Development Review Committee

July 10, 2025 at 2:00 PM
Howey-in the-Hills Town Hall
101 N. Palm Ave.,
Howey-in-the-Hills, FL 34737

Join Zoom Meeting: https://us06web.zoom.us/j/82883378124?pwd=JemE609cS1Ta6bmn74CS4mqTeol87K.1
Meeting ID: 828 8337 8124 | **Passcode:** 333792

AGENDA

CALL TO ORDER
ATTENDANCE

NEW BUSINESS

1. Discussion: **Lake Hills Final Subdivision Plan - Phase 1**

PUBLIC COMMENTS
Any person wishing to address the Development Review Committee and who is not on the agenda is asked to speak their name and address. Three (3) minutes is allocated per speaker. The general Public Question & Comment period will be limited to a maximum of thirty (30) minutes unless extended by the Presiding Officer.

ADJOURNMENT

To Comply with Title II of the Americans with Disabilities Act (ADA):

Qualified individuals may get assistance through the Florida Relay Service by dialing 7-1-1. Florida Relay is a service provided to residents in the State of Florida who are Deaf, Hard of Hearing, Deaf/Blind, or Speech Disabled that connects them to standard (voice) telephone users. They utilize a wide array of technologies, such as Text Telephone (TTYs) and ASCII, Voice Carry-Over (VCO), Speech to Speech (STS), Relay Conference Captioning (RCC), CapTel, Voice, Hearing Carry-Over (HCO), Video Assisted Speech to Speech (VA-STS) and Enhanced Speech to Speech.

Howey Town Hall is inviting you to a scheduled Zoom meeting.
Topic: **Development Review Committee**
Time: **Jul 10, 2025 02:00 PM Eastern Time** (US and Canada)
Join Zoom Meeting
https://us06web.zoom.us/j/82883378124?pwd=JemE609cS1Ta6bmn74CS4mqTeol87K.1
Meeting ID: 828 8337 8124
Passcode: 333792
Dial by your location
+1 646 558 8656 US (New York)

+1 346 248 7799 US (Houston)
Meeting ID: 828 8337 8124
Passcode: 333792
Find your local number: https://us06web.zoom.us/u/kdivJP32UY

Please Note: In accordance with F.S. 286.0105: Any person who desires to appeal any decision or recommendation at this meeting will need a record of the proceedings, and that for such purposes may need to ensure that a verbatim record of the proceedings is made, which includes the testimony and evidence upon which the appeal is based. The Town of Howey-in-the-Hills does not prepare or provide this verbatim record. Note: In accordance with the F.S. 286.26: Persons with disabilities needing assistance to participate in any of these proceedings should contact Town Hall, 101 N. Palm Avenue, Howey-in-the-Hills, FL 34737, (352) 324-2290 at least 48 business hours in advance of the meeting.

ZONING MEMORANDUM

July 3, 2025
Prepared for
Town of Howey-in-the-Hills
Attn: Sean O'Keefe, Town Manager

Lake Hills- Phase 1 Final Subdivision Plans Review

Applicant: Reader and Partners

Planning staff reviewed the proposed Lake Hills- Phase 1 Final Subdivision Plans. The following revisions and information will be needed before the plans can be scheduled for consideration by the Planning and Zoning Board and Town Council. Please provide a response to each item and revise the Plan Set accordingly.

Please provide the following information on the plans consistent with Land Development Code (LDC) Sec. 4.05.21 Final Subdivision Plan Drawings:

1. All lots shall show all dimensions and the building envelope.

2. The plans should show property lines with dimensions.

3. All setbacks from streets and highways shall be illustrated.

4. All setbacks on irregular shaped lots shall be illustrated.

5. The tree survey submitted at the Preliminary Subdivision Plan phase should again be overlaid on the Final Subdivision Plans to show trees in relation to proposed improvements. The plans should also include a table indicating which trees are proposed to be saved and which are proposed to be removed.

Additionally, please provide an update on the requirement from the Town Council April 14, 2025 approval of the mass grading permit, which requires the applicant to redesign the intersections of the Main Boulevard at both SR 19 and CR 48 to reflect the construction of traffic circles and, coordinate with the other property owners in the Lake Hills project (i.e. Publix, Mission Inn, FDOT and other applicants) to effectuate the traffic circle design on all parties' plans.

GRIFFEY ENGINEERING, INC.

July 6, 2025
Lake Hills, Phase 1 – Construction Plans
Engineering Review Comments
Page 1

General Comments

1. Additional comments may be added to these with the reviews of subsequent submittals.

2. Provide a copies of SJRWMD and FDEP Water & Sewer permits before commencing work.

3. When will the community park be developed? A site plan will need to be submitted for it.

4. Optional Gate Plan: Change the intersection of CR 48 and the main boulevard to a roundabout and adjust the gate configuration accordingly.

5. The environmental consultant for the project has stated to the SJRWMD that the roads won't be gated and will be publicly maintained. This was pertaining to an access easement to wetland areas. This seems to be in conflict with the Optional Gate Plan

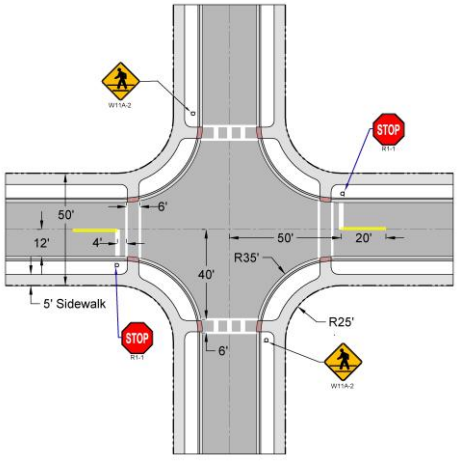
6. Retaining walls need to include safety railings, and will require structural permitting.

Roads

7. Remove soil cement as a road base option.

8. Remove the City of Leesburg reference in the pavement specifications

9. Lake Hills PUD is to be designed as a Complete Streets, pedestrian friendly community. The intersections of the residential streets need to provide full pedestrian accommodation. Pedestrians need to have clearly designated means (crosswalks & signage) to safely traverse an intersection from any corner to any other corner or side. Intersection design needs to meet that intent and comply as much as possible with the town's road detail R1A. Curb ramps need to be perpendicular to the road and not placed at the center of the corner radius. The distance from the intersection of the nonstop crosswalks can vary to align with lot lines and not conflict with driveways.



10. Identify on the plans the locations where sidewalks are to be constructed with the subdivision construction. Add a note that all curb ramps are to be constructed with the subdivision.

11. Will there be a future extension of the road at Sta 350+00, to the community recreation park? If the road needs Type 6 inlets, then the end of road construction needs to go to the far end of the inlet.

12. Install barricades (Detail R-21) at the ends of all stubbed-out streets.

13. Install a 12" header (ribbon) curb across the ends of all stubbed-out streets (both temporary & permanent).

Potable & Irrigation Water

14. Water mains and irrigation mains should be placed between the back of curb and edge of sidewalk. Valves should be located in grassed areas whenever possible.

15. Add a conspicuous note to the utility plans that valves are not to be placed in curb lines or in curb ramps. Adjust the depiction of the valves on the plans to show them outside of curbs and curb ramps.

16. Per the LDC, minimum water main sizes are 6".

17. Provide plans & details of the irrigation water supply system.

Wastewater

18. The sewer service to Lot 1 is too long, move SS040 to Sta 390+75. The sewer service to Lot 102 is too long, move SS014 to Sta 360+50. The sewer service to Lot 119 is too long, move SS024 to Sta 350+25. . The sewer service to Lots 155 & 156 is too long, move SS045 to Sta 300+75.

19. The town standard is for sanitary sewers to be at the road centerline. Move manholes SS031, SS029, SS061 to the center of the intersection.

TOWN OF HOWEY-IN-THE-HILLS, FLORIDA

GENERAL LAND DEVELOPMENT APPLICATION

101 N. Palm Avenue, Howey-in-the-Hills, Florida 34737
Phone: (352) 324-2290 • Fax: (352) 324-2126

Date Received: Application ID: Received By:

REQUESTED ACTION

- ☐ Comp Plan Amendment
- ☐ PUD
- ☐ Conditional Use
- ☐ Land Development Code Text
- ☐ Variance
- ☐ Rezoning
- ☐ Subdivision Minor
- ☐ Other
- ☐ Site Plan (check one below)
  - ☐ Preliminary
  - ☐ Final
- ☑ Subdivision (check one below)
  - ☐ Preliminary Subdivision
  - ☑ Final Subdivision
  - ☐ Final Plat

Describe Request: 213 lot single family residential development

APPLICANT INFORMATION:

Name: TOLL SOUTHEAST LP COMPANY, INC MARK MCINTOSH-VP Land Development
E-Mail: smcdonald1@tollbrothers.com
Address: 2966 Commerce Park Dr. Orlando, Fla 32819
Phone: 407-345-6000 Fax: _____

☐ Owner ✓ Agent for Owner Contract Purchaser ☐ Attorney for Owner

OWNER INFORMATION:

Name: Dean Barberree, President HR Lake Hills, LLC
E-Mail: Dean@readercommunities.com
Address: 5850 TG Lee Blvd., Suite 200 Orlando, FL 32822
Phone: 407-856-4899
Fax: _____

PROPERTY INFORMATION:

Address: northwest corner of intersection of C.R. 48 and S.R. 19

General Location: northwest corner of intersection of C.R. 48 and S.R. 19

Current Zoning: PUD Current Land Use: Vacant

Parcel Size: 91.21 Ac. Tax Parcel #: 23-20-25-0004-000-01000 & 23-20-25-0004-000-00200

Legal Description Attached ☑ Yes ☐ No Survey Attached ☑ Yes ☐ No

Pre-Application Meeting Date: _____
(Attach Pre-Application Form)

Application Fee: $3,000.00 ($1,000 fee plus $2,000 deposit)

Applicant's Signature: X _____ 4/28/25
(Signature) *(Date)*
MARK MCINTOSH-VP Land Development
TOLL SOUTHEAST LP COMPANY, INC
(Print)

Owner's Signature: X _____ 4/23/2025
(Provide letter of Authorization)
(Signature) *(Date)*
HR Lake Hills, LLC
a Delaware limited liability company
By: RP Investors Lake Hills, LLC,
a Florida limited liability company, Its Sole Managing Member
By: Reader & Partners, LLC,
(Print) a Florida limited liability company, Its Sole Manager

Applications must be complete to initiate the review process.

Lake Hills Phase 1

Water Main Report

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS

Prepared by:

Madden, Moorhead and Stokes, LLC.
431 East Horatio Avenue, Suite 260
Maitland, FL 32751
(407) 629-8330

Issued: June 2025

DAVID ASHLEY STOKES LICENSE No. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by David Ashley Stokes, P.E. using a digital signature and date. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Digitally signed by David A Stokes
Date: 2025.06.06 11:51:32 -04'00'

David A. Stokes, P.E. #66527
Certificate of Authorization No. CA-0007723

Documents included herein which have been prepared by professionals other than Madden, Moorhead, and Stokes, Inc. are not covered under the above registered engineer's signature and seal

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Phase 1 Introduction
Water Main Analysis

APPENDIX

A Potable Water Demand and Needed Fire Flow Demand Summaries
B Water Main Schematic
C Needed Fire Flow plus Max Day Flow WaterCAD Hydraulic Analysis
D Peak Hour Flow WaterCAD Hydraulic Analysis
E HGL Calculations

PHASE 1 INTRODUCTION

The proposed development is the first residential phase of the Lake Hills PUD. The previously permitted Mass Infrastructure/Mass Grading included the analysis for a fully developed +/-560 senior living homes. The first phase proposes 213 single family lots. The calculations provided herein are consistent with the overall design approved by the Town of Howey-in-the-Hills. The average daily flow of the total development is calculated with an ERU = 300 GPD. The total units proposed in the PUD are 563 units x 300 GPD = 168,900 GPD, Phase 1 proposes 213 units x 300 GPD = 63,900 GPD. The remaining capacity is 105,000 GPD.

WATER MAIN ANALYSIS

The water main has been modeled under two conditions: (1) needed fire flow (NFF) per NFPA of 1,000 gpm plus max day flow, and (2) peak hour flow. The model analyses presented in Appendices C and D demonstrate minimum system pressures greater than 20 psi for the needed fire flow plus max day condition.

Appendix A

Potable Water Demand and Needed Fire Flow Demand Summaries

Lake Hills Phase 1

POTABLE WATER DEMANDS

TYPE	DEMAND PER UNIT (GPD)	# OF UNITS	DEMAND TOTAL (GPD)
Lake Hills	300.00	213	63900
			0
			0
		213	63900

FLOW SUMMARY

AVG DAILY	63900	GPD	44.38 GPM
MAX DAY (x2)	127800	GPD	88.75 GPM
PEAK HOUR (x4)	255600	GPD	177.50 GPM

Lake Hills

NEEDED FIRE FLOW DEMANDS

Needed Fire Flow = 1,000 GPM

Needed fire flow for single family dwellings shall be as follows: homes 5,000SF or less shall provide 1,000 GPM for 1 hour, homes exceeding 5,000 SF shall provide fire flow in accordance with Table 18.4.5.1.2 of NFPQ 1 (FFPC 2012).

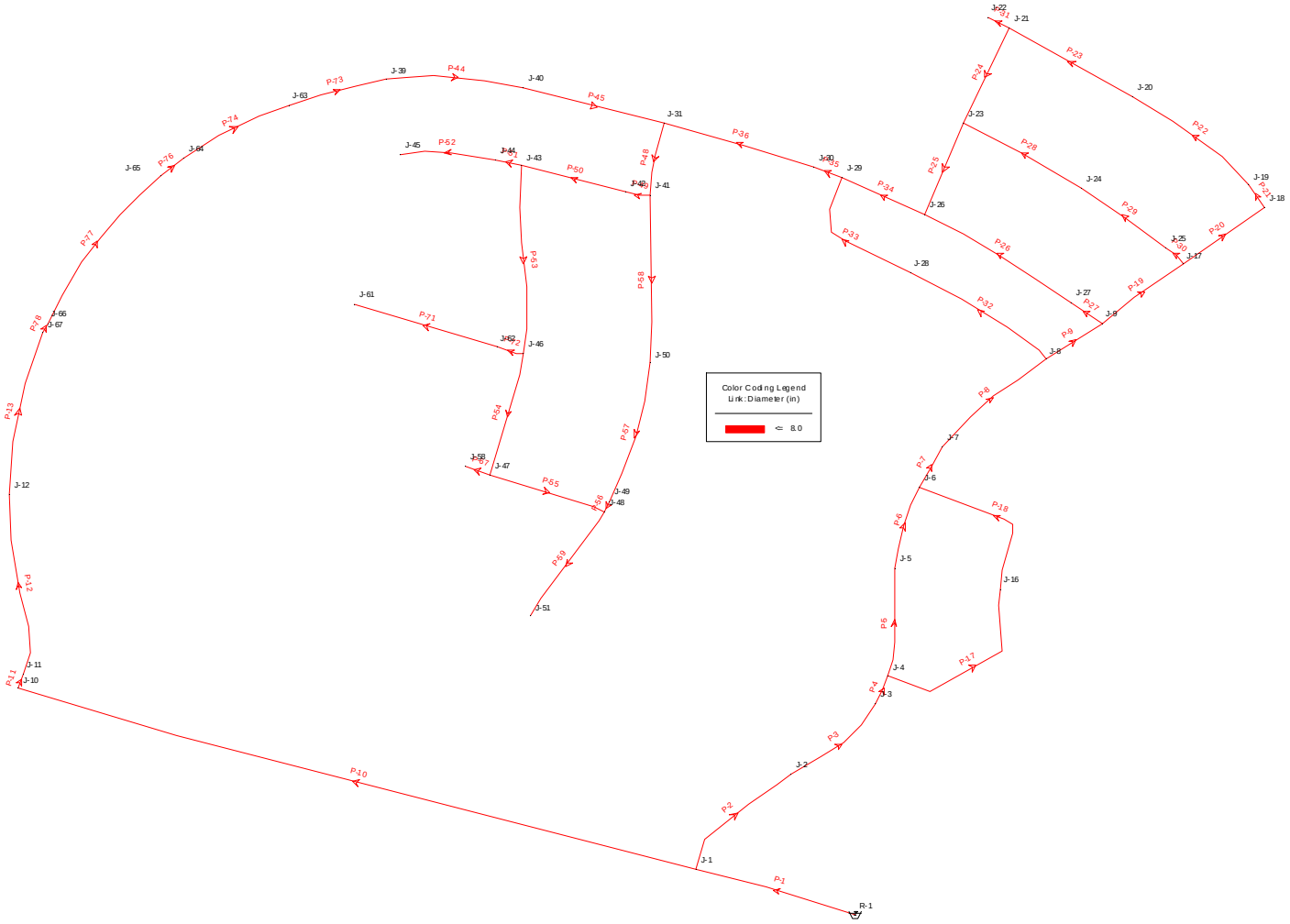
Needed Fire Flow per NFPA = 1,000 GPM
Max Day Demand = 88.75 GPM

TOTAL NFF + MAX DAY DEMAND = 1,088.75 GPM

Appendix B

Water Main Schematic

Scenario: NFF



Appendix C

Needed Fire Flow plus Max Day Flow WaterCAD Hydraulic Analysis

Scenario: NFF
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Elevation (ft)	Type	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Description
J-1	1.81	100.31	Demand	1.81	218.86	51.29	
J-2	1.81	97.68	Demand	1.81	215.04	50.78	
J-3	1.81	95.14	Demand	1.81	211.92	50.52	
J-4	1.81	94.23	Demand	1.81	210.68	50.38	
J-5	1.81	91.92	Demand	1.81	209.63	50.93	
J-6	1.81	89.32	Demand	1.81	208.78	51.68	
J-7	1.81	88.68	Demand	1.81	207.21	51.28	
J-8	1.81	86.57	Demand	1.81	203.62	50.64	
J-9	1.81	87.33	Demand	1.81	203.00	50.05	
J-10	1.81	92.19	Demand	1.81	210.83	51.33	
J-11	1.81	90.36	Demand	1.81	210.42	51.95	
J-12	1.81	84.60	Demand	1.81	208.18	53.47	
J-16	1.81	91.00	Demand	1.81	209.67	51.34	
J-17	1.81	81.27	Demand	1.81	202.80	52.58	
J-18	1.81	74.79	Demand	1.81	202.76	55.37	
J-19	1.81	74.65	Demand	1.81	202.75	55.42	
J-20	1.81	74.77	Demand	1.81	202.70	55.35	
J-21	1.81	72.72	Demand	1.81	202.65	56.22	
J-22	1.81	72.18	Demand	1.81	202.65	56.45	
J-23	1.81	76.45	Demand	1.81	202.62	54.59	
J-24	1.81	78.41	Demand	1.81	202.71	53.78	
J-25	1.81	78.61	Demand	1.81	202.78	53.72	
J-26	1.81	82.67	Demand	1.81	202.46	51.83	
J-27	1.81	85.73	Demand	1.81	202.88	50.68	
J-28	1.81	82.90	Demand	1.81	202.64	51.80	
J-29	1.81	79.15	Demand	1.81	201.76	53.05	
J-30	1.81	78.86	Demand	1.81	200.67	52.70	
J-31	1.81	76.16	Demand	1.81	196.95	52.26	
J-39	1.81	71.82	Demand	1.81	200.30	55.59	
J-40	1.81	73.71	Demand	1.81	198.65	54.06	
J-41	1.81	76.94	Demand	1.81	191.65	49.63	
J-42	1.81	75.83	Demand	1.81	191.12	49.88	
J-43	1.81	74.32	Demand	1.81	189.67	49.91	
J-44	1.81	74.40	Demand	1.81	189.67	49.87	
J-45	1.81	72.97	Demand	1.81	189.67	50.49	
J-46	1.81	77.74	Demand	1.81	187.34	47.42	
J-47	1.81	82.68	Demand	1.81	185.76	44.60	
J-48	1.81	79.68	Demand	1.81	184.24	45.24	
J-49	1.81	78.48	Demand	1.81	184.87	46.03	
J-50	1.81	75.91	Demand	1.81	188.04	48.51	
J-51	1,001.81	82.89	Demand	1,001.81	176.30	40.41	
J-58	1.81	84.67	Demand	1.81	185.76	43.73	
J-61	1.81	75.10	Demand	1.81	187.34	48.56	
J-62	1.81	76.47	Demand	1.81	187.34	47.97	
J-63	1.81	69.30	Demand	1.81	201.58	57.23	
J-64	1.81	71.89	Demand	1.81	203.04	56.74	
J-65	1.81	73.00	Demand	1.81	203.58	56.49	
J-66	1.81	79.80	Demand	1.81	205.81	54.52	
J-67	1.81	80.27	Demand	1.81	206.16	54.47	

Scenario: NFF
Steady State Analysis
Pipe Report

Label	Diameter (in)	Length (ft)	Material	Start Node	Stop Node	Hazen-Williams C	Upstream Calculated Pressure (psi)	Downstream Calculated Pressure (psi)	Minor Loss Coefficient	Pressure Pipe Headloss (ft)	Velocity (ft/s)
P-1	8.0	405.00	PVC	R-1	J-1	120.0	0.00	51.29	2.00	11.54	6.95
P-2	8.0	342.00	PVC	J-1	J-2	120.0	51.29	50.78	2.00	3.81	4.16
P-3	8.0	272.00	PVC	J-2	J-3	120.0	50.78	50.52	2.00	3.13	4.15
P-4	8.0	74.00	PVC	J-3	J-4	120.0	50.52	50.38	2.00	1.23	4.14
P-5	8.0	266.00	PVC	J-4	J-5	120.0	50.38	50.93	2.00	1.06	2.35
P-6	8.0	208.00	PVC	J-5	J-6	120.0	50.93	51.68	2.00	0.85	2.34
P-7	8.0	113.00	PVC	J-6	J-7	120.0	51.68	51.28	2.00	1.57	4.09
P-8	8.0	332.00	PVC	J-7	J-8	120.0	51.28	50.64	2.00	3.58	4.08
P-9	8.0	162.00	PVC	J-8	J-9	120.0	50.64	50.05	2.00	0.62	2.19
P-10	8.0	1,716.00	PVC	J-1	J-10	120.0	51.29	51.33	2.00	8.03	2.78
P-11	8.0	37.00	PVC	J-10	J-11	120.0	51.33	51.95	2.00	0.40	2.77
P-12	8.0	448.00	PVC	J-11	J-12	120.0	51.95	53.47	2.00	2.24	2.76
P-13	8.0	404.00	PVC	J-12	J-67	120.0	53.47	54.47	2.00	2.03	2.74
P-17	8.0	463.00	PVC	J-4	J-16	120.0	50.38	51.34	2.00	1.02	1.78
P-18	8.0	407.00	PVC	J-16	J-6	120.0	51.34	51.68	2.00	0.89	1.76
P-19	8.0	245.00	PVC	J-9	J-17	120.0	50.05	52.58	2.00	0.20	1.01
P-20	8.0	244.00	PVC	J-17	J-18	120.0	52.58	55.37	2.00	0.04	0.42
P-21	8.0	65.00	PVC	J-18	J-19	120.0	55.37	55.42	2.00	0.01	0.41
P-22	8.0	359.00	PVC	J-19	J-20	120.0	55.42	55.35	2.00	0.05	0.40
P-23	8.0	347.00	PVC	J-20	J-21	120.0	55.35	56.22	2.00	0.05	0.39
P-24	8.0	257.00	PVC	J-21	J-23	120.0	56.22	54.59	2.00	0.03	0.36
P-25	8.0	245.00	PVC	J-23	J-26	120.0	54.59	51.83	2.00	0.16	0.90
P-26	8.0	416.00	PVC	J-26	J-27	120.0	51.83	50.68	2.00	0.41	1.16
P-27	8.0	93.00	PVC	J-27	J-9	120.0	50.68	50.05	2.00	0.13	1.17
P-28	8.0	330.00	PVC	J-23	J-24	120.0	54.59	53.78	2.00	0.08	0.55
P-29	8.0	252.00	PVC	J-24	J-25	120.0	53.78	53.72	2.00	0.07	0.56
P-30	8.0	58.00	PVC	J-25	J-17	120.0	53.72	52.58	2.00	0.02	0.57
P-31	8.0	59.00	PVC	J-22	J-21	120.0	56.45	56.22	2.00	0.00	0.01
P-32	8.0	398.00	PVC	J-8	J-28	120.0	50.64	51.80	2.00	0.99	1.88
P-33	8.0	353.00	PVC	J-28	J-29	120.0	51.80	53.05	2.00	0.88	1.87
P-34	8.0	222.00	PVC	J-29	J-26	120.0	53.05	51.83	2.00	0.70	2.05
P-35	8.0	72.00	PVC	J-29	J-30	120.0	53.05	52.70	2.00	1.09	3.90
P-36	8.0	383.00	PVC	J-30	J-31	120.0	52.70	52.26	2.00	3.72	3.89
P-44	8.0	338.00	PVC	J-39	J-40	120.0	55.59	54.06	2.00	1.65	2.67
P-45	8.0	352.00	PVC	J-40	J-31	120.0	54.06	52.26	2.00	1.70	2.66
P-48	8.0	179.00	PVC	J-31	J-41	120.0	52.26	49.63	2.00	5.30	6.54
P-49	8.0	61.00	PVC	J-41	J-42	120.0	49.63	49.88	2.00	0.53	2.82
P-50	8.0	261.00	PVC	J-42	J-43	120.0	49.88	49.91	2.00	1.45	2.81
P-51	8.0	68.00	PVC	J-43	J-44	120.0	49.91	49.87	2.00	0.00	0.02
P-52	8.0	234.00	PVC	J-44	J-45	120.0	49.87	50.49	2.00	0.00	0.01
P-53	8.0	461.00	PVC	J-43	J-46	120.0	49.91	47.42	2.00	2.32	2.77
P-54	8.0	307.00	PVC	J-46	J-47	120.0	47.42	44.60	2.00	1.59	2.74
P-55	8.0	295.00	PVC	J-47	J-48	120.0	44.60	45.24	2.00	1.51	2.71
P-56	8.0	27.00	PVC	J-48	J-49	120.0	45.24	46.03	2.00	0.63	3.69
P-57	8.0	354.00	PVC	J-49	J-50	120.0	46.03	48.51	2.00	3.16	3.70
P-58	8.0	410.00	PVC	J-50	J-41	120.0	48.51	49.63	2.00	3.62	3.71
P-59	8.0	314.00	PVC	J-48	J-51	120.0	45.24	40.41	2.00	7.94	6.39
P-67	8.0	62.00	PVC	J-58	J-47	120.0	43.73	44.60	2.00	0.00	0.01
P-71	8.0	362.00	PVC	J-61	J-62	120.0	48.56	47.97	2.00	0.00	0.01
P-72	8.0	70.00	PVC	J-62	J-46	120.0	47.97	47.42	2.00	0.00	0.02
P-73	8.0	247.00	PVC	J-39	J-63	120.0	55.59	57.23	2.00	1.28	2.69
P-74	8.0	287.00	PVC	J-63	J-64	120.0	57.23	56.74	2.00	1.46	2.70
P-76	8.0	71.00	PVC	J-64	J-65	120.0	56.74	56.49	2.00	0.54	2.71

Scenario: NFF
Steady State Analysis
Pipe Report

Label	Diameter (in)	Length (ft)	Material	Start Node	Stop Node	Hazen-Williams C	Upstream Calculated Pressure (psi)	Downstream Calculated Pressure (psi)	Minor Loss Coefficient	Pressure Pipe Headloss (ft)	Velocity (ft/s)
P-77	8.0	459.00	PVC	J-65	J-66	120.0	56.49	54.52	2.00	2.23	2.72
P-78	8.0	26.00	PVC	J-66	J-67	120.0	54.52	54.47	2.00	0.35	2.73

Scenario: NFF
Steady State Analysis
Reservoir Report

Label	Elevation (ft)	Calculated Hydraulic Grade (ft)	Outflow (gpm)	Description
R-1	230.40	230.40	1,088.69	

