APPENDIX A

CONSTRUCTION & INSTALLATION OF PUBLIC IMPROVEMENTS MANUAL*

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ARTICLE I. IN GENERAL (RESERVED)

ARTICLE II. IMPROVEMENTS

Sec. 2.01. Generally.

All improvements within subdivisions, whether public or private, and all improvements constructed or installed in the city, must comply with and be installed in accordance with the provisions and requirements of this manual.
(Code 1988, § 19-151)

Sec. 2.02. Monuments.

In subdivisions, monuments shall be placed in all block corners, angle points, points of curves in streets, and intermediate points as required by the city engineer. At least one permanent benchmark shall be set in each subdivision, properly referenced, for both construction use and future city use. On public lands, a cross-mark cut in a concrete structure will suffice. On other lands, the monuments shall be of such material, size and length as may be approved by the city engineer.
(Code 1988, § 19-152)

Sec. 2.03. Sanitary sewers.

(a) Where the city determines that public sanitary sewers are necessary and are feasible in a subdivision, such sewers shall be installed by the city or its agents or the contractors of the developer. However, if sewer mains in excess of the diameter or depth required to serve the immediate needs of the subdivision or lift stations in number or capacity greater than needed for the subdivision itself are required in connection with the general sewer system, the costs of such excess depth or diameter mains or of such lift stations shall be prorated between the developer and other interests in a manner acceptable to the city.

(b) Inspection for alignment, deflection and integrity shall be made as follows:

(1) Internal video inspection for the sewer lines in all new subdivisions shall be performed by the city, at the expense of the owner, to check for alignment and deflection. The television inspection shall also be used to check for cracked, broken or otherwise defective pipe.

(2) The visual internal inspection will be performed in two stages. The first inspection will be within 30 days after substantial completion of the installation of the gravity sewer pipe, provided the road base is in place and the manhole rings and covers are to grade. The second inspection of the gravity sewer pipe will be before the end of the one-year warranty period.

(3) If the first or second video inspection reveals cracked, broken, or defective pipe, or pipe misalignment resulting in vertical sags in excess of one-half inch and for PVC pipe a ring deflection in excess of five percent, the owner or contractor shall be required to repair or replace the pipeline.

(4) Successful passage of both the leakage test and video inspection is required before acceptance by the city.

(5) Prior to repair or replacement of the failed sewer pipe, the method shall be approved by the city. Pressure grouting of pipe is not an acceptable method of repair.

(Code 1988, § 19-153)

Sec. 2.04. Water supply for domestic, fire use.

All residential structures in subdivisions shall be connected to a public water supply. The city shall install, through its own forces or its agents and at the expense of the developer, water systems to provide domestic water supply and fire protection. If water mains, fire hydrants, supplementary pumps, or other equipment or facilities in excess of the requirements of the subdivision itself are required in connection with the general water supply or fire-protection system, the costs of such extra facilities shall be prorated between the developer and other interests in a manner acceptable to the city. When special consideration shall be indicated, the city may participate in such expenses as the water supply may require upon the decision to do so duly adopted by the city commission.
(Code 1988, § 19-154)

Sec. 2.05. Storm[water] and groundwater drainage.

(a) *Installation, capacity.* In a subdivision, storm drainage facilities shall be installed by the developer, which the city engineer certifies as adequate to handle a minimum rainfall of three inches in an hour without damage to the facilities. Where excess capacity is required to handle the needs of the general storm drainage system, costs of such extra capacity shall be prorated between the developer and other interests in a manner acceptable to the city.

(b) *Subdrains in wet soil.* Subdrainage facilities may be required in wet-soil areas if the city engineer determines that the bottom of any base material used for foundations or streets would otherwise be less than one foot above the highest anticipated groundwater levels. Subdrains shall be in accordance with standards set by the city engineer and may empty into a storm sewer system or any other outlet approved by the city engineer.

(c) *Requirements for underground structures.* Underground drainage structures shall be sized either by the Kutter or Manning formula with due allowance for sanding, maintenance, velocities, etc. The following types of materials will be acceptable as minimum for underground drainage structures and outfalls:

(1) *Culverts.*

a. *Pipe.* Galvanized corrugated metal pipe, pipe arch, or concrete pipe.

b. *Headwalls.* Cast concrete.

