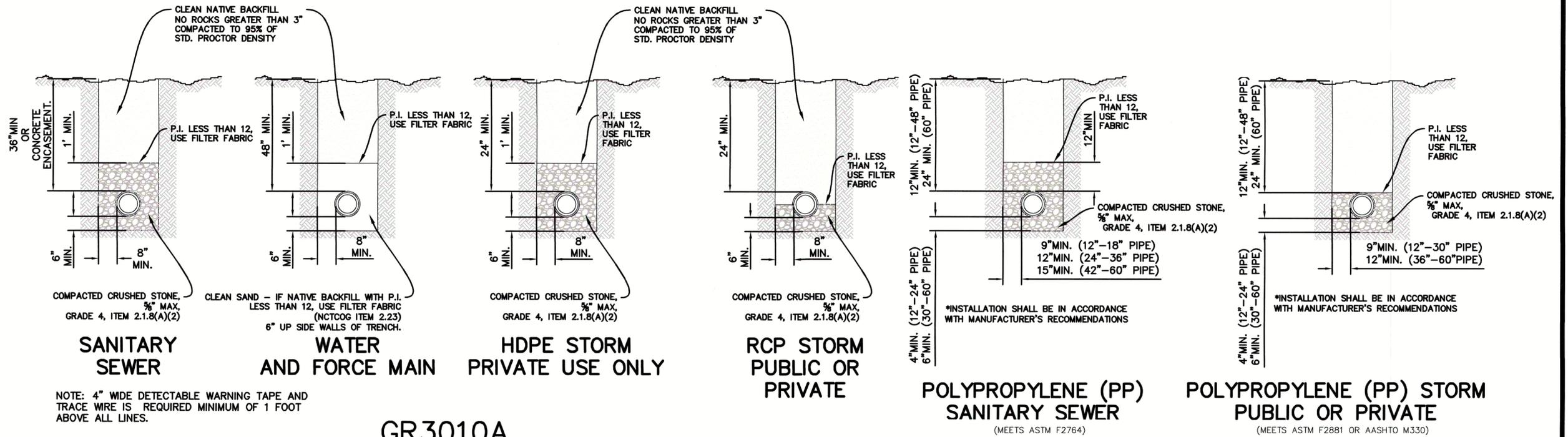


**NOTE:**  
 GRAPHICS SHALL BE EXTERIOR GRADE  
 ENAMEL, BLUE LETTERS ON WHITE  
 BACKGROUND.

**ALL LETTERS SHALL BE HELVETICA.  
 GRAPEVINE LOGO APPROX. 12" DIA.**

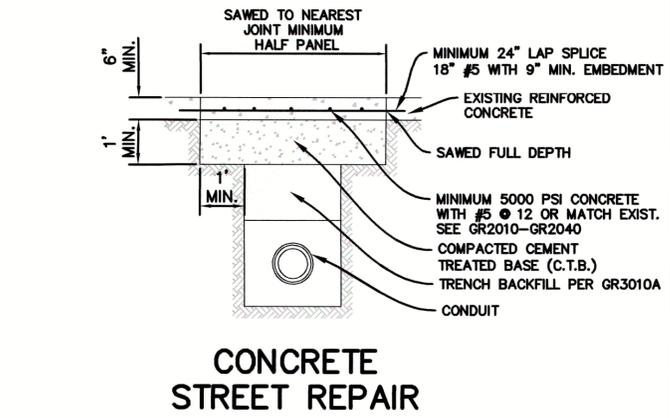
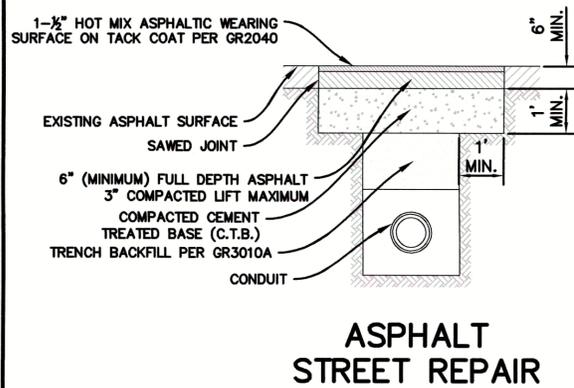
CAPITAL IMPROVEMENT PROJECT				
CONSTRUCTION SIGN				
GRAPEVINE, TEXAS				
City of Grapevine Public Works Department				
P.O. BOX 76099 PH 817-410-3155				
CHECKED:	SCALE:	DATE:	PROJECT No.	SHEET
	NTS	1-10-2020		OF

CONSTRUCTION SIGN

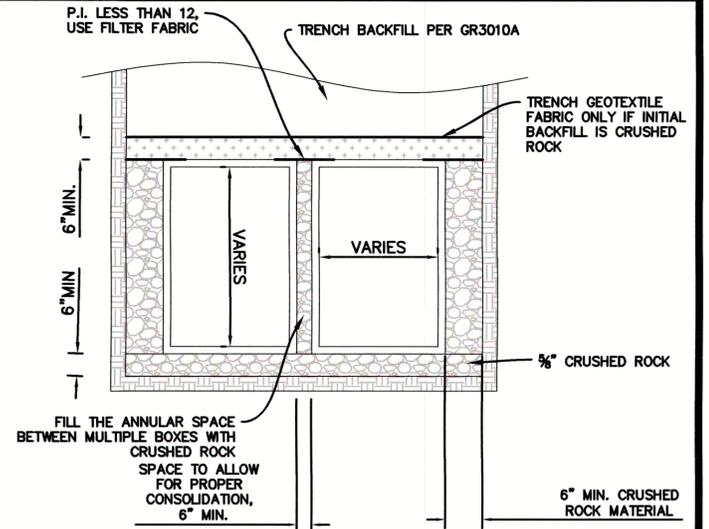


**GR3010A**

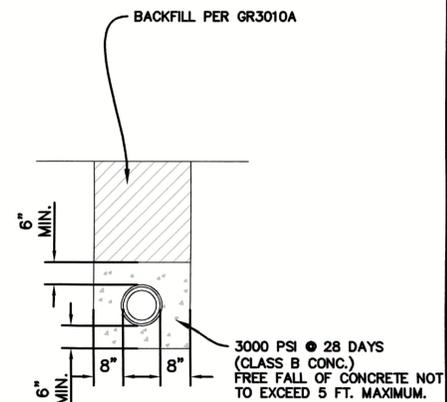
NOTE: 4" WIDE DETECTABLE WARNING TAPE AND TRACE WIRE IS REQUIRED MINIMUM OF 1 FOOT ABOVE ALL LINES.



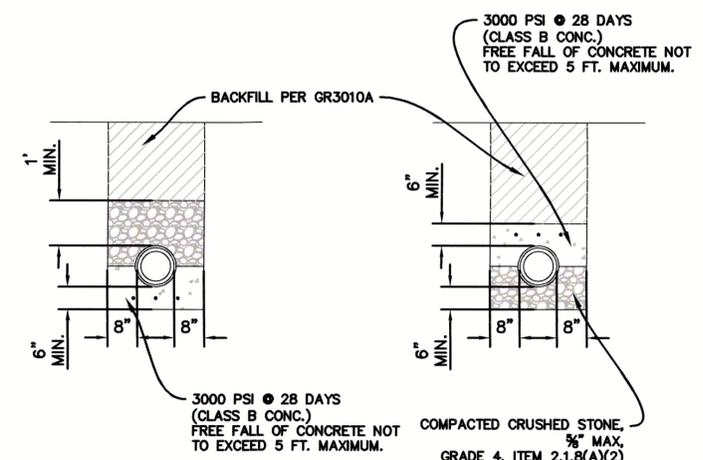
**GR3070**



**GR3010A**



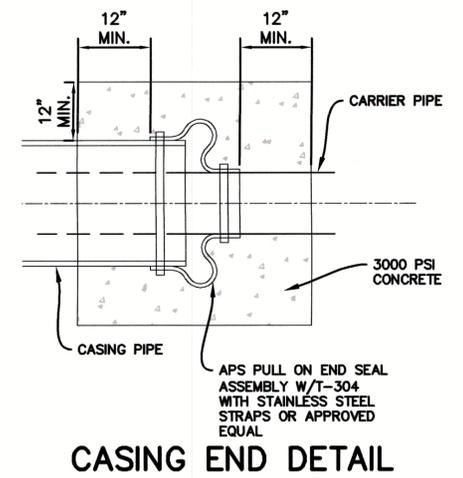
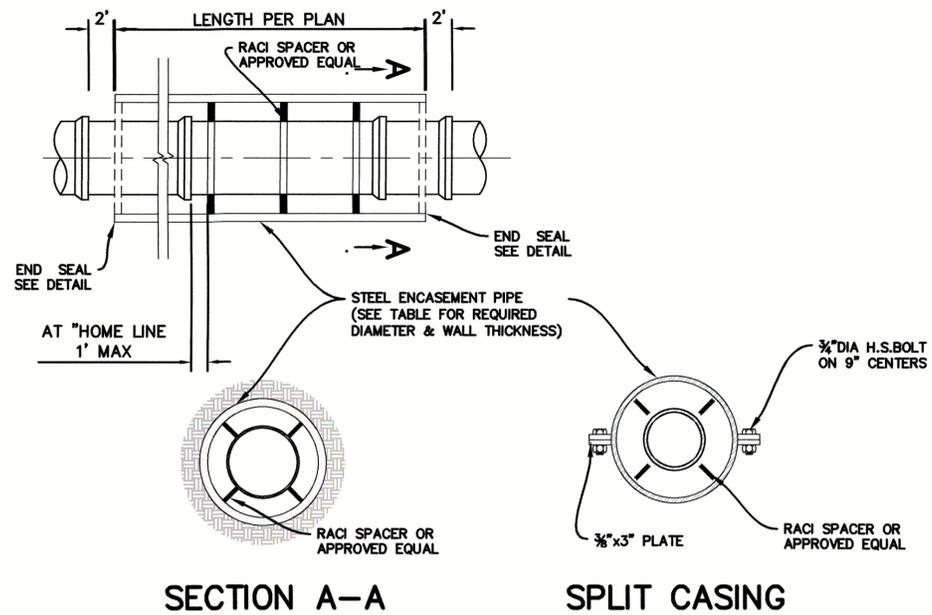
**GR3060**



**GR3010**

<b>WATER SANITARY AND STORM EMBEDMENT DETAILS</b>			
GRAPEVINE, TEXAS			
City of Grapevine Public Works Department			
P.O. BOX 76099 PH 817-410-3155			
CHECKED:	SCALE:	DATE:	PROJECT No. SHEET
NTS		1-10-2020	OF

EMBEDMENT DETAILS



CARRIER PIPE SIZE (IN)	STEEL ENCASMENT O.D. (IN)	STEEL ENCASMENT WALL THICKNESS (IN)
6	14	1/4
8	18	1/4
12	21	1/4
15	24	3/8
18	27	3/8
21	30	3/8
24	36	3/8
27	39	1/2

\* CHECK AVAILABILITY

- \*NOTE:
- FOR ALL CARRIER PIPES OVER 27", THE STEEL ENCASMENT PIPE SHALL BE 12" LARGER THAN THE CARRIER PIPE AND THE STEEL ENCASMENT WALL THICKNESS SHALL BE 1/2".
  - ALL PIPE SHALL BE LAID TO GRADE AS SHOWN ON THE PLANS.
  - SPLIT CASING SHALL ONLY BE USED WITH DIRECTOR OF PUBLIC WORKS APPROVAL.

### ENCASEMENT PIPE DETAIL GR3065

### WATER SANITARY AND STORM ENCASEMENT PIPE DETAILS

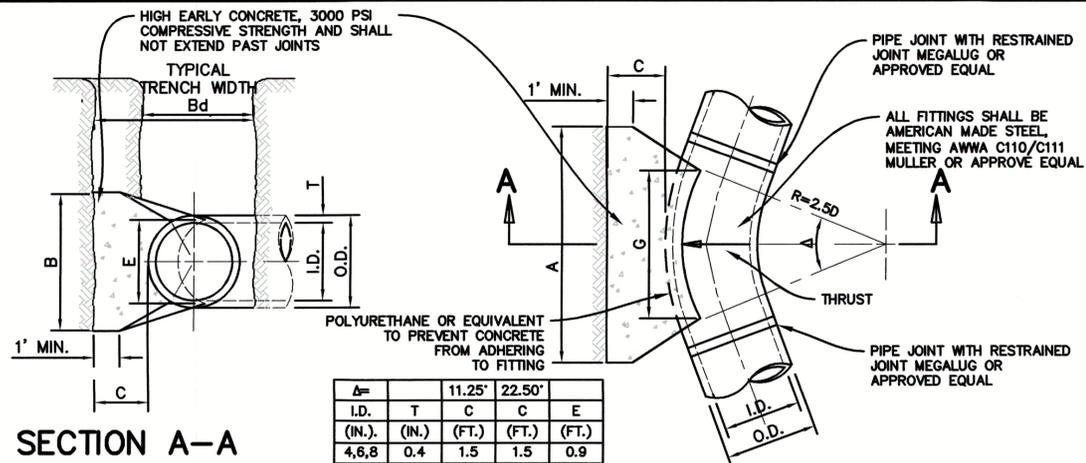
GRAPEVINE, TEXAS



City of Grapevine  
Public Works Department

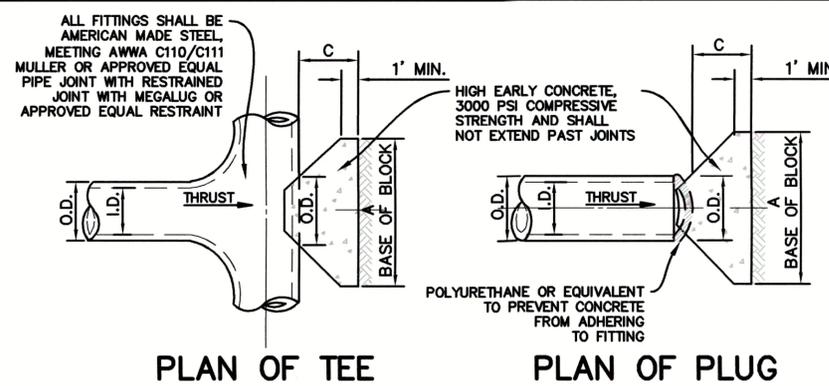
P.O. BOX 76099 PH 817-410-3155

CHECKED:	SCALE:	DATE:	PROJECT No.	SHEET
NTS		11-5-18		OF



Δ=	T	C	C	E
(IN.)	(IN.)	(FT.)	(FT.)	(FT.)
4,6,8	0.4	1.5	1.5	0.9
10,12	0.5	1.5	1.5	1.2
16,18	0.6	1.5	1.5	1.6
20	0.7	1.5	1.5	1.8
24	0.9	1.5	1.5	2.1

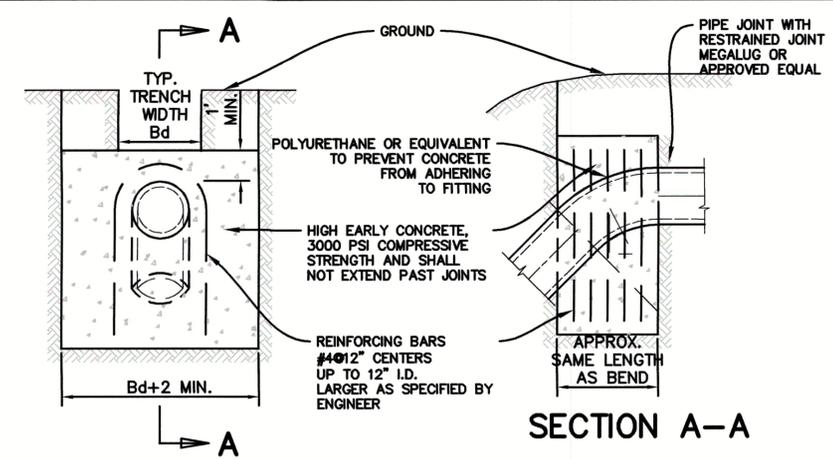
SECTION A-A



PLAN OF TEE

PLAN OF PLUG

TEE AND PLUG		EARTH			ROCK		
I.D.	THRUST	C	A	VOL	A	VOL	
(IN.)	TONS	(FT.)	(FT.)	(C.Y.)	(FT.)	(C.Y.)	
4,6,8	5.1	1.5	2.5	0.3	2.0	0.2	
10,12	11.3	1.5	3.5	0.6	2.5	0.3	
16,18	25.5	2.0	5.5	1.6	4.0	0.9	
20	31.5	2.0	6.0	1.9	4.0	0.9	
24	45.2	2.5	7.0	3.1	5.0	1.7	



SECTION A-A

I.D.	11.25°			22.50°		45°		90°		I.D.
	THRUST	VOL.	THRUST	VOL.	THRUST	VOL.	THRUST	VOL.		
(IN.)	TONS	(C.Y.)	TONS	(C.Y.)	TONS	(C.Y.)	TONS	(C.Y.)	(IN.)	
4,6,8	1.0	0.5	2.0	1.0	3.6	1.8	5.0	2.50	4,6,8	
10,12	2.2	1.1	4.3	2.20	8.0	4.00	11.3	5.70	10,12	
16,18	5.0	2.5	9.7	4.90	18.0	9.00	25.5	12.7	16,18	
20	6.1	3.1	12.0	6.00	22.2	11.1	31.4	15.7	20	
24	8.2	4.4	17.3	8.70	32.0	16.0	45.2	22.6	24	