Appendix D

Peak Hour Flow WaterCAD Hydraulic Analysis

Scenario: PHF
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Elevation (ft)	Type	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Description
J-1	3.62	100.31	Demand	3.62	230.01	56.12	
J-2	3.62	97.68	Demand	3.62	229.88	57.20	
J-3	3.62	95.14	Demand	3.62	229.78	58.25	
J-4	3.62	94.23	Demand	3.62	229.75	58.63	
J-5	3.62	91.92	Demand	3.62	229.72	59.62	
J-6	3.62	89.32	Demand	3.62	229.69	60.73	
J-7	3.62	88.68	Demand	3.62	229.66	61.00	
J-8	3.62	86.57	Demand	3.62	229.58	61.87	
J-9	3.62	87.33	Demand	3.62	229.57	61.54	
J-10	3.62	92.19	Demand	3.62	229.77	59.52	
J-11	3.62	90.36	Demand	3.62	229.76	60.31	
J-12	3.62	84.60	Demand	3.62	229.70	62.78	
J-16	3.62	91.00	Demand	3.62	229.72	60.02	
J-17	3.62	81.27	Demand	3.62	229.56	64.16	
J-18	3.62	74.79	Demand	3.62	229.56	66.96	
J-19	3.62	74.65	Demand	3.62	229.56	67.02	
J-20	3.62	74.77	Demand	3.62	229.56	66.97	
J-21	3.62	72.72	Demand	3.62	229.56	67.86	
J-22	3.62	72.18	Demand	3.62	229.56	68.09	
J-23	3.62	76.45	Demand	3.62	229.56	66.24	
J-24	3.62	78.41	Demand	3.62	229.56	65.40	
J-25	3.62	78.61	Demand	3.62	229.56	65.31	
J-26	3.62	82.67	Demand	3.62	229.56	63.55	
J-27	3.62	85.73	Demand	3.62	229.56	62.23	
J-28	3.62	82.90	Demand	3.62	229.57	63.46	
J-29	3.62	79.15	Demand	3.62	229.56	65.07	
J-30	3.62	78.86	Demand	3.62	229.56	65.20	
J-31	3.62	76.16	Demand	3.62	229.55	66.36	
J-39	3.62	71.82	Demand	3.62	229.57	68.25	
J-40	3.62	73.71	Demand	3.62	229.56	67.43	
J-41	3.62	76.94	Demand	3.62	229.53	66.02	
J-42	3.62	75.83	Demand	3.62	229.53	66.50	
J-43	3.62	74.32	Demand	3.62	229.52	67.15	
J-44	3.62	74.40	Demand	3.62	229.52	67.11	
J-45	3.62	72.97	Demand	3.62	229.52	67.73	
J-46	3.62	77.74	Demand	3.62	229.52	65.67	
J-47	3.62	82.68	Demand	3.62	229.52	63.53	
J-48	3.62	79.68	Demand	3.62	229.52	64.83	
J-49	3.62	78.48	Demand	3.62	229.52	65.35	
J-50	3.62	75.91	Demand	3.62	229.52	66.46	
J-51	3.62	82.89	Demand	3.62	229.52	63.44	
J-58	3.62	84.67	Demand	3.62	229.52	62.67	
J-61	3.62	75.10	Demand	3.62	229.52	66.81	
J-62	3.62	76.47	Demand	3.62	229.52	66.22	
J-63	3.62	69.30	Demand	3.62	229.59	69.35	
J-64	3.62	71.89	Demand	3.62	229.61	68.24	
J-65	3.62	73.00	Demand	3.62	229.61	67.76	
J-66	3.62	79.80	Demand	3.62	229.65	64.83	
J-67	3.62	80.27	Demand	3.62	229.66	64.63	

Scenario: PHF
Steady State Analysis
Pipe Report

Label	Diameter (in)	Length (ft)	Material	Start Node	Stop Node	Hazen-Williams C	Upstream Calculated Pressure (psi)	Downstream Calculated Pressure (psi)	Minor Loss Coefficient	Pressure Pipe Headloss (ft)	Velocity (ft/s)
P-1	8.0	405.00	PVC	R-1	J-1	120.0	0.00	56.12	2.00	0.39	1.13
P-2	8.0	342.00	PVC	J-1	J-2	120.0	56.12	57.20	2.00	0.13	0.69
P-3	8.0	272.00	PVC	J-2	J-3	120.0	57.20	58.25	2.00	0.10	0.66
P-4	8.0	74.00	PVC	J-3	J-4	120.0	58.25	58.63	2.00	0.03	0.64
P-5	8.0	266.00	PVC	J-4	J-5	120.0	58.63	59.62	2.00	0.03	0.35
P-6	8.0	208.00	PVC	J-5	J-6	120.0	59.62	60.73	2.00	0.02	0.33
P-7	8.0	113.00	PVC	J-6	J-7	120.0	60.73	61.00	2.00	0.03	0.55
P-8	8.0	332.00	PVC	J-7	J-8	120.0	61.00	61.87	2.00	0.08	0.52
P-9	8.0	162.00	PVC	J-8	J-9	120.0	61.87	61.54	2.00	0.02	0.31
P-10	8.0	1,716.00	PVC	J-1	J-10	120.0	56.12	59.52	2.00	0.24	0.42
P-11	8.0	37.00	PVC	J-10	J-11	120.0	59.52	60.31	2.00	0.01	0.40
P-12	8.0	448.00	PVC	J-11	J-12	120.0	60.31	62.78	2.00	0.05	0.38
P-13	8.0	404.00	PVC	J-12	J-67	120.0	62.78	64.63	2.00	0.04	0.35
P-17	8.0	463.00	PVC	J-4	J-16	120.0	58.63	60.02	2.00	0.03	0.27
P-18	8.0	407.00	PVC	J-16	J-6	120.0	60.02	60.73	2.00	0.02	0.24
P-19	8.0	245.00	PVC	J-9	J-17	120.0	61.54	64.16	2.00	0.01	0.16
P-20	8.0	244.00	PVC	J-17	J-18	120.0	64.16	66.96	2.00	0.00	0.07
P-21	8.0	65.00	PVC	J-18	J-19	120.0	66.96	67.02	2.00	0.00	0.05
P-22	8.0	359.00	PVC	J-19	J-20	120.0	67.02	66.97	2.00	0.00	0.02
P-23	8.0	347.00	PVC	J-20	J-21	120.0	66.97	67.86	2.00	0.00	0.00
P-24	8.0	257.00	PVC	J-21	J-23	120.0	67.86	66.24	2.00	0.00	0.05
P-25	8.0	245.00	PVC	J-23	J-26	120.0	66.24	63.55	2.00	0.00	0.05
P-26	8.0	416.00	PVC	J-26	J-27	120.0	63.55	62.23	2.00	0.00	0.11
P-27	8.0	93.00	PVC	J-27	J-9	120.0	62.23	61.54	2.00	0.00	0.13
P-28	8.0	330.00	PVC	J-23	J-24	120.0	66.24	65.40	2.00	0.00	0.02
P-29	8.0	252.00	PVC	J-24	J-25	120.0	65.40	65.31	2.00	0.00	0.04
P-30	8.0	58.00	PVC	J-25	J-17	120.0	65.31	64.16	2.00	0.00	0.07
P-31	8.0	59.00	PVC	J-22	J-21	120.0	68.09	67.86	2.00	0.00	0.02
P-32	8.0	398.00	PVC	J-8	J-28	120.0	61.87	63.46	2.00	0.01	0.19
P-33	8.0	353.00	PVC	J-28	J-29	120.0	63.46	65.07	2.00	0.01	0.17
P-34	8.0	222.00	PVC	J-29	J-26	120.0	65.07	63.55	2.00	0.00	0.03
P-35	8.0	72.00	PVC	J-29	J-30	120.0	65.07	65.20	2.00	0.00	0.18
P-36	8.0	383.00	PVC	J-30	J-31	120.0	65.20	66.36	2.00	0.01	0.15
P-44	8.0	338.00	PVC	J-39	J-40	120.0	68.25	67.43	2.00	0.01	0.22
P-45	8.0	352.00	PVC	J-40	J-31	120.0	67.43	66.36	2.00	0.01	0.19
P-48	8.0	179.00	PVC	J-31	J-41	120.0	66.36	66.02	2.00	0.02	0.32
P-49	8.0	61.00	PVC	J-41	J-42	120.0	66.02	66.50	2.00	0.00	0.17
P-50	8.0	261.00	PVC	J-42	J-43	120.0	66.50	67.15	2.00	0.01	0.15
P-51	8.0	68.00	PVC	J-43	J-44	120.0	67.15	67.11	2.00	0.00	0.05
P-52	8.0	234.00	PVC	J-44	J-45	120.0	67.11	67.73	2.00	0.00	0.02
P-53	8.0	461.00	PVC	J-43	J-46	120.0	67.15	65.67	2.00	0.00	0.08
P-54	8.0	307.00	PVC	J-46	J-47	120.0	65.67	63.53	2.00	0.00	0.01
P-55	8.0	295.00	PVC	J-47	J-48	120.0	63.53	64.83	2.00	0.00	0.04
P-56	8.0	27.00	PVC	J-48	J-49	120.0	64.83	65.35	2.00	0.00	0.08
P-57	8.0	354.00	PVC	J-49	J-50	120.0	65.35	66.46	2.00	0.00	0.10
P-58	8.0	410.00	PVC	J-50	J-41	120.0	66.46	66.02	2.00	0.01	0.13
P-59	8.0	314.00	PVC	J-48	J-51	120.0	64.83	63.44	2.00	0.00	0.02
P-67	8.0	62.00	PVC	J-58	J-47	120.0	62.67	63.53	2.00	0.00	0.02
P-71	8.0	362.00	PVC	J-61	J-62	120.0	66.81	66.22	2.00	0.00	0.02
P-72	8.0	70.00	PVC	J-62	J-46	120.0	66.22	65.67	2.00	0.00	0.05
P-73	8.0	247.00	PVC	J-39	J-63	120.0	68.25	69.35	2.00	0.01	0.24
P-74	8.0	287.00	PVC	J-63	J-64	120.0	69.35	68.24	2.00	0.02	0.26
P-76	8.0	71.00	PVC	J-64	J-65	120.0	68.24	67.76	2.00	0.01	0.28

Scenario: PHF
Steady State Analysis
Pipe Report

Label	Diameter (in)	Length (ft)	Material	Start Node	Stop Node	Hazen-Williams C	Upstream Calculated Pressure (psi)	Downstream Calculated Pressure (psi)	Minor Loss Coefficient	Pressure Pipe Headloss (ft)	Velocity (ft/s)
P-77	8.0	459.00	PVC	J-65	J-66	120.0	67.76	64.83	2.00	0.04	0.31
P-78	8.0	26.00	PVC	J-66	J-67	120.0	64.83	64.63	2.00	0.01	0.33

Scenario: PHF
Steady State Analysis
Reservoir Report

Label	Elevation (ft)	Calculated Hydraulic Grade (ft)	Outflow (gpm)	Description
R-1	230.40	230.40	177.38	

Appendix E

HGL Calculations

HGL CALCULATIONS

Lake Hills

PEAK HOUR FLOW HGL

PEAK HOUR FLOW = 177.50 GPM
TIE-IN PRESSURE AT 177.50 GPM = 50 PSI = 115.4 FT
EXISTING PIPE ELEVATION AT TIE-IN = 115 FT

HGL = 115.4 + 115 = 230.4 FT

NEEDED FIRE FLOW HGL

NEEDED FIRE FLOW + MAX DAY FLOW(LARGEST NEEDED FIRE FLOW USED) = 1,088.75 GPM
TIE-IN PRESSURE AT 1,088.75 GPM = 50 PSI = 115.4 FT
EXISTING PIPE ELEVATION AT TIE-IN = 115 FT

HGL = 115.4 + 115 = 230.4 FT

INSTRUMENT#: 2025017080 OR BK 6474 PG 1207 PAGES: 9 2/11/2025 1:18:00 PM
GARY J. COONEY, CLERK OF THE CIRCUIT COURT & COMPTROLLER, LAKE COUNTY, FLORIDA
REC FEES: $78.00 DEED DOC:$98000.00

This instrument prepared by
(or under the supervision of)
and after recording return to:

Robert Gebaide, Esq.
Spottswood, Spottswood, Spottswood & Sterling PLLC
500 Fleming Street
Key West, Florida 33040
(305) 294-9556

PARCEL IDENTIFICATION NO(S).: 2220250001-000-01400; 2220250004-000-01000; 2320250002-000-00600; 2320250002-000-01100; 2320250004-000-00200; and 2320250004-000-01000

Consideration: $14,000,000

SPECIAL WARRANTY DEED

THIS SPECIAL WARRANTY DEED is made this 7th day of February, 2025, by and between **LAKE HARRIS (ORLANDO) ASLI VII OWNER #1, LLC**, a Delaware limited liability company, **LAKE HARRIS (ORLANDO) ASLI VII OWNER #2, LLC**, a Delaware limited liability company, and **LAKE HARRIS (ORLANDO) ASLI VII OWNER #3, LLC**, a Delaware limited liability company (hereinafter collectively called "**Grantor**"), whose address is 923 N. Pennsylvania Avenue, Winter Park, Florida 32789, and **HR Lake Hills, LLC**, a Delaware limited liability company (hereinafter called "**Grantee**"), whose address is 5850 T.G. Lee Boulevard, Suite 200, Orlando FL 32822.

WITNESSETH

The Grantor, for and in consideration of the sum of Ten Dollars ($10.00), to it in hand paid by the Grantee, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, has granted, bargained and sold and does hereby grant, bargain and sell to Grantee the following described real estate, situated, lying and being in the County of Lake, State of Florida, more particularly described on **Exhibit "A"** attached hereto and made a part hereof, together with all buildings, improvements and fixtures located thereon and owned by Grantor as of the date hereof and all right, title and interest, if any, that Grantor may have in and to all rights, privileges and appurtenances pertaining thereto including all of Grantor's right, title and interest, if any, in and to all rights-of-way, open or proposed streets, alleys, easements, strips or gores of land adjacent thereto (herein collectively called the "**Real Property**").

SUBJECT TO only those matters set forth on **Exhibit "B"** attached hereto and made a part hereof (the "**Permitted Exceptions**"), without reimposing same.

TO HAVE AND TO HOLD the aforesaid Real Property, together with all the improvements, licenses, tenements, hereditaments, easements and appurtenances thereto belonging or in anywise appertaining unto Grantee, its successors and assigns in fee simple forever.

And Grantor hereby covenants with Grantee that Grantor is lawfully seized in fee simple of the aforesaid Real Property; that Grantor has good right to sell and convey the same; that the same is unencumbered except for the Permitted Exceptions, to all of which this conveyance is expressly made. Grantor hereby warrants the title to the aforesaid real estate and will defend same against the lawful claims of all persons claiming by, through or under Grantor, but no others.

(When used herein the terms "Grantor" and "Grantee" shall be construed to include, masculine, feminine, singular or plural as the context permits or requires, and shall include heirs, personal representatives, successors or assigns.)

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IN WITNESS WHEREOF, the Grantor has caused this Indenture to be executed in its name and caused its seal to be affixed as of the day and year first above written.

Signed, sealed and delivered in the presence of:

WITNESSES:

Connie Cummins
Print Name: Connie Cummins
Address: 923 N. Pennsylvania Ave
Winter Park, FL 32789

Robert Gebaide
Print Name: Robert Gebaide
Address: 500 Fleming St.
Key West FL 33040

GRANTOR:

LAKE HARRIS (ORLANDO) ASLI VII OWNER #1, LLC, a Delaware limited liability company

By: LAKE HARRIS (ORLANDO) ASLI VII HOLDINGS, LLC, a Delaware limited liability company, on behalf of and as the sole member of Grantor entity listed above

By: Avanti Strategic Land Investors, VII, L.L.L.P., a Delaware limited liability partnership, its Sole Member

By: Avanti Properties Group II, L.L.L.P., a Delaware limited liability limited partnership, its Managing General Partner

By: Avanti Management Corporation, a Florida corporation, its sole General Partner

By: _____
Ryan J. Lefkowitz, Vice President

THE STATE OF FLORIDA)
) ss.
COUNTY OF Orange)

The foregoing instrument was acknowledged before me by (✓) means of physical presence or ( ) online notarization on February 6, 2025, by Ryan J. Lefkowitz, the Vice President of Avanti Management Corporation, a Florida corporation, the sole General Partner of Avanti Properties Group II, L.L.L.P., a Delaware limited liability limited partnership, the Managing General Partner of Avanti Strategic Land Investors, VII, L.L.L.P., a Delaware limited liability partnership, the Sole Member of Lake Harris (Orlando) ASLI VI Holdings, LLC, the Sole Member of **LAKE HARRIS (ORLANDO) ASLI VII OWNER #1, LLC**, a Delaware limited liability company, on behalf said corporation, limited liability limited partnership, and limited liability companies. He is personally known to me or produced _____ as identification.

Robert Gebaide
Notary Public, State of FL

My Commission Expires:

ROBERT H. GEBAIDE
Commission # HH 414924
Expires June 20, 2027

Robert Gebaide
Printed/Typed Name

[Signature Page to Special Warranty Deed]

Signed, sealed and delivered in the presence of:

WITNESSES:

Connie Cummins
Print Name: Connie Cummins
Address: 923 N. Pennsylvania Ave
Winter Park, FL 32789

Robert Gebaide
Print Name: Robert Gebaide
Address: 500 Fleming St.
Key West FL 33040

GRANTOR:

LAKE HARRIS (ORLANDO) ASLI VII OWNER #2, LLC, a Delaware limited liability company

By: LAKE HARRIS (ORLANDO) ASLI VII HOLDINGS, LLC, a Delaware limited liability company, on behalf of and as the sole member of Grantor entity listed above

By: Avanti Strategic Land Investors, VII, L.L.L.P., a Delaware limited liability partnership, its Sole Member

By: Avanti Properties Group II, L.L.L.P., a Delaware limited liability limited partnership, its Managing General Partner

By: Avanti Management Corporation, a Florida corporation, its sole General Partner

By: _____
Ryan J. Lefkowitz, Vice President

THE STATE OF FLORIDA)
) ss.
COUNTY OF Orange)

The foregoing instrument was acknowledged before me by (✓) means of physical presence or ( ) online notarization on February 6, 2025, by Ryan J. Lefkowitz, the Vice President of Avanti Management Corporation, a Florida corporation, the sole General Partner of Avanti Properties Group II, L.L.L.P., a Delaware limited liability limited partnership, the Managing General Partner of Avanti Strategic Land Investors, VII, L.L.L.P., a Delaware limited liability partnership, the Sole Member of Lake Harris (Orlando) ASLI VI Holdings, LLC, the Sole Member of **LAKE HARRIS (ORLANDO) ASLI VII OWNER #2, LLC**, a Delaware limited liability company, on behalf said corporation, limited liability limited partnership, and limited liability companies. He is personally known to me or produced _____ as identification.

Robert Gebaide
Notary Public, State of FL

My Commission Expires:

Robert Gebaide
Printed/Typed Name

ROBERT H. GEBAIDE
Commission # HH 414924
Expires June 26, 2027

[Signature Page to Special Warranty Deed]

Signed, sealed and delivered in the presence of:

WITNESSES:

Connie Cummins
Print Name: Connie Cummins
Address: 923 N. Pennsylvania Ave.
Winter Park, FL 32789

Robert Gebaide
Print Name: Robert Gebaide
Address: 500 Fleming St.
Key West FL 33040

GRANTOR:

LAKE HARRIS (ORLANDO) ASLI VII OWNER #3, LLC, a Delaware limited liability company

By: LAKE HARRIS (ORLANDO) ASLI VII HOLDINGS, LLC, a Delaware limited liability company, on behalf of and as the sole member of Grantor entity listed above

By: Avanti Strategic Land Investors, VII, L.L.L.P., a Delaware limited liability partnership, its Sole Member

By: Avanti Properties Group II, L.L.L.P., a Delaware limited liability limited partnership, its Managing General Partner

By: Avanti Management Corporation, a Florida corporation, its sole General Partner

By: _____
Ryan J. Lefkowitz, Vice President

THE STATE OF FLORIDA)
) ss.
COUNTY OF Orange)

The foregoing instrument was acknowledged before me by (✓) means of physical presence or ( ) online notarization on February 6, 2025, by Ryan J. Lefkowitz, the Vice President of Avanti Management Corporation, a Florida corporation, the sole General Partner of Avanti Properties Group II, L.L.L.P., a Delaware limited liability limited partnership, the Managing General Partner of Avanti Strategic Land Investors, VII, L.L.L.P., a Delaware limited liability partnership, the Sole Member of Lake Harris (Orlando) ASLI VI Holdings, LLC, the Sole Member of **LAKE HARRIS (ORLANDO) ASLI VII OWNER #3, LLC**, a Delaware limited liability company, on behalf said corporation, limited liability limited partnership, and limited liability companies. He is personally known to me or produced _____ as identification.

Robert Gebaide
Notary Public, State of FL

My Commission Expires:

ROBERT H. GEBAIDE
Commission # HH 414924
Expires June 26, 2027

Robert Gebaide
Printed/Typed Name

[Signature Page to Special Warranty Deed]

EXHIBIT "A"

Legal Description

PARCEL 1:
GOVERNMENT LOTS 2, 4, 5, 6, 7, 8 AND 9, LYING NORTH OF HIGHWAY 48 AND THE WESTERLY OF HIGHWAY 19, ALL LYING IN SECTION 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA, LESS THE FOLLOWING DESCRIBED PARCEL OF LAND: BEGIN AT SOUTHEAST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA, AND RUN NORTH 00°04'21" EAST 1314.20 FEET, MORE OR LESS, TO THE SOUTHERLY WATERS EDGE OF LAKE HARRIS AND A POINT HEREBY DESIGNATED AS POINT "A"; RETURN TO THE POINT OF BEGINNING AND RUN SOUTH 89°35'28" WEST ALONG THE SOUTH LINE OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 23 A DISTANCE OF 1100.00 FEET; THENCE NORTH 00°27'54" EAST 1484.76 FEET, MORE OR LESS, TO THE SOUTHERLY WATERS EDGE OF LAKE HARRIS; THENCE EASTERLY ALONG SAID SOUTHERLY WATERS EDGE OF LAKE HARRIS TO POINT "A".

LESS ANY PORTION CONVEYED IN THOSE CERTAIN DEEDS RECORDED IN OFFICIAL RECORDS BOOK 6019, PAGE 212 AND OFFICIAL RECORDS BOOK 6068, PAGE 2222.

LESS ANY PORTION OF THE ABOVE LEGAL DESCRIPTION CONVEYED IN THAT CERTAIN DEED RECORDED IN OFFICIAL RECORDS BOOK 6372, PAGE 835.

PARCEL 2:
BEGIN AT THE NORTHEAST CORNER OF THE SOUTHEAST 1/4 OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA, RUN SOUTH 89°09'42" WEST ALONG THE NORTH LINE OF THE SOUTHEAST 1/4 A DISTANCE OF 330 FEET; THENCE SOUTH 81°15'42" WEST TO THE EAST LINE OF TRACT "I", OF DRAKE POINT PARK REPLAT, ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 10, PAGE 63, OF THE PUBLIC RECORDS OF LAKE COUNTY, FLORIDA; THENCE CONTINUE SOUTH 81°15'42" WEST TO THE NORTHEASTERLY RIGHT-OF-WAY LINE OF STATE ROAD 48; THENCE SOUTHEASTERLY ALONG SAID NORTHEASTERLY RIGHT-OF-WAY LINE OF STATE ROAD 48 TO THE EAST LINE OF THE SOUTHEAST 1/4 OF SECTION 22; THENCE NORTH ALONG THE EAST LINE OF THE SOUTHEAST 1/4 TO THE POINT OF BEGINNING.

PARCEL 3:
FROM THE SOUTHEAST CORNER OF THE NORTHEAST 1/4 OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA, RUN SOUTH 89°09'42" WEST ALONG THE SOUTH LINE OF THE NORTHEAST 1/4 A DISTANCE OF 330 FEET; THENCE NORTH 00°15'45" WET 210 FEET; THENCE NORTH 38°44'24" EAST 583.17 FEET FOR THE POINT OF BEGINNING; THENCE NORTH 89°10'02" EAST 1177 FEET TO THE WATERS OF LAKE HARRIS; THENCE SOUTHEASTERLY ALONG SAID WATERS OF LAKE HARRIS TO A POINT ON THE EAST LINE OF THE NORTHWEST 1/4 OF SECTION 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA; THENCE SOUTH ALONG THE EAST LINE OF THE NORTHWEST 1/4 TO THE SOUTHEAST CORNER OF THE NORTHWEST 1/4 OF SECTION 23; THENCE WEST ALONG THE SOUTH LINE OF THE NORTHWEST 1/4 TO THE SOUTHWEST CORNER OF THE NORTHWEST 1/4 OF SECTION 23, SAID POINT HEREBY DESIGNATED AS POINT "A", RETURN TO THE POINT OF BEGINNING AND RUN

SOUTH 38°44'24" WEST TO A POINT ON THE WEST LINE OF THE NORTHWEST 1/4 OF SAID SECTION 23; THENCE SOUTH ALONG THE WEST LINE OF THE NORTHWEST 1/4 TO A POINT "A". LESS AND EXCEPT THAT PORTION DESCRIBED IN THAT CERTAIN CORRECTIVE WARRANTY DEED RECORDED IN OFFICIAL RECORDS BOOK 4103, PAGE 313, PUBLIC RECORDS OF LAKE COUNTY, FLORIDA.

PARCEL 4:
THAT PART OF THE N.W. 1/4 OF THE S.E. 1/4 OF SECTION 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST, IN LAKE COUNTY, FLORIDA, BOUNDED AND DESCRIBED AS FOLLOWS: BEGIN AT A CONCRETE MONUMENT (NO NUMBER) AT THE SOUTHEAST CORNER OF THE N.W. 1/4 OF THE S.E. 1/4 OF SAID SECTION 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST, AND RUN N.00°04'21"E ALONG THE EAST LINE OF THE N.W. 1/4 OF THE S.E. 1/4 A DISTANCE OF 1202.20 FEET TO AN IRON PIN LABELED L.B. 707; THENCE CONTINUE N.00°04'21"E ALONG THE EAST LINE OF THE N.W. 1/4 OF THE S.E. 1/4 A DISTANCE OF 112 FEET, MORE OR LESS, TO A POINT ON THE SOUTHERLY WATERS EDGE OF LAKE HARRIS AND A POINT HEREBY DESIGNATED AS POINT "A", RETURN TO THE POINT OF BEGINNING AND RUN S.89°35'28"W. ALONG THE SOUTH LINE OF THE N.W. 1/4 OF THE S.E. 1/4 OF SAID SECTION 23 A DISTANCE OF 1100.00 FEET TO AN IRON PIN LABELED L.B. 707; THENCE N.00°27'54"E. 1451.76 FEET TO AN IRON ROD PIN LABELED L.B. 707; THENCE CONTINUE N.00°27'54"E, 33 FEET, MORE OR LESS, TO A POINT ON THE SOUTHERLY WATERS EDGE OF LAKE HARRIS; THENCE EASTERLY ALONG AND WITH SAID SOUTHERLY WATERS EDGE OF LAKE HARRIS; THENCE EASTERLY ALONG AND WITH SAID SOUTHERLY WATERS EDGE OF LAKE HARRIS TO INTERSECT THE AFOREMENTIONED POINT "A".

PARCEL 5:
BEGIN AT THE SOUTHEAST CORNER OF THE NORTHEAST 1/4 OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA, RUN SOUTH 89°09'42" WEST ALONG THE SOUTH LINE OF THE NORTHEAST 1/4 A DISTANCE OF 330 FEET; THENCE NORTH 00°15'45" WEST, 210 FEET; THENCE NORTH 38°44'24" EAST TO A POINT ON THE EAST LINE OF THE NORTHEAST 1/4 OF SECTION 22; THENCE SOUTH ALONG THE EAST LINE OF THE NORTHEAST 1/4 TO THE POINT OF BEGINNING. LESS AND EXCEPT THAT PORTION DESCRIBED IN THAT CERTAIN CORRECTIVE WARRANTY DEED RECORDED IN OFFICIAL RECORDS BOOK 4103, PAGE 313, PUBLIC RECORDS OF LAKE COUNTY, FLORIDA.

PARCEL 6:
THAT PART OF SECTION 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST, IN LAKE COUNTY, FLORIDA, BOUNDED AND DESCRIBED AS FOLLOWS: COMMENCE AT A CONCRETE MONUMENT (NO NUMBER) AT THE SOUTHEAST CORNER OF THE NORTHEAST 1/4 OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 25 EAST, IN LAKE COUNTY, FLORIDA, SAID POINT ALSO BEING THE SOUTHWEST CORNER OF THE NORTHWEST 1/4 OF SECTION 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST, IN LAKE COUNTY, FLORIDA, RUN S.89°52'11"W. ALONG THE SOUTH LINE OF THE NORTHEAST 1/4 OF SECTION 22, A DISTANCE OF 330.00 FEET TO AN IRON PIPE LABELED LB707; THENCE N.00°09'33"E., 210.05 FEET TO A CONCRETE MONUMENT LABELED LS1916; THENCE N.39°31'51"E., 583.79 FEET TO AN IRON PIN LABELED LB7514; THENCE N.89°52'31"E., 468.45 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION, FROM SAID POINT OF BEGINNING RUN N.70°57'18"E., 519 FEET MORE OR LESS TO A POINT ON THE SOUTHWESTERLY WATERS

EDGE OF LAKE HARRIS AND A POINT HEREBY DESIGNATED AS POINT "A", RETURN TO THE POINT OF BEGINNING AND RUN N.89°52'31"E., 708.81 FEET TO AN IRON PIN LABELED LB7514; THENCE CONTINUE N.89°52'31"E., 30 FEET MORE OR LESS TO A POINT ON THE SOUTHWESTERLY WATERS EDGE OF LAKE HARRIS; THENCE NORTHWESTERLY ALONG AND WITH SAID SOUTHWESTERLY WATERS EDGE OF LAKE HARRIS TO INTERSECT THE AFOREMENTIONED POINT "A".

