

CITY OF LAKELAND

Engineering Standards Manual Details

VOLUME 2: PUBLIC WORKS

Recommended for Approval By:

Approved By:

John A. Casey, P.E.
Engineering Manager
P.E. 84839 (Civil)

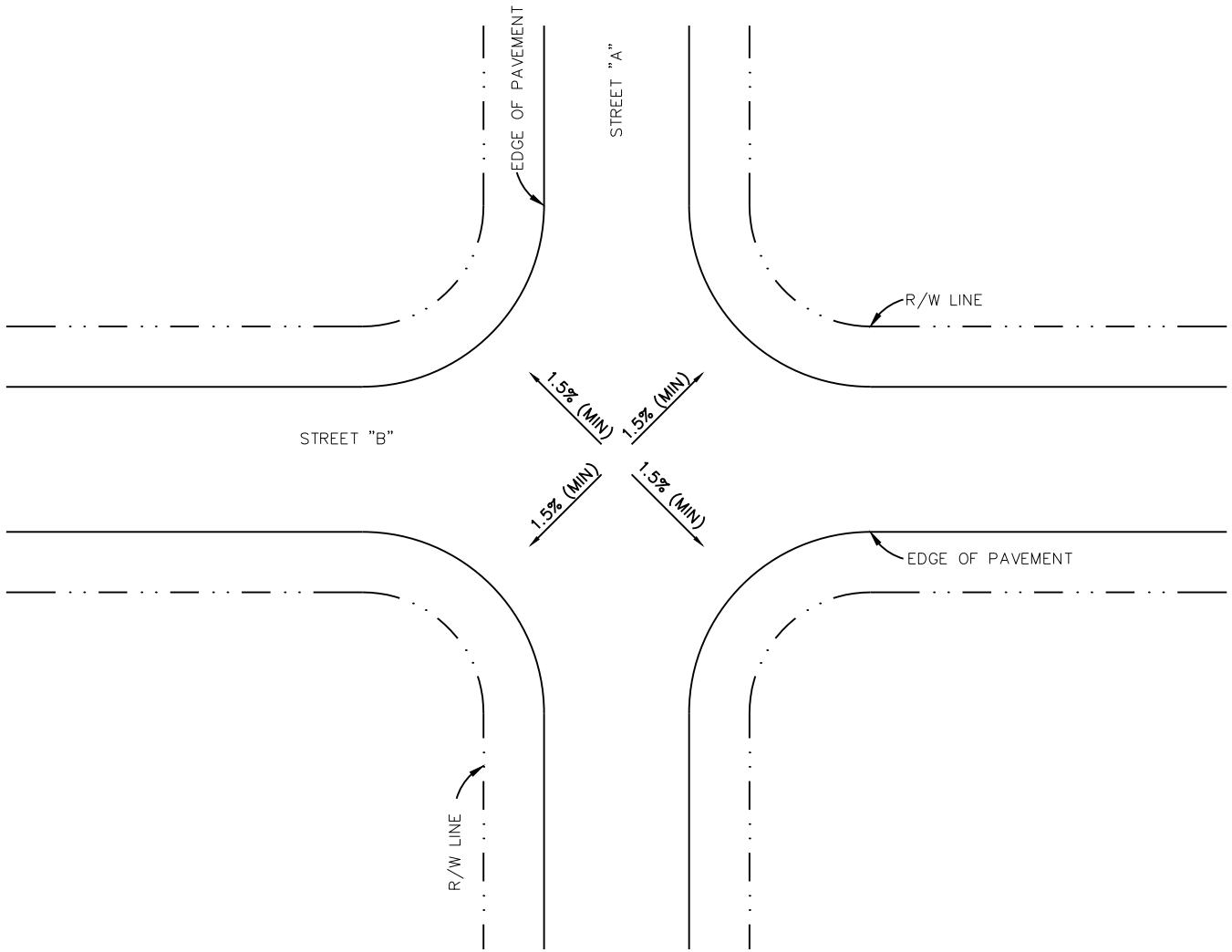
Heath Frederick
Director of Public Works



9-25-2018

A handwritten signature in blue ink, appearing to read "Heath Frederick".

Created: April 16, 2002
Last Revision: September 15, 2018



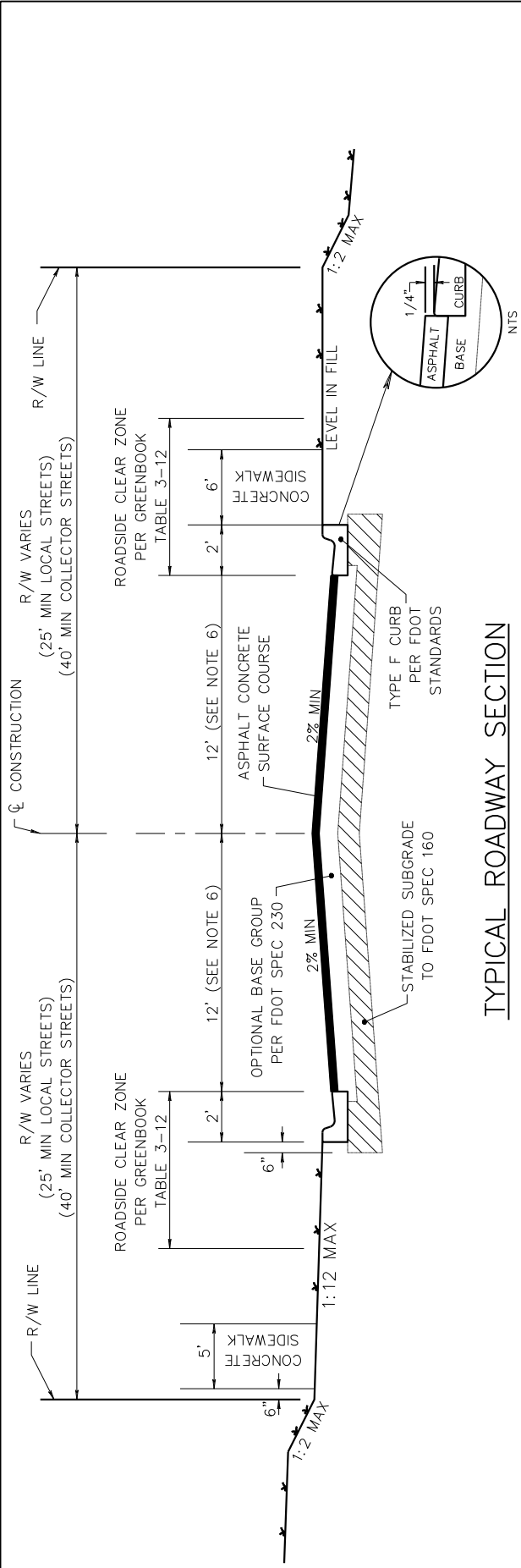
INTERSECTION FLOW DIAGRAM

N.T.S.

NOTES:

1. MAJOR STREET PROFILE CROSS SECTION DOMINATES WHEN NEEDED.
2. 2.5% MAXIMUM DIAGONAL CROSS-SLOPES SHALL BE MAINTAINED WITH 2% WALKING SLOPE AND CROSS-SLOPE AT CROSS-WALKS.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TYPICAL INTERSECTION CROSS-FLOW DIAGRAM			
REVISIONS	SCALE	SHEET NO.	INDEX NO.
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7/3/18			



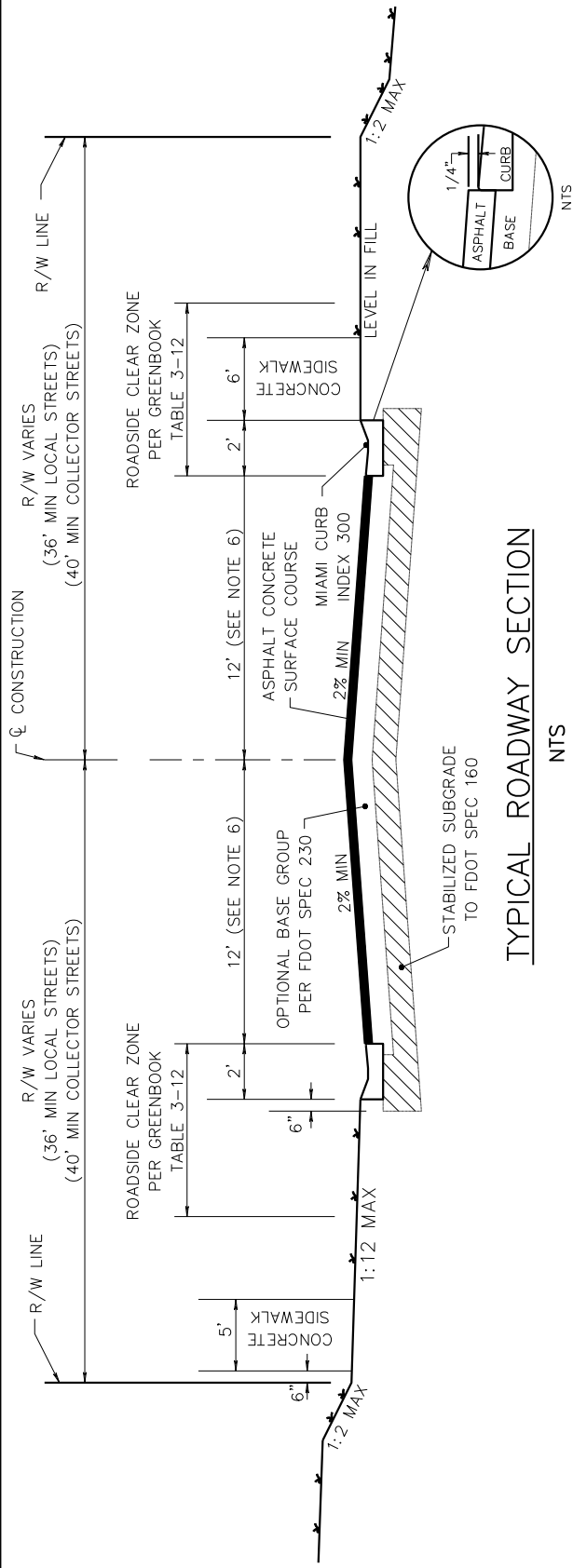
TYPICAL ROADWAY SECTION

NTS

NOTES:

1. SURFACE COURSE OF ALL ROADWAYS SHALL BE ASPHALT CONCRETE MEETING THE FDOT PAVEMENT DESIGN MANUAL AND STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION. A MINIMUM OF 1-1/4" THICKNESS OF ASPHALT CONCRETE SHALL BE USED ON LOCAL RESIDENTIAL STREETS AND 1-1/2" OF ASPHALT CONCRETE ON RESIDENTIAL COLLECTOR STREETS. FOR PROJECTED TRAFFIC VOLUMES WITH AN AADT AT OR ABOVE 7500 VPD, OR PROJECTED TRUCK VOLUME AT OR ABOVE 5%, A PAVEMENT STRUCTURE FOR THE INTENDED USE SHALL BE DESIGNED, IN ACCORDANCE TO THE FDOT FLEXIBLE PAVEMENT DESIGN MANUAL.
2. BASE COURSE TO BE COMPACTED LIMEROCK MEETING CURRENT FDOT STANDARDS SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION. A MINIMUM THICKNESS OF 8" SHALL BE USED ON ALL COLLECTOR ROADS. A MINIMUM THICKNESS OF 6" SHALL BE USED ON LOCAL RESIDENTIAL STREETS. A GEOTECHNICAL REPORT IS REQUIRED
3. STABILIZED SUBGRADE TO MEET CURRENT FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, HAVING A MINIMUM THICKNESS OF 12" ON LOCAL AND COLLECTOR STREETS.
4. LIMEROCK BASE AND STABILIZED SUBGRADE SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180. THE CITY'S INSPECTOR MAY REQUEST ADDITIONAL DENSITY TESTS IN ADDITION TO THE STANDARD TESTING LOCATIONS. IN ADDITION THE INSPECTOR MAY REQUEST ANY MATERIAL THAT IS NOT FROM AN FDOT APPROVED SOURCE BE SUBJECT TO ADDITIONAL PROCTORS TAKEN FOR EACH LOAD.
5. CONCRETE FOR CURBS SHALL MEET FDOT SPECIFICATIONS FOR CLASS I CONCRETE.
6. RESIDENTIAL LOCAL ROADS MAY BE REDUCED TO 10 FT. TRAVEL LANES AND RESIDENTIAL COLLECTOR ROADS MAY BE REDUCED TO 11 FT. LANES, IF APPROVED IN WRITING BY THE DIRECTOR OF PUBLIC WORKS.
7. ADDITIONAL INFORMATION REGARDING TYPICAL SECTIONS MAY BE FOUND IN THE LAND DEVELOPMENT CODE.
8. SIDEWALK TO BE CONSTRUCTED PER THE LAND DEVELOPMENT CODE.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TYPICAL SECTION WITH CURB & GUTTER			
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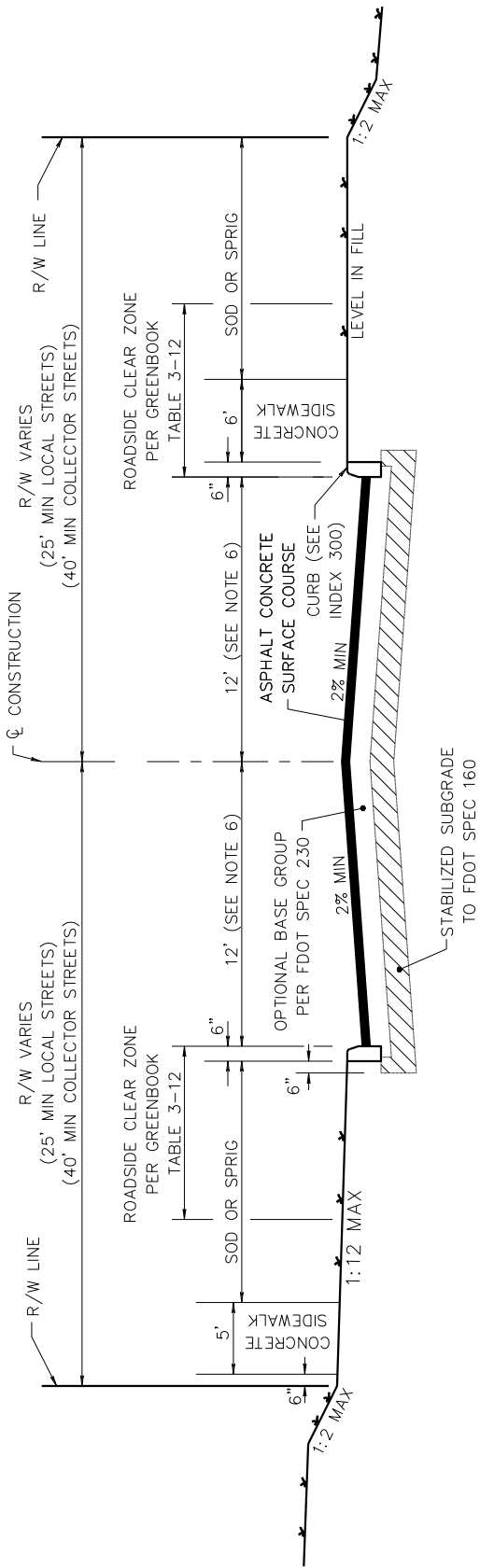
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7. MIAMI CURB IS NOT CONSIDERED CURB UNDER THE CLEAR RECOVERY AREA REQUIREMENTS WHERE THE MINIMUM RECOVERY IS 6 FEET AND INCREASES ACCORDING TO SPEED.
8. SIDEWALK TO BE CONSTRUCTED PER THE LAND DEVELOPMENT CODE.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TYPICAL SECTION WITH MIAMI CURB			
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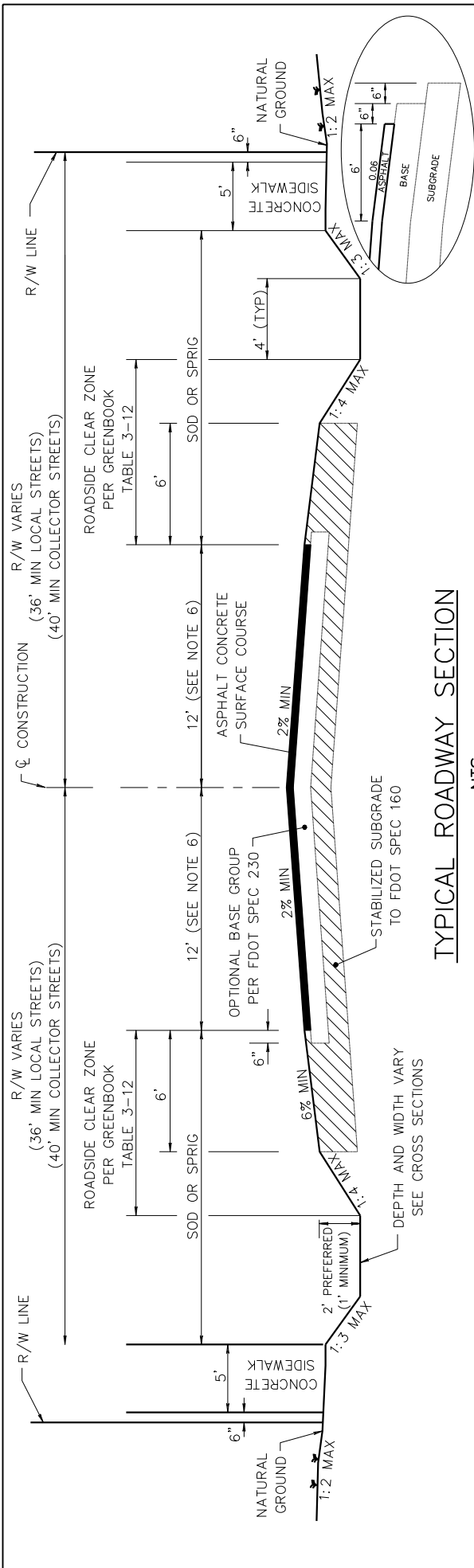
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7. THIS SECTION SHALL ONLY BE USED FOR RECONSTRUCTION OF EXISTING STREETS WITH STAND UP CURB. IT SHALL NOT BE USED FOR NEW CONSTRUCTION.
8. SIDEWALK TO BE CONSTRUCTED PER THE LAND DEVELOPMENT CODE.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TYPICAL SECTION WITH STANDUP CURB			
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TYPICAL ROADWAY SECTION

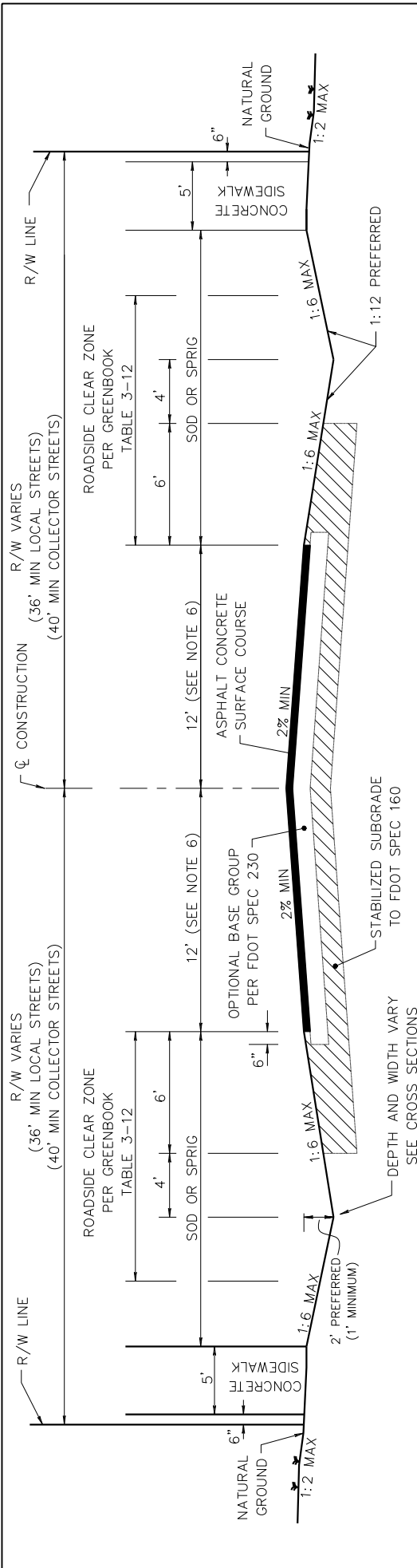
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7. TYPICAL SECTION SHOULDER WIDTH MUST BE MAINTAINED WITHIN INTERSECTION RETURNS.
8. THIS TYPICAL SECTION SHALL NOT BE USED FOR RESIDENTIAL SUBDIVISIONS AND MUST MEET THE CLEAR RECOVERY AREA REQUIREMENTS SHOWN IN THIS INDEX.
9. SIDEWALK TO BE CONSTRUCTED PER THE LAND DEVELOPMENT CODE.

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TYPICAL SECTIONS WITH DITCH			
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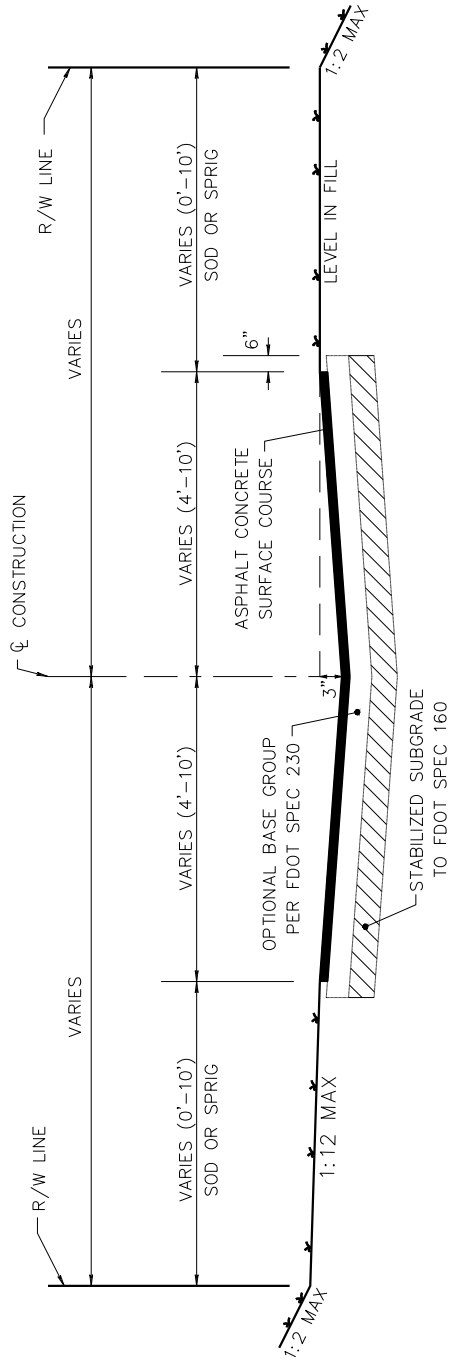


TYPICAL ROADWAY SECTION

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CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TYPICAL SECTIONS WITH SWALES			
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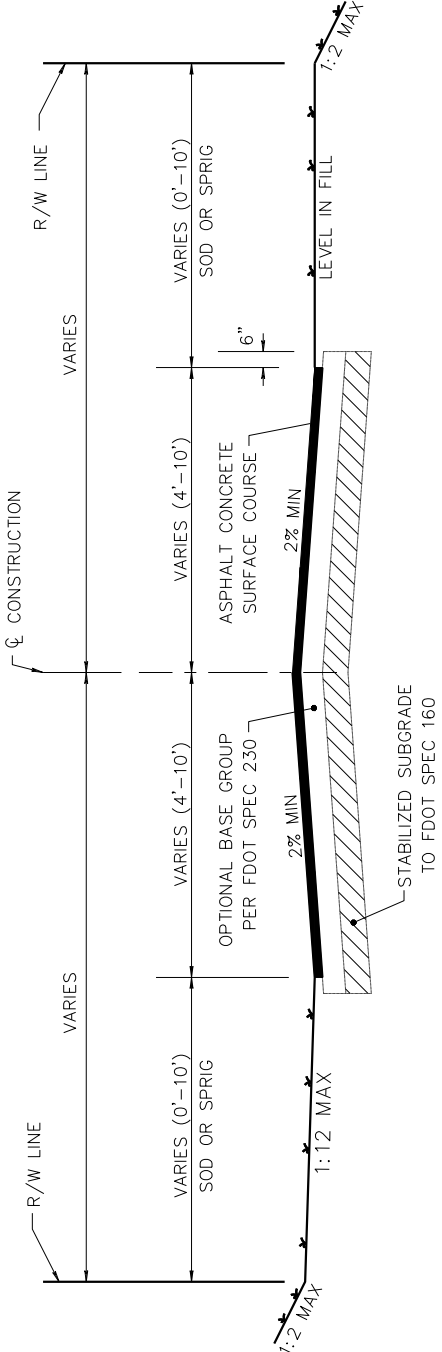


TYPICAL ALLEY SECTION

NTS

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 5. THE USE OF THIS TYPICAL ALLEY SECTION WILL HAVE EXTREMELY LIMITED APPLICATIONS, AND MUST BE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
 6. WHERE PAVEMENT WIDTH IS EQUAL TO THE RIGHT-OF-WAY WIDTH, THE STABILIZED SUBGRADE AND LIMEROCK BASE ARE TO BE LIMITED TO THE ACTUAL WIDTH OF PAVEMENT.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TYPICAL ALLEY SECTION WITH INVERTED CROWN			
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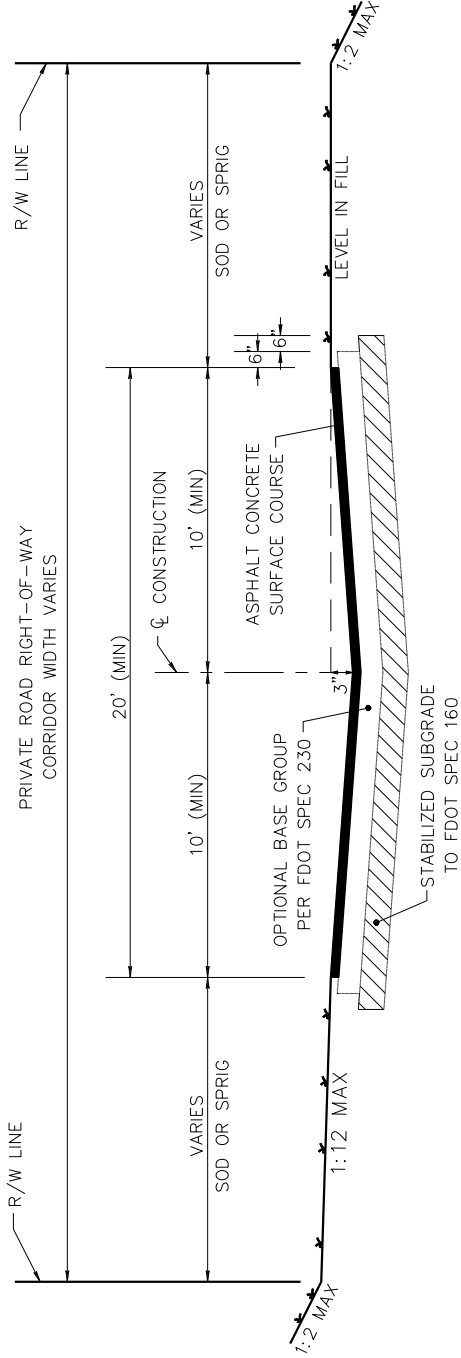


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CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TYPICAL ALLEY SECTION WITH NORMAL CROWN			
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TYPICAL ALLEY SECTION

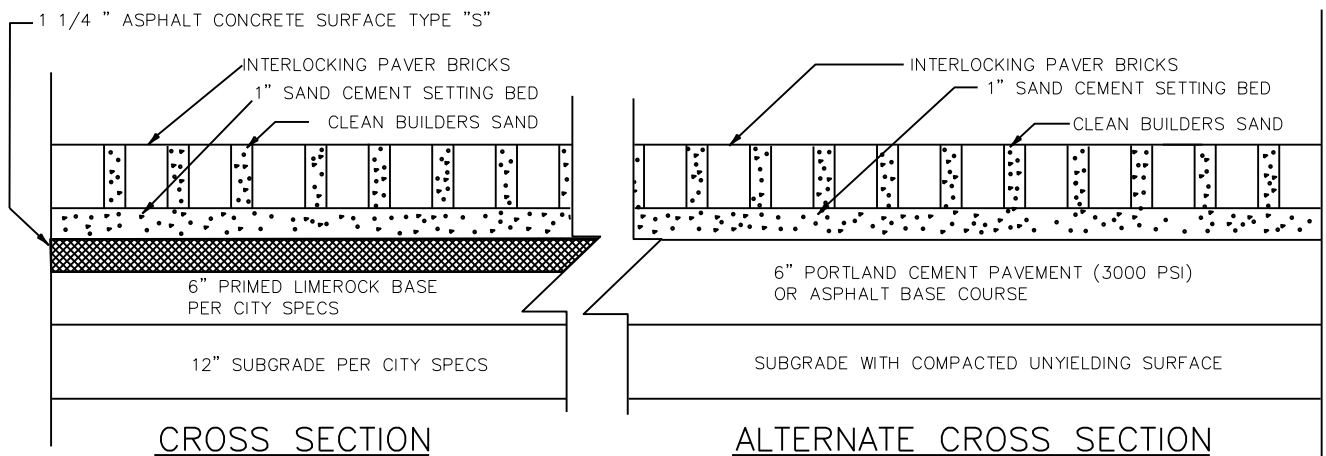
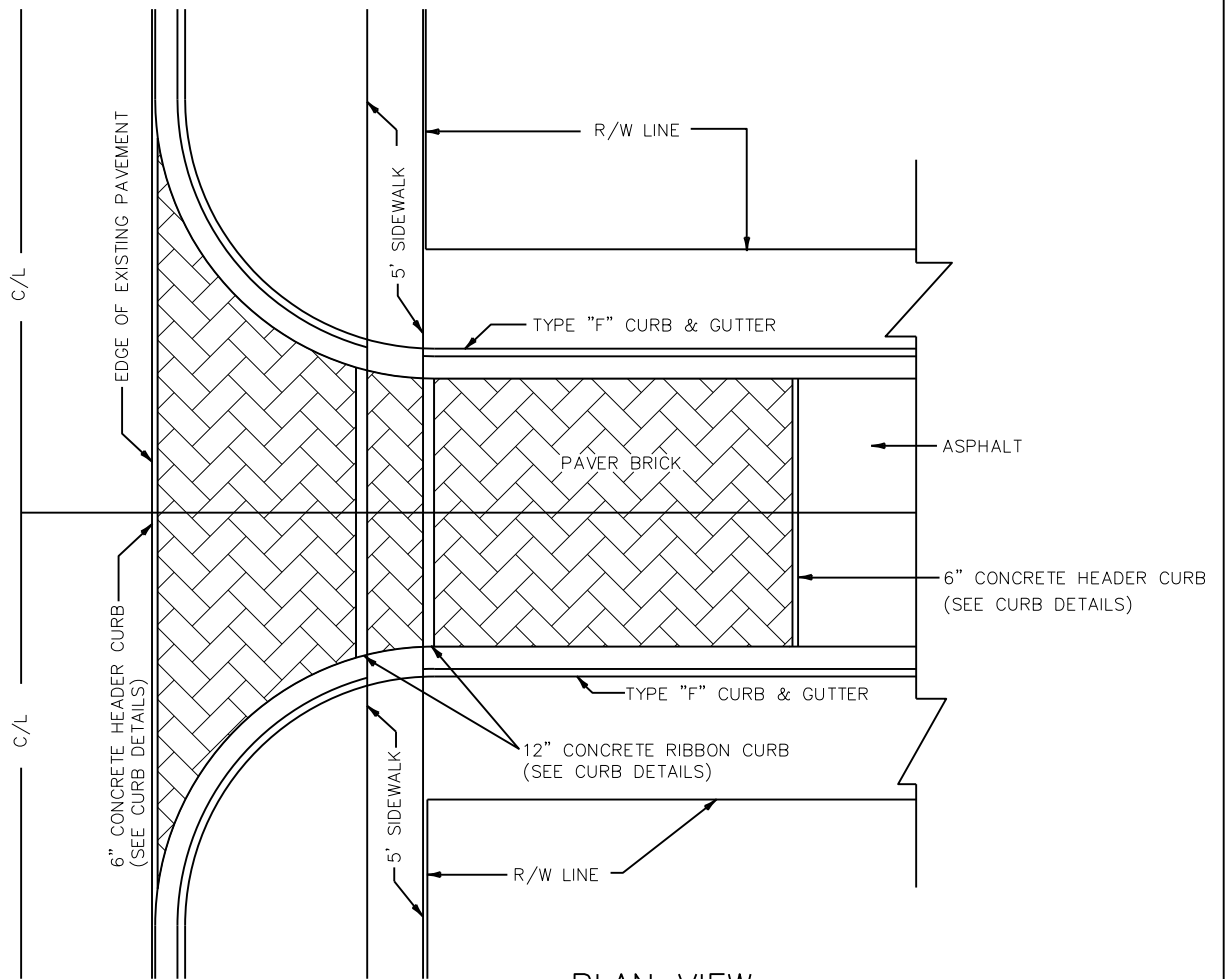
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5. ALTERNATE RIGID PAVEMENT DESIGN. ROADWAY TO CONSIST OF 6" THICK PORTLAND CEMENT PAVEMENT (3000 PSI) CONSTRUCTED ON A COMPACTED UNYIELDING SURFACE. NO BASE OF STABILIZATION REQUIRED.
6. THIS SHEET REPRESENTS MINIMUM STANDARDS FOR PRIVATE ROADS. SEE SHEETS 101-1 THROUGH 101-7 FOR ALTERNATE TYPICAL SECTION DESIGNS.
7. CROWN MAY BE NORMAL OR INVERTED.