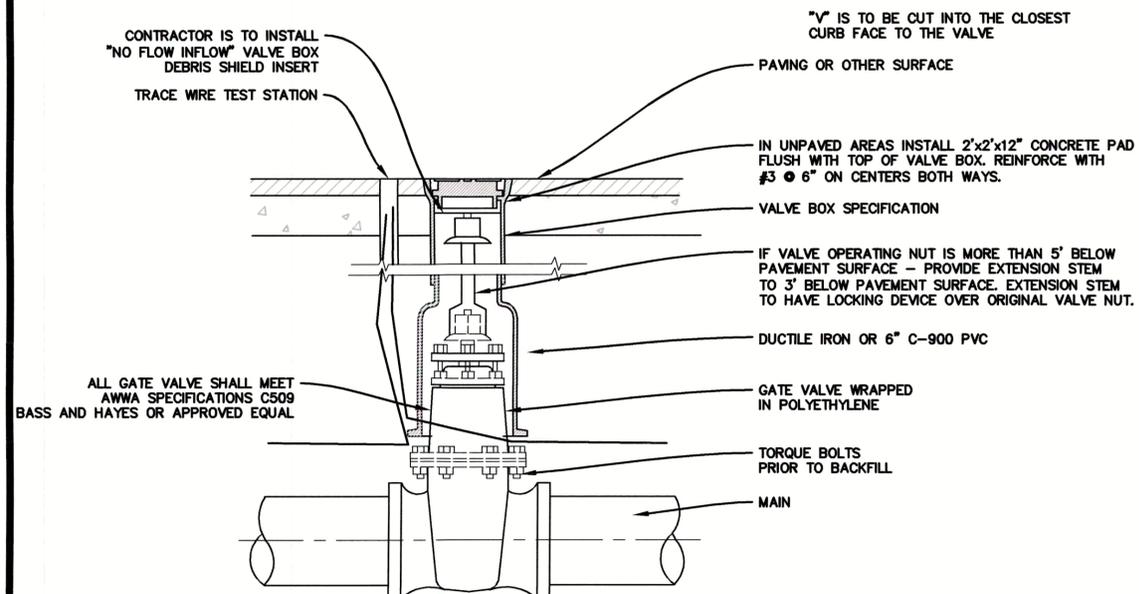
Δ = 11.25°									Δ = 22.50°								
EARTH			ROCK			EARTH			ROCK			EARTH			ROCK		
I.D.	G	THRUST	A	B	VOL.	A	B	VOL.	I.D.	G	THRUST	A	B	VOL.	A	B	VOL.
(IN.)	(FT.)	(TONS)	(FT.)	(FT.)	(C.Y.)	(FT.)	(FT.)	(C.Y.)	(IN.)	(FT.)	(TONS)	(FT.)	(FT.)	(C.Y.)	(FT.)	(FT.)	(C.Y.)
4,6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	0.1	4,6,8	0.8	2.0	1.5	1.5	0.1	1.0	1.0	0.1
10,12	0.6	2.2	1.5	1.5	0.1	1.0	1.5	0.1	10,12	1.1	4.4	2.0	2.5	0.3	1.5	1.5	0.1
16,18	0.8	5.0	2.0	2.5	0.3	1.5	2.0	0.2	16,18	1.6	9.9	3.0	3.5	0.6	2.0	2.5	0.3
20	0.9	6.2	2.0	3.5	0.4	1.5	3.0	0.3	20	1.8	12.3	3.5	3.5	0.7	2.0	3.0	0.4
24	1.1	8.9	3.0	3.5	0.5	1.5	3.0	0.3	24	2.2	17.7	4.0	4.5	1.0	3.0	3.5	0.5

Δ = 45°									Δ = 90°								
EARTH			ROCK			EARTH			ROCK			EARTH			ROCK		
I.D.	G	THRUST	A	B	VOL.	A	B	VOL.	I.D.	G	THRUST	A	B	VOL.	A	B	VOL.
(IN.)	(FT.)	(TONS)	(FT.)	(FT.)	(C.Y.)	(FT.)	(FT.)	(C.Y.)	(IN.)	(FT.)	(TONS)	(FT.)	(FT.)	(C.Y.)	(FT.)	(FT.)	(C.Y.)
4,6,8	1.5	3.9	2.0	2.0	0.2	1.5	1.5	0.1	4,6,8	2.7	7.1	5.0	1.5	0.4	2.0	2.0	0.2
10,12	2.2	8.7	3.5	2.5	0.5	2.0	2.5	0.3	10,12	4.0	16.0	6.5	2.5	1.0	3.5	2.5	0.5
16,18	3.2	19.5	4.5	4.5	1.2	3.0	3.5	0.6	16,18	6.0	38.0	9.0	4.0	2.4	4.5	4.0	1.0
20	3.6	24.1	5.5	4.5	1.5	3.5	3.5	0.7	20	6.6	44.4	10.0	4.5	3.1	6.0	4.0	1.5
24	4.3	34.6	8.0	4.5	2.3	4.5	4.0	1.1	24	7.9	64.0	14.5	4.5	5.0	8.0	4.0	2.1

GR4010 HORIZONTAL BEND THRUST BLOCK

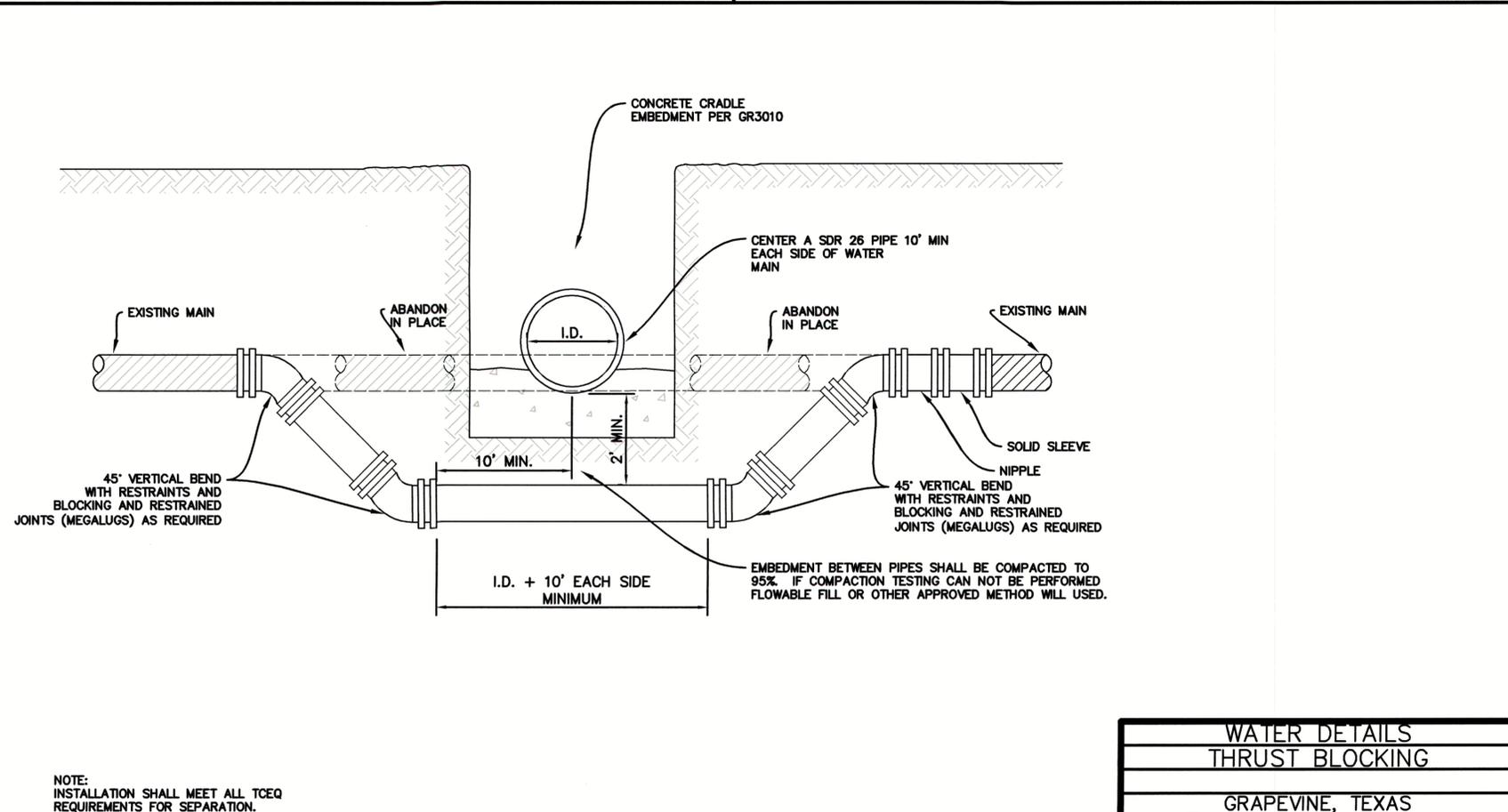
BASED ON SOIL BEARING OF 1000 LBS/SF SOIL AND 2000 LBS/SF ROCK



GR4050 2"-12" GATE VALVE, BOX AND VALVE EXTENSION

GR4020 HORIZONTAL TEE & PLUG THRUST BLOCK

GR4030 VERTICAL BEND THRUST BLOCK

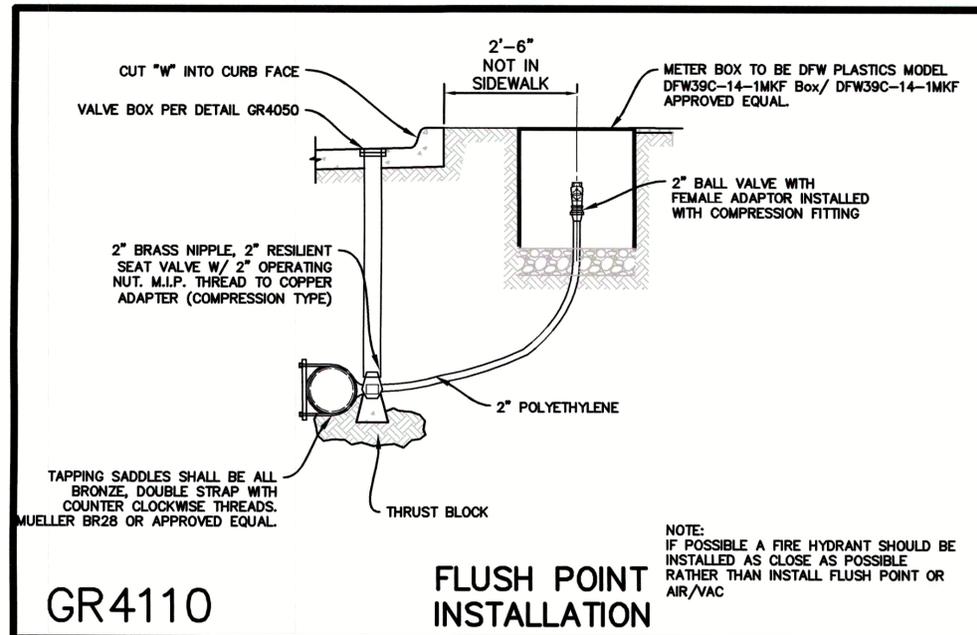


GR42000

WATERMAIN LOWERING DETAIL

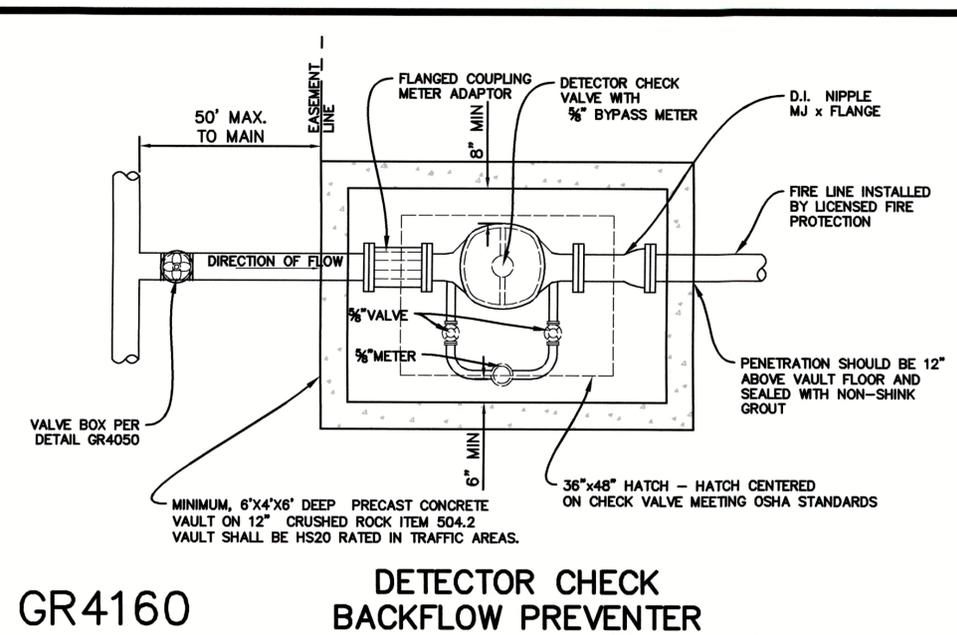
WATER DETAILS			
THRUST BLOCKING			
GRAPEVINE, TEXAS			
City of Grapevine Public Works Department			
P.O. BOX 76099 PH 817-410-3155			
CHECKED:	SCALE:	DATE:	PROJECT No. SHEET
NTS		4-18-18	OF

