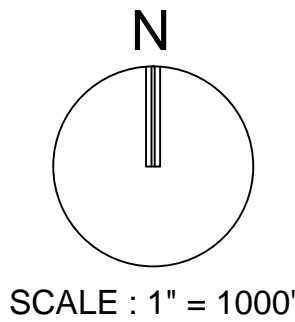
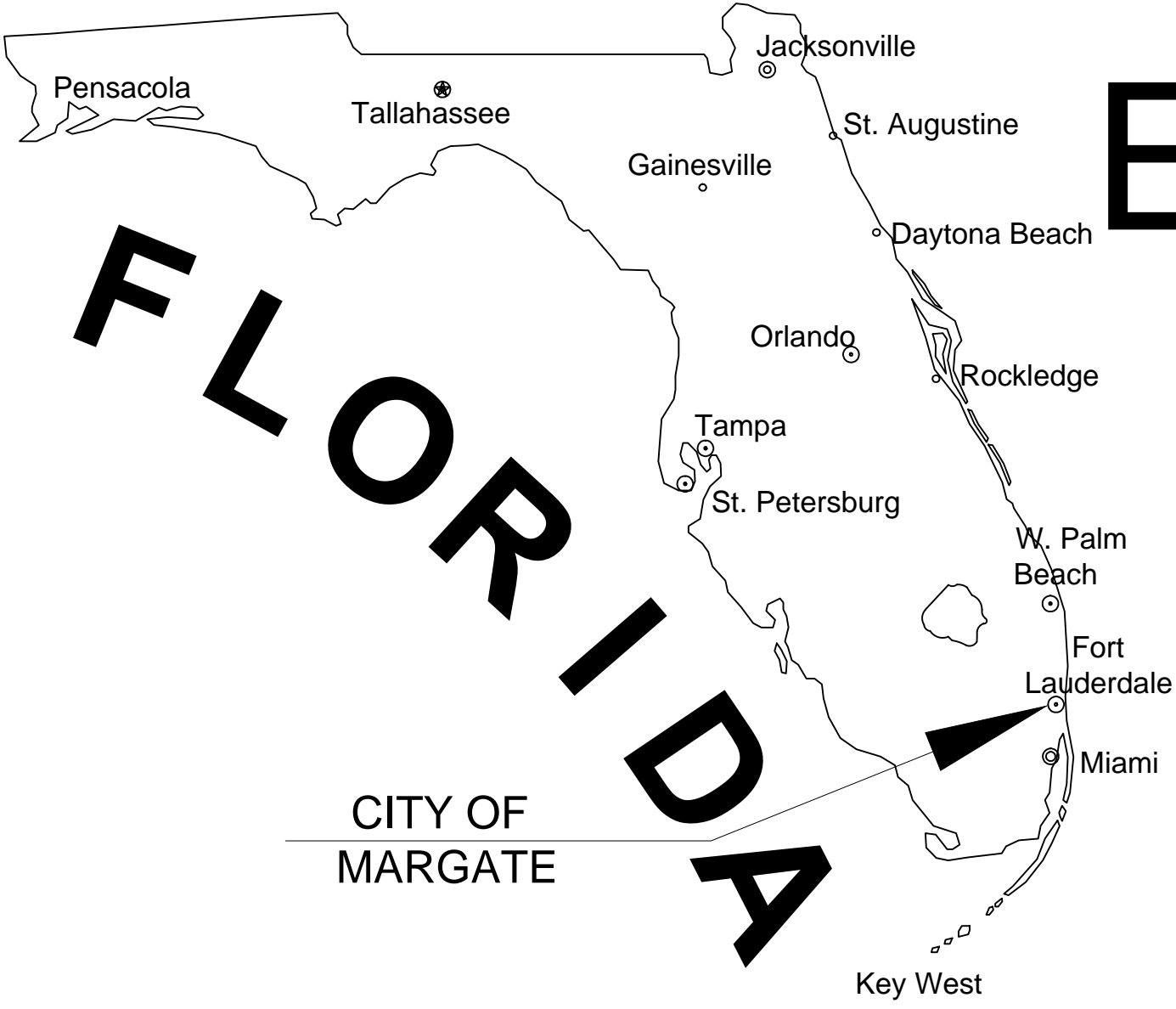


COLONIAL DRIVE ENGINEERING & ROADWAY IMPROVEMENTS

CITY OF MARGATE
BROWARD COUNTY, FLORIDA



INDEX OF SHEETS		
Sheet Sequence No.	Sheet Identification	Sheet Title
	--	COVER
1	GI-001	SPECIFICATIONS
2	GI-002	LEGEND
3	GI-003	GENERAL NOTES
4	CP-101	ENGINEERING PLAN
5	CP-501	ENGINEERING DETAILS
6	CM-101	PAVEMENT MARKING & SIGNING PLAN
7	LP-101	LANDSCAPE PLAN
8	LN-101	LANDSCAPE NOTES

ALL ELEVATIONS SHOWN ON THESE PLANS
ARE BASED ON NAVD 1988 DATUM

LOCATION MAP
SECTION 24, TOWNSHIP 48 S, RANGE 41 E

PREPARED FOR:
CITY OF MARGATE CRA
5790 MARGATE BOULEVARD



STEPHEN D. WILLIAMS, P.E.
FLORIDA REG. NO. 32090
(FOR THE FIRM)

PROJECT No. 09359.02 MARCH 2017

THESE PLANS MAY HAVE BEEN
REDUCED IN SIZE BY REPRODUCTION.
THIS MUST BE CONSIDERED WHEN
OBTAINING SCALED DATA.



	General Symbols		
	Existing	Proposed	Description
			Centerline & Baseline of Survey or Construction
			Building Access (ADA)
			Building Access (NON-ADA)
			Driveway Turnout Identification (Per FDOT Index 515) w/ Drive Width
			Sidewalk Curb Ramp (Per FDOT Index 304)
			Proposed Section Marker
			Flag Pole
			GPS Point
		Hay Bales	
		Mail Box	
		Major Contour Elevation	
		Minor Contour Elevation	
		Parking Meter	
		Property Line	
		Grade Elevation	
		Top Of Curb Elevation/Pavement Elevation	
		Soil Test Boring Hole	
		Survey Bench Mark	
Line Types			
Existing	Proposed	Description	
		County Bound	
		Demolition Line	
		Easement Line	
		Property Line	
		Limited Access Line/Non-Vehicular Access	
		Railroad	
		Right Of Way	
		Canal Or Drainage Ditch	
		Shore Line	
		Tree Line	
		Aerial Communication Line	
		Underground Communication Line	
		Underground Storm Drain Line (Double Line 24" And Over	
		Underground Sanitary Line	
		Aerial Electric Line	
		Underground Electric	
		Underground Water Line	
		Underground Force Main	
		Gate	
		Chain Link Fence	
		Wood Fence	
		Metal Rail Fence	
		Silt Fence	
		Staked Turbidity Barrier	
		Turbidity Barrier	
		Guard Rail	
		Roadway Centerline	
		2 - 4 Skip	
		3 - 9 Skip	
		6- 10 Skip	
		10 - 30 Skip	
		10 - 10 - 20 Skip	
		Curb	
		Curb And Gutter	
Landscaping			
Existing	Proposed	Description	
		Bush	
		Tree	
		Palm Tree	

Paving and Grading		
Existing	Proposed	Description
		Flow Directional Arrow
		Pavement Marking Arrows
		Stop Bar
		Concrete Sidewalk
		Jogging Path
		Pavement Area
		Existing Pavement/Concrete/ Landscape Removal Area
		Milling And Resurfacing
		Detectable Warning (Truncated Domes) Per Florida Accessibility Code
		Soil Tracking Prevention Device
Drainage / Utilities		
Existing	Proposed	Description
		Catch Basin
		Yard Drain
		Exfiltration Trench
		Catch Basin With Filter Fabric Insert
		Curb Type 5
		Curb Type 6
		Pipe Culvert - Mitered End Section
		Pipe Culvert - Straight Endwall
		Pipe Culvert - U - Type Endwall
		Manhole - Communication, Electric, Gas, Drn, San Sew
		Valve Box - Gas, San. Sew, Water, Non-Potable Water
		22.5 degree Bend
		45 degree Bend
		90 degree Bend
		Utility Crossing
		Fire Hydrant
		Proposed Bacteriological Sampling Point
		Pump Station
		Grease Trap
		Septic Tank
		Drainage Well
		Monitoring Well
		Water Well
		Sanitary Sewer Cleanout
		Back Flow Preventor
		Junction Box
		Electric Handhole
		Electric Meter
		Water Meter
		Gate Valve
		Guy wire
		Light Pole
		Relocated Or Adjusted Light Pole
		Wood Power Pole
		Concrete Utility Pole
		Traffic Signal Pole (Concrete, Wood, Metal)
		Pedestrian Signal Head (Pole Or Pedestal Mounted)
		Post Mounted Sign
		Street Sign
		High Mast Lighting Tower
		Controller Cabinet (Base Mounted)
		Controller Cabinet (Pole Mounted)
		Traffic Signal Head (Span Wire Mounted)
		Traffic Signal Head (Pedestal Mounted)
		Traffic Signal Head (Mast Arm Mounted)
	N: 623025.4322	Coordinate values shown on proposed improvements are relative to the coordinate values indicated on the Right-of-Way, property corners or reference monument
	E: 850262.1786	

Abbreviations	
General	
AADT	Annual Average Daily Traffic
ABAN	Abandon
ADJ	Adjust
APPROX.	Approximate
A.C.	Asphalt Concrete
ACCM PIPE	Asphalt Coated Corrugated Metal Pipe
BIT.	Bituminous
BC	Back Of Curb
BD.	Bound
BL	Baseline
BLDG	Building
BM	Benchmark
BO	By Others
BOS	Bottom Of Slope
BR.	Bridge
CAP	Corrugated Aluminum Pipe
CB	Catch Basin
CBCI	Catch Basin With Curb Inlet
CC	Cement Concrete
CCM	Cement Concrete Masonry
CEM	Cement
CI	Curb Inlet
CIP	Cast Iron Pipe
CLF	Chain Link Fence
CL	Centerline
CMP	Corrugated Metal Pipe
CO.	County
CONC	Concrete
CONT	Continuous
CONST	Construction
CR GR	Crown Grade
DHV	Design Hourly Volume
DI	Drop Inlet
DIA	Diameter
DIP	Ductile Iron Pipe
DWY	Driveway
ELEV (OR EL.)	Elevation
EMB	Embankment
EOP	Edge Of Pavement
EXIST (OR EX)	Existing
EXC	Excavation
F&C	Frame And Cover
F&G	Frame And Grate
FDN.	Foundation
FLDSTN	Fieldstone
GAR	Garage
GD	Ground
GI	Gutter Inlet
GIP	Galvanized Iron Pipe
GRAN	Granite
GRAV	Gravel
GRD	Guard
GV	Gate Valve
HDW	Headwall
HMA	Hot Mix Asphalt
HOR	Horizontal
HYD	Hydrant
INV	Invert
JCT	Junction
L	Length Of Curve
LB	Leach Basin
LP	Light Pole
LT	Left
MAX	Maximum
MB	Mailbox
MH	Manhole
MIN	Minimum
NIC	Not In Contract
NO.	Number
PC	Point Of Curvature
PCC	Point Of Compound Curvature
P.G.L.	Profile Grade Line

Abbreviations Continued	
PI	Point Of Intersection
POC	Point On Curve
POT	Point On Tangent
PRC	Point Of Reverse Curvature
PROJ	Project
PROP	Proposed
PT	Point Of Tangency
PVC	Point Of Vertical Curvature
PVI	Point Of Vertical Intersection
PVT	Point Of Vertical Tangency
PVMT	Pavement
PWW	Paved Water Way
R	Radius Of Curvature
R&D	Remove And Dispose
RCP	Reinforced Concrete Pipe
RD	Road
RDWY	Roadway
REM	Remove
RET	Retain
RET WALL	Retaining Wall
ROW	Right Of Way
RR	Railroad
R&R	Remove And Reset
RT	Right
SHLD	Shoulder
SMH	Sewer Manhole
ST	Street
STA	Station
SSD	Stopping Sight Distance
SW	Sidewalk
T	Tangent Distance Of Curve/Truck %
TAN	Tangent
TEMP	Temporary
TC	Top Of Curb
TOS	Top Of Slope
TYP	Typical
UP	Utility Pole
VAR	Varies
VERT	Vertical
VC	Vertical Curve
WCR	Wheel Chair Ramp
WIP	Wrought Iron Pipe
WM	Water Meter/Water Main
X-SECT	Cross Section
Traffic Signal	
CAB.	Cabinet
CCVE	Closed Circuit Video Equipment
DW	Steady Don't Walk
FDW	Flashing Don't Walk
FR	Flashing Circular Red
FRL	Flashing Red Left Arrow
FRR	Flashing Red Right Arrow
FY	Flashing Circular Amber
FYL	Flashing Amber Left Arrow
FYR	Flashing Amber Right Arrow
G	Steady Circular Green
GL	Steady Green Left Arrow
GR	Steady Green Right Arrow
GSL	Steady Green Slash Left Arrow
GSR	Steady Green Slash Right Arrow
GV	Steady Green Vertical Arrow
OL	Overlap
PED	Pedestrian
PTZ	Pan, Tile, Zoom
R	Steady Circular Red
RL	Steady Red Left Arrow
RR	Steady Red Right Arrow
TR SIG	Traffic Signal
TSC	Traffic Signal Conduit
W	Steady Walk
Y	Steady Circular Amber
YL	Steady Amber Left Arrow

301 East Atlantic Boulevard
Pompano Beach, Florida 33060-6643

2160 NW 82nd Avenue
Doral, Florida 33122

(954) 788-3400 FAX (954) 788-3500

Florida Certificate of
Authorization # - 7928

BID / CONTRACT NO. :

REVISIONS

NO.	DESCRIPTION	DATE

PRELIMINARY PLAN
NOT FOR CONSTRUCTION
THESE PLANS ARE NOT FULLY PERMITTED
AND ARE SUBJECT TO REVISIONS MADE
DURING THE PERMITTING PROCESS
RESPONSIBILITY FOR THE USE OF THESE
PLANS PRIOR TO OBTAINING PERMITS
FROM ALL AGENCIES HAVING JURISDICTION
OVER THE PROJECT WILL FALL SOLELY
UPON THE USER.

COLONIAL
DRIVE
IMPROVEMENTS
CITY OF
MARGATE

SCALE: AS NOTED
DATE ISSUED: FEBRUARY10, 2017
DRAWN BY: MC
DESIGNED BY: MC
CHECKED BY: SW

SHEET TITLE

LEGEND

SHEET NUMBER

GI-001

SHEET of

PROJECT NO. 09359.02

D

C

B

A

CONSTRUCTION SPECIFICATIONS

Section 20 - General Specifications Paving Grading Drainage and Earthwork

20.General

20.1. It is the intent of these specifications to describe the minimum acceptable technical requirements for the materials and workmanship for construction of site improvements for this project. Such improvements may generally include, but not to be limited to, clearing, grading, paving, removal of existing pavement storm drainage, water lines and sanitary sewers.

