DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

Prepared For:
VK AVALON GROVES, LLC
14025 RIVEREDGE DRIVE SUITE 175
TAMPA, FL 33637
Phone: (813) 615-1244

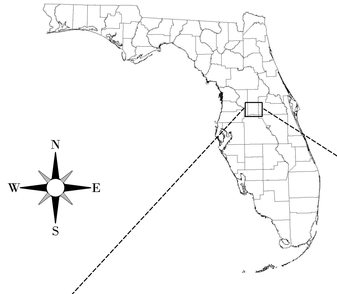
5904-A Hampton Oaks Parkway
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

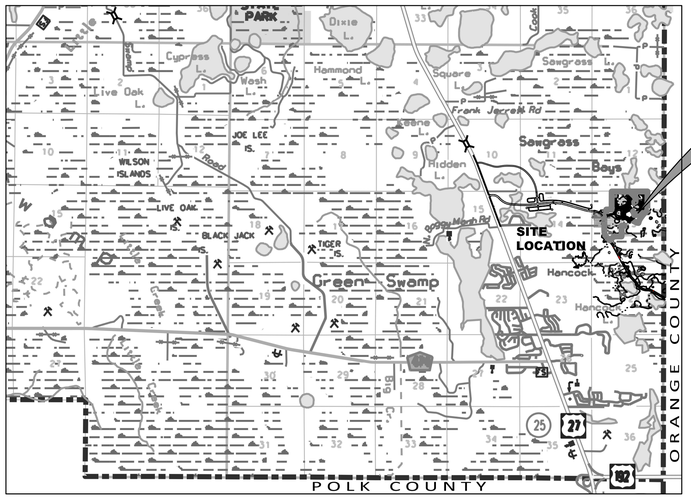
HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405

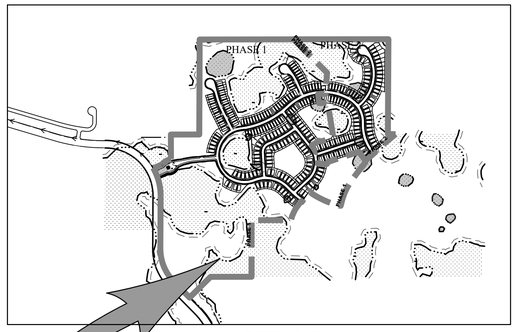
CONSTRUCTION PLAN

SECTIONS 13 TOWNSHIP 24 SOUTH, RANGE 26 EAST
LAKE COUNTY, FLORIDA





LOCATION MAP
(1"=2,000')



SITE MAP
(1"=1,000')

CALL 48 HOURS BEFORE YOU DIG
Sunshine State One Call 811 OF FLORIDA, INC.
1-800-432-4770

OWNER/DEVELOPER:

VK AVALON GROVES, LLC
14025 RIVEREDGE DRIVE
SUITE 175
TAMPA, FLORIDA 33637
ATTN: GREG MEATH,
V.P. LAND DEVELOPMENT
(813) 615-1244

CIVIL ENGINEER:

HEIDT DESIGN, LLC
VICTOR E. BARBOSA P.E.
5904-A HAMPTON OAKS
PARKWAY
TAMPA, FLORIDA 33610
(813) 253-5311

GEOTECHNICAL ENGINEER:

FAULKNER ENGINEERING
SERVICES, INC.
DAVID W. FAULKNER, P.E.
2734 CAUSEWAY CENTER DRIVE
TAMPA, FLORIDA 33619
(813) 621-8168

SURVEYOR:

GEOPOINT SURVEYING, INC.
DAVID WILLIAMS, P.S.M.
1403 E. 5TH AVENUE
TAMPA, FLORIDA 33605
(813) 248-8888
DAVIDW@GEOPOINTSURVEY.COM

LEGAL DESCRIPTION

SERENOA ACTIVE ADULT PHASE 1 & 2 CONSTRUCTION PLANS

Phase 1

DESCRIPTION: A parcel of land lying in Section 13, Township 24 South, Range 26 East, Lake County, Florida, and being more particularly described as follows:
COMMENCE at the Northwest corner of said Section 13, run thence along the North boundary of the Northwest 1/4 of said Section 13, N.89°54'06"E., a distance of 1312.67 feet to the Northeast corner of the Northwest 1/4 of the Northwest 1/4 of said Section 13 and the POINT OF BEGINNING; thence continue along the aforesaid North boundary of the Northwest 1/4, N.89°54'06"E., a distance of 1313.06 feet to the Northeast corner of the Northwest 1/4 of said Section 13; thence S.45°00'00"E., a distance of 661.30 feet; thence S.04°29'57"W., a distance of 241.70 feet; thence S.02°13'04"W., a distance of 53.60 feet; thence Westerly, 104.60 feet along the arc of a non-tangent curve to the left having a radius of 700.00 feet and a central angle of 08°33'41" (chord bearing S.87°56'13"W., 104.50 feet); thence S.06°20'37"E., a distance of 125.00 feet; thence N.86°31'17"E., a distance of 57.48 feet; thence S.87°44'56"E., a distance of 57.48 feet; thence S.15°07'34"E., a distance of 53.35 feet; thence S.09°11'28"E., a distance of 404.92 feet; thence S.30°19'28"W., a distance of 48.00 feet; thence S.71°44'27"W., a distance of 144.00 feet; thence N.73°13'54"W., a distance of 34.03 feet; thence S.57°12'19"W., a distance of 125.56 feet; thence S.38°12'15"E., a distance of 19.82 feet; thence Southeasterly, 75.03 feet along the arc of a tangent curve to the right having a radius of 350.00 feet and a central angle of 12°16'57" (chord bearing S.32°03'46"E., 74.89 feet); thence Easterly, 35.93 feet along the arc of a reverse curve to the left having a radius of 25.00 feet and a central angle of 82°20'16" (chord bearing S.67°05'25"E., 32.91 feet); thence S.18°15'33"E., a distance of 50.00 feet; thence Southwesterly, 35.91 feet along the arc of a non-tangent curve to the left having a radius of 25.00 feet and a central angle of 82°18'14" (chord bearing S.30°35'19"W., 32.90 feet); thence Southerly, 42.31 feet along the arc of a reverse curve to the right having a radius of 353.69 feet and a central angle of 06°51'16" (chord bearing S.07°08'10"E., 42.29 feet); thence Southerly, 42.31 feet along the arc of a compound curve to the right having a radius of 346.38 feet and a central angle of 06°59'57" (chord bearing S.00°12'33"E., 42.29 feet); thence S.86°44'45"E., a distance of 125.00 feet; thence N.32°37'08"E., a distance of 38.34 feet; thence N.71°44'27"E., a distance of 448.81 feet; thence S.37°09'35"E., a distance of 87.77 feet; thence S.38°19'24"E., a distance of 69.36 feet; thence S.03°44'26"W., a distance of 19.73 feet; thence S.37°07'57"W., a distance of 319.14 feet; thence S.34°18'17"W., a distance of 42.19 feet; thence S.30°16'40"W., a distance of 84.35 feet; thence S.24°35'23"W., a distance of 84.35 feet; thence S.18°54'05"W., a distance of 84.35 feet; thence S.14°38'07"W., a distance of 95.59 feet; thence N.80°22'29"W., a distance of 36.07 feet; thence N.73°50'46"W., a distance of 49.04 feet; thence N.71°38'33"W., a distance of 49.04 feet; thence N.69°26'19"W., a distance of 49.04 feet; thence N.67°07'29"W., a distance of 53.94 feet; thence N.64°42'02"W., a distance of 53.94 feet; thence N.62°23'12"W., a distance of 49.04 feet; thence N.60°10'59"W., a distance of 49.04 feet; thence N.57°58'45"W., a distance of 49.04 feet; thence N.42°31'25"W., a distance of 50.15 feet; thence S.35°19'35"W., a distance of 189.50 feet; thence Northwesterly, 14.60 feet along the arc of a non-tangent curve to the right having a radius of 1453.00 feet and a central angle of 00°34'33" (chord bearing N.54°23'08"W., 14.60 feet); thence S.35°54'08"W., a distance of 122.00 feet; thence S.27°48'56"W., a distance of 53.56 feet; thence S.23°53'41"W., a distance of 63.68 feet; thence S.16°23'30"W., a distance of 63.68 feet; thence N.77°21'36"W., a distance of 20.68 feet; thence N.90°00'00"W., a distance of 528.78 feet; thence S.00°00'00"W., a distance of 791.77 feet; thence S.89°54'39"W., a distance of 573.25 feet; thence S.45°17'48"W., a distance of 411.51 feet to a point on the Easterly Right of Way line of Sawgrass Bay Boulevard; thence along said Easterly Right of Way line the following four (4) courses: 1) N.44°42'12"W., a distance of 316.79 feet; 2) Northwesterly, 505.80 feet along the arc of a tangent curve to the right having a radius of 644.00 feet and a central angle of 45°00'00" (chord bearing N.22°12'12"W., 492.90 feet); 3) N.00°17'48"E., a distance of 738.54 feet; 4) Northerly, 410.61 feet along the arc of a tangent curve to the left having a radius of 773.00 feet and a central angle of 30°26'06" (chord bearing N.14°55'15"W., 405.80 feet); thence N.78°17'26"E., a distance of 24.20 feet; thence N.66°32'33"E., a distance of 103.40 feet; thence Northeasterly, 6.73 feet along the arc of a tangent curve to the left having a radius of 16.00 feet and a central angle of 24°04'57" (chord bearing N.54°30'04"E., 6.68 feet); thence Northeasterly, 146.79 feet along the arc of a reverse curve to the right having a radius of 247.00 feet and a central angle of 34°02'59" (chord bearing N.59°29'05"E., 144.64 feet); thence N.00°06'54"W., a distance of 343.40 feet to a point on the South boundary of the Northwest 1/4 of the Northwest 1/4 of the aforesaid Section 13; thence along said South boundary, N.89°53'06"E., a distance of 396.48 feet to the Southeast corner of the Northwest 1/4 of the Northwest 1/4 of the aforesaid Section 13; thence along the East boundary of the Northwest 1/4 of the Northwest 1/4 of the aforesaid Section 13, N.00°15'40"E., a distance of 1326.91 feet to the POINT OF BEGINNING.
Containing 140.886 acres, more or less.

Phase 2

DESCRIPTION: A parcel of land lying in Section 13, Township 24 South, Range 26 East, Lake County, Florida, and being more particularly described as follows:
BEGIN at the Northwest corner of the Northeast 1/4 of said Section 13 thence along the North boundary of said Northeast 1/4 of Section 13, N.89°53'52"E., a distance of 1324.47 feet to the Northeast corner of the Northwest 1/4 of the Northeast 1/4 of said Section 13; thence along the East boundary of the Northwest 1/4 of the Northeast 1/4 of said Section 13, S.00°19'36"W., a distance of 1326.88 feet to the Southeast corner of the Northwest 1/4 of the Northeast 1/4 of said Section 13; thence along the South boundary of the Northeast 1/4 of the Northeast 1/4 of said Section 13, N.89°53'00"E., a distance of 108.32 feet; thence S.50°29'32"W., a distance of 382.79 feet; thence Southeasterly, 14.38 feet along the arc of a non-tangent curve to the left having a radius of 597.00 feet and a central angle of 01°22'49" (chord bearing S.40°11'53"E., 14.38 feet); thence S.49°06'43"W., a distance of 178.00 feet; thence N.38°19'24"W., a distance of 69.36 feet; thence N.37°09'35"W., a distance of 87.77 feet; thence S.71°44'27"W., a distance of 448.81 feet; thence S.32°37'08"W., a distance of 38.34 feet; thence N.86°44'45"W., a distance of 125.00 feet; thence Northerly, 84.63 feet along the arc of a non-tangent curve to the left having a radius of 350.00 feet and a central angle of 13°51'13" (chord bearing N.03°40'22"W., 84.42 feet); thence Northeasterly, 35.91 feet along the arc of a non-tangent curve to the right having a radius of 25.00 feet and a central angle of 82°18'14" (chord bearing N.30°35'19"E., 32.90 feet); thence N.18°15'33"W., a distance of 50.00 feet; thence Westerly, 35.93 feet along the arc of a non-tangent curve to the right having a radius of 25.00 feet and a central angle of 82°20'16" (chord bearing N.67°05'25"W., 32.91 feet); thence Northwesterly, 75.03 feet along the arc of a reverse curve to the left having a radius of 350.00 feet and a central angle of 12°16'57" (chord bearing N.32°03'46"W., 74.89 feet); thence N.38°12'15"W., a distance of 19.82 feet; thence N.57°12'19"E., a distance of 125.56 feet; thence S.73°13'54"E., a distance of 34.03 feet; thence N.71°44'27"E., a distance of 144.00 feet; thence N.30°19'28"E., a distance of 48.00 feet; thence N.09°11'28"W., a distance of 404.92 feet; thence N.15°07'34"W., a distance of 53.35 feet; thence N.87°44'56"W., a distance of 57.48 feet; thence S.86°31'17"W., a distance of 57.48 feet; thence N.06°20'37"W., a distance of 125.00 feet; thence Easterly, 104.60 feet along the arc of a non-tangent curve to the right having a radius of 700.00 feet and a central angle of 08°33'41" (chord bearing N.87°56'13"E., 104.50 feet); thence N.02°13'04"E., a distance of 53.60 feet; thence N.04°29'57"E., a distance of 241.70 feet; thence N.45°00'00"W., a distance of 661.30 feet to the POINT OF BEGINNING.
Containing 35.152 acres, more or less.

Sheet List Table	
Sheet Number	**Sheet Title**
C-100	COVER SHEET
C-101 - C-103	GENERAL NOTES
C-104	AERIAL SITE PLAN
C-105	EXISTING SITE CONDITIONS
C-200 - C-201	TYPICAL ROADWAY SECTIONS
C-300	MASTER GRADING & DRAINAGE PLAN
C-301 - C-308	GRADING & DRAINAGE PLAN
C-309 - C-310	STORM STRUCTURE DATA
C-311	CONTROL STRUCTURE DETAILS
C-312 - C-313	GRADING & DRAINAGE SECTIONS
C-314 - C-318	DRAINAGE DETAILS
C-501 - C-514	ROADWAY PLAN & PROFILE
C-900	CONSTRUCTION SURFACE WATER MANAGEMENT PLAN
C-901	CONSTRUCTION SURFACE WATER MANAGEMENT PLAN NOTES
C-902	PRE-DEVELOPMENT DRAINAGE AREA MAP
C-903	OVERALL POST-DEVELOPMENT DRAINAGE AREA MAP
C-904 - C-907	DRAINAGE SUB-BASIN AREA MAP
C-908 - C-910	UPLAND BUFFER AND C.E. SIGN LOCATIONS

NOTE: PER LDF CH. 6.06.01F, SOIL REMOVAL OFFSITE SHALL NOT EXCEED 200% OF THE MINIMUM STORMWATER RETENTION/DETENTION VOLUME REQUIRED.

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

VK AVALON GROVES, LLC

3	12/01/2017	SJRWMD COMMENTS
2	10/05/2017	SJRWMD COMMENTS
1	06/27/2017	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PLAN REVISIONS

	DATE	DESCRIPTION

PLAN REVISIONS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION: NAVD 88 TO NGVD 29 = +0.86

ADDRESS CONTROL NUMBER	
WATER COMMITMENT	
SEWER COMMITMENT	
SJRWMD	
WATER DEP	
SEWER DEP	
FOLIO	13242600010000200 13242600030000400

PERMIT / FILE NUMBERS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

DocuSigned by:
VICTOR E. BARBOSA
DATE: 12/1/2017 | 11:55 AM EST
REGISTRATION NO. 58548

FILE:	COVER
PROJECT NO:	KLP-AP-1039
GRADING & DRAINAGE	
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS
UTILITIES	
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

COVER SHEET
C-100

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\COVER.DWG-C-100 2017/12/01 10:20 AM ERIC FRANCIS

SSM: SERENOA - ACTIVE ADULT PARCEL PH 1 & 2 - CPS

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

GENERAL EROSION AND TURBIDITY CONTROL NOTES

1. THE SITE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL EROSION AND TURBIDITY CONTROLS AND THE QUALITY AND QUANTITY OF OFFSITE OR WETLAND DISCHARGES.
2. CONTRACTOR SHALL SECURE AN NPDES GENERIC CONSTRUCTION PERMIT / NOI PRIOR TO START OF WORK AND THE STORMWATER POLLUTION PREVENTION PLAN FOR THE PERMIT SHALL BE MADE AVAILABLE TO LAKE COUNTY FOR INSPECTION DURING CONSTRUCTION. LDR 9.06.09 (D).
3. PRIOR TO CONSTRUCTION, THE SITE SUBCONTRACTOR IS RESPONSIBLE FOR HAVING HIS DEWATERING PLAN AND TURBIDITY CONTROL PLAN APPROVED BY THE APPLICABLE REVIEWING AGENCIES. REFER TO THE PROJECT'S PERMIT APPROVALS AND PERMIT CONDITIONS FOR AGENCIES REQUIRING SUCH REVIEW AND APPROVAL. QUESTIONS CONCERNING APPROPRIATE TECHNIQUES SHOULD BE ADDRESSED TO THOSE AGENCIES AND/OR DISCUSSED WITH THE PROJECT ENGINEER AND OWNER.
4. THE APPROPRIATE TURBIDITY AND EROSION CONTROL METHODOLOGIES SELECTED BY THE SITE SUBCONTRACTOR FOR THIS PROJECT SHOULD BE MADE FOLLOWING ASSESSMENT OF THE PLANS AND PROJECT SITE SPECIFIC FACTORS AND AFTER CONSULTATIONS AS NEEDED WITH THE PROJECT ENGINEER AND APPROPRIATE AGENCIES. THE SITE SUBCONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ANY AND ALL NECESSARY PERMITS FOR SUCH ACTIVITY; SEVERAL FACTORS TO CONSIDER ARE LISTED BELOW:
   - A. CLAY CONTENT IN EXCAVATED MATERIALS AND/OR PERMEABILITIES RATES
   - B. DEPTH OF CUT IN PONDS, TRENCHES, OR UTILITY LINES
   - C. AMBIENT GROUND WATER LEVELS
   - D. ACTUAL RAINFALL AMOUNTS AND TIME OF YEAR RELATIVE TO NORMAL RAINY SEASON
   - E. PROXIMITY TO WETLANDS, WATER BODIES OR OFFSITE PROPERTIES
   - F. 'CLASS' DESIGNATION OF RECEIVING WATER BODIES (I.E., OUTSTANDING FLORIDA WATERS, SHELLFISH HARVESTING AREAS, ETC.)
   - G. DENSITY, TYPE, AND PROXIMITY OF UPLAND VEGETATION TO BE RETAINED DURING CONSTRUCTION (FOR USE AS POSSIBLE FILTRATION AREAS)
   - H. FILL HEIGHT RELATIVE TO NATURAL GRADE AND LENGTH AND STEEPNESS OF THE PROPOSED SLOPES
   - I. EXISTING TOPOGRAPHY AND DIRECTIONS OF SURFACE FLOW
   - J. TYPE OF EQUIPMENT USED
   - K. PROJECT TYPE
   - L. DURATION OF CONSTRUCTION ACTIVITIES
   - M. SEPARATION DISTANCE OF ONSITE PONDS
   - N. AMBIENT QUALITY OF SURFACE AND GROUNDWATER
   - O. TEMPORARY STOCKPILE LOCATIONS AND HEIGHTS
5. AT THE ONSET OF CONSTRUCTION, THE SITE SUBCONTRACTOR, AS THE PARTY RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN, SHALL ASSESS THE ABOVE DESCRIBED CONDITIONS AND FACTORS WITH RESPECT TO RELATIVE COST EFFECTIVENESS AND SELECT THE APPROPRIATE METHODS OF PROTECTION. A FAIRLY EXTENSIVE LIST OF TECHNIQUES ARE PRESENTED BELOW BUT IT MUST BE STRESSED THAT ANY OR ALL OF THE FOLLOWING MAY BE NECESSARY TO MAINTAIN WATER QUALITY AND QUANTITY STANDARDS. THE CONSTRUCTION SEQUENCING SHOULD BE THOUGHT OUT IN ADVANCE OF INITIATION TO PROVIDE ADEQUATE PROTECTION OF WATER QUALITY.
6. DISCHARGES WHICH EXCEED 29 N.T.U.'S OVER THE BACKGROUND LEVELS ARE IN VIOLATION OF STATE WATER QUALITY STANDARDS. DISCHARGES OF WATER QUANTITIES WHICH AFFECT OFFSITE PROPERTIES OR MAY DAMAGE WETLANDS ARE ALSO PROHIBITED BY REGULATING AGENCIES.
7. THE EROSION AND TURBIDITY CONTROL MEASURES SHOWN HEREON ARE THE MINIMUM REQUIRED FOR AGENCY APPROVAL. ADDITIONAL CONTROL AND MEASURES MAY BE REQUIRED DUE TO THE SITE SUBCONTRACTOR'S CONSTRUCTION SEQUENCE & UNFORESEEN WEATHER CONDITIONS. ANY ADDITIONAL MEASURES DEEMED NECESSARY BY THE SITE SUBCONTRACTOR SHALL BE INCLUDED IN THE LUMP SUM BID WITH NO EXTRAS FOR MATERIALS AND LABOR ALLOWED.
8. HAY BALES OR SILT SCREENS SHALL BE INSTALLED PRIOR TO LAND CLEARING TO PROTECT WATER QUALITY AND TO IDENTIFY AREAS TO BE PROTECTED FROM CLEARING ACTIVITIES AND MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL ALL SOIL IS STABILIZED.
9. FLOATING TURBIDITY BARRIERS SHALL BE IN PLACE IN FLOWING SYSTEMS OR IN OPEN WATER LAKE EDGES PRIOR TO INITIATION OF EARTHWORK AND MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL ALL SOIL IS STABILIZED.
10. NO CLAY MATERIAL SHALL BE LEFT EXPOSED IN ANY STORMWATER STORAGE FACILITY. IF CLAY OR SANDY-CLAYS ARE ENCOUNTERED DURING STORMWATER STORAGE EXCAVATION, THE SITE SUBCONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY BEFORE PROCEEDING WITH FURTHER EXCAVATION. IF THE ENGINEER OF RECORD HAS DETERMINED THAT SUCH SOILS ARE NON-CONFINING AND MUST BE EXCAVATED TO MEET PERMIT AND DESIGN CONDITIONS, EXCAVATION MAY PROCEED AFTER OBTAINING WRITTEN AUTHORIZATION FROM THE APPROPRIATE GOVERNING AGENCY. IF SAID SOILS ARE LEFT EXPOSED AT THE PERMITTED AND DESIGNED DEPTH, THE SITE SUBCONTRACTOR SHALL OVER-EXCAVATE THE POND'S BOTTOM AND SIDE SLOPES BY A MINIMUM OF TWELVE (12") INCHES AND BACKFILL WITH CLEAN SANDS TO HELP PREVENT SUSPENSION OF FINE PARTICLES IN THE WATER COLUMN.
11. THE INSTALLATION OF TEMPORARY EROSION CONTROL BARRIERS SHALL BE COORDINATED WITH THE CONSTRUCTION OF THE PERMANENT EROSION CONTROL FEATURES TO THE EXTENT NECESSARY TO ASSURE EFFECTIVE AND CONTINUOUS CONTROL OF EROSION AND WATER POLLUTION THROUGHOUT THE LIFE OF THE CONSTRUCTION PHASE.
12. THE TYPE OF EROSION CONTROL BARRIERS USED SHALL BE GOVERNED BY THE NATURE OF THE CONSTRUCTION OPERATION AND SOIL TYPE THAT WILL BE EXPOSED. SILTY AND CLAYEY MATERIAL MAY REQUIRE SOLID SEDIMENT BARRIERS TO PREVENT TURBID WATER DISCHARGE, WHILE SANDY MATERIAL MAY NEED ONLY SILT SCREENS OR HAY BALES TO PREVENT EROSION. FLOATING TURBIDITY CURTAINS SHOULD GENERALLY BE USED IN OPEN WATER SITUATIONS. DIVERSION DITCHES OR SWALES MAY BE REQUIRED TO PREVENT TURBID STORMWATER RUNOFF FROM BEING DISCHARGED TO WETLANDS OR OTHER WATER BODIES. IT MAY BE NECESSARY TO EMPLOY A COMBINATION OF BARRIERS, DITCHES, AND OTHER EROSION/TURBIDITY CONTROL MEASURES IF CONDITIONS WARRANT.
13. WHERE PUMPS ARE TO BE USED TO REMOVE TURBID WATERS FROM CONSTRUCTION AREAS, THE WATER SHALL BE TREATED PRIOR TO DISCHARGE TO THE WETLANDS. TREATMENT METHODS INCLUDE, FOR EXAMPLE, TURBID WATER BEING PUMPED INTO GRASSED SWALES OR APPROPRIATE UPLAND VEGETATED AREAS (OTHER THAN UPLAND PRESERVATION AREAS AND WETLAND BUFFERS), SEDIMENT BASINS, OR CONFINED BY AN APPROPRIATE ENCLOSURE SUCH AS TURBIDITY BARRIERS OR LOW BERMS, AND KEPT CONFINED UNTIL TURBIDITY LEVELS MEET STATE WATER QUALITY STANDARDS.
14. THE PERMITTEE SHALL SCHEDULE HIS OPERATIONS SUCH THAT THE AREA OF UNPROTECTED ERODIBLE EARTH EXPOSED AT ANY ONE TIME IS NOT LARGER THAN THE MINIMUM AREA NECESSARY FOR EFFICIENT CONSTRUCTION OPERATION, AND THE DURATION OF EXPOSED, UNCOMPLETED CONSTRUCTION TO THE ELEMENTS SHALL BE AS SHORT AS PRACTICABLE. CLEARING AND GRUBBING SHALL BE SO SCHEDULED AND PERFORMED SUCH THAT GRADING OPERATIONS CAN FOLLOW IMMEDIATELY THEREAFTER. GRADING OPERATIONS SHALL BE SO SCHEDULED AND PERFORMED THAT PERMANENT EROSION CONTROL FEATURES CAN FOLLOW IMMEDIATELY THEREAFTER IF CONDITIONS ON THE PROJECT PERMIT.
15. WATER DERIVED FROM VARIOUS DEWATERING METHODS SHOULD BE PASSED THROUGH SUFFICIENTLY WIDE AREAS OF EXISTING UPLAND VEGETATION TO FILTER OUT EXCESS TURBIDITY. IF THIS IS NOT SUFFICIENT, THE WATER SHALL BE RETAINED IN PREVIOUSLY CONSTRUCTED PERMANENT STORMWATER PONDS OR ELSE RETAINED IN TEMPORARY SEDIMENTATION BASINS UNTIL THE CLARITY IS SUITABLE TO ALLOW FOR ITS DISCHARGE. PLUGGING THE OUTFALLS FROM COMPLETED STORMWATER PONDS MAY BE NEEDED TO AVOID DISCHARGE. HOWEVER, SUCH SITUATIONS SHOULD BE MONITORED CLOSELY TO PRECLUDE BERM FAILURE IF WATER LEVELS RISE TOO HIGH.
16. WATER CAN BE TRANSPORTED AROUND THE SITE BY THE USE OF INTERNAL SWALES OR BY PUMPS AND PIPES.
17. SHEET FLOW OF NEWLY FILLED OR SCRAPED AREAS MAY BE CONTROLLED OR CONTAINED BY THE USE OF BRUSH BARRIERS, DIVERSION SWALES, INTERCEPTOR DITCHES OR LOW BERMS. FLOW SHOULD BE DIRECTED TOWARD AREAS WHERE SEDIMENTS CAN SUFFICIENTLY SETTLE OUT.
18. EXPOSED SOILS SHALL BE STABILIZED AS SOON AS POSSIBLE, ESPECIALLY SLOPES LEADING TO WETLANDS. STABILIZATION METHODS INCLUDE SOLID SOD, SEEDING AND MULCHING OR HYDROMULCHING TO PROVIDE A TEMPORARY OR PERMANENT GRASS COVER MULCH BLANKETS, FILTER FABRICS, ETC., CAN BE EMPLOYED TO PROVIDE VEGETATIVE COVER.
19. ENERGY DISSIPATERS (SUCH AS RIP RAP, A GRAVEL BED, HAY BALES, ETC.) SHALL BE INSTALLED AT THE DISCHARGE POINT OF PIPES OR SWALES IF SCOURING IS OBSERVED.
20. ATTEMPT TO INSTALL ROADWAY CURB AND GUTTERS AS SOON AS POSSIBLE TO REDUCE THE SURFACE AREA FOR EROSION TO OCCUR.
21. IMPLEMENT STORM DRAIN INLET PROTECTION (HAY BALES OR GRAVEL) TO LIMIT SEDIMENTATION WITHIN THE STORMWATER SYSTEM. PERFORM INSPECTIONS AND PERIODIC CLEANING OF SEDIMENTS WHICH WASH OUT INTO THE STREETS UNTIL ALL SOIL IS STABILIZED.
22. WATER DISCHARGE VELOCITIES FROM IMPOUNDED AREAS AND TEMPORARY SEDIMENTATION BASINS SHALL BE RESTRICTED TO AVOID SCOURING IN RECEIVING AREAS.
23. IF WATER CLARITY DOES NOT REDUCE TO STATE STANDARDS RAPIDLY ENOUGH IN HOLDING PONDS, IT MAY BE POSSIBLE TO USE CHEMICAL AGENTS SUCH AS ALUM TO FLOCCULATE OR COAGULATE THE SEDIMENT PARTICLES.
24. HAY BALES, SILT SCREENS, OR GRAVEL BEDS CAN BE ADDED AROUND THE PIPE OR SWALE DISCHARGE POINTS TO HELP CLARIFY DISCHARGES. SPREADER SWALES MAY HELP DISSIPATE CLOUDY WATER PRIOR TO CONTACT WITH WETLANDS.
25. ALL FUEL STORAGE AREAS OR OTHER HAZARDOUS STORAGE AREAS SHALL CONFORM TO ACCEPTED STATE OR FEDERAL CRITERIA FOR SUCH CONTAINMENT AREAS.
26. VEHICLE OR EQUIPMENT WASHDOWN AREAS WILL BE SUFFICIENTLY REMOVED FROM WETLANDS OR OFFSITE AREAS.
27. FUGITIVE DUST CONTROLS (PRIMARILY BY USING WATER SPRAY TRUCKS) SHALL BE EMPLOYED AS NEEDED TO CONTROL WINDBORN EMISSIONS.
28. IF THE ABOVE CONTROLS REMAIN INEFFECTIVE IN PRECLUDING RELEASE OF TURBID WATER, ESPECIALLY DURING POND OR UTILITY LINE DEWATERING, THEN THE CONTRACTOR MAY BE COMPELLED TO USE A VERTICAL DEWATERING SYSTEM SUCH AS WELL POINTS OR SOCK DRAINS TO WITHDRAW GROUNDWATER WHICH MAY ALREADY BE CLEAR ENOUGH TO ALLOW FOR DIRECT DISCHARGE TO WETLANDS.
29. ONGOING INSPECTIONS AND PERIODIC MAINTENANCE BY THE SITE SUBCONTRACTOR SHALL OCCUR THROUGHOUT CONSTRUCTION AS NECESSARY TO INSURE THE ABOVE METHODS ARE WORKING SUITABLY. THIS MAY BE NEEDED DAILY, IF CONDITIONS SO WARRANT. SITE SUBCONTRACTORS ARE ENCOURAGED TO OBTAIN AND THOROUGHLY REVIEW THE FLORIDA DEVELOPMENT MANUAL: A GUIDE TO SOUND LAND AND WATER MANAGEMENT, WHICH WAS DEVELOPED BY THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION IN 1988. THIS PROVIDES FAIRLY IN-DEPTH DISCUSSIONS OF RECOMMENDED TECHNIQUES AND ALSO PROVIDES SPECIFIC DESIGN AND TECHNICAL STANDARDS. A COPY OF THIS DOCUMENT IS AVAILABLE FOR REVIEW AT HEIDT DESIGN, LLC.
30. THE CONTRACTOR WILL PERFORM DAILY INSPECTIONS OF ALL ON-SITE WETLANDS WITHIN THE CONSTRUCTION AREA TO ENSURE THAT WATER LEVELS WITHIN THOSE WETLANDS ARE NOT EXCESSIVELY IMPOUNDED PRIOR TO THE TIME WHEN THE PERMITTED CONTROL STRUCTURE OR OUTFALL IS BUILT. WATER LEVELS SIGNIFICANTLY ABOVE NORMAL SHOULD BE CORRECTED AT A FREQUENCY THAT PREVENTS A CHANGE IN THE VEGETATIVE CHARACTER OR HEALTH OF ANY WETLANDS.

SOIL REUSE REQUIREMENTS

AT LEAST THE FOLLOWING SIX (6) TYPES OF MATERIALS ARE PRESENT ON-SITE THAT REQUIRE PROPER HANDLING/TREATMENT BY THE CONTRACTOR, DURING THE COURSE OF SITE DEVELOPMENT/CONSTRUCTION ACTIVITIES, IN ACCORDANCE WITH THE NOTED REUSE REQUIREMENTS FOR EACH TYPE. ALTHOUGH SOME SOIL MATERIAL QUALITY CONTROL TESTING WILL BE RANDOMLY AND PERIODICALLY PERFORMED BY THE PROJECT GEOTECHNICAL CONSULTANT, AS REQUIRED, WORKING FOR THE OWNER, IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO REUSE ONSITE SOIL MATERIALS AS DESCRIBED AND SPECIFIED BELOW. ALL DISCOVERED OR FUTURE FILLING OR MATERIAL REUSE WORK ONSITE NOT IN ACCORDANCE OR COMPLIANCE WITH THESE NOTES, OR ANY FUTURE ADVERSE IMPACTS OR CONSEQUENCES RESULTING FROM THE CONTRACTORS FAILURE TO PROPERLY REUSE SOIL MATERIALS ONSITE AS SPECIFICALLY DESCRIBED BELOW, WILL BE THE CONTRACTORS SOLE RESPONSIBILITY FOR REMEDY AND REPAIR AT HIS COST. IF THE CONTRACTOR HAS ANY QUESTIONS REGARDING ANY OF THE SOIL MATERIALS ONSITE, THE PROJECT GEOTECHNICAL REPORTS (WHICH HE NEEDS TO OBTAIN FROM THE OWNER OR GEOTECHNICAL CONSULTANT/ ENGINEER), OR ANY QUESTIONS ASSOCIATED WITH THE NOTES BELOW, IT IS PRESUMED THAT THE CONTRACTOR WILL SATISFACTORILY RESOLVE SUCH QUESTIONS/CONCERNS PRIOR TO SITE DEMOLITION, CLEARING, GRUBBING, STRIPPING AND EXCAVATION OPERATIONS BEGIN.

PLEASE NOTE, LOCAL, STATE AND FEDERAL RULES, LAWS, AND REGULATIONS PROHIBITING SOIL REUSE AS DESCRIBED BELOW SHALL TAKE PRECEDENCE AND SHALL BE FOLLOWED TO THE FULLEST EXTENT.

1. ALL SITE DEMOLITION DEBRIS SHALL BE REMOVED FROM THE SITE DEVELOPMENT AND DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE GOVERNING ENVIRONMENTAL AGENCY REQUIREMENTS.

2. CLEARING AND GRUBBING DEBRIS (SITE CLEARING AND GRUBBING DEBRIS INCLUDES ALL LARGER ORGANIC MATERIALS, SUCH ITEMS AS TREES, STUMPS, LIMBS, BRUSH, VEGETATION, OR SIMILAR; ALL SUCH MATERIALS MUST BE EITHER "BURNED" OR "MULCHED" BY THE CONTRACTOR PRIOR TO REUSE OR DISPOSAL ONSITE.)

IF ACCEPTABLE TO THE GOVERNING ENVIRONMENTAL AGENCY, THEN ALL SUCH "BURNED" OR "MULCHED" SITE CLEARING/GRUBBING DEBRIS, IF APPROVED IN WRITING FIRST BY THE OWNER/GEOTECHNICAL CONSULTANT/ ENGINEER, COULD BE:

PLACED AS "MULCH" MATERIAL SURFACE DRESSING IN FUTURE LANDSCAPE AREAS, STOCKPILING OF SUCH"MULCHED" MATERIALS (AMOUNTS/LOCATIONS), IF ACCEPTABLE, WILL BE DIRECTED BY THE OWNER/GEOTECHNICAL CONSULTANT//LANDSCAPE ARCHITECT/ENGINEER;

IN ALL INSTANCES, THE MINIMUM POND DEPTH (INCLUDING FLOODPLAIN AND WETLAND MITIGATION AREAS) SHALL BE NO LESS THAN REQUIRED BY THE ENGINEER.

ALL ORGANIC DEBRIS BURIAL AREAS IN FLOODPLAIN MITIGATION POND AREAS WILL REQUIRE ADEQUATE SOIL COVER OF 18 - 24 INCHES (WITH COMPACTION) BY THE CONTRACTOR, MEANING AT LEAST AN ADEQUATE WEIGHT/THICKNESS OF SOIL MATERIAL OVERTOP THE BURIED ORGANIC DEBRIS, SUCH THAT THERE WILL BE NO FUTURE FLOATING UP OF DEBRIS; AND FOR ALL ORGANIC DEBRIS BURIAL AREAS IN LITTORAL SHELF AREAS, WETLAND MITIGATION POND AREAS, AND PASSIVE RECREATION/PARK AREAS, ADEQUATE SOIL/MULCH MIXING (WITH COMPACTION) WILL BE NECESSARY BY THE CONTRACTOR, SUCH THAT NO SIGNIFICANT FUTURE UNACCEPTABLE SETTLEMENT OF A LITTORAL SHELF AREA, CREATED WETLAND AREA, OR PARK/GRASSED AREA WILL OCCUR.

IF ANY OF THESE PROCEDURES ARE CONTEMPLATED BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER IN WRITING, AT THE START OF CONSTRUCTION, WITH SOME SPECIFIC INFORMATION, INCLUDING THE ESTIMATED QUANTITY AND TYPES OF MATERIALS, TO WHICH FLOODPLAIN MITIGATION PONDS, WETLAND MITIGATION PONDS, OR PASSIVE RECREATION/PARK AREAS THEY PROPOSE TO USE FOR THIS TYPE OF ORGANIC DEBRIS DISPOSAL, AND WHAT APPROXIMATE ELEVATIONS WILL BE THE TOP AND BOTTOM OF THE ORGANIC DEBRIS.

3. MUCK/PEAT ORGANIC MATERIALS (TYPICALLY GENERATED FROM WETLAND OR LOWLAND AREAS, OR SIMILAR AREAS, PERMITTED FOR IMPACT OR DISPLACEMENT, INCLUDING EXCAVATION OF UNSUITABLE ORGANIC MATERIALS AND REFILLING WITH SUITABLE SANDY SOILS TO ACCOMMODATE DEVELOPMENT; INCLUDES SIGNIFICANT ORGANIC PEAT MATERIALS, ORGANIC SANDY MUCK MATERIALS, AND MUCKY OR ORGANIC SAND MATERIALS, DESIGNATED EITHER PT OR A-8, PER THE UNIFIED AND AASHTO SOIL CLASSIFICATION SYSTEMS, RESPECTIVELY; THOSE ORGANIC MATERIALS WHOSE PRESENCE, OR PLACEMENT BY THE CONTRACTOR, IS UNACCEPTABLE BENEATH ANY TYPE OF STRUCTURE, PAVEMENT, ROADWAY, HOUSE, BUILDING, PIPELINE, SLAB, ETC.)

IF ACCEPTABLE TO THE GOVERNING ENVIRONMENTAL AGENCY, THEN ALL SUCH MUCK/PEAT (SIGNIFICANT) ORGANIC MATERIALS, IF APPROVED IN WRITING FIRST BY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER,COULD BE:

A). PLACED AS "PEAT/MUCK/ORGANIC MATTER" SURFACE LAYER IN NEW OR CREATED WETLAND MITIGATION AREAS, STOCKPILING OF SUCH "SIGNIFICANT ORGANIC" MATERIALS (AMOUNTS/LOCATIONS), IF ACCEPTABLE, WILL BE DIRECTED BY THE OWNER/WETLAND CONSULTANT;

B). PLACED IN TEMPORARILY EXCAVATED SELECTED WETLAND MITIGATION PONDS, IN EITHER CASE NOT IN SIDE BANKS AND NOT BELOW THE PERMITTED DESIGN DEPTH OF THE POND, OR SUCH ORGANIC MATERIALS COULD BE BURIED IN TEMPORARILY EXCAVATED PASSIVE RECREATION/PARK AREAS (AT LEAST 30 FEET FROM ANY STRUCTURE) AT APPROVED DEPTHS/LOCATIONS, BUT ALL THESE DISPOSAL AREAS WILL REQUIRE ADEQUATE SOIL MIXING (MIX SOIL WITH THE ORGANIC MATERIALS) AND THEN REFILLING (WITH COMPACTION) TO REQUIRED DESIGN GRADES;

C). PLACED ALONG THE BOTTOM OF SELECTED FLOODPLAIN MITIGATION PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED EXCAVATION DEPTH OF THE POND, BUT WILL REQUIRE ADEQUATE SOIL COVER;

D.) PLACED ALONG THE BOTTOM OF SELECTED DEEPER STORMWATER PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED DESIGN DEPTH, BUT WILL REQUIRE ADEQUATE SOIL COVER.

ALL ORGANIC DEBRIS BURIAL AREAS IN FLOODPLAIN MITIGATION POND AREAS WILL REQUIRE ADEQUATE SOIL COVER (WITH COMPACTION) BY THE CONTRACTOR, MEANING AT LEAST AN ADEQUATE WEIGHT/THICKNESS OF SOIL MATERIAL OVERTOP THE BURIED ORGANIC DEBRIS, SUCH THAT THERE WILL BE NO FUTURE FLOATING UP OF DEBRIS; AND FOR ALL ORGANIC DEBRIS BURIAL AREAS IN LITTORAL SHELF AREAS, WETLAND MITIGATION POND AREAS, AND PASSIVE RECREATION/PARK AREAS, ADEQUATE SOIL/ORGANICS MIXING (WITH COMPACTION) WILL BE NECESSARY BY THE CONTRACTOR, SUCH THAT NO SIGNIFICANT FUTURE UNACCEPTABLE SETTLEMENT OF A LITTORAL SHELF AREA, CREATED WETLAND AREA, OR PARK/GRASSED AREA WILL OCCUR.

IF ANY OF THESE PROCEDURES ARE CONTEMPLATED BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER IN WRITING, AT THE START OF CONSTRUCTION, WITH SOME SPECIFIC INFORMATION, INCLUDING THE ESTIMATED QUANTITY AND TYPES OF MATERIALS, TO WHICH STORMWATER PONDS, FLOODPLAIN MITIGATION PONDS, WETLAND MITIGATION PONDS, OR PASSIVE RECREATION/PARK/LANDSCAPE BERM AREAS THEY PROPOSE TO USE FOR THIS TYPE OF ORGANIC MATERIAL DISPOSAL, AND WHAT APPROXIMATE ELEVATIONS WILL BE THE TOP AND BOTTOM OF THE ORGANIC MATERIALS.

4. TOPSOILS/SITE STRIPPINGS (TYPICALLY GENERATED FROM UPLAND AREAS, AFTER DEMOLITION/CLEARING/GRUBBING/DISCING OPERATIONS; STRIPPING OF SURFICIAL ORGANICS/TOPSOILS BEING A REQUIREMENT OVER AT LEAST ALL STRUCTURE, BUILDING, CONCRETE SLAB AND PAVEMENT AREAS PRIOR TO FILLING TO ACCOMMODATE DEVELOPMENT; INCLUDES TOPSOILS AND ORGANIC LADEN SANDS; THOSE TOPSOILS/ORGANIC SAND MATERIALS WHOSE PRESENCE, OR PLACEMENT BY THE CONTRACTOR, IS UNACCEPTABLE BENEATH ANY TYPE OF STRUCTURE, PAVEMENT, ROADWAY, HOUSE, BUILDING, PIPELINE, SLAB, ETC.)

IF ACCEPTABLE TO THE GOVERNING ENVIRONMENTAL AGENCY, ALL SUCH TOPSOILS/ORGANIC LADEN SAND MATERIALS, IF APPROVED IN WRITING FIRST BY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER, COULD BE:

A). PLACED AS FILL IN NEW (LARGER) LANDSCAPE/GRASS COMMON AREAS OR LANDSCAPE BERM AREAS (WITH COMPACTION), STOCKPILING OF SUCH "TOPSOILS/ORGANIC LADEN SAND MATERIALS" (AMOUNTS/LOCATIONS), IF ACCEPTABLE, WILL BE DIRECTED BY THE OWNER/LANDSCAPE CONSULTANT;

B). PLACED IN TEMPORARILY EXCAVATED LITTORAL SHELF AREAS IN SELECTED STORMWATER PONDS, OR IN TEMPORARILY EXCAVATED SELECTED WETLAND MITIGATION PONDS, IN EITHER CASE NOT IN SIDE BANKS AND NOT BELOW THE PERMITTED DESIGN DEPTH OF THE POND, OR SUCH TOPSOILS/ORGANIC LADEN SAND MATERIALS COULD BE BURIED IN TEMPORARILY EXCAVATED PASSIVE RECREATION/PARK AREAS (AT LEAST 30 FEET FROM ANY STRUCTURE) AT APPROVED DEPTHS/LOCATIONS, BUT ALL THESE DISPOSAL AREAS WILL REQUIRE REFILLING (WITH COMPACTION) TO REQUIRED DESIGN GRADES;

C). PLACED ALONG THE BOTTOM OF SELECTED FLOODPLAIN MITIGATION PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED EXCAVATION DEPTH OF THE POND;

D.) PLACED ALONG THE BOTTOM OF SELECTED DEEPER STORMWATER PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED DESIGN DEPTH.

ALL TOPSOIL/ORGANIC LADEN SAND DISPOSAL AREAS IN LITTORAL SHELF AREAS, WETLAND MITIGATION POND AREAS, PASSIVE RECREATION/PARK AREAS, OR LANDSCAPE/BERM AREAS WILL REQUIRE ADEQUATE COMPACTION BY THE CONTRACTOR, SUCH THAT NO SIGNIFICANT FUTURE UNACCEPTABLE SETTLEMENT OF A LITTORAL SHELF AREA, CREATED WETLAND AREA, PARK/GRASSED AREA, OR LANDSCAPE BERM WILL OCCUR.

IF ANY OF THESE PROCEDURES ARE CONTEMPLATED BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER IN WRITING, AT THE START OF CONSTRUCTION, WITH SOME SPECIFIC INFORMATION, INCLUDING THE ESTIMATED QUANTITY AND TYPES OF MATERIALS, TO WHICH STORMWATER PONDS, FLOODPLAIN MITIGATION PONDS, WETLAND MITIGATION PONDS, PASSIVE RECREATION/PARK AREAS, OR LANDSCAPE BERM AREAS THEY PROPOSE TO USE FOR THIS TYPE OF ORGANIC DEBRIS DISPOSAL, AND WHAT APPROXIMATE ELEVATIONS WILL BE THE TOP AND BOTTOM OF THE ORGANIC DEBRIS.

5. NON-STRUCTURAL CLAYEY SAND/CLAY MATERIALS (TYPICALLY GENERATED FROM POND/LAKE EXCAVATIONS OR FROM UTILITY PIPELINE/MANHOLE EXCAVATIONS; SUCH CLAYEY SAND/CLAY MATERIALS, WITH TYPICALLY 40% FINES OR MORE PASSING THE NO. 200 SIEVE, DESIGNATED EITHER SC, CL, CH OR A-4 TO A-7, PER THE UNIFIED AND AASHTO SOIL CLASSIFICATION SYSTEMS, RESPECTIVELY; SUCH CLAYEY SAND/CLAY MATERIALS BEING UNSUITABLE OR UNACCEPTABLE FOR REUSE BY THE CONTRACTOR AS BUILDING PAD FILL, STRUCTURAL FILL, ROADWAY EMBANKMENT FILL, AND PIPELINE OR MANHOLE EXCAVATION BACKFILL.)

IF ACCEPTABLE TO THE GOVERNING ENVIRONMENTAL AGENCY, ALL SUCH CLAYEY SAND/CLAY MATERIALS, IF APPROVED IN WRITING FIRST BY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER, COULD BE:

A). PLACED AS FILL IN NEW (LARGER) LANDSCAPE/GRASS COMMON AREAS OR LANDSCAPE BERM AREAS (WITH COMPACTION), PROVIDE SOME SURFACE DRAINAGE RELIEF, USE WHERE INFILTRATION AND DRAINAGE IS NOT AN IMPORTANT ISSUE, PROVIDE SOME SURFACE SANDY SOILS (MIN. OF 18-INCHES) AS DIRECTED BY THE LANDSCAPE CONSULTANT FOR PLANTING; STOCKPILING OF SUCH "CLAYEY SAND/CLAY MATERIALS" (AMOUNTS/LOCATIONS), IF ACCEPTABLE, WILL BE DIRECTED BY THE OWNER/LANDSCAPE CONSULTANT;

B). PLACED IN TEMPORARILY EXCAVATED LITTORAL SHELF AREAS IN SELECTED STORMWATER PONDS, OR IN TEMPORARILY EXCAVATED SELECTED WETLAND MITIGATION PONDS, IN EITHER CASE NOT IN SIDE BANKS AND NOT BELOW THE PERMITTED DESIGN DEPTH OF THE POND, OR SUCH CLAYEY SAND/CLAY MATERIALS COULD BE BURIED IN TEMPORARILY EXCAVATED PASSIVE RECREATION/PARK AREAS (AT LEAST 30 FEET FROM ANY STRUCTURE) AT APPROVED DEPTHS/LOCATIONS, BUT ALL THESE DISPOSAL AREAS WILL REQUIRE REFILLING (WITH COMPACTION) TO REQUIRED DESIGN GRADES, AND THE TOP 2 FEET (MIN.) BEING SAND MATERIALS (NOT CLAYEY MATERIALS) FOR TURBIDITY CONTROL AND PLANTING;

C). PLACED ALONG THE BOTTOM OF SELECTED FLOODPLAIN MITIGATION PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED EXCAVATION DEPTH OF THE POND; HOWEVER, A 12-INCH LAYER (MIN.) OF SAND MATERIAL OVERTOP THE CLAYEY MATERIALS WILL BE NECESSARY FOR TURBIDITY CONTROL.

D.) PLACED ALONG THE BOTTOM OF SELECTED DEEPER STORMWATER PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED DESIGN DEPTH, HOWEVER, A 12-INCH LAYER (MIN.) OF SAND MATERIAL OVERTOP THE CLAYEY MATERIALS WILL BE NECESSARY FOR TURBIDITY CONTROL.

ALL CLAYEY SAND/CLAY DISPOSAL AREAS IN LITTORAL SHELF AREAS, WETLAND MITIGATION POND AREAS, PASSIVE RECREATION/PARK AREAS, OR LANDSCAPE/BERM AREAS WILL REQUIRE ADEQUATE COMPACTION BY THE CONTRACTOR, SUCH THAT NO SIGNIFICANT FUTURE UNACCEPTABLE SETTLEMENT OF A LITTORAL SHELF AREA, CREATED WETLAND AREA, PARK/GRASSED AREA, OR LANDSCAPE BERM WILL OCCUR.

IF ANY OF THESE PROCEDURES ARE CONTEMPLATED BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER IN WRITING, AT THE START OF CONSTRUCTION, WITH SOME SPECIFIC INFORMATION, INCLUDING THE ESTIMATED QUANTITY AND TYPES OF MATERIALS, TO WHICH STORMWATER PONDS, FLOODPLAIN MITIGATION PONDS, WETLAND MITIGATION PONDS, PASSIVE RECREATION/PARK AREAS, OR LANDSCAPE BERM AREAS THEY PROPOSE TO USE FOR THIS TYPE OF CLAYEY SAND/CLAY DISPOSAL, AND WHAT APPROXIMATE ELEVATIONS WILL BE THE TOP AND BOTTOM OF THE CLAYEY MATERIALS.

6.) STRUCTURAL SAND FILL MATERIALS (TYPICALLY GENERATED FROM POND/LAKE EXCAVATIONS, CUT FROM HIGHER ELEVATION AREAS, OR FROM UTILITY PIPELINE/MANHOLE EXCAVATIONS; SUCH SAND MATERIALS, WITH TYPICALLY 35% FINES OR LESS PASSING THE NO. 200 SIEVE, DESIGNATED EITHER SP, SP-SM, SM OR A-2-4, A-2-6 OR A-3, PER THE UNIFIED AND AASHTO SOIL CLASSIFICATION SYSTEMS, RESPECTIVELY; SUCH SAND MATERIALS BEING SUITABLE OR ACCEPTABLE FOR REUSE BY THE CONTRACTOR AS BUILDING PAD FILL, STRUCTURAL FILL, ROADWAY EMBANKMENT FILL, AND PIPELINE OR MANHOLE EXCAVATION BACKFILL.)

ALL SUCH SAND MATERIALS SHALL BE REUSED ONSITE BY THE CONTRACTOR, PER THE GEOTECHNICAL REPORTS, AS BUILDING PAD FILL, STRUCTURAL FILL, ROADWAY EMBANKMENT FILL, AND PIPELINE OR MANHOLE EXCAVATION BACKFILL; PLACED BY THE CONTRACTOR IN LOOSE LIFTS NOT EXCEEDING 12-INCHES, COMPACTED TO AT LEAST 95% OR 98% MODIFIED PROCTOR (PER ASTM D-1557 OR AASHTO T-180), WHICHEVER IS APPLICABLE DEPENDING UPON THE FUTURE USE OF THE FILLED AREA (SEE GEOTECHNICAL REPORTS); WITH DENSITY TESTING OF EACH FILL LIFT FOR ACCEPTANCE BY THE GEOTECHNICAL CONSULTANT, UPON CONTRACTOR REQUEST, PRIOR TO THE NEXT FILL LIFT BEING PLACED.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

GENERAL NOTES

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
1	06/26/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	GNOTES
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-101

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\GNOTES.DWG-C-101 2017/12/01 10:20 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

GENERAL PROJECT DATA

FOR IDENTIFICATION OF CONTRACTUAL AGREEMENTS, THIS SET OF DRAWINGS IS DATED 06/30/2017 . ANY REVISIONS THEREAFTER WILL BE NOTED AND DATED ON THE AFFECTED DRAWING(S).

EXISTING UTILITY LOCATION

THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITIES AND TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATIONS TO THESE UTILITIES WITH THE OWNER OF THE UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLANS OR LOCATED BY THE UTILITY COMPANY. ALL UTILITIES THAT INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED. ANY COST, DELAY OR INCONVENIENCE CAUSED TO THE CONTRACTOR BY THE RELOCATION OF VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT, AND NO EXTRA COMPENSATION WILL BE ALLOWED.

A SINGLE POINT UTILITY LOCATION SERVICE HAS BEEN SET UP FOR PARTICIPATING UTILITIES. THE CONTRACTOR IS TO CONTACT THE SUNSHINE STATE ONE CALL CENTER AT LEAST TWO (2) AND NO MORE THAN FIVE (5) WORKING DAYS PRIOR TO THE SPECIFIC CONSTRUCTION ACTIVITY FOR FIELD LOCATION. NOTE THAT NOT ALL UTILITIES PARTICIPATE IN THIS PROGRAM. THE CONTRACTOR SHOULD CONTACT NON-PARTICIPATING UTILITIES SEPARATELY FOR THEIR FIELD LOCATION OF FACILITIES. PER FLORIDA STATUTE 553.851, THE CONTRACTOR OR EXCAVATOR IS REQUIRED TO NOTIFY THE GAS COMPANY TWO (2) WORKING DAYS PRIOR TO STARTING EXCAVATION.

SOILS/ENVIRONMENTAL/PERMITS

SOILS INVESTIGATIONS FOR THE SITE WERE PROVIDED BY FAULKNER ENGINEERING SERVICES, INC. THE CONTRACTOR IS TO OBTAIN A COPY OF THAT SOILS REPORT FOR REVIEW PRIOR TO CONSTRUCTION; AND THE CONSTRUCTION IS TO CONFORM TO THE RECOMMENDATIONS IN THAT REPORT.

ENVIRONMENTAL/CONSERVATION INVESTIGATIONS: BIO-TECH CONSULTING INC.
SURVEY INFORMATION PREPARED BY: GEOPOINT SURVEYING, INC.
PERMITS AVAILABLE TO CONTRACTOR: _____

AS-BUILTS

AS-BUILTS SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER TWO WEEKS PRIOR TO FINAL INSPECTION. ALL AS-BUILT DATA SHALL BE PROVIDED BY A FLORIDA LICENSED SURVEYOR, SIGNED, SEALED, AND DATED BY THE RESPONSIBLE PARTY. SEE INDIVIDUAL SECTIONS (SEWER, WATER SYSTEM, ETC.) FOR ADDITIONAL AS-BUILT REQUIREMENTS. UTILITIES, INC. OF FLORIDA REQUIRES ASSET TABLES - NORTHING & EASTING USING STATE PLANE COORDINATES FOR ALL VALVES, FITTINGS, SERVICES, LATERALS, MHS, & PIPE INTERVALS AT 100'

PERMITS AND PERMIT REQUIREMENTS

THE CONTRACTOR SHALL OBTAIN FROM THE OWNER COPIES OF ALL REGULATORY AND LOCAL AGENCY PERMITS. THE CONTRACTOR SHALL BE EXPECTED TO REVIEW AND ABIDE BY ALL THE REQUIREMENTS AND LIMITATIONS SET FORTH IN THE PERMITS.

THE CONTRACTOR SHALL BE FURNISHED A COPY OF THE N.P.D.E.S. NOTICE OF INTENT APPLICATION AND REPORT WHICH WAS FURNISHED TO EPA BY THE OWNER. THE CONTRACTOR SHALL REVIEW THE CONTENTS OF THAT SUBMITTAL INCLUDING CONSTRUCTION COMMENCEMENT AND CESSATION DATES AND ALL OTHER ELEMENTS OF THE SUBMITTAL. HE SHALL EXECUTE AND FILE AN N.O.I. TO EPA AS THE ENTITY RESPONSIBLE FOR OPERATING AND MAINTAINING THE EROSION PROTECTION SYSTEM DURING CONSTRUCTION, NOTING ANY CHANGES AND/OR MODIFICATIONS AND/OR AGREEING TO THE ELEMENTS OF THE ORIGINAL SUBMITTAL. HE SHALL SUBMIT THIS AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL KEEP ON-SITE A COPY OF THE WATER MANAGEMENT DISTRICT AND N.P.D.E.S. PERMITS ISSUED TOGETHER WITH THE INSPECTION REPORTS AND CURRENT PLANS, INCLUDING ANY MODIFICATIONS REQUIRED. HE SHALL ALSO PROVIDE A NOTICE OF TERMINATION TO THE N.P.D.E.S. PERMITTING AUTHORITY AT THE CONCLUSION OF THE PROJECT THAT THE DISCHARGE AND EROSION PROTECTION DEVICE AS SHOWN ON THE PLANS HAVE BEEN IMPLEMENTED AND MAINTAINED THROUGHOUT CONSTRUCTION.

LAYOUT AND CONTROL

UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR SHALL USE THE GEOMETRY PROVIDED ON THE SURVEY PLAT. BENCHMARK INFORMATION SHALL BE PROVIDED TO THE CONTRACTOR BY THE OWNER OR OWNER'S SURVEYOR. ANY DISCREPANCIES BETWEEN FIELD MEASUREMENTS AND CONSTRUCTION PLAN INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. THE SURVEYOR WHO PRODUCED THE PLAT IS GEOPOINT SURVEYING, INC., PHONE: 813-248-8888

QUALITY CONTROL TESTING REQUIREMENTS

ALL TESTING RESULTS SHALL BE PROVIDED TO THE OWNER/OPERATOR, COUNTY, AND THE ENGINEER. TESTING REQUIREMENTS ARE TO BE IN ACCORDANCE WITH THE OWNER/OPERATOR'S SPECIFICATIONS AND REQUIREMENTS. ALL TEST RESULTS SHALL BE PROVIDED (PASSING AND FAILING) ON A REGULAR AND IMMEDIATE BASIS. CONTRACTOR SHALL PROVIDE TESTING SERVICES THROUGH A FLORIDA LICENSED GEOTECHNICAL ENGINEERING FIRM ACCEPTABLE TO THE OWNER AND ENGINEER. NO TESTING TO BE SCHEDULED ON MONDAY OR FRIDAY.

SHOP DRAWINGS

SHOP DRAWINGS AND CERTIFICATIONS FOR ALL STORM DRAINAGE, WATER SYSTEM, AND PAVING SYSTEM MATERIALS AND STRUCTURES ARE REQUIRED. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER AND UTILITY FOR APPROVAL PRIOR TO ORDERING THE MATERIALS REQUIRED FOR CONSTRUCTION.

EARTHWORK

EARTHWORK QUANTITIES

THE CONTRACTOR SHALL PERFORM HIS OWN INVESTIGATIONS AND CALCULATIONS AS NECESSARY TO ASSURE HIMSELF OF EARTHWORK QUANTITIES. THERE IS NO IMPLICATION THAT EARTHWORK BALANCES AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY IMPORT FILL NEEDED, OR FOR REMOVAL AND DISPOSAL OF EXCESS MATERIALS.

EROSION CONTROL

EROSION AND SILTATION CONTROL MEASURES ARE TO BE PROVIDED AND INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THESE MEASURES ARE TO BE INSPECTED BY THE CONTRACTOR ON A REGULAR BASIS AND ARE TO BE MAINTAINED OR REPAIRED ON AN IMMEDIATE BASIS, AS REQUIRED. REFER TO ST. JOHNS RIVER WATER MANAGEMENT DISTRICT PERMIT FOR ADDITIONAL REQUIREMENTS FOR EROSION CONTROL AND SURFACE DRAINAGE.

WETLAND PROTECTION

THE LIMITS OF THE ON-SITE WETLANDS HAVE BEEN PROVIDED TO THE CONTRACTOR ON THE CONSTRUCTION PLANS OR ON PERMIT MATERIALS. THE WETLANDS AREAS ARE TO BE PROTECTED FROM DISTURBANCE AT ALL TIMES. CONTRACTOR SHALL PROVIDE EROSION, SILTATION, AND DIVERSION MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN A COPY OF EACH PERMIT RELATING TO WETLANDS AND ADHERE TO ALL PROVISIONS AND CONDITIONS THERETO.

LIMITS OF DISTURBANCE

AT NO TIME SHALL THE CONTRACTOR DISTURB SURROUNDING PROPERTIES OR TRAVEL ON SURROUNDING PROPERTIES WITHOUT WRITTEN CONSENT FROM THE PROPERTY OWNER. REPAIR OR RECONSTRUCTION OF DAMAGED AREAS ON SURROUNDING PROPERTIES SHALL BE PERFORMED BY THE CONTRACTOR ON AN IMMEDIATE BASIS. ALL COSTS FOR REPAIRS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NO EXTRA COMPENSATION SHALL BE PROVIDED.

TREE REMOVAL

THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER WHEN ALL WORK IS LAID OUT (SURVEY STAKED), SO THAT A DETERMINATION MAY BE MADE OF SPECIFIC TREES TO BE REMOVED. NO TREES SHOWN ON THE CONSTRUCTION PLANS AS BEING SAVED SHALL BE REMOVED WITHOUT PERMISSION FROM THE OWNER AND ENGINEER.

CLEARING AND GRUBBING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING AND GRUBBING FOR SITE CONSTRUCTION INCLUDING CLEARING FOR PAVING, UTILITIES, DRAINAGE FACILITIES AND BUILDING CONSTRUCTION. SEE PLANS FOR LIMITS OF CLEARING AND GRUBBING. ALL AREAS TO BE CLEARED SHALL BE FIELD STAKED AND REVIEWED BY THE OWNER AND ENGINEER PRIOR TO ANY CONSTRUCTION.

MATERIAL STORAGE / DEBRIS REMOVAL

ALL MATERIALS EXCAVATED SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STOCKPILED AT ON-SITE LOCATIONS AS SPECIFIED BY THE OWNER. MATERIALS SHALL BE STOCKPILED SEPARATELY AS TO USABLE (NON ORGANIC) FILL STOCKPILES AND ORGANIC (MUCK) STOCKPILES IF MUCK IS ENCOUNTERED. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL UNSUITABLE FILL MATERIALS FROM THE SITE. ALL CLAY ENCOUNTERED SHALL BE EXCAVATED OUT AND REPLACED WITH CLEAN GRANULAR FILL MATERIALS.

