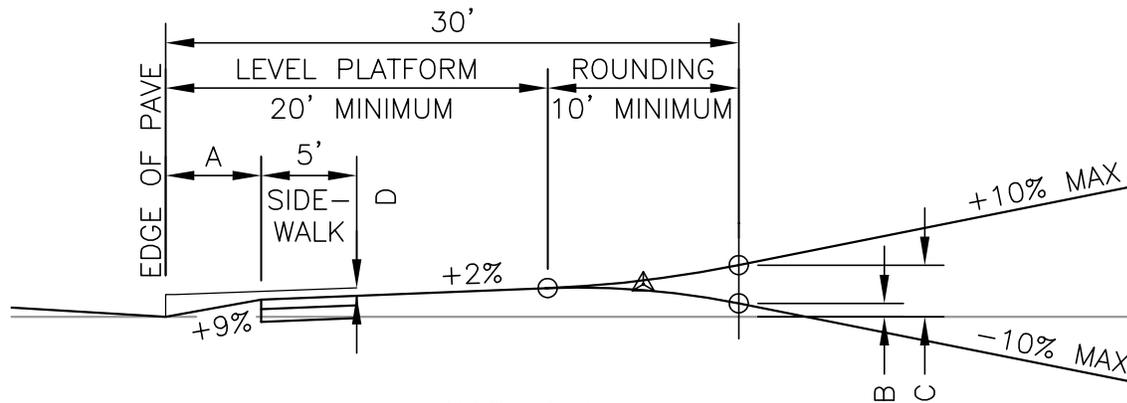
NOTE:

1. THE DRIVE WIDTHS AND PROFILE PERTAIN TO ALL URBAN DRIVES, REGARDLESS OF R.O.W. WIDTH OR SIDEWALK LOCATION
 2. IF REQUIRED FOR COMMERCIAL DRIVES, DETECTABLE WARNING PANELS SHALL BE PLACED PERPENDICULAR TO THE SIDEWALK WITH THE NEAREST EDGE 6" TO 8" FROM THE DRIVE.
- * DIMENSIONS ARE MAXIMUMS AND ARE TO BE USED IF NECESSARY TO ACCOMMODATE TURNING VEHICLES.

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET	
1	DRAFTING	11-11		DRIVE WITH VERTICAL GRANITE CURB, GRASS PANEL WIDTH <5'	DRAWING NO.	D-1
1	MIN WIDTH	11-11	DATE:		12/08	PAGE: 1
-	-	-	APPROVED BY:			



PLAN VIEW



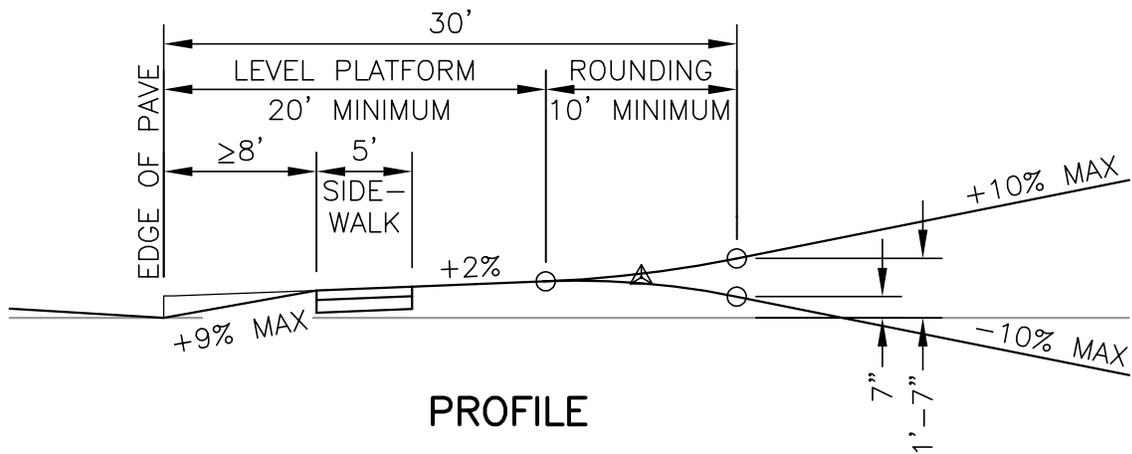
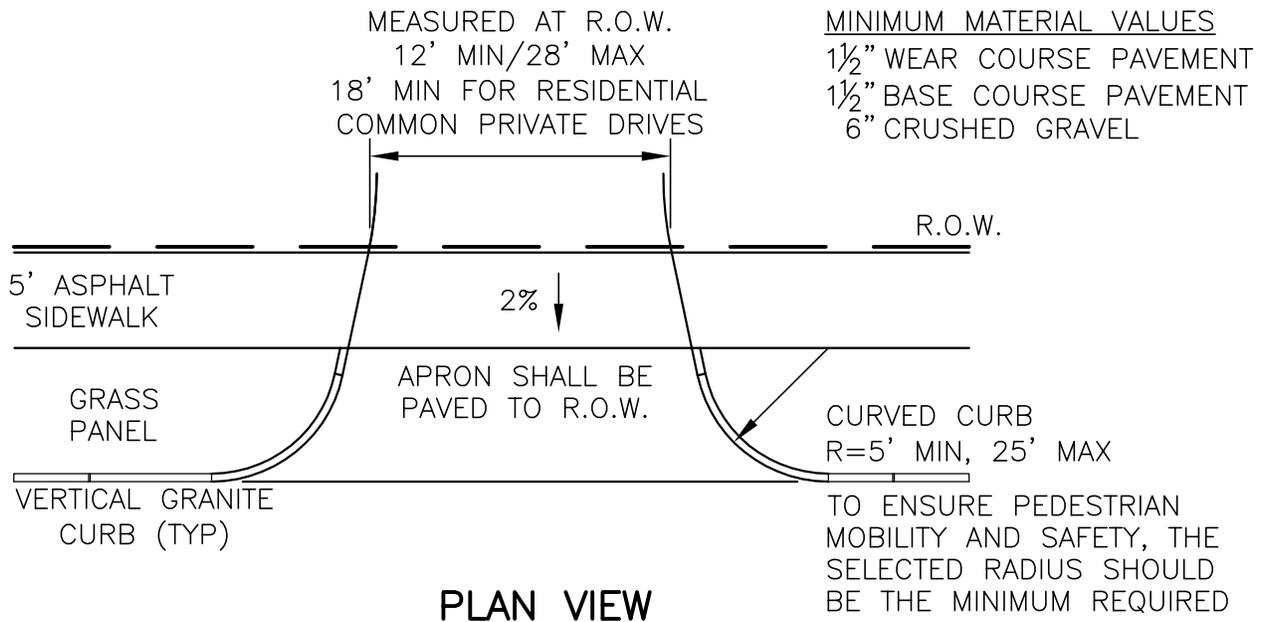
PROFILE

- A -WIDTH OF GRASS PANEL
- B -VERTICAL OFFSET AT 30' FOR DRIVES IN FILL
- C -VERTICAL OFFSET AT 30' FOR DRIVES IN CUT
- D -VERTICAL DROP OF SIDEWALK

VERTICAL CURB			
A	B	C	D
5'	4 1/4"	1'-4 1/4"	2 3/4"
6'	5"	1'-5"	1 3/4"
7'	6"	1'-6"	1"

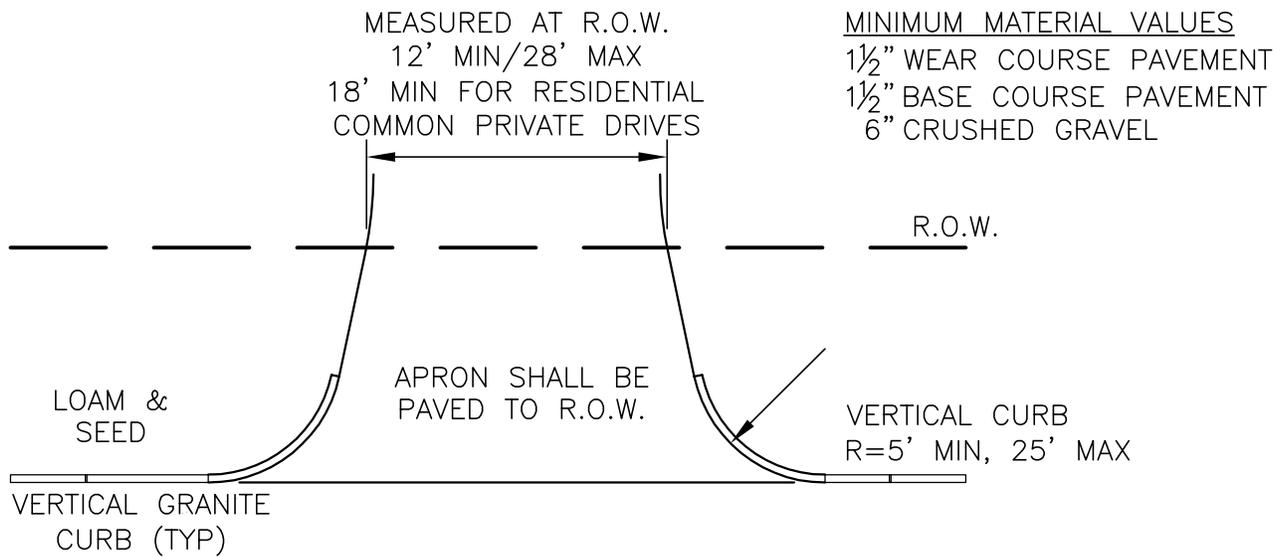
NOTE: THE DRIVE WIDTHS AND PROFILE PERTAIN TO ALL URBAN DRIVES, REGARDLESS OF R.O.W. WIDTH OR SIDEWALK LOCATION

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET
1	MIN WIDTH	11-11	DRIVE WITH VERTICAL GRANITE CURB, AND GRASS PANEL BETWEEN 5' AND 8' WIDE	DRAWING NO. D-2
-	-	-		DATE: 12/08
-	-	-		PAGE: 1
APPROVED BY:				

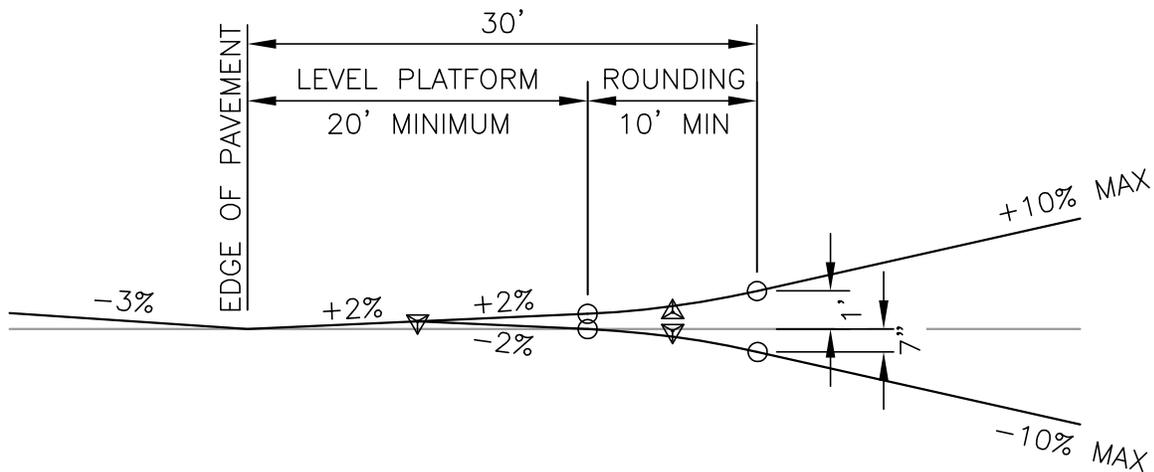


NOTE: THE DRIVE WIDTHS AND PROFILE PERTAIN TO ALL URBAN DRIVES, REGARDLESS OF R.O.W. WIDTH OR SIDEWALK LOCATION

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET	
1	MIN WIDTH	11-11	DRIVE WITH VERTICAL GRANITE CURB, GRASS PANEL WIDTH ≥8'	DRAWING NO.	D-3	
-	-	-		DATE:	12/08	PAGE: 1
-	-	-		APPROVED BY:		



PLAN VIEW



PROFILE

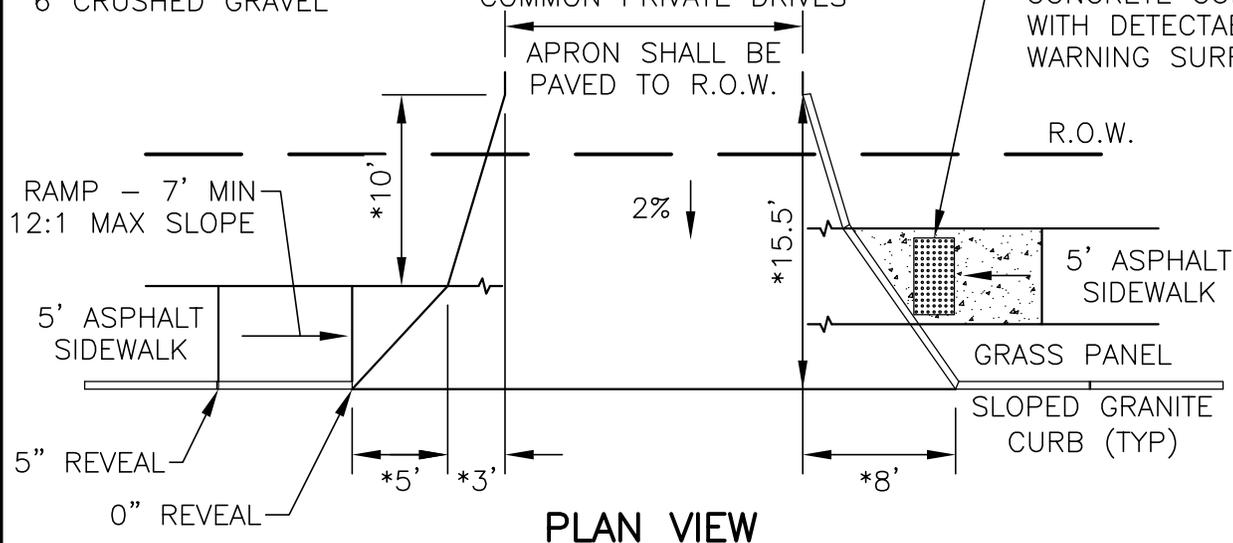
NOTE: THE DRIVE WIDTHS AND PROFILE PERTAIN TO ALL URBAN DRIVES, REGARDLESS OF R.O.W. WIDTH

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET		
1	MIN WIDTH	11-11		DRIVE WITH VERTICAL GRANITE CURB, W/O SIDEWALK	DRAWING NO.	D-4	
-	-	-			DATE:	12/08	PAGE: 1
-	-	-			APPROVED BY:		

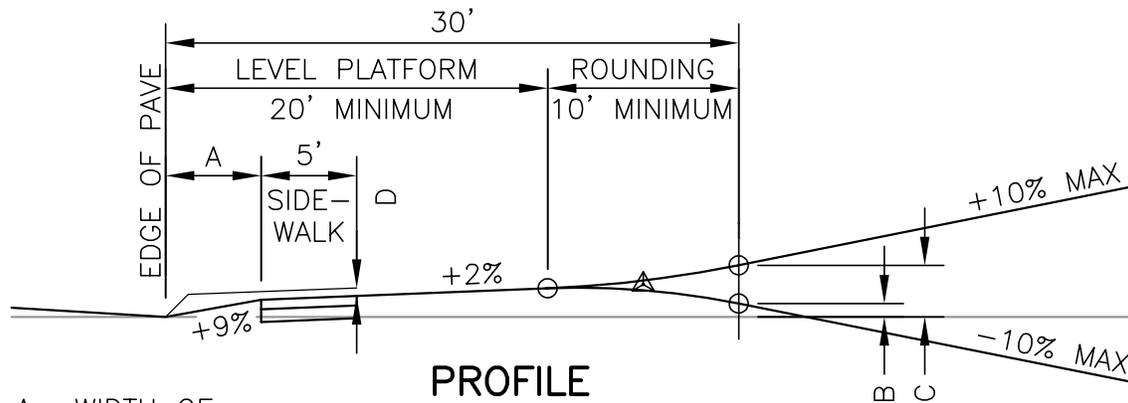
MINIMUM MATERIAL VALUES
 1½" WEAR COURSE PAVEMENT
 1½" BASE COURSE PAVEMENT
 6" CRUSHED GRAVEL

MEASURED AT R.O.W.
 12' MIN/28' MAX
 18' MIN FOR RESIDENTIAL
 COMMON PRIVATE DRIVES

COMMERCIAL DRIVES IF
 REQUIRED: WHERE "A" IS
 <5', CONSTRUCT
 CONCRETE CURB RAMP
 WITH DETECTABLE
 WARNING SURFACE



PLAN VIEW



PROFILE

- A - WIDTH OF GRASS PANEL
- B - VERTICAL OFFSET AT 30' FOR DRIVES IN FILL
- C - VERTICAL OFFSET AT 30' FOR DRIVES IN CUT
- D - VERTICAL DROP OF SIDEWALK

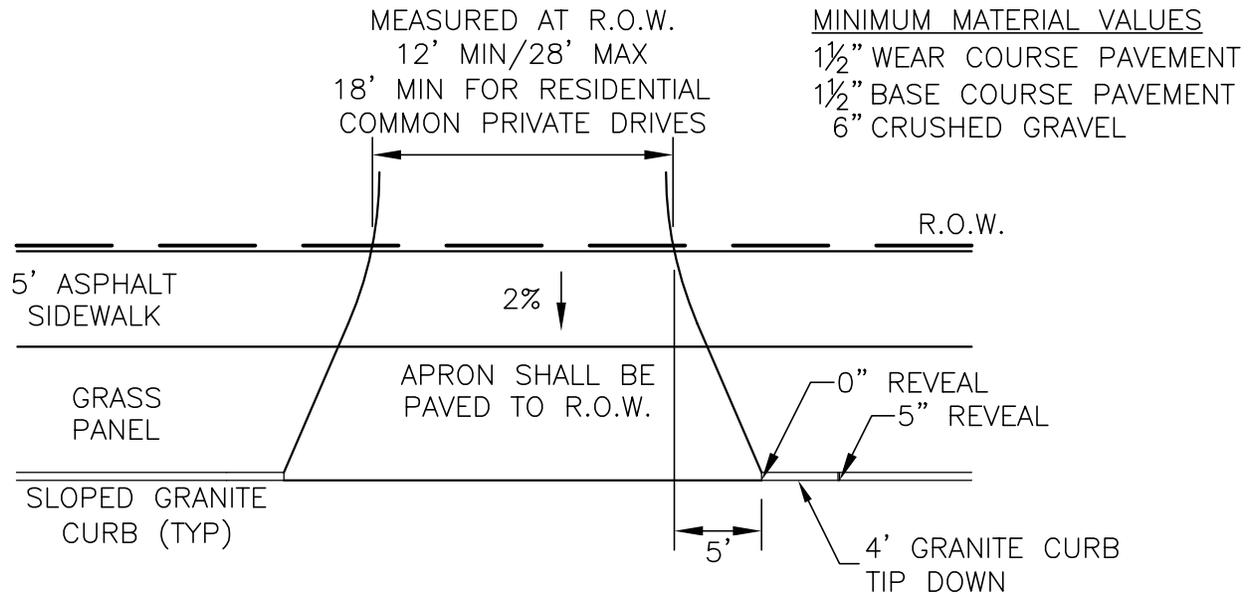
SLOPED CURB			
A	B	C	D
0	0	1'-0"	5"
1'	¾"	1'-¾"	4"
2'	1¾"	1'-1¾"	3¼"
3'	2½"	1'-2½"	2¼"
4'	¾"	1'-¾"	1½"
5'	5"	1'-4¼"	¾"

NOTE:

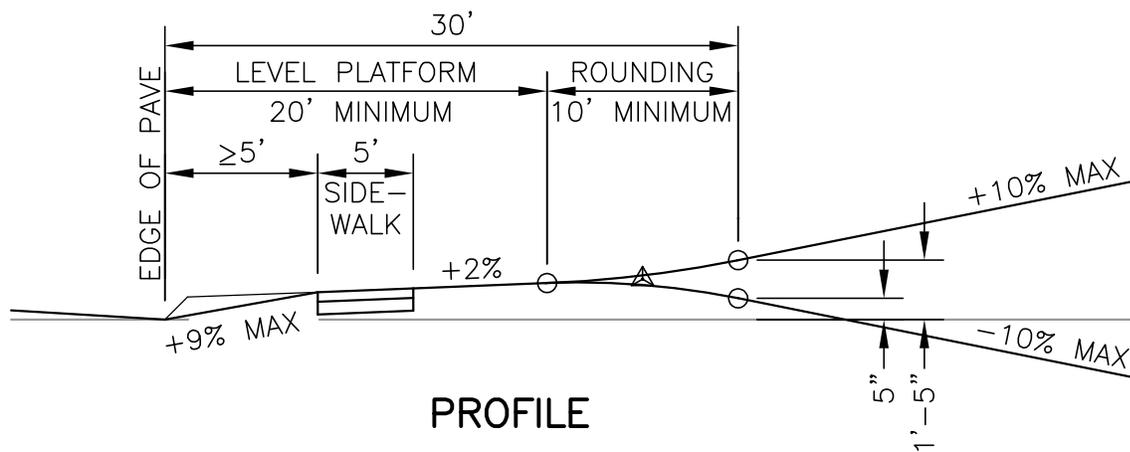
1. THE DRIVE WIDTHS AND PROFILE PERTAIN TO ALL URBAN DRIVES, REGARDLESS OF R.O.W. WIDTH OR SIDEWALK LOCATION
2. IF REQUIRED FOR COMMERCIAL DRIVES, DETECTABLE WARNING PANELS SHALL BE PLACED PERPENDICULAR TO THE SIDEWALK WITH THE NEAREST EDGE 6" TO 8" FROM THE DRIVE.

* DIMENSIONS ARE MAXIMUMS AND ARE TO BE USED IF NECESSARY TO ACCOMMODATE TURNING VEHICLES.

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET	
1	DRAFTING	11-11		DRIVE WITH SLOPED GRANITE CURB, GRASS PANEL WIDTH <6'	DRAWING NO.	D-5
1	MIN WIDTH	11-11	DATE:		12/08	PAGE: 1
-	-	-	APPROVED BY:			



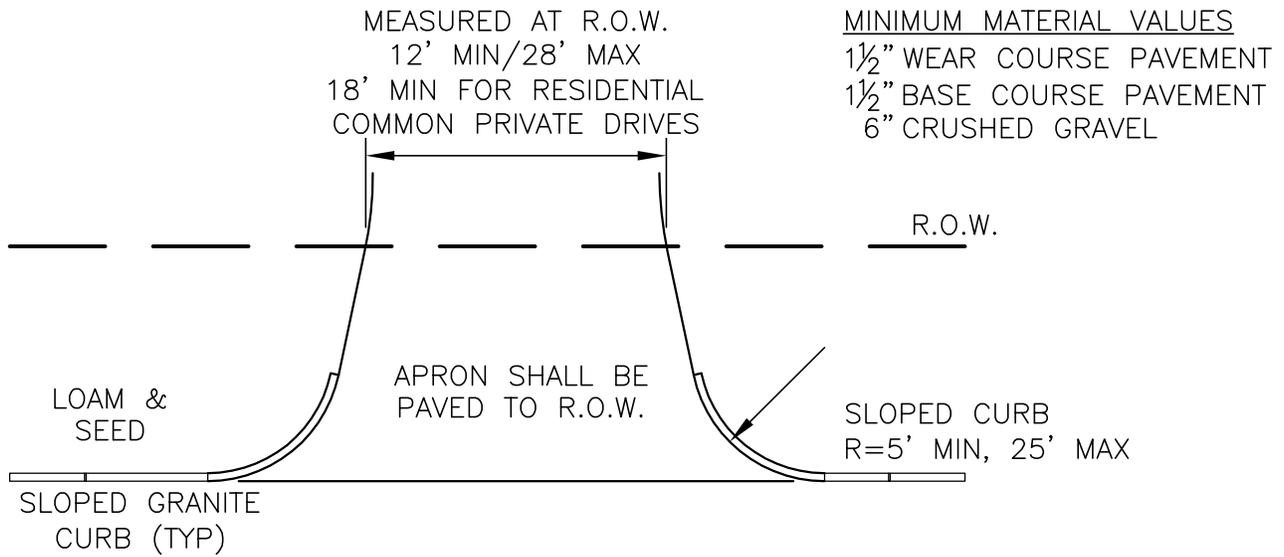
PLAN VIEW



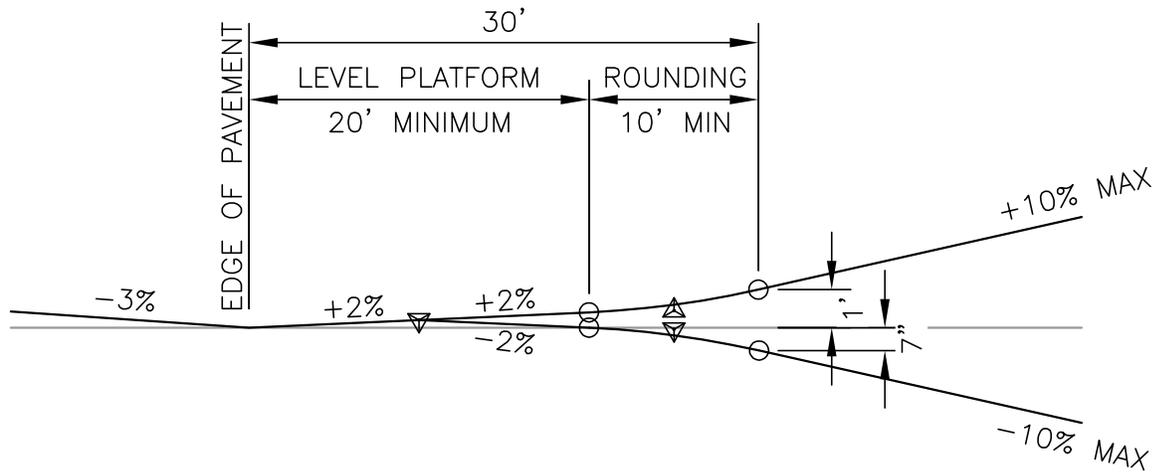
PROFILE

NOTE: THE DRIVE WIDTHS AND PROFILE PERTAIN TO ALL URBAN DRIVES, REGARDLESS OF R.O.W. WIDTH OR SIDEWALK LOCATION

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET	
1	MIN WIDTH	11-11	DRIVE WITH SLOPED GRANITE CURB, GRASS PANEL WIDTH $\geq 6'$	DRAWING NO.	D-6	
-	-	-		DATE:	12/08	PAGE: 1
-	-	-		APPROVED BY:		



PLAN VIEW



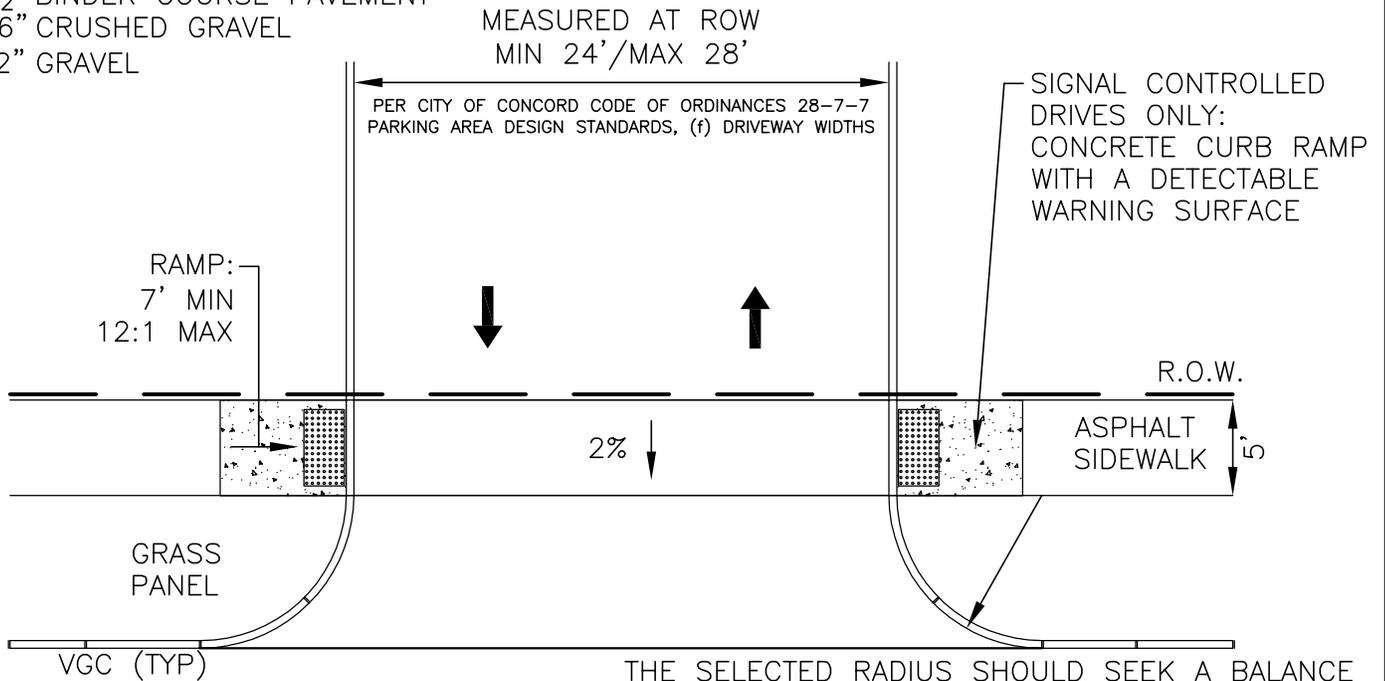
PROFILE

NOTE: THE DRIVE WIDTHS AND PROFILE PERTAIN TO ALL URBAN DRIVES, REGARDLESS OF R.O.W. WIDTH

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET
1	DRAFTING	11-11	DRIVE WITH SLOPED GRANITE CURB, W/O SIDEWALK	DRAWING NO. D-7
1	MIN WIDTH	11-11		DATE: 12/08
-	-	-		PAGE: 1
APPROVED BY:				

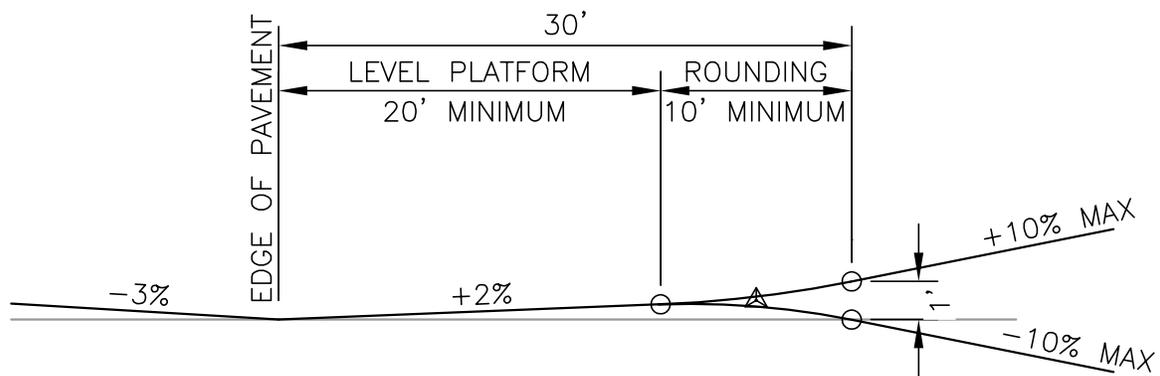
MINIMUM MATERIAL VALUES

- 1½" WEAR COURSE PAVEMENT
- 1½" BINDER COURSE PAVEMENT
- 6" CRUSHED GRAVEL
- 12" GRAVEL



THE SELECTED RADIUS SHOULD SEEK A BALANCE BETWEEN ACCOMMODATING TURNING VEHICLES AND ENSURING PEDESTRIAN MOBILITY AND SAFETY. A WIDER DRIVEWAY WIDTH WITH A SMALLER RADIUS MAY BE A BETTER CHOICE TO ACCOMPLISH THIS GOAL.

PLAN VIEW



PROFILE

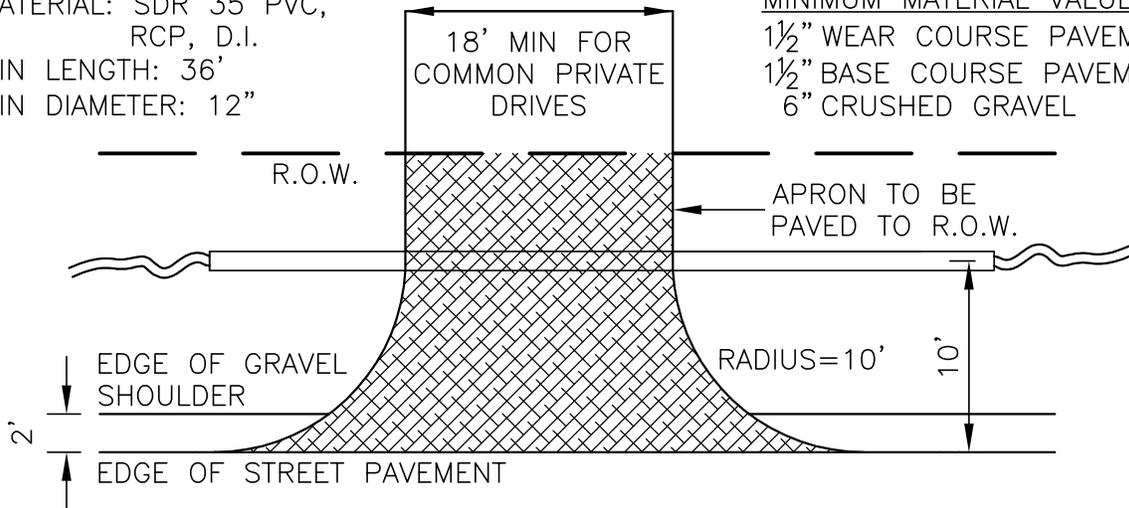
NOTE: THIS DETAIL IS TO BE USED FOR SITES WHERE THE DRIVEWAY REQUIRES TRAFFIC SIGNALS AND/OR ACTS AS A STREET.

NO.	REVISION	DATE	City of Concord Engineering Services Division MAJOR COMMERCIAL DRIVE >20,000 SF FLOOR AREA	SECTION: SITE/STREET	
1	SET SF AREA	11-11		DRAWING NO. D-8	
-	-	-		DATE: 12/08	PAGE: 1
-	-	-			
APPROVED BY:					

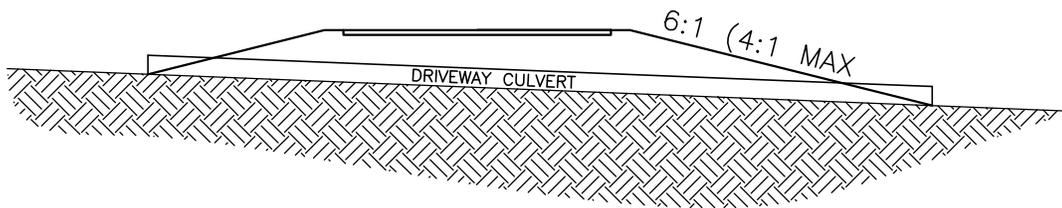
DRIVEWAY CULVERT
 MATERIAL: SDR 35 PVC,
 RCP, D.I.
 MIN LENGTH: 36'
 MIN DIAMETER: 12"

MEASURED AT ROW
 12' MIN/18' MAX

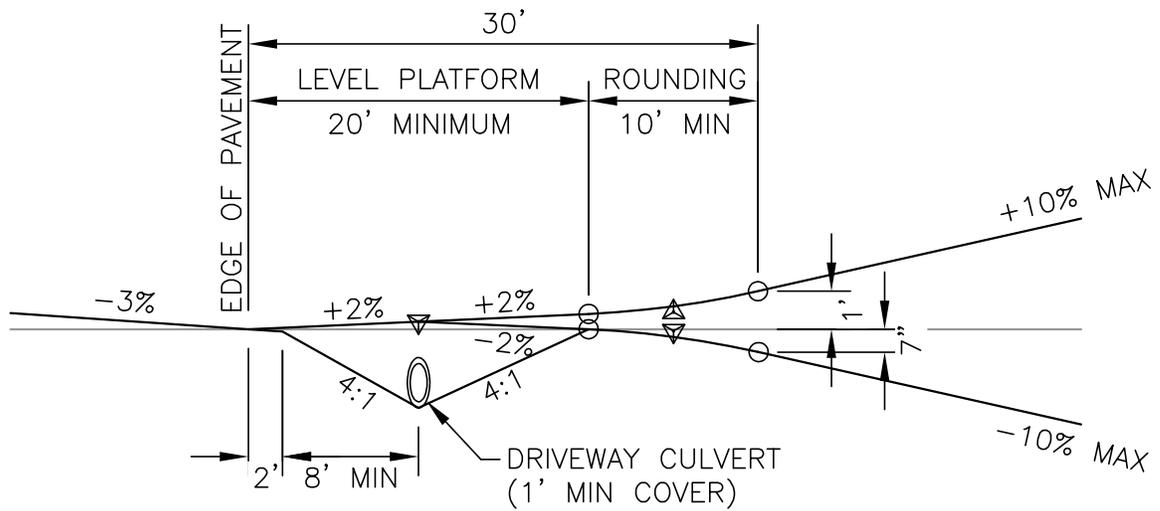
MINIMUM MATERIAL VALUES
 1½" WEAR COURSE PAVEMENT
 1½" BASE COURSE PAVEMENT
 6" CRUSHED GRAVEL



PLAN VIEW

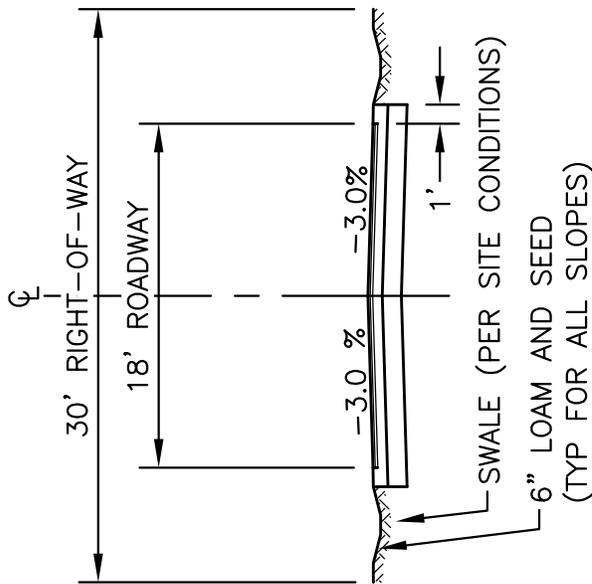


SECTION VIEW



PROFILE

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET		
1	MIN WIDTH	11-11		RURAL RESIDENTIAL DRIVE	DRAWING NO.	D-9	
-	-	-			DATE:	12/08	PAGE: 1
-	-	-			APPROVED BY:		

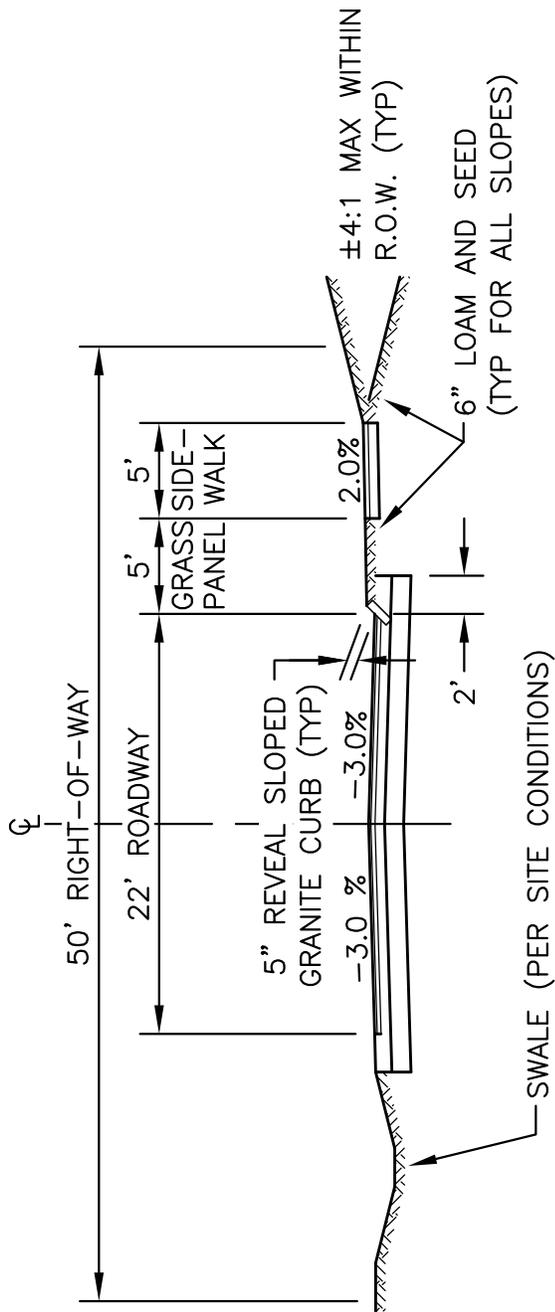


PRIVATE COMMON DRIVE TWO DWELLING UNITS

- ROADWAY MATERIALS
- 3" HOT BITUMINOUS PAVEMENT
 - 1½" WEARING COURSE
 - 1½" BASE COURSE
 - 6" CRUSHED GRAVEL
 - 12" GRAVEL

- THIS DETAIL IS NOT INTENDED TO SHOW THE FINAL CONFIGURATION OF THE STREET OR DRIVE AND IS MEANT ONLY TO SHOW TYPICALS THAT MAY APPLY

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	ROADWAY		
-	-	-		PRIVATE COMMON DRIVE TWO DWELLING UNITS	DRAWING NO.	D-10	
-	-	-			DATE:	01/12	PAGE: 1
-	-	-			APPROVED BY:		



PRIVATE COMMON DRIVE THREE TO EIGHT DWELLING UNITS

ROADWAY MATERIALS

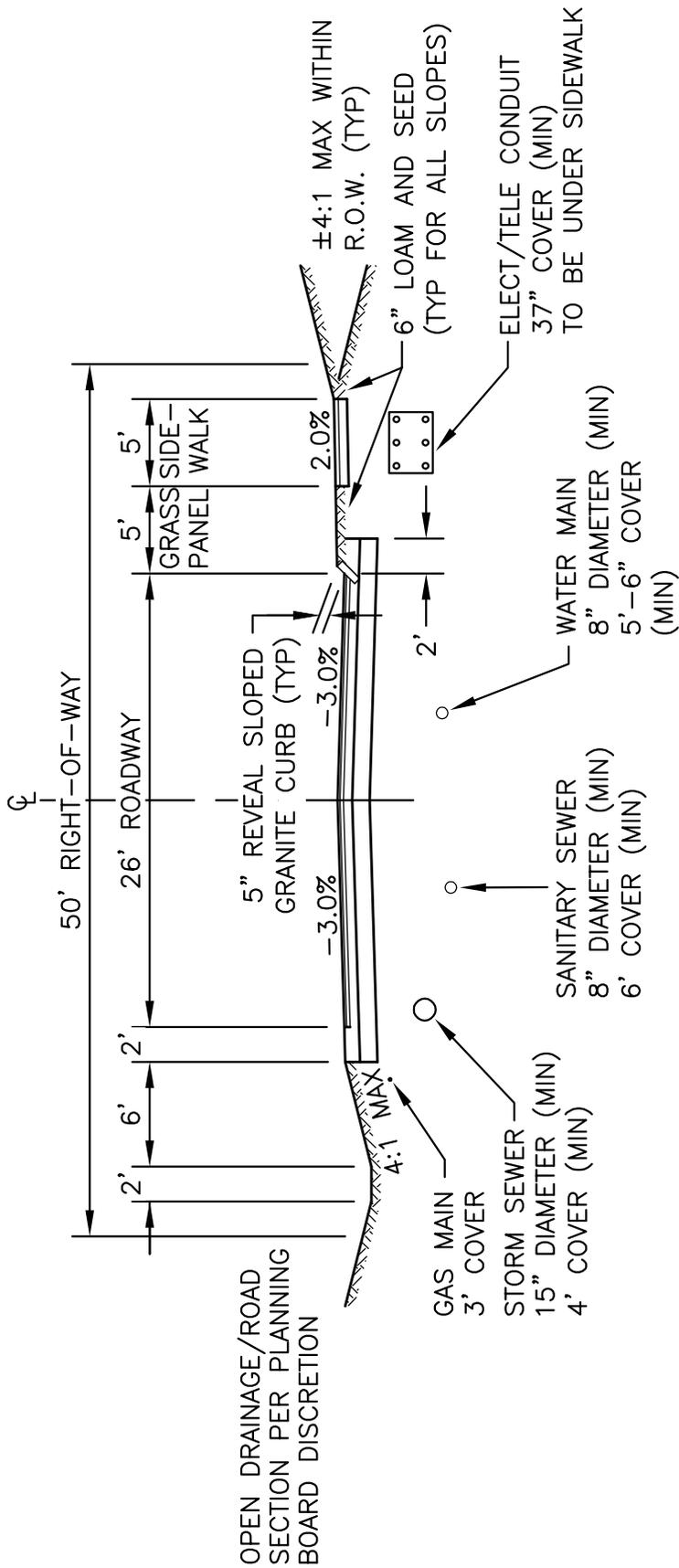
- 4" HOT BITUMINOUS PAVEMENT
- 1½" WEARING COURSE
- 2½" BASE COURSE
- 6" CRUSHED GRAVEL
- 12" GRAVEL

SIDEWALK MATERIALS

- 3" HOT BITUMINOUS PAVEMENT
- 1½" WEARING COURSE
- 1½" BASE COURSE
- 6" CRUSHED GRAVEL

- SEE SUBDIVISION REGULATION SECTION 20-13 FOR CURB REQUIREMENTS
- THIS DETAIL IS NOT INTENDED TO SHOW THE FINAL CONFIGURATION OF THE STREET OR DRIVE AND IS MEANT ONLY TO SHOW TYPICALS THAT MAY APPLY

NO. REVISION DATE - - - - - - - - -			City of Concord Engineering Services Division PRIVATE COMMON DRIVE THREE TO EIGHT DWELLING UNITS		SECTION: ROADWAY DRAWING NO. D-11 DATE: 01/12 PAGE: 1	
APPROVED BY:						

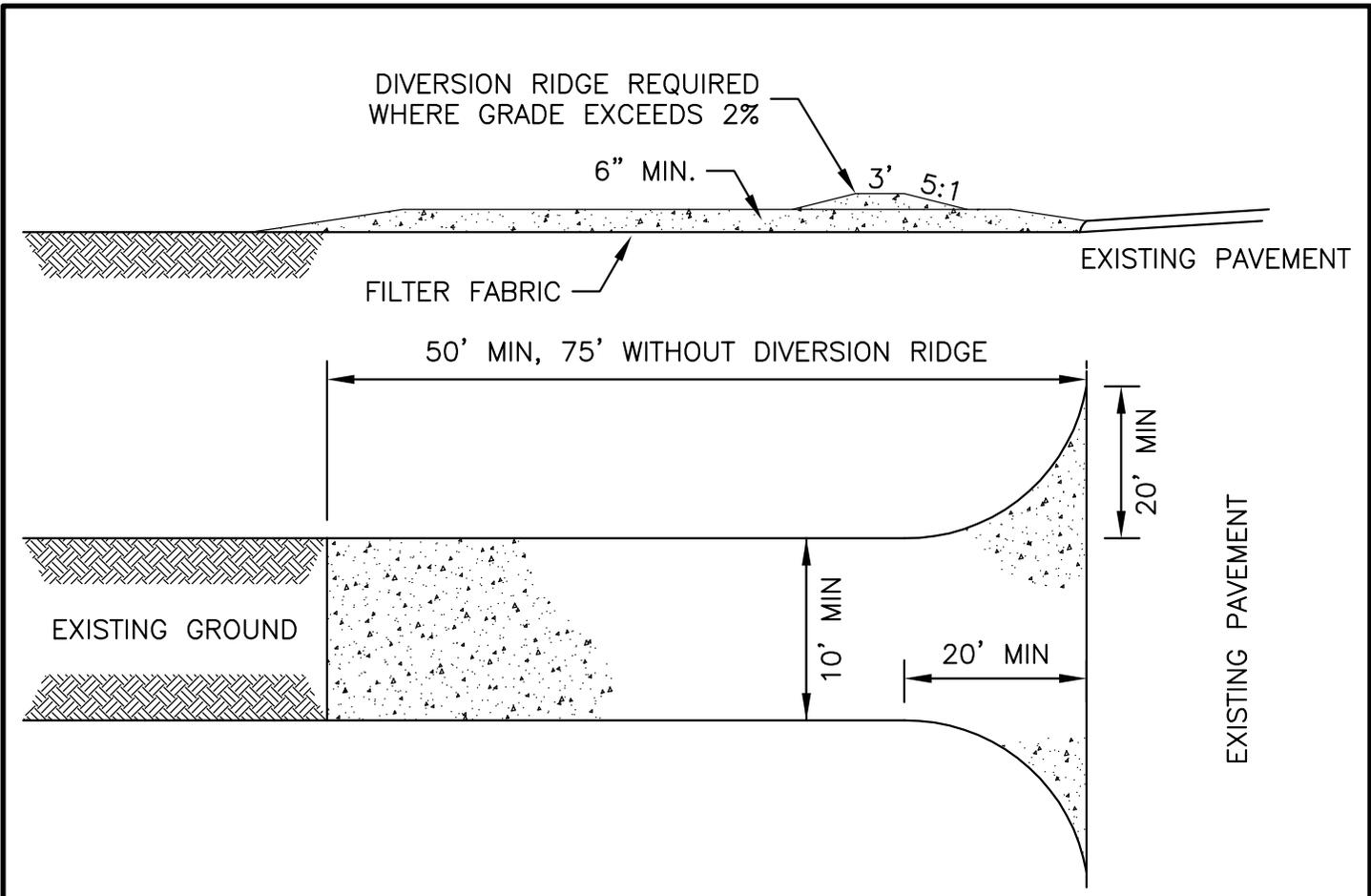


**PRIVATE COMMON DRIVE
GREATER THAN EIGHT DWELLING UNITS**

- | | |
|----------------------------|----------------------------|
| <u>ROADWAY MATERIALS</u> | <u>SIDEWALK MATERIALS</u> |
| 4" HOT BITUMINOUS PAVEMENT | 3" HOT BITUMINOUS PAVEMENT |
| 1 1/2" WEARING COURSE | 1 1/2" WEARING COURSE |
| 2 1/2" BASE COURSE | 1 1/2" BASE COURSE |
| 6" CRUSHED GRAVEL | 6" CRUSHED GRAVEL |
| 12" GRAVEL | |