PARCEL 7
TOGETHER WITH: NON-EXCLUSIVE EASEMENT AS SET FORTH AND CREATED BY THAT CERTAIN ACCESS EASEMENT AGREEMENT BY AND BETWEEN PUBLIX SUPER MARKETS, INC., A FLORIDA CORPORATION AND LAKE HARRIS (ORLANDO) ASLI VII OWNER #1, LLC, A DELAWARE LIMITED LIABILITY COMPANY AND LAKE HARRIS (ORLANDO) ASLI VII OWNER #3, LLC, A DELAWARE LIMITED LIABILITY COMPANY RECORDED IN OFFICIAL RECORDS BOOK 6372, PAGE 844, PUBLIC RECORDS OF LAKE COUNTY, FLORIDA, OVER, UNDER AND ACROSS THE LANDS DESCRIBED THEREIN.

PARCEL 8
TOGETHER WITH: NON-EXCLUSIVE EASEMENT AS SET FORTH AND CREATED BY THAT CERTAIN SIGN EASEMENT AGREEMENT BY AND BETWEEN PUBLIX SUPER MARKETS, INC., A FLORIDA CORPORATION AND LAKE HARRIS (ORLANDO) ASLI VII OWNER #1, LLC, A DELAWARE LIMITED LIABILITY COMPANY AND LAKE HARRIS (ORLANDO) ASLI VII OWNER #3, LLC, A DELAWARE LIMITED LIABILITY COMPANY RECORDED IN OFFICIAL RECORDS BOOK 6372, PAGE 884, PUBLIC RECORDS OF LAKE COUNTY, FLORIDA, OVER, UNDER AND ACROSS THE LANDS DESCRIBED THEREIN.

Exhibit "B"

Permitted Exceptions

1. Taxes and assessments for the year 2025 and subsequent years, which are not yet due and payable.

2. Distribution Easement in favor of Florida Power Corporation recorded in Official Records Book 980, page 145.

3. Grant of Restrictive Covenant in favor of Town of Howey-in-the-Hills recorded in Official Records Book 991, page 1056.

4. Ordinance No. 2013-29 recorded in Official Records Book 4404, Page 477.

5. Lake Hills PUD Development Agreement by and between Lake Harris (Orlando) ASLI VII Owner #1, LLC, a Delaware limited liability company, Lake Harris (Orlando) ASLI VII Owner #2, LLC, a Delaware limited liability company, Lake Harris (Orlando) ASLI VII Owner #3, LLC, a Delaware limited liability company and Town of Howey-in-the-Hills, Florida, a municipal corporation chartered and operating under the laws of the State of Florida recorded February 24, 2016, in Official Records Book 4744, Page 1032, Public Records of Lake County, Florida.

6. The nature, extent or existence of riparian rights or littoral rights is not insured.

7. Title to any submerged land included within the land described is not insured.

8. Title to any lands lying below the mean or ordinary high water line of any navigable or tidally influenced waters.

9. Drainage Easement Agreement by and between Lake Harris (Orlando) ASLI VII Owner #1, LLC, a Delaware limited liability company and Publix Super Markets, Inc., a Florida corporation recorded in Official Records Book 6372, Page 864.

10. Access Easement Agreement by and between Publix Super Markets, Inc., a Florida corporation and Lake Harris (Orlando) ASLI VII Owner #1, LLC, a Delaware limited liability company and Lake Harris (Orlando) ASLI VII Owner #3, LLC, a Delaware limited liability company recorded in Official Records Book 6372, Page 844.

11. Sign Easement Agreement by and between Publix Super Markets, Inc., a Florida corporation and Lake Harris (Orlando) ASLI VII Owner #1, LLC, a Delaware limited liability company and Lake Harris (Orlando) ASLI VII Owner #3, LLC, a Delaware limited liability company recorded in Official Records Book 6372, Page 884.

Stormwater Report

FOR

Lake Hills Phase 1

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS

Prepared by:

Madden, Moorhead, & Stokes, LLC.
431 E. Horatio Avenue, Suite 260
Maitland, FL 32751

Issued: June 2025

DAVID ASHLEY STOKES LICENSE No. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by David Ashley Stokes, P.E. using a digital signature and date. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Digitally signed by David A Stokes
Date: 2025.06.06 11:50:31 -04'00'

David A. Stokes, P.E. #66527
Certificate of Authorization No. CA-0007723

Documents included herein which have been prepared by professionals other than Madden, Moorhead, and Stokes, Inc. are not covered under the above registered engineer's signature and seal

Introduction

The Lake Hills Phase 1 project proposes +/-213 single family homes and the associated infrastructure. The Primary Stormwater ponds and the main spine road for all future and current development within the property were approved as a part of the Lake Hills Mass Grading/Mass Infrastructure under permit application No. 222310-2.

Existing Conditions

The existing site is a previously permitted mass grading/infrastructure project under the permit Application No. 222310-2. The development consists of a Spine Road, the associated drainage and utilities along the road, the Primary Stormwater Ponds to serve the future single-family lots/commercial developments, and the mass grading of future lots and internal roads.

Proposed Conditions

Lake Hills Phase 1 is a permit modification of the Mass Infrastructure/Mass Grading SJRWMD Permit Application No. 222310-2. Lake Hills Phase 1 proposes 213 single family residential homes. The Phase 1 boundary contains the following Basins: Portions of Post-1, Post-2, Post-3, Portions of Post 5, Portions of Post 9, Portions of Post 10, Post 12, and Public Park. The analysis provided in this report are portions of the previously approved stormwater report that support the development in Phase 1 is following the Mass Grading/Mass Infrastructure permit.

Secondary Drainage System

The secondary drainage system was modeled with the Storm Sewers program. The secondary drainage calculations are in Appendix N.

Table of Contents

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Existing Conditions
Proposed Conditions
Secondary Drainage System

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Aerial Photograph

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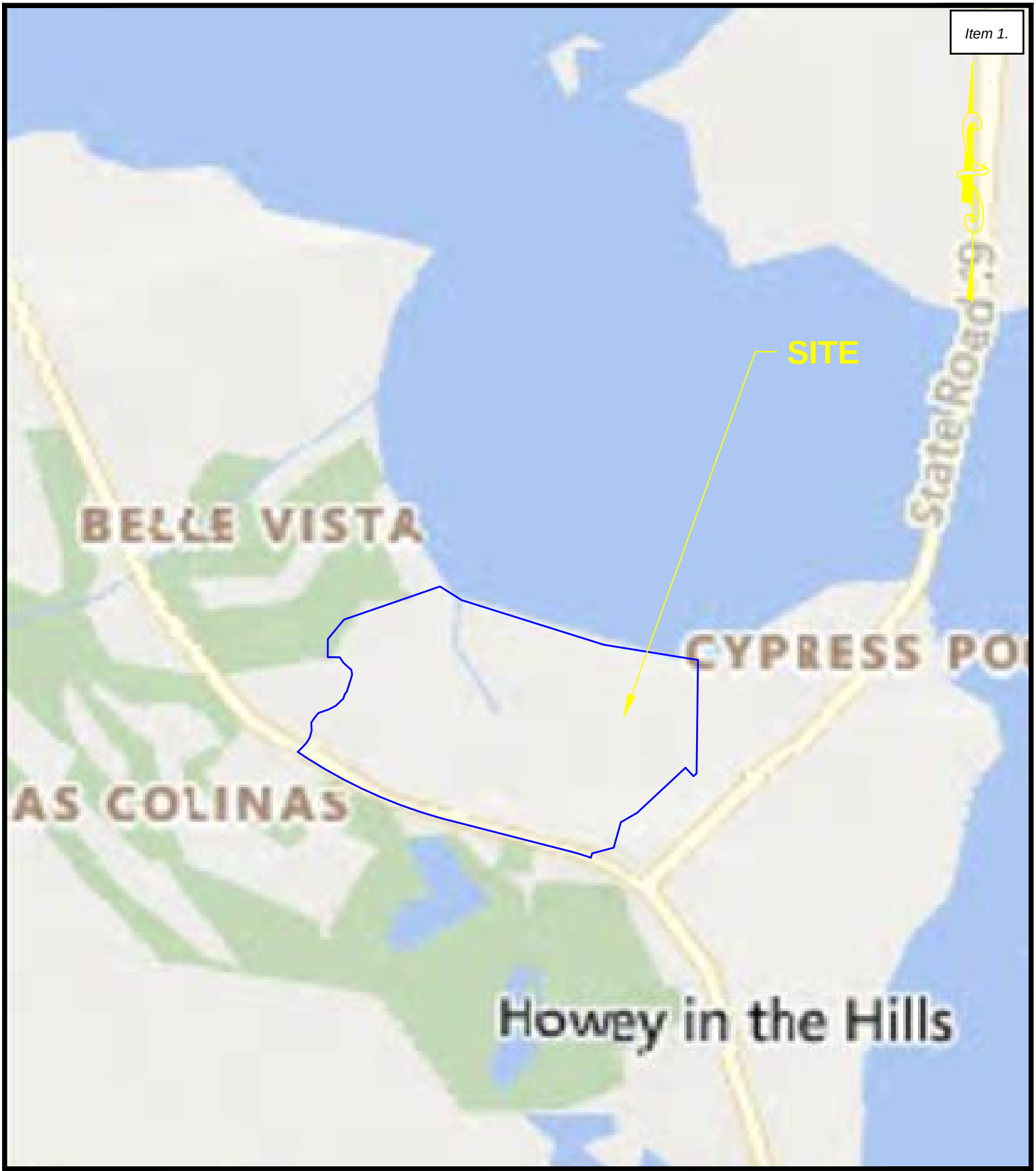
B Predevelopment Basin Map
C Predevelopment ICPR Node Min/Max Report
D Postdevelopment Basin Map
E Postdevelopment Phase 1 Hydrology Calculations
F Postdevelopment ICPR Node Diagram
G Postdevelopment Phase 1 ICPR Input Data
H Postdevelopment ICPR Node Min/Max Report
I Secondary Drainage System Calculations (StormCAD)

EXHIBITS



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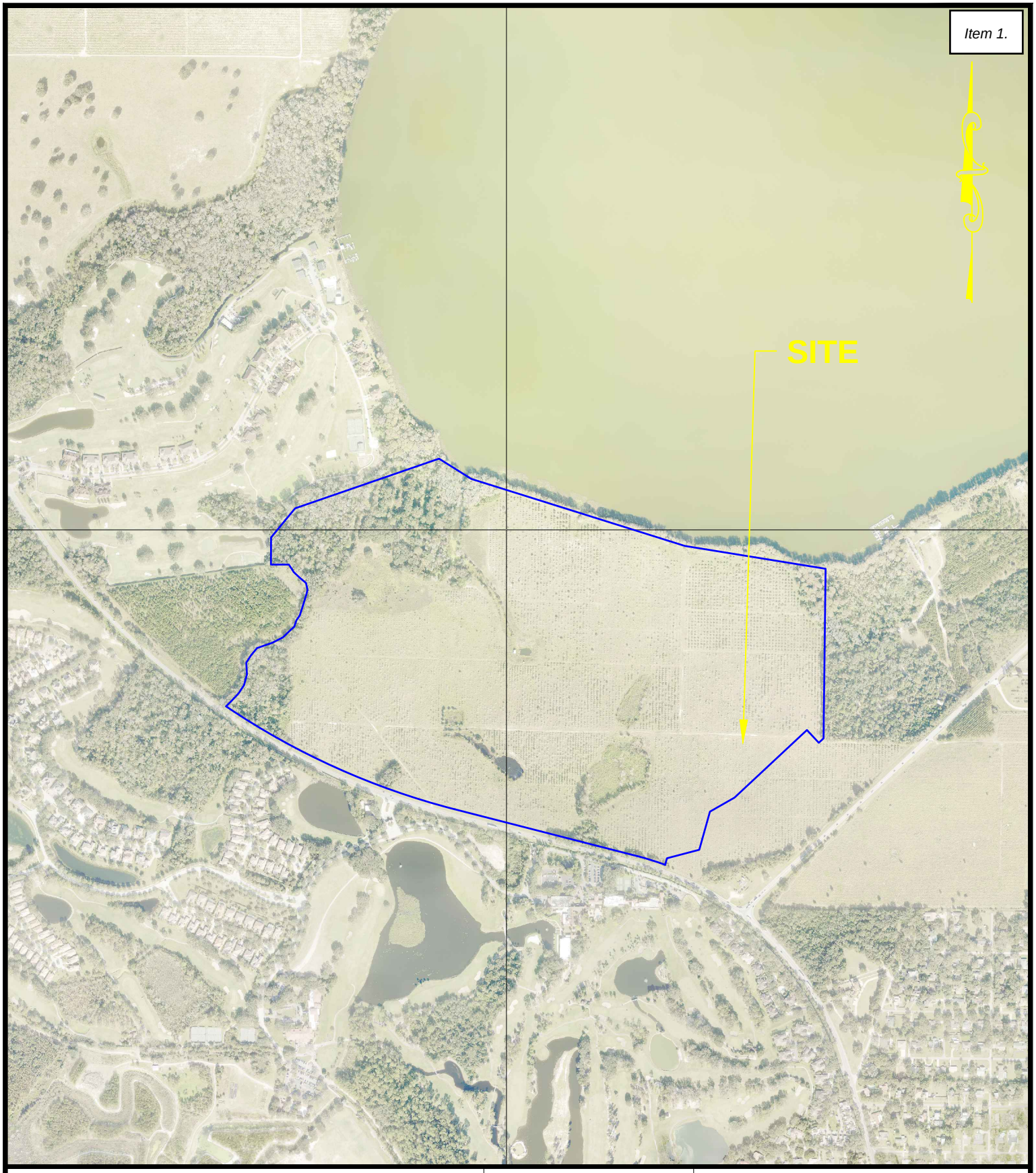
JOB NO.	23019
SEC. 22, TWP. 20, RANGE 25	
DRAWN BY:	KAC
APPROVED BY:	DAS
DATE:	11/06/2024
Scale:	1" = 1500'

LAKE HILLS

LOCATION MAP

GOOGLE MAPS



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JOB NO.	23019
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DRAWN BY:	KAC
APPROVED BY:	DAS
DATE:	11/06/2024
Scale:	1" = 1000'

LAKE HILLS

AERIAL MAP

GOOGLE MAPS

Appendix A
Summary Sheet

Basin Name	Basin Area Approved	Basin Area In Phase 1	Impervious Area Approved	Impervious Area in Phase 1	Impervious Area Remaining (Future)
Post-1	27.25 Ac.	8.83 Ac.	19.45 Ac.	2.64 Ac.	16.81 Ac.
Post-2	19.34 Ac.	19.34 Ac.	8.50 Ac.	8.50 Ac.	N/A
Post-3	12.80 Ac.	12.80 Ac.	7.54 Ac.	7.43 Ac.	N/A
Post-5	31.98 Ac.	3.40 Ac.	15.95 Ac.	2.14 Ac.	13.81 Ac
Post-9	9.58 Ac.	7.96 Ac.	5.21 Ac.	0.61 Ac.	4.60 Ac.
Post-10	11.84 Ac.	6.38 Ac.	7.15 Ac.	4.40 Ac.	2.75 Ac.
Post-12	15.36 Ac.	15.36 Ac.	9.10 Ac.	8.96 Ac.	N/A
Public Park	4.35 Ac.	4.35 Ac.	2.00 Ac.	0.21 Ac.	N/A

Comparison Table

Pre		Post	
Basin Name	**Area (Ac.)**	**Basin Name**	**Area**
Pre-1	102.61	Post-1	27.25
Pre-2	14.49	Post-2	19.34
Pre-3	2.89	Post-3	12.80
Pre-4	16.99	Post-4	9.49
Pre-5	23.47	Post-5	31.98
Pre-5A	7.85	Post-7	34.56
Pre-6	22.88	Post-8	16.24
Pre-7 OFF	14.59	Post-9	9.58
Pre-8 OFF	6.49	Post-10	11.84
Pre-9 OFF	9.87	Post-12	15.36
Lake Harris	20.89	Post 13	5.20
W-3	6.91	Post 14	3.58
W-4	0.49	Post W-3	6.65
S/W 6-7	4.39	Public Park	4.35
W-5	6.60	Post W5	2.12
W-6	7.94	Post W6	6.79
		Post SW-5	1.96
		*Post WTP	3.23
		Post Lake Harris	25.96
		Pre-7 OFF	14.59
		Pre-8 OFF	6.49
Total =	269.36	Total =	269.36

*Not modeled in the Post Development ICPR. Development to be permitted separately.

Pre vs Post Development Wetland Stages

Node	Storm Event	Pre-Development Stage (ft)	Post-Development Stage (ft)	Pre/Post Difference (ft)
W-3	Mean Annual	67.64	67.64	0
W-3	25yr/96hr	67.68	67.64	-0.04
W-4	Mean Annual	79.71	IMPACTED WETLAND	
W-4	25yr/96hr	85.19	IMPACTED WETLAND	
W-5	Mean Annual	73.48	73.24	-0.24
W-5	25yr/96hr	77.52	75.95	-1.57
W-6	Mean Annual	74.62	74.07	-0.55
W-6	25yr/96hr	77.24	75.95	-1.29
SW-5*	Mean Annual	-	62.71	-
SW-5*	25yr/96hr	-	62.9	-
SW-6/7	Mean Annual	73.49	IMPACTED WETLAND	
SW-6/7	25yr/96hr	76.16	IMPACTED WETLAND	

*Hydraulically connected to Lake Harris

Pre vs Post Development Discharge

Node	Storm Event	Pre-Development Discharge (cfs)	Post-Development Discharge (cfs)	Pre/Post Difference (cfs)
Lake Harris	Mean Annual	178.42	159.59	-18.83
Lake Harris	25yr/24hr	447.43	316.83	-130.6

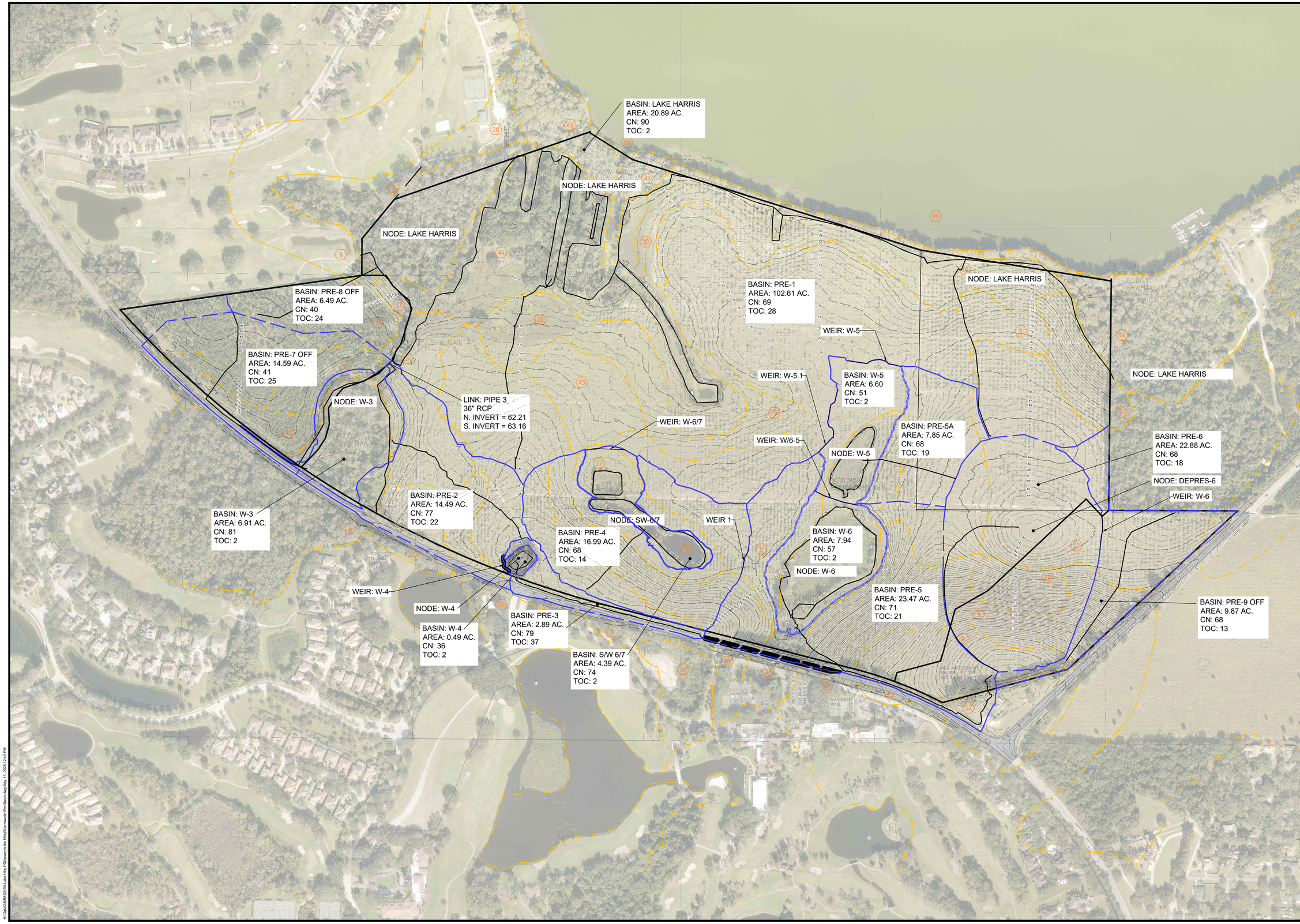
Post Development Pond Stages

Node	Mean Annual Stage(ft)	10yr/24hr Stage (ft)	25yr/24hr Stage (ft)	100yr/24hr Stage (ft)	Top of Pond (ft)
PD1	81.07	82.38	83.61	85.78	90.00
PD2	76.55	76.81	77.21	77.96	78.00
PD3	76.55	76.81	77.2	77.91	78.00
PD4	67.44	67.68	68.08	68.82	69.00
PD5	80.21	80.53	80.93	81.85	83.00
PD7	67.44	67.72	68.27	69.46	70.00
PD8	67.12	67.37	67.73	68.14	69.00
PD9	67.41	67.82	68.37	69.35	71.00
PD10	67.44	67.67	68.04	68.56	69.00
PD12	66.93	67.29	67.86	69.28	70.00

Pre vs Post Nutrient Removal

Pollutant	Pre Loading Rate (kg/yr)	Post Loading Rate (kg/yr)	Pre/Post Difference (cfs)
Phosporus	32.528	20.798	-11.73

Appendix B
Predevelopment Basin Map



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CA# 0007723

PREDEVELOPMENT BASIN MAP

FOR

LAKE HILLS MAIN BLVD. & MASS GRADING

HOWEY-IN-THE-HILLS FLORIDA

READER & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO, FL 32822
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DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD
May 15, 2025

JOB #	23019
DATE:	5/15/25
DATUM:	NAVD 88
DESIGNED BY:	KAC
DRAWN BY:	JSK
APPROVED BY:	DAS

PRE-1

THESE DOCUMENTS AND THE DESIGN CONCEPTS CONTAINED THEREIN ARE THE PROPERTY OF MADDEN, MOORHEAD & STOKES, LLC AND SHALL NOT BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY, WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN AUTHORIZATION AND ADAPTATION OF MADDEN, MOORHEAD & STOKES, LLC.

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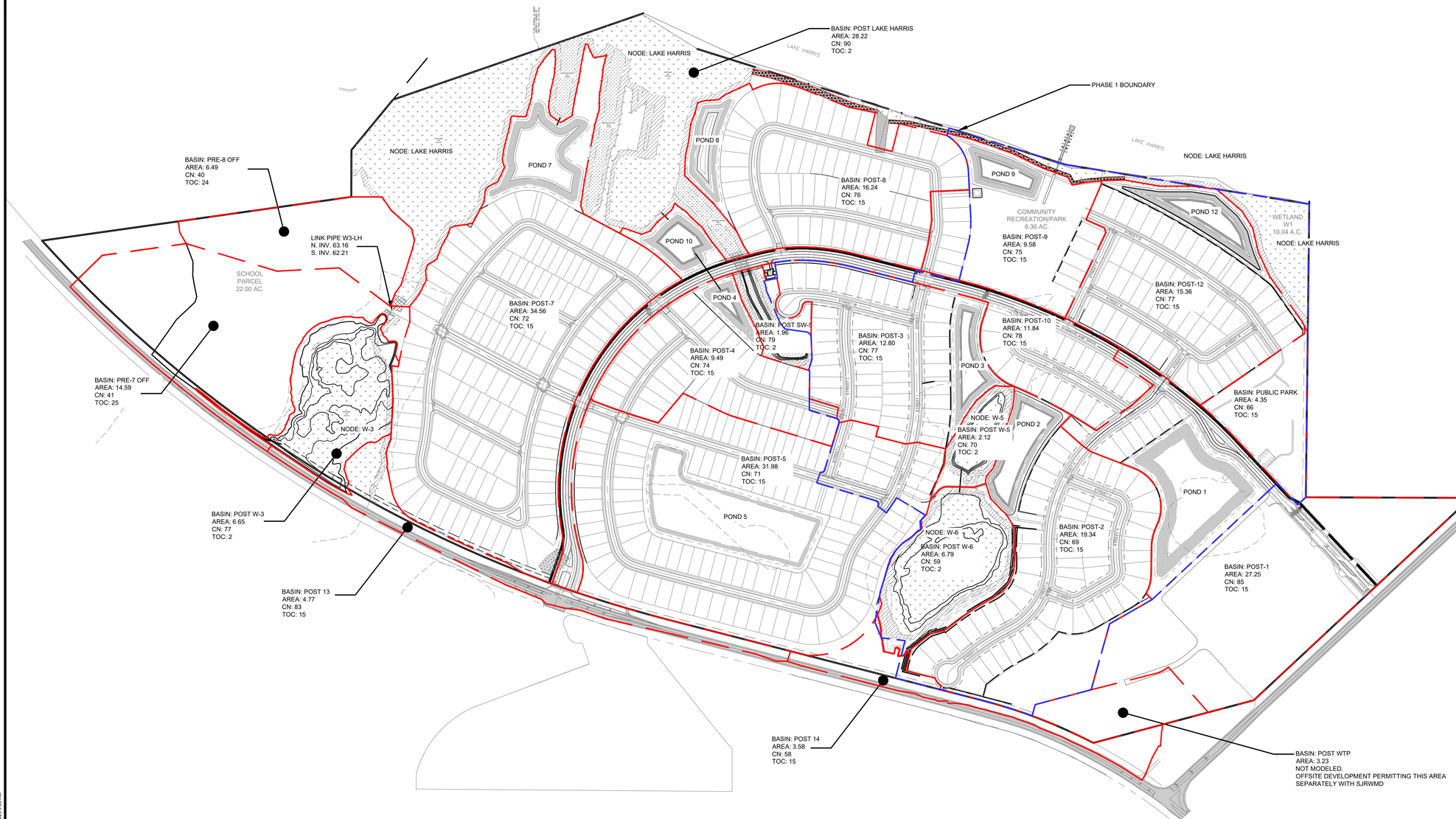
Appendix C
Predevelopment ICPR Node Min/Max Report