THRUST BLOCKS



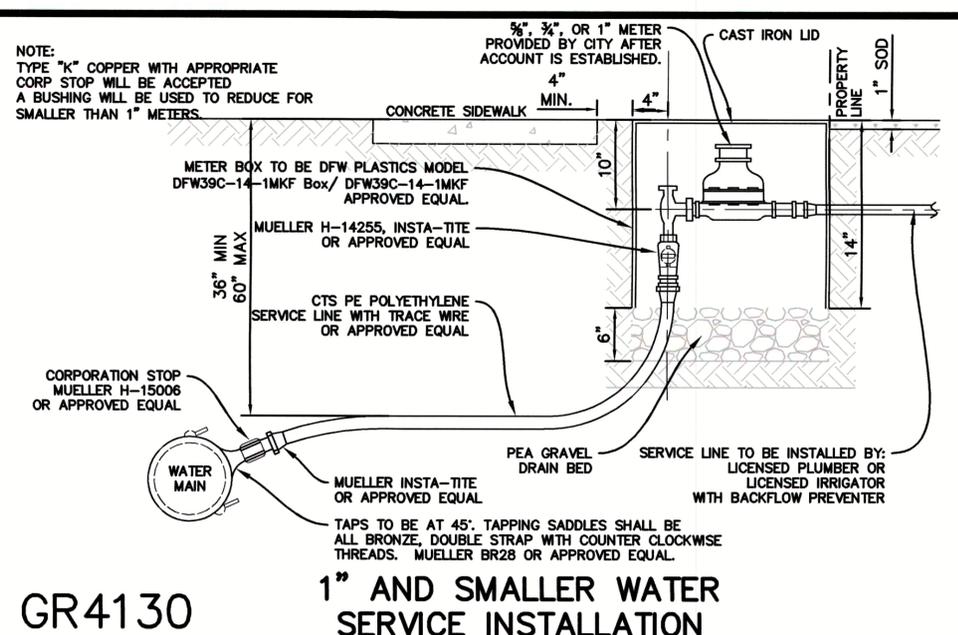
GR4110

**FLUSH POINT  
INSTALLATION**



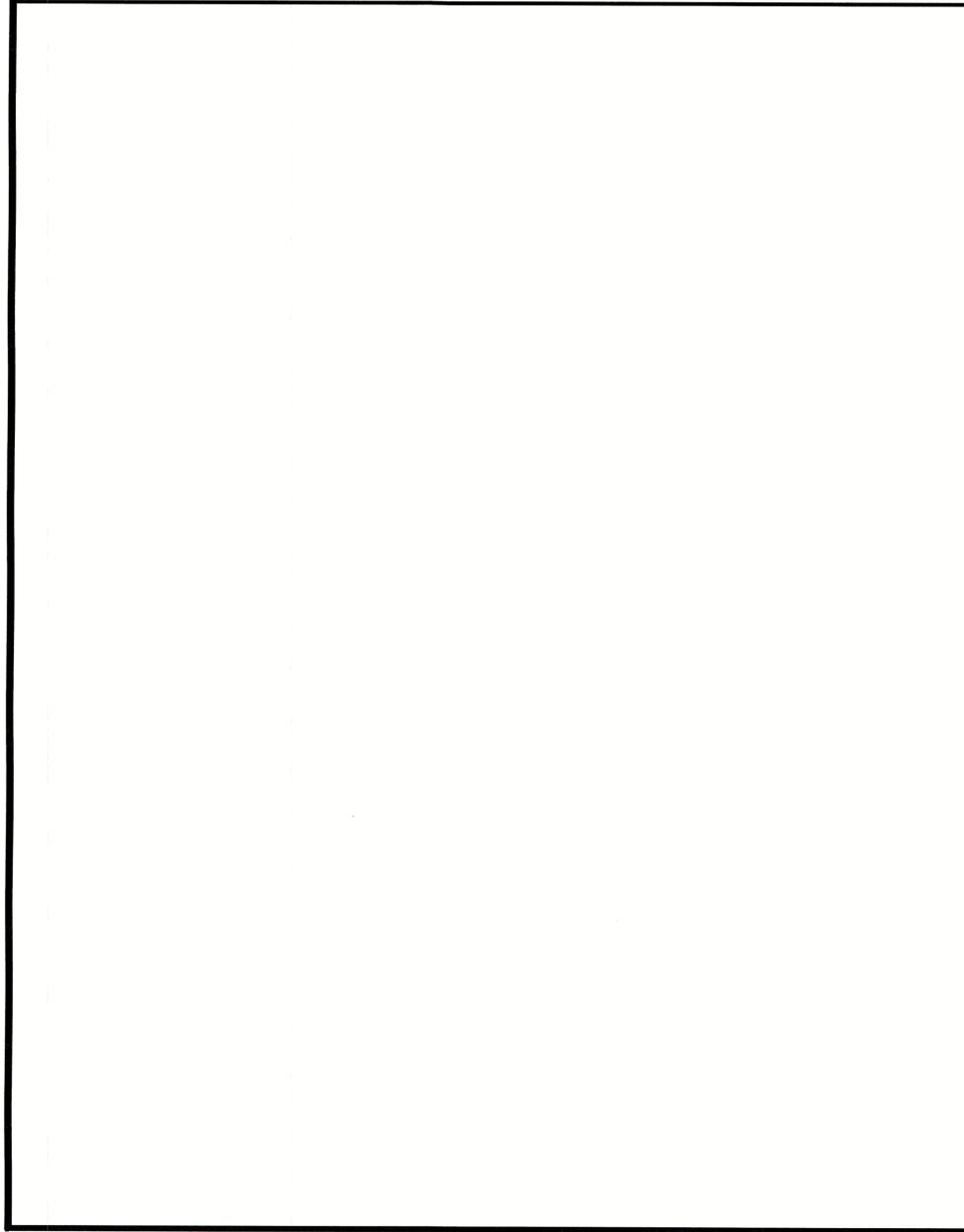
GR4160

**DETECTOR CHECK  
BACKFLOW PREVENTER**



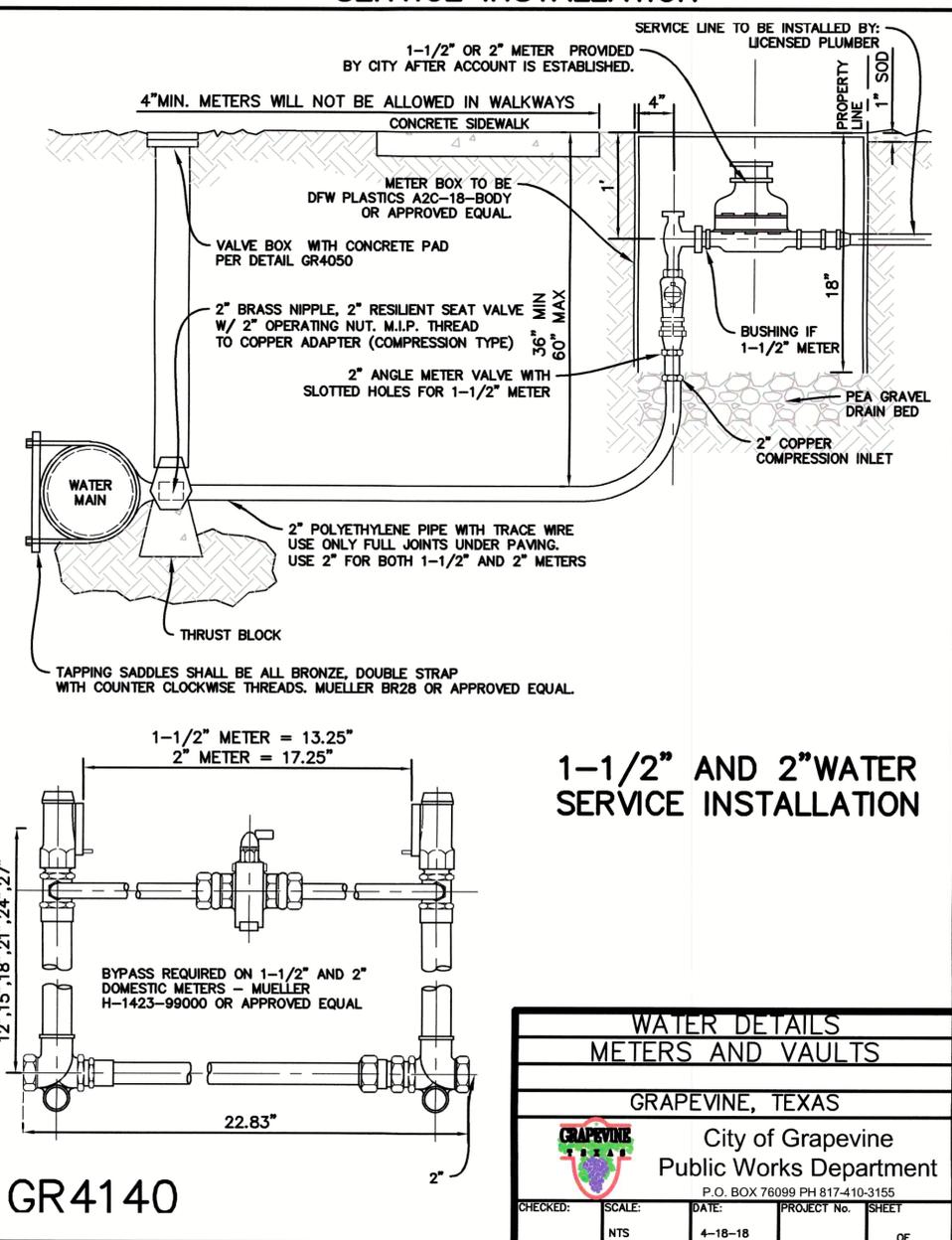
GR4130

**1\"/>**



GR4150

**3\"/>**



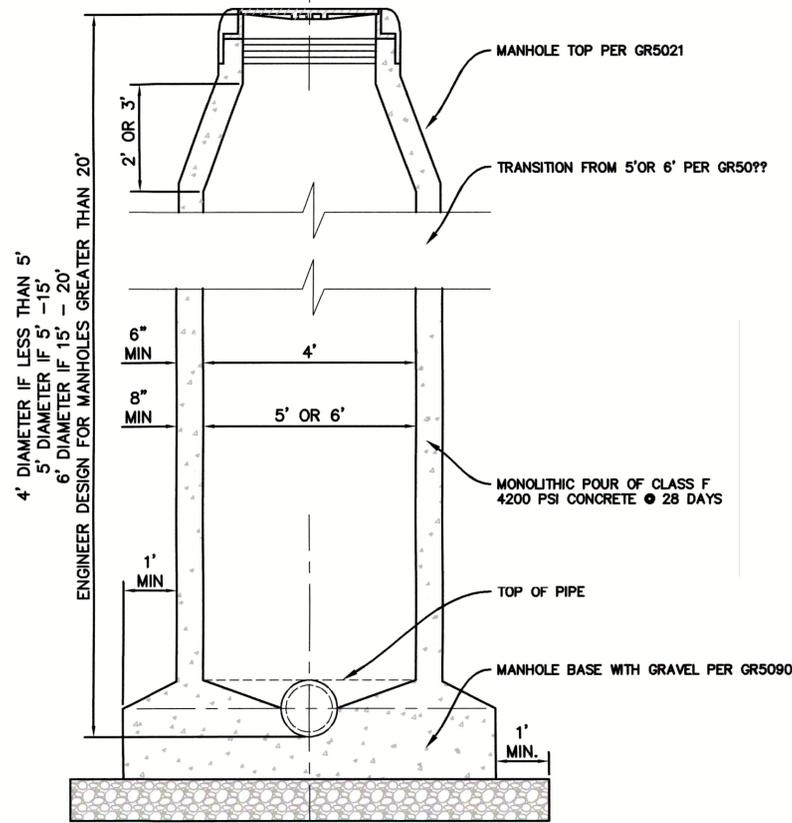
GR4140

**1-1/2\"/>**

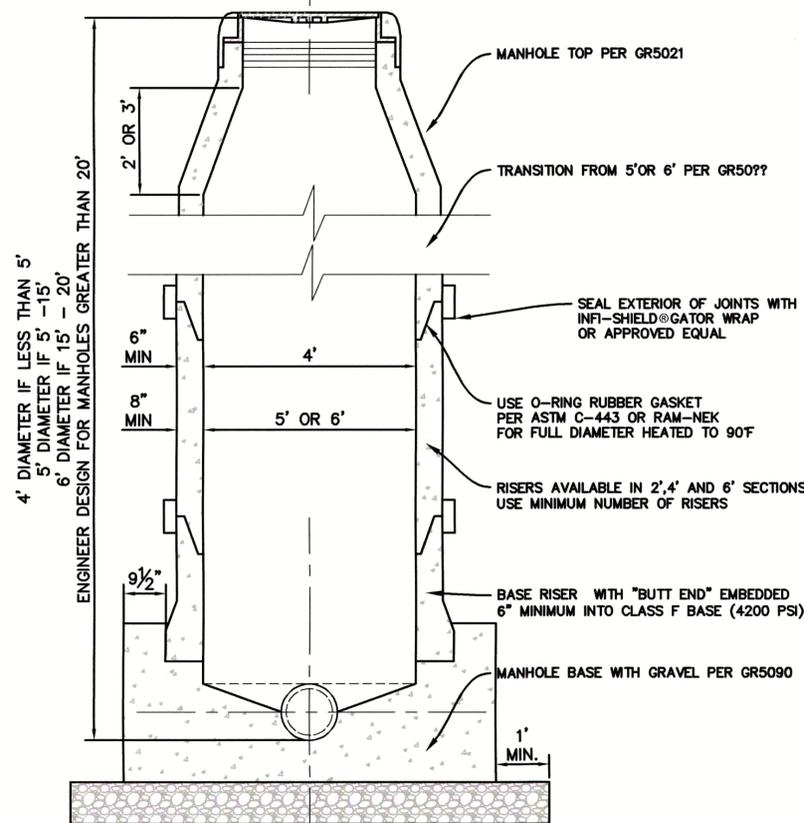
WATER DETAILS				
METERS AND VAULTS				
GRAPEVINE, TEXAS				
City of Grapevine				
Public Works Department				
P.O. BOX 76099 PH 817-410-3155				
CHECKED:	SCALE:	DATE:	PROJECT No.	SHEET
	NTS	4-18-18		OF

METERS AND VAULTS

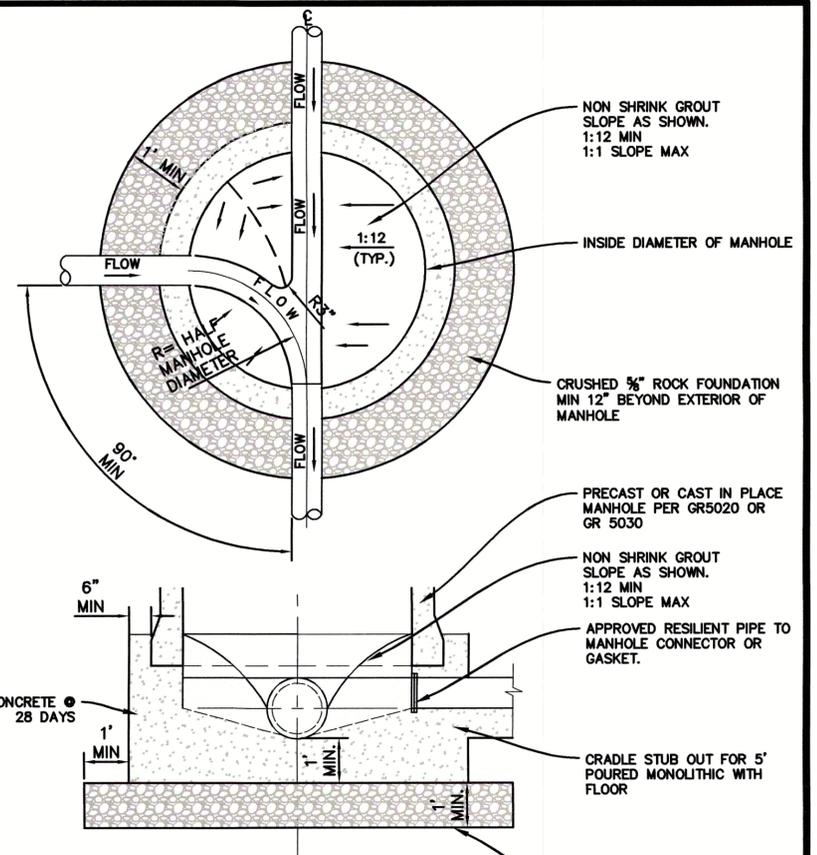




**GR5030 CAST-IN-PLACE MANHOLE**

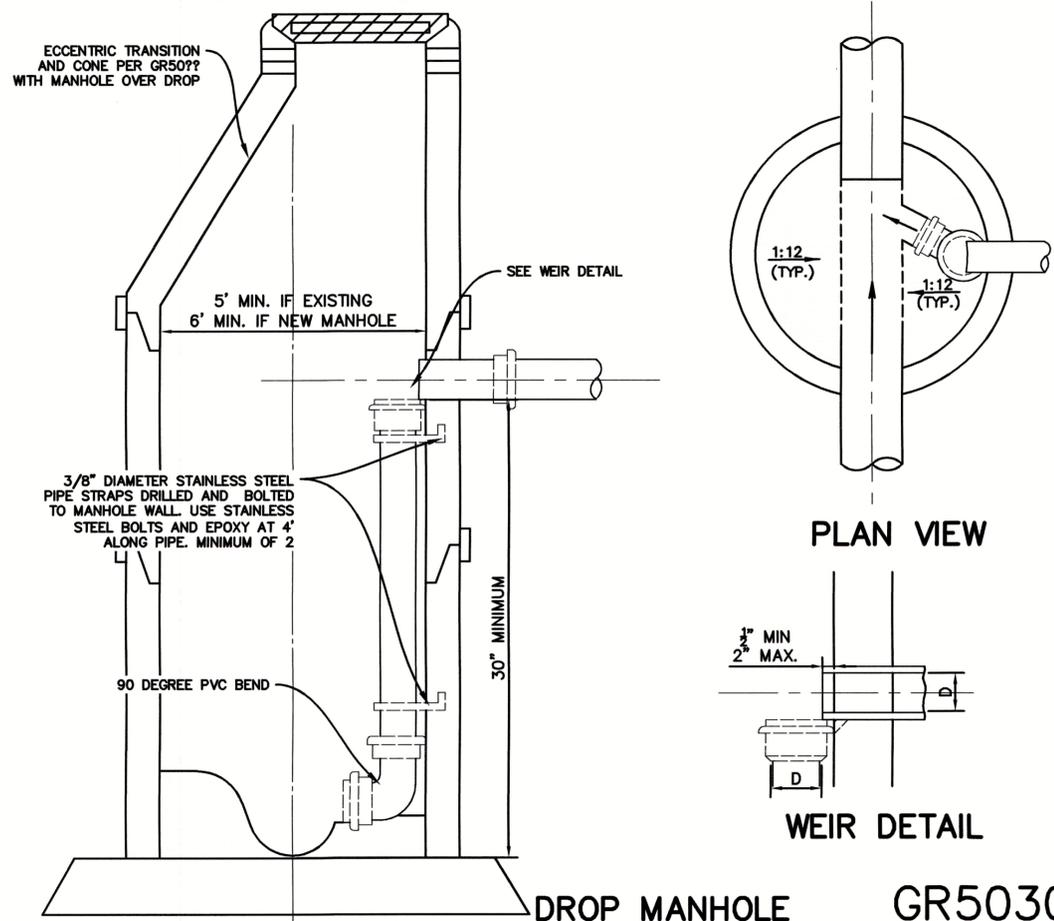


**GR5020 PRE-CAST MANHOLE**



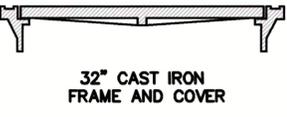
**GR5090 MANHOLE BASE**

NOTES:  
 PRECAST REINFORCED CONCRETE SHALL BE OF THE BELL AND SPIGOT OR TONGUE AND GROOVE DESIGN MEETING THE REQUIREMENTS OF ASTM SPEC C-478 HAVING A WALL THICKNESS ASTM SPEC C-76 WALL B.

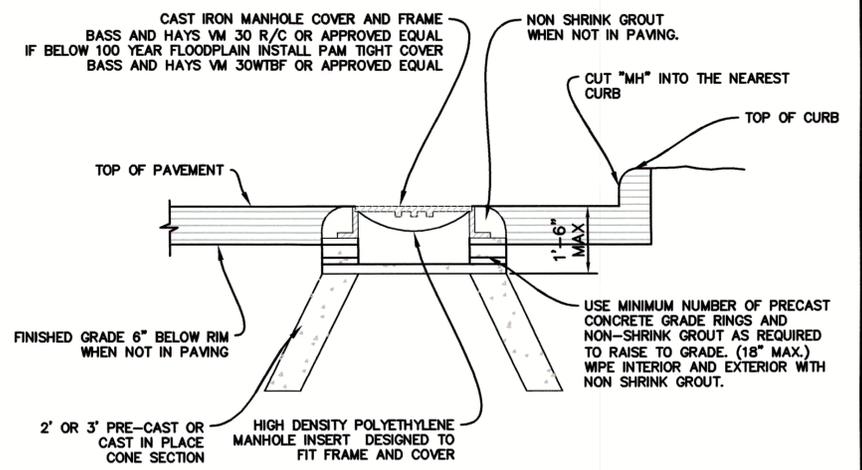
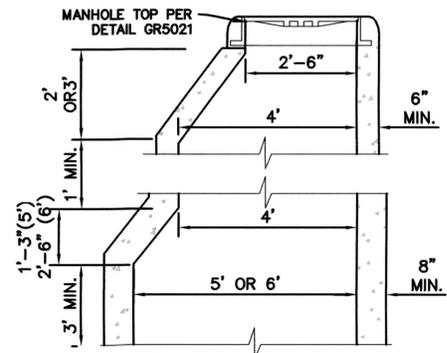
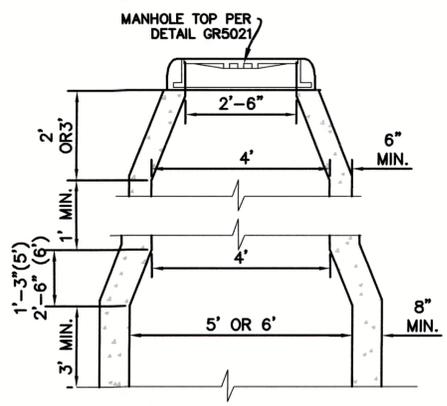


**DROP MANHOLE GR5030**

NOTES:  
 MANHOLES INSTALLED IF THERE IS A FORCE MAIN DISCHARGE OR OTHER HIGHLY CORROSIVE CONDITION THE MANHOLE WILL BE CONSTRUCTED WITH CON SHIELD ADDITIVE OR APPROVED EQUAL