20.2. It is the intent that the Florida Department of Transportation (FDOT) "Standard Specifications for Road and Bridge Construction: (current edition) together with "Supplemental Specifications to the Standard Specifications for Road and Bridge Construction" (current edition), and the FDOT Roadway and Traffic Design Standards (current edition) be used where applicable for the various work, and that where such wording therein refers to the State of Florida and its Department of Transportation and personnel, such wording is intended to be replaced with the wording which would provide proper terminology; thereby making such "Standard Specifications for Road and Bridge Construction" together with the "FDOT Roadway and Traffic Design Standards" as the "Standard Specifications" for this project. If within a particular section, another section, article or paragraph is referred to, it shall be part of the Standard Specifications also. The Contractor shall abide by all local and State laws, regulations and building codes which have jurisdiction in the area.

20.3. The Contractor shall furnish all labor, materials and equipment and perform all operations required to complete the construction of a paving and drainage system as shown on the plans, specified herein, or both. It is the intent to provide a complete and operating facility in accordance with these specifications and the construction drawings. The material and equipment shown or specified shall not be taken to exclude any other incidentals necessary to complete the work.

20.4. All labor, materials, and methods of construction shall be in strict accordance with the plans and construction specifications and the minimum engineering and construction standards adopted by the unit of government which has jurisdiction and responsibility for the construction. Where conflicts or omissions exist, the jurisdictional government Engineering Department's standards shall govern. Substitutions and deviations from plans and specifications shall be permitted only when written approval has been issued by the Engineer.

20.5. Guarantee - all materials and equipment to be furnished and/or installed by the Contractor under this contract, shall be guaranteed for a period of (1) one year from the date of final acceptance thereof, against defective materials, design and workmanship. Upon receipt of notice from the owner of failure of any part of the guaranteed equipment or materials, during the guarantee period, the affected part or materials shall be replaced promptly with new parts or materials by the contractor, at no expense to the owner. In the event the Contractor fails to make necessary replacement or repairs within (7) seven days after notification by the owner, the owner may accomplish the work at the expense of the contractor.

21.Earthwork

21.1. All areas within the project limits shall be cleared and grubbed prior to construction. This shall consist of the complete removal and disposal of all trees, brush, stumps, roots, grass, weeds, rubbish and all other obstructions resting on or protruding through the surface of the existing ground to a depth of '1'. All work shall be in accordance with section 110 of the Standard Specifications.

21.2. None of the existing limerock material from demolished pavement is to be incorporated in the new limerock base, unless noted in plans. The existing limerock material from demolished pavement may be incorporated into the stabilized subgrade / subbase, or stabilized shoulder.

21.3. Fill material shall be classified as A-I, A-3, or A-2-4 in accordance with AASHTO N--145 and shall be free from vegetation and organic material. Not more than 12% by weight of fill material shall pass the no. 200 sieve.

21.4. All fill material in areas not to be paved shall be compacted to 95% of the maximum density as determined by AASHTO T-99.

21.5. All material of construction shall be subject to inspection and testing to establish conformance with the specifications and suitably for the uses intended. The Contractor shall notify the Engineer at least 24 hours prior to the time he will be ready for an inspection or test. The Contractor shall follow City and County inspection procedures. The Contractor shall not proceed with any phase of work dependent on an inspection or test of an earlier phase of work, prior to that test or inspection passing. The Contractor shall be responsible for providing certified material test results to the Engineer of record prior to the release of final certification by the Engineer. Test results must include, but may not be limited to, densities for subgrade and limerock, utilities, excavation, asphalt gradation reports, concrete cylinders, etc.

21.6. When encountered, muck shall be completely removed from the center line (10) ten feet beyond the edge of pavement each side. All such material shall be replaced by approved granular fill.

21.7. When encountered within drainage swales, hardpan shall be removed to full depth for a width of (5) five feet at the invert and replaced with granular materials.

21.8. All underground utilities and drainage installations shall be in place prior to subgrade compaction and pavement construction.

21.9. Ground adjacent to roadway/pavement having runoff shall be graded (2) two inches lower than the edge of pavement to allow for the placement of sod.

21.10. Site grading elevations shall be within 0.1' of the required elevation for non paved areas and all areas shall be graded to drain without ponding.

21.11. The Contractor shall perform all excavation, fill, embankment and grading to achieve the proposed plan grades including typical road sections, side slopes and canal sections. All work shall be in accordance with section 120 of the Standard Specifications. If fill material is required in excess of that generated by the excavation, the Contractor shall supply this material as required from off-site.

21.12. A 2" blanket of top soil shall be placed over all areas to be sodded or seeded and mulched within the project limits unless otherwise indicated

on the plans.

21.13. Sod shall be St. Augustine unless otherwise indicated on the plans, and shall be placed on the graded top soil and watered to insure satisfactory condition upon final acceptance of the project.

22.Drainage

22.1. Inlets - all inlets shall be the type designated on the plans, and shall be constructed in accordance with section 425 of the Standard Specifications. All inlets and pipe shall be protected during construction to prevent siltation in the drainage systems by way of temporary plugs and plywood or plastic covers over the inlets. The entire drainage system shall be cleaned of all debris prior to final acceptance.

22.2. Pipe specifications: the material type is shown on the drawings by one of the following designations:

- RCP = reinforced concrete pipe, ASTM designation C--76, section 941 of the Standard Specifications.
- CMP = corrugated metal (aluminum) pipe, ASTM designation M-196.
- CMP (smooth lined) = corrugated metal aluminum pipe, (smooth lined) ASTM designation M-196.
- SCP = slotted concrete pipe, sections 941 and 942, of the Standard Specifications.
- PVC = polyvinyl chloride pipe.
- PCMP = perforated cmp, section 945, of the Standard Specifications
- Corrugated High Density Polyethylene Pipe (HDPE) (12 Inches to 60 Inches), shall meet the requirements of FDOT Specification section 948-2.3.

22.3. Pipe backfill - requirements for pipe backfill crossing roads or parking areas shall be as defined in the section 125-8, of the Standard Specifications. Pipeline backfill shall be placed in 6 inch lifts and compacted to 100% of the standard proctor (AASHTO T--99 specifications)

22.4. Location of drainage structures shall govern, and pipe length may have to be adjusted to accomplish construction as shown on these plans.

22.5. Distance and lengths shown on plans and profile drawings are referenced to the center of structures.

22.6. Filter fabric shall be Mirafi, Typar or equal conforming to section 985 of the Standard Specifications.

23.Asphalt Paving

23.1. Where new asphalt meets existing asphalt, the existing asphalt shall be saw cut to provide a straight even line. Prior to removing curb or gutter, the adjacent asphalt shall be saw cut to provide a straight even line.

23.2. Internal asphalt paving constructed on existing sandy soils shall be constructed with a 12" subgrade, compacted to a minimum density of 100% maximum density as determined by AASHTO T-99. The compacted subgrade shall be constructed in the limits shown on the plans. All subgrade shall have an LBR of 40 unless otherwise noted.

23.3. Asphaltic concrete surface course shall be constructed to the limits shown on the plans. The surface course shall consist of the thickness and type asphaltic concrete as specified in the plans. All asphaltic concrete shall be in accordance with sections 320, 327, 330, 334, 336, 337, 337, 338, 339 and 341 of the Standard Specifications.

23.4. Limerock base shall be prepared, compacted and graded and shall be in accordance with section 200 of the Standard Specifications. All limerock shall be compacted to 98% per AASHTO T-180 and have not less than 70% of carbonates of calcium and magnesium unless otherwise designated. The Engineer shall inspect the completed base course and the Contractor shall correct any deficiencies and clean the base course prior to the placement of the prime coat. A tack coat will also be required if the Engineer finds that the primed base has become excessively dirty or the prime coat has cured to the extent of losing bounding effect prior to placement of the asphaltic concrete surface course. The prime and tack coats shall be in accordance with section 300 of the Standard Specifications.

23.5. Limerock base material shall be placed in maximum 6" lifts. Bases greater than 6" shall be placed in two equal lifts. If, through field tests, the Contractor can demonstrate that the compaction equipment can achieve density for the full depth of a thicker lift, and if approved by the engineer, the base may be constructed in successive courses of not more than 8 inches (200 mm) compacted thickness.

23.6. Asphalt edges that are not curbed shall be saw cut to provide a straight even line to the dimensions shown on plans.

24.Concrete Construction

24.1. Concrete sidewalk shall be in accordance with section 522 of the Standard Specifications and in accordance with F.D.O.T. Roadway and Traffic Design Standards, index no. 310. Concrete sidewalk shall be 4" thick, unless otherwise not and constructed on compacted subgrade, with 1/2" expansion joints placed at a maximum of 75', unless otherwise noted on plans. Crack control joints shall be 5' on center. All concrete sidewalks that cross driveways shall be 6" thick, unless otherwise noted on plans.

24.2. Sidewalk Curb ramps shall be in accordance with F.D.O.T. Roadway and Traffic Design Standards, index no. 304.

24.3. Concrete curb shall be constructed to the limits shown on the plans. The concrete shall have a minimum compressive strength of 4000 p.s.i. at 28 days and shall be in accordance with section 520 of the Standard Specifications. Concrete curbing shall be in accordance with F.D.O.T. Roadway and Traffic Design Standards, index no. 300.

Section 30 - Water distribution and sanitary sewer force mains.

30. Materials:

Note: If materials list here on are in conflict with utility owner, material owner requirements shall govern.

30.1. All water main pipe, including fittings, shall be color coded or marked using blue as a predominant color to differentiate drinking water from reclaimed or other water. Underground plastic pipe shall be solid-wall blue pipe, shall have a co-extruded blue external skin, or shall be white or black pipe with blue stripes incorporated into, or applied to, the pipe wall; and underground metal or concrete pipe shall have blue stripes applied to the pipe wall. Pipe striped during manufacturing of the pipe shall have continuous stripes that run parallel to the axis of the pipe, that are located at no greater than 90-degree intervals around the pipe,

and that will remain intact during and after installation of the pipe. If tape or paint is used to stripe pipe during installation of the pipe, the tape or paint shall be applied in a continuous line that runs parallel to the axis of the pipe and that is located along the top of the pipe; for pipes with an internal diameter of 24 inches or greater, tape or paint shall be applied in continuous lines along each side of the pipe as well as along the top of the pipe.

30.2. Ductile iron pipe for water distribution mains shall conform to ANSI/AWWA standard C151/A21.51-xx latest revision, "ductile iron pipe centrifugally cast in metal molds or sand-lined molds" with a minimum wall thickness of class 51 (pressure class 350) unless otherwise noted in the plans. Ductile iron pipe shall be cement lined and seal coated in accordance with ANSI/AWWA standard C104/A21.4-xx latest revision. The pipe shall be adapted for use with class 250 fittings for all sizes. Water main shall be colored blue in accordance with Florida State Statutes.

30.3. Ductile iron pipe for sewage force mains shall conform to ANSI/AWWA standard C151/A21.51-xx latest revision, "ductile iron pipe centrifugally cast in metal molds or sand- lined molds" with a minimum wall thickness of class 51 (pressure class 350) unless otherwise noted in the plans. Ductile iron pipe shall be interior ceramic epoxy lined and exterior coated with the manufacturer's coating system (Protecto 401 ceramic epoxy with a minimum dry film thickness of 40 mils and an outside coating of either coal tar epoxy or asphalt). Cement mortared linings are not appropriate for this application.

30.4. All pipe & fittings on the lift station sites shall be ductile iron conforming to the same specifications as above for sewage force mains except that flanged ductile iron pipe & fittings shall be used inside valve pits and wet wells. Flanged pipe and fittings shall conform to ANSI/AWWA C115/a21.15-xx latest revision and ANSI/AWWA C110/A21.10-xx latest revision. The following thickness classes shall be adhered to: 4" - 12" - class 52, 14" & larger - class 51.

30.5. PVC pressure pipe for sizes 4" through 12" and shall conform to ANSI/AWWA standard C900-xx latest revision. PVC pressure pipe shall be made from class 12454-a or class 12454-b virgin material and conform with the outside diameter of cast iron pipe with a minimum wall thickness of dr series 18. Ultra violet degradation or sun bleached pipe will be cause for rejection. Water main shall be colored blue in accordance with Florida State Statutes. Force main shall be impregnated with green pigment. Reuse main shall be impregnated with purple pigment.

30.6. Ductile iron fittings for water distribution mains shall conform to ANSI/AWWA standard C110/A21.10-xx latest revision. Fittings 4" and larger shall be cement lined and seal coated in accordance with ANSI/AWWA standard C104/A21.4-xx latest revision. Water Main fitting shall be colored blue in accordance with florida state statutes.

30.7. Cast iron and ductile iron fittings for sewage force mains shall conform to ANSI/AWWA standard C110/A21.10-xx latest revision. Fittings 4" and larger shall be coated in accordance with the requirements of ductile iron pipe for sewage force mains.

30.8. Joints for bell and spigot ductile iron pipe and fittings shall conform to ANSI/AWWA standard C111/A21.11-xx latest revision. Mechanical joint or push-on joint to be rubber gasket compression-type. Special fittings and joints shall be considered for specific installation subject to the approval of the engineer.

30.9. Joints for PVC pressure pipe shall be bell and spigot push-on rubber gasket type only. No solvent weld or threaded joints will be permitted.

30.10. Water distribution system restraint: all fittings and specific pipe joints shall be restrained as outlined below:

- Joint restraint
- Push-on P.V.C. EBAA iron series 1600
- Push-on D.I.P. EBAA iron series 1700
- tr-flex by U.S. Pipe or
- flex ring by American
- Fittings w/ D.I.P. EBAA iron series 1100 megalug
- Fittings w/ P.V.C. EBAA iron series 2000 megalug
- Length of restrained pipe shall be as indicated on restrained joint pipe detail. (see water & sewer detail sheet)

30.11. Sewage force main system restraint: all fittings and specific pipe joints shall be restrained as outlined below

- Joint restraint
- Push-on P.V.C. EBAA iron series 1600
- Push-on D.I.P. EBAA iron series 1700
- tr-flex by U.S. Pipe or
- flex ring by American
- Fittings w/ D.I.P. EBAA iron series 1100 megalug
- Fittings w/ P.V.C. EBAA iron series 2000 megalug
- Length of restrained pipe shall be as indicated on restrained joint pipe detail. (see water & sewer detail sheet)

30.12. Water distribution valves shall be gate valves, iron body, fully resilient seat bronzed mounted non-rising stem, rated at 200 p.s.i. and conforming to ANSI/AWWA C509-xx latest revision, and shall have mechanical joints.

30.12.1. Gate valves 4" and larger shall be Mueller A-2360, American 250 line or Clow F-6100, conforming to ANSI/AWWA C500-xx latest revision or approved equal.

30.12.2. Tapping valves shall be Mueller T-2360 or approved equal.

30.12.3. Gate valves 3" or less shall be Nibco T-133 or T-136 with malleable hand wheels. No substitutions allowed.

30.13. Tapping sleeves shall be Mueller H615, Clow F- 2505 or approved equal.

30.14. Valve boxes shall be U.S. foundry 7500 or approved equal painted blue with the designation "water".

30.15. Retainer glands for D.I.P. shall conform to ANSI/AWWA C111/A21.11-xx latest revision. All glands shall be manufactured from ductile iron as listed by underwriters laboratories for 250 psi minimum water pressure rating. Clow corporation model F-1058, standard fire protection equipment company or approved equal.

30.16. Metallic tape shall be installed one (1) foot above installed PVC pressure pipe to ensure that the pipe can be located after burial.