- SEE SUBDIVISION REGULATION SECTION 20-13 FOR CURB REQUIREMENTS
- THIS DETAIL IS NOT INTENDED TO SHOW THE FINAL CONFIGURATION OF THE STREET OR DRIVE AND IS MEANT ONLY TO SHOW TYPICALS THAT MAY APPLY

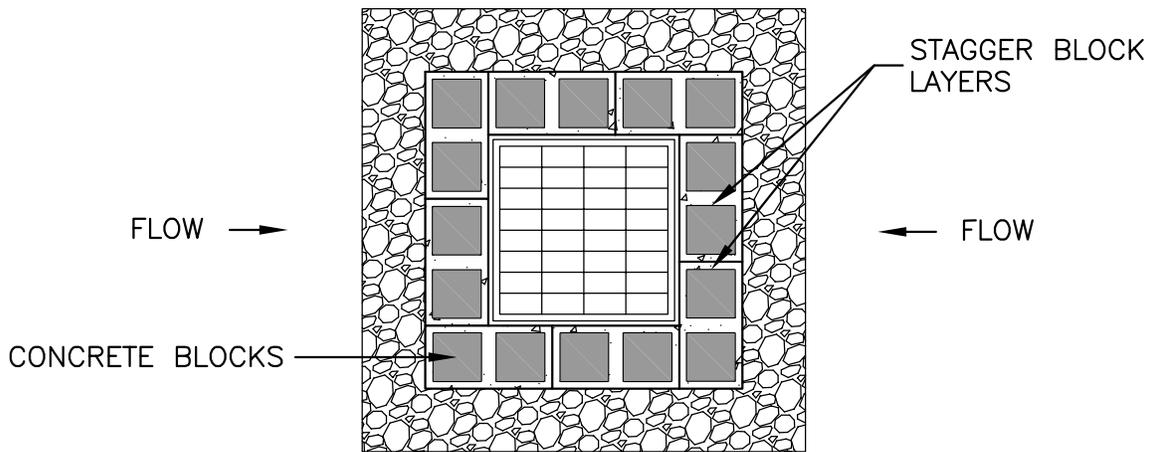
NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: ROADWAY	
-			-			-			<p align="center">PRIVATE COMMON DRIVE GREATER THAN EIGHT DWELLING UNITS</p>			DRAWING NO. D-12	
-			-			-						DATE: 01/12	
-			-			-						PAGE: 1	
APPROVED BY:													



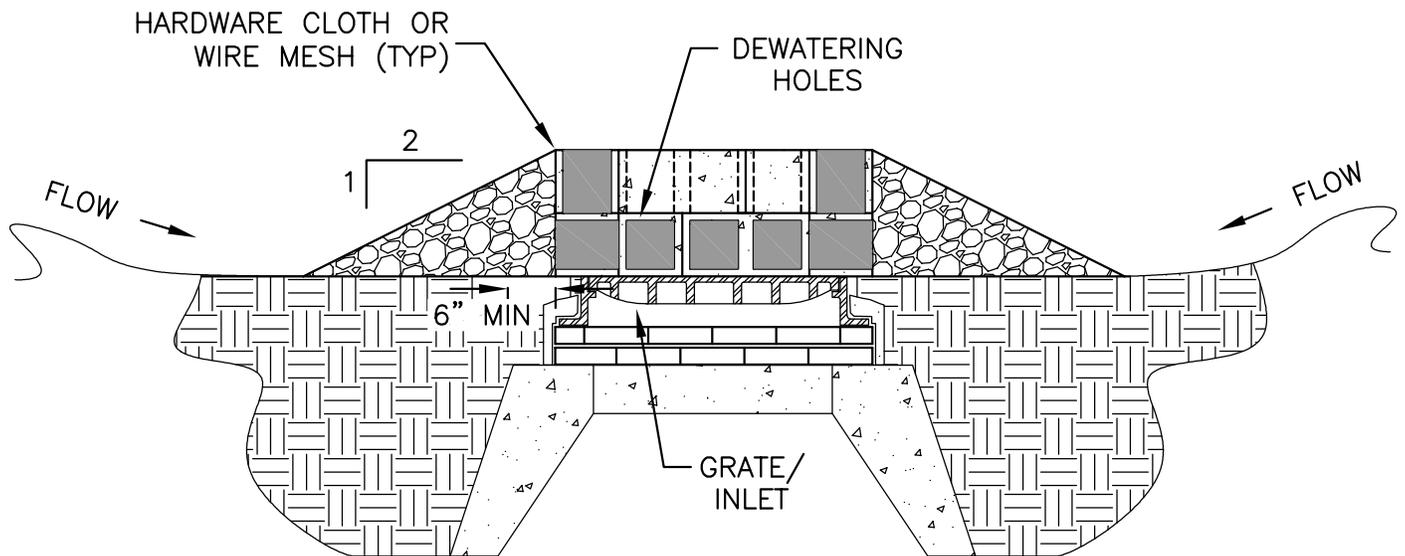
CONSTRUCTION REQUIREMENTS

1. STONE SIZE – 3" COARSE AGGREGATE.
2. THICKNESS – 6" MIN
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. LENGTH – NOT LESS THAN 50'. EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MIN LENGTH WOULD APPLY.
7. WIDTH – 10' MIN, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
8. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE.
9. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
10. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
11. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

NO.	REVISION	DATE	CONSTRUCTION ENTRANCE DETAIL	City of Concord Engineering Services Division		SECTION:	EPSC
-	-	-		DRAWING NO.	E-1		
-	-	-		DATE:	01/08	PAGE:	1
APPROVED BY:							



PLAN



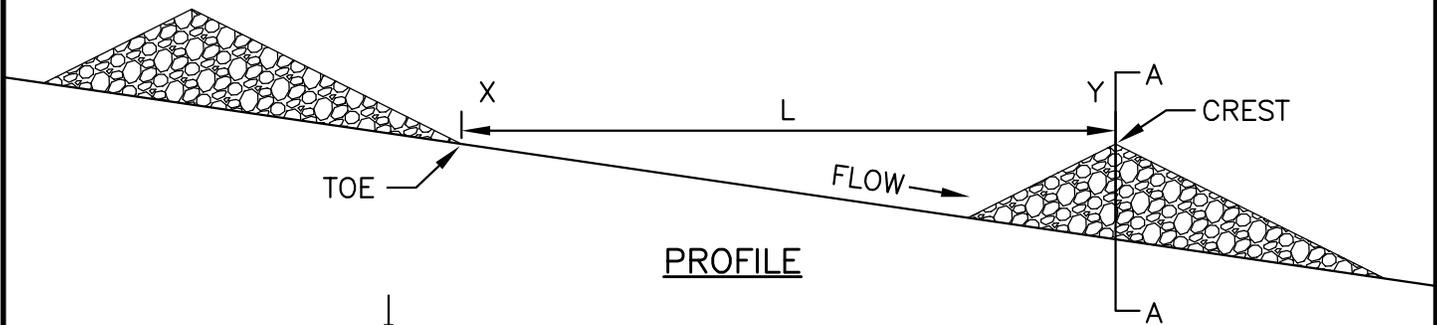
SECTION

CONSTRUCTION REQUIREMENTS

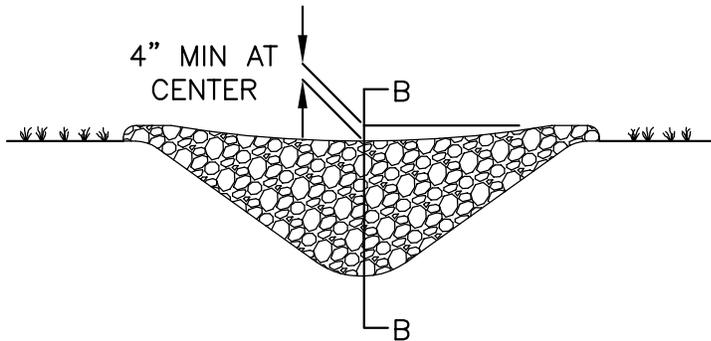
1. LAY FIRST COURSE OF BLOCK ON ITS SIDE FOR DEWATERING. PLACE BLOCKS AGAINST FRAME FOR SUPPORT.
2. PLACE HARDWARE CLOTH OR WIRE MESH OVER BLOCK OPENINGS TO SUPPORT STONE.
3. PLACE STONE ON A 2:1 OR FLATTER SLOPE UP TO THE TOP OF BLOCK.
4. REMOVE STONE AND BLOCKS, AS DIRECTED, WHEN NO LONGER NEEDED. BEFORE STONE AND BLOCKS ARE REMOVED, STABILIZE ANY SEDIMENT WHICH IS PERMITTED TO STAY IN PLACE WITH VEGETATION.

NO.	REVISION	DATE	City of Concord Engineering Services Division		SECTION:	EPSC		
-	-	-	STONE & BLOCK GRATE INLET PROTECTION DETAILS		DRAWING NO.	E-2		
-	-	-			DATE:	01/09	PAGE:	1
APPROVED BY:								

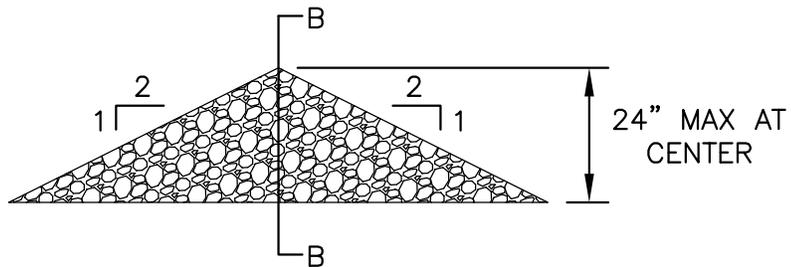
L = THE DISTANCE SUCH THAT POINTS X AND Y ARE OF EQUAL ELEVATION



PROFILE



SECTION A-A

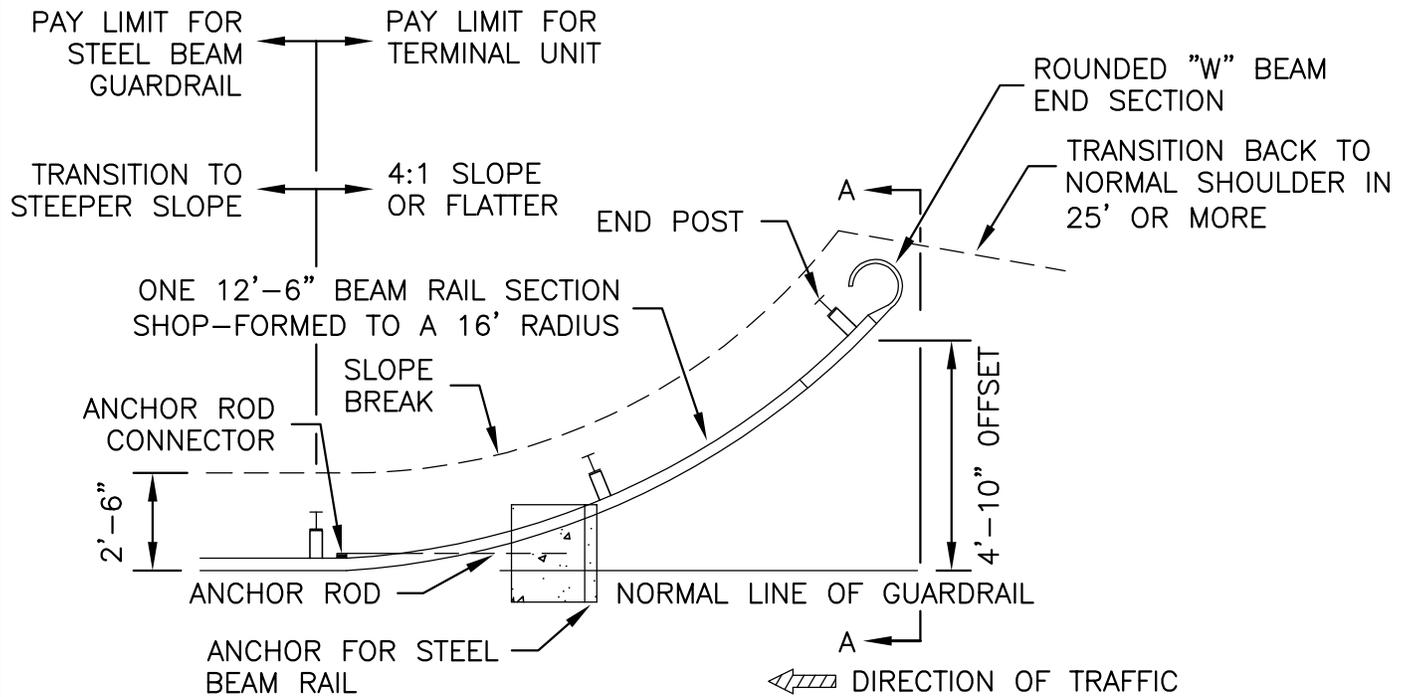


SECTION B-B

CONSTRUCTION REQUIREMENTS

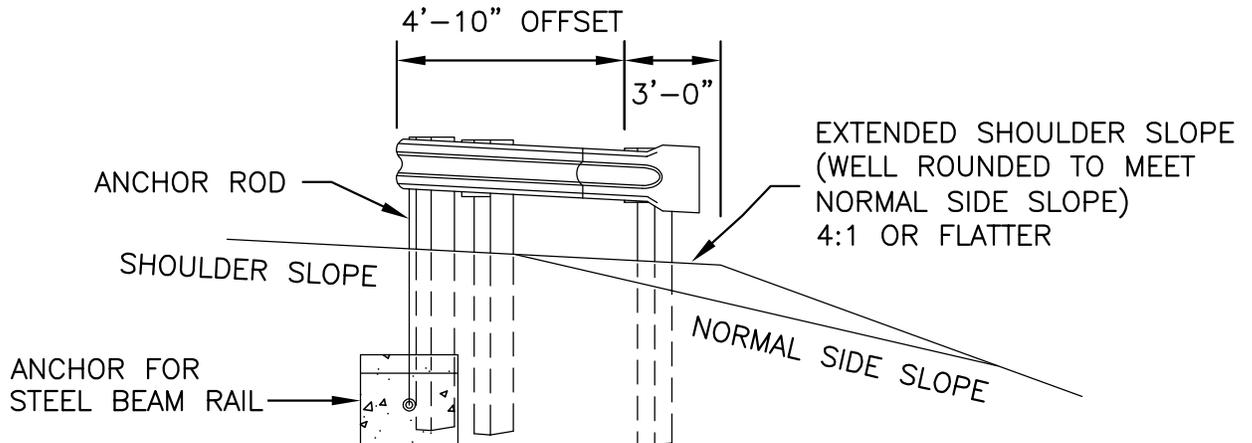
1. PLACE STONE TO THE LINES, GRADES AND LOCATIONS AS SHOWN ON THE PLAN OR AS DIRECTED.
2. SET SPACING OF STONE CHECK DAMS SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE TO A POINT BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS NEEDED OR DIRECTED.
5. REMOVE STONE, AS DIRECTED, WHEN NO LONGER NEEDED. AFTER BARRIER IS REMOVED, STABILIZE ANY SEDIMENT WHICH IS PERMITTED TO STAY IN PLACE WITH VEGETATION.

NO.	REVISION	DATE	STONE CHECK DAM DETAILS	City of Concord Engineering Services Division		SECTION:	EPSC
-	-	-		DRAWING NO.	E-3		
-	-	-		DATE:	01/09	PAGE:	1
APPROVED BY:							



APPROACH END DETAIL

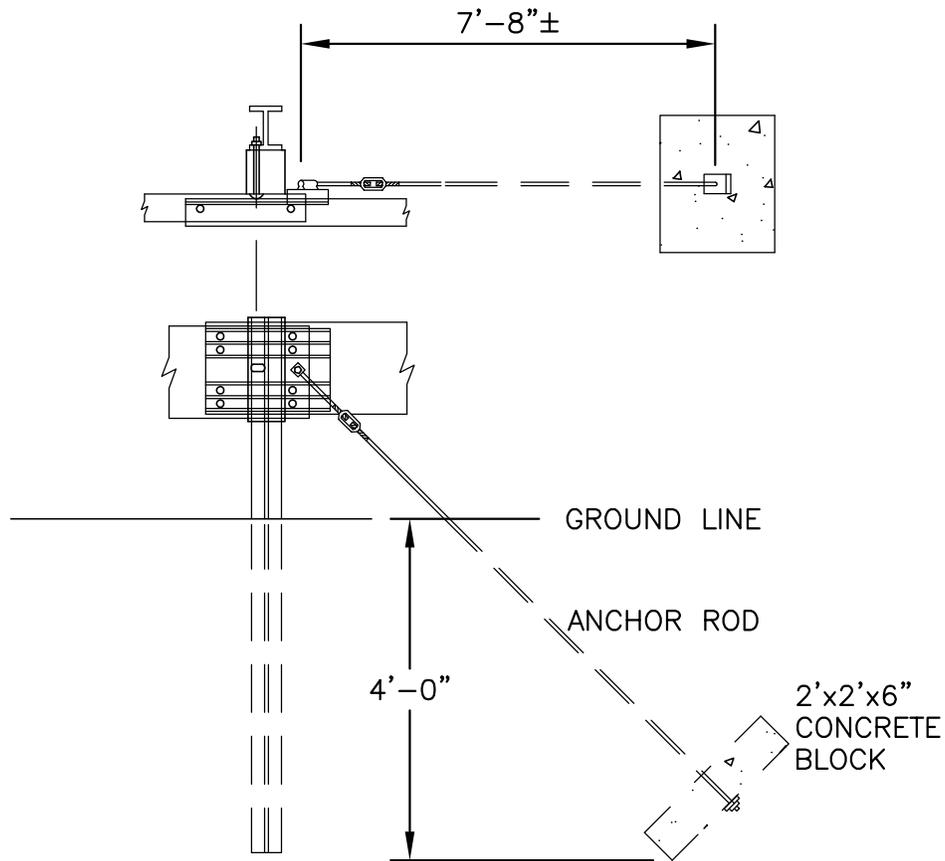
NHS APPROVED FOR USE WHERE DESIGN SPEED IS 40 MPH OR LESS



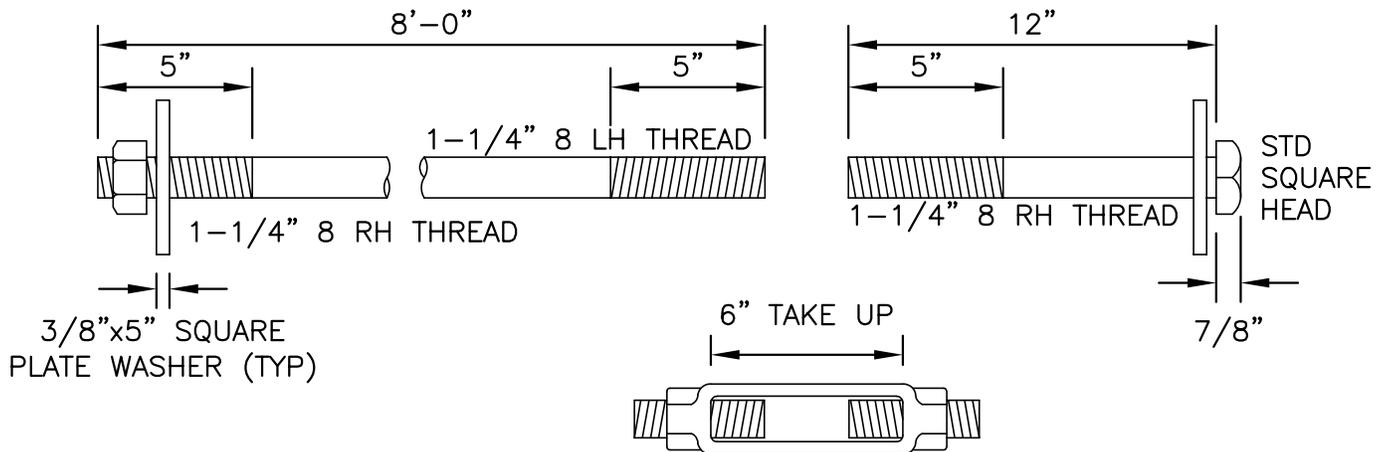
SECTION A-A

7'-8"+

NO.	REVISION	DATE	City of Concord Engineering Services Division STEEL BEAM GUARDRAIL TERMINAL UNIT	SECTION: ROADWAY	
-	-	-		DRAWING NO. G-1	
-	-	-		DATE: 01/12	PAGE: 1/4
APPROVED BY:					



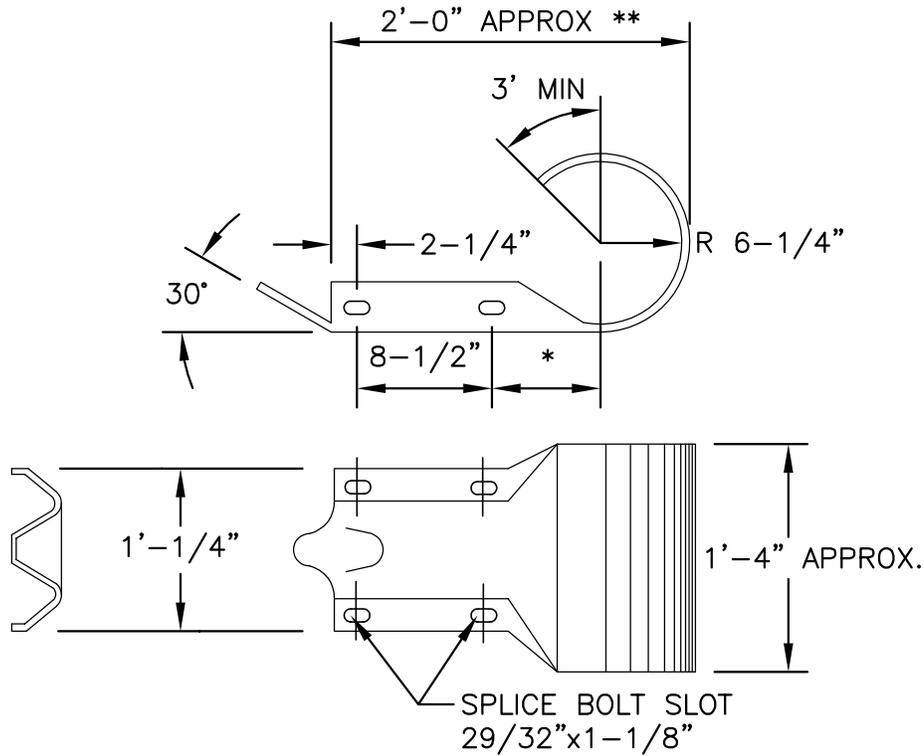
ANCHOR ROD



TURNBUCKLE

MIN. TENSILE STRENGTH 60,000 LBS.
LOAD APPLIED THROUGH ASSEMBLY

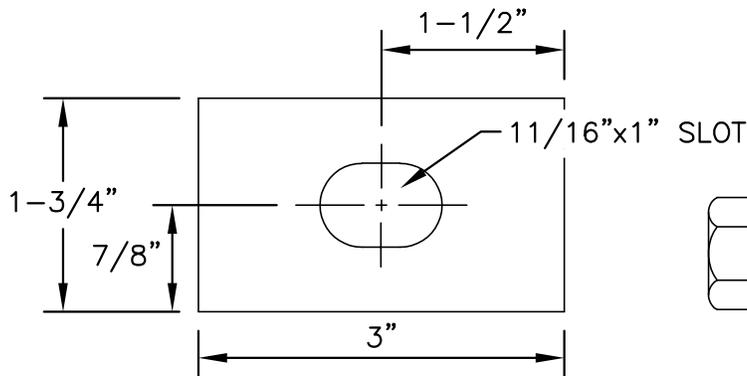
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	ROADWAY	
-	-	-	STEEL BEAM GUARDRAIL TERMINAL UNIT	DRAWING NO.	G-1	
-	-	-		DATE:	01/12	PAGE: 2/4
-	-	-		APPROVED BY:		



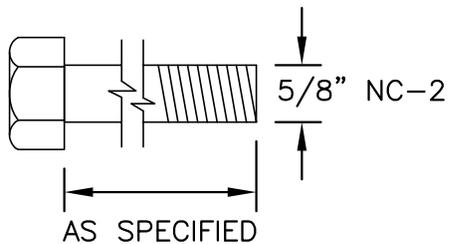
ROUNDED "W" BEAM END SECTION

(ARTBA RE-6-79)

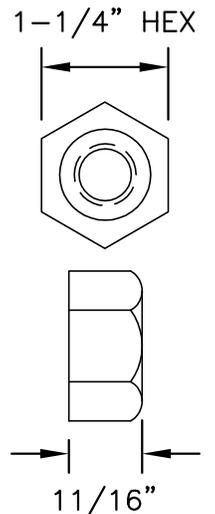
* THIS DIMENSION IS 7-1/2" IN RE-7-79.
 IF THE DIMENSION IS USED IN THIS PART, IT
 WILL GIVE AN ACCEPTABLE OVERALL LENGTH
 (**) OF APPROXIMATELY 2' 1-1/2"



RECTANGULAR GUARDRAIL
 PLATE WASHER
 (ARTBA F-12-73)

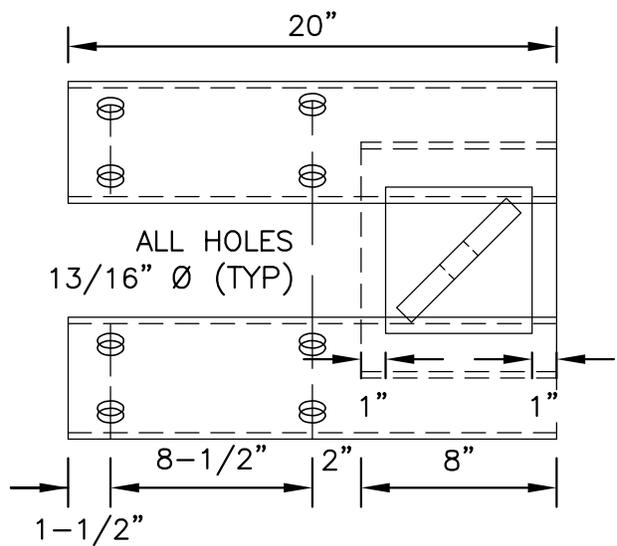
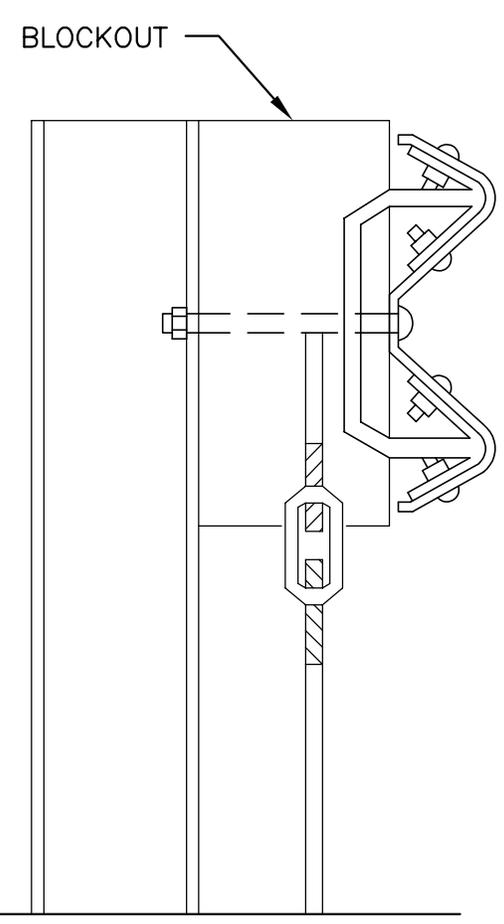
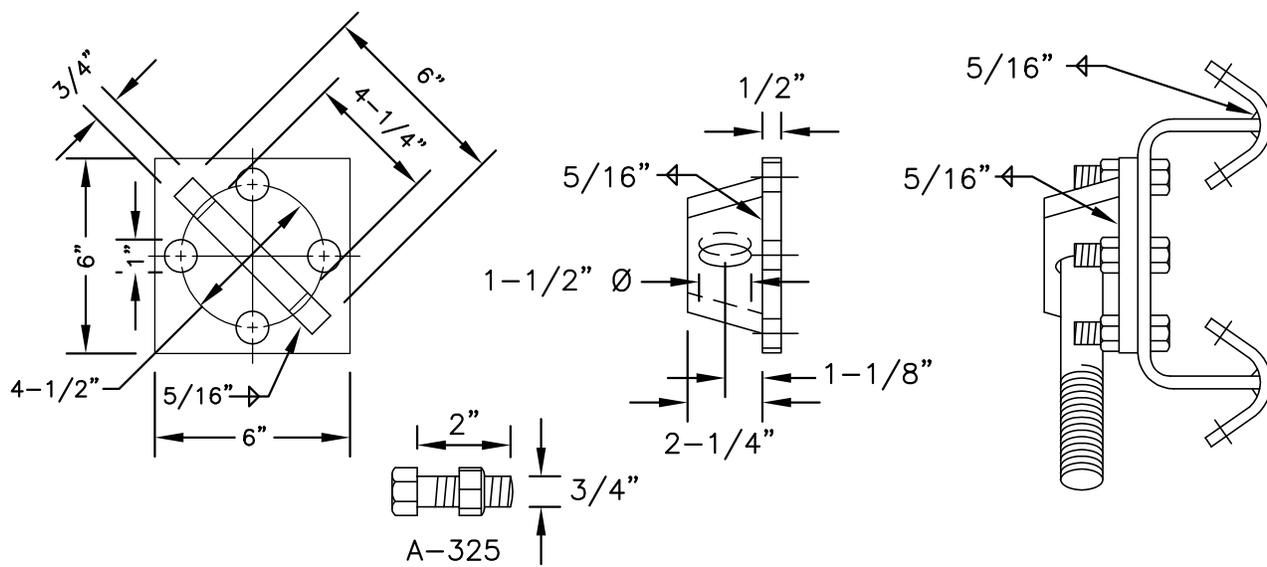


5/8" HEX NUT AND BOLT TYPE "F"
 (ARTBA F-8-76)



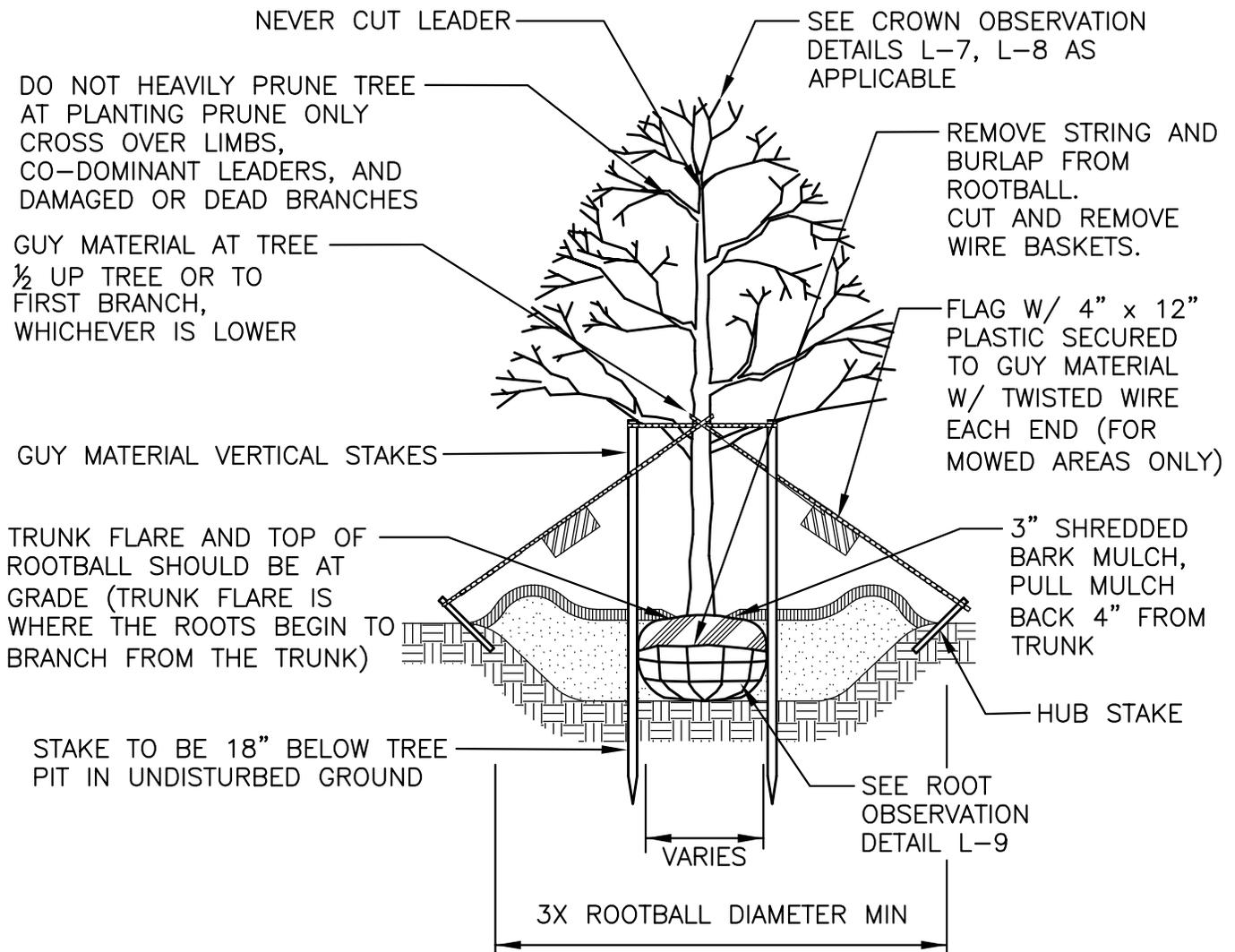
FASTENER DETAILS

NO.	REVISION	DATE	STEEL BEAM GUARDRAIL TERMINAL UNIT	SECTION:	ROADWAY
-	-	-		DRAWING NO.	G-1
-	-	-		DATE:	01/12
-	-	-		PAGE:	3/4
APPROVED BY:					



ANCHOR ROD CONNECTOR

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	ROADWAY	
-	-	-	STEEL BEAM GUARDRAIL TERMINAL UNIT	DRAWING NO.	G-1	
-	-	-		DATE:	01/12	PAGE: 4/4
APPROVED BY:						



NOTES:

1. GUYING AND STAKING TO BE DETERMINED IN THE FIELD BY THE LANDSCAPE ARCHITECT. LOCAL FIELD CONDITIONS AS WELL AS PLANT CHARACTERISTICS WILL DETERMINE THE NECESSITY OF GUYING AND STAKING.
2. TYPICALLY ONLY TREES WITH A 3" OR GREATER CALIPER NEED TO BE STAKED. TREES WITH LESS THAN A 3" CALIPER NEED TO BE STAKED ONLY AS REQUIRED BY LANDSCAPE ARCHITECT.
3. ONLY WRAP TREE TRUNKS AS REQUIRED BY LANDSCAPE ARCHITECT.
4. TREE SHALL BE SET PLUMB, AFTER SETTLEMENT.
5. LOAM FOR BACKFILLING SHALL BE AMENDED AS REQUIRED BY LANDSCAPE ARCHITECT.
6. CITY TREES PLANTED ON PRIVATE PROPERTY, ADJACENT TO A PUBLIC RIGHT-OF-WAY, NEED TO BE PLANTED A MINIMUM OF 10 FEET FROM THE EDGE OF THE CITY SIDEWALK.
7. ALL NURSERY TAGS, TAPE, AND SIMILAR MATERIALS SHALL BE REMOVED.

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: LANDSCAPE			
1			NOTES			4.15			DECIDUOUS TREE PLANTING			DRAWING NO. L-1			
-			-			-						DATE: 12/08			PAGE: 1
-			-			-						APPROVED BY:			

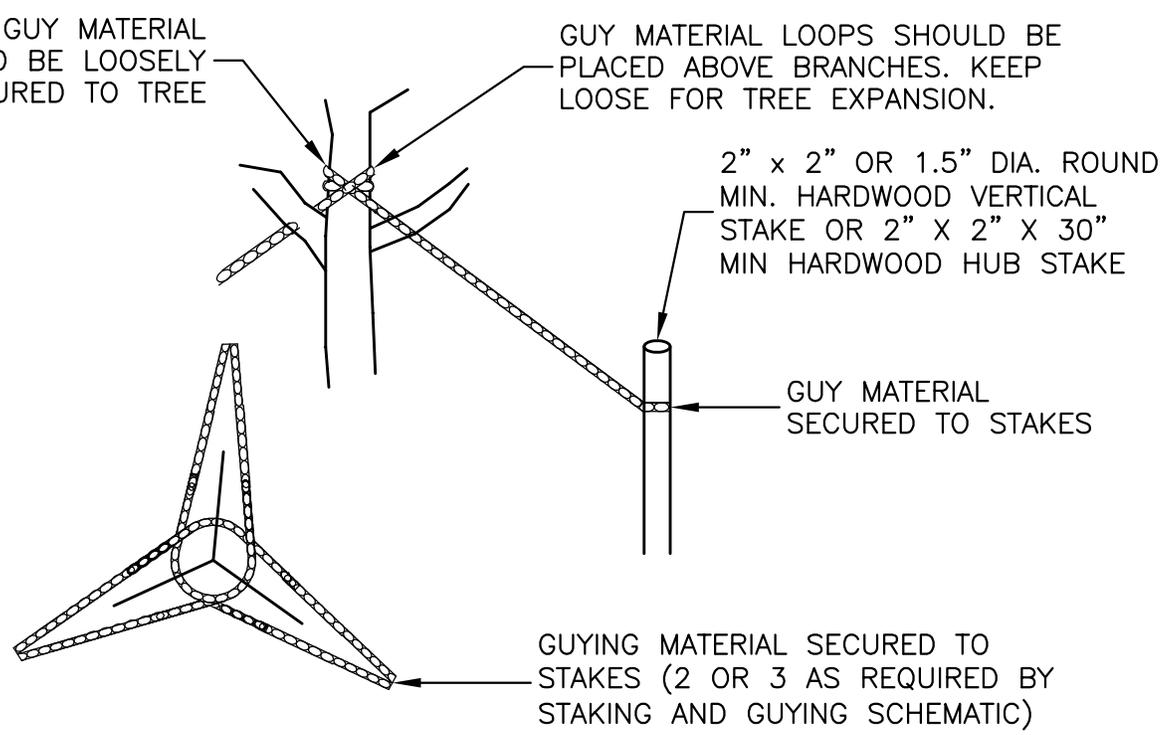
GUY MATERIAL SHOULD BE LOOSELY SECURED TO TREE

GUY MATERIAL LOOPS SHOULD BE PLACED ABOVE BRANCHES. KEEP LOOSE FOR TREE EXPANSION.

2" x 2" OR 1.5" DIA. ROUND MIN. HARDWOOD VERTICAL STAKE OR 2" X 2" X 30" MIN HARDWOOD HUB STAKE

GUY MATERIAL SECURED TO STAKES

GUYING MATERIAL SECURED TO STAKES (2 OR 3 AS REQUIRED BY STAKING AND GUYING SCHEMATIC)



NOTE:

ONLY USE PLASTIC CHAINLOCK (LANDSCAPE QUALITY AND SUITABLE FOR GUYING TREES) OR EQUIVALENT GUYING MATERIAL.

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	LANDSCAPE
-	-	-	DECIDUOUS TREE – GUYING & STAKING	DRAWING NO.	L-2
-	-	-		DATE:	12/08
-	-	-		PAGE:	1
APPROVED BY:					

SEE CROWN OBSERVATION
DETAILS L-7, L-8 AS
APPLICABLE

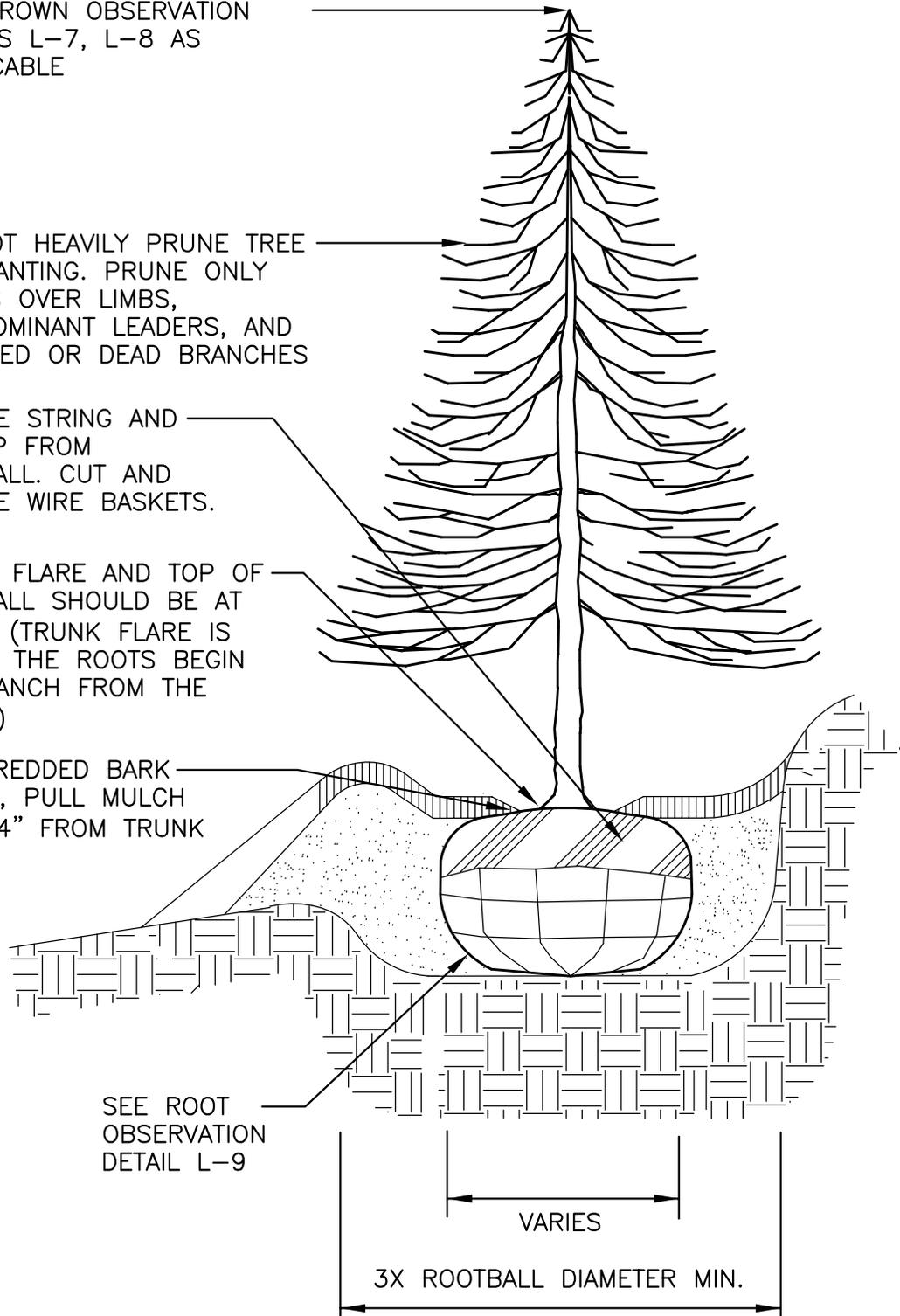
DO NOT HEAVILY PRUNE TREE
AT PLANTING. PRUNE ONLY
CROSS OVER LIMBS,
CO-DOMINANT LEADERS, AND
DAMAGED OR DEAD BRANCHES

REMOVE STRING AND
BURLAP FROM
ROOTBALL. CUT AND
REMOVE WIRE BASKETS.

TRUNK FLARE AND TOP OF
ROOTBALL SHOULD BE AT
GRADE (TRUNK FLARE IS
WHERE THE ROOTS BEGIN
TO BRANCH FROM THE
TRUNK)

3" SHREDDED BARK
MULCH, PULL MULCH
BACK 4" FROM TRUNK

SEE ROOT
OBSERVATION
DETAIL L-9



NOTES:

1. DO NOT STAKE EVERGREEN TREES.
2. LOAM FOR BACKFILLING SHALL BE AMENDED AS REQUIRED BY LANDSCAPE ARCHITECT.
3. TAMP BACKFILL SOIL AROUND ROOTBALL FIRMLY TO MINIMIZE ROOTBALL SHIFT.
4. TREE TO BE SET PLUMB, AFTER SETTLEMENT
5. ALL NURSERY TAGS, TAPE, AND SIMILAR MATERIALS SHALL BE REMOVED.

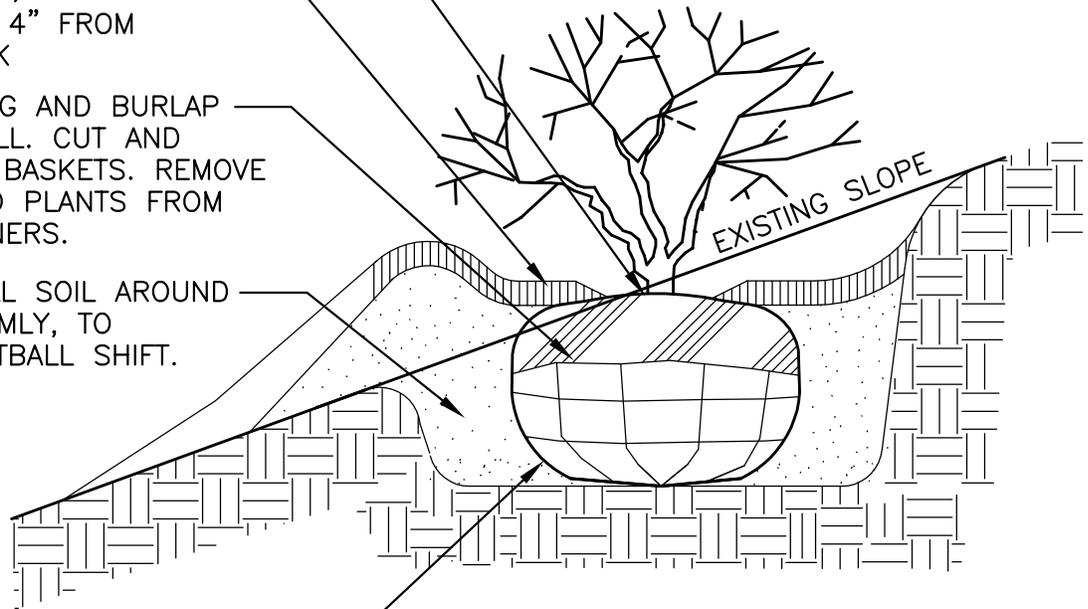
NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: LANDSCAPE		
1			NOTES			4.15			EVERGREEN PLANTING			DRAWING NO. L-3		
-			-			-						DATE: 12/08		PAGE: 1
-			-			-						APPROVED BY:		

TRUNK FLARE AND TOP OF ROOTBALL SHOULD BE AT GRADE (TRUNK FLARE IS WHERE THE ROOTS BEGIN TO BRANCH FROM THE TRUNK)

3" SHREDDED BARK MULCH, PULL MULCH BACK 4" FROM TRUNK

REMOVE STRING AND BURLAP FROM ROOTBALL. CUT AND REMOVE WIRE BASKETS. REMOVE CONTAINERIZED PLANTS FROM THEIR CONTAINERS.

TAMP BACKFILL SOIL AROUND ROOTBALL FIRMLY, TO MINIMIZE ROOTBALL SHIFT.

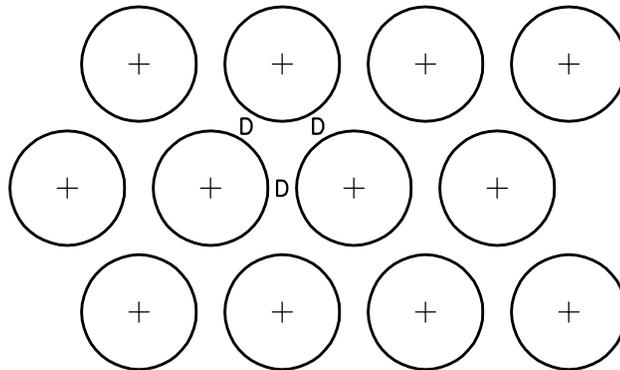


SEE ROOT OBSERVATION DETAIL L-9

NOTES:

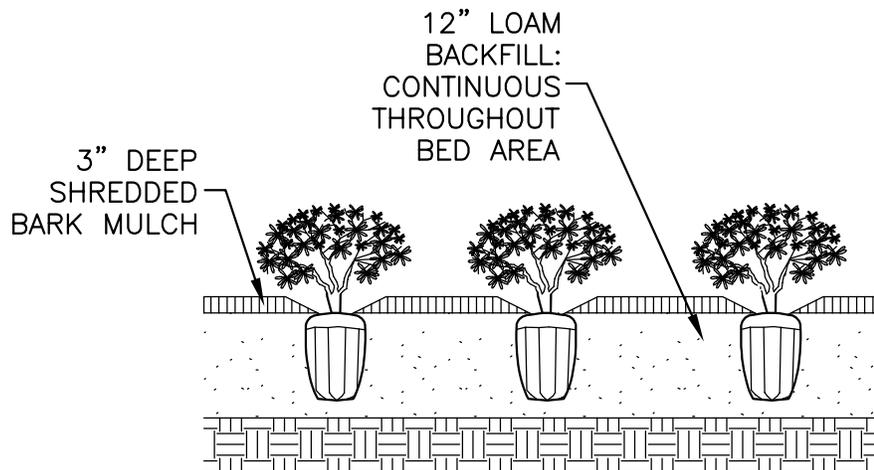
1. DO NOT HEAVILY PRUNE SHRUB AT PLANTING, PRUNE ONLY CROSSOVER LIMBS AND DAMAGED OR DEAD BRANCHES.
2. BACKFILL WITH LOAM, AMEND AS REQUIRED BY LANDSCAPE ARCHITECT.
3. SHRUBS & GROUNDCOVER PLANTED ADJACENT TO CITY SIDEWALKS NEED TO BE PLACED SO THE PLANTS, AT THEIR MATURE HEIGHT & WIDTH, WILL NOT ENCROACH INTO THE CITY'S SIDEWALK.
4. TREE TO BE SET PLUMB, AFTER SETTLEMENT.
5. ALL NURSERY TAGS, TAPE, AND SIMILAR MATERIALS SHALL BE REMOVED.