NOTE:  
 BASS AND HAYS LOCKING RING AND COVER 226-L BASS PICTURE OR APPROVED EQUAL

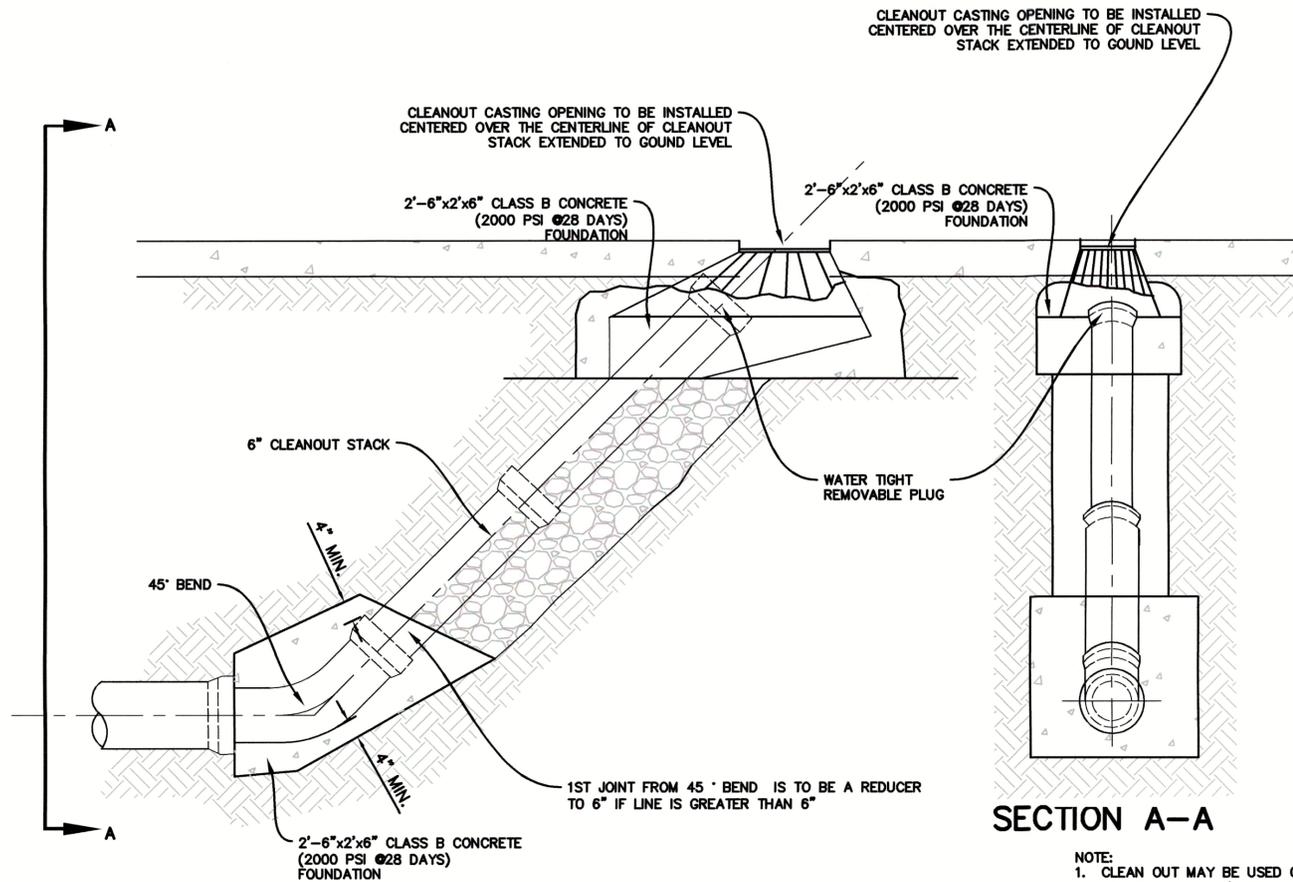


NOTES:  
 MANHOLES TO BE TESTED BY INDEPENDENT LAB MEETING NTCOG SPECIFICATIONS PRIOR TO ACCEPTANCE.

**MANHOLE TOP GR5021**

SANITARY SEWER DETAILS			
MANHOLES			
GRAPEVINE, TEXAS			
City of Grapevine			
Public Works Department			
P.O. BOX 76099 PH 817-410-3155			
CHECKED:	SCALE:	DATE:	PROJECT No. SHEET
NTS		4-18-18	OF

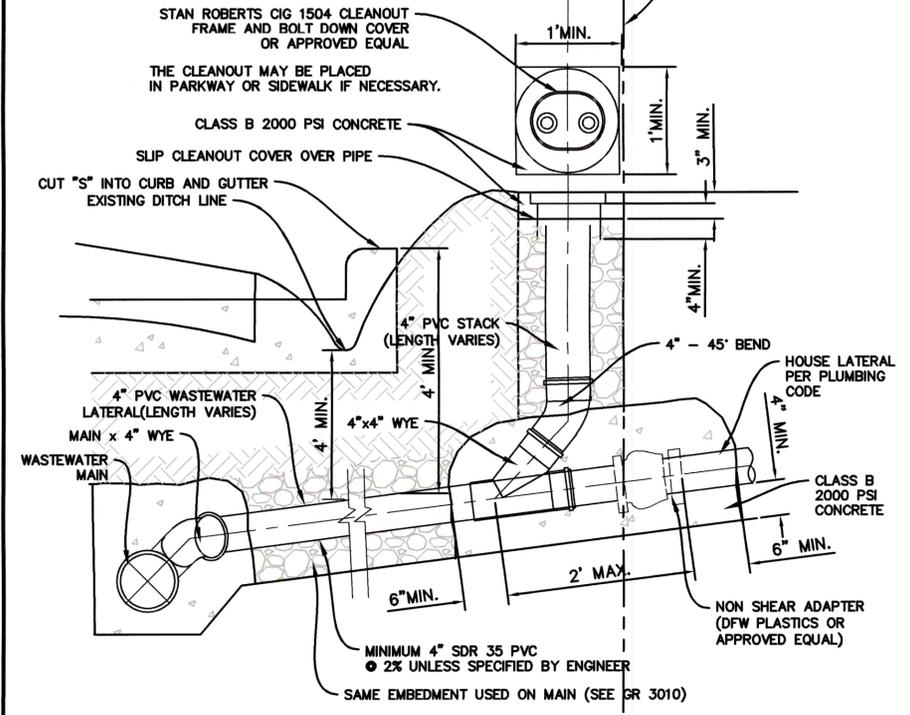
MANHOLE DETAILS



**GR5110 WASTEWATER MAIN CLEANOUT**

- NOTE:
1. CLEAN OUT MAY BE USED ONLY IF LESS THAN 150' TO MANHOLE.
  2. CLEAN OUT MAY NOT BE USED ON LINES OVER 8"

- NOTES:
1. CLEANOUT CASTING TO BE FURNISHED AND PLACED PER SPECIAL CONDITIONS. IN VEHICLE TRAFFIC AREAS AND FOR COMMERCIAL MAINLINE LATERALS, WASTEWATER CLEANOUT SHALL BE OF CAST IRON. SLOPE OF LATERAL TO BE 2% MIN. UNLESS INSTRUCTED OTHERWISE BY CITY.
  2. THE WASTEWATER LATERAL SHALL BE CONNECTED TO BUILDING LATERAL AND CONSTRUCTED IN SUCH MANNER AS TO CLEAR EXISTING UTILITIES AND PROPOSED FACILITIES SUCH AS STORM SEWER MAINS, PAVING, SIDEWALKS, RETAINING WALLS, ETC. VERTICAL BENDS (22.5' MAX.) MAY BE USED IF APPROVED BY CITY.
  3. THE MAINLINE LATERAL CONNECTION TO THE PRIVATE BUILDING LATERAL SHALL BE AS CLOSE TO THE PROPERTY LINE AS POSSIBLE.
  4. INSTALL 4" STOPPER OR CAP AT PROPERTY LINE IF BUILDING LATERAL DOES NOT EXIST.
  5. THE CLEANOUT STACK & CASTING MAY BE PLACED IN THE PARKWAY, VEHICLE TRAFFIC AREAS, OR SIDEWALK, IF NECESSARY.



**GR5120A RESIDENTIAL SEWER CONNECTION**

SANITARY SEWER DETAILS			
CLEANOUT AND SERVICES			
GRAPEVINE, TEXAS			
		City of Grapevine Public Works Department	
P.O. BOX 76099 PH 817-410-3155			
CHECKED:	SCALE:	DATE:	PROJECT No. SHEET
NTS		4-18-18	OF

CLEANOUT AND SERVICE DETAILS

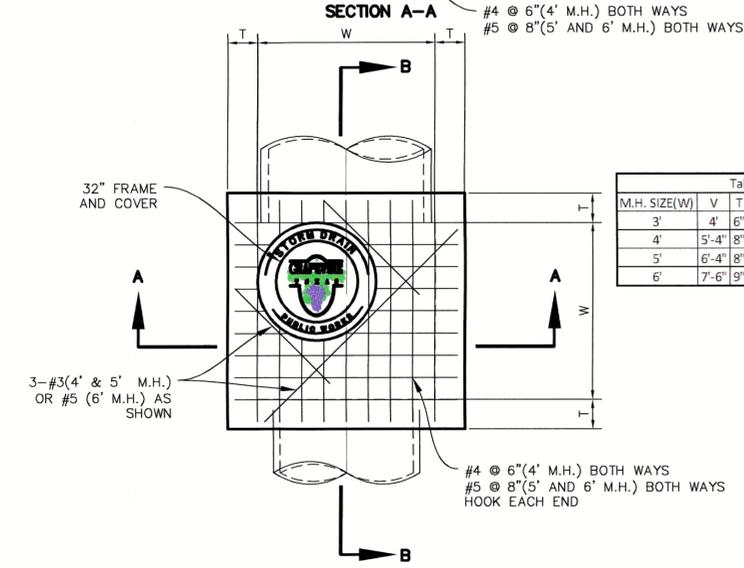
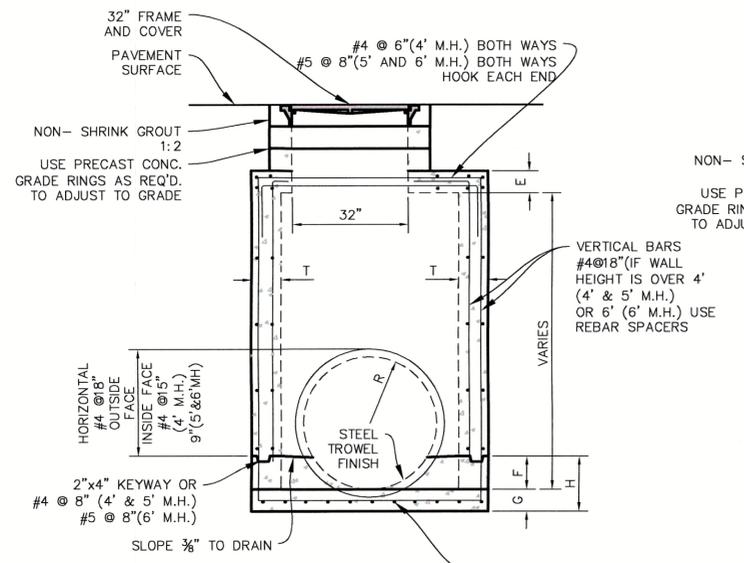
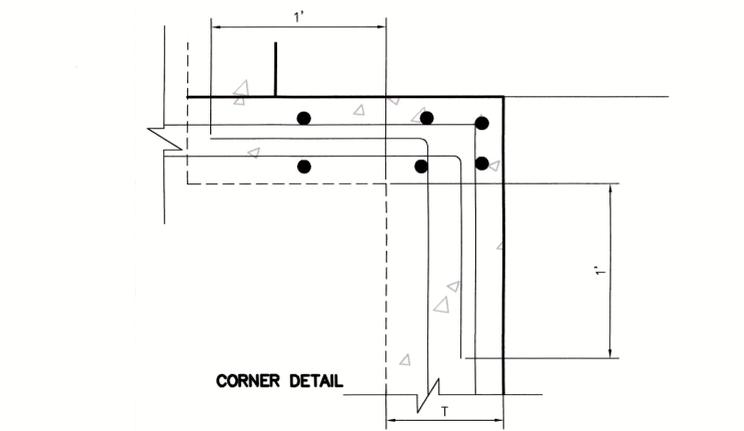
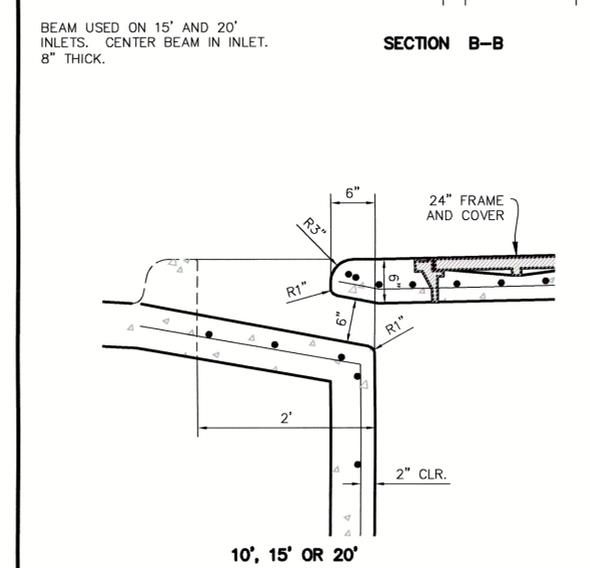
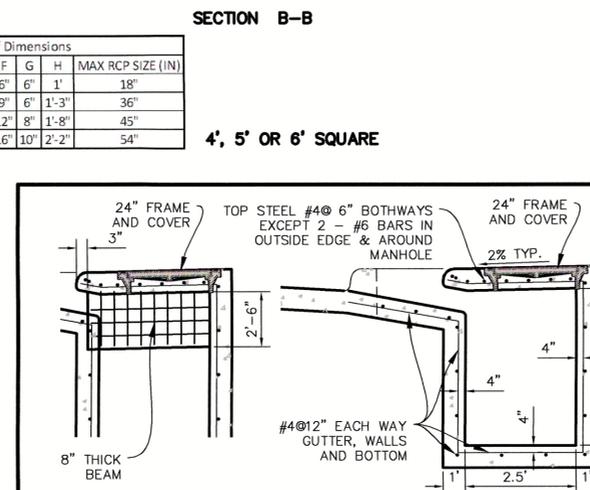
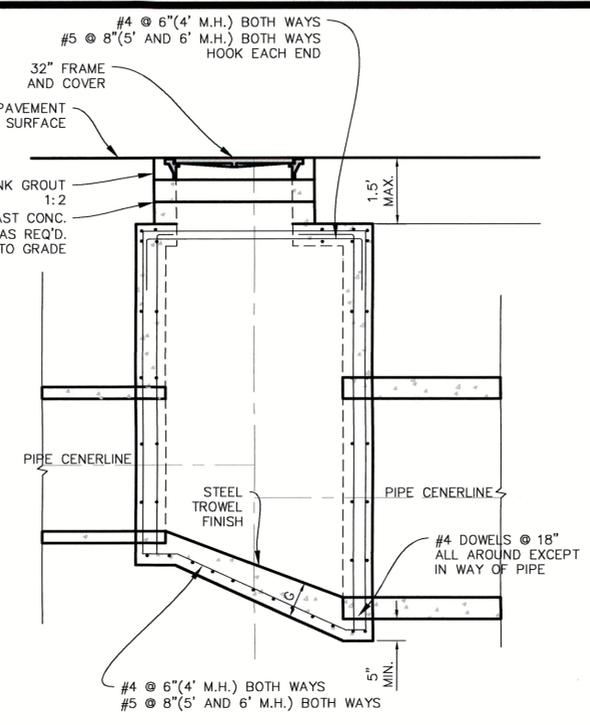


Table of Dimensions

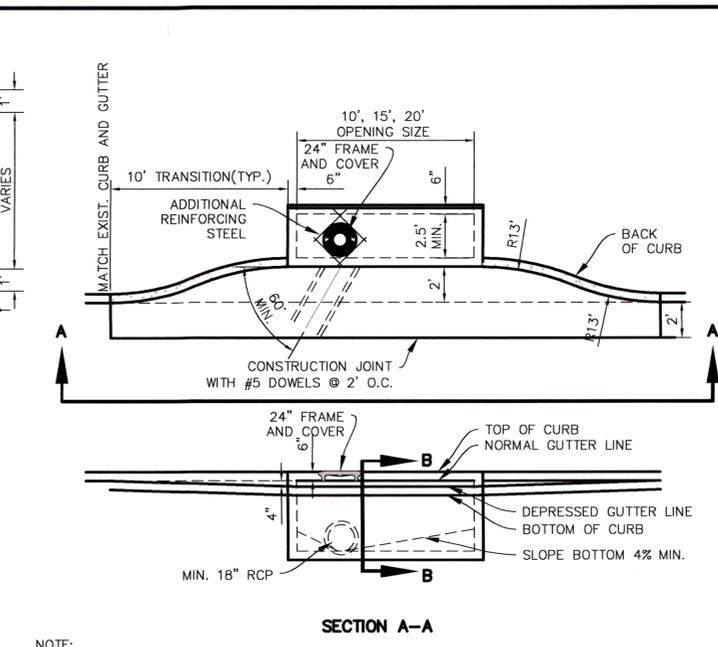
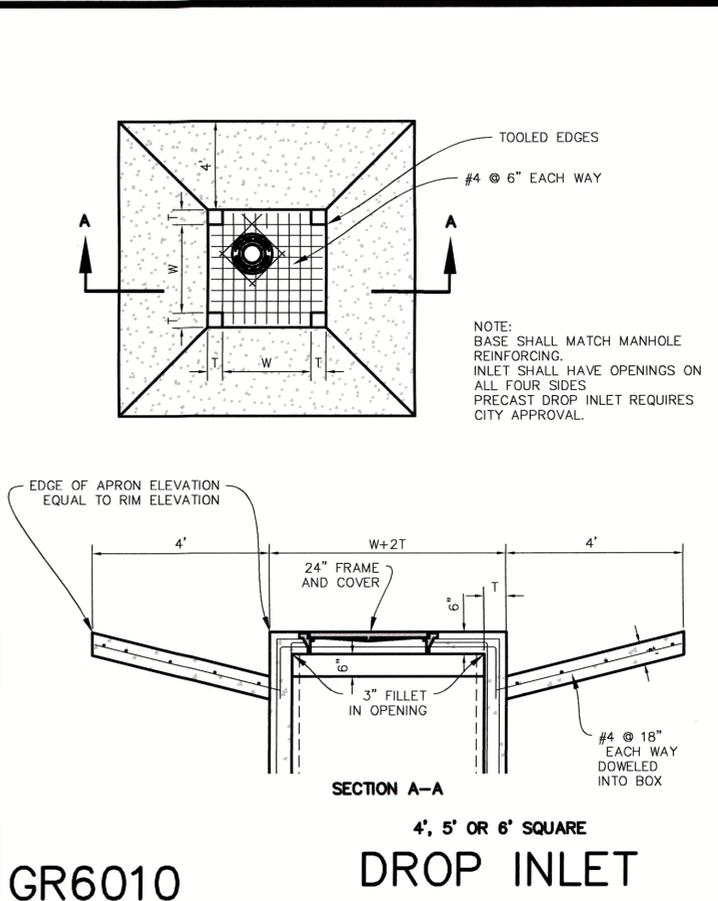
M.H. SIZE (W)	V	T	E	F	G	H	MAX RCP SIZE (IN)
3'	4'	6"	6"	6"	6"	1'	18"
4'	5'-4"	8"	6"	9"	6"	1'-3"	36"
5'	6'-4"	8"	6"	12"	8"	1'-8"	45"
6'	7'-6"	9"	9"	16"	10"	2'-2"	54"