30.17. Dresser couplings shall be regular black couplings with plain gaskets for galvanized steel pipe. They shall be dresser style 90. No substitutions allowed.

30.18. Fire hydrants shall be Mueller centurion traffic type A-423 with 5 1/4" internal valve opening or approved equal. Pumper nozzle to be 18" from finished grade. All hydrants to be installed with control valve. Retainer glands are preferred for restraining. Fire hydrant shall comply with ANSI/AWWA C502-xx latest revision. Fire hydrants shall be painted in accordance with NFPA #291 or per agency standards having jurisdiction. Blue raised reflective pavement marker (rpm) shall be used to identify fire hydrant location. The placement of the rpm to be at the centerline of the outside roadway lane.

30.19. Sewage force main valves shall be plug valves which shall be of the non-lubricated, eccentric type with resilient faced plugs, port areas for valves 20 inches and smaller shall be at least 80% of full pipe area. Port area of valves 24 inches and larger shall be at least 70% of full pipe area. The body shall be of semi-steel (ASTM A-126 C1.b) and shall have bolted bonnet which gives access to the internals of the valve. Seats shall be welded overlay of high nickel content or a stainless steel plate locked in the body cavity. If a plate is used, it shall be replaceable through the bonnet access. Bearings shall be permanently lubricated of stainless steel, bronze or Teflon lined, fiber glass backed Duralon. Bearing areas shall be isolated from the flow with grit seals. Valves shall have packing bonnets where the shaft protrudes from the valve and the packing shall be self-adjusting chevron type which can be replaced without removing the bonnet. All nuts, bolts, springs and washers shall be stainless steel.

30.20. Plug valves shall be designed for a working pressure of 150 p.s.i. the valve and actuator shall be capable of satisfactory operation in either direction of flow against pressure drops up to and including 100 p.s.i. (for plug valves over 12" in diameter). Valves shall be bubble tight in both directions at 100 psi differential. Plug valves over 12" in diameter shall have worm gear operators. The operating mechanism shall be for buried service with a 2 inch square operating nut.

30.21. Plug valves are to be installed with the seat pointed towards the upstream flow, when specified.

30.22. Swing check valves for water, sewage, sludge, and general service shall be made of the outside lever and spring or weight type, in accordance with ANSI/AWWA C 508-xx latest revision swing-check valves for waterworks service, 2" through 24" NPS, unless otherwise indicated, with full-opening passages, designed for a water-working pressure of 150 PSI they shall have a flanged cover piece to provide access to the disc.

30.23. High density polyethylene pipe (HDPE) for water distribution mains shall conform to AWWA C906 standard, latest revision. Pipes shall be color-coded blue, minimum 40 feet standard lengths.

31. Service connection:

31.1. Service saddles shall be fusion bonded plastic coated ductile iron (ASTM A536) with stainless steel straps, saddles shall be double strap type.

31.2. Service lines shall be polyethylene (PE 3408), 200 p.s.i rated, DR9. Pipe joints shall be of the compression type totally confined grip seal and coupling nut.

31.3. Corporation stops shall be manufactured of brass alloy in accordance with ASTM B-62 with threaded ends, as manufactured by Ford ballcorp. catalog # 1100 or approved equal.

31.4. Curb stops shall be Ford FV63-44w-x" latest revision or approved equal.

31.5. Meter stops shall be 90 degree locking type and shall be of bronze construction in accordance FV63-777W-X" latest revision with ASTM B-62. Meter stops shall be closed bottom design and resilient "O" ring sealed against external leakage at the top. Stops shall be equipped with a meter coupling nut on the outlet sides, as manufactured by ford or approved equal.

32. Installation:

32.1. Where restrained pipe joints are required due to fittings, appurtenances, etc., pipe material shall be D.I.P.

32.2. All PVC pipe shall be installed in accordance with the uni-bell plastic pipe association "guide for installation of PVC pressure pipe for municipal water distribution system," and ANSI/AWWA C605-xx latest revision standard.

32.3. All dip shall be installed in accordance with ANSI/ C600-xx latest revision.

32.4. All water mains shall typically be laid with a minimum 36" cover for PVC and 30" cover for dip.

32.5. Detector tape shall be laid 18 inches above all water and sewer lines. A 14 gauge multi-strand wire shall be attached to all nonconductive water mains to facilitate location. An extra 4 feet of wire shall be provided at all valves, blow-offs, hydrants, etc. The wire shall be tested for continuity at the pressure test.

32.6. Pipe deflection shall not exceed 50% of the maximum deflection recommended by the manufacturer.

32.7. A continuous and uniform bedding shall be provided. Backfill material shall be placed in accordance with the plans and specifications.

32.8. All valves shall be installed with adjustable cast iron valve boxes with the word "water" or "sewer", as applicable, cast in the cover. U.S. foundry or approved equal.

33. Testing:

33.1. Before any physical connections and acceptance for operation to the existing water mains are made, the complete water system shall be flushed, pressure tested and disinfected. Copies of passing bacteriological results and pressure test results must be submitted to, and approved by, the engineer, utility owner, and health department. Hydrostatic testing of new mains shall be performed at a minimum starting pressure of 150 p.s.i. for two hours in accordance with ANSI/AWWA C600-05 (hydrostatic test). The pressure test shall not vary more than 5 p.s.i. during the test. The allowable leakage during the pressure test shall be less than the number of gallons per hour as determined by the formula:
L = (sd(p)1/2)/148,000.
In which L equals the allowable leakage in gallons per hour. S equals length of pipe (linear feet), d equals nominal diameter of pipe (inches) and p equals the average test pressure (pounds per square inch gauge). Maximum length of test pipe section should be 2000 feet. The water system shall be disinfected in accordance with the ANSI/AWWA C651-05 (water main bacteriological tests).

33.2. The pressure test shall be witnessed by a representative of the utility

owner and the engineer of record.

33.3. For water distribution pipes, sampling points shall be provided by the contractor at the locations shown on the plans.

33.4. For water distribution pipes, disinfection and bacteriological testing shall be in accordance with ANSI/AWWA C651-14 (water main bacteriological tests). Maximum distance between sampling points shall be as follows:

- Transmission mains: every 1200 feet
- Branch mains: every 1000 feet
- Isolated mains < 1000 feet: 2 sample points
- Isolated mains > 1000 feet: 3 sample points

Section 40 - Gravity Sanitary Sewer Collection System

40. General:

40.1. Manhole, valve box, meter box and other structure rim elevations within the limits of construction are to be adjusted to conform to plan grades proposed in these plans. If no other individual cost item is included in the contract schedule for a particular structure adjustment.

40.2. Distance and lengths shown on plans and profile drawings are referenced to the center of structures.

41. Materials:

Note: If materials list here on are in conflict with utility owner, material owner requirements shall govern.

41.1. All PVC sewer pipe and fittings shall be non-pressure polyvinyl chloride (PVC) pipe conforming to ASTM D 3034, SDR 35, with push-on rubber gasket joints.

41.2. Ductile iron pipe shall conform to ANSI/AWWA C151/A21.51-xx latest revision, "ductile iron pipe centrifugally cast in metal molds or sand-lined molds" with wall thickness class 51 for 8" and above, class 52 for 4" and 6", unless otherwise directed by the engineer. Ductile iron pipe shall be epoxy lined or coated with the manufacturer's coating system as approved by the engineer of record and the local municipality or utility owner. In either case, the engineer's review and approval is required for either alternative prior to construction. Cement mortared linings are not appropriate for this application.

41.3. All ductile iron fittings shall conform to ANSI/AWWA standard C110/A21.10-xx latest revision. All fittings and accessories shall be epoxy lined and as manufactured or supplied by the pipe manufacturer or approved equal.

41.4. Manholes shall be precast per ASTM C 478 and in accordance with the plans and specifications.

41.5. Manholes are to be sealed with type II sulphate resistant cement or approved equal - no molding plaster.

41.6. Joints for bell and spigot ductile iron pipe and fittings shall conform to ANSI/AWWA standard C111/A21.11-xx latest revision. Mechanical joint or push-on joint to be rubber gasket compression- type.

41.7. PVC clean-outs to have screw type access plug. Long radius wye connections and fittings shall be used in order to access clean-out operations.

41.8. Cleanouts shall be installed at all sewer services exceeding 75' in length (every 75') with a clean out at the property line, easement line, or 5' from a building. The contractor shall coordinate the location of the building cleanout (5' from the building) and elevation of the end of the sewer service with the building plumbing contractor. Cleanouts shall be the same size as the service lateral in which they are installed.

42. Installation:

42.1. PVC sewer pipe shall be laid in accordance with ASTM D 2321 and the Uni-Bell plastic pipe association's "recommended practice for the installation of PVC sewer pipe."

42.2. D.I.P. shall be installed in accordance with ANSI/AWWA C-600-xx latest revision.

42.3. Pipe to manhole connection to be Fernco neoprene boot couplings with stainless steel accessories or approved equal.

42.4. Manholes shall be set plumb to line and grade on firm subgrade providing uniform bearing under the base.

42.5. All openings and joints shall be sealed watertight.

42.6. Two coats of Koppers 300-m, first red, second one black, shall be applied to the inside of all manholes and shall be applied in accordance with the manufacturer's specifications (16 mils per coat). Coating as required by utility owner or engineer shall be applied to the outside of the manhole. The interior coats shall be applied after sewer lamping of lines. After the application of each coat, the utility owner and engineer shall inspect the manholes. The inspection shall be scheduled a minimum of 48 hours prior to inspection.


43. Testing: Testing of gravity sewer mains and laterals shall be in accordance with the utility owner's minimum design and construction standards latest revision.

43.1. After construction of the sewer system, the engineer may require a visual infiltration and/or exfiltration test to be performed on the entire system or any part thereof.

43.2. An air test may be substituted for the water exfiltration test, upon approval of the engineer.

43.3. The allowable limits of sewer pipe leakage for gravity sewer mains shall not exceed 100 gallons per inch of inside pipe diameter per mile per day for any section tested. No visible leakage shall be allowed.

43.4. The installed sewers may require video inspections.



301 East Atlantic Boulevard
Pompano Beach, Florida 33060-6643

2160 NW 82nd Avenue
Doral, Florida 33122

(954) 788-3400 FAX (954) 788-3500

Florida Certificate of
Authorization # - 7928

BID / CONTRACT NO. :

REVISIONS		
NO.	DESCRIPTION	DATE

**PRELIMINARY PLAN
NOT FOR CONSTRUCTION**
THESE PLANS ARE NOT FULLY PERMITTED AND ARE SUBJECT TO REVISIONS MADE DURING THE PERMITTING PROCESS. RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT WILL FALL SOLELY UPON THE USER.

**COLONIAL
DRIVE
IMPROVEMENTS
CITY OF
MARGATE**

SCALE: AS NOTED
DATE ISSUED: FEBRUARY10, 2017
DRAWN BY: MC
DESIGNED BY: MC
CHECKED BY: SW

STEPHEN D. WILLIAMS, P.E.
FLORIDA REG. NO. 32090
(FOR THE FIRM)

SHEET TITLE

**CONSTRUCTION
SPECIFICATIONS**

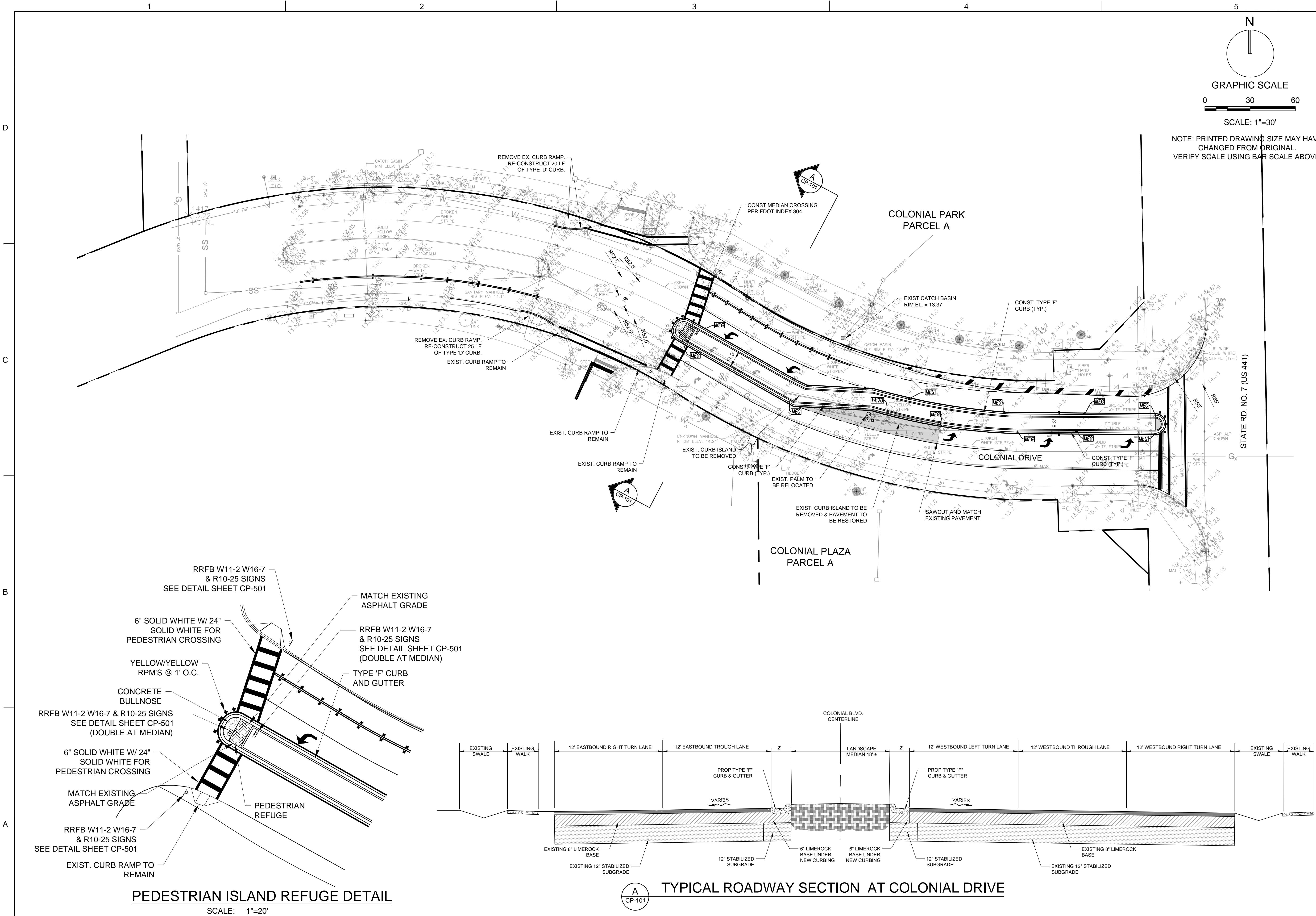
SHEET NUMBER

GI-002

SHEET of

PROJECT NO. 09359.02

Drawing name: A:\2003\289.02 - Colonial Drive Traffic Calming - City of Margate\Engineering\Cal09359.02-01-01-LEGEND AND GENERAL NOTES.dwg Layout Name: GI-002 SPECIFICATIONS Plotted on: Mar 07, 2017 - 1:45pm



KEITH & ASSOCIATES, INC.
consulting engineers

301 East Atlantic Boulevard
Pompano Beach, Florida 33060-6643

2160 NW 82nd Avenue
Doral, Florida 33122

(954) 788-3400 FAX (954) 788-3500

Florida Certificate of
Authorization # - 7928

BID / CONTRACT NO. :

REVISIONS

NO.	DESCRIPTION	DATE

**PRELIMINARY PLAN
NOT FOR CONSTRUCTION**
THESE PLANS ARE NOT FULLY PERMITTED
AND ARE SUBJECT TO REVISIONS MADE
DURING THE PERMITTING PROCESS.
RESPONSIBILITY FOR THE USE OF THESE
PLANS PRIOR TO OBTAINING PERMITS
FROM ALL AGENCIES HAVING JURISDICTION
OVER THE PROJECT WILL FALL SOLELY
UPON THE USER.