FILL MATERIAL

ALL FILL MATERIALS SHALL NOT CONTAIN MUCK, STUMPS, ROOTS, BRUSH, VEGETATIVE MATTER, RUBBISH OR OTHER MATERIAL THAT WILL NOT COMPACT INTO A SUITABLE AND ENDURING BACKFILL. FILL SHALL BE CLEAN, NON-ORGANIC, GRANULAR MATERIAL WITH NOT MORE THAN 10% PASSING THE NO. 200 SIEVE.

COMPACTION

FILL MATERIALS PLACED UNDER ROADWAYS SHALL BE COMPACTED TO AT LEAST 98% OF THE MAXIMUM DENSITY AS SPECIFIED IN AASHTO T-180. ALL OTHER FILL AREAS ARE TO BE COMPACTED TO AT LEAST 95% MAXIMUM DENSITY AS SPECIFIED IN AASHTO T-180. FILL MATERIALS SHALL BE PLACED AND COMPACTED IN A MAXIMUM OF 12" LIFTS. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AND OWNER WITH ALL (PASSING AND FAILING) TESTING RESULTS. RESULTS SHALL BE PROVIDED ON A TIMELY AND REGULAR BASIS PRIOR TO CONTRACTOR'S PAY REQUEST SUBMITTAL FOR THE AFFECTED WORK.

SANITARY SEWER SYSTEM

OWNER/OPERATOR

THE ENTITY THAT WILL OPERATE AND MAINTAIN THE SEWER SYSTEM SHOWN ON THESE PLANS IS UTILITIES, INC. OF FLORIDA CORPORATION. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THAT ENTITY.

MATERIALS

ALL SANITARY SEWER PIPE SHALL BE PVC SEWER PIPE CONFORMING TO ASTM D3034 SDR-26. INSTALLATION OF PVC SEWER PIPE SHALL CONFORM TO ASTM D2321. SEE ASTM C-12, LATEST EDITION, FOR CONSTRUCTION METHODS, EXCEPT FOR BACKFILLING, WHICH WILL BE AS SHOWN ON THE UTILITY DETAIL SHEET. A HORIZONTAL SEPARATION OF AT LEAST 10' SHALL BE MAINTAINED BETWEEN WATER AND SEWER LINES. WHEN WATER AND SEWER LINES CROSS WITH LESS THAN 18" VERTICAL SEPARATION, OR WHEN THE WATER LINE CROSSES BENEATH THE SEWER LINE AT ANY DEPTH, THE SEWER LINE SHALL BE ENCASED IN CONCRETE OR THE SEWER SHALL BE DUCTILE IRON PIPE FOR A DISTANCE OF 10' EITHER SIDE OF THE CROSSING. DUCTILE IRON SANITARY SEWER GRAVITY PIPE SHALL BE PRESSURE CLASS 350 DUCTILE IRON POLYETHYLENE LINED.

ALL SEWER FITTINGS SHALL BE PVC MEETING THE REQUIREMENTS OF ASTM D3034. FITTINGS SHALL BE SUITABLE FOR USE WITH SDR-26 GRAVITY SEWER PIPE. ALL FITTINGS SHALL HAVE ELASTOMERIC SEALING GASKETS.

JOINTS FOR GRAVITY SEWER PIPE AND ALL FITTINGS SHALL BE ELASTOMERIC RUBBER SEALS. GASKETS SHALL CONFORM TO ASTM F477.

SANITARY SEWER MANHOLES SHALL BE PRECAST CONSTRUCTION. THE MINIMUM SIZE DIAMETER OF MANHOLES SHALL BE 48" FOR SEWER LINES 21" IN DIAMETER OR LESS. PRECAST REINFORCED MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-478 SPECIFICATIONS, WITH PREFORMED FLEXIBLE JOINT SEALS, RAMNEK, OR APPROVED EQUAL. THE INTERIOR SURFACES OF ALL MANHOLES SHALL BE PROTECTED BY THE APPLICATION OF TWO COATS KOPPERS BITUMASTIC 300 M, OR APPROVED EQUAL, APPLIED AT THE RATE OF 120 SQUARE FEET PER GALLON PER COAT MINIMUM. EXTERIOR SURFACES SHALL RECEIVE TWO COATS KOPPERS BITUMASTIC 300 M, OR APPROVED EQUAL, APPLIED AT THE RATE OF 120 SQUARE FEET PER GALLON PER COAT MINIMUM. FOR INSTALLATIONS <10', USE SDR 26.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO PROVIDE A FLEXIBLE WATERTIGHT SEAL OF THE PIPE TO THE MANHOLE. NO ADHESIVES OR LUBRICANTS SHALL BE EMPLOYED IN THE INSTALLATION OF THE CONNECTOR INTO THE MANHOLE. THE RUBBER FOR CONNECTOR SHALL COMPLY WITH ASTM C443 AND ASTM C923 AND CONSIST OF EPDM AND ELASTOMERS DESIGNED TO BE RESISTANT TO OZONE, WEATHER ELEMENT, CHEMICALS, INCLUDING ACIDS, ALKALIS, ANIMAL AND VEGETABLE FATS, OILS AND PETROLEUM PRODUCTS FROM SPILLS. ALL STAINLESS STEEL ELEMENTS OF THE CONNECTOR SHALL BE TOTALLY NON-MAGNETIC SERIES 316 STAINLESS, EXCLUDING THE WORM SCREW FOR TIGHTENING THE STEEL BAND AROUND THE PIPE WHICH SHALL BE TORQUED BY A BREAKAWAY TORQUE WRENCH AVAILABLE FROM THE PRECAST MANHOLE SUPPLIER, AND SET FOR 60-70 INCH/LBS. THE CONNECTOR SHALL BE INSTALLED IN THE MANHOLE WALL BY ACTIVATING THE EXPANDING MECHANISM IN STRICT ACCORDANCE WITH THE RECOMMENDATION OF THE CONNECTOR MANUFACTURER.

CONSTRUCTION METHODS

INSTALLATION OF GRAVITY SANITARY SEWER SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND UTILITIES, INC. OF FLORIDA STANDARDS.

IN LAYING OUT THE SANITARY SEWER IN THE FIELD, THE CONTRACTOR SHALL USE THE STREET C/L OR PROPERTY LINE OFFSETS FOR LOCATING THE SANITARY SEWER MANHOLES AND INVERT ELEVATIONS GIVEN ON THE PLAN AND PROFILE SHEET. IN THE EVENT OF ANY MINOR DIFFERENCES IN ACTUAL LENGTHS OF THE SANITARY SEWER LINES BETWEEN MANHOLES FOR THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL ADJUST THE MANHOLE INVERTS TO MAINTAIN A MINIMUM GRADE AS SHOWN. UNDER NO CIRCUMSTANCES WILL PIPE GRADES LESS THAN 0.30% FOR 8" PIPE OR 0.28% FOR 10" PIPE BE ACCEPTED.

THE CONTRACTOR SHALL STAMP AN "S" IN THE CURB TOP AT EACH SANITARY SERVICE LOCATION. STAMPED "S" SHALL BE HIGHLIGHTED WITH GREEN OIL BASE PAINT. SEE ALSO SEWER DETAIL SHEET FOR SEWER LATERAL MARKING. "SAW" CUTS ARE NOT PERMISSIBLE.

DEWATERING

IN THE EVENT THAT GROUNDWATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE SANITARY SEWER SYSTEM, DEWATERING SHALL BE CONDUCTED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, INSTALLATION, OPERATION, AND SUBSEQUENT REMOVAL OF DEWATERING SYSTEMS AND THEIR SAFETY AND CONFORMITY WITH LOCAL COUNTY, STATE AND FEDERAL CODES AND REGULATIONS.

AT ALL TIMES DURING CONSTRUCTION, KEEP EXCAVATIONS FREE FROM STANDING WATER. SUMPS, IF REQUIRED, SHALL BE LOCATED OUTSIDE OF LOAD BEARING AREAS SO THAT BEARING SURFACES WILL NOT BE DISTURBED. WATER PUMPED FROM THE EXCAVATION SHALL BE DISCHARGED TO PREVENT RE-ENTRY INTO THE SOIL STRATA BEING DEWATERED. WATER CONTAINING SILT IN SUSPENSION SHALL NOT BE PUMPED INTO SEWER LINES OR ADJACENT STREAMS. THE METHOD OF DISPOSING OF WATER PUMPED FROM THE EXCAVATION SHALL BE APPROVED BY THE ENGINEER, PRIOR TO ACTUAL DISPOSAL.

PIPE EMBEDMENT

SANITARY SEWER PIPE MUST BE BEDDED TRUE TO LINE AND GRADE WITH UNIFORM AND CONTINUOUS LONGITUDINAL SUPPORT FROM A FIRM BASE. BLOCKING MAY NOT BE USED TO BRING THE PIPE TO GRADE. PIPE BED SHALL BE UNDISTURBED EARTH AND, IN THE EVENT OF OVER-EXCAVATION, THE CONTRACTOR SHALL REPLACE OVER EXCAVATION WITH CLEAN GRANULAR BACKFILL, AS NOTED BELOW, AND COMPACTED TO A DENSITY OF 98% OF THE AASHTO T-180 MAXIMUM DENSITY AND SHAPED TO FIT THE PIPE SO AS TO GIVE IT CONTINUOUS AND UNIFORM LONGITUDINAL SUPPORT.

AT ALL LOCATIONS WHERE PIPING IS TO BE INSTALLED IN AN AREA WHERE MUCK WAS NOTED IN THE SOILS TESTING OR AT ANY OTHER LOCATIONS WHERE MUCK OR ORGANIC SOILS ARE ENCOUNTERED, THE TRENCH SHALL BE OVER-EXCAVATED TO REMOVE ALL MUCK OR ORGANIC SOILS, GRANULAR BACKFILL OR AS NOTED BELOW, PLACED AND COMPACTED IN THE TRENCH BOTTOM TO THE ELEVATIONS AND LOCATIONS NOTED ON THE PLANS. BACKFILL NEEDED TO BRING TRENCH TO THE PROPER GRADE SHALL BE COMPACTED TO A MINIMUM DENSITY OF 98% OF THE AASHTO T-180 MAXIMUM DENSITY.

TRENCH OR EXCAVATION BOTTOM STABILIZATION MATERIAL

A. SAND

SAND SHALL BE WELL GRADED, ORGANIC FREE, DURABLE, GRANULAR MATERIAL, AND SHALL PASS A NO. 4 SIEVE. NOT MORE THAN 10% SHALL PASS A NO. 200 SIEVE.

B. PIT RUN GRAVEL

PIT RUN GRAVEL SHALL BE ORGANIC FREE AND SHALL PASS A 3/4-INCH SIEVE.

C. GRANULAR MATERIAL

GRANULAR MATERIAL SHALL BE WELL GRADED, ORGANIC AND TOPSOIL FREE, DURABLE AGGREGATE AND SHALL PASS A 3/4-INCH SIEVE. NOT MORE THAN 10% SHALL PASS A NO. 200 SIEVE.

TESTING

INFILTRATION TESTING OF THE SANITARY SEWER SYSTEM WILL BE REQUIRED TO BE PERFORMED BY THE CONTRACTOR. INFILTRATION SHALL NOT EXCEED 200 GALLONS PER DAY PER INCH OF DIAMETER PER MILE OF LENGTH. IN THE EVENT THAT GROUNDWATER IS NOT ENCOUNTERED DURING SANITARY SEWER CONSTRUCTION, OR IF THE GROUNDWATER ENCOUNTERED IS NOT 24" ABOVE THE TOP OF PIPE, EXFILTRATION TESTING OF THE SANITARY SEWER WILL BE NECESSARY. THE TESTING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR, BUT WILL BE WITNESSED BY THE ENGINEER AND THE UTILITY REPRESENTATIVES. EXFILTRATION SHALL NOT EXCEED 200 GALLONS PER DAY PER INCH OF DIAMETER PER MILE OF LENGTH, INCLUDING MANHOLES.

LINE LAMPING WILL BE REQUIRED TO BE PERFORMED BY THE CONTRACTOR AND WITNESSED BY THE ENGINEER AND OWNER/OPERATOR.

THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES REQUIRED FOR ALL TESTING. CONTRACTOR SHALL CONTACT THE ENGINEER AND OWNER/OPERATOR IN WRITTEN FORM, SEVENTY-TWO (72) HOURS IN ADVANCE OF PROPOSED TESTING. NO TESTING ON MONDAY OR FRIDAY. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION.
UTILITIES INC. OF FLORIDA REQUIRES AIR TEST, VIDEO, & 5% MANDREL TESTING

AS-BUILT DRAWINGS

THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES.
AS-BUILT INFORMATION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

1. LOCATIONS AND INVERTS OF ALL GRAVITY SEWER LINES, MANHOLES, LIFT STATION WETWELLS AND SERVICE LATERALS AND RIM ELEVATION OF ALL MANHOLES.
2. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING PLANS.
3. DISTANCES OF SEWER LINE LAID FROM MANHOLE TO MANHOLE WITH DISTANCE TIES TO LATERALS.

TRENCH SAFETY

THE CONTRACTOR SHALL RECOGNIZE AND ABIDE BY ALL OSHA EXCAVATION SAFETY STANDARDS, INCLUDING THE FLORIDA TRENCH SAFETY ACT (90-96, LAWS OF FLORIDA). ANY MATERIAL, CONSTRUCTION METHODS, OR MATERIAL COST TO COMPLY WITH THESE LAWS SHALL BE INCIDENTAL TO THE CONTRACT.

MINIMUM COVER OVER ALL PIPES SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.

ALL PLUGS, CAPS, TEES, BENDS, VALVES, ETC., SHALL BE PROVIDED WITH RESTRAINED JOINTS OR THRUST BLOCKS (RESTRAINED JOINTS PREFERRED).THRUST BLOCK CONSTRUCTION DETAILS, REFER TO UTILITY DETAIL SHEET.

FORCE MAIN

OWNER/OPERATOR

THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE FORCE MAIN SHOWN ON THESE PLANS IS UTILITIES INC OF FLORIDA, THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL REQUIREMENTS OF THAT ENTITY.

MATERIALS

SANITARY SEWER FORCE MAIN SHALL BE POLYVINYL CHLORIDE PLASTIC PIPE (PVC) AND SHALL CONFORM TO ASTM D2241 PLASTIC PIPE (SD PR & CLASS T), ASTM 1784, TYPE I, 2000 PSI DESIGN STRESS. THE PIPE SHALL BE ANSI/AWWA C900, WITH MARKINGS ON EACH SECTION SHOWING CONFORMANCE WITH THE ABOVE SPECIFICATION. JOINTS SHALL BE ELASTOMERIC RUBBER GASKETED CONFORMING TO ASTM D3139 DR 18 PIPE.

FITTINGS FOR FORCE MAIN SHALL BE MECHANICAL JOINT, DUCTILE IRON CONFORMING TO ANSI/AWWA C110/A21.10 350 PSI MINIMUM PRESSURE RATING. FITTINGS SHALL BE POLYETHYLENE LINED (MIN. 30 MILS CONFORMING TO ASTM D-1248).

ALL PLUGS, CAPS, TEES, VALVES, BENDS, ETC., SHALL BE RESTRAINED JOINTS PER DETAILS ON UTILITY SHEETS. THREE FOOT MINIMUM COVER OVER FORCE MAIN.

STANDARD PLUG VALVES SHALL BE MANUFACTURED BY DEZURIK CORP., PRATT, DRESSER, HOMESTEAD INDUSTRIES, OR APPROVED EQUAL.

VALVES SHALL BE FURNISHED WITH A REPLACEABLE CHEVRON PACKING, CAPABLE OF BEING REPACKED WITH THE LINE UNDER PRESSURE.

VALVES 4 INCHES IN DIAMETER AND SMALLER SHALL BE WRENCH NUT OPERATED. VALVES LARGER THAN 4 INCHES SHALL BE WORM GEAR OPERATED, EXCEPT WHERE AUTOMATIC OPERATION IS SPECIFIED.

AIR RELEASE VALVE DESIGNED FOR SEWAGE SERVICE SHALL BE INSTALLED IN THE TOPS OF PIPES AS INDICATED ON THE DRAWINGS. VALVES SHALL BE DESIGNED TO PERMIT MANUAL RELEASE OF AIR FROM AN EMPTY PIPE DURING FILLING AND SHALL BE CAPABLE OF DISCHARGING ACCUMULATED AIR IN THE LINE WHILE THE LINE IS IN OPERATION AND UNDER PRESSURE. VALVES SHALL BE CAPABLE OF WITHSTANDING OPERATING PRESSURES OF 50 PSI. VALVES SHALL BE VENTED TO THE ATMOSPHERE. THE VALVES SHALL BE VALMATIC, OR APPROVED EQUAL.

CHECK VALVES SHALL BE OF THE WEIGHT AND LEVER TYPE, RESILIENT DISK, GRAY IRON, BRONZE TRIM, HORIZONTAL MOUNTED. VALVES SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C508 WITH FLANGED CONNECTIONS. VALVES SHALL HAVE A WORKING PRESSURE OF 200 PSI FOR VALVES 2"-12". VALVES SHALL BE DEZURIK, MUELLER, OR APPROVED EQUAL.

CONSTRUCTION METHODS

TRENCHING SHALL BE IN ACCORDANCE WITH THE TRENCHING DETAILS PROVIDED ON THE CONSTRUCTION PLANS.

COMPACTED BACKFILL FOR ALL PIPE SHALL BE TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 FOR UNDER ROADWAYS. OTHER COMPACTION OF BACKFILL SHALL BE TO THE 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.

INSTALLATION OF THE SANITARY SEWER FORCE MAIN SHALL BE IN CONFORMANCE WITH ASTM D2774-72 (LATEST EDITION).

MINIMUM COVER OVER ALL PIPES SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.

THE FORCE MAIN SHALL BE INSTALLED AS NOTED ON THE PLANS. WHERE APPLICABLE, A LATERAL SEPARATION OF AT LEAST 10' SHALL BE MAINTAINED BETWEEN WATER AND SEWER LINES. WHEN WATER AND SEWER LINES CROSS WITH LESS THAN AN 18" VERTICAL SEPARATION, THE PVC SEWER LINE SHALL BE ENCASED IN CONCRETE OR DUCTILE IRON PIPE USED IN LIEU OF PVC PIPE FOR A DISTANCE OF 10' EITHER SIDE OF THE CROSSING.

ALL PLUGS, CAPS, TEES, BENDS, VALVES, ETC., SHALL BE PROVIDED WITH RESTRAINED JOINTS OR THRUST BLOCKS (RESTRAINED JOINTS PREFERRED) PER UTILITY DETAIL SHEET.

GREEN MAGNETIC INDICATOR TAPE SHALL BE BURIED IN THE FORCE MAIN TRENCH 18" DIRECTLY ABOVE THE FORCE MAIN. A CONTINUOUS COPPER DETECTOR WIRE SHALL BE ATTACHED TO THE PIPE AND VALVES AS SHOWN ON THE UTILITY SHEETS USING VINYL TIE STRAPS. NO DUCT TAPE WIRE SHALL BE 10 GA. AND COLOR CODED.

CONNECTIONS TO MANHOLE WITH FORCE MAINS SHALL BE MADE BY CORE BORE AND LINK SEAL OR OTHER APPROVED CONNECTION. CONNECTIONS SHALL BE MADE WATERTIGHT AND BE INSTALLED ACCORDING TO THE MANUFACTURERS' RECOMMENDATIONS.

TESTING

FORCE MAIN SHALL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD M23. FORCE MAIN SYSTEM SHALL BE TESTED FOR TWO (2) HOURS AT 100 PSI. SEVENTY-TWO (72) HOURS WRITTEN ADVANCE NOTIFICATION TO THE ENGINEER AND THE UTILITY COMPANY OF THE TESTING WILL BE REQUIRED. NO TESTING ON MONDAY OR FRIDAY. THE CONTRACTOR SHALL PERFORM SATISFACTORY PROTESTING PRIOR TO NOTIFICATION.

AS-BUILT DRAWINGS

THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES.

AS-BUILT INFORMATION FOR THE FORCE MAIN SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING

1. LOCATION OF ALL VALVES, FITTINGS, ETC.
2. LOCATION OF THE FORCE MAIN TIED HORIZONTALLY TO THE BACK OF CURB OR EDGE OF PAVEMENT.
3. CERTIFICATION AS TO THE SYSTEM MEETING THE MINIMUM COVER REQUIREMENTS.
4. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING DRAWINGS.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28762
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

GENERAL NOTES

PREPARED FOR: VK AVALON GROVES, LLC

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\GNOTES.DWG-C-102 2017\7\20\1 10:20 AM ERIC FRANCIS

NO.	DATE	DESCRIPTION
1	06/26/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	GNOTES
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-102

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

RECLAIMED WATER INFRASTRUCTURE SYSTEMS

OWNER/OPERATOR

THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE SYSTEM SHOWN ON THESE PLANS IS UTILITES, INC. OF FLORIDA. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THAT ENTITY.

PIPE MATERIALS

POLYVINYL CHLORIDE PLASTIC PIPE (PVC) 4" THROUGH 12" SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C900 (LATEST EDITION) AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI AND HAVE A DR (DIMENSION RATIO) OF 18. ALL PIPE SHALL BE LABELED "RECLAIMED WATER" OR "NON POTABLE WATER" PROMINENTLY ON EACH PIPE JOINT. JOINTS SHALL BE OF THE PUSH-ON TYPE AND COUPLINGS CONFORMING TO ASTM D3139 DR18 PIPE.

DUCTILE IRON PIPE (DIP) SHALL BE STANDARD PRESSURE CLASS 350 IN SIZES 4" THROUGH 12" AND CONFORM TO ANSI/AWWA C150/A21.50 (LATEST EDITION). ALL DUCTILE IRON PIPE SHALL HAVE A STANDARD THICKNESS OF CEMENT MORTAR LINING AS SPECIFIED IN ANSI/AWWA C104/A21.4 (LATEST EDITION). PIPE JOINTS SHALL BE OF THE PUSH-ON RUBBER GASKET TYPE CONFORMING TO ANSI/AWWA C111/A21.11 (LATEST EDITION).

PIPE SIZES GREATER THAN 12" IN BOTH PVC AND DUCTILE IRON SHALL BE SEPARATELY SPECIFIED ON THE PLANS; WITH THICKNESS CLASSES TO BE SHOWN BASED ON WORKING PRESSURES, PIPE DEPTH AND TRENCH CONDITIONS.

FITTINGS FOR DUCTILE IRON PIPE AND PVC C900 PIPE SHALL BE DUCTILE IRON AND SHALL CONFORM TO ANSI/AWWA C110/A21.10 (LATEST EDITION) AND SHALL BE CEMENT LINED IN CONFORMANCE WITH ANSI/AWWA C104/A21.4 (LATEST EDITION).

POLYETHYLENE WRAP USED FOR CORROSION PREVENTION ON DUCTILE IRON PIPE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/ASTM D1248. THE MINIMUM NOMINAL THICKNESS SHALL BE 0.008 IN. (8 MILS). INSTALLATION OF POLY WRAP SHALL BE IN ACCORDANCE WITH AWWA C105.

VALVES

GATE VALVES SHALL BE RESILIENT SEAT AND SHALL CONFORM TO ANSI/AWWA C509.87 WITH HANDWHEEL OR WRENCH NUT, EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED. MANUFACTURER'S CERTIFICATION OF THE VALVES' COMPLIANCE WITH AWWA SPECIFICATION C509 AND TESTS LISTED THEREIN WILL BE REQUIRED. VALVE BOX PADS SHALL BE 18" X 18" X 4" THICK CONCRETE WITH #4 REINFORCING BARS. PAD TO BE SET AT FINISHED GRADE. VALVES SHALL BE CLOW, MUELLER, KENNEDY, M&H, AMERICAN DARLING, OR APPROVED EQUAL.

BUTTERFLY VALVES

BUTTERFLY VALVES SHALL MEET OR EXCEED THE DESIGN STRENGTH TESTING AND PERFORMANCE REQUIREMENTS OF AWWA C504, CLASS 150. VALVES SHALL BE DUCTILE IRON, RESILIENT SEAT, AND BE MANUFACTURED BY KENNEDY, MUELLER, M&H, AMERICAN DARLING, OR APPROVED EQUAL. BUTTERFLY VALVES TO BE USED FOR SIZES GREATER THAN 12".

AIR RELEASE VALVES

AIR RELEASE VALVES SHALL BE PLACED AT HIGH POINTS OF THE TRANSMISSION MAIN TO PERMIT ESCAPE OF TRAPPED AIR. THE VALVE SIZE, LOCATION, AND METHOD OF INSTALLATION SHALL BE INDICATED ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER. AIR RELEASE VALVES SHALL BE VALMATIC OR APPROVED EQUAL.

VALVE BOXES

VALVE BOXES ON BURIED RECLAIMED WATER MAINS SHALL BE ADJUSTABLE, CAST IRON CONSTRUC-TION, WITH A MINIMUM INTERIOR DIAMETER OF 5" WITH COVERS CAST WITH THE INSCRIPTION IN LEGIBLE LETTERING ON THE TOP: RECLAIMED WATER. BOXES SHALL BE SUITABLE FOR THE APPLICABLE SURFACE LOADING AND VALVE SIZE, AND SHALL BE MANUFACTURED BY MUELLER COMPANY, MODEL 10364, OR APPROVED EQUAL.

PIPE INSTALLATION

PIPE INSTALLATION OF PVC RECLAIMED WATER MAIN SHALL BE IN CONFORMANCE WITH ASTM D2774 (LATEST EDITION). INSTALLATION OF DUCTILE IRON PIPE RECLAIMED WATER MAIN SHALL BE IN CONFORMANCE WITH AWWA C600.87 (LATEST EDITION).

COMPACTED BACKFILL SHALL BE TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 UNDER ALL PAVEMENTS WITH 12" MAXIMUM LIFT THICKNESS. OTHER COMPACTION OF BACKFILL SHALL BE TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 WITH 12" MAXIMUM LIFT THICKNESS. SEE PIPE TRENCHING DETAILS.

MINIMUM COVER OVER ALL PIPE SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.

RECLAIMED WATER MAINS ARE TO BE INSTALLED SO AS TO PROVIDE A MINIMUM VERTICAL CLEARANCE OF 18" OR A MINIMUM HORIZONTAL CLEARANCE OF 5 FEET FROM ALL SANITARY HAZARDS INCLUDING STORM DRAINAGE PIPES AND STRUCTURES, AS WELL AS SEPTIC TANK DRAINFIELDS AND SEWER PIPING. IF CLEARANCE CANNOT BE ACHIEVED, THE PVC WATER MAIN SHALL BE ENCASED IN CONCRETE OR DUCTILE IRON PIPE USED IN LIEU OF PVC PIPE FOR 10' EACH SIDE OF WATER/STORM SEWER CROSSING. IF WATER/SANITARY SEWER CROSSING THEN SANITARY SEWER PIPE SHALL BE ENCASED OR D.I.P. USED FOR 10' EACH SIDE OF CROSSING.

ALL PLUGS, CAPS, TEES, BENDS, VALVES, ETC., SHALL BE PROVIDED WITH RODDED RESTRAINTS.

PIPE IDENTIFICATION/LOCATION WIRE

INDICATOR TAPE SHALL BE BURIED IN THE RECLAIMED WATER MAIN TRENCH 18" DIRECTLY ABOVE THE WATER MAIN. A CONTINUOUS COPPER DETECTOR WIRE SHALL BE ATTACHED AS SHOWN ON THE RECLAIMED WATER DETAIL SHEET. INDICATOR TAPE SHALL CALL OUT THAT A RECLAIMED OR NON POTABLE SYSTEM IS BELOW. PIPE SHALL BE COLOR CODED PURPLE IN ADDITION TO MARKING, IF AVAILABLE. COLOR CODED 10 GA. TRACKER WIRE MUST BE AFFIXED TO ALL PIPE AND SERVICES USING VINYL STRAPS. NO DUCT TAPE.

DISINFECTION AND TESTING

ALLOWABLE LEAKAGE FOR PVC PRESSURE MAINS WILL BE IN ACCORDANCE WITH AWWA M23. THE UTILITY DOES NOT ALLOW ANY LEAKAGE.

THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES REQUIRED FOR ALL HYDROSTATIC AND LEAKAGE TESTING. CONTRACTOR SHALL CONTACT THE ENGINEER AND OWNER/OPERATOR IN WRITTEN FORM, FORTY-EIGHT (48) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION. TESTING SHALL ONLY BE SCHEDULED ON A TUESDAY, WEDNESDAY OR THURSDAY.

THE RECLAIMED WATER SYSTEM SHALL BE TESTED FOR LEAKAGE AT 150 PSI FOR TWO (2) HOURS, WITH ALLOWABLE LEAKAGE IN ACCORDANCE WITH ABOVE STANDARDS.

AS-BUILT DRAWINGS

THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES.

AS-BUILT INFORMATION FOR THE WATER SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

1. LOCATION OF ALL VALVES, FITTINGS AND SERVICES.
2. LOCATION OF THE WATER MAIN TIED HORIZONTALLY TO THE BACK OF CURB OR EDGE OF PAVEMENT.
3. CERTIFICATION AS TO THE SYSTEM MEETING THE MINIMUM COVER REQUIREMENTS.
4. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING PLANS.

POTABLE WATER / FIRE SYSTEMS

OWNER/OPERATOR

THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE WATER SYSTEM SHOWN ON THESE PLANS IS UTILITIES, INC. OF FLORIDA. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THAT ENTITY.

PIPE MATERIALS

POLYVINYL CHLORIDE PLASTIC PIPE (PVC) 4" THROUGH 12" SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C900 (LATEST EDITION) AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI AND HAVE A DR (DIMENSION RATIO) OF 18. ALL PVC PIPE SHALL BEAR THE NSF LOGO FOR POTABLE WATER. JOINTS SHALL BE OF THE PUSH-ON TYPE AND COUPLINGS CONFORMING TO ASTM D3139 DR18 PIPE.

DUCTILE IRON PIPE (DIP) SHALL BE STANDARD PRESSURE CLASS 350 IN SIZES 4" THROUGH 12" AND CONFORM TO ANSI/AWWA C150/A21.50 (LATEST EDITION). ALL DUCTILE IRON PIPE SHALL HAVE A STANDARD THICKNESS OF CEMENT MORTAR LINING AS SPECIFIED IN ANSI/AWWA C104/A21.4 (LATEST EDITION). PIPE JOINTS SHALL BE OF THE PUSH-ON RUBBER GASKET TYPE CONFORMING TO ANSI/AWWA C111/A21.11 (LATEST EDITION).

PIPE SIZES GREATER THAN 12" IN BOTH PVC AND DUCTILE IRON SHALL BE SEPARATELY SPECIFIED ON THE PLANS; WITH THICKNESS CLASSES TO BE SHOWN BASED ON WORKING PRESSURES, PIPE DEPTH AND TRENCH CONDITIONS.

FITTINGS FOR DUCTILE IRON PIPE AND PVC C900 PIPE SHALL BE DUCTILE IRON AND SHALL CONFORM TO ANSI/AWWA C110/A21.10 (LATEST EDITION) AND SHALL BE CEMENT LINED IN CONFORMANCE WITH ANSI/AWWA C104/A21.4 (LATEST EDITION).

POLYETHYLENE WRAP USED FOR CORROSION PREVENTION ON DUCTILE IRON PIPE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/ASTM D1248. THE MINIMUM NOMINAL THICKNESS SHALL BE 0.008 IN. (8 MILS). INSTALLATION OF POLY WRAP SHALL BE IN ACCORDANCE WITH AWWA C105.

VALVES

GATE VALVES SHALL BE RESILIENT SEAT AND SHALL CONFORM TO ANSI/AWWA C509.87 WITH HANDWHEEL OR WRENCH NUT, EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED. MANUFACTURER'S CERTIFICATION OF THE VALVES' COMPLIANCE WITH AWWA SPECIFICATION C509 AND TESTS LISTED THEREIN WILL BE REQUIRED. VALVE BOX PADS SHALL BE 18" X 18" X 4" THICK CONCRETE WITH #4 REINFORCING BARS. PAD TO BE SET AT FINISHED GRADE. VALVES SHALL BE CLOW, MUELLER, KENNEDY, M&H, AMERICAN DARLING, OR APPROVED EQUAL.

BUTTERFLY VALVES

BUTTERFLY VALVES SHALL MEET OR EXCEED THE DESIGN STRENGTH TESTING AND PERFORMANCE REQUIREMENTS OF AWWA C504, CLASS 150. VALVES SHALL BE DUCTILE IRON, RESILIENT SEAT, AND BE MANUFACTURED BY KENNEDY, MUELLER, M&H, AMERICAN DARLING, OR APPROVED EQUAL. BUTTERFLY VALVES TO BE USED FOR MAIN SIZES GREATER THAN 12".

AIR RELEASE VALVES

AIR RELEASE VALVES SHALL BE PLACED AT HIGH POINTS OF THE TRANSMISSION MAIN TO PERMIT ESCAPE OF TRAPPED AIR. THE VALVE SIZE, LOCATION, AND METHOD OF INSTALLATION SHALL BE INDICATED ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER. AIR RELEASE VALVES SHALL BE CRISPIN PRESSURE AIR VALVE TYPE N, APCO, OR VALVE & PRIMER CORP. OR VAL-MATIC CORPORATION.

VALVE BOXES

VALVE BOXES ON BURIED POTABLE WATER MAINS SHALL BE ADJUSTABLE, CAST IRON CONSTRUC-TION, WITH A MINIMUM INTERIOR DIAMETER OF 5" WITH COVERS CAST WITH THE INSCRIPTION IN LEGIBLE LETTERING ON THE TOP: WATER. BOXES SHALL BE SUITABLE FOR THE APPLICABLE SURFACE LOADING AND VALVE SIZE, AND SHALL BE MANUFACTURED BY MUELLER COMPANY, MODEL 10364, OR APPROVED EQUAL.

FIRE HYDRANTS

FIRE HYDRANTS SHALL CONFORM TO THE LATEST EDITION OF AWWA C502.85 AND SHALL BE FURNISHED COMPLETE WITH WRENCH AND OTHER APPURTENANCES. MANUFACTURER'S CERTIFICATION OF COMPLIANCE WITH AWWA C502 AND TESTS LISTED THEREIN WILL BE REQUIRED. ALL HYDRANTS SHALL BE OF BREAKABLE TYPE, WITH THE BREAKABLE SECTION LOCATED SLIGHTLY ABOVE THE FINISH GROUND LINE. HYDRANTS SHALL CONTAIN TWO, TWO AND ONE-HALF INCH (2-1/2") HOSE CONNECTIONS, AND ONE, FOUR AND ONE-HALF INCH (4-1/2") STEAMER CONNECTIONS WITH NATIONAL STANDARD FIRE HOSE COUPLING SCREW THREADS, FIVE AND ONE-QUARTER INCH (5-1/4") VALVE OPENING, SIX INCH (6") DIAMETER MECHANICAL JOINT INLET, ONE AND ONE-HALF INCH (1-1/2") PENTAGON OPERATING NUT. SHALL OPEN COUNTERCLOCKWISE, SHALL BE PAINTED IN CONFORMANCE WITH LOCAL FIRE DEPT. REQUIREMENTS (COLORS BASED ON DELIVERED FIRE FLOW) WITH THE PRIMER PAINT BEING KOPPER'S "GLAMORTEX" NO. 622 RUST PRIMER, AND THE FINISH BEING KOPPER'S "GLAMORTEX" AND SHALL BE AMERICAN DARLING B-84-B, NO SUBSTITUTES.

1. BLUE PAVEMENT REFLECTORS (RPM'S) SHALL BE PLACED IN THE CENTERLINE OF THE DRIVING LANE DIRECTLY IN FRONT OF EACH FIRE HYDRANT.
2. CONTRACTOR SHALL PROVIDE A POST-CONSTRUCTION FIRE FLOW TEST WITNESSED AND APPROVED BY THE ENGINEER, OWNER/OPERATOR AND LOCAL FIRE OFFICIAL.
3. THERE SHALL BE NO TREES, SHRUBS, ETC., PLANTED AROUND THE FIRE HYDRANTS OR IN AREAS DESIGNATED AS FIRE LANES.

WATER SERVICES

UNLESS OTHERWISE NOTED IN THE PLANS, THE UTILITY COMPANY SHALL PROVIDE AND INSTALL WATER METERS. CONTRACTOR SHALL CONSTRUCT WATER SERVICE THROUGH THE CURB STOP AS SHOWN ON THE CONSTRUCTION PLANS.

POLYETHYLENE (PE) PRESSURE PIPE FOR WATER SERVICES 3/4" THROUGH 2" SHALL BE ENDOT, ENDOPURE, BLUE PIPE AND CONFORM TO AWWA C901.88, MIN 200 PSI.

ALL SERVICES SHALL INCLUDE THE FOLLOWING: CURB STOPS, "U" BRANCHES, UNIONS AS REQUIRED, PE SERVICE PIPE AND CORPORATION STOPS AND METER BOX. THE SERVICE SHALL BE COMPLETE THROUGH THE CURB STOP AS SHOWN ON THE DETAIL SHEET, AND SHALL BE OF THE TYPE REQUIRED FOR COMPATIBILITY WITH THE SERVICE LINES SPECIFIED, AND FITTINGS SHALL BE AS MANUFACTURED BY THE MUELLER CORPORATION OR HAYS OR FORD.

THE CONTRACTOR SHALL STAMP "W" IN THE CURB TOP AT EACH WATER SERVICE AND A "V" AT ALL VALVE LOCATIONS. STAMPED W'S AND V'S SHALL BE HIGHLIGHTED WITH BLUE OIL BASED PAINT. SEE WATER DETAIL SHEET FOR OTHER SERVICE LOCATION AND MARKING REQUIREMENTS. "SAW" CUTS ARE NOT PERMISSIBLE.

PIPE INSTALLATION

PIPE INSTALLATION OF PVC WATER MAIN SHALL BE IN CONFORMANCE WITH ASTM D2774 (LATEST EDITION). INSTALLATION OF DUCTILE IRON PIPE WATER MAIN SHALL BE IN CONFORMANCE WITH AWWA C600.87.

COMPACTED BACKFILL SHALL BE TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 UNDER ALL PAVEMENTS WITH 12" MAXIMUM LIFT THICKNESS. OTHER COMPACTION OF BACKFILL SHALL BE TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 WITH 12" MAXIMUM LIFT THICKNESS. SEE PIPE TRENCHING DETAILS.

MINIMUM COVER OVER ALL PIPE SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.

WATER MAINS ARE TO BE INSTALLED SO AS TO PROVIDE A MINIMUM VERTICAL CLEARANCE OF 18" OR A MINIMUM HORIZONTAL CLEARANCE OF 10 FEET FROM ALL SANITARY HAZARDS, INCLUDING STORM DRAINAGE PIPES AND STRUCTURES, AS WELL AS SEPTIC TANKS, DRAINFIELDS AND SEWER PIPING. IF CLEARANCE CANNOT BE ACHIEVED, THEN DUCTILE IRON WATER MAIN SHALL BE PROVIDED OR 10 FEET EITHER SIDE OF THE CROSSING OR WATER MAIN SHALL BE CONCRETE ENCASED IF A WATER STORM CROSSING, OR THE SEWER MAIN ENCASED IF A SANITARY SEWER WATER CROSSING.

ALL PLUGS, CAPS, TEES, BENDS, FIRE HYDRANTS, VALVES, ETC., SHALL BE PROVIDED WITH THRUST BLOCKS/RODDED RESTRAINTS. FOR THRUST BLOCK CONSTRUCTION DETAILS, REFER TO THE UTILITY DETAIL SHEET.

PIPE IDENTIFICATION/LOCATION WIRE

BLUE INDICATOR TAPE SHALL BE BURIED IN THE WATER MAIN TRENCH 18" DIRECTLY ABOVE THE WATER MAIN. A CONTINUOUS COPPER DETECTOR WIRE SHALL BE ATTACHED AS SHOWN ON THE WATER DETAIL SHEET.

DISINFECTION AND TESTING

ALL PIPE SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651.86.

ALLOWABLE LEAKAGE FOR PVC PRESSURE MAINS WILL BE IN ACCORDANCE WITH AWWA M23. THE UTILITY DOES NOT ALLOW ANY LEAKAGE.

THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES REQUIRED FOR ALL HYDROSTATIC AND LEAKAGE TESTING. CONTRACTOR SHALL CONTACT THE ENGINEER AND OWNER/OPERATOR IN WRITTEN FORM, SEVENTY-TWO (72) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION. TESTING SHALL ONLY BE SCHEDULED ON A TUESDAY, WEDNESDAY OR THURSDAY.

THE WATER SYSTEM SHALL BE TESTED FOR LEAKAGE AT 150 PSI FOR TWO (2) HOURS, WITH ALLOWABLE LEAKAGE IN ACCORDANCE WITH ABOVE STANDARDS.

CONTRACTOR SHALL OBTAIN A COPY OF THE FDEP WATER SYSTEM PERMIT AND PULL BACTERIOLOGICAL TEST SAMPLES FROM THE SAMPLE POINTS SPECIFIED IN THAT PERMIT.

CONNECTIONS TO EXISTING WATER MAINS

PRIOR TO THE CONNECTION TO ANY EXISTING MAIN, THE PROPOSED WATER MAIN SHALL BE DISINFECTED, HAVE ENGINEER APPROVED PRESSURE TESTING AND HAVE FDEP CLEARANCE. REFER TO FDEP PERMIT FOR ANY ADDITIONAL REQUIREMENTS.

AS-BUILT DRAWINGS

THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES.

AS-BUILT INFORMATION FOR THE WATER SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

1. LOCATION OF ALL VALVES, FITTINGS, HYDRANTS AND SERVICES.
2. LOCATION OF THE WATER MAIN TIED HORIZONTALLY TO THE BACK OF CURB OR EDGE OF PAVEMENT.
3. CERTIFICATION AS TO THE SYSTEM MEETING THE MINIMUM COVER REQUIREMENTS.
4. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING PLANS.

Avalon Groves PUD - Min. Open Space Requirements

Tract Designation - FLU	Land Use	Acres	Min. O/S %	Min. O/S Required (Ac.)
North Tract - Rural Transition	Residential	188.98	50%	94.49
North Tract - Rural Transition	Wetlands	92.23	50%	46.12
South Tract - Urban Low	Residential	335.07	25%	83.77
South Tract - Urban Low	Village Center (Rec)	10	25%	2.50
South Tract - Urban Low	Wetlands	359.31	25%	89.83
TOTALS		**985.59**		**316.70**

NOTE: Per Avalon Groves Special Master Agreement (SM-05-16), Open Space acreage may be distributed across the entirety of the project regardless of Future Land Use designation. Further, wetland acreage within the Avalon Groves PUD is eligible to be designated as Open Space.

Avalon Groves PUD - Open Space Provided

Tract Designation - Phase	Land Use	Acres	O/S Provided (Ac.)	O/S Remaining to be Provided
Villages 1 & 2 - Phase 1A	Residential	88.91	19.31	
Villages 1 & 2 - Phase 1A	Wetlands	52.95	52.95	
	Subtotals	**141.86**	**72.26**	
Active Adult - Phase 1	Residential	100.45		
Active Adult - Phase 1	Wetlands	40.44		
Active Adult - Phase 2	Residential	27.58		
Active Adult - Phase 2	Wetlands	7.57		
	Subtotals	**176.04**	**0.00**	
TOTALS		**317.9**	**72.26**	**244.44**

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

GENERAL NOTES

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DESCRIPTION	DATE
1	REVIEW SUBMITTAL	06/26/2017

PROJECT NO:	KLP-AP-1039
FILE:	GNOTES
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-103

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - S.B\RVMD\GNOTES.DWG C-103 2017/12/01 10:20 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC, ALL RIGHTS RESERVED. NO DOCUMENTATION, INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN CONFORMANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

N

0 300 600

GRAPHIC SCALE: 1" = 300'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL

NOTE:
THIS EXHIBIT WAS PREPARED FOR ILLUSTRATIVE PURPOSES ONLY. THE LATEST AVAILABLE DIGITAL AERIAL FILES HAVE BEEN USED HOWEVER THIS MAY NOT ACCURATELY DEPICT CURRENT SITE CONDITIONS. ADDITIONAL ENGINEERING, ENVIRONMENTAL REVIEWS, FIELD SURVEYING AND DATA COLLECTION ARE NECESSARY TO CORRECTLY PORTRAY ACTUAL SITE CONDITIONS. THIS EXHIBIT IS SUBJECT TO CHANGE WITHOUT NOTICE BASED ON THE ABOVE.

DATE OF PHOTO: 2014

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405

5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

AERIAL SITE PLAN

PREPARED FOR: VK AVALON GROVES, LLC

NO	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AP-1039
FILE: ASP
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

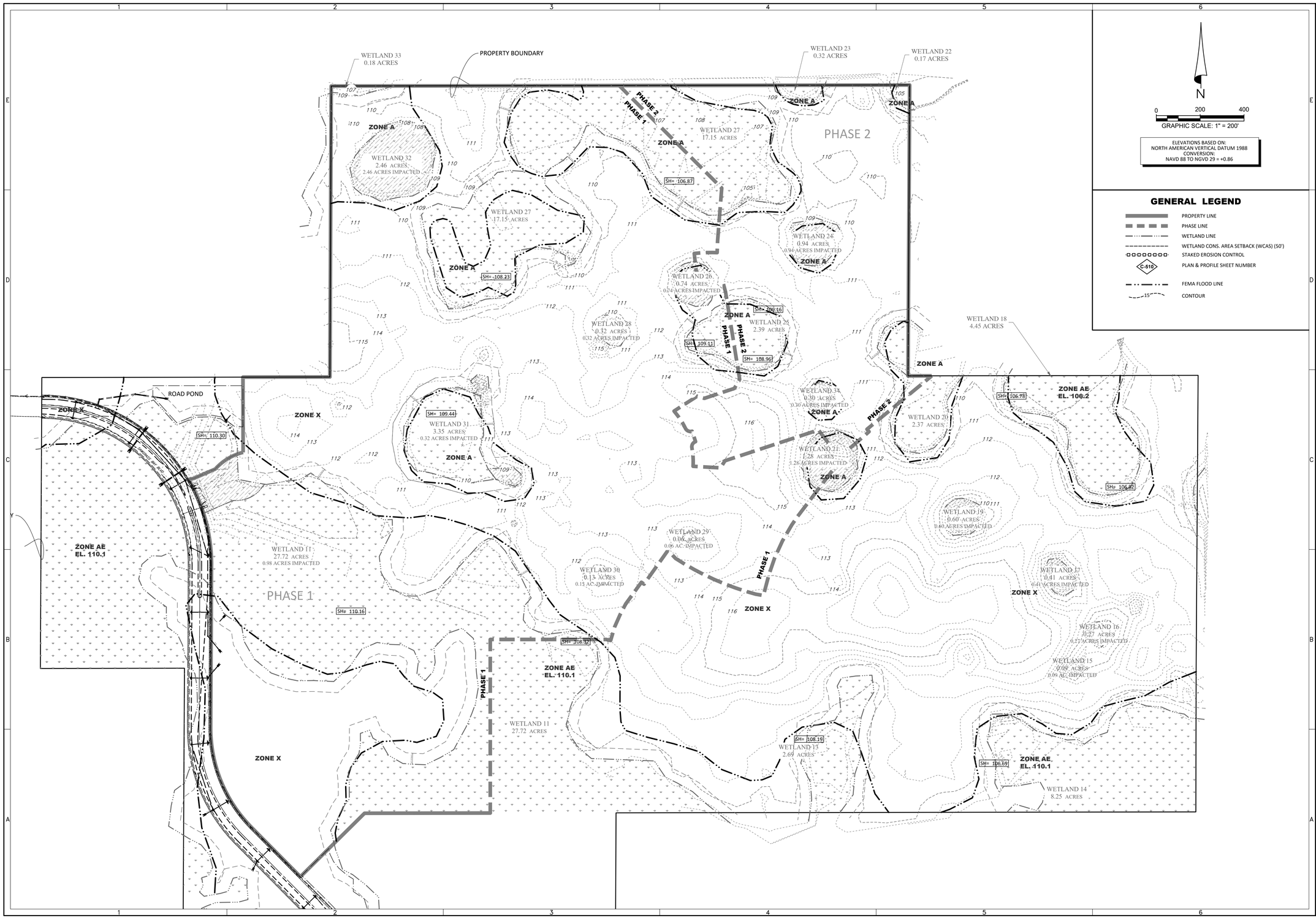
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-104

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\ASP DWG\C-104 2017\7\20\1 10:21 AM ERIC FRANCIS

© COPYRIGHT 2017 | HEIDT DESIGN, LLC - ALL RIGHTS RESERVED - NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SUB\KMD\EX-SITE.DWG-C-105 2017/12/01 10:21 AM ERIC FRANCIS

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

EXISTING SITE CONDITIONS

PREPARED FOR: VK AVALON GROVES, LLC

NO	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	EX-SITE
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

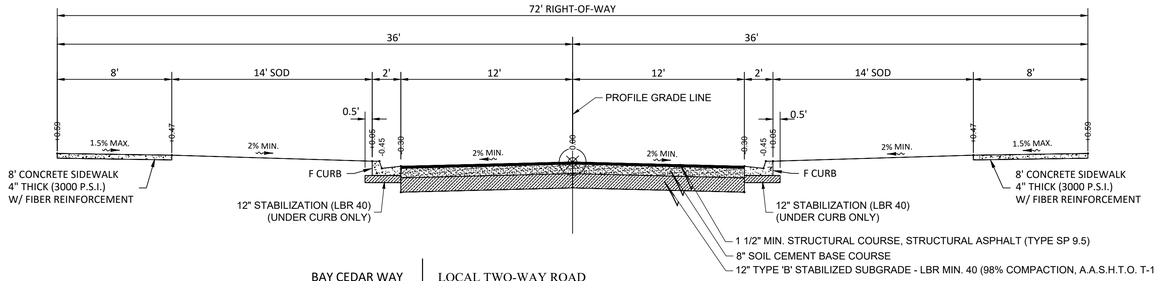
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-105

COPYRIGHT 2017, HEIDT DESIGN, LLC, ALL RIGHTS RESERVED. NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

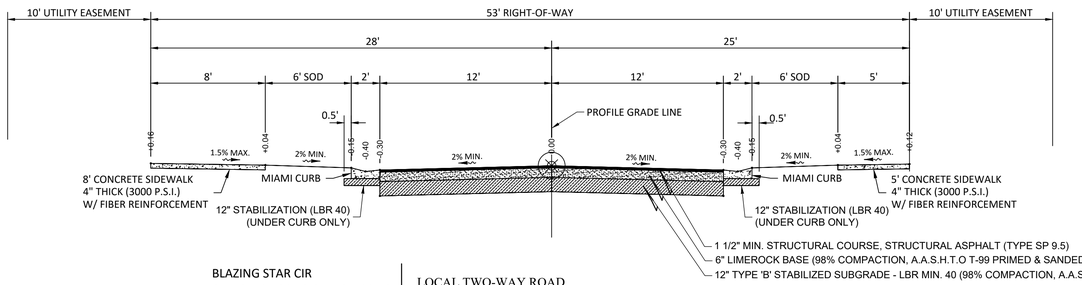


BAY CEDAR WAY

LOCAL TWO-WAY ROAD
72' RIGHT-OF-WAY
DESIGN SPEED 30 M.P.H. (MAX.)

SCALE: 1" = 5'

NOTES:
- ALL STRIPING TO BE LEAD & SOLVENT FREE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
- SOD ALL DISTURBED AREAS.

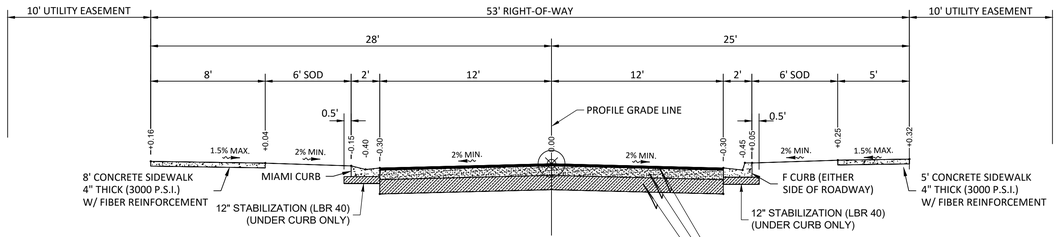


BLAZING STAR CIR
STA. 91+07.06 TO STA. 64+22.58
STA. 13+43.78 TO STA. 16+00.82
STA. 16+91.39 TO STA. 26+85.78

LOCAL TWO-WAY ROAD
53' RIGHT-OF-WAY
DESIGN SPEED 30 M.P.H. (MAX.)

SCALE: 1" = 5'

NOTES:
- ALL STRIPING TO BE LEAD & SOLVENT FREE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
- SOD ALL DISTURBED AREAS.



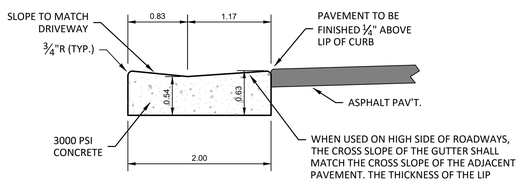
BLAZING STAR CIR
STA. 91+07.06 TO STA. 96+72.28
STA. 16+00.82 TO STA. 16+91.39

LOCAL TWO-WAY ROAD
53' RIGHT-OF-WAY
DESIGN SPEED 30 M.P.H. (MAX.)

SCALE: 1" = 5'

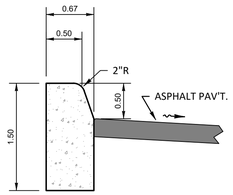
NOTES:
- ALL STRIPING TO BE LEAD & SOLVENT FREE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
- SOD ALL DISTURBED AREAS.

CONTRACTOR MAY PROPOSE ALTERNATE PAVEMENT DESIGNS. CONTRACTOR SHALL SUBMIT ANY PAVEMENT ALTERNATIVES TO ENGINEER FOR APPROVAL PRIOR TO FINAL SUBGRADE PREPARATIONS. ALTERNATIVES WOULD REQUIRE LAKE COUNTY REVIEW AND APPROVAL



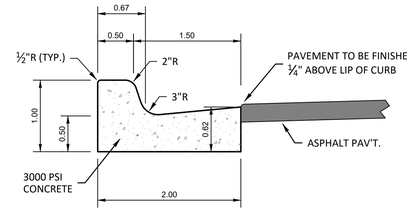
DROP CURB

SCALE: 1" = 1'



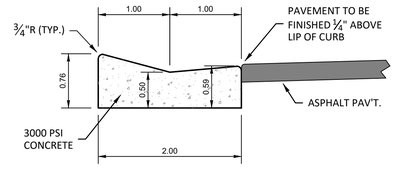
TYPE "D" CURB

SCALE: 1" = 1'



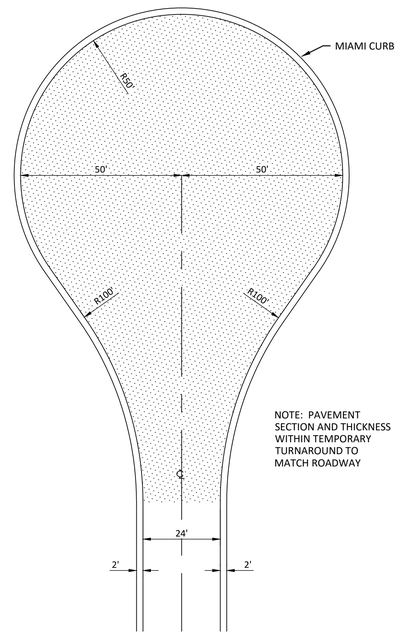
TYPE "F" CURB & GUTTER

SCALE: 1" = 1'



STANDARD MIAMI CURB

SCALE: 1" = 1'



NOTE: PAVEMENT SECTION AND THICKNESS WITHIN TEMPORARY TURNAROUND TO MATCH ROADWAY

TEMPORARY TURNAROUND

SCALE: NTS

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28762
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

TYPICAL ROADWAY SECTIONS

PREPARED FOR: VK AVALON GROVES, LLC

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\RS-LAKECO.DWG-C-200 2017\1\26\1 10:21 AM ERIC FRANCIS

	DATE	DESCRIPTION
1	06/26/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RS-LAKECO
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-200

COPYRIGHT 2017, HEIDT DESIGN, LLC, ALL RIGHTS RESERVED. "ALL DOCUMENTS, PLANS, REPORTS, MODELS, COMPUTER FILES, AND OTHER DOCUMENTS PREPARED BY THE ENGINEER AS INSTRUMENTS OF SERVICE SHALL REMAIN THE PROPERTY OF THE ENGINEER. THE ENGINEER SHALL RETAIN ALL PATENT, COPYRIGHT, TRADEMARK, AND OTHER RIGHTS AND INTERESTS IN THE INSTRUMENTS OF SERVICE. THE INSTRUMENTS OF SERVICE SHALL NOT BE USED BY THE OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT WITHOUT THE ENGINEER'S WRITTEN CONSENT. THE INSTRUMENTS OF SERVICE SHALL NOT BE COPIED, REPRODUCED, OR DISTRIBUTED, UNLESS SPECIFICALLY AUTHORIZED IN WRITING BY THE ENGINEER. ANY REUSE OF THE INSTRUMENTS OF SERVICE WITHOUT THE ENGINEER'S WRITTEN PERMISSION SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO THE ENGINEER. ANY REUSE OF THE INSTRUMENTS OF SERVICE WITHOUT THE ENGINEER'S WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE, CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

PAVEMENT CONSTRUCTION NOTES:

1. **SUBGRADE**
THE FOLLOWING ARE MINIMUM STANDARDS FOR THE STABILIZED SUBGRADE:

WIDTH - THE SUBGRADE SHALL BE TWO (2) FEET WIDER THAN THE BASE COURSE (ONE (1) FOOT EACH SIDE) AND IN THE CASE OF CURB AND GUTTER SHALL EXTEND SIX (6) INCHES BEHIND THE CURB.

DEPTH - THE SUBGRADE SHALL HAVE A MINIMUM DEPTH OF 12-INCHES.

COMPACTION - THE SUBGRADE SHALL BE COMPACTED TO 98% DENSITY HAVING A MINIMUM LBR 40.

CARE OF SUBGRADE - TRUCKS WILL BE ALLOWED ON FINISHED SUBGRADE TO DUMP BASE COURSE, BUT CONTRACTOR WILL BE REQUIRED TO LEVEL OUT RUTS. IN THE EVENT THE TRUCKS CAUSE TOO MUCH DAMAGE TO THE SUBGRADE, THE COUNTY MANAGER OR DESIGNEE MAY REQUIRE DUMPING, SPREADING, AND HAULING ON THE BASE COURSE.

2. **SHOULDERS**
THE FOLLOWING ARE MINIMUM STANDARDS FOR SHOULDERS:

WIDTH - SHOULDERS SHALL BE EIGHT FEET WIDE. A REDUCTION IN THE WIDTH REQUIREMENT MAY BE ALLOWED IF APPROVED BY THE COUNTY MANAGER OR DESIGNEE.

DEPTH - SHOULDERS SHALL HAVE A MINIMUM DEPTH OF SIX INCHES.

COMPACTION - SHOULDERS SHALL BE COMPACTED TO 95% COMPACTION
LBR 40.

GRADING - SHOULDERS SHALL BE GRADED WITH A MINIMUM CROSS-SLOPE OF ½ INCH/FOOT.

3. **BASE COURSE**
THE FOLLOWING ARE MINIMUM STANDARDS FOR THE BASE COURSE:

MATERIAL - SOIL CEMENT IS ACCEPTABLE MATERIAL TYPES FOR THE ROAD BASE. OTHER MATERIALS MAY BE USED IF APPROVED BY THE COUNTY MANAGER OR DESIGNEE.

WIDTH - ALL BASES SHALL BE ONE (1) FOOT WIDER (SIX (6) INCHES EACH SIDE) THAN THE FINISHED SURFACE.

DEPTH - THE BASE SHALL HAVE A MINIMUM DEPTH OF SIX INCHES. HEAVY DUTY ROADS SHALL HAVE A BASE WITH A MINIMUM DEPTH OF EIGHT INCHES PLACED IN TWO LIFTS.

STRENGTH - SOIL CEMENT BASE SHALL HAVE A SEVEN DAY DESIGN COMPRESSIVE STRENGTH OF AT LEAST 300 PSI.

COMPACTION - LIMEROCK BASE (IF USED) SHALL BE COMPACTED TO A MINIMUM 98% DENSITY AS DETERMINED BY ASSHTO T-180. LBR 100

FORMS - NO FORM BOARDS WILL BE REQUIRED UNLESS, IN THE OPINION OF THE COUNTY MANAGER OR DESIGNEE, THE CONTRACTOR IS NOT TAKING PRECAUTIONS TO OBTAIN THE FULL DEPTH AT THE EDGES.

GRADING - THE BASE SHALL BE GRADED AND ROLLED TO CONFORM TO THE GRADE AND CROSS-SLOPE OF THE FINISHED ROADWAY.

PRIME COAT - PRIME COAT SHALL BE APPLIED TO ALL BASE COURSES, AND SAND SEALED.

4. **WEARING SURFACE**
THE FOLLOWING ARE MINIMUM STANDARDS FOR PAVEMENT WEARING SURFACE:

MATERIAL - SP 9.5 ASPHALTIC CONCRETE SHALL BE USED FOR THE ROAD WEARING SURFACE. OTHER ASPHALT TYPES MAY BE USED IF REQUIRED BY THE COUNTY MANAGER OR DESIGNEE.

DEPTH - ROADS SHALL HAVE A MINIMUM 1½ -INCH DEPTH OF WEARING SURFACE. THE MINIMUM DEPTH MAY BE INCREASED IF REQUIRED BY THE COUNTY MANAGER OR DESIGNEE.

HEAVY DUTY ROADS - HEAVY DUTY SHALL HAVE A WEARING SURFACE CONSISTING OF MINIMUM OF TWO INCHES OF SP 12.5 ASPHALTIC CONCRETE OVERLAYED WITH A ONE INCH FRICTION COURSE. THE TYPE OF MATERIAL TO BE USED FOR THE FRICTION COURSE SHALL BE DETERMINED BY THE COUNTY MANAGER OR DESIGNEE.

GRADING - ROAD SURFACES SHALL BE GRADED WITH A MINIMUM CROSS-SLOPE OF ¼ INCH/FOOT.

5. **CURB AND GUTTER**
THE WIDTH OF CURB AND GUTTER SHALL BE A MINIMUM OF TWENTY-FOUR (24) INCHES AND SHALL BE EITHER FLORIDA DEPARTMENT OF TRANSPORTATION TYPE F (STANDARD CURB AND GUTTER) OR MIAMI TYPE, DEPENDING UPON THE FLOW TO BE HANDLED. FDOT TYPE D (SIMPLE VERTICAL CURBING) WILL NOT BE ACCEPTABLE. FDOT TYPE A (MOUNTABLE MEDIAN CURB) MAY BE USED AROUND MEDIAN DIVIDERS ON THE HIGH SIDE OF PAVEMENT. THERE SHALL BE A STABILIZED SUBGRADE BENEATH ALL CURB AND GUTTER.

NO WATER VALVE BOXES, METERS, PORTIONS OF MANHOLES, OR OTHER APPURTENANCES OF ANY KIND RELATING TO ANY UNDERGROUND UTILITIES SHALL BE LOCATED IN ANY PORTION OF A CURB AND GUTTER SECTION.

THE CURB AND GUTTER FLOW LINE GRADES SHALL RUN PARALLEL TO THE ROAD CENTERLINE GRADE. THE MINIMUM ALLOWABLE FLOW LINE GRADE OF CURBS AND GUTTERS SHALL BE 0.30%, EXCEPT IN INTERSECTIONS WHERE FLATTER GRADES SHALL BE ALLOWABLE.