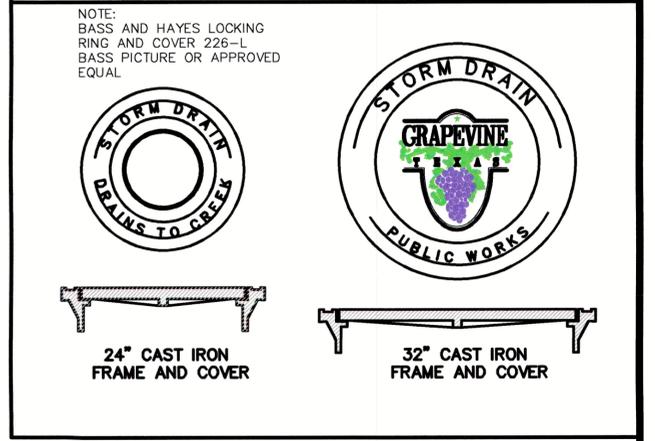
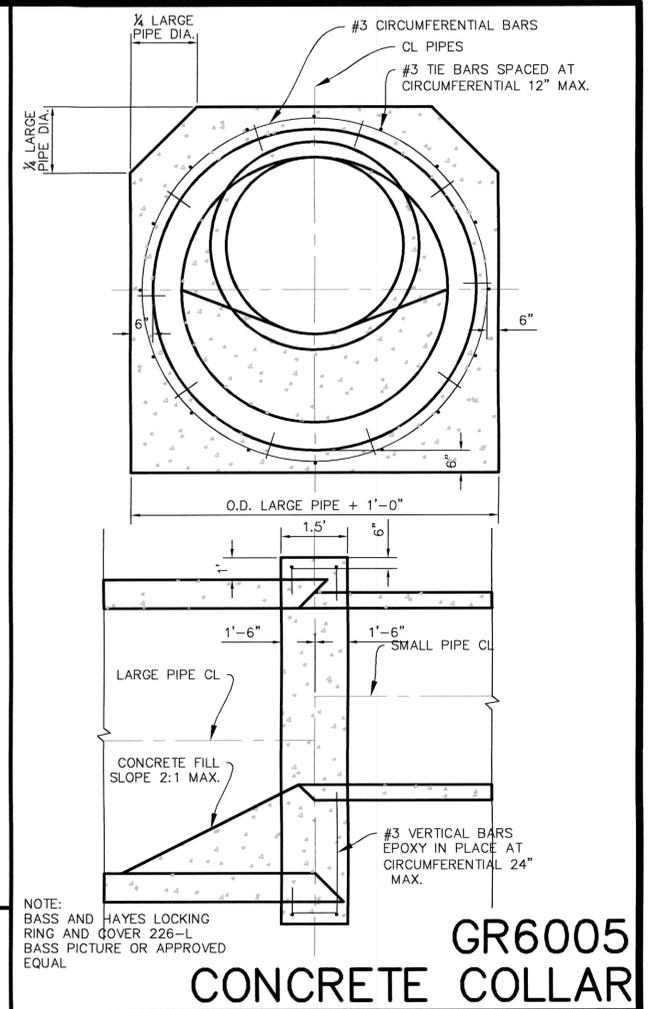
**GR6010**  
**STORMWATER MANHOLE**



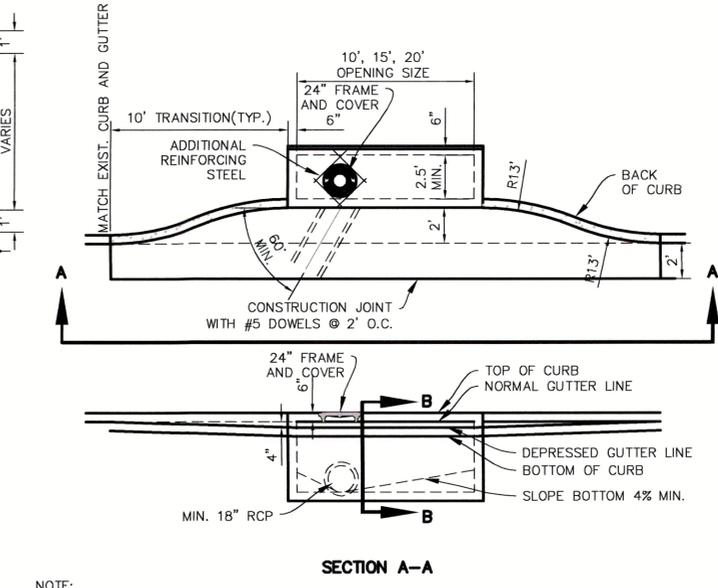
**10', 15' OR 20'**  
**RECESSED CURB INLET**



**4', 5' OR 6' SQUARE**  
**GR6010**  
**DROP INLET**



**GR6005**  
**CONCRETE COLLAR**



**10', 15', 20' OPENING SIZE**  
**GR6030**  
**RECESSED CURB INLET**

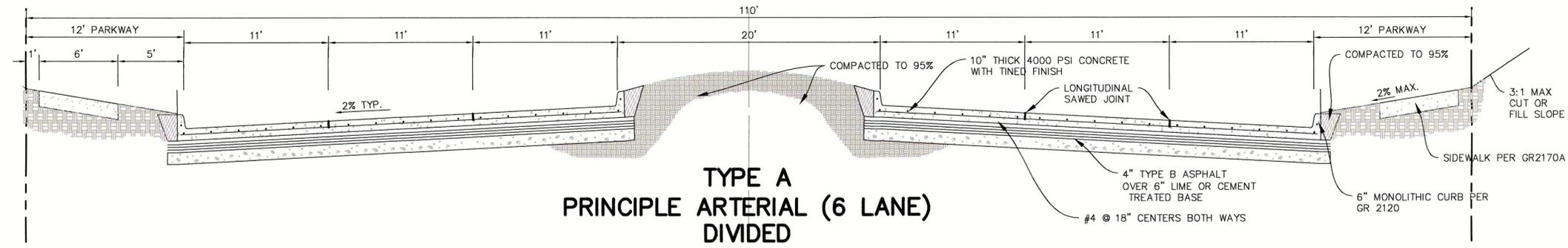
- NOTE:
1. IN GENERAL, REINFORCING STEEL SHALL BE #4 BARS ON 12" CENTERS BOTH WAYS FOR GUTTER, BOTTOM SLAB ENDS, FRONT AND BACK WALLS, AND #4 BARS ON 6" CENTERS BOTH WAYS FOR TOP SLAB. AN ADDITIONAL #6 BAR SHALL BE PLACED IN THE FRONT EDGE OF THE TOP SLAB IN THE INLETS AND ADDITIONAL REINFORCING STEEL SHALL BE PLACED AROUND MANHOLES AS SHOWN.
  2. ALL REINFORCING STEEL SHALL BE GRADE 60.
  3. ALL CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 3600 PSI @ 28 DAYS. (CLASS "A" CONCRETE)
  4. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 2" TO THE CENTERS OF THE BARS.
  5. 10'-0" OF EXISTING CURB AND GUTTER UPSTREAM AND 10'-0" OF EXISTING CURB AND GUTTER DOWNSTREAM SHALL BE REMOVED AND REPOURED INTEGRALLY WITH EACH INLET.
  6. ALL BACK FILLING SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
  7. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".

**STORM DRAIN**  
**DETAILS**  
**GRAPEVINE, TEXAS**

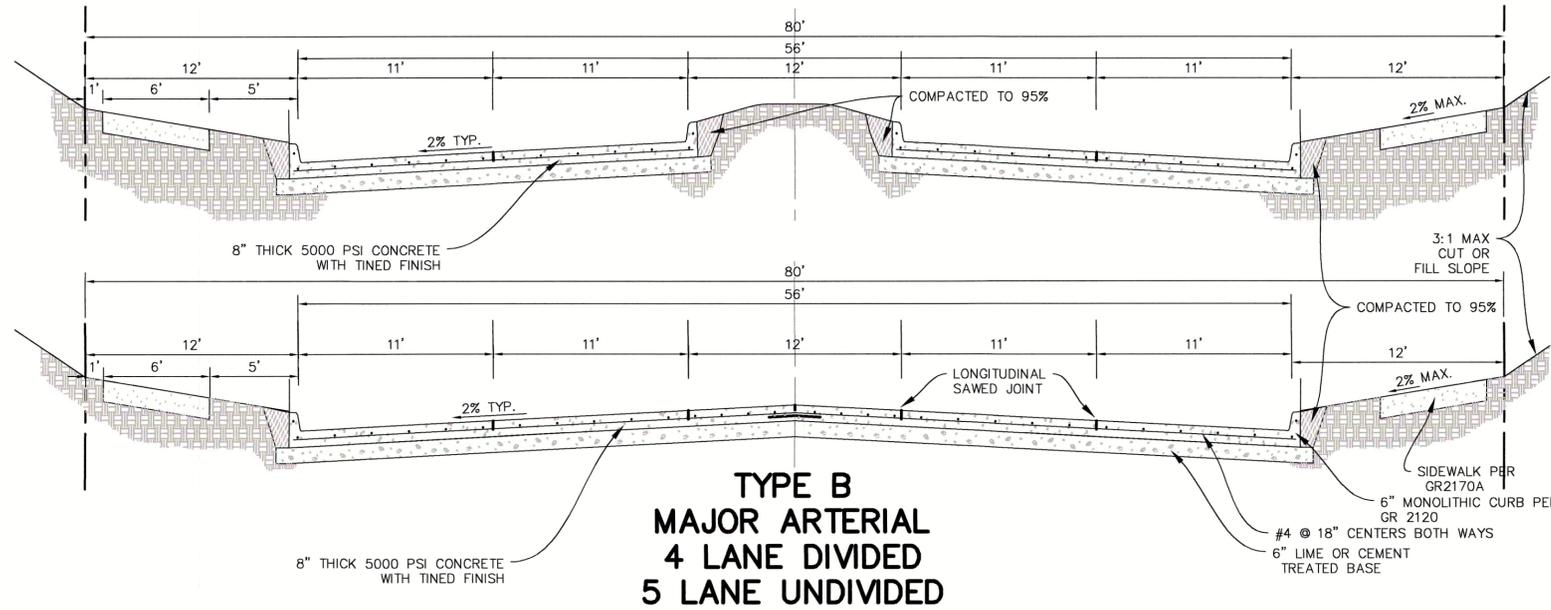
City of Grapevine  
Public Works Department  
P.O. BOX 78099 PH 817-410-3155

CHECKED: NTS SCALE: NTS DATE: 1-9-2020 PROJECT No. SHEET

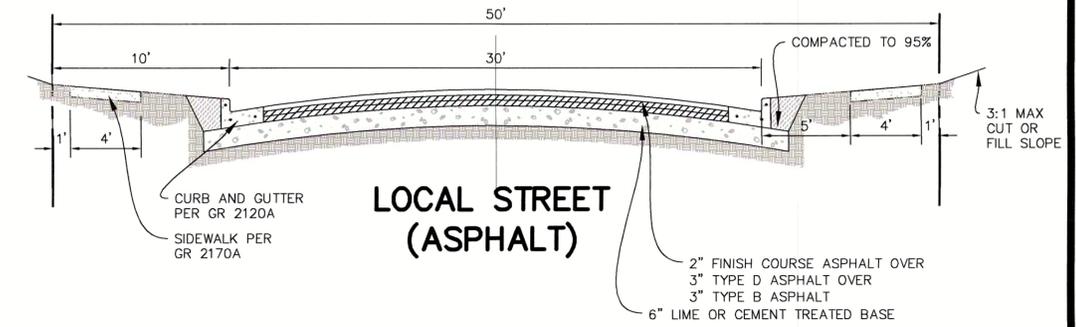
STORM DRAIN DETAILS



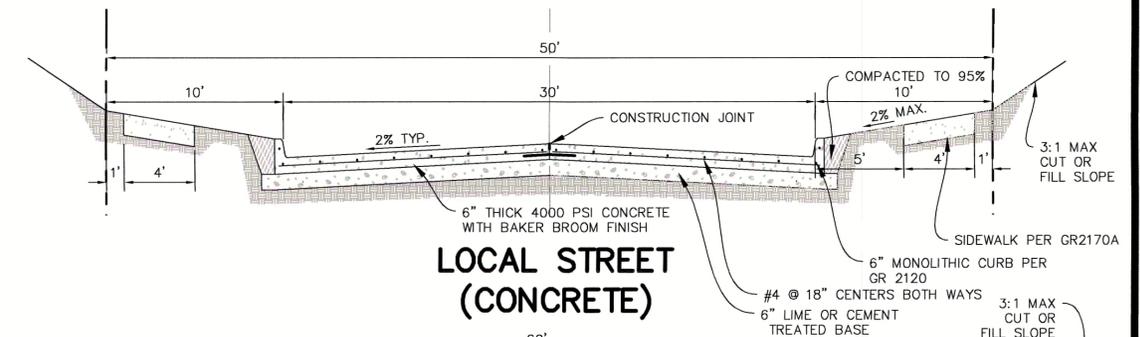
**TYPE A  
PRINCIPLE ARTERIAL (6 LANE)  
DIVIDED**



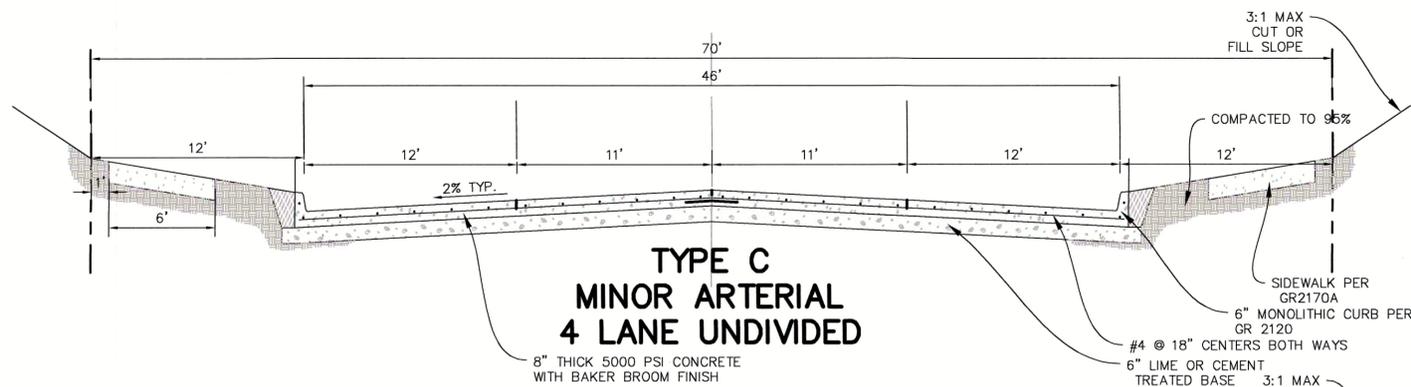
**TYPE B  
MAJOR ARTERIAL  
4 LANE DIVIDED  
5 LANE UNDIVIDED**



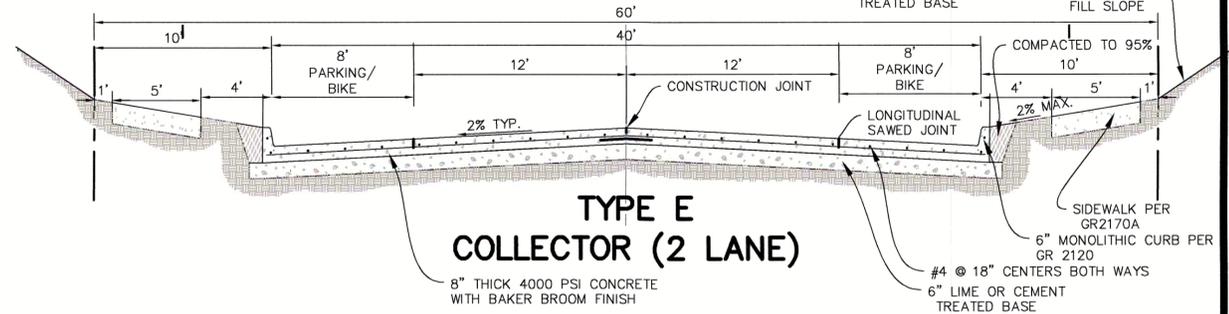
**LOCAL STREET  
(ASPHALT)**



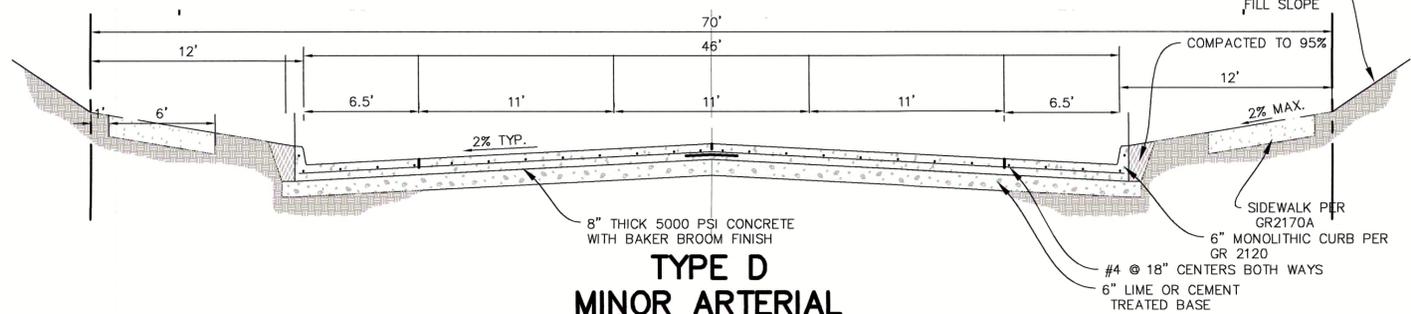
**LOCAL STREET  
(CONCRETE)**



**TYPE C  
MINOR ARTERIAL  
4 LANE UNDIVIDED**



**TYPE E  
COLLECTOR (2 LANE)**



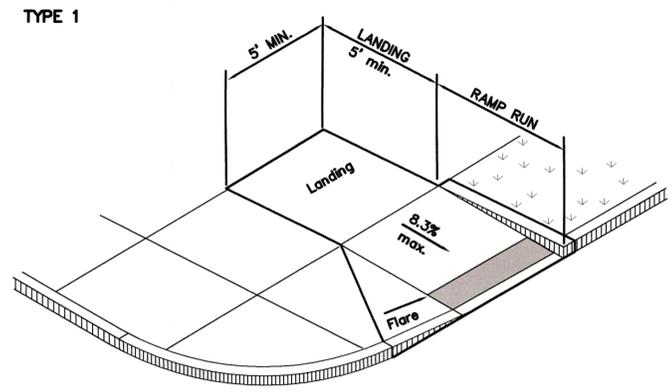
**TYPE D  
MINOR ARTERIAL  
3 LANE UNDIVIDED**