(2) *Storm sewers.*

a. *Pipe.* Asphaltic bonded corrugated metal, concrete or vitrified clay.

b. *Manholes.* Cast concrete bottoms, brick walls, cast iron rings and covers.

c. *Side inlets.* Cast concrete bottoms, brick walls, cast iron cover or concrete top with cast iron cover and ring.

d. *Drop inlet.* Same as side inlets with cast iron gate.

e. *Size.* The following minimum sizes are set up for storm sewers:

1. For gravity line from drop or side inlet structure to storm sewer or outfall, 12 inches I.D.

2. For gravity storm sewer, 15 inches I.D.

(3) *Subdrains.* It is required that the lowest elevation of the bottom of the base material be installed at a minimum elevation of one foot above any groundwater, and in wet-soil areas the city requires the submission of a groundwater contour map, showing soil profiles and the proposed street grades. The groundwater elevation may be lowered by the use of subdrains on one or both sides of the street as required. Subdrains may empty into a storm sewer system, or other approved outlet.

a. Subdrains shall be of open-joint vitrified clay sized as required.

b. The rock surrounding the open-joint pipe shall be no. 16 modified (F.S.R.D. specifications) slag at least 20 inches deep and 12 inches wide.

(4) *Drainage outfalls.* All surface drainage subdrain discharges must be into a lake, canal, creek or other waterway capable of receiving the flow. Adequate plans, maps, or other detailed information must be submitted showing the final disposal of all stormwaters, where the stormwaters are not disposed of within the limits of the area drained. Disposal of stormwaters into existing drainage facilities, not controlled by the city, will be acceptable only if prior written approval is obtained from the controlling agency, e.g., the state department of transportation, A.C.L. R.R. and others.

(Code 1988, § 19-155)

Sec. 2.06. Streets—Pavement width, depth.

(a) *Arterial streets.* In a subdivision, arterial streets, as defined and named in article II of chapter 62, shall be paved to a minimum width of

40 feet with a minimum of eight-inch 50 psi subbase; eight-inch soil cement base, prime; and two-inch asphaltic pavement or equivalent.

(b) *Collector streets.* Collector streets, as defined and named in article II of chapter 62, shall be paved to a minimum width of 28 feet with a minimum of six-inch 30 psi subbase, six-inch soil cement base, prime; and two-inch asphaltic pavement.

(c) *Minor streets.* Minor streets, defined as all streets not indicated as arterial or major streets in article II of chapter 62, and exclusive of alleys, shall be paved to a minimum width of 24 feet with a minimum of six-inch soil cement base, prime; and two-inch asphaltic pavement F.S.R.D. type no. 2 modified to 2,000-pound stability, or equal.

(d) *Mobile home parks.* The area occupied by the street in a mobile home park shall not fulfill any part of the area requirements for any lot. All dead-end streets within such park shall be designed to enable a mobile home to reverse direction without having to be backed more than one mobile home length. The depth of streets shall conform as specified for collector streets in subsection (b) of this section, and the width thereof as follows:

(1) *Collector.* Thirty-two feet of right-of-way with 24 feet of pavement.

(2) *Minor.* Twenty-eight feet of right-of-way with 20 feet of pavement.

(3) *One-way.* Twenty feet of right-of-way with 16 feet of pavement.

(Code 1988, § 19-156)

Sec. 2.07. Same—Construction and materials.

(a) *Clearing and grubbing.* Before actual roadway grading is begun for a subdivision, all vegetation, trees, stumps, roots, rubbish and other obstructions shall be removed to a depth of two feet below the existing grade or final grade, whichever is the lowest. The limits of clearing and grubbing shall be considered as the width of the proposed pavement plus ten feet on each side of the pavement. Desirable trees within the limits of clearing and grubbing may be trimmed, protected, and left standing, if so approved by the city.

(b) *Excavation.* Excavation, including embankment, shall be performed in compliance with the following:

(1) The work shall be done in such a manner that the bottom of the excavation and the top of the embankment shall conform to the line, grades and cross sections shown on the approved plans, of uniform density, ready to receive the base or paving course.

(2) All soft and yielding materials and other portions of the subgrade which will not compact readily shall be removed and replaced with suitable materials. Muck or highly organic soils shall be removed for their full depth, within the limits of clearing and grubbing, and backfilled with a suitable material.

(3) All areas where embankment is to be placed shall be cleared as elsewhere specified and shall be plowed or loosened to a depth of six inches and then compacted. The embankment shall be constructed in successive layers of not more than six inches in thickness after compaction. Each layer shall be compacted at a moisture content specified in this subsection. Embankment loosened after compaction shall be re-rolled. Sod, muck, or other unsuitable materials shall not be placed in the embankment. Each layer of the embankment shall be compacted to 90 percent of maximum density obtained at optimum moisture.