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: LANDSCAPE		
1			NOTES			4.15			SHRUB PLANTING			DRAWING NO. L-4		
-			-			-						DATE: 12/08		PAGE: 1
-			-			-						APPROVED BY:		



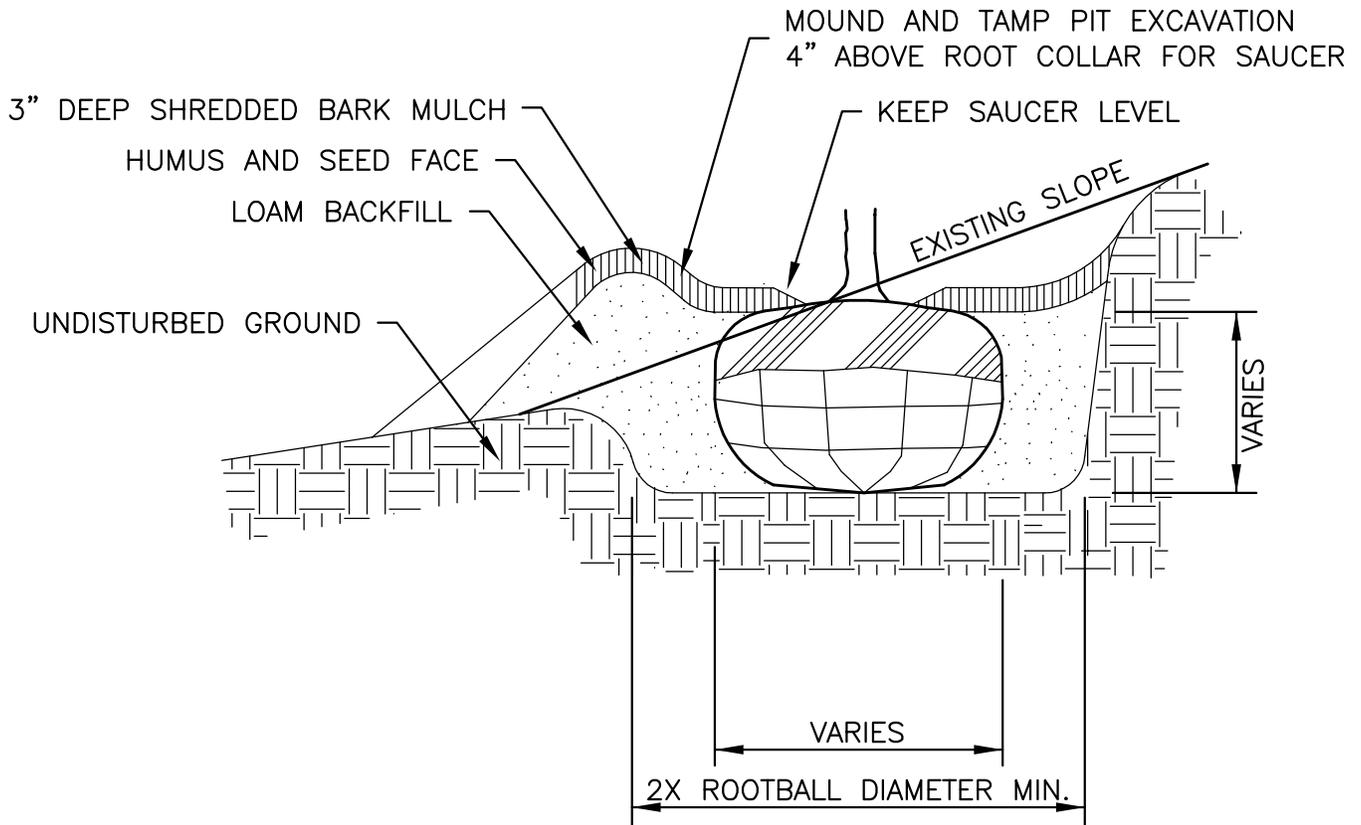
TYPICAL BED PLANT SPACING

D = DIMENSION OF PLANT SPACING
(SHRUB OR GROUNDCOVER AS
INDICATED ON PLANS)



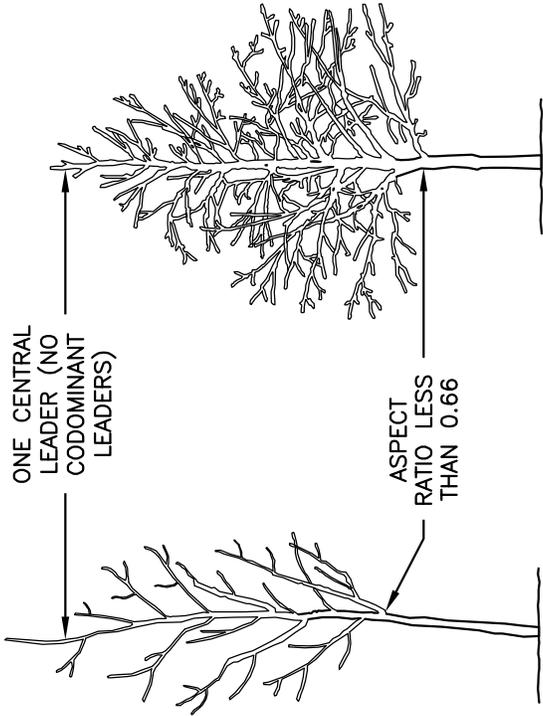
GROUNDCOVER BED PLANTING

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: LANDSCAPE	
-	-	-		DRAWING NO.	L-5
-	-	-		DATE:	12/08
-	-	-		PAGE:	1
APPROVED BY:			GROUNDCOVER PLANTING		

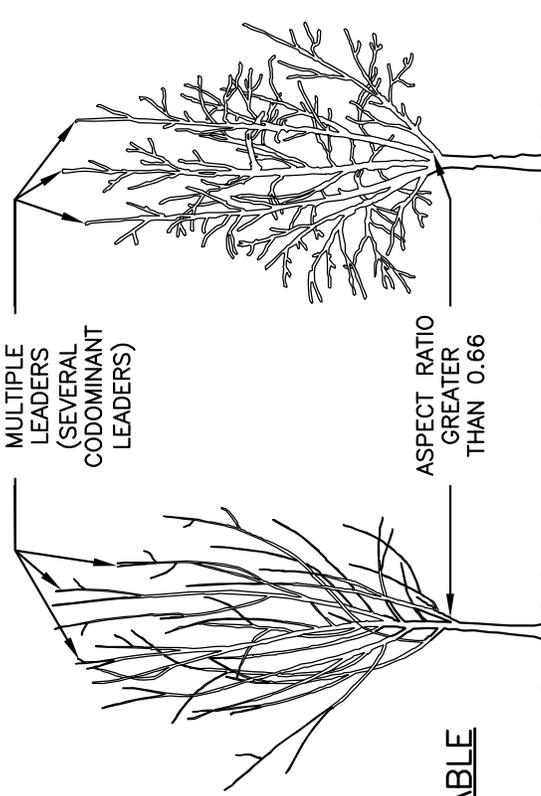


TYPICAL PLANTING PIT ON SLOPE
4:1 OR GREATER

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: LANDSCAPE				
-	-	-		TREE PLANTING ON SLOPE	DRAWING NO.	L-6		
-	-	-			DATE:	12/08	PAGE:	1
-	-	-			APPROVED BY:			

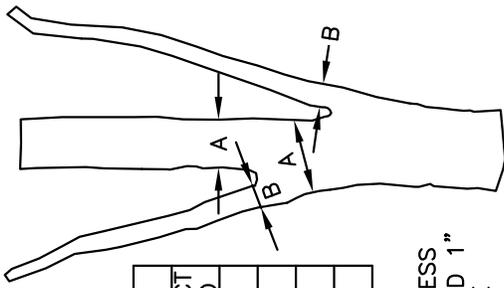


ACCEPTABLE



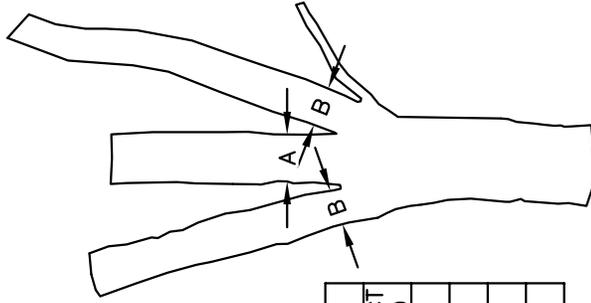
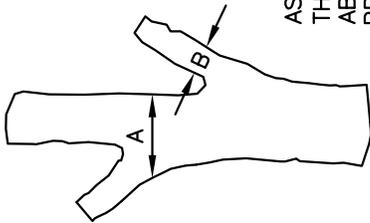
REJECTABLE

- NOTES:
- ASPECT RATIO SHALL BE LESS THAN 0.66 ON ALL BRANCH UNIONS. ASPECT RATIO IS THE DIAMETER OF BRANCH (B) DIVIDED BY THE DIAMETER OF THE TRUNK (A) AS MEASURED 1" ABOVE THE TOP OF THE BRANCH UNION.
 - ANY TREE NOT MEETING THE CROWN OBSERVATIONS DETAIL MAY BE REJECTED.
 - DETAIL DEVELOPED BY THE URBAN TREE FOUNDATION AND IS OPEN SOURCE AND FREE TO USE BY OTHERS.



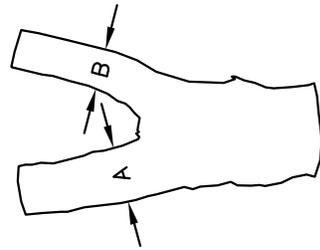
EXAMPLE		ASPECT RATIO
A	B	
1.5"	0.5"	0.33
2.5"	0.9"	0.36
2.0"	1.0"	0.50
2.5"	1.6"	0.64

ASPECT RATIO OF B:A LESS THAN 0.66 AS MEASURED 1" ABOVE THE TOP OF THE BRANCH UNION.



EXAMPLE		ASPECT RATIO
A	B	
2.5"	1.8"	0.72
2.0"	2.0"	1.0
2.5"	2.0"	0.80
4.0"	3.0"	0.75

ASPECT RATIO OF B:A GREATER THAN OR EQUAL TO 0.66 AS MEASURED 1" ABOVE THE TOP OF THE BRANCH UNION.



NO.	REVISION	DATE
-	-	-
-	-	-
-	-	-

APPROVED BY:

City of Concord Engineering Services Division

**CROWN OBSERVATIONS
HIGH BRANCHED**

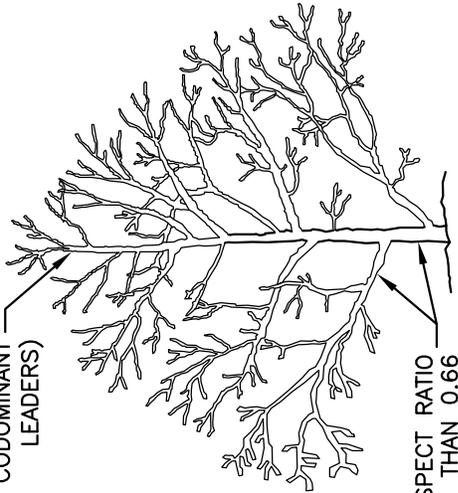
SECTION: LANDSCAPE

DRAWING NO. L-7

DATE: 04/15

PAGE: 1

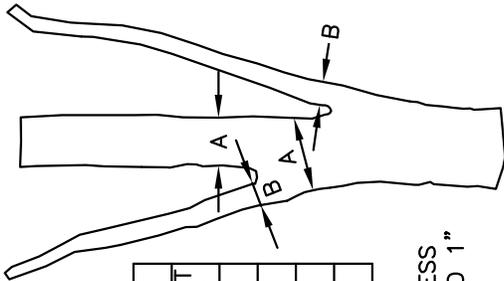
ONE CENTRAL LEADER
(NO CODOMINANT
LEADERS)



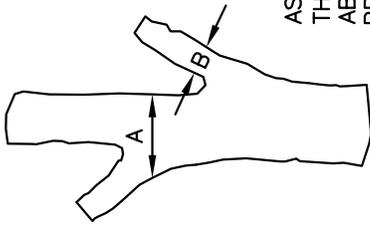
ASPECT RATIO
LESS THAN 0.66

ACCEPTABLE

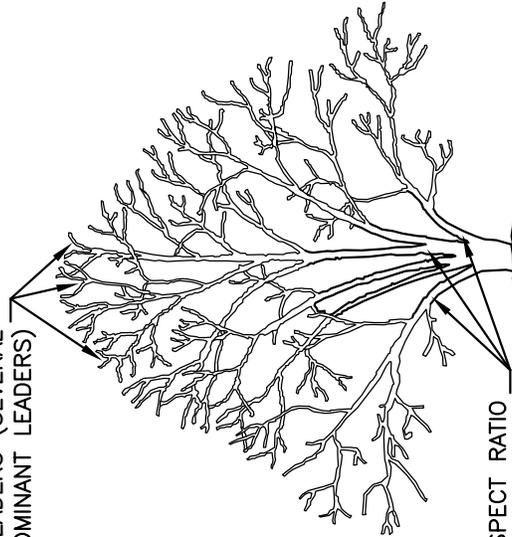
EXAMPLE		ASPECT RATIO
A	B	
1.5"	0.5"	0.33
2.5"	0.9"	0.36
2.0"	1.0"	0.50
2.5"	1.6"	0.64



ASPECT RATIO OF B:A LESS
THAN 0.66 AS MEASURED 1"
ABOVE THE TOP OF THE
BRANCH UNION.



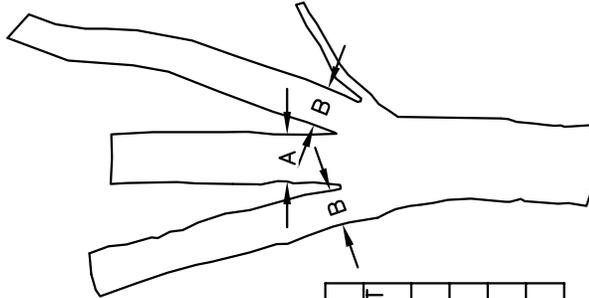
MULTIPLE LEADERS (SEVERAL
CODOMINANT LEADERS)



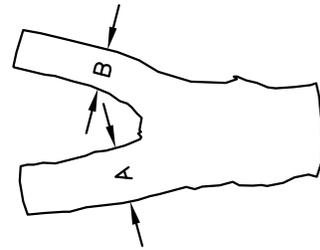
ASPECT RATIO
GREATER THAN 0.66

REJECTABLE

EXAMPLE		ASPECT RATIO
A	B	
2.5"	1.8"	0.72
2.0"	2.0"	1.0
2.5"	2.0"	0.80
4.0"	3.0"	0.75



ASPECT RATIO OF B:A GREATER
THAN OR EQUAL TO 0.66 AS
MEASURED 1" ABOVE THE TOP
OF THE BRANCH UNION.



- NOTES:
- ASPECT RATIO SHALL BE LESS THAN 0.66 ON ALL BRANCH UNIONS. ASPECT RATIO IS THE DIAMETER OF BRANCH (B) DIVIDED BY THE DIAMETER OF THE TRUNK (A) AS MEASURED 1" ABOVE THE TOP OF THE BRANCH UNION.
 - ANY TREE NOT MEETING THE CROWN OBSERVATIONS DETAIL MAY BE REJECTED.
 - DETAIL DEVELOPED BY THE URBAN TREE FOUNDATION AND IS OPEN SOURCE AND FREE TO USE BY OTHERS.

NO.	REVISION	DATE
-	-	-
-	-	-
-	-	-

APPROVED BY:

City of Concord Engineering Services Division

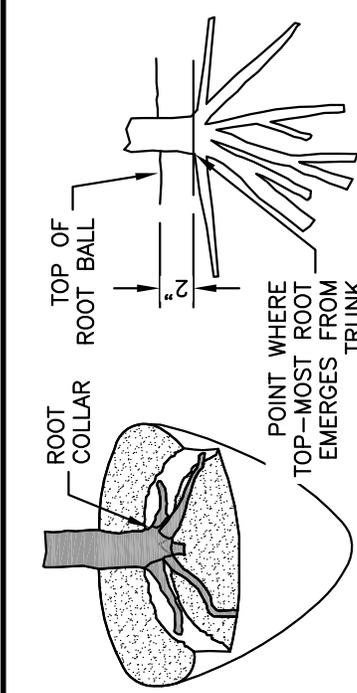
**CROWN OBSERVATIONS
LOW BRANCHED**

SECTION: LANDSCAPE

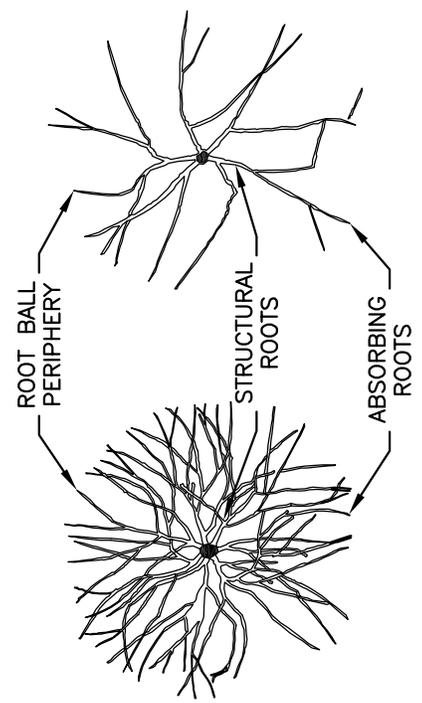
DRAWING NO. L-8

DATE: 04/15

PAGE: 1



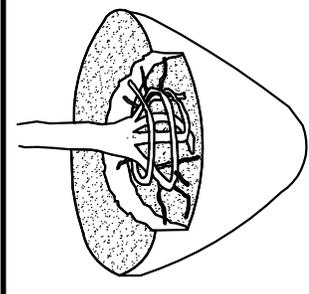
THE POINT WHERE TOP-MOST ROOT(S) EMERGES FROM THE TRUNK (ROOT COLLAR) SHOULD BE WITHIN THE TOP 2" OF SUBSTRATE. THE ROOT COLLAR AND THE ROOT BALL INTERIOR SHOULD BE FREE OF DEFECTS INCLUDING CIRCLING, KINKED, ASCENDING, AND STEM GIRDLING ROOTS. STRUCTURAL ROOTS SHALL REACH THE PERIPHERY NEAR THE TOP OF THE ROOT BALL.



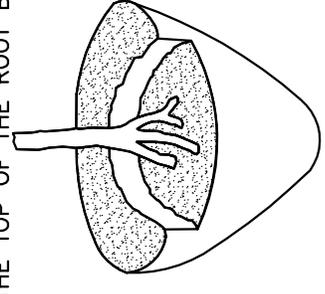
ROOTS RADIATE FROM TRUNK AND REACH SIDE OF ROOT BALL WITHOUT DEFLECTING DOWN OR AROUND.

ACCEPTABLE

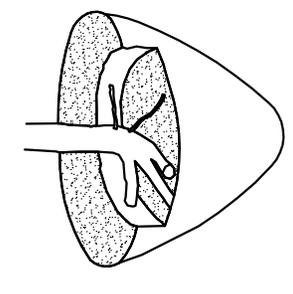
- NOTES:
- OBSERVATIONS OF ROOTS SHALL OCCUR PRIOR TO ACCEPTANCE. ROOTS AND SOIL MAY BE REMOVED DURING THE OBSERVATION PROCESS; SUBSTRATE/SOIL SHALL BE REPLACED AFTER THE OBSERVATIONS HAVE BEEN COMPLETED.
 - SEE SPECIFICATIONS FOR OBSERVATION PROCESS AND REQUIREMENTS.
 - DETAIL DEVELOPED BY THE URBAN TREE FOUNDATION AND IS OPEN SOURCE AND FREE TO USE BY OTHERS.



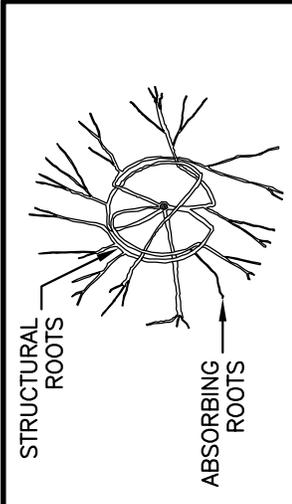
STRUCTURAL ROOTS CIRCLE INTERIOR OF ROOT BALL. NO STRUCTURAL ROOTS ARE HORIZONTAL AND REACH THE ROOT BALL PERIPHERY NEAR THE TOP OF THE ROOT BALL.



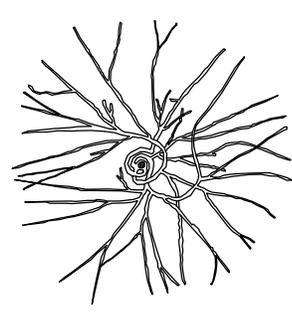
STRUCTURAL ROOTS DESCEND INTO ROOT BALL INTERIOR. NO STRUCTURAL ROOTS ARE HORIZONTAL AND REACH THE ROOT BALL PERIPHERY NEAR THE TOP OF THE ROOT BALL.



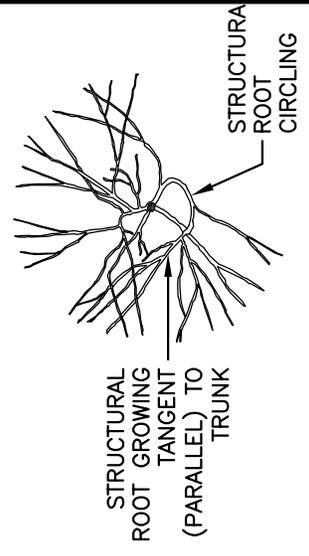
STRUCTURAL ROOTS PRIMARILY GROW TO ONE SIDE



ONLY ABSORBING ROOTS REACH THE PERIPHERY NEAR THE TOP OF THE ROOT BALL. STRUCTURAL ROOTS MOSTLY WRAP OR ARE DEFLECTED ON THE ROOT BALL INTERIOR.



STRUCTURAL ROOTS CIRCLE AND DO NOT RADIATE FROM THE TRUNK.



STRUCTURAL ROOTS MISSING FROM ONE SIDE, AND/OR GROW TANGENT TO TRUNK

REJECTABLE

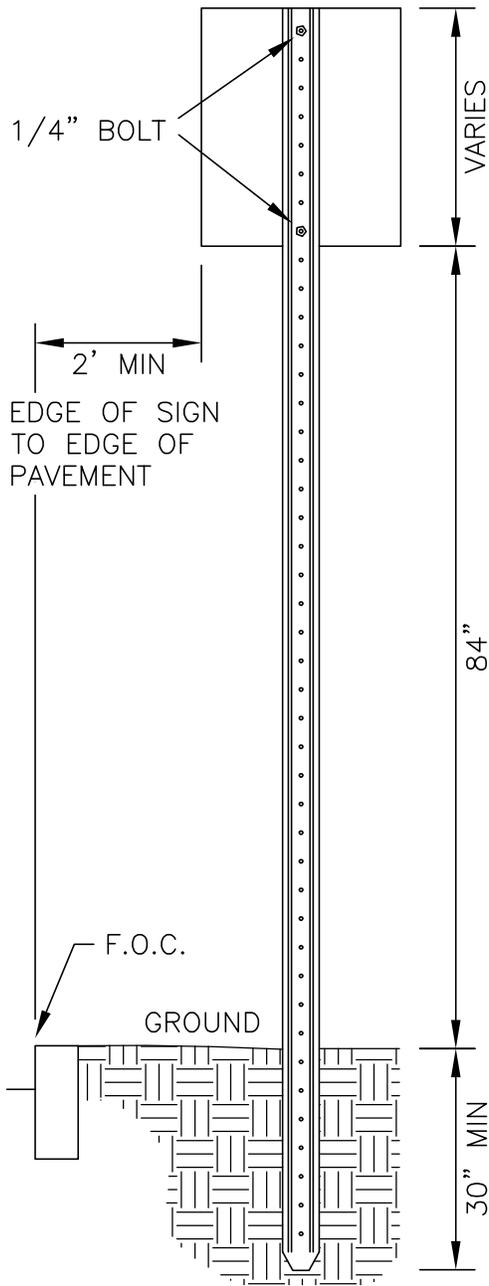
NO.	REVISION	DATE
-	-	-
-	-	-
-	-	-

APPROVED BY:

City of Concord Engineering Services Division

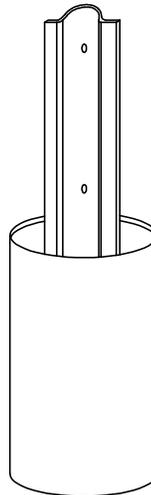
ROOT OBSERVATIONS BALLED AND BURLAPPED

SECTION:	LANDSCAPE
DRAWING NO.	L-9
DATE:	04/15
PAGE:	1



NOTES:

1. POSTS SHALL BE PLUMB. ANY POST BENT OR OTHERWISE DAMAGED SHALL BE REMOVED AND REPLACED. CUTTING THE DAMAGED PORTION OUT AND SPLICING THE POST TOGETHER IS NOT ACCEPTABLE.
2. WHEN POSTS ARE SET, THE HOLES SHALL BE DUG TO THE PROPER DEPTH. AFTER INSERTING POSTS, THE HOLES SHALL BE BACK FILLED WITH SUITABLE MATERIAL IN LAYERS NOT EXCEEDING 6" DEEP WHEN COMPACTED; CARE BEING TAKEN TO PRESERVE THE ALIGNMENT OF THE POST.
3. WHEN POSTS ARE DRIVEN, A SUITABLE DRIVING CAP SHALL BE USED. AFTER DRIVING, THE TOP OF THE POST SHALL HAVE THE SAME CROSS-SECTIONAL DIMENSION AS THE BODY OF THE POST. BATTERED HEADS WILL NOT BE ACCEPTED.
4. POSTS SHALL NOT BE DRIVEN WITH THE SIGN ATTACHED TO THE POST.
5. SIGNS SHALL BE ERECTED IN CONFORMANCE WITH THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES"
6. WHEN SIGN IS IN PLACE, NO PART OF THE POST SHALL EXTEND ABOVE SIGN.

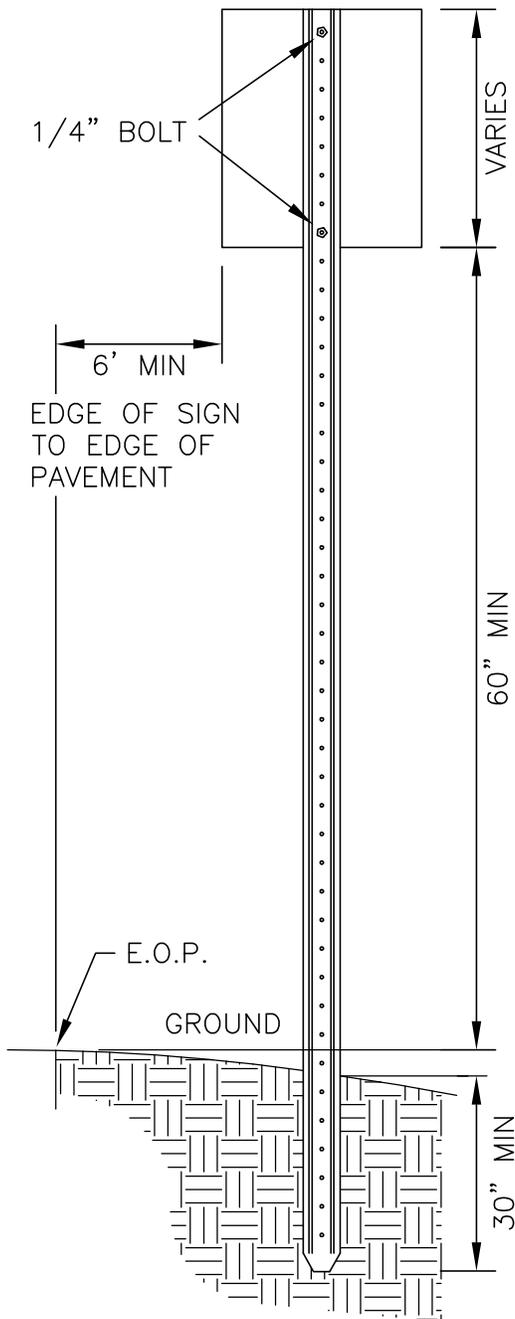


GREEN ENAMEL, 2.5#/FT
MINIMUM FLANGED
CHANNEL STEEL POST

PVC OR STEEL SLEEVE
REQUIRED IN PAVED OR
CONCRETE LOCATIONS

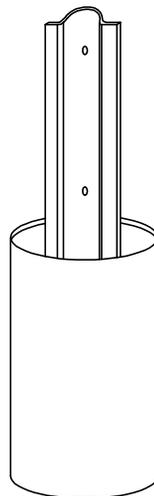
SLEEVE WILL BE LARGE
ENOUGH TO ALLOW FOR
REPLACEMENT POST

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SITE/STREET		
1			DRAFTING			11/11			ROAD SIGN POST and SLEEVE - URBAN			DRAWING NO. M-1		
2			POST #/FT			8/13						DATE: 12/08		
-			-			-			APPROVED BY:					



NOTES:

1. POSTS SHALL BE PLUMB. ANY POST BENT OR OTHERWISE DAMAGED SHALL BE REMOVED AND REPLACED. CUTTING THE DAMAGED PORTION OUT AND SPLICING THE POST TOGETHER IS NOT ACCEPTABLE.
2. WHEN POSTS ARE SET, THE HOLES SHALL BE DUG TO THE PROPER DEPTH. AFTER INSERTING POSTS, THE HOLES SHALL BE BACK FILLED WITH SUITABLE MATERIAL IN LAYERS NOT EXCEEDING 6" DEEP WHEN COMPACTED; CARE BEING TAKEN TO PRESERVE THE ALIGNMENT OF THE POST.
3. WHEN POSTS ARE DRIVEN, A SUITABLE DRIVING CAP SHALL BE USED. AFTER DRIVING, THE TOP OF THE POST SHALL HAVE THE SAME CROSS-SECTIONAL DIMENSION AS THE BODY OF THE POST. BATTERED HEADS WILL NOT BE ACCEPTED.
4. POSTS SHALL NOT BE DRIVEN WITH THE SIGN ATTACHED TO THE POST.
5. SIGNS SHALL BE ERECTED IN CONFORMANCE WITH THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES"
6. WHEN SIGN IS IN PLACE, NO PART OF THE POST SHALL EXTEND ABOVE SIGN.



GREEN ENAMEL, 2.5#/FT
MINIMUM FLANGED
CHANNEL STEEL POST

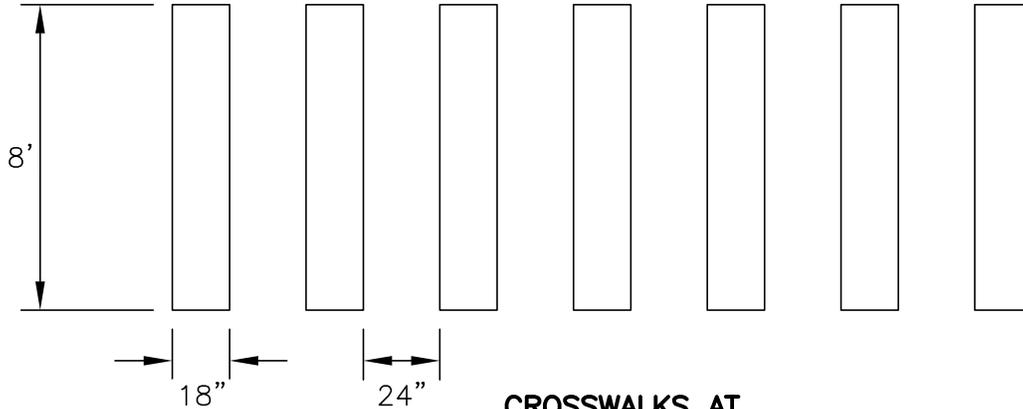
PVC OR STEEL SLEEVE
REQUIRED IN PAVED OR
CONCRETE LOCATIONS

SLEEVE WILL BE LARGE
ENOUGH TO ALLOW FOR
REPLACEMENT POST

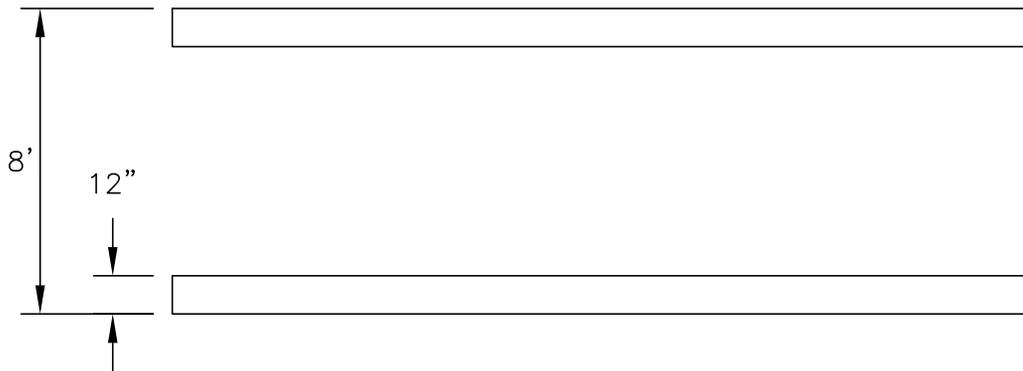
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET			
1	POST #/FT	8/13		ROAD SIGN POST and SLEEVE - RURAL	DRAWING NO.	M-2		
-	-	-			DATE:	12/08	PAGE:	1
-	-	-			APPROVED BY:			



**STOP BAR
(THERMOPLASTIC)**

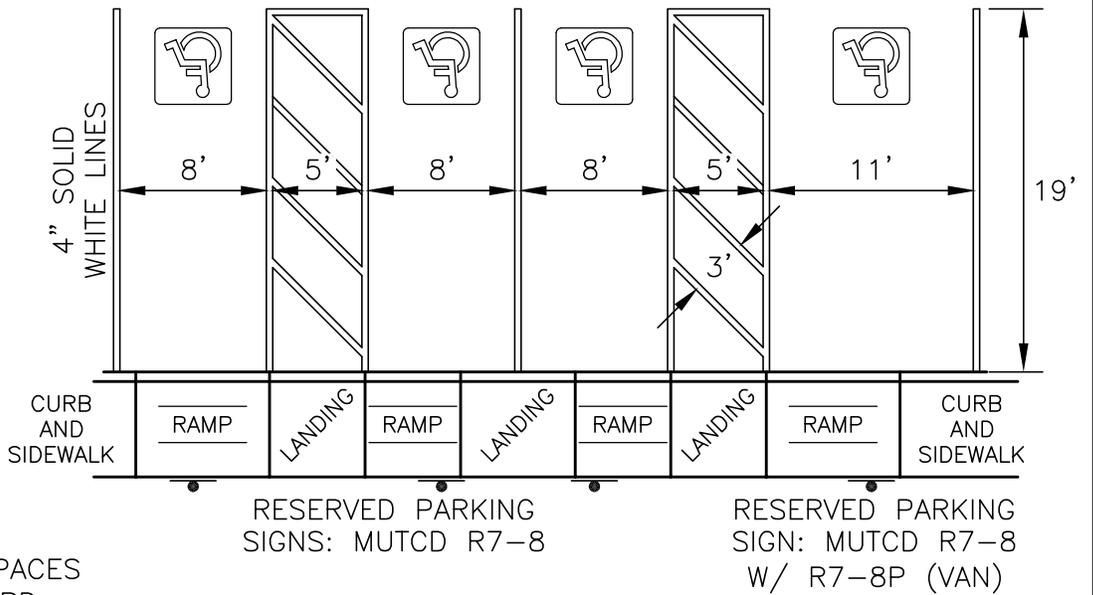


**CROSSWALKS AT
UNSIGNALIZED LOCATIONS
(THERMOPLASTIC)**

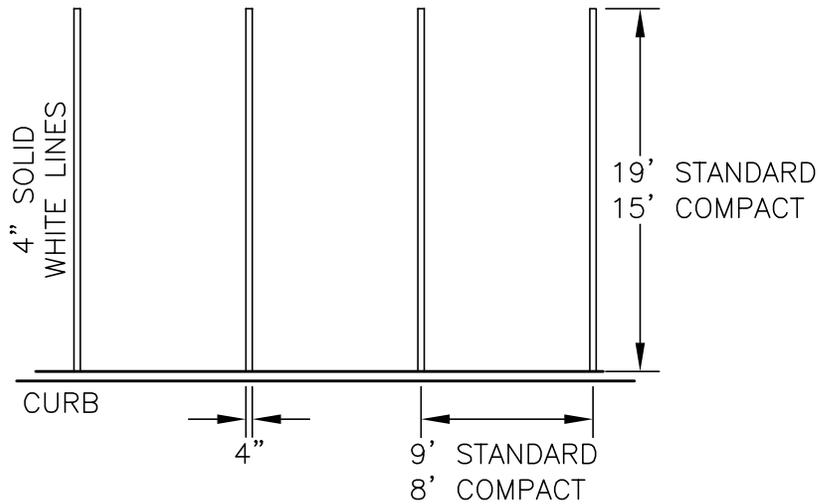
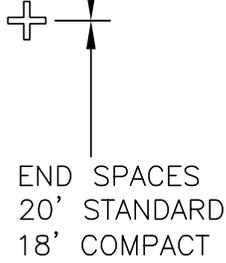
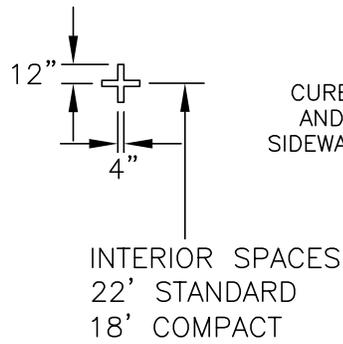


**CROSSWALKS AT
SIGNALIZED LOCATIONS
(THERMOPLASTIC)**

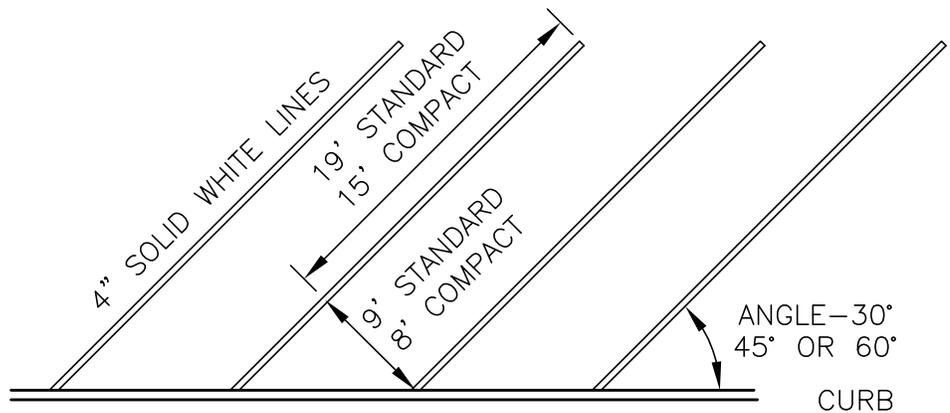
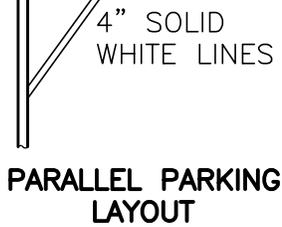
NO.	REVISION	DATE	City of Concord Engineering Services Division PAVEMENT MARKINGS	SECTION: SITE/STREET		
-	-	-		DRAWING NO. M-3		
-	-	-		DATE: 12/08	PAGE: 1	
APPROVED BY:						



ACCESSIBLE PARKING LAYOUT

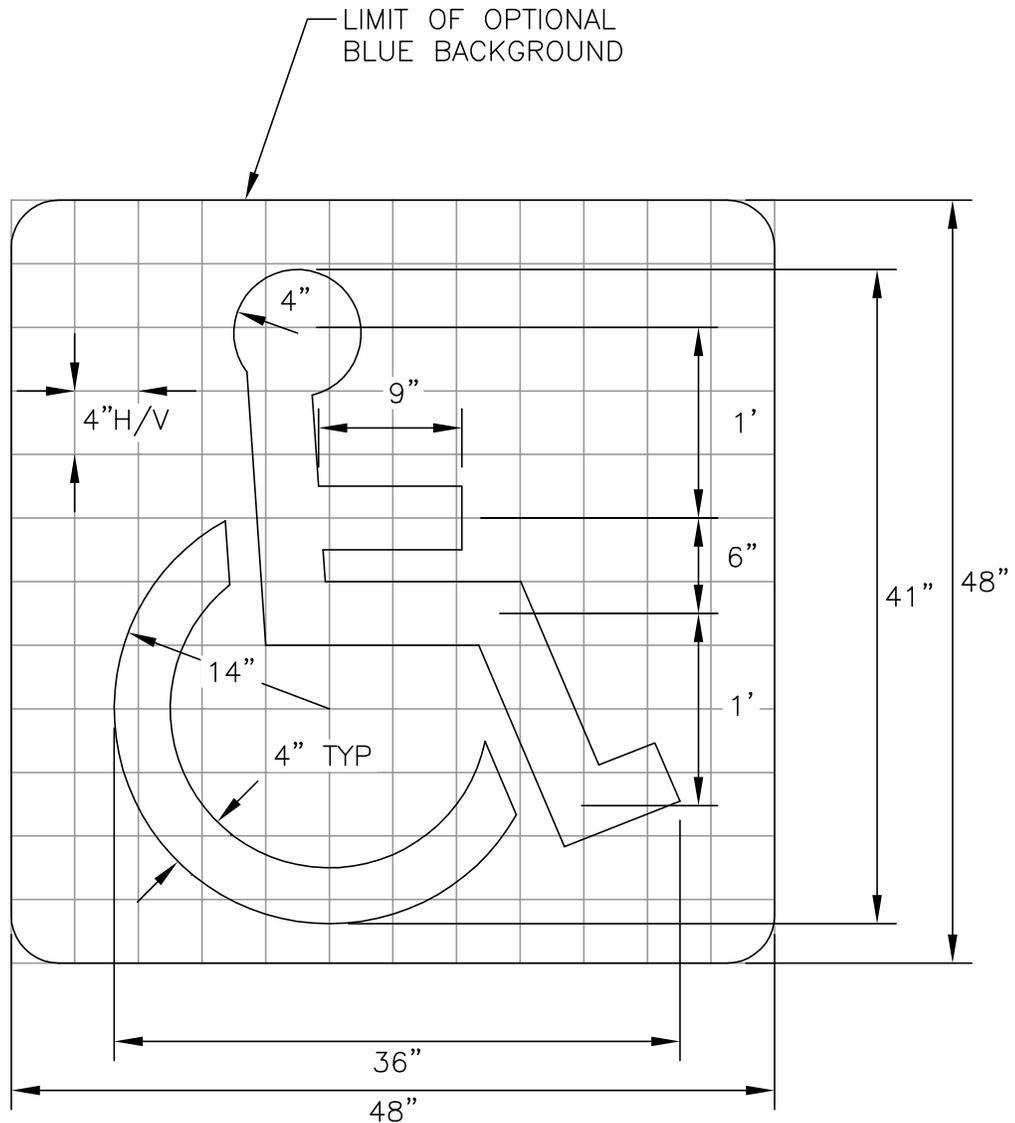


90° PARKING LAYOUT



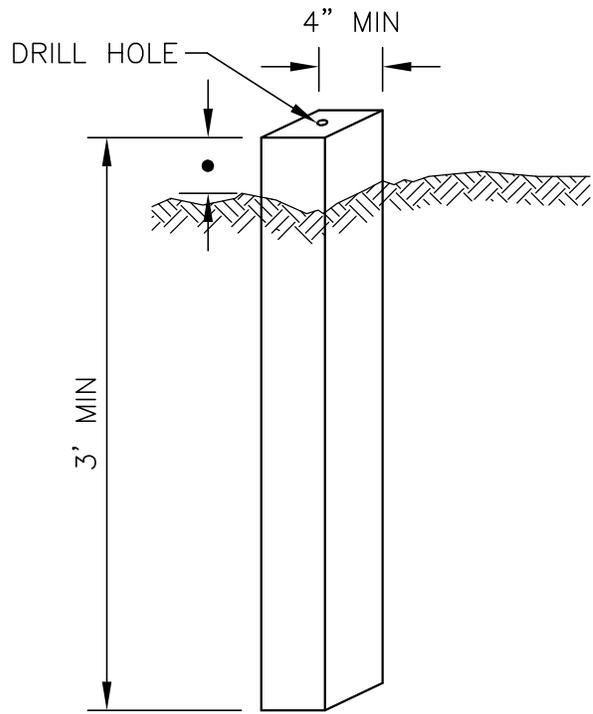
ANGLED PARKING LAYOUT

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET		
-	-	-		PARKING SPACE LAYOUT	DRAWING NO.	M-4
-	-	-			DATE: 12/08	PAGE: 1
APPROVED BY:						



SYMBOL SHALL BE WHITE WITH AN
OPTIONAL BLUE BACKGROUND

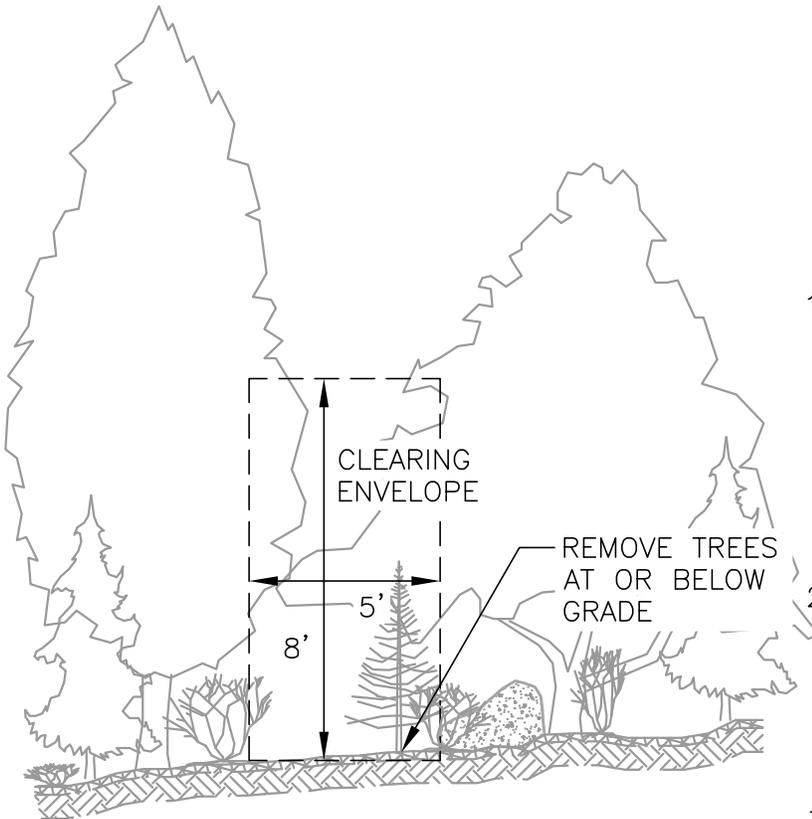
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET		
-	-	-		ACCESSIBLE PARKING SPACE PAVEMENT MARKING	DRAWING NO. M-5	
-	-	-			DATE: 12/08	PAGE: 1
APPROVED BY:						



NOTES:

1. BOUND TO BE VERTICAL AND SOIL COMPACTED WHEN SET
 2. RIGHT-OF-WAY BOUNDS SHALL BE REINFORCED CONCRETE OR GRANITE, 4"X4"X3' MINIMUM IN SIZE.
 3. RIGHT-OF-WAY BOUNDS SHALL BE INSPECTED BY THE CITY OF CONCORD ENGINEERING SERVICES DIVISION.
- RIGHT-OF WAY BOUNDS SHALL BE SET 5/8" TO 1" ABOVE GROUND IN RESIDENTIAL AREAS, 4" TO 6" ABOVE GROUND IN WOODED AREAS AND SLIGHTLY BELOW GRADE WHEN SET IN PAVEMENT.

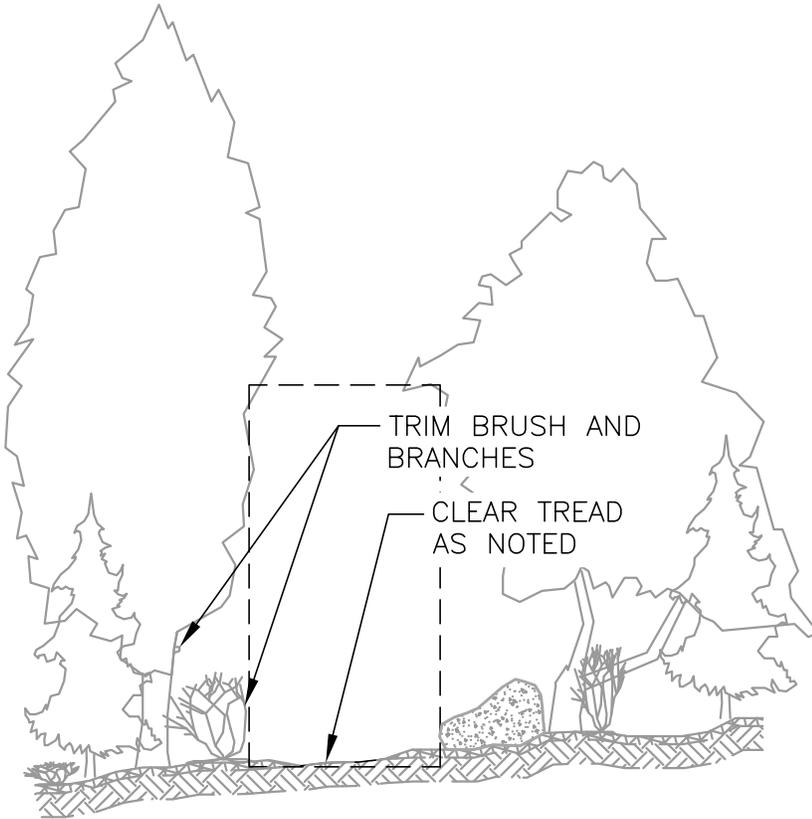
NO.	REVISION	DATE	City of Concord Engineering Services Division RIGHT-OF-WAY BOUND DETAIL	SECTION: SITE/STREET	
-	-	-		DRAWING NO. M-6	
-	-	-		DATE: 12/08	PAGE: 1
-	-	-			
APPROVED BY:					



1. CLEARING FOR THE TRAIL SHOULD BE 5' WIDE AND 8' HIGH. CUT LIMBS FLUSH TO THE TREE TRUNK. CUT SMALL TREES BLOCKING THE PATH AT OR BELOW THE GROUND. REMOVE ALL CUTTING WELL OFF THE TRAIL.