Node Max Conditions [PREDEVELOPMENT]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
DEPRES-6	100YR-24HR	85.00	85.20	0.0009	120.86	9.33	163786
Lake Harris	100YR-24HR	63.63	62.63	0.0000	643.68	0.00	0
SW-6/7	100YR-24HR	77.00	76.19	0.0010	135.07	10.65	120390
W-3	100YR-24HR	71.00	68.15	-0.0787	144.86	86.03	112179
W-4	100YR-24HR	90.00	85.04	0.0010	12.01	0.00	14858
W-5	100YR-24HR	79.00	77.43	0.0010	73.38	0.00	94937
W-6	100YR-24HR	79.00	77.17	0.0005	148.62	0.00	274496
DEPRES-6	10YR-24HR	85.00	84.29	0.0010	49.93	0.00	130497
Lake Harris	10YR-24HR	63.63	62.63	0.0000	321.12	0.00	0
SW-6/7	10YR-24HR	77.00	74.83	0.0009	57.68	0.00	81955
W-3	10YR-24HR	71.00	67.64	-0.0787	66.41	86.03	185
W-4	10YR-24HR	90.00	81.48	0.0010	5.70	0.00	11101
W-5	10YR-24HR	79.00	74.80	0.0009	25.28	0.00	49742
W-6	10YR-24HR	79.00	75.45	0.0007	58.11	0.00	202011
DEPRES-6	25YR-24HR	85.00	84.97	0.0010	73.59	0.00	162490
Lake Harris	25YR-24HR	63.63	62.63	0.0000	441.75	0.00	0
SW-6/7	25YR-24HR	77.00	75.88	0.0010	83.63	0.00	101646
W-3	25YR-24HR	71.00	67.64	-0.0787	91.85	86.03	76239
W-4	25YR-24HR	90.00	82.80	0.0010	7.85	0.00	12255
W-5	25YR-24HR	79.00	75.80	0.0010	40.80	0.00	58847
W-6	25YR-24HR	79.00	76.08	0.0006	87.99	0.00	234866
DEPRES-6	25YR-96HR	85.00	85.15	0.0008	77.97	5.06	163786
Lake Harris	25YR-96HR	63.63	62.63	0.0000	490.57	0.00	0
SW-6/7	25YR-96HR	77.00	76.16	0.0010	83.67	5.81	118056
W-3	25YR-96HR	71.00	67.68	-0.0787	98.02	86.03	78703
W-4	25YR-96HR	90.00	85.19	0.0010	8.29	0.00	15017
W-5	25YR-96HR	79.00	77.52	0.0010	45.55	0.00	99082
W-6	25YR-96HR	79.00	77.24	0.0005	102.57	0.00	277358
DEPRES-6	MEAN	85.00	83.26	0.0010	23.66	0.00	83785
Lake Harris	MEAN	63.63	62.63	0.0000	178.41	0.00	0
SW-6/7	MEAN	77.00	73.49	0.0006	28.45	0.00	75990
W-3	MEAN	71.00	67.64	-0.0787	37.92	86.03	185
W-4	MEAN	90.00	79.71	0.0010	3.19	0.00	7892
W-5	MEAN	79.00	73.48	0.0006	9.22	0.00	38229
W-6	MEAN	79.00	74.62	0.0006	27.79	0.00	155907

Appendix D
Postdevelopment Basin Map



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CA# 0007723

POSTDEVELOPMENT BASIN MAP

FOR

LAKE HILLS MAIN BLVD. & MASS GRADING

FLORIDA

HOWEY-IN-THE-HILLS

READER & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
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DAVID ASHLEY STOKES
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ENGINEER OF RECORD
June 4, 2025

JOB # 23019
DATE: 6/4/25
DATUM: NAVD 88
DESIGNED BY: KAC
DRAWN BY: JSK
APPROVED BY: DAS

POST-1

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Appendix E
Postdevelopment Phase 1 Hydrology Calculations

Project:	**Lake Hills**
Basin:	**Post-1**
Pond:	**Pond-1**
Basin Area:	**27.25 ac**

Land Use Table:

Area (ac)	*Land Use*	*CN*
7.93	Proposed Pavement/Sidewalk (Commercial)	98
2.81	Proposed Pavement/Sidewalk (Residential)	98
0.92	Impervious Lot (Residential)	98
6.38	Outparcels (80% Impervious)	98
1.41	Impervious Lot (Commercial)	98
5.85	Pervious/Landscape (HSG-A)	39
1.94	Pond Surface Area	100
Composite CN		85

DCIA% (Lot Impervios is assumed 20% DCIA)	65%
Non-DCIA CN	62

SJRWMD Water Quality Presumptive Criteria:

1" over the basin area:		2.271 AF
1.25" over impervious area + 0.5" over basin area		3.162 AF
	Design WQ	3.162 AF
100Y/24H Volume		21.950 AF
Controlling Volume:		21.950 AF
Stage at Control Elevation:		86.56 FT
Proposed Weir Elevation:		N/A

Stage/Storage Table:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
90.00	3.81	3.724	34.030
89.00	3.64	3.553	30.306
88.00	3.47	3.384	26.753
87.00	3.30	3.217	23.369
86.00	3.13	3.054	20.152
85.00	2.97	2.893	17.098
84.00	2.81	2.736	14.205
83.00	2.66	2.583	11.469
82.00	2.51	2.435	8.886
81.00	2.36	2.290	6.451
80.00	2.22	2.149	4.161
79.00	2.08	2.012	2.012
78.00	1.94	0.000	0.000

Project:	**Lake Hills**
Basin:	**Post-2**
Pond:	**Pond-2**
Basin Area:	**19.34 ac**

Land Use Table:

Area (ac)	*Land Use*	*CN*
1.85	Proposed Pavement/Sidewalk	98
6.65	Impervious Lot	98
9.51	Pervious/Landscape (HSG-A)	39
1.34	Wet Pond Water Surface	100
Composite CN		69

DCIA% (Lot Impervios is assumed 20% DCIA)	16%
Non-DCIA CN	63

SJRWMD Water Quality Presumptive Criteria:

1" over the basin area:		1.612 AF
2.5" over impervious		1.769 AF
	Design WQ	1.769 AF
Treatment Volume Elevation		See Pond 2 and Pond 3 Calcs
Proposed Weir Elevation:		See Pond 2 and Pond 3 Calcs

Stage/Storage Table:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
78.00	1.69	1.631	4.538
77.00	1.57	1.512	2.907
76.00	1.45	1.395	1.395
75.00	1.34	0.000	0.000

Permanent Pool Volume:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
75.00	1.34	1.282	6.497
74.00	1.23	1.171	5.215
73.00	1.12	1.090	4.045
72.00	1.06	1.037	2.955
71.00	1.01	1.918	1.918
69.00	0.91	0.000	0.000

PPV REQUIREMENTS PROVIDED WITH POND 2 AND POND 3 CALCS

Project:	**Lake Hills**
Basin:	**Post-3**
Pond:	**Pond-3**
Basin Area:	**12.80 ac**

Land Use Table:

Area (ac)	*Land Use*	*CN*
1.55	Proposed Pavement/Sidewalk	98
5.99	Impervious Lot	98
4.45	Pervious/Landscape (HSG-A)	39
0.81	Wet Pond Water Surface	100
Composite CN		78

DCIA% (Lot Impervios is assumed 20% DCIA)	21%
Non-DCIA CN	72

SJRWMD Water Quality Presumptive Criteria:

1" over the basin area:		1.067 AF
2.5" over impervious		1.571 AF
	Design WQ	1.571 AF
Treatment Volume Elevation:		See Pond 2 and Pond 3 Calcs
Proposed Weir Elevation:		See Pond 2 and Pond 3 Calcs

Stage/Storage Table:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
78.00	1.15	1.089	2.930
77.00	1.03	0.975	1.841
76.00	0.92	0.866	0.866
75.00	0.81	0.000	0.000

Permanent Pool Volume:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
75.00	0.81	0.762	3.521
74.00	0.71	0.663	2.758
73.00	0.61	0.592	2.095
72.00	0.57	0.546	1.504
71.00	0.52	0.958	0.958
69.00	0.44	0.000	0.000

PPV REQUIREMENTS PROVIDED WITH POND 2 AND POND 3 CALCS

Project:	**Lake Hills**		
Pond:	**Pond-2 and Pond-3**		
Basin Area:	**32.14 ac**		
SJRWMD Water Quality Presumptive Criteria:			
1" over the basin area:	Inc. Post Basins (2, 3)		2.679 AF
2.5" over impervious	Inc. Post Basins (2, 3)		3.340 AF
		Design WQ	3.340 AF
Treatment Volume Elevation			76.48 FT
Proposed Weir Elevation			76.50 FT
Pond 2 Stage/Storage Table:			
Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
78.00	1.69	1.631	4.538
77.00	1.57	1.512	2.907
76.00	1.45	1.395	1.395
75.0 NWL	1.34	0.000	0.000
Permanent Pool Volume			
75.0 NWL	1.34	2.454	6.499
74.00	1.23	1.171	5.215
73.00	1.12	1.090	4.045
72.00	1.06	1.037	2.955
71.00	1.01	1.918	1.918
69.00	0.91	0.000	0.000
Pond 3 Stage/Storage Table:			
Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
78.00	1.15	1.089	2.930
77.00	1.03	0.975	1.841
76.00	0.92	0.866	0.866
75.0 NWL	0.81	0.000	0.000
Permanent Pool Volume			
75.0 NWL	0.81	0.762	3.521
74.00	0.71	0.663	2.758
73.00	0.61	0.592	2.095
72.00	0.57	0.546	1.504
71.00	0.52	0.958	0.958
69.00	0.44	0.000	0.000
Pond 2/3 Stage/Storage Table:			
Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
78.00	2.84	2.720	7.467
77.00	2.60	2.486	4.748
76.00	2.37	2.261	2.261
75.0 NWL	2.15	0.000	0.000
Permanent Pool Volume			
75.0 NWL	2.15	2.044	10.018
74.00	1.94	1.834	7.974
73.00	1.73	1.681	6.140
72.00	1.63	1.582	4.459
71.00	1.53	2.877	2.877
69.00	1.34	0.000	0.000
Permanent Pool Volume Calculation			
Drainage Area	Inc.Post Basins (2,3)		32.14 AC
Compound C Value*			0.60
Wet Season Rainfall			28.00 IN
PPV Required			6.20 AF
PPV Provided			10.02 AF
Mean Depth Calculation			
Mean Depth (between 2-8 feet, ok)			8.2 FT
Residence Time Calculation			
Required Residence Time			21.0 DAYS
Provided Residence Time			34 DAYS

*C value is 0.95 times impervious plus 0.15 times pervious over the entire area.

Project:	**Lake Hills**
Basin:	**Post-5**
Pond:	**Pond-5**
Basin Area:	**31.98 ac**

Land Use Table:

Area (ac)	*Land Use*	*CN*
3.41	Proposed Pavement/Sidewalk	98
12.54	Impervious Lot	98
12.23	Pervious/Landscape (HSG-A)	39
3.80	Pond Surface Area	100
Composite CN		76

DCIA% (Lot Impervios is assumed 20% DCIA)	19%
Non-DCIA CN	71

SJRWMD Water Quality Presumptive Criteria:

1" over the basin area:		2.665 AF
1.25" over impervious area + 0.5" over basin area		2.994 AF
Nutrient Loading Volume 1.12" over the Basin Area		2.985 AF
	Design WQ	2.994 AF
Stage at Control Elevation:		79.77 FT
Proposed Weir Elevation:		80.00 FT

Stage/Storage Table:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
83.00	4.58	4.477	16.730
82.00	4.38	4.279	12.253
81.00	4.18	4.084	7.974
80.00	3.99	3.891	3.891
79.00	3.80	0.000	0.000

Project:	**Lake Hills**
Basin:	**Post-9**
Pond:	**Pond-9**
Basin Area:	**9.58 ac**

Land Use Table:

Area (ac)	*Land Use*	*CN*
4.30	Future Community Recreation Park	98
0.30	Proposed Pavement/Sidewalk	98
0.61	Impervious Lot	98
3.80	Pervious/Landscape (HSG-A)	39
0.56	Wet Pond Water Surface	100
Composite CN		75

DCIA% (Lot Impervios is assumed 20%, Rec Park assumed 50% DCIA)	27%
Non-DCIA CN	72

SJRWMD Water Quality Presumptive Criteria:

1" over the basin area:		0.799 AF
2.5" over impervious		1.087 AF
	Design WQ	1.087 AF
Treatment Volume Elevation:		67.26 FT
Proposed Weir Elevation:		67.30 FT

Stage/Storage Table:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
71.00	0.98	0.935	4.191
70.00	0.89	0.855	3.256
69.00	0.82	0.778	2.401
68.00	0.74	0.703	1.623
67.00	0.67	0.631	0.920
66.00	0.60	0.289	0.289
65.50	0.56	0.000	0.000

Permanent Pool Volume:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
65.50	0.56	0.529	2.334
64.50	0.50	0.465	1.805
63.50	0.43	0.213	1.341
63.00	0.42	1.127	1.127
60.00	0.33	0.000	0.000

Permanent Pool Volume Calculation

Drainage Area	9.58 ac
Compound C Value*	0.54
Wet Season Rainfall	28.00 IN
PPV Required	1.66 AF
PPV Provided	2.33 AF

Mean Depth Calculation	
Mean Depth (between 2-8 feet, ok)	4.2 FT
Residence Time Calculation	
Required Residence Time	21.0 DAYS
Provided Residence Time	31 DAYS

*C value is 0.95 times impervious plus 0.15 times pervious over the entire area.

Project:	**Lake Hills**
Basin:	**Post-10**
Pond:	**Pond-10**
Basin Area:	**11.84 ac**

Land Use Table:

Area (ac)	*Land Use*	*CN*
4.45	Proposed Pavement/Sidewalk	98
2.70	Impervious Lot	98
4.03	Pervious/Landscape (HSG-A)	39
0.65	Wet Pond Water Surface	100
Composite CN		78

DCIA% (Lot Impervios is assumed 20% DCIA)	42%
Non-DCIA CN	70

SJRWMD Water Quality Presumptive Criteria:

1" over the basin area:		0.986 AF
2.5" over impervious		1.490 AF
	Design WQ	1.490 AF
Treatment Volume Elevation:		See P4, P7, and P10 Calcs
Proposed Weir Elevation:		See P4, P7, and P10 Calcs

Stage/Storage Table:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
69.00	0.93	0.896	3.152
68.00	0.86	0.822	2.256
67.00	0.79	0.751	1.434
66.00	0.72	0.683	0.683
65.00	0.65	0.000	0.000

Permanent Pool Volume:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
65.00	0.65	0.619	3.476
64.00	0.59	0.558	2.857
63.00	0.53	0.514	2.299
62.00	0.50	1.785	1.785
58.00	0.39	0.000	0.000

PPV REQUIREMENTS PROVIDED W/ POND 4, POND 7, AND POND 10 CALCS

Project:	**Lake Hills**		
Pond:	**Pond-4 Pond-7 & Pond-10**		
Total Impervious:	**30.36 ac**		
Basin Area:	**55.88 ac**		
SJRWMD Water Quality Presumptive Criteria:			
1" over the basin area:	Inc. Post Basins (4, 7,10)		4.657 AF
2.5" over impervious	Inc. Post Basins (4, 7,10)		6.324 AF
		Design WQ	6.324 AF
Treatment Volume Elevation:			67.21 FT
Proposed Weir Elevation:			67.40 FT

Pond 4 Stage/Storage Table:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
69.00	0.56	0.520	1.668
68.00	0.48	0.448	1.148
67.00	0.41	0.381	0.700
66.00	0.35	0.319	0.319
65.0 NWL	0.29	0.000	0.000
Permanent Pool Volume			
65.0 NWL	0.29	0.261	1.145
64.00	0.23	0.209	0.884
63.00	0.18	0.173	0.675
62.00	0.16	0.502	0.502
58.00	0.09	0.000	0.000

Pond 7 Stage/Storage Table:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
70.00	2.26	2.187	9.470
69.00	2.11	2.036	7.283
68.00	1.96	1.888	5.247
67.00	1.81	1.746	3.359
66.00	1.68	1.612	1.612
65.0 NWL	1.55	0.000	0.000
Permanent Pool Volume			
65.0 NWL	1.55	1.483	8.641
64.00	1.42	1.359	7.158
63.00	1.30	1.269	5.799
62.00	1.24	4.531	4.531
58.00	1.03	0.000	0.000

Pond 10 Stage/Storage Table:

Stage (FT)	Area (AC)	Δ Vol. (AF)	Σ Vol. (AF)
69.00	0.93	0.896	3.152
68.00	0.86	0.822	2.256
67.00	0.79	0.751	1.434
66.00	0.72	0.683	0.683
65.0 NWL	0.65	0.000	0.000
Permanent Pool Volume			
65.0 NWL	0.65	0.619	3.476

64.00	0.59	0.558	2.857
63.00	0.53	0.514	2.299
62.00	0.50	1.785	1.785
58.00	0.39	0.000	0.000

Pond 4/7/10 Stage/Storage Table:

Stage (FT)	Area (AC)	Δ Vol. (AF)	Σ Vol. (AF)
70.00	2.26	2.187	14.290
69.00	3.60	3.453	12.104
68.00	3.30	3.158	8.651
67.00	3.01	2.878	5.492
66.00	2.74	2.614	2.614
65.0 NWL	2.49	0.00	0.00

Permanent Pool Volume

65.0 NWL	2.49	2.36	13.26
64.00	2.24	2.13	10.90
63.00	2.01	1.96	8.77
62.00	1.90	6.82	6.82
58.00	1.51	0.00	0.00

Permanent Pool Volume Calculation

Drainage Area	Inc. Post Basin (4,7,10)	55.88 AC
Compound C Value*		0.63
Wet Season Rainfall		28.00 IN
PPV Required		11.29 AF
PPV Provided		13.26 AF

Mean Depth Calculation

Mean Depth (between 2-8 feet, ok)	5.3 FT

Residence Time Calculation

Required Residence Time	21.0 DAYS
Provided Residence Time	25 DAYS

*C value is 0.95 times impervious plus 0.15 times pervious over the entire area.

Project:	**Lake Hills**
Basin:	**Post-12**
Pond:	**Pond-12**
Basin Area:	**15.36 ac**

Land Use Table:

Area (ac)	*Land Use*	*CN*
2.16	Proposed Pavement/Sidewalk	98
6.94	Impervious Lot	98
5.38	Pervious/Landscape (HSG-A)	39
0.88	Wet Pond Water Surface	100
Composite CN		77

Combined DCIA Calc (Post 12, Public Park)	
DCIA% (Lot Impervios is assumed 20% DCIA Inc. Public park)	20%
Non-DCIA CN	69

SJRWMD Water Quality Presumptive Criteria:

1" over the basin area:	Inc. Post Basins (12, Public Park)		1.642 AF
2.5" over impervious	Inc. Post Basins (12, Public Park)		2.312 AF
		Design WQ	2.312 AF
Treatment Volume Elevation:			66.79 FT
Proposed Weir Elevation:			66.85 FT

Stage/Storage Table:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
70.00	1.57	1.496	6.619
69.00	1.43	1.358	5.123
68.00	1.29	1.226	3.765
67.00	1.16	1.102	2.539
66.00	1.04	0.986	1.437
65.00	0.93	0.451	0.451
64.50	0.88	0.000	0.000

Permanent Pool Volume:

Stage (FT)	*Area (AC)*	*Δ Vol. (AF)*	*Σ Vol. (AF)*
64.50	0.88	0.825	3.666
63.50	0.77	0.727	2.841
62.50	0.68	0.970	2.113
61.00	0.61	1.143	1.143
59.00	0.53	0.000	0.000
		0.000	0.000
			0.000

Permanent Pool Volume Calculation

Drainage Area	Inc. Post Basins (12, Public Park)	19.71
Compound C Value*		0.64
Wet Season Rainfall		28.00 IN
PPV Required		2.68 AF
PPV Provided		3.67 AF

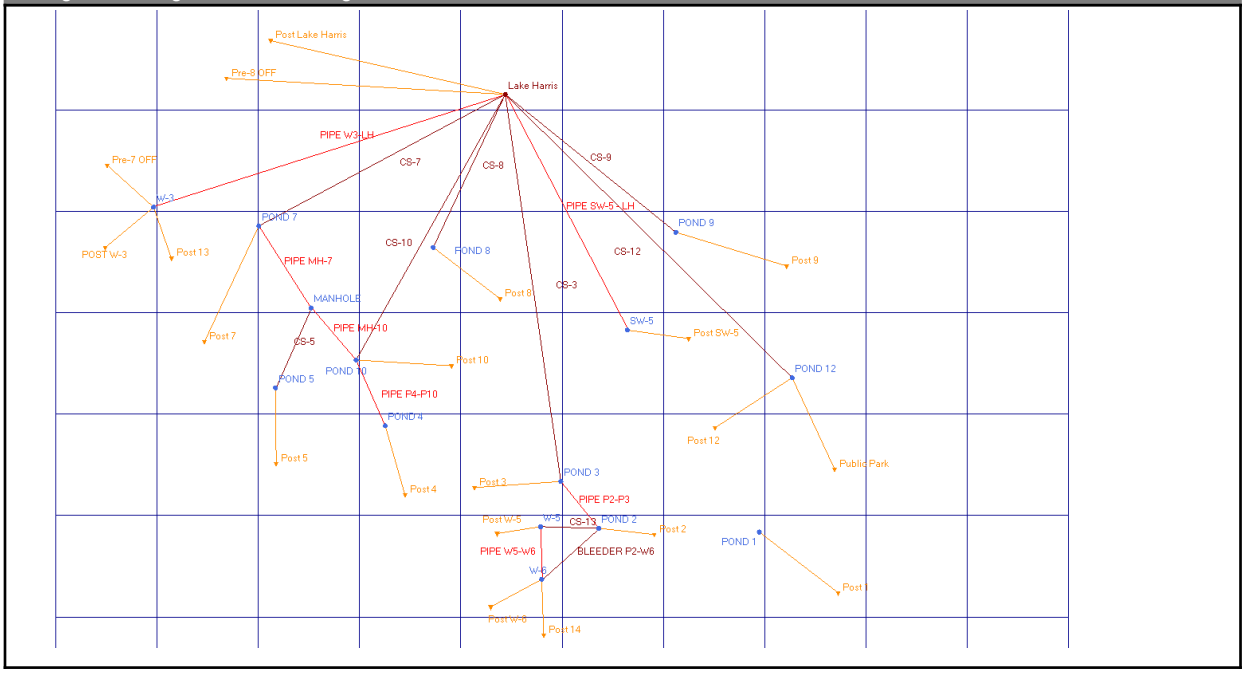
Mean Depth Calculation	
Mean Depth (between 2-8 feet, ok)	4.2 FT
Residence Time Calculation	
Required Residence Time	14.0 DAYS
Provided Residence Time	19 DAYS

*C value is 0.95 times impervious plus 0.15 times pervious over the entire area.

Basin Public Park				
Land Use/Vegetation	**Hydric Group**	**CN**	**Total Area (Ac.)**	**CN * Area**
Pavement (Impervious)	-	98	2	196
Open Space (Good)	A	39	2.35	91.65
TOTAL AREA			4.35	287.7
			CN =	**66**

Appendix F
Postdevelopment ICPR Node Diagram

Background Image: Post Node Diagram



Appendix G
Postdevelopment Phase 1 ICPR Input Data

Simple Basin: POST W-3

Scenario:	POSTDEVELOPMENT
Node:	W-3
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	6.6500 ac
Curve Number:	77.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 1

Scenario:	POSTDEVELOPMENT
Node:	POND 1
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	27.2500 ac
Curve Number:	85.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 10

Scenario:	POSTDEVELOPMENT
Node:	POND 10
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	11.8400 ac
Curve Number:	78.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 12

Scenario:	POSTDEVELOPMENT
Node:	POND 12
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	15.3600 ac
Curve Number:	77.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 13

Scenario:	POSTDEVELOPMENT
Node:	W-3
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	4.7700 ac
Curve Number:	83.0
% Impervious:	0.00
% DCIA:	0.00

% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 14

Scenario:	POSTDEVELOPMENT
Node:	W-6
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	3.5800 ac
Curve Number:	70.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 2

Scenario:	POSTDEVELOPMENT
Node:	POND 2
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	19.3400 ac
Curve Number:	69.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 3

Scenario:	POSTDEVELOPMENT
Node:	POND 3
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	12.8000 ac
Curve Number:	77.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 4

Scenario:	POSTDEVELOPMENT
Node:	POND 4
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	9.4900 ac
Curve Number:	74.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 5

Scenario:	POSTDEVELOPMENT
Node:	POND 5
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	31.9800 ac
Curve Number:	76.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 7

Scenario:	POSTDEVELOPMENT
Node:	POND 7
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	34.5600 ac
Curve Number:	72.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 8

Scenario:	POSTDEVELOPMENT
Node:	POND 8
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	16.2400 ac
Curve Number:	76.0
% Impervious:	0.00
% DCIA:	0.00

% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post 9

Scenario:	POSTDEVELOPMENT
Node:	POND 9
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	15.0000 min
Max Allowable Q:	9999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH484
Peaking Factor:	484.0
Area:	9.5800 ac
Curve Number:	75.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: Post Lake Harris

Scenario:	POSTDEVELOPMENT
Node:	Lake Harris
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	2.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	28.2200 ac
Curve Number:	90.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

% Direct: 0.00
Rainfall Name:

Comment:

Simple Basin: Public Park

Scenario: POSTDEVELOPMENT
Node: POND 12
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 15.0000 min
Max Allowable Q: 99999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH484
Peaking Factor: 484.0
Area: 4.3500 ac
Curve Number: 66.0
% Impervious: 0.00
% DCIA: 0.00
% Direct: 0.00
Rainfall Name:

Comment:

Node: Lake Harris

Scenario: POSTDEVELOPMENT
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 62.63 ft
Warning Stage: 63.63 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	62.63
0	0	0	12.0000	62.63
0	0	0	24.0000	62.63
0	0	0	36.0000	62.63

Comment:

Node: MANHOLE

Scenario: POSTDEVELOPMENT

Appendix H
Postdevelopment ICPR Node Min/Max Report

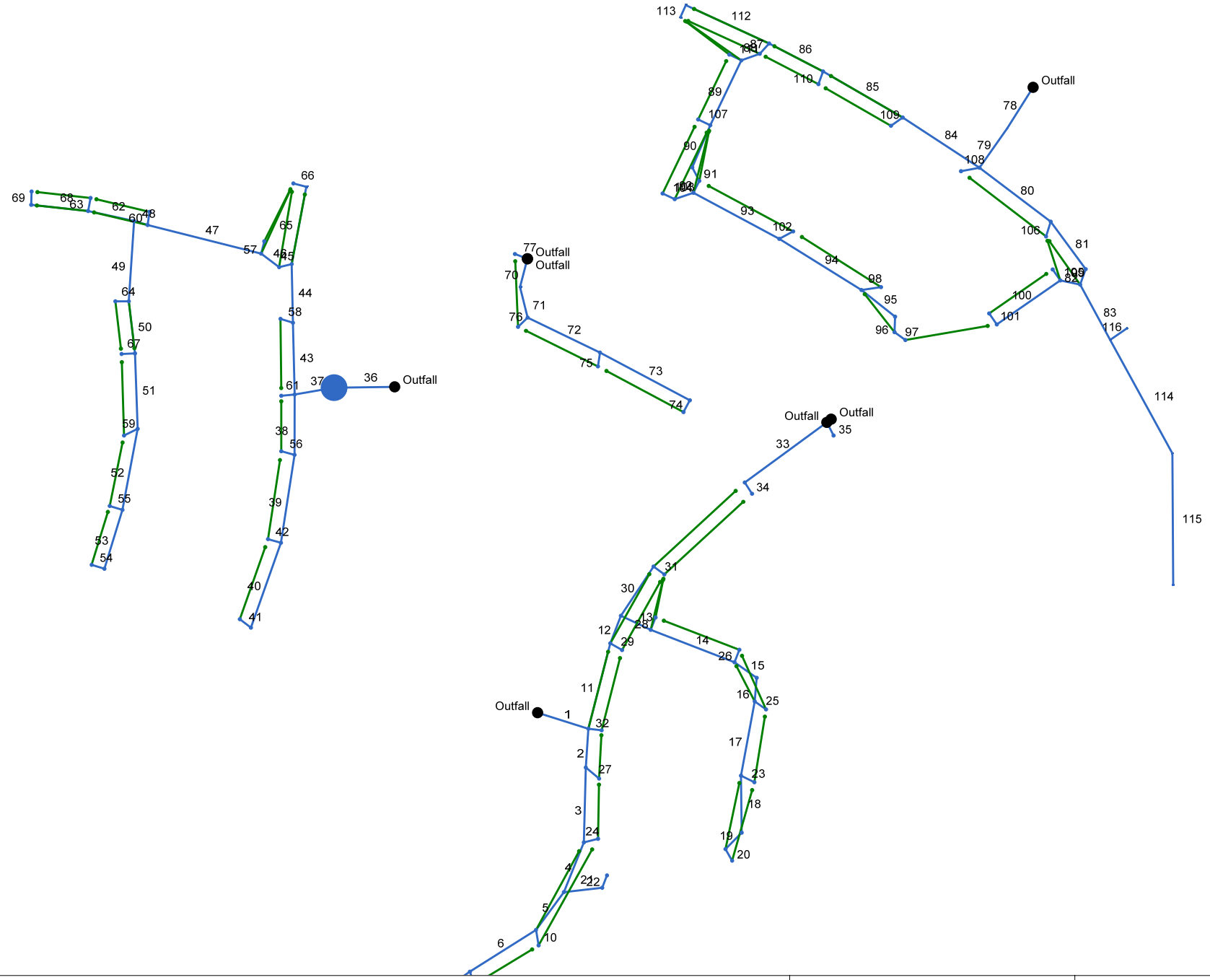
Node Max Conditions [POSTDEVELOPMENT]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
Lake Harris	100YR-24HR	63.63	62.63	0.0000	703.72	0.00	0
MANHOLE	100YR-24HR	73.75	68.99	-0.0010	64.66	64.70	1677
POND 1	100YR-24HR	90.00	85.78	0.0010	260.79	0.00	134775
POND 10	100YR-24HR	69.00	68.56	0.0009	196.96	188.26	39178
POND 12	100YR-24HR	70.00	69.28	-0.0010	165.74	43.24	64006
POND 2	100YR-24HR	78.00	77.96	-0.0007	148.62	76.67	73435
POND 3	100YR-24HR	78.00	77.91	0.0007	131.96	103.87	49632
POND 4	100YR-24HR	69.00	68.82	0.0010	79.40	57.33	23773
POND 5	100YR-24HR	83.00	81.85	-0.0008	275.62	26.23	189466
POND 7	100YR-24HR	70.00	69.46	0.0010	280.04	120.24	94941
POND 8	100YR-24HR	69.00	68.14	0.0010	139.97	126.34	40670
POND 9	100YR-24HR	71.00	69.35	0.0009	81.38	29.31	36778
SW-5	100YR-24HR	68.00	63.07	-0.0003	13.75	7.70	22095
W-3	100YR-24HR	71.00	67.69	-0.0694	97.56	86.03	78677
W-5	100YR-24HR	79.00	76.04	0.0010	39.79	3.95	61151
W-6	100YR-24HR	79.00	75.75	0.0005	73.41	0.00	218350
Lake Harris	10YR-24HR	63.63	62.63	0.0000	226.43	0.00	0
MANHOLE	10YR-24HR	73.75	67.68	0.0010	11.57	12.73	1681
POND 1	10YR-24HR	90.00	82.38	0.0010	137.45	0.00	111830
POND 10	10YR-24HR	69.00	67.67	0.0009	61.10	22.98	36490
POND 12	10YR-24HR	70.00	67.29	0.0009	77.30	9.99	52178
POND 2	10YR-24HR	78.00	76.81	0.0006	71.82	8.66	67428
POND 3	10YR-24HR	78.00	76.81	0.0006	53.74	8.59	43978
POND 4	10YR-24HR	69.00	67.68	0.0009	36.64	10.10	19934
POND 5	10YR-24HR	83.00	80.53	0.0005	130.70	5.51	178169
POND 7	10YR-24HR	70.00	67.72	0.0010	131.37	17.27	83563
POND 8	10YR-24HR	69.00	67.37	0.0010	66.37	13.05	37591
POND 9	10YR-24HR	71.00	67.82	0.0008	38.07	3.36	31687
SW-5	10YR-24HR	68.00	62.79	-0.0003	6.71	4.59	19837
W-3	10YR-24HR	71.00	67.64	-0.0694	40.71	86.03	184
W-5	10YR-24HR	79.00	74.81	0.0009	9.69	0.00	49831
W-6	10YR-24HR	79.00	74.36	0.0004	28.75	0.00	141315
Lake Harris	25YR-24HR	63.63	62.63	0.0000	316.83	0.00	0
MANHOLE	25YR-24HR	73.75	68.11	0.0010	30.47	30.54	1680
POND 1	25YR-24HR	90.00	83.61	0.0010	180.29	0.00	119876
POND 10	25YR-24HR	69.00	68.04	0.0009	88.48	78.03	37599
POND 12	25YR-24HR	70.00	67.86	0.0009	107.47	29.61	55397
POND 2	25YR-24HR	78.00	77.21	0.0007	100.32	30.38	69480
POND 3	25YR-24HR	78.00	77.20	0.0007	73.70	31.17	45942
POND 4	25YR-24HR	69.00	68.08	0.0009	51.22	23.38	21195
POND 5	25YR-24HR	83.00	80.93	0.0006	180.35	12.96	181518
POND 7	25YR-24HR	70.00	68.27	0.0010	180.15	57.75	87179
POND 8	25YR-24HR	69.00	67.73	0.0010	91.58	52.53	39014
POND 9	25YR-24HR	71.00	68.37	0.0009	52.87	9.20	33508
SW-5	25YR-24HR	68.00	62.88	-0.0003	9.13	5.77	20669
W-3	25YR-24HR	71.00	67.64	-0.0694	58.50	86.03	184

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
W-5	25YR-24HR	79.00	75.56	0.0010	23.17	1.04	56898
W-6	25YR-24HR	79.00	74.88	0.0004	43.52	0.00	169925
Lake Harris	25YR-96HR	63.63	62.63	0.0000	568.65	0.00	0
MANHOLE	25YR-96HR	73.75	68.65	-0.0010	55.01	55.06	1671
POND 1	25YR-96HR	90.00	85.92	0.0010	143.17	0.00	135773
POND 10	25YR-96HR	69.00	68.33	0.0009	140.64	137.06	38501
POND 12	25YR-96HR	70.00	68.73	-0.0010	92.47	40.19	60626
POND 2	25YR-96HR	78.00	77.66	0.0006	83.93	57.84	71872
POND 3	25YR-96HR	78.00	77.64	0.0006	84.13	72.56	48232
POND 4	25YR-96HR	69.00	68.45	0.0009	44.36	37.77	22475
POND 5	25YR-96HR	83.00	81.68	-0.0008	153.41	25.83	188037
POND 7	25YR-96HR	70.00	68.94	0.0010	157.09	97.29	91528
POND 8	25YR-96HR	69.00	67.87	0.0010	77.90	75.26	39567
POND 9	25YR-96HR	71.00	69.06	-0.0010	45.37	19.32	35891
SW-5	25YR-96HR	68.00	62.90	-0.0002	8.41	5.99	20846
W-3	25YR-96HR	71.00	67.64	-0.0694	64.66	86.03	184
W-5	25YR-96HR	79.00	75.95	0.0010	34.97	3.14	60241
W-6	25YR-96HR	79.00	75.95	0.0004	40.04	0.00	229610
Lake Harris	MEAN	63.63	62.63	0.0000	159.59	0.00	0
MANHOLE	MEAN	73.75	67.44	0.0010	6.54	5.70	1678
POND 1	MEAN	90.00	81.07	0.0010	93.98	0.00	103269
POND 10	MEAN	69.00	67.44	0.0008	38.93	7.51	35768
POND 12	MEAN	70.00	66.93	0.0008	47.91	1.33	50179
POND 2	MEAN	78.00	76.55	0.0006	43.68	1.12	66057
POND 3	MEAN	78.00	76.55	0.0006	34.07	7.22	42731
POND 4	MEAN	69.00	67.44	0.0008	22.49	6.38	19207
POND 5	MEAN	83.00	80.21	0.0004	81.97	1.43	175580
POND 7	MEAN	70.00	67.44	0.0009	78.72	2.06	81746
POND 8	MEAN	69.00	67.12	0.0010	41.63	0.89	36611
POND 9	MEAN	71.00	67.41	0.0007	23.62	0.60	30422
SW-5	MEAN	68.00	62.71	-0.0002	4.31	3.26	19123
W-3	MEAN	71.00	67.64	-0.0694	25.60	86.03	184
W-5	MEAN	79.00	73.24	0.0002	5.92	0.00	36777
W-6	MEAN	79.00	74.07	0.0004	15.19	0.00	125173

Appendix I
Secondary Drainage System Calculations (StormSewer)

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
1	DP016	49.30	30	Cir	103.35	76.00	79.00	2.903	77.55	81.29	n/a	81.29	End	Curb-Horiz
2	DP014	22.40	24	Cir	75.71	81.86	83.21	1.783	83.14	84.90	n/a	84.90	1	Curb-Horiz
3	DP012	19.36	24	Cir	146.10	83.21	85.44	1.526	84.90	87.02	n/a	87.02 j	2	Curb-Horiz
4	DP010	16.21	24	Cir	104.42	85.94	87.17	1.178	87.13	88.62	n/a	88.62	3	Manhole
5	DP009	13.03	24	Cir	91.39	87.17	87.56	0.427	88.63	89.02	0.49	89.51	4	Curb-Horiz
6	DP007	8.79	24	Cir	152.13	88.06	88.87	0.532	89.51	89.93	0.62	89.93	5	Curb-Horiz
7	DP005	4.58	15	Cir	174.86	89.30	90.35	0.600	90.24	91.29	0.50	91.79	6	Curb-Horiz
8	DP004	1.69	15	Cir	26.00	90.35	90.43	0.308	91.79*	91.81*	0.03	91.84	7	Curb-Horiz
9	DP006	2.08	15	Cir	26.68	89.30	89.39	0.337	89.96	90.05	0.15	90.21	6	Curb-Horiz
10	DP008	2.84	15	Cir	30.86	88.40	88.49	0.292	89.51	89.56	0.10	89.66	5	Curb-Horiz
11	DP023	22.74	30	Cir	172.05	81.86	82.75	0.517	83.51	84.40	1.03	85.42	1	Curb-Horiz
12	DP120	19.61	30	Cir	57.45	83.10	83.30	0.348	85.42	85.52	0.28	85.80	11	Manhole
13	DP035	16.39	24	Cir	63.95	83.30	83.84	0.844	85.80*	86.14*	0.64	86.77	12	Curb-Horiz
14	DP033	14.24	24	Cir	174.55	84.34	86.21	1.071	86.77	87.57	n/a	87.57 j	13	Curb-Horiz
15	DP031	10.28	24	Cir	52.90	85.21	85.60	0.737	87.57*	87.68*	0.15	87.83	14	Manhole
16	DP030	10.30	24	Cir	46.05	85.60	85.85	0.543	87.83*	87.92*	0.22	88.14	15	Curb-Horiz
17	DP028	6.69	18	Cir	147.19	86.30	87.02	0.489	88.14*	88.74*	0.32	89.06	16	Curb-Horiz
18	DP026	1.84	15	Cir	111.25	87.02	87.81	0.710	89.06*	89.15*	0.03	89.18	17	Manhole
19	DP025	1.83	15	Cir	44.79	87.81	88.05	0.536	89.18	89.21	0.05	89.26	18	Curb-Horiz
20	DP024	1.46	15	Cir	26.00	88.05	88.13	0.308	89.26	89.27	0.02	89.30	19	Curb-Horiz
21	DP019	3.35	15	Cir	74.82	87.17	88.00	1.109	88.62	88.77	0.38	89.15	4	Curb-Horiz
22	DP018	0.47	15	Cir	26.00	88.00	88.09	0.346	89.15	89.15	0.00	89.15	21	Curb-Horiz
23	DP027	3.27	15	Cir	29.04	87.02	87.11	0.310	89.06*	89.14*	0.11	89.25	17	Curb-Horiz
24	DP011	1.46	15	Cir	28.41	86.70	86.78	0.282	87.27	87.35	0.11	87.46	3	Curb-Horiz

Project File: POD 1 STORMSEWERS PAYTON.stm | Number of lines: 116 | Run Date: 6/5/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
25	DP029	1.69	15	Cir	26.84	86.27	86.37	0.373	88.14*	88.16*	0.03	88.19	16	Curb-Horiz
26	DP032	3.61	15	Cir	26.00	85.62	85.71	0.346	87.57*	87.65*	0.13	87.78	14	Curb-Horiz
27	DP013	1.73	15	Cir	33.70	84.75	84.84	0.267	85.39	85.48	0.12	85.59	2	Curb-Horiz
28	DP034	2.19	15	Cir	26.00	84.75	84.84	0.346	86.77*	86.80*	0.05	86.85	13	Curb-Horiz
29	DP022	1.08	15	Cir	26.29	84.15	84.24	0.342	85.42	85.43	0.01	85.44	11	Curb-Horiz
30	DP021	3.53	15	Cir	115.18	83.30	83.71	0.356	85.80*	86.15*	0.19	86.34	12	Curb-Horiz
31	DP020	1.08	15	Cir	26.00	83.71	83.81	0.385	86.34*	86.35*	0.01	86.36	30	Curb-Horiz
32	DP015	3.11	15	Cir	26.00	83.26	83.36	0.385	84.09	84.19	0.20	84.39	1	Curb-Horiz
33	DP046	6.51	18	Cir	208.35	81.20	81.86	0.317	82.19*	83.48*	0.32	83.80	End	Curb-Horiz
34	DP045	4.07	15	Cir	26.01	81.86	81.96	0.384	83.80*	83.90*	0.17	84.07	33	Curb-Horiz
35	DP047	2.04	15	Cir	28.78	81.20	81.28	0.278	82.09	82.12	0.08	82.21	End	Curb-Horiz
36	DP056	39.04	54	Cir	117.74	67.50	68.00	0.425	75.40*	75.45*	0.02	75.46	End	Manhole
37	DP055	39.33	54	Cir	77.55	68.00	68.40	0.516	75.46*	75.50*	0.15	75.65	36	Curb-Horiz
38	DP054	9.70	18	Cir	117.76	72.86	74.82	1.664	75.65*	76.65*	0.70	77.35	37	Curb-Horiz
39	DP052	5.46	15	Cir	173.44	75.32	78.06	1.580	77.35	79.01	n/a	79.01 j	38	Curb-Horiz
40	DP050	1.14	15	Cir	175.45	78.06	78.90	0.479	79.01	79.33	0.21	79.55	39	Curb-Horiz
41	DP049	1.00	15	Cir	26.98	78.90	79.00	0.371	79.55	79.56	0.06	79.61	40	Curb-Horiz
42	DP051	2.23	15	Cir	26.01	78.06	78.16	0.384	79.01	79.03	0.09	79.13	39	Curb-Horiz
43	DP065	26.22	54	Cir	140.00	68.40	68.70	0.214	75.65*	75.67*	0.06	75.73	37	Curb-Horiz
44	DP063	25.45	42	Cir	114.29	68.90	69.80	0.787	75.73*	75.81*	0.20	76.01	43	Curb-Horiz
45	DP062	23.06	42	Cir	25.16	69.80	69.90	0.397	76.01*	76.02*	0.11	76.13	44	Curb-Horiz
46	DP082	22.56	42	Cir	43.79	69.90	70.20	0.685	76.13*	76.15*	0.12	76.27	45	Curb-Horiz
47	DP080	22.25	42	Cir	227.47	70.20	70.78	0.255	76.27*	76.39*	0.12	76.51	46	Curb-Horiz
48	DP076	19.92	42	Cir	27.42	70.78	70.88	0.365	76.51*	76.52*	0.07	76.59	47	Manhole

Project File: POD 1 STORMSEWERS PAYTON.stm | Number of lines: 116 | Run Date: 6/5/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
49	DP075	14.87	36	Cir	157.04	70.88	71.35	0.299	76.59*	76.66*	0.10	76.77	48	Curb-Horiz
50	DP073	11.48	24	Cir	102.31	71.35	72.19	0.821	76.77*	77.03*	0.31	77.34	49	Curb-Horiz
51	DP071	5.06	18	Cir	147.24	72.19	73.95	1.195	77.34*	77.69*	0.18	77.86	50	Curb-Horiz
52	DP069	2.83	15	Cir	160.77	74.35	75.37	0.634	77.86*	78.17*	0.12	78.29	51	Curb-Horiz
53	DP067	1.22	15	Cir	120.00	76.07	77.76	1.408	78.29	78.36	0.10	78.46	52	Curb-Horiz
54	DP066	0.19	15	Cir	26.00	77.76	78.16	1.538	78.46	78.33	n/a	78.33	53	Curb-Horiz
55	DP068	0.23	15	Cir	26.00	75.37	75.57	0.769	78.29*	78.30*	0.00	78.30	52	Curb-Horiz
56	DP053	2.23	15	Cir	26.62	75.32	75.42	0.376	77.35*	77.39*	0.05	77.44	38	Curb-Horiz
57	DP081	0.88	15	Cir	25.00	74.43	74.53	0.400	76.27*	76.28*	0.01	76.29	46	Curb-Horiz
58	DP064	0.65	15	Cir	25.27	74.01	74.11	0.396	75.73*	75.74*	0.00	75.74	43	Curb-Horiz
59	DP070	0.27	15	Cir	29.58	73.95	74.15	0.676	77.86*	77.86*	0.00	77.86	51	Curb-Horiz
60	DP079	2.38	15	Cir	26.12	73.71	73.81	0.383	76.51*	76.54*	0.06	76.60	47	Curb-Horiz
61	DP057	3.46	15	Cir	26.08	73.30	73.38	0.307	75.65*	75.72*	0.12	75.85	37	Curb-Horiz
62	DP078	5.90	36	Cir	91.16	70.88	71.10	0.241	76.59*	76.59*	0.02	76.62	48	Curb-Horiz
63	DP077	1.61	15	Cir	26.00	72.85	72.95	0.385	76.62*	76.63*	0.03	76.66	62	Curb-Horiz
64	DP074	2.23	15	Cir	26.03	72.71	72.81	0.384	76.77*	76.80*	0.05	76.85	49	Curb-Horiz
65	DP059	2.05	15	Cir	153.53	72.20	72.70	0.326	76.01*	76.17*	0.07	76.23	44	Curb-Horiz
66	DP058	0.36	15	Cir	26.00	72.70	72.80	0.385	76.23*	76.23*	0.00	76.23	65	Curb-Horiz
67	DP072	4.07	15	Cir	26.16	72.19	72.29	0.382	77.34*	77.45*	0.17	77.62	50	Curb-Horiz
68	DP118	4.46	36	Cir	111.16	71.10	71.38	0.252	76.62*	76.62*	0.01	76.63	62	Curb-Horiz
69	DP117	3.69	24	Cir	26.00	71.58	71.67	0.346	76.63*	76.64*	0.02	76.66	68	Curb-Horiz
70	DP042	14.13	24	Cir	56.87	75.17	75.55	0.668	82.78*	83.00*	0.17	83.17	End	Manhole
71	DP041	14.16	24	Cir	61.42	75.55	75.86	0.505	83.17*	83.41*	0.42	83.83	70	Curb-Horiz
72	DP039	9.92	24	Cir	156.04	75.86	76.69	0.532	83.83*	84.13*	0.22	84.35	71	Curb-Horiz

Project File: POD 1 STORMSEWERS PAYTON.stm | Number of lines: 116 | Run Date: 6/5/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
73	DP037	5.00	15	Cir	197.80	77.42	78.55	0.571	84.35*	85.54*	0.39	85.93	72	Curb-Horiz
74	DP036	2.08	15	Cir	26.02	78.55	78.64	0.346	85.93*	85.96*	0.04	86.00	73	Curb-Horiz
75	DP038	2.46	15	Cir	27.27	77.42	77.52	0.367	84.35*	84.39*	0.06	84.46	72	Curb-Horiz
76	DP040	2.58	15	Cir	26.00	76.26	76.36	0.385	83.83*	83.87*	0.07	83.94	71	Curb-Horiz
77	DP043	2.90	15	Cir	26.00	75.57	75.67	0.385	82.78*	82.83*	0.09	82.92	End	Curb-Horiz
78	DP098	48.41	36	Cir	94.62	60.00	61.30	1.376	66.17*	66.67*	0.11	66.78	End	None
79	DP097	48.55	36	Cir	93.69	62.50	63.80	1.388	66.78*	67.28*	1.22	68.49	78	Curb-Horiz
80	DP107	20.95	24	Cir	173.70	67.70	68.83	0.651	69.70*	71.19*	0.99	72.18	79	Curb-Horiz
81	DP109	18.94	18	Cir	114.95	69.24	70.00	0.661	72.18*	75.92*	2.29	78.21	80	Curb-Horiz
82	DP108	17.37	18	Cir	31.95	70.00	70.08	0.250	78.21*	79.08*	2.24	81.32	81	Curb-Horiz
83	DP119 (4)	10.02	18	Cir	122.51	70.08	70.51	0.351	81.32*	82.44*	0.75	83.19	82	DropGrate
84	DP095	25.49	36	Cir	178.19	63.80	64.40	0.337	68.49*	68.75*	0.29	69.04	79	Curb-Horiz
85	DP093	23.99	36	Cir	178.86	64.40	65.00	0.335	69.04*	69.27*	0.27	69.54	84	Curb-Horiz
86	DP091	20.65	30	Cir	118.13	65.00	65.45	0.381	69.54*	69.84*	0.40	70.24	85	Curb-Horiz
87	DP119	17.14	30	Cir	27.00	65.45	65.55	0.370	70.24*	70.29*	0.15	70.44	86	Curb-Horiz
88	DP088	15.90	30	Cir	38.01	65.55	66.16	1.605	70.44*	70.49*	0.18	70.68	87	Curb-Horiz
89	DP086	14.33	30	Cir	140.20	66.16	69.31	2.247	70.68	70.74	0.57	71.31	88	Curb-Horiz
90	DP084	12.27	30	Cir	89.39	69.31	70.12	0.908	71.31	71.30	n/a	71.30 j	89	Manhole
91	DP119 (6)	11.96	30	Cir	29.70	70.12	70.39	0.909	71.30	71.55	n/a	71.55 j	90	Curb-Horiz
92	DP114	9.66	30	Cir	26.00	70.39	70.63	0.923	71.55	71.67	n/a	71.67 j	91	Curb-Horiz
93	DP113	7.13	24	Cir	189.37	70.63	72.35	0.908	71.67	73.30	n/a	73.30 j	92	Curb-Horiz
94	DP111	2.79	15	Cir	188.12	72.35	74.05	0.904	73.30	74.72	n/a	74.72 j	93	Curb-Horiz
95	DP119 (5)	0.61	18	Cir	83.50	74.05	74.81	0.908	74.72	75.10	n/a	75.10 j	94	Manhole
96	DP100	0.63	15	Cir	30.04	74.81	75.08	0.899	75.10	75.39	0.14	75.39	95	Curb-Horiz

Project File: POD 1 STORMSEWERS PAYTON.stm | Number of lines: 116 | Run Date: 6/5/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
97	DP099	0.31	15	Cir	26.00	75.08	75.32	0.923	75.39	75.53	n/a	75.53 j	96	Curb-Horiz
98	DP110	1.35	15	Cir	38.39	75.07	75.17	0.260	75.63	75.73	0.10	75.83	94	Curb-Horiz
99	DP104	7.43	18	Cir	39.43	70.08	72.10	5.124	81.32*	81.52*	0.45	81.97	82	Curb-Horiz
100	DP102	5.13	15	Cir	150.17	72.10	74.06	1.305	81.97*	82.92*	0.41	83.33	99	Curb-Horiz
101	DP101	1.15	15	Cir	26.00	74.06	74.16	0.385	83.33*	83.33*	0.01	83.35	100	Curb-Horiz
102	DP112	2.69	15	Cir	30.47	73.77	73.87	0.328	74.56	74.66	0.17	74.83	93	Curb-Horiz
103	DP115	0.66	18	Cir	38.30	72.00	72.12	0.313	72.34	72.46	0.08	72.54	92	Curb-Horiz
104	DP083	0.27	15	Cir	25.95	73.27	73.37	0.385	73.49	73.59	0.05	73.64	103	Curb-Horiz
105	DP103	0.46	15	Cir	26.00	72.10	72.20	0.385	81.97*	81.97*	0.00	81.97	99	Curb-Horiz
106	DP106	0.58	15	Cir	30.23	70.44	70.53	0.298	72.18*	72.18*	0.00	72.18	80	Curb-Horiz
107	DP085	2.04	15	Cir	26.00	70.21	70.31	0.385	71.31	71.33	0.06	71.38	89	Curb-Horiz
108	DP096	3.69	15	Cir	36.40	70.01	70.12	0.302	71.09	71.19	0.17	71.36	79	Curb-Horiz
109	DP094	1.31	15	Cir	28.00	68.22	68.32	0.357	69.04	69.05	0.05	69.10	84	Curb-Horiz
110	DP092	2.04	15	Cir	26.29	67.25	67.35	0.380	69.54*	69.56*	0.04	69.61	85	Curb-Horiz
111	DP087	1.81	15	Cir	25.95	67.06	67.16	0.385	70.68*	70.70*	0.03	70.73	88	Curb-Horiz
112	DP090	2.76	15	Cir	178.28	66.30	66.91	0.342	70.24*	70.57*	0.12	70.68	86	Curb-Horiz
113	DP089	0.46	15	Cir	25.95	66.91	67.01	0.385	70.68*	70.69*	0.00	70.69	112	Curb-Horiz
114	DP119 (2)	6.92	18	Cir	252.28	70.51	75.71	2.061	83.19*	84.28*	0.19	84.47	83	DropGrate
115	DP119 (1)	3.72	18	Cir	256.52	75.71	81.00	2.062	84.47*	84.79*	0.07	84.86	114	DropGrate
116	DP119 (3)	1.33	18	Cir	39.56	70.51	70.65	0.354	83.19*	83.19*	0.01	83.20	83	DropGrate

Project File: POD 1 STORMSEWERS PAYTON.stm | Number of lines: 116 | Run Date: 6/5/2025

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	DS023	2.84	0.55	2.55	0.85	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.23	11.28	0.30	6.70	2.0	11
2	DS021	1.73	0.55	1.73	0.55	Curb	6.0	9.50	0.00	0.00	0.00	0.016	2.00	0.020	0.020	0.013	0.17	8.32	0.26	4.87	2.0	1
3	DS019	2.04	0.24	1.73	0.55	Curb	6.0	9.50	0.00	0.00	0.00	0.016	2.00	0.020	0.020	0.013	0.17	8.31	0.26	4.87	2.0	2
4	DS018	0.04	0.00	0.00	0.04	MH	6.0	9.50	0.00	2.00	0.00	Sag	2.00	0.000	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
5	DS016	1.81	0.50	2.07	0.24	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.21	10.39	0.26	4.42	2.0	3
6	DS014	2.34	0.61	2.45	0.50	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.23	11.40	0.28	5.85	2.0	5
7	DS013	2.92	0.00	2.32	0.61	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.21	10.66	0.28	5.92	2.0	6
8	DS012	1.69	0.00	1.58	0.11	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.17	8.69	0.23	3.10	2.0	9
9	DS015	2.08	0.11	1.99	0.19	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.20	10.18	0.25	4.12	2.0	10
10	DS017	2.84	0.19	2.50	0.54	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.23	11.53	0.29	6.02	2.0	24
11	DS031	2.50	0.85	2.66	0.68	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.24	11.95	0.30	6.58	2.0	30
12	DS045	0.04	0.00	0.00	0.04	MH	6.0	9.50	0.00	2.00	0.00	Sag	2.00	0.000	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
13	DS043	0.38	0.00	0.38	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.11	5.31	0.17	0.01	2.0	31
14	DS041	0.73	0.26	0.99	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.15	7.57	0.17	0.01	2.0	13
15	DS040	0.04	0.00	0.00	0.04	MH	6.0	9.50	0.00	2.00	0.00	Sag	2.00	0.000	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
16	DS038	2.27	0.10	2.11	0.26	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.21	10.50	0.26	4.59	2.0	14
17	DS036	1.88	0.00	1.78	0.10	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.19	9.63	0.23	3.25	2.0	16
18	DS035	0.04	0.00	0.00	0.04	MH	6.0	9.50	0.00	2.00	0.00	Sag	2.00	0.000	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
19	DS034	0.38	0.00	0.38	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.10	4.99	0.17	0.01	2.0	17
20	DS033	1.46	0.00	1.41	0.05	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.16	8.22	0.21	2.32	2.0	23
21	DS027	2.98	0.00	2.47	0.51	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.23	11.44	0.28	5.90	2.0	Off
22	DS028	0.47	0.00	0.47	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.11	5.72	0.17	0.01	2.0	Off
23	DS037	3.27	0.05	2.65	0.67	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.24	11.91	0.30	6.53	2.0	25