(4) The top six inches of the subgrade, in both cuts and fills, shall be compacted to a density of not less than 100 percent of maximum density obtained at optimum moisture unless otherwise specified. Note: The subgrade in a cut section under a stabilized subbase shall have a minimum of 90 percent of maximum compaction.

(5) The maximum density at optimum moisture called for in this subsection will be determined by AASHTO Method of T-99-49 (Proctor Control Method) Modified.

(6) After the subgrade has been prepared, as specified, it shall be maintained free from ruts and depressions and other damage and at the proper line, grade and cross section required. The subgrade shall be kept well drained at all times.

(c) *Base courses.*

(1) *Soil cement.* The soil cement base shall be furnished and installed in accordance with the latest county specifications.

(2) *Surface testing.* The finished surface of the base course shall be checked with a templet cut to the required crown, and with a ten-foot straight edge laid parallel to the centerline of the road. All irregularities greater than one-half inch shall be corrected by scarifying and removing or adding base material as may be required, after which the entire area shall be recompacted.

(d) *Prime or seal coat.*

(1) The prime coat material for limerock base shall be RT-2 or RC-1S.

(2) The surface to be primed shall be clean and dry with the grazed surface removed. The temperature of the prime material shall be between 100 degrees Fahrenheit and 150 degrees Fahrenheit. The exact temperature shall be such as will ensure uniform distribution. The material shall be applied by means of a rubber-tired, mounted pressure distributor. The amount to be applied shall be dependent upon the character of the surface and shall be sufficient to coat the surface thoroughly and uniformly without having any excess to form pools or to flow off the base. The rate of application shall not be less than 0.10 gallon per square yard.

(3) The prime coat shall be allowed to stand without sanding for a period of 24 hours, unless otherwise approved. A light layer of clean local sand shall be applied prior to opening the primed base to traffic.

(4) If necessary the base shall be lightly sprinkled with water before the application of the prime.

(e) *Surfaces (pavements and wearing surfaces).* The minimum treatment acceptable for asphaltic concrete surface is as follows: The surface course shall consist of a two-inch or more layer of asphaltic concrete, type II, the composition of which shall conform to the specifications of the state department of transportation, except that requirements for the Hubbard Field Stability Test shall not be less than 2,000 pounds. The construction methods to be followed for the installation of this surface shall conform with those set forth by the state department of transportation.

(f) *Concrete curbs; turnouts.*

(1) The concrete curbs shall be either raised or flush as required and shall be constructed of 2,000 psi concrete (28-day test) and six-inch by 18-inch dimensions. Control joints shall be installed at a minimum of ten feet and one-half-inch mastic expansion joints at a maximum of 50 feet if so required by construction procedures. The use of concrete curb and gutter or inclined Miami-type concrete curbs is approved. The use of asphaltic covered inclined curbs will be considered.

(2) A paved turnout, 20 feet wide at the pavement edge, or a 20-foot-long section of flush or dropped concrete curb shall be installed at each residential driveway. Dropped curbs shall be set one inch below the finish road edge elevation.

(g) *Control by samples and tests.*

(1) The city engineer may require any or all materials to be submitted to tests, the expense of such tests to be borne by the developer. The city engineer may also require certificates of quality or specifications of material being utilized in the work, such as bituminous materials, concrete, limerock, etc. These certificates shall be supplied by the contractor.

(2) The contractor shall fully cooperate with the city engineer in the taking of any or all samples required and in the making of any tests required or desired.

(3) For pavements, whether base course or surface, the contractor shall, when required by the city engineer, furnish samples taken from completed work at any point indicated by the city engineer and shall replace the areas with materials and construction to conform to the specifications in this section and to the line and grade required at no cost to the city.

(4) The city may require any or all of the following inspections of construction:

a. After clearing, grubbing and rough grading—inspection of alignment and rough grade.

b. After fine grading and any required subbase or subgrade stabilization—grade check and soil bearing check.

c. After compaction of subgrade or subbase—thickness and density checks.

d. Installation of base—surface checks, grade check, thickness check, density check and bearing value check.

e. Application of prime—condition of surface and rate of application check.

f. Surface or pavement installation—check of condition of base and prime and type and quantity check on surface and pavement material.

g. Drainage facilities—will be checked during installation for material, workmanship, alignment, grade, etc.