2. A 3' WIDE TREAD SHALL BE ESTABLISHED. THE TREAD SHALL BE FREE OF ANY LOOSE STONES, DOWNED BRANCHES, VEGETATION AND LEAF LITTER.

3. TRAILS SHALL BE MARKED WITH 2½" BY 6" PAINTED BLAZES. BLAZES SHOULD BE PAINTED IN ORANGE, RED OR YELLOW PAINT. DO NOT USE WHITE, GREEN, OR GRAY PAINT. BLAZES SHOULD BE PLACED AS HIGH AS POSSIBLE. EACH BLAZE SHOULD BE VISIBLE FROM THE NEXT.



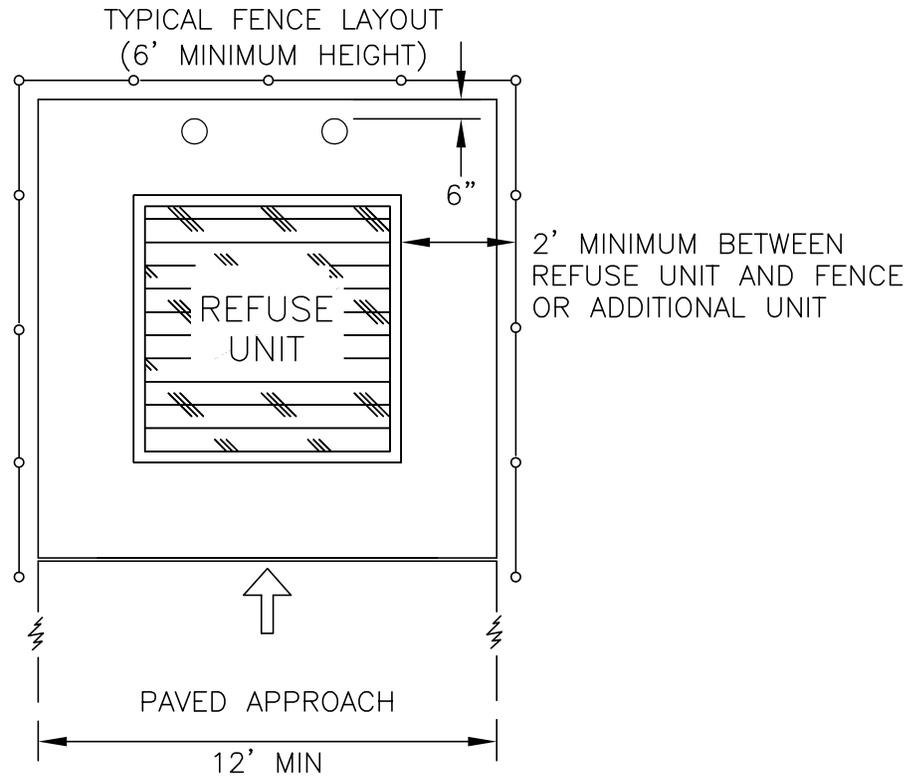
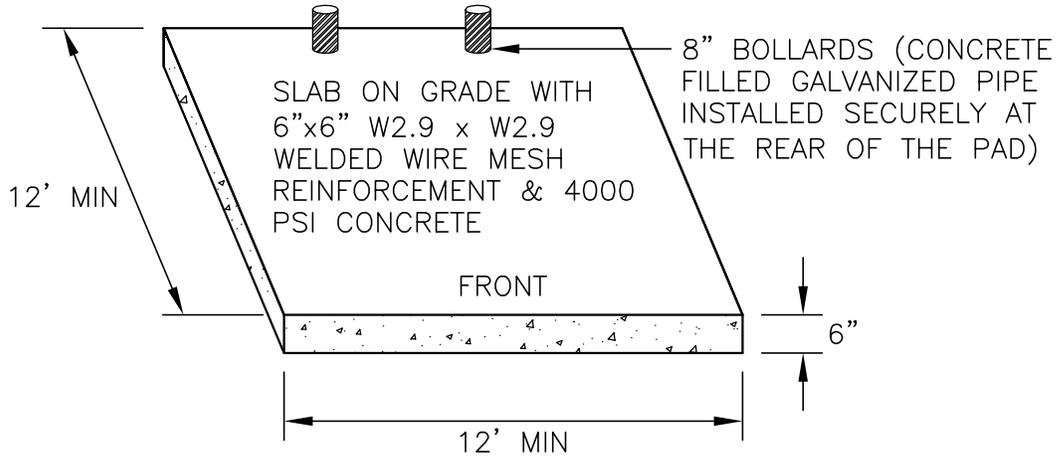
NO.	REVISION	DATE
-	-	-
-	-	-
-	-	-

APPROVED BY:

City of Concord Engineering Services Division

TRAIL CONSTRUCTION

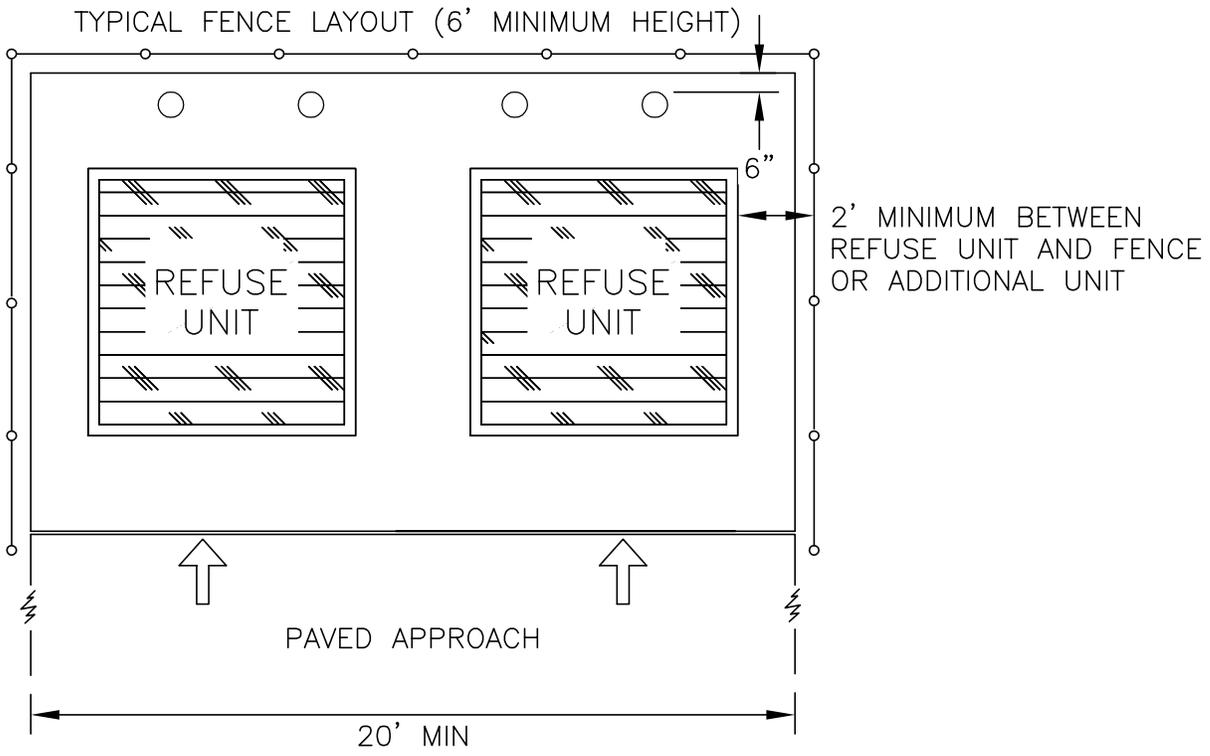
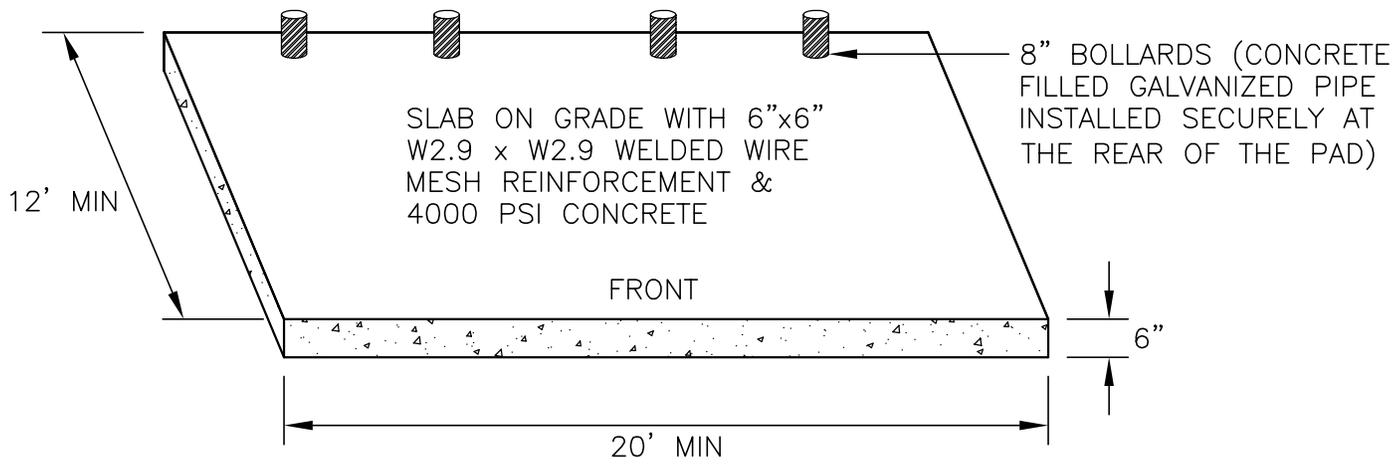
SECTION:	SITE
DRAWING NO.	M-7
DATE:	12/08
PAGE:	1



NOTES:

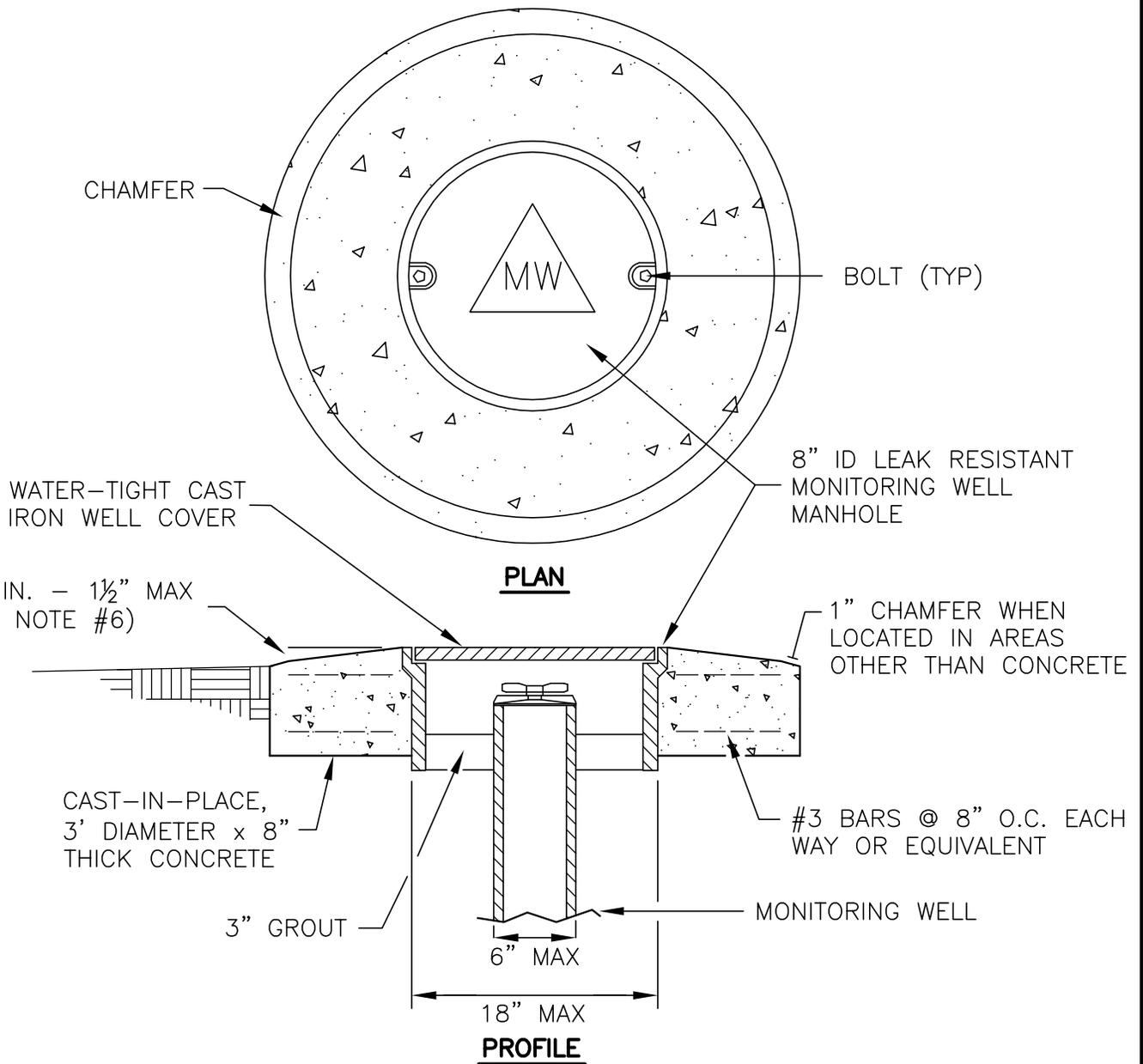
1. DUMPSTER PADS AND ASSOCIATED SCREENING SHALL BE PLACED WHERE THE REFUSE BINS CAN BE UNLOADED WITH A SINGLE TURNING MOVEMENT WITH A 35' FRONT LOADING TRUCK. THE WIDTH OF THE GATE SHOULD BE TAKEN INTO ACCOUNT WHEN REVIEWING TURNING MOVEMENTS.
2. GATES SHALL BE PROVIDED UNLESS THE DUMPSTER IS BLOCKED FROM VIEW FROM THE PUBLIC RIGHT-OF-WAY AND ABUTTING PROPERTIES BY BUILDINGS OR WALLS.
3. TRASH CONTAINERS SHALL BE LOCATED A MINIMUM DISTANCE OF 25' FROM ANY DRAINAGE STRUCTURE, INLET OR STORMWATER FACILITY.

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SITE		
1			NOTE 2			01.15			SINGLE DUMPSTER PAD			DRAWING NO. M-8		
-			-			-						DATE: 12/08		PAGE: 1
-			-			-								
APPROVED BY:														



- NOTES:
1. DUMPSTER PADS AND ASSOCIATED SCREENING SHALL BE PLACED WHERE THE REFUSE BINS CAN BE UNLOADED WITH A SINGLE TURNING MOVEMENT WITH A 35' FRONT LOADING TRUCK. THE WIDTH OF THE GATE SHOULD BE TAKEN INTO ACCOUNT WHEN REVIEWING TURNING MOVEMENTS.
 2. GATES SHALL BE PROVIDED UNLESS THE DUMPSTER IS BLOCKED FROM VIEW FROM THE PUBLIC RIGHT-OF-WAY AND ABUTTING PROPERTIES BY BUILDINGS OR WALLS.
 3. TRASH CONTAINERS SHALL BE LOCATED A MINIMUM DISTANCE OF 25' FROM ANY DRAINAGE STRUCTURE, INLET OR STORMWATER FACILITY.

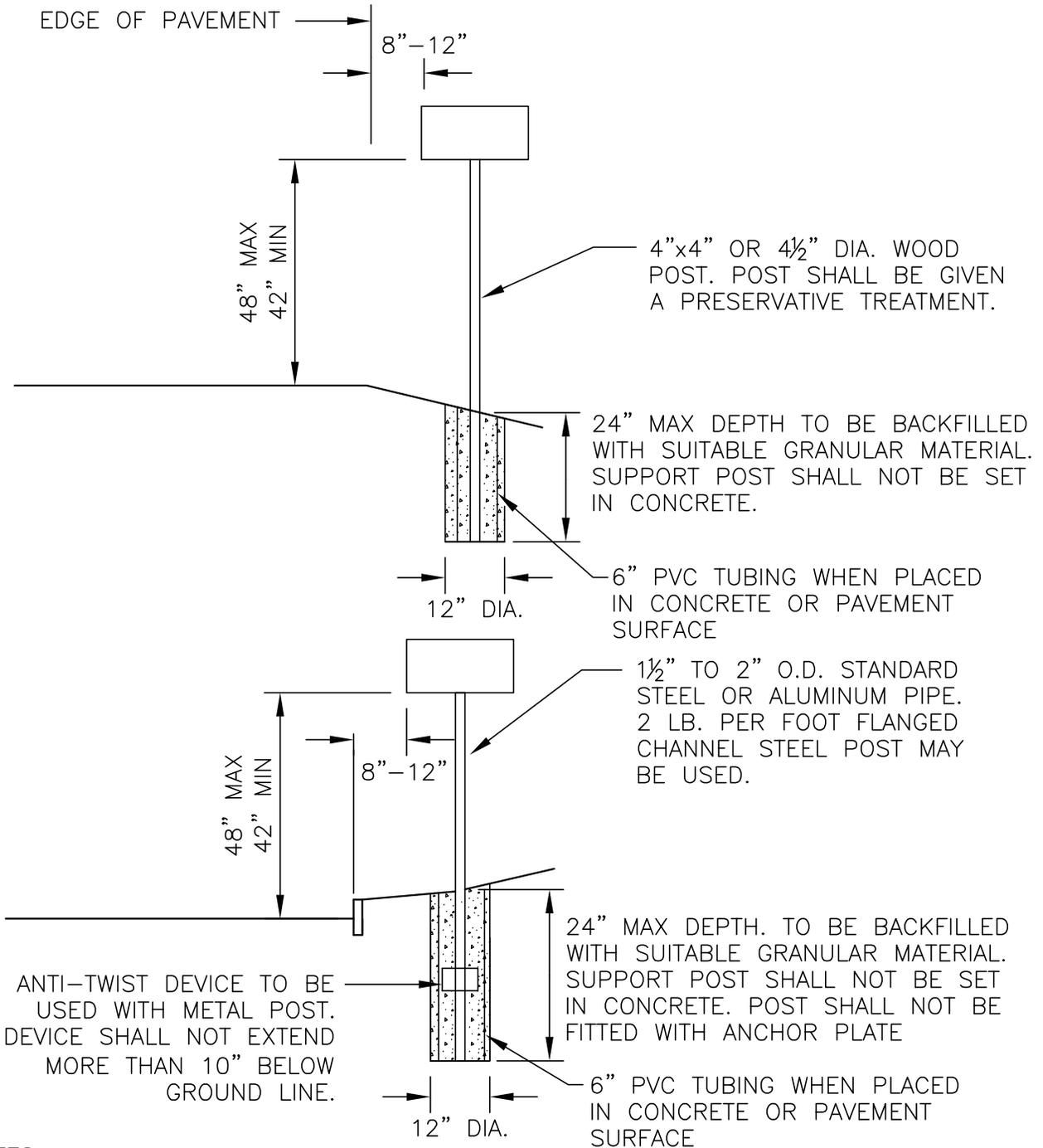
NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SITE		
1			NOTE 2			01.15			MULTIPLE DUMPSTER PAD			DRAWING NO. M-9		
-			-			-						DATE: 12/08		PAGE: 1
-			-			-						APPROVED BY:		



NOTES:

1. NO LESS THAN 12" OF HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN THE MONITORING WELL AND ANY EXISTING UNDERGROUND UTILITY.
2. THE WELL BOX SHALL BE STRUCTURALLY SOUND AND STRONG ENOUGH TO SUPPORT VEHICULAR TRAFFIC. IT SHALL BE TRAFFIC RATED AS TESTED BY AN OFFICIAL TESTING LABORATORY TO MEET AASHTO STANDARD FOR "H-20" TRUCK LOADINGS.
3. THE TOP OF THE WELL SHALL BE PERMANENTLY MARKED WITH LARGE LETTERS "MW"
4. THE WELL COVER SHALL BE BOLTED DOWN OR EQUIVALENT TO PROVIDE PROTECTION AGAINST UNAUTHORIZED ACCESS.
5. THE WELL COVER SHALL BE WATER-TIGHT TO PROTECT AGAINST ENTRY OF SURFACE WATER.
6. THE TOP OF THE WELL SHALL BE SET 1" TO 1½" ABOVE SURROUNDING GRADE TO PROVIDE FOR DRAINAGE AWAY FROM THE COVER, EXCEPT FOR WELLS INSTALLED IN SIDEWALK OR PAVED AREAS WHERE TOP OF THE CONCRETE PAD SHALL BE INSTALLED FLUSH AND MATCH EXISTING CONDITIONS.
7. A CONCRETE PAD WITH A MINIMUM THICKNESS OF 6" SHALL BE CONSTRUCTED AROUND THE WELL BOX. THE PAD SHALL EXTEND Laterally A MINIMUM OF 12" FROM OUTSIDE OF THE WELL BOX. THE PAD SHALL BE CONSTRUCTED TO BE FREE OF CRACKS OR OTHER DEFECTS LIKELY TO AFFECT WATER TIGHTNESS.
8. A LOCKING WATERTIGHT WELL CAP SHALL BE INSTALLED AT THE TOP OF THE WELL CASING SO THAT SURFACE WATER THAT MAY ENTER THE VAULT WILL NOT ENTER THE WELL.

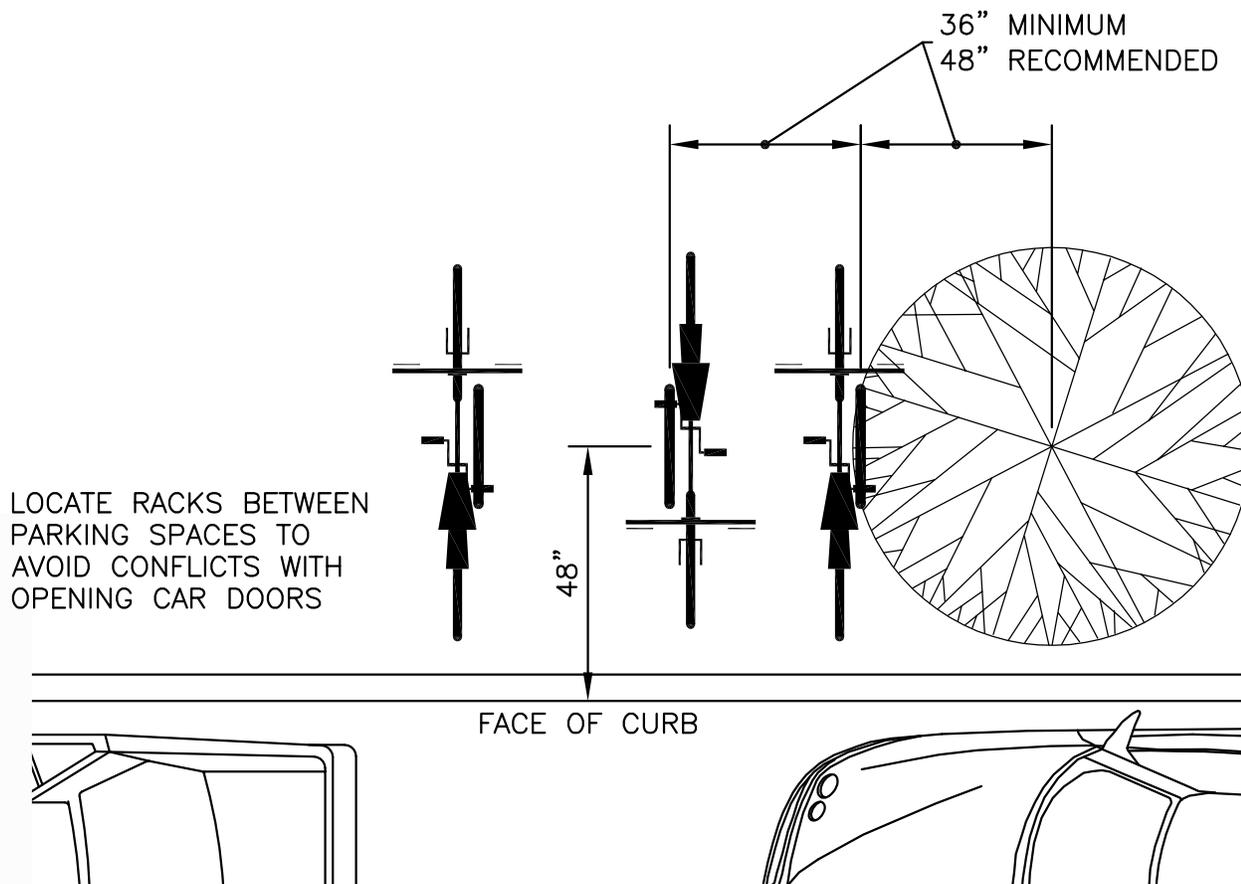
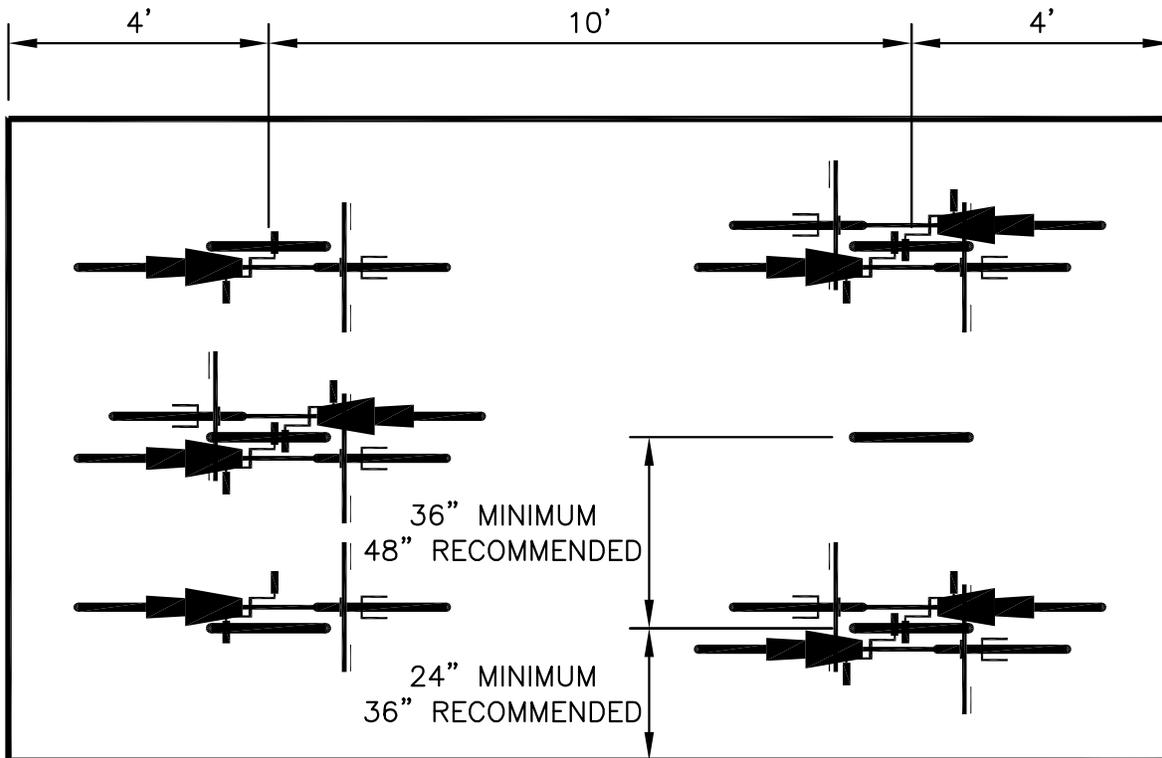
NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SITE		
-			-			-			MONITORING WELL CONSTRUCTION DETAIL			DRAWING NO. M-10		
-			-			-						DATE: 12/08		PAGE: 1
-			-			-						APPROVED BY:		



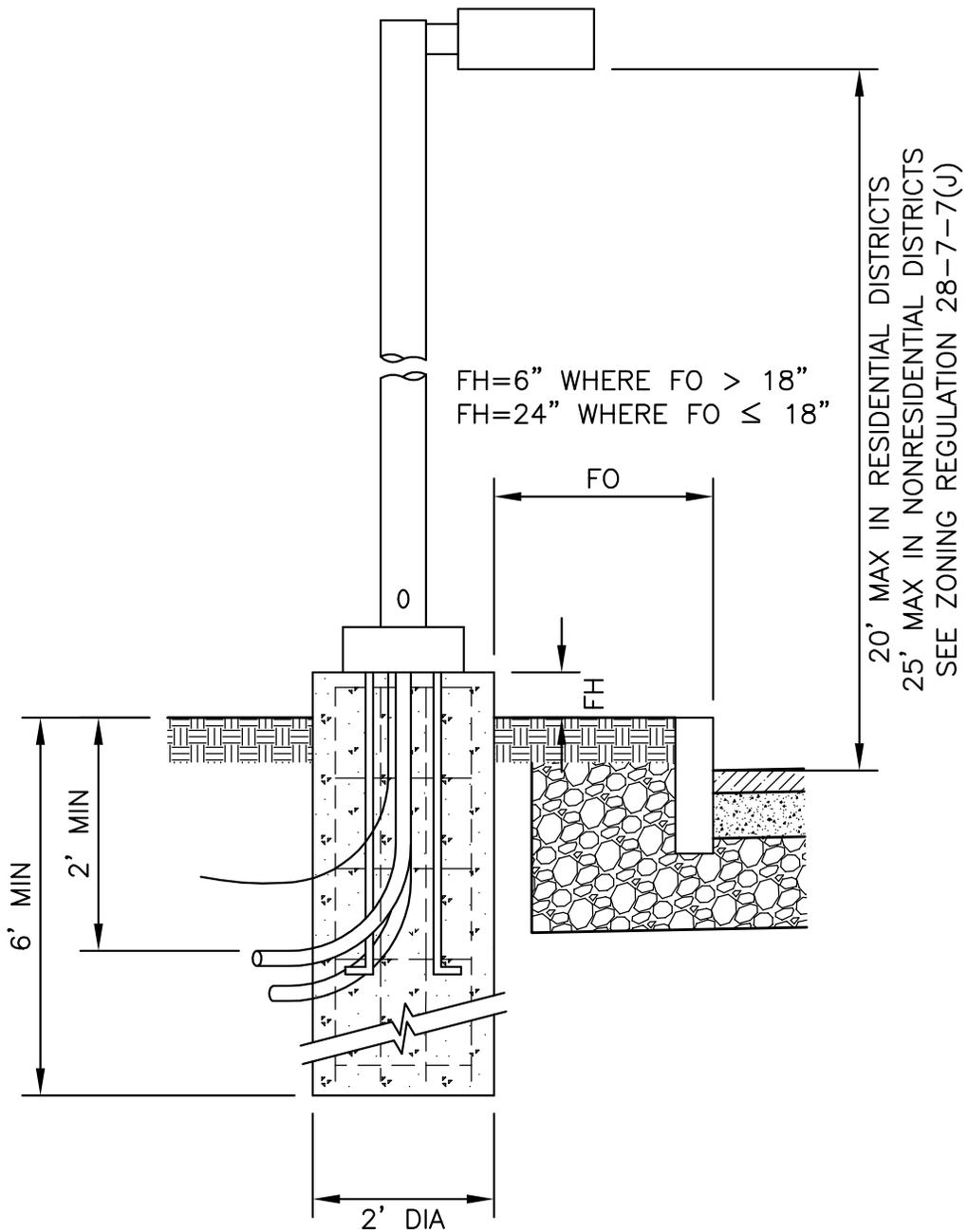
NOTES

1. ONLY LIGHTWEIGHT MAILBOXES MADE OF LIGHT SHEET METAL OR PLASTIC SHALL BE USED. MAILBOXES SHALL MEET REQUIREMENTS AND APPROVAL OF THE U.S. POSTAL SERVICE.
2. AN ALTERNATE MAILBOX SUPPORT STRUCTURE DESIGN AND CONSTRUCTION MAY BE USED AS LONG AS PROVEN CRASHWORTHY AND MEETS GUIDELINES AS SET OUT IN AASHTO'S "GUIDE FOR ERECTING MAILBOXES ON HIGHWAYS". SUPPORT STRUCTURE SHALL ALSO MEET REQUIREMENTS OF THE U.S. POSTAL SERVICE. GRANITE POSTS SHOULD NOT BE USED. GRANITE OR OTHER DECORATIVE POSTS DAMAGED BY CITY STAFF DURING WINTER MAINTENANCE OPERATIONS WILL BE REPLACED WITH A 4"x4" WOOD POST.

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SITE/STREET		
-			-			-			SINGLE MAILBOX SUPPORT			DRAWING NO. M-11		
-			-			-						DATE: 12/08		PAGE: 1
-			-			-								
APPROVED BY:														

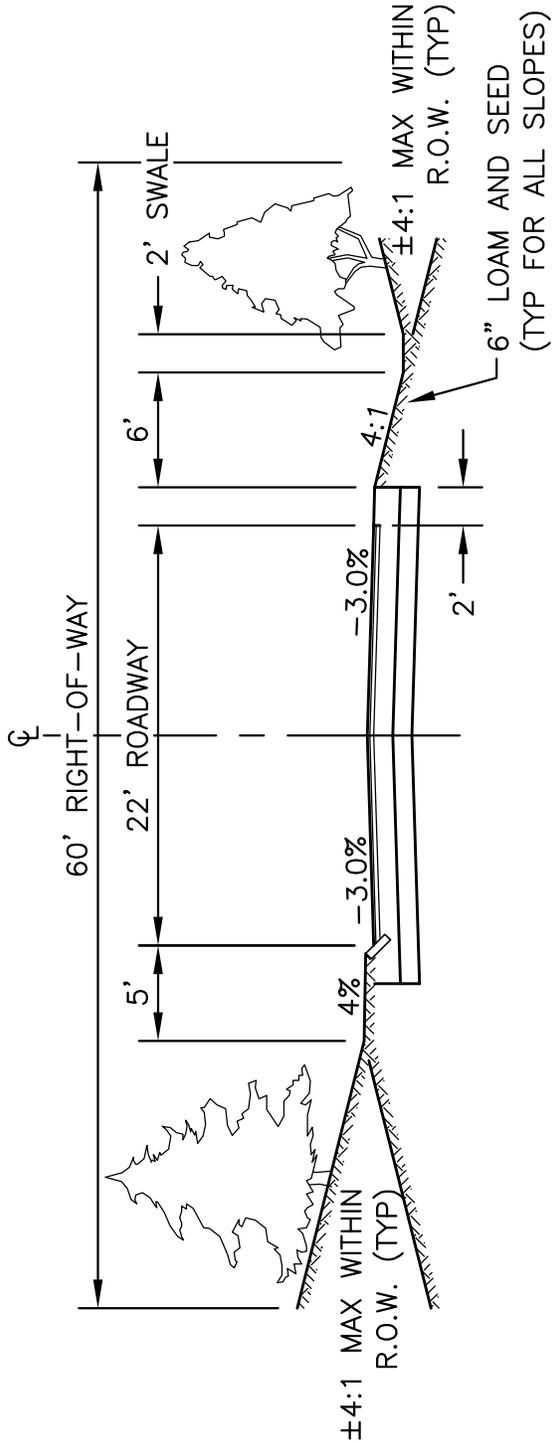


NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE
-	-	-		DRAWING NO.	M-12
-	-	-		DATE:	08/13
APPROVED BY:			BICYCLE PARKING		



THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USERS RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	ROADWAY
-	-	-	TYPICAL LIGHT POLE AND FOUNDATION	DRAWING NO.	M-13
-	-	-		DATE:	01/14
-	-	-		PAGE:	1
APPROVED BY:					

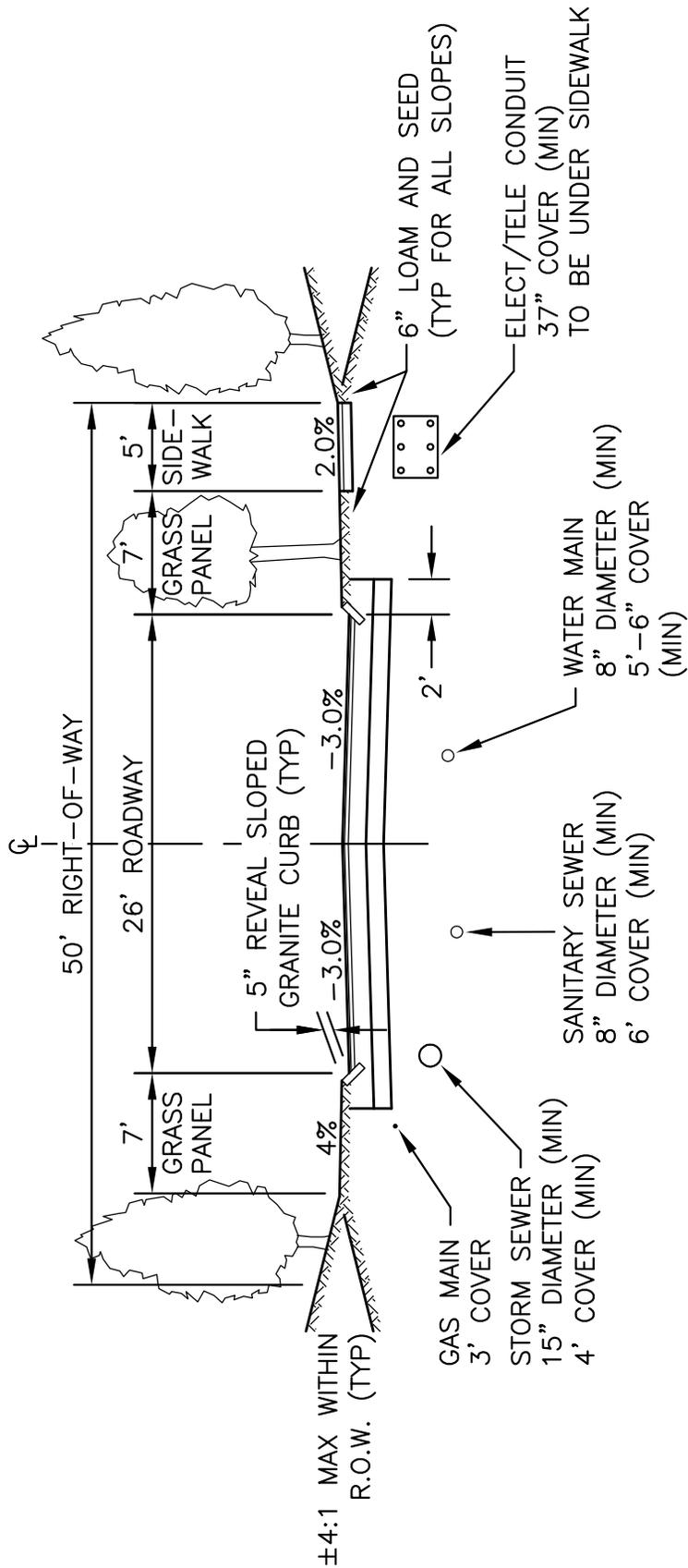


RESIDENTIAL LOW DENSITY RURAL STREET

- ROADWAY MATERIALS
- 4" HOT BITUMINOUS PAVEMENT
 - 1½" WEARING COURSE
 - 2½" BASE COURSE
 - 12" CRUSHED GRAVEL
 - 12" GRAVEL

- SLOPED GRANITE CURB REQUIRED ON ALL STREETS WITH SLOPES ≥6%, AND AT INTERSECTIONS
- VERTICAL GRANITE CURB (7" REVEAL) MAY BE SUBSTITUTED FOR SLOPED GRANITE CURB
- THIS DETAIL IS NOT INTENDED TO SHOW THE FINAL CONFIGURATION OF THE STREET OR DRIVE AND IS MEANT ONLY TO SHOW TYPICALS THAT MAY APPLY

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	ROADWAY
-	-	-	RESIDENTIAL LOW DENSITY RURAL STREET	DRAWING NO.	R-1
-	-	-		DATE:	01/12
-	-	-		PAGE:	1
APPROVED BY:					



RESIDENTIAL RURAL CLUSTER STREET

ROADWAY MATERIALS

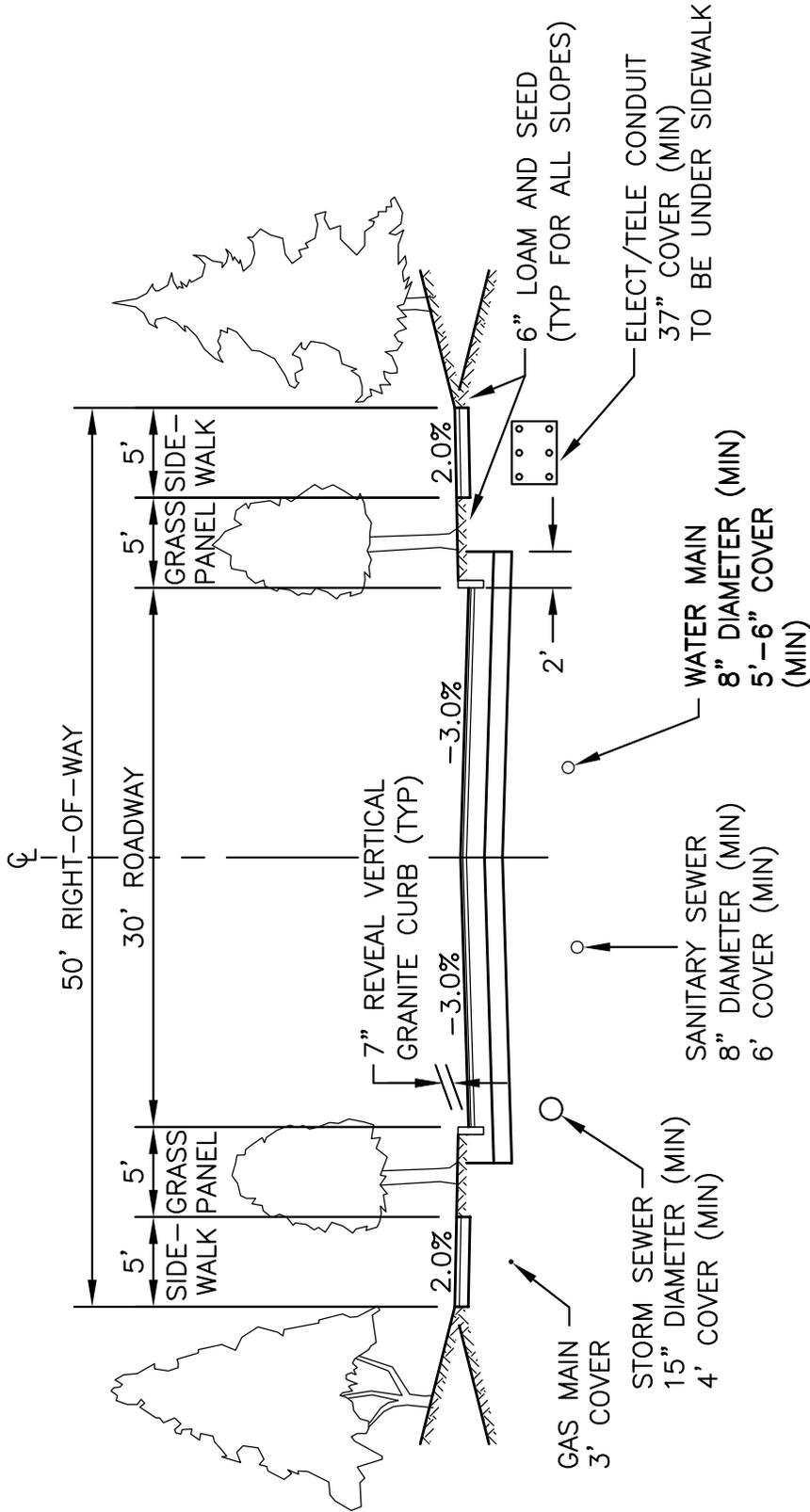
- 4" HOT BITUMINOUS PAVEMENT
- 1 1/2" WEARING COURSE
- 2 1/2" BASE COURSE
- 12" CRUSHED GRAVEL
- 12" GRAVEL

SIDEWALK MATERIALS

- 3" HOT BITUMINOUS PAVEMENT
- 1 1/2" WEARING COURSE
- 1 1/2" BASE COURSE
- 6" CRUSHED GRAVEL

- VERTICAL GRANITE CURB (7" REVEAL) MAY BE SUBSTITUTED FOR SLOPED GRANITE CURB
- THIS DETAIL IS NOT INTENDED TO SHOW THE FINAL CONFIGURATION OF THE STREET OR DRIVE AND IS MEANT ONLY TO SHOW TYPICALS THAT MAY APPLY

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	ROADWAY
-	-	-	RESIDENTIAL RURAL CLUSTER STREET	DRAWING NO.	R-2
-	-	-		DATE:	01/12
-	-	-		PAGE:	1
APPROVED BY:					

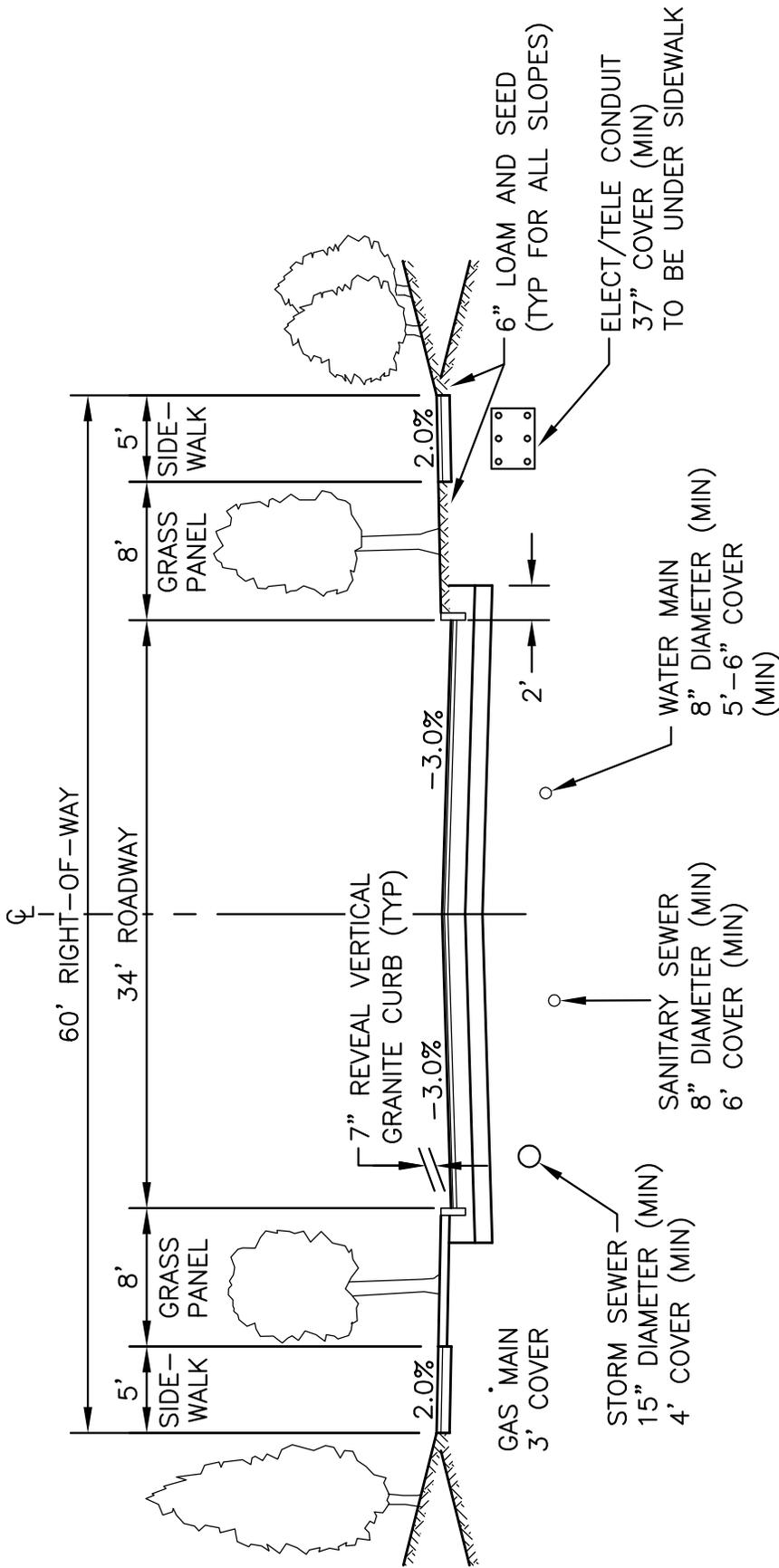


RESIDENTIAL URBAN STREET

- | | |
|----------------------------|----------------------------|
| <u>ROADWAY MATERIALS</u> | <u>SIDEWALK MATERIALS</u> |
| 4" HOT BITUMINOUS PAVEMENT | 3" HOT BITUMINOUS PAVEMENT |
| 1 1/2" WEARING COURSE | 1 1/2" WEARING COURSE |
| 2 1/2" BASE COURSE | 1 1/2" BASE COURSE |
| 12" CRUSHED GRAVEL | 6" CRUSHED GRAVEL |
| 12" GRAVEL | |