CITY OF LAKELAND
FLORIDA
PRIVATE MOBILE HOME PARK,
MULTI-FAMILY DEVELOPMENT
INTERNAL ROAD SECTION

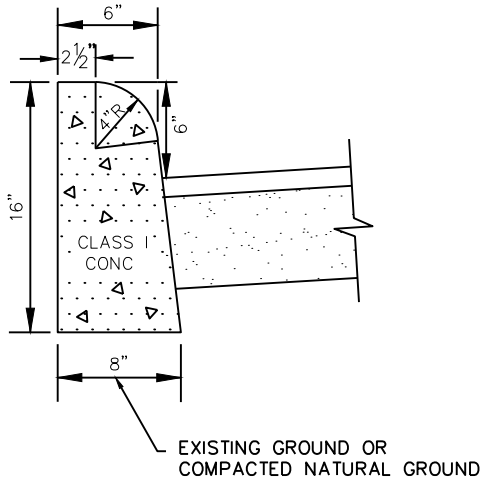
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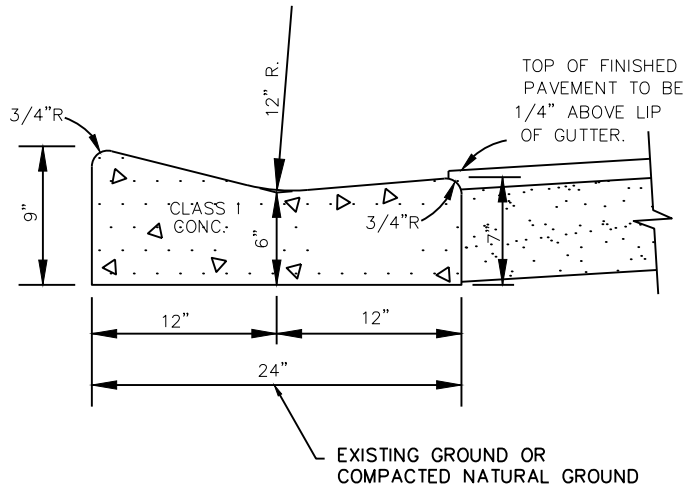
NOTES:

1. CONCRETE PAVERS SHALL MEET ASTM DESIGNATION C936 AND NCMA DESIGNATION A-10-78. MINIMUM 8000 PSI AVERAGE COMPRESSIVE STRENGTH WITH TESTING PROCEDURES IN ACCORDANCE WITH ASTM C-170.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
ORNAMENTAL PAVER BRICK PAVEMENT SECTIONS			
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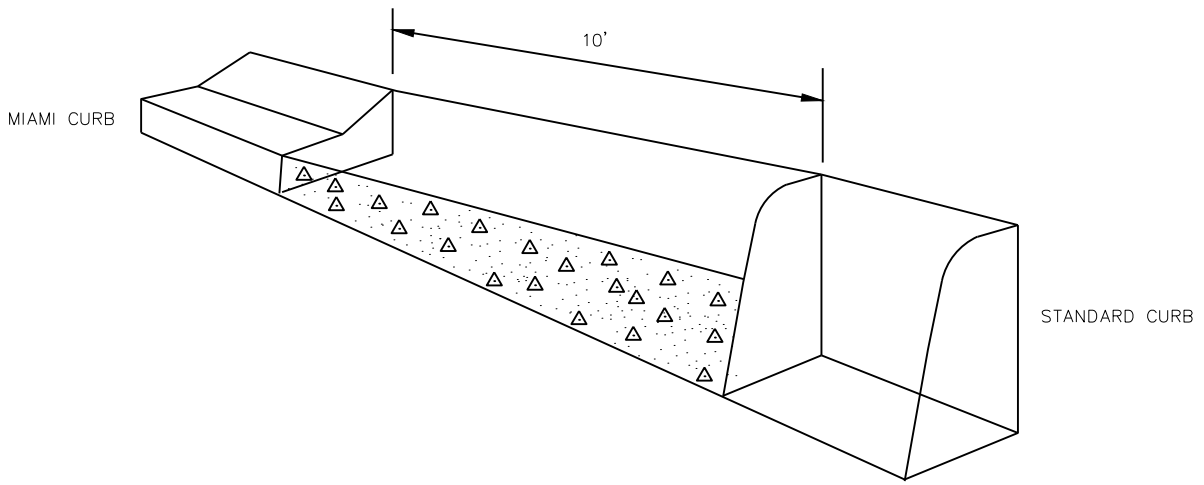


CITY OF LAKELAND STANDARD CURB
NTS

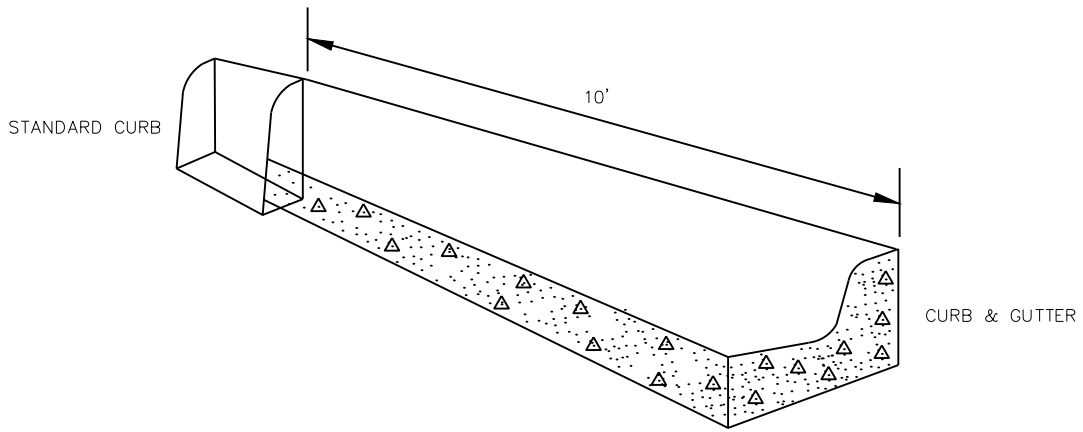


MIAMI CURB
NTS

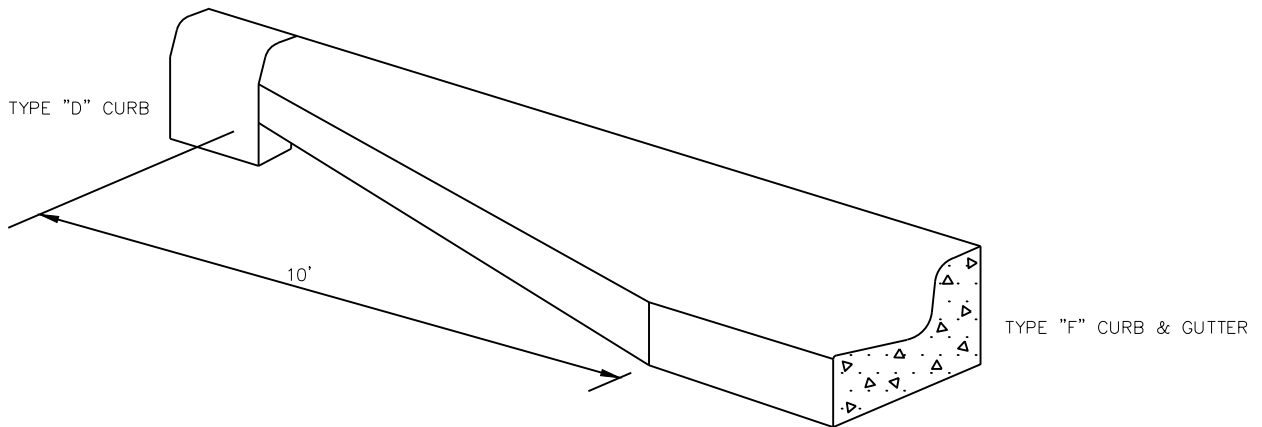
CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
CURB DETAILS			
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			INDEX NO.
			102



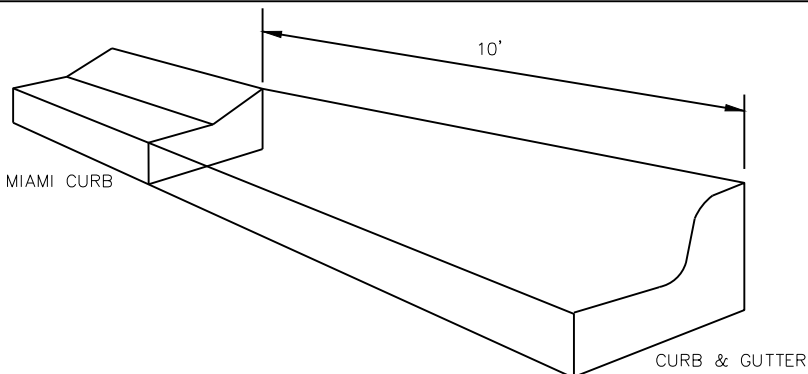
MIAMI CURB TO STANDARD CURB



CITY OF LAKELAND STANDARD CURB TO TYPE "F" CURB & GUTTER

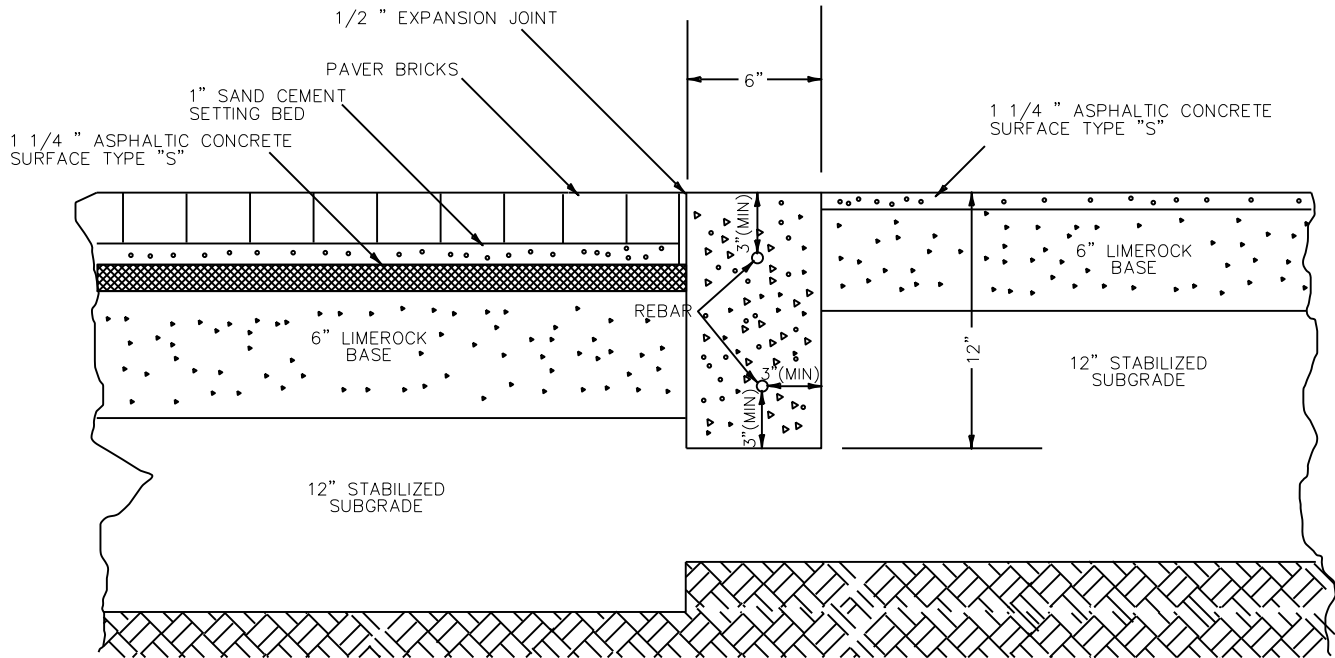


TYPE "D" CURB TO TYPE "F" CURB & GUTTER

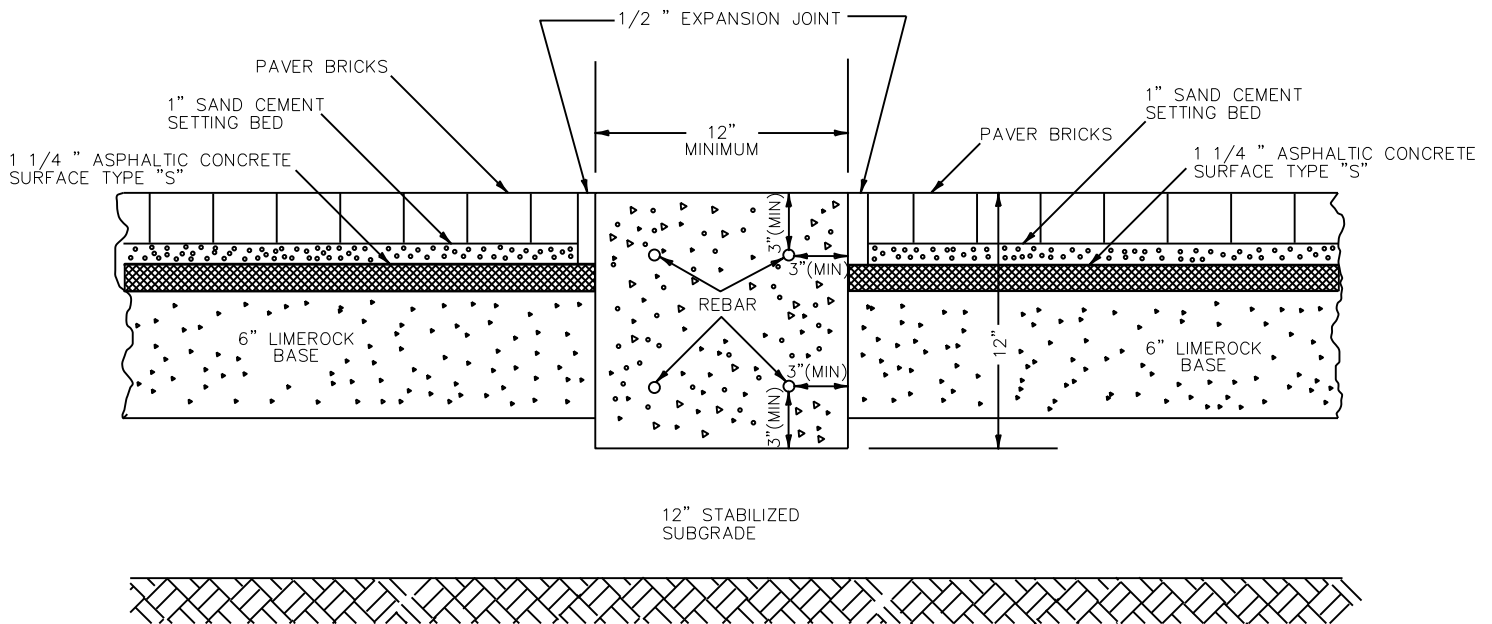


MIAMI CURB TO TYPE "F" CURB & GUTTER

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
CURB TRANSITION DETAILS				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	2 of 2	102
12/14/00				
9/10/00				



HEADER CURB
NTS

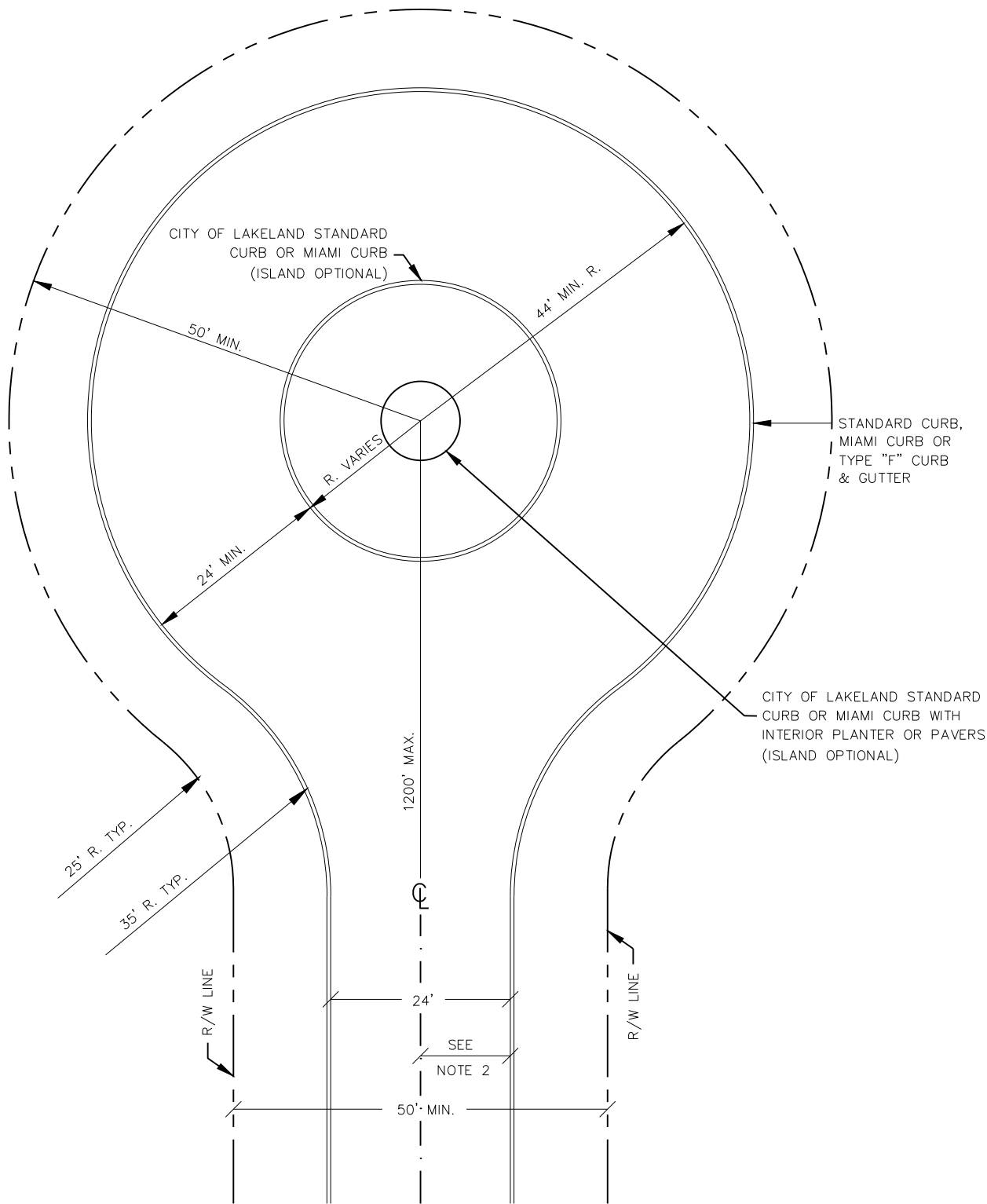


RIBBON CURB
NTS

NOTES:

1. CONCRETE TO BE 3000 PSI AT 28 DAYS, SCORE EVERY 10' EXPANSION JOINTS EVERY 30' WITH (1) MINIMUM.
2. REBAR TO BE #4 SPACED 6" O.C. AND CONTINUOUS.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
HEADER & RIBBON CURB DETAIL FOR ORNAMENTAL PAVER BRICK				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	1 of 1	103
12/14/00				
9/10/00				

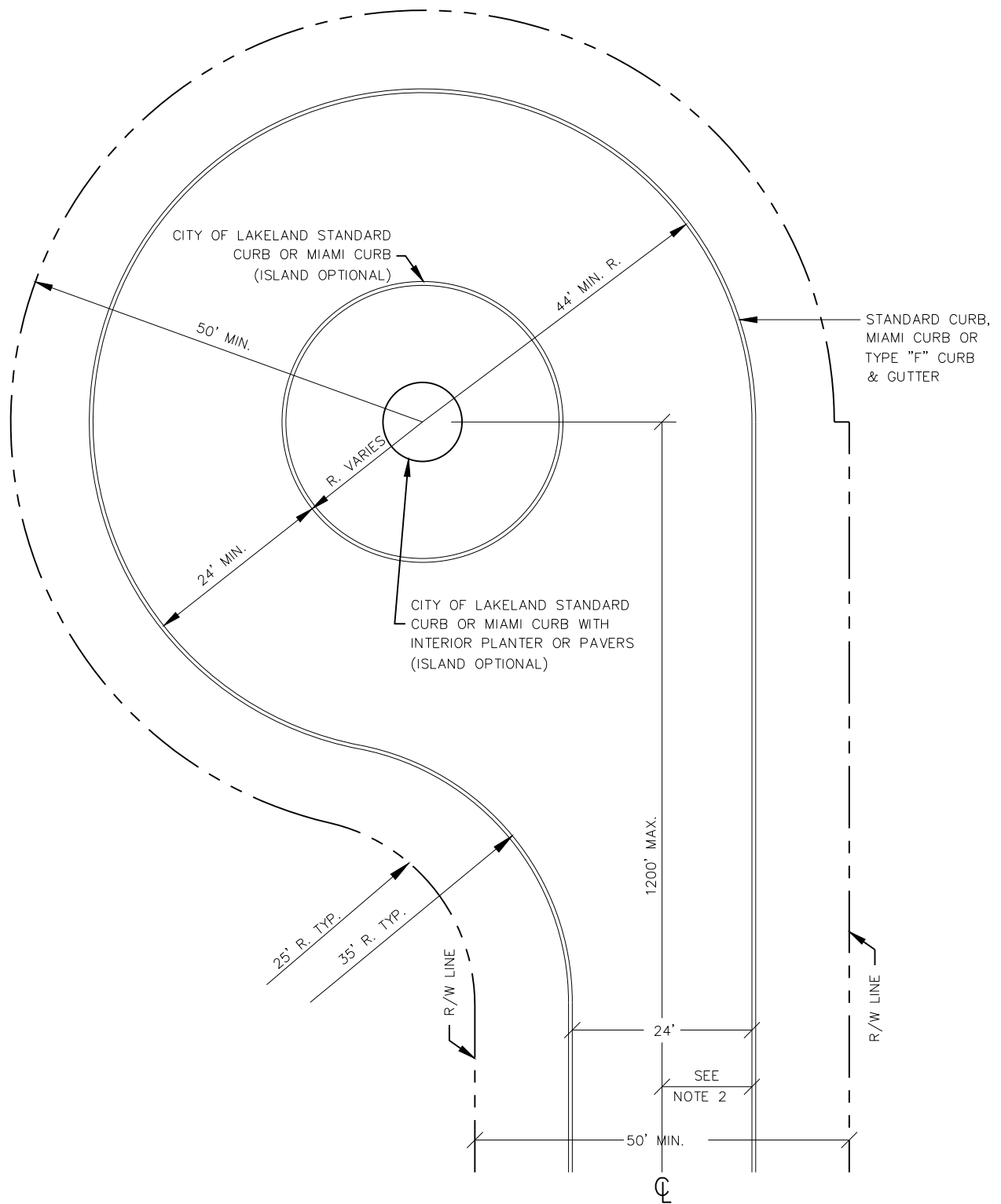


CUL-DE-SAC
NTS

NOTES:

1. MEASUREMENTS ON STANDARD CURB ARE TO FACE OF CURB AND MEASUREMENTS ON MIAMI CURB AND TYPE "F" CURB & GUTTER ARE TO LIP OF GUTTER.
2. SEE SECTION 2-4 (E) FOR REDUCED PAVEMENT WIDTH INFORMATION.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
TYPICAL TURNING RADII FOR CUL-DE-SAC				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	1 OF 2	104
12/14/00				
9/10/00				

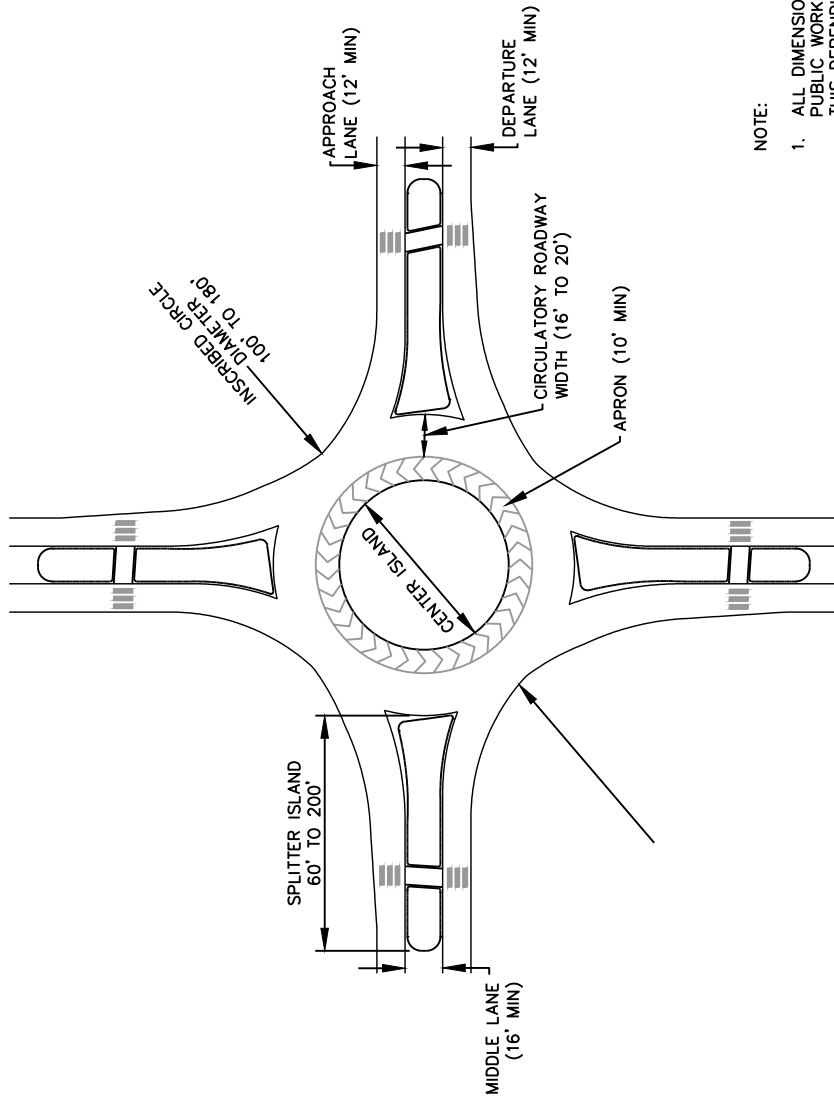


NOTES:

1. MEASUREMENTS ON STANDARD CURB ARE TO FACE OF CURB AND MEASUREMENTS ON MIAMI CURB AND TYPE "F" CURB & GUTTER ARE TO LIP OF GUTTER.
2. SEE SECTION 2-4 (E) FOR REDUCED PAVEMENT WIDTH INFORMATION.