Project File: New.stm | Number of lines: 116 | Run Date: 4/30/2025

NOTES: Inlet N-Values = 0.016; Intensity = 12.4956 + -1.6712(X) + -0.3490(X)^2 + 0.0502(X)^3 -- X = Inlet time (min); Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Ho at.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
24	DS020	1.46	0.54	1.59	0.41	Curb	6.0	9.50	0.00	0.00	0.00	0.016	2.00	0.020	0.020	0.013	0.16	7.92	0.25	4.37	2.0	27
25	DS039	1.69	0.67	2.10	0.26	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.21	10.48	0.26	4.56	2.0	26
26	DS042	3.61	0.26	2.92	0.95	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.25	12.62	0.32	7.44	2.0	28
27	DS022	1.73	0.41	1.66	0.48	Curb	6.0	9.50	0.00	0.00	0.00	0.016	2.00	0.020	0.020	0.013	0.16	8.12	0.26	4.63	2.0	32
28	DS044	2.19	0.95	2.55	0.58	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.23	11.66	0.29	6.20	2.0	31
29	DS032	1.08	0.95	1.88	0.15	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.20	9.91	0.24	3.69	2.0	31
30	DS030	2.50	0.68	2.39	0.79	Curb	6.0	9.50	0.00	0.00	0.00	0.008	2.00	0.020	0.020	0.013	0.21	10.73	0.29	6.37	2.0	33
31	DS029	1.08	0.73	1.64	0.17	Curb	6.0	9.50	0.00	0.00	0.00	0.008	2.00	0.020	0.020	0.013	0.17	8.68	0.24	3.57	2.0	34
32	DS024	3.11	0.48	2.64	0.95	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.23	11.52	0.31	7.01	2.0	29
33	DS057	2.46	0.79	3.25	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.18	8.96	0.35	8.96	2.0	Off
34	DS056	4.07	0.17	4.24	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.21	10.71	0.38	10.71	2.0	Off
35	DS059	1.11	0.00	1.11	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.16	7.91	0.17	0.01	2.0	Off
36	DS068	0.04	0.00	0.00	0.04	MH	6.0	9.50	0.00	0.00	0.00	Sag	2.00	0.000	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
37	DS067	3.46	1.14	4.60	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.23	11.29	0.39	11.29	2.0	Off
38	DS065	2.54	0.73	2.13	1.14	Curb	6.0	9.50	0.00	0.00	0.00	0.017	2.00	0.020	0.020	0.013	0.19	9.41	0.29	6.34	2.0	37
39	DS063	2.58	0.00	1.85	0.73	Curb	6.0	9.50	0.00	0.00	0.00	0.017	2.00	0.020	0.020	0.013	0.17	8.61	0.27	5.37	2.0	38
40	DS062	0.15	0.00	0.15	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.08	3.77	0.17	0.01	2.0	39
41	DS061	1.00	0.00	1.00	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.15	7.60	0.17	0.01	2.0	42
42	DS064	2.23	0.00	1.69	0.54	Curb	6.0	9.50	0.00	0.00	0.00	0.017	2.00	0.020	0.020	0.013	0.16	8.16	0.26	4.80	2.0	56
43	DS078	0.69	0.00	0.69	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.13	6.62	0.17	0.01	2.0	37
44	DS076	0.92	0.00	0.92	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.15	7.37	0.17	0.01	2.0	65
45	DS077	0.77	0.00	0.77	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.14	6.89	0.17	0.01	2.0	66
46	DS095	0.27	0.00	0.27	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.09	4.49	0.17	0.01	2.0	66

Project File: New.stm | Number of lines: 116 | Run Date: 4/30/2025

NOTES: Inlet N-Values = 0.016; Intensity = 12.4956 + -1.6712(X) + -0.3490(X)^2 + 0.0502(X)^3 -- X = Inlet time (min); Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Ho at.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
47	DS091	0.50	0.00	0.50	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.11	5.66	0.17	0.01	2.0	62
48	DS090	0.04	0.00	0.00	0.04	MH	6.0	9.50	0.00	2.00	0.00	Sag	2.00	0.000	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
49	DS088	1.85	0.00	1.69	0.16	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.18	8.98	0.24	3.55	2.0	50
50	DS086	3.46	0.51	3.97	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.20	10.23	0.37	10.23	2.0	Off
51	DS084	2.34	0.26	2.25	0.35	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.22	10.88	0.27	5.13	2.0	50
52	DS082	1.61	0.06	1.42	0.26	Curb	6.0	9.50	0.00	0.00	0.00	0.016	2.00	0.020	0.020	0.013	0.15	7.41	0.24	3.69	2.0	51
53	DS081	1.11	0.00	1.05	0.06	Curb	6.0	9.50	0.00	0.00	0.00	0.016	2.00	0.020	0.020	0.013	0.13	6.36	0.21	2.13	2.0	52
54	DS080	0.19	0.00	0.19	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.016	2.00	0.020	0.020	0.013	0.07	3.29	0.17	0.01	2.0	55
55	DS083	0.23	0.00	0.23	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.016	2.00	0.020	0.020	0.013	0.07	3.53	0.17	0.01	2.0	59
56	DS066	2.23	0.54	1.93	0.84	Curb	6.0	9.50	0.00	0.00	0.00	0.017	2.00	0.020	0.020	0.013	0.18	8.85	0.28	5.66	2.0	61
57	DS096	0.88	0.00	0.88	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.14	7.01	0.17	0.01	2.0	66
58	DS079	0.65	0.00	0.65	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.13	6.48	0.17	0.01	2.0	61
59	DS085	0.27	0.00	0.27	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.09	4.65	0.17	0.01	2.0	67
60	DS094	2.38	0.00	2.07	0.32	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.20	10.17	0.26	4.77	2.0	63
61	DS070	3.46	0.84	4.30	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.22	10.80	0.38	10.80	2.0	Off
62	DS093	0.27	0.00	0.27	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.09	4.49	0.17	0.01	2.0	68
63	DS092	1.61	0.32	1.78	0.15	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.19	9.40	0.24	3.63	2.0	69
64	DS089	2.23	0.00	1.93	0.30	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.19	9.64	0.26	4.52	2.0	67
65	DS073	1.77	0.00	1.59	0.18	Curb	6.0	9.50	0.00	0.00	0.00	0.009	2.00	0.020	0.020	0.013	0.17	8.43	0.24	3.59	2.0	Off
66	DS072	0.36	0.00	0.36	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.009	2.00	0.020	0.020	0.013	0.09	4.63	0.17	0.01	2.0	Off
67	DS087	4.07	0.30	4.37	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.22	10.92	0.39	10.92	2.0	Off
68	DS132	0.81	0.00	0.81	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.07	3.54	0.24	3.54	2.0	Off
69	DS133	3.69	0.15	3.84	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.20	10.02	0.37	10.02	2.0	Off

Project File: New.stm | Number of lines: 116 | Run Date: 4/30/2025

NOTES: Inlet N-Values = 0.016; Intensity = 12.4956 + -1.6712(X) + -0.3490(X)^2 + 0.0502(X)^3 -- X = Inlet time (min); Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Ho at.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
70	DS052	0.04	0.00	0.00	0.04	MH	6.0	9.50	0.00	2.00	0.00	Sag	2.00	0.000	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
71	DS051	2.08	0.83	2.43	0.48	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.23	11.33	0.28	5.76	2.0	Off
72	DS049	2.69	0.95	2.81	0.83	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.25	12.34	0.31	7.08	2.0	71
73	DS046	2.96	0.00	2.01	0.95	Curb	6.0	9.50	0.00	0.00	0.00	0.017	2.00	0.020	0.020	0.013	0.18	9.07	0.29	5.93	2.0	72
74	DS047	2.08	0.00	1.61	0.46	Curb	6.0	9.50	0.00	0.00	0.00	0.017	2.00	0.020	0.020	0.013	0.16	7.94	0.26	4.52	2.0	75
75	DS048	2.46	0.46	2.44	0.48	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.23	11.36	0.28	5.79	2.0	76
76	DS050	2.58	0.48	2.51	0.55	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.23	11.56	0.29	6.06	2.0	77
77	DS053	2.90	0.55	2.72	0.73	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.24	12.09	0.30	6.76	2.0	Off
78	DS112	0.04	0.00	0.00	0.04	None	6.0	9.50	0.00	0.00	0.00	Sag	2.00	0.000	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
79	DS110	3.84	0.12	3.96	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.20	10.22	0.37	10.22	2.0	Off
80	DS121	1.69	0.12	1.69	0.12	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.18	9.17	0.23	3.28	2.0	79
81	DS124	1.73	0.00	1.61	0.12	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.18	8.76	0.23	3.22	2.0	80
82	DS123	0.42	0.00	0.42	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.007	2.00	0.020	0.020	0.013	0.10	5.17	0.17	0.01	2.0	106
83	DS142	2.18	0.00	2.18	0.00	DrGrt	0.0	0.00	6.16	2.00	3.08	Sag	2.00	0.050	0.020	0.013	0.17	20.29	0.17	20.29	0.0	Off
84	DS108	1.04	0.00	1.04	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.15	7.45	0.17	0.01	2.0	85
85	DS106	2.38	0.00	2.07	0.32	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.20	10.17	0.26	4.77	2.0	86
86	DS103	1.61	0.32	1.78	0.15	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.19	9.40	0.24	3.63	2.0	112
87	DS134	1.61	0.19	1.69	0.11	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.18	9.16	0.23	3.26	2.0	113
88	DS101	0.38	0.15	0.54	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.020	2.00	0.020	0.020	0.013	0.09	4.64	0.17	0.01	2.0	113
89	DS099	0.65	0.66	1.16	0.15	Curb	6.0	9.50	0.00	0.00	0.00	0.020	2.00	0.020	0.020	0.013	0.13	6.49	0.22	2.90	2.0	88
90	DS145	0.42	0.00	0.00	0.42	MH	6.0	9.50	0.00	2.00	0.00	0.025	2.00	0.020	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
91	DS130	2.84	0.39	2.97	0.26	Curb	6.0	9.50	0.00	0.00	0.00	0.004	2.00	0.050	0.020	0.013	0.30	11.76	0.30	3.62	2.0	89
92	DS129	2.58	0.32	2.50	0.40	Curb	6.0	9.50	0.00	0.00	0.00	0.004	2.00	0.020	0.020	0.013	0.24	11.81	0.28	5.60	2.0	89

Project File: New.stm | Number of lines: 116 | Run Date: 4/30/2025

NOTES: Inlet N-Values = 0.016; Intensity = 12.4956 + -1.6712(X) + -0.3490(X)^2 + 0.0502(X)^3 -- X = Inlet time (min); Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Ho at.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
93	DS127	2.54	0.00	2.21	0.32	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.22	10.77	0.27	4.98	2.0	92
94	DS126	1.23	0.00	1.23	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.16	8.21	0.17	0.01	2.0	93
95	DS144	0.00	0.00	0.00	0.00	MH	6.0	9.50	0.00	2.00	0.00	0.000	2.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
96	DS115	0.35	0.00	0.35	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.027	2.00	0.020	0.020	0.013	0.07	3.72	0.17	0.01	2.0	94
97	DS114	0.31	0.00	0.31	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.027	2.00	0.020	0.020	0.013	0.07	3.56	0.17	0.01	2.0	100
98	DS125	1.35	0.00	1.34	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.17	8.49	0.19	0.97	2.0	102
99	DS119	2.00	1.38	2.39	0.99	Curb	6.0	9.50	0.00	0.00	0.00	0.010	2.00	0.020	0.020	0.013	0.21	10.53	0.30	6.65	2.0	106
100	DS117	4.04	0.00	2.66	1.38	Curb	6.0	9.50	0.00	0.00	0.00	0.010	2.00	0.020	0.020	0.013	0.23	11.26	0.32	7.53	2.0	99
101	DS116	1.15	0.00	1.13	0.02	Curb	6.0	9.50	0.00	0.00	0.00	0.010	2.00	0.020	0.020	0.013	0.14	7.04	0.20	1.65	2.0	105
102	DS128	2.69	0.00	2.31	0.39	Curb	6.0	9.50	0.00	0.00	0.00	0.005	2.00	0.020	0.020	0.013	0.22	11.02	0.27	5.33	2.0	91
103	DS098	0.42	0.00	0.42	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.025	2.00	0.020	0.020	0.013	0.08	4.07	0.17	0.01	2.0	89
104	DS097	0.27	0.00	0.27	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.025	2.00	0.020	0.020	0.013	0.07	3.44	0.17	0.01	2.0	107
105	DS118	0.46	0.02	0.49	0.00	Curb	6.0	9.50	0.00	0.00	0.00	0.010	2.00	0.020	0.020	0.013	0.10	5.09	0.17	0.01	2.0	Off
106	DS122	0.58	0.99	1.51	0.05	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.17	8.69	0.22	2.46	2.0	108
107	DS100	2.04	0.00	1.55	0.48	Curb	6.0	9.50	0.00	0.00	0.00	0.020	2.00	0.020	0.020	0.013	0.15	7.65	0.26	4.46	2.0	111
108	DS111	3.69	0.05	3.74	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.20	9.85	0.36	9.85	2.0	Off
109	DS109	1.31	0.00	1.30	0.01	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.16	8.12	0.19	1.30	2.0	110
110	DS107	2.04	0.01	1.86	0.19	Curb	6.0	9.50	0.00	0.00	0.00	0.006	2.00	0.020	0.020	0.013	0.19	9.61	0.25	3.95	2.0	87
111	DS102	1.81	0.48	1.67	0.62	Curb	6.0	9.50	0.00	0.00	0.00	0.020	2.00	0.020	0.020	0.013	0.16	7.99	0.26	4.90	2.0	113
112	DS105	2.38	0.15	2.54	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.15	7.59	0.32	7.59	2.0	Off
113	DS104	0.46	0.73	1.20	0.00	Curb	6.0	15.00	0.00	0.00	0.00	Sag	2.00	0.020	0.020	0.013	0.09	4.60	0.26	4.60	2.0	Off
114	DS141	3.56	0.00	3.56	0.00	DrGrt	0.0	0.00	6.16	2.00	3.08	Sag	2.00	0.050	0.020	0.013	0.24	26.97	0.24	26.97	0.0	Off
115	DS140	3.72	0.00	3.72	0.00	DrGrt	0.0	0.00	6.16	2.00	3.08	Sag	2.00	0.050	0.020	0.013	0.25	27.65	0.25	27.65	0.0	Off

Project File: New.stm | Number of lines: 116 | Run Date: 4/30/2025

NOTES: Inlet N-Values = 0.016; Intensity = 12.4956 + -1.6712(X) + -0.3490(X)^2 + 0.0502(X)^3 -- X = Inlet time (min); Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Ho at.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
116	DS143	1.33	0.00	1.33	0.00	DrGrt	0.0	0.00	6.16	2.00	3.08	Sag	2.00	0.050	0.020	0.013	0.12	15.48	0.12	15.48	0.0	Off

Project File: New.stm | Number of lines: 116 | Run Date: 4/30/2025

NOTES: Inlet N-Values = 0.016; Intensity = 12.4956 + -1.6712(X) + -0.3490(X)^2 + 0.0502(X)^3 -- X = Inlet time (min); Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Ho at.

CONSTRUCTION PLANS

FOR:

LAKE HILLS PHASE # 1

HOWEY IN THE HILLS, LAKE COUNTY, FLORIDA 34737

SECTION 22, TOWNSHIP 20 SOUTH, RANGE 25 EAST
SECTION 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST

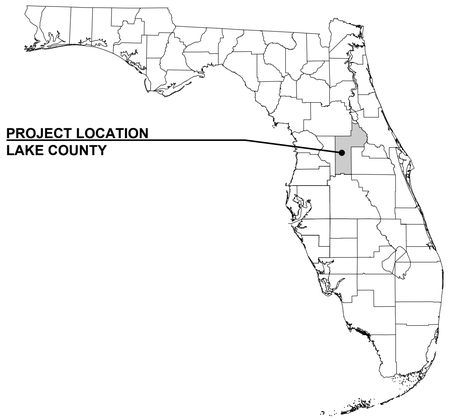
MAY 2025

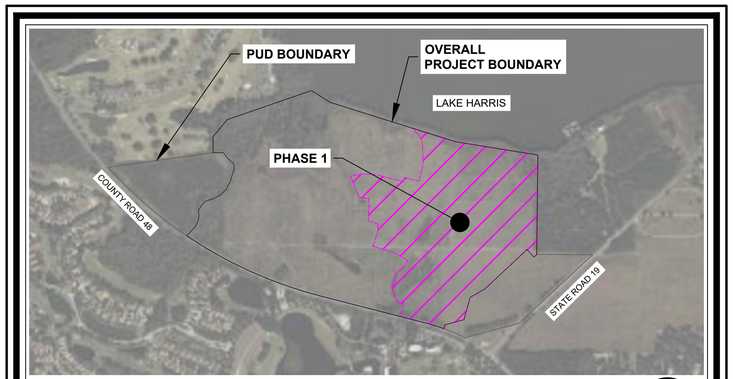
LEGAL DESCRIPTION

A REPLAT OF LOTS 31, 32, AND 33 AND A PARTIAL REPLAT OF LOTS 26, 28, 29, 30, AND 34 OF COLUMB, TRIST & BRINGER SUBDIVISION AS RECORDED IN PLAT BOOK 5, PAGE 65 OF THE PUBLIC RECORDS OF LAKE COUNTY, FLORIDA AND ALSO A REPLAT OF GOVERNMENT LOTS 2, 4, AND 5 AND A PARTIAL REPLAT OF GOVERNMENT LOTS 6, 7, 8, AND 9 LYING IN SECTIONS 22 AND 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA AND BEING MORE PARTICULARLY DESCRIBED AS:

COMMENCE AT THE SOUTHWEST CORNER OF THE SOUTHWEST 1/4 OF SECTION 23, TOWNSHIP 20 SOUTH RANGE 25 EAST; THENCE RUN ALONG THE WEST LINE OF THE SOUTHWEST 1/4 OF SECTION 23, NORTH 00°53'14" EAST, A DISTANCE OF 1171.08 FEET TO THE POINT OF BEGINNING BEING A POINT LYING ON THE NORTHERLY RIGHT-OF-WAY LINE OF COUNTRY ROAD 48 AS RECORDED IN THE FLORIDA DEPARTMENT OF TRANSPORTATION MAP PROJECT NUMBER 1093, AND BEING A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 5679.58 FEET AND A CHORD WHICH BEARS NORTH 52°49'27" WEST, A DISTANCE OF 2124.13 FEET; THENCE ALONG THE ARC OF SAID CURVE TO THE RIGHT, A DISTANCE OF 2136.71 FEET; THENCE DEPARTING THE NORTHERLY RIGHT-OF-WAY OF SAID COUNTY ROAD 48, NORTH 81°57'35" EAST, A DISTANCE OF 1398.04 FEET; THENCE NORTH 00°12'03" EAST, A DISTANCE OF 209.83 FEET; THENCE NORTH 39°31'51" EAST, A DISTANCE OF 291.83 FEET; THENCE NORTH 70°57'18" EAST, A DISTANCE OF 1176.87 FEET TO A POINT ON THE MEANDER LINE OF LAKE HARRIS WITH THE PROPERTY BOUNDARY BEING THE ACTUAL WATER LINE; THENCE LONG SAID MEANDER LINE THE FOLLOWING THREE (3) COURSES: 1) SOUTH 57°54'36" EAST, A DISTANCE OF 295.07 FEET; 2) THENCE SOUTH 72°34'01" EAST, A DISTANCE OF 1730.05 FEET; 3) THENCE SOUTH 80°48'31" EAST, A DISTANCE OF 1102.10 FEET TO THE END OF SAID MEANDER LINE; THENCE SOUTH 00°40'13" WEST, A DISTANCE OF 1312.20 FEET; THENCE SOUTH 89°48'40" EAST, A DISTANCE OF 738.20 FEET TO A POINT LYING IN THE NORTHWESTERLY RIGHT-OF-WAY OF STATE ROAD 19 AS RECORDED IN THE FLORIDA DEPARTMENT OF TRANSPORTATION IN MAP SECTION NUMBER 1108-101; THENCE SOUTH 46°59'01" WEST, A DISTANCE OF 1328.28 FEET; THENCE DEPARTING THE NORTHWESTERLY RIGHT-OF-WAY OF SAID STATE ROAD 19, SOUTH 75°06'54" WEST, A DISTANCE OF 742.75 FEET TO A POINT LYING ON THE NORTHERLY RIGHT-OF-WAY OF SAID COUNTY ROAD 48 ALSO BEING A POINT OF CURVATURE OF A NON-TANGENT CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 2341.83 FEET, A CENTRAL ANGLE OF 12°47'48" AND A CHORD WHICH BEARS NORTH 68°56'00" WEST, A DISTANCE OF 521.94 FEET; THENCE ALONG SAID CURVE TO THE LEFT, A DISTANCE OF 523.03 FEET; THENCE NORTH 75°35'20" WEST, A DISTANCE OF 1460.31 FEET TO A POINT ON A CURVE CONCAVE NORTHEASTERLY, HAVING A RADIUS OF 5679.58 FEET AND A CHORD WHICH BEARS NORTH 69°35'43" WEST, A DISTANCE OF 1186.12 FEET; THENCE ALONG THE ARC OF SAID CURVE TO THE RIGHT, A DISTANCE 1188.29 FEET TO THE POINT OF BEGINNING.

THE ABOVE CLOSURE PARCEL CONTAINING 264.35 ACRES, MORE OR LESS.





VICINITY MAP
SCALE: 1" = 1,000'

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C935	CITY UTILITY DETAILS
C936	CITY UTILITY DETAILS
C937	CITY UTILITY DETAILS

PARCEL ID
22-20-25-0004-000-01000
23-20-25-0004-000-01000

ZONING
PLANNED UNIT DEVELOPMENT (PUD)

FUTURE LAND USE
PLANNED UNIT DEVELOPMENT (PUD)

AGENCIES TO BE NOTIFIED / UTILITY PROVIDERS

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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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

DAVID ASHLEY STOKES LICENSE No. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by David Ashley Stokes, P.E. using a digital signature and date. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Digitally signed by David A Stokes
Date: 2025.06.06 11:47:54 -04'00'

SUBMITTAL LOG		
DATE	SUBMITTAL	BY

CONSTRUCTION PLANS

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LAKE HILLS PHASE #1 - CONSTRUCTION PLANS
JOB No. 2MM8195.0

GENERAL NOTES

1. ALL CONSTRUCTION WORK SHALL BE IN ACCORDANCE WITH THE LATEST LOCAL AGENCY DETAILS, THE FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" ADOPTED IN 1991 BY THE STATE OF FLORIDA, AND ALL SUPPLEMENTS THERETO, AND THE FDOT "STANDARD PLANS", WHICHEVER IS MORE STRINGENT.

2. ALL FDOT DESIGN INDICES ARE HEREBY INCORPORATED AS PLAN REFERENCES HEREIN. CONTRACTOR IS RESPONSIBLE FOR OBTAINING COMPLETE COPIES OF ALL APPLICABLE INDEX DRAWINGS AND CONSTRUCTING ALL WORKS IN CONFORMANCE WITH THE FDOT STANDARD PLANS, LATEST EDITION.

3. THE LOCATIONS OF EXISTING UTILITIES SUCH AS WATER MAINS, SEWER MAINS, GAS LINES, ETC., AS SHOWN ON THE PLANS, WITH THE EXCEPTION OF THE LOCATIONS OF EXISTING UTILITIES AT ALL POINTS OF CONNECTION TO AND AT ALL AREAS OF CONFLICT WITH UTILITY PROVIDER MAINS, WHICH HAVE BEEN FIELD VERIFIED, HAVE BEEN DETERMINED FROM THE BEST AVAILABLE INFORMATION AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. HOWEVER, THE ENGINEER AND OWNER DO NOT ASSUME RESPONSIBILITY FOR THE SIZES AND LOCATIONS SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF THE SIZE AND LOCATION OF ALL EXISTING UTILITIES SHOWN AND NOT SHOWN ON THESE PLANS.

4. CONTRACTOR, INCLUDING ANY SUB-CONTRACTORS, IS RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS ARE OBTAINED AND ARE IN HAND AT THE JOB SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL ABIDE BY ALL CONDITIONS CONTAINED THEREIN. PERMITS INCLUDED (BUT NOT NECESSARILY LIMITED TO) ARE:
   - ACOE NATIONWIDE OR INDIVIDUAL DREDGE AND FILL
   - FDEP WATER DISTRIBUTION
   - FDEP SANITARY SEWER COLLECTION AND TRANSMISSION
   - FDEP REUSE
   - FDEP DREDGE AND FILL
   - FDEP NPDES GENERIC PERMIT FOR STORM WATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES
   - FDOT DRIVEWAY CONNECTION
   - FDOT UTILITY
   - FDOT STORMWATER DISCHARGE CONNECTION
   - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION PERMIT FOR IMPACTS TO PROTECTED SPECIES
   - LOCAL RIGHT OF WAY USE
   - LOCAL UNDERGROUND UTILITIES
   - WATER MANAGEMENT DISTRICT CONSUMPTIVE USE FOR CONSTRUCTION DEWATERING (CUP)
   - WATER MANAGEMENT DISTRICT ENVIRONMENTAL RESOURCE PERMIT (ERP)

5. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SETBACKS AND EASEMENTS BEFORE BEGINNING CONSTRUCTION.

6. BENCHMARKS AND OTHER REFERENCE POINTS SHALL BE CAREFULLY MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. IF DISTURBED OR DESTROYED, THESE POINTS SHALL BE REPLACED BY A LICENSED FLORIDA PROFESSIONAL LAND SURVEYOR (P.L.S.) AT CONTRACTOR'S EXPENSE.

7. DIFFERING SITE CONDITIONS FROM THAT WHICH IS REPRESENTED HEREON, WHETHER ABOVE, ON, OR BELOW THE SURFACE OF THE GROUND, SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND OWNER IN WRITING. NO CLAIM FOR EXPENSES INCURRED BY THE CONTRACTOR DUE TO DIFFERING SITE CONDITIONS WILL BE ALLOWED IF CONTRACTOR FAILS TO PROVIDE THE REQUIRED WRITTEN NOTIFICATION OF SUCH CONDITIONS TO THE ENGINEER AND OWNER.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REMOVAL OF ALL EXISTING STRUCTURES, ETC., UNLESS OTHERWISE NOTED. ALL SOIL STRIPPINGS AND ANY UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE OWNER.

9. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES AND UTILITIES NOTED TO REMAIN FROM DAMAGE OR DISPLACEMENT DURING CONSTRUCTION. IN THE EVENT OBSTRUCTIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER AND THE UTILITY COMPANY. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS INCURRED TO REPAIR DAMAGE OR CORRECT DISPLACEMENT.

10. CONTRACTOR SHALL BE EXTREMELY CAUTIOUS WHEN WORKING NEAR TREES WHICH ARE TO BE SAVED, WHETHER SHOWN IN THE PLANS OR DESIGNATED IN THE FIELD. CONTRACTOR SHALL BECOME FAMILIAR WITH AND CONFORM WITH ALL TREE PROTECTION/PRESERVATION PROVISIONS OF THE PRELIMINARY SUBDIVISION PLAN/DEVELOPMENT PLAN AND LOCAL GOVERNMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT AND MITIGATION COSTS FOR ANY TREES REMOVED THAT WERE DESIGNATED TO BE PRESERVED.

11. WHEN DETAILS ARE PROVIDED, CONTRACTOR SHALL CONSTRUCT JOB PER SPECIFIC DETAILS, AND NOT BY SCALING FROM THESE PLANS.

12. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ANY REQUIRED TRAFFIC CONTROL PLANS. ALL WORK SHALL BE EXECUTED UNDER THE ESTABLISHED PLAN AND FDOT, AND LOCAL AGENCY APPROVED PROCEDURES.

13. THE CONTRACTOR SHALL RESTORE OFF SITE CONSTRUCTION AREAS TO EQUAL OR BETTER CONDITION THAN EXISTED PRIOR TO COMMENCEMENT OF CONSTRUCTION.

14. AS-BUILT DRAWINGS SHALL BE KEPT BY THE CONTRACTOR AND SUBMITTED TO THE PROJECT ENGINEER UPON PROJECT COMPLETION.

15. CONTRACTOR SHALL COMPLY WITH ALL LOCAL AGENCY REQUIREMENTS FOR INSPECTION AND TESTING.

16. ALL NEW UTILITIES AND UPGRADED UTILITIES PROVIDED TO OR ON THE SITE MUST BE INSTALLED UNDERGROUND.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF ANY TRAFFIC SIGNAL EQUIPMENT INCLUDING BUT NOT LIMITED TO FIBER LOOP SENSORS PULL BOXES, CONDUIT TRAFFIC SIGNALS, AND CABINETS. ANY ITEMS DAMAGED BY THE CONTRACTOR WILL BE RESTORED TO THEIR ORIGINAL CONDITIONS UNLESS OTHERWISE AGREED UPON BY THE COUNTY TRAFFIC ENGINEER.

18. ALL CONSTRUCTION MUST BE IN ACCORDANCE WITH UTILITY PROVIDER'S STANDARDS AND CONSTRUCTION SPECIFICATIONS, LATEST EDITION.

19. CONTRACTOR SHALL NOTIFY ALL APPROPRIATE UTILITY COMPANIES OF PROPOSED START OF WORK IN ACCORDANCE WITH THEIR STANDARD REQUIREMENTS; INCLUDING BUT NOT LIMITED TO, WATER, RECLAIMED WATER, SEWER, POWER, TELEPHONE, GAS AND CABLE TV COMPANIES.

20. PRIOR TO COMMENCEMENT, CONTRACTOR SHALL PROVIDE ENGINEER WITH CONSTRUCTION SCHEDULE FOR VARIOUS SITE WORK ELEMENTS SO THAT PERIODIC SITE VISITS MAY BE COORDINATED TO ENSURE TIMELY CERTIFICATION OF COMPLETION TO AGENCIES AND AVOID DELAYS IN ISSUANCE OF CERTIFICATES OF OCCUPANCY/COMPLETION.