COLONIAL DRIVE IMPROVEMENTS CITY OF MARGATE

SCALE: AS NOTED

DATE ISSUED: FEBRUARY 10, 2017

DRAWN BY: MC

DESIGNED BY: MC

CHECKED BY: SW

STEPHEN D. WILLIAMS, P.E.
FLORIDA REG. NO. 32090
(FOR THE FIRM)

SHEET TITLE

ENGINEERING DRAWINGS

SHEET NUMBER

CP-101

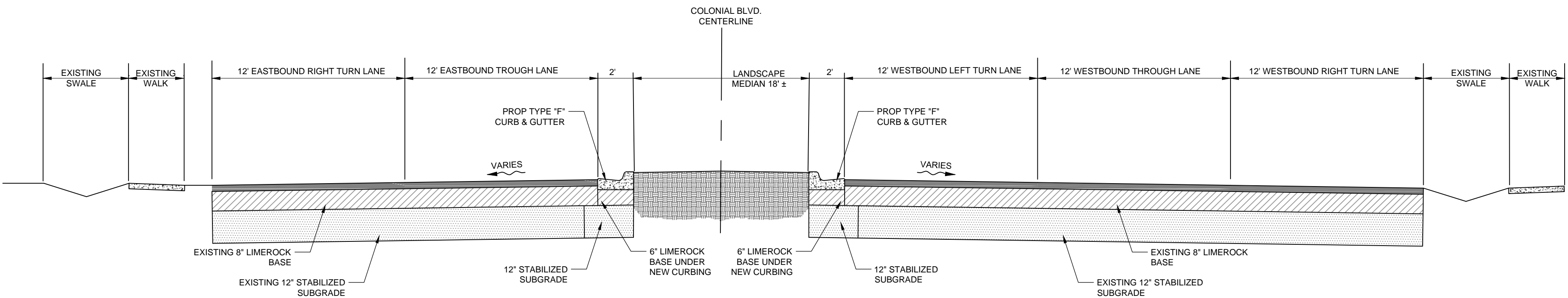
SHEET of

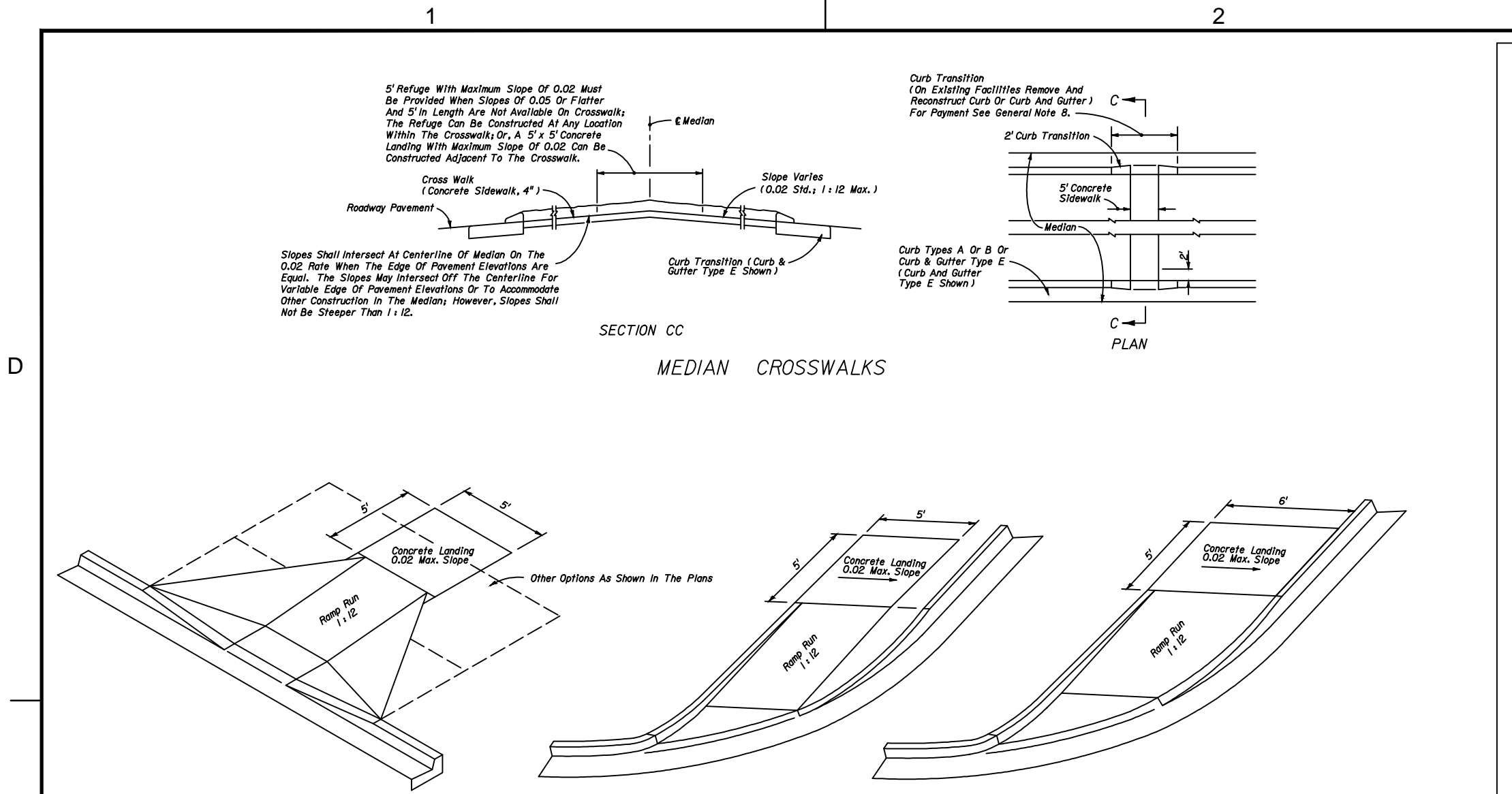
PROJECT NO. 09359.02

PEDESTRIAN ISLAND REFUGE DETAIL

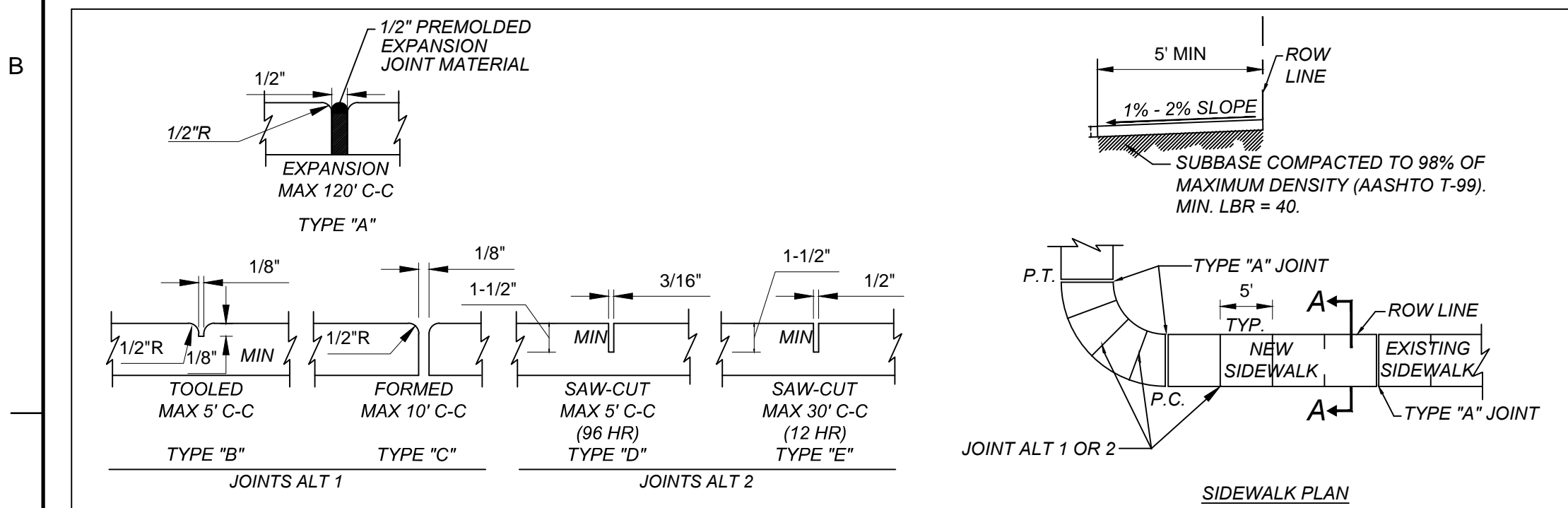
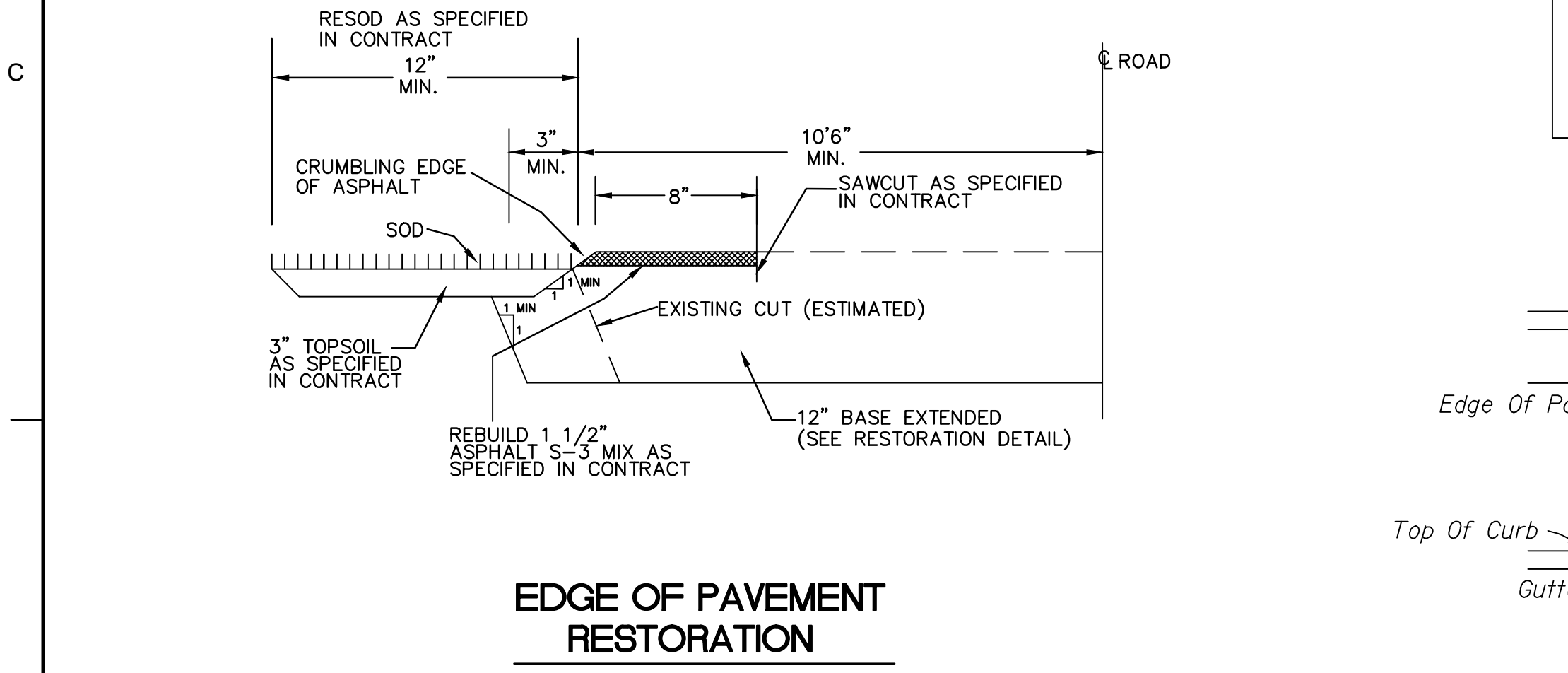
SCALE: 1"=20'

TYPICAL ROADWAY SECTION AT COLONIAL DRIVE



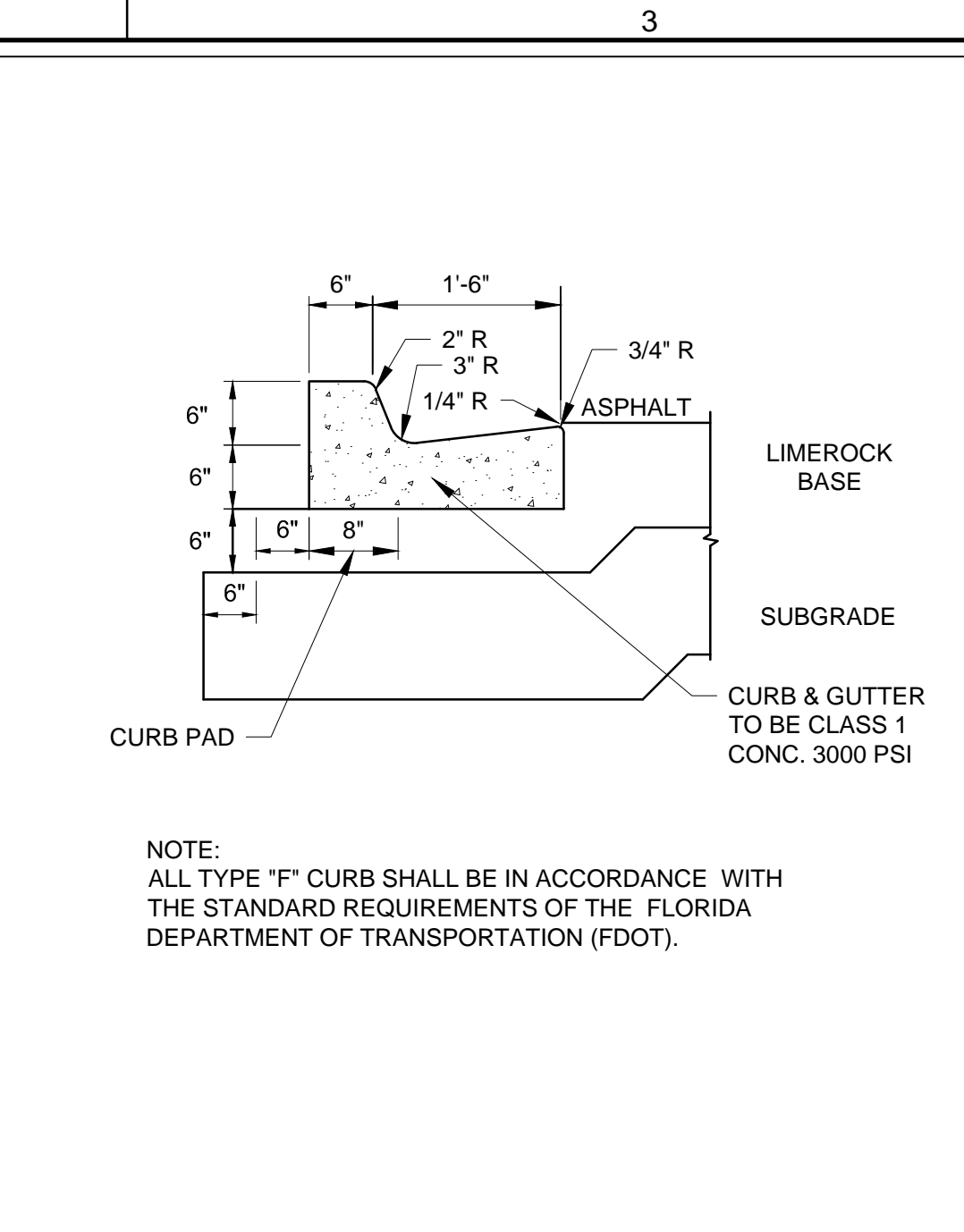


LANDINGS FOR RAMPS WITHIN PUBLIC RIGHT OF WAY CONSTRUCTED AT LOCATIONS WHERE FUTURE SIDEWALKS ARE PROPOSED, WHERE STABLE SURFACES OTHER THAN SIDEWALKS ARE PART OF A CONTINUOUS PASSAGE OR WHERE A CURB FALLS ALONG THE CIRCULATION PATH TO PEDESTRIAN ROUTES ON ADJACENT SITES