- NOTES:
- PAVING SHALL HAVE TRANSVERSE JOINTS AT 15' MAXIMUM SPACING AND AT PC'S, PT'S, AND CURB RETURNS.
  - JOINTS SHALL BE CUT AS SOON AS PAVEMENT CAN BE TRAVERSED WITHOUT DAMAGE TO FINISH.
  - CONSTRUCTION JOINTS WILL BE PLACED AT THE CROWN OF THE STREET. LONGITUDINAL JOINTS WILL BE CUT AT LANE SPACING.
  - PAVING SHALL BE REINFORCED WITH #4 STEEL @ 18" CENTER. SPLICES WILL HAVE A MINIMUM OF 30 BAR DIAMETERS.
  - LOCAL AND COLLECTORS SHALL BE 4000 PSI CONCRETE @28 DAYS
  - ARTERIALS SHALL BE 5000 PSI CONCRETE @28 DAYS
  - SUB-GRADE TO BE LIME OR CEMENT TREATED VERIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION WITH A MINIMUM OF 6%
  - ALL DISTURBED SOIL SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR
  - AN APPROVED WHITE PIGMENTED CURING COMPOUND SHALL BE APPLIED TO ALL EXPOSED SURFACES WITHIN 30-60 MINUTES AFTER CONCRETE IS PLACED.
  - BAKER BROOM FINISH WILL BE USED ON MINOR ARTERIALS, COLLECTOR AND LOCAL STREETS. TINED FINISH WILL BE USED ON MAJOR ARTERIALS.
  - ALL INLETS WILL BE SEPARATED FROM THE PAVEMENT AND CURB BY BOXING AROUND INLETS AS SHOWN ON INLET DETAIL.
  - TACK COAT A CLEAN SURFACE AT A RATE BETWEEN 0.9 TO 0.10 GALLONS/SY.
  - ALL HOT MIX ASPHALT SHALL BE COMPACTED TO 90% OF MAXIMUM THEORETICAL DENSITY.

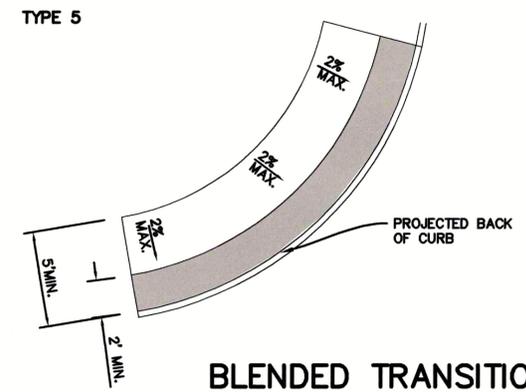
STREET			
SECTIONS			
GRAPEVINE, TEXAS			
 City of Grapevine Public Works Department			
CHECKED:	SCALE:	DATE:	PROJECT No. SHEET
	1"=5H 1"=2.5'	1-9-2020	

STREET SECTIONS

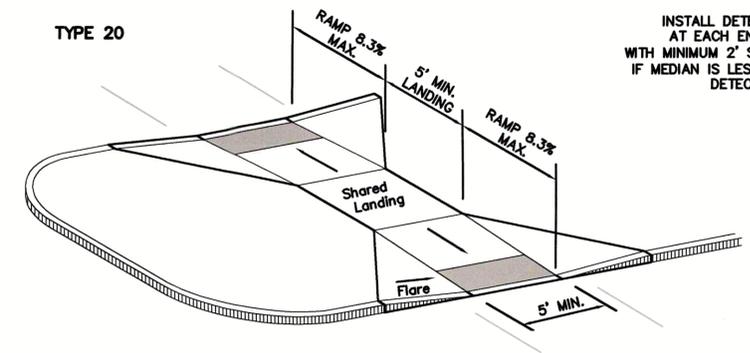




**PERPENDICULAR CURB RAMP**

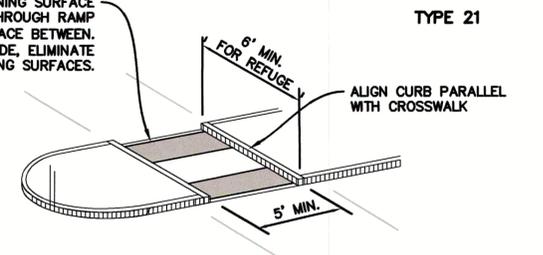


**BLENDED TRANSITION**

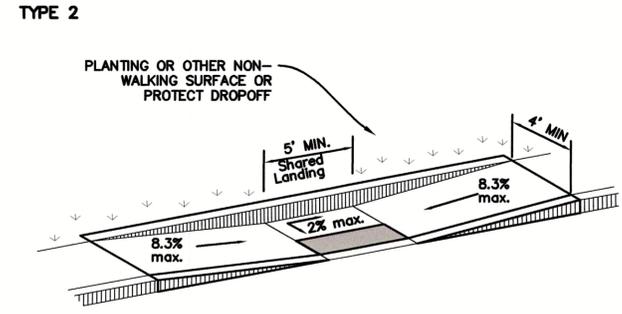


**CURB RAMPS AT MEDIAN ISLANDS**

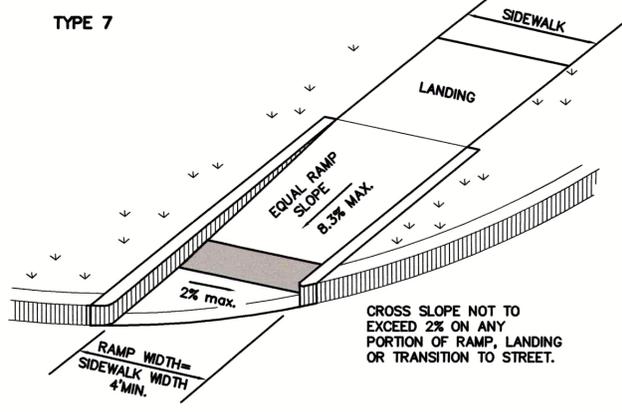
INSTALL DETECTABLE WARNING SURFACE AT EACH END OF CUT-THROUGH RAMP WITH MINIMUM 2' SMOOTH SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.



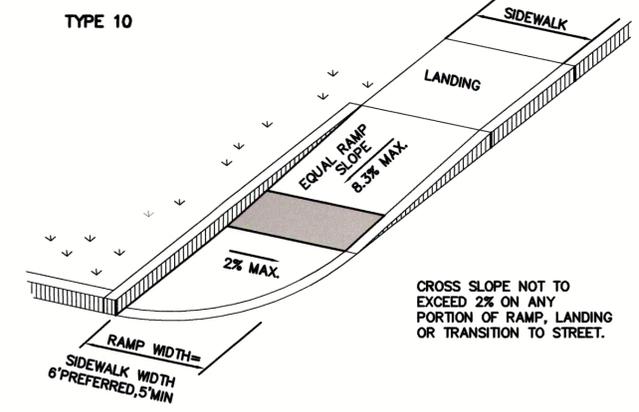
**TYPE 21**



**PARALLEL CURB RAMP**  
(USE ONLY WHERE WATER WILL NOT POND IN THE LANDING.)

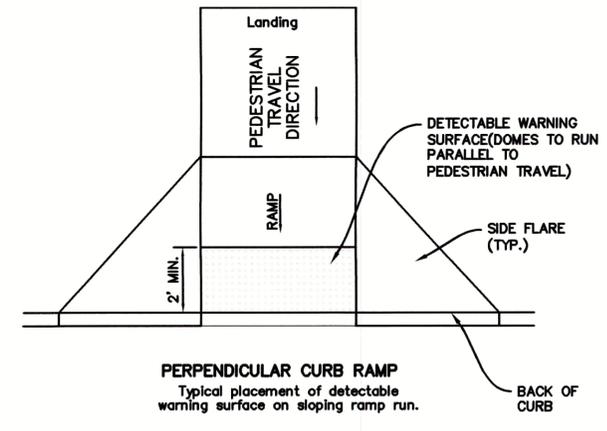


(SIDEWALK SET BACK FROM CURB)

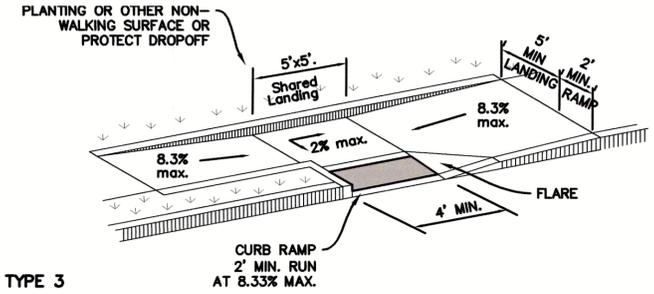


(SIDEWALK ADJACENT TO CURB)

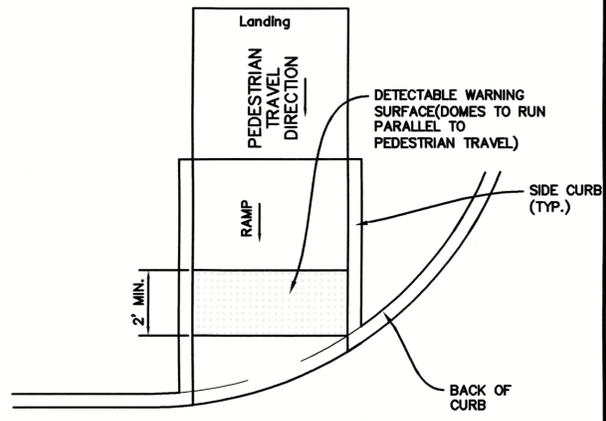
**DIRECTIONAL RAMPS WITHIN RADIUS**



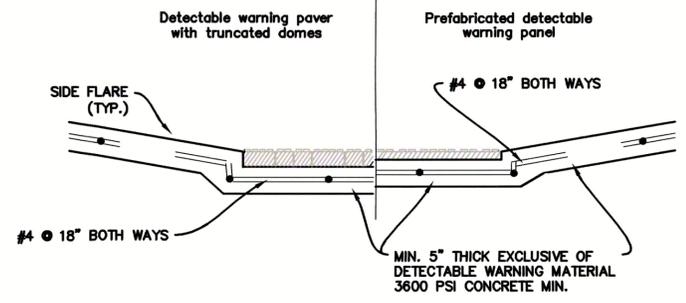
**PERPENDICULAR CURB RAMP**  
Typical placement of detectable warning surface on sloping ramp run.



**PARALLEL CURB RAMP**

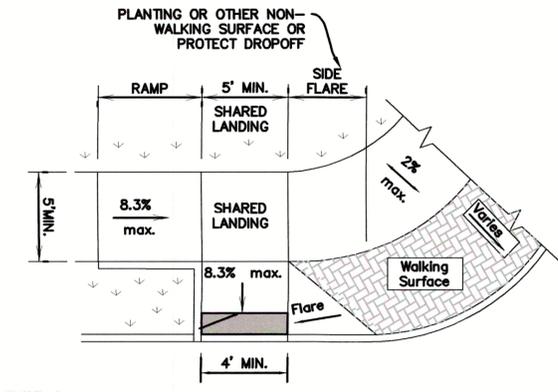


**DIRECTIONAL CURB RAMP**  
Typical placement of detectable warning surface on sloping ramp run.

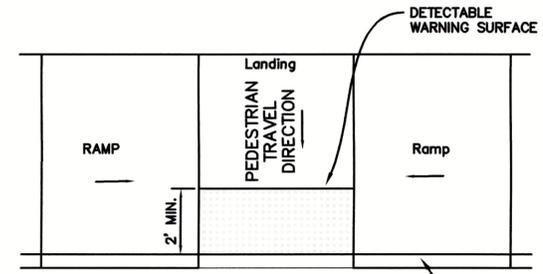


**SECTION: CURB RAMP AT DETECTABLE WARNING**

**NOTES / LEGEND:**  
See General Notes on sheet for more information.  
Denotes planting or non-walking surface not part of pedestrian circulation path.



**COMBINATION CURB RAMPS**



**PARALLEL CURB RAMP**  
Typical placement of detectable warning surface on landing at street edge.

PLAN REVISIONS	
No.	Description

No. Description	Date

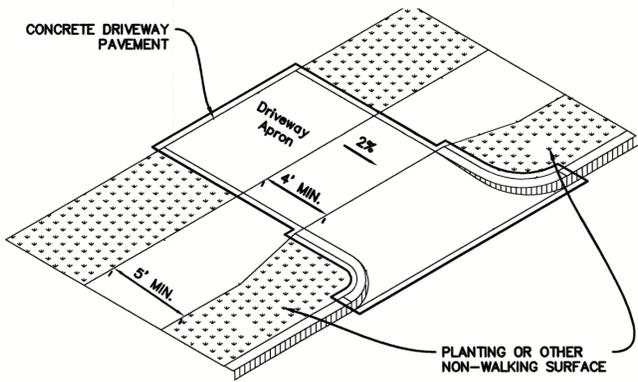
<b>Curb Ramp</b>	
<b>Details</b>	
<b>GRAPEVINE, TEXAS</b>	
City of Grapevine Public Works Department	
P.O. BOX 76099 PH 817-410-3155	
CHECKED: NTS	SCALE: 1/8" = 1'-0"
DATE: 4-18-18	PROJECT No. SHEET 11 of 14