• THIS DETAIL IS NOT INTENDED TO SHOW THE FINAL CONFIGURATION OF THE STREET OR DRIVE AND IS MEANT ONLY TO SHOW TYPICALS THAT MAY APPLY

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: ROADWAY		
-			-			-			RESIDENTIAL URBAN STREET			DRAWING NO. R-3		
-			-			-						DATE: 01/12		PAGE: 1
-			-			-								
APPROVED BY:														



NON-RESIDENTIAL MIXED USE LOCAL STREET

ROADWAY MATERIALS

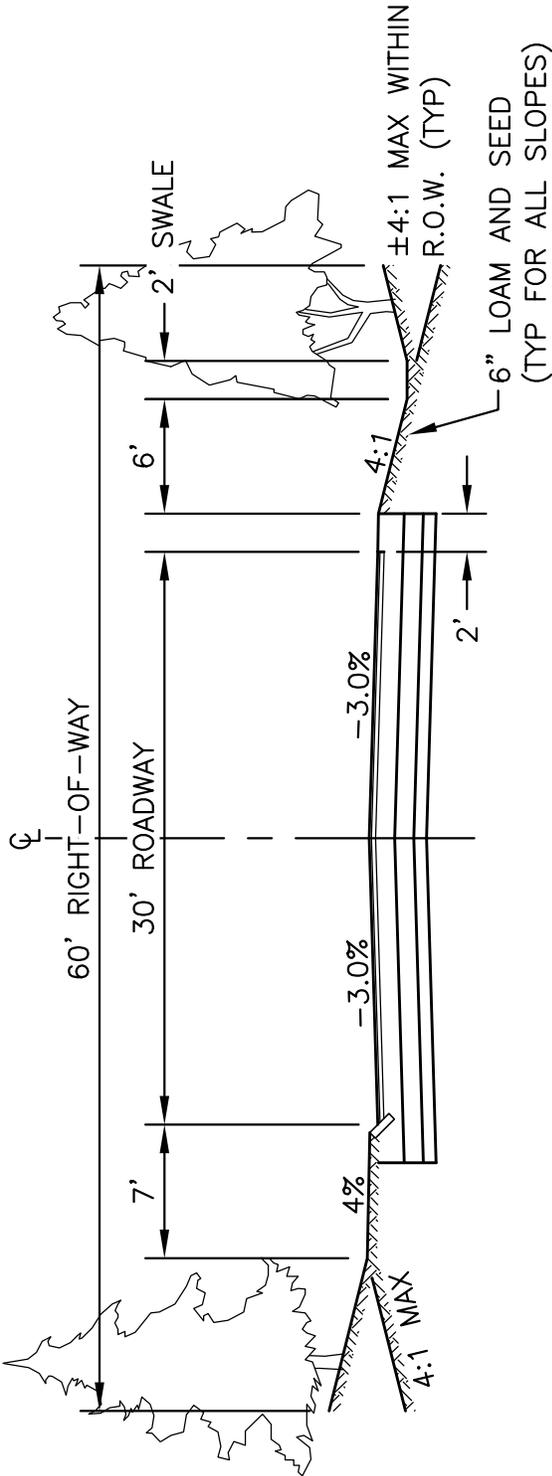
- 4" HOT BITUMINOUS PAVEMENT
- 1½" WEARING COURSE
- 2½" BASE COURSE
- 12" CRUSHED GRAVEL
- 12" GRAVEL

SIDEWALK MATERIALS

- 3" HOT BITUMINOUS PAVEMENT
- 1½" WEARING COURSE
- 1½" BASE COURSE
- 6" CRUSHED GRAVEL

- THIS DETAIL IS NOT INTENDED TO SHOW THE FINAL CONFIGURATION OF THE STREET OR DRIVE AND IS MEANT ONLY TO SHOW TYPICALS THAT MAY APPLY

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: ROADWAY	
-			-			-			NON-RESIDENTIAL MIXED USE LOCAL STREET			DRAWING NO. R-4	
-			-			-						DATE: 01/12	
-			-			-						PAGE: 1	
APPROVED BY:													



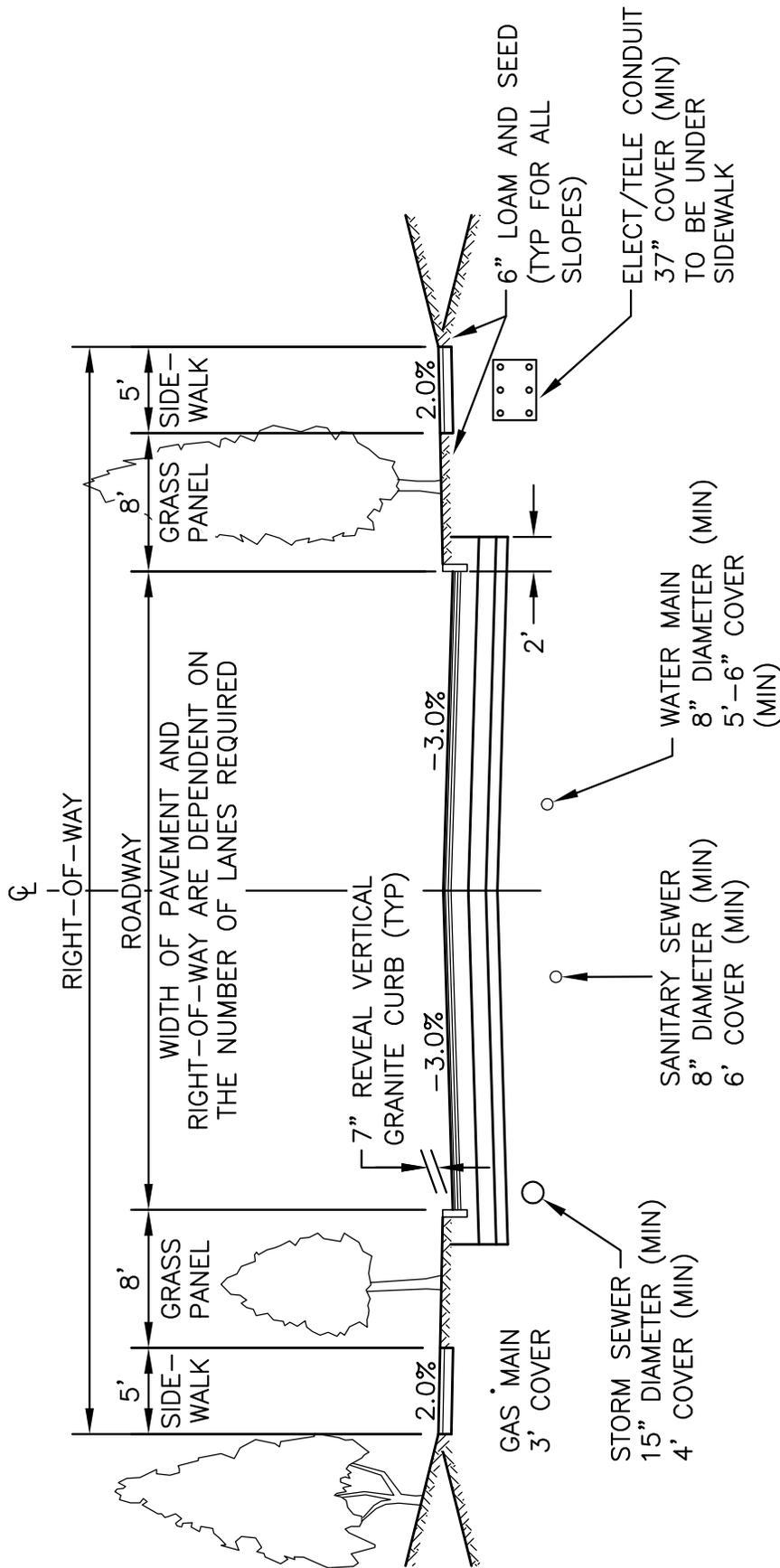
RURAL COLLECTOR STREET

ROADWAY MATERIALS

- 4" HOT BITUMINOUS PAVEMENT
- 1 1/2" WEARING COURSE
- 2 1/2" BASE COURSE
- 12" CRUSHED GRAVEL
- 12" GRAVEL
- 8" SAND

- SLOPED GRANITE CURB REQUIRED ON ALL STREETS WITH SLOPES ≥6%, AND AT INTERSECTIONS
- VERTICAL GRANITE CURB (7" REVEAL) MAY BE SUBSTITUTED FOR SLOPED GRANITE CURB
- THIS DETAIL IS NOT INTENDED TO SHOW THE FINAL CONFIGURATION OF THE STREET OR DRIVE AND IS MEANT ONLY TO SHOW TYPICALS THAT MAY APPLY

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	ROADWAY
-	-	-	RURAL COLLECTOR STREET	DRAWING NO.	R-5
-	-	-		DATE:	01/12
-	-	-		PAGE:	1
APPROVED BY:					

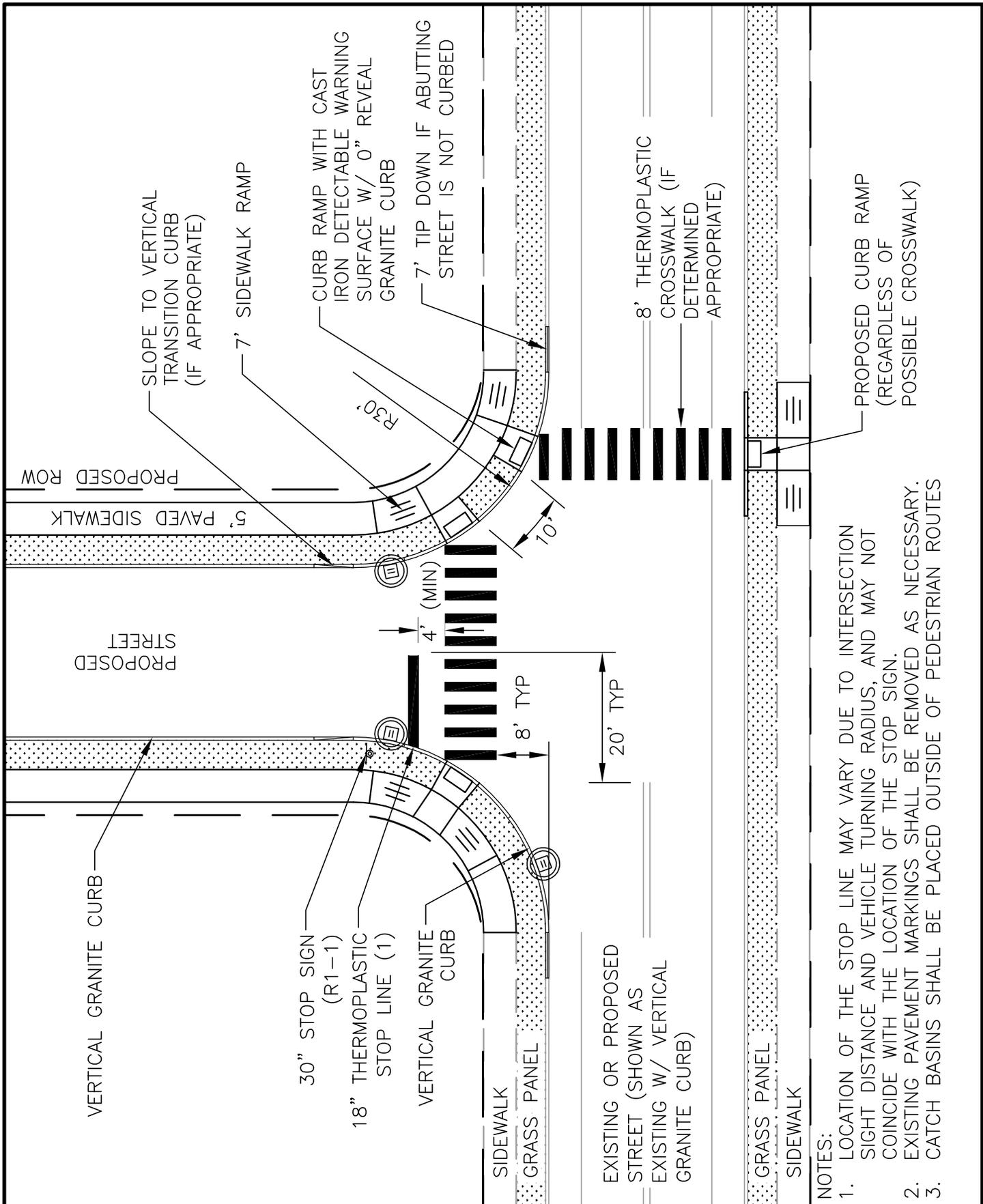


NON-RESIDENTIAL ARTERIAL COLLECTOR STREET

- ROADWAY MATERIALS**
 - 5 1/2" HOT BITUMINOUS PAVEMENT
 - 1 1/2" WEARING COURSE
 - 2" BINDER COURSE
 - 2" BASE COURSE
 - 12" CRUSHED GRAVEL
 - 12" GRAVEL
 - 8" SAND
- SIDEWALK MATERIALS**
 - 3" HOT BITUMINOUS PAVEMENT
 - 1 1/2" WEARING COURSE
 - 1 1/2" BASE COURSE
 - 6" CRUSHED GRAVEL

• THIS DETAIL IS NOT INTENDED TO SHOW THE FINAL CONFIGURATION OF THE STREET OR DRIVE AND IS MEANT ONLY TO SHOW TYPICALS THAT MAY APPLY

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: ROADWAY		
-			-			-			NON-RESIDENTIAL ARTERIAL COLLECTOR STREET			DRAWING NO. R-6		
-			-			-						DATE: 01/12		PAGE: 1
-			-			-						APPROVED BY:		



PROPOSED CURB RAMP
(REGARDLESS OF
POSSIBLE CROSSWALK)

- NOTES:
1. LOCATION OF THE STOP LINE MAY VARY DUE TO INTERSECTION SIGHT DISTANCE AND VEHICLE TURNING RADIUS, AND MAY NOT COINCIDE WITH THE LOCATION OF THE STOP SIGN.
 2. EXISTING PAVEMENT MARKINGS SHALL BE REMOVED AS NECESSARY.
 3. CATCH BASINS SHALL BE PLACED OUTSIDE OF PEDESTRIAN ROUTES

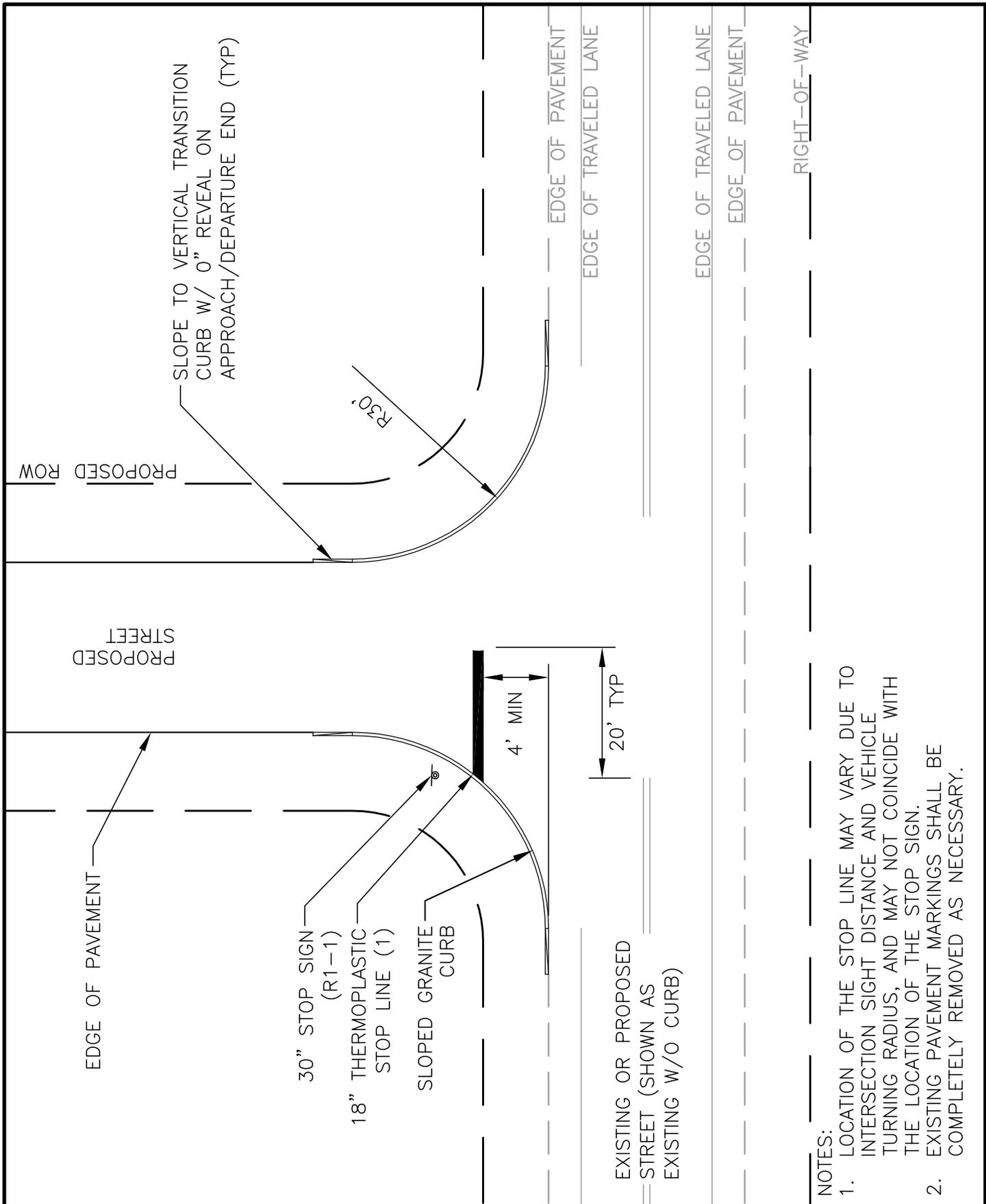
NO.	REVISION	DATE
1	DRAWING NO.	11-11
-	-	-
-	-	-

APPROVED BY:

City of Concord Engineering Services Division

URBAN INTERSECTION

SECTION:	SITE/STREET
DRAWING NO.	R-7
DATE:	12/08
PAGE:	-



NOTES:
 1. LOCATION OF THE STOP LINE MAY VARY DUE TO INTERSECTION SIGHT DISTANCE AND VEHICLE TURNING RADIUS, AND MAY NOT COINCIDE WITH THE LOCATION OF THE STOP SIGN.
 2. EXISTING PAVEMENT MARKINGS SHALL BE COMPLETELY REMOVED AS NECESSARY.

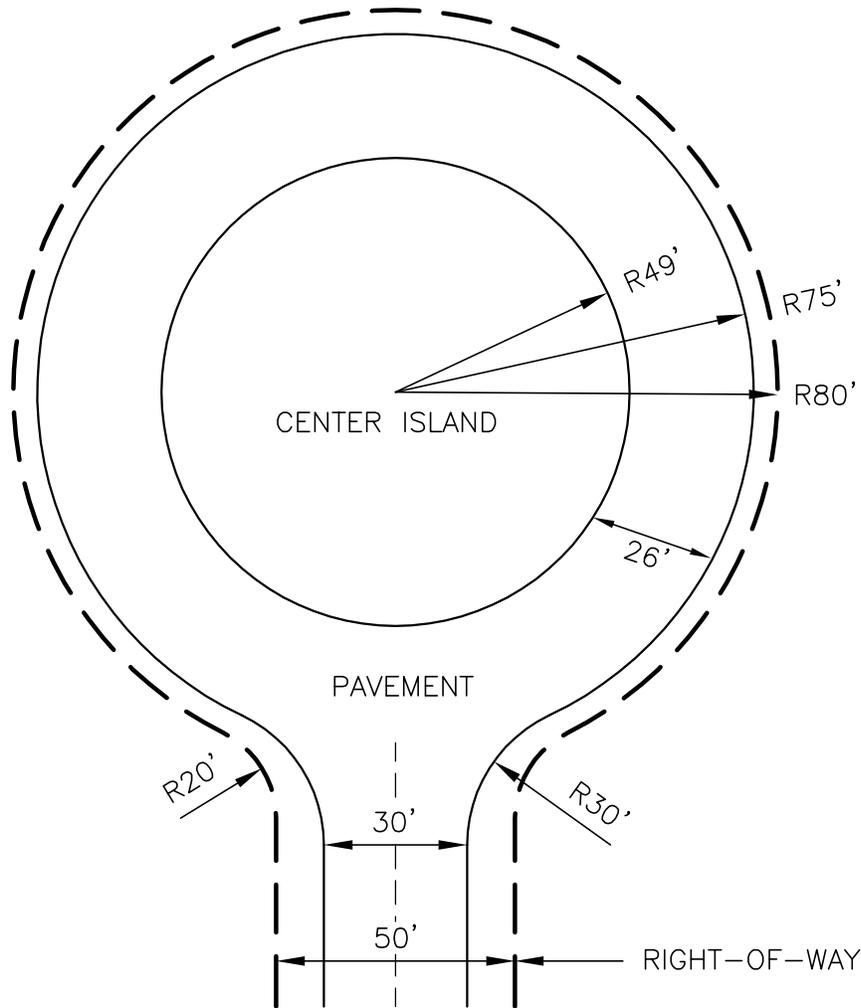
NO.	REVISION	DATE
1	DRAWING NO.	11-11
-	-	-
-	-	-

APPROVED BY:

City of Concord Engineering Services Division

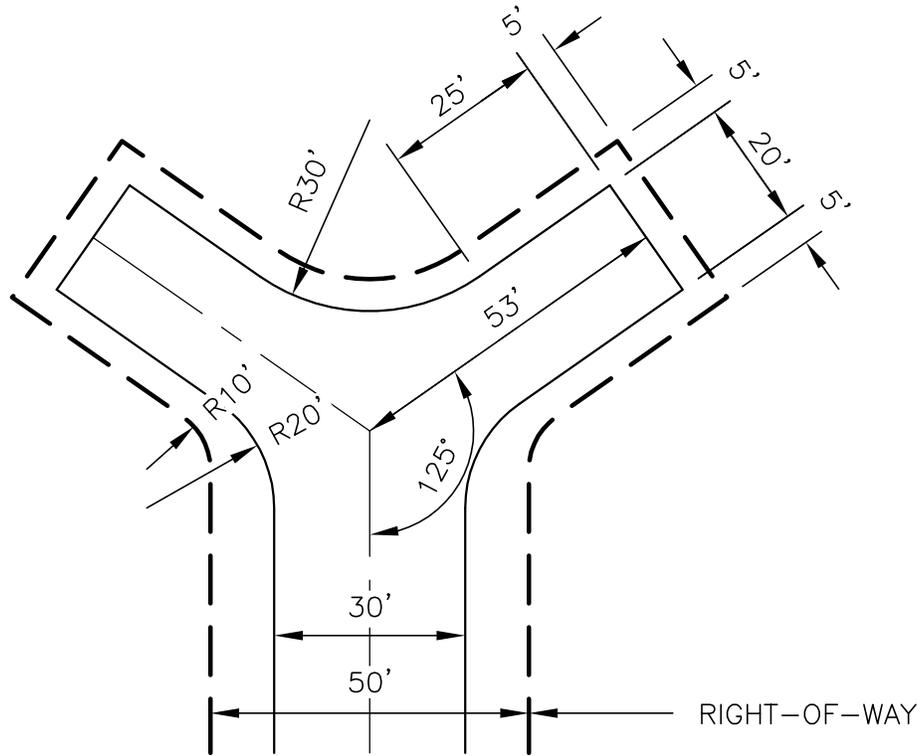
RURAL INTERSECTION

SECTION: SITE/STREET	
DRAWING NO.	R-8
DATE: 12/08	PAGE: -

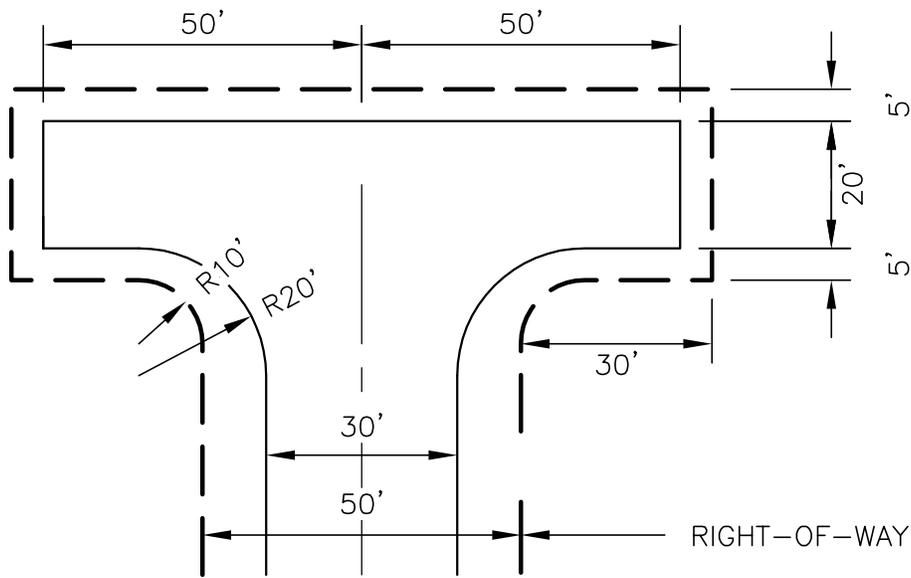


CUL-DE-SAC

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SITE/STREET		
1			DRAWING NO.			11-11			ROADWAY TERMINATION CUL-DE-SAC			DRAWING NO. R-9		
-			-			-						DATE: 12/08		
-			-			-						PAGE: 1		
APPROVED BY:														



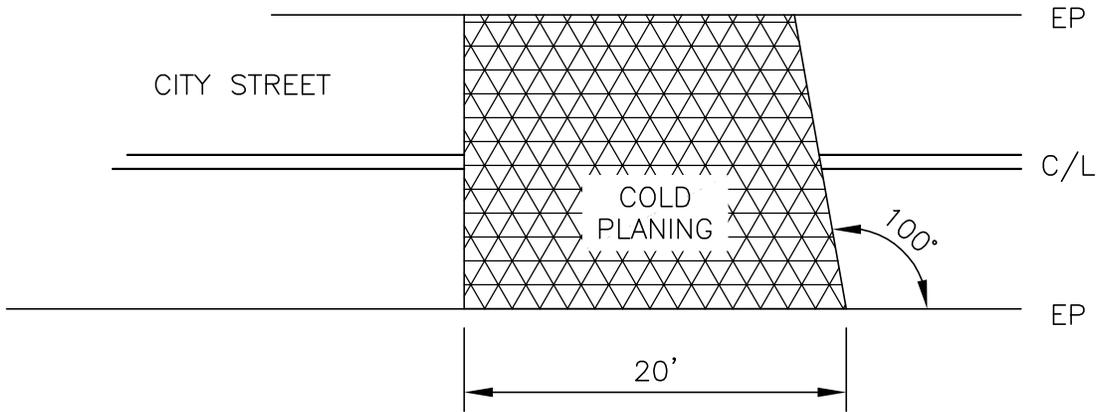
"Y" HAMMERHEAD



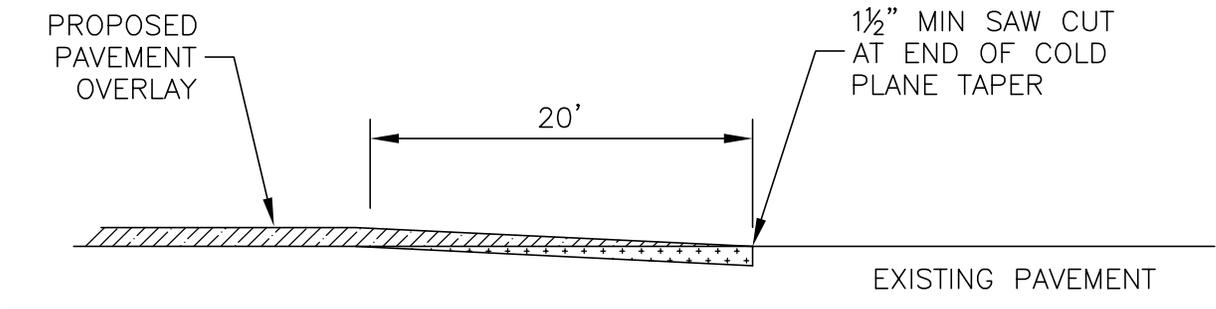
"T" HAMMERHEAD

NOTE:
DRIVEWAYS SHALL NOT BE LOCATED AT THE
20' WIDE ENDS OF THE HAMMERHEADS

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET	
1	DRAWING NO.	11-11		TEMPORARY ROADWAY TERMINATION	
-	-	-			
-	-	-		DATE: 12/08	PAGE: 1
APPROVED BY:					



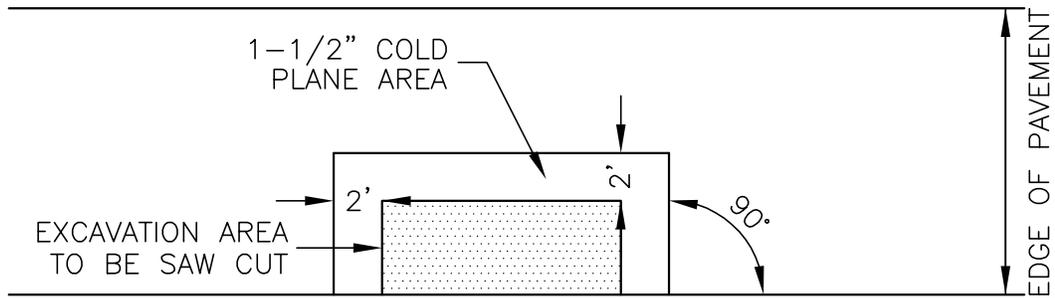
PLAN



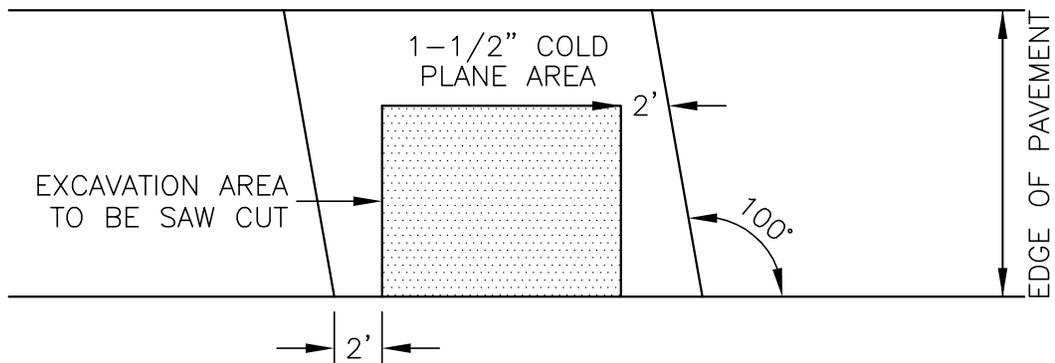
PROFILE

EXISTING PAVEMENT SHALL BE COLD PLANED FOR A LENGTH OF 20' TAPERING FROM 0" TO 1½" MINIMUM DEPTH, THROUGHOUT THE ENTIRE WIDTH OF THE ROADWAY TO BE OVERLAID.

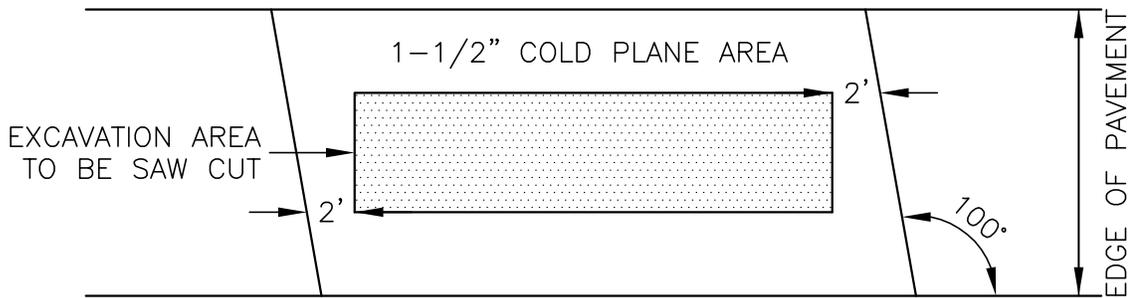
NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SITE/STREET		
1			DRAWING NO.			11.11			PAVEMENT OVERLAY TRANSITION			DRAWING NO. R-11		
2			ANGLE			4.15						DATE: 12/08		
-			-			-						PAGE: 1		
APPROVED BY:														



TRANSVERSE PATCH LESS THAN HALF PAVEMENT WIDTH



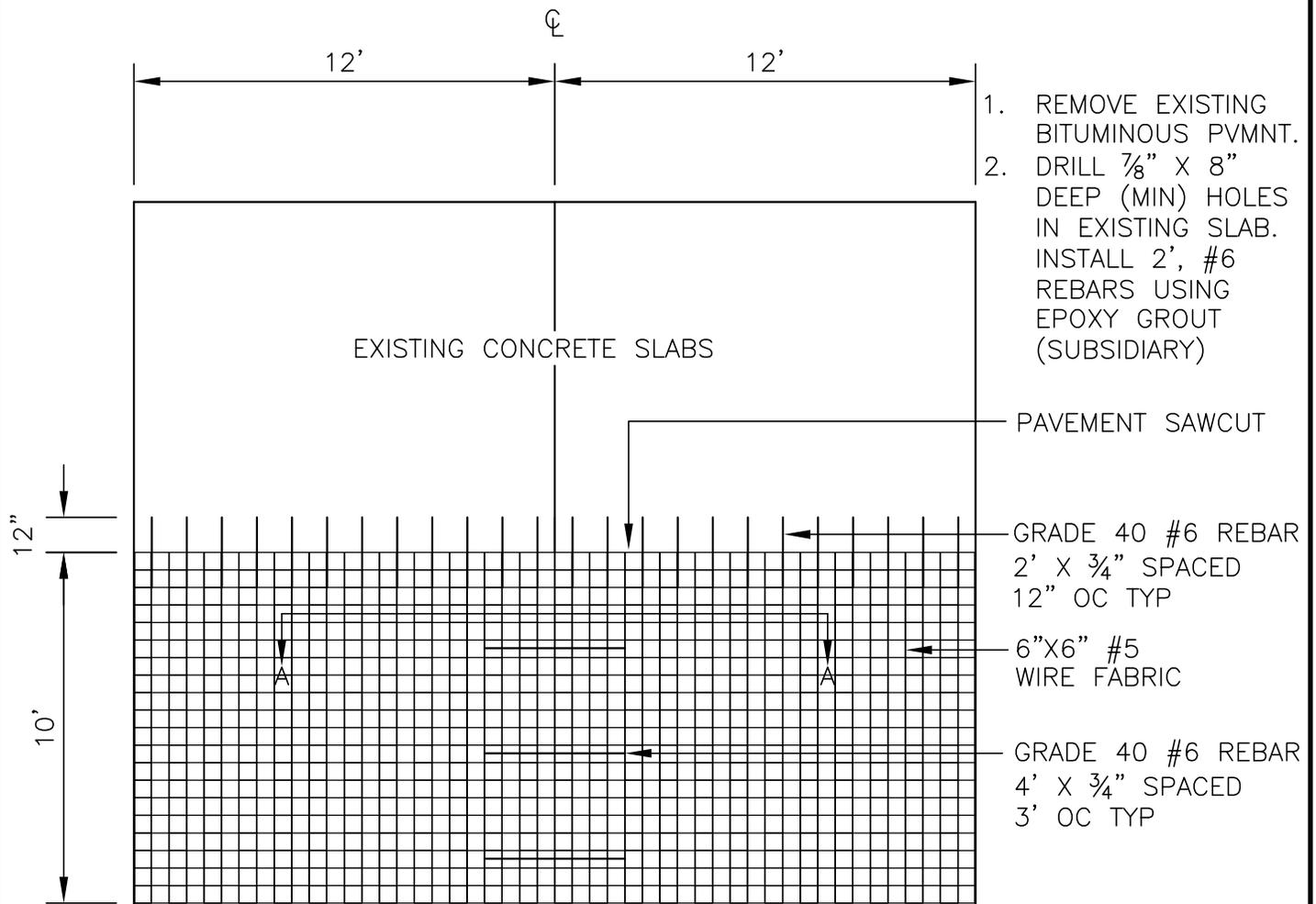
TRANSVERSE AREA GREATER THAN HALF PAVEMENT WIDTH



TRANSVERSE PATCH WITHIN CENTER OF PAVEMENT

NOTE: WHERE LIMITS OF ADJACENT COLD PLANED AREAS ARE LESS THAN OR EQUAL TO 20', THE AREA BETWEEN SHALL BE COLD PLANED AND RESURFACED

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SITE/STREET		
1			DRAWING NO.			11.11			SAWCUT REQUIREMENTS			DRAWING NO. R-12		
2			MULTIPLE			12.15						DATE: 12/08		
-			-			-						PAGE: 1		
APPROVED BY:														



1. REMOVE EXISTING BITUMINOUS PVMNT.
2. DRILL $\frac{7}{8}$ " X 8" DEEP (MIN) HOLES IN EXISTING SLAB. INSTALL 2', #6 REBARS USING EPOXY GROUT (SUBSIDIARY)

PAVEMENT SAWCUT

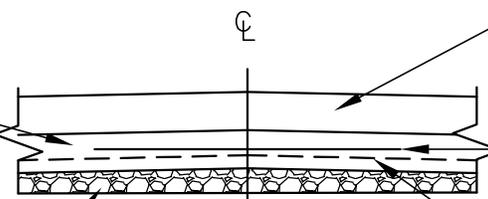
GRADE 40 #6 REBAR
2' X $\frac{3}{4}$ " SPACED
12" OC TYP

6"X6" #5
WIRE FABRIC

GRADE 40 #6 REBAR
4' X $\frac{3}{4}$ " SPACED
3' OC TYP

NHDOT CLASS AA,
4000 PSI
CONCRETE. MATCH
EXISTING DEPTHS

CRUSHED GRAVEL/
GRAVEL. MATCH
EXISTING DEPTHS



SECTION A - A

BITUMINOUS CONCRETE
PAVEMENT. MATCH
EXISTING DEPTHS

GRADE 40 #6 REBAR
4' X $\frac{3}{4}$ " SPACED
3' OC TYP

6"X6" #5 WIRE FABRIC
PLACED 1" BELOW
REBAR

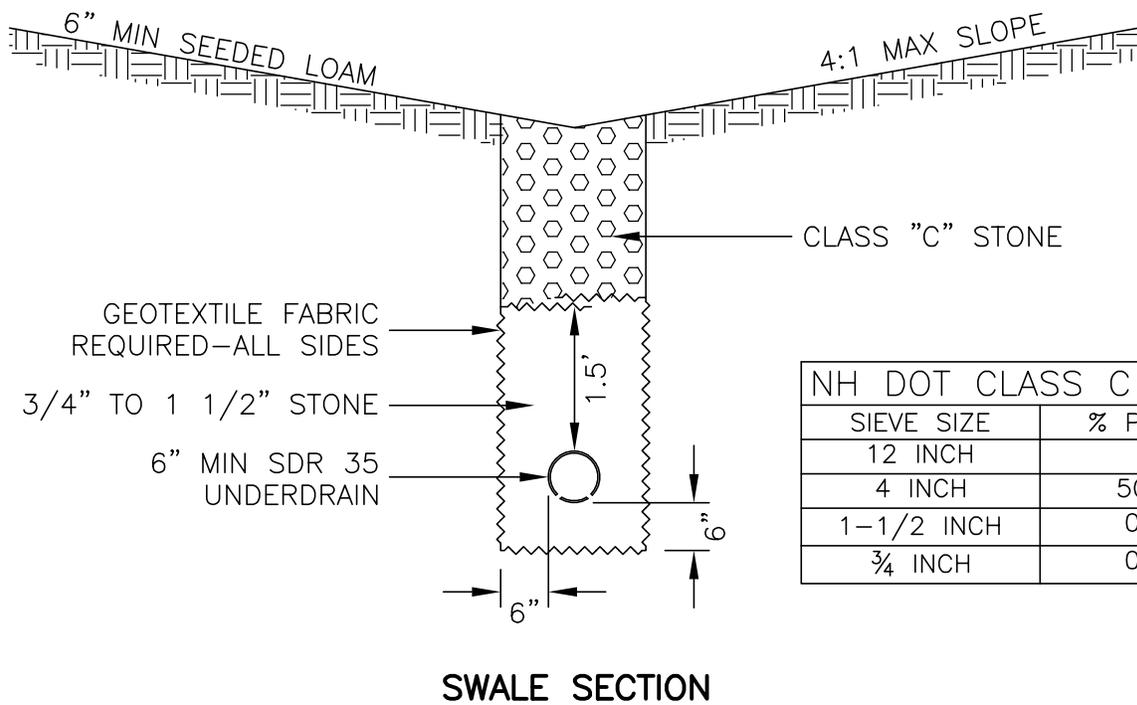
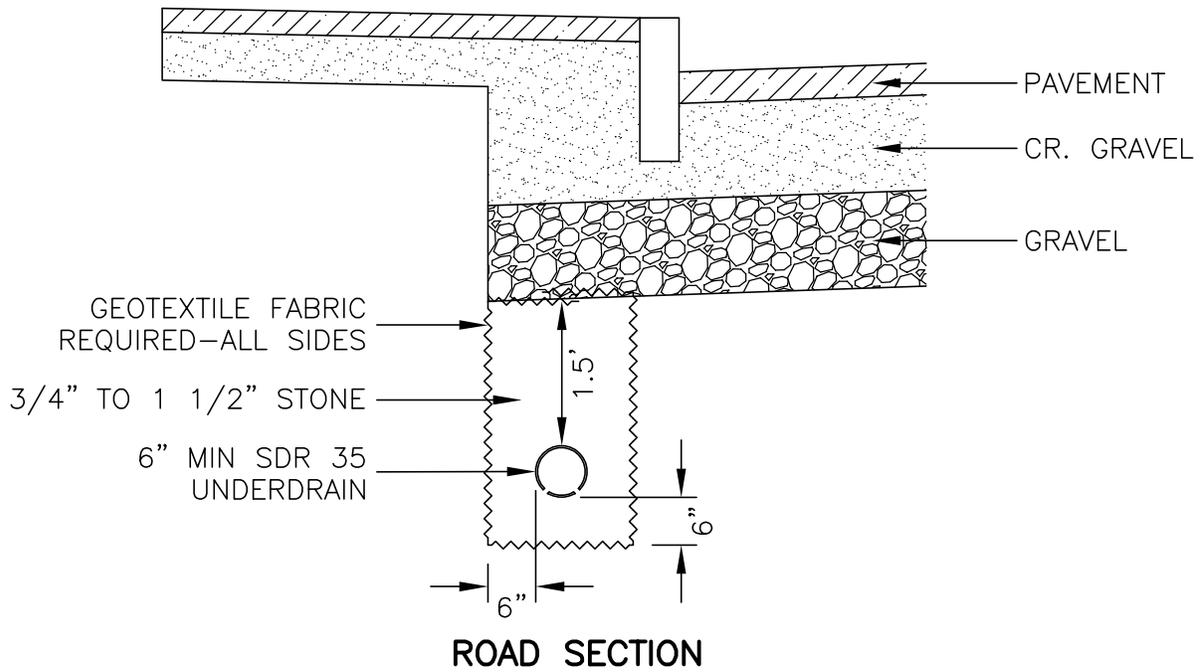
NO.	REVISION	DATE
1	DRAWING NO.	11-11
-	-	-
-	-	-

APPROVED BY:

City of Concord Engineering Services Division

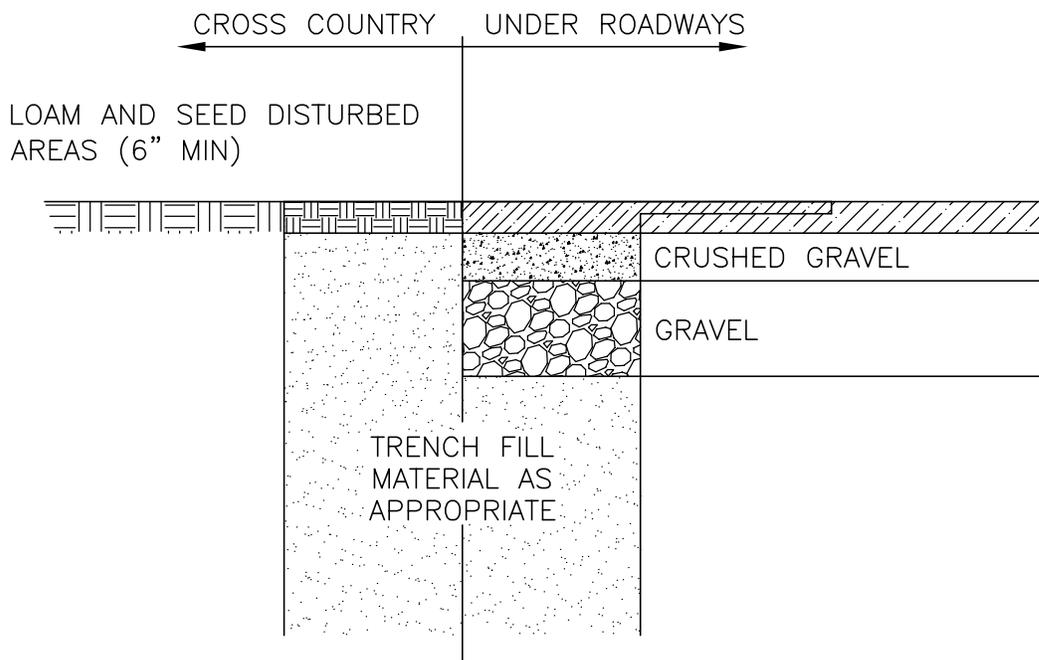
CONCRETE TRENCH PATCH

SECTION: SITE/STREET	
DRAWING NO.	R-13
DATE: 12/08	PAGE: 1



NH DOT CLASS C STONE	
SIEVE SIZE	% PASSING
12 INCH	100
4 INCH	50-90
1-1/2 INCH	0-30
3/4 INCH	0-10

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SITE/STREET		
1	DRAWING NO.	11.11		UNDERDRAIN TRENCH SECTIONS	DRAWING NO.	R-14	
2	ROAD SECTION	4.15	DATE:		12/08	PAGE:	1
-	-	-	APPROVED BY:				



1. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO THE CITY OF CONCORD CONSTRUCTION STANDARDS AND DETAILS.
3. FOR RECONSTRUCTION OF EXISTING PAVED AREAS, PAVEMENT AND SUB-BASE DEPTHS SHALL MATCH THE EXISTING CONDITIONS WITH NEW MATERIALS.
4. THIS DETAIL IS NOT INTENDED TO SHOW THE TRANSITION BETWEEN PAVED AND UNPAVED AT THE EDGE OF ROADWAY.
5. MINIMUM PAVEMENT DEPTHS FOR NEW OR RECONSTRUCTED ROADWAYS SHALL BE AS FOLLOWS:

MINOR STREET

4" (MIN) HOT BITUMINOUS PAVEMENT

1½" WEARING COURSE

2½" BASE COURSE

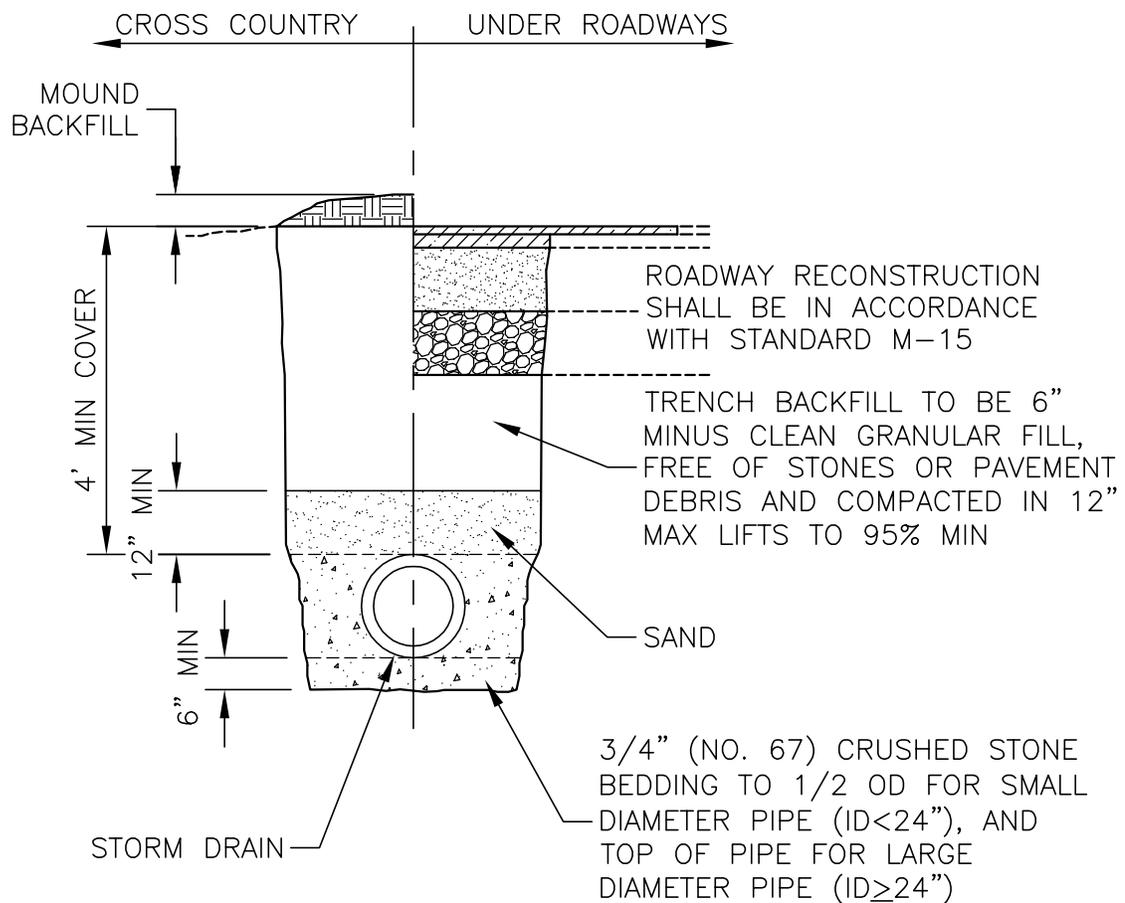
COLLECTOR STREET

5" (MIN) HOT BITUMINOUS PAVEMENT

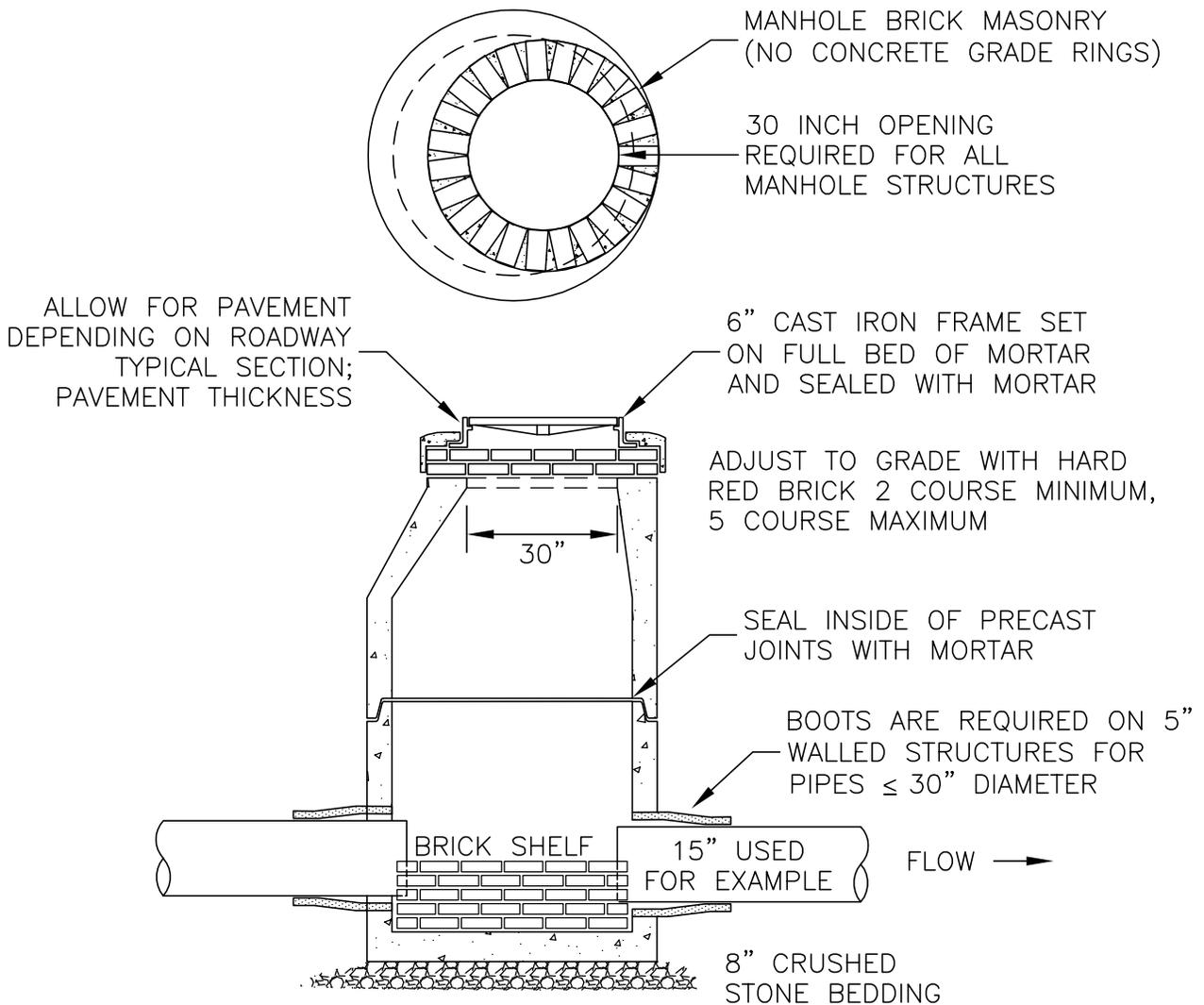
1½" WEARING COURSE

3½" BASE COURSE

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET		
-	-	-	<h1>TRENCH RESTORATION</h1>	DRAWING NO. R-15		
-	-	-		DATE: 12/15 PAGE: 1		
APPROVED BY:						



NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	STORM
-	-	-		DRAWING NO.	SD-1
-	-	-		DATE:	04/15
-	-	-		PAGE:	1
APPROVED BY:			STORM DRAIN TRENCH		



NOTES:

1. CONCRETE: 4,000 PSI AFTER 28 DAYS
2. H-20 LOADING REQUIRED
3. 5" MINIMUM WALL THICKNESS IF REINFORCED, 8" IF UN-REINFORCED
4. SEAL ALL PRECAST JOINTS WITH BITUMASTIC SEAL
5. LIFT HOLES AND BOOT RECESSES ARE TO BE SEALED WITH MORTAR FLUSH TO THE OUTSIDE STRUCTURE WALL PRIOR TO BACKFILLING
6. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES. NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS
7. MANHOLES AND TRAFFIC SIGNAL LOOPS SHALL BE SEPARATED BY A MINIMUM OF 2' TO ALLOW FOR MAINTENANCE OF STRUCTURE

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: STORM DRAIN		
1			DRAFTING			11.11			DRAIN MANHOLE			DRAWING NO. SD-2		
2			ADDED INLET			12.15						DATE: 12/08		
-			-			-						PAGE: 1		
APPROVED BY:														

BRICK MASONRY WITH FLAT
TOOLED JOINTS 3/8" MAX

15" LATERAL

5" WALL
PRECAST MH
4' I.D. (TYP)

18" MAIN, RCP
USED AS EXAMPLE

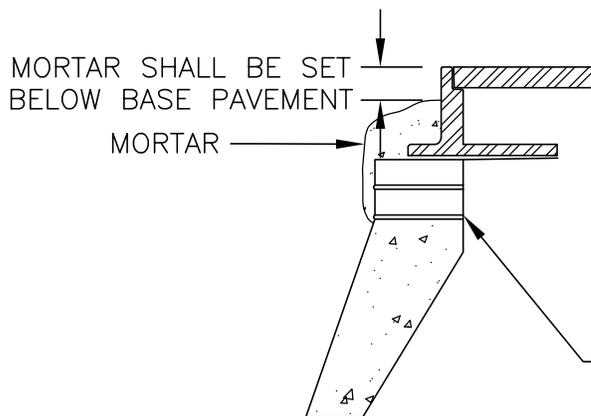
BRICK MASONRY WITH
FLAT TOOLED JOINTS
3/8" MAXIMUM

BRICK MASONRY
UNDER SHELF

NOTES:

1. FOR 12" TO 15", CONSTRUCT INVERT THROUGH LOWER HALF OF PIPE
 12" PIPE - 9 BRICK MINIMUM
 15" PIPE - 11 BRICK MINIMUM
2. FOR MAINS GREATER THAN 15", CONSTRUCT INVERT TO TOP OF PIPE
3. MAINTAIN TROUGH WIDTH THROUGH STRUCTURE
4. TYPICAL BRICK, ASTM DESIGNATION: C321-93

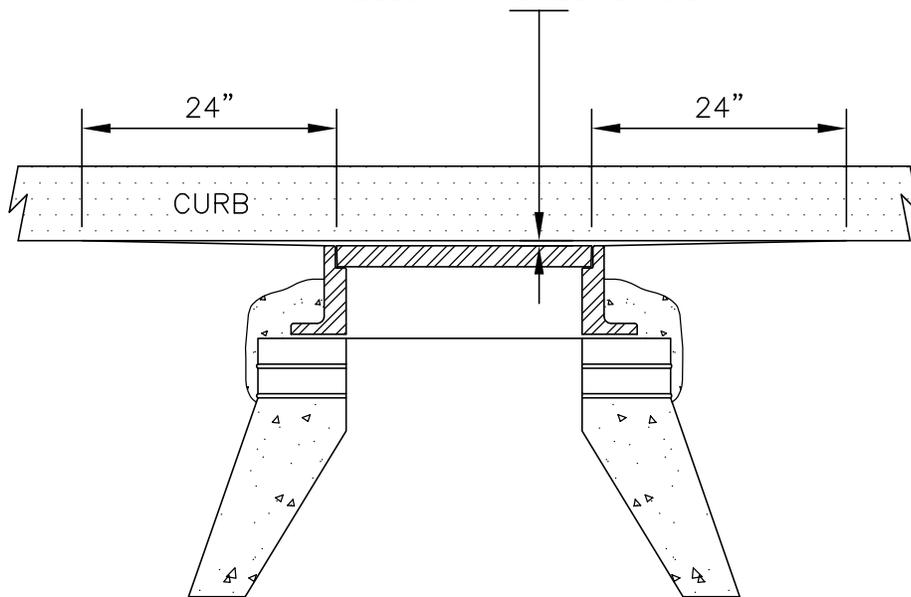
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	STORM	
-	-	-		STORM DRAIN BRICK SHELF CONSTRUCTION	DRAWING NO.	SD-3
-	-	-			DATE:	03/15
-	-	-			PAGE:	1
APPROVED BY:						



- 8" FRAME AND GRATE FOR CB
- 6" FRAME AND COVER FOR MH

ONLY SOLID BRICK MASONRY ALLOWED. TWO TO FIVE COURSE MAXIMUM. TOP MOST COURSE MAY BE SET ON EDGE. CONCRETE COLLARS AND BARREL BLOCKS ARE NOT TO BE USED TO ADJUST FRAMES TO GRADE.

CATCH BASINS TO BE $\frac{1}{2}$ " MAX BELOW FINISHED GRADE.
 MANHOLES TO BE $\frac{1}{8}$ " MAX BELOW FINISHED GRADE.



REINFORCED CONCRETE DROP INLET TOP WITH VERTICAL CURB

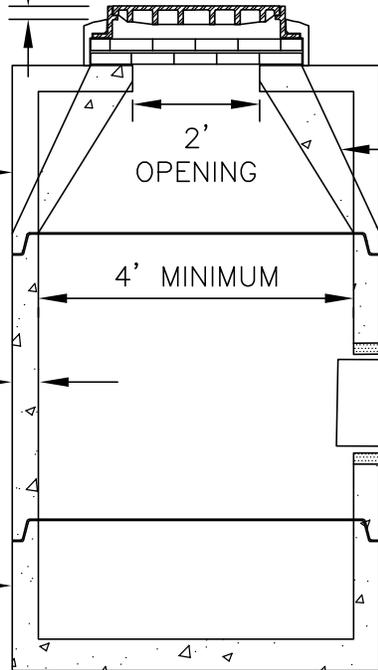
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SEWER/STORM		
1	DRAFTING	4.15		ADJUSTING FRAMES TO GRADE		
-	-	-				DRAWING NO. SD-4
-	-	-				DATE: 12/08 PAGE: 1
APPROVED BY:						

8" CAST IRON FRAME SET ON FULL BED OF MORTAR AND SEALED WITH MORTAR. MORTAR SHALL BE KEPT BELOW THE BASE COURSE OF PAVEMENT

FLAT SLAB TOP REQUIRED WHEN THE DEPTH FROM THE TOP OF THE PIPE TO THE GRATE IS <48"

5" IF REINFORCED
8" IF UN-REINFORCED

CATCH BASIN: 3' SUMP
DROP INLET: 6" SUMP



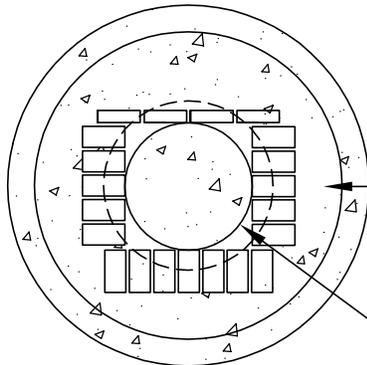
ADJUST TO GRADE WITH HARD RED BRICK 2 COURSE MINIMUM, 5 COURSE MAXIMUM

H-20 LOADING REQUIRED

BOOTS ARE REQUIRED ON 5" WALLED STRUCTURES FOR PIPES ≤30" DIAMETER

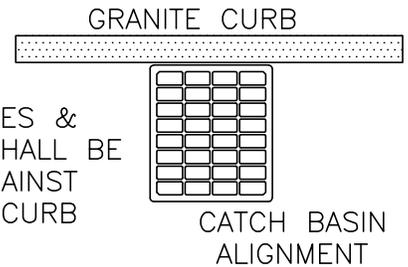
SEAL ALL PRECAST JOINTS WITH MORTAR

8" CRUSHED STONE BEDDING



CONE OR FLAT TOP SLAB SECTION ON CATCH BASIN

2' DIAMETER OPENING



ALL FRAMES & GRATES SHALL BE FLUSH AGAINST FACE OF CURB

CATCH BASIN ALIGNMENT

NOTES:

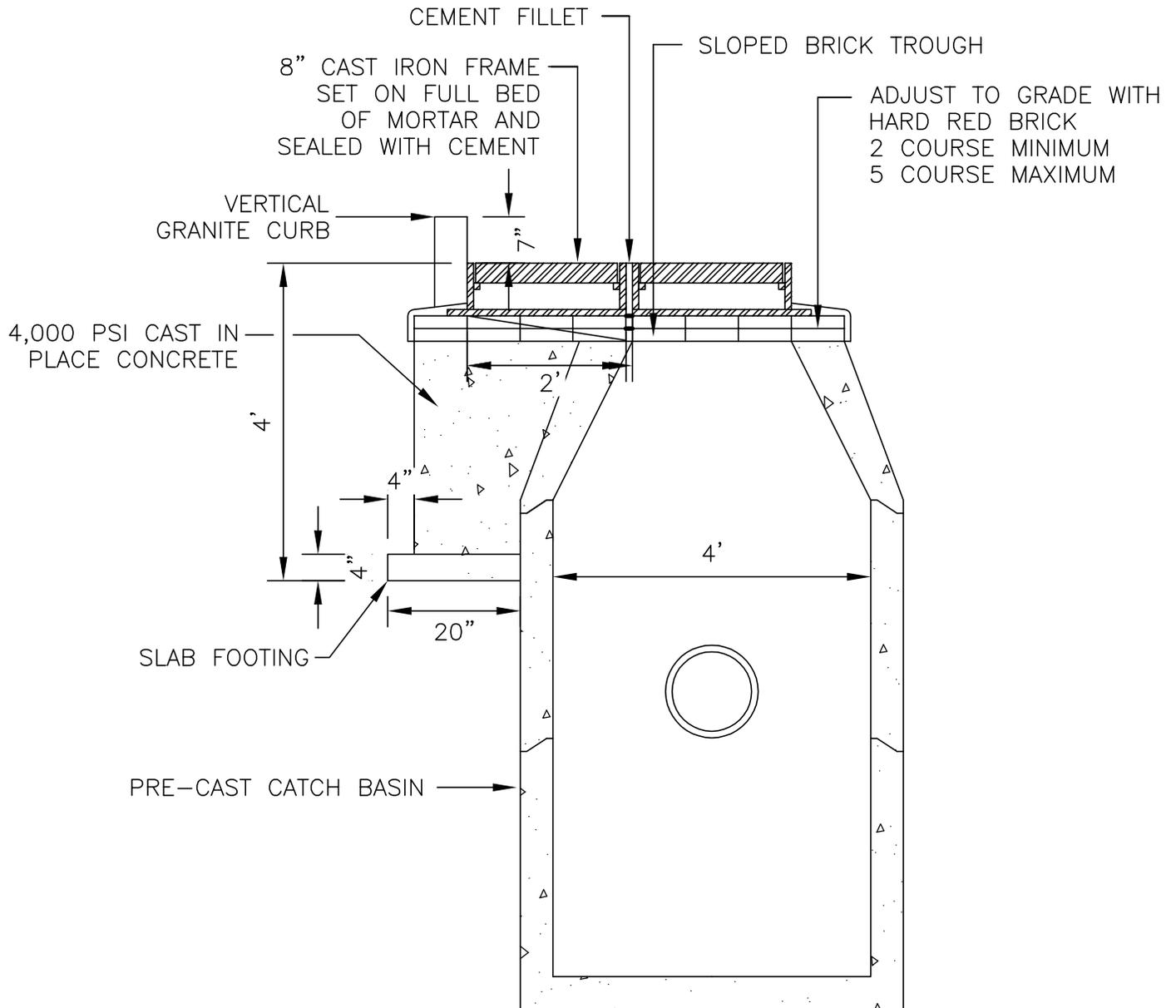
1. CONCRETE SHALL BE 4,000 PSI AFTER 28 DAYS.
2. SEAL ALL PRECAST JOINTS WITH BITUMASTIC SEAL.
3. LIFT HOLES AND BOOT RECESSES ARE TO BE SEALED WITH MORTAR FLUSH TO THE OUTSIDE STRUCTURE WALL PRIOR TO BACKFILLING.
4. MINIMUM DEPTH FROM RIM TO INVERT OF THE HIGHEST PIPE SHALL BE:
12"ø=3.7', 15"ø=3.9', 18"ø=4.2', 24"ø=4.8', 30"ø=5.3', 36"ø=5.8'
5. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES. NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.
6. MANHOLES AND TRAFFIC SIGNAL LOOPS SHALL BE SEPARATED BY A MINIMUM OF 2' TO ALLOW FOR MAINTENANCE OF STRUCTURE.
7. THREE FLANGED FRAMES SHALL BE USED FOR INSTALLATIONS ADJACENT TO VERTICAL GRANITE CURB.
8. NHDOT TYPE "F" GRATE REQUIRED FOR ROADWAYS HAVING SLOPES EQUAL TO OR GREATER THAN 3%. TYPE "F" SHALL BE BICYCLE SAFE.
9. BRICK WORK SHALL BE RECTANGULAR AND CONFORM TO THE DIMENSIONS OF THE GRATE BEING USED. TYPE "B" GRATES SHALL BE ALIGNED WITH THE 22" DIMENSION AGAINST THE CURB.

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: STORM DRAIN		
1			DRAFTING			11-11			CATCH BASIN / DROP INLET			DRAWING NO. SD-5		
-			-			-						DATE: 12/08		
-			-			-						PAGE: 1		
APPROVED BY:														

PIPE SIZE	MINIMUM SLOPE VALUES (FT/FT)*	
	SANITARY APPLICATIONS	STORM DRAINS
8"	0.0060	N/A
10"	0.0028	N/A
12"	0.0022	0.0030
15"	0.0015	0.0023
18"	0.0012	0.0018
21"	0.0010	N/A
24"	0.0008	0.0012
27"	0.0007	N/A
30"	0.0006	0.0009
36"	0.0005	0.0007

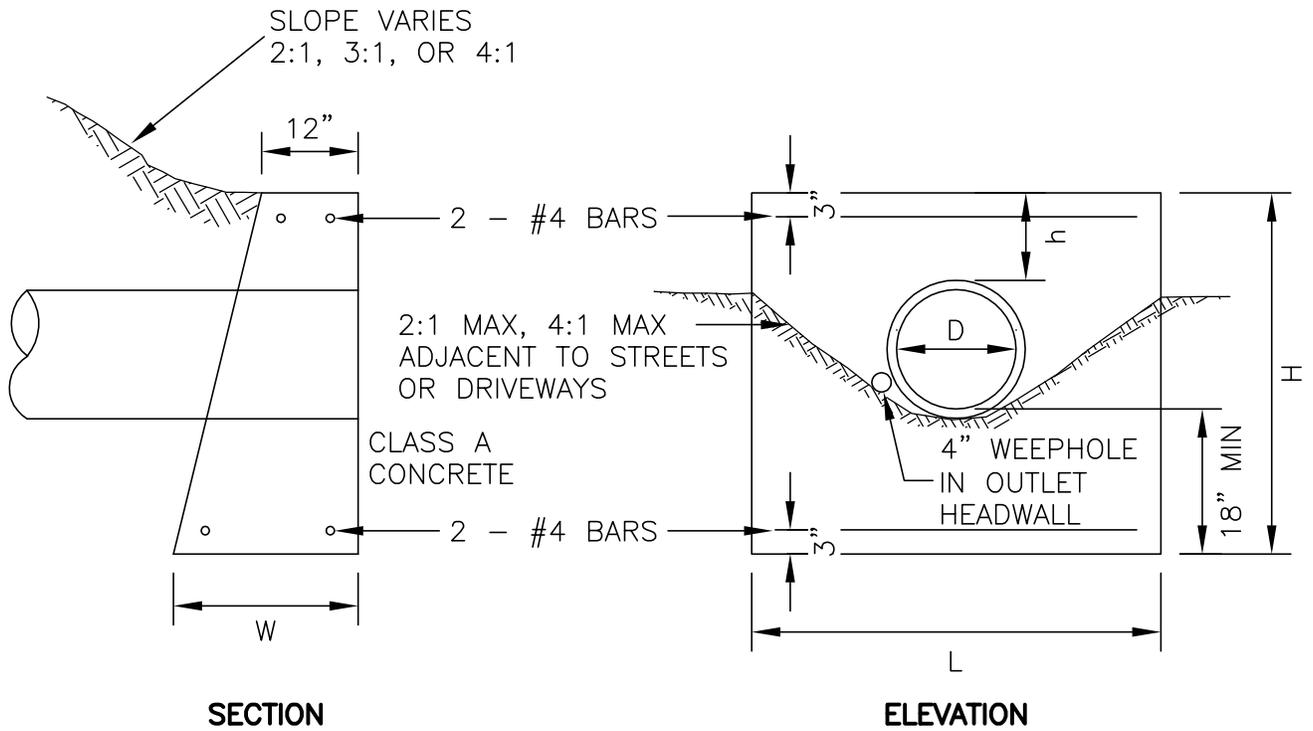
* THESE VALUES ARE BASED ON MINIMUM VELOCITIES OF 2 FEET PER SECOND ON SANITARY SEWERS AND 2.5 FEET PER SECOND FOR STORM DRAINS WHILE FLOWING FULL. THIS VALUE SET BY THE CITY ENGINEER.

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SEWER/STORM		
1	REMOVE 10"	11-11		HYDRAULIC FLOW CHART	DRAWING NO.	SD-6
-	-	-			DATE: 12/08	PAGE: 1
-	-	-				
APPROVED BY:						



NOTE: DETAIL TO BE USED WHEN TYING INTO EXISTING STORM DRAIN SYSTEM OR MATCHING TO EXISTING CURB. DETAIL SHOULD NOT BE USED FOR NEW CONSTRUCTION

NO.	REVISION	DATE	City of Concord Engineering Services Division		SECTION:	
-	-	-	DOUBLE FRAME AND GRATE CATCH BASIN		STORM DRAIN	
-	-	-			DRAWING NO.	SD-7
-	-	-			DATE:	12/08
APPROVED BY:						

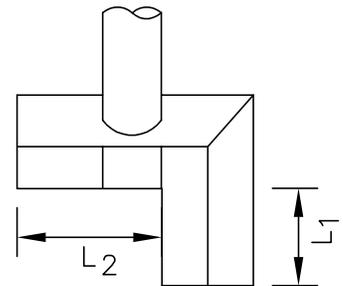


DIAMETER D INCHES	MASONRY PER STD HDR (CY)	STEEL PER STD HDR (LB)	LENGTH OF BARS	L	H	W	h
12	0.80	11	3'-9"	4'-2"	3'-9"	1'-11"	1'-3"
15	1.32	15	5'-7"	5'-11"	4'-3"	2'	1'-6"
18	1.66	15	5'-7"	6'-11"	4'-6"	2'-1"	1'-6"
24	2.41	24	8'-6"	8'-10"	5'-0"	2'-3"	1'-6"
30	3.32	29	10'-6"	10'-10"	5'-6"	2'-4"	1'-6"
36	4.43	35	12'-6"	12'-10"	6'-0"	2'-6"	1'-6"
42	6.28	42	14'-11"	15'-6"	6'-9"	2'-8"	1'-9"
48	7.77	46	16'-11"	17'-6"	7'-3"	2'-9"	1'-9"
54	9.46	53	18'-10"	19'-5"	7'-9"	2'-11"	1'-9"
60	11.42	57	20'-10"	21'-5"	8'-3"	3'	1'-9"
66	13.68	64	22'-10"	23'-5"	8'-9"	3'-2"	1'-9"
72	15.79	68	24'-10"	25'-4"	9'-3"	3'-3"	1'-9"

$$L_1 + L_2 = L$$

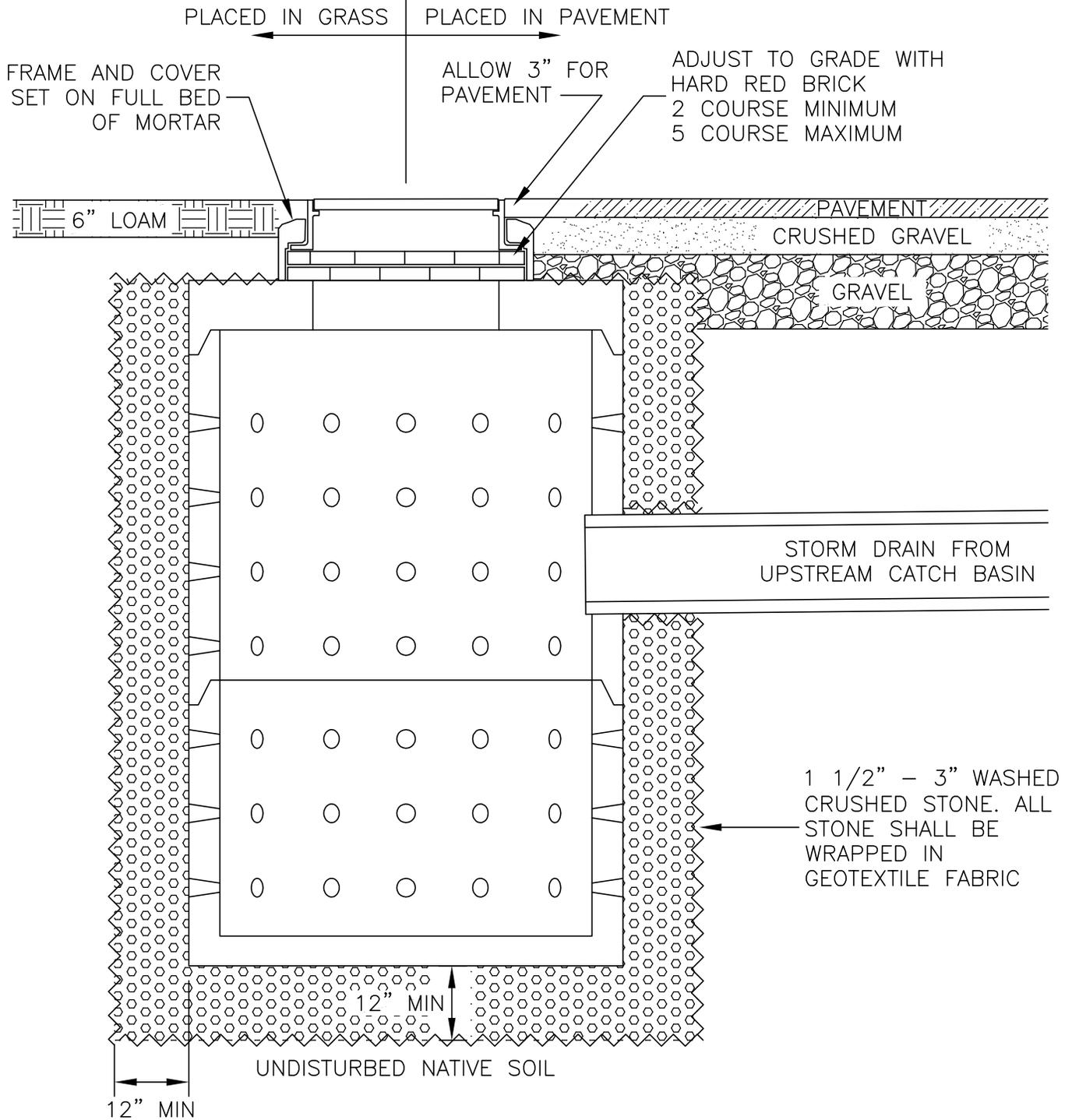
$$L_1 = \frac{L-D}{2}$$

$$L_2 = \frac{L+D}{2}$$



ALTERNATE "L" HEADWALL

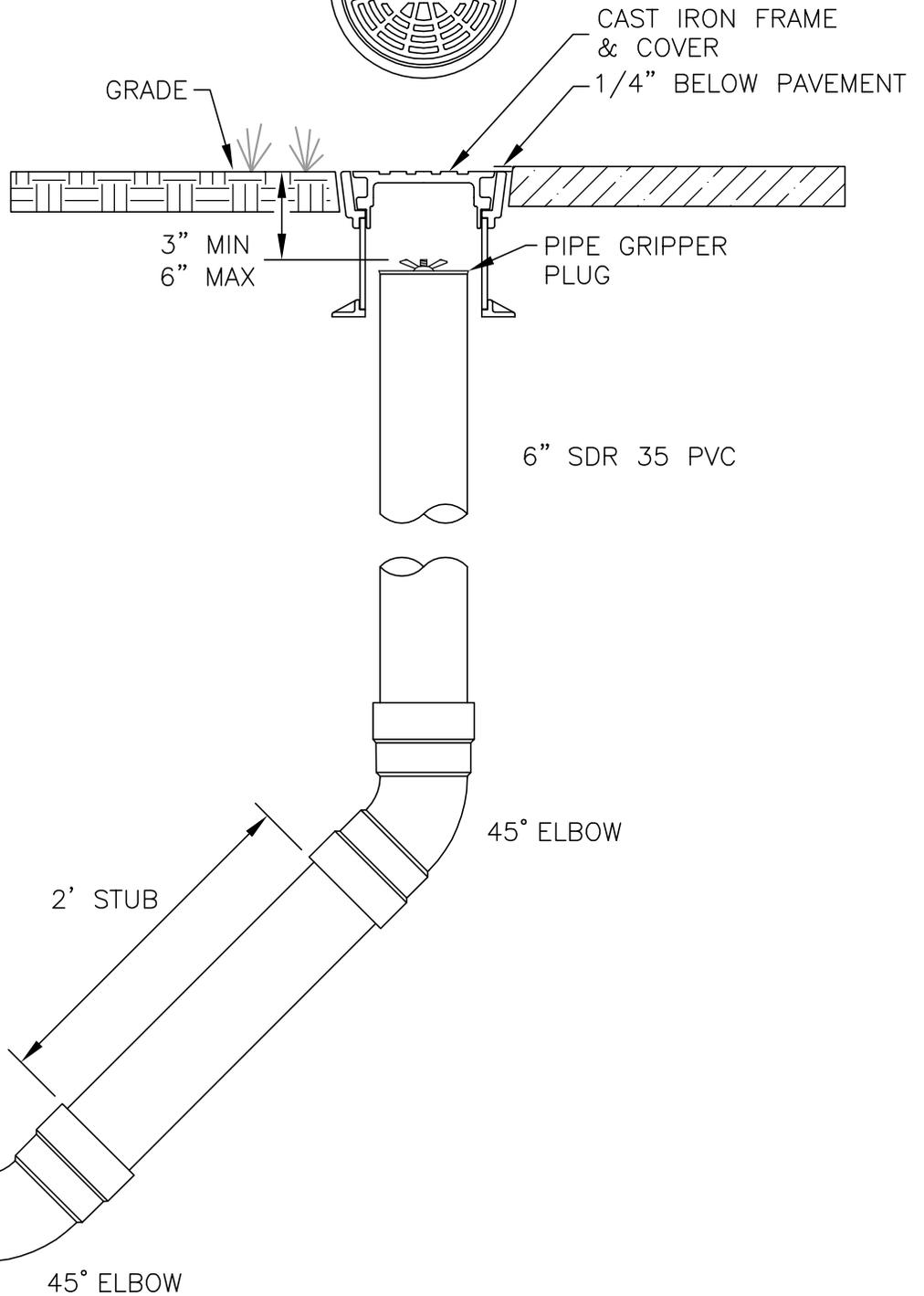
NO.	REVISION	DATE	City of Concord Engineering Services Division		SECTION: STORM DRAIN	
-	-	-	STANDARD HEADWALL		DRAWING NO. SD-8	
-	-	-			DATE: 12/08	PAGE: 1
APPROVED BY:						



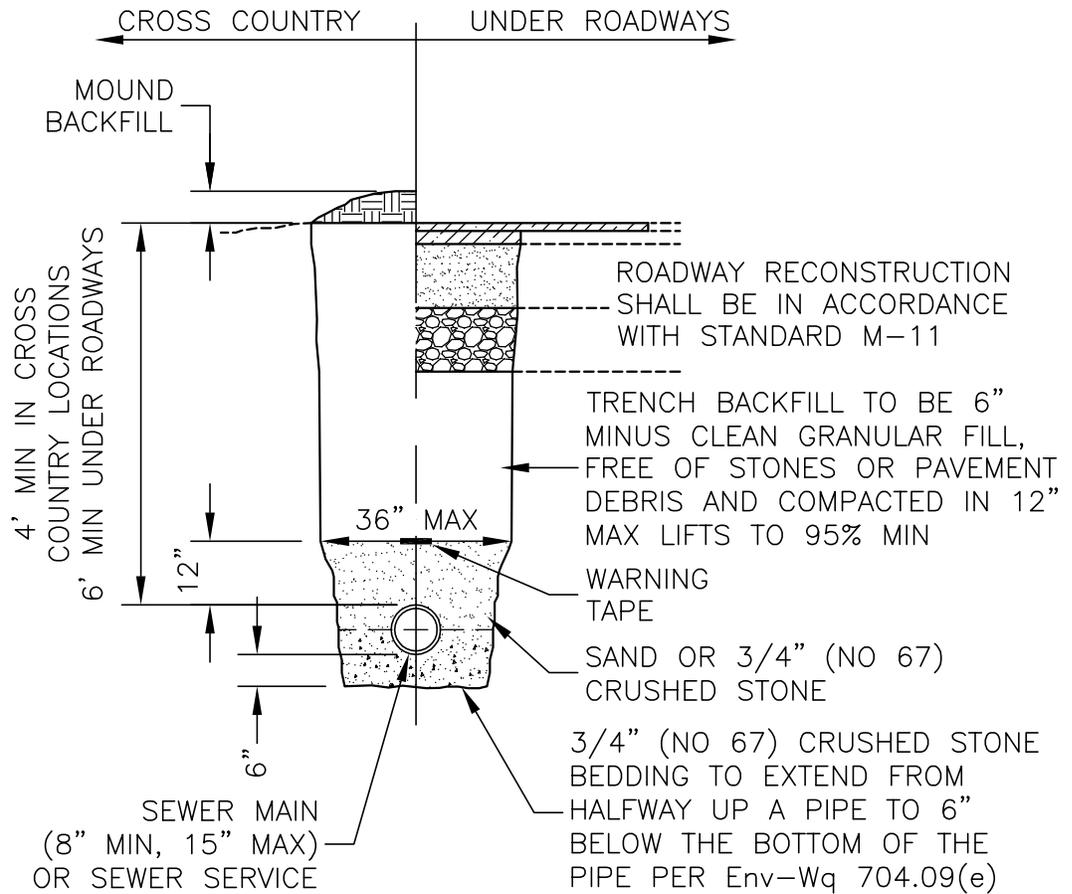
NOTES:

1. DRY WELLS SHALL BE PAIRED WITH AN UPSTREAM CATCH BASIN WITH 3' SUMP AND OIL/SEDIMENT CONTROL BARRIER TO ADDRESS THE CITY'S PRETREATMENT REQUIREMENTS
2. CONCRETE: 4,000 PSI AFTER 28 DAYS
3. ALL PRECAST COMPONENTS SHALL BE DESIGNED FOR H-20 LOADING
4. DEPTHS AND WIDTHS OF STRUCTURE AND CRUSHED STONE VARIES PER STORMWATER CALCULATIONS

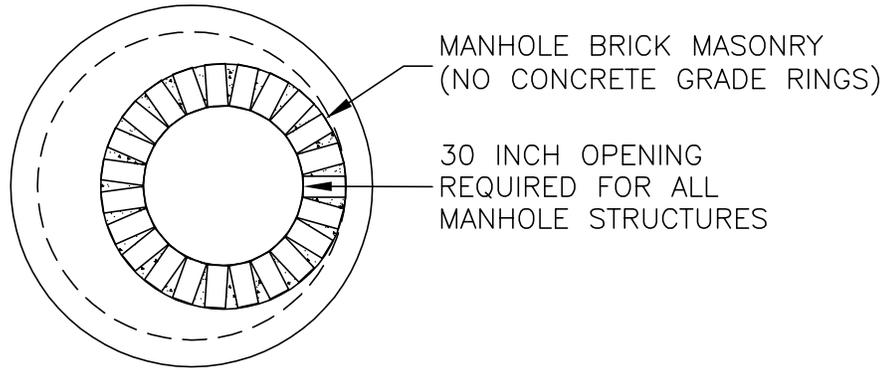
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: STORM DRAIN		
-	-	-		DRYWELL	DRAWING NO.	SD-9
-	-	-			DATE: 3/15	PAGE: 1
-	-	-				
APPROVED BY:						



NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: STORM DRAIN		
-	-	-		UNDERDRAIN CLEANOUT	DRAWING NO.	SD-10
-	-	-			DATE: 01/12	PAGE: 1
APPROVED BY:						



NO.	REVISION	DATE	City of Concord Engineering Services Division SANITARY SEWER MAIN/SERVICE TRENCH	SECTION: SEWER		
-	-	-		DRAWING NO. SM-1		
-	-	-		DATE: 08/13	PAGE: 1	
APPROVED BY:						



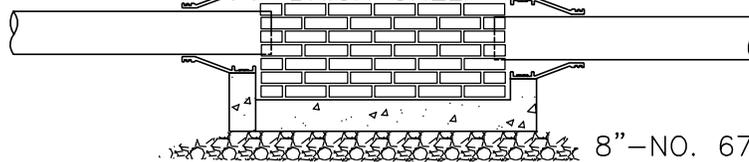
6" CAST IRON FRAME SET ON FULL BED
OF MORTAR AND SEALED WITH MORTAR.
MORTAR SHOULD BE KEPT BELOW THE
BASE COURSE OF PAVEMENT

ADJUST TO GRADE WITH HARD
RED BRICK 2 COURSE MINIMUM,
5 COURSE MAXIMUM

HORIZONTAL JOINTS BETWEEN
PRECAST SECTIONS SHALL BE
OVERLAPPING TYPE, SEALED FOR
WATERTIGHTNESS USING A
DOUBLE ROW OF AN
ELASTOMERIC OR MASTIC-LIKE
SEALANT PER Env-Wq 704.10(f)

BOOT REQUIRED ON 5"
WALLED STRUCTURES

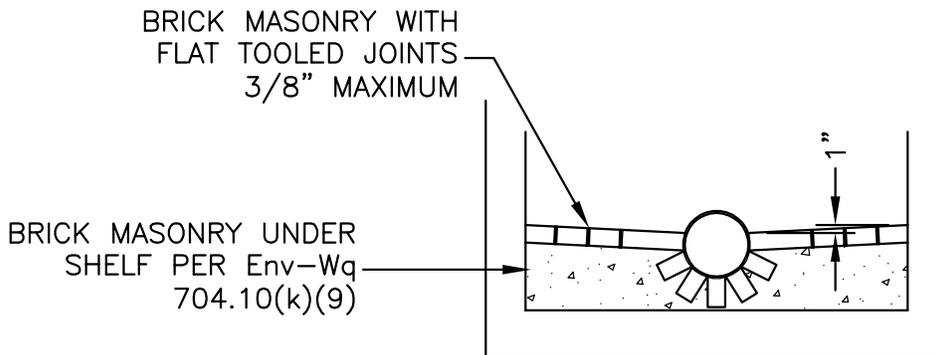
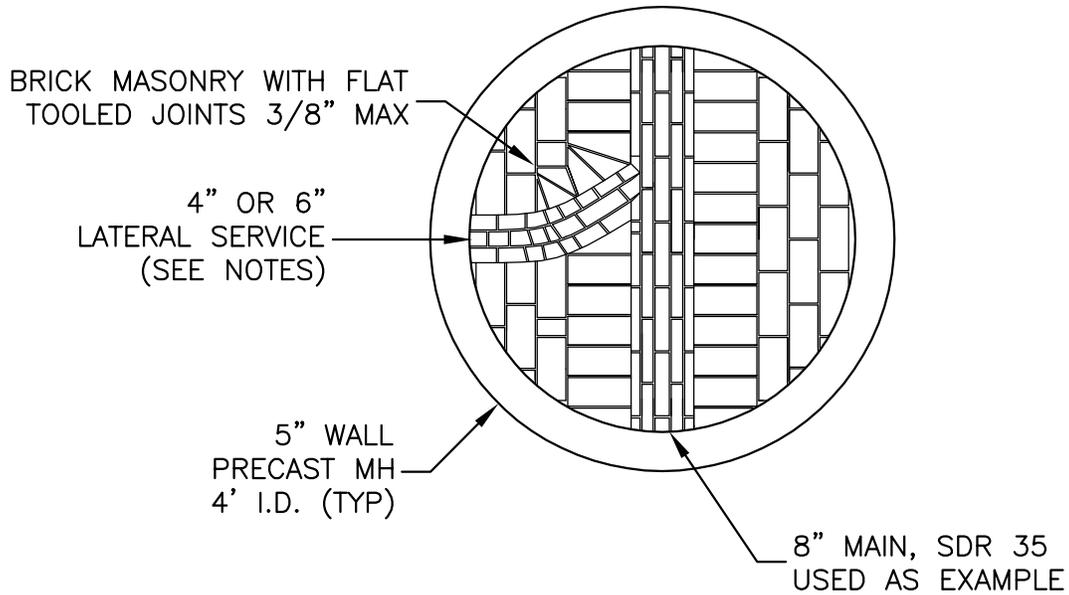
FLOW →



NOTES:

1. CONCRETE: 4,000 PSI AFTER 28 DAYS
2. H-20 LOADING REQUIRED
3. 5" THICK REINFORCED CONCRETE WALLS PER Env-Wq 704.10(d)
4. ON INSIDE OF STRUCTURE, PRE-CAST JOINTS AND LADDER RUNG HOLES TO BE SEALED WITH PORTLAND CEMENT
5. LIFT HOLES ARE TO BE SEALED WITH MORTAR FLUSH TO THE OUTSIDE STRUCTURE WALL PRIOR TO BACKFILLING
6. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES. NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS
7. MANHOLES AND TRAFFIC SIGNAL LOOPS SHALL BE SEPARATED BY A MINIMUM OF 2' TO ALLOW FOR MAINTENANCE OF STRUCTURE

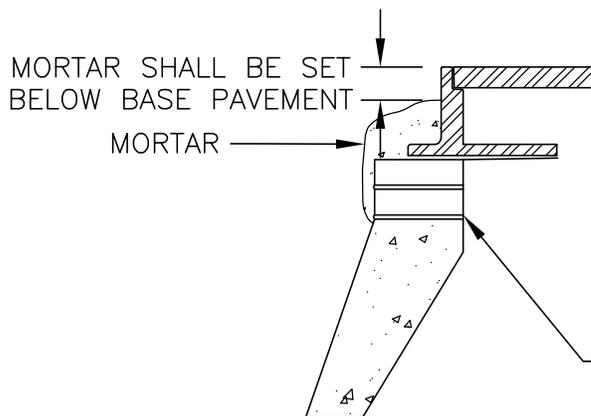
NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SEWER		
1			DRAFTING			11.11			SEWER MANHOLE			DRAWING NO. SM-2		
-			-			-						DATE: 12/08		PAGE: 1
-			-			-								
APPROVED BY:														



NOTES:

1. FOR MAINS 8" TO 15", CONSTRUCT INVERT THROUGH THE LOWER HALF OF THE PIPE (MINIMUM)
 - 8" PIPE – 7 BRICK MINIMUM (JUST ABOVE THE MIDPOINT)
 - 10" PIPE – 7 BRICK MINIMUM
 - 12" PIPE – 9 BRICK MINIMUM
 - 15" PIPE – 11 BRICK MINIMUM
2. FOR MAINS GREATER THAN 15", CONSTRUCT BRICK INVERT TO TOP OF PIPE
3. MAINTAIN TROUGH WIDTH THROUGH STRUCTURE
4. TYPICAL BRICK, ASTM DESIGNATION: C321-93
5. SERVICE CONNECTIONS SHOULD BE PER THE "SEWER SERVICE CONNECTION/ INSIDE DROP MANHOLE" DETAIL. WHERE GRADES PROHIBIT SUCH A CONNECTION THE CONNECTION SHOULD BE AS SHOWN WITH THE SERVICE INVERT 2" ABOVE THE INVERT OF THE MAIN WHERE IT ENTERS THE MANHOLE.

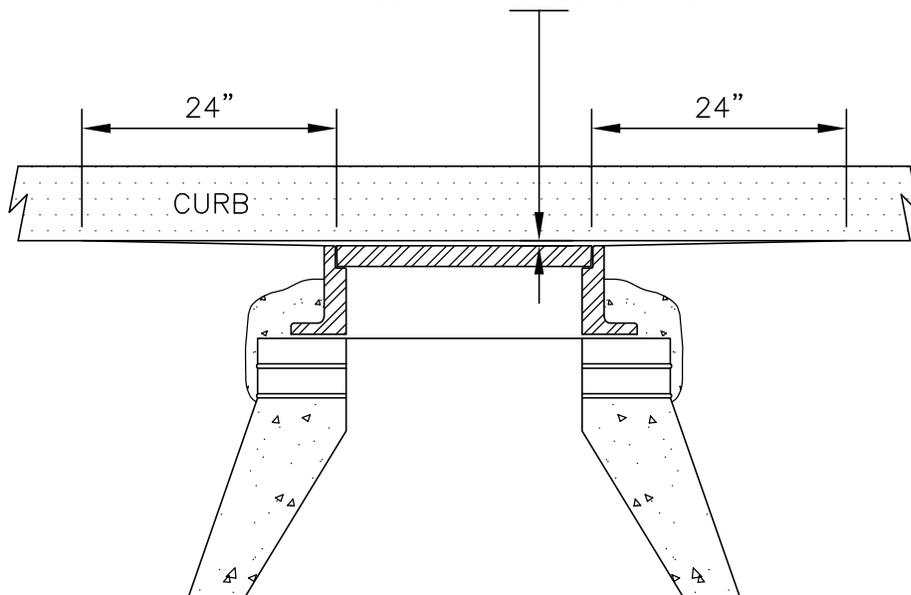
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SEWER		
-	-	-		SANITARY BRICK SHELF CONSTRUCTION	DRAWING NO. SM-3	
-	-	-			DATE: 03/15	PAGE: 1
-	-	-				
APPROVED BY:						



- 8" FRAME AND GRATE FOR CB
- 6" FRAME AND COVER FOR MH

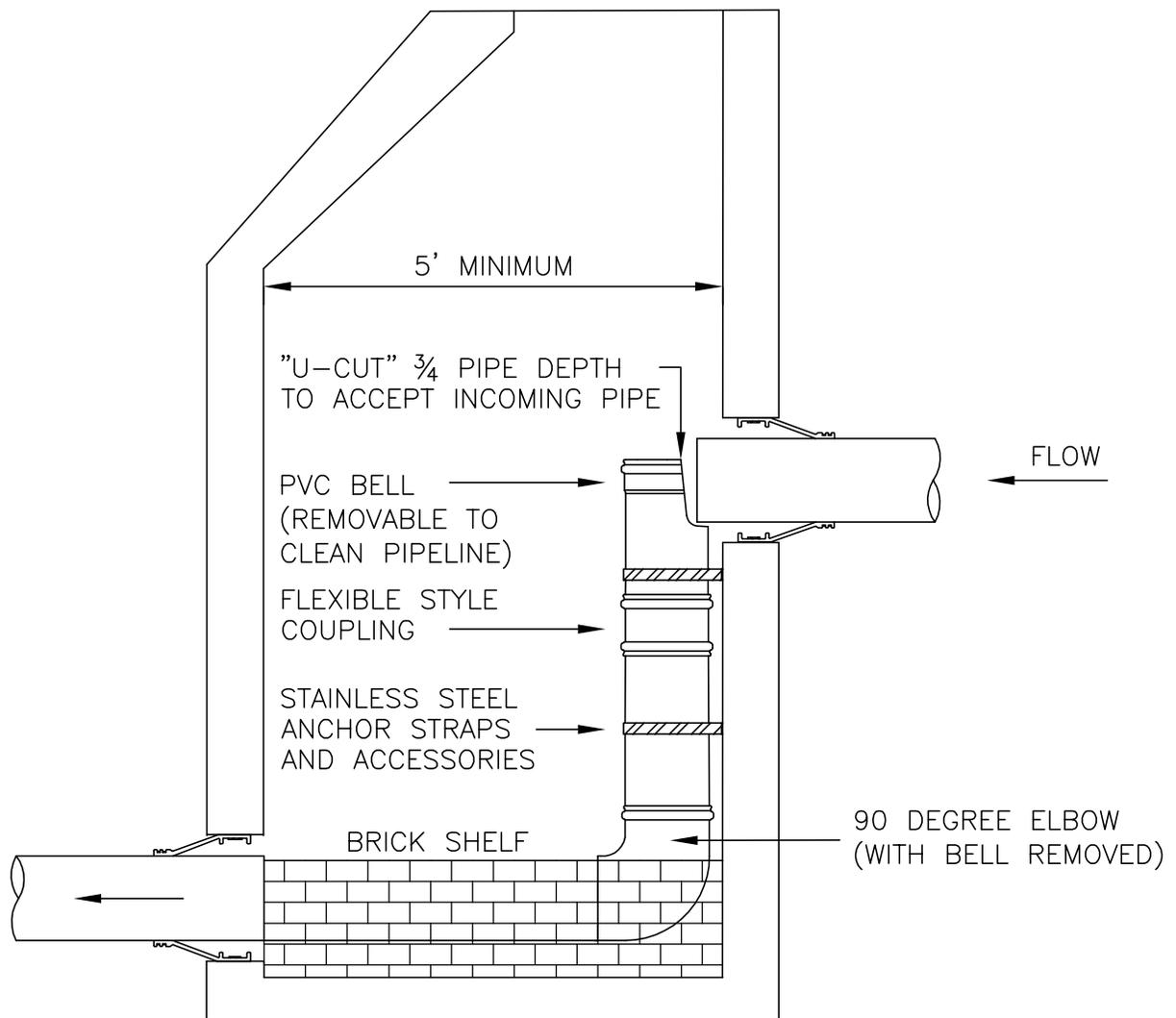
ONLY SOLID BRICK MASONRY ALLOWED. TWO TO FIVE COURSE MAXIMUM. TOP MOST COURSE MAY BE SET ON EDGE. CONCRETE COLLARS AND BARREL BLOCKS ARE NOT TO BE USED TO ADJUST FRAMES TO GRADE.