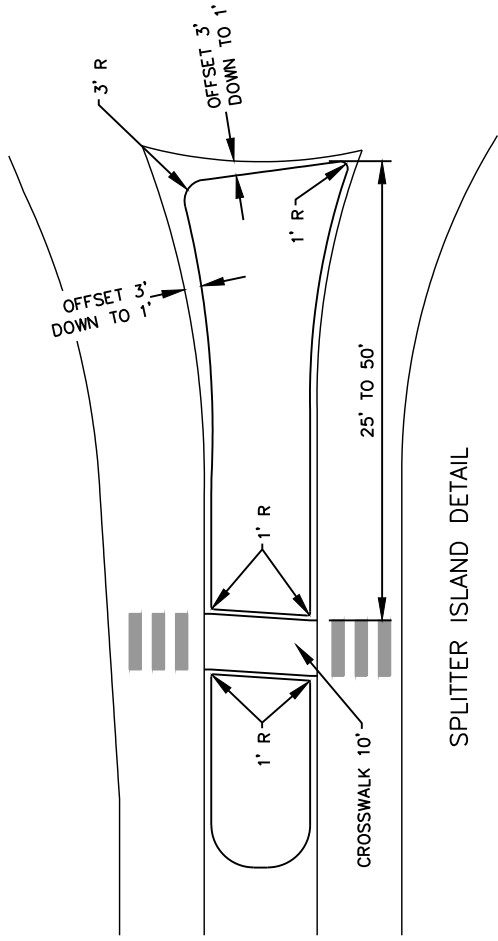
OFFSET CUL-DE-SAC
NTS

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
TYPICAL TURNING RADII FOR OFFSET CUL-DE-SAC				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	2 OF 2	104
12/14/00				
9/10/00				



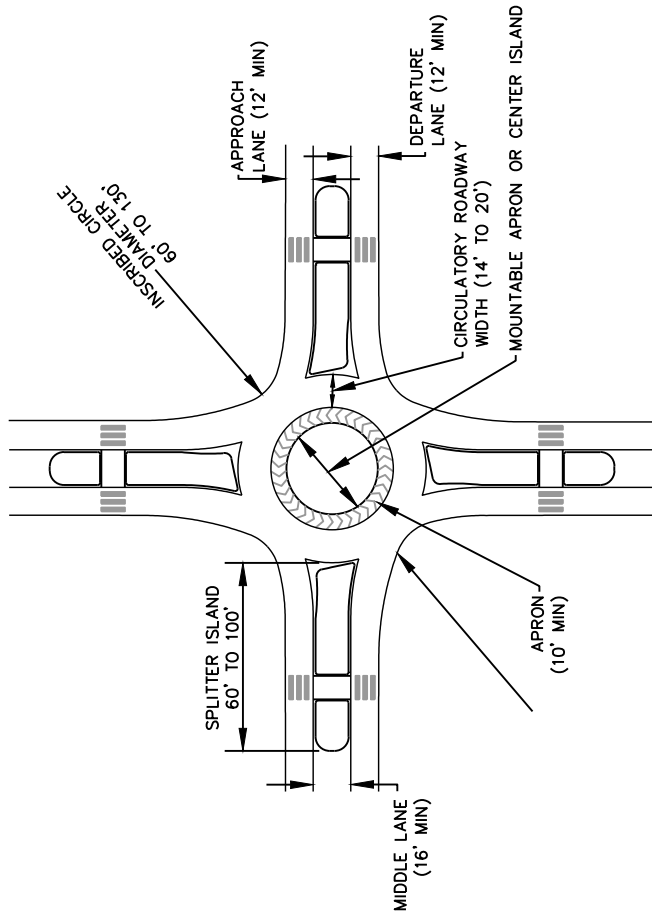
NOTE:

1. ALL DIMENSIONS SHOWN ARE MINIMUM STANDARDS. THE PUBLIC WORKS DIRECTOR MAY APPROVE DIMENSIONS BELOW THIS DEPENDING ON THE LOCATION.
2. FDOT AND CITY STAFF MUST REVIEW AND APPROVE ANY ROUNDABOUT DESIGN AT CONCEPTUAL / 30% PHASE.
3. ROUNDABOUTS ARE ENCOURAGED WHERE APPROPRIATE WITHIN THE CITY OF LAKELAND.
4. APPROPRIATE DESIGN VEHICLES MUST BE CHOSEN FOR EACH SITE. STATE HIGHWAY DESIGN VEHICLE IS A WB62 TRUCK.



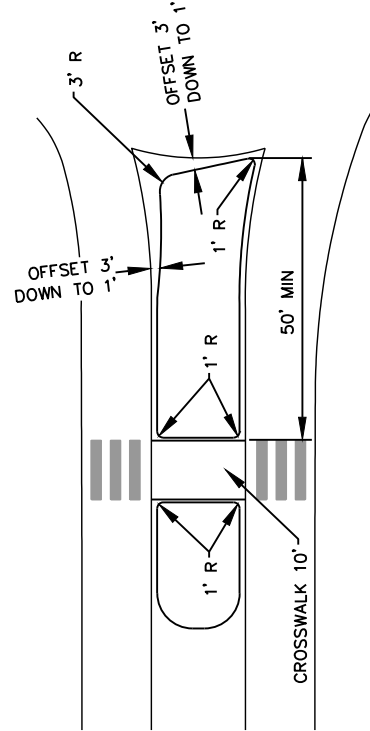
SPLITTER ISLAND DETAIL

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
STATE HIGHWAY SYSTEM URBAN SINGLE LANE ROUNDABOUT			
REVISIONS	SCALE	SHEET NO.	INDEX NO.
	N.T.S.	1 OF 2	105
DATE	7/17/18		



NOTE:

1. ALL DIMENSIONS SHOWN ARE MINIMUM STANDARDS. THE PUBLIC WORKS DIRECTOR MAY APPROVE DIMENSIONS BELOW THIS DEPENDING ON THE LOCATION.
2. FDOT AND CITY STAFF MUST REVIEW AND APPROVE ANY ROUNDABOUT DESIGN AT CONCEPTUAL / 30% PHASE. ROUNDABOUTS ARE ENCOURAGED WHERE APPROPRIATE WITHIN THE CITY OF LAKELAND.
3. APPROPRIATE DESIGN VEHICLES MUST BE CHOSEN FOR EACH SITE. STATE HIGHWAY DESIGN VEHICLE IS A WB62 TRUCK.



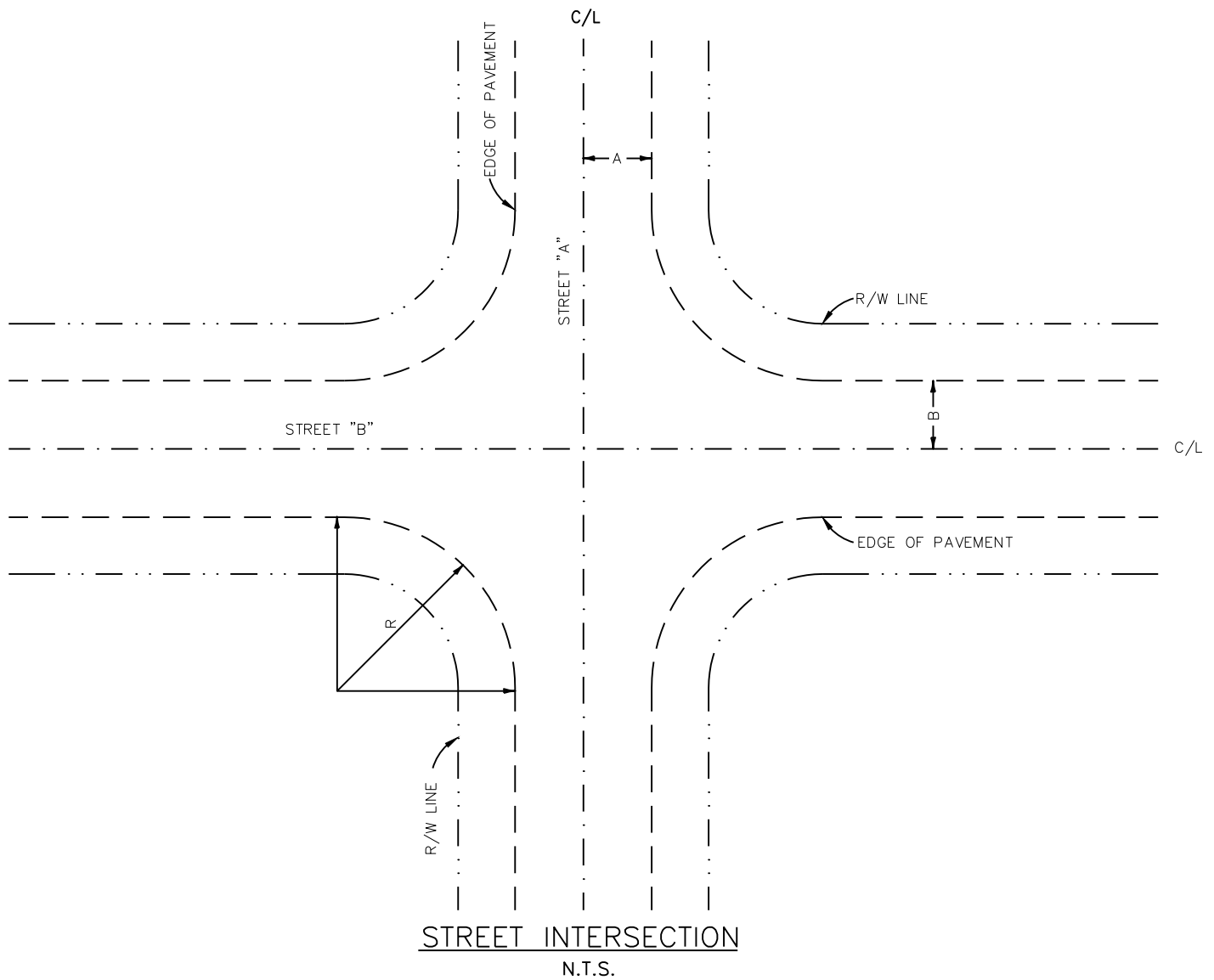
SPLITTER ISLAND DETAIL

CITY OF LAKELAND
FLORIDA

STANDARD DETAIL

STATE HIGHWAY SYSTEM URBAN
COMPACT OR MINI ROUNDABOUT

REVISIONS	SCALE	SHEET NO.	INDEX NO.
	N.T.S.	2 OF 2	105
DATE			
7/17/18			

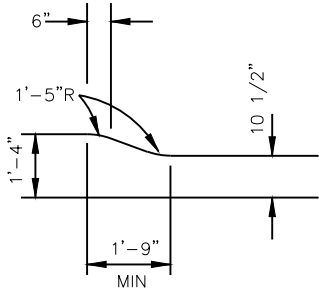


STREET A LANE WIDTH (A)	STREET A FUNCTIONAL CLASS	STREET B LANE WIDTH (B)	STREET B FUNCTIONAL CLASS	INTERSECTION RADII (R)
< 12'	LOCAL	< 12'	LOCAL	35'
< 12'	LOCAL	12'	LOCAL	35'
12'	LOCAL	12'	LOCAL	30'
< 12'	LOCAL	< 12'	COLLECTOR & LOCAL	35' - 50'
< 12'	LOCAL	12'	COLLECTOR & LOCAL	35' - 50'
12'	LOCAL	< 12'	COLLECTOR & LOCAL	35' - 50'
ANY	COLLECTOR & LOCAL	ANY	COLLECTOR & LOCAL	35' - 50'

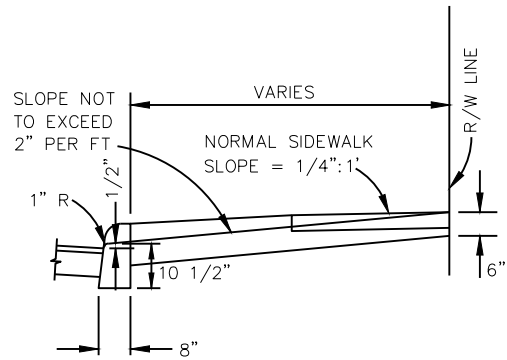
NOTES:

1. POINT OF MEASUREMENT
 URBAN SECTIONS – FACE OF CURB OR LIP OF GUTTER (EDGE OF PAVEMENT)
 RURAL SECTIONS – EDGE OF PAVEMENT
2. FOR DEFINITION OF LOCAL & COLLECTOR STREETS, REFER TO CITY OF LAKELAND LAND DEVELOPMENT REGULATIONS, ARTICLE 37.
3. FOR COMMERCIAL/INDUSTRIAL DEVELOPMENT, OR COLLECTOR/LOCAL STREETS WHERE HIGH VOLUME OF TRUCK TRAFFIC IS ANTICIPATED, THE MINIMUM TURNING RADII SHALL BE 50 FEET.

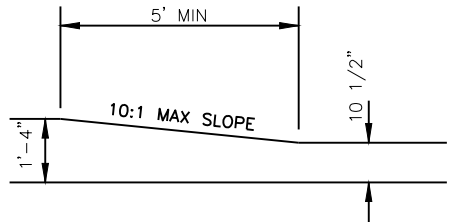
CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
INTERSECTION CORNER RADII				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	1 of 5	106
12/14/00				
9/10/00				



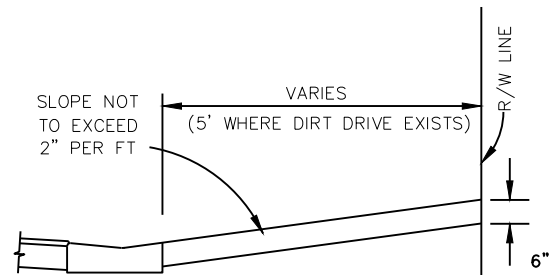
CURB HEIGHT TRANSITION DETAIL
WHERE UTILITY STRIP EXISTS
NTS



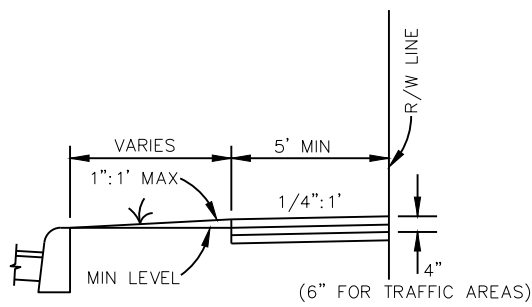
WITH TYPE "D" CURB OR
CITY STANDARD CURB
NTS



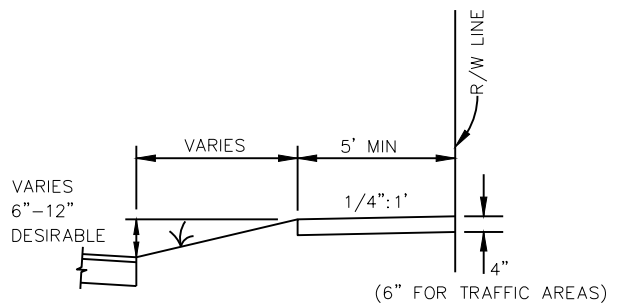
CURB HEIGHT TRANSITION DETAIL
WHERE NO UTILITY STRIP EXISTS
NTS



SECTION A-A
WITH TYPE "F" CURB AND GUTTER
OR MIAMI CURB
NTS



SECTION B-B CURBED STREET
NTS



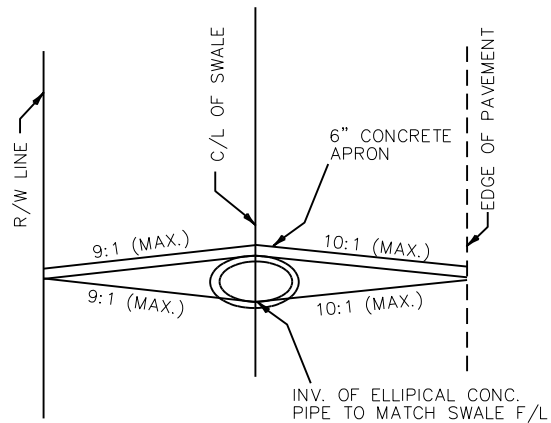
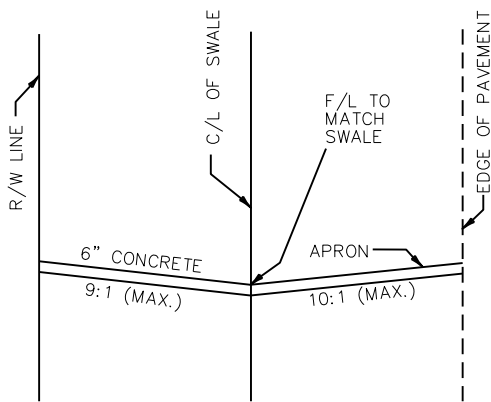
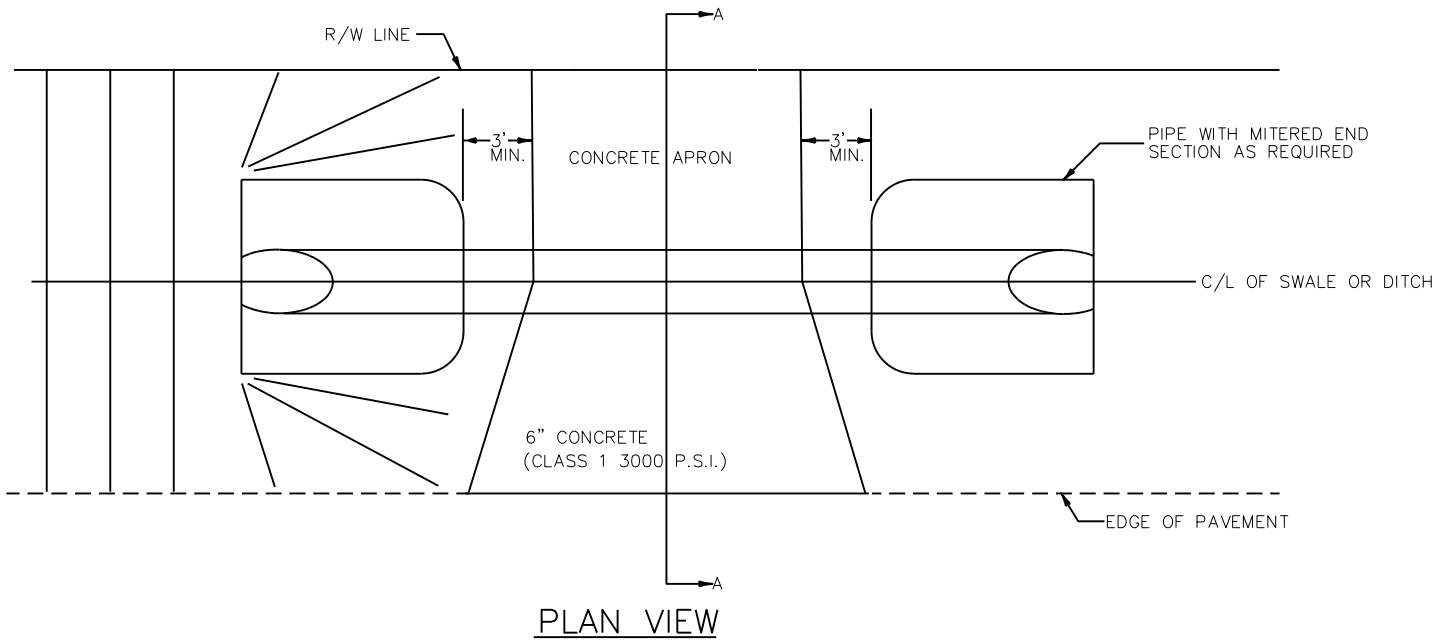
SECTION B-B UNCURBED STREET
NTS

NOTES:

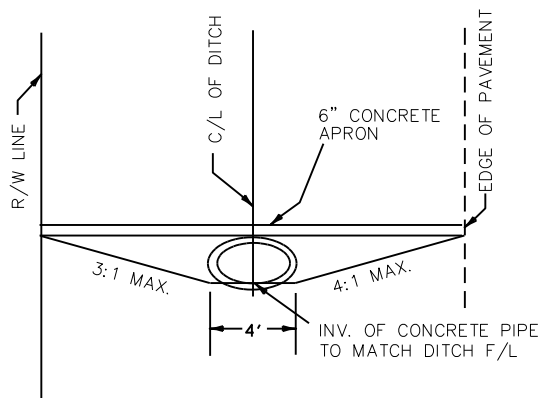
1. CONCRETE APRONS TO EXTEND 5 FEET BEYOND DRIVEWAY WIDTH ALONG RIGHT OF WAY LINE.

FORM - DRIVE. 6/93 (Pg. 3 OF 3)

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
SIDEWALKS AND DRIVEWAYS				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	2 OF 5	106
12/14/00				
9/10/00				



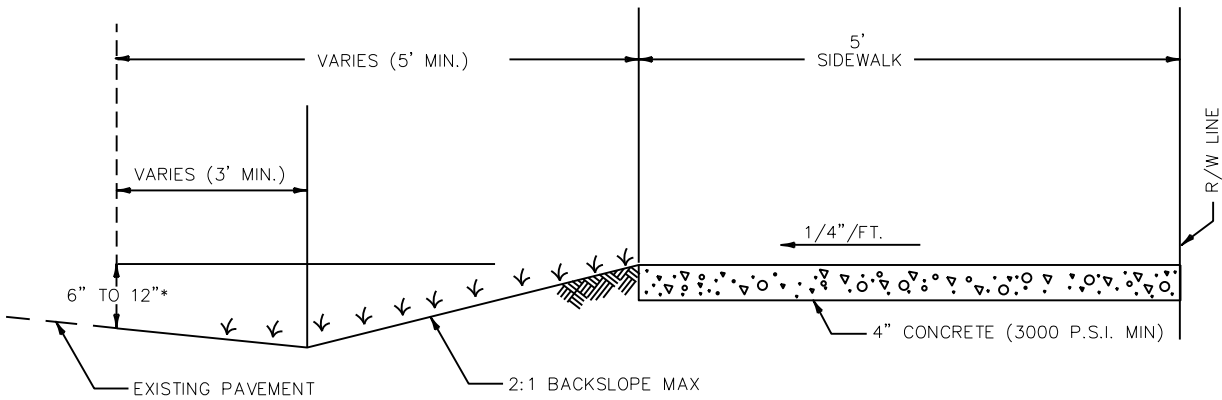
SWALE SECTIONS



NOTES:

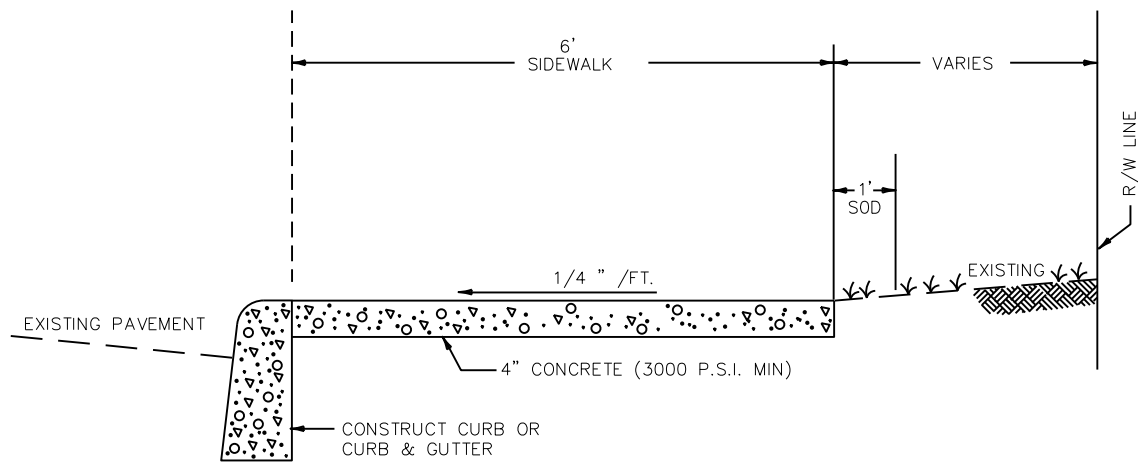
1. USE CLASS IV RCP WHERE CONCRETE DRIVEWAY APRON IS IN DIRECT CONTACT WITH PIPE CULVERT PER SECTION 9.41 OF FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION.
2. MINIMUM PIPE CULVERT DIAMETER SIZE SHALL BE 18" CIRCULAR OR EQUIVALENT ELLIPTICAL.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
DRIVEWAY DETAIL FOR ROADSIDE SWALE OR DITCH DESIGN				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	3 OF 5	106
12/14/00				
9/10/00				



SIDEWALK ADJACENT TO RIGHT OF WAY
(NO CURB)

* OVER 12" USE SECTION BELOW AND INCLUDE RETAINING WALL IF REQUIRED

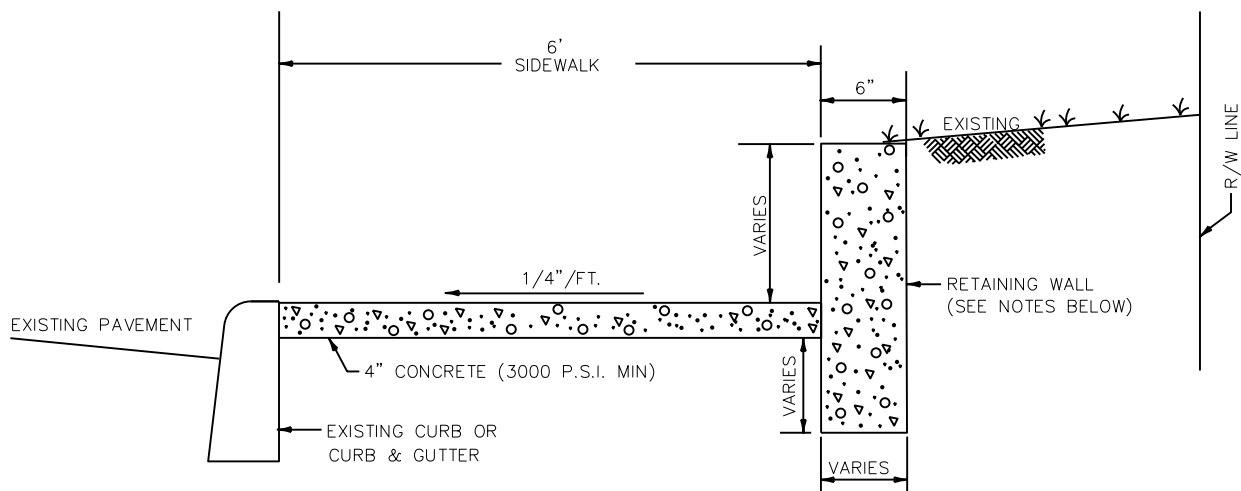


SIDEWALK ADJACENT TO PAVMENT

CITY OF LAKE LAND FLORIDA STANDARD DETAIL

TYPICAL SIDEWALK SECTIONS

REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	4 OF 5	106
12/14/00				
9/10/00				



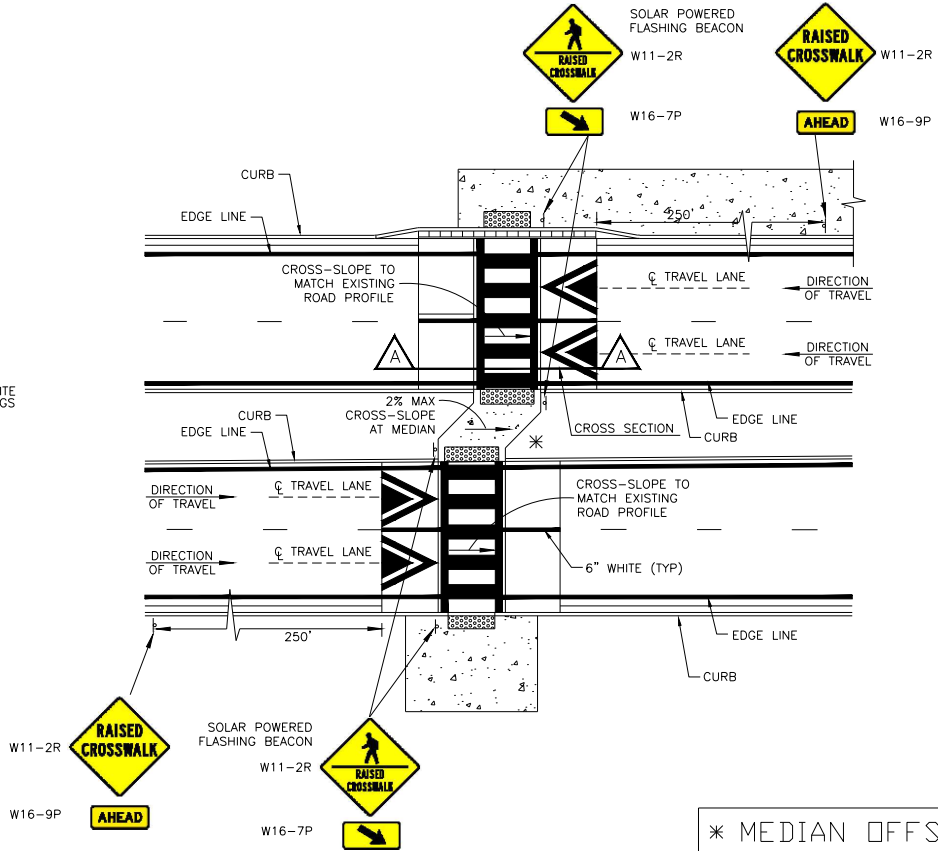
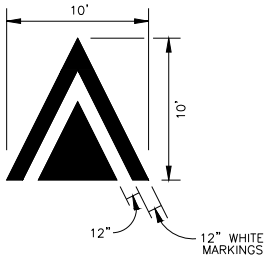
RETAINING WALL

RETAINING WALL TO BE DESIGNED WITH REINFORCING STEEL
 (RAILING MAY BE REQUIRED UNDER CERTAIN CONDITIONS)

THIS DRAWING IS FOR REFERENCE INFORMATION ONLY.
 CONSTRUCTION OF RETAINING WALLS SHALL CONFORM
 TO FDOT STRUCTURES STANDARDS INDEX MANUAL AND
 FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE
 CONSTRUCTION (LATEST EDITIONS).