21. ALL RECOMMENDATIONS AND REQUIREMENTS OF INSPECTION PERSONNEL OTHER THAN OWNER/OWNER'S REPRESENTATIVE SHALL BE REPORTED TO ENGINEER/OWNER/OWNER'S REPRESENTATIVE PRIOR TO IMPLEMENTATION. COMPENSATION WILL NOT BE ALLOWED FOR WORK THAT IS NOT AUTHORIZED BY ENGINEER/OWNER/OWNER'S REPRESENTATIVE.

22. CONTRACTOR SHALL CONFIRM COMPATIBILITY OF PIPE SLOPES AND INVERTS DURING SHOP DRAWING AND MATERIALS ORDERING PHASE OF PROJECT AND ADVISE ENGINEER OF ANY DISCREPANCIES.

23. NO EXISTING MATERIAL SHALL BE USED IN NEW CONSTRUCTION UNLESS APPROVED DURING THE SHOP DRAWING APPROVAL PROCESS BY ENGINEER/OWNER/OWNER'S REPRESENTATIVE IN WRITING.

24. CONTRACTOR SHALL STAKE ALL IMPROVEMENTS USING THE PLAT(S), ROAD CENTERLINE GEOMETRY, AND BUILDING COORDINATES PROVIDED IN THESE PLANS. CONTRACTOR SHALL CONFIRM WITH THE ENGINEER THAT THE PLAT IS CURRENT PRIOR TO CONSTRUCTION.

25. CONTRACTOR SHALL CONFIRM THE BUILDING DIMENSIONS SHOWN HEREIN WITH THOSE IN THE FINAL ARCHITECTURAL DRAWINGS PRIOR TO STAKEOUT. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COMPLETELY STAKE AND CHECK ALL IMPROVEMENTS TO ENSURE ADEQUATE POSITIONING, BOTH HORIZONTAL AND VERTICAL, INCLUDING MINIMUM BUILDING SETBACKS PRIOR TO THE INSTALLATION OF ANY IMPROVEMENT.

PAVING AND DRAINAGE

1. THE CONTRACTOR SHALL CONSTRUCT PAVEMENT IN ACCORDANCE WITH TYPICAL PAVEMENT SECTIONS AND LOCAL AGENCY SPECIFICATIONS. THE FINISHED PAVEMENT GRADES SHALL CONFORM TO THOSE SPECIFIED ON THE GRADING PLAN.

2. FLORIDA LAW (F.S. 553.851) PROTECTION OF UNDERGROUND PIPELINES MANDATES THAT "NO EXCAVATOR SHALL COMMENCE OR PERFORM ANY EXCAVATION IN ANY PUBLIC OR PRIVATE STREET, ALLEY, RIGHT-OF-WAY DEDICATED TO THE PUBLIC USE, OR GAS UTILITY EASEMENT WITHOUT FIRST OBTAINING INFORMATION CONCERNING THE POSSIBLE LOCATION OF GAS PIPELINES IN THE AREA OF THE PROPOSED EXCAVATION." THIS INCLUDES ANY OPERATION UTILIZING HAND TOOLS OR POWER TOOLS WHICH MOVES OR REMOVES ANY STRUCTURE, EARTH, ROCK, OR OTHER MASS OF MATERIAL BY SUCH METHODS AS DIGGING, BACKFILLING, DEMOLITION, GRADING, DITCHING, DRILLING, BORING AND CABLE PLOWING. THE EXCAVATOR MUST NOTIFY THE GAS UTILITY A MINIMUM OF 48 HOURS AND A MAXIMUM OF 5 DAYS PRIOR TO EXCAVATING (EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS).

3. EXCAVATION, PAVING, AND STORM SEWER WORK SHALL BE DONE IN ACCORDANCE WITH FDOT "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION", LATEST EDITION, AND LOCAL AGENCY SPECIFICATIONS.

4. UNLESS OTHERWISE NOTED, GRADE TO MEET EXISTING ELEVATIONS AT PROPERTY LINES. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE OF THE SITE TO THE RETENTION PONDS AS SHOWN BY PROPOSED GRADES AND FLOW ARROWS.

5. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE AND PROPER SOIL EROSION CONTROL MEASURES FOR PROTECTION OF ALL DRAINAGE AND SEWER STRUCTURES AND AT ALL ADJACENT LANDS AND ROADS.

6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL GEOTECHNICAL REPORTS PREPARED FOR THE SITE. GEOTECHNICAL RECOMMENDATIONS ARE NOT THE RESPONSIBILITY OF ENGINEER. ENGINEER HAS RELIED ON THE GEOTECHNICAL REPORT(S) IN PREPARATION OF THE DRAWINGS. ANY CONFLICT BETWEEN INFORMATION WITHIN THE REPORT AND THESE DRAWINGS SHALL BE REPORTED TO ENGINEER/OWNER/OWNER'S REPRESENTATIVE. ENGINEER ASSUMES NO RESPONSIBILITY FOR THE CORRECTNESS, COMPLETENESS, OR ACCURACY OF GEOTECHNICAL INFORMATION.

7. THE SITE SHALL BE CLEARED OF ALL TREES EXCEPT THOSE WHICH ARE DESIGNATED TO BE SAVED OR RELOCATED. BEFORE CONSTRUCTION, THE CONTRACTOR SHALL MEET AT THE SITE WITH THE OWNER. AT THIS TIME, ANY TREES TO BE SAVED SHALL BE POINTED OUT AND TAGGED. THESE TREES SHALL BE PROTECTED FROM DAMAGE.

8. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE SUPERVISING ENGINEER IF A PAVEMENT OR FOUNDATION STAKE IS DISTURBED.

9. THE CONTRACTOR SHALL INSTALL DROP CURBS AND HANDICAP RAMPS AT ALL INTERSECTIONS OF THE SIDEWALK WITH THE PROPOSED PAVEMENT, UNLESS OTHERWISE SPECIFIED.

10. FOR HORIZONTAL AND VERTICAL CLEARANCES BETWEEN STORM PIPES AND WATER MAINS/SERVICES, SEE WATER NOTES ON THIS SHEET AND FDEP SEPARATION TABLE ON UTILITY PLAN.

11. ALL PUBLIC STORM PIPE MATERIALS SHALL BE REINFORCED CONCRETE PIPE (RCP) ASTM C-76 CLASS III, UNLESS OTHERWISE SPECIFIED. LIFTING HOLES ARE PROHIBITED.

12. ALL PRIVATE STORM PIPE MATERIALS SHALL BE AS FOLLOWS:
    12.1. DIAMETERS LESS THAN OR EQUAL TO 12-INCH SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) PIPE
    12.2. DIAMETERS GREATER THAN OR EQUAL TO 15-INCH SHALL BE POLYPROPYLENE (PP) PIPE.

13. MINIMUM COVER OVER ALL PIPE SHALL BE 36-INCHES FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE NOTED.

14. ALL STORM SYSTEM MANHOLE AND INLET STRUCTURES SHALL BE PRECAST CONCRETE.

15. THE CONTRACTOR SHALL USE CONCRETE WITH A MINIMUM 28 DAY STRENGTH OF 3,000 P.S.I..

16. ALL SIDEWALK WIDTHS SHALL BE AS NOTED ON THE SITE PLAN AND SHALL HAVE 1-INCH DEEP CONTRACTION JOINTS EVERY 5-FEET AND AN EXPANSION JOINT EVERY 20-FEET (MINIMUM). MAXIMUM SIDEWALK CROSS SLOPES SHALL BE 2.00% AND MAXIMUM SIDEWALK RUNNING SLOPES SHALL BE 5.00% EXCEPT AT RAMP LOCATIONS. MAXIMUM RAMP SLOPES SHALL BE 8.33%.

17. PROVIDE FDOT TYPE III SILT FENCE ALONG THE PROPERTY LINES AND PHASE LINES AS WELL AS ANY CONSTRUCTION WITHIN THE OTHER PHASES THAT IS DEEMED NECESSARY.

18. ALL TEST REPORTS GENERATED BY A TESTING FIRM ARE TO HAVE COPIES SENT DIRECTLY TO THE LOCAL AGENCY AS SOON AS THEY ARE GENERATED. CLEARANCE FROM THE LOCAL AGENCY SHALL BE RECEIVED PRIOR TO PAVING.

19. THE BASE COURSE SHALL NOT BE CONSTRUCTED UNTIL AFTER SUBGRADE CONSTRUCTION HAS BEEN COMPLETED AND REQUIRED SUBGRADE TEST RESULTS HAVE BEEN SUBMITTED TO AND APPROVED BY THE LOCAL AGENCY'S ENGINEER.

20. THE FINISHED BASE COURSE SHALL BE PRIMED WITHOUT DELAY, PROTECTED FROM HEAVY TRAFFIC, AND CONTINUOUSLY MAINTAINED FREE OF DAMAGE UNTIL THE WEARING SURFACE IS APPLIED. ALL BAD AREAS SHALL BE CUT OUT AND REPLACED PRIOR TO APPLYING WEARING SURFACE.

21. ASSUMING ACCEPTABLE CURING, THE WEARING SURFACE SHALL BE APPLIED NO SOONER THAN SEVEN (7) DAYS AND NO LATER THAN THIRTY (30) DAYS AFTER BASE COMPLETION.

22. ALL CONCRETE PIPE JOINTS SHALL BE WRAPPED IN FILTER FABRIC.

23. ROADWAY MARKING, STRIPING, SIGNS, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" (MUTCD), INCLUDING SUBSEQUENT REVISIONS AND ADDENDUMS, AS PUBLISHED BY THE USDOT FEDERAL HIGHWAY ADMINISTRATION AS WELL AS FDOT AND LOCAL AGENCY STANDARDS AND SPECIFICATIONS.

24. ALL OFFSITE ROADWAY MARKING/STRIPING MATERIAL SHALL BE THERMOPLASTIC UNLESS OTHERWISE SPECIFIED.

25. ALL ONSITE ROADWAY MARKING/STRIPING MATERIAL SHALL BE PAINT UNLESS OTHERWISE SPECIFIED.

26. REGULATORY SIGNS AND MARKINGS SHALL BE IN PLACE PRIOR TO FINAL INSPECTION OF PAVING AND DRAINAGE IMPROVEMENTS.

27. PAVEMENT RETURN RADII SHALL BE MEASURED TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

28. POND SLOPES AND BERMS SHALL BE SODDED TO TWO (2) FEET BELOW THE NORMAL WATER LINE (N.W.L.). IN THE CASE OF DRY BOTTOM PONDS, THE BOTTOM WILL BE SEEDED AND MULCHED UNLESS OTHERWISE SPECIFIED.

29. ALL PRECAST DRAINAGE STRUCTURES TO HAVE STEEL FRAME. ALL STRUCTURES IN PAVED AREAS TO HAVE STEEL RECTILINEAR GRATES WITH H-20 LOADING.

30. CONTRACTOR SHALL NOT COMPACT, STABILIZE, OR CONSTRUCT BASE COURSE WITHIN LANDSCAPE ISLANDS, TRACTS OR MEDIANS. WHERE SUCH TREATMENT DOES OCCUR, IT SHALL BE REMOVED AND REPLACED WITH SUITABLE PLANTING SOILS ACCEPTABLE TO LANDSCAPE ARCHITECT.

31. YARD DRAINS SHALL BE NYLOPLAST INLINE DRAINS AND DRAIN BASINS, OR APPROVED EQUAL, WITH CAST IRON GRATES AND WATERTIGHT ADAPTER CONNECTIONS. DOMED GRATES SHALL BE PROVIDED IN NON-SODDED AREAS.

32. ALL FIRE HYDRANT LOCATIONS SHALL BE MARKED BY PLACING BLUE REFLECTIVE PAVEMENT MARKERS IN THE CENTER OF THE NEAREST TRAVEL LANE.

33. MINIMUM LONGITUDINAL SLOPE OF CURB SHALL BE 0.30% UNLESS SPECIFIED OTHERWISE.

PAVING AND DRAINAGE (CONTINUED)

34. FINISHED FLOOR ELEVATION IS TYPICALLY 8" INCHES ABOVE DESIGN FINISHED GRADE AT OUTSIDE PERIMETER OF BUILDINGS EXCEPT AT ENTRIES AND WHERE OTHERWISE SHOWN.

35. CONTRACTOR SHALL REMOVE ALL MUCK DEPOSITS IN CONSTRUCTION AREAS AND AREAS TO BE FILLED. SEE GEOTECHNICAL REPORT.

36. DRAINAGE MANHOLES AND INLETS (NOT INCLUDING CONTROL STRUCTURES) IN THE PLANS ARE IDENTIFIED BY TOP TYPE ONLY. CONTRACTOR SHALL PROVIDE STANDARD DITCH BOTTOM INLET TOPS AND TYPE 'J' OR 'P' STRUCTURE BOTTOMS, SIZED AS REQUIRED TO ACCOMMODATE PIPE SIZES AND ORIENTATIONS SHOWN. SHOP DRAWINGS SHALL BE SUBMITTED WHICH CLEARLY REPRESENT SUCH DATA.

37. CONTRACTOR SHALL STABILIZE AND PROTECT ALL END WALL, MITERED END SECTION, FLARED END SECTION, ETC. STRUCTURES THROUGHOUT THE PROJECT UNTIL THE BANK SLOPES OF THE RECEIVING WATER BODY ARE STABILIZED AND ACCEPTED BY OWNER.

SANITARY SEWER

1. ROOF DRAINS, FOUNDATION DRAINS OR OTHER STORM WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.

2. GRAVITY SEWER PIPE SHALL BE SDR35 PVC AND SHALL MEET ASTM D3034, UNLESS OTHERWISE SPECIFIED.

3. ALL SANITARY SERVICE LATERALS SHALL BE 6-INCH DIAMETER PVC AND SHALL END WITH A CLEAN OUT.

4. ALL SANITARY SEWER PIPE SHALL BE COLORED GREEN.

5. ALL SANITARY SEWER MANHOLES SHALL HAVE A MINIMUM DIAMETER OF 48-INCHES AND A MINIMUM ACCESS DIAMETER OF 22-INCHES.

6. MINIMUM COVER OVER ALL PIPE SHALL BE 36-INCHES FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE NOTED.

7. FOR HORIZONTAL AND VERTICAL CLEARANCES BETWEEN SANITARY SEWER MAINS/ LATERALS AND WATER MAINS/SERVICES, SEE WATER NOTES ON THIS SHEET AND FDEP SEPARATION TABLE ON UTILITY PLAN.

8. WHERE SOIL REPORT INDICATES THE POSSIBILITY OF UNSUITABLE MATERIAL IN THE VICINITY OF SANITARY LINES, THE CONTRACTOR SHALL DETERMINE THE NATURE AND EXTENT OF THIS UNSUITABLE MATERIAL, PREPARE TRENCH, AND INSTALL THE SEWER LINE IN ACCORDANCE WITH ASTM D-2321. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER OF THIS UNSUITABLE MATERIAL.

9. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM INFILTRATION OR EXFILTRATION TEST, WHICHEVER IS APPLICABLE. INFILTRATION SHALL NOT EXCEED 50 GALLONS PER DAY PER INCH OF DIAMETER PER MILE OF LENGTH, OR THE COMPUTED EQUIVALENT FOR SHORTER LENGTHS OF TIME. THE CONTRACTOR SHALL MEET ALL REQUIREMENTS, CODES, AND ORDINANCES OF THE WASTEWATER TRANSMISSION AUTHORITY INCLUDING ADVANCED NOTIFICATION PRIOR TO CONSTRUCTION AND TESTING.

10. MADDEN, MOORHEAD & STOKES, LLC SHALL BE NOTIFIED A MINIMUM OF FIVE (5) FULL WORKING DAYS PRIOR TO CONSTRUCTION AND TESTING OF THE SANITARY SEWER, PHONE (407)-629-8330.

11. THE CONTRACTOR SHALL SUPPLY COMPLETE "AS BUILT" INFORMATION RELATIVE TO INVERTS, RIM ELEVATIONS, LOCATION OF MANHOLES AND LENGTHS OF PIPE. LATERALS SHALL BE LOCATED FROM THE CENTERLINE OF THE NEAREST DOWNSTREAM MANHOLE. THE INFORMATION SHALL BE SUBMITTED ON LEGIBLY MARKED-UP PRINTS TO THE ENGINEER WITHIN TWO (2) WEEKS OF COMPLETION OF SEWER CONSTRUCTION.

12. CONTRACTOR SHALL RECEIVE SEWER CERTIFICATION PRIOR TO PLACEMENT OF BASE COURSE.

13. MINIMUM SLOPE ON ALL SANITARY SEWER GRAVITY MAINS SHALL BE IN ACCORDANCE WITH UTILITY PROVIDER'S STANDARDS AND CONSTRUCTION SPECIFICATIONS, LATEST EDITION.

14. ALL SANITARY SERVICE LOCATIONS SHALL BE MARKED BY CUTTING AN "S" INTO THE CURB.

15. MARK RESIDENTIAL LATERALS WITH 6-FOOT HIGH PIECE OF 2"x4" PLANK PAINTED GREEN WITH LOT NUMBER CLEARLY MARKED AND AN 'S' IMPRESSED IN THE CURB.

16. AIR RELEASE VALVES SHALL BE REQUIRED AT ALL HIGH POINTS ALONG THE FORCE MAIN.

17. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT AN EVEN TRANSITION IS MAINTAINED WHERE ASPHALT PAVING ABUTS MANHOLE/VALVE COVERS IN PAVED AREAS. AT EACH OF THESE LOCATIONS THE CONTRACTOR SHALL POUR AN 8-INCH THICK CONCRETE APRON AROUND THE MANHOLE/VALVE COVER A MINIMUM OF 4'x4' AT MANHOLES, AND 2'x2' AT VALVE COVERS LEVEL WITH THE FINAL LIFT OF ASPHALT.

18. PIPE LENGTHS SHOWN REPRESENT SCALED DISTANCES BETWEEN MANHOLE CENTERLINE.

19. INVERTS OF SANITARY SERVICE LATERALS AT THEIR CONNECTION TO SANITARY MANHOLES SHALL BE NO MORE THAN ONE (1) FOOT ABOVE THE MANHOLE INVERT.

20. PRIOR TO PAVING, CONTRACTOR SHALL VERIFY THE AS-BUILT SANITARY SEWER PIPE SLOPES. MINIMUM SLOPES SHALL BE IN ACCORDANCE WITH THE GREATER OF FDEP OR THE UTILITY PROVIDER'S MINIMUM CRITERIA. ANY LINE NOT MEETING MINIMUM SLOPES SHALL BE RELAYED BY CONTRACTOR TO MEET THE MINIMUM SLOPE REQUIREMENT AT NO ADDITIONAL COST.

21. MANHOLE LIFT HOLES AND GRADE ADJUSTMENT RINGS SHALL BE SEALED WITH NON-SHRINKING MORTAR OR OTHER APPROPRIATE MATERIAL.

22. INLET AND OUTLET PIPES SHALL BE JOINED TO THE MANHOLE WITH A GASKETED FLEXIBLE WATER-TIGHT CONNECTION OR ANOTHER WATER-TIGHT CONNECTION ARRANGEMENT THAT ALLOWS DIFFERENTIAL SETTLEMENT OF THE PIPE AND MANHOLE WALL.

23. WATER-TIGHT MANHOLE COVERS SHALL BE USED WHEREVER THE MANHOLE TOPS MAY BE FLOODED BY STREET RUNOFF OF HIGH WATER.

WATER

1. ALL MATERIALS AND CONSTRUCTION REQUIREMENTS FOR THE FIRE SERVICE, WATER LINES, CHECK VALVES, BACKFLOW PREVENTERS, GATE VALVES, ETC., SHALL BE IN ACCORDANCE WITH LOCAL AGENCY STANDARD DETAILS AND CONSTRUCTION SPECIFICATIONS.

2. ALL CONSTRUCTION AND MATERIALS SHALL BE IN COMPLIANCE WITH AWWA STANDARDS AND IN ACCORDANCE WITH LOCAL AGENCY STANDARDS.

3. ALL PUBLIC WATER SYSTEM COMPONENTS, EXCLUDING FIRE HYDRANTS, THAT WILL BE INSTALLED UNDER THIS PROJECT AND THAT WILL COME INTO CONTACT WITH DRINKING WATER WILL CONFORM TO NSF INTERNATIONAL STANDARD 61 AND WILL BE MARKED WITH THE NSF SEAL OF APPROVAL.

4. CONTRACTOR SHALL VERIFY SIZE AND TYPE OF EXISTING MAIN PRIOR TO ORDERING TAPPING MATERIALS FOR TIE-INS.

5. SITE CONTRACTOR SHALL COORDINATE AND VERIFY ALL UTILITY SERVICES WITH FINAL ARCHITECTURAL DRAWINGS AND BUILDING CONTRACTOR.

6. SITE UTILITY WORK SHALL TERMINATE 5-FEET FROM BUILDINGS UNLESS OTHERWISE STATED.

7. MINIMUM COVER OVER ALL PIPE SHALL BE 36-INCHES FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE NOTED.

8. THE WATER MAIN SHALL BE LOCATED ABOVE THE STORMWATER AND SANITARY MAINS AT CONFLICTS, WHERE POSSIBLE.

WATER (CONTINUED)

9. VERTICAL SEPARATION BETWEEN UNDERGROUND POTABLE WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, AND RECLAIMED WATER PIPELINES:
   9.1. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY- OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
   9.2. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.

10. HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS:
    10.1. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
    10.2. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.
    10.3. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
    10.4. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.

11. AT THE UTILITY CROSSINGS DESCRIBED IN NOTES 8 AND 9 ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSING, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY-OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

12. WATER LINES 2-INCHES, OR LESS, IN DIAMETER SHALL BE POLYETHYLENE TUBING.

13. WATER LINES 4-INCH TO 12-INCH IN DIAMETER SHALL BE NSF LOGO PVC PIPE CONFORMING TO AWWA C-900 AND BE DR-18.

14. ALL FITTINGS SHALL BE DUCTILE IRON (D.I.) OR GRAY IRON MECHANICAL JOINTS WITH A MINIMUM PRESSURE RATING OF 250 P.S.I. CONFORMING TO ANSI A-21.10 / AWWA C-110, OR D.I. COMPACT FITTINGS FOR DIAMETERS 4-INCH TO 12-INCH CONFORMING TO ANSI A-21.53 / AWWA C-153.

15. FROM THE POINT OF SERVICE (P.O.S.) FORWARD AS DESIGNATED BY F.S. 633, FIRE SUPPLY PIPE SHALL BE DR-14 AND TESTED AT 200 PSI FOR TWO HOURS.

16. GATE VALVES SHALL CONFORM TO AWWA C-509-87, WITH WRENCH NUT EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED AND SHALL BE IRON BODY, FULL BRONZE MOUNTED, DOUBLE DISK, PARALLEL SEAT, NON-RISING STEM VALVES WITH O-RING SEALS AND END CONNECTIONS AS CALLED FOR ON THE PLANS. ALL TEES, CAPS, PLUGS, BENDS, VALVES, ETC., SHALL BE PROVIDED WITH GRIP RING RESTRAINTS.

17. ALL NON-METALLIC WATER MAINS SHALL BE INSTALLED WITH A CONTINUOUS, INSULATED 10 GAUGE COPPER WIRE INSTALLED DIRECTLY ON TOP OF THE PIPE FOR LOCATION PURPOSES. IN ADDITION, ALL PVC WATER MAINS SHALL BE A SOLID BLUE COLOR. ALL LETTERING SHALL APPEAR LEGIBLY ON PIPE AND SHALL RUN THE ENTIRE LENGTH OF THE PIPE. LETTERING SHALL READ AS IS ACCEPTABLE FOR THE INTENDED USE.

18. SERVICE MAINS FOR FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 24, LATEST EDITION.

19. NEW FIRE HYDRANTS SHALL BE INSTALLED SO THAT 5-1/4" INCH PORT IS FACING THE ROADWAY BY WHICH IT IS ACCESSED. HYDRANTS SHALL BE POSITIONED NOT MORE THAN 5 FEET AWAY FROM THE CURB OR BERM OF THE ROADWAY.

20. HYDROSTATIC TESTING AND THE DISINFECTION OF THE WATER DISTRIBUTION SYSTEM SHALL BE DONE IN ACCORDANCE WITH AWWA STANDARDS. HYDROSTATIC TESTING TO BE DONE IN ACCORDANCE WITH AWWA C-600 FOR DUCTILE IRON PIPE AND C-605 FOR PVC PIPE. DISINFECTING AND BACTERIOLOGICAL EVALUATION TO BE DONE IN ACCORDANCE WITH AWWA C-651 AND RULE 62-555.340 F.A.C.

21. THE CONTRACTOR SHALL SUPPLY COMPLETE AS-BUILT INFORMATION RELATIVE TO LOCATION AND ELEVATION OF ALL WATER LINES AND SERVICES. THE INFORMATION SHALL BE SUBMITTED ON LEGIBLY MARKED-UP PRINTS TO THE ENGINEER WITHIN TWO (2) WEEKS OF THE COMPLETION OF THE WATER LINE CONSTRUCTION.

22. CONTRACTOR SHALL COORDINATE ALL UTILITIES SYSTEMS TEST SCHEDULING TO ALLOW ENGINEER'S ATTENDANCE PROVIDING MINIMUM NOTICE OF FIVE (5) WORKING DAYS. CONTRACTOR'S FAILURE TO PROPERLY NOTIFY ENGINEER MAY RESULT IN RETESTING AT ENGINEER'S OPTION AND AT CONTRACTOR'S EXPENSE.

23. NEW HYDRANTS SHALL BE TESTED AND IN PROPER WORKING ORDER WITH DOCUMENTATION SUPPLIED TO THE FIRE MARSHAL PRIOR TO ANY COMBUSTIBLE CONSTRUCTION. (I.E. FIRE FLOW TEST SHALL BE PERFORMED)

24. DEFLECTIONS AT PIPE JOINTS SHALL NOT EXCEED THE LESSOR OF THOSE RECOMMENDED BY THE PIPE MANUFACTURER OR UTILITY PROVIDER'S CONSTRUCTION SPECIFICATIONS.

25. ALL PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT SHALL BE COLOR CODED IN ACCORDANCE WITH SUB PARAGRAPH 62-555.320(21)(B)3, F.A.C. USING BLUE AS A PREDOMINANT COLOR. ALL DUCTILE IRON WATER MAINS SHALL BE MARKED WITH A CONTINUOUS STRIPE LOCATED WITHIN THE TOP 90 DEGREES OF THE PIPE. SAID STRIPE SHALL BE A MINIMUM 2 INCHES IN WIDTH AND SHALL BE BLUE IN COLOR. BACKFILL SHALL NOT BE PLACED FOR 30 MINUTES FOLLOWING PAINT APPLICATION. FOR PIPE WITH AN INTERNAL DIAMETER OF 24" OR GREATER, TAPE OR PAINT SHALL BE APPLIED IN CONTINUOUS LINES A LONG EACH SIDE OF THE PIPE AS WELL AS ALONG THE TOP OF THE PIPE.

26. MARK RESIDENTIAL SERVICES WITH 6-FOOT HIGH PIECE OF 2"x4" PLANK PAINTED BLUE WITH LOT NUMBER CLEARLY MARKED AND A 'W' IMPRESSED IN THE CURB. IT IS THE INTENT THAT EVERY LOT IS PROVIDED WITH A WATER SERVICE; THEREFORE IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A WATER SERVICE TO EACH LOT.

WATER (CONTINUED)

27. PIPE MATERIALS:
    PVC MAINS - ALL PIPE, PIPE FITTINGS, PIPE JOINT PACKING AND JOINTING MATERIALS, VALVES, FIRE HYDRANTS, AND METERS INSTALLED UNDER THIS PROJECT SHALL CONFORM TO APPLICABLE AWWA STANDARDS AND SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARD C900, LATEST EDITION. PVC SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARD C900. THE PVC SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 P.S.I. AND SHALL HAVE A DIMENSION RATIO (DR) OF 18. PIPE SHALL BE THE SAME O.D. AS DUCTILE IRON PIPE.
    PVC JOINTS - SHALL BE IN ACCORDANCE WITH ASTM D3139.
    DUCTILE IRON MAINS - SHALL CONFORM TO ANSI/AWWA C150/C151. A MINIMUM OF CLASS 50 PIPE SHALL BE SUPPLIED.
    DUCTILE IRON JOINTS - SHALL BE IN ACCORDANCE WITH ANSI A21.11 AND AWWA C111.
    SERVICES - SHALL BE IN ACCORDANCE WITH AWWA C901/C800 STANDARDS FOR POLYETHYLENE TUBING, CLASS 160.

28. WATER MAIN CONNECTION SHALL BE MADE UNDER THE SUPERVISION OF THE UTILITY PROVIDER. ALL VALVES SHALL BE OPERATED BY UTILITY PROVIDER PERSONNEL ONLY.

29. ALL PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT SHALL CONTAIN NO MORE THAN 8.0% LEAD, AND ANY SOLDER OR FLUX USED IN THIS PROJECT SHALL CONTAIN NO MORE THAN 0.2% LEAD.

