1. All right-of-way other than roadway areas shall be grassed and mulched or sodded. All slopes steeper than 6:1 shall require sodding. The City reserves the right to require sodding in special areas where erosion is a concern, such as adjacent to sidewalk and back of curb.

2. The following will be the standard protection for ditches unless drainage calculations indicate otherwise:
   (Minimum slope for grass ditches shall be 0.5%)

<table>
<thead>
<tr>
<th>SWALE PROFILE GRADES</th>
<th>PROTECTION REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5%-1.0%</td>
<td>Grassing and mulching</td>
</tr>
<tr>
<td>1.0%-4.0%</td>
<td>Sod</td>
</tr>
<tr>
<td>4.0% and greater</td>
<td>Ditch paving (concrete)</td>
</tr>
</tbody>
</table>

3. The limits of stabilized sub-grade shall extend to a varying depth (per plan) below the bottom of the base and outward to twelve inches (12") beyond the curb.

4. The stabilizing material should be a high bearing value soil, sand-clay, limerock, recycled concrete, shell, or other material as approved by the City and a licensed soils engineer.

5. The sub-grade for all streets shall be stabilized not less than forty (40) pounds Limerock Bearing Ratio (LBR) to a 12" minimum depth. A compaction of no less than ninety-eight (98%) percent density based on AASHTO T-180 shall be required.

6. Tests for sub-grade bearing capacity and compaction shall be done at a minimum of every 250 feet and shall be staggered to the left, right, and at center line of the roadway. For short sections of roadway, at least two (2) tests shall be required.

7. Bases for all streets shall have a minimum 8" depth. Soil cement bases shall have a strength of 350 pounds per square inch at 28 days (85 to 125% tolerance). Recycled concrete or limerock bases shall be compacted to (98%) minimum density based on AASHTO T-180 Modified Proctor Test (LBR 100).

8. Soil Cement and recycled concrete mix designs shall be submitted to the City for approval prior to start of sub-grade preparation.

9. Concrete delivery tickets shall be provided to the City at the time of placement.

10. Testing of the in-place base shall be done at intervals equivalent to sub-grade testing and shall consist of, as a minimum, moisture content and compaction test.

11. Limerock, recycled concrete, or full depth asphalt pavement may be used in place of soil cement bases. All bases and roadway designs shall be subject to the approval of the City.

12. Soil cement base material construction shall be continuously supervised by a soils testing lab at the developer's expense.

13. Cure coating of soil cement base shall be removed by hard planing prior to installation of driving surface.
14. Soil cement pavement bases with the cure coat applied shall be allowed to cure a minimum of seven (7) days under no traffic prior to placing any asphalt surface. (Test report required prior to traffic usage)

15. Design mixes shall be submitted to the City Engineer for approval no less than three (3) working days prior to any roadway construction.

16. Asphalt specifications shall be submitted by the Design Engineer with final plans to the City Engineer. Florida State-certified batch plants must then certify that these approved specifications have been met.

17. Extraction and gradation tests on asphalt mixes shall be provided to the City to ensure that design mixes meet the City standard specifications.

18. The roadway crown shall have a standard one quarter inch (1/4") per foot slope.

19. All roadways with curb and gutter sections shall have as a standard, a minimum longitudinal slope of 0.30%.

20. The finished pavement edge may be within one quarter inch (1/4") above the adjacent concrete curb.

21. Concrete curbs shall be provided on both sides of all streets and constructed with 3,000 PSI concrete at 28 days.

22. Concrete curbs shall be saw cut 1/4" at intervals of ten feet (10’) with expansion joints at street intersections, structures, and along curves at sixty feet (60’) intervals. All expansion joint material is required to be installed through the entire depth of the concrete curb.

23. A "V" shall be cut or etched in the curb to mark the location of water distribution system valve.

24. A "S" shall be cut or etched in the curb to mark the location of all sewer service.

25. An upside-down "RW" shall be cut in the outside edge of the curb to mark the location of all reclaimed water services.

26. An upside-down "W" shall be cut in the outside edge of curb to mark the location of all water services.

27. Three (3) concrete cylinders shall be taken and tested (1 at 14 days and 1 at 28 days) for every seventy-five (75) cubic yards of concrete or less placed. Test results shall then be provided to the City Engineer as they become available.

28. The Developer shall provide all required pavement markings on all roadways per City, County, and State requirements. Centerline stripes shall be provided on extensions of City collector or arterial roads, county roads, and state highways only.

29. An Altamonte Springs' approved Stop Sign and a 24" thermoplastic Stop Bar are required at all roadway intersections.
30. All traffic control devices placed at intersections, private streets, public streets, county
roads, and state highways within the City limits shall be installed according to the Manual

31. The Developer is responsible for paying fees for Traffic Control Devices to the City for
installation. Street signs and stop signs shall be placed at all intersections, including but
not limited to private streets, public streets, county roads, and state highways within the
City limits.