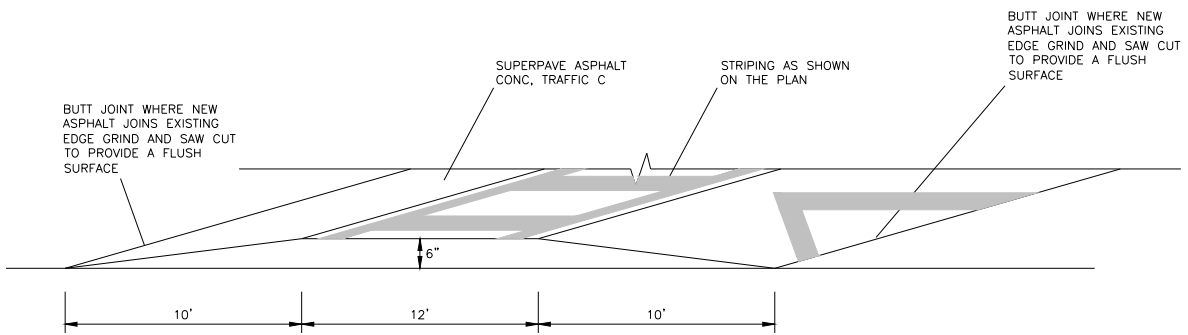
DESIGN PLANS OF RETAINING WALLS SHALL BE SIGNED
 AND SEALED BY A STRUCTURAL/GEOTECHNICAL ENGINEER
 WHEN REQUIRED BY THE DIRECTOR OF PUBLIC WORKS.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
MISCELLANEOUS DETAILS				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	5 of 5	106
12/14/00				
9/10/00				



NOT TO SCALE

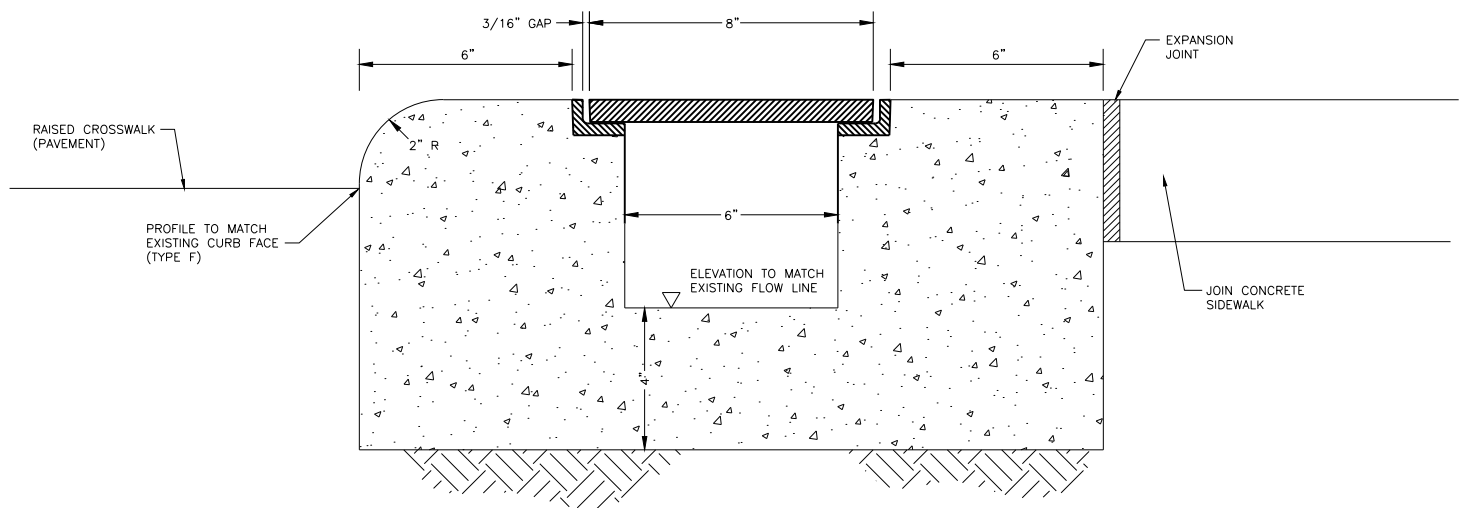
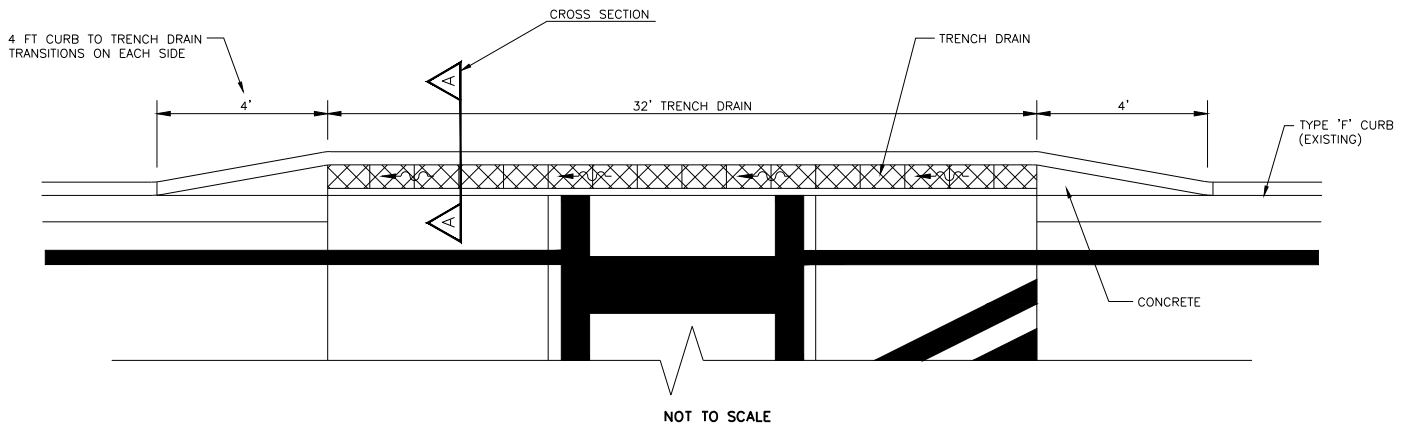
* MEDIAN OFFSET	
WIDTH	OFFSET
12'-16'	7'
8'-12'	5'
6' MIN	4'



A CROSS SECTION

NOT TO SCALE

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TYPICAL RAISED CROSSWALK			
REVISIONS		SCALE	SHEET NO. INDEX NO.
DATE		N.T.S.	1 OF 2 107
DATE			
DATE	8/16/18		



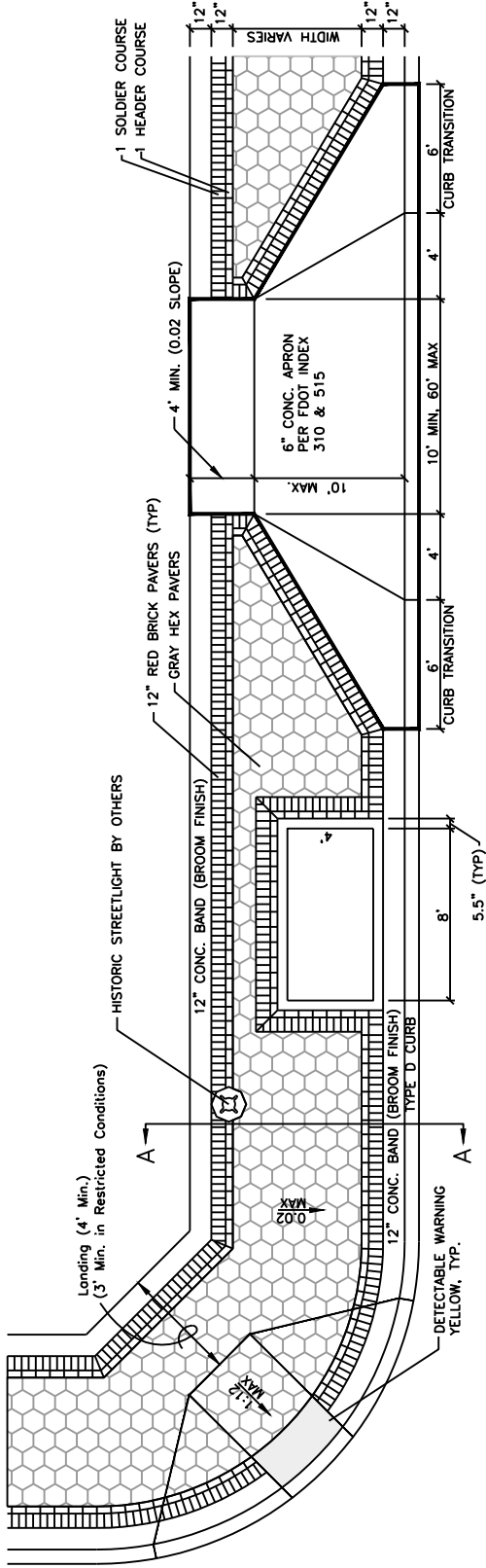
A-A CROSS SECTION

NOT TO SCALE

NOTE:

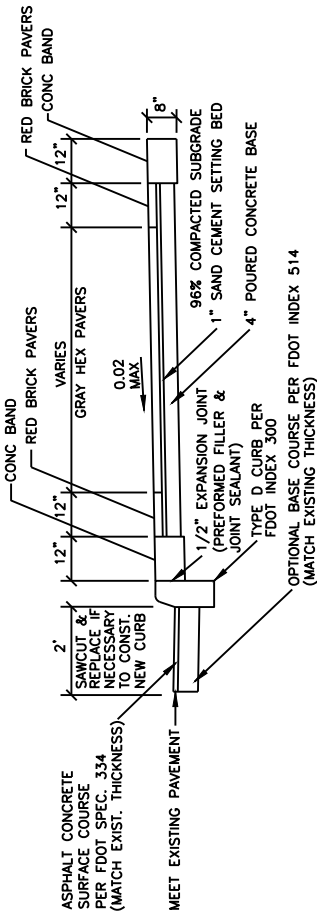
1. A 3" GALVANIZED DRAIN PIPE MAY BE USED FOR MINOR FLOW AREAS.
2. PIPE MUST BE AS LONG AS RAISED CROSSWALK (32' IN THIS EXAMPLE DETAIL).
3. PIPE COLLAR MUST BE PLACED IN CENTER OF CROSSWALK.
4. DRAINAGE CALCULATIONS MUST BE PROVIDED TO USE DRAIN PIPE.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TYPICAL RAISED CROSSWALK			
REVISIONS		SCALE	SHEET NO.
DATE		N.T.S.	2 OF 2
DATE			
DATE	8/16/18		
			INDEX NO. 107



TYPICAL STREETScape PLAN WITH RECTANGLE TREE GRATE
N.T.S.

NOTE: CURB RAMPS AND DETECTABLE WARNINGS SHALL COMPLY WITH FDOT INDEX 304.

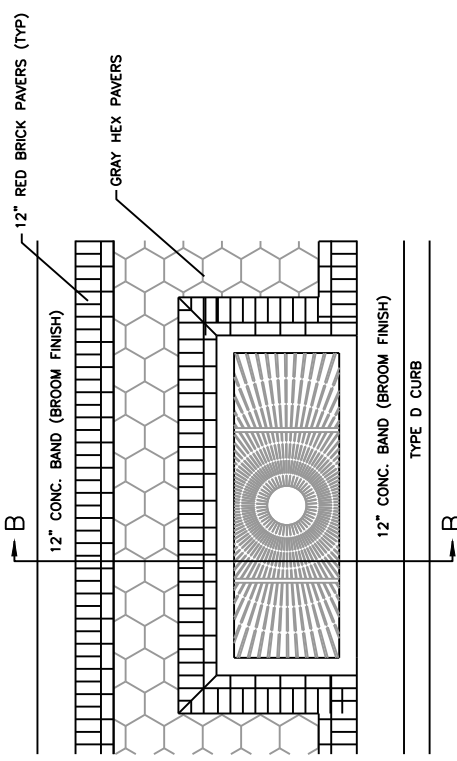


TYPICAL SECTION A-A
(PEDESTRIAN TRAFFIC ONLY)
N.T.S.

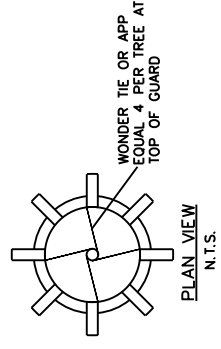
PAVER NOTES

1. ARCHITECTURAL PAVERS SHALL BE FURNISHED AND INSTALLED PER FDOT STANDARD SPECIFICATION SECTION 526.
2. GRAY PAVERS TO BE USED IN SIDEWALK STREETScape APPLICATIONS SHALL BE HEXAGON SHAPED PRECAST CONCRETE PAVERS. HEX PAVERS SHALL MEASURE 12" ACROSS (13" POINT TO POINT), AND SHALL BE 2 1/4" THICK.
3. RED BRICK PAVERS TO BE USED IN SIDEWALK APPLICATIONS SHALL HAVE A TRADITIONAL SQUARE EDGE AND SHALL MEASURE 2 1/4" x 4" x 8" AND SHALL BE "PATHWAY RED" IN COLOR.
4. PAVERS TO BE USED IN ROADWAY APPLICATIONS SHALL BE RUMBLED PAVERS AND SHALL MEASURE 2 1/4" x 4" x 8" AND SHALL BE RUMBLED RED FLASHED IN COLOR.
5. PAVERS IN SIDEWALK APPLICATIONS SHALL BE LAID IN THE PATTERN SHOWN OR NOTED ON THE PLANS. PAVERS PLACED IN ROADWAY SHALL BE PLACED IN A HERRINGBONE PATTERN PER MANUFACTURER'S INSTALLATION METHOD AND IN ACCORDANCE WITH THE PLANS.
6. REFER TO HORIZONTAL AND VERTICAL CONTROL SHEETS FOR GRADES.
7. PAVERS SHALL MEET ASTM DESIGNATION C936 AND NCMA DESIGNATION A-10-78 MINIMUM 8000 PSI AVERAGE COMPRESSIVE STRENGTH WITH TESTING PROCEDURES IN ACCORDANCE WITH ASTM C-140.
8. PAVES JOINTS SHALL BE FILLED WITH CLEAN, WASHED SILICA SAND.
9. SAND FOR SAND CEMENT SETTING BED SHALL CONFORM TO ASTM C-144-66T, AND SHALL BE SMALL SHARP GRAINS.
10. CUT PAVERS SHALL BE USED TO FILL GAPS ALONG THE EDGE OF THE PAVEMENT. CUT PAVERS SHALL NOT BE LESS THAN 1/3 OF THE ORIGINAL PAVES DIMENSION. GAPS LESS THAN 3/8" SHALL BE FILLED WITH SAND.
11. UPON COMPLETION OF WORK COVERED IN THIS SECTION, THE CONTRACTOR SHALL CLEAN UP ALL WORK AREAS BY REMOVING ALL DEBRIS, SURPLUS MATERIAL AND EQUIPMENT FROM THE SITE.
12. TREE GRATES ARE DISCOURAGED. DEVELOPER AGREEMENTS WILL REQUIRE 2000 DOLLAR PER TREE TO GO TOWARD CITY FURNISHED / ADA ACCESSIBLE MATERIAL PLACED, TYPICAL.

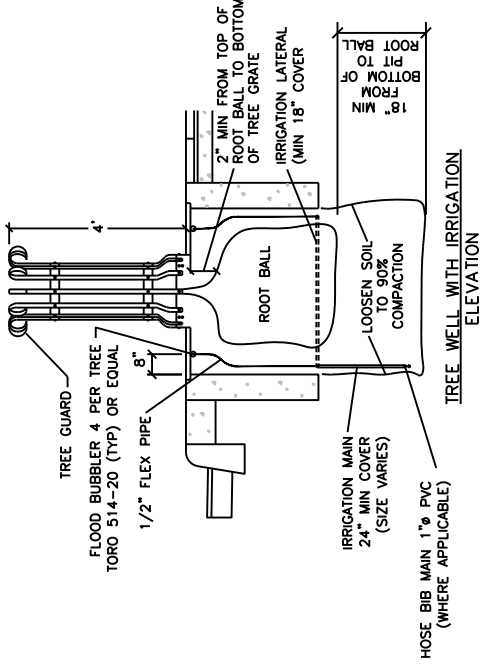
CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
ORNAMENTAL PAVER BRICK SIDEWALK PLAN WITH RECTANGLE TREE GRATE			
REVISIONS	SCALE	SHEET NO.	INDEX NO.
7/3/18		1	5
1/11/16	N.T.S.	1	5
5/1/15			108



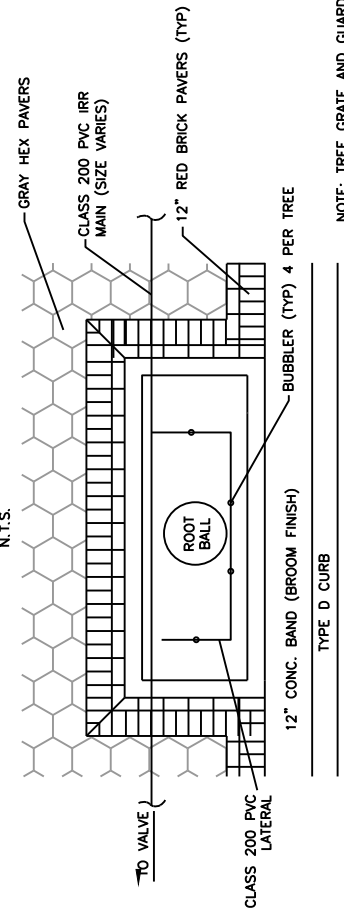
TYPICAL RECTANGLE TREE GRATE PLAN
N.T.S.



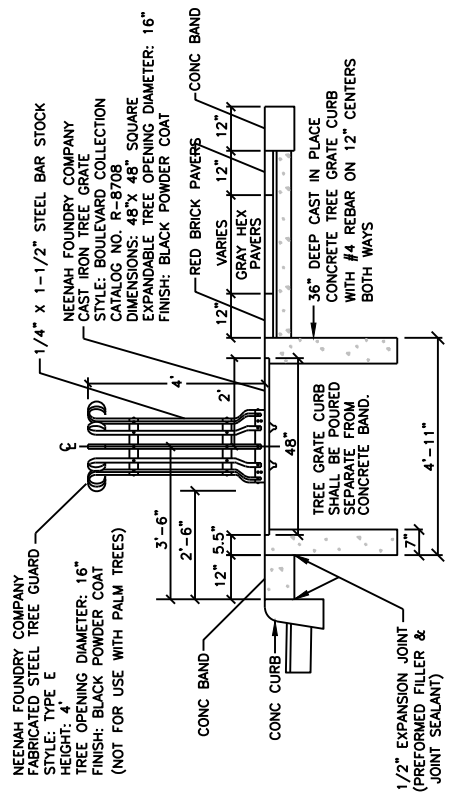
PLAN VIEW
N.T.S.



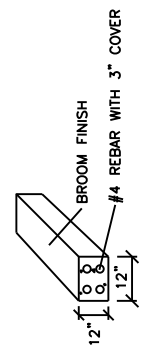
TYPICAL RECTANGLE TREE GRATE PLAN WITH IRRIGATION
ELEVATION
N.T.S.



TYPICAL RECTANGLE TREE GRATE PLAN WITH IRRIGATION
ELEVATION
N.T.S.



TYPICAL SECTION B-B
RECTANGLE TREE GRATE PLAN
N.T.S.



CONCRETE BAND DETAIL
N.T.S.

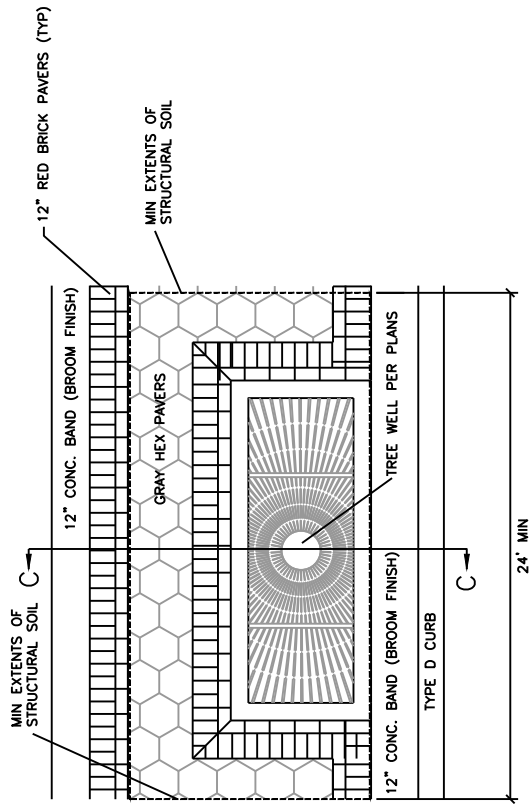
- BAND SHALL BE 3000 P.S.I. MINIMUM CLASS 1 CONCRETE.
- PROVIDE EXPANSION AND CONTRACTION CONTROL JOINTS FOR CONCRETE BAND. CONTROL JOINTS AT 5' C-C. EXPANSION JOINTS AT 40' C-C.
- ALL EXPOSED EXPANSION JOINT MATERIAL TO BE SEALED. JOINT SEALER SHALL MEET THE REQUIREMENTS ASTM D-3406.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
ORNAMENTAL PAVER BRICK SIDEWALK PLAN WITH RECTANGLE TREE GRATE			
REVISIONS	SCALE	SHEET NO.	INDEX NO.
7/3/18		2	5
1/11/16		N.T.S.	108
5/17/15			

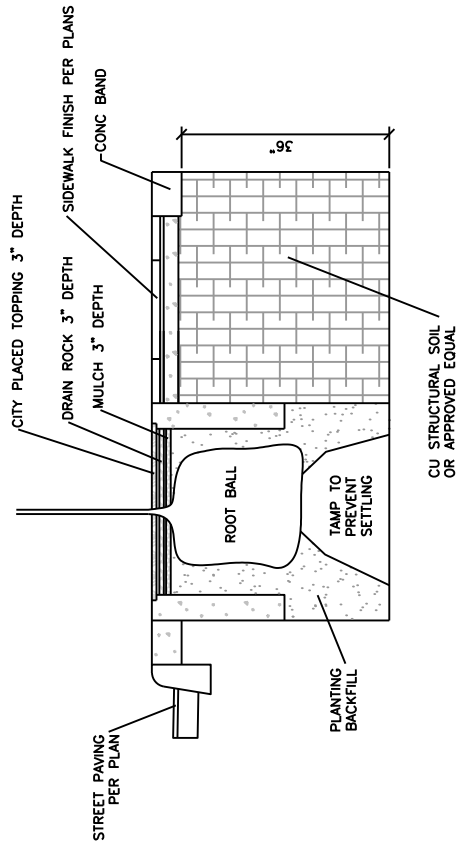
NOTE: TREE GRATE AND GUARD NOT SHOWN FOR CLARITY

BUBBLER PLACEMENT & PIPE ROUTING WITHIN TREE WELL

N.T.S.

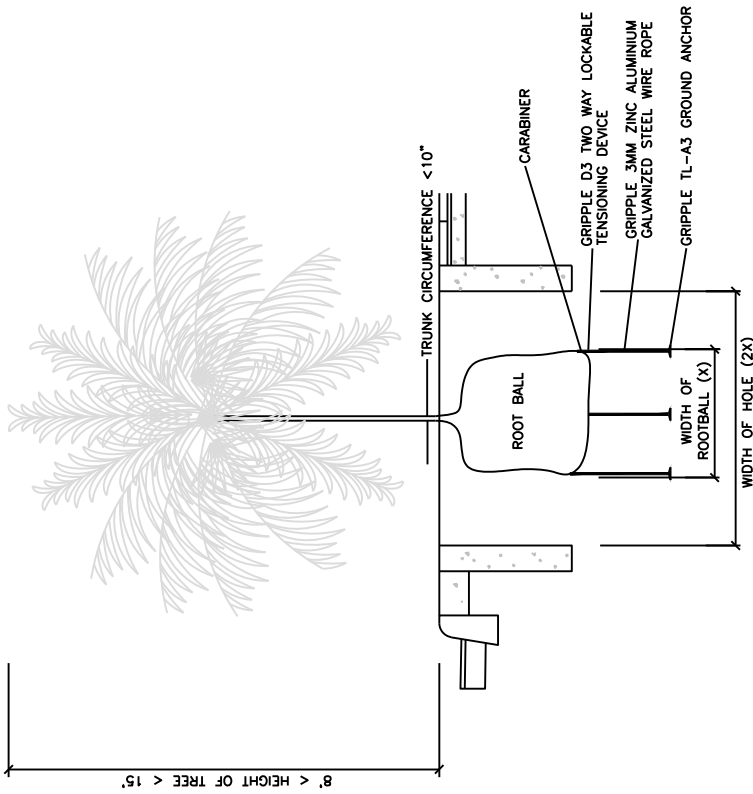


STRUCTURAL SOIL PLACEMENT DETAIL PLAN
N.T.S.



NOTE: THE CITY OF LAKELAND WILL PLACE THE TOP 3 INCHES OF MATERIAL ABOVE THE TREE.
NOTE: MULCH TO BE PLACED BELOW DRAIN ROCK.

STRUCTURAL SOIL PLACEMENT SECTION C-C
N.T.S.



ROOT BALL DYNAMIC KIT 3
N.T.S.

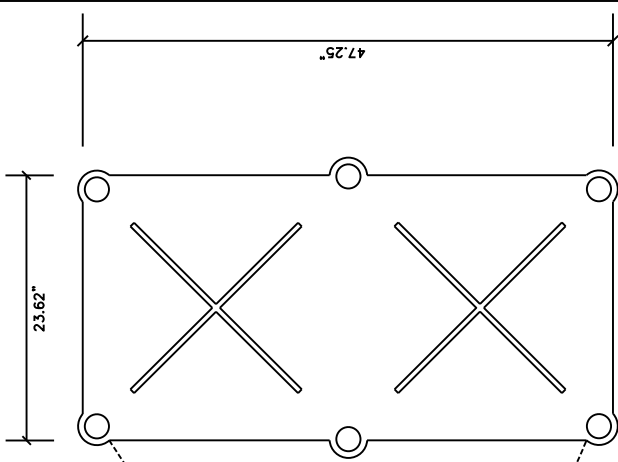
GRIPPLE ROOT BALL DYNAMIC KIT3 COMPONENT SPECIFICATIONS				
COMPONENT	QUANTITY	MATERIAL COMPOSITION	DIMENSIONS	WORKING LOAD
GRIPPLE TL-A3 GROUND ANCHOR	3	DIE CAST ZINC ALUMINUM ALLOY ZA-2 (ASTM B-24-10)	WIDTH: 1.22" LENGTH: 3.44" SURFACE AREA: 3"²	UP TO 2500LBS
GRIPPLE D3 TWO WAY LOCKABLE TENSIONING DEVICE	3	HOUSING DIE CAST ZINC ALUMINUM ALLOY ZA-2 (ASTM B-240-10)	HEIGHT: 1.3" LENGTH: 1.2" WIDTH: 0.44"	750LBS
GRIPPLE WIRE ROPE WITH CARABINER	3	ZINC ALUMINUM COATED STEEL (ASTM A-1023)	Ø: 3mm LENGTH: 5' 1X19 WIRE STRAND CONSTRUCTION	1800LBS
GRIPPLE RATCHET AND STRAP	1	POLYESTER WEBBING WITH YELLOW PASSIVATED STEEL RATCHET	LENGTH: 10' WIDTH: 2" THICKNESS: 0.12" (WEBBING)	3300LBS

CITY OF LAKELAND
FLORIDA

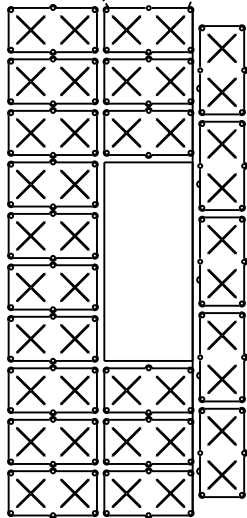
STANDARD DETAIL

ORNAMENTAL PAVER BRICK
SIDEWALK PLAN WITH
RECTANGLE TREE GRATE

REVISIONS	SCALE	SHEET NO.	INDEX NO.
7/3/18			
1/11/16	N.T.S.	3 OF 5	108
5/1/15			



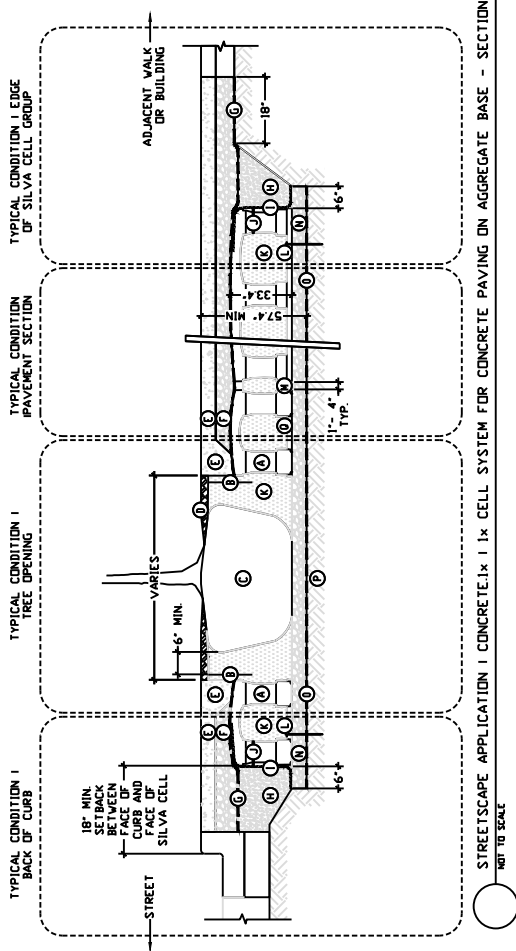
TYPICAL SILVA CELL
N.T.S.