JOINTS SHALL BE SAWED (UNLESS AN ALTERNATE METHOD IS USED) AT INTERVALS OF TEN (10) FEET, EXCEPT WHERE SHORTER INTERVALS ARE REQUIRED FOR CLOSURES, BUT, IN NO CASE, LESS THAN FOUR (4) FEET. JOINTS SHALL BE CUT ON THE SAME DAY THAT THE CURB AND GUTTER IS POURED.

ALL CROSS-STREET VALLEY GUTTERS SHALL BE CONSTRUCTED OF CONCRETE.

6. **DECORATIVE PAVEMENT**
THE USE OF DECORATIVE PAVEMENT SHALL BE SUBJECT TO THE APPROVAL OF THE COUNTY MANAGER OR DESIGNEE. THE COUNTY SHALL NOT ASSUME THE MAINTENANCE OF DECORATIVE PAVEMENT SECTIONS. MAINTENANCE SHALL BE THE RESPONSIBILITY OF A HOMEOWNERS ASSOCIATION OR OTHER ACCEPTABLE ENTITY.

THE COUNTY SHALL HAVE THE RIGHT TO MODIFY, ALTER, OR REMOVE ALL OR A PORTION OF THE DECORATIVE PAVEMENT AS NECESSARY FOR ROADWAY IMPROVEMENTS OR IMPROVEMENTS FOR TRAFFIC SAFETY.

BOMANITE PAVEMENT - BOMANITE PAVEMENTS SHALL MEET THE REQUIREMENTS FOR CONCRETE PAVEMENT IN THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THE DEVELOPER SHALL SUBMIT TO THE COUNTY, FOR APPROVAL, MANUFACTURER SPECIFICATIONS CONFIRMING ADHERENCE TO THESE REGULATIONS.

PAVING BRICKS - THE USE OF PAVING BRICKS SHALL BE SUBJECT TO THE APPROVAL OF THE COUNTY. THE DEVELOPER SHALL SUBMIT TO THE COUNTY, FOR APPROVAL, MANUFACTURE'S LITERATURE AND TECHNICAL SPECIFICATIONS REGARDING THE STRUCTURAL STRENGTH, SKID RESISTANCE AND SUBGRADE REQUIREMENTS.

7. **TESTING**
TESTING SHALL BE PROVIDED AS PART OF CONSTRUCTION AND SHALL BE AT NO COST TO THE COUNTY. TESTING SHALL BE PERFORMED BY AN INDEPENDENT ENGINEERING TESTING LABORATORY CERTIFIED IN THE STATE OF FLORIDA.

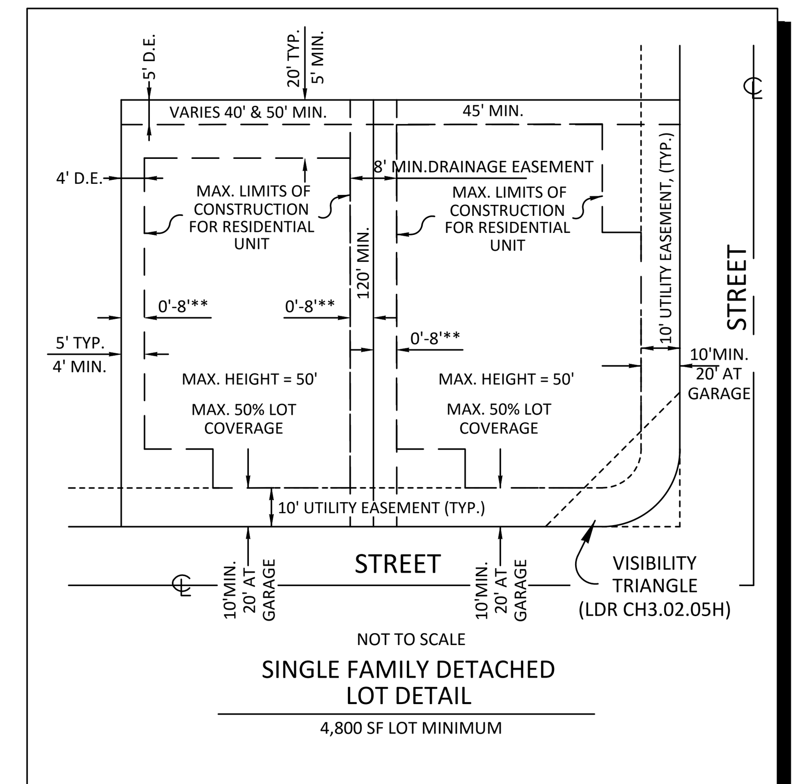
THE FOLLOWING ARE MINIMUM TESTING REQUIREMENTS:

SUBGRADE - TESTING FOR THE SUBGRADE THICKNESS, BEARING VALUE AND DENSITY SHALL BE LOCATED NO MORE THAN FIVE HUNDRED (500) FEET APART AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND ON THE CENTERLINE OF THE ROADWAY. THE COUNTY MAY ALSO REQUIRE ADDITIONAL TEST LOCATION AS DIRECTED BY THE COUNTY MANAGER OR DESIGNEE. THERE SHALL BE NO LESS THAN ONE (1) TEST PER ROAD. TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT, AASHTO, OR ASTM STANDARDS. CERTIFIED TEST RESULTS SHALL BE SUBMITTED TO THE COUNTY FOR APPROVAL PRIOR TO PROCEEDING WITH THE BASE COURSE.

LIMEROCK BASE - TESTING FOR THE BASE THICKNESS AND DENSITY SHALL BE LOCATED NO MORE THAN 500-FEET APART AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND ON THE CENTERLINE OF THE ROADWAY. THE COUNTY MAY ALSO REQUIRE ADDITIONAL TEST LOCATIONS AS DIRECTED BY THE COUNTY MANAGER OR DESIGNEE. THERE SHALL BE NO LESS THAN ONE TEST PER ROAD. TESTING SHALL INCLUDE: MODIFIED PROCTOR MAXIMUM DENSITY, IN-PLACE FIELD DENSITY AND THICKNESS. TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT, AASHTO, OR ASTM STANDARDS. CERTIFIED TEST RESULTS SHALL BE SUBMITTED TO THE COUNTY FOR APPROVAL PRIOR TO PROCEEDING WITH THE WEARING SURFACE.

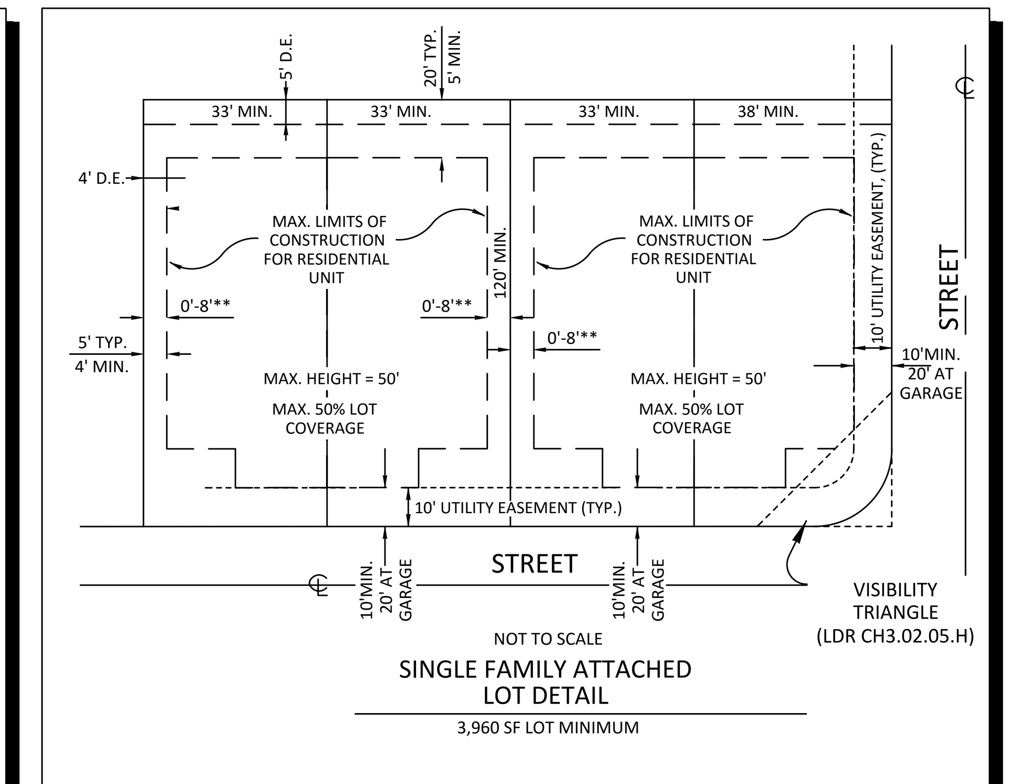
SOIL / CEMENT BASE - TESTING FOR THE BASE THICKNESS AND STRENGTH SHALL BE LOCATED NO MORE THAN 500-FEET APART AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND ON THE CENTERLINE OF THE ROADWAY. THE COUNTY MAY ALSO REQUIRE ADDITIONAL TEST LOCATIONS AS DIRECTED BY THE COUNTY MANAGER OR DESIGNEE. THERE SHALL BE NO LESS THAN ONE TEST PER ROAD. TESTING SHALL INCLUDE: TEST CORES TAKEN AFTER SEVEN DAYS TO VERIFY THICKNESS AND TESTING TO VERIFY A MINIMUM SEVEN DAY COMPRESSIVE STRENGTH OF 300 PSI. TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT, AASHTO, OR ASTM STANDARDS. CERTIFIED TEST RESULTS SHALL BE SUBMITTED TO THE COUNTY FOR APPROVAL PRIOR TO PROCEEDING WITH THE WEARING SURFACE.

WEARING SURFACE - TESTING FOR WEARING SURFACE THICKNESS SHALL BE LOCATED NO MORE THAN 500-FEET APART AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND ON THE CENTERLINE OF THE ROADWAY. THE COUNTY MAY ALSO REQUIRE ADDITIONAL TEST LOCATIONS AS DIRECTED BY THE COUNTY MANAGER OR DESIGNEE. THERE SHALL BE NO LESS THAN ONE TEST PER ROAD. TESTING SHALL INCLUDE: CERTIFIED DESIGN MIX SUBMITTED FOR APPROVAL PRIOR TO PLACING ASPHALT, EXTRACTIONS TAKEN IN FIELD AT LEAST ONE PER DAY AND CORINGS TO VERIFY THICKNESS. TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT, AASHTO, OR ASTM STANDARDS. CERTIFIED TEST RESULTS SHALL BE SUBMITTED TO THE COUNTY FOR APPROVAL.



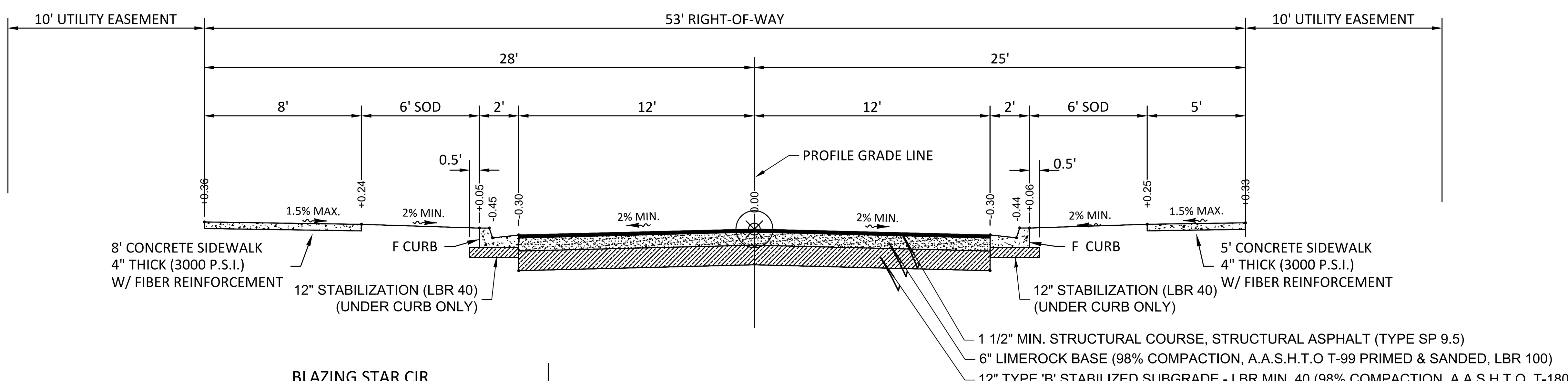
NOT TO SCALE
SINGLE FAMILY DETACHED LOT DETAIL
4,800 SF LOT MINIMUM

**Minimum building separation is 8 feet. Each lot will contain 5' Drainage Easements along the side and back lot lines.



NOT TO SCALE
SINGLE FAMILY ATTACHED LOT DETAIL
3,960 SF LOT MINIMUM

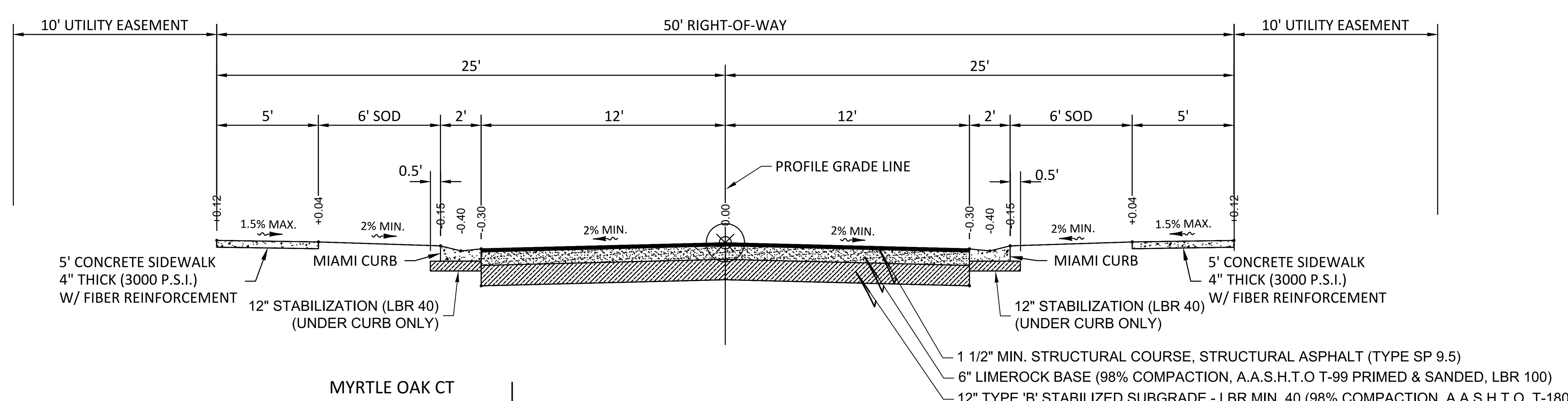
**Minimum building separation is 8 feet. Each lot will contain 5' Drainage Easements along the side and back lot lines.



BLAZING STAR CIR
STA. 96+72.06 TO STA. 96+72.28
STA. 16+00.82 TO STA. 16+91.39

LOCAL TWO-WAY ROAD
53' RIGHT-OF-WAY
DESIGN SPEED 30 M.P.H. (MAX.)
SCALE: 1" = 5'

NOTES:
- ALL STRIPING TO BE LEAD & SOLVENT FREE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
- SOD ALL DISTURBED AREAS.



MYRTLE OAK CT
BEAUTYBERRY WAY
BLUE SAGE LOOP
GOLDENROD CT
SUMMERSWEET WAY
WINGED ELM CT

LOCAL TWO-WAY ROAD
50' RIGHT-OF-WAY
DESIGN SPEED 30 M.P.H. (MAX.)
SCALE: 1" = 5'

NOTES:
- ALL STRIPING TO BE LEAD & SOLVENT FREE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
- SOD ALL DISTURBED AREAS.

CONTRACTOR MAY PROPOSE ALTERNATE PAVEMENT DESIGNS. CONTRACTOR SHALL SUBMIT ANY PAVEMENT ALTERNATIVES TO ENGINEER FOR APPROVAL PRIOR TO FINAL SUBGRADE PREPARATIONS. ALTERNATIVES WOULD REQUIRE LAKE COUNTY REVIEW AND APPROVAL

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

TYPICAL ROADWAY SECTIONS

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
1	06/26/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RS-LAKECO
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-201

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\RS-LAKECO.DWG-C-201 2017/12/01 10:21 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

LOT COUNT TABLE

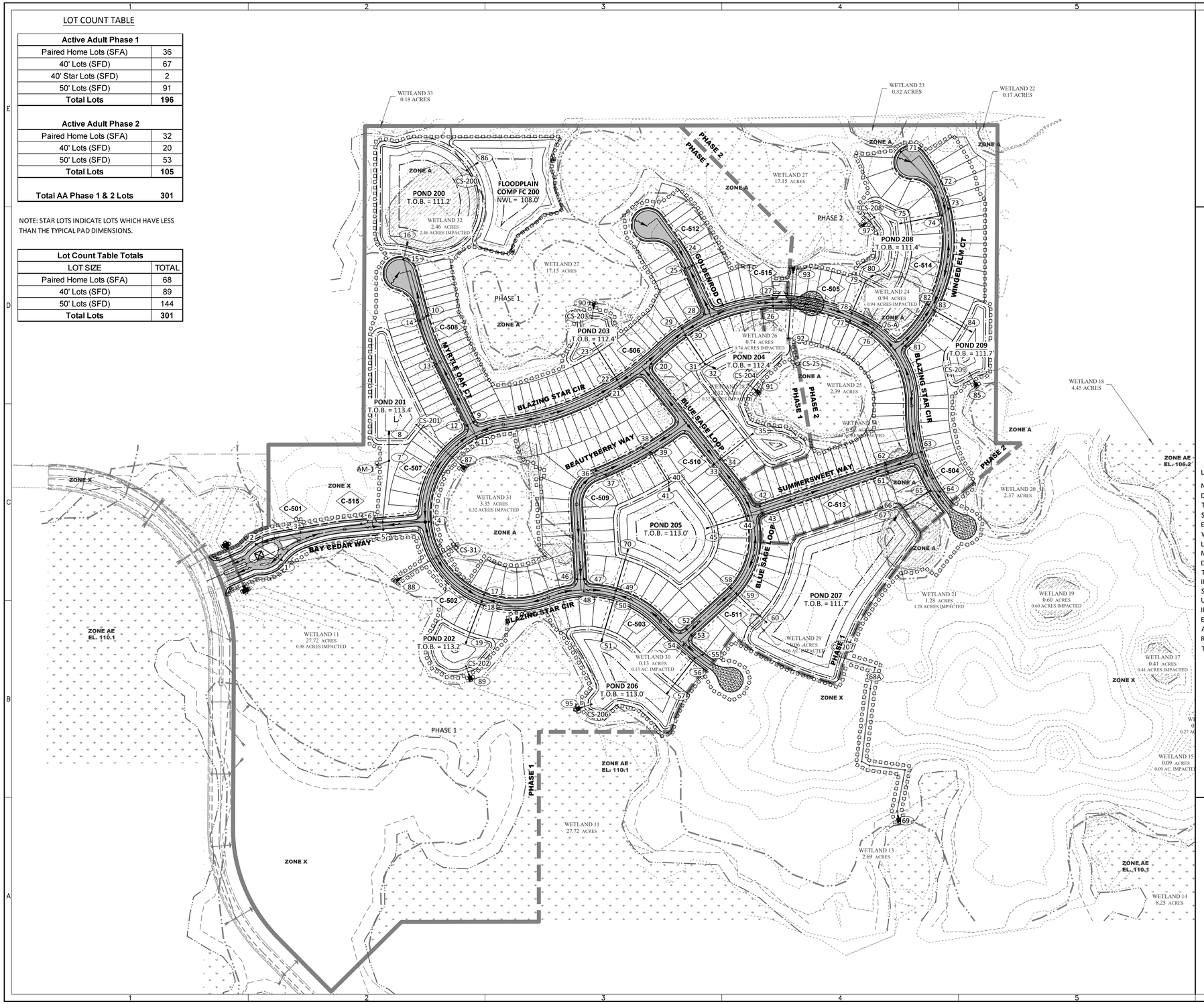
Active Adult Phase 1	
Paired Home Lots (SFA)	36
40' Lots (SFD)	67
40' Star Lots (SFD)	2
50' Lots (SFD)	91
Total Lots	**196**

Active Adult Phase 2	
Paired Home Lots (SFA)	32
40' Lots (SFD)	20
50' Lots (SFD)	53
Total Lots	**105**

Total AA Phase 1 & 2 Lots	**301**

NOTE: STAR LOTS INDICATE LOTS WHICH HAVE LESS THAN THE TYPICAL PAD DIMENSIONS.

Lot Count Table Totals	
LOT SIZE	TOTAL
Paired Home Lots (SFA)	68
40' Lots (SFD)	89
50' Lots (SFD)	144
Total Lots	**301**



SHEET KEY MAP

N
0 200 400
GRAPHIC SCALE: 1" = 200'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-610 — PLAN & PROFILE SHEET NUMBER
- * — DENOTES TWO POSSIBLE LAYOUTS

DRAINAGE LEGEND

EXISTING	PROPOSED	
		STORM DRAINAGE STRUCTURE & PIPE
10	10	STRUCTURE NO.
		DIRECTION OF SURFACE FLOW
15	15.0	CONTOUR
		FEMA FLOOD LINE

LAKE / POND EXCAVATION NOTE:

NO EXCAVATION SHALL EXTEND BELOW THE PERMITTED DESIGN DEPTHS/ELEVATIONS SHOWN ON THE DRAWINGS, UNLESS ADDITIONAL TESTING SUPPORTS OTHERWISE. NO SEMI-CONFINING UNIT CLAYEY SOIL MATERIAL AND/OR NO LIMESTONE MATERIALS SHALL BE EXCAVATED, REGARDLESS IF THESE MATERIALS ARE ENCOUNTERED WITHIN THE PERMITTED EXCAVATION DEPTHS/ELEVATIONS. IF ANY LOWER SEMI-CONFINING UNIT CLAYEY SOIL MATERIAL OR LIMESTONE MATERIALS ARE ENCOUNTERED ABOVE THE PERMITTED DEPTHS/ELEVATIONS, THEN EXCAVATION OPERATIONS SHALL CEASE IN THE GENERAL AREA AND THE ENGINEER OF RECORD SHALL BE NOTIFIED IMMEDIATELY. IN THE ABSENCE OF ANY CONFINING OR SEMI-CONFINING UNIT CLAYEY SOILS, A MINIMUM OF FIVE FEET OF UNDISTURBED SOIL MUST REMAIN ABOVE THE UNDERLYING LIMESTONE. IF SUBSEQUENT SUBSURFACE GEOTECHNICAL INVESTIGATIONS SUPPORT EXCAVATION BELOW DESIGN/PERMITTED DEPTHS/ELEVATIONS, THE ADDITIONAL EXCAVATION SHALL NOT BEGIN UNTIL THE ENGINEER OF RECORD HAS RECEIVED VERBAL AND/OR WRITTEN PERMISSION FROM THE APPROPRIATE GOVERNING AGENCY.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2
MASTER GRADING & DRAINAGE PLAN
PREPARED FOR: VK AVALON GROVES, LLC

DESCRIPTION	DATE

DESCRIPTION	DATE
REVIEW SUBMITTAL	06/27/2017
	1

PROJECT NO: KLP-AP-1039
FILE: MD-KEY
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-300

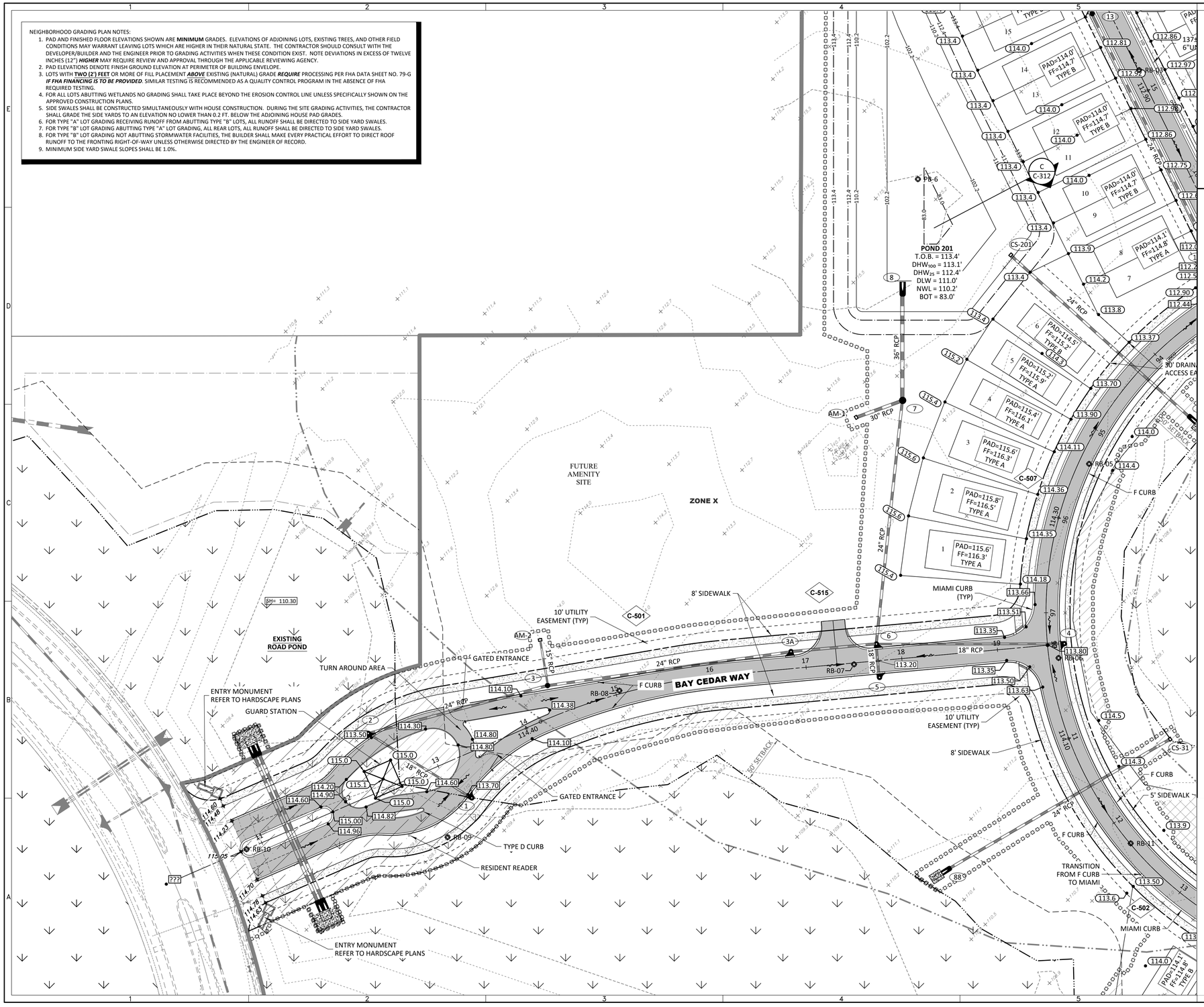
R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SUP\KMD\MD-KEY DWG\C-300 2017\7\20\01 10:21 AM ERIC FRANCIS

COPYRIGHT 2017 - HEIDT DESIGN, LLC - ALL RIGHTS RESERVED - NO DOCUMENTATION PACKAGE BY KEY LIMITED TO DRAWING OR EXHIBIT MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

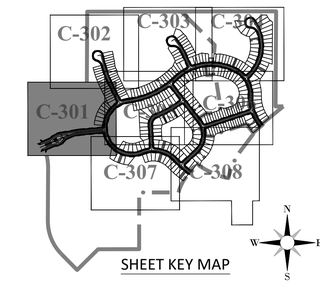
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

NEIGHBORHOOD GRADING PLAN NOTES:

1. PAD AND FINISHED FLOOR ELEVATIONS SHOWN ARE **MINIMUM** GRADES. ELEVATIONS OF ADJOINING LOTS, EXISTING TREES, AND OTHER FIELD CONDITIONS MAY WARRANT LEAVING LOTS WHICH ARE HIGHER IN THEIR NATURAL STATE. THE CONTRACTOR SHOULD CONSULT WITH THE DEVELOPER/BUILDER AND THE ENGINEER PRIOR TO GRADING ACTIVITIES WHEN THESE CONDITION EXIST. NOTE DEVIATIONS IN EXCESS OF TWELVE INCHES (12") ***HIGHER*** MAY REQUIRE REVIEW AND APPROVAL THROUGH THE APPLICABLE REVIEWING AGENCY.
2. PAD ELEVATIONS DENOTE FINISH GROUND ELEVATION AT PERIMETER OF BUILDING ENVELOPE.
3. LOTS WITH **TWO (2') FEET** OR MORE OF FILL PLACEMENT ***ABOVE*** EXISTING (NATURAL) GRADE ***REQUIRE*** PROCESSING PER FHA DATA SHEET NO. 79-G ***IF FHA FINANCING IS TO BE PROVIDED***. SIMILAR TESTING IS RECOMMENDED AS A QUALITY CONTROL PROGRAM IN THE ABSENCE OF FHA REQUIRED TESTING.
4. FOR ALL LOTS ABUTTING WETLANDS NO GRADING SHALL TAKE PLACE BEYOND THE EROSION CONTROL LINE UNLESS SPECIFICALLY SHOWN ON THE APPROVED CONSTRUCTION PLANS.
5. SIDE SWALES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH HOUSE CONSTRUCTION. DURING THE SITE GRADING ACTIVITIES, THE CONTRACTOR SHALL GRADE THE SIDE YARDS TO AN ELEVATION NO LOWER THAN 0.2 FT. BELOW THE ADJOINING HOUSE PAD GRADES.
6. FOR TYPE "A" LOT GRADING RECEIVING RUNOFF FROM ABUTTING TYPE "B" LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
7. FOR TYPE "B" LOT GRADING ABUTTING TYPE "A" LOT GRADING, ALL REAR LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
8. FOR TYPE "B" LOT GRADING NOT ABUTTING STORMWATER FACILITIES, THE BUILDER SHALL MAKE EVERY PRACTICAL EFFORT TO DIRECT ROOF RUNOFF TO THE FRONTING RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD.
9. MINIMUM SIDE YARD SWALE SLOPES SHALL BE 1.0%.



NOTE:
CONSERVATION AREAS SHALL REMAIN UNDISTURBED DURING ALL CONSTRUCTION. DUMPING AND DISTURBANCE TO SOILS AND VEGETATION INCLUDING MOWING, TRIMMING, AND REMOVAL IS PROHIBITED.



SHEET KEY MAP

N

0 50 100

GRAPHIC SCALE: 1" = 50'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-610 — PLAN & PROFILE SHEET NUMBER
- * — DENOTES TWO POSSIBLE LAYOUTS

DRAINAGE LEGEND

EXISTING	PROPOSED	
		STORM DRAINAGE STRUCTURE & PIPE
10	10	STRUCTURE NO.
		DIRECTION OF SURFACE FLOW
15	15.0	CONTOUR
		FEMA FLOOD LINE
+15.0	15.00	SPOT ELEVATION GROUND
+15.00	15.00	SPOT ELEVATION PAVEMENT
	15.00	PROFILE GRADE ELEVATION REFERENCE
	FF=000.00	FINISH FLOOR ELEVATION
	PB-#	SOIL BORING LOCATION (PONDS)
12" Oak		EXISTING TREE TO BE PROTECTED
B C-501		SECTION ID LABEL / SECTION SHEET NUMBER
		WETLAND SETBACK ENCROACHMENT
		WETLAND SETBACK COMPENSATION

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

GRADING & DRAINAGE PLAN

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
2	10/05/2017	STRUCTURES 1 & 2, ENTRY GRADING
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AP-1039
FILE: GD
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

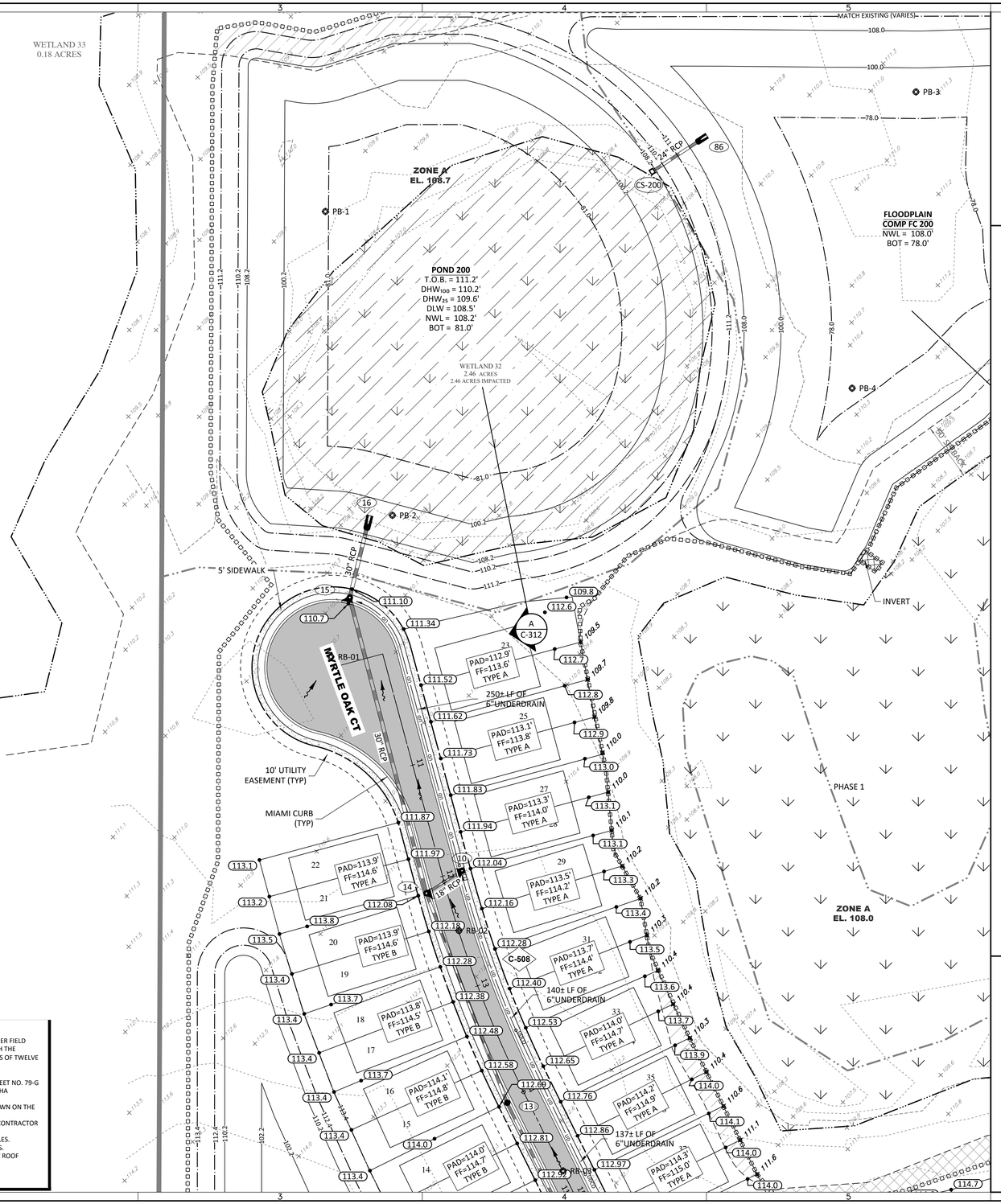
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-301

© COPYRIGHT 2017 HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. THIS DOCUMENT IS THE PROPERTY OF HEIDT DESIGN, LLC AND MAY NOT BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFICALLY WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

R:\AVALON GROVES\ACTIVE ADULT PARCEL - 7PH 1\ENGINEERING - SJR\MISD\GD DWG\C-301 2017\7\201 10:22 AM ERIC FRANCIS

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



NEIGHBORHOOD GRADING PLAN NOTES:

1. PAD AND FINISHED FLOOR ELEVATIONS SHOWN ARE **MINIMUM** GRADES. ELEVATIONS OF ADJOINING LOTS, EXISTING TREES, AND OTHER FIELD CONDITIONS MAY WARRANT LEAVING LOTS WHICH ARE HIGHER IN THEIR NATURAL STATE. THE CONTRACTOR SHOULD CONSULT WITH THE DEVELOPER/BUILDER AND THE ENGINEER PRIOR TO GRADING ACTIVITIES WHEN THESE CONDITION EXIST. NOTE DEVIATIONS IN EXCESS OF TWELVE INCHES (12") ***HIGHER*** MAY REQUIRE REVIEW AND APPROVAL THROUGH THE APPLICABLE REVIEWING AGENCY.
2. PAD ELEVATIONS DENOTE FINISH GROUND ELEVATION AT PERIMETER OF BUILDING ENVELOPE.
3. LOTS WITH **TWO (2') FEET** OR MORE OF FILL PLACEMENT ***ABOVE*** EXISTING (NATURAL) GRADE ***REQUIRE*** PROCESSING PER FHA DATA SHEET NO. 79-G ***IF FHA FINANCING IS TO BE PROVIDED***. SIMILAR TESTING IS RECOMMENDED AS A QUALITY CONTROL PROGRAM IN THE ABSENCE OF FHA REQUIRED TESTING.
4. FOR ALL LOTS ABUTTING WETLANDS NO GRADING SHALL TAKE PLACE BEYOND THE EROSION CONTROL LINE UNLESS SPECIFICALLY SHOWN ON THE APPROVED CONSTRUCTION PLANS.
5. SIDE SWALES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH HOUSE CONSTRUCTION. DURING THE SITE GRADING ACTIVITIES, THE CONTRACTOR SHALL GRADE THE SIDE YARDS TO AN ELEVATION NO LOWER THAN 0.2 FT. BELOW THE ADJOINING HOUSE PAD GRADES.
6. FOR TYPE "A" LOT GRADING RECEIVING RUNOFF FROM ABUTTING TYPE "B" LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
7. FOR TYPE "B" LOT GRADING ABUTTING TYPE "A" LOT GRADING, ALL REAR LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
8. FOR TYPE "B" LOT GRADING NOT ABUTTING STORMWATER FACILITIES, THE BUILDER SHALL MAKE EVERY PRACTICAL EFFORT TO DIRECT ROOF RUNOFF TO THE FRONTING RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD.
9. MINIMUM SIDE YARD SWALE SLOPES SHALL BE 1.0%.

N

0 50 100
GRAPHIC SCALE: 1" = 50'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

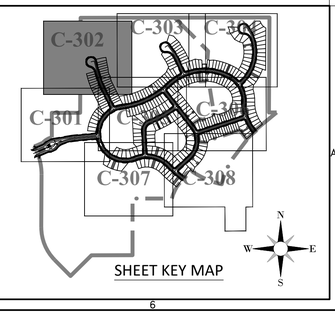
GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-510 — PLAN & PROFILE SHEET NUMBER
- * — DENOTES TWO POSSIBLE LAYOUTS

DRAINAGE LEGEND

EXISTING	PROPOSED	
		STORM DRAINAGE STRUCTURE & PIPE
10	10	STRUCTURE NO.
		DIRECTION OF SURFACE FLOW
15	15.0	CONTOUR
		FEMA FLOOD LINE
+15.0	15.00	SPOT ELEVATION GROUND
+15.00	15.00	SPOT ELEVATION PAVEMENT
	15.00	PROFILE GRADE ELEVATION REFERENCE
	FF=000.00	FINISH FLOOR ELEVATION
	PB-#	SOIL BORING LOCATION (PONDS)
12" Oak		EXISTING TREE TO BE PROTECTED
B C-501		SECTION ID LABEL / SECTION SHEET NUMBER
		WETLAND SETBACK ENCROACHMENT
		WETLAND SETBACK COMPENSATION

NOTE:
CONSERVATION AREAS SHALL REMAIN UNDISTURBED DURING ALL CONSTRUCTION. DUMPING AND DISTURBANCE TO SOILS AND VEGETATION INCLUDING MOWING, TRIMMING, AND REMOVAL IS PROHIBITED.



SHEET KEY MAP

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

GRADING & DRAINAGE PLAN

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL
2	10/05/2017	BORING LOCATIONS

PROJECT NO:	KLP-AP-1039
FILE:	GD
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-302

COPYRIGHT 2017 HEIDT DESIGN, LLC ALL RIGHTS RESERVED. NO DOCUMENTATION, INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS, MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\MAD\GD DWG\C-302 2017\10\01 10:22 AM ERIC FRANCIS

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

NEIGHBORHOOD GRADING PLAN NOTES:

1. PAD AND FINISHED FLOOR ELEVATIONS SHOWN ARE **MINIMUM** GRADES. ELEVATIONS OF ADJOINING LOTS, EXISTING TREES, AND OTHER FIELD CONDITIONS MAY WARRANT LEAVING LOTS WHICH ARE HIGHER IN THEIR NATURAL STATE. THE CONTRACTOR SHOULD CONSULT WITH THE DEVELOPER/BUILDER AND THE ENGINEER PRIOR TO GRADING ACTIVITIES WHEN THESE CONDITION EXIST. NOTE DEVIATIONS IN EXCESS OF TWELVE INCHES (12") ***HIGHER*** MAY REQUIRE REVIEW AND APPROVAL THROUGH THE APPLICABLE REVIEWING AGENCY.
2. PAD ELEVATIONS DENOTE FINISH GROUND ELEVATION AT PERIMETER OF BUILDING ENVELOPE.
3. LOTS WITH **TWO (2') FEET** OR MORE OF FILL PLACEMENT ***ABOVE*** EXISTING (NATURAL) GRADE ***REQUIRE*** PROCESSING PER FHA DATA SHEET NO. 79-G ***IF FHA FINANCING IS TO BE PROVIDED***. SIMILAR TESTING IS RECOMMENDED AS A QUALITY CONTROL PROGRAM IN THE ABSENCE OF FHA REQUIRED TESTING.
4. FOR ALL LOTS ABUTTING WETLANDS NO GRADING SHALL TAKE PLACE BEYOND THE EROSION CONTROL LINE UNLESS SPECIFICALLY SHOWN ON THE APPROVED CONSTRUCTION PLANS.
5. SIDE SWALES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH HOUSE CONSTRUCTION. DURING THE SITE GRADING ACTIVITIES, THE CONTRACTOR SHALL GRADE THE SIDE YARDS TO AN ELEVATION NO LOWER THAN 0.2 FT. BELOW THE ADJOINING HOUSE PAD GRADES.
6. FOR TYPE "A" LOT GRADING RECEIVING RUNOFF FROM ABUTTING TYPE "B" LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
7. FOR TYPE "B" LOT GRADING ABUTTING TYPE "A" LOT GRADING, ALL REAR LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
8. FOR TYPE "B" LOT GRADING NOT ABUTTING STORMWATER FACILITIES, THE BUILDER SHALL MAKE EVERY PRACTICAL EFFORT TO DIRECT ROOF RUNOFF TO THE FRONTING RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD.
9. MINIMUM SIDE YARD SWALE SLOPES SHALL BE 1.0%.

N

0 50 100

GRAPHIC SCALE: 1" = 50'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

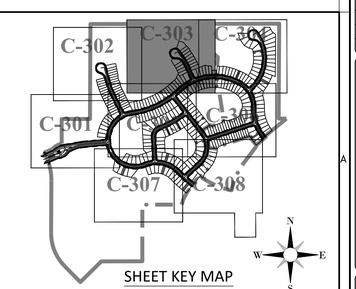
GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-510 — PLAN & PROFILE SHEET NUMBER
- * — DENOTES TWO POSSIBLE LAYOUTS

DRAINAGE LEGEND

EXISTING	PROPOSED	
		STORM DRAINAGE STRUCTURE & PIPE
10	10	STRUCTURE NO.
		DIRECTION OF SURFACE FLOW
15	15.0	CONTOUR
		FEMA FLOOD LINE
+15.0	15.00	SPOT ELEVATION GROUND
+15.00	15.00	SPOT ELEVATION PAVEMENT
	15.00	PROFILE GRADE ELEVATION REFERENCE
FF=000.00		FINISH FLOOR ELEVATION
PB-#		SOIL BORING LOCATION (PONDS)
12" Oak		EXISTING TREE TO BE PROTECTED
B C-501		SECTION ID LABEL / SECTION SHEET NUMBER
		WETLAND SETBACK ENCROACHMENT
		WETLAND SETBACK COMPENSATION

NOTE:
CONSERVATION AREAS SHALL REMAIN UNDISTURBED DURING ALL CONSTRUCTION. DUMPING AND DISTURBANCE TO SOILS AND VEGETATION INCLUDING MOWING, TRIMMING, AND REMOVAL IS PROHIBITED.



SHEET KEY MAP

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28762
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

GRADING & DRAINAGE PLAN

PREPARED FOR: VK AVALON GROVES, LLC

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\MXD\GD.DWG-C-303 2017\2201 11:06 AM ERIC FRANCIS

DATE	DESCRIPTION

	DATE	DESCRIPTION
2	10/05/2017	BORING LOCATIONS
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	GD
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

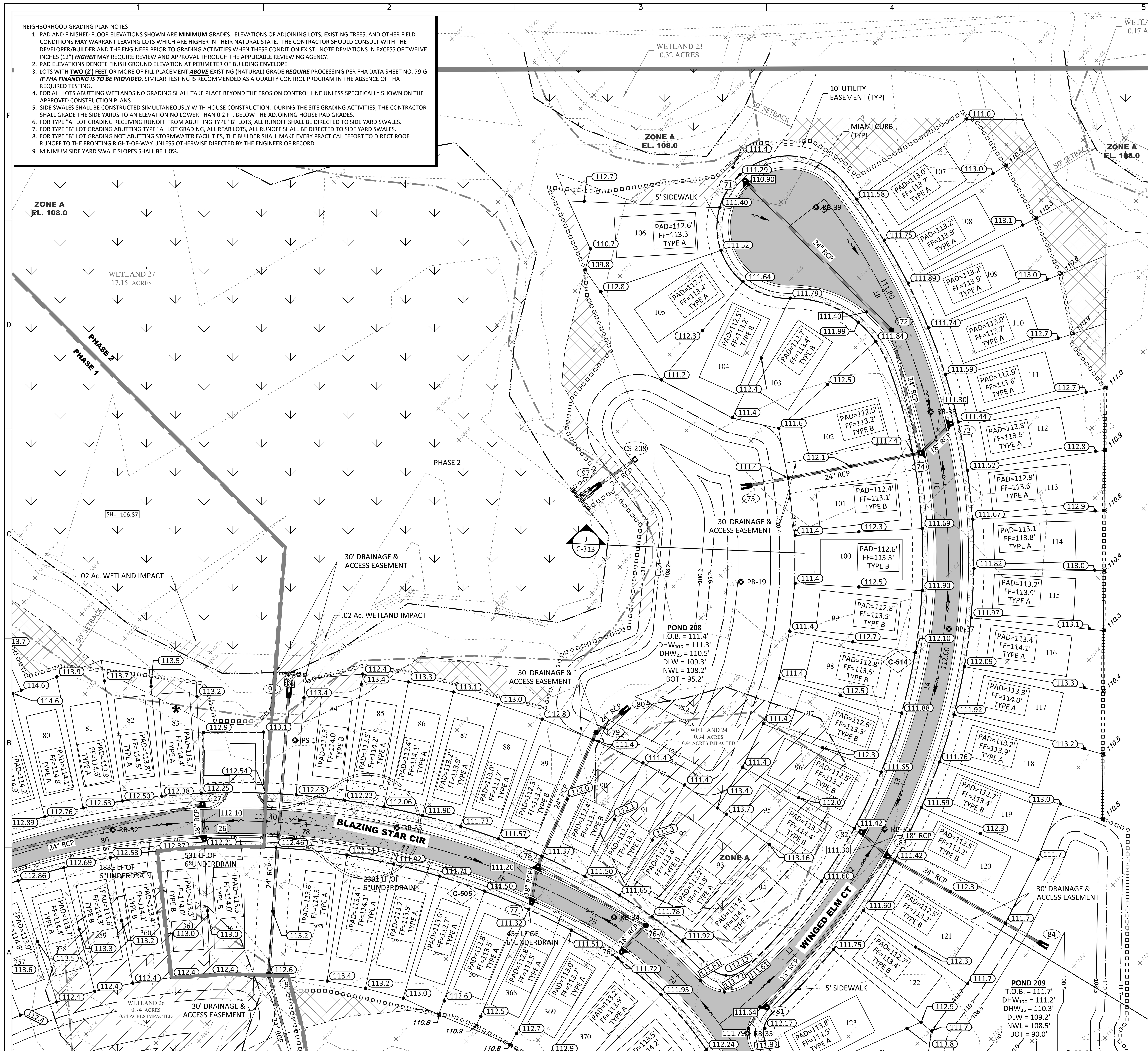
C-303

COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

NEIGHBORHOOD GRADING PLAN NOTES:

1. PAD AND FINISHED FLOOR ELEVATIONS SHOWN ARE **MINIMUM** GRADES. ELEVATIONS OF ADJOINING LOTS, EXISTING TREES, AND OTHER FIELD CONDITIONS MAY WARRANT LEAVING LOTS WHICH ARE HIGHER IN THEIR NATURAL STATE. THE CONTRACTOR SHOULD CONSULT WITH THE DEVELOPER/BUILDER AND THE ENGINEER PRIOR TO GRADING ACTIVITIES WHEN THESE CONDITION EXIST. NOTE DEVIATIONS IN EXCESS OF TWELVE INCHES (12") ***HIGHER*** MAY REQUIRE REVIEW AND APPROVAL THROUGH THE APPLICABLE REVIEWING AGENCY.
2. PAD ELEVATIONS DENOTE FINISH GROUND ELEVATION AT PERIMETER OF BUILDING ENVELOPE.
3. LOTS WITH **TWO (2') FEET** OR MORE OF FILL PLACEMENT ***ABOVE*** EXISTING (NATURAL) GRADE ***REQUIRE*** PROCESSING PER FHA DATA SHEET NO. 79-G ***IF FHA FINANCING IS TO BE PROVIDED***. SIMILAR TESTING IS RECOMMENDED AS A QUALITY CONTROL PROGRAM IN THE ABSENCE OF FHA REQUIRED TESTING.
4. FOR ALL LOTS ABUTTING WETLANDS NO GRADING SHALL TAKE PLACE BEYOND THE EROSION CONTROL LINE UNLESS SPECIFICALLY SHOWN ON THE APPROVED CONSTRUCTION PLANS.
5. SIDE SWALES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH HOUSE CONSTRUCTION. DURING THE SITE GRADING ACTIVITIES, THE CONTRACTOR SHALL GRADE THE SIDE YARDS TO AN ELEVATION NO LOWER THAN 0.2 FT. BELOW THE ADJOINING HOUSE PAD GRADES.
6. FOR TYPE "A" LOT GRADING RECEIVING RUNOFF FROM ABUTTING TYPE "B" LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
7. FOR TYPE "B" LOT GRADING ABUTTING TYPE "A" LOT GRADING, ALL REAR LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
8. FOR TYPE "B" LOT GRADING NOT ABUTTING STORMWATER FACILITIES, THE BUILDER SHALL MAKE EVERY PRACTICAL EFFORT TO DIRECT ROOF RUNOFF TO THE FRONTING RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD.
9. MINIMUM SIDE YARD SWALE SLOPES SHALL BE 1.0%.



N

0 50 100

GRAPHIC SCALE: 1" = 50'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

GENERAL LEGEND

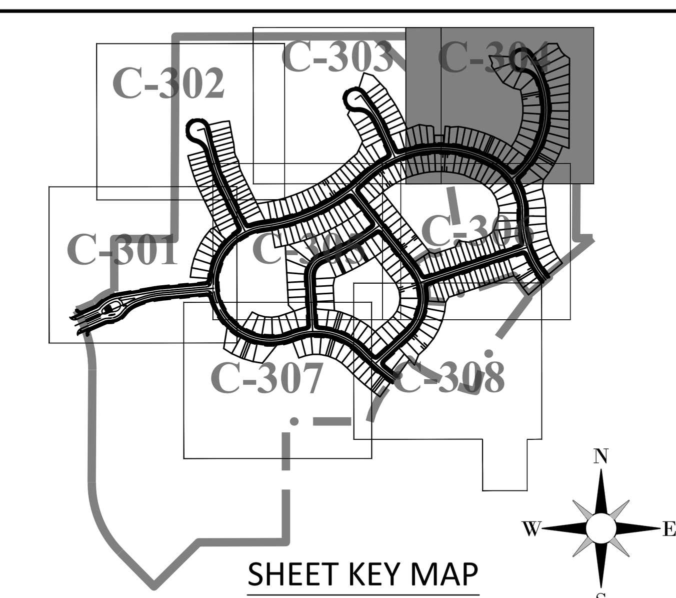
- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-510 — PLAN & PROFILE SHEET NUMBER
- * — DENOTES TWO POSSIBLE LAYOUTS

DRAINAGE LEGEND

EXISTING / PROPOSED

- STORM DRAINAGE STRUCTURE & PIPE
- 10 — STRUCTURE NO.
- DIRECTION OF SURFACE FLOW
- 15 / 15.0 — CONTOUR
- FEMA FLOOD LINE
- 15.0 / 15.00 — SPOT ELEVATION GROUND
- 15.00 — SPOT ELEVATION PAVEMENT
- 15.00 — PROFILE GRADE ELEVATION REFERENCE
- FF=000.00 — FINISH FLOOR ELEVATION
- PB-# — SOIL BORING LOCATION (PONDS)
- 12" Oak — EXISTING TREE TO BE PROTECTED
- B / C-501 — SECTION ID LABEL / SECTION SHEET NUMBER
- WETLAND SETBACK ENCROACHMENT
- WETLAND SETBACK COMPENSATION

NOTE:
CONSERVATION AREAS SHALL REMAIN UNDISTURBED DURING ALL CONSTRUCTION. DUMPING AND DISTURBANCE TO SOILS AND VEGETATION INCLUDING MOWING, TRIMMING, AND REMOVAL IS PROHIBITED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

GRADING & DRAINAGE PLAN

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
2	10/05/2017	BORING LOCATIONS
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	GD
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

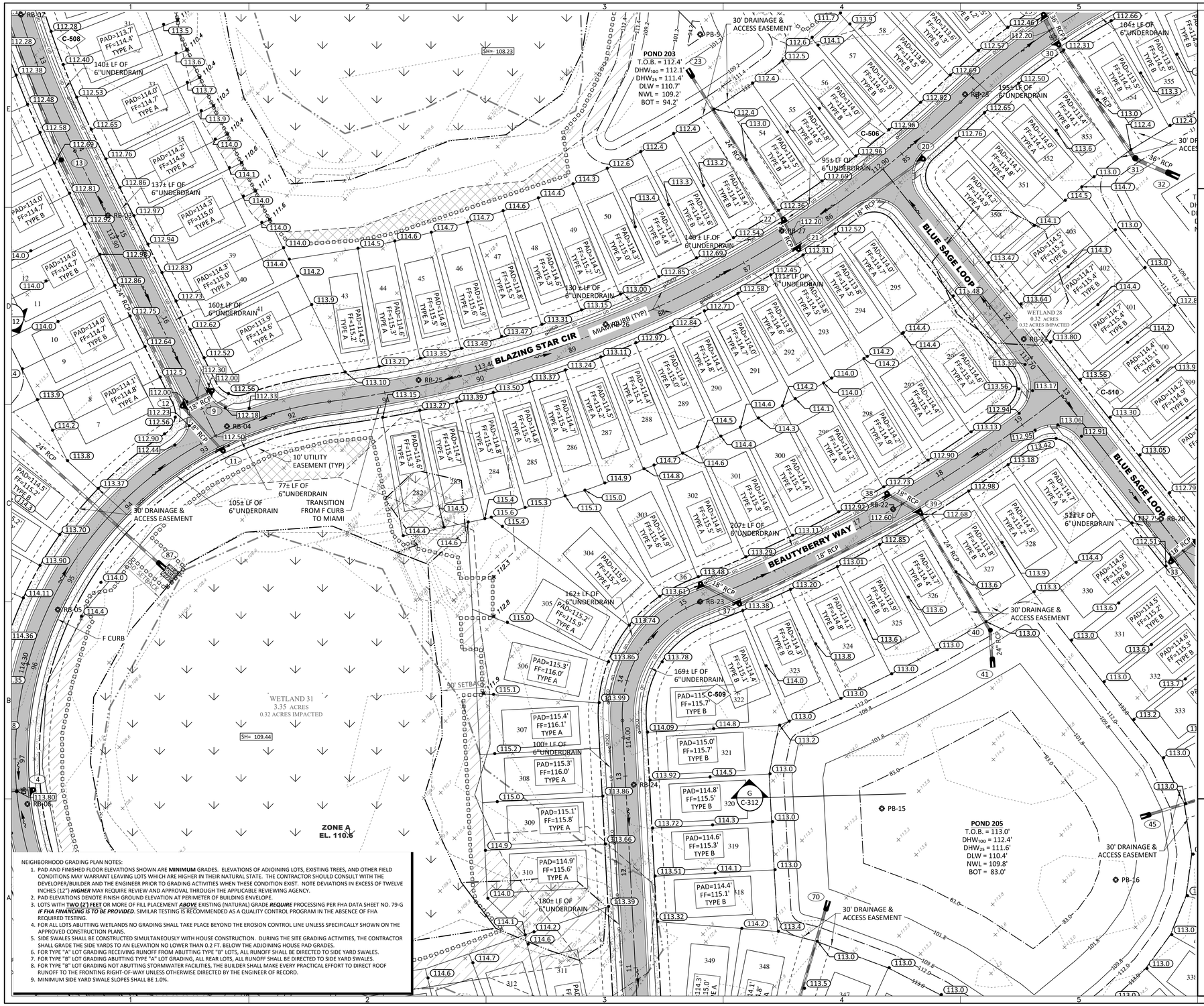
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-304

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\GD.DWG-C-304 2017/12/01 11:07 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



NEIGHBORHOOD GRADING PLAN NOTES:

1. PAD AND FINISHED FLOOR ELEVATIONS SHOWN ARE **MINIMUM** GRADES. ELEVATIONS OF ADJOINING LOTS, EXISTING TREES, AND OTHER FIELD CONDITIONS MAY WARRANT LEAVING LOTS WHICH ARE HIGHER IN THEIR NATURAL STATE. THE CONTRACTOR SHOULD CONSULT WITH THE DEVELOPER/BUILDER AND THE ENGINEER PRIOR TO GRADING ACTIVITIES WHEN THESE CONDITION EXIST. NOTE DEVIATIONS IN EXCESS OF TWELVE INCHES (12") ***HIGHER*** MAY REQUIRE REVIEW AND APPROVAL THROUGH THE APPLICABLE REVIEWING AGENCY.
2. PAD ELEVATIONS DENOTE FINISH GROUND ELEVATION AT PERIMETER OF BUILDING ENVELOPE.
3. LOTS WITH **TWO (2') FEET** OR MORE OF FILL PLACEMENT ***ABOVE*** EXISTING (NATURAL) GRADE ***REQUIRE*** PROCESSING PER FHA DATA SHEET NO. 79-G ***IF FHA FINANCING IS TO BE PROVIDED***. SIMILAR TESTING IS RECOMMENDED AS A QUALITY CONTROL PROGRAM IN THE ABSENCE OF FHA REQUIRED TESTING.
4. FOR ALL LOTS ABUTTING WETLANDS NO GRADING SHALL TAKE PLACE BEYOND THE EROSION CONTROL LINE UNLESS SPECIFICALLY SHOWN ON THE APPROVED CONSTRUCTION PLANS.
5. SIDE SWALES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH HOUSE CONSTRUCTION. DURING THE SITE GRADING ACTIVITIES, THE CONTRACTOR SHALL GRADE THE SIDE YARDS TO AN ELEVATION NO LOWER THAN 0.2 FT. BELOW THE ADJOINING HOUSE PAD GRADES.
6. FOR TYPE "A" LOT GRADING RECEIVING RUNOFF FROM ABUTTING TYPE "B" LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
7. FOR TYPE "B" LOT GRADING ABUTTING TYPE "A" LOT GRADING, ALL REAR LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
8. FOR TYPE "B" LOT GRADING NOT ABUTTING STORMWATER FACILITIES, THE BUILDER SHALL MAKE EVERY PRACTICAL EFFORT TO DIRECT ROOF RUNOFF TO THE FRONTING RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD.
9. MINIMUM SIDE YARD SWALE SLOPES SHALL BE 1.0%.