32. The Developer is responsible for paying fees for all street lights prior to acceptance of the
project by the City.

33. Five foot (5') wide sidewalks shall be provided on both sides of all residential streets, see
details MI011 and MI012.

34. Bike paths shall be constructed eight feet (8') in width along arterial highways as directed
by the City, see detail, MI011.

35. **Standard Turning Radii for Intersections:**

   - Residential streets with State & County Roadways or major thoroughfares within the City: 40-50 ft.
   - Entrances to commercial sites off of City streets: 40 ft.
   - Intersections interior in subdivisions: 40 ft.

   Should Seminole County or the Florida Department of Transportation (FDOT) determine that larger radii are warranted within their right-of-way, the larger radii shall prevail.

36. Corner cul-de-sac at ninety (90°) degree road curves or "Eyebrows" are not permitted by
the City.

37. Construction methods and design for concrete pavement shall conform to F.D.O.T.
Standard Specifications for Road and Bridge Construction, latest edition.

38. All contractors who are performing the construction of public improvements (water main,
sanitary sewer main, reclaimed water main, storm water pipes and inlets, and also
construction of roadways), shall be certified with the Florida State Department of Business
and Professional Regulations (DBPR) for the type of work that they perform.

39. **Utility Depth:**

   - High Voltage utilities such as power (feeder, service, and drops) shall be buried a
     minimum of 30 inches in depth, 36" under pavement.

   - Low Voltage utilities such as phone and cable TV shall be buried a minimum of 12
     inches in depth for feeder and services. Service drops shall be buried a minimum of 6
     inches in depth, 36" under pavement.
## ROADWAY GEOMETRY

<table>
<thead>
<tr>
<th>ROAD CLASSIFICATION</th>
<th>DESIGN SPEED (MPH)</th>
<th>PVMT WIDTH (P)</th>
<th>RIGHT OF WAY WIDTH</th>
<th>MIN. HORIZ. RADIUS C.L.</th>
<th>MIN. VERT. CURVE</th>
<th>MAX. GRADE (%)</th>
<th>MIN. INT. SPACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCAL / COLLECTOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UP TO 400 VPD</td>
<td>20</td>
<td>12</td>
<td>50</td>
<td>50'</td>
<td>75'</td>
<td>0.5</td>
<td>150'</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>12</td>
<td>60</td>
<td>95'</td>
<td>125'</td>
<td>0.5</td>
<td>200'</td>
</tr>
<tr>
<td>UP TO 1000 VPD</td>
<td>20</td>
<td>12</td>
<td>50</td>
<td>180'</td>
<td>165'</td>
<td>0.5</td>
<td>250'</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>12</td>
<td>60</td>
<td>95'</td>
<td>125'</td>
<td>0.5</td>
<td>200'</td>
</tr>
<tr>
<td>UP TO 5000 VPD</td>
<td>30</td>
<td>12</td>
<td>80</td>
<td>300'</td>
<td>200'</td>
<td>0.5</td>
<td>330'</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>12</td>
<td>80</td>
<td>375'</td>
<td>225'</td>
<td>0.5</td>
<td>660'</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>12</td>
<td>80</td>
<td>450'</td>
<td>275'</td>
<td>0.5</td>
<td>660'</td>
</tr>
<tr>
<td>ARTERIAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UP TO 7500 VPD</td>
<td>35</td>
<td></td>
<td>5 LANES (3)</td>
<td>375'</td>
<td>225'</td>
<td>0.5</td>
<td>660'</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td></td>
<td></td>
<td>450'</td>
<td>275'</td>
<td>0.5</td>
<td>660'</td>
</tr>
<tr>
<td>OVER 7500 VPD</td>
<td>40</td>
<td></td>
<td></td>
<td>450'</td>
<td>275'</td>
<td>0.5</td>
<td>660'</td>
</tr>
</tbody>
</table>

### NOTES:

1. PAVEMENT WIDTHS FOR INDUSTRIAL AND COMMERCIAL ROADS SHALL BE INCREASED BY ONE (1) FOOT.

2. INTERSECTION ANGLES SHALL NOT BE LESS THAN 60 DEGREES EXCEPT ON ARTERIAL ROADWAYS SHALL NOT BE LESS THAN 75 DEGREES. INTERSECTIONS WITH COUNTY ROADS SHALL BE 90 DEGREES.

3. 25 MPH MIN. DESIGN SPEED UNLESS APPROVED BY THE CITY ENGINEER.