SAMPLE PLAN ON AGGREGATE BASE
N.T.S.

K E Y P L A N

- (A) CELL SYSTEM (DECK, BASE, AND POSTS)
- (B) DEEPROOT UB12-2 ROOT BARRIER. INSTALL DIRECTLY ADJACENT TO CONCRETE EDGE RESTRAINT
- (C) TREE ROOT PACKAGE, SIZE VARIES
- (D) 1-2" MULCH, PLACED IN TREE OPENING
- (E) 4" MIN CIP CONCRETE PAVING, TURN DOWN TO DECK AT TREE OPENING
- (F) 4" MIN AGGREGATE BASE COURSE
- (G) GEOTEXTILE 18" MIN OVERLAP PAST EXCAVATION
- (H) BACKFILL, PER PROJECT SPECIFICATIONS
- (I) GEGRID TO LINE PERIMETER OF SYSTEM WITH 6" TDE (OUTWARD FROM BASE) AND 12" EXCESS (OVER TOP OF DECK)
- (J) CABLE TIE, ATTACHING GEGRID TO CELL AT BASE OF UPPER LEG FLARE
- (K) PLANTING SOIL, PER PROJECT SPECIFICATIONS. COMPACTED TO 70-80% PROCTOR.
- (L) PIN, PER CELL SPECIFICATIONS
- (M) 1" TO 4" SPACING BETWEEN CELLS AT BASE
- (N) 4" MIN AGGREGATE SUB BASE, COMPACTED TO 95% PROCTOR
- (O) GEOTEXTILE FABRIC, PLACED BELOW AGGREGATE SUB BASE
- (P) SUBGRADE, COMPACTED TO 95% PROCTOR
- (Q) CELL BASE SLOPE, 7% MAX



STREETSCAPE APPLICATION I CONCRETE 1x1 CELL SYSTEM FOR CONCRETE PAVING ON AGGREGATE BASE - SECTION
NOT TO SCALE

N O T E S

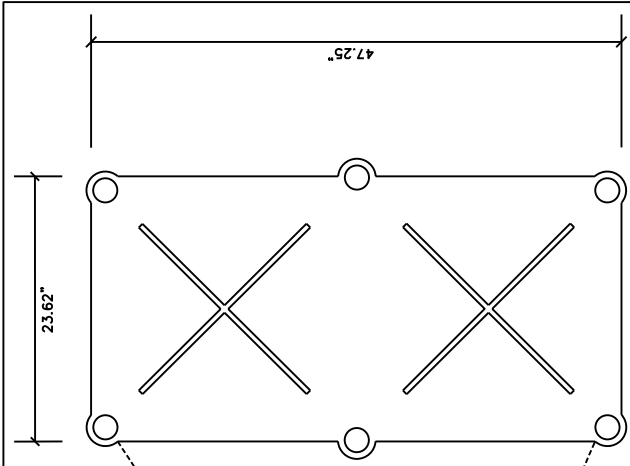
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
2. DO NOT SCALE DRAWINGS
3. PROVIDE SUPPLEMENTAL IRRIGATION FOR SEASONAL DROUGHT SUPPORT OF TREES & SOIL
4. ANY PROPOSED MANUFACTURER'S DETAILS MUST BE APPROVED IN WRITING BY THE PUBLIC WORKS DIRECTOR BEFORE INSTALLATION.

CITY OF LAKELAND
FLORIDA

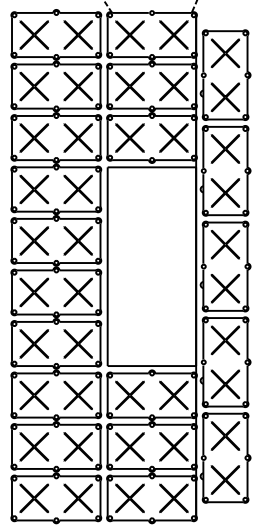
STANDARD DETAIL

CELLS FOR CONCRETE PAVING
STREETSCAPE

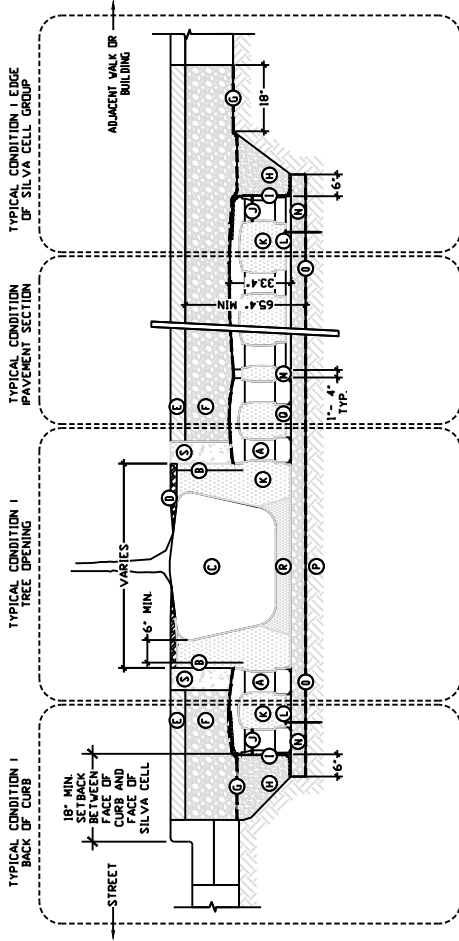
REVISIONS	SCALE	SHEET NO.	INDEX NO.
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TYPICAL SILVA CELL
N.T.S.



SAMPLE PLAN ON AGGREGATE BASE
N.T.S.

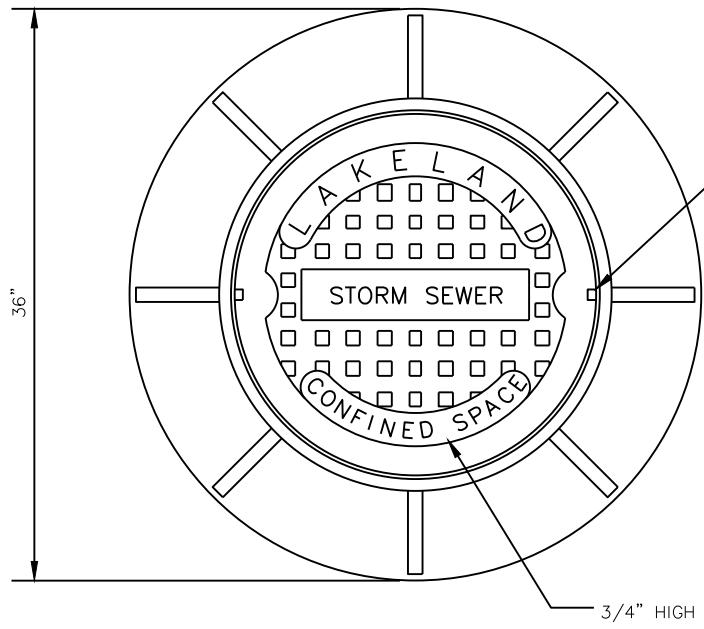


STREETSCAPE APPLICATION | FLEXIBLE 1x1 IN. CELL SYSTEM FOR PAVERS OR ASPHALT PAVING ON AGGREGATE BASE - SECTION
NOT TO SCALE

- KEY PLAN**
- (A) CELL SYSTEM (DECK, BASE, AND POSTS)
 - (B) DEEPRIOT UB18-2 ROOT BARRIER. INSTALL DIRECTLY ADJACENT TO CONCRETE EDGE RESTRAINT
 - (C) TREE ROOT PACKAGE, SIZE VARIES
 - (D) 1'-2" MULCH, PLACED IN TREE OPENING
 - (E) PAVERS OR ASPHALT, PER PROJECT
 - (F) 12" MIN AGGREGATE BASE COURSE
 - (G) GEOTEXTILE 18" MIN OVERLAP PAST EXCAVATION
 - (H) BACKFILL, PER PROJECT SPECIFICATIONS
 - (I) GEGRID TO LINE PERIMETER OF SYSTEM WITH 6" TOE (OUTWARD FROM BASE) AND 12" EXCESS (OVER TOP OF DECK)
 - (J) CABLE TIE, ATTACHING GEGRID TO CELL AT BASE OF UPPER LEG FLARE
 - (K) PLANTING SOIL, PER PROJECT SPECIFICATIONS. COMPACTED TO 70-80% PROCTOR.
 - (L) PIN, PER CELL SPECIFICATIONS
 - (M) 1" TO 4" SPACING BETWEEN CELLS AT BASE
 - (N) 4" MIN AGGREGATE SUB BASE, COMPACTED TO 95% PROCTOR
 - (O) GEOTEXTILE FABRIC, PLACED BELOW AGGREGATE SUB BASE
 - (P) SUBGRADE, COMPACTED TO 95% PROCTOR
 - (Q) CELL BASE SLOPE, 7% MAX
 - (R) PLANTING SOIL BELOW TREE ROOT PACKAGE, COMPACTED TO 85-90% PROCTOR
 - (S) CONCRETE EDGE RESTRAINT BETWEEN AGGREGATE BASE COURSE AND TREE OPENING

- NOTES**
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
 2. DO NOT SCALE DRAWINGS
 3. PROVIDE SUPPLEMENTAL IRRIGATION FOR SEASONAL DROUGHT SUPPORT OF TREES & SOIL
 4. ANY PROPOSED MANUFACTURER'S DETAILS MUST BE APPROVED IN WRITING BY THE PUBLIC WORKS DIRECTOR BEFORE INSTALLATION.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
CELLS FOR PAVERS OR ASPHALT PAVING STREETSCAPE			
REVISIONS	SCALE	SHEET NO.	INDEX NO.
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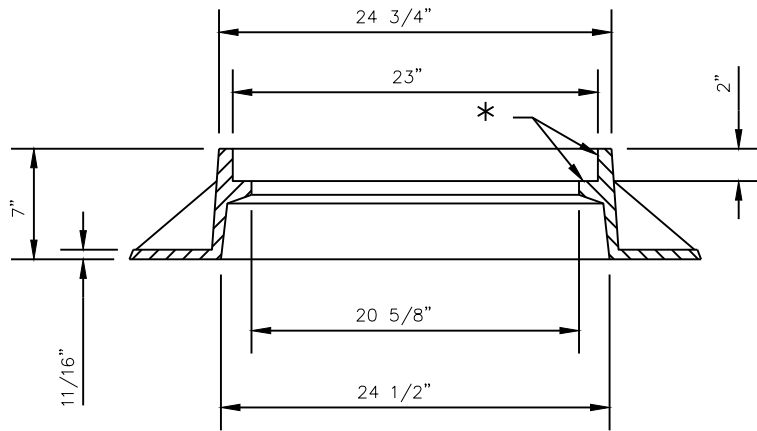


NON-PENETRATING PICKHOLES
(2 TYP.)

NOTE: PAVED AREAS - SET FRAMES
AT FINISH GRADE.
UNPAVED AREAS - SET FRAMES
AT FINISH GRADE + 0.15'.

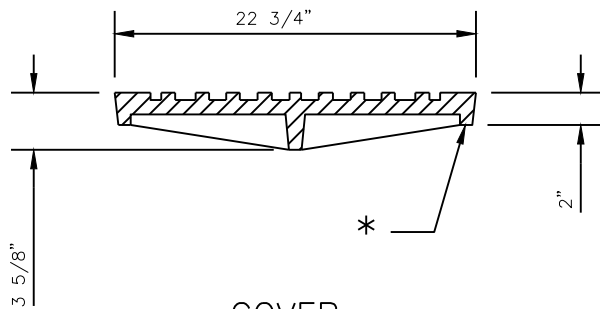
3/4" HIGH LETTERS

ASSEMBLY
N.T.S.



U.S. FOUNDRY & MFG. CORP.
REF. CAT. NO. 420-G
FRAME WT. 240 LBS. ±
COVER WT. 130 LBS. ±
MAT'L - CAST IRON, ONE COAT OF
ASPHALTIC PAINT
(OR CITY APPROVED EQUAL)

FRAME
N.T.S.

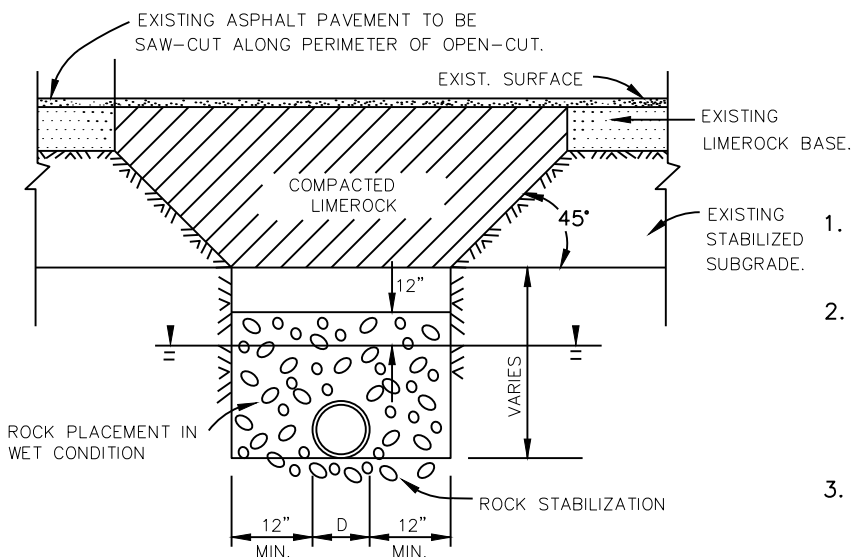


NOTE: MANHOLE COVER SHALL BE
IMPRINTED WITH "STORM SEWER" OR
"SANITARY SEWER" AND WITH
NOTE "LAKELAND AND CONFINED SPACE".

* MACHINED SURFACES

COVER
N.T.S.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
MANHOLE FRAME AND COVER			
REVISIONS		SCALE	SHEET NO.
1/11/16	7/3/18	N.T.S.	1 OF 1
12/14/00			
9/10/00			
		INDEX NO.	200



ASPHALTIC CONCRETE OVERLAY ON LIMEROCK BASE

NTS

BACKFILLING MATERIALS

1. BACKFILL TO WITHIN 12" OF BOTTOM OF EXISTING BASE WITH LOCAL SUBGRADE MATERIAL.
2. BACKFILL TO BOTTOM OF PROPOSED REPLACEMENT PAVEMENT COURSE WITH COMPACTED LIME ROCK MATERIAL. (MINIMUM THICKNESS 18"). UNDER SITE SPECIFIC CONDITIONS FLOWABLE FILL (150 PSI) MAY BE USED AS A BACKFILL MATERIAL.
3. UNDER NO CONDITION SHALL REPLACEMENT ASPHALTIC CONCRETE SURFACE THICKNESS BE LESS THAN 1 1/2 ", OR THE THICKNESS OF EXISTING ASPHALT WHICHEVER IS GREATER.
4. TACK COMPACTED LIMEROCK PRIOR TO REPLACEMENT OF SURFACE COURSE.
5. ASPHALTIC SURFACE OVERLAY IS REQUIRED TO COVER AN AREA UP TO 50 FEET FROM EITHER SIDE OF CUT.
6. MILLING AND RESURFACING WILL BE REQUIRED TO MAINTAIN THE EXISTING PROFILE OF THE ROAD WITH CURB AND GUTTER SECTION.
7. FLOWABLE FILL MAY BE USED WITH WRITTEN APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.

WET CONDITION BACKFILLING

1. ROCK SHALL BE PLACED TO AN ELEVATION OF 12" ABOVE THE EXISTING WATER LEVEL AND UNDER PIPE TO STABILIZE PIPE.
2. WELL POINTS MAY BE USED IN LEU OF ROCK IF STABLE AND DRY DITCH CAN BE ACCOMPLISHED BY WELL POINTS.
3. GEOTEXTILE FABRIC SEPARATION BARRIER.

BACKFILLING PROCEDURES

- STAGE 1 ADEQUATE FILL SHALL BE PLACED AND COMPACTED BENEATH THE HAUNCHES OF THE PIPE OR CONDUIT IN SUCCESSIVE 6" LAYERS OF COMPACTED THICKNESS.
- STAGE 2 FILL SHALL BE PLACED AND COMPACTED ALONG THE SIDES OF THE PIPE OR CONDUIT AND TO A POINT AT LEAST ONE FOOT ABOVE THE TOP OF THE PIPE OR CONDUIT IN 6" LAYERS OF COMPACTED THICKNESS.
- STAGE 3 THE REMAINDER OF THE TRENCH SHALL BE BACKFILLED AND COMPACTED WITH SUITABLE OR DESIGNATED MATERIAL IN SUCCESSIVE 6" LAYERS OF COMPACTED THICKNESS.

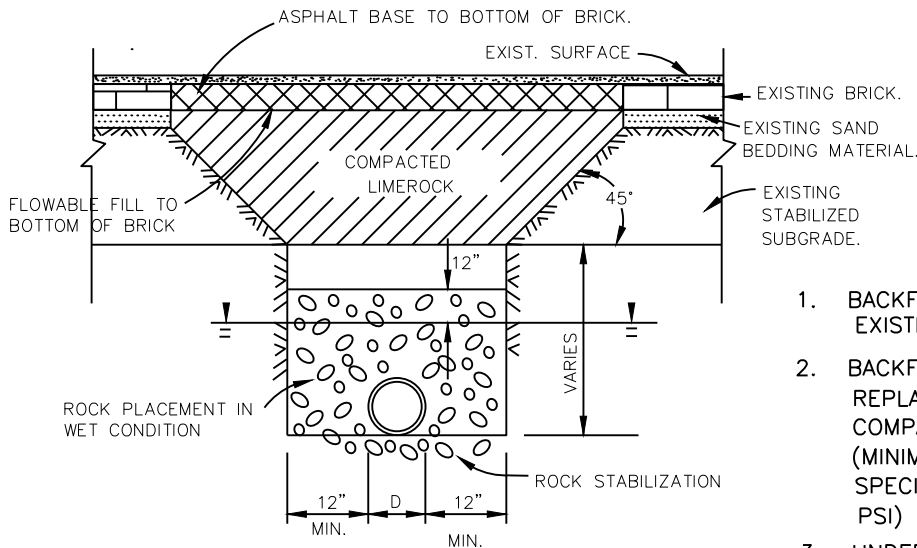
NOTES

THE BACKFILL OF ALL THREE STAGES SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180. THE CITY'S INSPECTOR WILL DETERMINE LOCATIONS FOR ANY DENSITIES OBTAINED.

IN LOCATIONS WHERE NO VEHICLE LOADS ARE ANTICIPATED (I.E.: BEYOND THE LIMITS OF PRESENT OR FUTURE PAVEMENT AREAS) THE THIRD STAGE BACKFILL SHALL BE COMPACTED TO A FIRMNESS EQUAL TO THAT OF THE SOIL ADJACENT TO THE TRENCH.

NO HIGHLY PLASTIC OR SATURATED MATERIAL MAY BE USED IN BACKFILLING OPERATION.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
BACKFILL DETAIL FOR ASPHALT CONCRETE PAVEMENT				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	1 OF 4	201
12/14/00				
9/10/00				



ASPHALTIC CONCRETE OVERLAY ON EXISTING BRICK

NTS

BACKFILLING MATERIALS

1. BACKFILL TO WITHIN 12" OF BOTTOM OF EXISTING BASE WITH LOCAL SUBGRADE
2. BACKFILL TO BOTTOM OF PROPOSED REPLACEMENT PAVEMENT COURSE WITH COMPACTED LIME ROCK MATERIAL. (MINIMUM THICKNESS 18"). UNDER SITE SPECIFIC CONDITIONS FLOWABLE FILL (150 PSI) MAY BE USED AS A BACKFILL MATERIAL.
3. UNDER NO CONDITION SHALL REPLACEMENT ASPHALTIC CONCRETE SURFACE THICKNESS BE LESS THAN 1 1/2".
4. NOTE 4, 5 AND 6 OF 205A.
5. ASPHALT BASE ON BRICK STREET TO START AT BOTTOM OF BRICK.
6. WHEN FLOWABLE FILL IS USED, THE FLOWABLE FILL SHALL BE FILLED TO THE BOTTOM OF BRICK.
7. FLOWABLE FILL MAY BE USED WITH WRITTEN APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.

WET CONDITION BACKFILLING

1. ROCK SHALL BE PLACED TO AN ELEVATION OF 12" ABOVE THE EXISTING WATER LEVEL AND UNDER PIPE TO STABILIZE PIPE.
2. WELL POINTS MAY BE USED IN LEU OF ROCK IF STABLE AND DRY DITCH CAN BE ACCOMPLISHED BY WELL POINTS.
3. GEOTEXTILE FABRIC SEPARATION BARRIER.

BACKFILLING PROCEDURES

- STAGE 1 ADEQUATE FILL SHALL BE PLACED AND COMPACTED BENEATH THE HAUNCHES OF THE PIPE OR CONDUIT IN SUCCESSIVE 6" LAYERS OF COMPACTED THICKNESS.
- STAGE 2 FILL SHALL BE PLACED AND COMPACTED ALONG THE SIDES OF THE PIPE OR CONDUIT AND TO A POINT AT LEAST ONE FOOT ABOVE THE TOP OF THE PIPE OR CONDUIT IN 6" LAYERS OF COMPACTED THICKNESS.
- STAGE 3 THE REMAINDER OF THE TRENCH SHALL BE BACKFILLED AND COMPACTED WITH SUITABLE OR DESIGNATED MATERIAL IN SUCCESSIVE 6" LAYERS OF COMPACTED THICKNESS.

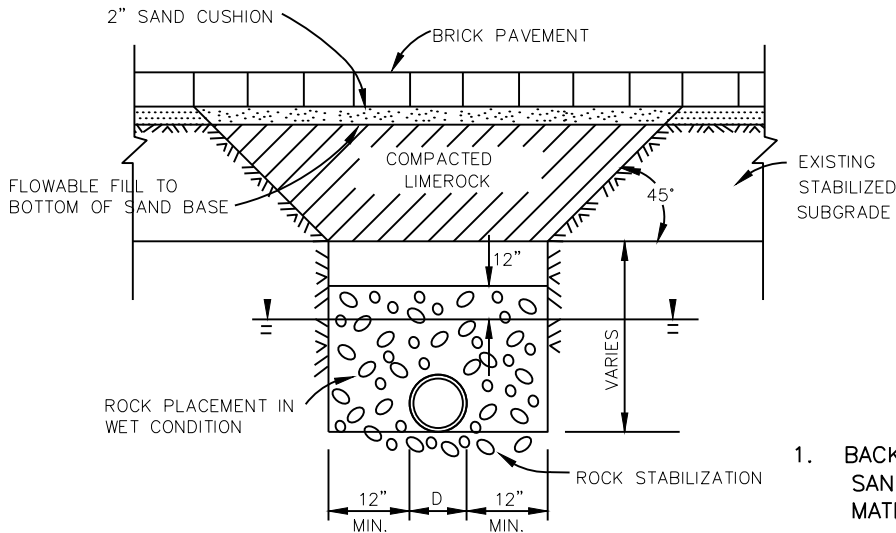
NOTES

THE BACKFILL OF ALL THREE STAGES SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180. THE CITY'S INSPECTOR WILL DETERMINE LOCATIONS FOR ANY DENSITIES OBTAINED.

IN LOCATIONS WHERE NO VEHICLE LOADS ARE ANTICIPATED (I.E.: BEYOND THE LIMITS OF PRESENT OR FUTURE PAVEMENT AREAS) THE THIRD STAGE BACKFILL SHALL BE COMPACTED TO A FIRMNESS EQUAL TO THAT OF THE SOIL ADJACENT TO THE TRENCH.

NO HIGHLY PLASTIC OR SATURATED MATERIAL MAY BE USED IN BACKFILLING OPERATION.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
BACKFILL DETAIL FOR ASPHALT CONCRETE ON BRICK PAVEMENT				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	2 of 4	201
12/14/00				
9/10/00				



BRICK PAVEMENT
NTS

BACKFILLING MATERIALS

1. BACKFILL TO WITHIN 12" OF BOTTOM OF SAND CUSHION WITH LOCAL SUBGRADE MATERIAL.
2. BACKFILL IMMEDIATE 12" BELOW BOTTOM OF SAND CUSHION WITH COMPACTED (MINIMUM THICKNESS 18"). UNDER SITE SPECIFIC CONDITIONS FLOWABLE FILL (150 PSI) MAY BE USED AS A BACKFILL MATERIAL.
3. WHEN FLOWABLE FILL IS USED, THE FLOWABLE FILL SHALL BE FILLED TO THE BOTTOM OF THE SAND BASE.

WET CONDITION BACKFILLING

1. ROCK SHALL BE PLACED TO AN ELEVATION OF 12" ABOVE THE EXISTING WATER LEVEL AND UNDER PIPE TO STABILIZE PIPE.
2. WELL POINTS MAY BE USED IN LEU OF ROCK IF STABLE AND DRY DITCH CAN BE ACCOMPLISHED BY WELL POINTS.
3. GEOTEXTILE FABRIC SEPARATION BARRIER.

BACKFILLING PROCEDURES

- STAGE 1 ADEQUATE FILL SHALL BE PLACED AND COMPACTED BENEATH THE HAUNCHES OF THE PIPE OR CONDUIT IN SUCCESSIVE 6" LAYERS OF COMPACTED THICKNESS.
- STAGE 2 FILL SHALL BE PLACED AND COMPACTED ALONG THE SIDES OF THE PIPE OR CONDUIT AND TO A POINT AT LEAST ONE FOOT ABOVE THE TOP OF THE PIPE OR CONDUIT IN 6" LAYERS OF COMPACTED THICKNESS.
- STAGE 3 THE REMAINDER OF THE TRENCH SHALL BE BACKFILLED AND COMPACTED WITH SUITABLE OR DESIGNATED MATERIAL IN SUCCESSIVE 6" LAYERS OF COMPACTED THICKNESS.

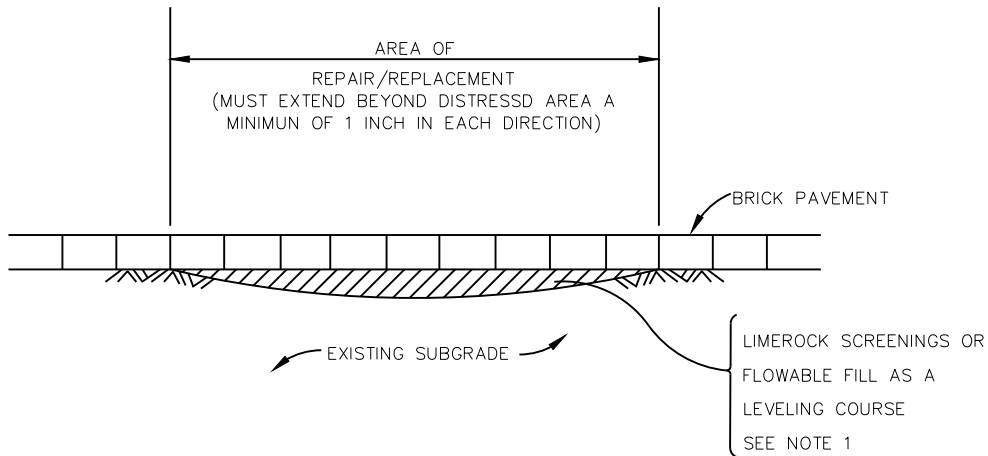
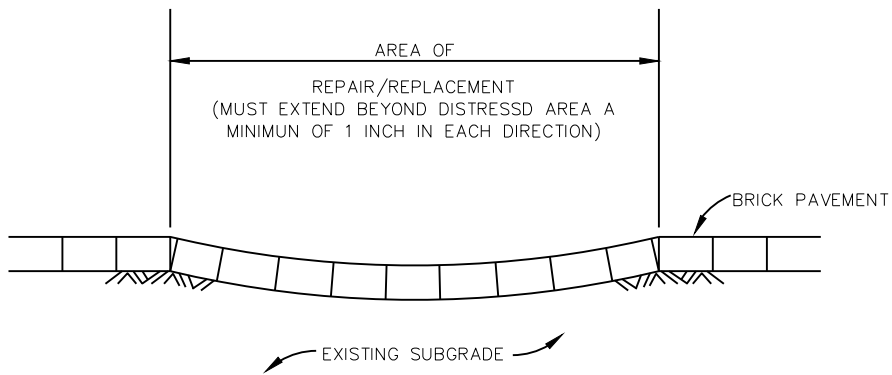
NOTES

THE BACKFILL OF ALL THREE STAGES SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180. THE CITY'S INSPECTOR WILL DETERMINE LOCATIONS FOR ANY DENSITIES OBTAINED.

IN LOCATIONS WHERE NO VEHICLE LOADS ARE ANTICIPATED (I.E.: BEYOND THE LIMITS OF PRESENT OR FUTURE PAVEMENT AREAS) THE THIRD STAGE BACKFILL SHALL BE COMPACTED TO A FIRMNESS EQUAL TO THAT OF THE SOIL ADJACENT TO THE TRENCH.

NO HIGHLY PLASTIC OR SATURATED MATERIAL MAY BE USED IN BACKFILLING OPERATION.