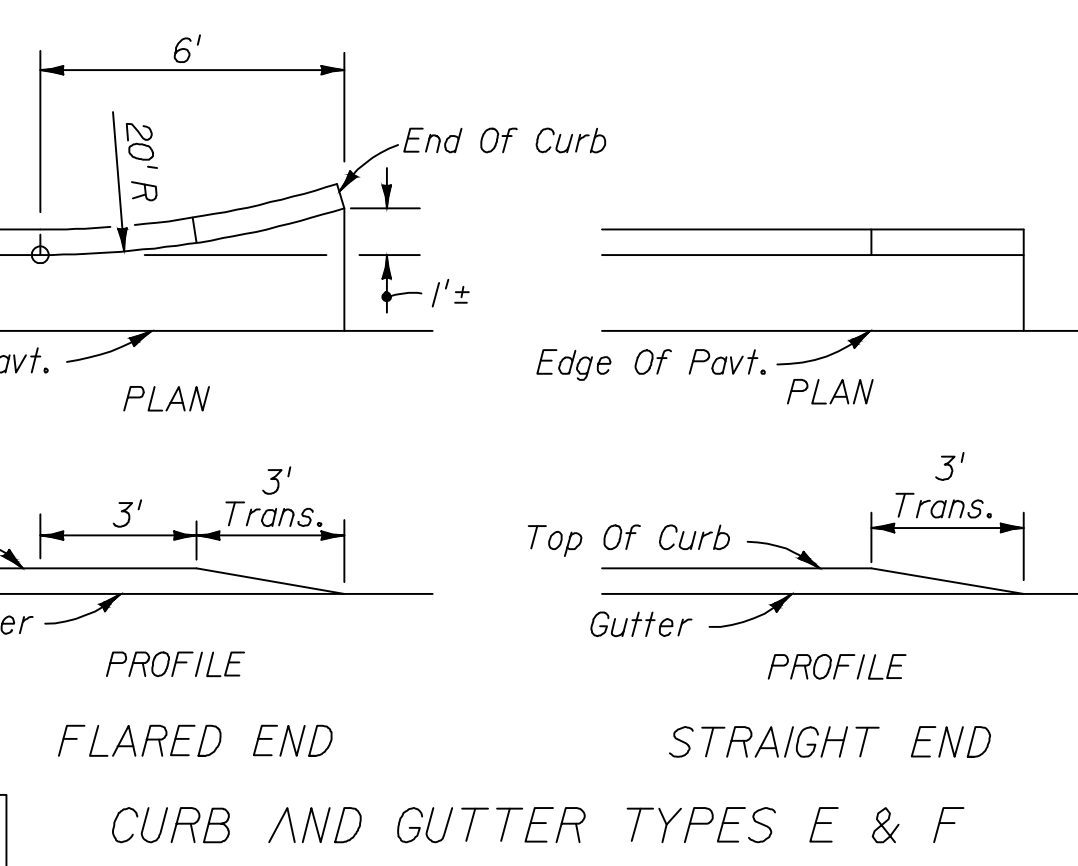


- NOTES:
- Sidewalk construction is to comply with the latest FDOT standards for sidewalks and ADA curb ramps, per FDOT index 304 and 310.
 - Provide either joint alternate 1 or 2. If using joint alternate 2: construct type "E" joints at not more than 30' intervals - within 12 hours after finishing, construct 1/2" expansion, provide joint type "A", with non-rising performed joint filler. at not more than 120' intervals, construct remaining joints within 96 hours after finishing.
 - Provide 1/2" expansion joint type "A", with non-rising performed joint filler where concrete pavement abuts concrete curbs, driveways and other fixed objects.
 - Sidewalk thickness shall be 4" thick unless otherwise noted. Thickness shall be 6" through driveways and on all commercial sidewalk applications.
 - The use of steel reinforcement is not permitted.
 - Concrete to be 2,500 psi in 28 days.
 - Cure all concrete with clean sand, plastic membrane or other approved method.
 - Sidewalk foundation shall be compacted to a firm, even surface, true to grade and cross section, and shall be moist at the time concrete is placed.
 - All construction shall conform to local construction codes and standards.
 - Sidewalk slopes shall meet the requirements of the Americans with Disabilities Act. Minimum transverse slope 0.01 ft./ft. And maximum transverse slope 0.02 ft./ft. toward swale or gutter. Longitudinal slope shall conform to ADA requirements.
 - The vertical deviation for a new sidewalk shall not be more than 1/2".
 - The vertical deviation for a new maintenance access structure cover shall not be more than 1/4".
 - Where truncated domes are used, stamped concrete is not permitted.
 - Sidewalk shall have a transverse hair broom finish.

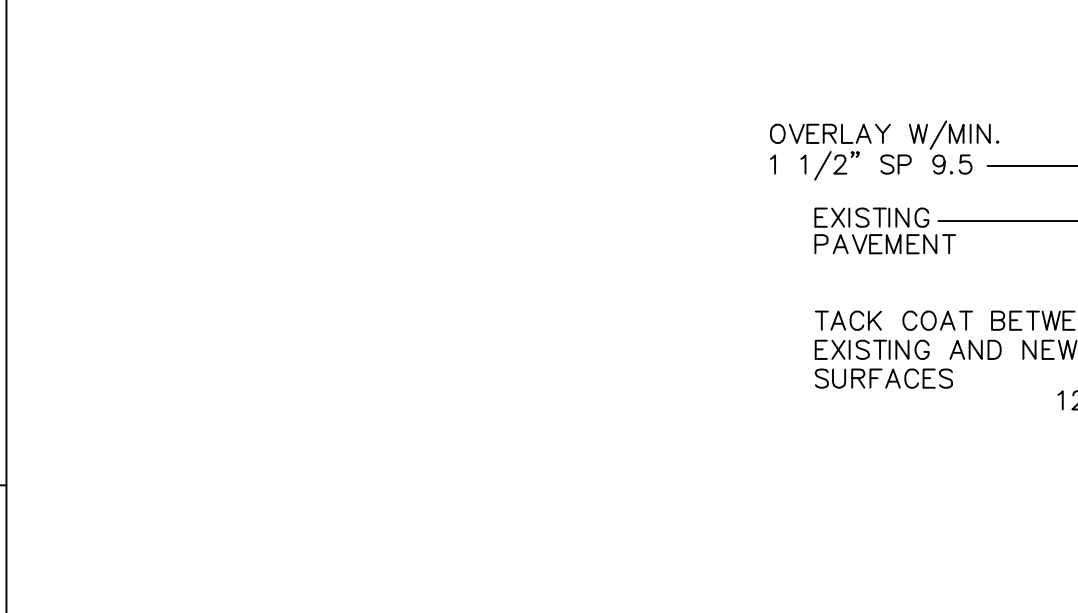
7 **SIDEWALK DETAIL**
SCALE: NOT TO SCALE