CATCH BASINS TO BE $\frac{1}{2}$ " MAX BELOW FINISHED GRADE.
 MANHOLES TO BE $\frac{1}{8}$ " MAX BELOW FINISHED GRADE.



REINFORCED CONCRETE DROP INLET TOP WITH VERTICAL CURB

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SEWER/STORM		
1			DRAFTING			4.15			ADJUSTING FRAMES TO GRADE			DRAWING NO. SM-4		PAGE: 1
-			-			-						DATE: 12/08		PAGE: 1
APPROVED BY:														



NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE TO THE CITY OF CONCORD STANDARDS FOR SANITARY MANHOLE CONSTRUCTION
2. INSIDE DROP MANHOLES SHALL HAVE A MINIMUM 5' INSIDE DIAMETER
3. ANCHOR STRAPS (MINIMUM OF 2) AND BOLTS TO BE 304 OR 316 STAINLESS STEEL AND NOT MORE THAN 3' ON CENTER. SECURE AS DIRECTED: STRAPS - 1" WIDE, BOLTS - 3/8" X 2 1/2" LONG

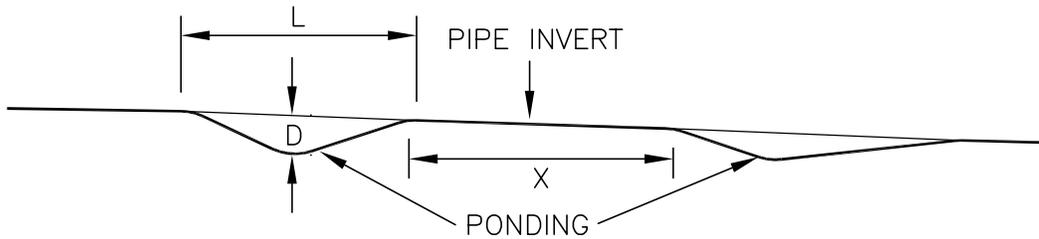
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SEWER		
-	-	-		SEWER MAIN INSIDE DROP MANHOLE	DRAWING NO.	SM-5	
-	-	-			DATE:	12/08	PAGE: 1
-	-	-			APPROVED BY:		

PIPE SIZE	MINIMUM SLOPE VALUES (FT/FT)*	
	SANITARY APPLICATIONS	STORM DRAINS
8"	0.0060	N/A
10"	0.0028	N/A
12"	0.0022	0.0030
15"	0.0015	0.0023
18"	0.0012	0.0018
21"	0.0010	N/A
24"	0.0008	0.0012
27"	0.0007	N/A
30"	0.0006	0.0009
36"	0.0005	0.0007

* THESE VALUES ARE BASED ON MINIMUM VELOCITIES OF 2 FEET PER SECOND ON SANITARY SEWERS AND 2.5 FEET PER SECOND FOR STORM DRAINS WHILE FLOWING FULL. THIS VALUE SET BY THE CITY ENGINEER.

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SEWER/STORM		
1	REMOVE 10"	11-11		HYDRAULIC FLOW CHART	DRAWING NO.	SM-6
-	-	-			DATE: 12/08	PAGE: 1
-	-	-				
APPROVED BY:						

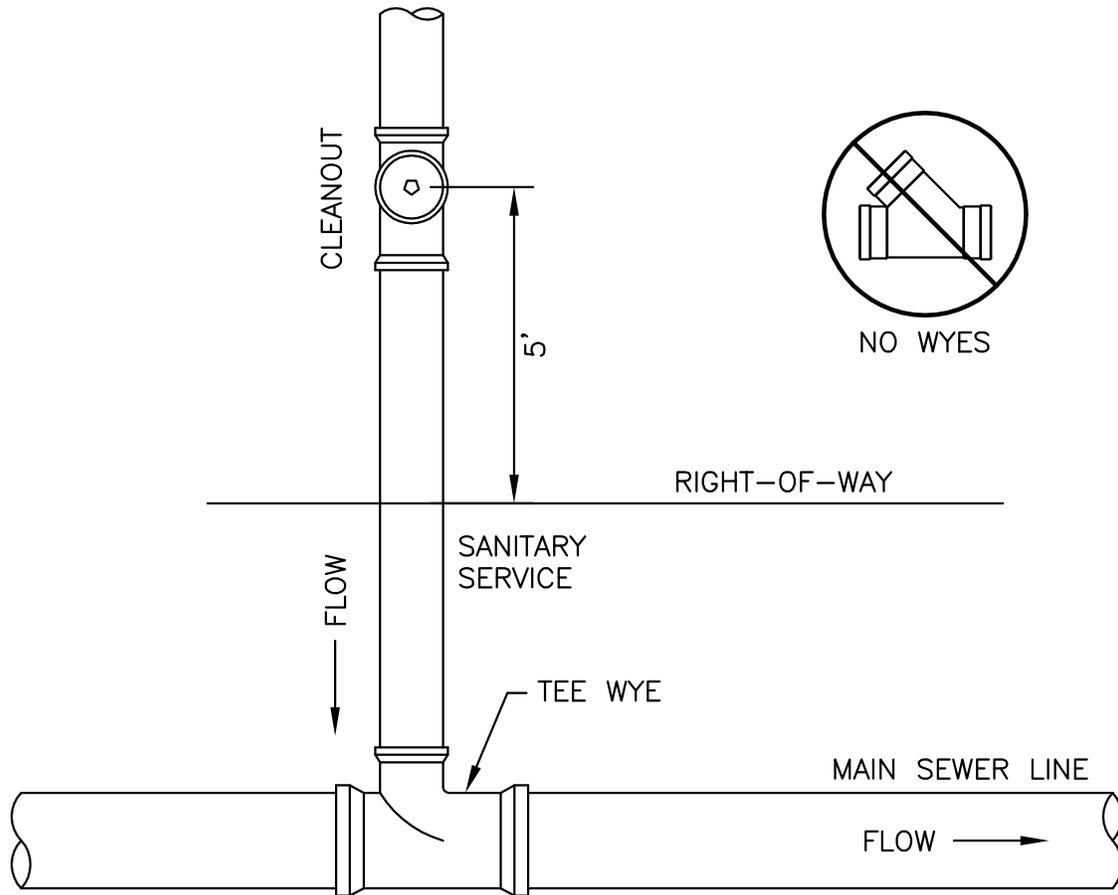
PIPE DIAMETER	MAXIMUM ALLOWABLE DEPTH (D) OF SAG	MAXIMUM ALLOWABLE LENGTH (L) OF SAG	MINIMUM ALLOWABLE DISTANCE (X) BETWEEN SAGS
4"	NONE	NONE	NONE
6"	NONE	NONE	NONE
8"	1/2"	4 FT	40 FT
10"	1/2"	6 FT	60 FT
12" & LARGER	1/2"	8 FT	80 FT



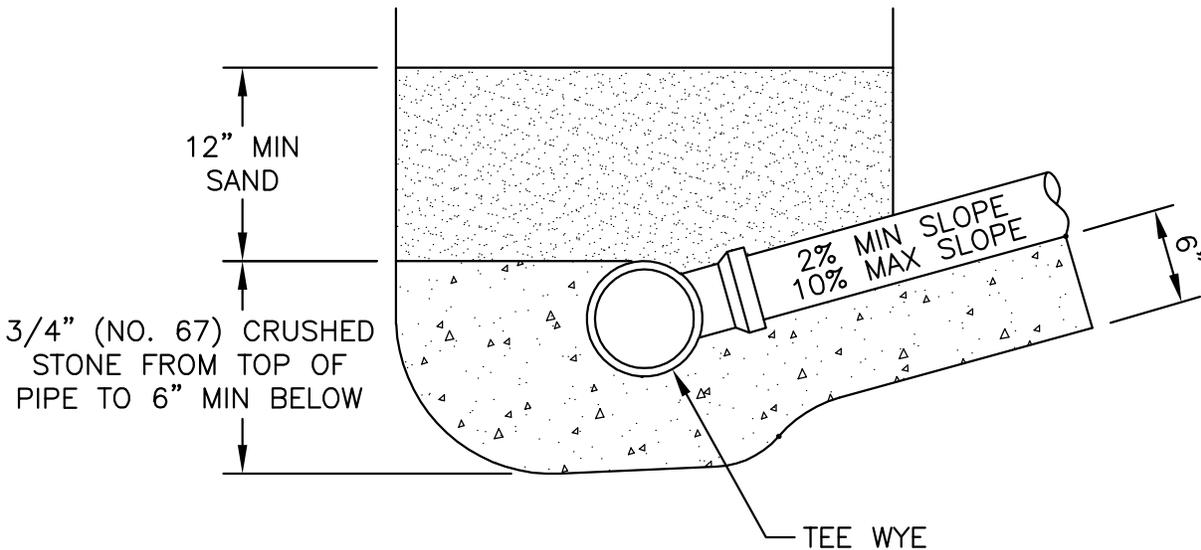
NOTES:

1. 4" AND 6" LINES ARE TYPICALLY USED FOR SERVICE CONNECTIONS AND ARE LAID AT A MINIMUM OF 2% AND 1% RESPECTIVELY TO ELIMINATE SAGS.
2. DUCTILE IRON PIPE IS RECOMMENDED FOR SLOPES LESS THAN 0.6%

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SEWER	
1	REV. NOTE #1	11.11		LIMIT OF SAGS IN PVC SANITARY SEWER PIPE	DRAWING NO.	SM-7
-	-	-			DATE:	12/08
-	-	-			PAGE:	1
APPROVED BY:						



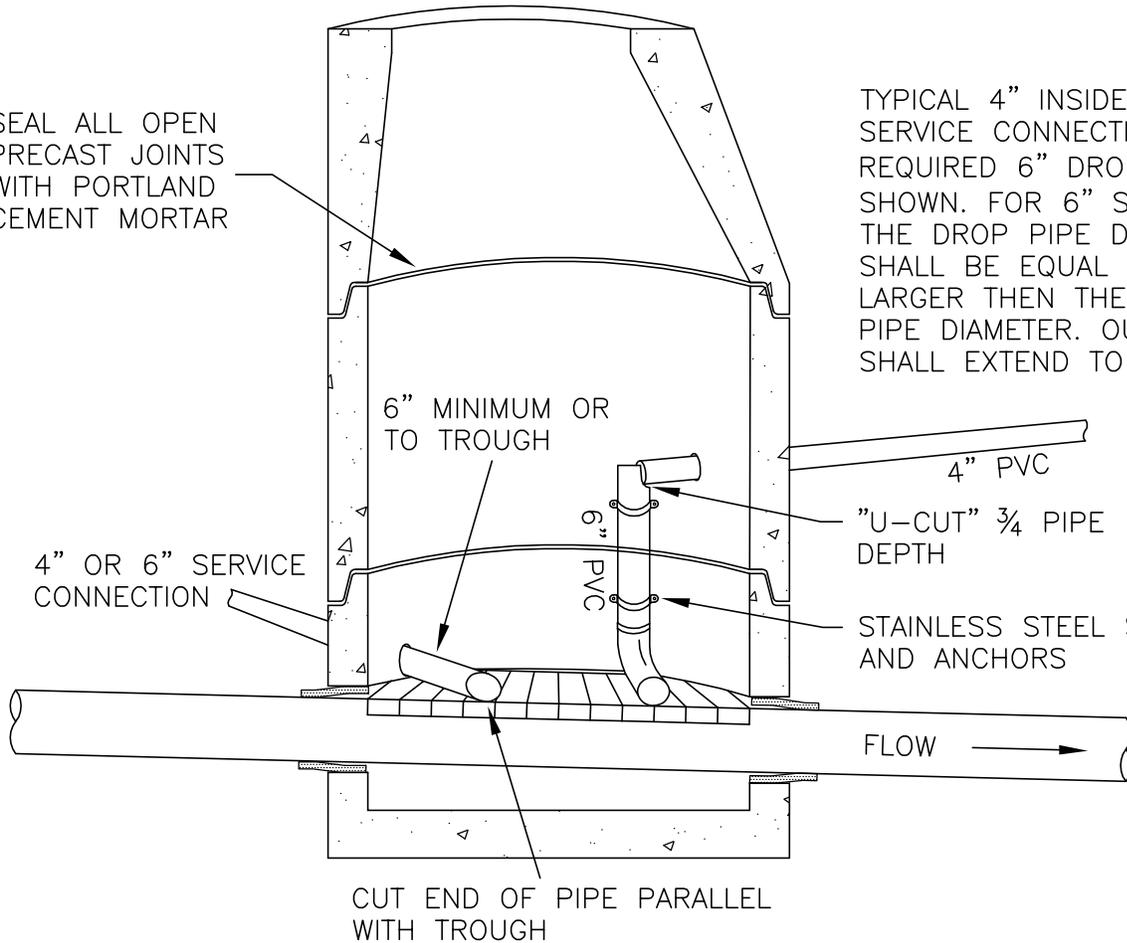
PLAN



SECTION

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SEWER
-	-	-		DRAWING NO.	SS-1
-	-	-		DATE:	12/08
-	-	-		PAGE:	1
APPROVED BY:			SEWER SERVICE CONNECTION AT MAIN		

SEAL ALL OPEN
PRECAST JOINTS
WITH PORTLAND
CEMENT MORTAR



TYPICAL 4" INSIDE DROP
SERVICE CONNECTION WITH
REQUIRED 6" DROP PIPING
SHOWN. FOR 6" SERVICES,
THE DROP PIPE DIAMETER
SHALL BE EQUAL TO OR
LARGER THEN THE SERVICE
PIPE DIAMETER. OUTLET PIPE
SHALL EXTEND TO TROUGH

6" MINIMUM OR
TO TROUGH

4" OR 6" SERVICE
CONNECTION

4" PVC

"U-CUT" 3/4 PIPE
DEPTH

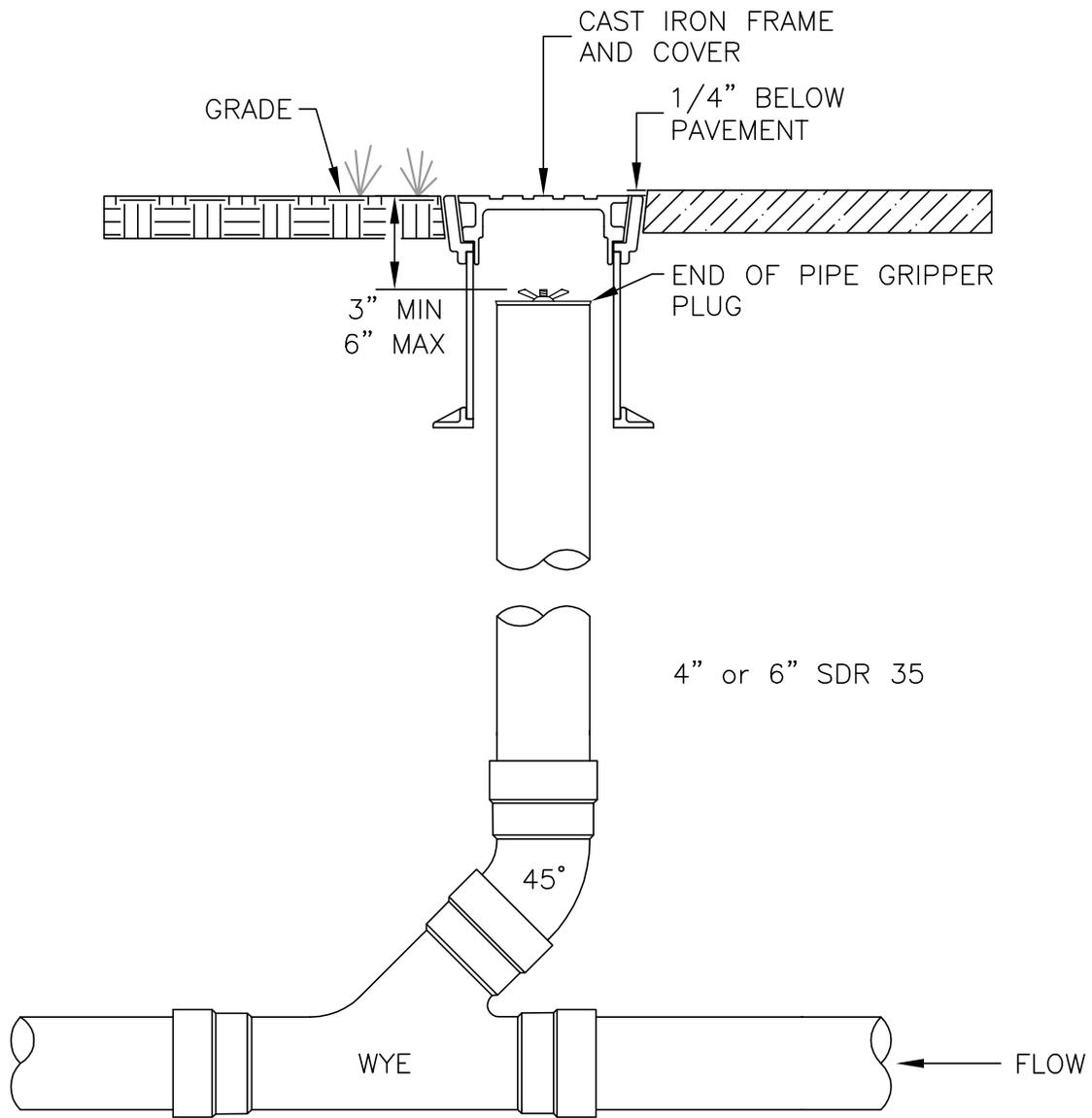
STAINLESS STEEL STRAPS
AND ANCHORS

FLOW →

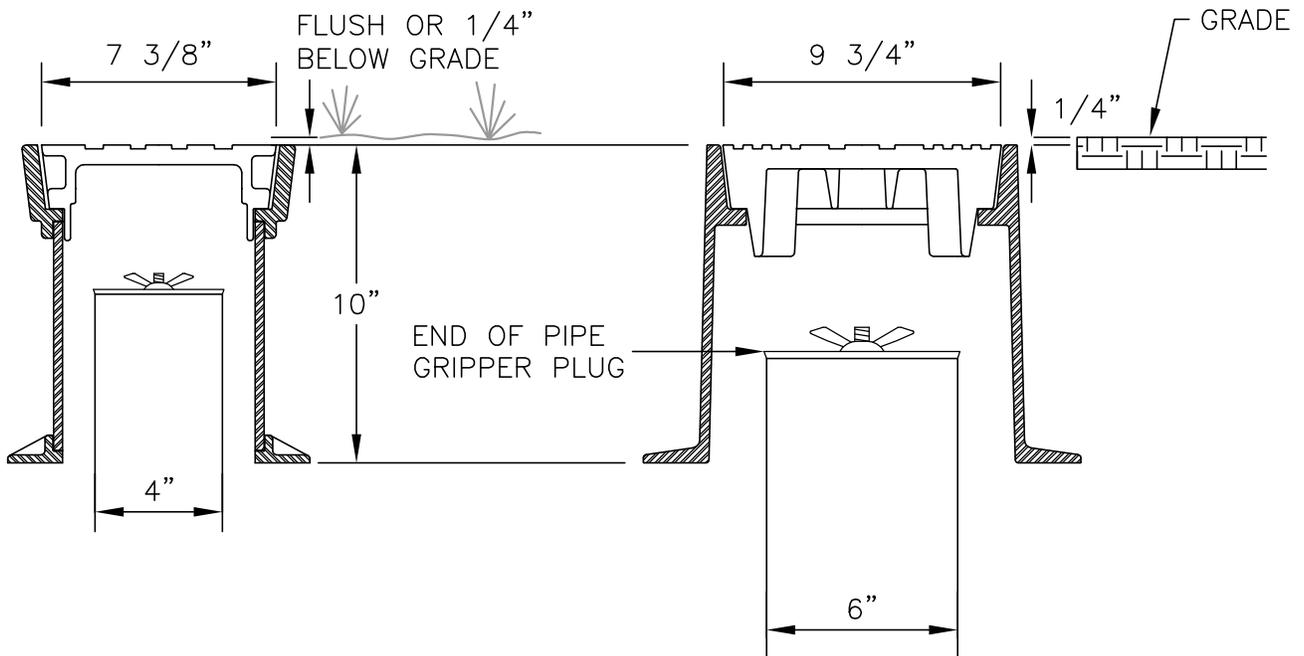
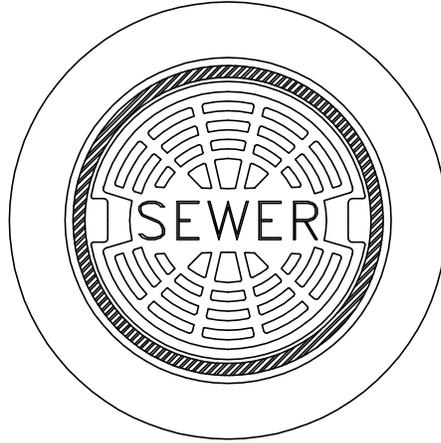
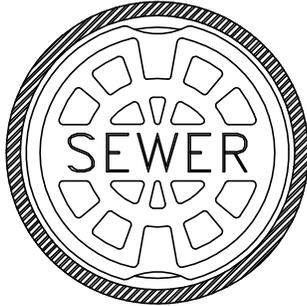
CUT END OF PIPE PARALLEL
WITH TROUGH

SHOULD THE SERVICE CONNECTION ENTER A STRUCTURE MORE THAN 24"
ABOVE THE INVERT A DROP CONNECTION WILL BE NECESSARY

NO.	REVISION	DATE	City of Concord Engineering Services Division SEWER SERVICE CONNECTION / INSIDE DROP MANHOLE	SECTION:	SEWER
1	REVISED NOTE	11.11		DRAWING NO.	SS-2
-	-	-		DATE:	12/08
-	-	-		PAGE:	1
APPROVED BY:					

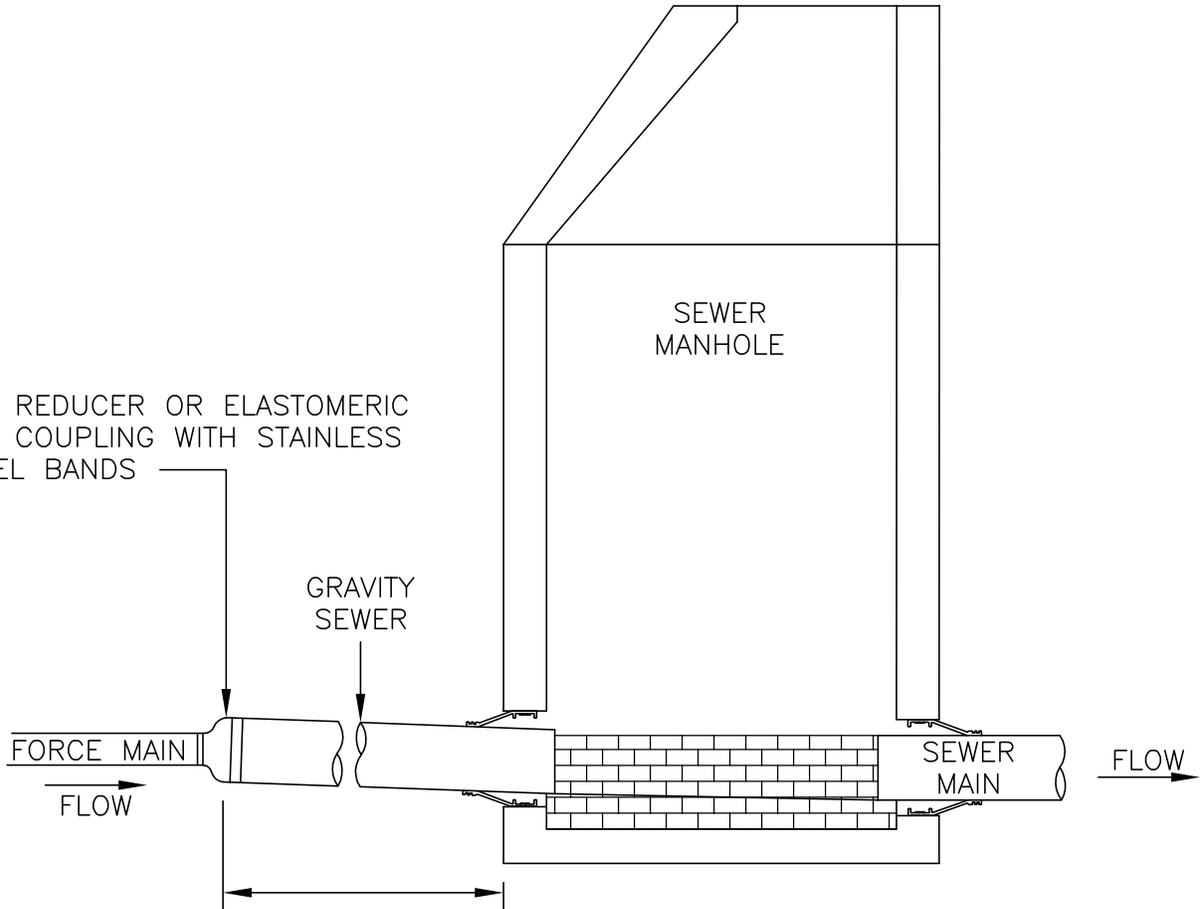


NO.	REVISION	DATE	City of Concord Engineering Services Division CLEANOUTS ON SERVICE LATERALS	SECTION: SEWER	
-	-	-		DRAWING NO. SS-3	
-	-	-		DATE: 12/08	PAGE: 1
APPROVED BY:					



NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: SEWER	
-			-			-			CLEANOUT COVERS 4" OR 6"			DRAWING NO. SS-4	
-			-			-						DATE: 12/08	
-			-			-						PAGE: 1	
APPROVED BY:													

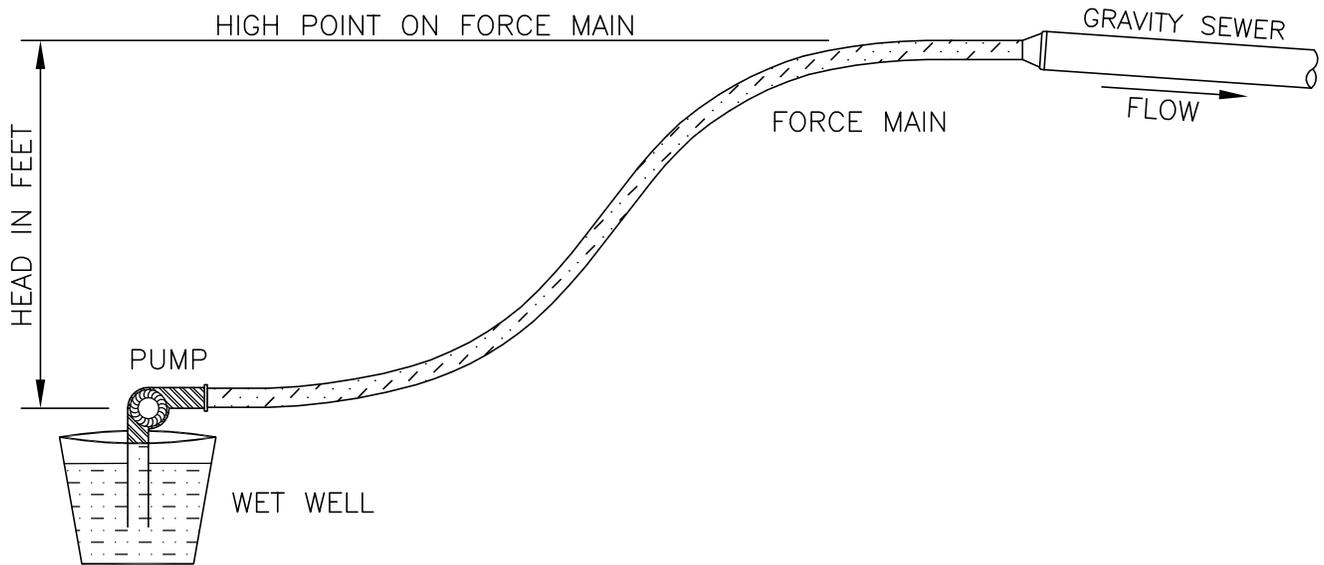
PVC REDUCER OR ELASTOMERIC
PVC COUPLING WITH STAINLESS
STEEL BANDS



TRANSITION FROM FORCE MAIN TO GRAVITY SEWER
SHOULD OCCUR A MINIMUM OF 10' FROM A MANHOLE
FOR SEWER MAINS AND AT THE RIGHT-OF-WAY LINE FOR
SEWER SERVICES.

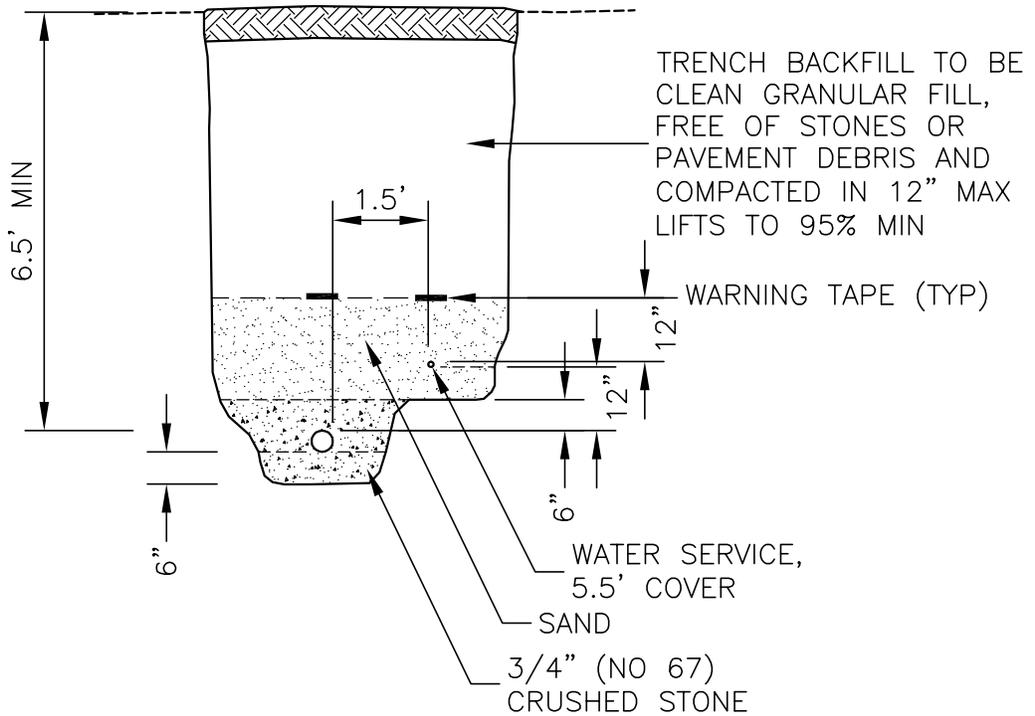
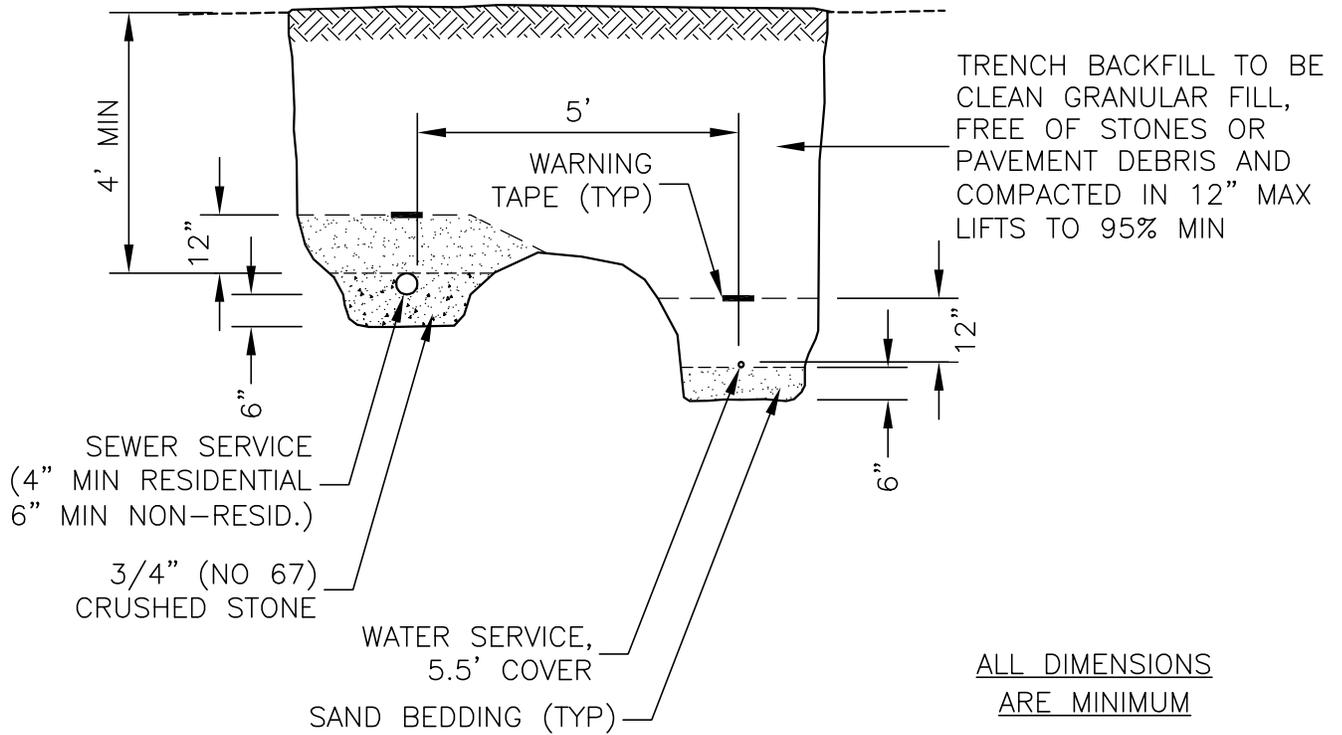
FOR BRICK SHELF CONSTRUCTION REFER TO SANITARY
BRICK SHELF CONSTRUCTION DETAIL.

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SEWER
-	-	-		DRAWING NO.	SS-5
-	-	-		DATE:	12/08
-	-	-		PAGE:	1
APPROVED BY:			FORCE MAIN CONNECTION		



PRESSURE TEST REQUIREMENTS (IN ACCORDANCE WITH NHDES CODE OF ADMINISTRATIVE RULES ENV-WQ 704.09)

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SEWER		
1	REVISED NOTE	11.11		FORCE MAIN TESTING REQUIREMENTS	DRAWING NO.	SS-6	
-	-	-			DATE:	12/08	PAGE: 1
-	-	-			APPROVED BY:		



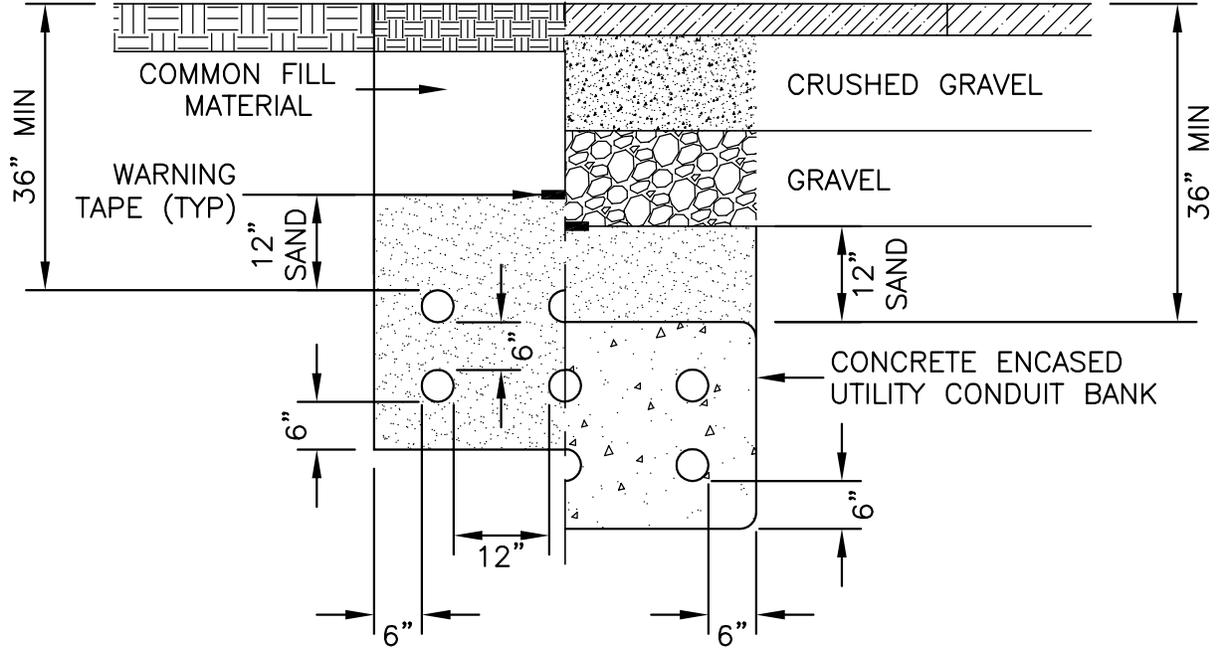
NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SEWR-WATR	
-	-	-		DRAWING NO. SS-7	
-	-	-		DATE: 03/15	PAGE: 1
APPROVED BY:			WATER AND SEWER SERVICE TRENCH		

CROSS COUNTRY | PAVED

LOAM AND SEED
DISTURBED AREAS
(MINIMUM 6")

NEW ROADWAY CONSTRUCTION SHALL
CONFORM TO THE CITY OF CONCORD
CONSTRUCTION STANDARDS AND DETAILS

FOR RECONSTRUCTION OF EXISTING PAVED
AREAS, PAVEMENT AND SUB-BASE DEPTHS
SHALL EQUAL THE EXISTING MATERIAL
DEPTHS



UNDERGROUND CONDUIT INSTALLATIONS SHALL BE COORDINATED WITH ALL LOCAL UTILITIES INCLUDING ELECTRIC, TELEPHONE, GAS, CABLE, STEAM, AND CITY OF CONCORD FIRE ALARM/SIGNAL AND ENGINEERING SERVICES DIVISIONS.

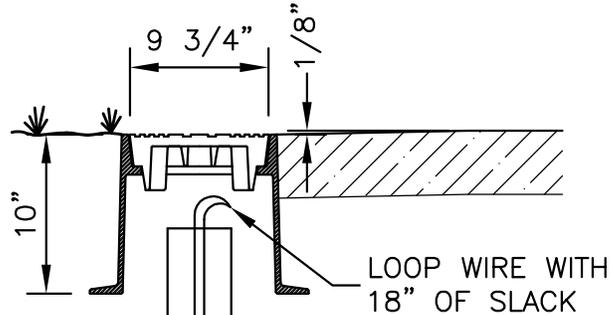
CONDUIT CROSSINGS SHALL BE SWEEPS AT RIGHT ANGLES TO THE STREET. 90° BENDS ARE NOT ACCEPTABLE

PROPOSED CONDUITS WITHIN PAVED SECTIONS OF STREETS SHALL BE RIGID METAL OR SCH 80 PVC CONDUIT. WHEN THE PROPER DEPTH CANNOT BE ACHIEVED, SCH 40 PVC CONDUIT ENCASED IN CONCRETE SHALL BE USED.

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION: SITE/STREET			
-	-	-		TYPICAL UTILITY CONDUIT INSTALLATION	DRAWING NO.	U-1	
-	-	-			DATE:	03/15	PAGE: 1
-	-	-			APPROVED BY:		

LOCATOR BOX:

1. LOCATOR BOX AND COVER SHALL BE CAST IRON
2. LOCATOR BOX SHALL BE SET OVER THE FORCE MAIN
3. LOCATOR BOXES SHALL BE SET AT 500' INTERVALS AND AT BENDS.
4. PROVIDE 18" WIRE LOOP INSIDE THE LOCATOR BOX
5. LOCATOR BOXES SHALL BE SET AT GRADE IN CROSS COUNTRY LOCATIONS AND 1/8" BELOW PAVEMENT, TAPERED OVER 2'

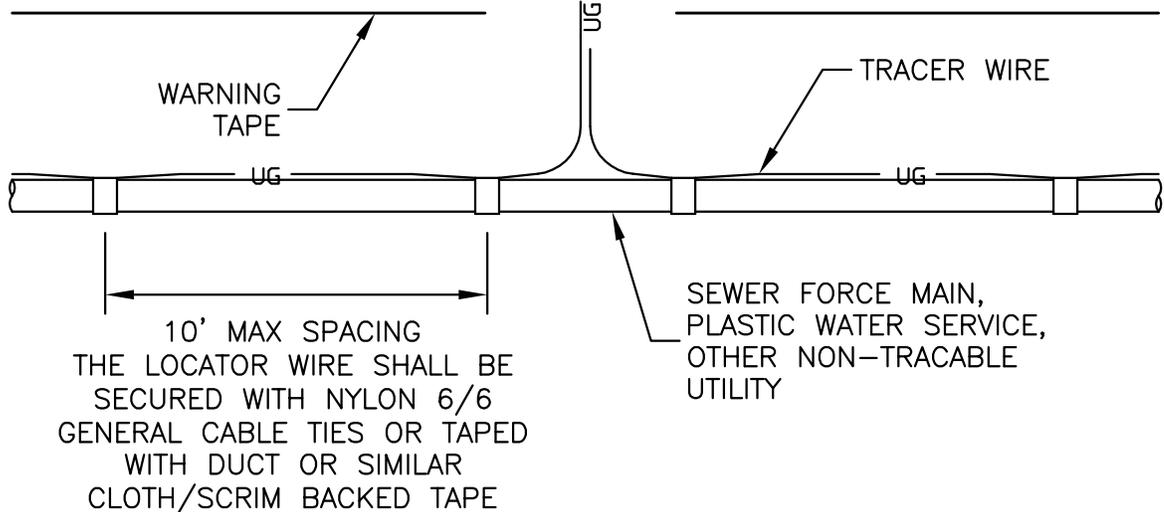


TRACER WIRE:

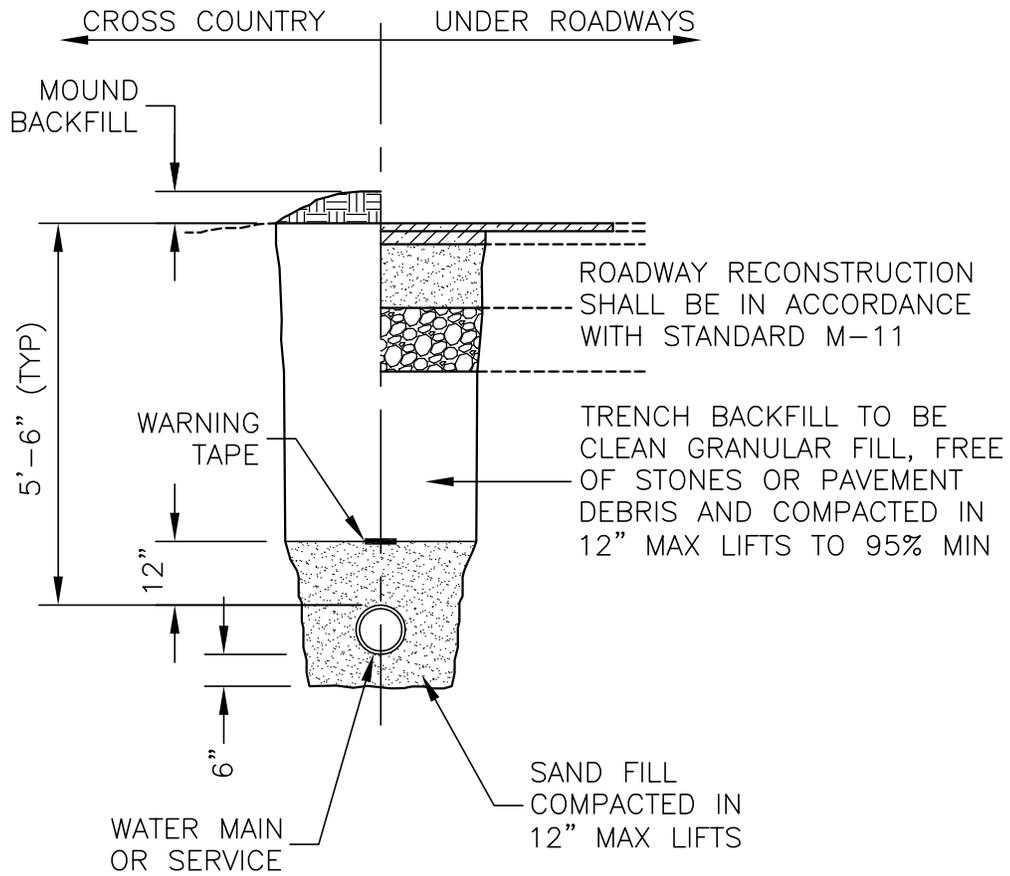
1. CONTINUOUS, DIRECT BURIAL RATED
2. 12 AWG HIGH STRENGTH SOLID CORE COPPER CLAD STEEL
3. COATING COLOR SHALL CONFORM TO THE APWA UNIFORM COLOR CODE

REPAIRS:

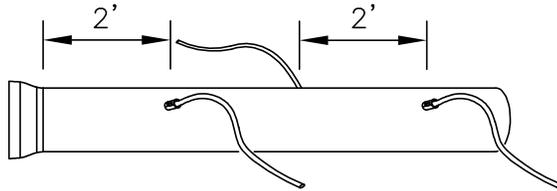
1. SPLICES SHALL BE MADE WITH CORROSION PROOF WIRE CONNECTORS



NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	UTILITIES
-	-	-	TRACER WIRE INSTALLATION	DRAWING NO.	U-2
-	-	-		DATE:	03/15
-	-	-		PAGE:	1
APPROVED BY:					

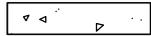


24" MINIMUM SEPARATION BETWEEN SERVICE TAPS OR FROM A BELL

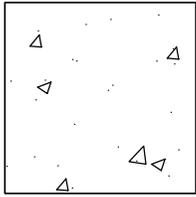


DETECTABLE TAPE SHALL BE PLACED OVER ALL SERVICES

NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	SEWER
1	NEW FORMAT	4.15		DRAWING NO.	W-1
-	-	-		DATE:	12/08
-	-	-		PAGE:	1
APPROVED BY:			WATER MAIN/SERVICE TRENCH		



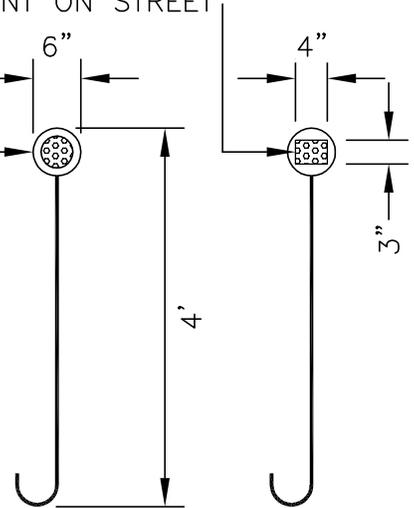
4"x16" CONCRETE
SLAB OR LARGE FLAT
ROCK UNDER SHOE



PRECAST CONCRETE
THRUST BLOCK WITH
CABLE HITCH 2'x2'