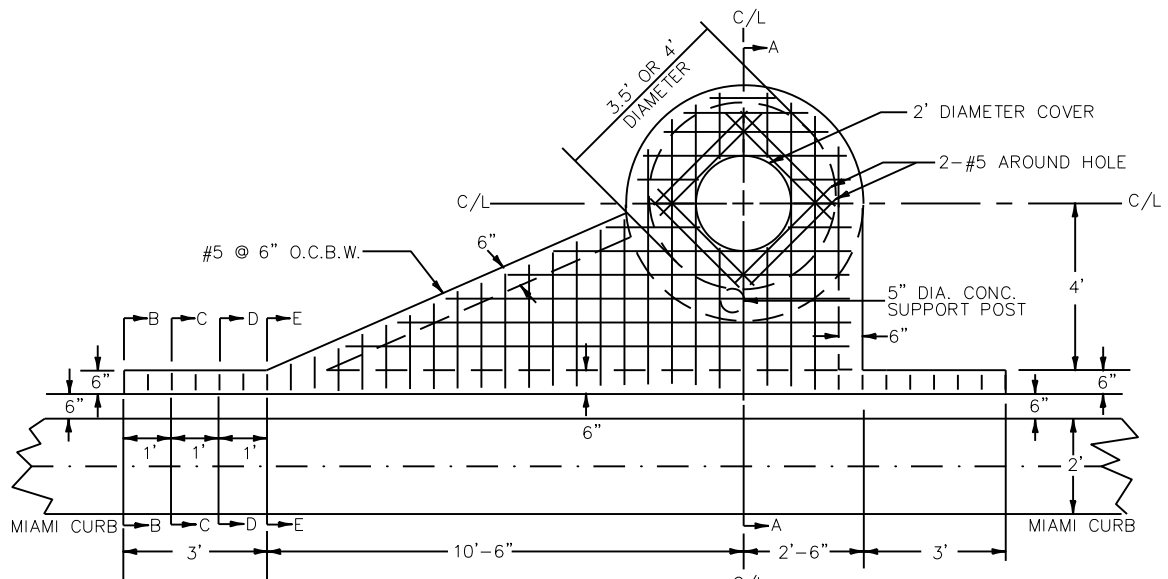
CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
BACKFILL DETAIL FOR BRICK CONCRETE				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	3 of 4	201
12/14/00				
9/10/00				



NOTES

1. LIMEROCK SCREENINGS PER F.D.O.T. STD. SPECS. SECTION 902 OR FLOWABLE FILL BASED ON SITE CONDITIONS.
2. LEVELING BED SHALL BE CHECKED WITH A 10 FT. STRAIGHT EDGE LAID PARALLEL TO THE CENTERLINE OF ROAD AND IN THE DIRECTION OF THE CROSS SLOPE OF ROAD. ALL IRREGULARITIES GREATER THAN 1/4 INCH SHALL BE CORRECTED.

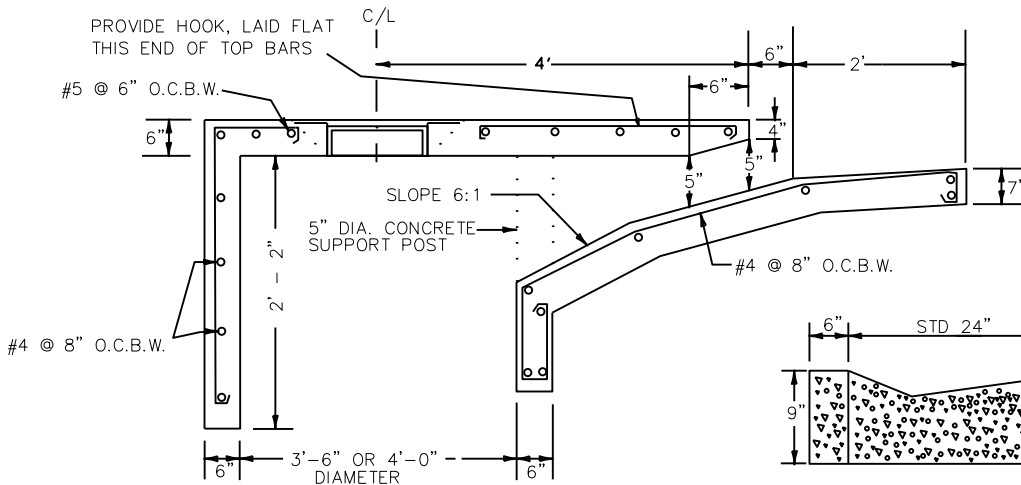
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REPAIR/REPLACEMENT FOR BRICK PAVEMENT				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	4 OF 4	201
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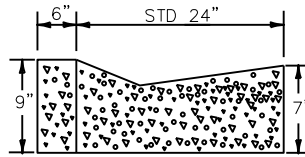
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(INLET TYPE 2 SYMMETRICAL ABOUT C/L)



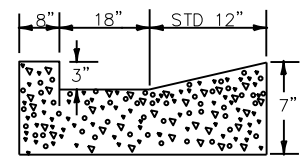
SECTION AA

NTS



SECTION BB

NTS

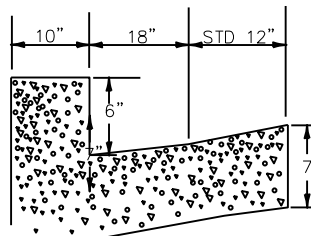


SECTION CC

NTS

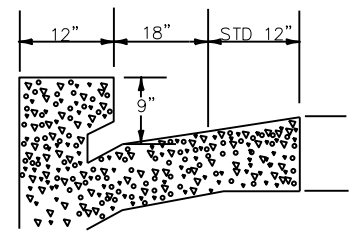
NOTE:

1. ALL STEEL IN THROATS SHALL HAVE 1-1/2" MINIMUM COVER UNLESS OTHERWISE SHOWN.
2. INLET THROATS SHALL BE EITHER CAST IN PLACE OR PRECAST.
3. DOWELS TO TOP SLAB REQUIRED.
4. RING & COVER-SLAB TYPE TO BE USF 1255 AK OR EQUAL.
5. INLETS ON TYPE E AND F CURBS WILL BE CONSTRUCTED IN ACCORDANCE WITH FDOT INDEX 201.



SECTION DD

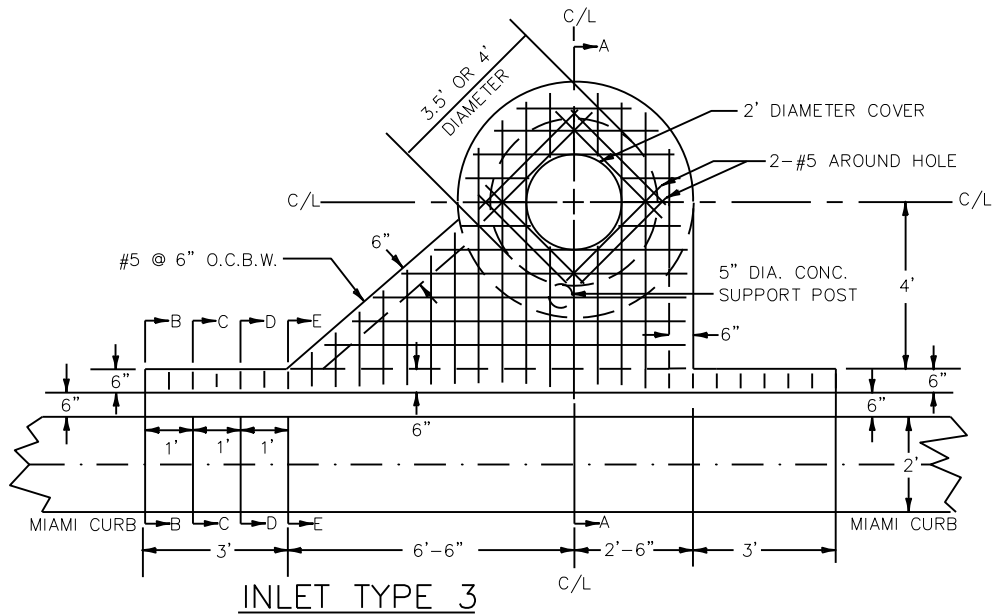
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SECTION EE

NTS

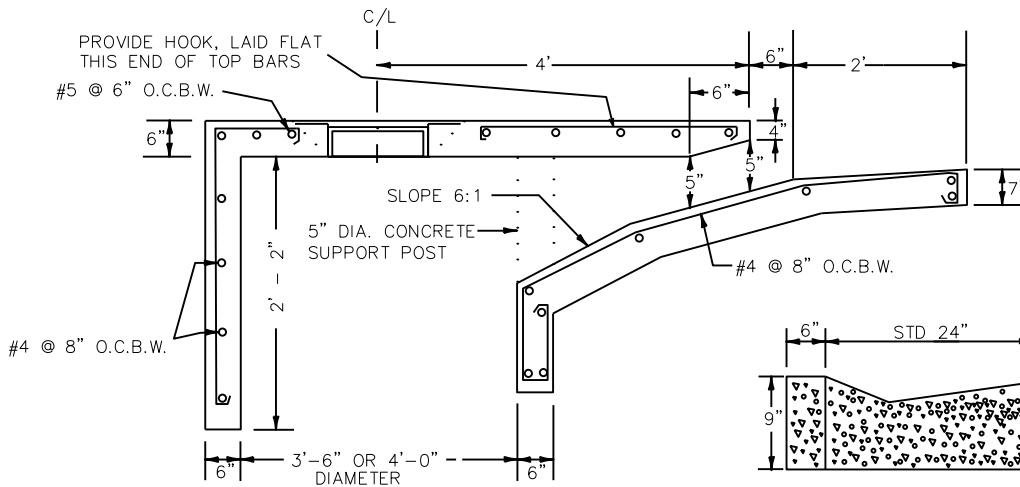
CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
INLET TYPE 1 AND 2 FOR MIAMI CURB				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	1 OF 2	202
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9/10/00				



INLET TYPE 3

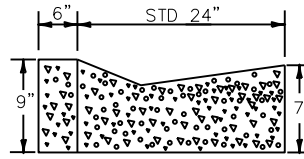
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(INLET TYPE 4 SYMMETRICAL ABOUT C/L)



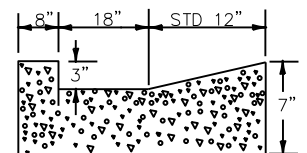
SECTION AA

NTS



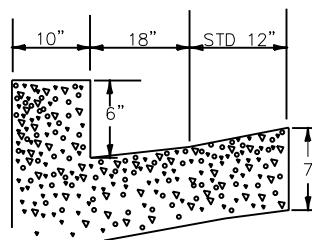
SECTION BB

NTS



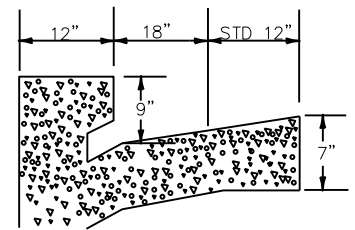
SECTION CC

NTS



SECTION DD

NTS



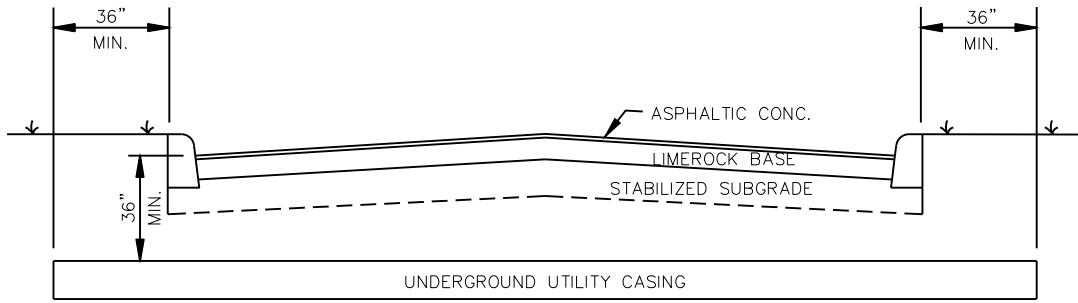
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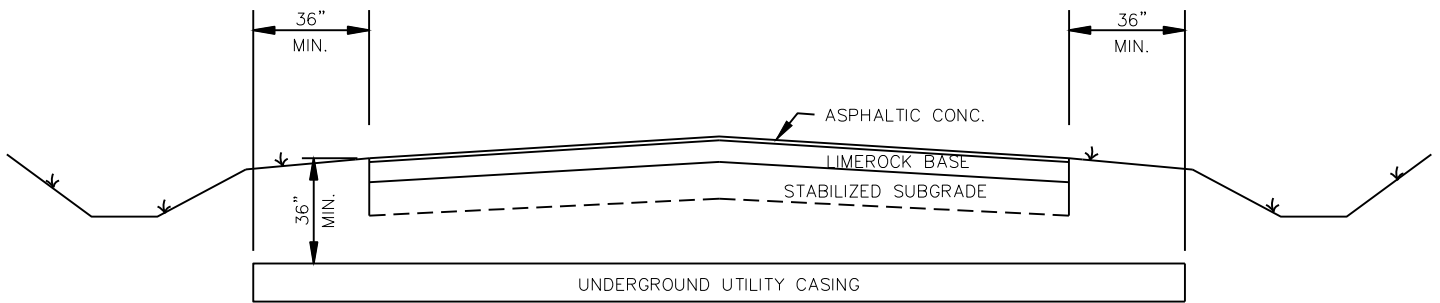
NOTE:

1. ALL STEEL IN THROATS SHALL HAVE 1-1/2" MINIMUM COVER UNLESS OTHERWISE SHOWN.
2. INLET THROATS SHALL BE EITHER CAST IN PLACE OR PRECAST.
3. DOWELS TO TOP SLAB REQUIRED.
4. RING & COVER-SLAB TYPE TO BE USF 1255 AK OR EQUAL.
5. INLETS ON TYPE E AND F CURBS WILL BE CONSTRUCTED IN ACCORDANCE WITH FDOT INDEX 201.

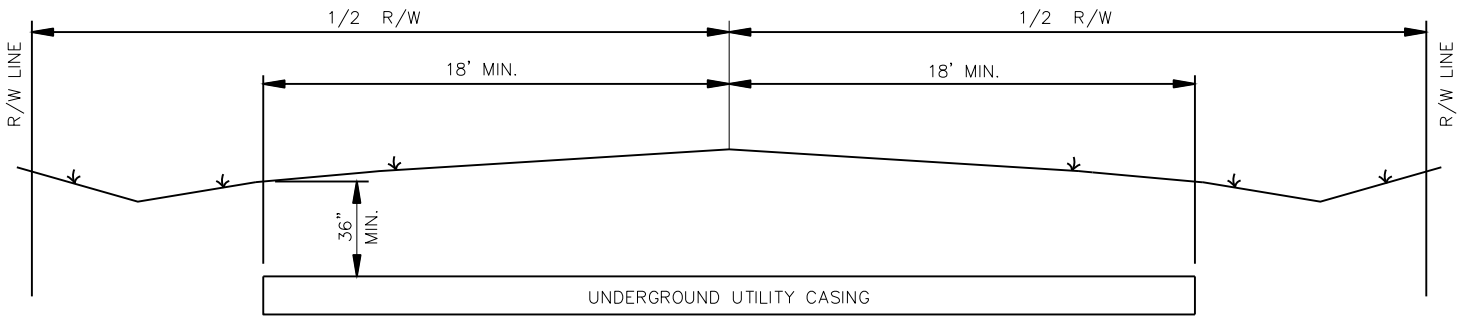
CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
INLET TYPE 3 AND 4 FOR MIAMI CURB				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	2 OF 2	202
12/14/00				
9/10/00				



URBAN DESIGN FOR PAVED STREET



RURAL DESIGN FOR PAVED STREET



RURAL DESIGN FOR UNPAVED STREET
(OPEN CUT SECTION)

CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
UNDERGROUND UTILITY CROSSING OF STREETS				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
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12/14/00				
9/10/00				

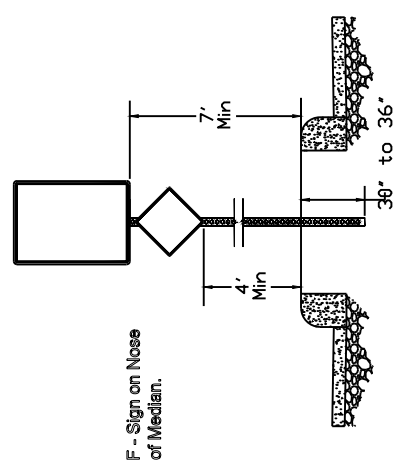
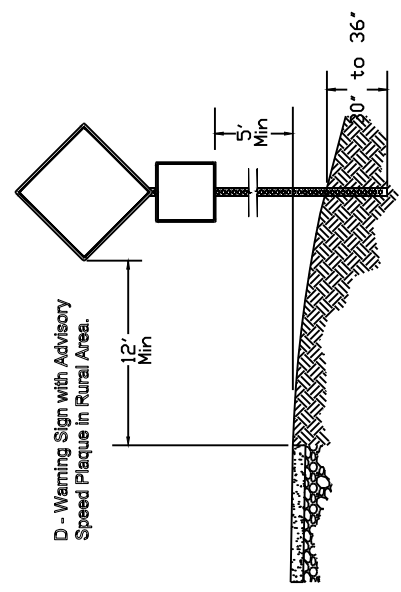
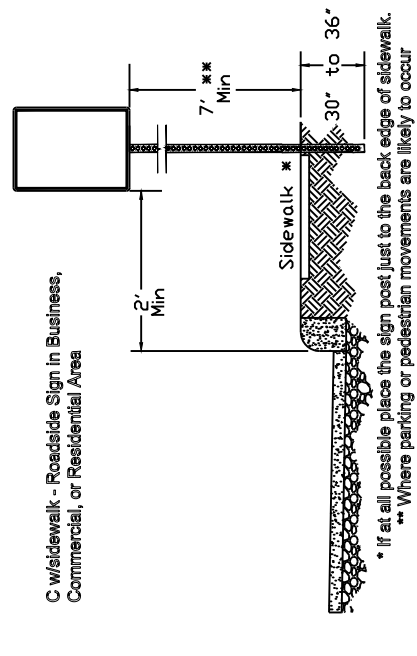
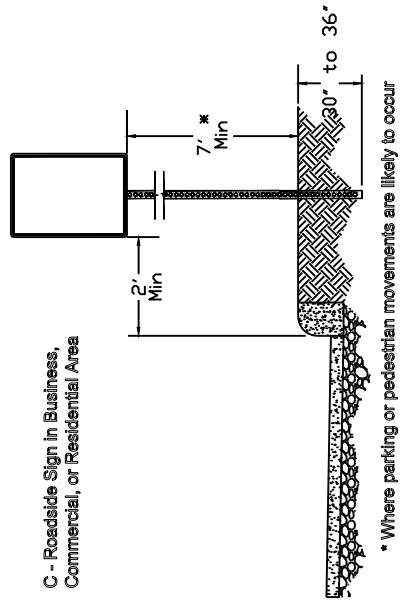
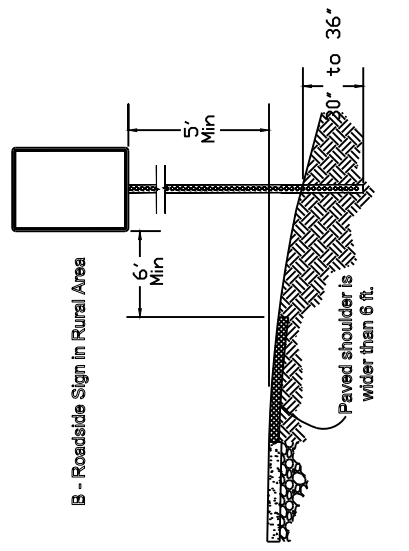
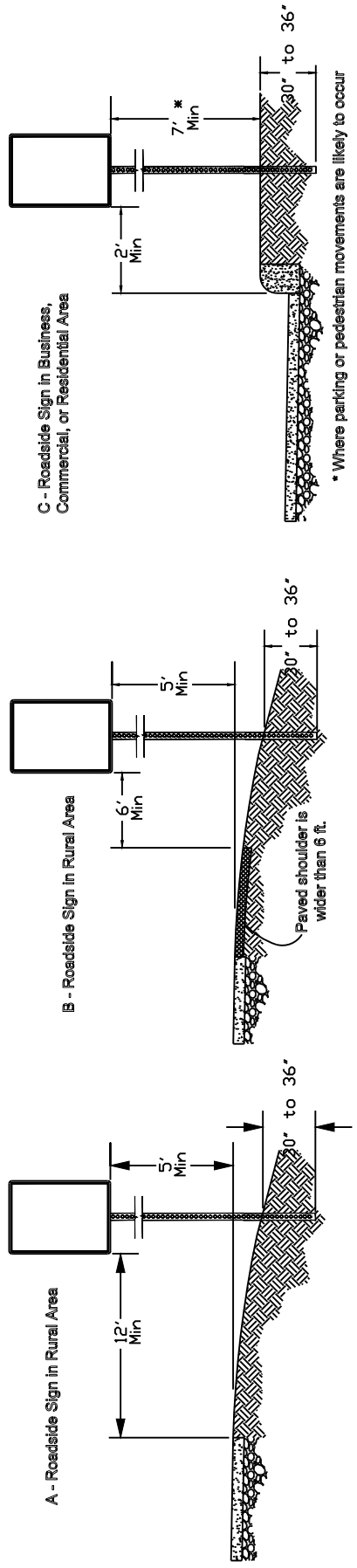
NOTES: PAVED STREET INSTALLATION

1. "Jack and bore" or "Directional Bore" shall be the only approved method of installing an underground utility under an existing paved street. Neither "Air Jetting" nor "Water Jetting" methods will be allowed. Where extraordinary circumstances preclude the "Jack and Bore" or "Directional Bore" methods of crossing, the director of Public Works may authorize an "Open-Cut" trench across the paved street. The Contractor shall then be required to backfill the trench, patch the pavement, as indicated on Index No. 205 A. In certain instances a "Feathering-In" of the asphalt patch may be required, as deemed appropriate by the Director of Public Works.
2. The casing of the underground utility crossing shall maintain a minimum of 36 inches of cover from the roadway pavement to the outside diameter of the casing.
3. The casing shall extend a minimum of three (3) feet from the back of curb on both sides of the road on an urban design section and a minimum of three (3) feet from the outside edge of pavement of both sides of the road on a rural design section.
4. Where the actual location of a potential conflict may exist between the proposed casing and an existing utility, a "Window" in the asphalt pavement may be authorized by the City in order to verify the exact depth and location of the utility. This window must be patched as soon as it has served its purpose and shall not remain overnight unpatched under any circumstances. The "Window" shall not exceed an area of one square foot.
5. All methods of installation are subject to the review, approval and inspection by the City of Lakeland. Such installations will require the issuance of a City of Lakeland Utility Permit. Operations deemed as potentially damaging or unsafe will not be permitted. Road crossings shall be completed on the same day, whenever possible.
6. Traffic Control at the project site shall conform to FDOT Design Standards as approved by the City of Lakeland and shall be maintained during all stages of the underground utility installation.

UNPAVED STREET INSTALLATION

The crossing of an unpaved street may be accomplished by open-cutting of the street. The depth of cover of the utility installations shall be a minimum of thirty-six (36) inches. The material removed is to be replaced in layers and compacted. The last six inches of backfill material will be replaced with limerock or shell material (as deemed appropriate) and compacted. This will serve to provide a traffic bearing material and as an indication that there is a utility crossing at the location. A City of Lakeland Utility Permit shall be required and adequate traffic control shall be maintained at all stages of the operation.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
UNDERGROUND UTILITY CROSSING OF STREETS			
REVISIONS		SCALE	SHEET NO.
1/11/16	7/3/18	N.T.S.	2 of 2
12/14/00			
9/10/00			
			INDEX NO. 203



1. FOR SIDEWALK INSTALLATION, DRILL SIDEWALK AND CONCRETE PAD INSTALLATION, DRILL A 3" TO 4" DIA. HOLE (DEPENDENT UPON ANCHOR SIZE), THE CENTER TO BE 6" FROM THE BACK OF SIDEWALK.
2. ATTACH POST TO ANCHORING SYSTEM BY USING AT LEAST TWO 3/8" DIA. HEX HEAD BOLTS AND NYLON LOCK NUTS.
3. INSTALLATION OF SIGNS SHALL MEET LATEST ADA REQUIREMENTS.
4. SIGNS SHALL HAVE A STICKER AT THE BACK WITH THE NAME OF THE CONTRACTOR AND THE DATE OF INSTALLATION.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
SIGN INSTALLATION DETAIL SHEET			
REVISIONS	SCALE	SHEET NO.	INDEX NO.
DATE			
DATE	N.T.S.	1 OF 2	300
DATE			

FABRICATION SPECIFICATIONS

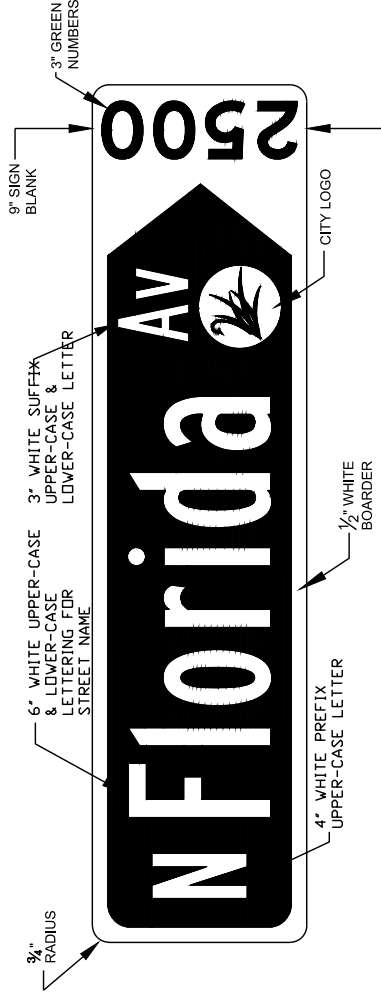
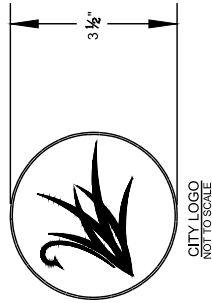
Sign assemblies shall be fabricated using the following materials:

- Sign assemblies will be fabricated with aluminum alloy 5052-H38 with a standard thickness of .080 inches, and nine inches (9") high by various lengths with 3/4" radius corners.
- Prismatic Sheeting "White"
- Green ATSM EC 177

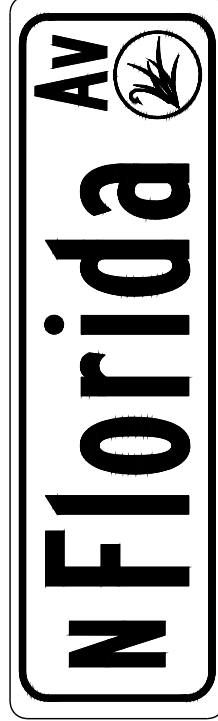
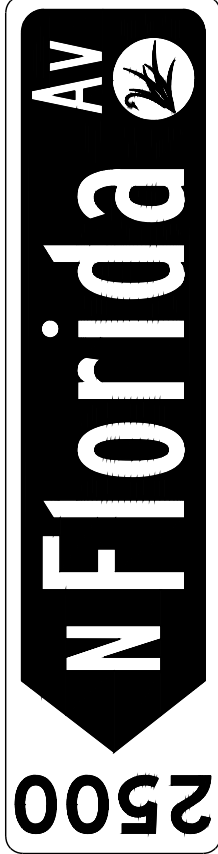
Lettering on street name signs shall be six inches (6") high in upper & lower case letters. Supplementary lettering to indicate the type of street (such as St, Av, Rd, etc.) shall be in smaller lettering of three inches (3") in height.

Prefix lettering (such as N, S, E, W) shall be in smaller lettering of four inches (4") in height. All signs shall have the City of Lakeland logo (swan). All lettering shall be upper & lower case highway font B. Block number shall be highway font C. A diagram showing dimensions, layout, spacing, etc. is shown at right.

For questions regarding specifications please contact:
 CITY OF LAKELAND
 TRAFFIC OPERATIONS MANAGER
 863.834.3490



ARROW NEEDS TO BE REVERSED ON MATCHING SIGN



PRIVATE STREET MARKER

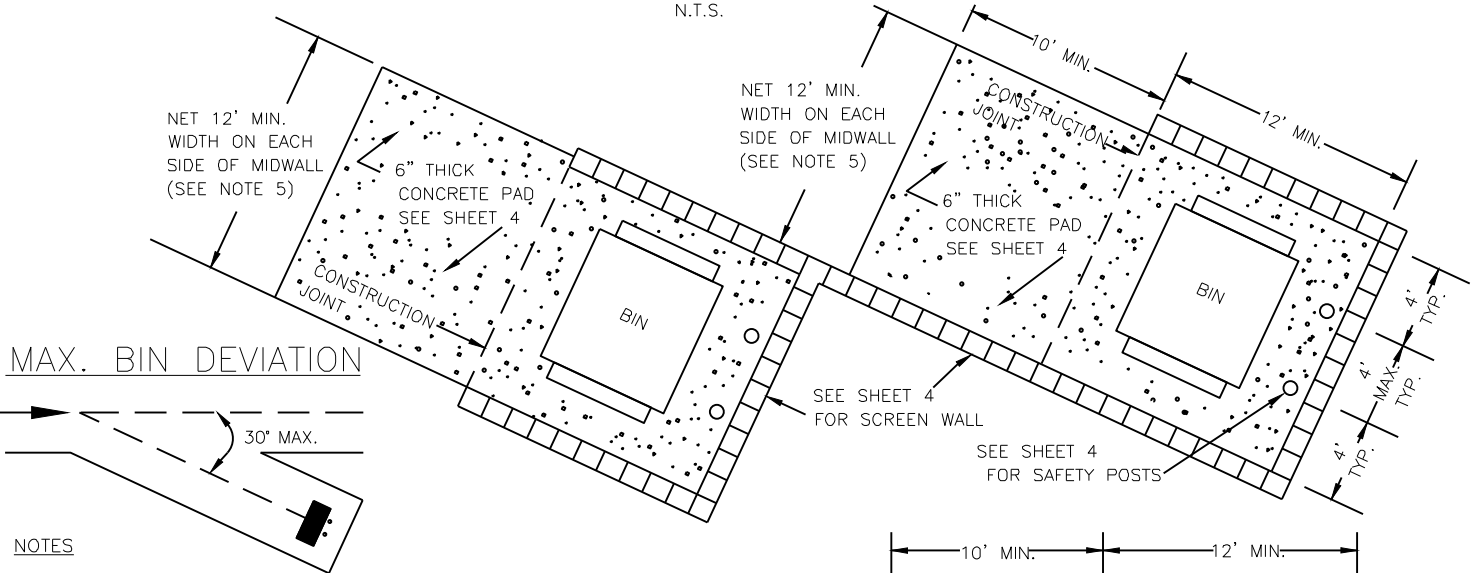
CITY STREETS SHALL BE GREEN BACK GROUND WITH WHITE TEXT.
 PRIVATE STREETS SHALL BE WHITE BACK GROUND WITH GREEN TEXT WITH NO BLOCK NUMBERS.