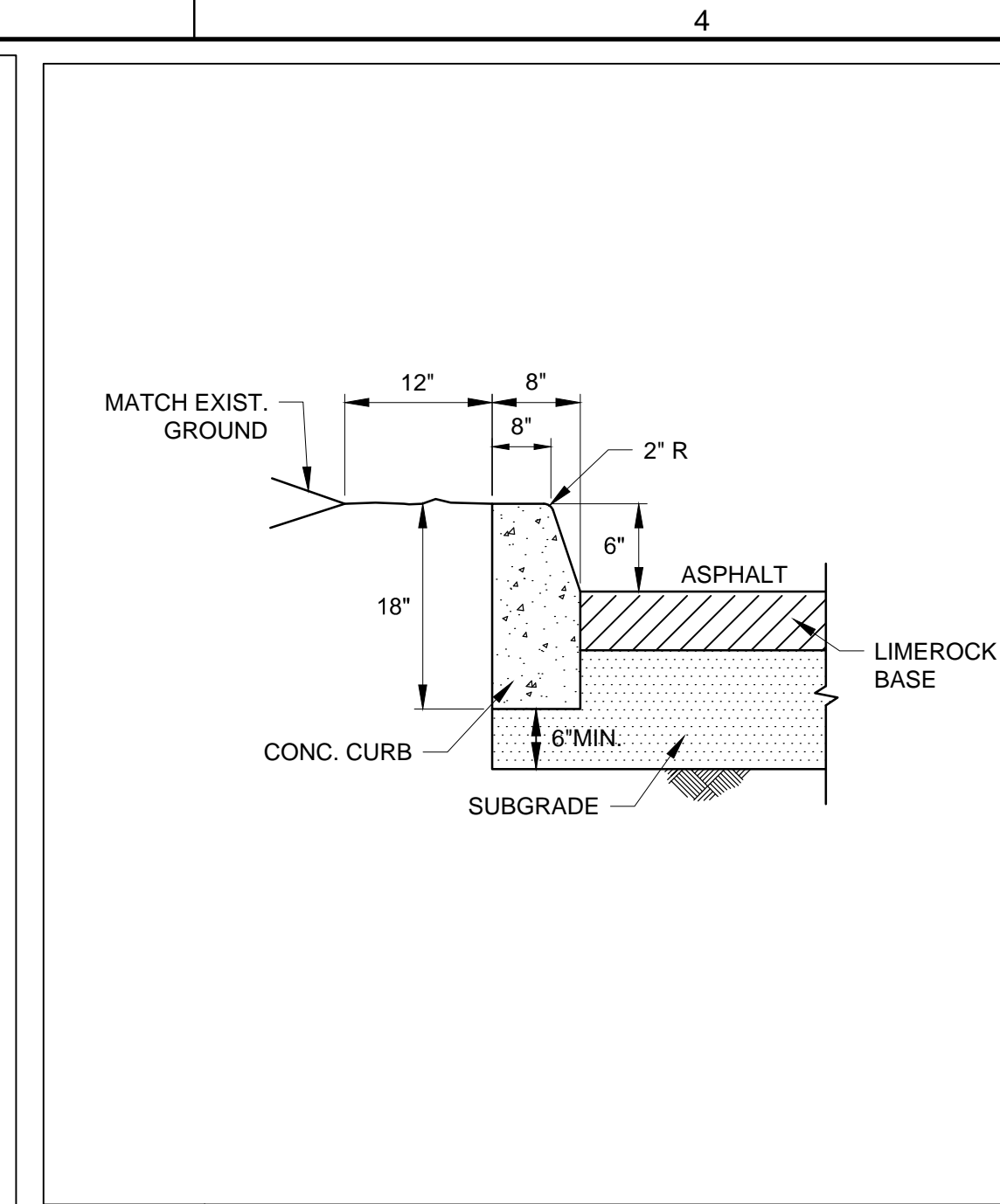
5 **TYPE 'F' CURB**
SCALE: NOT TO SCALE



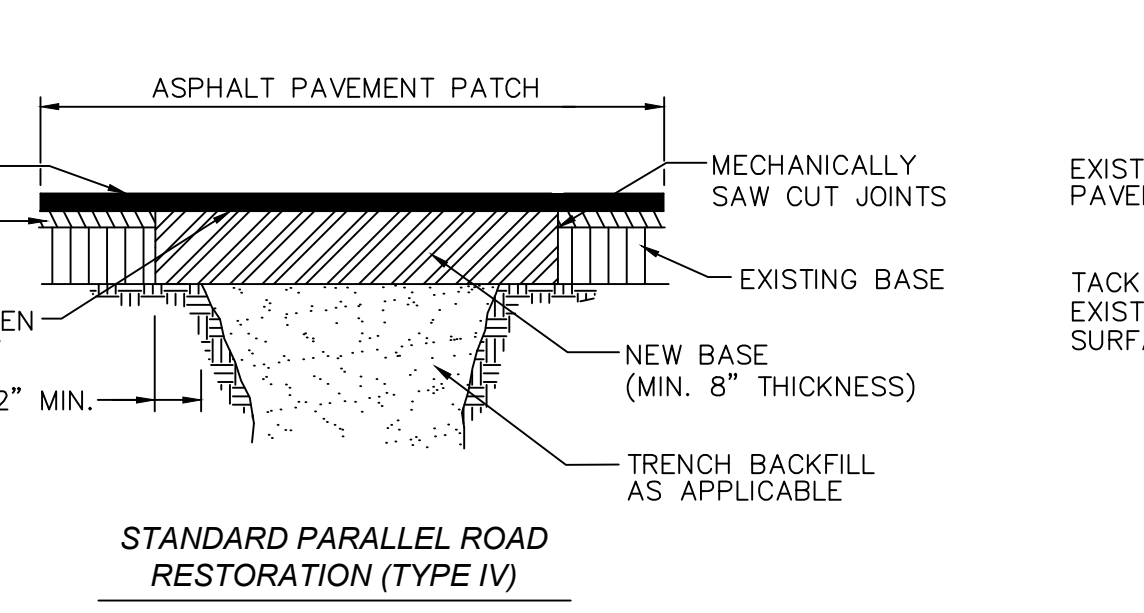
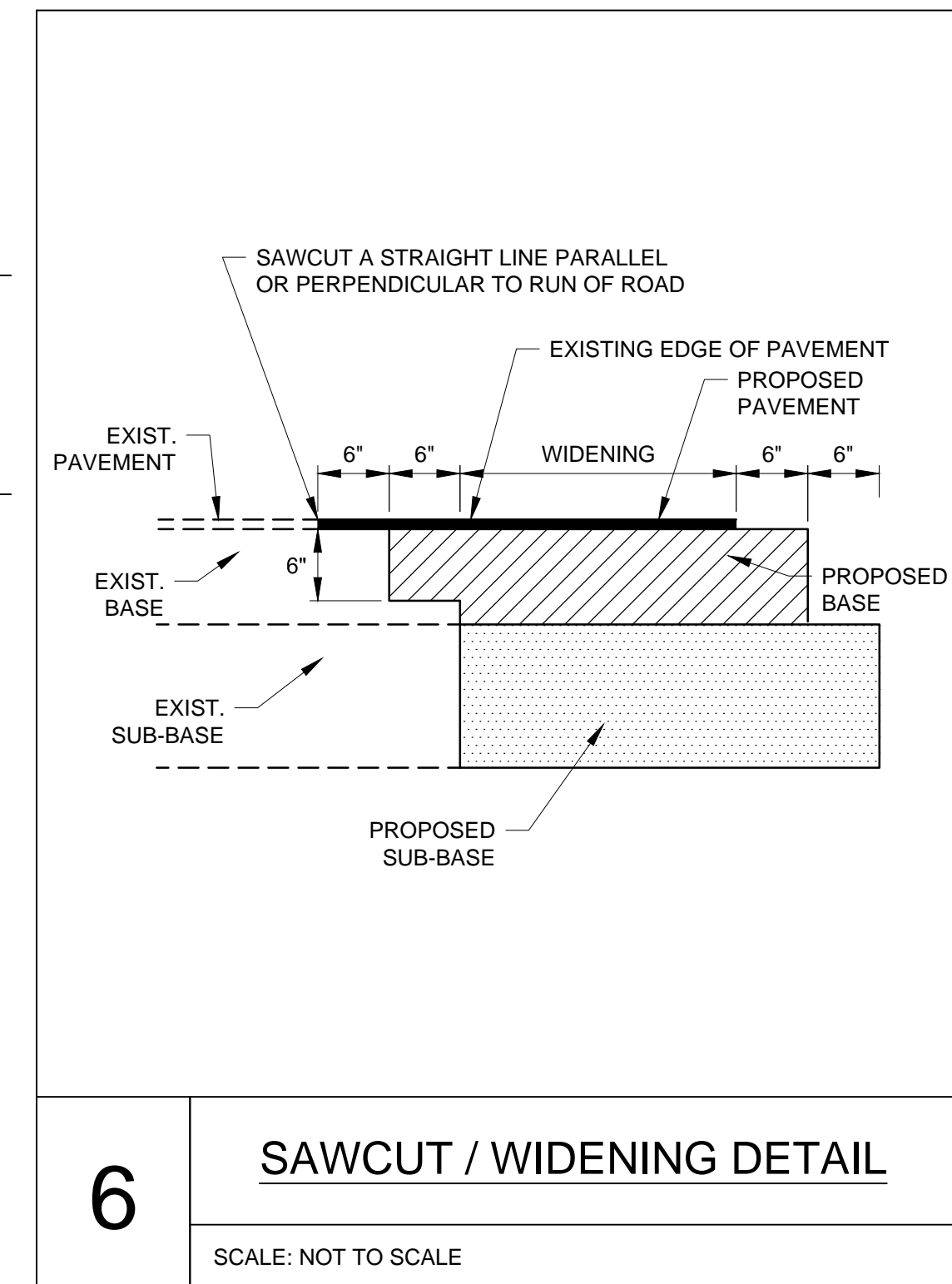
6 **SAWCUT / WIDENING DETAIL**
SCALE: NOT TO SCALE



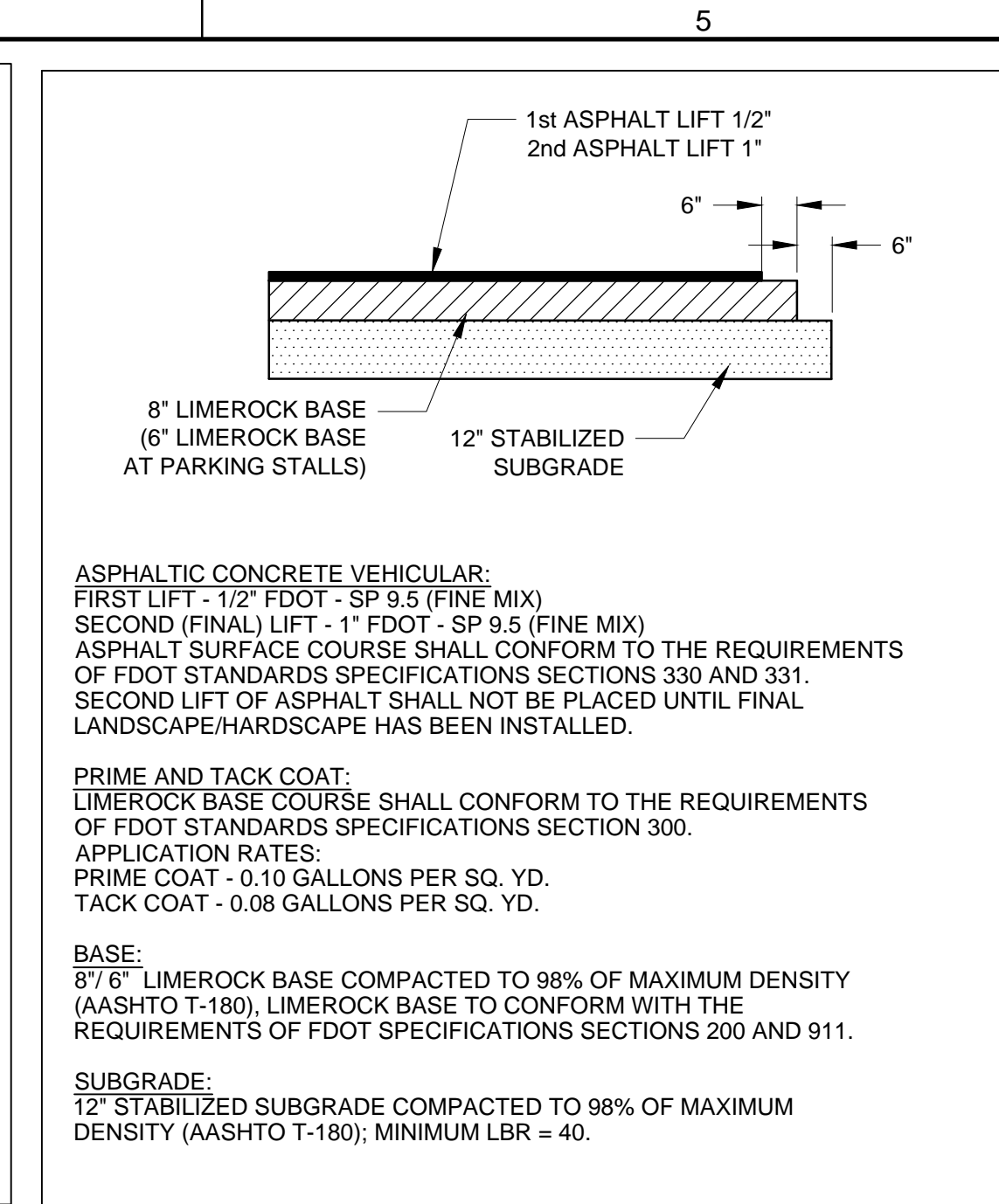
4 **TYPE 'D' CURB**
SCALE: NOT TO SCALE



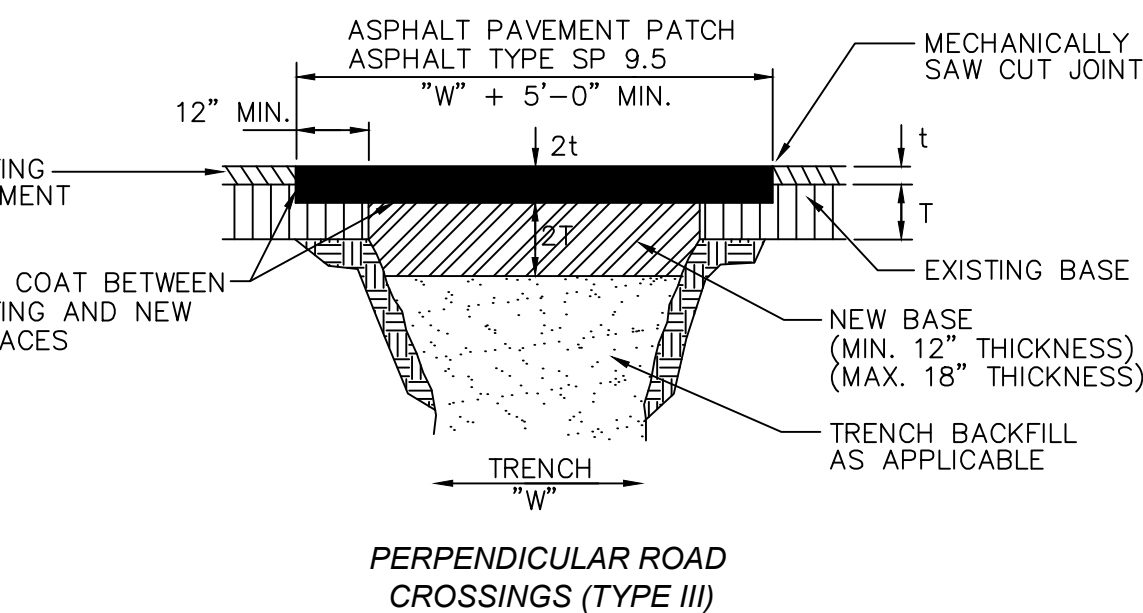
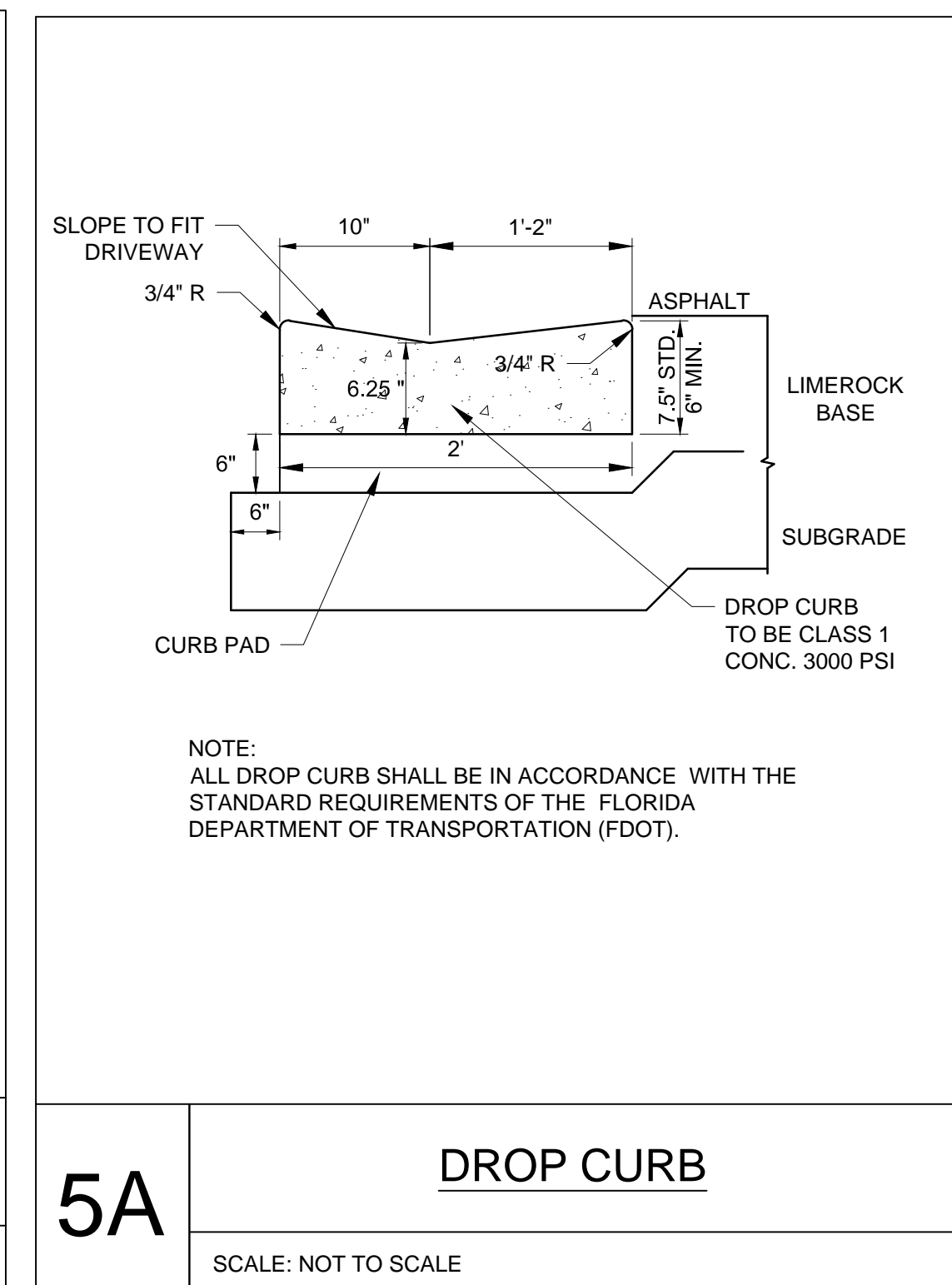
4 **TYPE 'D' CURB**
SCALE: NOT TO SCALE



1 **ASPHALT PAVEMENT DETAIL**
SCALE: NOT TO SCALE



1 **ASPHALT PAVEMENT DETAIL**
SCALE: NOT TO SCALE



5A **DROP CURB**
SCALE: NOT TO SCALE

KEITH & ASSOCIATES, INC.
consulting engineers

301 East Atlantic Boulevard
Pompano Beach, Florida 33060-6643

2160 NW 82nd Avenue
Doral, Florida 33122

(954) 788-3400 FAX (954) 788-3500

Florida Certificate of
Authorization # - 7928

BID / CONTRACT NO. :

REVISIONS

NO.	DESCRIPTION	DATE

PRELIMINARY PLAN
NOT FOR CONSTRUCTION
THESE PLANS ARE NOT FULLY PERMITTED
AND ARE SUBJECT TO REVISIONS MADE
DURING THE PERMITTING PROCESS.
RESPONSIBILITY FOR THE USE OF THESE
PLANS PRIOR TO OBTAINING PERMITS
FROM ALL AGENCIES HAVING JURISDICTION
OVER THE PROJECT WILL FALL SOLELY
UPON THE USER.