N

0 50 100

GRAPHIC SCALE: 1" = 50'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

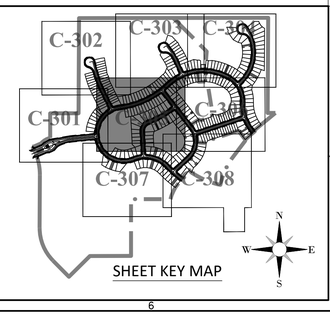
GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-510 — PLAN & PROFILE SHEET NUMBER
- * — DENOTES TWO POSSIBLE LAYOUTS

DRAINAGE LEGEND

EXISTING	PROPOSED	
		STORM DRAINAGE STRUCTURE & PIPE
10	10	STRUCTURE NO.
		DIRECTION OF SURFACE FLOW
15	15.0	CONTOUR
		FEMA FLOOD LINE
+15.0 +15.00	15.00	SPOT ELEVATION GROUND
	15.00	SPOT ELEVATION PAVEMENT
	15.00	PROFILE GRADE ELEVATION REFERENCE
FF=000.00		FINISH FLOOR ELEVATION
	PB-#	SOIL BORING LOCATION (PONDS)
12" Oak		EXISTING TREE TO BE PROTECTED
	C-501	SECTION ID LABEL / SECTION SHEET NUMBER
		WETLAND SETBACK ENCROACHMENT
		WETLAND SETBACK COMPENSATION

NOTE:
CONSERVATION AREAS SHALL REMAIN UNDISTURBED DURING ALL CONSTRUCTION. DUMPING AND DISTURBANCE TO SOILS AND VEGETATION INCLUDING MOWING, TRIMMING, AND REMOVAL IS PROHIBITED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 29782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

GRADING & DRAINAGE PLAN

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION
06/27/2017	REVIEW SUBMITTAL
10/05/2017	BORING LOCATIONS

PROJECT NO:	KLP-AP-1039
FILE:	GD
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

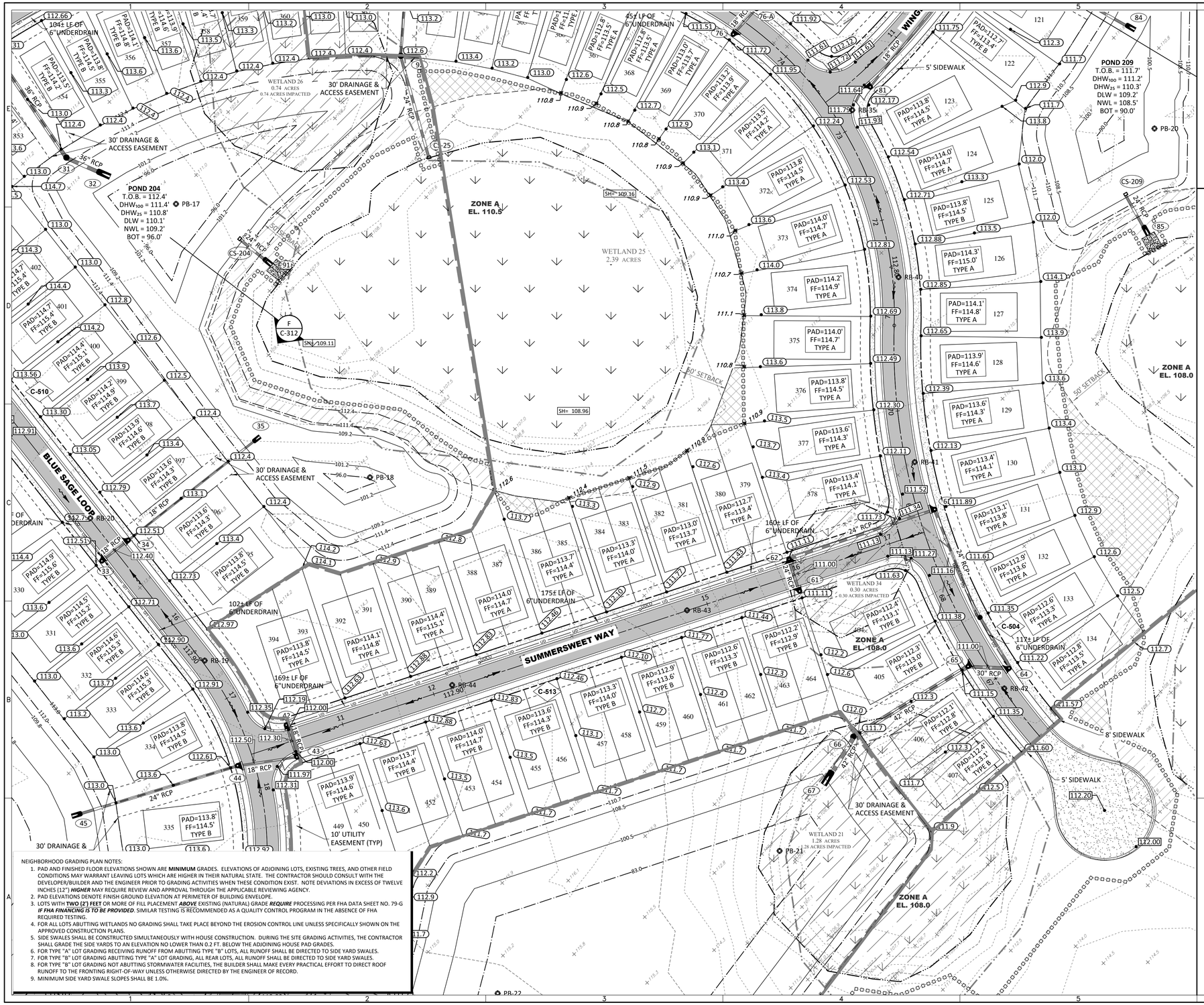
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-305

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF HEIDT DESIGN, LLC. HEIDT DESIGN, LLC IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\MXD\GD DWG-C-305 2017\7\201 10:22 AM ERIC FRANCIS

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



NEIGHBORHOOD GRADING PLAN NOTES:

1. PAD AND FINISHED FLOOR ELEVATIONS SHOWN ARE **MINIMUM** GRADES. ELEVATIONS OF ADJOINING LOTS, EXISTING TREES, AND OTHER FIELD CONDITIONS MAY WARRANT LEAVING LOTS WHICH ARE HIGHER IN THEIR NATURAL STATE. THE CONTRACTOR SHOULD CONSULT WITH THE DEVELOPER/BUILDER AND THE ENGINEER PRIOR TO GRADING ACTIVITIES WHEN THESE CONDITION EXIST. NOTE DEVIATIONS IN EXCESS OF TWELVE INCHES (12") ***HIGHER*** MAY REQUIRE REVIEW AND APPROVAL THROUGH THE APPLICABLE REVIEWING AGENCY.
2. PAD ELEVATIONS DENOTE FINISH GROUND ELEVATION AT PERIMETER OF BUILDING ENVELOPE.
3. LOTS WITH **TWO (2') FEET** OR MORE OF FILL PLACEMENT ***ABOVE*** EXISTING (NATURAL) GRADE ***REQUIRE*** PROCESSING PER FHA DATA SHEET NO. 79-G ***IF FHA FINANCING IS TO BE PROVIDED***. SIMILAR TESTING IS RECOMMENDED AS A QUALITY CONTROL PROGRAM IN THE ABSENCE OF FHA REQUIRED TESTING.
4. FOR ALL LOTS ABUTTING WETLANDS NO GRADING SHALL TAKE PLACE BEYOND THE EROSION CONTROL LINE UNLESS SPECIFICALLY SHOWN ON THE APPROVED CONSTRUCTION PLANS.
5. SIDE SWALES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH HOUSE CONSTRUCTION. DURING THE SITE GRADING ACTIVITIES, THE CONTRACTOR SHALL GRADE THE SIDE YARDS TO AN ELEVATION NO LOWER THAN 0.2 FT. BELOW THE ADJOINING HOUSE PAD GRADES.
6. FOR TYPE "A" LOT GRADING RECEIVING RUNOFF FROM ABUTTING TYPE "B" LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
7. FOR TYPE "B" LOT GRADING ABUTTING TYPE "A" LOT GRADING, ALL REAR LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
8. FOR TYPE "B" LOT GRADING NOT ABUTTING STORMWATER FACILITIES, THE BUILDER SHALL MAKE EVERY PRACTICAL EFFORT TO DIRECT ROOF RUNOFF TO THE FRONTING RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD.
9. MINIMUM SIDE YARD SWALE SLOPES SHALL BE 1.0%.

N

0 50 100

GRAPHIC SCALE: 1" = 50'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

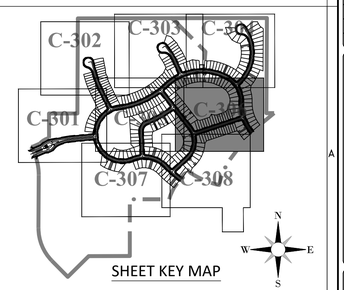
GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-510 — PLAN & PROFILE SHEET NUMBER
- * — DENOTES TWO POSSIBLE LAYOUTS

DRAINAGE LEGEND

EXISTING	PROPOSED
	STORM DRAINAGE STRUCTURE & PIPE
10	10 STRUCTURE NO.
	DIRECTION OF SURFACE FLOW
15	15.0 CONTOUR
	FEMA FLOOD LINE
+15.0 / +15.00	15.00 SPOT ELEVATION GROUND
	15.00 SPOT ELEVATION PAVEMENT
	15.00 PROFILE GRADE ELEVATION REFERENCE
FF=000.00	FINISH FLOOR ELEVATION
PB-#	SOIL BORING LOCATION (PONDS)
12" Oak	EXISTING TREE TO BE PROTECTED
C-501	SECTION ID LABEL / SECTION SHEET NUMBER
	WETLAND SETBACK ENCROACHMENT
	WETLAND SETBACK COMPENSATION

NOTE:
CONSERVATION AREAS SHALL REMAIN UNDISTURBED DURING ALL CONSTRUCTION. DUMPING AND DISTURBANCE TO SOILS AND VEGETATION INCLUDING MOWING, TRIMMING, AND REMOVAL IS PROHIBITED.



SHEET KEY MAP

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

GRADING & DRAINAGE PLAN

PREPARED FOR: VK AVALON GROVES, LLC

RAVALON GROVES/ACTIVE ADULT PARCEL - PH 1/ENGINEERING - SJR/WMD/GD DWG-C-306 2017/12/01 10:22 AM ERIC FRANCIS

NO.	DATE	DESCRIPTION
2	10/05/2017	BORING LOCATIONS
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AP-1039
FILE: GD
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

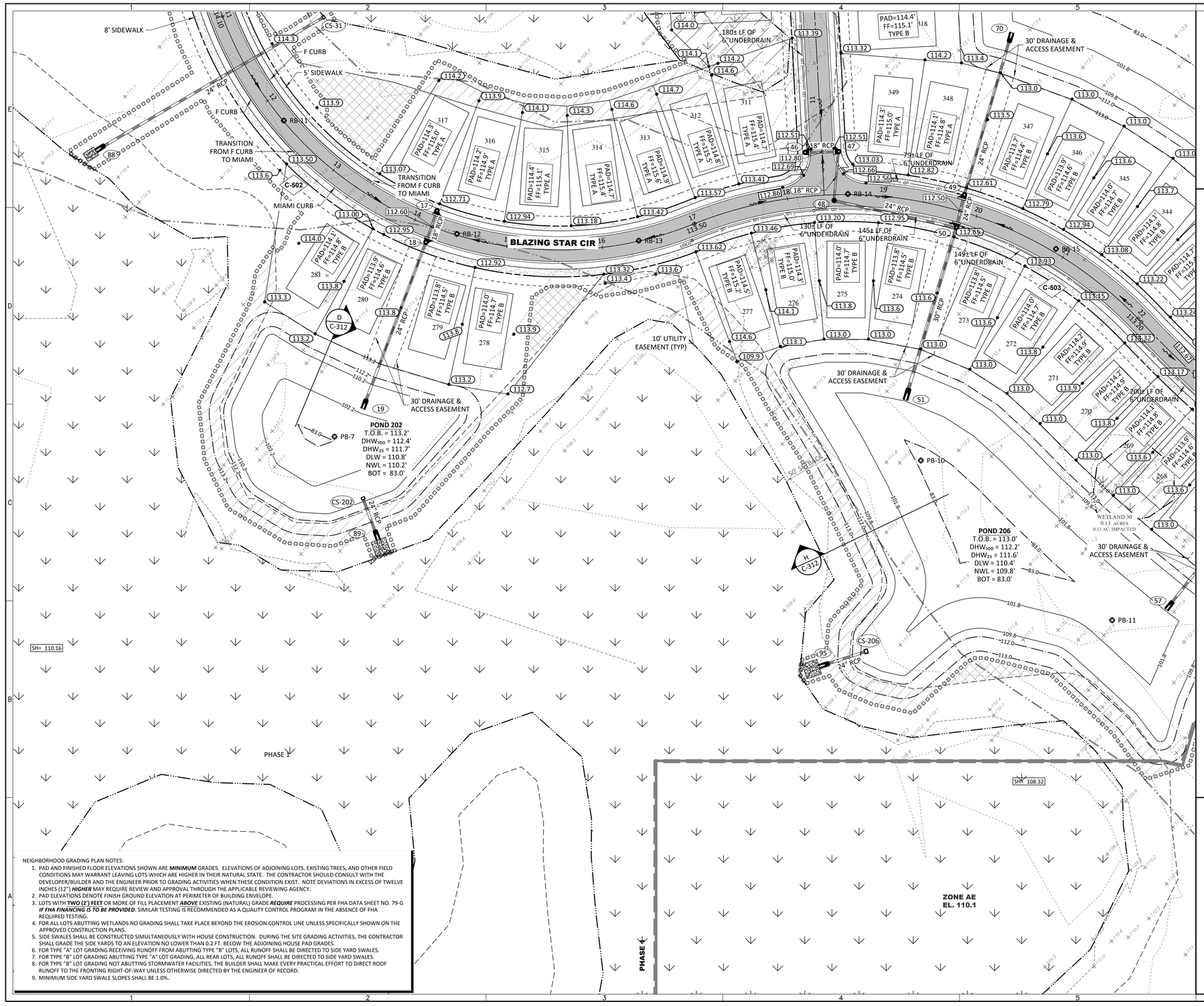
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-306

© COPYRIGHT 2017, HEIDT DESIGN, LLC - ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF HEIDT DESIGN, LLC. THIS DOCUMENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



NEIGHBORHOOD GRADING PLAN NOTES:

1. PAD AND FINISHED FLOOR ELEVATIONS SHOWN ARE **MINIMUM** GRADES. ELEVATIONS OF ADJOINING LOTS, EXISTING TREES, AND OTHER FIELD CONDITIONS MAY WARRANT LEAVING LOTS WHICH ARE HIGHER IN THEIR NATURAL STATE. THE CONTRACTOR SHOULD CONSULT WITH THE DEVELOPER/BUILDER AND THE ENGINEER PRIOR TO GRADING ACTIVITIES WHEN THESE CONDITION EXIST. NOTE DEVIATIONS IN EXCESS OF TWELVE INCHES (12") ***HIGHER*** MAY REQUIRE REVIEW AND APPROVAL THROUGH THE APPLICABLE REVIEWING AGENCY.
2. PAD ELEVATIONS DENOTE FINISH GROUND ELEVATION AT PERIMETER OF BUILDING ENVELOPE.
3. LOTS WITH **TWO (2') FEET** OR MORE OF FILL PLACEMENT ***ABOVE*** EXISTING (NATURAL) GRADE ***REQUIRE*** PROCESSING PER FHA DATA SHEET NO. 79-G ***IF FHA FINANCING IS TO BE PROVIDED***. SIMILAR TESTING IS RECOMMENDED AS A QUALITY CONTROL PROGRAM IN THE ABSENCE OF FHA REQUIRED TESTING.
4. FOR ALL LOTS ABUTTING WETLANDS NO GRADING SHALL TAKE PLACE BEYOND THE EROSION CONTROL LINE UNLESS SPECIFICALLY SHOWN ON THE APPROVED CONSTRUCTION PLANS.
5. SIDE SWALES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH HOUSE CONSTRUCTION. DURING THE SITE GRADING ACTIVITIES, THE CONTRACTOR SHALL GRADE THE SIDE YARDS TO AN ELEVATION NO LOWER THAN 0.2 FT. BELOW THE ADJOINING HOUSE PAD GRADES.
6. FOR TYPE "A" LOT GRADING RECEIVING RUNOFF FROM ABUTTING TYPE "B" LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
7. FOR TYPE "B" LOT GRADING ABUTTING TYPE "A" LOT GRADING, ALL REAR LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
8. FOR TYPE "B" LOT GRADING NOT ABUTTING STORMWATER FACILITIES, THE BUILDER SHALL MAKE EVERY PRACTICAL EFFORT TO DIRECT ROOF RUNOFF TO THE FRONTING RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD.
9. MINIMUM SIDE YARD SWALE SLOPES SHALL BE 1.0%.

N

0 50 100

GRAPHIC SCALE: 1" = 50'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

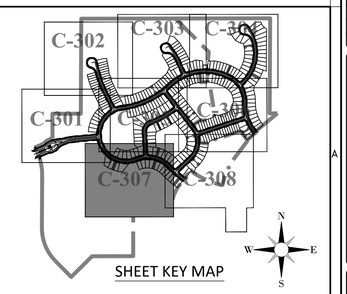
GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-510 — PLAN & PROFILE SHEET NUMBER
- * — DENOTES TWO POSSIBLE LAYOUTS

DRAINAGE LEGEND

EXISTING	PROPOSED	
		STORM DRAINAGE STRUCTURE & PIPE
10	10	STRUCTURE NO.
		DIRECTION OF SURFACE FLOW
15	15.0	CONTOUR
		FEMA FLOOD LINE
+15.0	15.00	SPOT ELEVATION GROUND
+15.00	15.00	SPOT ELEVATION PAVEMENT
	15.00	PROFILE GRADE ELEVATION REFERENCE
FF=000.00		FINISH FLOOR ELEVATION
	PB-#	SOIL BORING LOCATION (PONDS)
12" Oak		EXISTING TREE TO BE PROTECTED
	B / C-501	SECTION ID LABEL / SECTION SHEET NUMBER
		WETLAND SETBACK ENCROACHMENT
		WETLAND SETBACK COMPENSATION

NOTE:
CONSERVATION AREAS SHALL REMAIN UNDISTURBED DURING ALL CONSTRUCTION. DUMPING AND DISTURBANCE TO SOILS AND VEGETATION INCLUDING MOWING, TRIMMING, AND REMOVAL IS PROHIBITED.



SHEET KEY MAP

HEIDT DESIGN, LLC
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

GRADING & DRAINAGE PLAN

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
2	10/05/2017	BORING LOCATIONS
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	GD
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

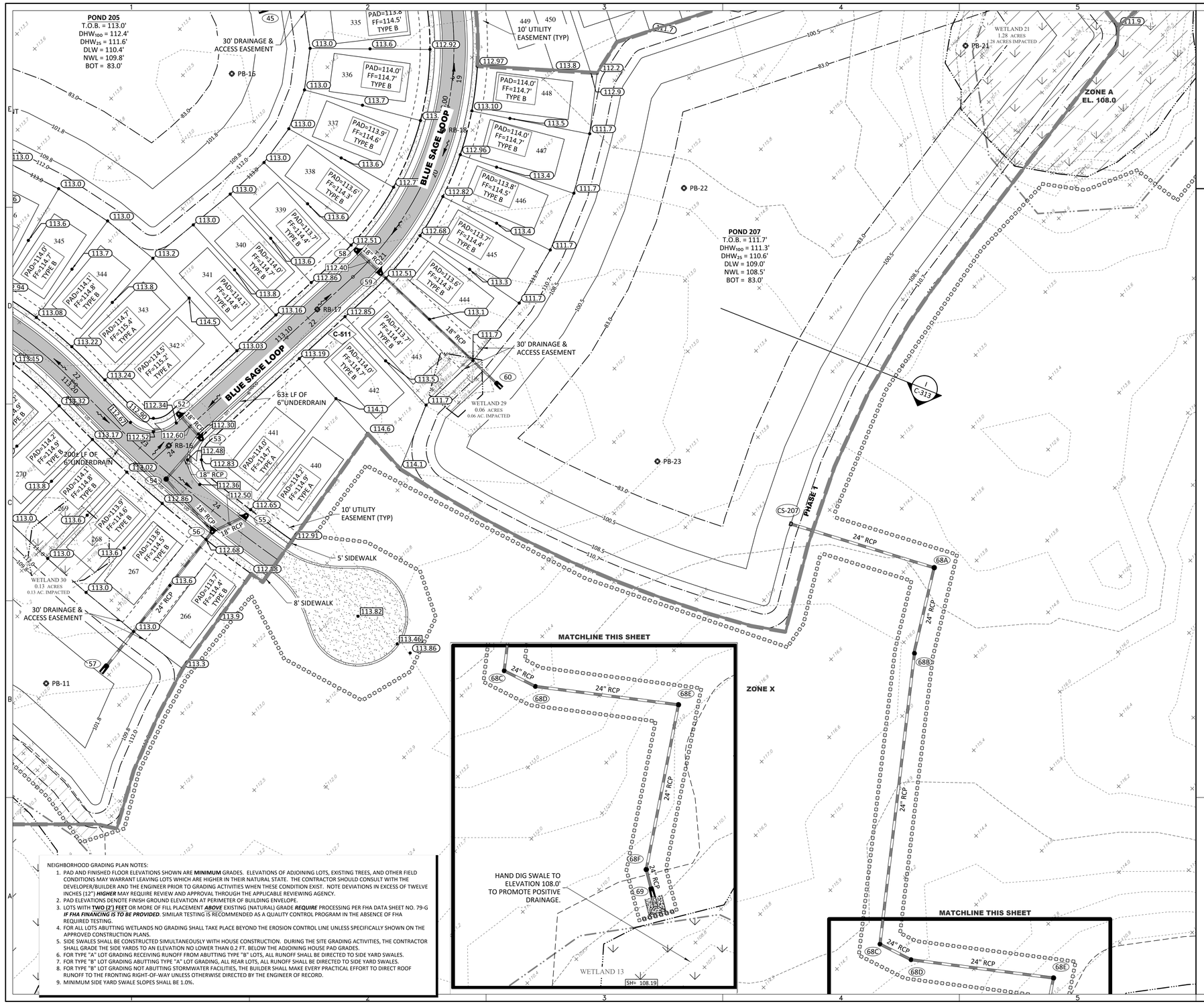
VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-307

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - S:\RVWD\SD DWG\C-307 2017\7\20\1 10:23 AM ERIC FRANCIS

COPYRIGHT © 2017 HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DISCLOSURE OR COPYING OF THIS DOCUMENT MAY BE MADE TO OTHERS WITHOUT WRITTEN CONSENT OF HEIDT DESIGN, LLC. AND NO SUCH DISCLOSURE OR COPYING MAY BE MADE EXCEPT AS AUTHORIZED. ANY UNAUTHORIZED REUSE OF THESE PLANS WILL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT. THESE PLANS ARE COPYRIGHTED AND ALL COMMON LAW AND STATUTORY RIGHTS ARE RESERVED, INCLUDING COPYRIGHT. THESE PLANS MAY NOT BE USED, COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFICALLY WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



NEIGHBORHOOD GRADING PLAN NOTES:

1. PAD AND FINISHED FLOOR ELEVATIONS SHOWN ARE **MINIMUM** GRADES. ELEVATIONS OF ADJOINING LOTS, EXISTING TREES, AND OTHER FIELD CONDITIONS MAY WARRANT LEAVING LOTS WHICH ARE HIGHER IN THEIR NATURAL STATE. THE CONTRACTOR SHOULD CONSULT WITH THE DEVELOPER/BUILDER AND THE ENGINEER PRIOR TO GRADING ACTIVITIES WHEN THESE CONDITION EXIST. NOTE DEVIATIONS IN EXCESS OF TWELVE INCHES (12") ***HIGHER*** MAY REQUIRE REVIEW AND APPROVAL THROUGH THE APPLICABLE REVIEWING AGENCY.
2. PAD ELEVATIONS DENOTE FINISH GROUND ELEVATION AT PERIMETER OF BUILDING ENVELOPE.
3. LOTS WITH **TWO (2') FEET** OR MORE OF FILL PLACEMENT ***ABOVE*** EXISTING (NATURAL) GRADE ***REQUIRE*** PROCESSING PER FHA DATA SHEET NO. 79-G ***IF FHA FINANCING IS TO BE PROVIDED***. SIMILAR TESTING IS RECOMMENDED AS A QUALITY CONTROL PROGRAM IN THE ABSENCE OF FHA REQUIRED TESTING.
4. FOR ALL LOTS ABUTTING WETLANDS NO GRADING SHALL TAKE PLACE BEYOND THE EROSION CONTROL LINE UNLESS SPECIFICALLY SHOWN ON THE APPROVED CONSTRUCTION PLANS.
5. SIDE SWALES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH HOUSE CONSTRUCTION. DURING THE SITE GRADING ACTIVITIES, THE CONTRACTOR SHALL GRADE THE SIDE YARDS TO AN ELEVATION NO LOWER THAN 0.2 FT. BELOW THE ADJOINING HOUSE PAD GRADES.
6. FOR TYPE "A" LOT GRADING RECEIVING RUNOFF FROM ABUTTING TYPE "B" LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
7. FOR TYPE "B" LOT GRADING ABUTTING TYPE "A" LOT GRADING, ALL REAR LOTS, ALL RUNOFF SHALL BE DIRECTED TO SIDE YARD SWALES.
8. FOR TYPE "B" LOT GRADING NOT ABUTTING STORMWATER FACILITIES, THE BUILDER SHALL MAKE EVERY PRACTICAL EFFORT TO DIRECT ROOF RUNOFF TO THE FRONTING RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER OF RECORD.
9. MINIMUM SIDE YARD SWALE SLOPES SHALL BE 1.0%.

N

0 50 100

GRAPHIC SCALE: 1" = 50'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

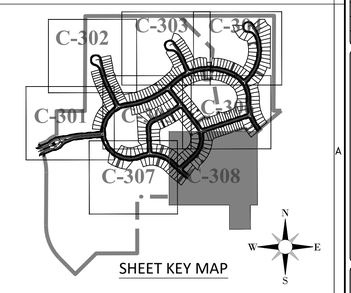
GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-510 — PLAN & PROFILE SHEET NUMBER
- * — DENOTES TWO POSSIBLE LAYOUTS

DRAINAGE LEGEND

EXISTING	PROPOSED
	STORM DRAINAGE STRUCTURE & PIPE
10	10 — STRUCTURE NO.
	DIRECTION OF SURFACE FLOW
15	15.0 — CONTOUR
	FEMA FLOOD LINE
+15.0 +15.00	15.00 — SPOT ELEVATION GROUND
	15.00 — SPOT ELEVATION PAVEMENT
	15.00 — PROFILE GRADE ELEVATION REFERENCE
FF=000.00	FINISH FLOOR ELEVATION
PB-#	SOIL BORING LOCATION (PONDS)
12" Oak	EXISTING TREE TO BE PROTECTED
B C-501	SECTION ID LABEL / SECTION SHEET NUMBER
	WETLAND SETBACK ENCROACHMENT
	WETLAND SETBACK COMPENSATION

NOTE:
CONSERVATION AREAS SHALL REMAIN UNDISTURBED DURING ALL CONSTRUCTION. DUMPING AND DISTURBANCE TO SOILS AND VEGETATION INCLUDING MOWING, TRIMMING, AND REMOVAL IS PROHIBITED.



SHEET KEY MAP

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

GRADING & DRAINAGE PLAN

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION
12/01/2017	POND 207 OUTFALL
10/05/2017	BORING LOCATIONS
06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	GD
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-308

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH I\ENGINEERING - S,R\KMD\GD.DWG C-308 2017/12/01 10:23 AM ERIC FRANCIS

© COPYRIGHT 2017 | HEIDT DESIGN, LLC - ALL RIGHTS RESERVED - NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED BY DEFAULT TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

STRUCTURE TABLE

STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
1	FDOT TYPE 3 CURB INLET	114.05	F CURB PHASE 1
2	FDOT TYPE 3 CURB INLET	113.85	F CURB PHASE 1
3	TYPE P MANHOLE 4'-0" DIA.	114.58	PHASE 1
3A	FDOT TYPE 3 CURB INLET	113.54	
4	FDOT TYPE 3 CURB INLET	113.85	F CURB PHASE 1
5	FDOT TYPE 3 CURB INLET	113.25	F CURB PHASE 1
6	FDOT TYPE 3 CURB INLET	113.25	F CURB PHASE 1
7	TYPE J MANHOLE 6'-0" DIA.	114.33	PHASE 1
8	MES 36" RCP		PHASE 1
9	FDOT TYPE 4 CURB INLET	112.35	PHASE 1
10	FDOT TYPE 3 CURB INLET	112.00	PHASE 1
11	FDOT TYPE 3 CURB INLET	112.55	PHASE 1
12	FDOT TYPE 4 CURB INLET	112.35	PHASE 1
13	TYPE P MANHOLE 4'-0" DIA.	112.53	PHASE 1
14	FDOT TYPE 3 CURB INLET	112.00	PHASE 1
15	FDOT TYPE 3 CURB INLET	111.05	PHASE 1
16	MES 30" RCP		PHASE 1
17	FDOT TYPE 3 CURB INLET	112.65	PHASE 1
18	FDOT TYPE 3 CURB INLET	112.65	PHASE 1
19	MES 24" RCP		PHASE 1

STRUCTURE TABLE

STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
20	FDOT TYPE 3 CURB INLET	112.85	PHASE 1
21	FDOT TYPE 4 CURB INLET	113.71	PHASE 1
22	FDOT TYPE 3 CURB INLET	112.25	PHASE 1
23	MES 24" RCP		PHASE 1
24	FDOT TYPE 4 CURB INLET	112.25	PHASE 1
25	FDOT TYPE 3 CURB INLET	112.25	PHASE 1
26	FDOT TYPE 3 CURB INLET	112.15	PHASE 1
27	FDOT TYPE 3 CURB INLET	112.15	PHASE 1
28	TYPE J MANHOLE 5'-0" DIA.	112.70	PHASE 1
29	FDOT TYPE 3 CURB INLET	112.25	PHASE 1
30	FDOT TYPE 3 CURB INLET	112.25	PHASE 1
31	TYPE J MANHOLE 5'-0" DIA.	112.27	PHASE 1
32	MES 36" RCP		PHASE 1
33	FDOT TYPE 3 CURB INLET	112.45	PHASE 1
34	FDOT TYPE 3 CURB INLET	112.45	PHASE 1
35	MES 18" RCP		PHASE 1
36	FDOT TYPE 3 CURB INLET	113.42	PHASE 1
37	FDOT TYPE 3 CURB INLET	113.32	PHASE 1
38	FDOT TYPE 3 CURB INLET	112.65	PHASE 1
39	FDOT TYPE 3 CURB INLET	112.65	PHASE 1

STRUCTURE TABLE

STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
40	TYPE P MANHOLE 3'-6" DIA.	112.87	PHASE 1
41	MES 24" RCP		PHASE 1
42	FDOT TYPE 3 CURB INLET	112.35	PHASE 1
43	FDOT TYPE 3 CURB INLET	112.35	PHASE 1
44	FDOT TYPE 3 CURB INLET	112.55	PHASE 1
45	MES 24" RCP		PHASE 1
46	FDOT TYPE 3 CURB INLET	112.85	PHASE 1
47	FDOT TYPE 3 CURB INLET	112.85	PHASE 1
48	TYPE P MANHOLE 4'-0" DIA.	112.82	PHASE 1
49	FDOT TYPE 3 CURB INLET	112.55	PHASE 1
50	FDOT TYPE 3 CURB INLET	112.55	PHASE 1
51	MES 30" RCP		PHASE 1
52	FDOT TYPE 3 CURB INLET	112.65	PHASE 1
53	FDOT TYPE 3 CURB INLET	112.65	PHASE 1
54	TYPE P MANHOLE 4'-0" DIA.	112.60	PHASE 1
55	FDOT TYPE 3 CURB INLET	112.55	PHASE 1
56	FDOT TYPE 3 CURB INLET	112.55	PHASE 1
57	MES 24" RCP	105.95	PHASE 1
58	FDOT TYPE 3 CURB INLET	112.45	PHASE 1
59	FDOT TYPE 3 CURB INLET	112.45	PHASE 1

STRUCTURE TABLE

STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
60	MES 18" RCP		PHASE 1
61	FDOT TYPE 3 CURB INLET	113.05	PHASE 2
62	FDOT TYPE 4 CURB INLET	113.05	PHASE 2
63	FDOT TYPE 3 CURB INLET		PHASE 2
63-A	TYPE P MANHOLE 4'-0" DIA.	111.14	PHASE 2
64	FDOT TYPE 3 CURB INLET	111.05	PHASE 2
65	FDOT TYPE 3 CURB INLET	111.05	PHASE 2
66	TYPE J MANHOLE 5'-0" DIA.	111.60	PHASE 1
67	MES 42" RCP	114.23	PHASE 1
68A	TYPE P MANHOLE 4'-0" DIA.	115.35	PHASE 1
68B	TYPE P MANHOLE 3'-6" DIA.	115.80	PHASE 1
68C	TYPE P MANHOLE 3'-6" DIA.		PHASE 1
68D	TYPE P MANHOLE 3'-6" DIA.	114.30	PHASE 1
68E	TYPE P MANHOLE 4'-0" DIA.	114.00	PHASE 1
68F	TYPE P MANHOLE 4'-0" DIA.	110.70	PHASE 1
69	MES 24" RCP		PHASE 1
70	MES 24" RCP		PHASE 2
71	FDOT TYPE 3 CURB INLET	111.25	PHASE 2
72	TYPE P MANHOLE 3'-6" DIA.	111.44	PHASE 2
73	FDOT TYPE 4 CURB INLET	111.35	PHASE 2

STRUCTURE TABLE

STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
74	FDOT TYPE 3 CURB INLET	111.35	PHASE 2
75	MES 24" RCP		PHASE 2
76	FDOT TYPE 3 CURB INLET	111.67	PHASE 2
76-A	TYPE P MANHOLE 4'-0" DIA.	111.36	PHASE 2
77	FDOT TYPE 3 CURB INLET	111.25	PHASE 2
78	FDOT TYPE 4 CURB INLET	111.25	PHASE 2
79	TYPE P MANHOLE 3'-6" DIA.	111.30	PHASE 2
80	MES 24" RCP		PHASE 2
81	FDOT TYPE 3 CURB INLET	111.97	PHASE 2
82	FDOT TYPE 3 CURB INLET	111.37	PHASE 2
83	FDOT TYPE 3 CURB INLET	111.36	PHASE 2
84	MES 24" RCP		PHASE 2
85	MES 24" RCP		PHASE 2
86	MES 24" RCP		PHASE 2
87	MES 24" RCP		PHASE 2
88	MES 24" RCP		PHASE 2
89	MES 24" RCP		PHASE 2
90	MES 24" RCP		PHASE 2
91	MES 24" RCP		PHASE 2
92	TYPE J MANHOLE 5'-0" DIA.	112.60	PHASE 2

STRUCTURE TABLE

STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
93	MES 24" RCP		PHASE 2
95	MES 24" RCP		PHASE 2
97	MES 24" RCP		PHASE 2
98	MES 30" RCP		PHASE 1
99	MES 30" RCP		PHASE 1
100	MES 30" RCP		PHASE 1
101	MES 30" RCP		PHASE 1
AM-1	TYPE C GRATE INLET	113.00	PHASE 1
AM-2	TYPE C GRATE INLET	113.50	PHASE 1
CS-25	TYPE C CONTROL STRUCTURE	111.00	PHASE 1
CS-31	TYPE C CONTROL STUCTURE	112.50	PHASE 1
CS-200	TYPE D CONTROL STRUCTURE	110.70	PHASE 1
CS-201	TYPE C CONTROL STRUCTURE	112.90	PHASE 1
CS-202	TYPE C CONTROL STRUCTURE	112.70	PHASE 1
CS-203	TYPE C CONTROL STRUCTURE	111.90	PHASE 1
CS-204	TYPE C CONTROL STRUCTURE	109.90	PHASE 1
CS-206	TYPE D CONTROL STRUCTURE	112.50	PHASE 1
CS-207	TYPE C CONTROL STRUCTURE	111.20	PHASE 1
CS-208	TYPE D CONTROL STRUCTURE	110.90	PHASE 2
CS-209	TYPE C CONTROL STRUCTURE	111.20	PHASE 2

NOTE:

- ALL INLET AND MANHOLE STRUCTURE BOTTOMS ARE SPECIFIED TYPE 'P' UNLESS OTHERWISE NOTED. REFER TO FDOT DESIGN STANDARDS INDEX #200 & #201.
- ALL FLARED END SECTIONS (FES) ARE SPECIFIED FDOT INDEX #270 UNLESS OTHERWISE NOTED.
- ALL MITERED END SECTIONS (MES) ARE SPECIFIED FDOT INDEX #272 UNLESS OTHERWISE NOTED.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

STORM STRUCTURE DATA

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
3	12/01/2017	POND 207 OUTFALL
1	06/27/2017	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PROJECT NO: KLP-AP-1039
FILE: ST
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-309

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\WMD\ST DWG\C-309 2017\7\20\1 10:23 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN CONFORMANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

PIPE TABLE

START STR.	END STR.	PIPE DIMENSION & MATERIAL	LENGTH	SLOPE	START INV.	END INV.	FALL IN FEET
AM-2	3	15" RCP	48	0.21%	106.00	105.90	0.10
CS-207	68A	24" RCP	156	0.19%	107.80	107.50	0.30
CS-209	85	24" RCP	39	0.26%	105.90	105.80	0.10
CS-208	97	24" RCP	42	0.24%	106.50	106.40	0.10
CS-206	95	24" RCP	42	0.24%	105.90	105.80	0.10
CS-25	92	24" RCP	110	0.18%	104.80	104.60	0.20
CS-204	91	24" RCP	33	0.30%	106.50	106.40	0.10
CS-203	90	24" RCP	42	0.24%	107.30	107.20	0.10
CS-202	89	24" RCP	36	0.28%	107.50	107.40	0.10
CS-31	88	24" RCP	265	0.23%	106.00	105.40	0.60
CS-200	86	24" RCP	47	0.21%	103.70	103.60	0.10
CS-201	87	24" RCP	250	0.08%	105.90	105.70	0.20
1	2	18" RCP	127	0.16%	109.00	108.80	0.20
2	3	24" RCP	193	0.21%	108.30	107.90	0.40
3A	6	24" RCP	90	0.11%	102.60	102.50	0.10
3	3A	24" RCP	255	0.12%	105.90	105.60	0.30
4	6	18" RCP	196	0.26%	109.60	109.10	0.50
5	6	18" RCP	35	0.29%	109.20	109.10	0.10

PIPE TABLE

START STR.	END STR.	PIPE DIMENSION & MATERIAL	LENGTH	SLOPE	START INV.	END INV.	FALL IN FEET
6	7	24" RCP	255	0.12%	102.50	102.20	0.30
7	AM-1	30" RCP	51	0.19%	105.60	105.50	0.10
7	8	36" RCP	110	0.09%	102.20	102.10	0.10
9	12	18" RCP	35	0.29%	108.00	107.90	0.10
10	14	18" RCP	37	0.27%	106.70	106.60	0.10
11	12	18" RCP	63	0.16%	108.00	107.90	0.10
12	13	24" RCP	286	0.11%	107.40	107.10	0.30
13	14	24" RCP	195	0.21%	107.10	106.70	0.40
14	15	30" RCP	265	0.08%	103.30	103.10	0.20
15	16	30" RCP	62	0.16%	103.10	103.00	0.10
17	18	18" RCP	35	0.29%	104.40	104.30	0.10
18	19	24" RCP	176	0.11%	103.80	103.60	0.20
20	21	18" RCP	160	0.19%	105.30	105.00	0.30
21	22	18" RCP	35	0.28%	105.00	104.90	0.10
22	23	24" RCP	176	0.11%	104.40	104.20	0.20
24	25	18" RCP	35	0.29%	107.90	107.80	0.10
25	28	24" RCP	211	0.14%	105.70	105.40	0.30
26	27	18" RCP	35	0.29%	107.90	107.80	0.10

PIPE TABLE

START STR.	END STR.	PIPE DIMENSION & MATERIAL	LENGTH	SLOPE	START INV.	END INV.	FALL IN FEET
27	28	24" RCP	289	0.10%	105.70	105.40	0.30
28	29	30" RCP	113	0.09%	104.90	104.80	0.10
29	30	36" RCP	35	0.28%	104.30	104.20	0.10
30	31	36" RCP	142	0.07%	103.50	103.40	0.10
31	32	36" RCP	36	0.28%	103.40	103.30	0.10
33	34	18" RCP	35	0.29%	108.50	108.40	0.10
34	35	18" RCP	167	0.18%	105.50	105.20	0.30
36	37	18" RCP	46	0.22%	109.40	109.30	0.10
37	39	18" RCP	211	0.28%	109.30	108.70	0.60
38	39	18" RCP	40	0.25%	108.70	108.60	0.10
39	40	24" RCP	143	0.14%	105.10	104.90	0.20
40	41	24" RCP	29	0.34%	104.90	104.80	0.10
42	43	18" RCP	35	0.29%	108.00	107.90	0.10
43	44	18" RCP	63	0.16%	107.90	107.80	0.10
44	45	24" RCP	171	0.12%	105.00	104.80	0.20
46	47	18" RCP	35	0.29%	108.80	108.70	0.10
47	48	18" RCP	51	0.20%	105.50	105.40	0.10
48	50	24" RCP	131	0.31%	104.90	104.50	0.40

PIPE TABLE

START STR.	END STR.	PIPE DIMENSION & MATERIAL	LENGTH	SLOPE	START INV.	END INV.	FALL IN FEET
49	50	24" RCP	35	0.29%	104.10	104.00	0.10
50	51	30" RCP	176	0.11%	103.50	103.30	0.20
52	53	18" RCP	35	0.29%	108.60	108.50	0.10
53	54	18" RCP	56	0.18%	103.70	103.60	0.10
54	56	18" RCP	73	0.27%	103.60	103.40	0.20
55	56	18" RCP	39	0.26%	104.50	104.40	0.10
56	57	24" RCP	177	0.11%	103.40	103.20	0.20
58	59	18" RCP	35	0.29%	108.00	107.90	0.10
59	60	18" RCP	166	0.18%	105.00	104.70	0.30
61	62	24" RCP	35	0.28%	106.50	106.40	0.10
62	63	24" RCP	160	0.19%	101.40	101.10	0.30
63-A	64	24" RCP	61	0.16%	100.90	100.80	0.10
63	63-A	24" RCP	122	0.16%	101.10	100.90	0.20
64	65	30" RCP	43	0.23%	100.40	100.30	0.10
65	66	42" RCP	140	0.07%	99.30	99.20	0.10
66	67	42" RCP	44	0.23%	99.20	99.10	0.10
68F	69	24" RCP	19	0.51%	105.60	105.50	0.10
68E	68F	24" RCP	174	0.23%	106.00	105.60	0.40

PIPE TABLE

START STR.	END STR.	PIPE DIMENSION & MATERIAL	LENGTH	SLOPE	START INV.	END INV.	FALL IN FEET
68D	68E	24" RCP	150	0.33%	106.50	106.00	0.50
68C	68D	24" RCP	36	0.28%	106.90	106.80	0.10
68B	68C	24" RCP	305	0.13%	107.30	106.90	0.40
68A	68B	24" RCP	92	0.22%	107.50	107.30	0.20
70	49	24" RCP	166	0.12%	105.10	104.90	0.20
71	72	24" RCP	206	0.19%	104.10	103.70	0.40
72	74	24" RCP	124	0.16%	103.70	103.50	0.20
73	74	18" RCP	41	0.24%	107.00	106.90	0.10
74	75	24" RCP	170	0.12%	103.50	103.30	0.20
76-A	78	18" RCP	121	0.17%	106.80	106.60	0.20
76	76-A	18" RCP	35	0.29%	106.90	106.80	0.10
77	78	18" RCP	36	0.28%	106.70	106.60	0.10
78	79	24" RCP	143	0.14%	103.50	103.30	0.20
79	80	24" RCP	31	0.33%	103.30	103.20	0.10
81	83	18" RCP	190	0.16%	106.90	106.60	0.30
82	83	18" RCP	36	0.28%	106.70	106.60	0.10
83	84	24" RCP	170	0.12%	103.70	103.50	0.20
92	93	24" RCP	273	0.11%	104.60	104.30	0.30

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

STORM STRUCTURE DATA

PREPARED FOR: VK AVALON GROVES, LLC

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\MXD\ST DWG\C-310 2017\7\20\1 10:23 AM ERIC FRANCIS

NO.	DATE	DESCRIPTION
3	12/01/2017	POND 207 OUTFALL
1	06/27/2017	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PROJECT NO:	KLP-AP-1039
FILE:	ST
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

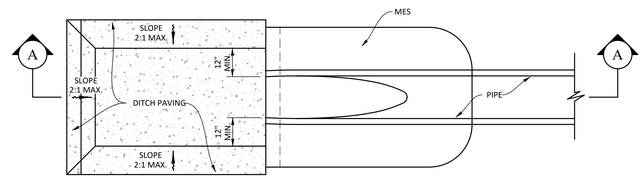
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

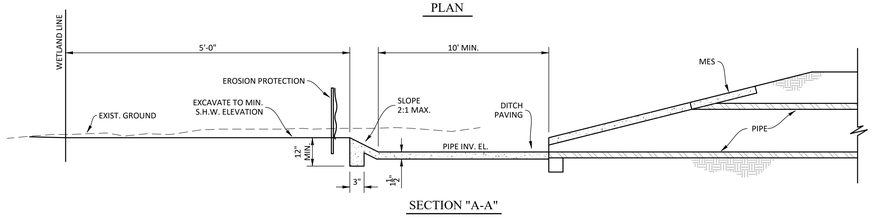
C-310

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN CONFORMANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



PLAN



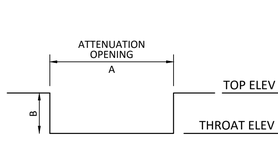
SECTION "A-A"

TYPICAL POND/OUTFALL SUMP DETAIL DITCH PAVING

SCALE: NTS

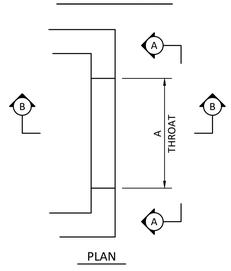
CONTROL STRUCTURE DATA

STRUCTURE				DISCHARGE PIPE			ATTENUATION AND TREATMENT CONTROLS						REMARKS
								ATTENUATION OPENING			TREATMENT OPENING		
STR. NO.	FDOT BOX TYPE	TOP EL.	BOTTOM EL.	TYPE	SIZE (IN.)	INV. EL. (IN.)	STR. TYPE	A	B	ELEV. (FT.)	C	D	ELEV. (FT.)
CS-25	C	111.50	104.2	RCP	24	104.7	CS-1	3	12	110.5	-	-	-	WETLAND 25 OUTFALL
CS-31	C	112.5	105.5	RCP	24	106.0	CS-1	3	18	111.0	-	-	-	WETLAND 31 OUTFALL
CS-200	C	110.70	103.2	RCP	24	103.7	CS-11	-	-	-	4	4	108.2	POND 200 OUTFALL, NO ATTENUATION OPENING
CS-201	C	112.90	105.6	RCP	24	106.1	CS-4	30	22.8	111.0	2.75	2.75	110.2	POND 201 OUTFALL
CS-202	C	112.70	107.0	RCP	24	107.5	CS-11	6	12	110.8	2.75	2.75	110.2	POND 202 OUTFALL
CS-203	D	111.90	106.8	RCP	24	107.3	CS-11	42	4	110.7	2.75	2.75	109.2	POND 203 OUTFALL
CS-204	C	111.90	106.0	RCP	24	106.5	CS-10	18	21.6	110.1	2.75	2.75	109.2	POND 204 OUTFALL
CS-206	C	112.50	105.4	RCP	24	105.9	CS-10	18	25.2	110.4	5.25	5.25	109.8	POND 206 OUTFALL
CS-207	C	111.20	106.0	RCP	24	106.5	CS-11	-	-	-	6	6	108.5	POND 207 OUTFALL, NO ATTENUATION OPENING
CS-208	C	110.90	106.0	RCP	24	106.5	CS-11	28	5	109.3	2.75	2.75	108.2	POND 208 OUTFALL
CS-209	C	111.20	105.4	RCP	24	105.9	CS-11	-	-	-	2.75	2.75	108.5	POND 209 OUTFALL, NO ATTENUATION OPENING



SECTION "A-A"

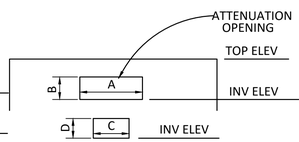
SECTION "B-B"



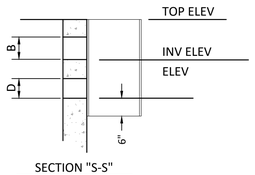
PLAN

TYPE "CS-1"

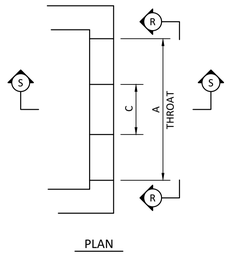
OPENING



SECTION "R-R"



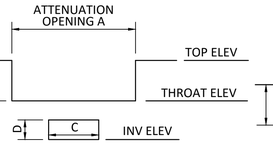
SECTION "S-S"



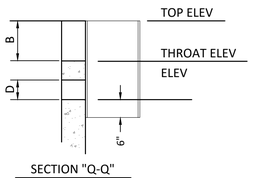
PLAN

TYPE "CS-11"

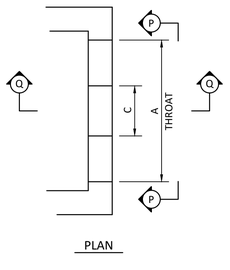
OPENING



SECTION "P-P"



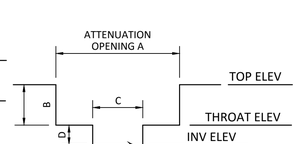
SECTION "Q-Q"



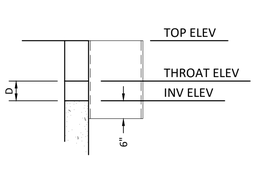
PLAN

TYPE "CS-10"

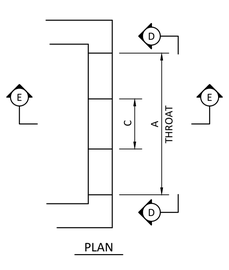
OPENING



SECTION "D-D"



SECTION "E-E"



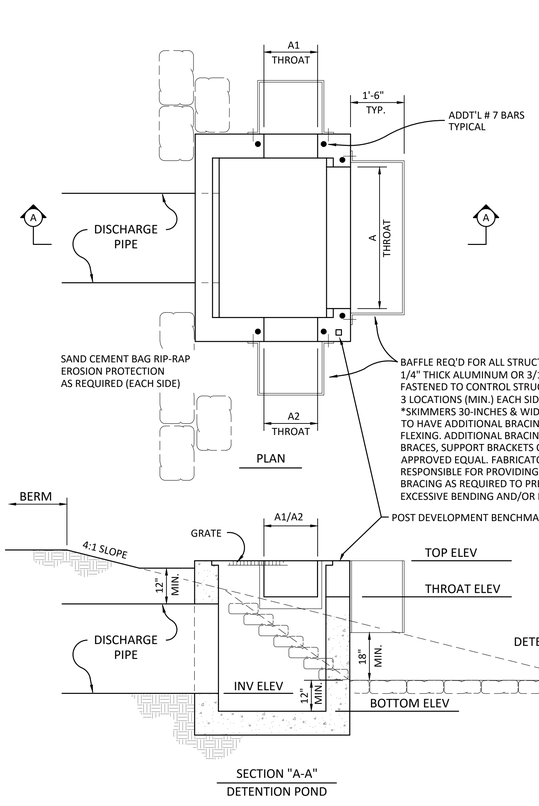
PLAN

TYPE "CS-4"

OPENING

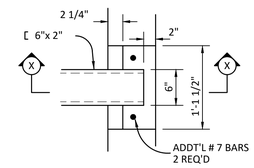
NOTE:
DRAWING NOT TO SCALE

NOTE:
CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTING CONTROL STRUCTURES

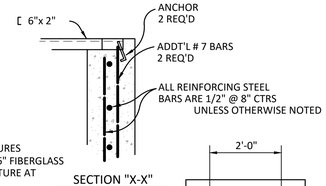


SECTION "A-A"
DETENTION POND

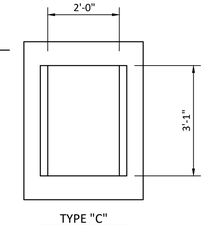
TYPICAL CONTROL STRUCTURE
MODIFIED



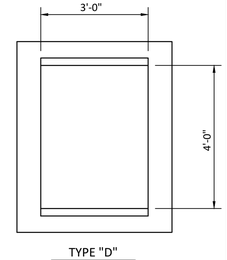
DETAIL "A"



SECTION "X-X"



TYPE "C"



TYPE "D"

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL

CONTROL STRUCTURE DETAILS

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
3	12/01/2017	CSTR 208 MODIFICATIONS
2	10/05/2017	LABEL REVISIONS
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	CSTR
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

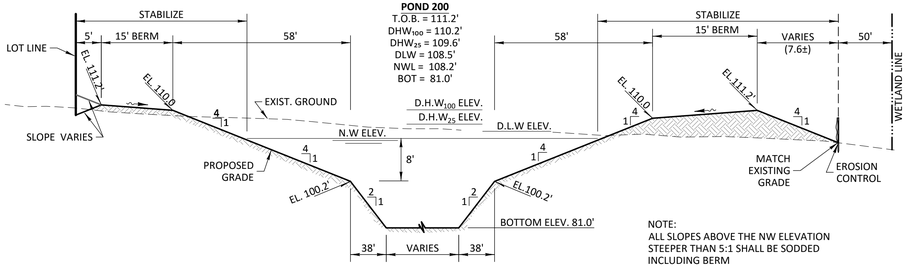
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-311

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING_S.B\RVMD\CSTR.DWG-C-311 2017/12/01 10:23 AM ERIC FRANCIS

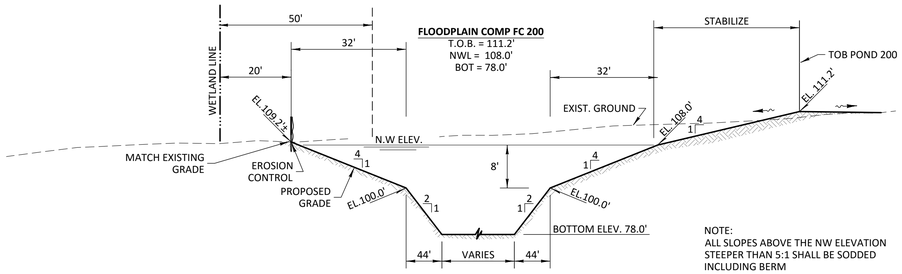
© COPYRIGHT 2017, HEIDT DESIGN, LLC, ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



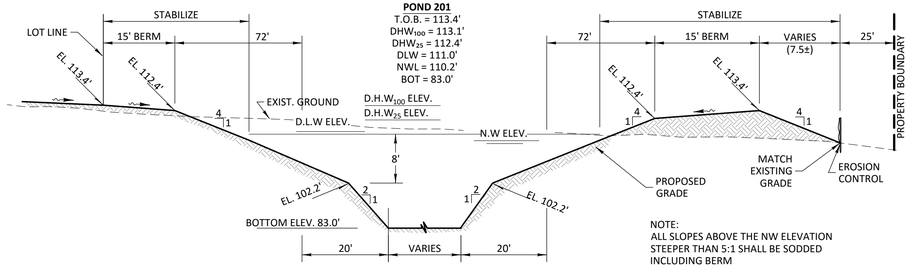
NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

A C-302 TYPICAL POND SECTION
SCALE: N.T.S.



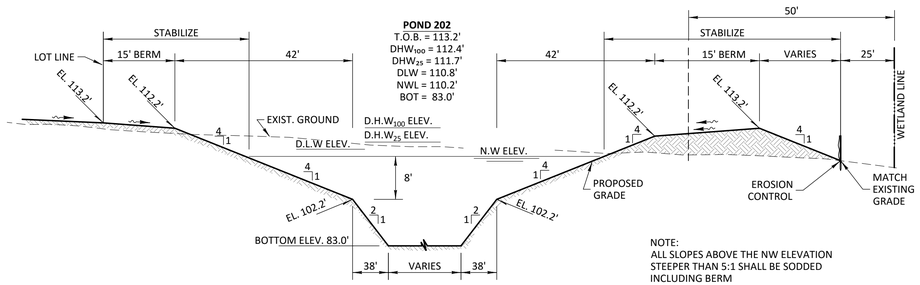
NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

B C-302 TYPICAL POND SECTION
SCALE: N.T.S.



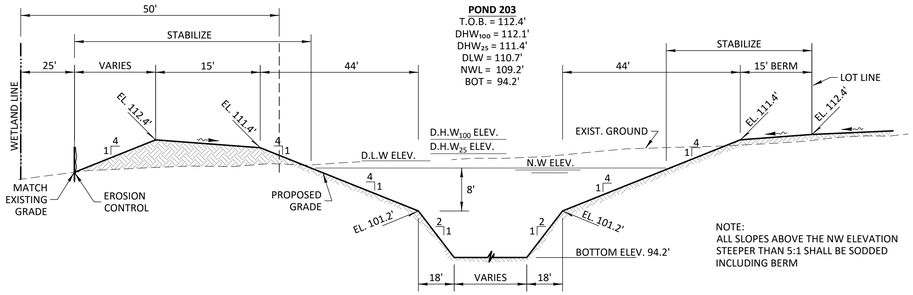
NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

C C-302 TYPICAL POND SECTION
SCALE: N.T.S.



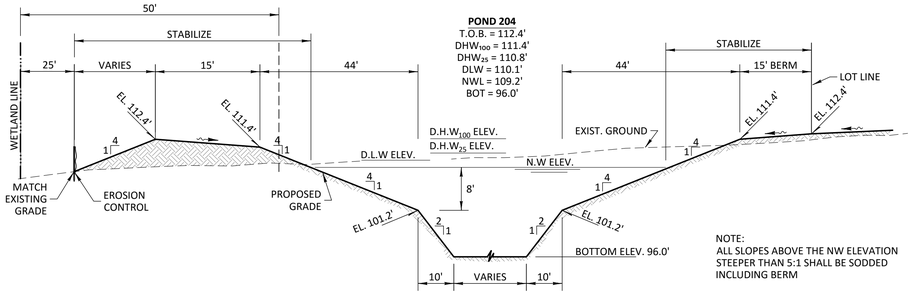
NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

D C-303 TYPICAL POND SECTION
SCALE: N.T.S.



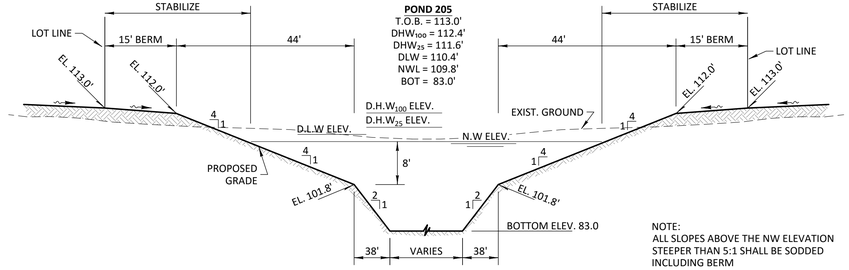
NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

E C-302 TYPICAL POND SECTION
SCALE: N.T.S.



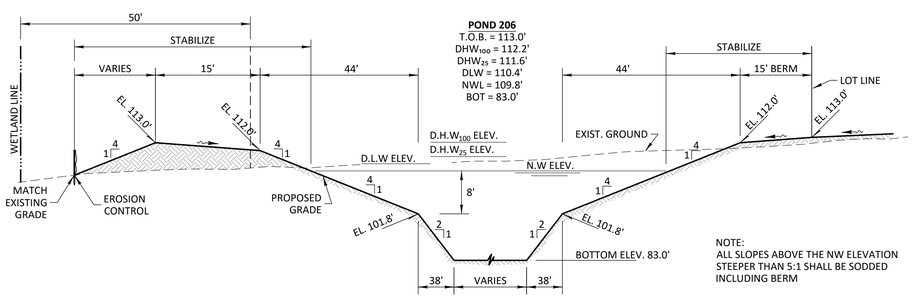
NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

F C-304 TYPICAL POND SECTION
SCALE: N.T.S.



NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

G C-303 TYPICAL POND SECTION
SCALE: N.T.S.



NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

H C-303 TYPICAL POND SECTION
SCALE: N.T.S.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

GRADING & DRAINAGE SECTIONS

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL
2	10/05/2017	UPDATED SODDING NOTE

PROJECT NO:	KLP-AP-1039
FILE:	SEC
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

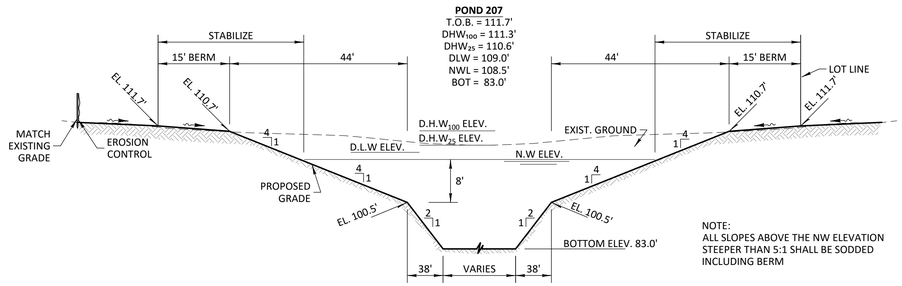
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-312

COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION MAY BE USED BY ANY UNITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS EXPRESS WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

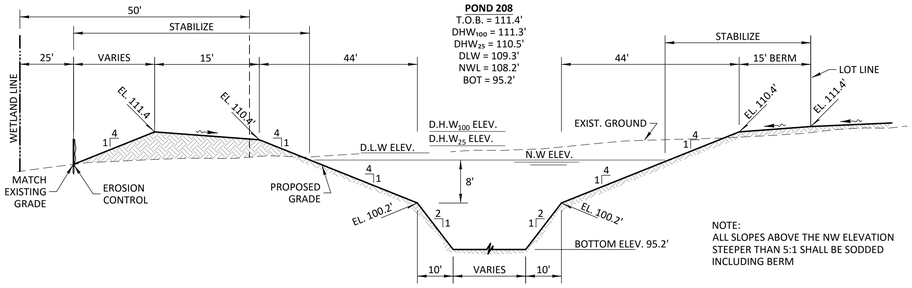
R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH I ENGINEERING - S.P.R\MMD\SEC DWG\C-312 2017\7\20\1 10:32 AM ERIC FRANCIS

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



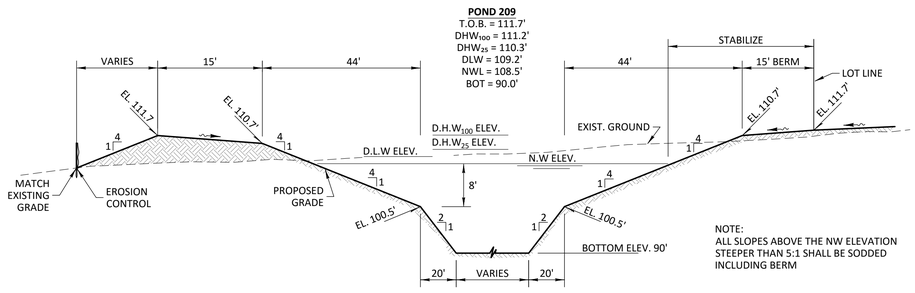
NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

I
C-305
TYPICAL POND SECTION
SCALE: N.T.S.



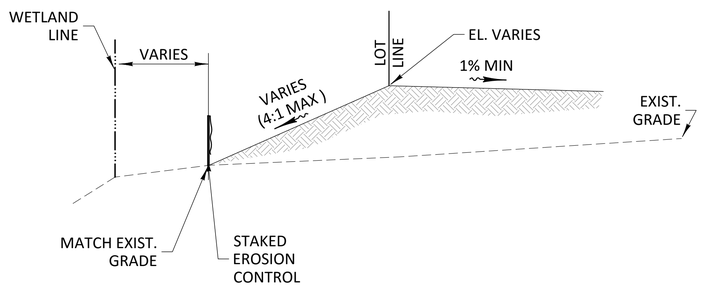
NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

J
C-304
TYPICAL POND SECTION
SCALE: N.T.S.



NOTE:
ALL SLOPES ABOVE THE NW ELEVATION STEEPER THAN 5:1 SHALL BE SODDED INCLUDING BERM

K
C-304
TYPICAL POND SECTION
SCALE: N.T.S.



TYPICAL SECTION WHERE LOT MEETS WETLAND
SCALE: N.T.S.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 29782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

GRADING & DRAINAGE SECTIONS

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
2	10/05/2017	ADDED TYPICAL LOT SECTION
1	06/27/2017	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PROJECT NO:	KLP-AP-1039
FILE:	SEC
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

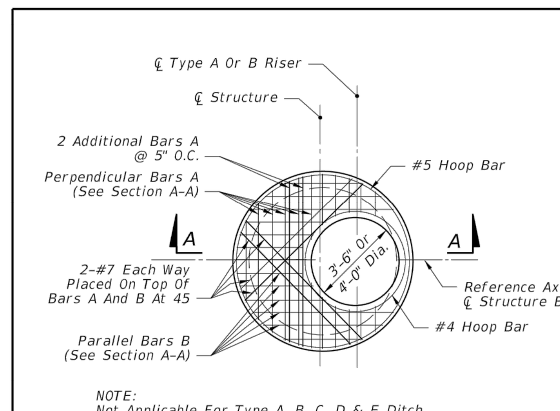
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-313

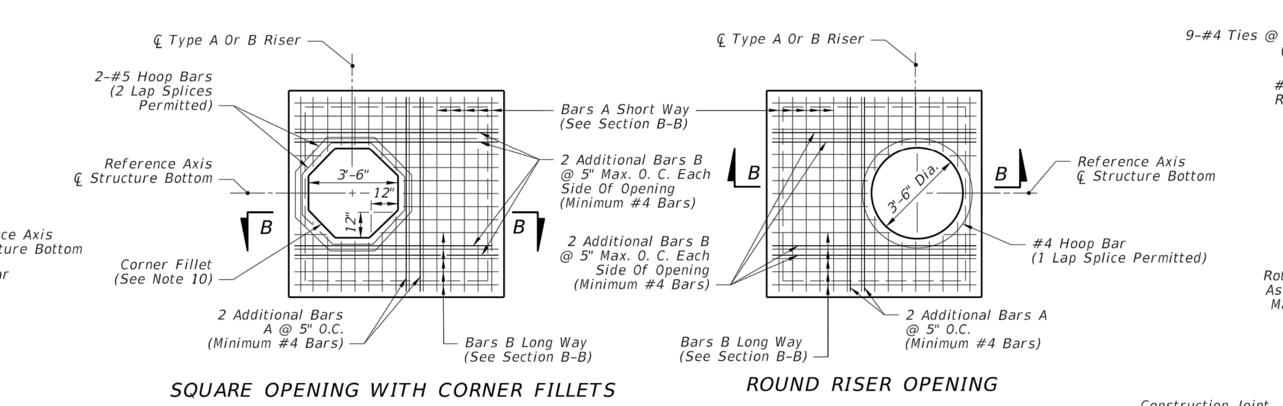
COPYRIGHT 2017, HEIDT DESIGN, LLC, ALL RIGHTS RESERVED. NO DOCUMENTATION, INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS, MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN CONFORMANCE WITH F.S. CHAPTER 119.