CURB RAMP DETAILS

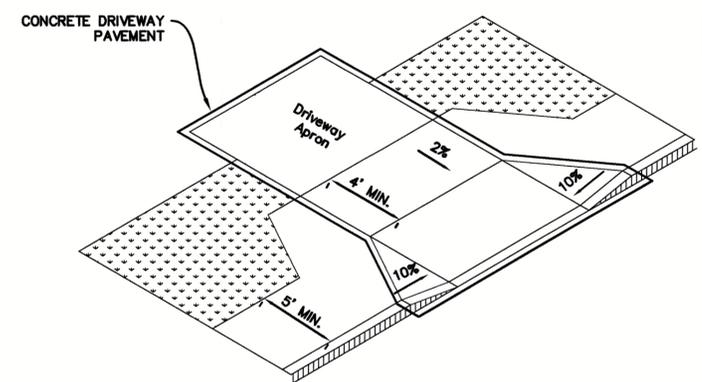
GENERAL NOTES

CURB RAMP

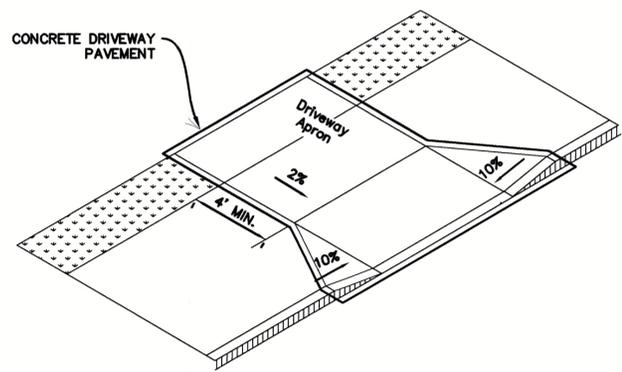
- ALL SLOPES SHOWN ARE MAXIMUM ALLOWABLE. LESSER SLOPES THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. ADJUST CURB RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS AS DIRECTED.
  - THE MINIMUM SIDEWALK WIDTH IS 4'. WHERE THE SIDEWALK IS ADJACENT TO THE BACK OF CURB, A 6' SIDEWALK WIDTH IS DESIRABLE. WHERE A 5' SIDEWALK CANNOT BE PROVIDED DUE TO SITE CONSTRAINTS, SIDEWALK WIDTH MAY BE REDUCED TO 4' FOR SHORT DISTANCES 5'x 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' ARE REQUIRED.
  - LANDINGS SHALL BE 5'x 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION.
  - MANEUVERING SPACE AT THE BOTTOM OF CURB RAMP SHALL BE A MINIMUM OF 4'x 4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
  - MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
  - PROVIDE FLARED SIDES WHERE THE PEDESTRIAN CIRCULATION PATH CROSSES THE CURB RAMP FLARED SIDES SHALL BE SLOPED AT 10% MAXIMUM, MEASURED PARALLEL TO THE CURB. RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTED, SUBSTANTIALLY OBSTRUCTED, OR OTHERWISE PROTECTED.
  - ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
  - TO SERVE AS A PEDESTRIAN REFUGE AREA, THE MEDIAN SHOULD BE A MINIMUM OF 6' WIDE, MEASURED FROM BACK OF CURBS. MEDIANS SHOULD BE DESIGNED TO PROVIDE ACCESSIBLE PASSAGE OVER OR THROUGH THEM.
  - SMALL CHANNELIZATION ISLANDS, WHICH DO NOT PROVIDE A MINIMUM 5'x 5' LANDING AT THE TOP OF CURB RAMP, SHALL BE CUT THROUGH LEVEL WITH THE SURFACE OF THE STREET.
  - CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMP SHALL ALIGN WITH THEORETICAL CROSSWALKS UNLESS OTHERWISE DIRECTED.
  - HANDRAILS ARE NOT REQUIRED ON CURB RAMP. PROVIDE CURB RAMP WHEREVER ON ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
  - PLACE CONCRETE AT A MINIMUM DEPTH OF 5" FOR RAMP, FLARES AND LANDINGS, UNLESS OTHERWISE DIRECTED.
  - PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMP CONNECTS TO THE STREET.
  - EXISTING FEATURES THAT COMPLY WITH TAS MAY REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
- DETECTABLE WARNING MATERIAL
- CURB RAMP MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 705 OF THE TAS. THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACES, INCLUDING SIDE FLARES. FURNISH AND INSTALL AN APPROVED CAST-IN-PLACE DARK RED DETECTABLE WARNING SURFACE MATERIAL ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
  - DETECTABLE WARNING MATERIALS MUST MEET TxDOT DEPARTMENTAL MATERIALS SPECIFICATION DMS 4350 AND BE LISTED ON THE MATERIAL PRODUCER LIST. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
  - DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
  - DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
  - DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST TO THE CURB LINE IS AT THE BACK OF CURB. ALIGN THE ROWS OF DOMES TO BE PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP RUN AND THE STREET. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
  - SHADED AREAS ON SHEET 1 OF 4 INDICATE THE APPROXIMATE LOCATION FOR THE DETECTABLE WARNING SURFACE FOR EACH CURB RAMP TYPE.
- DETECTABLE WARNING PAVERS
- FURNISH DETECTABLE WARNING PAVEMENT UNITS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33. LAY IN A TWO BY TWO UNIT BASKET WEAVE PATTERN OR AS DIRECTED.
- SIDEWALKS
- PROVIDE CLEAR GROUND SPACE AT OPERABLE PARTS, INCLUDING PEDESTRIAN PUSH BUTTONS. OPERABLE PARTS SHALL BE PLACED WITHIN ONE OR MORE REACH RANGES SPECIFIED IN TAS 308.
  - PLACE TRAFFIC SIGNAL OR ILLUMINATION POLES, GROUND BOXES, CONTROLLER BOXES, SIGNS, DRAINAGE FACILITIES AND OTHER ITEMS SO AS NOT TO OBSTRUCT THE PEDESTRIAN ACCESS ROUTE OR CLEAR GROUND SPACE.
  - STREET GRADES AND CROSS SLOPES SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
  - THE LEAST POSSIBLE GRADE SHOULD BE USED TO MAXIMIZE ACCESSIBILITY. THE RUNNING SLOPE OF SIDEWALKS AND CROSSWALKS WITHIN THE PUBLIC RIGHT OF WAY MAY FOLLOW THE GRADE OF THE PARALLEL ROADWAY. WHERE A CONTINUOUS GRADE GREATER THAN 5% MUST BE PROVIDED, HANDRAILS MAY BE DESIRABLE TO IMPROVE ACCESSIBILITY. HANDRAILS MAY ALSO BE NEEDED TO PROTECT PEDESTRIANS FROM POTENTIALLY HAZARDOUS CONDITIONS. IF PROVIDED, HANDRAILS SHALL COMPLY WITH TAS 505.
  - HANDRAIL EXTENSIONS SHALL NOT PROTRUDE INTO THE USABLE LANDING AREA OR INTO INTERSECTING PEDESTRIAN ROUTES.
  - SIDEWALK DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.



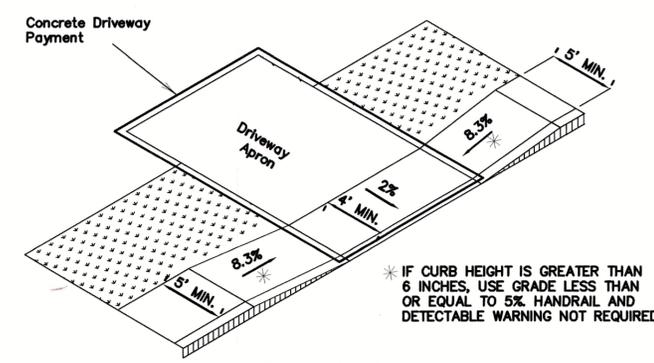
Setback sidewalk



Apron offset sidewalk



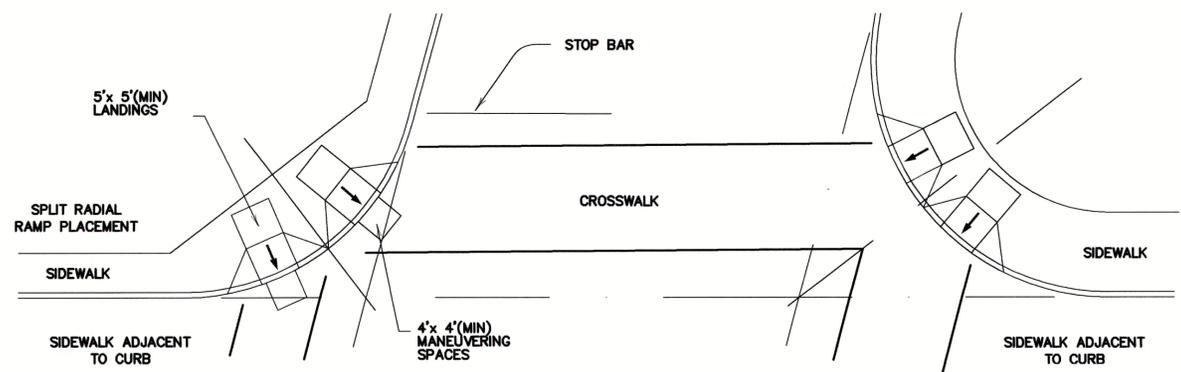
Wide sidewalk



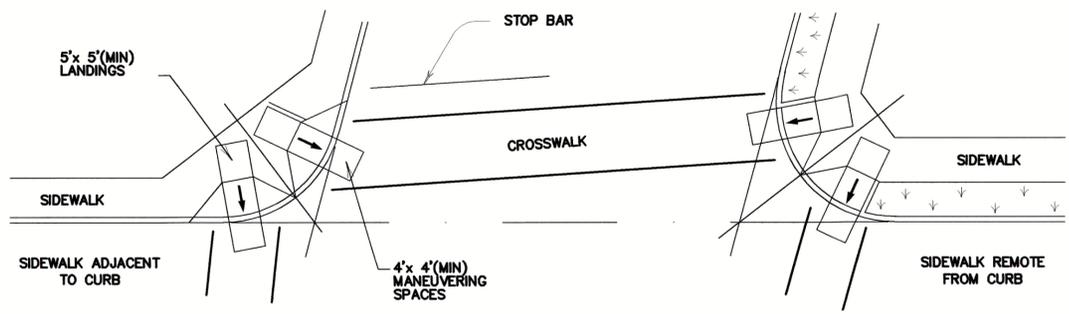
Ramp sidewalk

SIDEWALK TREATMENT AT DRIVEWAYS

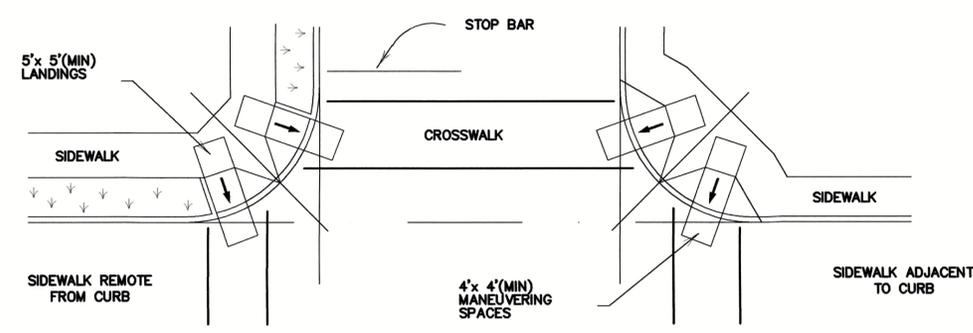
\* IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5% HANDRAIL AND DETECTABLE WARNING NOT REQUIRED.



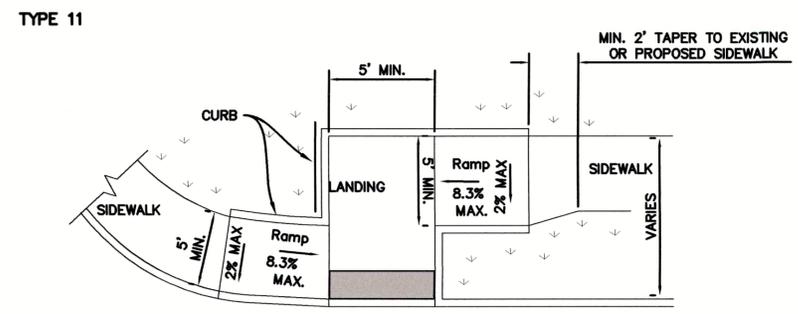
SKewed INTERSECTION WITH "LARGE" RADIUS



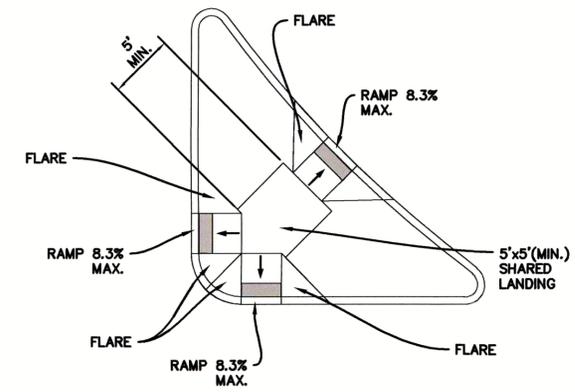
SKewed INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS  
TYPICAL CROSSING LAYOUTS



OFFSET PARALLEL CURB RAMP



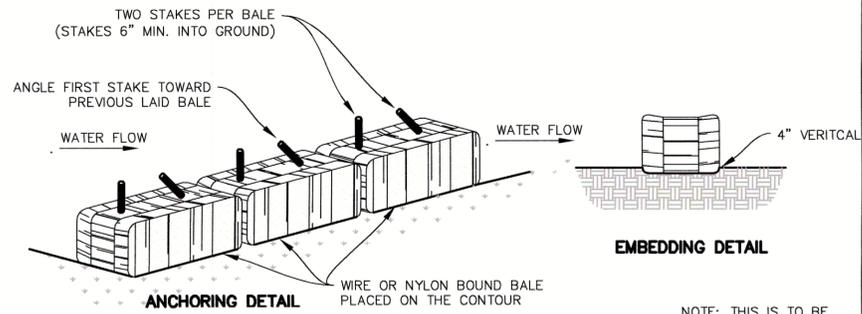
COMBINATION ISLAND RAMPS

PLAN REVISIONS		
No.	Description	Date

<b>Curb Ramp</b>		
Details GRAPEVINE, TEXAS		
City of Grapevine Public Works Department		
P.O. BOX 76099 PH 817-410-3155		
CHECKED:	SCALE:	DATE:
NTS		4-18-18
PROJECT No.	SHEET	
	10 of 14	

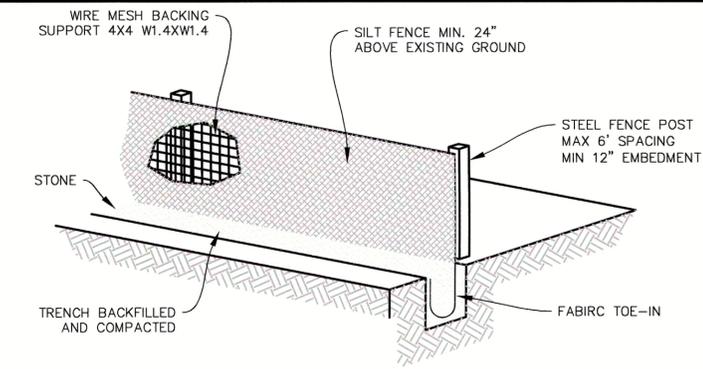
CURB RAMP DETAILS



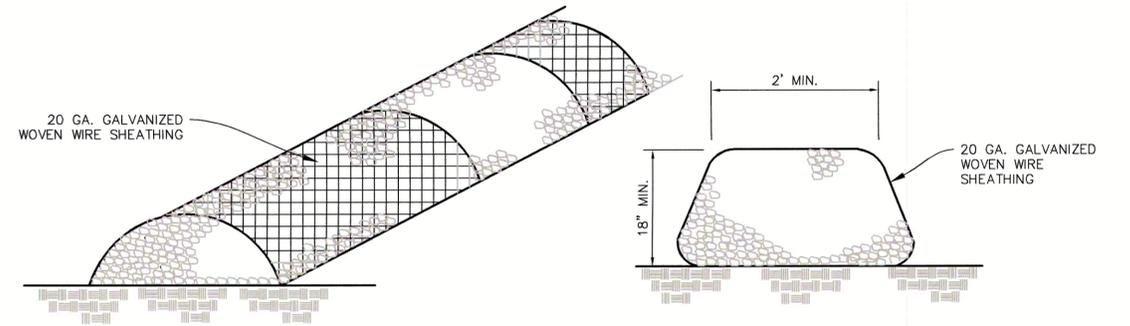


**GR5020 HAY BALE DIKE**

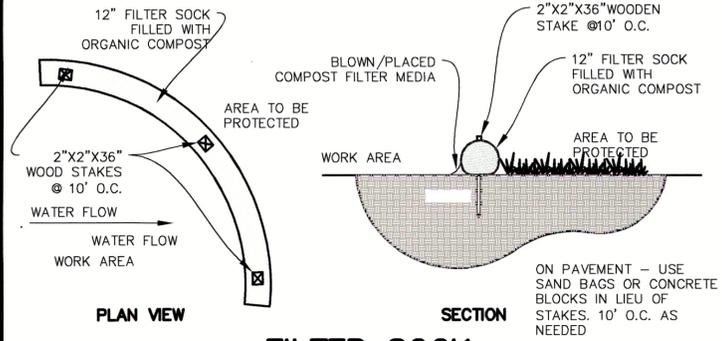
NOTE: THIS IS TO BE USED IN VERY TEMPORARY SITUATIONS WITH INSPECTORS APPROVAL



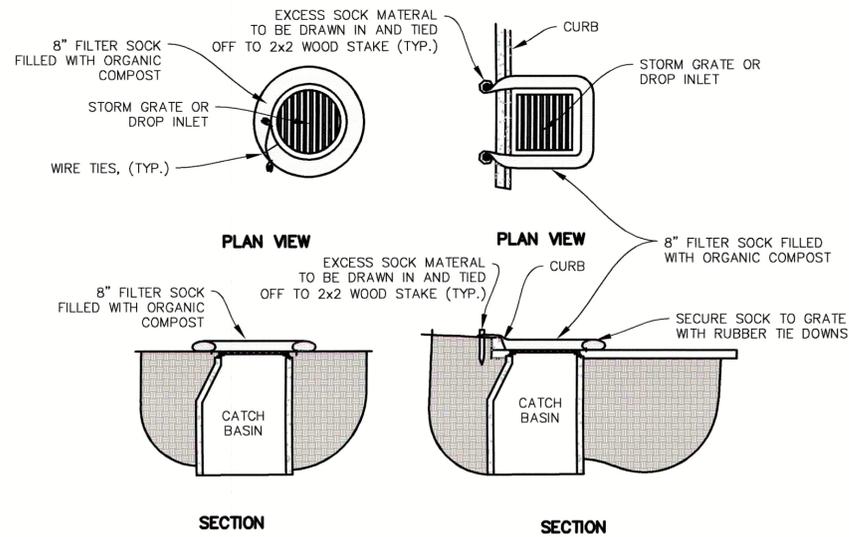
**GR5010 SILT FENCE**



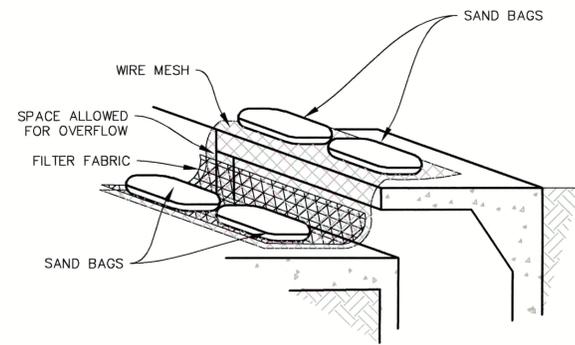
**ROCK FILTER DAM GR5070**



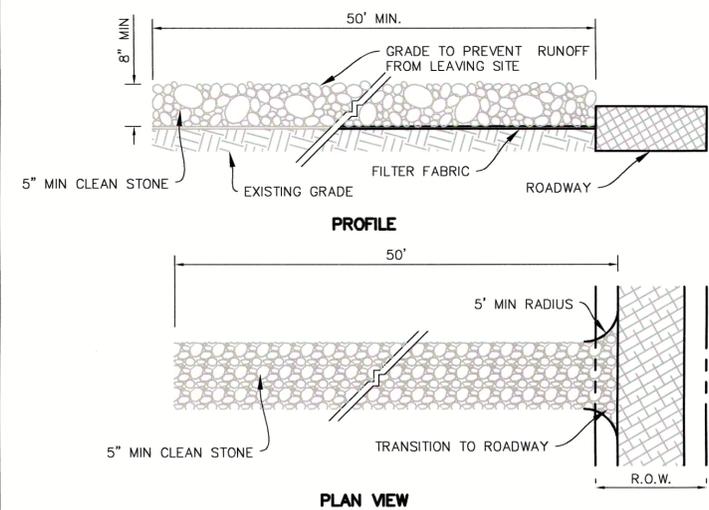
**GR5030 FILTER SOCK**



**GRATE/ DROP INLET PROTECTION GR5040**



**CURB INLET PROTECTION GR5060**



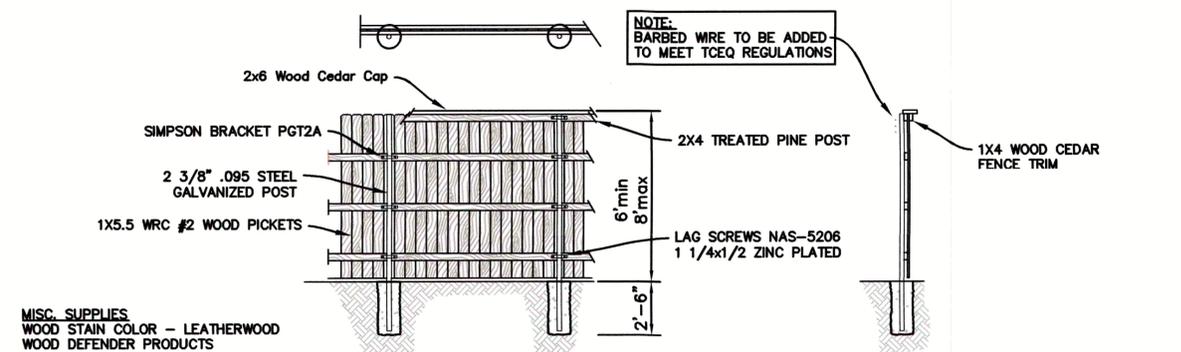
- STONE SHALL BE 5 INCH DIAMETER CRUSHED ROCK OR ACCEPTABLE CRUSHED PORTLAND CEMENT CONCRETE.
- WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH CRUSHED STONE, WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE USING APPROVED METHODS.
- THE ENTRANCE SHALL MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
- THE ENTRANCE MUST BE PROPERLY GRADED, OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