(5) The developer or the contractor acting as the developer or agents shall notify the city engineer of any required inspections, as outlined in subsection (4) of this section, at least 48 hours in advance of the required inspection.

(6) The city shall do any or all inspections, as outlined in subsection (4) of this section, at its election, and the cost for such inspection services shall be borne in full by the developer. The cost of inspection shall be limited to three percent of the construction cost of all improvements.

(Code 1988, § 19-157)

Sec. 2.08. Sidewalks, pedestrian and service easements.

(a) Conventional sidewalks shall be required on all real property with new construction and in all zoning districts except planned unit developments (sidewalks in this district shall be considered under site plan review), to be a minimum width and thickness and constructed in accordance with plans and specifications approved by the city engineer.

(b) Where pedestrian and service easements are provided, the planning and zoning board may require paved walkways, drainage, or other improvements therein, to be constructed in accordance with plans and specifications approved by the city engineer.

(Code 1988, § 19-158)

Sec. 2.09. Street lighting.

(a) *Definitions.* The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them in this subsection, except where the context clearly indicates a different meaning:

Specialized street lighting means any decorative or higher luminous fixture other than standard street lighting.

Standard street lighting means a 30- to 35-foot concrete pole with a four-foot arm providing 100 watt HPS luminosity.

(b) *Required.* Street lighting, as specified under this section, is required in conjunction with the development of lands and as part of the subdivision of lands. Street lighting shall be provided on public and private streets, as specified in this section, with installation by the developer of the subdivision at the developer's cost, at the time of subdivision road improvements. All street lighting shall be operational no later than the date of issuance of the city's certification of completion of the subdivision improvements.

(c) *Specifications.* Street lighting specifications are as follows:

(1) Street lighting shall be installed along all streets within a subdivision, along streets that abut the subdivision and along pub-

lic and private streets. The spacing, distance from the edge of the pavement, height, light intensity, shading, light color, wiring, and light supports are to be in accordance with the National Lighting Standards and Florida Power Corporation requirements.

(2) Wiring, conduits, junction boxes and all other items and matters pertaining to street lighting shall be installed underground except for the light source and supports required to elevate the light source.

(3) Street lighting and the street lighting plan shall comply with all applicable requirements of the Code of Ordinances. Prior to installation of any street lighting, the developer shall deliver to the city engineer Florida Power Corporation's written certification that the proposed street lighting and street lighting plan meets all Florida Power Corporation requirements, National Lighting Standard requirements, and requirements of the Code of Ordinances.

(d) *Coordination with utility.* Installation of street lighting shall be coordinated with the electric utility providing power for the lighting. If any conflict occurs between the requirements of this section and the requirements of the electric utility, deviation from the requirements of this section shall only be allowed upon approval of the city commission upon finding that the primary purposes of this section will be met and that compliance with the relevant requirement of this section is not technically feasible.

(e) *Public streets.* The following are applicable to street lighting installed on public streets:

(1) The developer shall be responsible for the installation, maintenance, repair, replacement and operational and electrical costs of street lighting installed on public streets as required by this section until the end of the calendar year in which the city receives written notice from the developer that certificates of occupancy have been issued for buildings constructed on 75 percent of the lots in the subdivision. Beginning with the calendar year following such notice, the city shall be responsible for the maintenance, repair, replacement and operational and electrical costs of standard street lighting on public streets. The city shall not have any responsibility for and the developer shall have continuing responsibility for specialized street lighting, which is subject to a separate agreement with the city as provided in subsection (e)(3) of this section. The written notice from the developer regarding issuance of certificates of occupancy is subject to verification by the city for accuracy.

(2) At the time of the preconstruction conference, the developer shall advise the city regarding the type of street lighting to be installed and shall, at the time of the final plat, based upon the billing estimate received by the city from the electric utility with respect to the proposed street lighting, prepay to the city the street lighting costs, including charges related to specialized street lighting, if applicable, for the first year (i.e., 12 months) for all such street lighting to be installed on public streets. The city shall use such funds for the payment of street lighting invoices received from the electric utility and any other costs associated with such street lighting. Thereafter, the city shall annually submit an invoice to the developer in advance for such street lighting costs until such time as the city receives written notice from the developer that certificates of occupancy have been issued for 75 percent of the lots in the subdivision as set forth in this subsection and as verified by the city. If the city has received written notice from the developer that the responsibilities for the payment of invoices, including charges related to specialized street lighting if applicable, have been transferred to a homeowners' association and satisfactory evidence indicating the homeowners' association's agreement and capacity to assume such costs has been