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING\ - S.SRVM\DGSEC.DWG-C-313 2017/12/01 10:24 AM ERIC FRANCIS

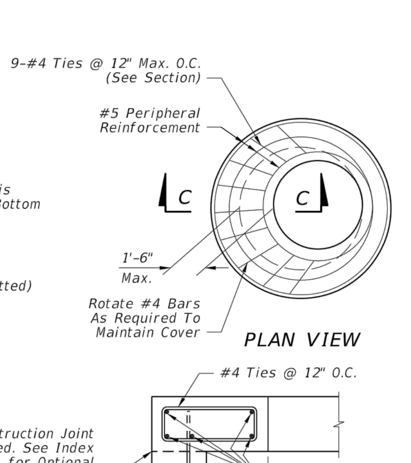
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



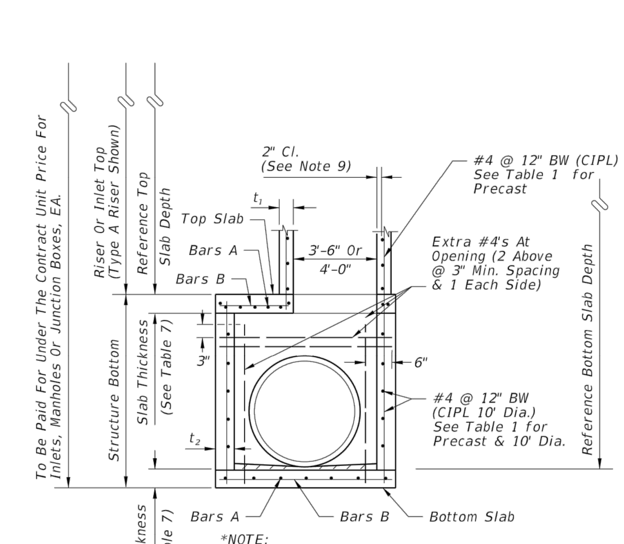
TOP SLAB REINFORCING STEEL DIAGRAM
(ALTERNATE A)



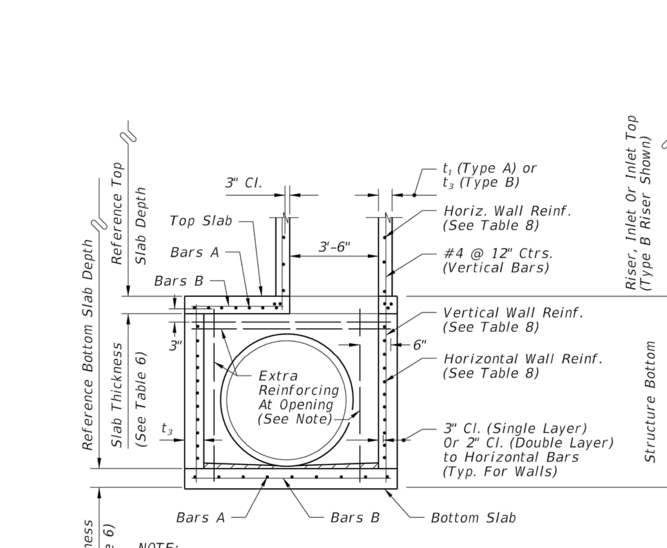
TOP SLAB REINFORCING STEEL DIAGRAM
(ALTERNATE B)



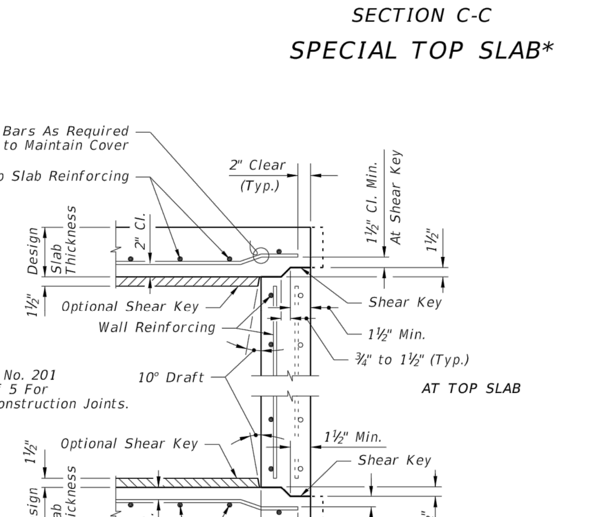
SECTION C-C
SPECIAL TOP SLAB*



SECTION A-A
(ALTERNATE A)



SECTION B-B
(ALTERNATE B)



TYPICAL SLAB TO WALL DETAILS
FOR PRECAST STRUCTURES

LAST REVISION 07/01/14	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	STRUCTURE BOTTOMS TYPE J AND P	INDEX NO. 200	SHEET NO. 1 of 5

ROUND STRUCTURE BOTTOMS (ALTERNATE A) & ROUND RISERS- TABLE 1
Wall Thickness (t_1 & t_2) and Vertical & Horizontal Areas of Reinforcement (A_s)

Type	Structure/Riser Diameter (ft)	Cast-In-Place Items Class II Concrete t_1 Riser (in.)	t_2 Bottom (in.)	A_s (in.²/ft.)	Precast Items Class II Concrete t_1 Riser (in.)	t_2 Bottom (in.)	A_s (in.²/ft.)	ASTM C478 t_1 or t_2 (in.)	A_2 *** (in.²/ft.)
P	3'-6"	6	8	0.20	6	8	0.20	4**	0.105
P	4'-0"	6	8	0.20	6	8	0.20	5**	0.120
J	5'-0"	-	8	0.20	-	8	0.20	6**	0.150
J	6'-0"	-	8	0.20	-	8	0.20	6	0.180
J	7'-0"	-	8	0.20	-	8	0.20	7	0.210
J	8'-0"	-	8	0.20	-	8	0.20	8	0.240
J	10'-0"	-	10	0.40##	-	10	0.40##	10	0.300
J	12'-0"	-	10	0.40##	-	12	0.40##	12	0.360

TABLE 1 NOTES:
##Provide 0.20 eq. in.²/ft. at each face, 12" max. bar spacing.
**Modified minimum wall thickness.
***Min. total circumferential reinforcement for continuous steel hoops:
A_2 = 0.50 sq. in. for riser section height equal or less than 2'-0" (2 hoop min.)
A_2 = 0.75 sq. in. for riser section height more than 2'-0" up to 4'-0" (3 hoop min.)
Areas of reinforcing for precast items are based on Grade 60 reinforcing;
No reduction in the area of reinforcement is allowed for welded wire fabric in Table 1;
Area of vertical reinforcing may be reduced in accordance with ASTM C478.

SQUARE & RECTANGULAR STRUCTURES (ALTERNATE B) - TABLE 2

Type	Wall Length (ft)	Max. Depth (ft)	Wall Thickness (t_3) CIP (in.)	Precast (in.)
P	≤ 3'-6"	40	6 Riser 8 Bottom	6
J	4'-0"	40	8	6
J	5'-0"	22	-	6
J	6'-0"	15	-	6
J	5'-0" to 9'-0"	40	8	8
J	10'-0"	26	8	8
J	10'-0" to 12'-0"	40	10	9
J	16'-0"	35	-	9
J	16'-0"	40	10	10
J	20'-0"	25	-	9
J	20'-0"	30	10	10

TABLE 2 NOTES:
See Table 8 for Reinforcing Schedule.

GENERAL NOTES

1. Standard structure bottoms 4'-0" diameter and smaller (Alt. A) and 3'-6" square (Alt. B) are designated Type P. Larger standard structure bottoms are designated Type J. Risers are permitted for all structures. Round risers are designated Type A, square risers are designated Type B.
2. Walls of circular structures (Alt. A) constructed in place may be of brick or reinforced concrete. Precast and rectangular structures (Alt. B) shall be constructed of reinforced concrete only.
3. Wall thickness and reinforcement are for either reinforced cast-in-place or precast concrete units except that precast circular units may be furnished with walls in accordance with ASTM C478 (see modified wall thicknesses in Table 1).
4. Top and bottom slab thickness and reinforcement are for precast and cast-in-place construction. All concrete shall be of Class II concrete, except use Class IV concrete when shown in the Plans, for special applications of structures located in extremely aggressive environments. Concrete as specified in ASTM C478 (4000 psi) may be used in lieu of Class II concrete for precast items manufactured in accordance with Specifications Section 449.
5. All reinforcement shown is Grade 60 steel, deformed bar. Equivalent area Grade 40 steel or equivalent area smooth or deformed welded wire reinforcement in accordance with Specification Section 931 may be substituted according to Index No. 201, unless otherwise noted.
6. Alt. A or Alt. B structure bottoms may be used in conjunction with curb inlet tops Types 1, 2, 3, 4, 5, 6, 9, and 10, and any manhole or junction box unless otherwise shown in the plans or other standard drawings. Alt. B structure bottoms may be used in conjunction with curb inlet Types 7 & 8, or any ditch bottom inlet unless otherwise shown in the plans or other standard drawings.
7. Rectangular structures may be rotated as directed by the Engineer in order to facilitate connections between the structure walls and storm sewer pipes.
8. Except when ACI hooks are specifically required, reinforcement in top and bottom slab shall be straight embedment.
9. All reinforcement must have 2" minimum cover except for 3'-6" diameter precast circular units manufactured under ASTM C478, keyed construction otherwise shown. Additional bars used to restrain hole formers for precast structures with grouted pipe connections,may be left flush with the hole surface. Cut or bend reinforcement at pipe openings to maintain cover. Exposed ends of reinforcing at precast pipe openings and grouted joints must be removed to 1" below the concrete surface and sealed with a Type F epoxy in accordance with Specification Section 926. Horizontal steel in rectangular structures shall be lapped a minimum of 30 bar diameters or by standard hooks at corners.
10. The corner fillets shown are necessary for rectangular structures used with circular risers and inlet throats and when used on skew with rectangular risers, inlets and inlet throats. Fillets will be required in the top slab of the Alt. A structure bottoms when used with the Alt. B risers. Each fillet shall be reinforced with two #5 bars.
11. Inlet walls, throats, risers or manhole tops shall be secured to structures as shown on Index No. 201 (Sheet 3 of 5) Optional Construction Joints.
12. Structures with depths over 14' below the mean high water table are to be checked for flotation by the designer of the drainage project.
13. Units larger than specified standards may be substituted at the contractor's option when these units will not cause or increase the severity of utility conflicts. Such larger units shall be furnished at no additional cost to the Department. Larger Alt. A units cannot replace Alt. B units without approval of the Engineer. This note applies to this Index only.
14. For manhole and junction box tops, for frames and covers, and, for supplementary details and notes see Index No. 201.
15. Type J structure bottoms must have a minimum 6'-0" wall height when possible, for maintenance access.

LAST REVISION 07/01/13	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	STRUCTURE BOTTOMS TYPE J AND P	INDEX NO. 200	SHEET NO. 2 of 5

TABLE 3-MINIMUM STRUCTURE SIZES FOR SINGLE PIPE CONNECTION PER SIDE

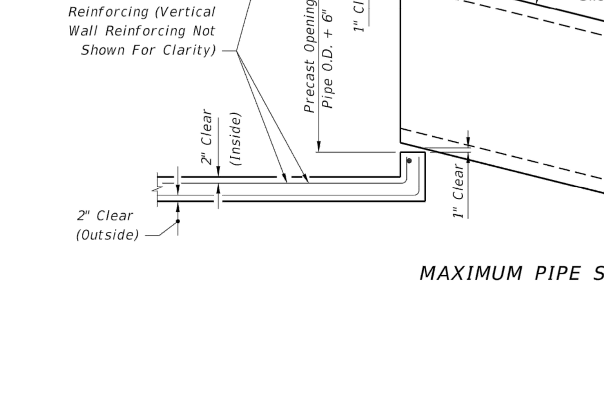
PIPE SIZE	RECTANGULAR Side Dimension (L) Single Pipe Per Side	Note Number	ROUND Diameter (D) Single Pipe or θ=180°	2 to 4 Pipes θ=90°
18"	3'-6"		3'-6"	4'-0"
24"	3'-6"		3'-6"	5'-0"
30"	3'-6"/4'-0"	2	4'-0"	6'-0"
36"	4'-0"/5'-0"	3	5'-0"	7'-0"
42"	5'-0"		6'-0"	7'-0"
48"	6'-0"		6'-0"	8'-0"
54"	6'-0"		7'-0"	10'-0"
60"	7'-0"		7'-0"	10'-0"
66"	7'-0"/8'-0"	4	8'-0"	12'-0"
72"	8'-0"		8'-0"	12'-0"
78"	9'-0"		10'-0"	12'-0"
84"	9'-0"		12'-0"	N/A

TABLE 3 NOTES:
1. For Round Structures sizes with variable angles between pipes and variable pipe sizes, refer to the FDOT Storm Drain Handbook.
2. For 3'-6" Precast Square Structure Bottoms, 30" Pipes with similar invert elevations are not permitted in adjacent walls. Use 4'-0" Side Dimensions when 30" pipe openings are required on adjacent walls and the difference in flow lines is less than 3'-0".
3. For 4'-0" Precast Square Structure Bottoms, 36" Pipes with similar invert elevations are not permitted in adjacent walls. Use 5'-0" Side Dimensions when 36" pipe openings are required on adjacent walls and the difference in flow lines is less than 3'-0".
4. For 7'-0" Precast Square Structure Bottoms, 66" Pipes with similar invert elevations are not permitted in adjacent walls. Use 8'-0" Side Dimensions when 66" pipe openings are required on adjacent walls and the difference in flow lines is less than 4'-0".

TABLE 4-MINIMUM SIZES FOR MULTIPLE PARALLEL PIPE CONNECTIONS FOR RECTANGULAR STRUCTURE BOTTOMS

PIPE SIZE	PIPE SPACING (S)	MINIMUM WALL LENGTH (L) FOR NUMBER OF PARALLEL PIPES 2	3	4
18"	2'-10"	6'-0"	8'-6"	11'-0"
24"	3'-5"	6'-6"	10'-0"	13'-6"
30"	4'-3"	8'-0"	12'-6"	16'-6"
36"	5'-1'	9'-6"	14'-6"	19'-6"
42"	6'-0"	11'-0"	17'-0"	-
48"	6'-9"	12'-6"	19'-0"	-
54"	7'-8"	14'-0"	-	-
60"	8'-6"	15'-0"	-	-
66"	9'-0"	16'-6"	-	-
72"	10'-0"	18'-0"	-	-
78"	10'-9"	19'-0"	-	-
84"	11'-8"	20'-6"	-	-

TABLE 4 NOTES:
1. Minimum wall lengths based on precast structures, using concrete pipe with maximum skew angles per Table 5.
2. Wall lengths exceeding 20'-0" require special designs.

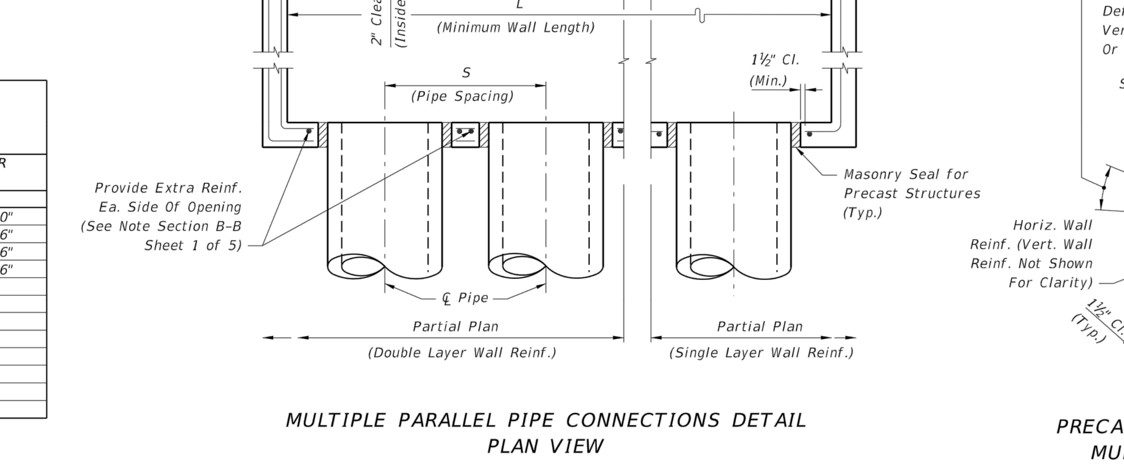


MAXIMUM PIPE SKEW FOR PRECAST ROUND OPENINGS
PLAN VIEW

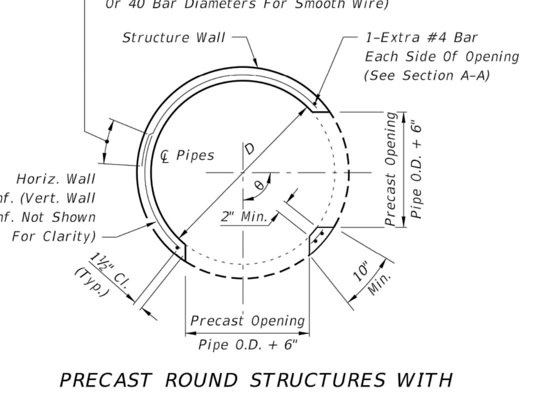
TABLE 5 - MAXIMUM PIPE SKEW FOR PRECAST ROUND OPENINGS

	WALL THICKNESS	PIPE SIZE 18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"
MAXIMUM SKEW ANGLE	8"	19°	17°	16°	16°	15°	14°	14°	13°	13°	13°	12°	12°
	6"	21°	20°	18°	17°	17°	16°	15°	15°	14°	14°	13°	13°

TABLE 5 NOTES:
These values are based on 2" clearance for precast structures.
Larger skews are possible for Cast-In-Place Structures or elliptical pipe openings when approved by the Engineer.



MULTIPLE PARALLEL PIPE CONNECTIONS DETAIL
PLAN VIEW



PRECAST ROUND STRUCTURES WITH MULTIPLE PIPE CONNECTIONS

STRUCTURE SIZES FOR PIPE CONNECTIONS

LAST REVISION 07/01/07	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	STRUCTURE BOTTOMS TYPE J AND P	INDEX NO. 200	SHEET NO. 3 of 5

SLAB DESIGNS - SQUARE AND RECTANGULAR STRUCTURES (TABLE 6)
(ALL SLABS 8" THICK EXCEPT AS NOTED - REINFORCING PARALLEL TO SHORT WAY AND LONG WAY)

SHORT-WAY SLAB DEPTH	SCHEDULE (Bars A)	LONG-WAY SLAB DEPTH	SCHEDULE (Bars B)
SIZE: 3'-6" x UNLIMITED			
≥0.5' < 8'	B10	≥0.5' < 24'	B10
8' < 13'	B5.5	24'-40'	B5.5
13' < 31'	C6.5		
31'-40'	D7		
SIZE: 4' x UNLIMITED			
≥0.5' < 7'	B5.5	≥0.5' < 15'	B10
7' < 19'	C6.5	15' < 29'	B5.5
19' < 31'	D7	29'-40'	C6.5
31'-40'	E5		
SIZE: 5' x 5'			
≥0.5' < 3'	C6.5	≥0.5' < 3'	C6.5
3' < 7'	B5.5	3' < 13'	C6.5
7' < 22'	C6.5	13' < 22'	D7
22' < 29'	D7	22' < 29'	D4.5
29'-40'	E5	29'-40'	E5
SIZE: 5' x 6'			
≥0.5' < 12'	C6.5	≥0.5' < 3'	C6.5
12' < 26'	D7	3' < 9'	B5.5
26'-40'	E5	9' < 23'	C3.5
		23' < 35'	D4.5
		35'-40'	E5
SIZE: 5' x 7'			
≥0.5' < 10'	C6.5	≥0.5' < 10'	B5.5
10' < 20'	D7	10' < 31'	C3.5
20' < 34'	E5	31'-40'	D4.5
34'-40'	F5		
SIZE: 5' x 8'			
≥0.5' < 7'	C6.5	≥0.5' < 8'	B10
7' < 13'	D7	8' < 17'	B5.5
13' < 24'	E5	17' < 25'	C6.5
24'-40'	F5	25'-40'	C3.5
SIZE: 5' x 9'			
≥0.5' < 8'	C6.5	≥0.5' < 14'	B10
8' < 14'	D7	14' < 24'	B5.5
14' < 25'	E5	24' < 34'	C6.5
25'-40'	F5	34'-40'	C3.5
SIZE: 5' x UNLIMITED			
≥0.5' < 8'	C6.5	≥0.5' < 14'	B10
8' < 14'	D7	14' < 24'	B5.5
14' < 25'	E5	24' < 34'	C6.5
25'-40'	F5	34'-40'	C3.5

SHORT-WAY SLAB DEPTH	SCHEDULE (Bars A)	LONG-WAY SLAB DEPTH	SCHEDULE (Bars B)
SIZE: 6' x 6'			
≥0.5' < 13'	C6.5	≥0.5' < 10'	C3.5
13' < 23'	D7	10' < 18'	D4.5
23'-40'	E5	18' < 27'	E5
		27' < 33'	E3
		33'-40'	F5
SIZE: 6' x 7'			
≥0.5' < 8'	C6.5	≥0.5' < 8'	C6.5
8' < 16'	D7	8' < 12'	C3.5
16' < 28'	E5	12' < 21'	D4.5
28'-40'	F5	21' < 28'	E5
		28' < 35'	E3
		35'-40'	F5
SIZE: 6' x 8'			
≥0.5' < 6'	C6.5	≥0.5' < 6'	B5.5
6' < 13'	D7	6' < 11'	C6.5
13' < 22'	E5	11' < 17'	C3.5
22' < 35'	F5	17' < 22'	D4.5
35'-40'	G5	22' < 32'	E5
		32'-40'	E3
SIZE: 6' x 9'			
≥0.5' < 8'	D7	≥0.5' < 8'	B5.5
8' < 14'	E5	8' < 14'	C6.5
14' < 24'	F5	14' < 21'	C3.5
24'-34'	G5	21' < 25'	D4.5
		25'-34'	E5
SIZE: 6' x UNLIMITED			
≥0.5' < 8'	D7	≥0.5' < 8'	B5.5
8' < 14'	E5	8' < 14'	C6.5
14' < 24'	F5	14' < 21'	C3.5
24'-34'	G5	21' < 25'	D4.5
		25'-34'	E5
SIZE: 7' x 7'			
≥0.5' < 8'	C6.5	≥0.5' < 4'	C6.5
8' < 15'	D7	4' < 7'	C3.5
15' < 26'	E5	7' < 11'	D4.5
26'-40'	F5	11' < 22'	E3
		22' < 32'	F3.5
		32'-40'	G3.5
SIZE: 7' x 8'			
≥0.5' < 5'	C6.5	≥0.5' < 5'	C6.5
5' < 11'	D7	5' < 8'	C3.5
11' < 19'	E5	8' < 13'	D4.5
19' < 30'	F5	13' < 22'	E3
30'-40'	G5	22' < 30'	F3.5
		30'-40'	G3.5
SIZE: 7' x 9'			
≥0.5' < 9'	D7	≥0.5' < 7'	C6.5
9' < 15'	E5	7' < 10'	C3.5
15' < 25'	F5	10' < 14'	D4.5
25' - 34'	G5	14' < 21'	E5
		21' < 29'	F5
		29'-34'	F3.5

SHORT-WAY SLAB DEPTH	SCHEDULE (Bars A)	LONG-WAY SLAB DEPTH	SCHEDULE (Bars B)
SIZE: 8' x 8'			
≥0.5' < 10'	D7	≥0.5' < 9'	D4.5
10' < 19'	E5	9' < 13'	E5
19'-30'	F5	13' < 18'	F5
		18' < 23'	F3.5
		23'-30'	G3.5
SIZE: 8' x 9'			
≥0.5' < 8'	D7	≥0.5' < 7'	D7
8' < 14'	E5	7' < 9'	D4.5
14' < 23'	F5	9' < 15'	E3
23'-31'	G3.5	15' < 20'	F5
		20' < 23'	F3.5
		23'-31'	G3.5
SIZE: 9' x 9'			
≥0.5' < 8'	D7	≥0.5' < 7'	D4
8' < 14'	E5	7' < 10'	E5
14' < 22'	F5	10' < 17'	F3.5
		17' < 22'	G3.5
SIZE: 9'x9'x10" SLAB THICKNESS			
22' < 36'	F5	22' < 31'	F3.5
36'-40'	G5	31'-40'	G3.5
SIZE: 10'x10'x10" SLAB THICKNESS			
≥0.5' < 7'	C6.5	0.5' < 6'	C6.5
7' < 10'	D7	6' < 9'	D4.5
10' < 18'	E5	9' < 15'	E5
18' < 27'	F5	15' < 22'	F5
27'-32'	G5	22'-32'	G3.5
SIZE: 12'x12'x12" SLAB THICKNESS			
≥0.5' < 10'	D7	≥0.5' < 8'	D7
10' < 16'	E5	8' < 14'	E5
16' < 25'	F5	14' < 22'	F5
25'-35'	G5	22' < 30'	G5
		30'-35'	H4

SLAB DESIGNS - ROUND STRUCTURES (TABLE 7)

SLAB DEPTH	SLAB THICKNESS	REINF. (2-WAY) SCHEDULE
SIZE: 3'-6" DIAMETER		
2'-15'	6" Precast	C6.5
0.5' < 30'	8"	A6
30'-40'	8"	B5.5
SIZE: 4'-0" DIAMETER		
≥0.5' < 19'	8"	A6
19' < 30'	8"	B5.5
30'-40'	8"	C6.5
SIZE: 5'-0" DIAMETER		
≥0.5' < 15'	8"	B5.5
15' < 26'	8"	C6.5
26' < 35'	8"	D7
35'-40'	8"	D4.5
SIZE: 6'-0" DIAMETER		
≥0.5' < 9'	8"	B5.5
9' < 15'	8"	C6.5
15' < 22'	8"	C3.5
22' < 30'	8"	D4.5
30'-40'	8"	E5
SIZE: 7'-0" DIAMETER		
≥0.5' < 8'	8"	C3.5
8' < 16'	8"	D4.5
16' < 23'	8"	E5
23' < 27'	8"	E3
27'-40'	8"	F3.5
SIZE: 8'-0" DIAMETER		
≥0.5' < 10'	8"	D4.5
10' < 16'	8"	E5
16' < 19'	8"	E3
19' < 29'	8"	F3.5
29'-40'	10"	F5
SIZE: 10'-0" DIAMETER		
≥0.5' < 12'	10"	D4.5
12' < 20'	10"	E5
20' < 28'	10"	F5
28'-40'	10"	G3.5
SIZE: 12'-0" DIAMETER		
≥0.5' < 8'	10"	D4.5
8' < 13'	10"	E5
13' < 18'	10"	F5
18' < 26'	10"	G3.5
26'-40'	12"	G3.5

SLAB AND WALL DESIGN TABLE NOTES

1. Size is the inside dimension(s) of a structure.
2. Slab reinforcement is appropriate for top, intermediate, and bottom slabs.
3. Bottom Slabs for precast 3'-6" x 3'-6" rectangular structures at 15' depth or less, may be 6" thick.
4. Slab depth is measured from finished grade to top of slab.
5. Wall depth is measured to the top of the bottom slab for boxes and to the top of the intermediate slab for risers.
6. Wall height is the distance between top of lower slab to bottom of upper slab. Maximum wall height is 12' for wall lengths exceeding 5', or 10' for wall lengths exceeding 12'.
7. Wall lengths exceeding 6'-0" require two layers of reinforcing (See Table 8) with 2" of cover from the horizontal bars to the inside and outside faces for each layer.
8. Wall lengths exceeding the dimensions or depths shown in Table 8, or 12'-0" diameter require a special design.
9. Wall thickness and reinforcing for rectangular structures is the same for both long and short sides.
10. Reinforcing schedules with larger areas of steel may be substituted for schedules with smaller bar or wire spacing, except that Schedule B10 may not be substituted for Schedule A6. See Index 201, Sheet 4 for allowable bar spacing adjustments when larger areas of reinforcing are substituted.

LAST REVISION 07/01/09	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	STRUCTURE BOTTOMS TYPE J AND P	INDEX NO. 200	SHEET NO. 4 of 5

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

DRAINAGE DETAILS

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
1	06/17/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	DD
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

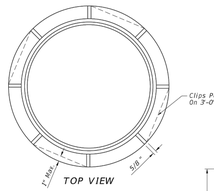
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-314

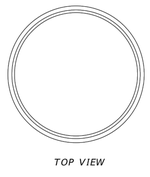
© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\DD.DWG-C-314 2017/12/01 10:24 AM ERIC FRANCIS

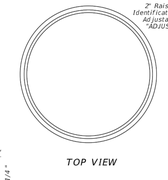
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



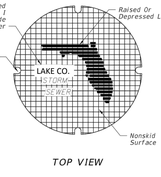
TOP VIEW



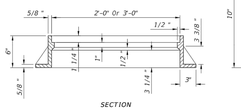
TOP VIEW



TOP VIEW



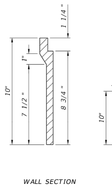
TOP VIEW



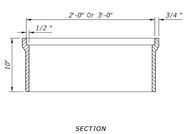
SECTION

For Manholes

TYPE I



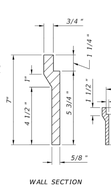
WALL SECTION



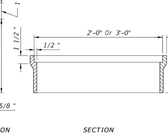
SECTION

For Curb Inlets Types 1, 2, 3, & 4

TYPE II



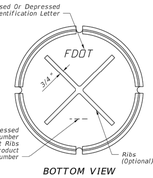
WALL SECTION



SECTION

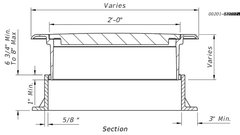
For Curb Inlets Types 7 & 8

TYPE III

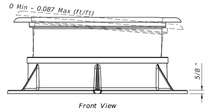


2" Raised Or Depressed Identification Number Covers With And Without Ribs Shall Bear The Same Product Identification Number

BOTTOM VIEW



Section



Front View

TYPE I ADJUSTABLE

WEIGHT OF CASTINGS (lb)

Frame Type	2' OPENING		3' OPENING			
	Frame	Cover (Std.)	Frame	2-Piece Cover		
				Inside	Outside	Total
I *	155	190	220	190	220	410
II	145	190	255	190	220	410
III	90	190	180	190	220	410

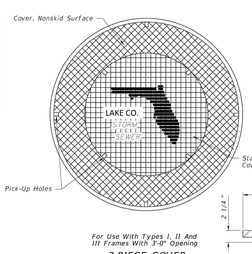
* Includes Type I Adjustable

NOTES (FRAMES, AND COVER)

1. The standard cover is to be used for all Frames Types I, II, III and the 2-piece cover, and is the replacement cover for all previous frames with 1½" deep seats (traffic type). The 185 lb. cover (nontraffic type), 1984 Roadway and Traffic Design Standards Index No. 201, is the replacement cover for existing frames with ½" deep seats. Installation of frame with ½" deep seats is not permitted.
2. Use the 2'-0" cover, unless the 2-piece cover is called for in the plans, except at inlets and manholes with sump bottoms use the 2-piece cover when the sump depth exceeds 2', unless otherwise noted.

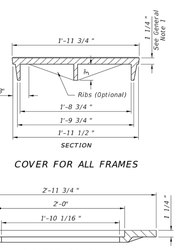
DESIGNER NOTE:

Consider using the 2-piece cover where depths exceed 5' and manual entry may be required for cleaning. Clearly note the requirement for a 2-piece cover, on the Drainage Structure sheets in the plans.



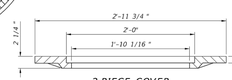
For Use With Types I, II And III Frames With 3'-0" Opening

2-PIECE COVER



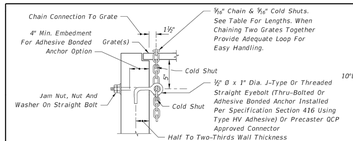
SECTION

COVER FOR ALL FRAMES



2-PIECE COVER

LAST REVISION	DESCRIPTION:	2016 DESIGN STANDARDS	SUPPLEMENTARY DETAILS FOR MANHOLES & INLTES	INDEX NO.	SHEET NO.
01/01/12	REVISION			201	1 of 5



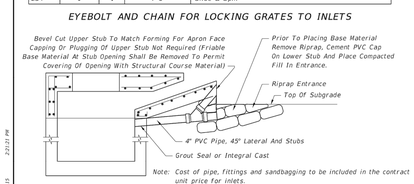
NOTE: When Alternate "G" grate is specified, the chain, bolt, nuts, washer and cold shuts shall be galvanized in accordance with Section 425 of the Standard Specifications.

Cost of eyebolt and chain to be included in the contract unit price for inlets.

EYEBOLT AND CHAIN REQUIREMENTS

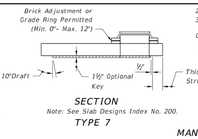
Index Number	Inlet Type	Eye-Bolts	Length Of Chain	Handling & Remarks
217	(MB) 1	1	4'-0"	Slide & Spin
	(NB) 2	1	4'-0"	Slide & Spin
	(MB) 3	2	2 @ 4'-0"	Slide & Spin
	(MB) 4	2	2 @ 4'-0"	Slide & Spin
	(MB) 5	2	2 @ 4'-0"	Slide & Spin
218	(BW)	1	3'-8"	Slide Or Slide & Spin
219	(BW, RGD)	1	4'-0"	Slide & Spin
220	S	1	4'-0"	Slide & Spin
221	V	1	4'-0"	Slide & Spin
230	A	1	3'-0"	Slide
231	B	1	5'-0"	Slide & Spin
232	C	1	2'-6"	Slide & Spin
	D	1	2'-6"	Slide & Spin
	E	2	2 @ 2'-6"	Slide & Spin
	H	2	2 @ 2'-6"	Flip Ctr, Grate and Slide & Spin Single Free Grate
			1 or 2 @ 1'-6"	Ctr, Grate(s) Chained To One End Grate
233	F	1	3'-6"	Flip Or Slide & Spin
	G	1	6'-0"	Slide
			2'-0"	Lifting Loop
234	J	1	4'-0"	Slide & Spin

EYEBOLT AND CHAIN FOR LOCKING GRATES TO INLETS



Note: Cost of pipe, fittings and sandbagging to be included in the contract unit price for inlets.

TEMPORARY DRAINS FOR SUBGRADE AND BASE

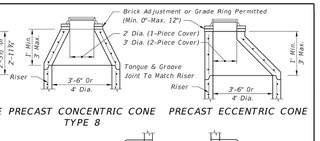


SECTION

Note: See Slab Designs Index No. 200.

TYPE 7

MANHOLE TOPS



BRICK OR CONCRETE PRECAST CONCENTRIC CONE TYPE 8

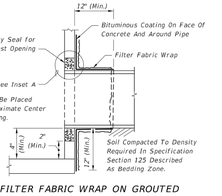
PRECAST ECCENTRIC CONE

NOTES (TOPS)

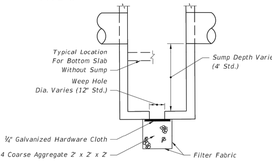
1. Manhole top Type 7 slabs shall be of Class II concrete. Concrete as specified in ASTM C478 may be used for precast units; see General Note No. 3.
2. Manhole top Type 7 slabs may be of cast-in-place or precast construction. The optional key is for precast tops and in lieu of dowels. Frame and slab openings are to be omitted when top is used over a junction box.
3. Manhole top Type 8 may be of cast-in-place or precast concrete construction or brick construction. For concrete construction, the concrete and steel reinforcement shall be the same as the supporting wall unit. An eccentric cone may be used.
4. Manhole tops shall be secured to structures by optional construction joints as shown on Sheet 3.
5. Frames can be adjusted a maximum 12" height with brick or precast ASTM C478 grade rings.
6. Substitution of manhole top Type 8 for manhole top Type 7 is allowed provided that minimum dimensions shown above are not reduced.
7. Substitution of Manhole top Type 7 for Type 8 is allowed if the minimum thickness (h) above pipe opening cannot be maintained with manhole top Type 8.

DESIGN NOTES

1. Manhole top Type 8 should be specified in the plans when depths shown above can be maintained.

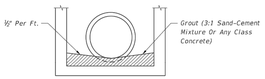


FILTER FABRIC WRAP ON GROUTED PIPE TO STRUCTURE JOINT



NOTE: Sump bottom appropriate for all manhole and inlet types. Sumps are to be constructed in inlet and manholes connected to French Drains unless excluded in the plans. At other locations, sump is to be constructed only where called for in the plans. Weep holes to be constructed in sump bottom only where called for in the plans. Cost of sump bottom and weep hole to be included in the contract unit price for inlet or manhole.

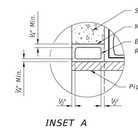
SUMP BOTTOM



FOR ALL STRUCTURES UNLESS EXCLUDED BY SPECIAL DETAIL

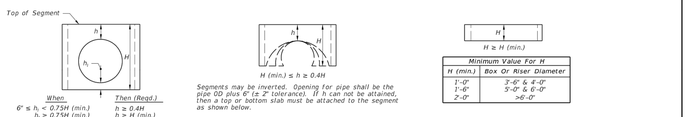
ALL PIPE TYPES

DRAINAGE STRUCTURE INVERT

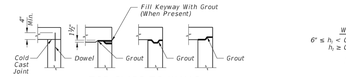


INSET A

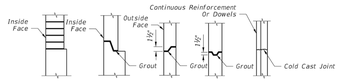
LAST REVISION	DESCRIPTION:	2016 DESIGN STANDARDS	SUPPLEMENTARY DETAILS FOR MANHOLES & INLETS	INDEX NO.	SHEET NO.
07/01/12	REVISION			201	2 of 5



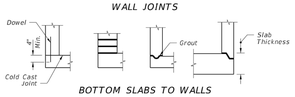
SEPARATE RISER SEGMENTS WITH CONSTRUCTION JOINTS OTHER THAN DOWEL OPTION



TOP SLABS TO WALLS



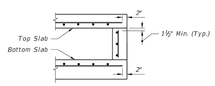
WALL JOINTS



BOTTOM SLABS TO WALLS

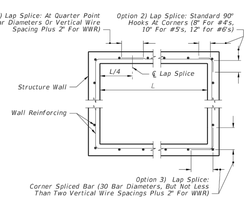
1. One or more types of joints may be used in a single structure, except brick wall structure. Brick wall construction is permitted on circular units only.
2. All grouted joints are to have a maximum thickness of 1".
3. Keyways are to be a minimum of 1½" deep.
4. Joint dowels are to be #4 bars, 12" long with a minimum of 6 bars per joint approximately evenly spaced for circular structures or at maximum 12" spacing for rectangular structures. Bars may be either Adhesive Bonded Dowels in accordance with Specification Section 416, or placed approximately 6" into fresh concrete leaving the remainder to extend into the secondary cast. Welded wire reinforcement may be substituted for the dowel bar in accordance with the equivalent steel area table on Sheet 4.
5. Minimum cover on dowel reinforcing bars is 2" to outside face of structure.
6. Joints between wall segments and between wall segments and top or bottom slabs may be sealed either by preformed plastic gasket material using the procedures given in Section 430 of the Specifications or by non-shrink grout, in accordance with Section 934 of the Specifications.
7. Insert products approved by the Engineer may be used in lieu of dowel embedment.

OPTIONAL CONSTRUCTION JOINTS



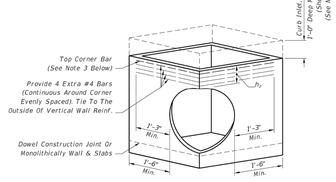
(NOTE: NOT APPLICABLE AROUND MANHOLE AND RISER OPENINGS)

REBAR STRAIGHT END EMBEDMENT FOR TOP AND BOTTOM SLABS



WALL REINFORCING SPLICE DETAILS

LAST REVISION	DESCRIPTION:	2016 DESIGN STANDARDS	SUPPLEMENTARY DETAILS FOR MANHOLES & INLETS	INDEX NO.	SHEET NO.
07/01/15	REVISION			201	3 of 5



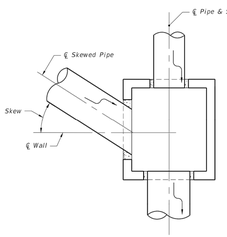
DESIGNER NOTE: Use only when round structures are not practical, engineer of record approval required.

PICTORIAL VIEW

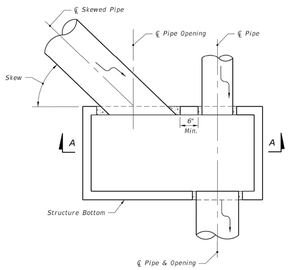
NOTE: 1. Submit Shop Drawings of corner openings for approval by the Engineer of Record.

2. h_1 may be less than 1'-0" when a minimum 1'-0" deep segment, 8" slab or curb inlet is provided above the corner opening.
3. For inlet segments at finish grade elevation substitute a #8 Bar for the top corner bar when 1'-0" ≤ h_1 < 2'-0".

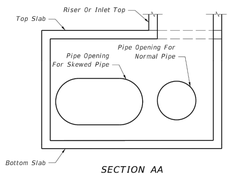
RECTANGULAR SEGMENT WITH PIPE OPENING AT CORNER



PLAN VIEW FOR SKEWS ≤ 45° (Not Centered)



PLAN VIEW FOR SKEWS > 45° (Not Centered)



SECTION AA

(Pipes Not Shown For Clarity)

DETAILS FOR SKEWED PIPES IN RECTANGULAR STRUCTURES

LAST REVISION	DESCRIPTION:	2016 DESIGN STANDARDS	SUPPLEMENTARY DETAILS FOR MANHOLES & INLETS	INDEX NO.	SHEET NO.
07/01/12	REVISION			201	5 of 5

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000415
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

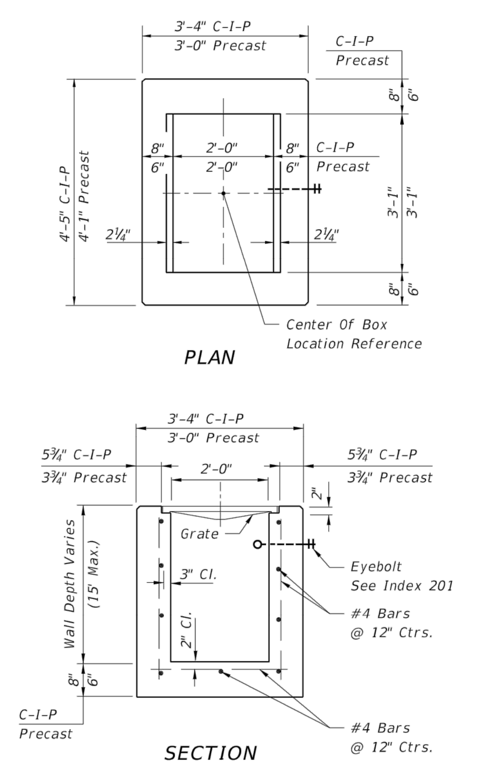
DRAINAGE DETAILS

PREPARED FOR: VK AVALON GROVES, LLC

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\MKD\DD DWGS-C-315 2017\2017 10 2A AM ERIC FRANCIS

DESCRIPTION	DATE

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



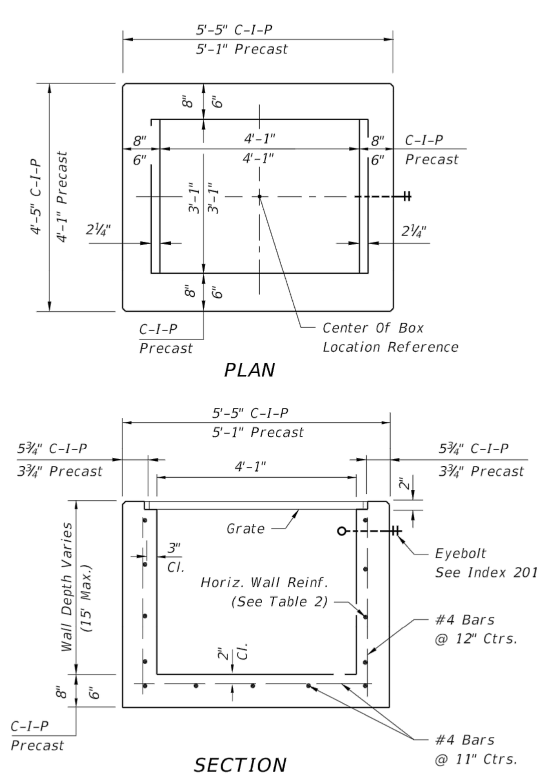
HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 1)

WALL DEPTH	SCHEDULE	AREA (in.²/ft.)	MAX. SPACING BARS	MAX. SPACING WWF
0'-15'	A12	0.20	12"	8"

TYPE C

Recommended Maximum Pipe Size:

2'-0" Wall - 18" Pipe
3'-1" Wall - 24" Pipe (18" where an 18" pipe enters a 2'-0" wall)



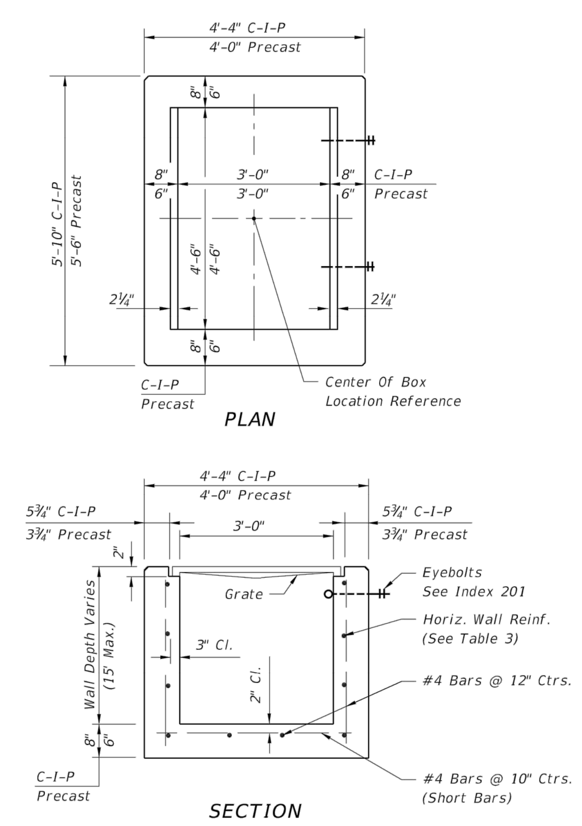
HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 2)

WALL DEPTH	SCHEDULE	AREA (in.²/ft.)	MAX. SPACING BARS	MAX. SPACING WWF
0'-6'	A12	0.20	12"	8"
6'-10'	A6	0.20	6"	5"
10'-13'	A4	0.20	4"	3"
10'-15'	B5.5	0.24	5½"	5"

TYPE D

Recommended Maximum Pipe Size:

3'-1" Wall - 24" Pipe
4'-1" Wall - 36" Pipe



HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 3)

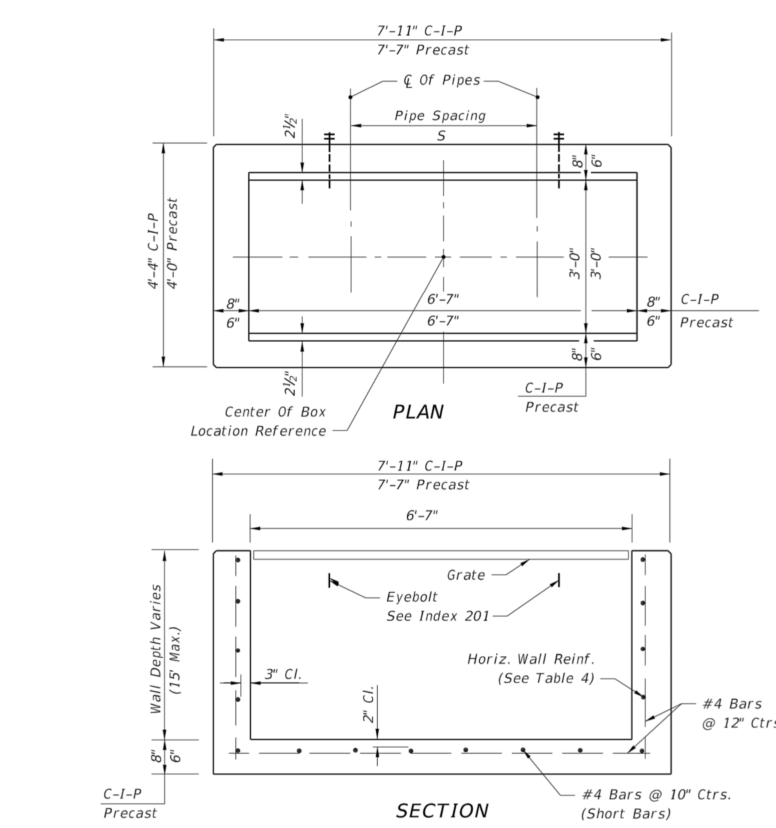
WALL DEPTH	SCHEDULE	AREA (in.²/ft.)	MAX. SPACING BARS	MAX. SPACING WWF
0'-5'	A12	0.20	12"	8"
0'-7.5'	A6	0.20	6"	5"
7.5'-10'	B5.5	0.24	5½"	5"
10'-15'	C6.5	0.37	6½"	6"

TYPE E

Recommended Maximum Pipe Size:

3'-0" Wall - 24" Pipe
4'-6" Wall - 36" Pipe

LAST REVISION 07/01/05	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	DITCH BOTTOM INLET TYPES C, D, E AND H	INDEX NO. 232	SHEET NO. 1 of 7

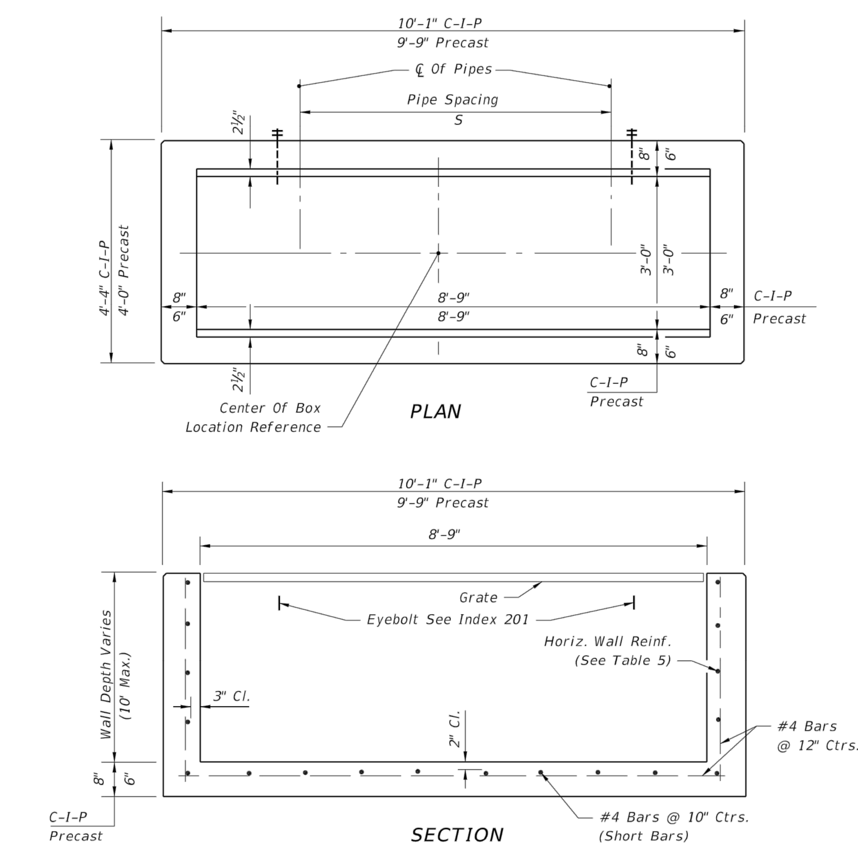


HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 4)

WALL DEPTH	SCHEDULE	AREA (in.²/ft.)	MAX. SPACING BARS	MAX. SPACING WWF
0'-5'	B5.5	0.24	5½"	5"
5'-7'	C6.5	0.37	6½"	6"
7'-15'	D4.5	0.53	4½"	4"

TYPE H (2 & 3-GRATE INLET)

Recommended Maximum Pipe Size:
3'-0" Wall - 24" Pipe
6'-7" Wall - 1-60" Pipe
Or 2-24" Pipe (S=3'-5")



HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 5)

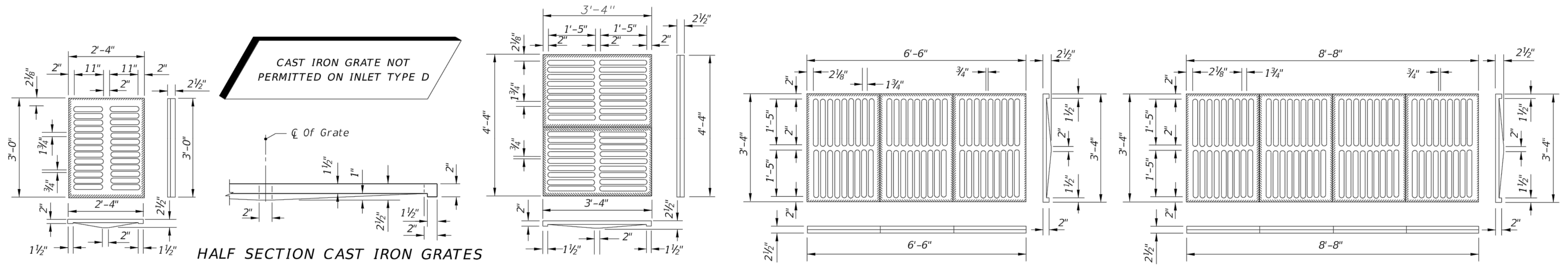
WALL DEPTH	SCHEDULE	AREA (in.²/ft.)	MAX. SPACING BARS	MAX. SPACING WWF
0'-5'	C3.5	0.37	3½"	3"
5'-10'	D4.5	0.53	4½"	4"

TYPE H (4-GRATE INLET)

Recommended Maximum Pipe Size:
3'-0" Wall - 24" Pipe
8'-9" Wall - 1-78" Pipe
Or 2-30" Pipe (S=4'-3")

GENERAL NOTES
See Sheet 3 of 7.

LAST REVISION 07/01/05	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	DITCH BOTTOM INLET TYPES C, D, E AND H	INDEX NO. 232	SHEET NO. 2 of 7



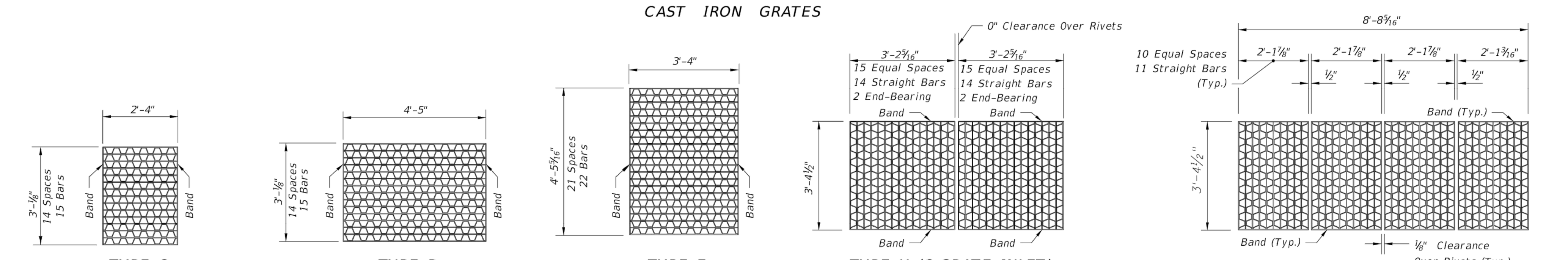
TYPE C
Approx. Weight 235 Lbs.

TYPE E
Approx. Weight 465 Lbs.

TYPE H (3-GRATE INLET)
Approx. Weight 725 Lbs.

TYPE H (4-GRATE INLET)
Approx. Weight 967 Lbs.

CAST IRON GRATES



TYPE C
Straight Bars 2"x ¼"
Reticuline Bars 1¼" x $\frac{3}{16}$"
Bands 2" x ¼"
Approx. Weight 104 Lbs.

TYPE D
Straight Bars 2" x ¼"
Reticuline Bars 1¼" x $\frac{3}{16}$"
Bands 2" x ¼"
Approx. Weight 190 Lbs.

TYPE E
Straight Bars 2" x ¼"
Reticuline Bars 1¼" x $\frac{3}{16}$"
Bands 2" x ¼"
Approx. Weight 215 Lbs.

TYPE H (2-GRATE INLET)
Straight End-Bearing Bars 2" x ⅜"
Straight Bearing Bars 2" x ¼"
Reticuline Bars 1¼" x $\frac{3}{16}$"
Banding Bars 2" x ¼"
Approx. Total Weight 310 Lbs.

TYPE H (4-GRATE INLET)
Straight End-Bearing Bars 2" x ¼"
Reticuline Bars 1¼" x $\frac{3}{16}$"
Banding Bars 2" x $\frac{3}{16}$"
Approx. Total Weight 388 Lbs.

STEEL GRATES

NOTE: Steel Grates Are Required On Inlets With Traversable Slots And On Inlets where Bicycle Traffic Is Anticipated.

GENERAL NOTES

1. These inlets are suitable for bicycle traffic and are to be used in ditches, medians and other areas subject to infrequent traffic loadings but are not to be placed in areas subject to any heavy wheel loads. These inlets may be placed in areas subject to occasional pedestrian traffic such as landscaped areas and pavement areas where pedestrians can walk around the inlet.

2. Inlets subject to minimal debris should be constructed without slots. Where debris is a problem inlets should be constructed with slots. Slotted inlets located within roadway clear zones and areas subject to pedestrians shall have traversable slots. The traversable slot modification is not adaptable to inlet Type H. Slots may be constructed at either or both ends as shown on plans. Traversable slots shall not be used in areas subject to occasional bicycle traffic.

3. Steel grates are to be used on all inlets where bicycle traffic is anticipated. Steel grates are to be used on all inlets with traversable slots. Either cast iron or steel grates may be used on inlets without slots where bicycle traffic is not anticipated. Either cast iron or steel grates may be used on all inlets with non-traversable slots. Subject to the selection described above, when Alternate G grate is specified in the plans, either the steel grate, hot dip galvanized after fabrication, or the cast iron grate may be used, unless the plans stipulate the particular type.

4. Recommended maximum pipe sizes shown are for concrete pipe. Size for other types of pipe must be checked for fit.

5. All exposed edges and corners shall be ¾" chamfer or tooled to ¼" radius.

6. Concrete inlet pavement to be used on inlets without slots and inlets with non-traversable slots only when called for in the plans; but required on all traversable slot inlets. Cost to be included in contract unit price for inlets. Quantities shown are for information only.

7. Traversable slots constructed in existing inlets shall be paid for as inlets partial. For conversion work and method of payment see 'TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS'.

8. Sodding to be used on all inlets not located in paved areas and paid for under contract unit price for Performance Turf, SY.

9. For supplementary details see Index No. 201.

10. All reinforcing is Grade 60 bars with 2" min. cover unless otherwise noted. Bars to be cut or bent for 1½" clearance around pipe opening. Provide one additional #4 bar above and at each side of pipe opening.

LAST REVISION 07/01/10	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	DITCH BOTTOM INLET TYPES C, D, E AND H	INDEX NO. 232	SHEET NO. 3 of 7

DIMENSIONS AND QUANTITIES

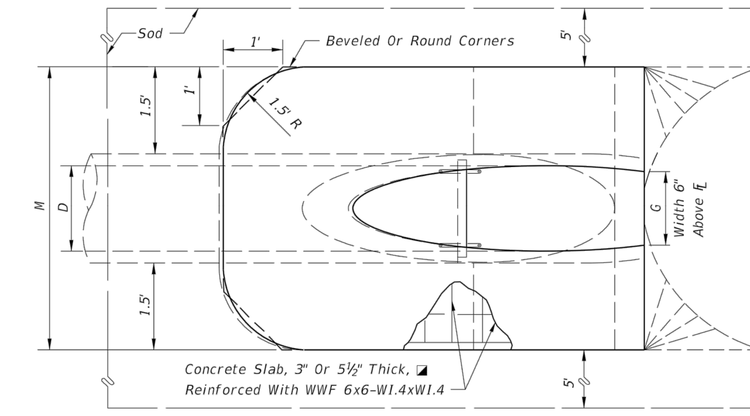
Slope	D	X	A	B	C	E	F	G	H ■	M Single Pipe	M Double Pipe	M Triple Pipe	M Quad. Pipe	N	5½" CONCRETE SLAB (CY) ◪ Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe	SODDING (SY) Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe
1:2 Slope	15"	2'-7"	1.92'	2.18'	4.10'	2.06'	5'	1.22'	2.9'	4.63'	7.21'	9.79'	12.37'	1.19'	0.38	0.58	0.77	0.96	21	24	27	30
	18"	2'-10"	1.97'	2.74'	4.71'	2.56'	6'	1.41'	3.4'	4.92'	7.75'	10.58'	13.42'	1.21'	0.44	0.65	0.87	1.09	22	25	28	31
	24"	3'-5"	2.06'	3.85'	5.91'	3.56'	7'	1.73'	3.4'	5.50'	8.92'	12.33'	15.75'	1.25'	0.54	0.83	1.12	1.42	24	28	32	35
	30"	4'-3"	2.15'	4.95'	7.10'	4.56'	8'	2.00'	3.4'	6.08'	10.33'	14.58'	18.83'	1.29'	0.66	1.09	1.50	1.91	26	31	35	40
	36"	5'-1"	2.25'	6.08'	8.33'	5.56'	9'	2.24'	3.4'	6.67'	11.75'	16.83'	21.92'	1.33'	0.81	1.38	1.95	2.51	28	34	39	45
	42"	6'-0"	2.34'	7.21'	9.55'	6.56'	10'	2.45'	3.4'	7.25'	13.25'	19.25'	25.25'	1.38'	0.97	1.70	2.45	3.19	30	37	43	50
	48"	6'-9"	2.43'	8.33'	10.76'	7.56'	11'	2.65'	3.4'	7.83'	14.58'	21.33'	28.08'	1.42'	1.13	2.04	2.93	3.84	32	39	47	54
	54"	7'-8"	2.52'	9.44'	11.96'	8.56'	12'	2.83'	3.4'	8.42'	16.08'	23.75'	31.42'	1.46'	1.31	2.44	3.58	4.72	34	42	51	59
	60"	8'-6"	2.62'	10.56'	13.18'	9.56'	14'	3.00'	4.4'	9.00'	17.50'	26.00'	34.50'	1.50'	1.51	2.89	4.28	5.68	36	45	55	64
	66"	9'-2"	2.71'	11.68'	14.39'	10.56'	15'	3.18'	4.4'	9.58'	18.75'	27.92'	37.08'	1.54'	1.68	3.25	4.84	6.43	38	48	58	68
	72"	10'-0"	2.80'	12.80'	15.60'	11.56'	16'	3.30'	4.4'	10.16'	20.16'	30.16'	40.16'	1.58'	1.89	3.74	5.59	7.45	40	51	62	73
1:4 Slope	15"	2'-7"	2.27'	4.09'	6.36'	4.03'	8'	1.22'	4.0'	4.63'	7.21'	9.79'	12.37'	1.19'	0.57	0.87	1.15	1.44	23	26	29	32
	18"	2'-10"	2.36'	5.12'	7.48'	5.03'	9'	1.41'	4.0'	4.92'	7.75'	10.58'	13.42'	1.21'	0.66	0.99	1.31	1.65	25	28	31	35
	24"	3'-5"	2.53'	7.18' △	9.71'	7.03' △	11'	1.73'	4.0'	5.50'	8.92'	12.33'	15.75'	1.25'	0.85	1.30	1.75	2.20	28	32	36	40
	30"	4'-3"	2.70'	9.25'	11.95'	9.03'	13'	2.00'	4.0'	6.08'	10.33'	14.58'	18.83'	1.29'	1.10	1.74	2.39	3.05	31	36	41	46
	36"	5'-1"	2.87'	11.31' ◇	14.18'	11.03' ◇	15'	2.24'	4.0'	6.67'	11.75'	16.83'	21.92'	1.33'	1.32	2.21	3.08	3.96	34	40	46	52
	42"	6'-0"	3.05'	13.37'	16.42'	13.03'	17'	2.45'	4.0'	7.25'	13.25'	19.25'	25.25'	1.38'	1.58	2.76	3.91	5.09	38	44	51	58
	48"	6'-9"	3.22'	15.43'	18.65'	15.03'	19'	2.65'	4.0'	7.83'	14.58'	21.33'	28.08'	1.42'	1.85	3.30	4.73	6.17	41	48	56	63
	54"	7'-8"	3.39'	17.49'	20.88'	17.03'	21'	2.83'	4.0'	8.42'	16.08'	23.75'	31.42'	1.46'	2.14	3.95	5.77	7.58	44	52	61	69
	60"	8'-6"	3.56'	19.55'	23.11'	19.03'	23'	3.00'	4.0'	9.00'	17.50'	26.00'	34.50'	1.50'	2.45	4.66	6.87	9.07	47	56	66	75
	66"	9'-2"	3.73'	21.62'	25.35'	21.03'	25'	3.18'	4.0'	9.58'	18.75'	27.92'	37.08'	1.54'	2.88	5.54	8.18	10.84	49	59	69	80
	72"	10'-0"	3.91'	23.68'	27.59'	23.03'	27'	3.30'	4.0'	10.16'	20.16'	30.16'	40.16'	1.58'	3.54	6.61	9.87	13.13	52	63	74	85

◪ See General Note No. 5.
See Sheet 5 For 3" Slab Quantities

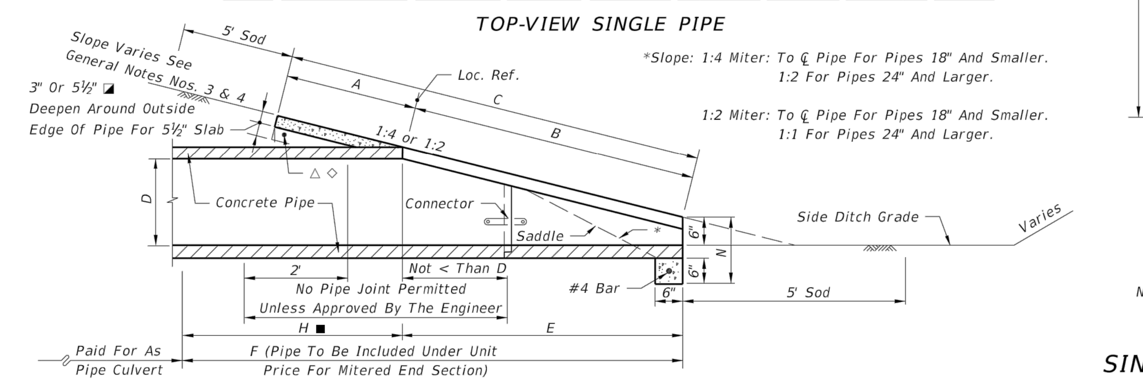
■ Values shown for estimating pipe quantities and are for information only.