**CONSTRUCTION ENTRANCE GR5050**

- EROSION CONTROL NOTES:**
- THE SPECIFIC PLANT MATERIALS PROPOSED TO PROTECT FILL AND EXCAVATED SLOPES SHALL BE AS INDICATED ON THE PLANS. PLANT MATERIALS MUST BE SUITABLE FOR USE UNDER LOCAL CLIMATE AND SOIL CONDITIONS. IN GENERAL, HYDROSEEDING OR SODDING BERMUDA GRASS IS ACCEPTABLE DURING THE SUMMER MONTHS (MAY 1 TO AUGUST 31). WINTER RYE OR FESCUE GRASS MAY BE PLANTED DURING TIMES OTHER THAN THE SUMMER MONTHS AS A TEMPORARY MEASURE UNTIL SUCH TIME AS THE PERMANENT PLANTING CAN BE MADE.
  - PRIOR TO COMMENCING ANY CONSTRUCTION, A CONSTRUCTION ENTRANCE AND PERIMETER SILT FENCE SHALL BE INSTALLED AT THE LOCATION(S) SHOWN.
  - AS INLETS ARE COMPLETED, TEMPORARY SEDIMENT BARRIERS SHALL BE INSTALLED.
  - AT THE COMPLETION OF THE PAVING AND FINAL GRADING, THE DISTURBED AREA(S) SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS.
  - SILT FENCE AND INLET SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL REVEGETATION HAS BEEN COMPLETED.
  - DISTURBED AREAS THAT ARE SEEDED OR SODDED SHALL BE CHECKED PERIODICALLY TO SEE THAT GRASS COVERAGE IS PROPERLY MAINTAINED. DISTURBED AREAS SHALL BE WATERED, FERTILIZED, AND RESEEDED OR RESODDED, IF NECESSARY.

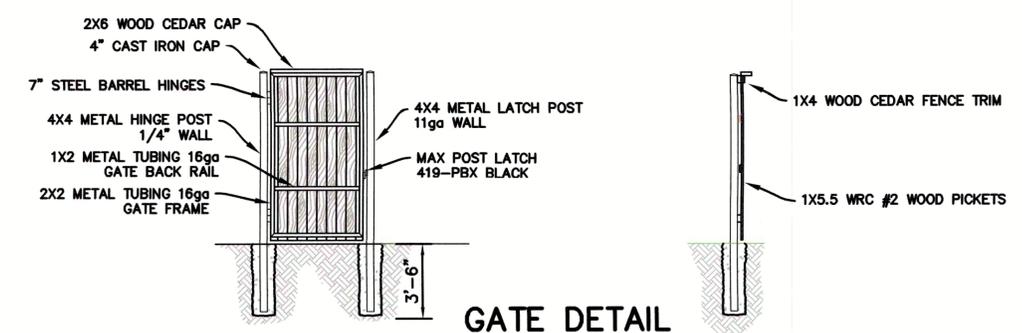
<b>Erosion Control Details</b>				
<b>GRAPEVINE, TEXAS</b>				
 <b>City of Grapevine</b> <b>Public Works Department</b>				
CHECKED:	SCALE:	DATE:	PROJECT No.	SHEET
NTS		4-18-18		OF

EROSION CONTROL DETAILS



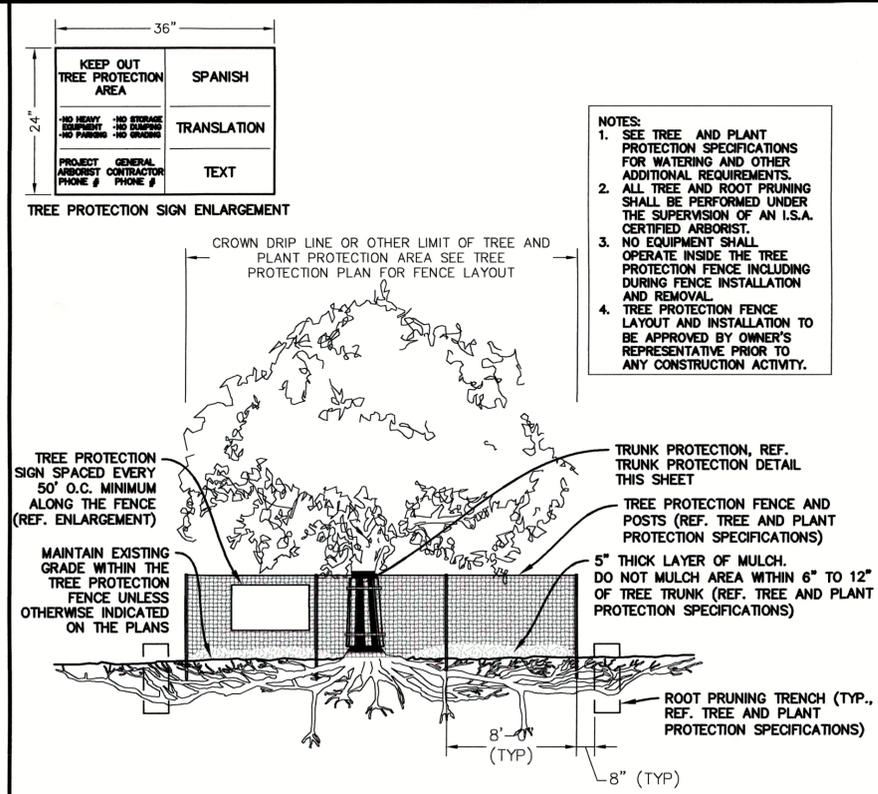
**FENCE DETAIL**

MISC. SUPPLIES  
WOOD STAIN COLOR - LEATHERWOOD  
WOOD DEFENDER PRODUCTS



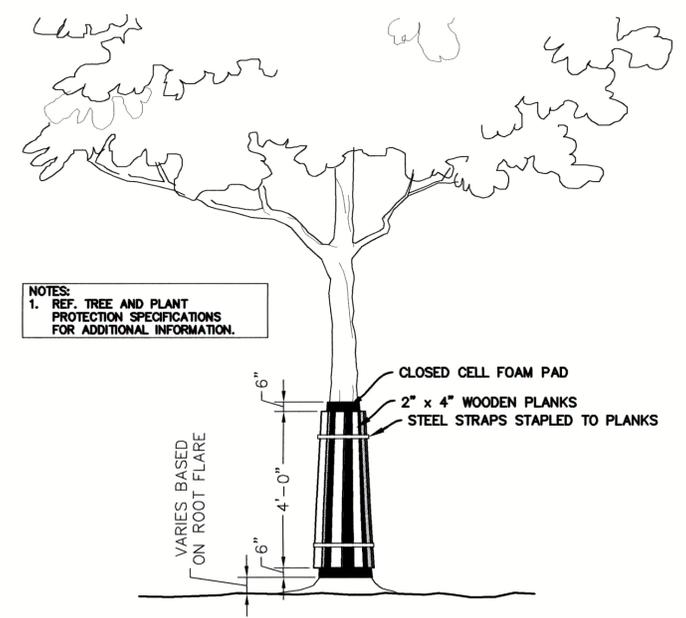
**GATE DETAIL**  
**6' or 8' FENCE DETAIL**

MISC. SUPPLIES  
1 1/4\"/>



**TREE PROTECTION FENCE**

- NOTES:**
1. SEE TREE AND PLANT PROTECTION SPECIFICATIONS FOR WATERING AND OTHER ADDITIONAL REQUIREMENTS.
  2. ALL TREE AND ROOT PRUNING SHALL BE PERFORMED UNDER THE SUPERVISION OF AN I.S.A. CERTIFIED ARBORIST.
  3. NO EQUIPMENT SHALL OPERATE INSIDE THE TREE PROTECTION FENCE INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
  4. TREE PROTECTION FENCE LAYOUT AND INSTALLATION TO BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO ANY CONSTRUCTION ACTIVITY.



**TRUNK PROTECTION**

- NOTES:**
1. REF. TREE AND PLANT PROTECTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.

MISCELLANEOUS DETAILS

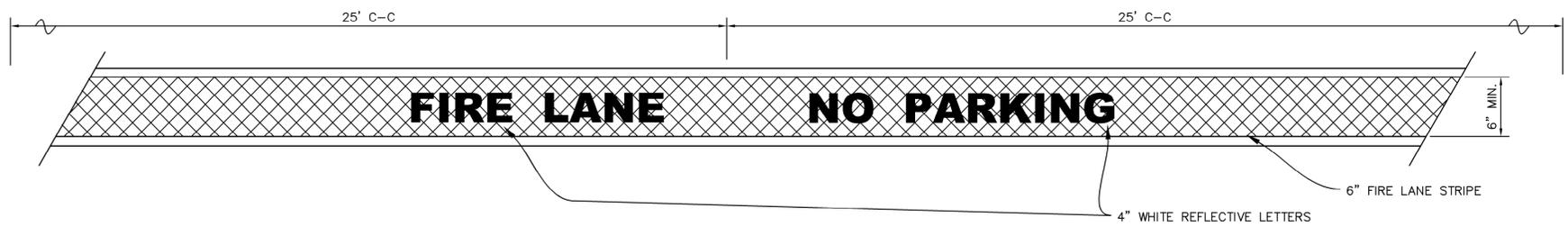
GRAPEVINE, TEXAS

City of Grapevine  
Public Works Department

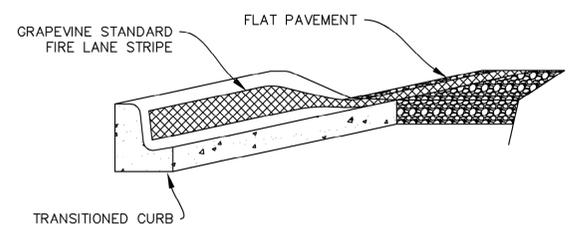
P.O. BOX 76099 PH 817-410-3155

CHECKED:	SCALE:	DATE:	PROJECT No.	SHEET
NTS		1-10-2020		OF

MISCELLANEOUS DETAILS



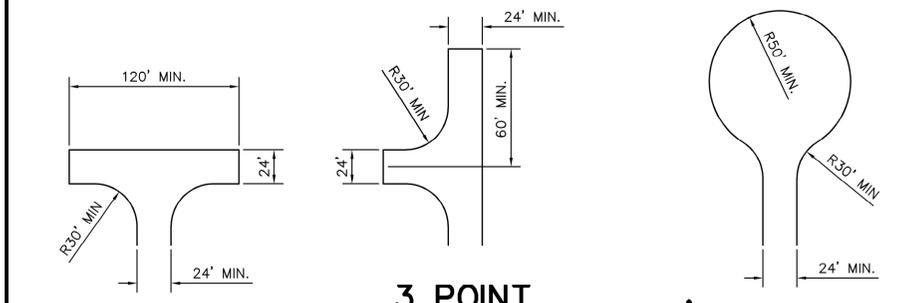
- PAINT NOTES:**
1. STRIPES SHALL BE AT LEAST 6" WIDE PAINTED WITH AN EXTERIOR ACRYLIC PAINT. COLOR SHALL BE "TRAFFIC RED" GLIDDEN NO. 63251 OR EQUIVALENT.
  2. "FIRE LANE NO PARKING" OR "NO PARKING FIRE LANE" MUST BE PLACED EVERY 25'.
  3. LETTERS SHALL BE 4" HIGH AND PAINTED WITH AN EXTERIOR ACRYLIC PAINT. COLOR SHALL BE "TRAFFIC WHITE" GLIDDEN NO. 563245 OR EQUIVALENT.
  4. PREPARE SURFACE BEFORE PAINTING BY POWER WASHING. SURFACE SHOULD BE FREE OF OBVIOUS DIRT AND DEBRIS.
  5. STRIPE MAY BE BRUSHED, SPRAYED OR ROLLED, TWO COATS MINIMUM TO FINISH.
  6. LETTERS SHALL BE STENCIL FORMED, REFLECTIVE WHITE, BRUSH APPLIED AND SPACED AS DETAILED ON THIS SHEET.



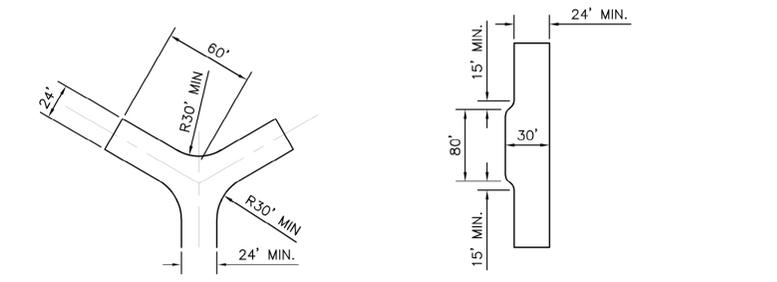
**FIRE LANE STRIPE AT CURB TRANSITION**

**FIRE LANE STRIPE AND LETTERING**

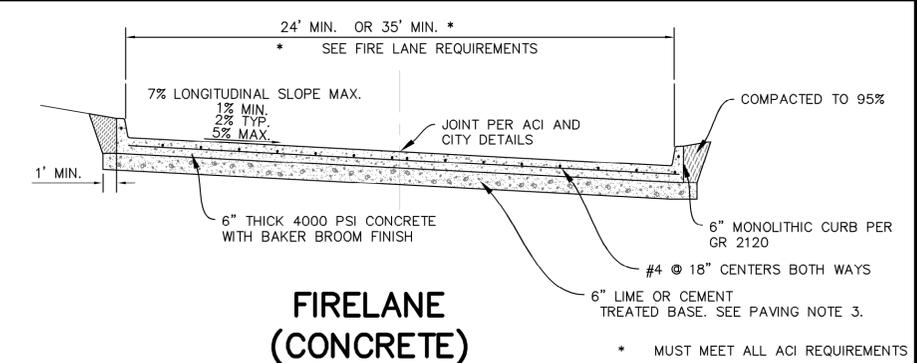
**PRIVATE FIRE LANE MINIMUM DIMENSIONS**



**120' HAMMERHEAD ALTERNATIVE 3 POINT 100' DIAMETER CUL-DE-SAC**



**60' "Y" FIRE LANE TRANSITION**



**FIRELANE (CONCRETE)**

- FIRE LANE REQUIREMENTS:**
1. Owner of subject property shall be responsible for the marking and maintenance of fire lanes.
  2. Fire lanes shall be designated by continuous lines at least six inches in width on each side of Fire Lanes, starting at the street entrance and continuing to the exit. Such lines shall be bright red in color. The words "NO PARKING" and "FIRE LANE" shall be painted, alternately, in white letters 15 feet over the red lines. Fire lanes are to be a minimum width of 24 feet, 35 feet when located within 35 feet of any building in excess of 48' height. The chief may increase width when deemed necessary to provide adequate access for protection.
  3. Fire lane adjacent to curbs, buildings and fences shall have the entire curb painted bright red or in such manner as the fire chief shall direct. When temporary fire lanes are designated by the chief to provide and maintain fire apparatus access roads and prohibit the obstruction thereof, approved signs may be used in lieu of paintings of curbs.
- PAVING NOTES:**
1. MUST MEET ALL ACI REQUIREMENTS.
  2. PAVING SHALL BE REINFORCED WITH #4 STEEL @ 18" CENTER. SPLICES WILL HAVE A MINIMUM OF 30 BAR DIAMETERS.
  3. SUB-GRADE TO BE LIME OR CEMENT TREATED VERIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION WITH A MINIMUM OF 6%.
  4. ALL DISTURBED SOIL SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR.
  5. AN APPROVED WHITE PIGMENTED CURING COMPOUND SHALL BE APPLIED TO ALL EXPOSED SURFACES WITHIN 30-60 MINUTES AFTER CONCRETE IS PLACED.
  6. BAKER BROOM FINISH WILL BE USED.
  7. ALL INLETS WILL BE SEPARATED FROM THE PAVEMENT AND CURB BY BOXING AROUND INLETS AS SHOWN ON INLET DETAIL.
  8. TACK COAT A CLEAN SURFACE AT A RATE BETWEEN 0.9 TO 0.10 GALLONS/SY.
  9. CONCRETE SHALL SUPPORT 95,000# (POUND) VEHICLE.
- (Ord. No. 78-60, § 5, 9-19-78; Ord. No. 93-20, § 2, 5-4-93)

<b>FIRE LANE DETAILS</b>				
<b>DETAILS</b>				
<b>GRAPEVINE, TEXAS</b>				
<b>City of Grapevine</b> <b>Public Works Department</b>				
P.O. BOX 76099 PH 817-410-3155				
CHECKED:	SCALE:	DATE:	PROJECT No.	SHEET
NTS		5-21-2020		OF

FIRE LANE DETAILS