COLONIAL
DRIVE
IMPROVEMENTS
CITY OF
MARGATE

SCALE: AS NOTED
DATE ISSUED: FEBRUARY 10, 2017
DRAWN BY: MC
DESIGNED BY: MC
CHECKED BY: SW

STEPHEN D. WILLIAMS, P.E.
FLORIDA REG. NO. 32090
(FOR THE FIRM)

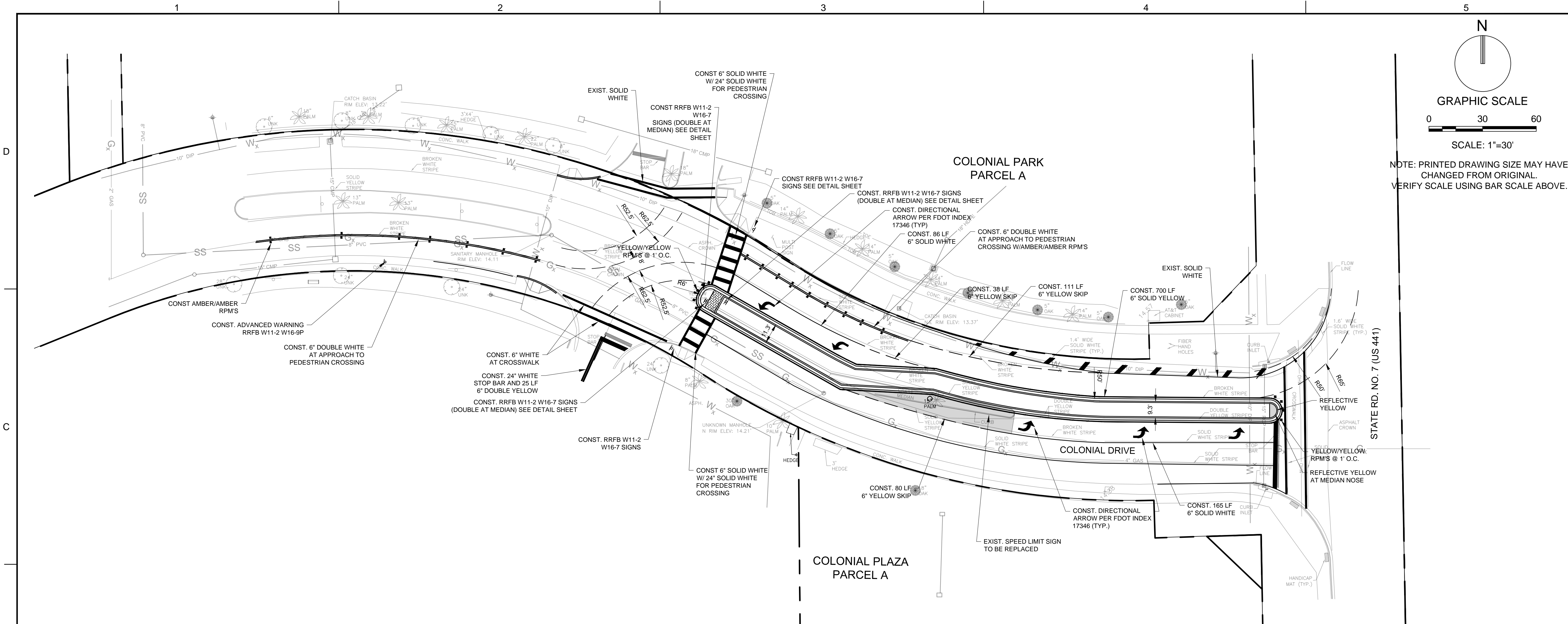
SHEET TITLE

ENGINEERING
DETAILS

SHEET NUMBER
CP-501

SHEET of

PROJECT NO. 09359.02



KEITH & ASSOCIATES, INC.
consulting engineers

301 East Atlantic Boulevard
Pompano Beach, Florida 33060-6643

2160 NW 82nd Avenue
Doral, Florida 33122

(954) 788-3400 FAX (954) 788-3500

Florida Certificate of
Authorization # - 7928

BID / CONTRACT NO. :		
REVISIONS		
NO.	DESCRIPTION	DATE

**PRELIMINARY PLAN
NOT FOR CONSTRUCTION**
THESE PLANS ARE NOT FULLY PERMITTED
AND ARE SUBJECT TO REVISIONS MADE
DURING THE PERMITTING PROCESS.
RESPONSIBILITY FOR THE USE OF THESE
PLANS PRIOR TO OBTAINING PERMITS
FROM ALL AGENCIES HAVING JURISDICTION
OVER THE PROJECT WILL FALL SOLELY
UPON THE USER.

**COLONIAL
DRIVE
IMPROVEMENTS
CITY OF
MARGATE**

SCALE:	AS NOTED
DATE ISSUED:	FEBRUARY 10, 2017
DRAWN BY:	MC
DESIGNED BY:	MC
CHECKED BY:	SW

STEPHEN D. WILLIAMS, P.E.
FLORIDA REG. NO. 32090
(FOR THE FIRM)

SHEET TITLE

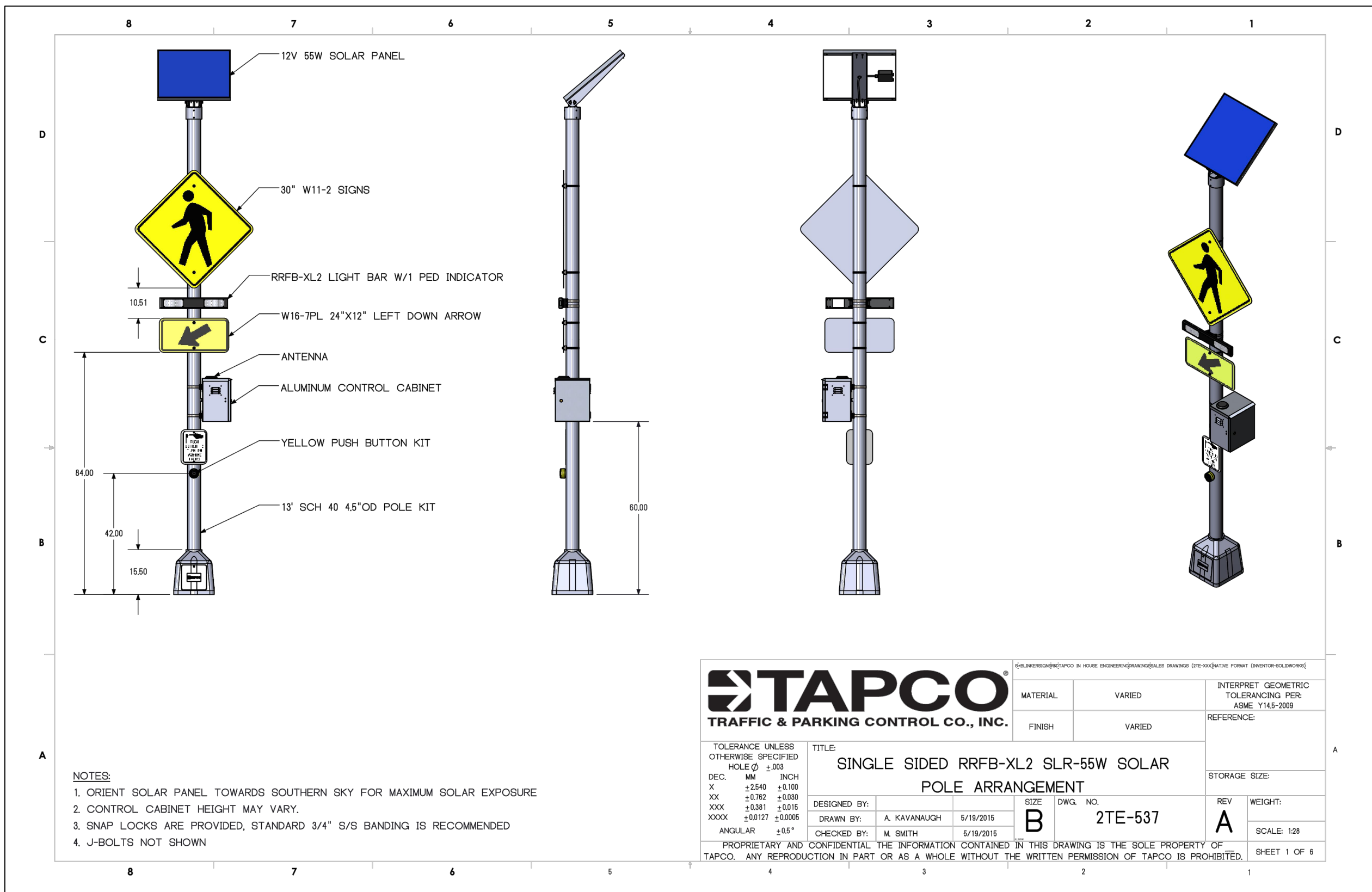
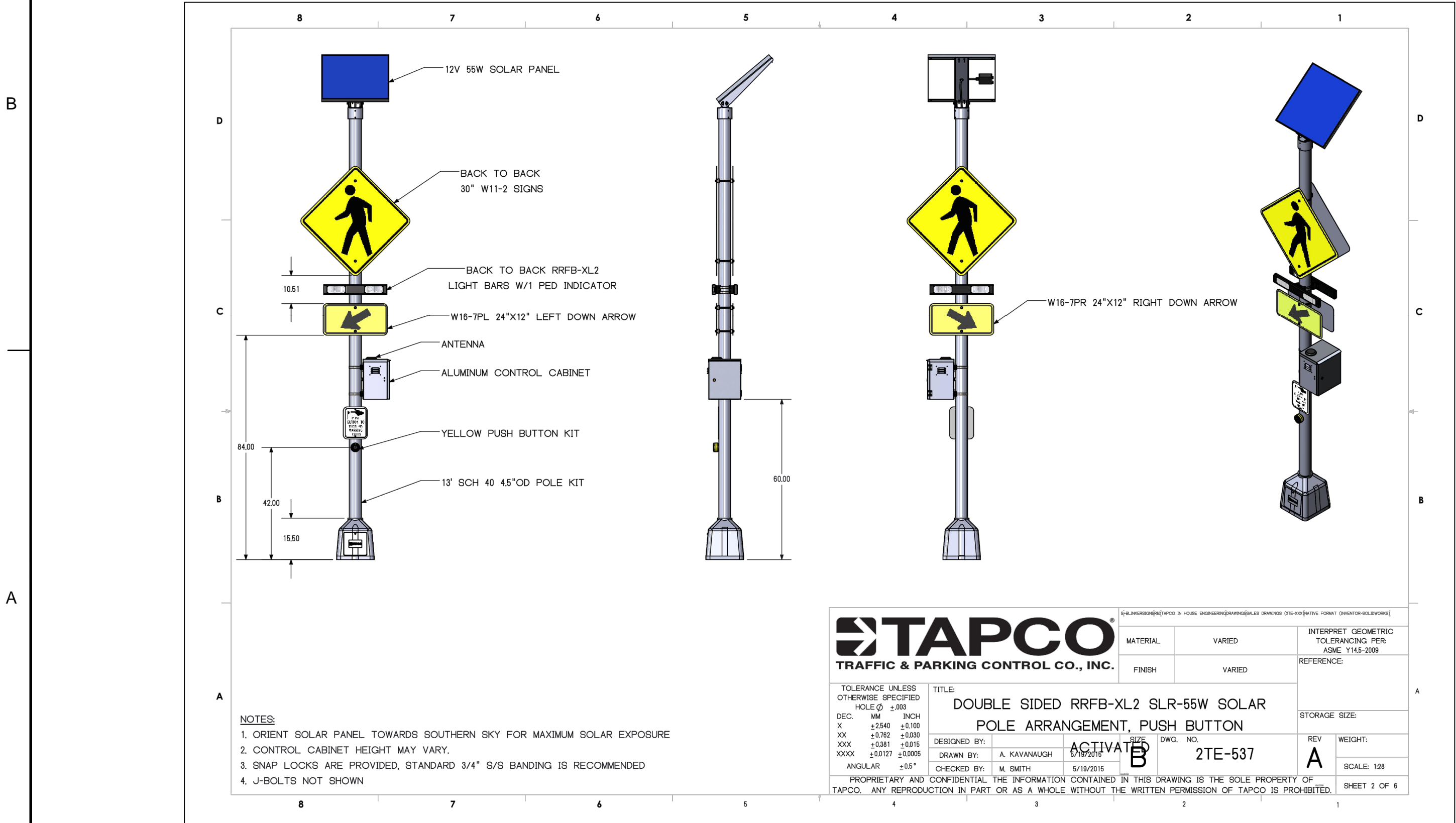
**PAVEMENT MARKING
AND SIGNAGE PLANS**

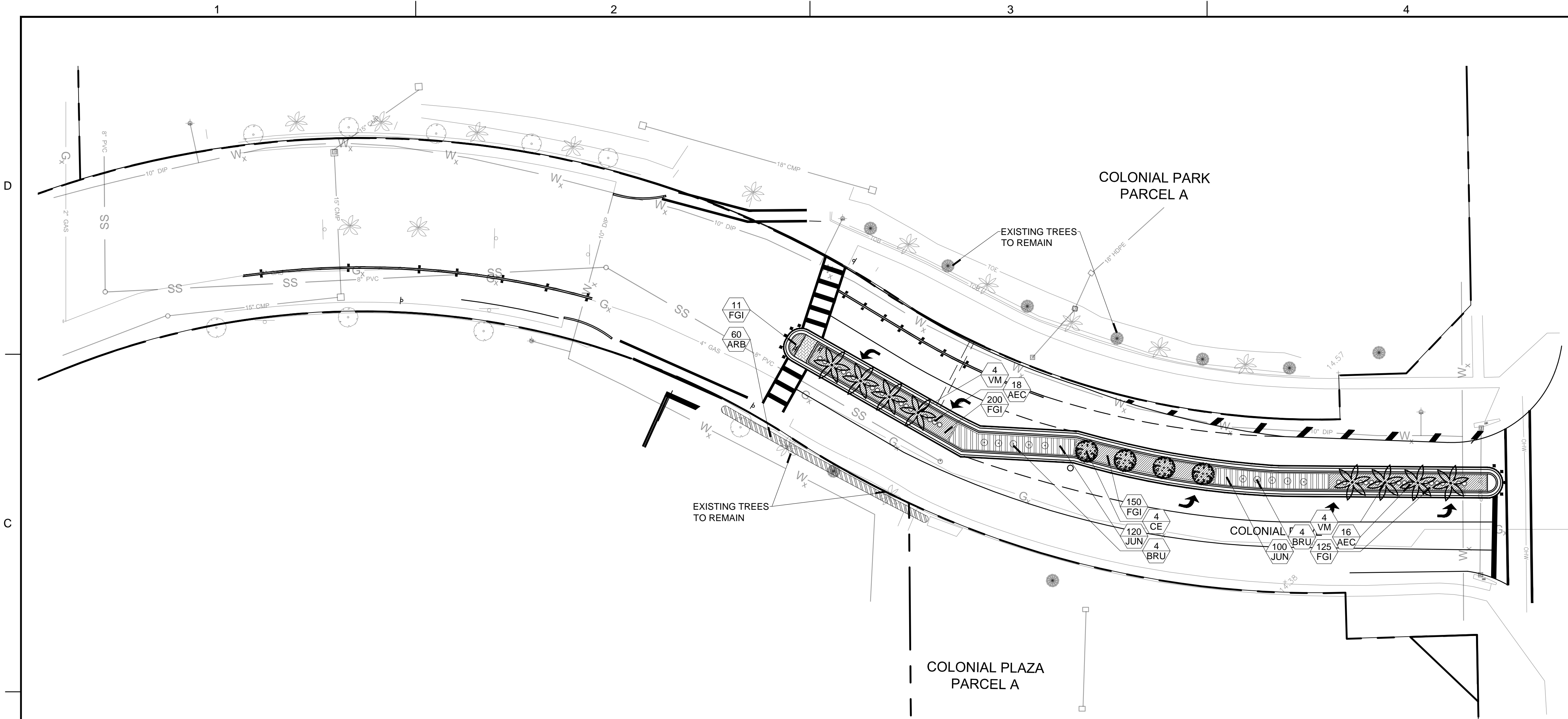
SHEET NUMBER

CM-101

SHEET of

PROJECT NO. 09359.02





PLANT LIST

TREES AND PALMS		
KEY	QUANTITY	PLANT NAME AND SPECIFICATION
** N	CE	4 Conocarpus e. 'sericeus' (Silver Buttonwood) 10' ht., 5' spr., 2' c. c., full canopy
** VM	8	Veitchia montgomeryana (Montgomery Palm) 12' c.t. hts., 20' o.a. hts., heavy, matched

SHRUBS & GROUNDCOVERS		
KEY	QUANTITY	PLANT NAME AND SPECIFICATION
AEC	34	Aechmea spp. (Bromeliades) 18" ht., 18" spr., variety per L.A. & owner
** ARB	60	Schefflera arboricola (Green Arboricola) 30" ht., 24" spr., full, 20" o.c.
BRU	8	Brunfelsia grandifolia (Yesterday Today Tomorrow) 36" ht., 36" spr., full
** FGI	486	Ficus m. 'Green Island' 12" ht., 14" spr., full, 18" o.c.
** JUN	220	Juniperus c. 'Parsonii' (Parson's Juniper) 12" ht., 16" spr., full, 20" o.c.