	B	E	
△	6.42'	6.25'	Dimensions permitted to allow use of 8' standard pipe lengths.
◇	10.40'	10.10'	Dimensions permitted to allow use of 12' standard pipe lengths.

△ ◇ Concrete slab shall be deepened to form bridge across crown of pipe. See section below.



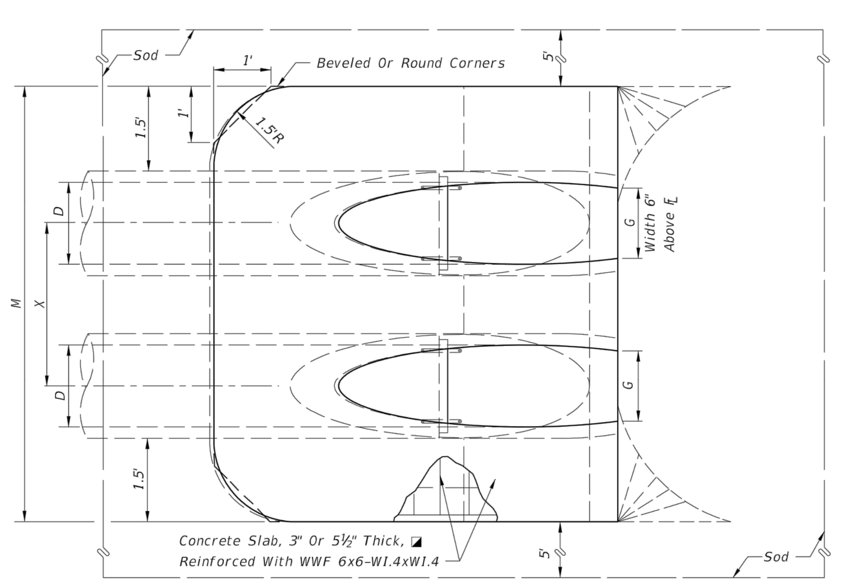
TOP-VIEW SINGLE PIPE



SECTION

*Slope: 1:4 Miter: To ℄ Pipe For Pipes 18" And Smaller.
1:2 For Pipes 24" And Larger.

1:2 Miter: To ℄ Pipe For Pipes 18" And Smaller.
1:1 For Pipes 24" And Larger.



TOP-VIEW MULTIPLE PIPE

NOTE: See sheet 6 for details and notes.

SINGLE AND MULTIPLE ROUND CONCRETE PIPE

LAST REVISION 07/01/02	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	CROSS DRAIN MITERED END SECTION	INDEX NO. 272	SHEET NO. 1 of 6

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405

5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

DRAINAGE DETAILS

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
1	06/17/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	DD
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-316

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\DD.DWG-C-316 2017/12/01 10:24 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

QUANTITIES FOR 3" THICK CONCRETE SLABS (CY)

ROUND-CONCRETE

	D	Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe
1:2 Slope	15"	0.27	0.41	0.54	0.67
	18"	0.31	0.45	0.60	0.75
	24"	0.39	0.59	0.79	1.00
	30"	0.46	0.76	1.04	1.32
	36"	0.55	0.94	1.33	1.71
	42"	0.66	1.15	1.66	2.15
	48"	0.76	1.37	1.96	2.57
	54"	0.87	1.62	2.38	3.14
	60"	0.99	1.90	2.81	3.73
	66"	1.11	2.15	3.21	4.27
	72"	1.24	2.46	3.68	4.90
1:4 Slope	15"	0.40	0.61	0.80	1.00
	18"	0.47	0.69	0.91	1.14
	24"	0.60	0.90	1.21	1.52
	30"	0.76	1.19	1.63	2.07
	36"	0.89	1.48	2.05	2.63
	42"	1.05	1.82	2.57	3.34
	48"	1.21	2.15	3.07	4.00
	54"	1.39	2.55	3.72	4.88
	60"	1.59	3.02	4.44	5.86
	66"	1.91	3.66	5.40	7.15
	72"	2.12	4.18	6.24	8.30

ROUND-CMP

	D	Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe
1:2 Slope	15"	0.24	0.37	0.51	0.64
	18"	0.26	0.43	0.61	0.78
	24"	0.32	0.52	0.72	0.91
	30"	0.38	0.64	0.91	1.18
	36"	0.44	0.78	1.13	1.48
	42"	0.51	0.96	1.41	1.87
	48"	0.57	1.09	1.63	2.15
	54"	0.65	1.32	1.99	2.66
	60"	0.71	1.49	2.28	3.07
1:4 Slope	15"	0.31	0.47	0.63	0.79
	18"	0.34	0.53	0.71	0.90
	24"	0.44	0.69	0.92	1.18
	30"	0.53	0.88	1.25	1.60
	36"	0.62	1.07	1.53	2.00
	42"	0.71	1.30	1.92	2.52
	48"	0.80	1.54	2.29	3.02
	54"	0.91	1.83	2.74	3.67
	60"	1.02	2.15	3.27	4.39

CMP-ARCH

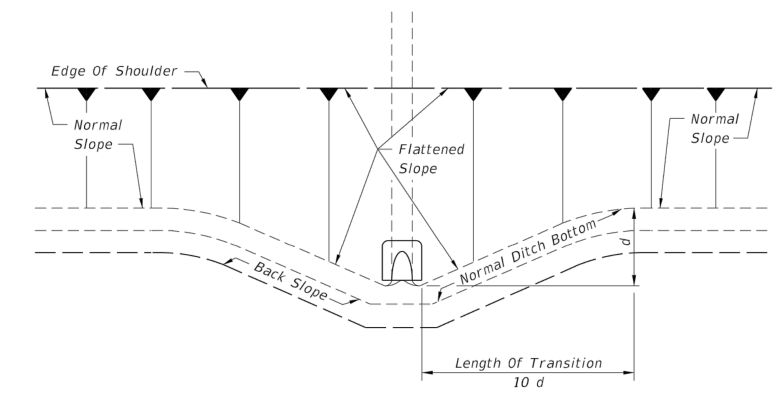
	Span	Rise	Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe
1:2 Slope	17"	13"	0.33	0.49	0.65	0.81
	21"	15"	0.33	0.50	0.67	0.83
	28"	20"	0.37	0.56	0.76	0.95
	35"	24"	0.40	0.62	0.84	1.07
	42"	29"	0.43	0.70	0.98	1.25
	49"	33"	0.49	0.82	1.15	1.48
	57"	38"	0.55	0.95	1.35	1.75
	64"	43"	0.62	1.10	1.57	2.05
	71"	47"	0.69	1.24	1.80	2.35
1:4 Slope	17"	13"	0.38	0.56	0.74	0.92
	21"	15"	0.39	0.59	0.80	0.95
	28"	20"	0.43	0.64	0.88	1.10
	35"	24"	0.49	0.77	1.05	1.33
	42"	29"	0.57	0.92	1.27	1.62
	49"	33"	0.65	1.08	1.50	1.93
	57"	38"	0.76	1.30	1.83	2.37
	64"	43"	0.87	1.55	2.18	2.83
	71"	47"	0.95	1.68	2.43	3.17

ELLIPTICAL-CONCRETE

	Rise	Span	Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe
1:2 Slope	12"	18"	0.19	0.33	0.45	0.57
	14"	23"	0.25	0.40	0.55	0.69
	19"	30"	0.34	0.55	0.75	0.95
	24"	38"	0.43	0.71	1.00	1.28
	29"	45"	0.52	0.90	1.27	1.65
	34"	53"	0.62	1.11	1.60	2.09
	38"	60"	0.70	1.29	1.87	2.46
	43"	68"	0.81	1.54	2.26	2.99
	48"	76"	0.93	1.79	2.66	3.53
	53"	83"	1.04	2.04	3.03	4.02
	58"	91"	1.17	2.33	3.49	4.66
1:4 Slope	12"	18"	0.30	0.45	0.61	0.76
	14"	23"	0.36	0.56	0.76	0.95
	19"	30"	0.51	0.79	1.08	1.36
	24"	38"	0.68	1.10	1.53	1.96
	29"	45"	0.86	1.45	2.04	2.63
	34"	53"	1.02	1.81	2.60	3.39
	38"	60"	1.18	2.14	3.10	4.05
	43"	68"	1.38	2.58	3.79	4.99
	48"	76"	1.59	3.05	4.51	5.97
	53"	83"	1.80	3.50	5.19	6.88
	58"	91"	2.04	4.04	6.05	8.05

6/8/2015 9:59:04 AM

LAST REVISION 07/01/00	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	CROSS DRAIN MITERED END SECTION	INDEX NO. 272	SHEET NO. 5 of 6



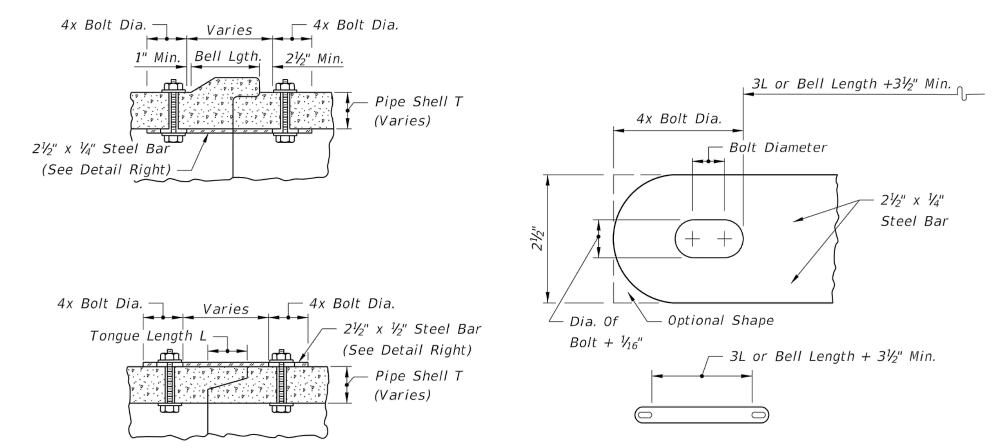
PLAN

NOTE: See General Note 4

SLOPE AND DITCH TRANSITIONS

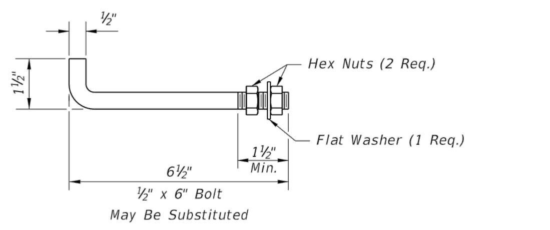
GENERAL NOTES

1. Unless otherwise designated in the plans, concrete pipe mitered end sections may be used with any type of cross drain pipe; corrugated steel pipe mitered end sections may be used with any type of cross drain pipe except aluminum pipe; and, corrugated aluminum mitered end sections may be used with any type of cross drain pipe except steel pipe. When bituminous coated metal pipe is specified for cross drain pipe, mitered end sections shall be constructed with like pipe or concrete pipe. When the mitered end section pipe is dissimilar to the cross drain pipe, a concrete jacket shall be constructed in accordance with Standard Index 280.
2. Corrugated polyethylene pipe (HDPE), polyvinyl-chloride pipe (PVC) and polypropylene pipe (PPP) for cross drain applications shall utilize either corrugated metal or concrete mitered end sections (MES). When used in conjunction with corrugated (MES), connection shall be by either a formed metal band specifically designated to join HDPE or PVC pipe, with metal pipe or other coupler approved by the State Drainage Engineer. When used in conjunction with a concrete (MES), connection shall be by concrete jacket constructed in accordance with Index No. 280.
3. Mitered end sections for pipe sizes 15", 18" and 24" round or equivalent pipe arch or elliptical pipe are permitted within the clear zone. When the slope intersection permits, the mitered end section may be located with the culvert opening as close as 8' beyond the outside edge of the shoulder.
4. Slope and ditch transitions shall be used when the normal roadway slope must be flattened to place end section outside clear zone. See detail left.
5. The reinforced concrete slab shall be constructed for all sizes of cross drain pipe and cast in place with Class NS concrete. Slabs shall be 5½" thick unless 3" thickness called for in plans.
6. Concrete pipe used in the assembly of mitered end sections shall be selective lengths to avoid excessive connections.
7. Corrugated metal pipe galvanizing that is damaged during beveling and perforating for mitered end section shall be repaired.
8. That portion of corrugated metal pipe in direct contact with the concrete slab and extending 12" beyond shall be bituminous coated prior to placing of the concrete.
9. When existing multiple cross drain pipes are spaced other than the dimensions shown in this detail, or have non-parallel axes, or have non-uniform sections, the mitered end sections will be constructed either separately as single pipe mitered end sections or collectively as multiple pipe end sections as directed by the Engineer; however, mitered end sections will be paid for each based on each independent pipe end.
10. The cost of all pipe(s), fasteners, reinforcing, connectors, anchors, concrete, sealants, jackets, and coupling bands shall be included in the cost for the mitered end section. Sodding shall be paid for separately under the contract unit price of Performance Turf, SY.
11. Mitered end sections shall be paid for under the contract unit price for Mitered End Section (CD), Each, based on each independent pipe end.



All bars, bolts, nuts and washers are to be galvanized steel.
Bolt diameters shall be ⅝" for 15" to 36" pipe and ⅞" for 42" to 72" pipe.
Two connectors required per joint, located 60° right and left of bottom center of pipe.
Bolt holes in pipe shell are to be drilled.

CONCRETE PIPE CONNECTOR



Anchors required for CMP only.

Anchor, washer and nuts to be galvanized steel.

Bend anchor where required to center in concrete slab. Damaged surfaces to be repaired after bending. Anchors are to be spaced a distance equal to four (4) corrugations. Place the anchors in the outside crest of corrugation.

Flat washers to be placed on inside wall of pipe.

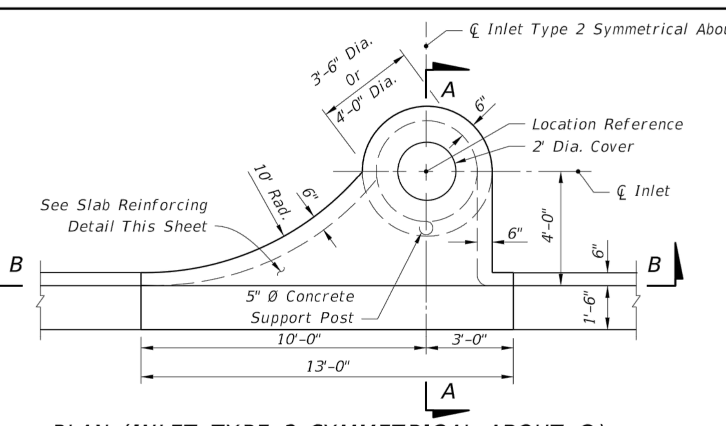
Holes in the mitered end pipe are to be drilled or punched; burning not permitted.

ANCHOR DETAIL

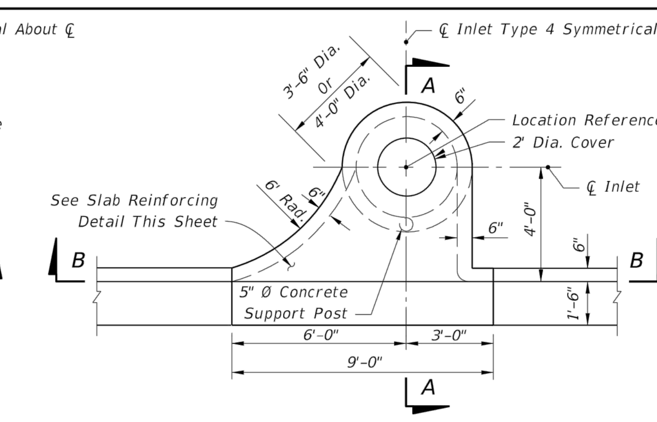
SPECIAL DETAILS AND NOTES

6/8/2015 9:59:05 AM

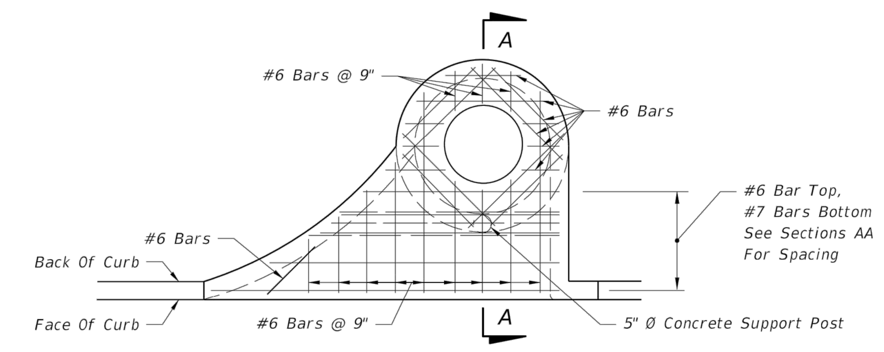
LAST REVISION 07/01/12	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	CORSS DRAIN MITERED END SECTION	INDEX NO. 272	SHEET NO. 6 of 6



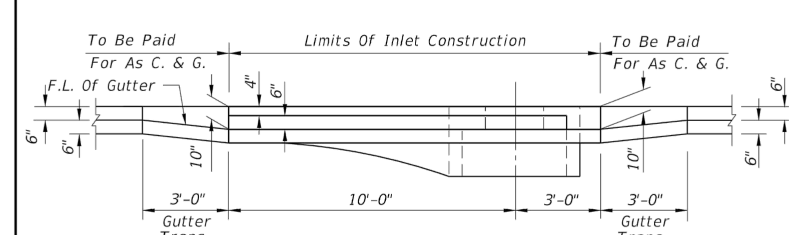
PLAN (INLET TYPE 2 SYMMETRICAL ABOUT ℄)



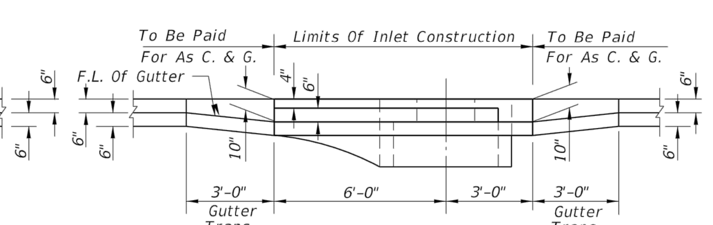
PLAN (INLET TYPE 4 SYMMETRICAL ABOUT ℄)



INLETS TYPES 1 AND 3



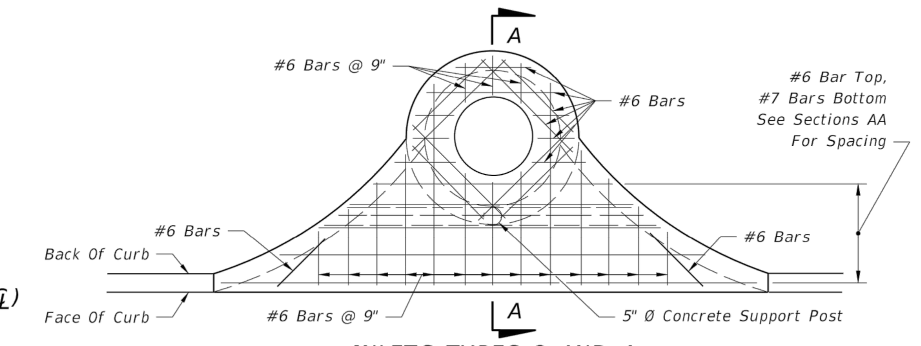
SECTION BB (INLET TYPE 2 SYMMETRICAL ABOUT ℄)



SECTION BB (INLET TYPE 4 SYMMETRICAL ABOUT ℄)

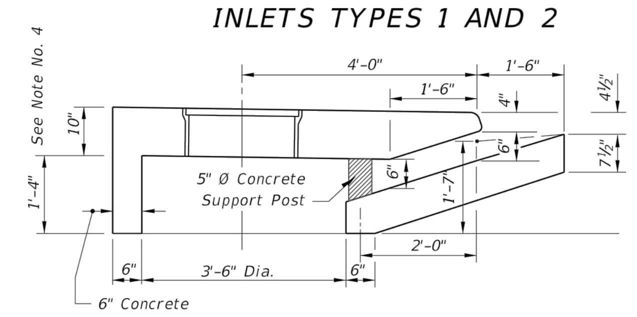
INLETS TYPES 1 AND 2

INLETS TYPES 3 AND 4

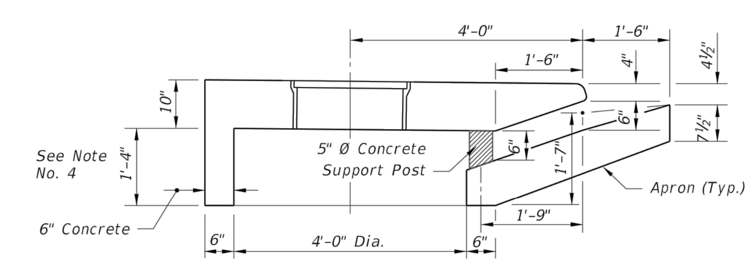


INLETS TYPES 2 AND 4

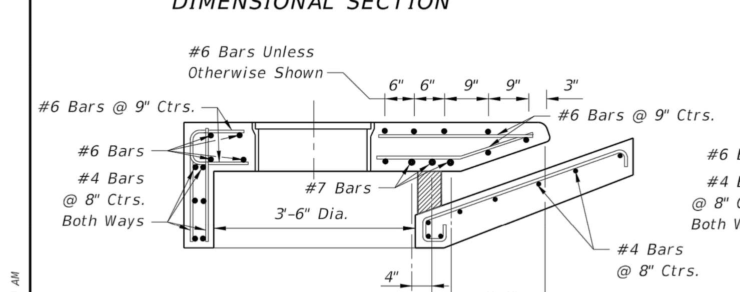
SLAB REINFORCING



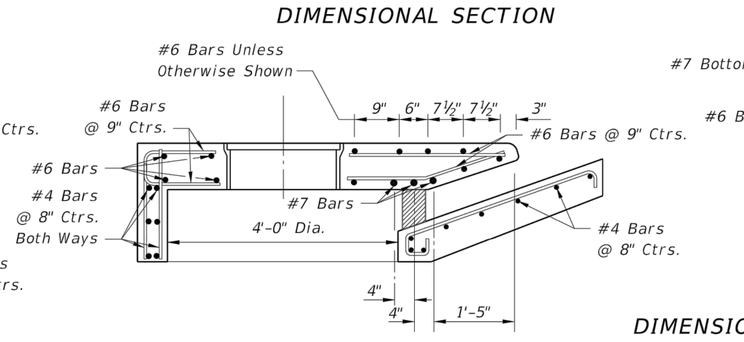
DIMENSIONAL SECTION



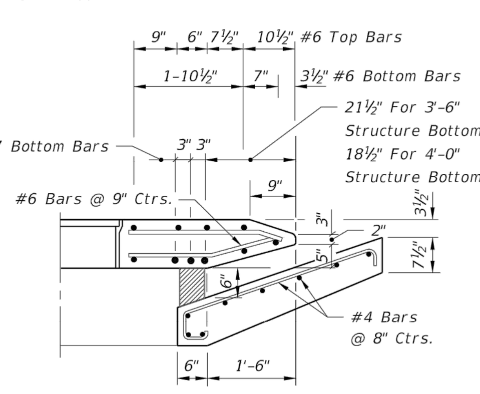
DIMENSIONAL SECTION



REINFORCING SECTION
3'-6" DIA. STRUCTURE BOTTOM (SECTION AA)



REINFORCING SECTION
4'-0" DIA. STRUCTURE BOTTOM (SECTION AA)



DIMENSION & REINFORCING HALF SECTION
TYPES A & E CURB (HALF SECTION AA)
(TYPE E GUTTER SHOWN)

TRANSVERSE SECTIONS FOR INLETS TYPES 1, 2, 3 & 4

GENERAL NOTES

1. The finished grade and slope of the inlet tops are to conform with the finished cross slope and grade of the proposed sidewalk and/or border.
2. When inlets are to be constructed on a curve, refer to the plans to determine the radius and, where necessary, modify the inlet details accordingly. Bend steel when necessary.
3. All steel in inlet top shall have 1¼" minimum cover unless otherwise shown. Inlet tops shall be either cast-in-place or precast concrete.
4. For precast units the rear wall and apron may be precast as a separate piece from the top slab. Provide a minimum of 7 ~ #4 dowels in accordance with Index No. 201 "OPTIONAL CONSTRUCTION JOINTS".
5. For supplemental details see Index No. 201.
6. Only round concrete support post will be acceptable.
7. These inlets are designed for use with standard curb and gutter Types E and Type F. Locate inlet outside of pedestrian crosswalks.
8. For structure bottoms see Index No. 200.
9. Inlet to be paid for under the contract unit price for inlets (Curb) (Type_), Each.

6/8/2015 9:05:00 AM

LAST REVISION 07/01/13	REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	CURB INLET TOPS TYPES 1, 2, 3 AND 4	INDEX NO. 210	SHEET NO. 1 of 1

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

DRAINAGE DETAILS

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
1	06/17/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AP-1039
FILE: DD
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-317

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\DD.DWG-C-317 2017/12/01 10:24 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

COARSE & FINE AGGREGATE UNDERDRAIN

FOR URBAN SECTIONS WITH CURB & GUTTER (I.E., TYPE A, TYPE F, MIAMI CURB, ETC.)

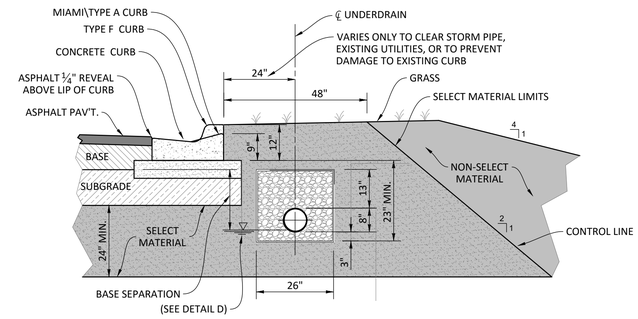
1. UNLESS OTHERWISE NOTED, REFERENCE TO "FDOT SECTION" REFERS TO FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. REFERENCES TO "FDOT INDEX" REFERS TO FDOT DESIGN STANDARDS, LATEST EDITION.
2. UNLESS OTHERWISE SPECIFIED BELOW, ALL UNDERDRAIN SHALL BE IN ACCORDANCE WITH FDOT SECTION 440.
3. THE UNDERDRAIN INVERT SHALL BE DESIGNED NO LOWER THAN 0.1 FEET ABOVE THE DSHWT ELEVATION.
4. THE DSHWT ELEVATION SHALL BE ESTABLISHED BY THE DESIGN ENGINEER IN CONSIDERATION OF SOIL TYPES, EXISTING GROUNDWATER TABLE, LANDSLOPE, OUTFALL CONDITIONS AND STORMWATER MANAGEMENT SYSTEM. THE DSHWT SHALL BE ESTABLISHED NO LOWER THAN THE FOLLOWING WHERE UNDERDRAIN DISCHARGES INTO A STORMWATER MANAGEMENT SYSTEM:
   a. FOR DETENTION PONDS WITH WET DETENTION WITH PERMANENT POOL VOLUME TREATMENT IS UTILIZED IN WHICH THE TREATMENT VOLUME IS VACATED WITHIN A 24 HOUR PERIOD, THE DSHWT SHALL BE ESTABLISHED 0.1 FEET ABOVE THE DESIGN NORMAL WATER ELEVATION (BOTTOM OF THE TREATMENT VOLUME)
   b. FOR DETENTION POND WITH EXTENDED WETLAND TREATMENT IS UTILIZED IN WHICH THE TREATMENT VOLUME IS VACATED OVER 120 HOUR PERIOD, THE DSHWT SHALL BE ESTABLISHED AT THE 36 HOUR BLEED-DOWN LEVEL WITHIN THE STORMWATER POND AS DETERMINED BY THE ENGINEER OF RECORD.
5. IN GENERAL, UNDERDRAIN PIPE SHALL BE LAID AT THE SAME SLOPE OF THE ADJACENT CURB. TO ACCOMMODATE FIELD CONDITIONS, THE MINIMUM ALLOWABLE SLOPE SHALL BE NO LESS THAN 0.20%.
6. COARSE AGGREGATE SHALL BE NON-CALCAREOUS, NON-CEMENTING GRAVEL, OR STONE MEETING THE REQUIREMENTS OF FDOT SECTION 901-2.1, 901-2.2, OR 901-3 RESPECTIVELY. AGGREGATE GRADATION SHALL MEET SECTION 901-6, GRADES 4, 467, 5, 56 OR 57 STONE.
7. FINE AGGREGATE SHALL BE IN ACCORDANCE WITH FDOT INDEX 286.
8. UNDERDRAIN SHALL BE IN ACCORDANCE WITH FDOT SECTION 440 UNLESS OTHERWISE SPECIFIED HEREIN.
9. COARSE AGGREGATE UNDERDRAIN PIPING FOR COLLECTOR ROADWAYS SHALL BE A MINIMUM DIAMETER OF 8-INCHES.
10. ALL FINE AGGREGATE UNDERDRAIN PIPING SHALL BE A MINIMUM DIAMETER OF 6-INCHES.
11. NON-PERFORATED (SOLID) PIPE SHALL BE USED FOR ALL ROADWAY CROSSINGS. PERFORATED PIPE SHALL NOT BE PLACED UNDER STREET PAVEMENT.
12. FILTER FABRIC SHALL BE TYPE D-3 CLASS A (D-3A); IN ACCORDANCE WITH FDOT SECTION 985.
13. ALL PIPING SHALL MEET FDOT SECTION 948-1.4 (NON-PERFORATED) AND SECTION 948-1.5 (PERFORATED) FOR PVC PIPE AND SECTION 948-2.1 FOR CORRUGATED POLYETHYLENE TUBING AND PIPE.
14. ALL FILTER MATERIAL SHALL BE COMPLETELY WRAPPED IN FILTER FABRIC. ALL FILTER FABRIC SHALL HAVE AN OVERLAP OF A MINIMUM OF 1-FOOT (12-INCHES).
15. SELECT SOIL (S) PER FDOT INDEX 500 AND 505 SHALL BE UTILIZED TO A MINIMUM DEPTH OF 24 INCHES (2 FEET) BELOW THE ROADWAY BASE AND SHALL EXTEND A MINIMUM OF 48 INCHES (4 FEET) BEHIND THE BACK OF CURB.
16. NO IRRIGATION PIPELINES, PLANT MATERIALS, TREE MATERIALS OR LANDSCAPE PLANTS, CONDUITS, ETC. SHOULD BE DESIGNED OR INSTALLED WITHIN 36 INCHES (3 FEET) OF THE BACK OF CURB.

FDOT AND LOCAL GOVERNING AGENCIES MAY HAVE MINIMUM STANDARDS WHICH MAY EXCEED THOSE REFERENCED ABOVE. CONTRACTOR SHALL INSTALL UNDERDRAIN IN ACCORDANCE WITH FDOT AND LOCAL GOVERNING DISTRICTS' MINIMUM STANDARDS AND REGULATIONS AS APPLICABLE.

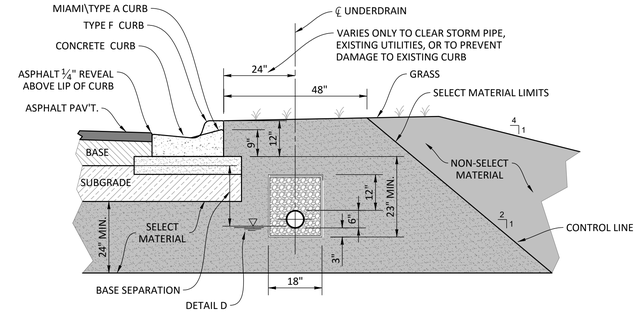
ROADWAY DESIGN CRITERIA

FOR URBAN SECTIONS WITH CURB & GUTTER (I.E., TYPE A, TYPE F, MIAMI CURB, ETC.)

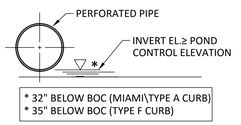
1. UNLESS OTHERWISE NOTED, REFERENCE TO "FDOT SECTION" REFERS TO FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. REFERENCES TO "FDOT INDEX" REFERS TO FDOT DESIGN STANDARDS, LATEST EDITION.
2. THE MINIMUM VERTICAL SEPARATION BETWEEN THE DESIGN SEASONAL HIGH WATER TABLE (DSHWT ≥ LOW POND CONTROL ELEVATION) AND THE BOTTOM OF THE ROADWAY BASE AT THE LOWEST EDGE OF PAVEMENT SHALL BE AS FOLLOWS:
   a. LIMEROCK BASE 24 INCHES
   b. CRUSHED CONCRETE BASE 12 INCHES
   c. ASPHALT BASE COURSE (ABC) 12 INCHES
3. A MINIMUM OF TWO (2) FEET (24-INCHES) OF SELECT (S) MATERIAL IN ACCORDANCE WITH FDOT INDEX 500 AND 505 SHALL BE REQUIRED BELOW THE ROADWAY SUB-BASE (SUB-GRADE).
4. IF THE VERTICAL SEPARATION BETWEEN THE DSHWT AND THE BOTTOM OF BASE IS LESS THAN 1.5 FEET (18 -INCHES), UNDERDRAINS SHALL BE INSTALLED ALONG BOTH SIDES OF THE ROAD.
5. IF THE VERTICAL SEPARATION BETWEEN THE DSHWT AND THE BOTTOM OF THE BASE IS BETWEEN 1.5 - 2.5 FEET (18 - 30 INCHES), UNDERDRAINS SHALL BE INSTALLED ALONG ONE (1) SIDE OF THE ROAD.
6. ROADWAYS CLASSIFIED AS COLLECTOR HAVING A PAVEMENT WIDTH IN EXCESS OF TWO (2) VEHICULAR TRAVEL LANES, COARSE AGGREGATE UNDERDRAINS SHALL BE INSTALLED. FOR COLLECTOR ROADWAYS WITH A NON-PAVED MEDIAN, A FINE AGGREGATE UNDERDRAIN SHALL BE INSTALLED WHEN UNDERDRAIN IS REQUIRED FROM THE CRITERIA ABOVE.
7. LOCAL ROADWAYS INCLUDING THOSE WITH STREET PARKING AND NO MORE THAN TWO (2) VEHICULAR TRAVEL LANES WHEN UNDERDRAIN IS REQUIRED, SHALL INSTALL FINE AGGREGATE UNDERDRAINS AS A MINIMUM IN ACCORDANCE WITH THE CRITERIA ABOVE.
8. FOR NON-COASTAL LOCAL ROADWAYS, THE LOW EDGE OF PAVEMENT ELEVATION SHALL BE DESIGNED NO LOWER THAN THE FOLLOWING:
   a. A MINIMUM CLEARANCE OF SIX (6) INCHES (0.5 FEET) ABOVE THE 25-YEAR 24-HOUR PEAK STAGE WITHIN THE APPLICABLE RECEIVING STORMWATER MANAGEMENT SYSTEM.
   b. NO LOWER THAN THE COMPUTED HYDRAULIC GRADE LINE FOR THE STORMWATER COLLECTION SYSTEM (10 YEAR RETURN).
   c. NO LOWER THAN A MINIMUM OF THIRTY (30) INCHES (2.5 FEET) ABOVE THE CONTROLLED WATER ELEVATION WITHIN THE APPLICABLE RECEIVING STORMWATER MANAGEMENT SYSTEM.
9. FOR NON-COASTAL COLLECTOR ROADWAYS, THE LOW EDGE OF PAVEMENT ELEVATION SHALL BE DESIGNED NO LOWER THAN THE FOLLOWING:
   a. A MINIMUM CLEARANCE OF TWELVE (12) INCHES (1.0 FEET) ABOVE THE 25-YEAR 24-HOUR PEAK STAGE WITHIN THE APPLICABLE RECEIVING STORMWATER MANAGEMENT SYSTEM.
   b. NO LOWER THAN THE COMPUTED HYDRAULIC GRADE LINE FOR THE STORMWATER COLLECTION SYSTEM (10 YEAR RETURN).
   c. NO LOWER THAN A MINIMUM OF THIRTY (30) INCHES (2.5 FEET) ABOVE THE CONTROLLED WATER ELEVATION WITHIN THE APPLICABLE RECEIVING STORMWATER MANAGEMENT SYSTEM.
10. TYPE 2 THRU TYPE 5 ROADWAYS SHALL CONTAIN A MINIMUM OF 1.5 INCHES OF SP ASPHALTIC CONCRETE. COLLECTOR ROADWAYS SHALL HAVE A MINIMUM OF THREE (3) INCHES OF SP ASPHALTIC CONCRETE. TYPE 1 ROADWAYS MAY BE COMPLETED IN STAGES, INITIALLY 2.25 INCHES OF SP 12.5 ASPHALT COURSE WITH REQUIRED PAVEMENT MARKINGS AND 0.75 INCHES OF SP 9.5 COURSE INSTALLED WITH ANY THERMOPLASTIC STRIPES, PRIOR TO RELEASE OF THE ASSURANCE FOR MAINTENANCE.
11. THE ROAD DESIGN DRAWINGS SHALL CONTAIN SOIL BORING LOCATIONS WITH EXISTING SOIL DATA, OBSERVED WATER LEVEL AND DSHWT SURFACE. UNDERDRAIN OUTFALL POND DATA AND APPROXIMATE WETLAND HYDROPERIOD ELEVATIONS SHALL ALSO BE IDENTIFIED AS APPLICABLE.
12. THE REQUIRED MINIMUM STRUCTURAL NUMBER (SN) SHALL BE:
    a. 2.34 MIN. TYPE 2 ROADWAYS
    b. 3.50 MIN. TYPE 1 ROADWAYS
    c. 3.70 MIN. COUNTY COLLECTOR
    d. 4.00 MIN. COUNTY ARTERIAL
13. CURB DESIGN IS SITE SPECIFIC AND SHALL BE IDENTIFIED ON PLANS



UNDERDRAIN
COARSE AGGREGATE
SCALE: 1" = 2'



UNDERDRAIN
FINE AGGREGATE
SCALE: 1" = 2'



D DETAIL
SCALE: 1" = 1'

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

DRAINAGE DETAILS

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
2	09/01/2011	COUNTY COMMENTS
1	06/17/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	DD
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

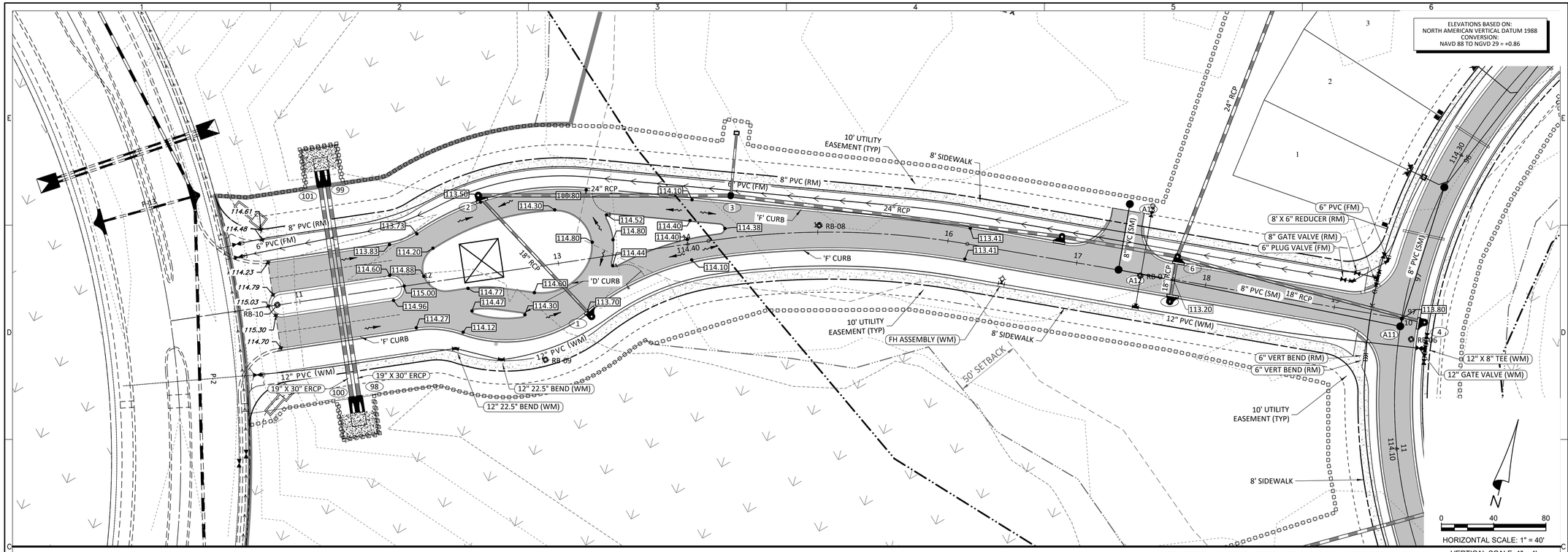
VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-318

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH I\ENGINEERING - SJR\MAD\DD DWGS-C-318 2017\2001 10:2A AM ERIC FRANCIS

© COPYRIGHT 2017 HEIDT DESIGN, LLC - ALL RIGHTS RESERVED. NO DOCUMENTATION, INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION AS COMPLIANCE WITH F.S. CHAPTER 119.

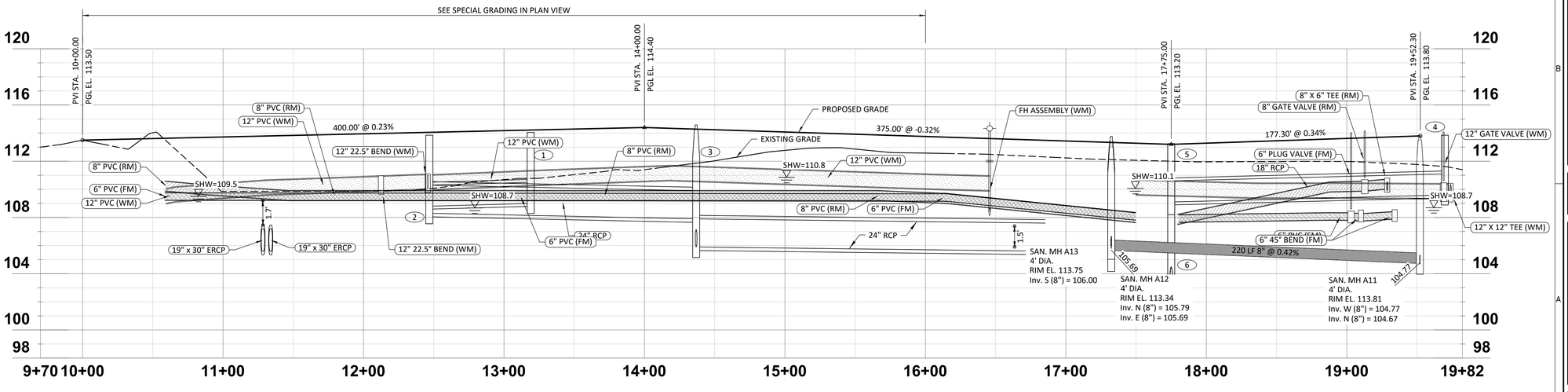
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



BAY CEDAR WAY - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION
2 10/05/2017	ENTRYWAY GRADING UPDATE
1 06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RP-01
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

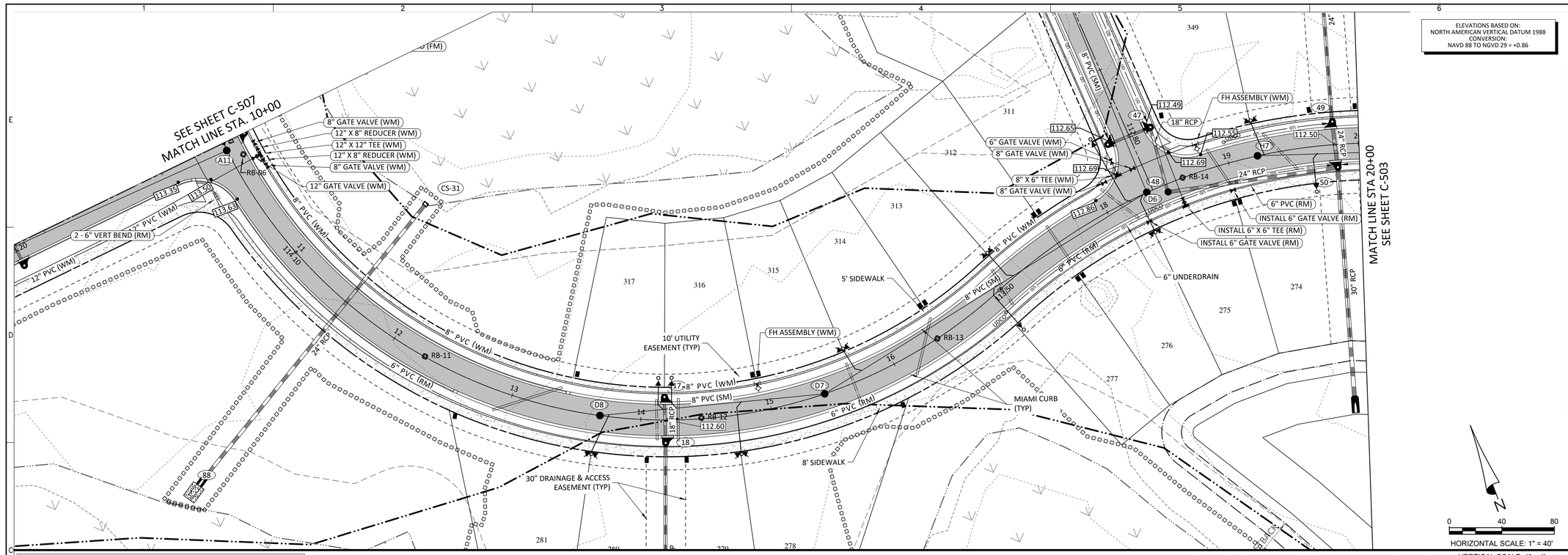
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-501

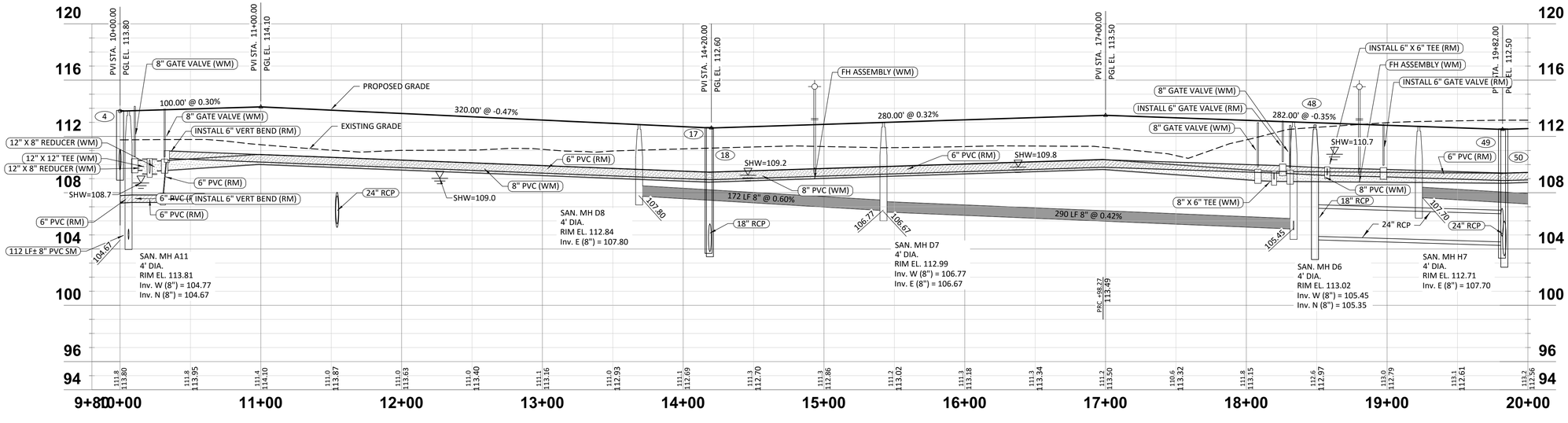
R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\RP-01.DWG-C-501 2017/12/01 10:25 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



BLAZING STAR CIR - PHASE 1



GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH I\ENGINEERING - S.SRY\MD\DP\02 DWG\C-502 2017\7201 10:28 AM ERIC FRANCIS

NO	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RP-02
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

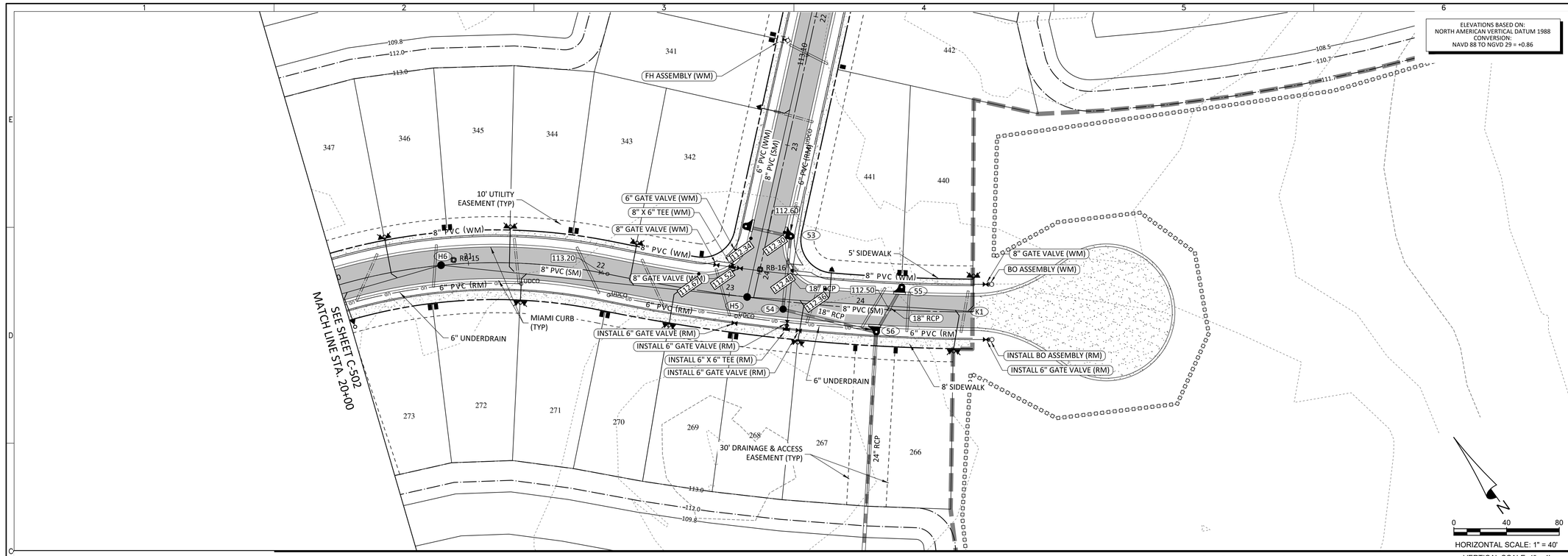
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-502

© COPYRIGHT 2017 - HEIDT DESIGN, LLC - ALL RIGHTS RESERVED. THIS DOCUMENT IS AND SHALL CONTINUE TO BE THE PROPERTY OF HEIDT DESIGN, LLC AND IS NOT TO BE USED IN WHOLE OR IN PART, NOR ARE THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF SERVICE, TO BE DISCLOSED, COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFICALLY WITH PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

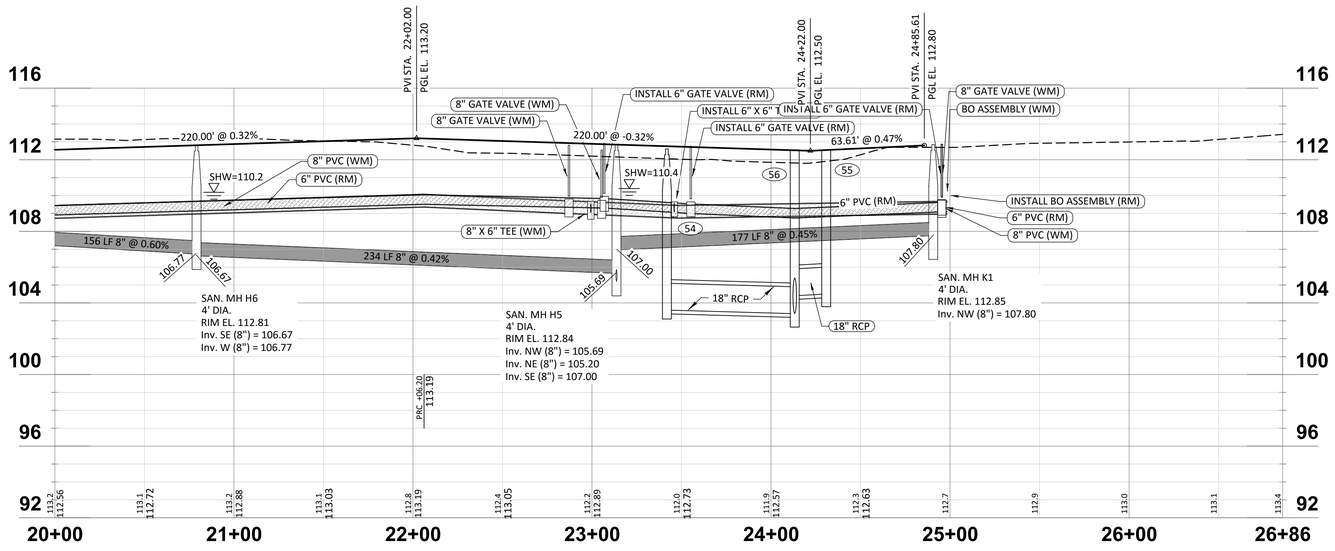
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



BLAZING STAR CIR - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION
06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RP-02
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

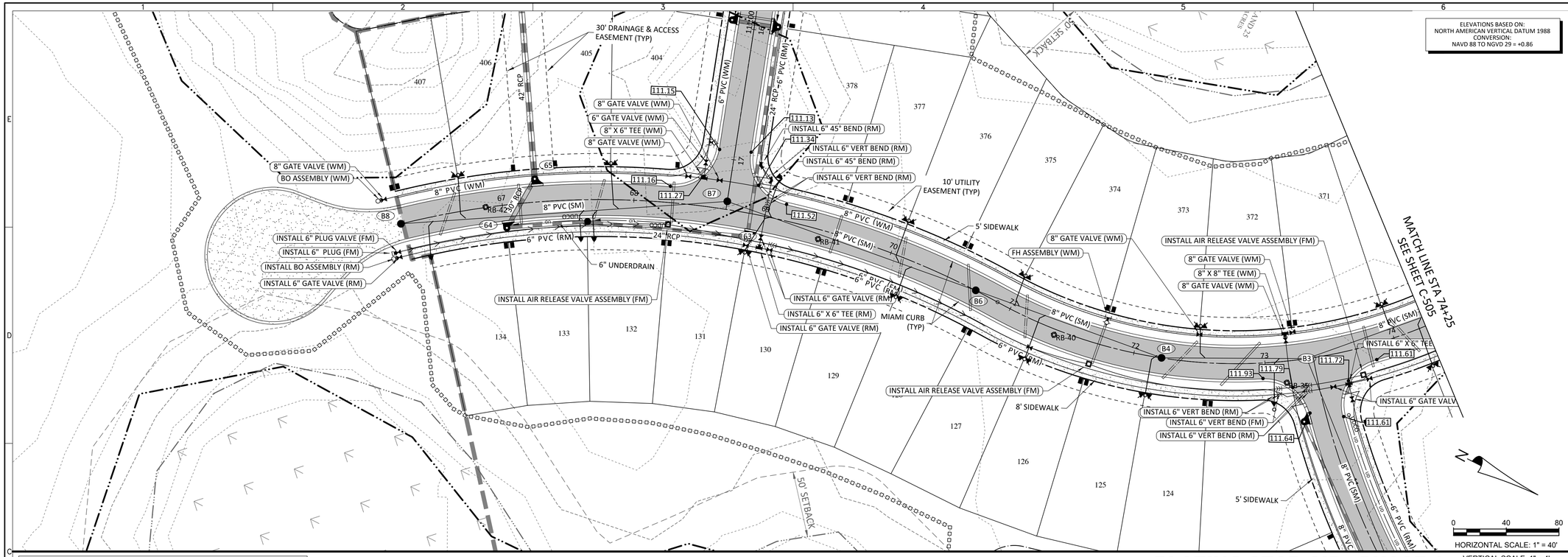
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-503

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\RP-02.DWG-C-503 2017/12/01 10:26 AM ERIC FRANCIS

© COPYRIGHT 2017 HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

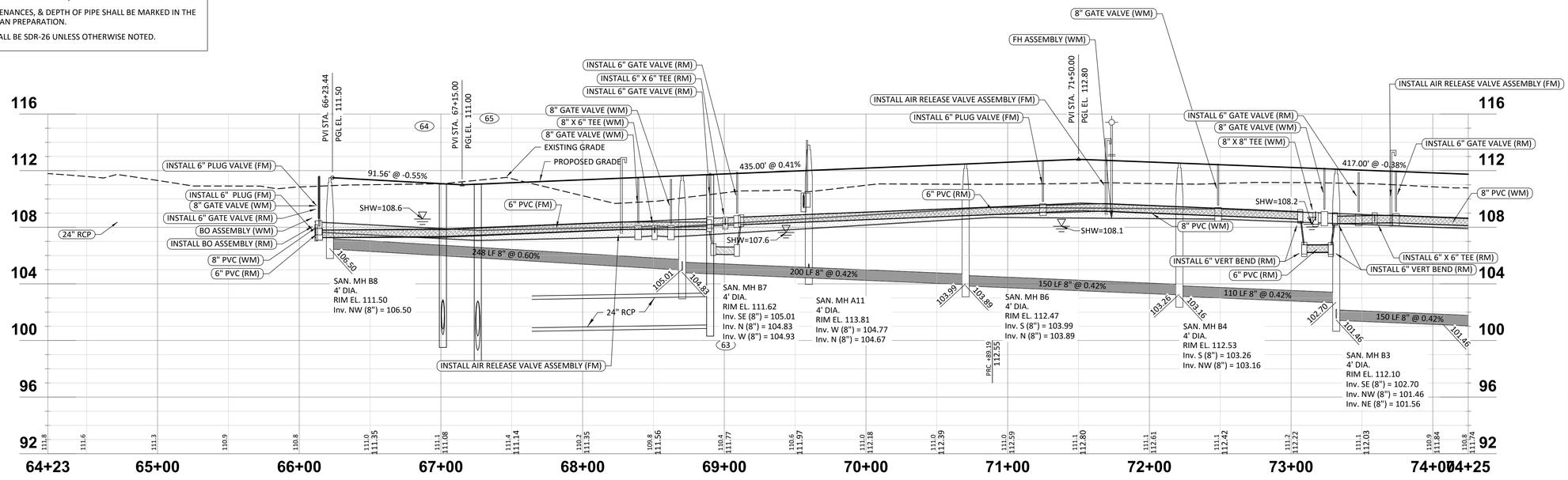
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



BLAZING STAR CIR - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AP-1039
FILE: RP-02
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-504

COPYRIGHT 2017 - HEIDT DESIGN, LLC - ALL RIGHTS RESERVED - THE DOCUMENTATION FOLLOWING BY NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFICALLY WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH1 ENGINEERING - SJRWMD\RP-02 DWG-C-504 2017\1201 10:27 AM ERIC FRANCIS

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

SEE SHEET C-504
MATCH LINE STA. 74+25

MATCH LINE STA 84+50
SEE SHEET C-506

POND 204
T.O.B. = 112.4'
DHW100 = 111.4'
DHW25 = 110.8'

30' DRAINAGE & ACCESS EASEMENT (TYP)

6" UNDERDRAIN

MIAMI CURB (TYP)

FH ASSEMBLY (WM)

8" STUB AND PLUG PHASE 1

PHASE 2
PHASE 1

BO ASSEMBLY (WM)
8" GATE VALVE (WM)

8' SIDEWALK

8" X 8" TEE (WM)
8" GATE VALVE (WM)
8" GATE VALVE (WM)

INSTALL AIR RELEASE VALVE ASSEMBLY (FM)
INSTALL 6" GATE VALVE (RM)
INSTALL 6" X 6" TEE (RM)
INSTALL 6" GATE VALVE (RM)

INSTALL 6" PLUG VALVE (FM)
INSTALL 6" X 6" TEE (FM)
INSTALL 6" 90° BEND (FM)
INSTALL 6" PLUG VALVE (FM)
INSTALL 6" VERT BEND (RM)
INSTALL 6" GATE VALVE (RM)
INSTALL 6" VERT BEND (FM)

10' UTILITY EASEMENT (TYP)

5' SIDEWALK

PS-1

RB-32
RB-34
RB-28
RB-29

112.63
112.66
112.55
112.54
112.43

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

BLAZING STAR CIR - PHASES 1 & 2

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.