NOTE:

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
SIGN INSTALLATION DETAIL SHEET			
REVISIONS	SCALE	SHEET NO.	INDEX NO.
DATE			
DATE	7/3/18	N.T.S.	2 OF 2
DATE	4/24/18		300

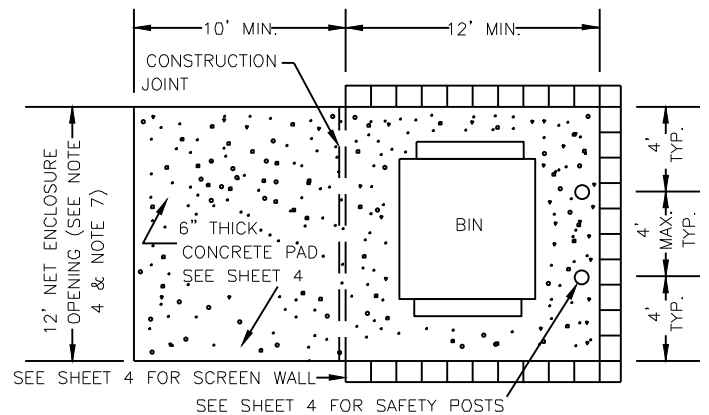
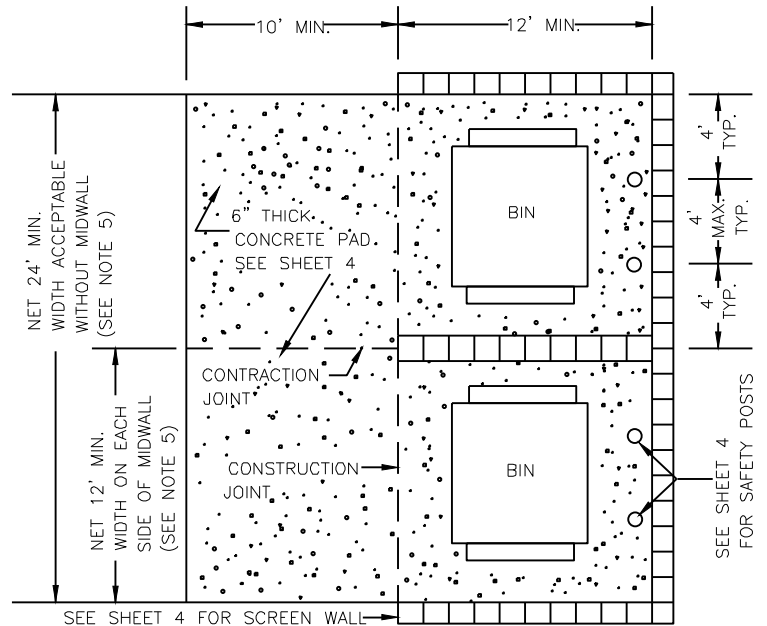
SINGLE & DOUBLE WIDE BIN ENCLOSURE CONFIGURATIONS

N.T.S.

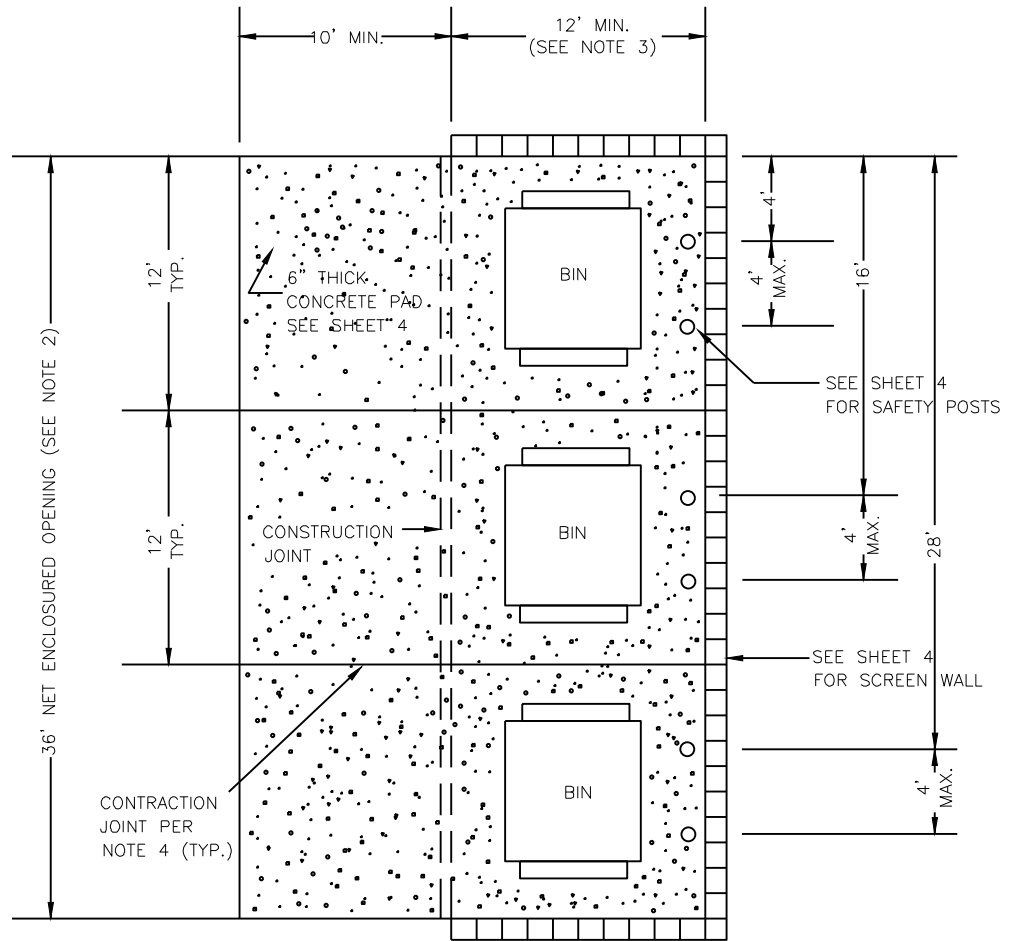


NOTES

- ALL COMMERCIAL PROPERTIES SHALL BE DESIGNED WITH DOUBLE-WIDE ENCLOSURES TO ACCOMMODATE (1) REFUSE AND (1) RECYCLING BIN.
- MULTI-UNIT RESIDENTIAL DEVELOPMENT SHALL BE DESIGNED WITH EITHER SINGLE OR DOUBLE-WIDE ENCLOSURES FOR TRASH AND AT LEAST ONE TRIPLE-WIDE ENCLOSURE FOR RECYCLING.
- THE NUMBER OF BIN ENCLOSURES NEEDED DEPENDS ON THE SIZE OF THE DEVELOPMENT. TYPICALLY, TOTAL VOLUME NEEDS CAN BE CALCULATED BASED ON ONE HALF-CUBIC YARD PER LIVING UNIT PER WEEK. FOR EXAMPLE, A DEVELOPMENT WITH 240 UNITS X .5 YARDS = 120 YARDS PER WEEK OR 10 TRASH BINS (6 YARD) SERVICED TWO TIMES PERWEEK (10 X 6 X 2 = 120 YARDS).
- SINGLE-WIDE BIN ENCLOSURES SHALL HAVE A NET ENCLOSURE OPENING OF 12 FEET.
- DOUBLE-WIDE BIN ENCLOSURES SHALL HAVE A NET ENCLOSURE OPENING OF 24 FEET WITHOUT MIDWALLS ALTHOUGH NOT PREFERRED, DOUBLE WIDE BIN ENCLOSURES CAN BE DESIGNED WITH MIDWALLS WITH A NET ENCLOSURE OPENING OF 12 FEET ON EACH SIDE OF MIDWALL.
- GATES, HINGES, AND MOUNTING HARDWARE SHALL BE INSTALLED SO THERE IS A MINIMUM 12 FOOT DEPTH CREATED WITHIN EACH ENCLOSURE.
- GATES, HINGES, AND MOUNTING HARDWARE SHALL NOT INTRUDE UPON MINIMUM NET ENCLOSURE OPENING.
- BIN ENCLOSURES ARE TO BE ANGLED NO MORE THAN 30 DEGREES FROM THE CENTER LINE OF THE SOLID WASTE COLLECTION VEHICLE ROUTE.
- BINS THAT ARE VISIBLE FROM PUBLIC HIGHWAYS SHALL HAVE ENCLOSURE GATES THAT SCREEN THE BINS FROM PUBLIC VIEW.
- BIN ENCLOSURES TO BE A MINIMUM 3 FEET FROM ANY NON-COMBUSTIBLE PLANNED OR EXISTING STRUCTURE AT ITS CLOSEST POINT; 5 FEET FROM ANY COMBUSTIBLE PLANNED OR EXISTING STRUCTURE AT ITS CLOSEST POINT (PER IUNIFORM FIRE CODE 1103.2.2).
- STANDARDS FOR SOLID WASTE VEHICLE ACCESS ARE ADDRESSED IN SHEET NO. 1.
- STANDARDS FOR TRIPLE-WIDE ENCLOSURES ARE ADDRESSED IN SHEET NO. 3.
- STANDARDS FOR BIN ENCLOSURE SCREEN WALLS, SAFETY POSTS, AND GATES ARE ADDRESSED IN SHEET NO. 4.
- STANDARDS FOR DUMPSTER DRAIN ARE ADDRESSED IN WASTEWATER STANDARDS.



CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
SINGLE AND DOUBLE WIDE BIN ENCLOSURES			
REVISIONS		SCALE	SHEET NO.
1/11/16	7/3/18	N.T.S.	1 OF 4
12/14/00			
9/10/00			
		INDEX NO.	800

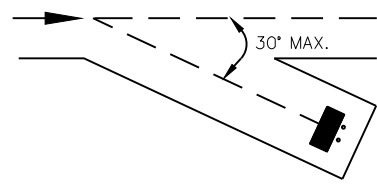


TRIPLE-WIDE BIN ENCLOSURE
N.T.S.

NOTES

1. MULTI-UNIT RESIDENTIAL DEVELOPMENTS SHALL BE DESIGNED WITH A TRIPLE-WIDE ENCLOSURE TO ACCOMMODATE THREE COMMODITIES FOR RECYCLING.
2. TRIPLE-WIDE ENCLOSURE SHALL HAVE A NET ENCLOSURE OPENING OF 36 FEET AND SHALL BE DESIGNED WITHOUT MIDWALLS, GATES, HINGES, AND MOUNTING HARDWARE SHALL NOT INTRUDE UPON MINIMUM NET ENCLOSURE OPENING.
3. GATES, HINGES, AND MOUNTING HARDWARE SHALL BE INSTALLED SO THERE IS A MINIMUM 12 FOOT DEPTH CREATED WITHIN EACH ENCLOSURE.
4. BIN ENCLOSURES ARE TO BE ANGLED NO MORE THAN 30 DEGREES FROM THE CENTER LINE OF THE SOLID WASTE COLLECTION VEHICLE ROUTE.
5. CONTRACTION JOINTS MAY BE EITHER SCORED OR SAWCUT 1-INCH DEEP.
6. STANDARDS FOR DUMPSTER DRAIN ARE ADDRESSED IN WASTEWATER STANDARDS.

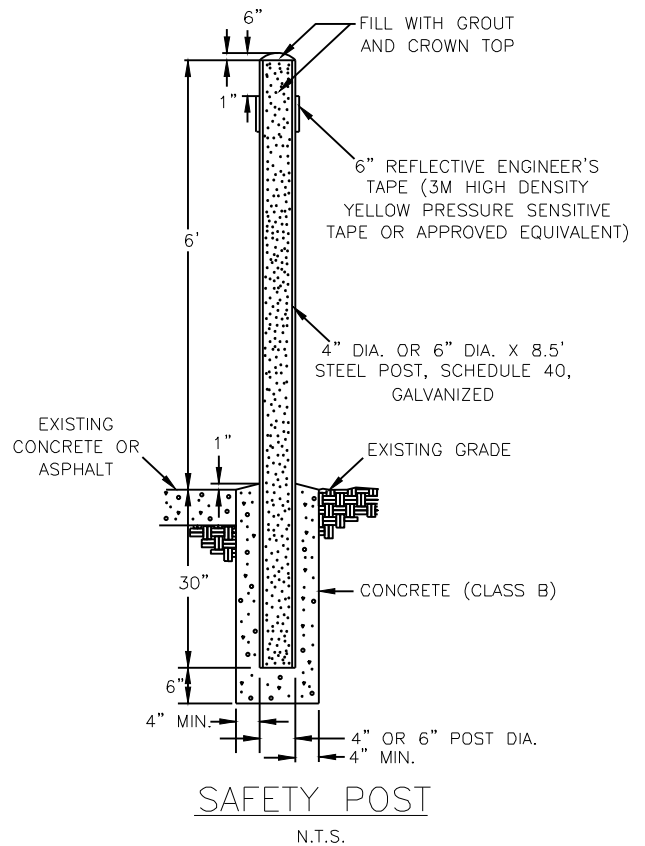
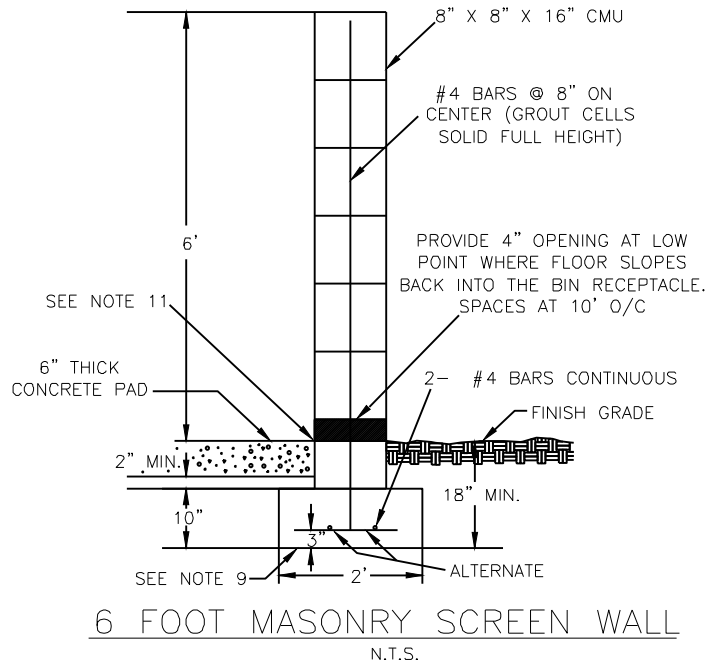
MAX. BIN DEVIATION



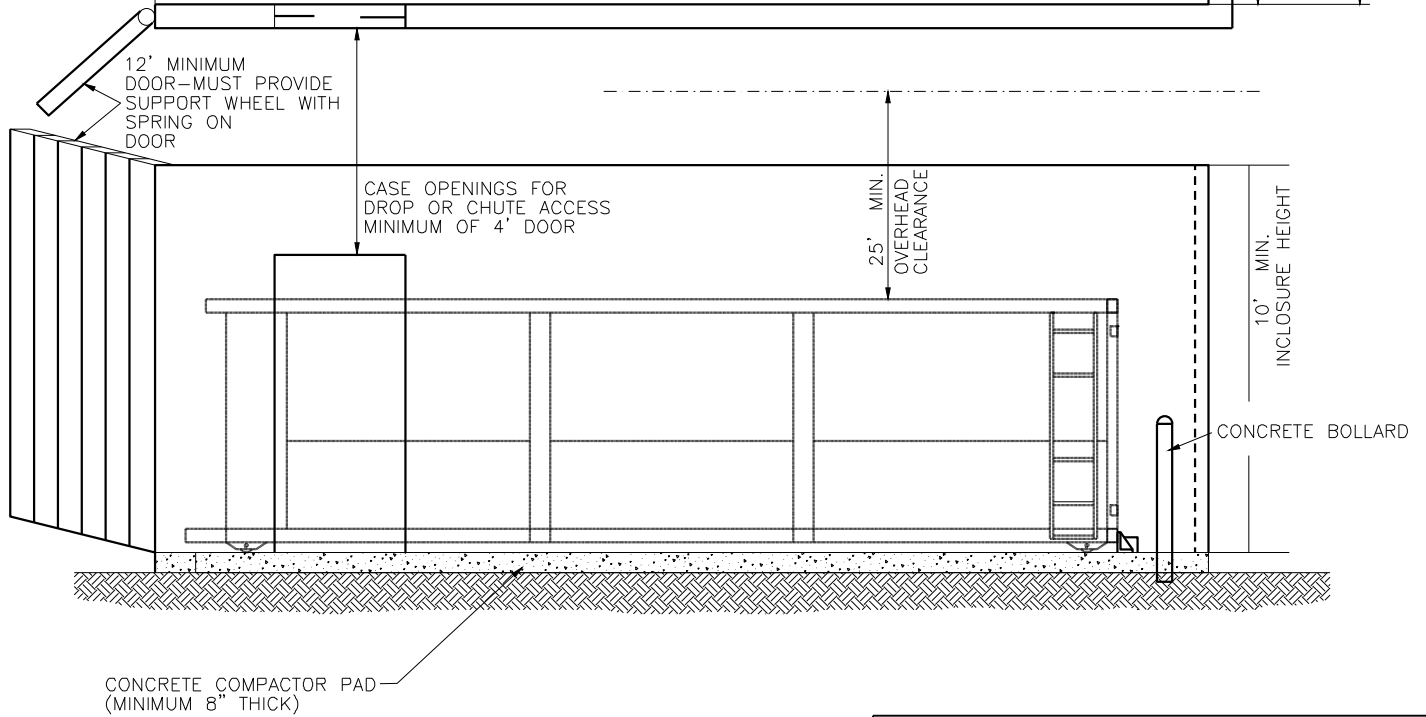
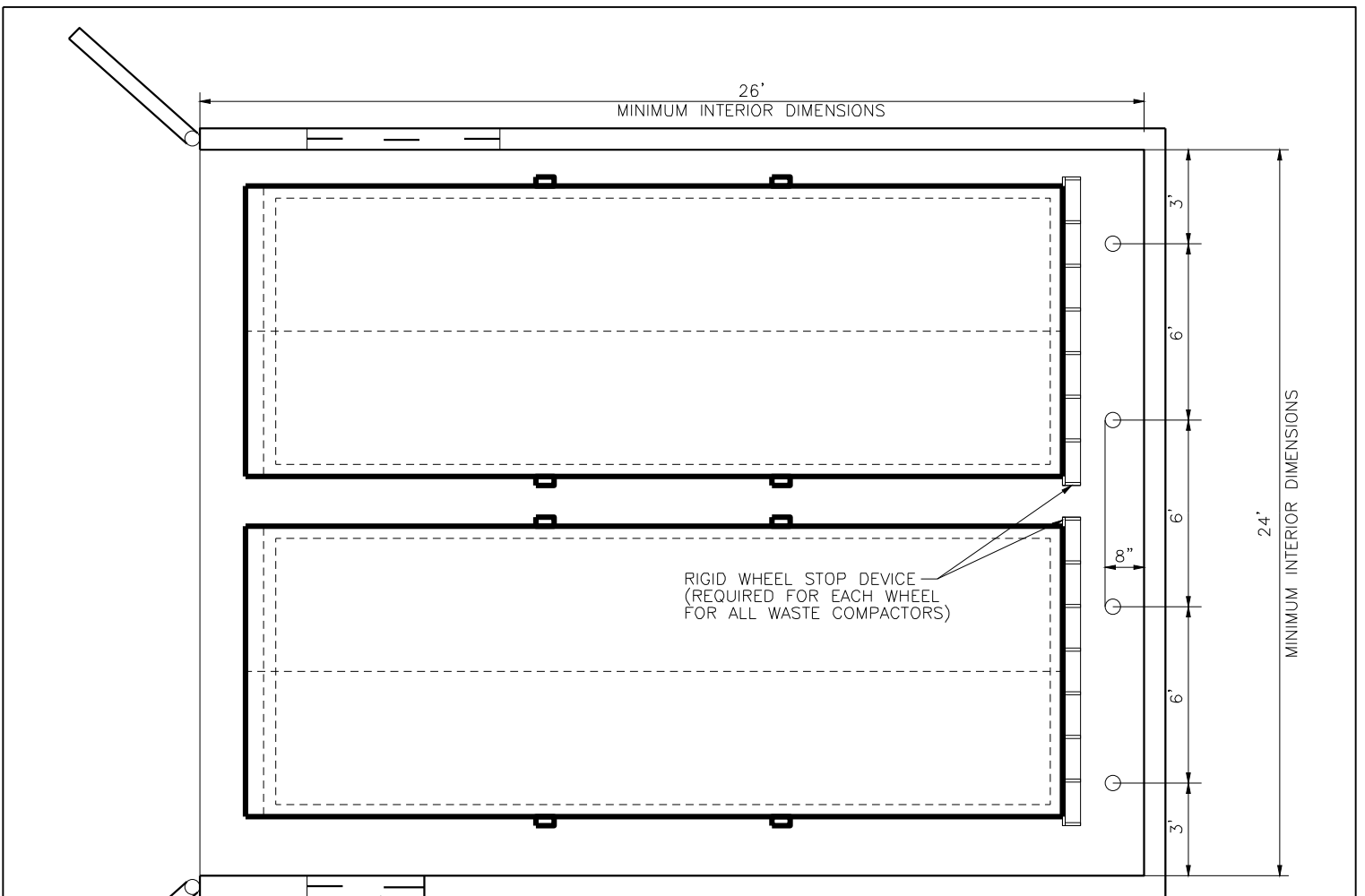
CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
TRIPLE WIDE BIN ENCLOSURES			
REVISIONS		SCALE	SHEET NO.
1/11/16	7/3/18	N.T.S.	2 OF 4
12/14/00			
9/10/00			
			INDEX NO.
			800

NOTES

1. TRASH AND RECYCLING BIN AREA SHALL BE SCREENED WITH A SIX FOOT (6') MASONRY WALL PER DETAIL ON THIS SHEET.
2. BIN ENCLOSURE TO BE A MINIMUM OF 3 FEET FROM ANY PLANNED OR EXISTING STRUCTURE AT ITS CLOSEST POINT.
3. BINS THAT ARE VISIBLE FROM THE PUBLIC ROADWAY SHALL HAVE ENCLOSURE GATES THAT SCREEN THE BINS FROM PUBLIC VIEW.
4. GATES SHALL BE INSTALLED SO THERE IS A NET BIN ENCLOSURE OPENING OF 12 FEET PER BIN. GATES, HINGES, AND MOUNTING HARDWARE SHALL NOT INTRUDE UPON MINIMUM NET ENCLOSURE OPENING.
5. GATES, HINGES, AND MOUNTING HARDWARE SHALL BE INSTALLED SO THERE IS A MINIMUM 9 FOOT DEPTH CREATED WITHIN EACH ENCLOSURE.
6. EACH ENCLOSURE GATE SHALL HAVE DROP PINS INSTALLED AND HOLES DRILLED IN THE CONCRETE AT BOTH THE OPEN AND CLOSED POSITIONS TO PREVENT GATES FROM CLOSING INTO THE COLLECTION VEHICLE.
7. BIN ENCLOSURES SHALL HAVE (2) 4" DIAMETER STEEL SAFETY POSTS INSTALLED IN THE BACK OF THE ENCLOSURE ONLY PER DETAIL ON THIS SHEET.
8. SAFETY POSTS SHALL HAVE A HEIGHT OF 6 FEET OR BE EQUAL TO THE HEIGHT OF THE BACK SCREEN WALL OF THE ENCLOSURE.
9. USE CLASS "A" CONCRETE AS PER SECTION 725 EXCEPT AS NOTED IN SAFETY POST.
10. STEEL REINFORCEMENT SHALL BE GRADE 40.
11. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER ASTM D-1751.
12. EXTERIOR FINISH OF 6 FOOT MASONRY SCREEN WALLS SHALL BE COORDINATED ARCHITECTURALLY WITH PRIMARY BUILDING FINISHES.
13. SOIL BELOW THE WALL FOOTER AND CONCRETE PAD SHALL BE COMPACTED TO A DEPTH OF 6 INCHES AND TO A MINIMUM DRY DENSITY OF 90% IN ACCORDANCE WITH ASTM D-2922 AND D-3017, AFTER ADJUSTMENT FOR ROCK CORRECTION.
14. STANDARDS FOR SOLID WASTE VEHICLE ACCESS ARE ADDRESSED IN SHEET NO. 1.
15. STANDARDS FOR SINGLE, DOUBLE, AND TRIPLE-WIDE BIN ENCLOSURES ARE ADDRESSED IN SHEET NO. 2 AND 3.
16. STANDARDS FOR DUMPSTER DRAIN ARE ADDRESSED IN WASTEWATER STANDARDS.



CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
BIN ENCLOSURE SCREEN WALL SAFETY POST & GATE STANDARDS			
REVISIONS		SCALE	SHEET NO.
1/11/16	7/3/18	N.T.S.	3 OF 4
12/14/00			
9/10/00			
		INDEX NO.	800

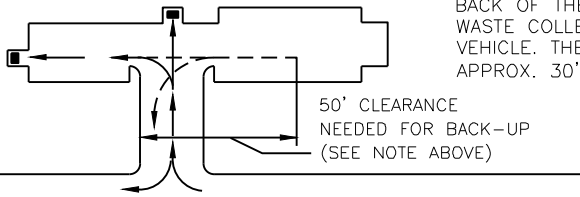


SELF-CONTAINED WASTE COMPACTOR ENCLOSURE
SOLID WASTE AND RECYCLING COMPACTORS

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
SELF-CONTAINED WASTE COMPACTORS PAD AND ENCLOSURE			
REVISIONS	SCALE	SHEET NO.	INDEX NO.
7/3/18	N.T.S.	4 OF 4	800
1/11/16			

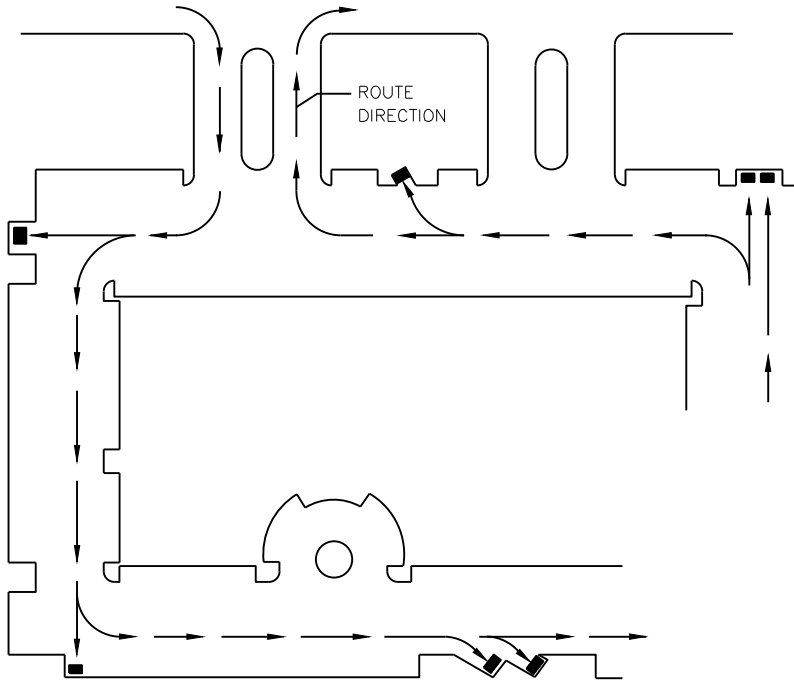
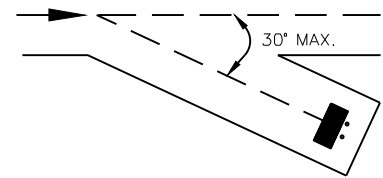
PLEASE NOTE
SOLID WASTE
VEHICLES WEIGHT
APPROX. 20 TONS
WHEN FULL.
DRIVEWAYS MUST
BE BUILT TO
SUPPORT THIS
WEIGHT WITHOUT
DAMAGE TO DRIVE.

HAMMER HEAD DRIVE



SAFETY NOTE
BACKING UP MORE THAN
60' AFTER SERVICE TO A
SOLID WASTE BIN IS
PROHIBITED. THE 60' IS
MEASURED FROM THE
BACK OF THE SOLID
WASTE COLLECTION
VEHICLE. THE VEHICLE IS
APPROX. 30' LONG.

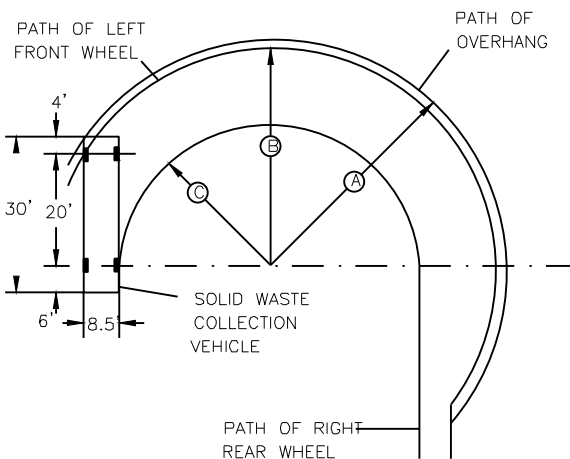
MAX. BIN DEVIATION



NOTES

1. ALL CURBS ARE TO BE ALIGNED ON THE OUTSIDE OF ENCLOSURE WALLS. THE CURBS SHALL NOT INTERFERE WITH THE ROUTE OF THE SOLID WASTE COLLECTION VEHICLE.
2. IN GENERAL TERMS, ALL SOLID WASTE COLLECTION ROUTES SHALL MEET ENGINEERING DESIGN CRITERIA (STREET WIDTHS, TURNING RADII) IN A MANNER THAT ALLOWS SOLID WASTE COLLECTION VEHICLES ACCESS TO BIN ENCLOSURES. SITES SHALL BE DESIGNED SO COLLECTION VEHICLES CAN SAFELY ACCESS AND LEFT A BIN WITHOUT OBSTRUCTIONS (GROUND LEVEL AND AERIAL OBSTRUCTIONS).
3. FOR THE SAFTY OF OTHERS, SOLID WASTE COLLECTION VEHICLES WILL NOT BACK UP MORE THAN 60 FEET AFTER SERVICING A BIN.
4. NO AWNINGS OR BUILDING PROJECTIONS ALLOWED IN SOLID WASTE COLLECTION VEHICLE ROUTES. MIN. OVERHEAD CLEARANCE OF 14' IS REQUIRED IN DRIVE AND 25' OVER BIN ENCLOSURE AREA.
5. ROUTES SHALL BE CLEAR OF ALL OBSTRUCTION (CURBS, WALLS, OVERHEAD WIRES, AND AWNINGS) TO PREVENT DAMAGE FROM THE COLLECTION VEHICLE.
6. TAKE NOTE OF SOLID WASTE COLLECTION ROUTE. THE COLLECTION VEHICLE SHALL TRAVEL THROUGH A SITE ONCE WITHOUT BACKTRACKING.
7. BIN ENCLOSURES ARE TO BE ANGLED NO MORE THAN 30 DEGREES FROM THE CENTER LINE OF THE SOLID WASTE COLLECTION VEHICLE ROUTE.
8. BIN ENCLOSURES SHALL BE LOCATED AWAY FROM ENTRANCES AND EXITS SO SOLID WASTE COLLECTION VEHICLES DOES NOT CREATE A SAFETY HAZARD BY BLOCKING IN-COMING OR OUT-GOING TRAFFIC.
9. STANDARDS FOR SINGLE, DOUBLE AND TRIPLE-WIDE ENCLOSURES ARE ADDRESSED IN INDEX 800 SHEET 2 AND 3.
10. STANDARDS FOR BIN ENCLOSURE SCREEN WALLS SAFETY POSTS, AND GATES ARE ADDRESSED IN INDEX 800 SHEET NO. 4.
11. STANDARDS FOR DUMPSTER DRAIN ARE ADDRESSED IN WASTEWATER STANDARDS.