- N DENOTES NATIVE SPECIES
** DENOTES HIGH DROUGHT TOLERANT SPECIES
* DENOTES MODERATE DROUGHT TOLERANT SPECIES

NOTES

All damaged sod to be St. Augustine 'Floratan', contractor to determine quantity.
All sod and landscape to receive 100% coverage with 50% overlap from an automatic irrigation system using an approved water source.
Bubblers to be provided for large trees and palms.
Contractor is responsible for all conditions and landscape specification attached to this plan and plant list. Plan and specifications shall be considered Contract Documents.
Pre-Construction meeting is required before any plant material is installed on site.
All road rock, concrete, asphalt and other non-natural material be removed and be replaced with planting soil prior to landscape installation.

KEITH & ASSOCIATES, INC.
consulting engineers

301 East Atlantic Boulevard
Pompano Beach, Florida 33060-6643

2160 NW 82nd Avenue
Doral, Florida 33122

(954) 788-3400 FAX (954) 788-3500

Florida Certificate of
Authorization # - 7928

BID / CONTRACT NO. :

REVISIONS

NO.	DESCRIPTION	DATE

**PRELIMINARY PLAN
NOT FOR CONSTRUCTION**
THESE PLANS ARE NOT FULLY PERMITTED AND ARE SUBJECT TO REVISIONS MADE DURING THE PERMITTING PROCESS. RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT WILL FALL SOLELY UPON THE USER.

**COLONIAL
DRIVE
IMPROVEMENTS
CITY OF
MARGATE**

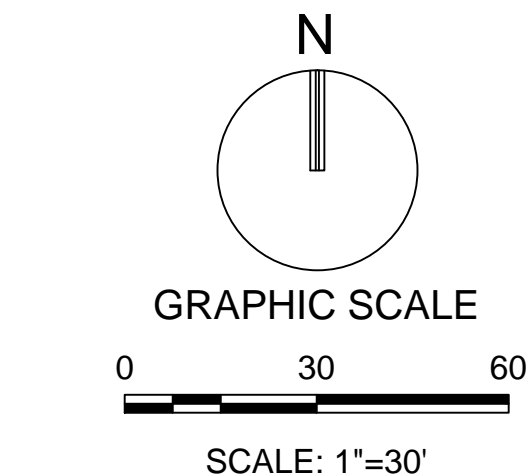
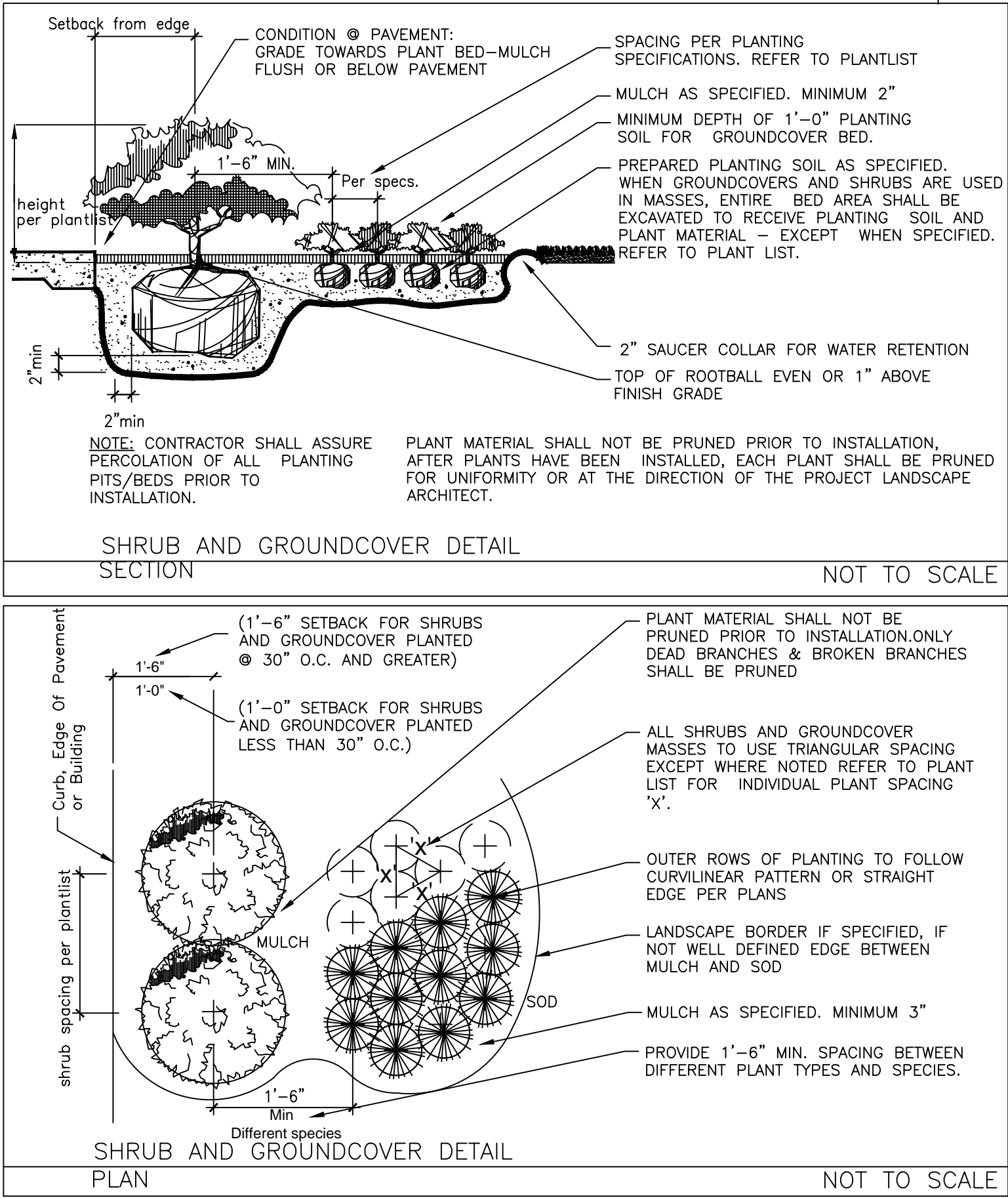
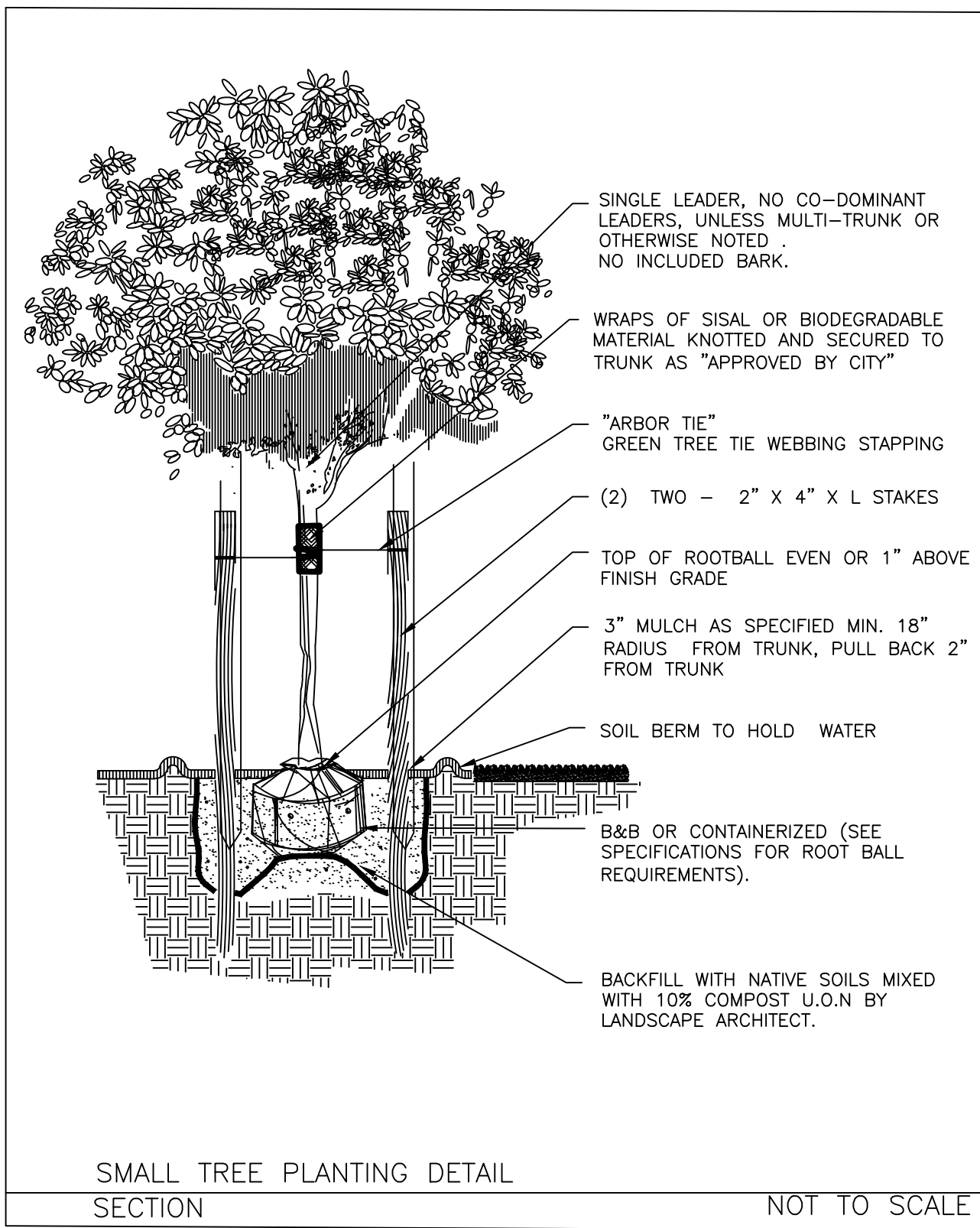
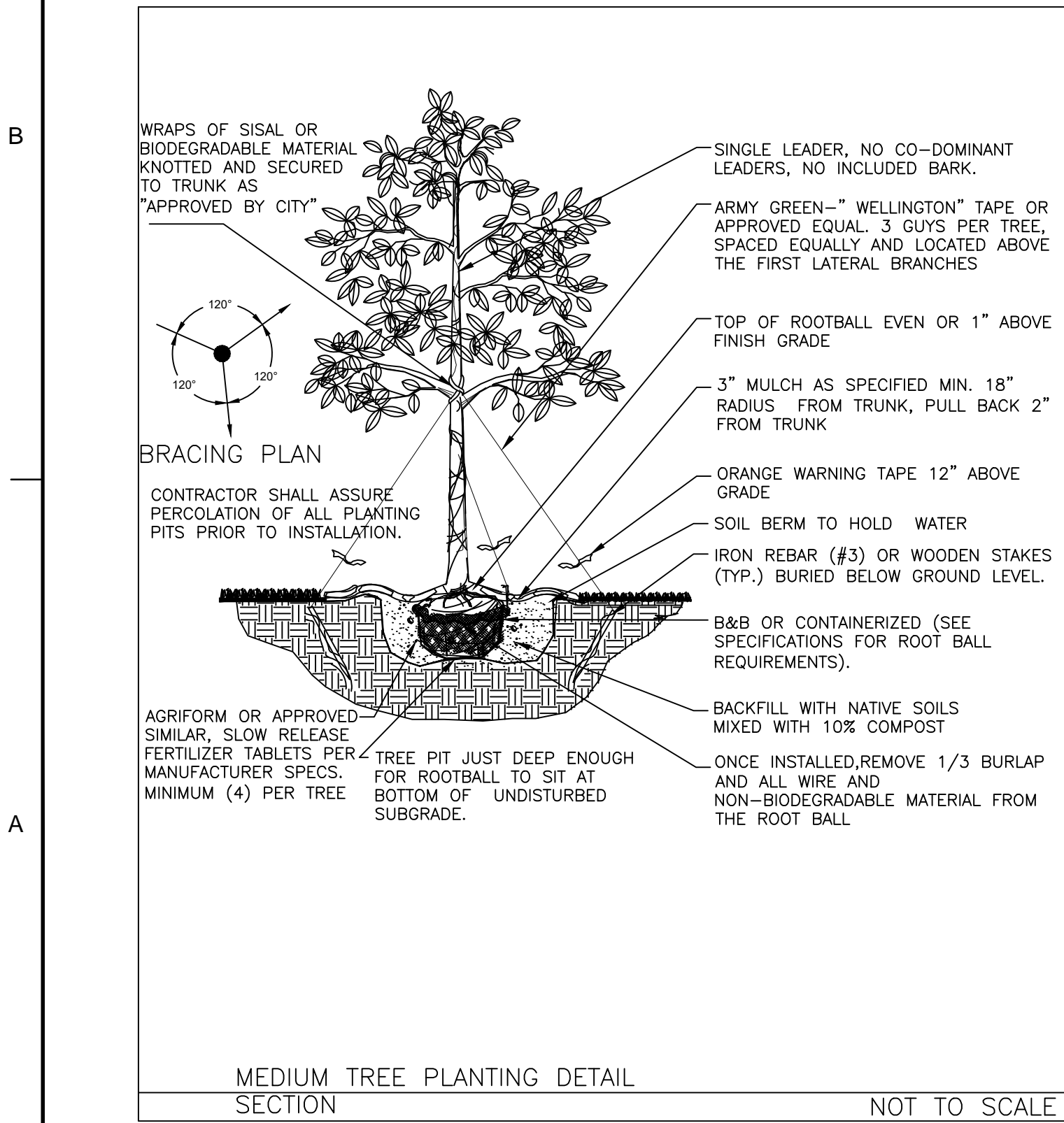
SCALE: AS NOTED
DATE ISSUED: FEBRUARY 10, 2017
DRAWN BY:
DESIGNED BY:
CHECKED BY:

SHEET TITLE
LANDSCAPE PLAN

SHEET NUMBER
LP-101

SHEET of

PROJECT NO. 09359.02



NOTE: PRINTED DRAWING SIZE MAY HAVE CHANGED FROM ORIGINAL. VERIFY SCALE USING BAR SCALE ABOVE.

[illegible]