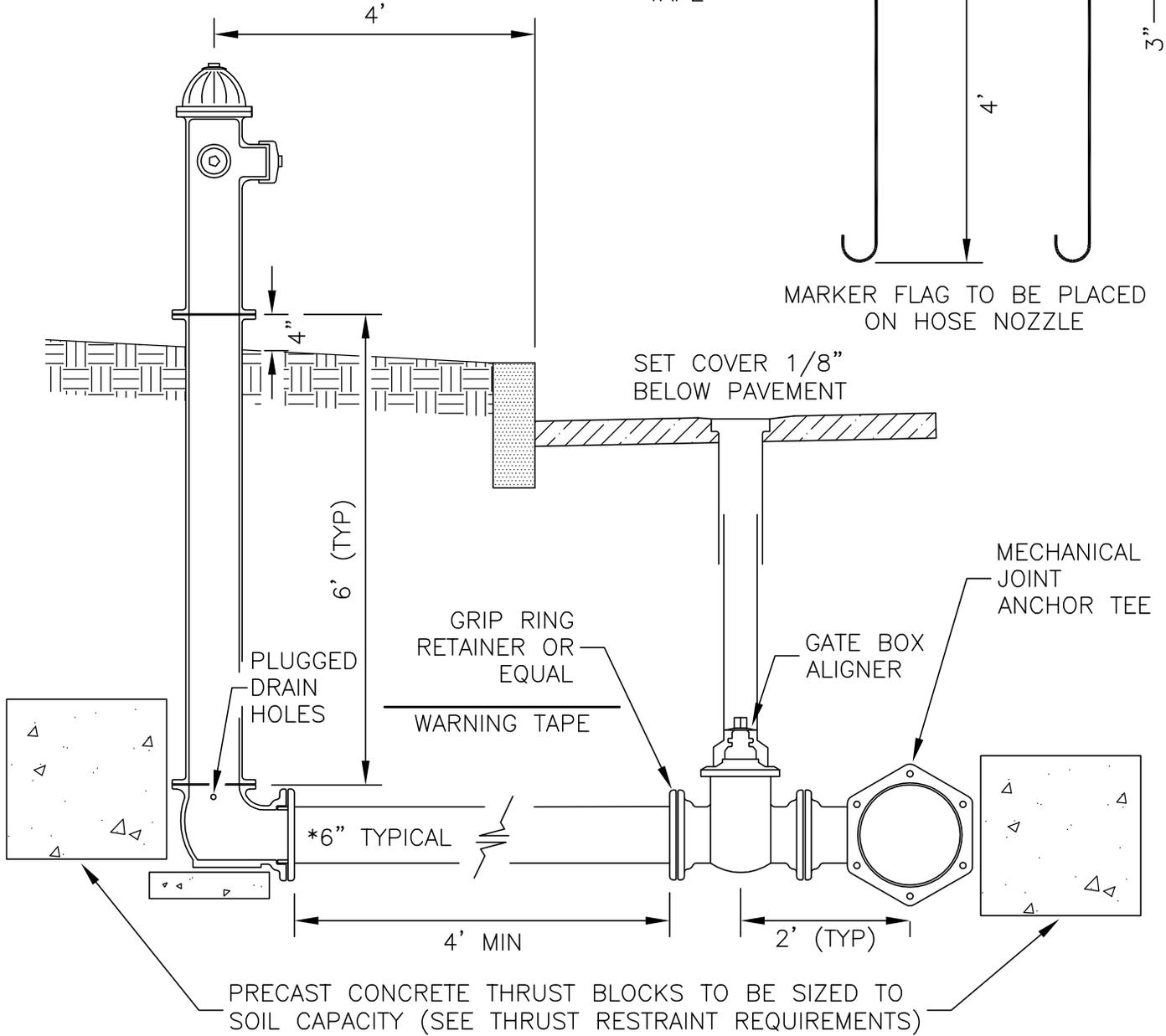
RED RECTANGULAR
REFLECTIVE TAPE DENOTES
LAST HYDRANT ON STREET

4"Ø YELLOW
REFLECTIVE
TAPE



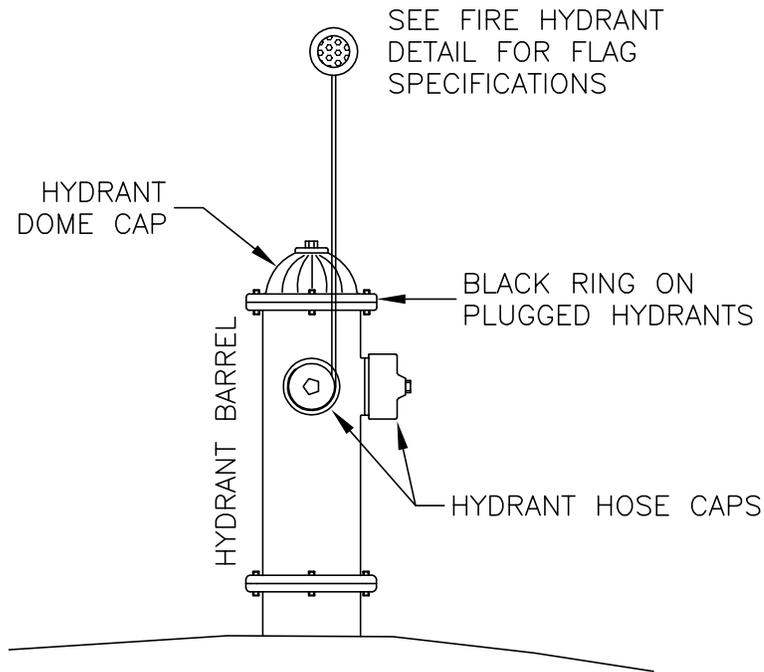
MARKER FLAG TO BE PLACED
ON HOSE NOZZLE

SET COVER 1/8"
BELOW PAVEMENT



* SHOULD THE HYDRANT BE MORE THAN 20' FROM THE MAIN, THE
HYDRANT SERVICE SHALL BE 8" TO A POINT IMMEDIATELY ADJACENT
TO THE HYDRANT WHERE THE SERVICE WILL BE REDUCED TO 6"

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: WATER	
1			FLANGE HEIGHT			11.11			FIRE HYDRANT			DRAWING NO. W-2	
2			DRAFTING			11.11						DATE: 12/08	
-			-			-						PAGE: 1	
APPROVED BY:													



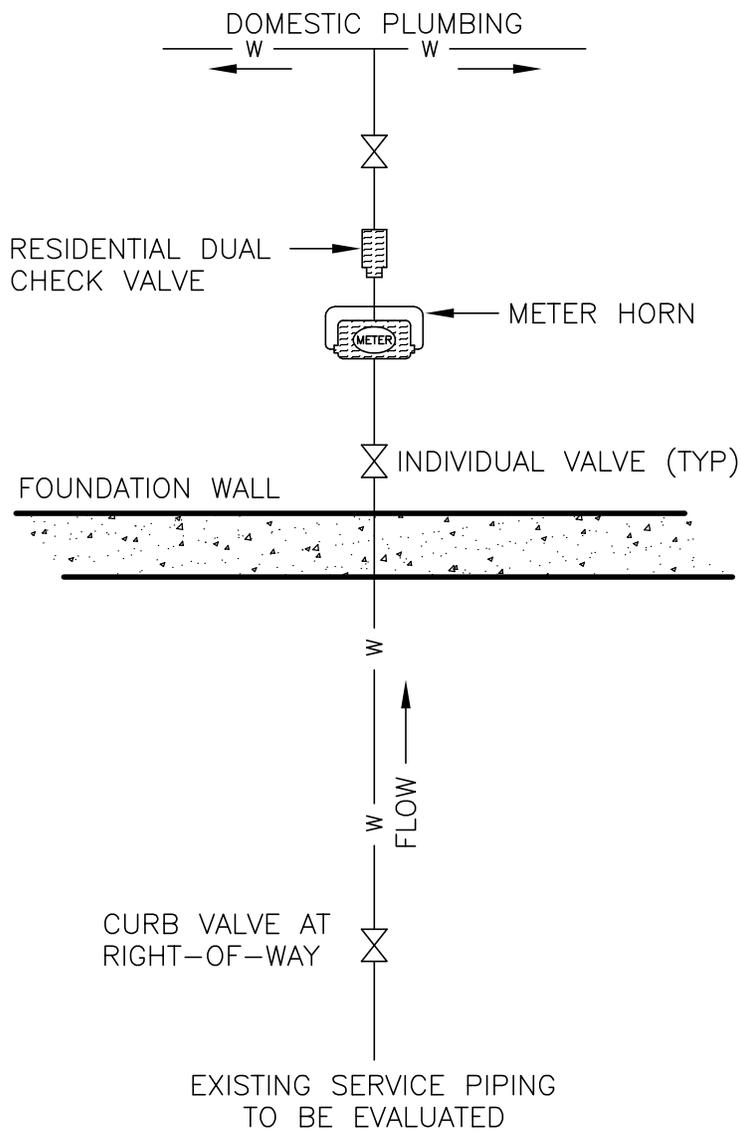
HYDRANT PAINTING

SERVICE PRESSURE	HYDRANT BARREL	HYDRANT DOME CAP	HYDRANT HOSE CAPS
HIGH PRESSURE: PUBLIC PRIVATE	OSHA ORANGE GLOSS YELLOW	CHROME ALUMINUM CHROME ALUMINUM	OSHA ORANGE GLOSS YELLOW
EXTRA HIGH PRESSURE: PUBLIC PRIVATE	OSHA ORANGE GLOSS YELLOW	CHROME ALUMINUM CHROME ALUMINUM	CHROME ALUMINUM CHROME ALUMINUM
NON-POTABLE WATER SUPPLIES: PUBLIC PRIVATE	OSHA ORANGE GLOSS YELLOW	GLOSS GREEN GLOSS GREEN	GLOSS GREEN GLOSS GREEN

NOTES:

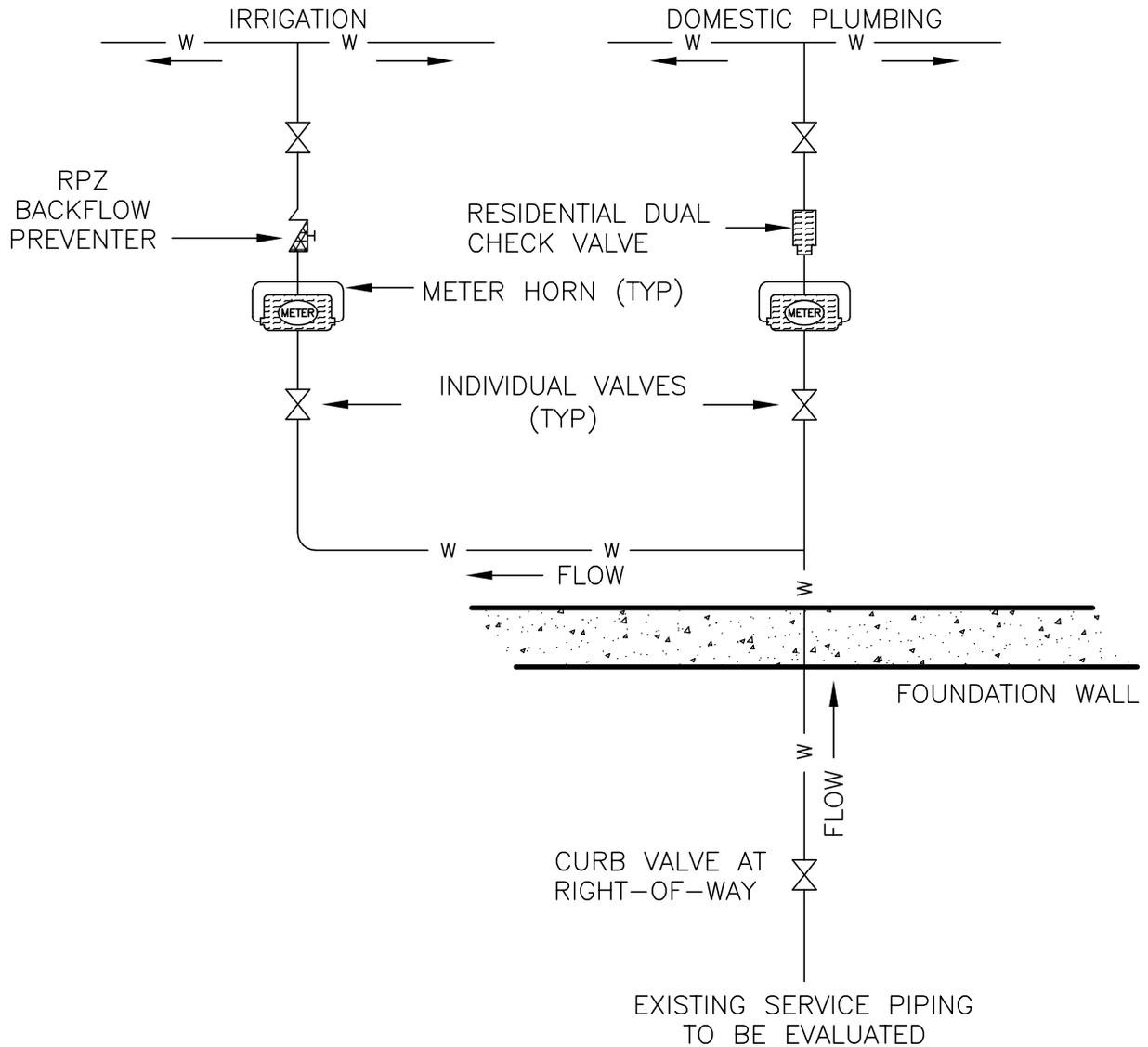
1. THE CONTRACTOR/DEVELOPER SHALL BE RESPONSIBLE FOR THE PAINTING OF THE HYDRANTS.
2. AT THE CONTRACTORS OPTION, IF REQUESTED, GENERAL SERVICES WILL PAINT THE HYDRANTS AT A NOMINAL CHARGE

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION:		WATER		
1			DRAFTING			4.15						HYDRANT PAINTING & MARKER FLAGS		DRAWING NO.		W-3
1			COLORS			4.15			DATE:		12/08			PAGE: 1		
-			-			-			APPROVED BY:							



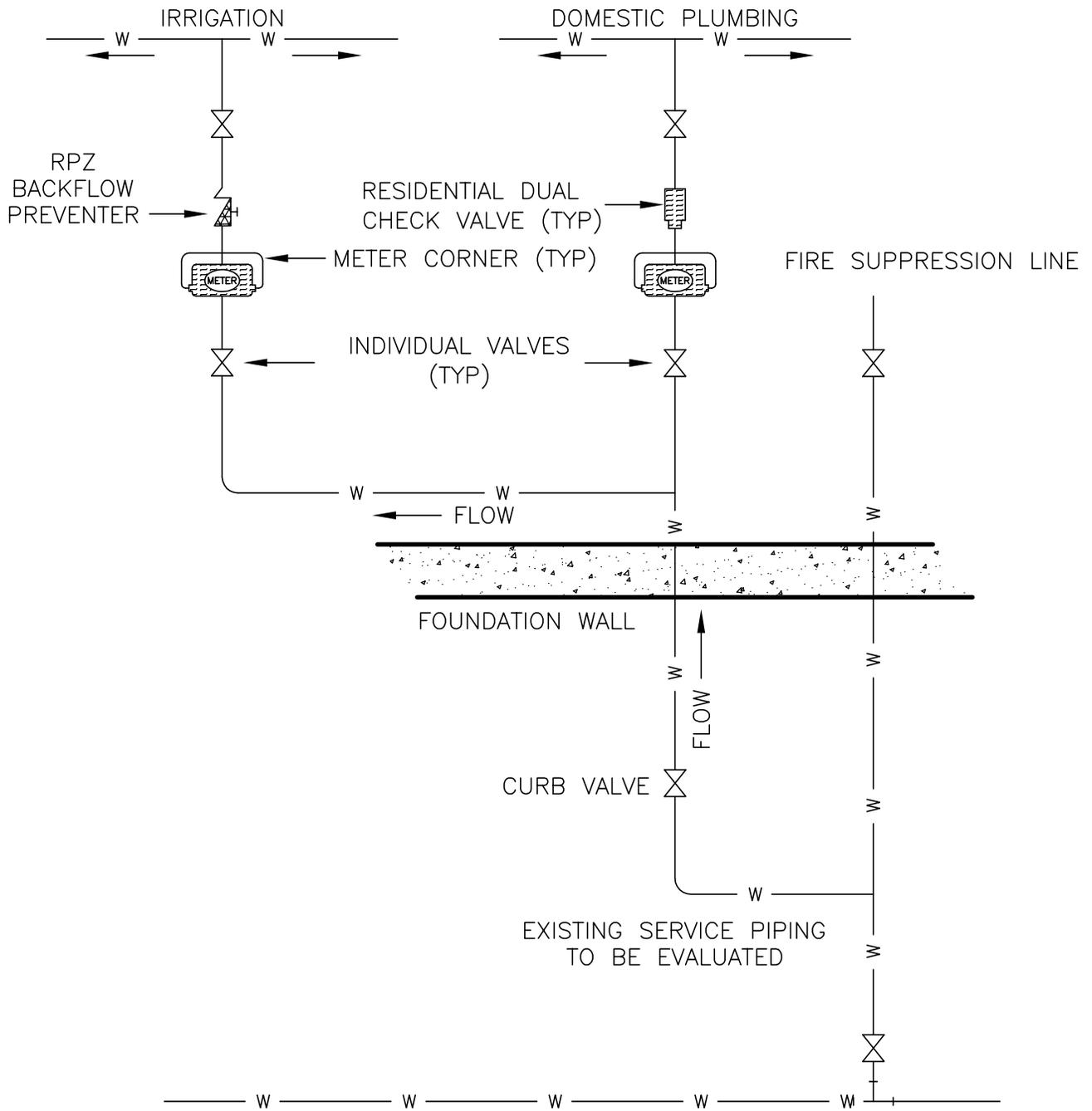
NOTE: ALL METERS SUPPLIED BY CITY OF
CONCORD GENERAL SERVICES DEPARTMENT

NO.	REVISION	DATE	City of Concord Engineering Services Division SINGLE FAMILY METER INSTALLATION	SECTION:	WATER	
-	-	-		DRAWING NO.	W-4	
-	-	-		DATE:	12/08	PAGE: 1
-	-	-		APPROVED BY:		



NOTE: ALL METERS SUPPLIED BY CITY OF CONCORD GENERAL SERVICES DEPARTMENT

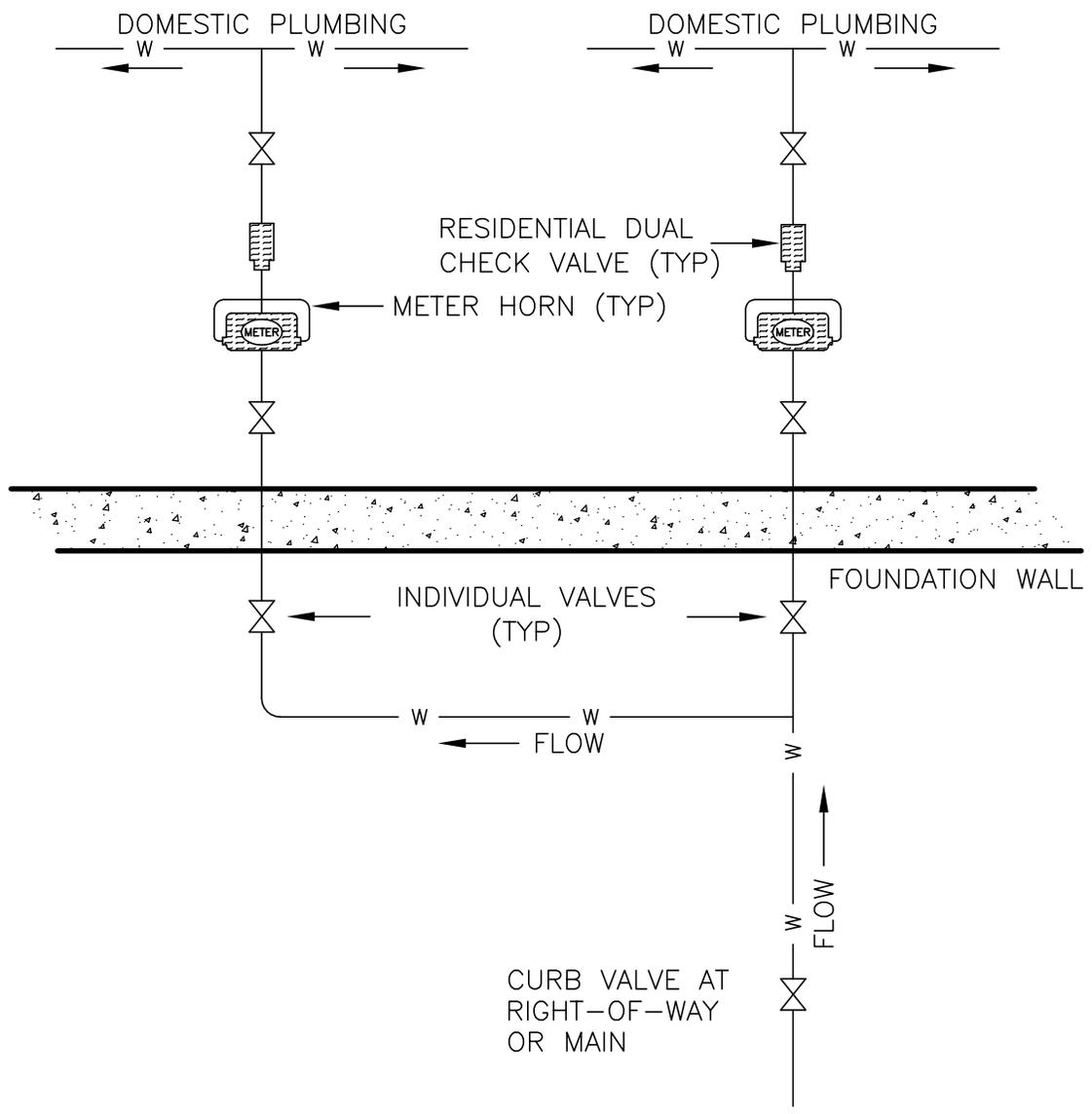
City of Concord Engineering Services Division			SECTION: WATER		
NO.	REVISION	DATE	RESIDENTIAL METER INSTALLATION WITH IRRIGATION		
-	-	-			
-	-	-			
APPROVED BY:			DRAWING NO. W-5	DATE: 12/08	PAGE: 1



FOR SERVICES $\geq 6"$,
VALVES SHALL BE PLACED
IMMEDIATELY ADJACENT TO
THE MAIN

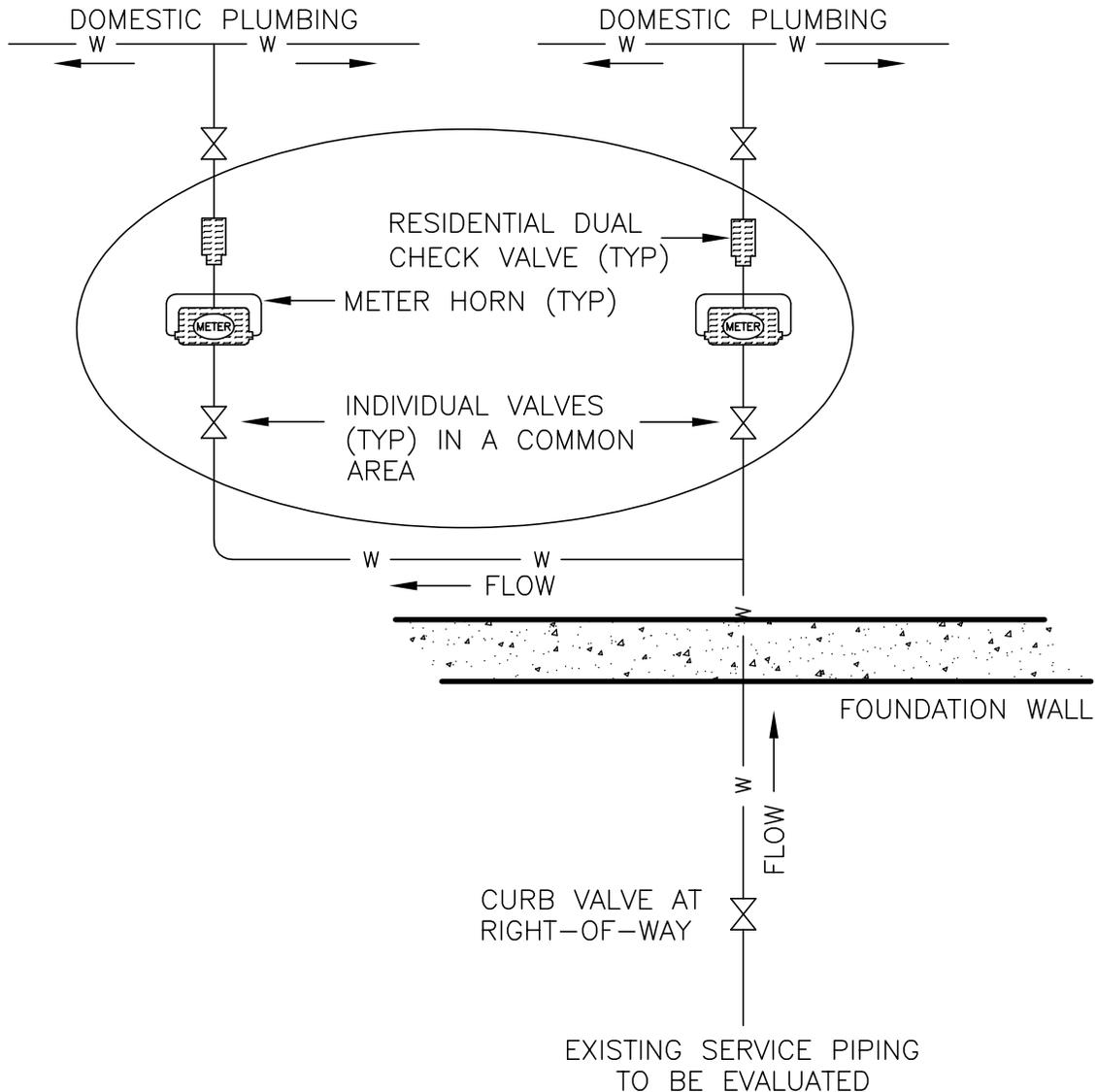
NOTE: ALL METERS SUPPLIED BY CITY OF
CONCORD GENERAL SERVICES DEPARTMENT

City of Concord Engineering Services Division			SECTION: WATER				
NO.	REVISION	DATE	METER INSTALLATION WITH IRRIGATION AND FIRE SUPPRESSION				
1	R FIRE VALVE	4.15				DRAWING NO. W-6	
-	-	-				DATE: 12/08 PAGE: 1	
APPROVED BY:							



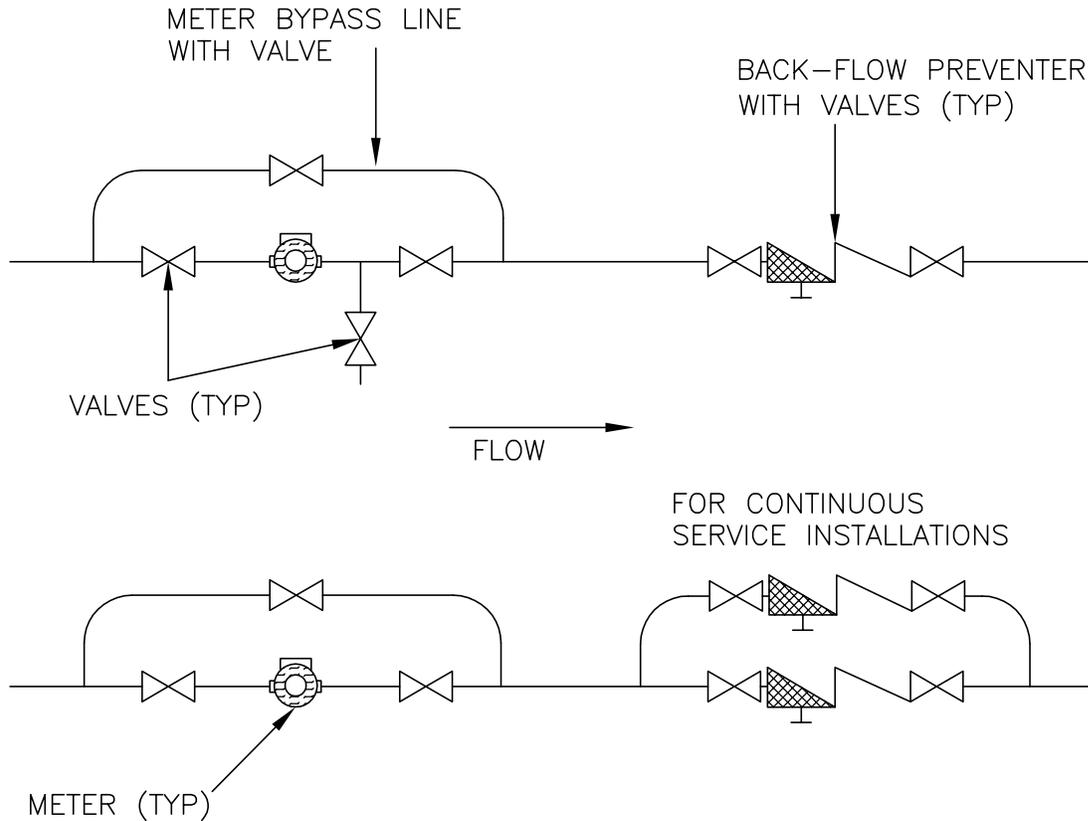
NOTE: ALL METERS SUPPLIED BY CITY OF CONCORD GENERAL SERVICES DEPARTMENT

NO. REVISION DATE			City of Concord Engineering Services Division		SECTION: WATER	
- - -			NEW CONDOMINIUM DUAL RESIDENTIAL METER INSTALLATION		DRAWING NO. W-7	
- - -					DATE: 12/08 PAGE: 1	
- - -						
APPROVED BY:						



NOTE: ALL METERS SUPPLIED BY CITY OF CONCORD GENERAL SERVICES DEPARTMENT

NO.	REVISION	DATE	City of Concord Engineering Services Division CONDO CONVERSION DUAL RESIDENTIAL METER INSTALLATION	SECTION:	WATER	
-	-	-		DRAWING NO.	W-8	
-	-	-		DATE:	12/08	PAGE: 1
-	-	-		APPROVED BY:		



ON ALL WATER SERVICES WITH A METER SIZE OF 1½" OR LARGER, A BYPASS LINE WITH A 2" TEST OUTLET IS REQUIRED.

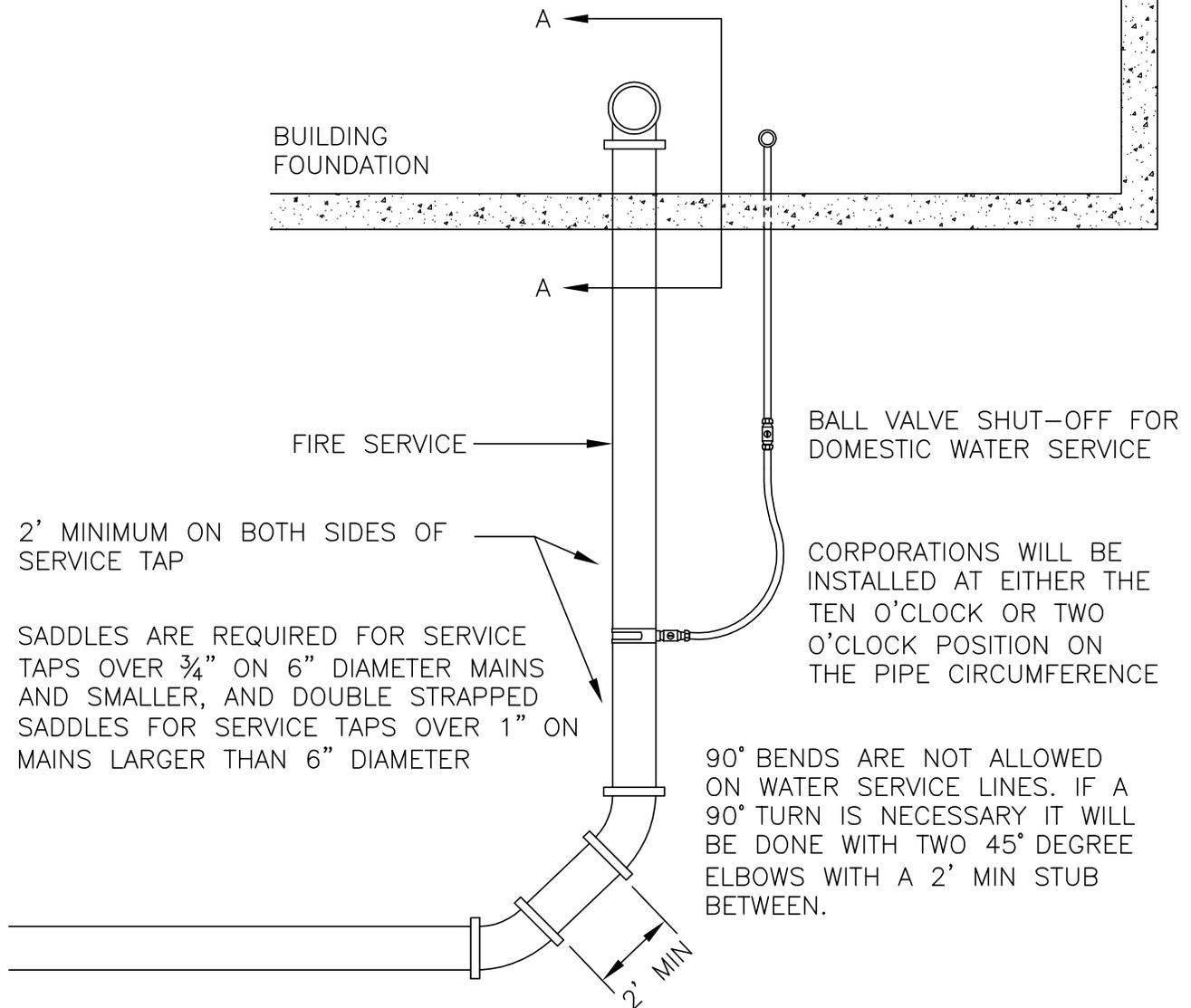
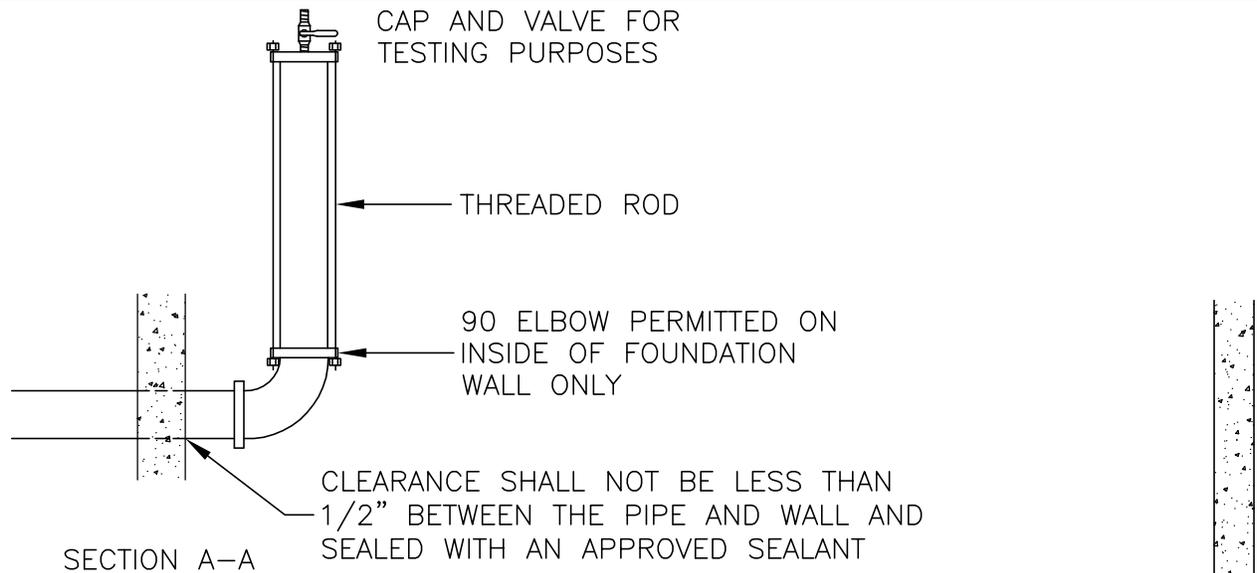
AN IDLER OR METER SPACER WITH GASKETS AND BOLTS CAN BE OBTAINED FROM THE CITY UTILITY BILLING OFFICE TO ASSIST WITH METER PLUMBING.

NO OBSTRUCTIONS ARE ALLOWED:

- BEFORE THE METER 5 x D
 - BEFORE A METER WITH STRAINER 3 x D
 - AFTER THE METER 2 x D
- WHERE D = PIPE DIAMTER

LAYING LENGTH OF METERS:	
5/8" x 3/4"	= 7 1/2"
1" x _____	= 10 3/4"
1 1/2" x _____	= 13"
2" x _____	= 17"
3" TURBO x _____	= 16"
TURBO x _____	= 14"

NO.	REVISION	DATE	City of Concord Engineering Services Division WATER METER INSTALLATION	SECTION:	WATER		
1	REM 2" TEST	4.15		DRAWING NO.	W-9		
-	-	-		DATE:	12/08	PAGE:	1
-	-	-		APPROVED BY:			



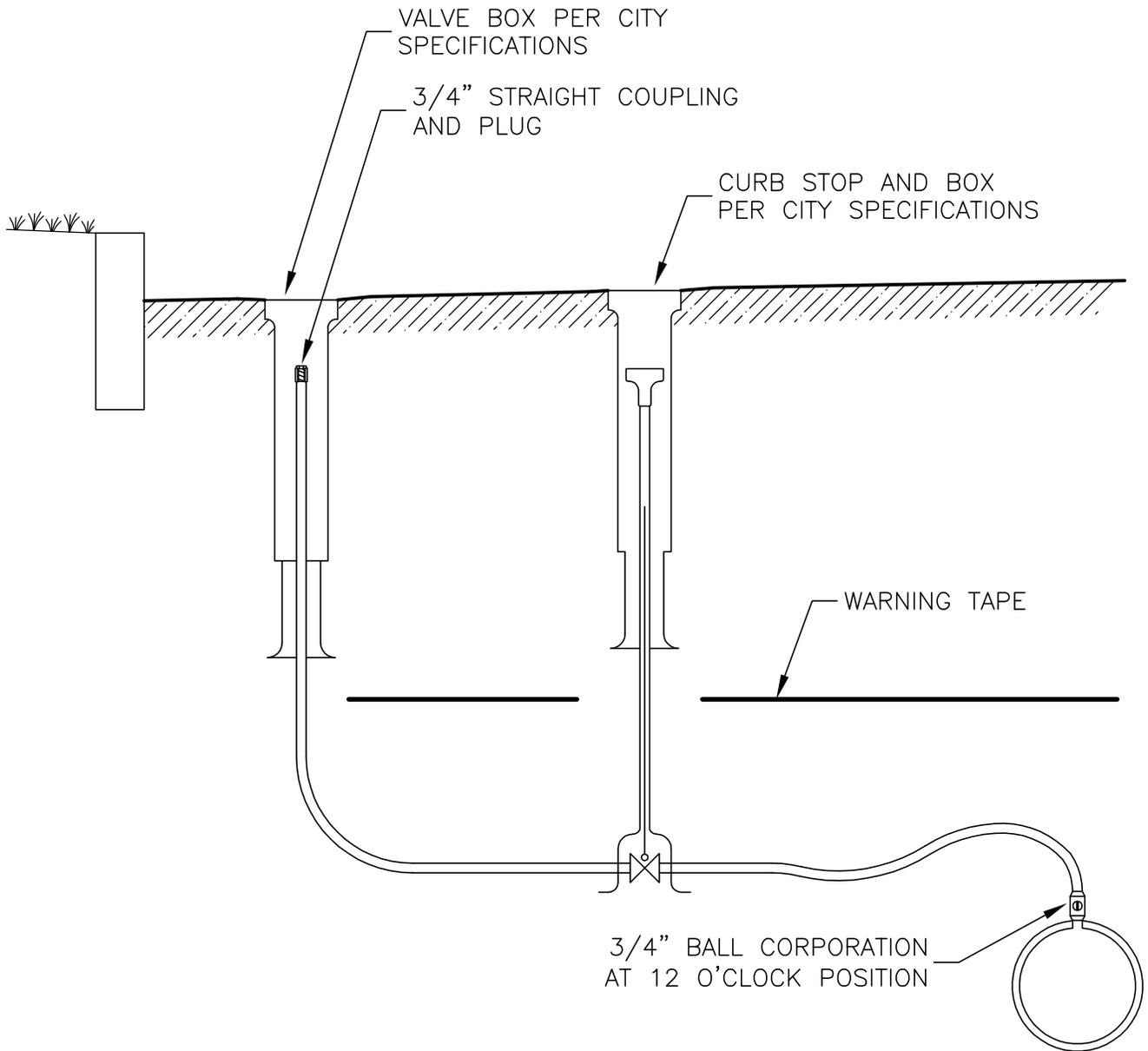
NO.	REVISION	DATE
1	R FIRE VALVE	4.15
-	-	-
-	-	-

APPROVED BY:

City of Concord Engineering Services Division

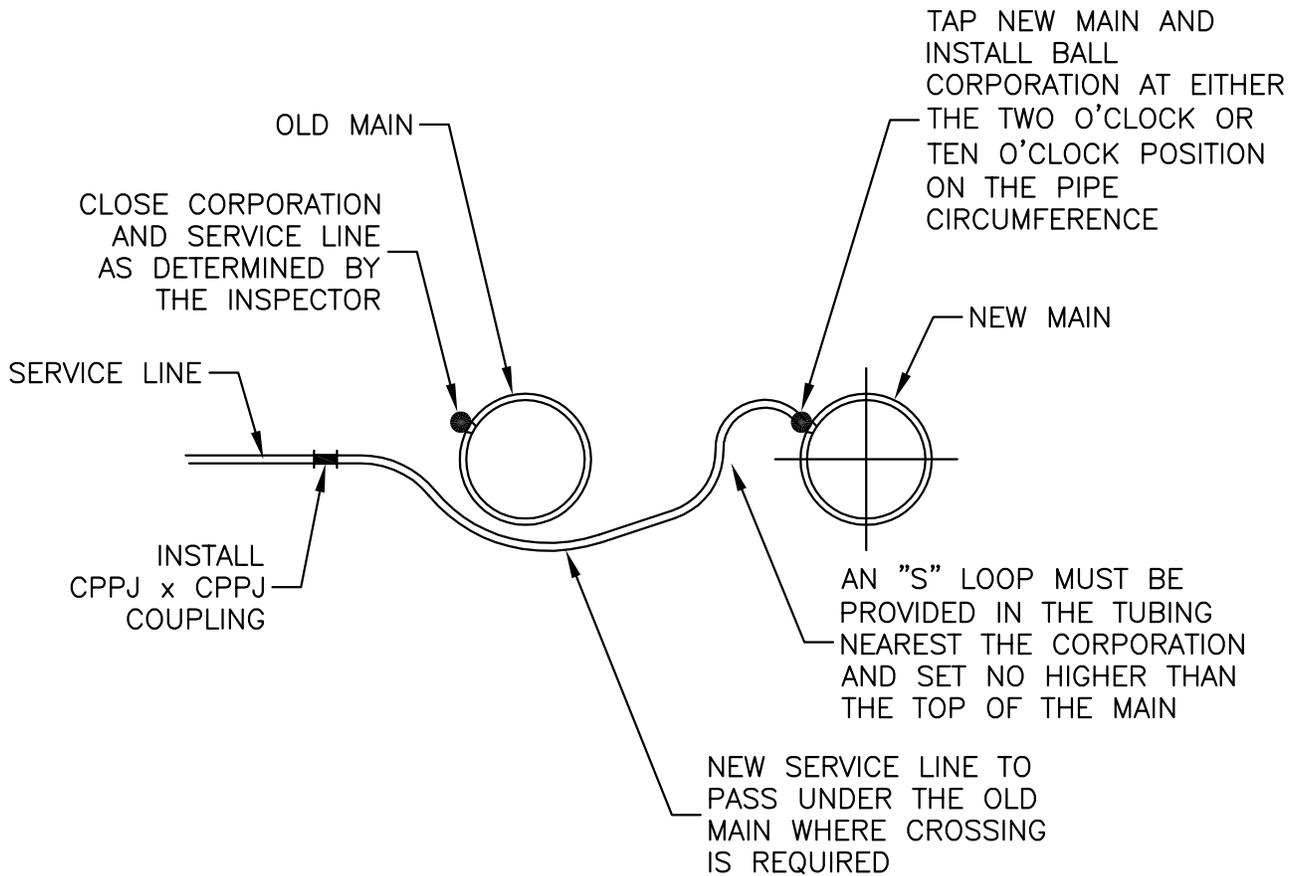
WATER SERVICE THROUGH FOUNDATION

SECTION:	WATER
DRAWING NO.	W-10
DATE:	12/08
PAGE:	1



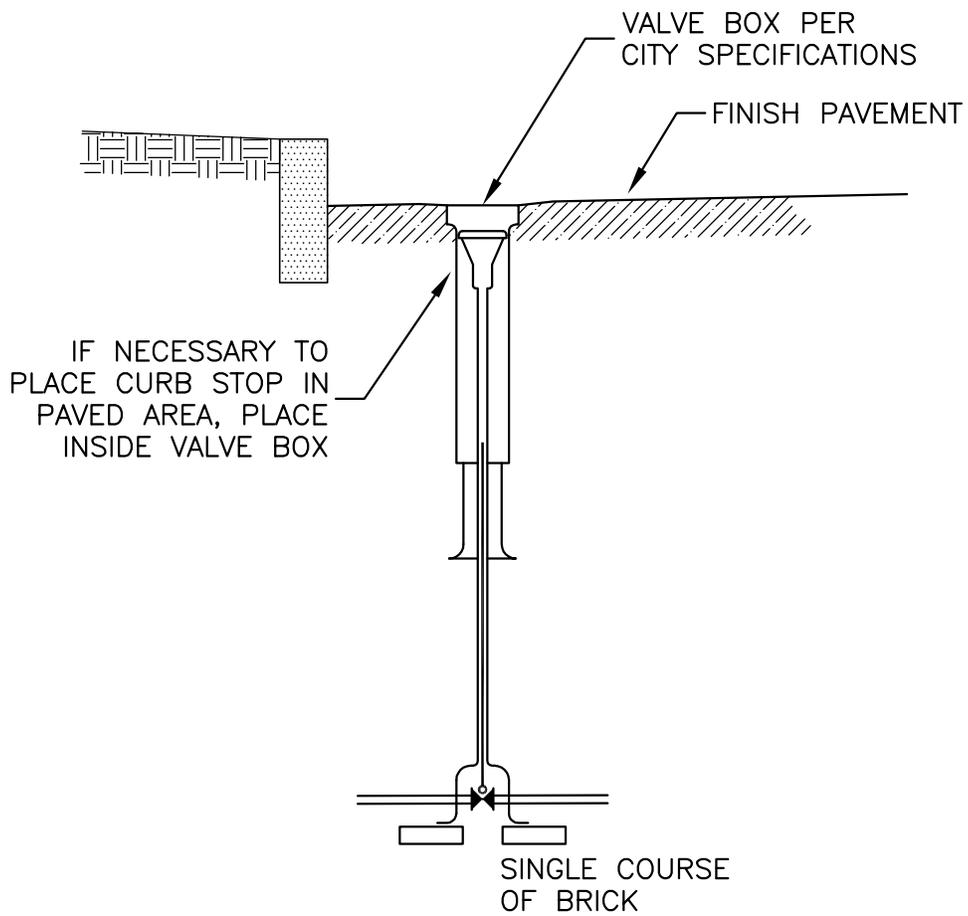
NOTE: ALL HARDWARE SHALL BE REMOVED AND A BRASS PLUG INSERTED INTO PIPE

NO.			REVISION			DATE			City of Concord Engineering Services Division			SECTION: WATER		
1			TAPE LOCATION			11.11			AIR RELEASE VALVE (FOR TESTING PURPOSES ONLY)			DRAWING NO. W-11		
2			DRAFTING			11.11						DATE: 12/08		PAGE: 1
-			-			-								
APPROVED BY:														

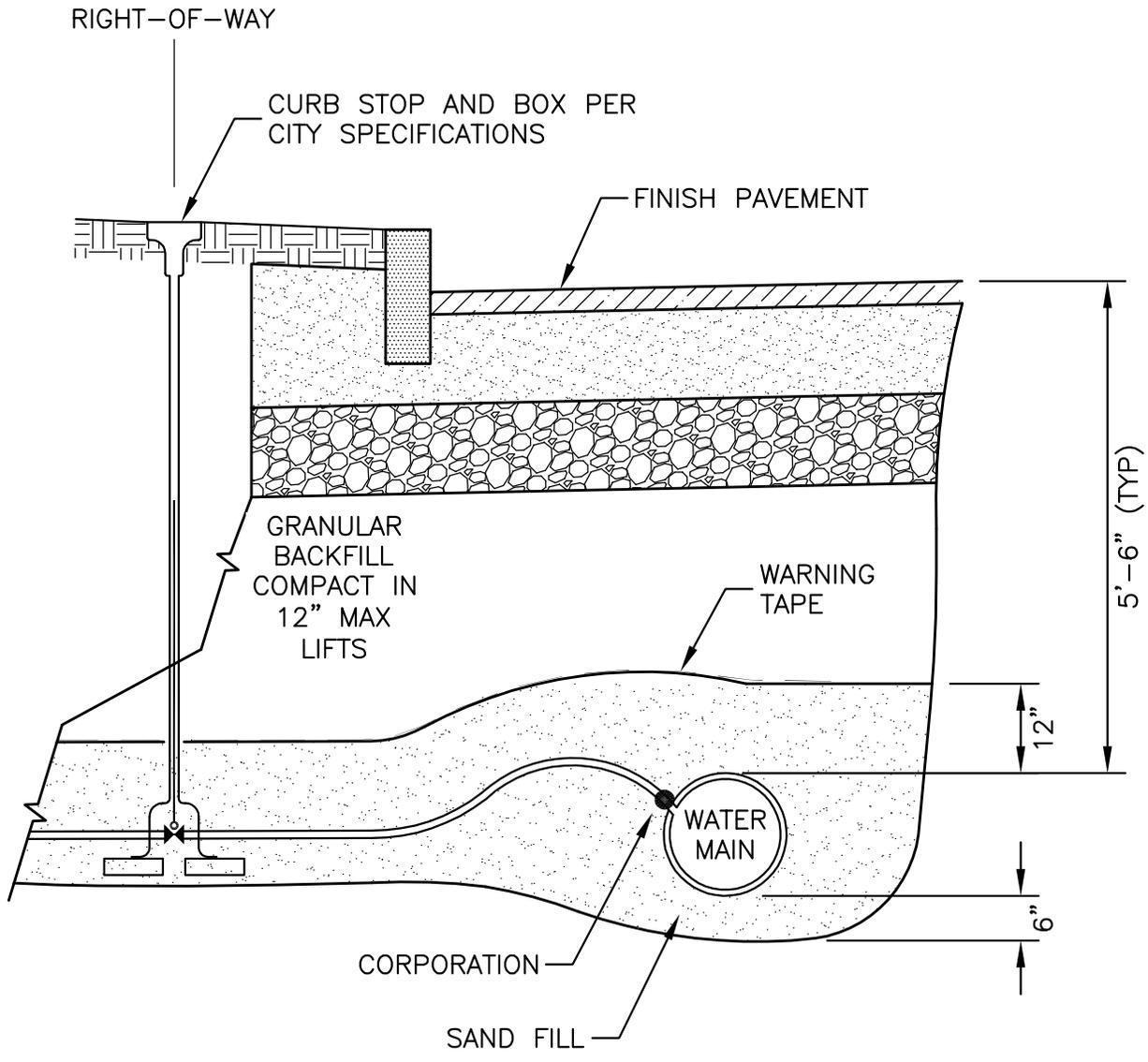


NOTE: DO NOT TIE OVER UNUSED OR ABANDONED SERVICES

NO.	REVISION	DATE	WATER SERVICE TIE OVER	City of Concord Engineering Services Division		SECTION:	WATER
-	-	-		DRAWING NO.	W-12		
-	-	-		DATE:	3/13	PAGE:	1
APPROVED BY:							



NO.	REVISION	DATE	City of Concord Engineering Services Division	SECTION:	WATER		
-	-	-		DRAWING NO.	W-13		
-	-	-		DATE:	3/13	PAGE:	1
-	-	-		CURB STOP IN PAVEMENT			
APPROVED BY:							



TAP MAIN AND LAY COPPER TUBING PER THE WATER SERVICE TIE OVER DETAIL

NO.			City of Concord Engineering Services Division			SECTION: WATER	
1			MARKING TAPE			DATE: 12/13	
-			-			DRAWING NO. W-14	
-			-			DATE: 11/11	
-			-			PAGE: 1	
APPROVED BY:			<h2 style="margin: 0;">WATER SERVICE INSTALLATION</h2>				