4. ALL INTERSECTIONS AND ACCESS POINTS SHALL HAVE ADEQUATE LINE OF SIGHT BASED ON AN EYE LEVEL OF 3.5' ABOVE THE GROUND AND AN OBJECT 3.0' ABOVE THE LOWEST ROADWAY. FOR PURPOSES OF THIS STANDARD, THE EYE LEVEL SHALL BE MEASURED 8' IN BACK OF THE STOP BAR AT INTERSECTIONS. THE FOLLOWING SIGHT DISTANCES SHALL BE PROVIDED:

<table>
<thead>
<tr>
<th>DESIGN SPEED (MPH)</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIGHT DISTANCE (FT) (MINIMUM)</td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>350</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>550</td>
</tr>
</tbody>
</table>
5'-0" WIDE CONCRETE SIDEWALK
4" THICK, 3,000 P.S.I.
6" THICK AT DRIVEWAY

6" ABOVE CENTERLINE ROAD GRADE

SOD or SEED AND MULCH PER F.D.O.T. STANDARD SPECIFICATION SECTION 570.

CONCRETE MIAMI CURB, 3,000 P.S.I., OR TYPE "F"

ASPHALT PAVEMENT:
1" TO 1-1/2" ASPHALT BITUMINOUS CONCRETE TYPES S-I, S-II, OR S-III; MINIMUM MARSHALL FIELD STABILITY 1500.

BASE:
8" SOIL CEMENT BASE MINIMUM BEARING STRENGTH OF 350 P.S.I. SHALL BE OBTAINED WITHIN 28 DAYS; CONSTRUCTION METHODS SHALL CONFORM TO SECTION 270 OF STANDARD F.D.O.T. SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

ALTERNATE:
8" LIMEROCK BASE (LBR 100) COMPACTED TO 98% MINIMUM DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.

SUB-BASE:
12" SUB-BASE COMPACTED TO 98% MINIMUM DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST WITH MINIMUM LBR 40, OR FBV = 75.

NOTE:
A REPRESENTATIVE OF A CERTIFIED SOILS LABORATORY SHALL BE PRESENT DURING ALL CONSTRUCTION PHASES UTILIZING A SOIL CEMENT BASE.
8'-0" WIDE CONCRETE BIKE PATH
4" THICK, 3,000 P.S.I.
6" THICK AT DRIVEWAY

6" MINIMUM ABOVE CENTERLINE ROAD GRADE

SOD or SEED AND MULCH PER F.D.O.T. STANDARD SPECIFICATION SECTION 570.

F.D.O.T. TYPE "F" CONCRETE CURB, 3,000 P.S.I.

ASPHALT PAVEMENT:
1-1/2" ASPHALT BITUMINOUS CONCRETE TYPE S-III; MINIMUM MARSHALL FIELD STABILITY 1500.

BASE:
8" SOIL CEMENT BASE; MINIMUM BEARING STRENGTH OF 350 P.S.I.
SHALL BE OBTAINED WITHIN 28 DAYS; CONSTRUCTION METHODS SHALL CONFORM TO SECTION 270 OF STANDARD F.D.O.T. SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

ALTERNATE:
8" LIMEROCK OR RECYCLED CONCRETE BASE (LBR 100) COMPACTED TO 98% MINIMUM DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.

SUB-BASE:
12" SUB-BASE COMPACTED TO 98% MINIMUM DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST WITH MINIMUM FBV 75 PSI OR LBR 40.

NOTE:
A REPRESENTATIVE OF A CERTIFIED SOIL LABORATORY SHALL BE PRESENT DURING ALL CONSTRUCTION PHASES UTILIZING A SOIL CEMENT BASE.

* THIS DESIGN REQUIRES CITY ENGINEER'S APPROVAL.

** NOTE: OUTSIDE LANE WIDTH MAY BE GREATER THAN 12' TO MATCH BICYCLE ACCOMMODATION AT CONNECTING ROADWAYS.
8'-0" WIDE CONCRETE BIKE PATH
4" THICK, 3,000 P.S.I.
6" THICK AT DRIVEWAY

6" MINIMUM ABOVE CENTERLINE ROAD GRADE

SOD or SEED AND MULCH PER F.D.O.T. STANDARD SPECIFICATION SECTION 570.

FDOT TYPE "F" CONCRETE CURB, 3,000 P.S.I.

1-1/2" ASPHALT BITUMINOUS CONCRETE TYPE S-III; MINIMUM MARSHALL FIELD STABILITY 1500.

8" SOIL CEMENT BASE; MINIMUM BEARING STRENGTH OF 350 P.S.I. SHALL BE OBTAINED WITHIN 28 DAYS; CONSTRUCTION METHODS SHALL CONFORM TO SECTION 270 OF STANDARD FDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

ALTERNATE:
8" LIMEROCK OR RECYCLED CONCRETE BASE (LBR 100) COMPACTED TO 98% MINIMUM DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.