A TYPICAL SOLID WASTE COLLECTION ROUTE



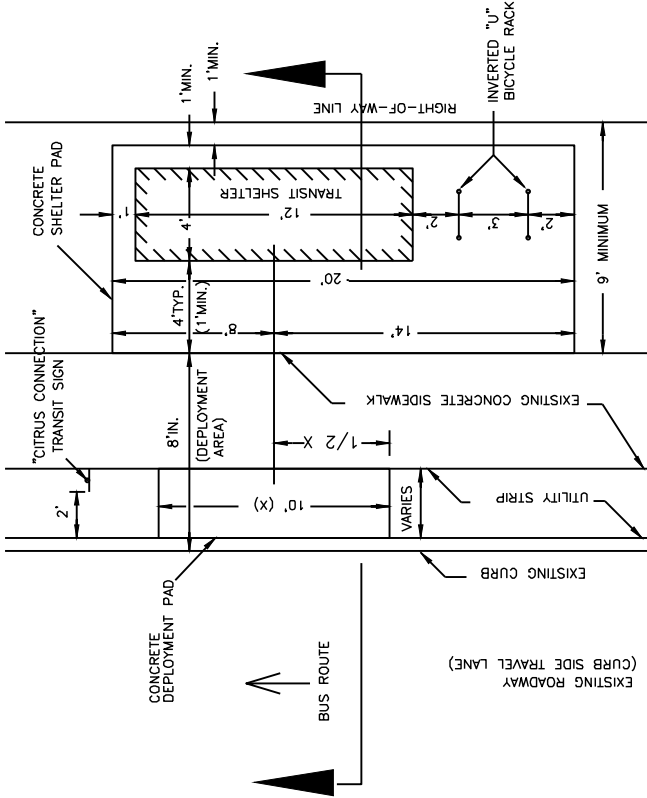
- Ⓐ 43.9' MINIMUM TURNING RADIUS.
- Ⓑ 42' TURNING RADIUS.
- Ⓒ 28.4' TURNING RADIUS.

CLEARANCE REQUIREMENTS

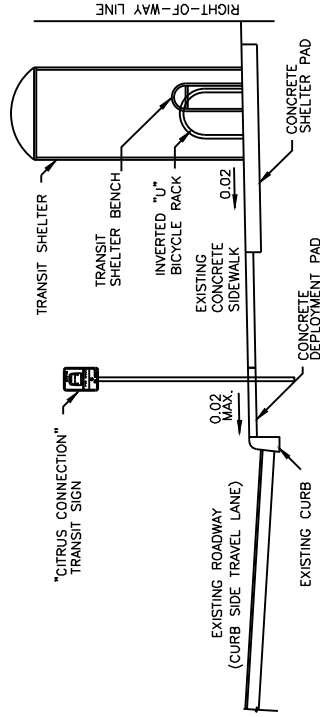
CITY OF LAKELAND FLORIDA		STANDARD DETAIL		
STANDARDS FOR SOLID WASTE VEHICLE ACCESS				
REVISIONS		SCALE	SHEET NO.	INDEX NO.
1/11/16	7/3/18	N.T.S.	1 of 1	801
12/14/00				
9/10/00				

NOTES

- TRANSIT STOP FACILITIES SHALL BE CONSTRUCTED WITHIN THE EXISTING RIGHT-OF-WAY. SHOULD RIGHT-OF-WAY LIMITS BE EXCEEDED BY THE DESIRED CONFIGURATION, ADDITIONAL RIGHT-OF-WAY OR AN EASEMENT SHALL BE CONSIDERED. SHOULD THESE ALTERNATIVES NOT BE FEASIBLE OR PHYSICAL CONSTRAINTS NOT PERMIT THE DESIRED CONFIGURATION, AN ACCEPTABLE ALTERNATIVE OR LESS EXPANSIVE TRANSIT STOP DESIGN SHOULD BE CONSIDERED.
- ALL ABOVE GRADE TRANSIT FACILITY IMPROVEMENTS SHALL BE PLACED TO THE BACK SIDE OF THE SIDEWALK. SHOULD RIGHT-OF-WAY OR OTHER CONSTRAINTS PROHIBIT PLACEMENT TO THE BACK OF THE SIDEWALK, PLACEMENT SHALL BE CONSIDERED TO THE FRONT OF THE SIDEWALK. IN NO CASE SHALL ABOVE GRADE TRANSIT FACILITY IMPROVEMENTS IMPACT ANY APPLICABLE FACILITY SETBACKS OR CLEAR ZONES.
- A TRASH RECEPTACLE IS NOT PROVIDED AS PART OF THE TRANSIT STOP. A PROVISION SHALL BE MADE TO ACCOMMODATE A FUTURE RECEPTACLE IF DESIRED.
- THE SHELTER SHALL BE AS APPROVED BY THE CITY BUILDING INSPECTION DIVISION.
- SHOULD A PROPOSED TRANSIT STOP ENCROACH WITHIN A DRIVEWAY VISIBILITY TRIANGLE, THE PROPOSED ABOVE GRADE FEATURES (I.e. SHELTER OR BENCH) SHALL BE LOCATED OUTSIDE OF THE VISIBILITY TRIANGLE LIMITS.
- STREET TREES ARE DESIRED ADJACENT TO NEW FACILITY CONSTRUCTION AND ARE OPTIONAL WITH FACILITY. RETROFIT TREE LOCATION AND ACCEPTABLE STREET TREE SPECIES PLANTED ADJACENT TO A TRANSIT STOP SHALL BE IN ACCORDANCE WITH THE "CITY OF LAKELAND ENGINEERING STANDARDS MANUAL", CURRENT EDITION.



PLAN



SECTION

MATERIALS

- THE DEPLOYMENT PAD AND TRANSIT SHELTER SHALL BE DESIGNED BY A STRUCTURAL ENGINEER OR ARCHITECT AND REVIEWED AND APPROVED BY BOTH THE CITRUS CONNECTION AND THE CITY. A ROW USE PERMIT IS ALSO REQUIRED AND MUST BE APPROVED BY COL PUBLIC WORKS PRIOR TO CONSTRUCTION.

- THE BICYCLE RACK SHALL BE AN INVERTED "U" TYPE, P.V.C. COATED, METAL PIPE RACK APPROVED BY THE "CITRUS CONNECTION".

EXCEPTIONS

- SHOULD THE EXISTING UTILITY STRIP BE LESS THAN TWO (2) FEET IN WIDTH, THE PROPOSED TRANSIT BUS STOP SIGN SHALL BE PLACED IN AN ALTERNATIVE LOCATION IN ACCORDANCE WITH THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICE GUIDELINES", CURRENT EDITION.
- SHOULD THE PROPOSED DEPLOYMENT AREA NOT MEET THE MINIMUM DEPTH OF EIGHT (8) FEET, THE SIDEWALK SHALL BE EXTENDED TO THE MINIMUM EIGHT (8) FEET DEPTH. ANY ACCESSORY FACILITY WOULD BE LOCATED ADJACENT TO THE EXPANDED DEPLOYMENT AREA.
- SHOULD THE PROPOSED DEPLOYMENT AREA NOT MEET THE MINIMUM WIDTH OF TEN (10) FEET, THE DEPLOYMENT AREA SHALL BE EXPANDED TO THE DESIRED TEN (10) FEET WIDTH. SHOULD AN UNAVOIDABLE CONSTRAINT HINDER THE DESIRED TEN (10) FEET WIDTH, A DEPLOYMENT AREA WIDTH OF EIGHT (8) FEET MAY BE CONSIDERED. IN NO CASE SHALL THE DEPLOYMENT AREA BE LESS THAN FIVE (5) FEET IN WIDTH.

CITY OF LAKELAND FLORIDA		STANDARD DETAIL	
"CITRUS CONNECTION" STANDARD TRANSIT STOP DEPLOYMENT AREA W/ SHELTER & BIKE RACK			
REVISIONS	SCALE	SHEET NO.	INDEX NO.
DATE 7/3/18			
DATE 1/8/14	N.T.S.	1 of 5	900
DATE			
			5/22/08

MATERIALS

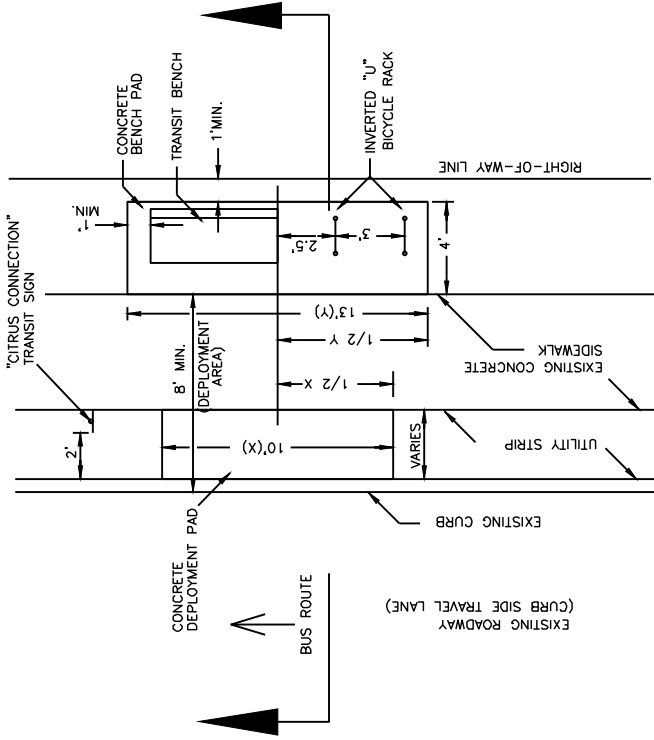
1. THE DEPLOYMENT PAD SHALL BE 3,000 P.S.I. CONCRETE, 4" THICK. THE BENCH PAD SHALL BE 3,000 P.S.I. CONCRETE, 6" THICK.
2. THE BENCH SHALL BE AN EASY ACCESS 66" ALUMINUM MODEL NUMBER BE32561, OR APPROVED EQUIVALENT AS APPROVED BY THE "CITRUS CONNECTION".
3. THE BICYCLE RACK SHALL BE AN INVERTED "U" TYPE, P.V.C. COATED, METAL PIPE RACK APPROVED BY THE "CITRUS CONNECTION".

NOTES

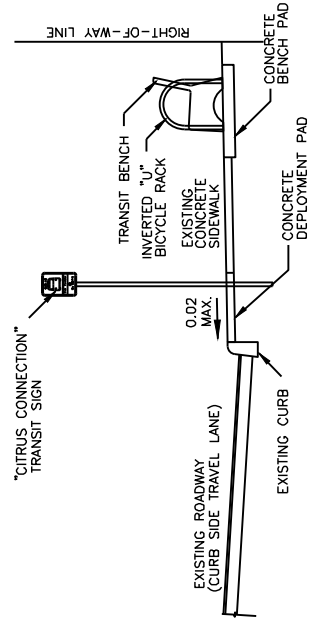
1. A DEPLOYMENT AREA SHALL BE PROVIDED IN ACCORDANCE WITH APPLICABLE A.D.A. STANDARDS.
2. TRANSIT STOP FACILITIES SHALL BE CONSTRUCTED WITHIN THE EXISTING RIGHT-OF-WAY. SHOULD RIGHT-OF-WAY LIMITS BE EXCEEDED BY THE DESIRED CONFIGURATION. ADDITIONAL RIGHT-OF-WAY OR AN EASEMENT SHALL BE CONSIDERED. SHOULD THESE ALTERNATIVES NOT BE FEASIBLE OR SHOULD PHYSICAL CONSTRAINTS NOT PERMIT THE DESIRED CONFIGURATION. AN ACCEPTABLE ALTERNATIVE OR LESS EXPANSIVE TRANSIT STOP DESIGN SHOULD BE CONSIDERED.
3. ALL ABOVE GRADE TRANSIT FACILITY IMPROVEMENTS SHALL BE PLACED TO THE BACK SIDE OF THE SIDEWALK. SHOULD RIGHT-OF-WAY OR OTHER CONSTRAINTS PROHIBIT PLACEMENT TO THE BACK OF THE SIDEWALK, PLACEMENT SHALL BE CONSIDERED TO THE FRONT OF THE SIDEWALK. IN NO CASE SHALL ABOVE GRADE TAN SIT FACILITY IMPROVEMENT IMPACT AN APPLICABLE FACILITY SETBACKS OR CLEAR ZONES.
4. STREET TREES ARE DESIRED ADJACENT TO NEW FACILITY CONSTRUCTION AND ARE OPTIONAL WITH FACILITY. RETROFIT TREE LOCATION AND ACCEPTABLE STREET TREE SPECIES PLANTED ADJACENT TO A TRANSIT STOP SHALL BE IN ACCORDANCE WITH THE "CITY OF LAKELAND ENGINEERING STANDARDS MANUAL", CURRENT EDITION.

EXCEPTIONS

1. SHOULD THE EXISTING UTILITY STRIP BE LESS THAN TWO (2) FEET IN WIDTH, THE PROPOSED TRANSIT BUS STOP SIGN SHALL BE PLACED IN AN ALTERNATIVE LOCATION IN ACCORDANCE WITH THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICE GUIDELINES", CURRENT EDITION.
2. SHOULD THE PROPOSED DEPLOYMENT AREA NOT MEET THE MINIMUM DEPTH OF EIGHT (8) FEET, THE SIDEWALK SHALL BE EXTENDED TO THE MINIMUM EIGHT (8) FEET DEPTH. ANY ACCESSORY FACILITY WOULD BE LOCATED ADJACENT TO THE EXPANDED DEPLOYMENT AREA.
3. SHOULD THE PROPOSED DEPLOYMENT AREA NOT MEET THE MINIMUM WIDTH OF TEN (10) FEET, THE DEPLOYMENT AREA SHALL BE EXPANDED TO THE DESIRED TEN (10) FEET WIDTH. SHOULD AN UNAVOIDABLE CONSTRAINT HINDER THE DESIRED TEN (10) FEET WIDTH, A DEPLOYMENT AREA WIDTH OF EIGHT (8) FEET MAY BE CONSIDERED. IN NO CASE SHALL THE DEPLOYMENT AREA BE LESS THAN FIVE (5) FEET IN WIDTH.



PLAN



SECTION

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"CITRUS CONNECTION" STANDARD TRANSIT STOP DEPLOYMENT AREA W/ BENCH & BIKE RACK			
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TRANSIT FACILITIES GUIDELINES

SHELTER LOCATION

TO PROVIDE A WAITING AREA FOR PATRONS, SHELTERS ARE OFTEN DESIRED AT LOCATIONS WHERE BUS ROUTES INTERSECT. DURING THE PROJECT DEVELOPMENT PHASE, THE DESIGNER SHALL COORDINATE WITH THE TRANSIT PROVIDER AND LOCAL JURISDICTION. SHELTER LOCATIONS WILL VARY DEPENDING ON SPACE LIMITATIONS, UTILITY PLACEMENTS, PASSENGER COUNTS AND VISIBILITY REQUIREMENTS. SHELTERS SHOULD BE SET BACK FROM THE STREET A MINIMUM OF 5 FEET.

GUIDELINES FOR PLACEMENT OF BUS STOP SHELTERS

1. WHEN PLACED NEAR AN INTERSECTION, SHELTERS SHALL BE LOCATED A MINIMUM OF 12 FEET, MEASURED PARALLEL TO THE ROADWAY, FROM THE POINT OF THE INTERSECTION OF THE RETURN RADIUS OF THE INTERSECTING STREET.
2. SHELTERS ARE PROHIBITED IN MEDIANS AND ON LIMITED ACCESS ROADWAYS.
3. A SHELTER SHALL NOT BE LOCATED WITHIN 15 FEET OF ANY FIRE HYDRANT OR HANDICAP DESIGNATED PARKING SPACE.
4. A SHELTER SHALL NOT OBSTRUCT ANY SIDEWALK, BIKE PATH, PEDESTRIAN, DRIVEWAY, DRAINAGE STRUCTURE, DITCH, ETC. A MINIMUM CLEARANCE OF 3 FEET SHALL BE MAINTAINED FOR PEDESTRIAN TRAFFIC.
5. A SHELTER SHALL NOT BE PLACED WITHIN 5 FEET BY 8 FEET DEPLOYMENT (WHEELCHAIR LANDING) AREA.
6. SHELTERS LOCATIONS AND DESIGN ARE SUBJECT TO A.D.A MOBILITY CLEARANCE GUIDELINES, CHAPTER 14-20 OF THE FLORIDA ADMINISTRATIVE CODE, AND ANY APPLICABLE FEDERAL, STATE OR LOCAL BUILDING REGULATIONS AND / OR CODES.
7. LOCATING SHELTERS COMPLETELY OR PARTIALLY ON THE SIDEWALK SHALL BE AVOIDED IF GENERAL PEDESTRIAN TRAFFIC FLOW IS BLOCKED OR RESTRICTED. A MINIMUM CLEARANCE OF 3 FEET SHALL BE MAINTAINED BETWEEN THE SHELTER AND ADJACENT SIDEWALK. IN AREAS OF HIGH PEDESTRIAN TRAFFIC A GREATER CLEARANCE IS PREFERRED.
8. TO PERMIT CLEAR PASSAGE OF BUS MIRRORS, A MINIMUM DISTANCE OF 2 FEET SHALL BE MAINTAINED BETWEEN THE FACE OF THE CURB AND THE ROOF OF THE PANELS OF THE SHELTER. A GREATER IS PREFERRED TO SEPARATE WAITING PASSENGERS FROM PASSING VEHICULAR TRAFFIC.
9. TO MAXIMIZE THE VISIBILITY FOR APPROACHING BUSES AND PASSING VEHICLE TRAFFIC AND TO MINIMIZE THE WALKING DISTANCE FROM THE SHELTER TO THE BUS, THE SHELTER SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE DOWNSTREAM AND OF THE BUS STOP ZONE. HOWEVER, WHEN SHELTERS ARE PROVIDED IN CONJUNCTION WITH BUS BAYS, SHELTERS SHALL BE LOCATED TO MINIMIZE CONFLICT BETWEEN ON BOARD AND DEPARTING BUS PASSENGERS.
10. TO AVOID OBSTRUCTING ADVERTISEMENTS AND DISPLAY AND DECREASE THE POSSIBILITY OF VANDALISM, THE PLACEMENT OF SHELTERS ON FRONT OF STORE WINDOWS SHALL BE AVOIDED WHEN POSSIBILITY.
11. WHEN SHELTERS ARE PLACED ADJACENT TO A BUILDING A MINIMUM 1 FOOT CLEAR SPACE SHALL BE PRESERVED TO PERMIT TRASH REMOVAL AND CLEANING OF THE SHELTER.

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TRANSIT FACILITIES GUIDELINES

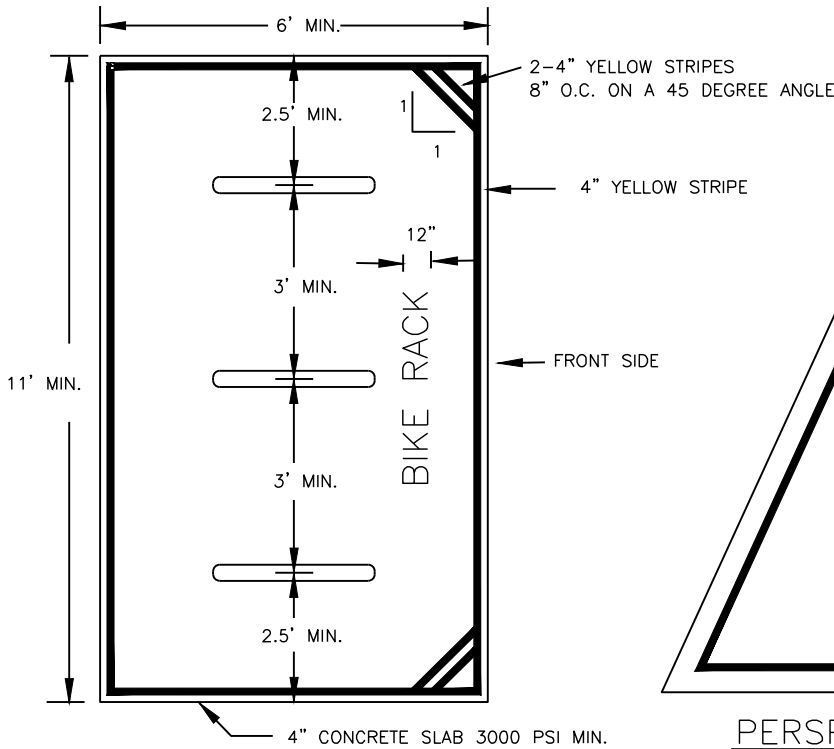
BUS BENCHES

A BENCH EVEN WITHOUT A BUS SHELTER PROVIDES A COMFORT AND CONVENIENCE AT A BUS STOPS. AS WITH SHELTERS, BENCHES ARE USUALLY INSTALLED ON THE BASIS OF EXISTING OR PROJECTED RIDERSHIP FIGURES. AS WELL AS OTHER FACTORS SUCH AS HIGH ELDERLY POPULATION. IT IS VERY COMMON TO HAVE BENCH ONLY STOPS AND TO HAVE ADVERTISING ON THE BENCHES. BENCHES MAYBE PROVIDED BY PRIVATE VENDORS THROUGH AGREEMENTS WITH MUNICIPALITIES. PRESERVING MINIMUM PEDESTRIAN CIRCULATION GUIDELINES, COORDINATING WITH EXISTING LANDSCAPING, AND PROVIDING ADDITIONAL WAITING AREAS CAN IMPROVE BENCH AND SITE UTILIZATION. PREFERABLY, BENCHES SHOULD BE SET BACK A MINIMUM OF 10 FEET FROM THE TRAVEL LANE. IF 10 FEET CAN NOT BE ACCOMMODATED, SETBACK SHOULD MEET.

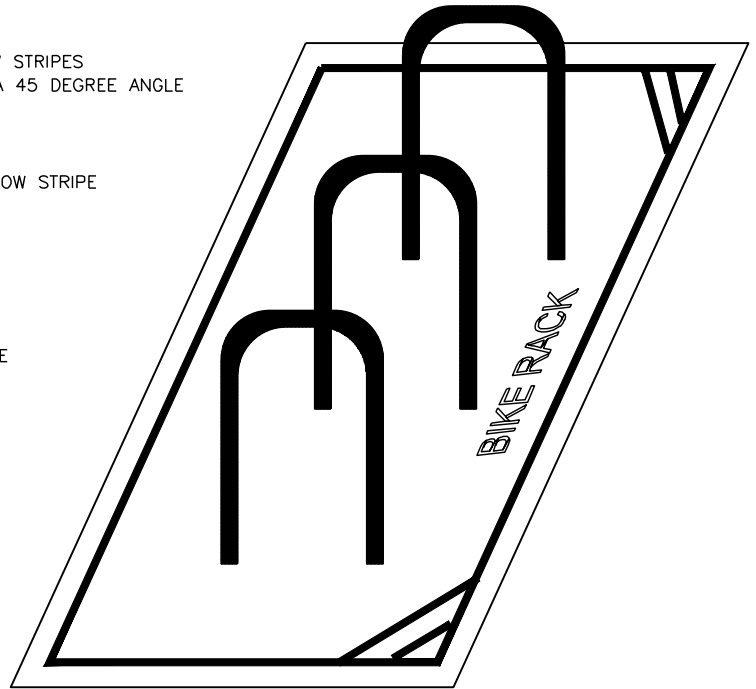
GUIDELINES FOR PLACEMENT OF BUS STOP BENCHES

1. TRANSIT BUS BENCHES PLACED IN THE RIGHT-OF-WAY SHALL NOT EXCEED 74 INCHES IN LENGTH, 28 INCHES IN DEPTH AND 44 INCHES IN HEIGHT.
2. ANY BENCH PLACED ON ANY PART OF THE SIDEWALK SHALL LEAVE A MINIMUM 4 FEET OF CLEARANCE FOR PEDESTRIAN TRAFFIC BETWEEN THE BENCH AND THE NEAREST EDGE OF THE ROADWAY. THIS DISTANCE SHOULD BE INCREASED IN RELATION TO THE INCREASED VEHICULAR SPEED LIMIT ON THE ADJACENT ROADWAY. BENCHES SHALL BE PLACED OUTSIDE THE HORIZONTAL CLEARANCE / CLEAR ZONE TO AVOID BECOMING A TRAFFIC HAZARD.
3. BENCHES ARE PROHIBITED IN THE MEDIANS AND ON LIMITED ACCESS ROADWAYS.
4. AVOID LOCATING BENCHES IN COMPLETELY EXPOSED LOCATIONS. COORDINATE BENCH LOCATIONS WITH EXISTING SHADE TREES IF POSSIBLE. OTHERWISE, INSTALL LANDSCAPING TO PROVIDE PROTECTION FROM THE WIND AND OTHER ADVERSE ELEMENTS.
5. COORDINATE BENCH LOCATION WITH EXISTING STREET LIGHTS TO INCREASE VISIBILITY AND ENHANCE SECURITY AT THE STOP.
6. LOCATE BENCHES ON A NON-SLIP, PROPERLY DRAINED, CONCRETE PAD. AVOID LOCATING BENCHES IN UNDEVELOPED AREAS OF THE RIGHT-OF-WAY.
7. LOCATE BENCHES AWAY FROM DRIVEWAYS TO ENHANCE PATRON SAFETY AND COMFORT.
8. BENCH AND OTHER STREET FURNITURE LOCATIONS ARE SUBJECT TO A.D.A. MOBILITY CLEARANCE BETWEEN THE BENCH AND OTHER STREET FURNITURE OR UTILITIES AT A BUS STOP.
9. BENCHES ARE NOT TO BE LOCATED WITHIN THE 5 FEET BY 8 FEET DEPLOYMENT (WHEELCHAIR LANDING) PAD.
10. AT BENCH-ONLY STOPS, ADDITIONAL WAITING ROOM NEAR THE BENCH SHOULD BE PROVIDED (PREFERABLY PROTECTED BY LANDSCAPING) FOR PASSENGER COMFORT.

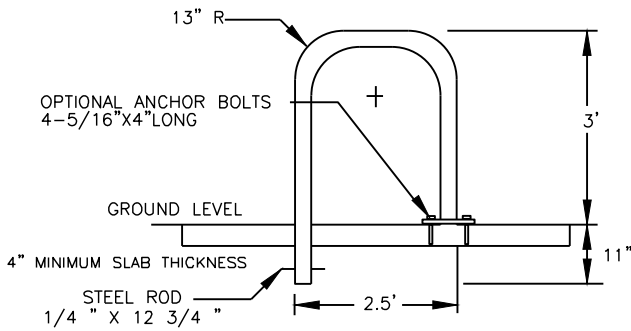
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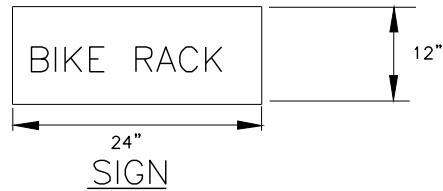
PLAN VIEW
N.T.S.



PERSPECTIVE VIEW
N.T.S.



SECTION VIEW
N.T.S.



1. THE BICYCLE RACK SHALL BE AN INVERTED "U", "A", "POST - AND- LOOP" OR OTHER TYPE THAT MEETS REQUIREMENTS CONTAINED IN SECTION 4.11.6.3 OF THE CITY OF LAKELAND LAND DEVELOPMENT CODE.
2. THE BICYCLE RACK SHALL BE P.V.C. COATED, METAL PIPE RACK.
3. THE BICYCLE RACK SHALL BE IDENTIFIED WITH PAVEMENT MARKINGS OR SIGNAGE.
3. THE RACK MAY BE ATTACHED ACCORDING TO EITHER OF THE METHODS SHOWN. USING THE FLANGE WITH ANCHOR BOLTS MAY REQUIRE ADDITIONAL CONCRETE SLAB THICKNESS. OTHER ANCHORING SYSTEMS MAY BE CONSIDERED UPON APPROVAL IN ADVANCE WITH THE CITY INSPECTOR IF REQUIRED BY THE MANUFACTURER.
4. THE STRIPING AND LETTERING SHOWN SHALL BE HIGH VISIBILITY REFLECTIVE YELLOW PAINT OR THERMOPLASTIC MEETING FDOT SPECIFICATIONS.
5. THE SIGN SHALL BE PLACED 5 FEET FROM GROUND AND EITHER PLACED ON A POST OR WALL IF AVAILABLE.

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