SAN. MH B2
4' DIA.
RIM EL. 111.52
Inv. SE (8") = 100.83
Inv. NW (8") = 100.73

SAN. MH B1
4' DIA.
RIM EL. 111.70
Inv. SE (8") = 99.90
Inv. W (8") = 99.80

SAN. MH A1
4' DIA.
RIM EL. 112.17
Inv. W (8") = 95.03
Inv. N (8") = 94.93
Inv. E (8") = 96.83

SAN. MH A2
4' DIA.
RIM EL. 112.25
Inv. W (8") = 95.37
Inv. E (8") = 95.27

SAN. MH A3
4' DIA.
RIM EL. 112.98
Inv. SW (8") = 96.37
Inv. E (8") = 96.27
Inv. NW (8") = 98.17

SAN. MH A4
4' DIA.
RIM EL. 112.40
Inv. SW (8") = 97.31
Inv. NE (8") = 97.21

PHASE 1 SANITARY

197 LF 8" @ 0.42%
207 LF 8" @ 1.43%
58 LF 8" @ 0.42%
215 LF 8" @ 0.42%
200 LF 8" @ 0.42%
157 LF 8" @ 0.42%

273.00' @ 0.44%
62.00' @ -0.48%
265.52' @ 0.34%
130.48' @ -0.61%
227.32' @ 0.31%

SHW=108.4
SHW=109.7
SHW=109.4
SHW=109.6

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AP-1039
FILE: RP-02
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

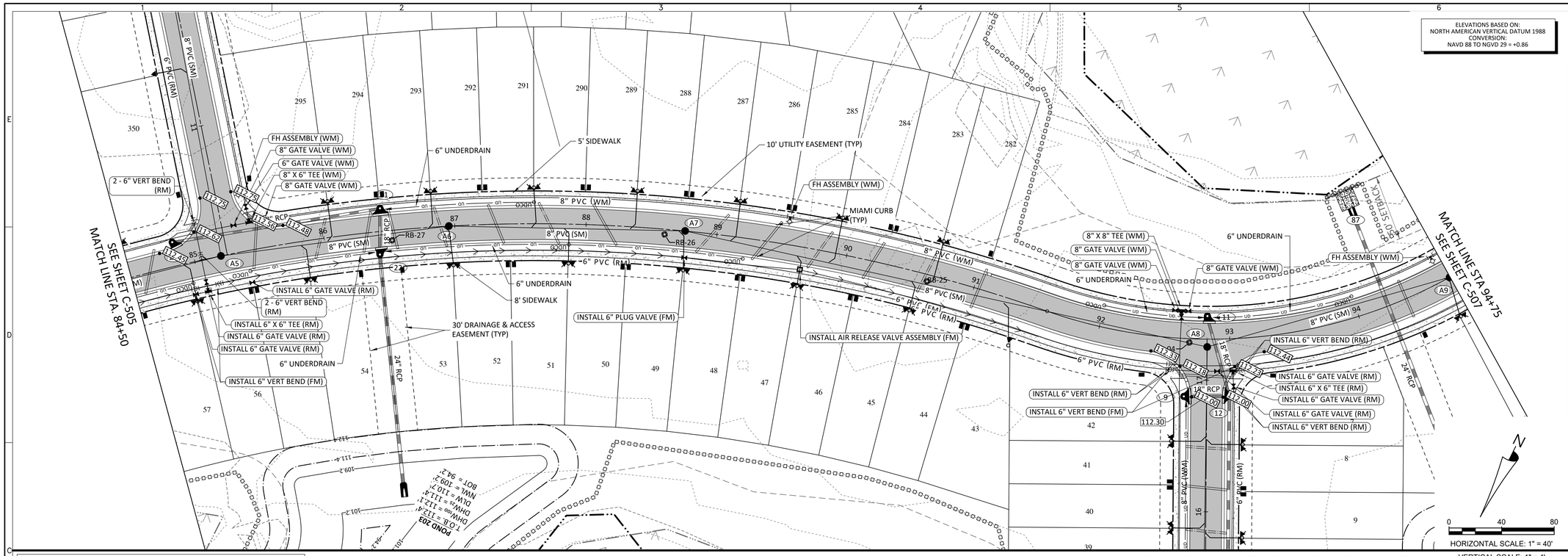
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-505

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\WMDRP-02.DWG C-505 2017/12/01 10:27 AM ERIC FRANCIS

© COPYRIGHT 2017 - HEIDT DESIGN, LLC - ALL RIGHTS RESERVED. THIS DOCUMENT AND COPIES THEREOF MUST BE AFFIXED TO DRAWINGS OR DOCUMENTS AND BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFICALLY WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. BY ACCEPTANCE, CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

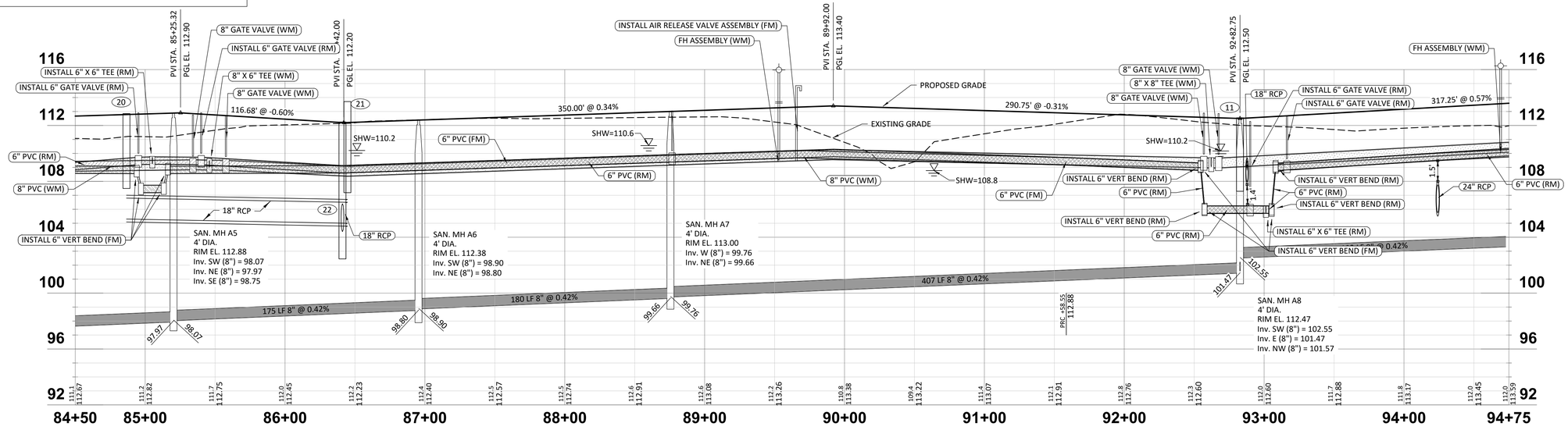
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



BLAZING STAR CIR - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RP-02
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

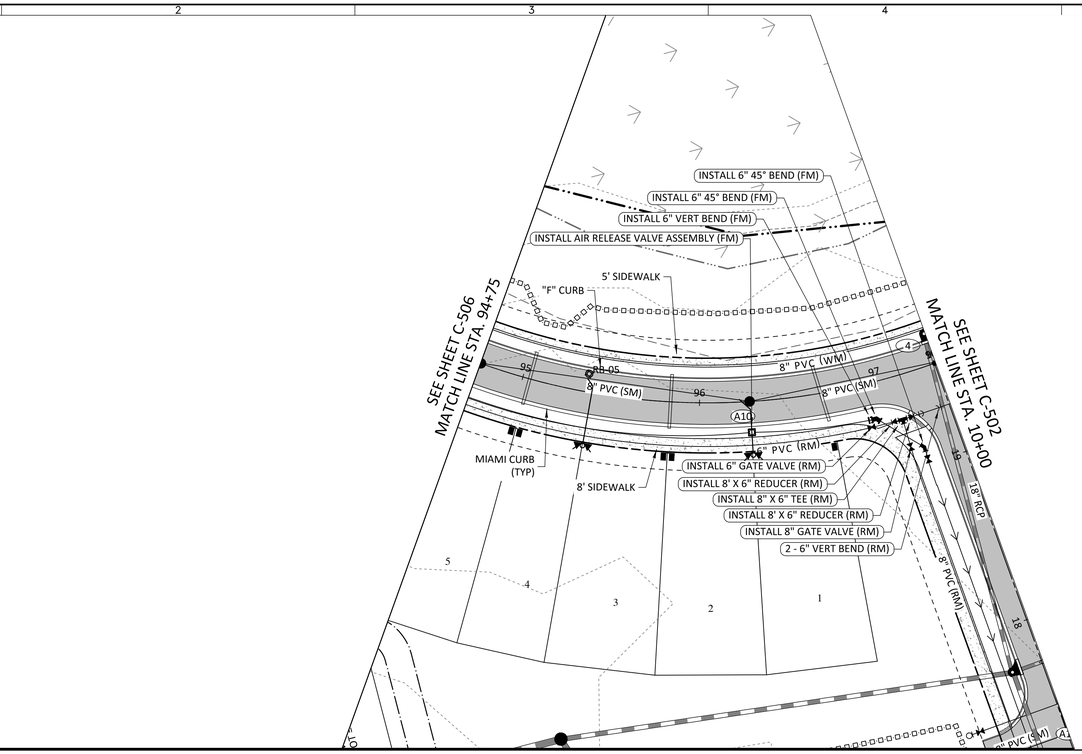
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-506

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH I\ENGINEERING - SJRWMD\RP-02 DWG-C-506 2017\7\201 10:27 AM ERIC FRANCIS

COPYRIGHT 2017 HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. ANY DOCUMENTATION NOT LISTED AS THAT SENT TO GOVERNING AGENCIES SHALL NOT BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



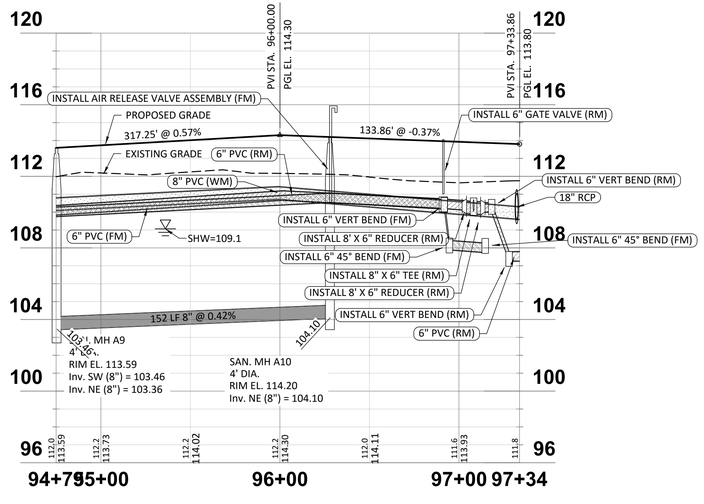
ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

0 40 80
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

BLAZING STAR CIR - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\WMDRP-02.DWG-C-507 2017/12/01 10:38 AM ERIC FRANCIS

NO	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AP-1039
FILE: RP-02
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

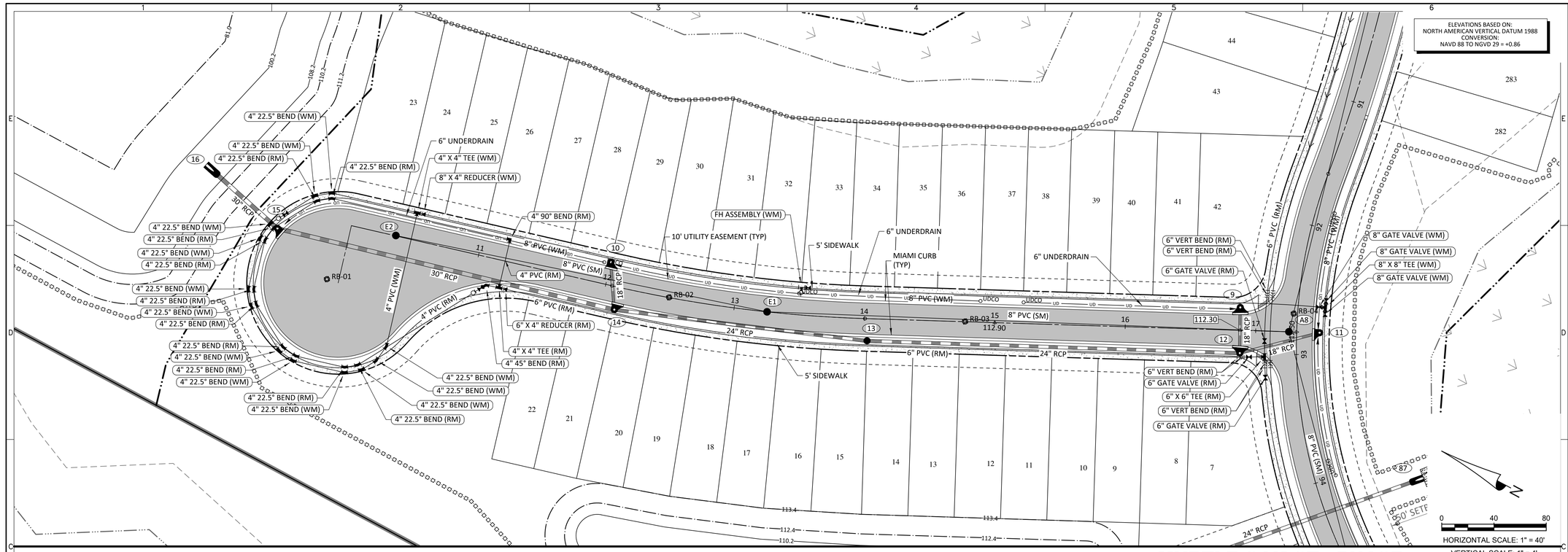
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-507

© COPYRIGHT 2017 HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. THIS DOCUMENT AND CONCEPTS CONTAINED HEREIN ARE THE PROPERTY OF HEIDT DESIGN, LLC AND SHALL NOT BE USED, COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFICALLY WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

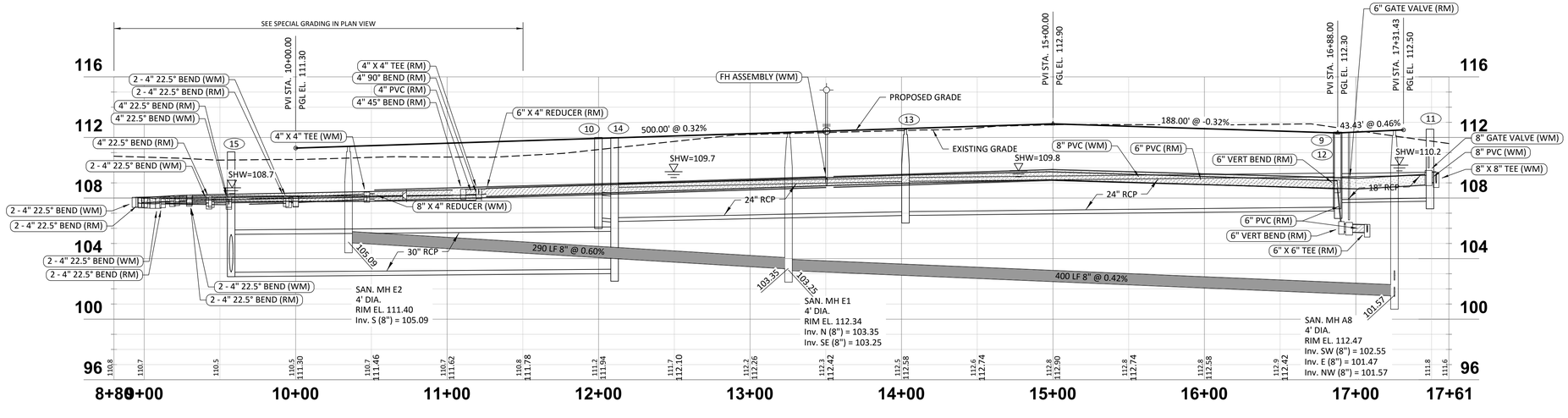
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



MYRTLE OAK CT - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405

5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION
1 06/26/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RP-03
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-508

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\RP-03.DWG-C-508 2017/12/01 10:29 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

BEAUTYBERRY WAY - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\WMDRP-04 DWG-C-509 2017\1201 10:30 AM ERIC FRANCIS

NO	DATE	DESCRIPTION
1	06/26/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AP-1039
FILE: RP-04
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

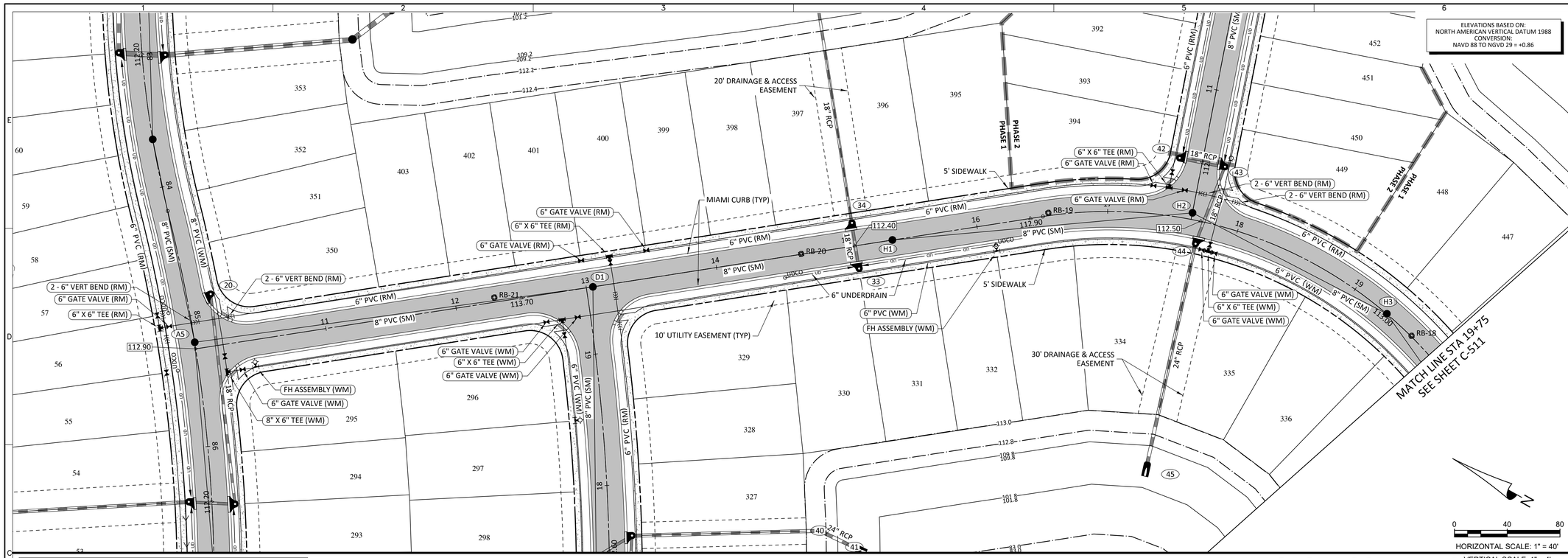
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-509

© COPYRIGHT HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. THIS DOCUMENT IS THE PROPERTY OF HEIDT DESIGN, LLC AND IS NOT TO BE USED, COPIED, REPRODUCED OR DISTRIBUTED UNLESS SPECIFICALLY WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. A LICENSE TO CONSTRUCT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

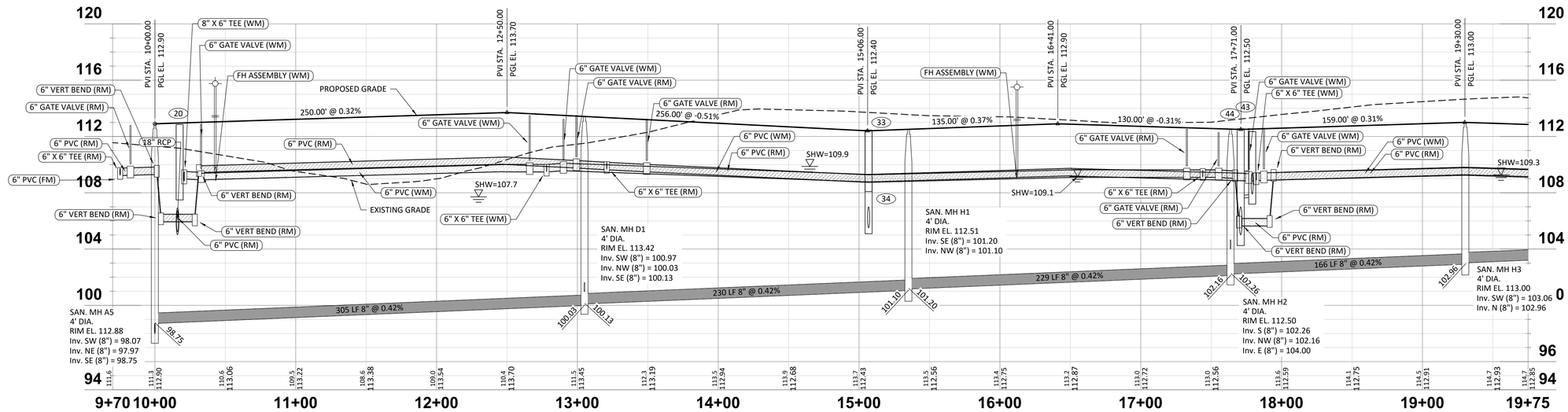
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



BLUE SAGE LOOP - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION
1	06/26/2017 REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RP-05
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

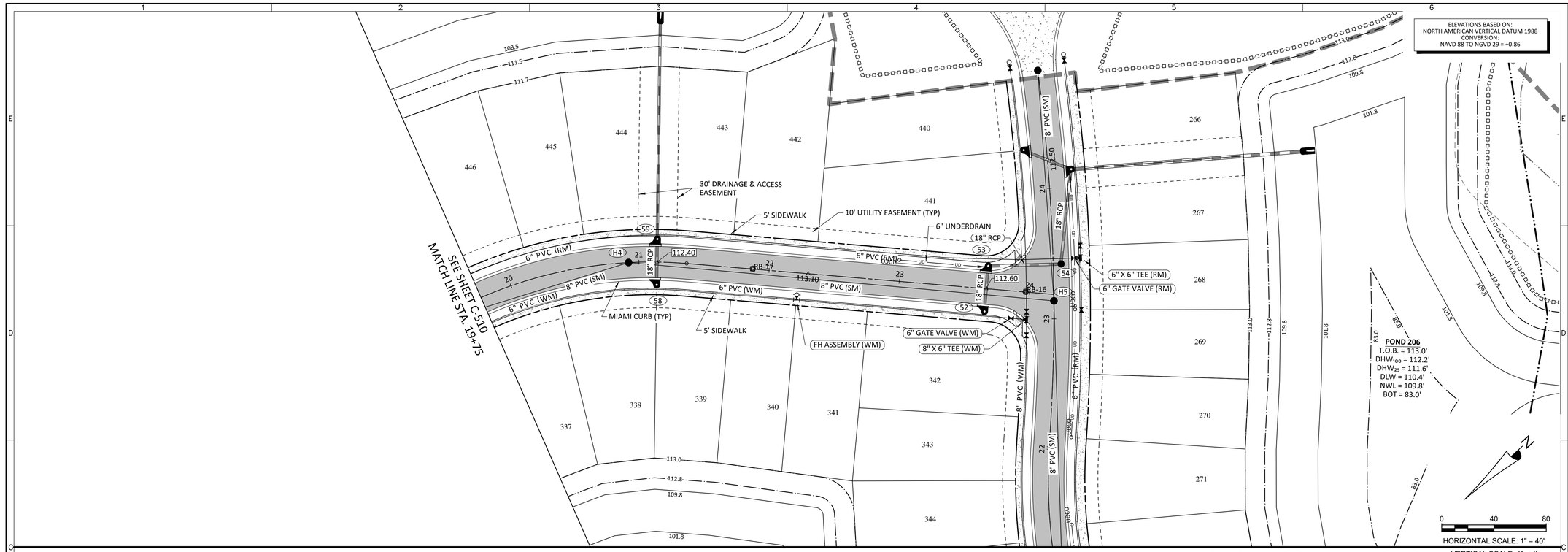
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-510

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMDRP-05.DWG-C-510 2017/12/01 10:31 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

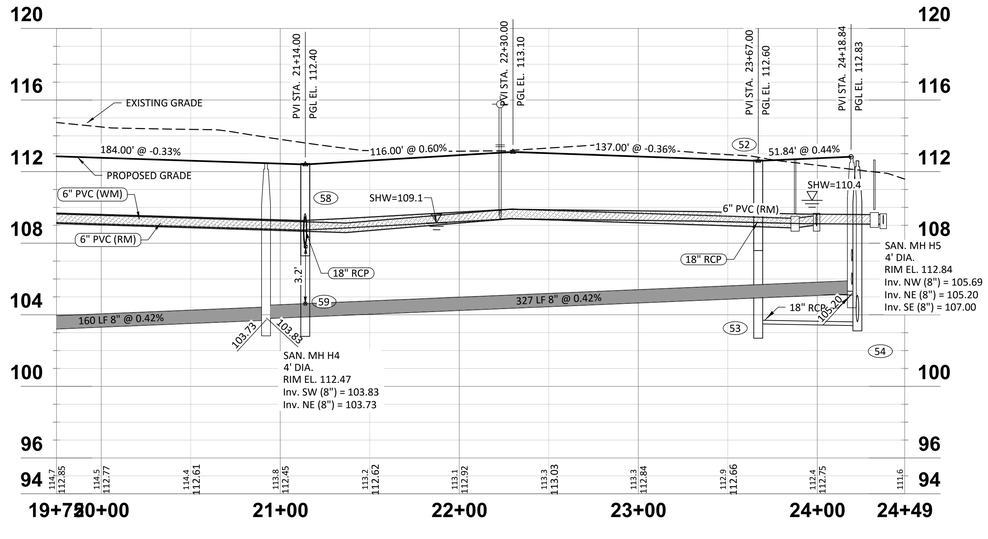
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



BLUE SAGE LOOP - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION
1 06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RP-05
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

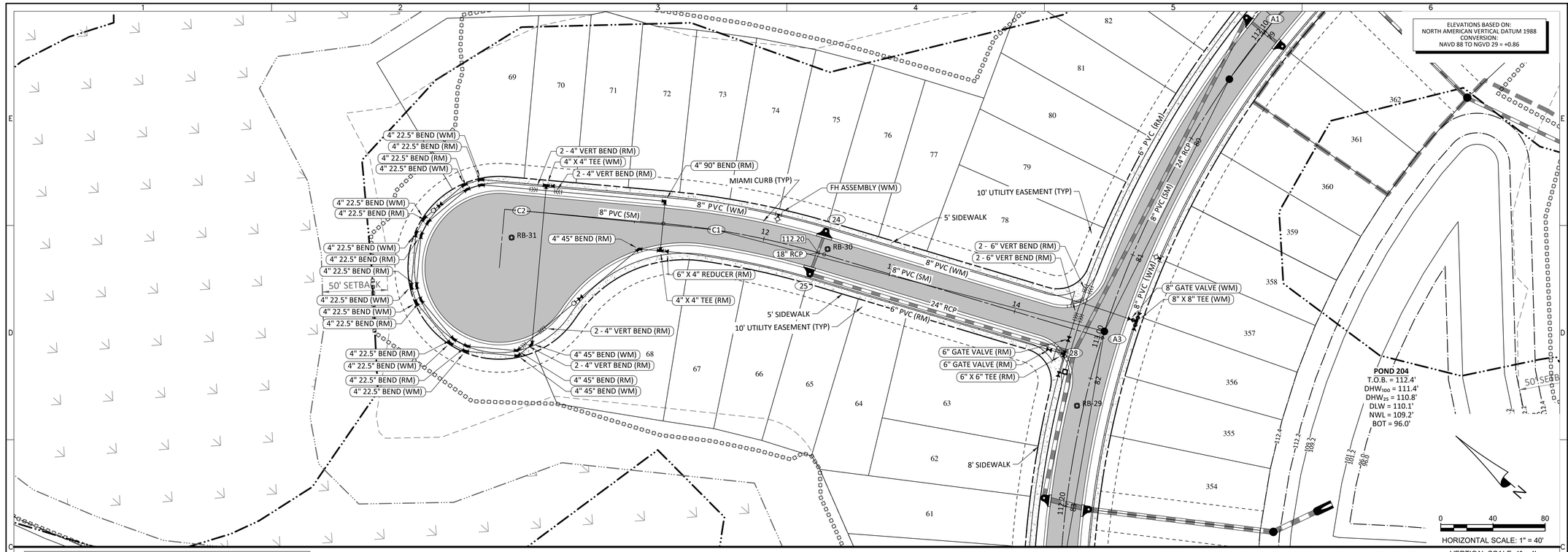
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-511

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\RP-05.DWG-C-511 2017/12/01 10:31 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

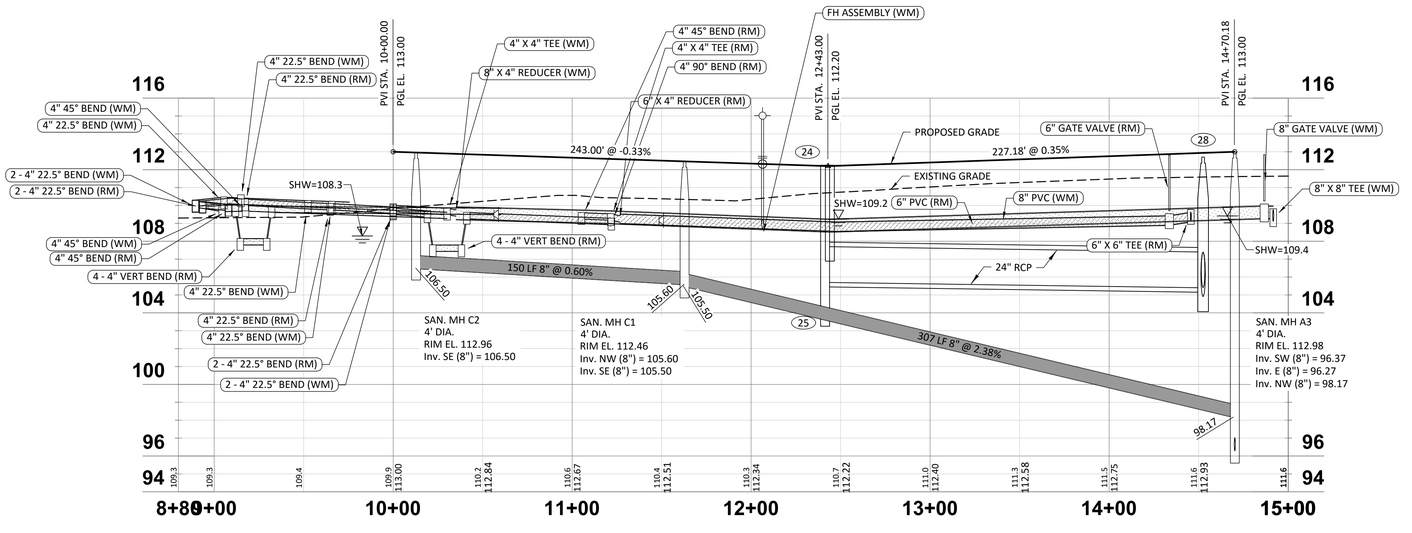
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



GOLDENROD CT - PHASE 1

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com
Engineering Business Certificate of Authorization No. 29782
Landscape Architecture Certificate of Authorization No. LC26000405

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DESCRIPTION	DATE
1	REVIEW SUBMITTAL	06/26/2017

PROJECT NO:	KLP-AP-1039
FILE:	RP-06
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

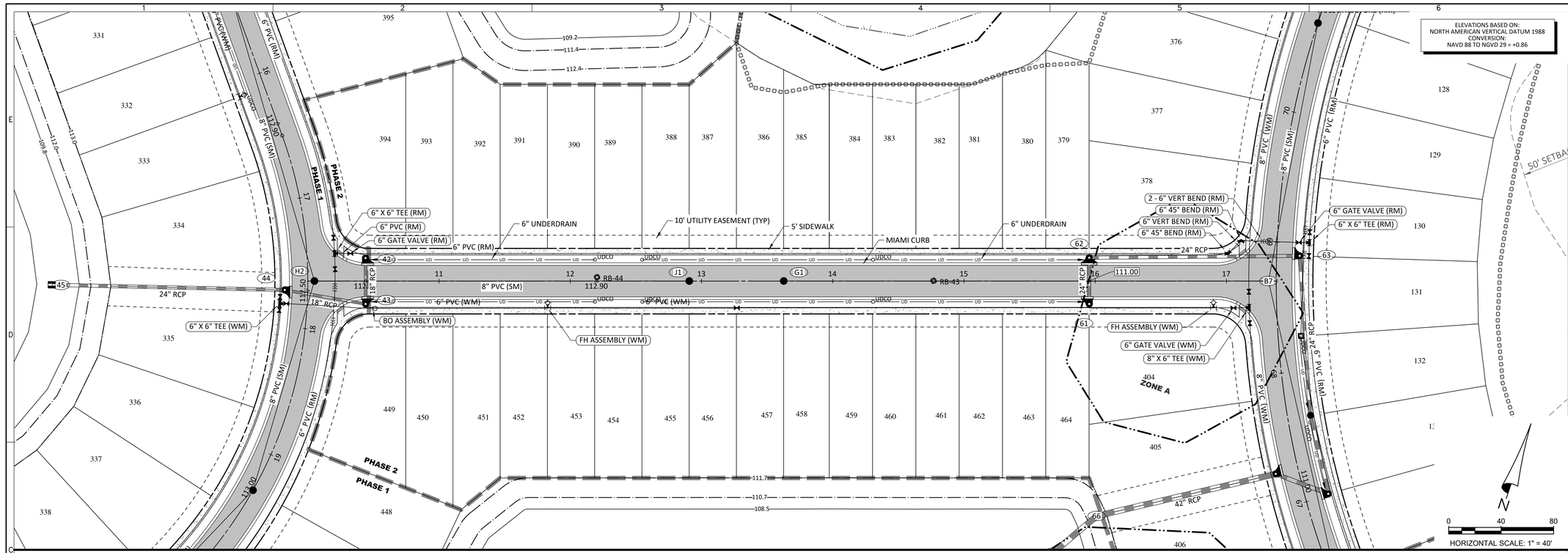
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-512

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

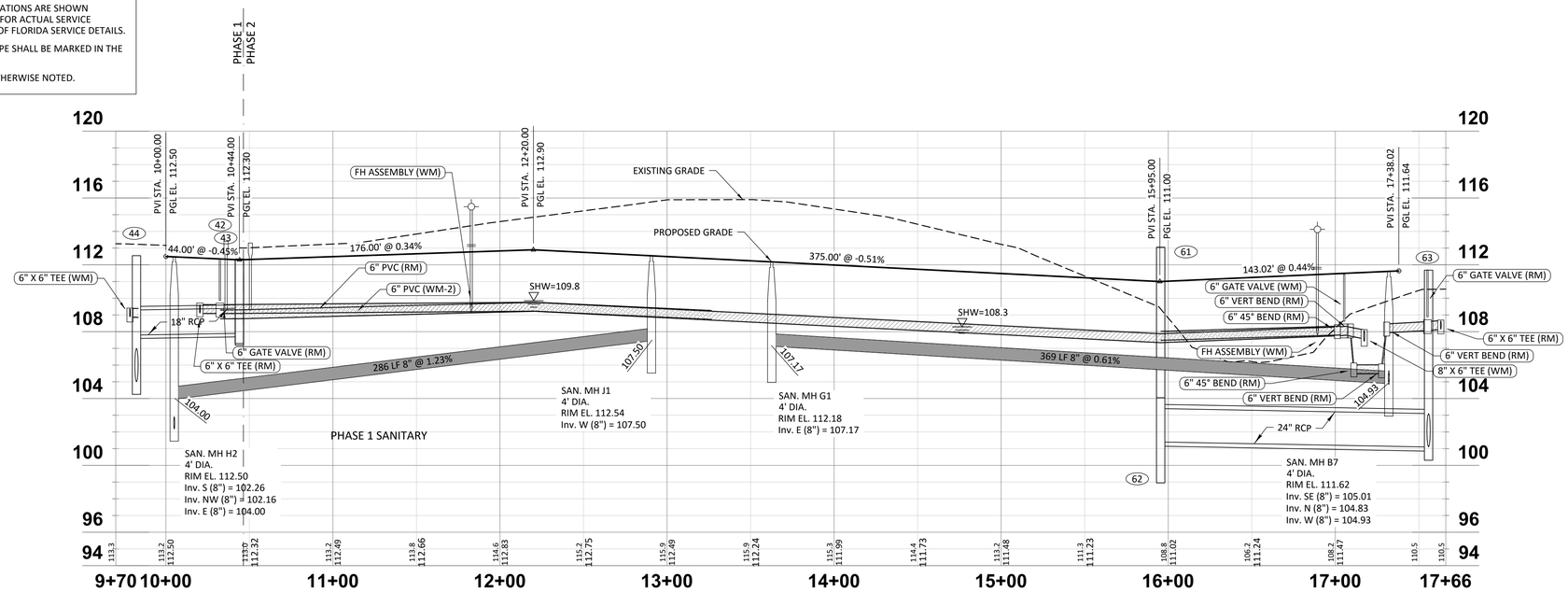
R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - S,B\RWD\BP-08.DWG-C-512 2017/12/01 10:32 AM ERIC FRANCIS

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	06/26/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AP-1039
FILE: RP-07
DESIGN BY: FRANCIS
DRAWN BY: WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

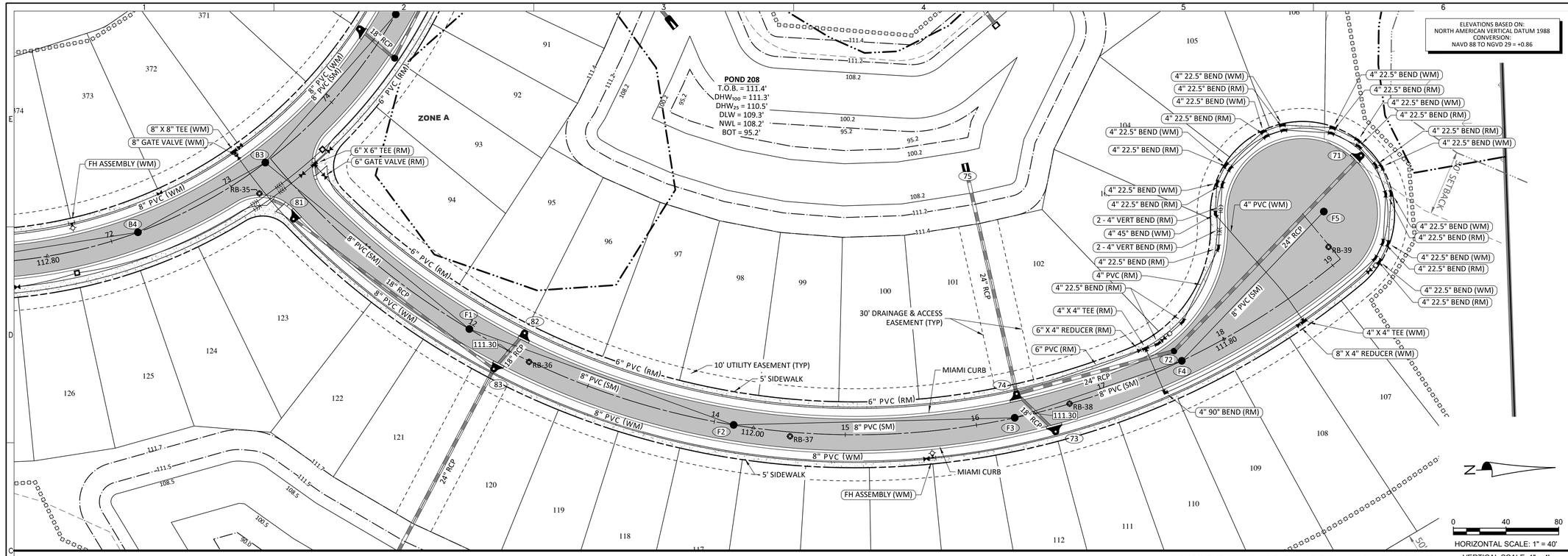
VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-513

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\SP-07 DWG-C-513 2017\7\20\17 10:33 AM ERIC FRANCIS

COPYRIGHT 2017 HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR SURVEYS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

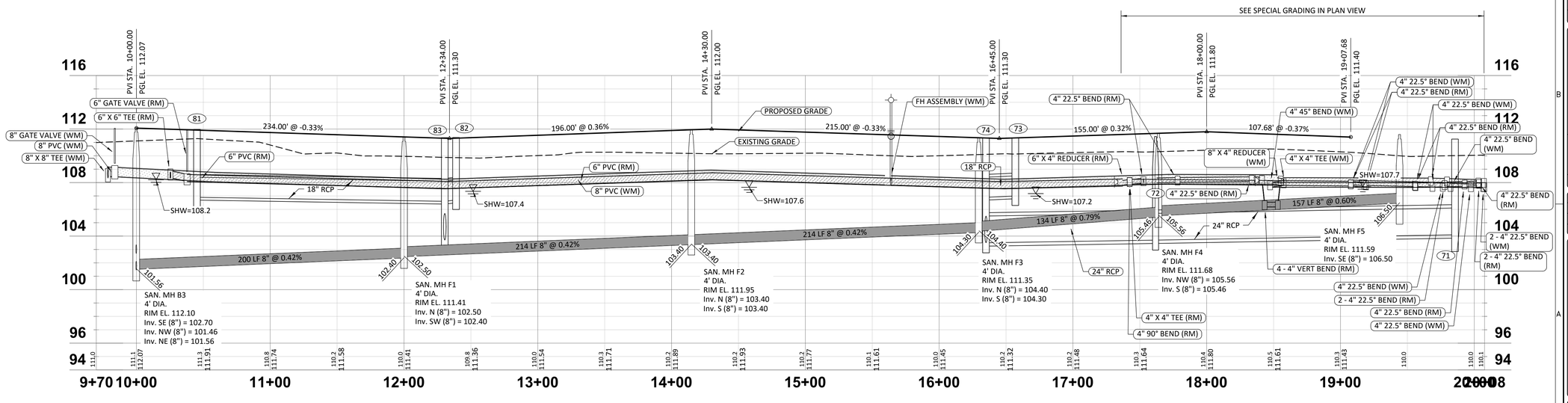
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



WINGED ELM CT - PHASE 2

GENERAL NOTES:

- VALVES SHALL NOT BE INSTALLED IN CURBING OR HANDICAP RAMPS.
- ALL WATER AND SANITARY SEWER SERVICE LOCATIONS ARE SHOWN GRAPHICALLY FOR PLANNING PURPOSES ONLY. FOR ACTUAL SERVICE CONSTRUCTION LOCATIONS SEE UTILITES, INC. OF FLORIDA SERVICE DETAILS.
- ALL FITTINGS, APPURTENANCES, & DEPTH OF PIPE SHALL BE MARKED IN THE FIELD FOR AS-BUILT PLAN PREPARATION.
- ALL GRAVITY PIPES SHALL BE SDR-26 UNLESS OTHERWISE NOTED.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	06/17/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RP-08
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

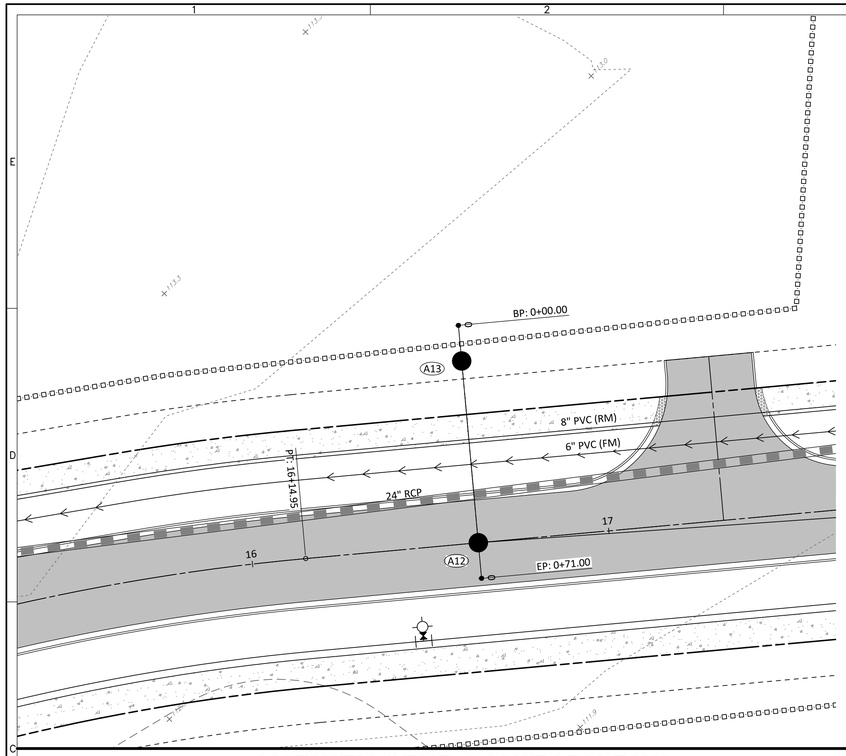
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

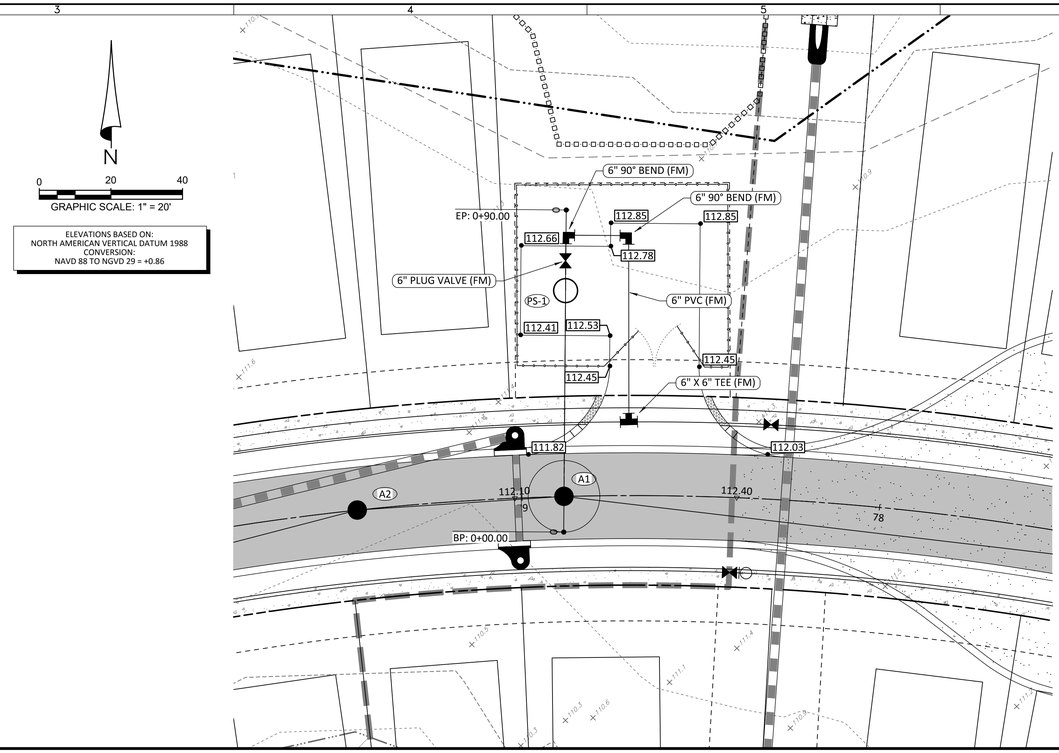
C-514

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\RP-08.DWG-C-514 2017/12/01 10:34 AM ERIC FRANCIS

© COPYRIGHT 2017 | HEIDT DESIGN, LLC | ALL RIGHTS RESERVED | THIS DOCUMENT IS FOR PLANNING BY NOT LIMITED TO DRAWINGS OR SPECIFICATIONS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFICALLY PERMITTED IN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED





N

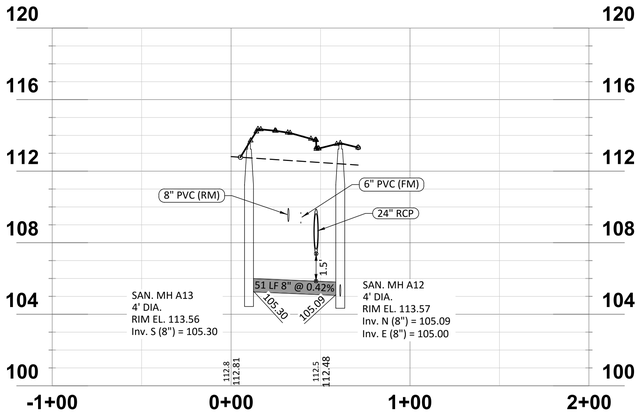
0 20 40

GRAPHIC SCALE: 1" = 20'

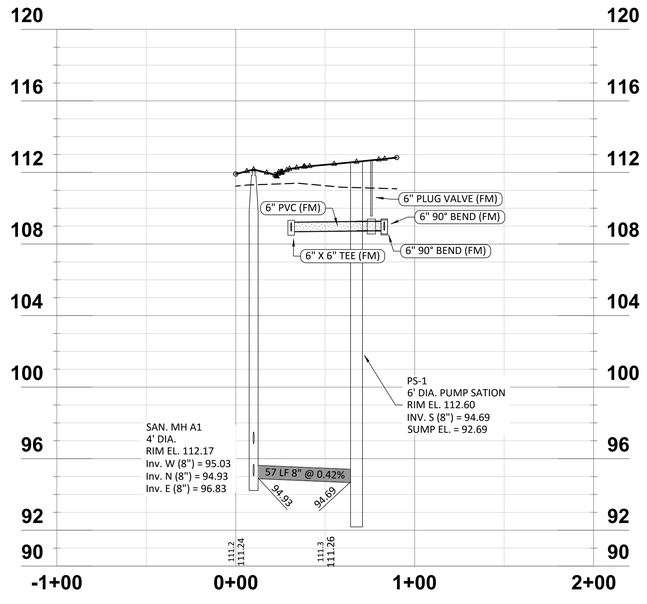
ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

AMENITY STUB SANITARY RUN



PUMP STATION SANITARY RUN



0 40 80

HORIZONTAL SCALE: 1" = 40'

VERTICAL SCALE: 1" = 4'

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

ROADWAY PLAN & PROFILE

PREPARED FOR: VK AVALON GROVES, LLC

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\RP-09.DWG-C-515 2017/12/01 10:35 AM ERIC FRANCIS

NO.	DATE	DESCRIPTION
1	06/17/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	RP-09
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

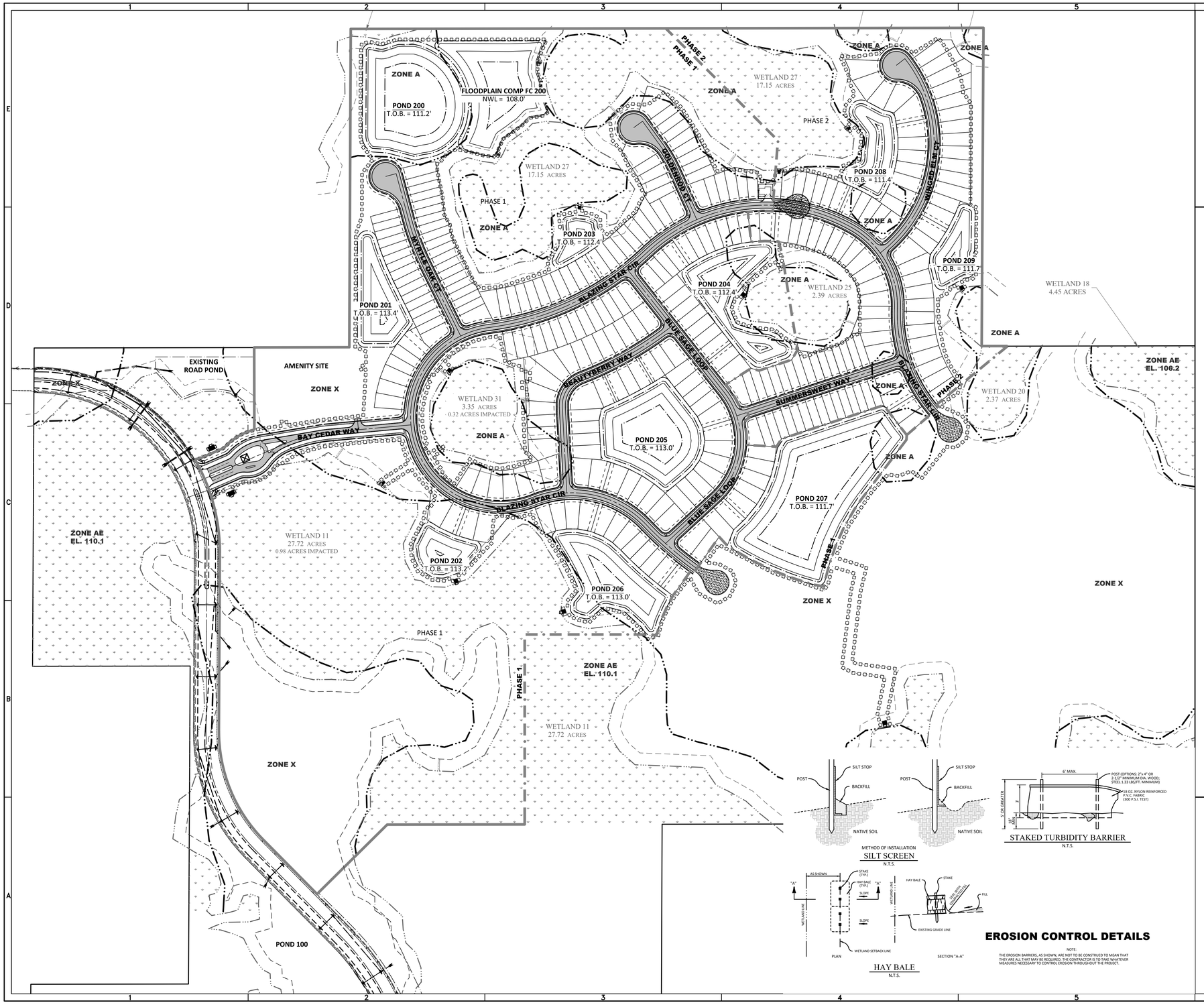
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-515

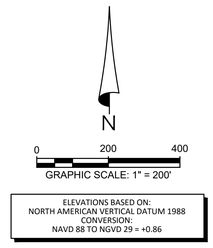
© COPYRIGHT 2017 - HEIDT DESIGN, LLC - ALL RIGHTS RESERVED - THIS DOCUMENT IN WHOLE OR IN PART INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFICALLY WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC, IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



EROSION CONTROL DETAILS

NOTE:
THE EROSION BARRIERS, AS SHOWN, ARE NOT TO BE CONSTRUED TO MEAN THAT THEY ARE ALL THAT MAY BE REQUIRED. THE CONTRACTOR IS TO TAKE WHATEVER MEASURES NECESSARY TO CONTROL EROSION THROUGHOUT THE PROJECT.



ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- C-510 — PLAN & PROFILE SHEET NUMBER

NOTE:
1. PONDS TO BE EXCAVATED PRIOR TO EARTHWORK.
2. CONTRACTOR TO DIRECT RUNOFF TO PONDS DURING CONSTRUCTION ACTIVITIES.
3. NOTE DOUBLE ROW SILT FENCE ALONG WETLAND BOUNDARIES.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2
CONSTRUCTION SURFACE WATER MANAGEMENT PLAN

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION

1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	CSWMP
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-900

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SURWMD\CSWMP [DWG-C-900 2017\7\20\1 10:35 AM ERIC FRANCIS

©COPYRIGHT 2017 HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

STORM WATER POLLUTION PREVENTION PLAN

CONTAINED ON THESE PLANS AND WITHIN THE FOLLOWING NOTES IS A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WHICH HAS BEEN DEVELOPED BY HEIDT DESIGN, LLC IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (FDEP) "NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM" (NPDES) GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES.

THE FOLLOWING ENTITIES ARE IDENTIFIED AS TEAM MEMBERS OF "SWPP": HEIDT DESIGN, LLC, THE DEVELOPER AS IDENTIFIED IN THE TITLE BOX OF THESE PLANS, AND THE SITE CONTRACTOR AND HIS SUB-CONTRACTORS. EACH TEAM MEMBER HAS SPECIFIC RESPONSIBILITIES AND OBLIGATIONS. IN GENERAL, ALL TEAM MEMBERS, WITH REGARD TO THEIR INVOLVEMENT AND RESPONSIBILITIES ON THE PROJECT, ARE TO IMPLEMENT ALL NECESSARY STORM WATER MANAGEMENT CONTROLS TO ASSURE COMPLIANCE WITH THE NPDES GENERIC PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES, THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT PERMIT, THE APPLICABLE LOCAL GOVERNING AGENCY (I.E. LAKE COUNTY) AND THE GUIDELINES LISTED IN THE SWPP. THE DUTIES AND RESPONSIBILITIES OF THE TEAM MEMBERS AS THEY PERTAIN TO THE SWPP ARE AS FOLLOWS:

HEIDT DESIGN, LLC:

A. DEVELOP SWPP INCLUDING, BUT NOT LIMITED TO, RETENTION/DETENTION PONDS, CONTROL STRUCTURES, EROSION CONTROL METHODS AND LOCATIONS AND STABILIZATION CRITERIA. THIS DESIGN IS INCLUDED WITHIN THESE CONSTRUCTION PLANS AND THE FOLLOWING NOTES AND INSTRUCTIONS.

B. SUBMIT AND OBTAIN THE NECESSARY DESIGN RELATED STORM WATER PERMITS FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT AND OTHER APPLICABLE GOVERNMENTAL BODIES.

C. UPON NOTIFICATION BY THE DEVELOPER OF HIS INTENT TO COMMENCE CONSTRUCTION, SUBMIT A NOTICE OF INTENT TO THE FDEP ON BEHALF OF THE DEVELOPER AND COPY THE CONTRACTOR INCLUDING SWPP CERTIFICATION AND COPY OF THE PERMIT.

D. SUBMIT TO SJRWMD AND THE OPERATOR OF THE MUNICIPAL SEPARATE STORM WATER SYSTEM, IF APPLICABLE, A LETTER OF CONSTRUCTION COMMENCEMENT.

E. COMPLETE AND SUBMIT A NOTICE OF TERMINATION AND CERTIFICATION FOR DEVELOPER. THE NOT'S SHALL BE SUBMITTED NO MORE THAN 30 DAYS AFTER;

1. COMPLETION OF THE PROJECT AND FINAL STABILIZATION OF THE SITE OR
2. WHEN RESPONSIBILITY FOR THE SITE HAS ENDED. FINAL STABILIZATION AS DEFINED BY EPA IS WHEN ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND A UNIFORM (E.G. EVENLY DISTRIBUTED, WITHOUT LARGE BARE AREAS) PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% OF THE NATIVE BACKGROUND VEGETATIVE COVER FOR THE AREA HAS BEEN ESTABLISHED ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES. AS AN ALTERNATIVE, EQUIVALENT PERMANENT STABILIZATION MEASURES (SUCH AS RIPRAP, GABIONS, OR GEOTEXTILES) MAY BE EMPLOYED. THE CLIENT SHALL NOTIFY HEIDT DESIGN, LLC WHEN ONE OF THESE CRITERIA HAS BEEN MET.

CONTRACTOR:

A. SIGN AND RETURN TO HEIDT A CONTRACTORS CERTIFICATION FORM CERTIFYING YOUR UNDERSTANDING OF AND WILLINGNESS TO COMPLY WITH THE STORM WATER POLLUTION PREVENTION PLAN NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALSO, EACH SUBCONTRACTOR AFFECTED BY THE SWPP MUST CERTIFY TO THE CONTRACTOR THAT THEY UNDERSTAND AND SHALL COMPLY WITH THE NPDES PERMIT AND SWPP. A RECORD OF THESE CERTIFICATIONS SHALL BE MAINTAINED BY THE CONTRACTOR ON SITE.

B. DURING CONSTRUCTION, ASSURE COMPLIANCE WITH THE DESIGNED STORM WATER POLLUTION PREVENTION PLANS PREPARED BY HEIDT DESIGN, LLC AND THE NPDES GENERIC PERMIT FOR STORM WATER DISCHARGES FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES.

C. MAINTAIN A COPY OF THE CONSTRUCTION PLANS, WHICH INCLUDE THE STORM WATER POLLUTION PREVENTION PLAN, THE NOI, AND ALL INSPECTION REPORTS AND CERTIFICATIONS ON SITE.

D. UNDERTAKE ALL REASONABLE BEST MANAGEMENT PRACTICES (BMP'S) TO ASSURE THAT SILTED OR OTHERWISE POLLUTED STORM WATER IS NOT ALLOWED TO DISCHARGE FROM THE SITE DURING ALL PHASES OF CONSTRUCTION. STABILIZATION BMP'S THAT MAY BE USED INCLUDE:

TEMPORARY OR PERMANENT SEEDING, MULCHING, GEOTEXTILES, SODDING, VEGETATIVE BUFFER STRIPS, PROTECTION OF TREES AND PRESERVATION OF MATURE VEGETATION. STRUCTURAL EROSION AND SEDIMENT CONTROL BMP'S THAT MAY BE USED INCLUDE: STRAW BALE DIKES, SILT FENCES, EARTH DIKES, BRUSH BARRIERS, DRAINAGE SWALES, CHECK DAMS, SUBSURFACE DRAIN, PIPE SLOPE DRAIN, LEVEL SPREADERS, STORM DRAIN INLET PROTECTION, OUTLET PROTECTION, SEDIMENT TRAPS, AND TEMPORARY SEDIMENT BASINS. DETENTION PONDS MAY ALSO BE USED AS TEMPORARY SEDIMENT BASINS. ADDITIONAL BMP'S THAT MAY NEED TO BE IMPLEMENTED INCLUDE: PROVIDING PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS. PROVIDING WASTE RECEPTACLES AT CONVENIENT LOCATIONS AND PROVIDING REGULAR COLLECTION OF WASTES, INCLUDING BUILDING MATERIAL WASTES. MINIMIZING OFF-SITE TRACKING OF SEDIMENTS. MAKING ADEQUATE PREPARATIONS, INCLUDING TRAINING AND EQUIPMENT TO CONTAIN SPILLS OF OIL AND HAZARDOUS MATERIALS. COMPLYING WITH APPLICABLE STATE OR LOCAL WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS AND THE USE OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR ALLOWABLE NON-STORM WATER COMPONENTS OF DISCHARGE.

E. NOTIFY HEIDT DESIGN, LLC AND THE DEVELOPER IN WRITING OF ANY NON-STORM WATER POLLUTION SOURCES WHICH ARE BEING STORED, OR OTHERWISE USED DURING THE CONSTRUCTION OF THE PROJECT, I.E., FERTILIZERS, FUELS, PESTICIDES, OTHER CHEMICALS. THIS NOTIFICATION SHOULD BE ACCOMPANIED WITH THE CONTRACTOR'S DESIGN AND METHODS TO PREVENT POLLUTION RUN-OFF FROM THESE SOURCES.

F. DEVELOP A MAINTENANCE AND INSPECTION PLAN WHICH INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

THE SPECIFIC AREAS TO BE INSPECTED AND MAINTAINED THAT INCLUDES ALL THE DISTURBED AREAS AND MATERIAL STORAGE AREAS OF THE SITE.

1. THE EROSION AND SEDIMENT CONTROLS IDENTIFIED IN THE SWPPP TO BE MAINTAINED AND INSPECTED AND THOSE ADDITIONAL CONTROLS THAT THE CONTRACTOR DEEMS NECESSARY.
2. MAINTENANCE PROCEDURES.
3. THE PROCEDURE TO FOLLOW IF ADDITIONAL WORK IS REQUIRED OR WHOM TO CALL.
4. INSPECTIONS AND MAINTENANCE FORMS.
5. THE PERSONNEL ASSIGNED TO EACH TASK.

THE FOLLOWING SHALL BE INSPECTED A MINIMUM OF ONCE A WEEK OR WITHIN 24 HOURS AFTER 0.50 INCHES OF RAINFALL:

- STABILIZATION MEASURES (ONCE A MONTH IF FULLY STABILIZED).
- STRUCTURAL CONTROLS.
- DISCHARGE POINTS.
- CONSTRUCTION ENTRANCES AND EXITS.
- AREAS USED FOR STORAGE OF EXPOSED MATERIALS.