12" SUB-BASE COMPACTED TO 98% MINIMUM DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST WITH MINIMUM LBR 40, OR FBV 75.

A REPRESENTATIVE OF A CERTIFIED SOIL LABORATORY SHALL BE PRESENT DURING ALL CONSTRUCTION PHASES UTILIZING A SOIL CEMENT BASE.

OUTSIDE LANE WIDTH MAY BE GREATER THAN 12' TO MATCH BICYCLE ACCOMMODATION AT CONNECTING ROADWAYS.
STORM INLET

SECTION A-A
MAINTENANCE OF ISLAND SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION.

CURVE "A"
R = 25.0
L = 21.02'
T = 11.18'

CURVE "B"
R = 42.0'
L = 35.78'
T = 19.06'

OPTIONABLE PLANTED ISLAND WITH CONCRETE HEADER CURB, 3,000 P.S.I.

CURVE "A" TYP.
CURVE "B" TYP.

CITY OF ALTAMONTE SPRINGS
950 CALABRIA DRIVE
ALTAMONTE SPRINGS, FLORIDA 32714

POLICy WORKS & UTILITIES ENGINEERING & DESIGN STANDARDS

CUL-DE-SAC WITH SINGLE STORM INLET

RD006-1
ISSUED 2017
REVISED 03/01/2017 BY DJB
MAINTENANCE OF ISLAND SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION.

CURVE "A"
R = 25.0
L = 21.02'
T = 11.18'

CURVE "B"
R = 42.0'
L = 35.78'
T = 19.06'

OPTIONABLE PLANTED ISLAND WITH CONCRETE HEADER CURB, 3,000 P.S.I.

STORM INLET TYP.

SECTION A-A
MAINTENANCE OF ISLAND SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION.

CUL-DE-SAC WITH DUAL STORM INLET

RD007-1
ISSUED 2017
REVISED 03/01/2017 BY DJB
NOTES:

1. VALLEY GUTTER TO HAVE A STANDARD LONGITUDINAL SLOPE OF -0.30%
2. VALLEY GUTTER TO BE CONSTRUCTED OF 28 DAY, 3,000 P.S.I. CONCRETE
3. *SUB-BASE TO BE COMPACTED AND TESTED TO 98% MINIMUM DENSITY WITH MINIMUM L.B.R. 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST, OR FBV 75 PSI.
4. VALLEY GUTTERS ARE REQUIRED WHEN STORM WATER CROSSES THE INTERSECTION.

* DEPTH OF SUB-BASE VARIES ACCORDING TO PLANS.
NOTES:

1. The clear zone may be reduced to 2.5' if the 4' minimum offset cannot be reasonably obtained.
2. Trees in excess of a 4 inch caliper shall be set back to twice the minimum clear zone (2 x *).
3. Where pavement widening in accordance with FDOT Standards is not provided in horizontal curves, additional clear zone shall be provided equal to the required pavement widening.
4. Clear zones on curbed roads shall be measured from the face of curb or from the edge of the through lane on rural roads. Curbed streets are for high back curbs only.
5. Shrubs adjacent to sidewalks and within intersection sight triangles cannot exceed 24 inches above the lowest adjacent roadway grade. All other shrubs must be less than or equal to 30 inches in height.
NOTES:

1. ALUMINUM PLATES - MINIMUM THICKNESS .060 INCHES, DIE CUT ALCOA ALLOY 6061-T6, OR EQUAL. WHITE RETROREFLECTIVE LETTERS WITH GREEN RETROREFLECTIVE BACKGROUND TO MEET STANDARDS OF SECTION 633.06 FP-79 FOR TYPE 3A SHEET REFLECTIVE MATERIAL. CITY LOGO TO BE PURCHASED FROM THE CITY.

2. SIGNS SHALL BE BOLTED USING TWO 5/16 STAINLESS STEEL THREADED CARRIAGE BOLTS ON POST AND TWO RIVETS ON EACH END OF STREET SIGN BLADE.

3. CITY PROJECTS: BACK OF SIGNS SHALL BE PAINTED BLACK.
18 x 18 RED REFLECTIVE SIGN WITH (9) 3" REFLECTORS

2" x 6" P.T.

30" STOP SIGN

6" RED & WHITE REFLECTIVE TAPE

2 3/8" DIAMETER GALVANIZED PIPE OR 4" X 4" PRESSURE TREATED POST

STREET CENTERLINE

NOTE: TO BE USED AT THE DEAD END OF CITY AND PRIVATE STREETS.