AN INSPECTION FORM SHALL BE COMPLETED FOR EACH INSPECTION. ANY PERMIT VIOLATIONS SHOULD BE NOTED AND CORRECTIVE MEASURES SHALL BE TAKEN NO LATER THAN 7 DAYS AFTER THE INSPECTION OCCURRED. IF REVISIONS TO THE SWPP ARE NEEDED, A REPORT FORM FOR CHANGES IN THE SWPP SHALL BE COMPLETED AND A COPY SENT TO HEIDT DESIGN, LLC THE ORIGINAL SHALL BE KEPT ON-SITE AS DOCUMENTATION OF THE CHANGE. IF THE INSPECTION PASSES, A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE SWPP AND THE NPDES PERMIT MUST BE SIGNED BY A DULY AUTHORIZED REPRESENTATIVE OF THE PRINCIPAL EXECUTIVE OFFICIAL OF THE OPERATOR OF THE SWPP WITH ONE OF THE FOLLOWING QUALIFICATIONS:

1. HAS SUCCESSFULLY COMPLETED THE FLORIDA STORMWATER, EROSION AND SEDIMENT CONTROL INSPECTOR TRAINING PROGRAM.
2. SUCCESSFULLY COMPLETED A SIMILAR TRAINING PROGRAM.
3. HAS ENOUGH PRACTICAL ON THE JOB TRAINING TO BE QUALIFIED TO PERFORM THE INSPECTIONS.
4. RETAIN INSPECTION REPORTS AND CERTIFICATIONS FOR AT LEAST THREE YEARS.

H. SITE STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICAL BUT IN NO CASE MORE THAN 7 DAYS, IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED.

I. RELEASES IN EXCESS OF REPORTABLE QUANTITIES.

1. THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL IN THE STORMWATER DISCHARGE(S) FROM A FACILITY OR ACTIVITY SHALL BE PREVENTED OR MINIMIZED IN ACCORDANCE WITH THE APPLICABLE STORMWATER POLLUTION PREVENTION PLAN FOR THE FACILITY OR ACTIVITY. THIS PERMIT DOES NOT RELIEVE THE OPERATOR OF THE REPORTING REQUIREMENTS OF 40 CFR PART 117 AND 40 CFR PART 302. WHERE A RELEASE CONTAINING A HAZARDOUS SUBSTANCE IN AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTING QUANTITY ESTABLISHED UNDER EITHER 40 CFR 117 OR 40 CFR 302, OCCURS DURING A 24 HOUR PERIOD:
2. THE OPERATOR IS REQUIRED TO NOTIFY THE STATE WARNING POINT (800-210-0519 OR 850-413-9911) AS SOON AS HE OR SHE HAS KNOWLEDGE OF THE DISCHARGE;
   a. THE OPERATOR SHALL SUBMIT WITHIN 14 CALENDAR DAYS OF KNOWLEDGE OF THE RELEASE A WRITTEN DESCRIPTION OF: THE RELEASE (INCLUDING THE TYPE AND ESTIMATE OF THE AMOUNT OF MATERIAL RELEASED), THE DATE THAT SUCH RELEASE OCCURRED, THE CIRCUMSTANCES LEADING TO THE RELEASE, AND REMEDIAL STEPS TO BE TAKEN, TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, NPDES STORMWATER SECTION, MAIL STATION 2500, 2600 BLAIR STONE ROAD, TALLAHASSEE, FLORIDA 32399-2400; AND
   b. THE STORMWATER POLLUTION PREVENTION PLAN REQUIRED UNDER PART V OF THIS PERMIT MUST BE MODIFIED WITHIN 14 CALENDAR DAYS OF KNOWLEDGE OF THE RELEASE TO: PROVIDE A DESCRIPTION OF THE RELEASE, THE CIRCUMSTANCES LEADING TO THE RELEASE, AND THE DATE OF THE RELEASE. IN ADDITION, THE PLAN MUST BE REVIEWED TO IDENTIFY MEASURES TO PREVENT THE REOCCURRENCE OF SUCH RELEASES AND TO RESPOND TO SUCH RELEASES, AND THE PLAN MUST BE MODIFIED WHERE APPROPRIATE.
3. THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL RESULTING FROM AN ON-SITE SPILL.

DEVELOPER:

1. NOTIFY HEIDT OF YOUR INTENT TO COMMENCE CONSTRUCTION. SIGN THE NOTICE OF INTENT FORM AS OPERATOR OF THE STORM WATER DISCHARGE FACILITY AND PERMITTEE AND RETURN TO HEIDT DESIGN, LLC.
2. SIGN A CERTIFICATION OF STORM WATER POLLUTION PREVENTION PLAN AND RETURN TO HEIDT DESIGN, LLC.
3. NOTIFY HEIDT WHEN IT IS TIME TO SUBMIT A NOTICE OF TERMINATION AS DEFINED UNDER PART E OF THE HEIDT DESIGN, LLC SECTION OF THE SWPP. SIGN AND RETURN TO HEIDT DESIGN, LLC FOR SUBMITTAL TO FDEP A NOTICE OF TERMINATION FORM AND CERTIFICATION.

PRE-DEVELOPED SITE INFORMATION:

TOTAL SITE ACREAGE: 176.04 AC. ±

LAND USE: UNDEVELOPED - AGRICULTURAL

VEGETATION: RANGE LAND, BAHIA GRASS PASTURE

RECEIVING WATERS OR MUNICIPAL SEPARATE STORM WATER SYSTEM: HANCOCK BAYS AND SAWGRASS BAYS

SOIL TYPES: CANDLER, IMMOKALEE, LAKE, MYAKKA, POMELLO, POMPANO, AND TAVARES SANDS

PROJECT INFORMATION:

1. PROJECT TYPE - ROADWAY or SUBDIVISION
2. ANTICIPATED CONSTRUCTION SEQUENCE IS AS FOLLOWS:
   - COMPLETE EROSION CONTROL INSTALLATION
   - CLEARING AND GRUBBING
   - EARTHWORK ACTIVITIES
   - STORM WATER SYSTEM CONSTRUCTION
   - UTILITY CONSTRUCTION
   - BASE AND PAVEMENT CONSTRUCTION
   - FINAL STABILIZATION

THE BMP'S LISTED IN PART D OF THE CONTRACTOR DECTION OF THE SWPP SHALL BE CONSIDERED DURING ALL PHASES OF CONSTRUCTION.

3. ANTICIPATED START DATE: OCTOBER, 2017
4. ANTICIPATED COMPLETION DATE: FEBRUARY, 2018
5. TOTAL ACRES DISTURBED: 93.9±
6. PRE-DEVELOPED "C" FACTOR: 0.3
7. POST-DEVELOPED "C" FACTOR: 0.5
8. THE STORM WATER MANAGEMENT SYSTEM, UPON COMPLETION OF CONSTRUCTION AND APPROPRIATE CERTIFICATION AND AS-BUILT SUBMITTALS WILL BE OPERATED AND MAINTAINED BY SERENOA CDD.
9. THE POTENTIAL SOURCE OF POLLUTION FROM THIS PROJECT IS ON-SITE DEVELOPMENT AND CONSTRUCTION ACTIVITY.

SIDEWALK NOTE:

1. SIDEWALKS SHALL BE CONSTRUCTED OF NATURAL OR COLORED CONCRETE AT LEAST 3,000 PSI IN STRENGTH, FIBER REINFORCED ON A COMPACTED AND NON-YIELDING SUBGRADE WITH MINIMUM OF FOUR INCHES IN THICKNESS. WHEN A SIDEWALK IS CROSSED BY A DRIVEWAY AND FOR CURB RAMPS, THE MINIMUM THICKNESS SHALL BE 6 INCHES.

POND/LAKE EXCAVATION NOTE:

NO EXCAVATION SHALL EXTEND BELOW THE PERMITTED DESIGN DEPTHS/ELEVATIONS SHOWN ON THE DRAWINGS, UNLESS ADDITIONAL TESTING SUPPORTS OTHERWISE AND THE ENGINEER OF RECORD HAS RECEIVED VERBAL AND/OR WRITTEN PERMISSION FROM THE WATER MANAGEMENT DISTRICT. NO LOWER SEMI-CONFINING UNIT CLAYEY SOIL MATERIAL AND/OR NO LIMESTONE MATERIALS SHALL BE EXCAVATED, REGARDLESS IF THESE MATERIALS ARE ENCOUNTERED WITHIN THE PERMITTED EXCAVATION DEPTHS/ELEVATIONS. IF ANY LOWER SEMI-CONFINING UNIT CLAYEY SOIL MATERIALS OR LIMESTONE MATERIALS ARE ENCOUNTERED ABOVE THE PERMITTED DEPTHS/ELEVATIONS, THEN EXCAVATION OPERATIONS SHALL CEASE IN THE GENERAL AREA AND THE ENGINEER OF RECORD SHALL BE NOTIFIED IMMEDIATELY.

GENERAL EROSION AND TURBIDITY CONTROL NOTES

1. THE SOIL EROSION AND SEDIMENT CONTROL DEVISES SHALL BE INSTALLED PRIOR TO CONSTRUCTION, MAINTAINED THROUGHOUT CONSTRUCTION AND UNTIL THE SITE IS PERMANENTLY STABILIZED.
2. ANY OFF SITE DISTURBANCE SHALL BE RESTORED TO THE PRE OR BETTER CONDITION.
3. THE SITE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL EROSION AND TURBIDITY CONTROLS AND THE QUALITY AND QUANTITY OF OFFSITE OR WETLAND DISCHARGES.
4. PRIOR TO CONSTRUCTION, THE SITE SUBCONTRACTOR IS RESPONSIBLE FOR HAVING HIS DEWATERING PLAN AND TURBIDITY CONTROL PLAN APPROVED BY THE APPLICABLE REVIEWING AGENCIES. REFER TO THE PROJECT'S PERMIT APPROVALS AND PERMIT CONDITIONS FOR AGENCIES REQUIRING SUCH REVIEW AND APPROVAL. QUESTIONS CONCERNING APPROPRIATE TECHNIQUES SHOULD BE ADDRESSED TO THOSE AGENCIES AND/OR DISCUSSED WITH THE PROJECT ENGINEER AND OWNER.
5. THE APPROPRIATE TURBIDITY AND EROSION CONTROL METHODOLOGIES SELECTED BY THE SITE SUBCONTRACTOR FOR THIS PROJECT SHOULD BE MADE FOLLOWING ASSESSMENT OF THE PLANS AND PROJECT SITE SPECIFIC FACTORS AND AFTER CONSULTATIONS AS NEEDED WITH THE PROJECT ENGINEER AND APPROPRIATE AGENCIES. THE SITE SUBCONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ANY AND ALL NECESSARY PERMITS FOR SUCH ACTIVITY; SEVERAL FACTORS TO CONSIDER ARE LISTED BELOW:
   A. CLAY CONTENT IN EXCAVATED MATERIALS AND/OR PERMEABILITIES RATES
   B. DEPTH OF CUT IN PONDS, TRENCHES, OR UTILITY LINES
   C. AMBIENT GROUND WATER LEVELS
   D. ACTUAL RAINFALL AMOUNTS AND TIME OF YEAR RELATIVE TO NORMAL RAINY SEASON
   E. PROXIMITY TO WETLANDS, WATER BODIES OR OFFSITE PROPERTIES
   F. 'CLASS' DESIGNATION OF RECEIVING WATER BODIES (I.E., OUTSTANDING FLORIDA WATERS, SHELLFISH HARVESTING AREAS, ETC.)
   G. DENSITY, TYPE, AND PROXIMITY OF UPLAND VEGETATION TO BE RETAINED DURING CONSTRUCTION (FOR USE AS POSSIBLE FILTRATION AREAS)
   H. FILL HEIGHT RELATIVE TO NATURAL GRADE AND LENGTH AND STEEPNESS OF THE PROPOSED SLOPES
   I. EXISTING TOPOGRAPHY AND DIRECTIONS OF SURFACE FLOW
   J. TYPE OF EQUIPMENT USED
   K. PROJECT TYPE
   L. DURATION OF CONSTRUCTION ACTIVITIES
   M. SEPARATION DISTANCE OF ONSITE PONDS
   N. AMBIENT QUALITY OF SURFACE AND GROUNDWATER
   O. TEMPORARY STOCKPILE LOCATIONS AND HEIGHTS
4. AT THE ONSET OF CONSTRUCTION, THE SITE SUBCONTRACTOR, AS THE PARTY RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN, SHALL ASSESS THE ABOVE DESCRIBED CONDITIONS AND FACTORS WITH RESPECT TO RELATIVE COST EFFECTIVENESS AND SELECT THE APPROPRIATE METHODS OF PROTECTION. A FAIRLY EXTENSIVE LIST OF TECHNIQUES ARE PRESENTED BELOW BUT IT MUST BE STRESSED THAT ANY OR ALL OF THE FOLLOWING MAY BE NECESSARY TO MAINTAIN WATER QUALITY AND QUANTITY STANDARDS. THE CONSTRUCTION SEQUENCING SHOULD BE THOUGHT OUT IN ADVANCE OF INITIATION TO PROVIDE ADEQUATE PROTECTION OF WATER QUALITY.
5. DISCHARGES WHICH EXCEED 29 N.T.U.'S OVER THE BACKGROUND LEVELS ARE IN VIOLATION OF STATE WATER QUALITY STANDARDS. DISCHARGES OF WATER QUANTITIES WHICH AFFECT OFFSITE PROPERTIES OR MAY DAMAGE WETLANDS ARE ALSO PROHIBITED BY REGULATING AGENCIES.
6. THE EROSION AND TURBIDITY CONTROL MEASURES SHOWN HEREON ARE THE MINIMUM REQUIRED FOR AGENCY APPROVAL. ADDITIONAL CONTROL AND MEASURES MAY BE REQUIRED DUE TO THE SITE SUBCONTRACTOR'S CONSTRUCTION SEQUENCE & UNFORESEEN WEATHER CONDITIONS. ANY ADDITIONAL MEASURES DEEMED NECESSARY BY THE SITE SUBCONTRACTOR SHALL BE INCLUDED IN THE LUMP SUM BID WITH NO EXTRAS FOR MATERIALS AND LABOR ALLOWED.
7. HAY BALES OR SILT SCREENS SHALL BE INSTALLED PRIOR TO LAND CLEARING TO PROTECT WATER QUALITY AND TO IDENTIFY AREAS TO BE PROTECTED FROM CLEARING ACTIVITIES AND MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL ALL SOIL IS STABILIZED.
8. FLOATING TURBIDITY BARRIERS SHALL BE IN PLACE IN FLOWING SYSTEMS OR IN OPEN WATER LAKE EDGES PRIOR TO INITIATION OF EARTHWORK AND MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL ALL SOIL IS STABILIZED.
9. NO CLAY MATERIAL SHALL BE LEFT EXPOSED IN ANY STORMWATER STORAGE FACILITY. IF CLAY OR SANDY-CLAYS ARE ENCOUNTERED DURING STORMWATER STORAGE EXCAVATION, THE SITE SUBCONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY BEFORE PROCEEDING WITH FURTHER EXCAVATION. IF THE ENGINEER OF RECORD HAS DETERMINED THAT SUCH SOILS ARE NON-CONFINING AND MUST BE EXCAVATED TO MEET PERMIT AND DESIGN CONDITIONS, EXCAVATION MAY PROCEED AFTER OBTAINING WRITTEN AUTHORIZATION FROM THE APPROPRIATE GOVERNING AGENCY. IF SAID SOILS ARE LEFT EXPOSED AT THE PERMITTED AND DESIGNED DEPTH, THE SITE SUBCONTRACTOR SHALL OVER-EXCAVATE THE POND'S BOTTOM AND SIDE SLOPES BY A MINIMUM OF TWELVE (12") INCHES AND BACKFILL WITH CLEAN SANDS TO HELP PREVENT SUSPENSION OF FINE PARTICLES IN THE WATER COLUMN.
10. THE INSTALLATION OF TEMPORARY EROSION CONTROL BARRIERS SHALL BE COORDINATED WITH THE CONSTRUCTION OF THE PERMANENT EROSION CONTROL FEATURES TO THE EXTENT NECESSARY TO ASSURE EFFECTIVE AND CONTINUOUS CONTROL OF EROSION AND WATER POLLUTION THROUGHOUT THE LIFE OF THE CONSTRUCTION PHASE.
11. THE TYPE OF EROSION CONTROL BARRIERS USED SHALL BE GOVERNED BY THE NATURE OF THE CONSTRUCTION OPERATION AND SOIL TYPE THAT WILL BE EXPOSED. SILTY AND CLAYEY MATERIAL MAY REQUIRE SOLID SEDIMENT BARRIERS TO PREVENT TURBID WATER DISCHARGE, WHILE SANDY MATERIAL MAY NEED ONLY SILT SCREENS OR HAY BALES TO PREVENT EROSION. FLOATING TURBIDITY CURTAINS SHOULD GENERALLY BE USED IN OPEN WATER SITUATIONS. DIVERSION DITCHES OR SWALES MAY BE REQUIRED TO PREVENT TURBID STORMWATER RUNOFF FROM BEING DISCHARGED TO WETLANDS OR OTHER WATER BODIES. IT MAY BE NECESSARY TO EMPLOY A COMBINATION OF BARRIERS, DITCHES, AND OTHER EROSION/TURBIDITY CONTROL MEASURES IF CONDITIONS WARRANT.
12. WHERE PUMPS ARE TO BE USED TO REMOVE TURBID WATERS FROM CONSTRUCTION AREAS, THE WATER SHALL BE TREATED PRIOR TO DISCHARGE TO THE WETLANDS. TREATMENT METHODS INCLUDE, FOR EXAMPLE, TURBID WATER BEING PUMPED INTO GRASSED SWALES OR APPROPRIATE UPLAND VEGETATED AREAS (OTHER THAN UPLAND PRESERVATION AREAS AND WETLAND BUFFERS), SEDIMENT BASINS, OR CONFINED BY AN APPROPRIATE ENCLOSURE SUCH AS TURBIDITY BARRIERS OR LOW BERMS, AND KEPT CONFINED UNTIL TURBIDITY LEVELS MEET STATE WATER QUALITY STANDARDS.
13. THE PERMITTEE SHALL SCHEDULE HIS OPERATIONS SUCH THAT THE AREA OF UNPROTECTED ERODIBLE EARTH EXPOSED AT ANY ONE TIME IS NOT LARGER THAN THE MINIMUM AREA NECESSARY FOR EFFICIENT CONSTRUCTION OPERATION, AND THE DURATION OF EXPOSED, UNCOMPLETED CONSTRUCTION TO THE ELEMENTS SHALL BE AS SHORT AS PRACTICABLE. CLEARING AND GRUBBING SHALL BE SO SCHEDULED AND PERFORMED SUCH THAT GRADING OPERATIONS CAN FOLLOW IMMEDIATELY THEREAFTER. GRADING OPERATIONS SHALL BE SO SCHEDULED AND PERFORMED THAT PERMANENT EROSION CONTROL FEATURES CAN FOLLOW IMMEDIATELY THEREAFTER IF CONDITIONS ON THE PROJECT PERMIT.
14. WATER DERIVED FROM VARIOUS DEWATERING METHODS SHOULD BE PASSED THROUGH SUFFICIENTLY WIDE AREAS OF EXISTING UPLAND VEGETATION TO FILTER OUT EXCESS TURBIDITY. IF THIS IS NOT SUFFICIENT, THE WATER SHALL BE RETAINED IN PREVIOUSLY CONSTRUCTED PERMANENT STORMWATER PONDS OR ELSE RETAINED IN TEMPORARY SEDIMENTATION BASINS UNTIL THE CLARITY IS SUITABLE TO ALLOW FOR ITS DISCHARGE. PLUGGING THE OUTFALLS FROM COMPLETED STORMWATER PONDS MAY BE NEEDED TO AVOID DISCHARGE. HOWEVER, SUCH SITUATIONS SHOULD BE MONITORED CLOSELY TO PRECLUDE BERM FAILURE IF WATER LEVELS RISE TOO HIGH.
15. WATER CAN BE TRANSPORTED AROUND THE SITE BY THE USE OF INTERNAL SWALES OR BY PUMPS AND PIPES.
16. SHEET FLOW OF NEWLY FILLED OR SCRAPED AREAS MAY BE CONTROLLED OR CONTAINED BY THE USE OF BRUSH BARRIERS, DIVERSION SWALES, INTERCEPTOR DITCHES OR LOW BERMS. FLOW SHOULD BE DIRECTED TOWARD AREAS WHERE SEDIMENTS CAN SUFFICIENTLY SETTLE OUT.
17. EXPOSED SOILS SHALL BE STABILIZED AS SOON AS POSSIBLE, ESPECIALLY SLOPES LEADING TO WETLANDS. STABILIZATION METHODS INCLUDE SOLID SOD, SEEDING AND MULCHING OR HYDROMULCHING TO PROVIDE A TEMPORARY OR PERMANENT GRASS COVER MULCH BLANKETS, FILTER FABRICS, ETC., CAN BE EMPLOYED TO PROVIDE VEGETATIVE COVER.
18. ENERGY DISSIPATERS (SUCH AS RIP RAP, A GRAVEL BED, HAY BALES, ETC.) SHALL BE INSTALLED AT THE DISCHARGE POINT OF PIPES OR SWALES IF SCOURING IS OBSERVED.
19. ATTEMPT TO INSTALL ROADWAY CURB AND GUTTERS AS SOON AS POSSIBLE TO REDUCE THE SURFACE AREA FOR EROSION TO OCCUR.
20. IMPLEMENT STORM DRAIN INLET PROTECTION (HAY BALES OR GRAVEL) TO LIMIT SEDIMENTATION WITHIN THE STORMWATER SYSTEM. PERFORM INSPECTIONS AND PERIODIC CLEANING OF SEDIMENTS WHICH WASH OUT INTO THE STREETS UNTIL ALL SOIL IS STABILIZED.
21. WATER DISCHARGE VELOCITIES FROM IMPOUNDED AREAS AND TEMPORARY SEDIMENTATION BASINS SHALL BE RESTRICTED TO AVOID SCOURING IN RECEIVING AREAS.
22. IF WATER CLARITY DOES NOT REDUCE TO STATE STANDARDS RAPIDLY ENOUGH IN HOLDING PONDS, IT MAY BE POSSIBLE TO USE CHEMICAL AGENTS SUCH AS ALUM TO FLOCCULATE OR COAGULATE THE SEDIMENT PARTICLES.
23. HAY BALES, SILT SCREENS, OR GRAVEL BEDS CAN BE ADDED AROUND THE PIPE OR SWALE DISCHARGE POINTS TO HELP CLARIFY DISCHARGES. SPREADER SWALES MAY HELP DISSIPATE CLOUDY WATER PRIOR TO CONTACT WITH WETLANDS.
24. ALL FUEL STORAGE AREAS OR OTHER HAZARDOUS STORAGE AREAS SHALL CONFORM TO ACCEPTED STATE OR FEDERAL CRITERIA FOR SUCH CONTAINMENT AREAS.
25. VEHICLE OR EQUIPMENT WASHDOWN AREAS WILL BE SUFFICIENTLY REMOVED FROM WETLANDS OR OFFSITE AREAS.
26. FUGITIVE DUST CONTROLS (PRIMARILY BY USING WATER SPRAY TRUCKS) SHALL BE EMPLOYED AS NEEDED TO CONTROL WINDBORN EMISSIONS.
27. IF THE ABOVE CONTROLS REMAIN INEFFECTIVE IN PRECLUDING RELEASE OF TURBID WATER, ESPECIALLY DURING POND OR UTILITY LINE DEWATERING, THEN THE CONTRACTOR MAY BE COMPELLED TO USE A VERTICAL DEWATERING SYSTEM SUCH AS WELL POINTS OR SOCK DRAINS TO WITHDRAW GROUNDWATER WHICH MAY ALREADY BE CLEAR ENOUGH TO ALLOW FOR DIRECT DISCHARGE TO WETLANDS.
28. ONGOING INSPECTIONS AND PERIODIC MAINTENANCE BY THE SITE SUBCONTRACTOR SHALL OCCUR THROUGHOUT CONSTRUCTION AS NECESSARY TO INSURE THE ABOVE METHODS ARE WORKING SUITABLY. THIS MAY BE NEEDED DAILY, IF CONDITIONS SO WARRANT. SITE SUBCONTRACTORS ARE ENCOURAGED TO OBTAIN AND THOROUGHLY REVIEW THE FLORIDA DEVELOPMENT MANUAL: A GUIDE TO SOUND LAND AND WATER MANAGEMENT, WHICH WAS DEVELOPED BY THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION IN 1988. THIS PROVIDES FAIRLY IN-DEPTH DISCUSSIONS OF RECOMMENDED TECHNIQUES AND ALSO PROVIDES SPECIFIC DESIGN AND TECHNICAL STANDARDS. A COPY OF THIS DOCUMENT IS AVAILABLE FOR REVIEW AT HEIDT DESIGN, LLC.
29. THE CONTRACTOR WILL PERFORM DAILY INSPECTIONS OF ALL ON-SITE WETLANDS WITHIN THE CONSTRUCTION AREA TO ENSURE THAT WATER LEVELS WITHIN THOSE WETLANDS ARE NOT EXCESSIVELY IMPOUNDED PRIOR TO THE TIME WHEN THE PERMITTED CONTROL STRUCTURE OR OUTFALL IS BUILT. WATER LEVELS SIGNIFICANTLY ABOVE NORMAL SHOULD BE CORRECTED AT A FREQUENCY THAT PREVENTS A CHANGE IN THE VEGETATIVE CHARACTER OR HEALTH OF ANY WETLANDS.
30. PRIOR TO COMMENCEMENT OF CLEARING & GRUBBING OR ANY SOIL DISTURBANCE, CONTRACTOR SHALL COORDINATE WITH HEIDT DESIGN TO SCHEDULE A PRE-CONSTRUCTION SOIL EROSION AND SEDIMENT CONTROL INSPECTION WITH THE LAKE COUNTY PUBLIC WORKS DEPARTMENT.
31. THE REQUIREMENTS LISTED ABOVE SHALL BE CONSIDERED MINIMUM REQUIREMENTS AND THE CONTRACTOR SHALL USE WHATEVER METHODS HE DEEMS NECESSARY TO PREVENT TURBIDITY AND SILTATION AS MAY BE REQUIRED FOR THE PROJECT.

OWNER'S INSTRUCTIONS FOR MAINTENANCE AND INSPECTION OF STORMWATER FILTER FACILITIES

IT IS THE OWNER'S RESPONSIBILITY TO INSPECT AND MAINTAIN THE WATER DRAINAGE SYSTEMS ON A ROUTINE BASIS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. INSPECTIONS CAN BE ON AN ANNUAL OR SEMI-ANNUAL BASIS, BUT SHOULD ALWAYS BE CONDUCTED FOLLOWING MAJOR STORMS. SYSTEMS THAT INCORPORATE INFILTRATION ARE MOST CRITICAL SINCE POOR MAINTENANCE PRACTICES CAN SOON RENDER THEM INEFFICIENT. VISUAL INSPECTIONS OF SAND FILTERS, CONTROL STRUCTURES, AND OUTFALL PIPES ARE HIGHLY RECOMMENDED. IT SHOULD BE STRESSED THAT GOOD RECORDS SHOULD BE KEPT ON ALL MAINTENANCE OPERATIONS TO HELP PLAN FUTURE WORK AND IDENTIFY FACILITIES REQUIRING ATTENTION.

SAND FILTER SURFACES ARE SOMETIMES SCARIFIED OR BREAK UP SILT DEPOSITS AND RESTORE POROSITY. THIS SHOULD BE ACCOMPLISHED AFTER ALL SEDIMENT HAS BEEN REMOVED FROM THE SURFACE. AFTER REMOVING LARGE DEBRIS (CUPS, PAPER, WOOD, ETC.) IT IS RECOMMENDED THAT RAKING THE TOP 3" WILL PROPERLY SCARIFY THE SURFACE OR IT MAY BE REQUIRED TO REPLACE THE SAND. ANOTHER TECHNIQUE REQUIRES REMOVING THE SAND FOR WASHING.

THE FILTER SYSTEM IS DESIGNED TO HAVE A WET-DRY CYCLE TO INHIBIT ALGAE OR BACTERIAL GROWTH. CLEANOUT FREQUENCY OF FILTER BEDS WILL DEPEND ON WHETHER THEY ARE VEGETATED OR NON-VEGETATED AND WILL BE A FUNCTION OF THEIR STORAGE CAPACITY, INFILTRATION CHARACTERISTICS, VOLUME OF INFLOW, AND SEDIMENT LOAD. FILTER BEDS SHOULD BE INSPECTED CLOSELY AT LEAST ONCE A YEAR.

PERFORATED UNDERDRAIN PIPES ARE LOCATED 2' BELOW THE SAND AND CLEANOUTS ARE LOCATED AT THE END OF THE SYSTEM. IN THE EVEN OF SEDIMENT BUILD-UP IN THE UNDERDRAIN PIPE, CLEANING CAN BE ACCOMPLISHED THROUGHT THE CLEANOUT WITH SEVERAL OF THE TECHNIQUES OUTLINED BELOW.

METHODS AND EQUIPMENT FOR CLEANOUT OF SYSTEMS VARIOUS TYPES OF EQUIPMENT ARE AVAILABLE COMMERCIALLY FOR MAINTENANCE OF DRAINAGE SYSTEMS. THE MOST FREQUENTLY USED EQUIPMENT AND TECHNIQUES ARE LISTED BELOW.

1. VACUUM PUMP:
   THIS DEVICE IS NORMALLY USED TO REMOVE SEDIMENT FROM SUMPS AND PIPES. THE EQUIPMENT FOR THIS SYSTEM IS GENERALLY MOUNTED ON A VEHICLE. IT REQUIRES A 200 - 300 GALLON (0.757 - 1.36M) HOLDING TANK AND A VACUUM PUMP THAT HAS A 10" (254MM) DIAMETER FLEXIBLE HOSE WITH A SERRATED METAL END FOR BREAKING UP CAKE SEDIMENT. A TWO-MAN CREW CAN CLEAN A CATCH BASIN IN 5 TO 10 MINUTES. THIS SYSTEM CAN REMOVE STONES, BRICKS, LEAVES, LITTER AND SEDIMENT DEPOSITS. NORMAL WORKING DEPTH IS 0' - 20' (0 TO 6M).
2. WATER JET SPRAY:
   THIS EQUIPMENT IS GENERALLY MOUNTED ON A SELF-CONTAINED VEHICLE WITH A HIGH PRESSURE PUMP AND A 200 - 300 GALLONS (0.760 TO 1.140M) WATER SUPPLY. A 3" (76MM) FLEXIBLE HOSE LINE WITH A METAL NOZZLE THAT DIRECTS JETS OF WATER AT A REVERSE ANGLE, WHICH PROPELS THE NOZZLE FORWARD WHILE BLASTING DEBRIS BACKWARDS TOWARD THE CATCH BASIN. AS THE HOSE LINE IS REELED IN, THE JETTING ACTION FORCES ALL DEBRIS TO THE CATCH BASIN WHERE IT IS REMOVED BY THE VACUUM PUMP EQUIPMENT. NORMAL LENGTH OF HOSE IS APPROXIMATELY 200' (61M). BECAUSE OF THE ENERGY SUPPLIED BY THE WATER JET, IT SHOULD NOT BE USED TO CLEAN ERODIBLE TRENCH WALLS.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

CONSTRUCTION SURFACE WATER MANAGEMENT PLAN NOTES

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	CSWMP
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

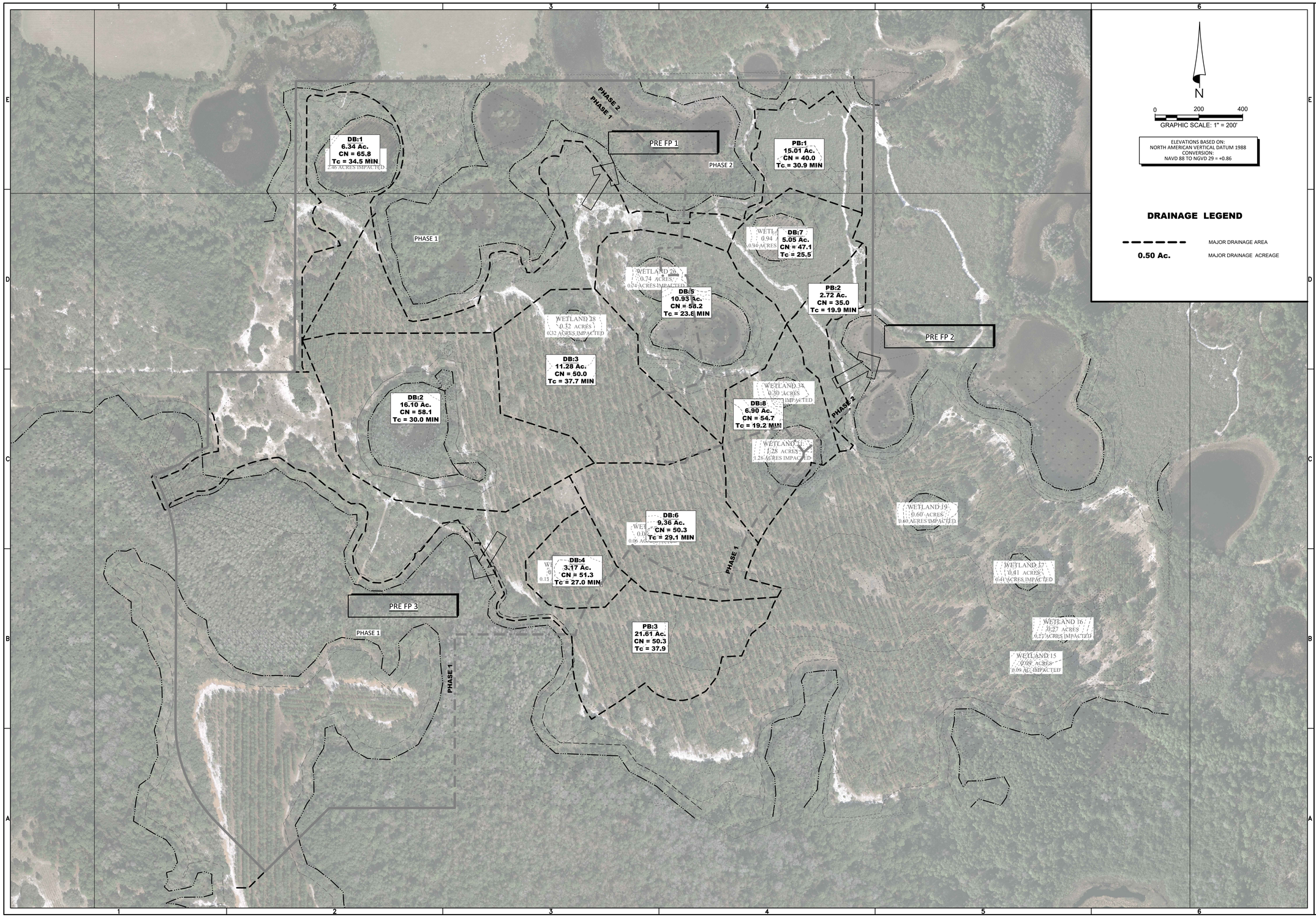
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-901

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\CSWMP.DWG-C-901 2017/12/01 10:35 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



N

0 200 400

GRAPHIC SCALE: 1" = 200'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

DRAINAGE LEGEND

- – – – – – MAJOR DRAINAGE AREA
- **0.50 Ac.** MAJOR DRAINAGE ACREAGE

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

PRE-DEVELOPMENT DRAINAGE AREA MAP

PREPARED FOR: VK AVALON GROVES, LLC

NO	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	DA-PRE
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

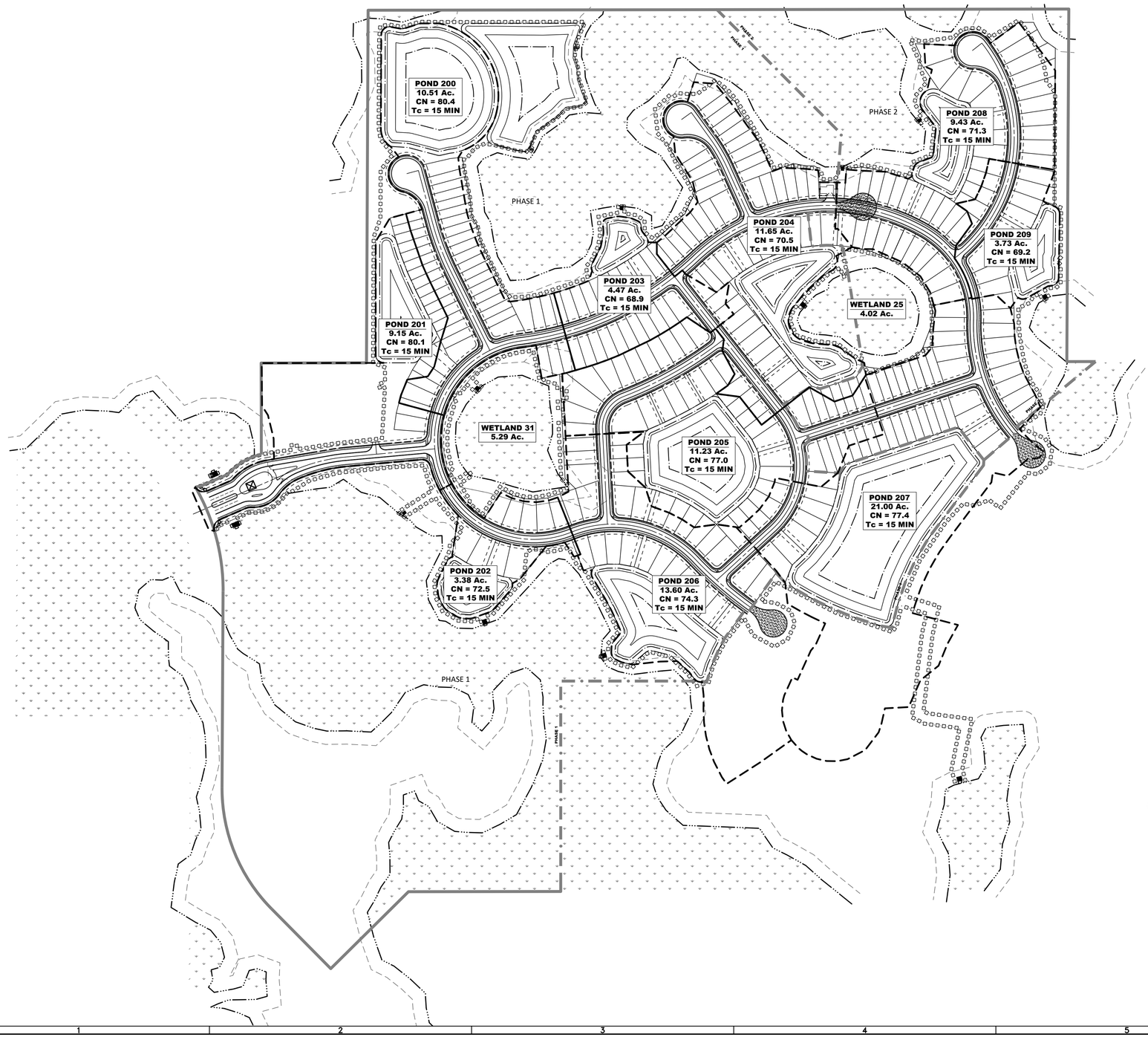
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-902

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION AS COMPLIANCE WITH F.S. CHAPTER 119.

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING\ - SURVMOD\DA-PRE.DWG C-902 2017/12/01 10:35 AM ERIC FRANCIS

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



N

0 200 400

GRAPHIC SCALE: 1" = 200'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

DRAINAGE LEGEND

MAJOR DRAINAGE AREA

0.50 Ac. MAJOR DRAINAGE ACREAGE

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405

5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629

www.HeidtDesign.com

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - S.R\RVMD\DA-POST.DWG-C-903 2017/12/01 10:36 AM ERIC FRANCIS

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

OVERALL POST-DEVELOPMENT DRAINAGE AREA MAP

PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	DA-POST
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

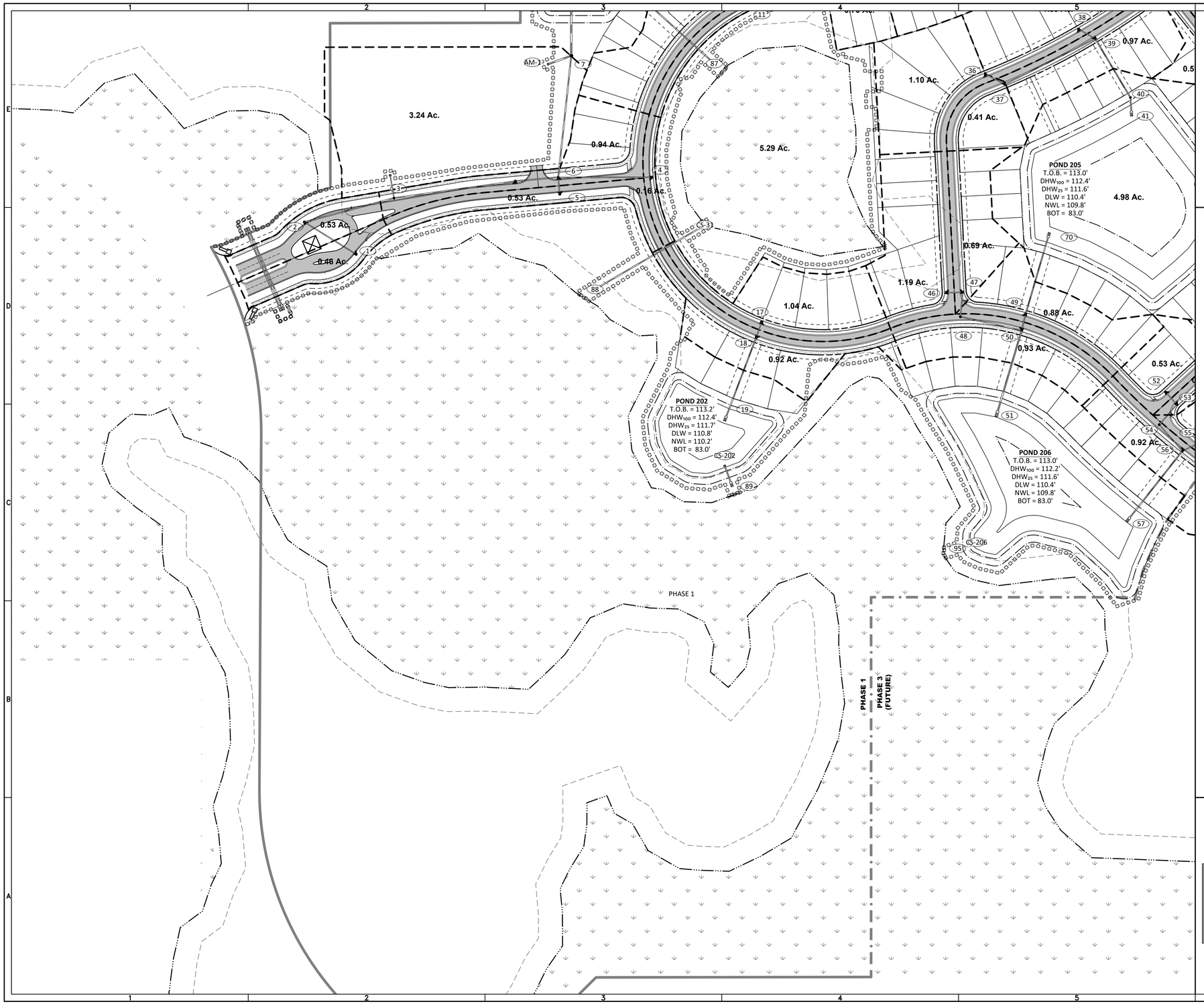
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-903

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



N

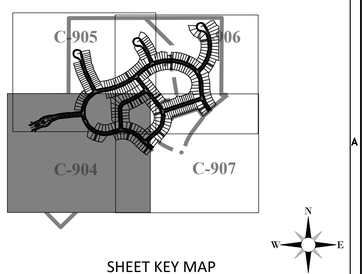
0 ### ###

GRAPHIC SCALE: 1" = ###'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

DRAINAGE LEGEND

— — —	CATCH BASIN LIMITS
0.50 Ac.	CATCH BASIN ACERAGE
(1)	STORM STRUCTURE NUMBER



SHEET KEY MAP

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

DRAINAGE SUB-BASIN AREA MAP

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION

1	06/27/2017	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PROJECT NO:	KLP-AP-1039
FILE:	DA-SUB
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-904

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - S.JR\WMD\DA-SUB.DWG-C-904 2017\12\01 10:36 AM ERIC FRANCIS

© COPYRIGHT 2017 , HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

N

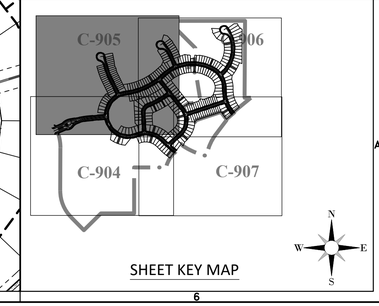
0 ### ###

GRAPHIC SCALE: 1" = ###'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

DRAINAGE LEGEND

- - - - -	CATCH BASIN LIMITS
0.50 Ac.	CATCH BASIN ACERAGE
(1)	STORM STRUCTURE NUMBER



SHEET KEY MAP

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

DRAINAGE SUB-BASIN AREA MAP

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION
1 06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	DA-SUB
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-905

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\DA-SUB.DWG-C-905 2017/12/01 10:36 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

PHASE 2
PHASE 1
PHASE 2

1.23 Ac.
1.63 Ac.
0.66 Ac.
1.58 Ac.
1.18 Ac.
1.00 Ac.
1.54 Ac.
1.06 Ac.
0.67 Ac.
1.09 Ac.
0.61 Ac.
1.08 Ac.
0.75 Ac.
0.83 Ac.
0.49 Ac.
0.45 Ac.
8.06 Ac.
1.80 Ac.
0.84 Ac.
1.30 Ac.
1.93 Ac.
0.83 Ac.
0.97 Ac.
0.57 Ac.
1.10 Ac.
0.88 Ac.
0.73 Ac.
0.93 Ac.
1.08 Ac.
0.41 Ac.
0.51 Ac.
4.98 Ac.
1.03 Ac.
0.69 Ac.
0.55 Ac.
0.68 Ac.
0.88 Ac.

CS-208
POND 208
T.O.B. = 111.4'
DHW_{100} = 111.3'
DHW_{25} = 110.5'
DLW = 109.3'
NWL = 108.2'
BOT = 95.2'

CS-208
POND 203
T.O.B. = 112.4'
DHW_{100} = 112.1'
DHW_{25} = 111.4'
DLW = 110.7'
NWL = 109.2'
BOT = 94.2'

POND 204
T.O.B. = 112.4'
DHW_{100} = 111.4'
DHW_{25} = 110.8'
DLW = 110.1'
NWL = 109.2'
BOT = 96.0'
CS-204
CS-25

POND 209
T.O.B. = 111.7'
DHW_{100} = 111.2'
DHW_{25} = 110.3'
DLW = 109.2'
NWL = 108.5'
BOT = 90.0'
CS-209

POND 205
T.O.B. = 113.0'
DHW_{100} = 112.4'
DHW_{25} = 111.6'
DLW = 110.4'
NWL = 109.8'
BOT = 83.0'

POND 207
T.O.B. = 111.7'
DHW_{100} = 111.3'
DHW_{25} = 110.6'
DLW = 109.0'
NWL = 108.5'
BOT = 83.0'

PHASE 2

N
0 ### ###
GRAPHIC SCALE: 1" = ###'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

DRAINAGE LEGEND

- CATCH BASIN LIMITS
- 0.50 Ac. — CATCH BASIN ACERAGE
- (1) — STORM STRUCTURE NUMBER

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL
PHASES 1 & 2

DRAINAGE SUB-BASIN AREA MAP

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	DA-SUB
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-905 C-906 C-904 C-907

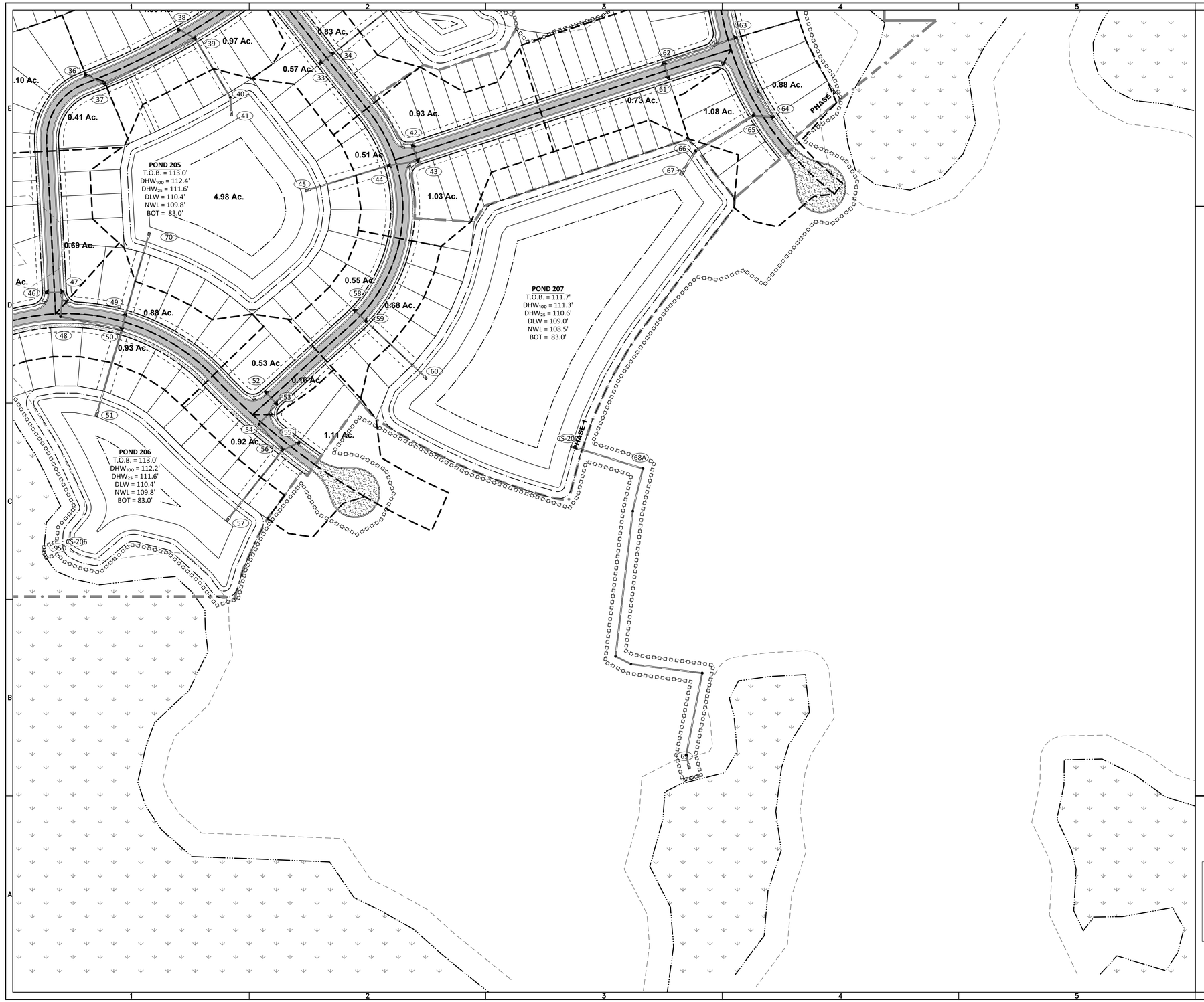
SHEET KEY MAP

C-906

COPYRIGHT 2017, HEIDT DESIGN, LLC, ALL RIGHTS RESERVED. NO DOCUMENTATION MAY BE USED BY ANY LIMITED TO DRAWINGS OR EXHIBITS MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFICALLY WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\DA-SUB DWG\C-906 2017\7\20\17 10:38 AM ERIC FRANCIS

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



N

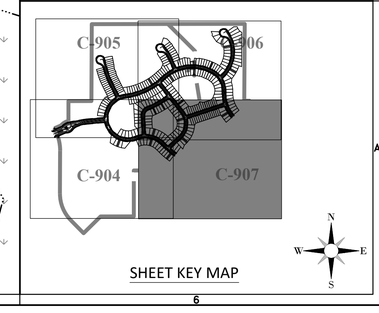
0 ### ###

GRAPHIC SCALE: 1" = ###'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

DRAINAGE LEGEND

- - - - -	CATCH BASIN LIMITS
0.50 Ac.	CATCH BASIN ACERAGE
(1)	STORM STRUCTURE NUMBER



SHEET KEY MAP

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

DRAINAGE SUB-BASIN AREA MAP

PREPARED FOR: VK AVALON GROVES, LLC

DATE	DESCRIPTION

DATE	DESCRIPTION
1 06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	DA-SUB
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

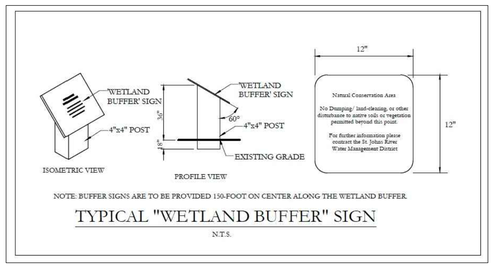
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-907

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\DA-SUB.DWG-C-907 2017/12/01 10:36 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

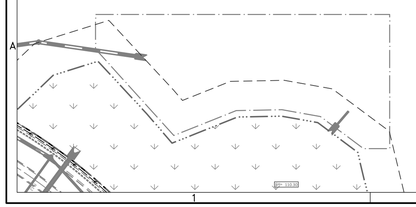
DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



NOTE: BUFFER SIGNS ARE TO BE PROVIDED 150-FOOT ON CENTER ALONG THE WETLAND BUFFER.

TYPICAL "WETLAND BUFFER" SIGN

N.T.S.



N

0 100 200

GRAPHIC SCALE: 1" = 100'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- UPLAND BUFFER
- C.E. — CE SIGN - SEE DETAIL THIS SHEET

NOTE:
Conservation areas shall remain undisturbed and all construction, dumping and disturbance to soils and vegetation including mowing, trimming and removal is prohibited.

HEIDT DESIGN, LLC
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJR\WMD\BUFFER.DWG-C-908 2017/10/01 10:39 AM ERIC FRANCIS

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

UPLAND BUFFER & C.E. SIGN LOCATIONS

PREPARED FOR: VK AVALON GROVES, LLC

NO	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	BUFFER
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

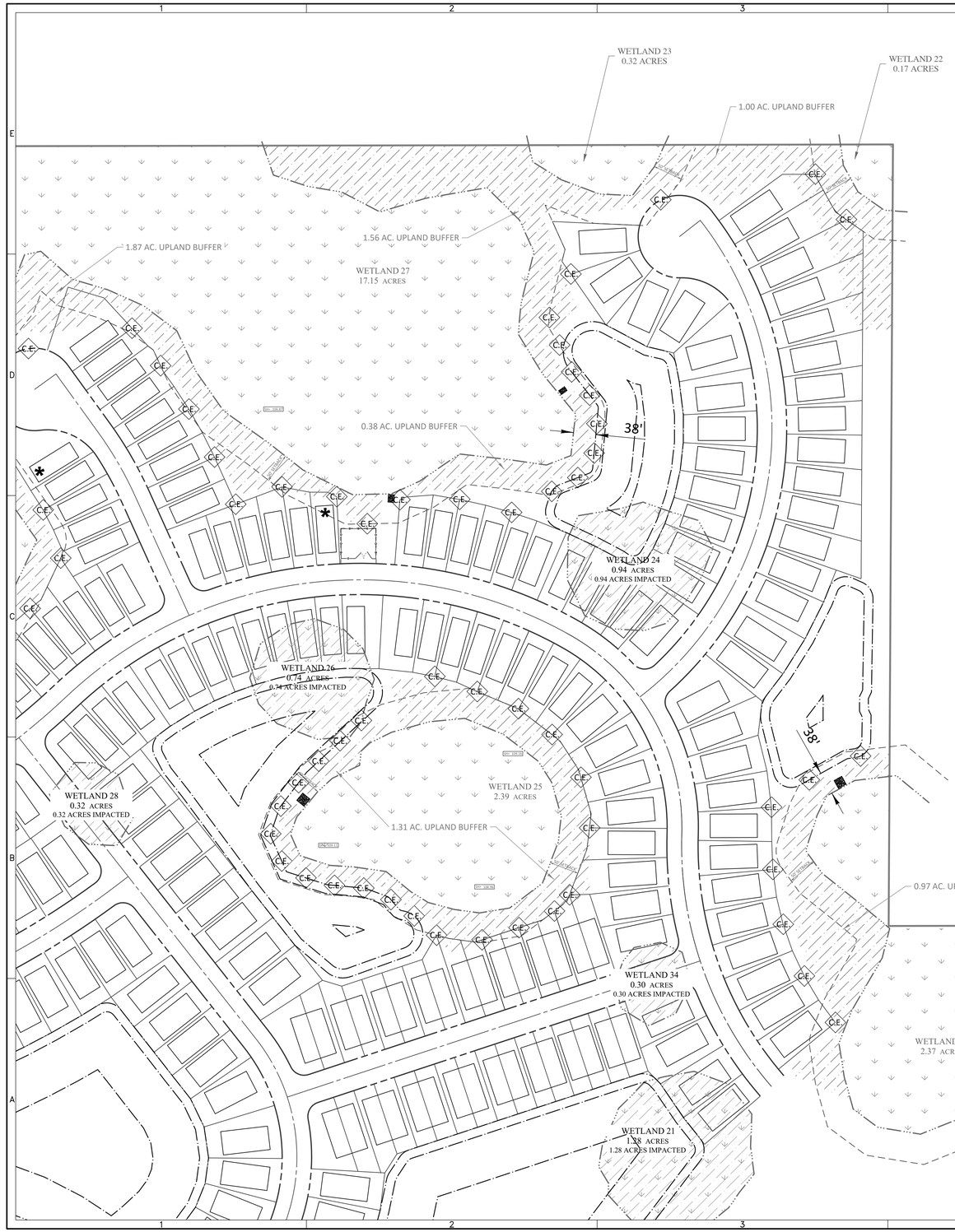
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

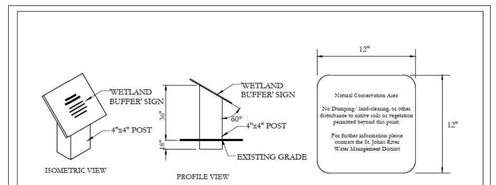
VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-908

COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED

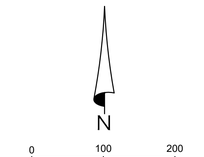




NOTE: BUFFER SIGNS ARE TO BE PROVIDED 150-FOOT ON CENTER ALONG THE WETLAND BUFFER.

TYPICAL "WETLAND BUFFER" SIGN

N.T.S.



ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- UPLAND BUFFER
- C.E. — CE SIGN - SEE DETAIL THIS SHEET

NOTE:
Conservation areas shall remain undisturbed and all construction, dumping and disturbance to soils and vegetation including mowing, trimming and removal is prohibited.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\BUFFER.DWG-C-909 2017/10/01 10:39 AM ERIC FRANCIS

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2

UPLAND BUFFER & C.E. SIGN LOCATIONS

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	BUFFER
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

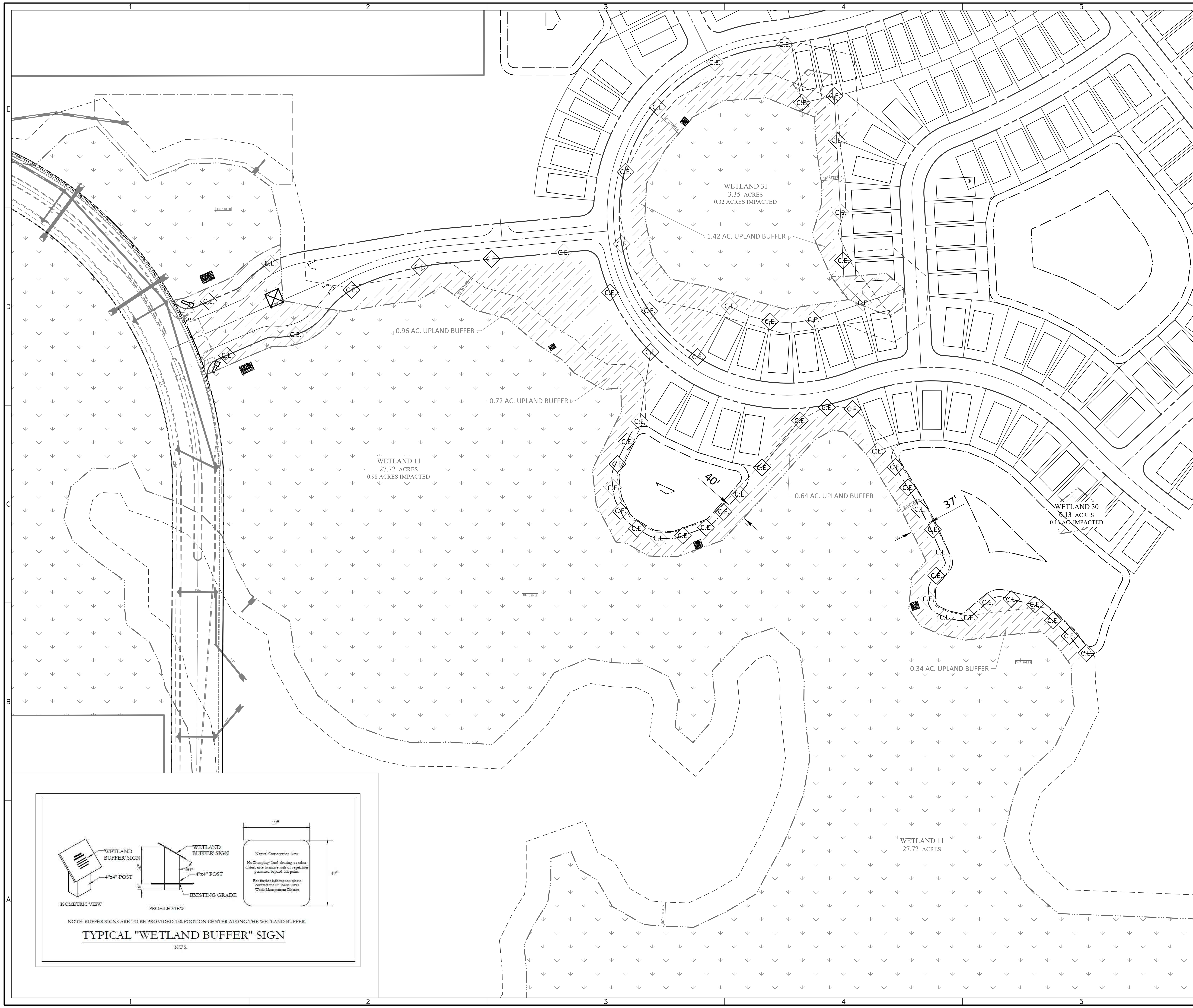
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE: ____
REGISTRATION NO. 58548

C-909

COPYRIGHT 2017 HEIDT DESIGN, LLC, ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.

DocuSign Envelope ID: 5B5A3ECF-AD45-4766-B137-3C39FCCD34ED



N

GRAPHIC SCALE: 1" = 100' (0, 100, 200)

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

GENERAL LEGEND

- PROPERTY LINE
- PHASE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL
- UPLAND BUFFER
- C.E. — CE SIGN - SEE DETAIL THIS SHEET

NOTE:
Conservation areas shall remain undisturbed and all construction, dumping and disturbance to soils and vegetation including mowing, trimming and removal is prohibited.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOA ACTIVE ADULT PARCEL PHASES 1 & 2
UPLAND BUFFER & C.E. SIGN LOCATIONS

PREPARED FOR: VK AVALON GROVES, LLC

	DATE	DESCRIPTION
1	06/27/2017	REVIEW SUBMITTAL

PROJECT NO:	KLP-AP-1039
FILE:	BUFFER
DESIGN BY:	FRANCIS
DRAWN BY:	WIGGINS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE:
REGISTRATION NO. 58548

C-910

R:\AVALON GROVES\ACTIVE ADULT PARCEL - PH 1\ENGINEERING - SJRWMD\BUFFER.DWG-C-910 2017/12/01 10:36 AM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.