30. NEW OR ALTERED FIRE HYDRANT LEADS SHALL HAVE A MINIMUM INSIDE DIAMETER OF 6-INCH AND SHALL INCLUDE AN AUXILIARY VALVE.

31. A CONTINUOUS AND UNIFORM BEDDING WILL BE PROVIDED IN TRENCHES FOR UNDERGROUND PIPE INSTALLED UNDER THIS PROJECT; BACKFILL MATERIAL WILL BE TAMPED IN LAYERS AROUND UNDERGROUND PIPE INSTALLED UNDER THIS PROJECT AND TO A SUFFICIENT HEIGHT ABOVE THE PIPE TO ADEQUATELY SUPPORT AND PROTECT THE PIPE; AND UNSUITABLY SIZED STONES (AS DESCRIBED IN APPLICABLE AWWA STANDARDS OR MANUFACTURERS' RECOMMENDED INSTALLATION PROCEDURES) FOUND IN TRENCHES WILL BE REMOVED FOR A DEPTH OF A LEAST SIX INCHES BELOW THE BOTTOM OF UNDERGROUND PIPE INSTALLED UNDER THIS PROJECT.

32. CONTRACTOR SHALL NOT ACTIVATE WATER SERVICE UNTIL FDEP HAS CLEARED THE SYSTEM FOR USE AND THE CLEARANCE LETTER HAS BEEN RECEIVED BY THE OWNER.

33. ENGINEER RESERVES THE RIGHT TO WITHHOLD AUTHORIZATION OF PAYMENT FOR ANY PORTION OF THE UTILITIES PIPE WORK WHICH HAS NOT BEEN TESTED, OBSERVED BY ENGINEER, AND REPORTED TO CONFORM TO PROJECT SPECIFICATIONS.

RECLAIMED WATER

1. POLYVINYL CHLORIDE PLASTIC PIPE (PVC) 4-INCH THROUGH 12-INCH 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. PIPE SHALL BE PURPLE AND LABELED "RECLAIMED WATER" OR "NON POTABLE WATER" PROMINENTLY ON EACH PIPE JOINT. JOINTS SHALL BE OF THE PUSH-ON TYPE AND COUPLINGS SHALL CONFORM TO ASTM D3139 DR18 PIPE.

2. DUCTILE IRON PIPE (DIP) SHALL BE STANDARD PRESSURE CLASS 350 IN SIZES 4-INCH THROUGH 12-INCH AND CONFORM TO ANSI/AWWA C150/A21.50 (LATEST EDITION). ALL DUCTILE IRON PIPE SHALL HAVE 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).

3. 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.

4. COMPACT FITTINGS FOR DUCTILE IRON PIPE AND PVC C900 PIPE SHALL BE DUCTILE IRON AND SHALL CONFORM TO ANSI/AWWA C153/A21.53 (LATEST EDITION) AND SHALL BE CEMENT LINED IN CONFORMANCE WITH ANSI/AWWA C104/A21.4 (LATEST EDITION). 350 PSI MINIMUM PRESSURE RATING.

5. GATE VALVES SHALL BE RESILIENT SEAT AND SHALL CONFORM TO ANSI/AWWA C509 (LATEST EDITION) WITH 2-INCH SQUARE WRENCH NUT, EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED. MANUFACTURER'S CERTIFICATION OF THE VALVES' COMPLIANCE WITH AWWA C509 (LATEST EDITION) AND TESTS LISTED THEREIN WILL BE REQUIRED. VALVES SHALL BE CLOW, MUELLER, KENNEDY, M&H, AMERICAN DARLING, OR APPROVED EQUAL.

6. VALVE BOX PADS SHALL BE 18"x18"x4" THICK CONCRETE WITH FOUR (4) REINFORCING BARS. PAD IS TO BE SET AT FINISH GRADE.

7. UNDERGROUND VALVE IDENTIFICATION (UVI) MARKERS SHALL BE PROVIDED AT EACH VALVE LOCATION. MARKERS SHALL BE 3-INCH DIAMETER AND 1/8-INCH THICK SOLID HARD BRASS WITH 1/4-INCH ROD ANCHOR WITH "TAMPER-PROOF" HOOK END. SURFACE SHALL BE ENGRAVED WITH 1/4-INCH TO 3/8-INCH CAPITAL LETTERS APPROXIMATELY .015-INCH DEEP - HAND PUNCHED LETTERS NOT ACCEPTABLE. FOR MARKER TEXT, REFER TO UNDERGROUND VALVE MARKER DETAIL. SURFACE GROUND SMOOTH AND EPOXY COATED TO PREVENT TARNISHING. MARKERS ARE TO BE WAGCO MARKERS, OR APPROVED EQUAL.

8. BUTTERFLY VALVES SHALL MEET OR EXCEED THE DESIGN STRENGTH TESTING AND PERFORMANCE REQUIREMENTS OF AWWA C504 (LATEST EDITION), 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-INCH.

9. 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.

10. VALVE BOXES ON BURIED RECLAIMED WATER SHALL BE ADJUSTABLE, CAST IRON CONSTRUCTION, WITH A MINIMUM INTERIOR DIAMETER OF 5-INCH 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.

11. 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 (LATEST EDITION).

12. RECLAIMED WATER SYSTEM PIPES SHALL BE INSTALLED SO AS TO GIVE A MINIMUM HORIZONTAL SEPARATION OF 5 FEET (CENTER OF PIPE TO CENTER OF PIPE) FROM POTABLE WATER LINES AND MINIMUM 3-FOOT SEPARATION FORM OUTSIDE WALL TO OUTSIDE WALL AS WELL AS 18-INCH VERTICAL SEPARATION. IN THE CASE OF A CONFLICT WHERE THESE SEPARATIONS CANNOT BE MAINTAINED THE REUSE MAIN SHALL BE UPGRADED TO DIP.

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

14. MINIMUM COVER OVER ALL PIPE SHALL BE 36-INCHES FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE NOTED.

15. INDICATOR TAPE SHALL BE BURIED IN THE RECLAIMED WATER MAIN TRENCH 18-INCH DIRECTLY ABOVE THE MAIN. A CONTINUOUS COPPER DETECTOR WIRE SHALL BE ATTACHED AS SHOWN ON THE PIPE DETECTOR WIRE MARKER DETAIL. INDICATOR TAPE SHALL CALL OUT THAT A RECLAIMED OR NON POTABLE SYSTEM IS BELOW. PIPE SHALL BE COLOR CODED PURPLE IN ADDITION TO MARKINGS. SIGNS IN ENGLISH, SPANISH, AND INTERNATIONAL SYMBOLS SHALL BE INSTALLED NOTING THAT NO DRINKING IS ALLOWED. CONTINUITY CHECK WILL BE PERFORMED AND MUST BE ACCEPTABLE.

16. ALLOWABLE LEAKAGE FOR PVC PRESSURE MAINS WILL BE IN ACCORDANCE WITH AWWA M23.

RECLAIMED WATER (CONTINUED)

17. 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 LOCAL AGENCY, UTILITY PROVIDER, AND ENGINEER IN WRITTEN FORM, FORTY-EIGHT (48) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRE-TESTING PRIOR TO NOTIFICATION. NO TESTING WILL BE SCHEDULED ON A MONDAY OR FRIDAY.

18. THE RECLAIMED WATER SYSTEM SHALL BE TESTED FOR LEAKAGE AT 150 PSI FOR TWO (2) HOURS PER UTILITY PROVIDER STANDARDS.

19. ALL RECLAIMED WATER PIPES SHALL BE INSTALLED USING WATER PIPE CRITERIA. MAINS SHALL BE CLASS 52 D.I. PIPE. IF 24-INCHES TO 30-INCHES OF COVER IS PROVIDED AND CLASS 51 IF 30-NICHES TO 36-INCHES OF COVER IS PROVIDED.

20. SIGNS SHALL BE POSTED IN THE VICINITY OF PUBLIC RECLAIMED WATER RECLAIMED WATER IRRIGATION SYSTEMS, ADVISING THE PUBLIC THAT RECLAIMED WATER IS PRACTICED.

FIRE

THE 8TH EDITION OF THE FLORIDA FIRE PREVENTION CODE IS HEREBY INCORPORATED
NFPA 1, 2024 EDITION
NFPA 13, 2025 EDITION
NFPA 14, 2024 EDITION
NFPA 24, 2025 EDITION
NFPA 101, 2024 EDITION

DEMOLITION NOTES

1. EXISTING UNDERGROUND UTILITIES, UNLESS OTHERWISE NOTED, MAY BE CAPPED/PLUGGED AND ABANDONED IN PLACE EXCEPT WITHIN 30 FT. OF BUILDING. CAPPED AND PLUGGED PIPE ENDS SHALL BE ENCASED IN CONCRETE, 6" MINIMUM THICKNESS AROUND PIPE. MANHOLE BASES MAY BE LEFT IN PLACE PROVIDED THAT PIPE OPENINGS ARE PLUGGED AND REMAINING BASES ARE FILLED WITH CONCRETE 6" MINIMUM ABOVE HIGHEST INVERT.

2. CONTRACTOR SHALL BE KNOWLEDGEABLE OF THE CONSTRUCTION DOCUMENTS AND BE RESPONSIBLE FOR PROTECTING ANY EXISTING FACILITY SO DESIGNATED OR DESIGNATED TO BE UTILIZED IN THE WORK.

3. CONTRACTOR SHALL REMOVE ALL FOUNDATIONS, CONCRETE SLABS, AND UNDERGROUND STRUCTURES EXISTING ON THE SITE AT THE TIME OF BIDDING UNLESS OTHERWISE DIRECTED.

4. CONTRACTOR SHALL COORDINATE WITH APPLICABLE UTILITY COMPANIES AND BE RESPONSIBLE FOR THE TERMINATION, CAPPING-OFF AND REMOVAL OF ALL UNDERGROUND AND ABOVE-GROUND UTILITY SERVICES EXISTING AT THE TIME OF BIDDING UNLESS DIRECTED TO BID OTHERWISE.

5. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND DISPOSING ALL WASTE MATERIALS CONSISTENT WITH ALL RULES AND REGULATIONS APPLICABLE TO THE SPECIFIC MATERIAL FOUND.

SPECIAL PURPOSE

1. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STANDARD NOTES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #: 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C002

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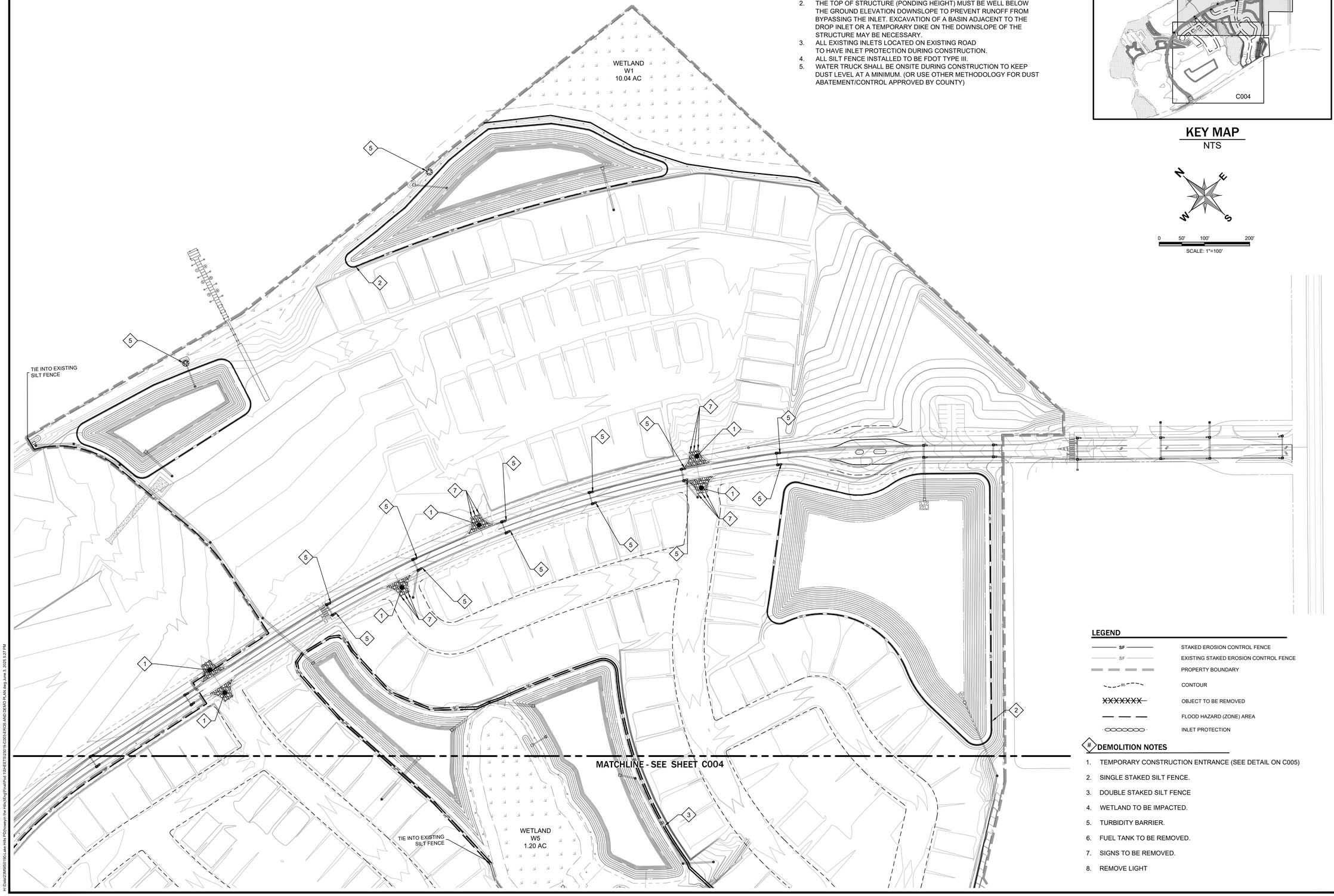
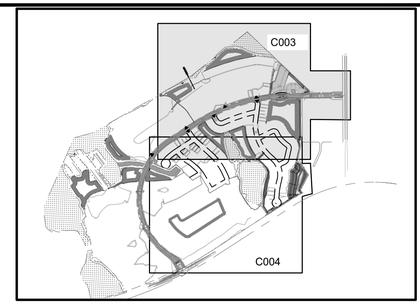
NOTES:

1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)
2. THE TOP OF STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. EXCAVATION OF A BASIN ADJACENT TO THE DROP INLET OR A TEMPORARY DIKE ON THE DOWNSLOPE OF THE STRUCTURE MAY BE NECESSARY.
3. ALL EXISTING INLETS LOCATED ON EXISTING ROAD TO HAVE INLET PROTECTION DURING CONSTRUCTION.
4. ALL SILT FENCE INSTALLED TO BE FDOT TYPE III.
5. WATER TRUCK SHALL BE ONSITE DURING CONSTRUCTION TO KEEP DUST LEVEL AT A MINIMUM. (OR USE OTHER METHODOLOGY FOR DUST ABATEMENT/CONTROL APPROVED BY COUNTY)





KEY MAP
NTS

N E S W

0 50' 100' 200'
SCALE: 1"=100'

LEGEND

- SF — STAKED EROSION CONTROL FENCE
- SF — EXISTING STAKED EROSION CONTROL FENCE
- PROPERTY BOUNDARY
- 85 — CONTOUR
- XXXXXXX — OBJECT TO BE REMOVED
- FLOOD HAZARD (ZONE) AREA
- INLET PROTECTION

DEMOLITION NOTES

1. TEMPORARY CONSTRUCTION ENTRANCE (SEE DETAIL ON C005)
2. SINGLE STAKED SILT FENCE.
3. DOUBLE STAKED SILT FENCE
4. WETLAND TO BE IMPACTED.
5. TURBIDITY BARRIER.
6. FUEL TANK TO BE REMOVED.
7. SIGNS TO BE REMOVED.
8. REMOVE LIGHT

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EROSION CONTROL AND DEMO PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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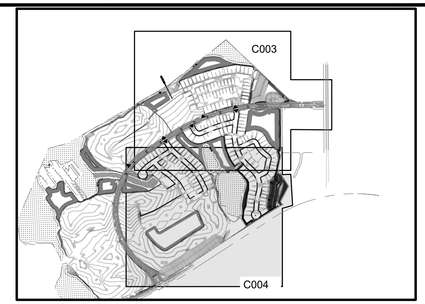

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SCALE: 1"=100'

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4. ALL SILT FENCE INSTALLED (SINGLE OR DOUBLE) TO BE FDOT TYPE III.
5. WATER TRUCK SHALL BE ONSITE DURING CONSTRUCTION TO KEEP DUST LEVEL AT A MINIMUM. (OR USE OTHER METHODOLOGY FOT DUST ABATEMENT/CONTROL APPROVED BY COUNTY)
6. IF CONTRACTOR PERFORMS ANY WORK 100 FT OF THE EXISTING WETLAND DOUBLE ROW SILT FENCE TO BE INSTALLED.

FODS TRACKOUT CONTROL SYSTEM INSTALLATION GUIDE

THE PURPOSE AND DESIGN OF THE FODS TRACKOUT CONTROL SYSTEM IS TO EFFECTIVELY REMOVE MOST SEDIMENT FROM VEHICLE TIRES AS THEY EXIT A DISTURBED LAND AREA ONTO A PAVED STREET. THIS MANUAL IS A PLATFORM FROM WHICH TO INSTALL A FODS TRACKOUT CONTROL SYSTEM. (NOTE: THIS IS NOT A ONE SIZE FITS ALL GUIDE.) THE INSTALLATION MAY NEED TO BE MODIFIED TO MEET THE EXISTING CONDITIONS, EXPECTATIONS, OR DEMANDS OF A PARTICULAR SITE. THIS IS A GUIDELINE. ULTIMATELY THE FODS TRACKOUT CONTROL SYSTEM SHOULD BE INSTALLED SAFELY WITH PROPER ANCHORING AND SIGNS PLACED AT THE ENTRANCE AND EXIT TO CAUTION USERS AND OTHERS.

KEY NOTES:

A. FODS TRACKOUT CONTROL SYSTEM MAT.
B. FODS SAFETY SIGN.
C. ANCHOR POINT.
D. SILT OR ORANGE CONSTRUCTION FENCE.

INSTALLATION:

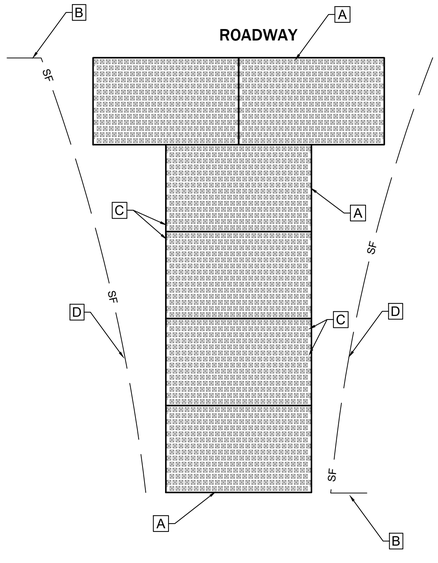
1. THE SITE WHERE THE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED SHOULD CORRESPOND TO BEST MANAGEMENT PRACTICES AS MUCH AS POSSIBLE. THE SITE WHERE FODS TRACKOUT CONTROL SYSTEM IS PLACED SHOULD ALSO MEET OR EXCEED THE LOCAL JURISDICTION OR STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.
2. CALL FOR UTILITY LOCATES 3 BUSINESS DAYS IN ADVANCE OF THE OF FODS TRACKOUT CONTROL SYSTEM INSTALLATION FOR THE MARKING OF UNDERGROUND UTILITIES. CALL THE UTILITY NOTIFICATION CENTER AT 811.
3. ONCE THE SITE IS ESTABLISHED WHERE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED, ANY EXCESSIVE UNEVEN TERRAIN SHOULD BE LEVELED OUT OR REMOVED SUCH AS LARGE ROCKS, LANDSCAPING MATERIALS, OR SUDDEN ABRUPT CHANGES IN ELEVATION.
4. THE INDIVIDUAL MATS CAN START TO BE PLACED INTO POSITION. THE FIRST MAT SHOULD BE PLACED NEXT TO THE CLOSEST POINT OF EGRESS. THIS WILL ENSURE THAT THE VEHICLE WILL EXIT STRAIGHT FROM THE SITE ONTO THE PAVED SURFACE.
5. AFTER THE FIRST MAT IS PLACED DOWN IN THE PROPER LOCATION, MATS SHOULD BE ANCHORED TO PREVENT THE POTENTIAL MOVEMENT WHILE THE ADJOINING MATS ARE INSTALLED. ANCHORS SHOULD BE PLACED AT EVERY ANCHOR POINT (IF FEASIBLE) TO HELP MAINTAIN THE MAT IN ITS CURRENT POSITION.
6. AFTER THE FIRST MAT IS ANCHORED IN ITS PROPER PLACE, AN H BRACKET SHOULD BE PLACED AT THE END OF THE FIRST MAT BEFORE ANOTHER MAT IS PLACED ADJACENT TO THE FIRST MAT.
7. ONCE THE SECOND MAT IS PLACED ADJACENT TO THE FIRST MAT, MAKE SURE THE H BRACKET IS CORRECTLY SITUATED BETWEEN THE TWO MATS, AND SLIDE MATS TOGETHER.
8. NEXT THE CONNECTOR STRAPS SHOULD BE INSTALLED TO CONNECT THE TWO MATS TOGETHER.
9. UPON PLACEMENT OF EACH NEW MAT IN THE SYSTEM, THAT MAT SHOULD BE ANCHORED AT EVERY ANCHOR POINT TO HELP STABILIZE THE MAT AND ENSURE THE SYSTEM IS CONTINUOUS WITH NO GAPS IN BETWEEN THE MATS.
10. SUCCESSIVE MATS CAN THEN BE PLACED TO CREATE THE FODS TRACKOUT CONTROL SYSTEM REPEATING THE ABOVE STEPS.

USE AND MAINTENANCE

1. VEHICLES SHOULD TRAVEL DOWN THE LENGTH OF THE TRACKOUT CONTROL SYSTEM AND NOT CUT ACROSS THE MATS.
2. DRIVERS SHOULD TURN THE WHEEL OF THEIR VEHICLES SUCH THAT THE VEHICLE WILL MAKE A SHALLOW S-TURN ROUTE DOWN THE LENGTH OF THE FODS TRACKOUT CONTROL SYSTEM.
3. MATS SHOULD BE CLEANED ONCE THE VOIDS BETWEEN THE PYRAMIDS BECOME FULL OF SEDIMENT. TYPICALLY THIS WILL NEED TO BE PERFORMED WITHIN TWO WEEKS AFTER A STORM EVENT. BRUSHING IS THE PREFERRED METHOD OF CLEANING, EITHER MANUALLY OR MECHANICALLY.
4. THE USE OF ICE MELT, ROCK SALT, SNOW MELT, DE-ICER, ETC. SHOULD BE UTILIZED AS NECESSARY DURING THE WINTER MONTHS AND AFTER A SNOW EVENT TO PREVENT ICE BUILDUP.

REMOVAL

1. REMOVAL OF FODS TRACKOUT CONTROL SYSTEM IS REVERSE ORDER OF INSTALLATION.
2. STARTING WITH THE LAST MAT, THE MAT THAT IS PLACED AT THE INNERMOST POINT OF THE SITE OR THE MAT FURTHEST FROM THE EXIT OR PAVED SURFACE SHOULD BE REMOVED FIRST.
3. THE ANCHORS SHOULD BE REMOVED.
4. THE CONNECTOR STRAPS SHOULD BE UNBOLTED AT ALL LOCATIONS IN THE FODS TRACKOUT CONTROL SYSTEM.
5. STARTING WITH THE LAST MAT IN THE SYSTEM, EACH SUCCESSIVE MAT SHOULD THEN BE MOVED AND STACKED FOR LOADING BY FORKLIFT OR EXCAVATOR ONTO A TRUCK FOR REMOVAL FROM THE SITE.



TYPICAL FODS TRACKOUT CONTROL SYSTEM LAYOUT

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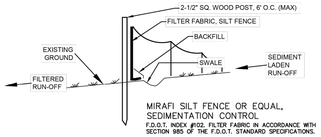


MIRAFI SILT FENCE OR EQUAL, SEDIMENTATION CONTROL
F.D.O.T. INDEX #102, FILTER FABRIC IN ACCORDANCE WITH SECTION 985 OF THE F.D.O.T. STANDARD SPECIFICATIONS.

NOTES:

1. TEMPORARY EROSION CONTROL STRUCTURE TO BE UTILIZED DURING CONSTRUCTION AT AREAS DESIGNATED BY ENGINEER OR AREAS ON-SITE WHERE UNSTABILIZED GRADES MAY CAUSE EROSION PROBLEMS. EROSION CONTROL STRUCTURE MAY BE REMOVED AFTER UPSLOPE AREA HAS BEEN STABILIZED BY SOD, OR COMPACTED AS DETERMINED BY CONTRACTOR.
2. CONSTRUCT STORMWATER SYSTEMS BEFORE ANY BUILDING OR ROAD CONSTRUCTION IS STARTED.
   a.) PROTECT SYSTEM FROM SILTING AND DEBRIS BY METHODS PROVIDED IN DETAILS.
   b.) PROTECT SWALE BOTTOM FROM SEALING BY EXCAVATING ALL SILT DEPOSITS DURING CONSTRUCTION. THIS SHALL BE DONE BEFORE SOD & SEEDING & MULCHING IS FINISHED

THE FOLLOWING LIST REPRESENTS A BASIC EROSION AND SEDIMENT CONTROL PROGRAM WHICH IS TO BE IMPLEMENTED TO HELP PREVENT OFF-SITE SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROJECT.

PERMANENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AT THE EARLIEST PRACTICAL TIME CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. ONE OF THE FIRST CONSTRUCTION ACTIVITIES SHOULD BE THE PLACEMENT OF PERMANENT AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AROUND THE PERIMETER OF THE PROJECT OR THE INITIAL WORK AREA TO PROTECT THE PROJECT, ADJACENT PROPERTIES AND WATER RESOURCES.

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS CONTROL THROUGHOUT THE CONSTRUCTION PHASE. TEMPORARY MEASURES SHALL NOT BE CONSTRUCTED FOR EXPEDIENCY IN LIEU OF PERMANENT MEASURES.

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ADEQUATELY MAINTAINED TO PERFORM THEIR INTENDED FUNCTION DURING CONSTRUCTION OF THE PROJECT.

NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BARRIERS SHALL BE ACCOMPLISHED PROMPTLY.

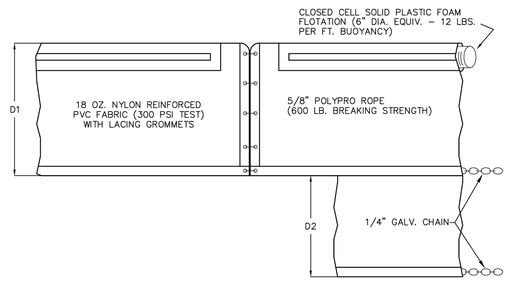
SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

MATERIAL FROM SEDIMENT TRAPS SHALL NOT BE STOCKPILED OR DISPOSED OF IN A MANNER WHICH MAKES THEM READILY SUSCEPTIBLE TO BEING WASHED INTO ANY WATERCOURSE BY RUNOFF OR HIGH WATER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

EROSION & SEDIMENT CONTROL
(N.T.S.)

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL G-1



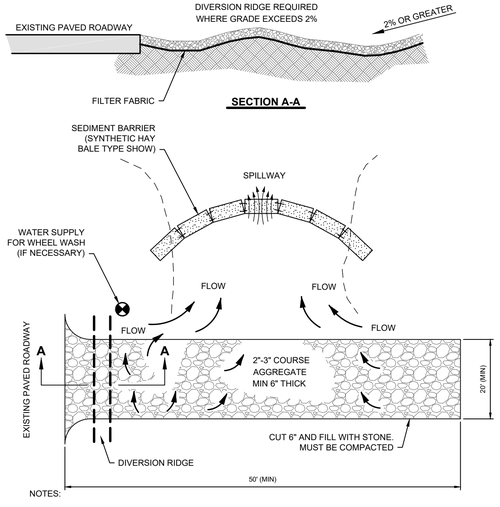
D1 - 5 FT. STANDARD, SINGLE PANEL FOR DEPTHS 5 FT. OR LESS

D2 - 5 FT. STANDARD, ADDITIONAL PANEL FOR DEPTHS GREATER THAN 5 FT.

CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FT. TWO PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FT., UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN PLANS OR DESIGNATED BY ENGINEER.

FLOATING TURBIDITY BARRIER (N.T.S.)

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL G-2



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF WAY OR STORM WATER SYSTEMS. THEY MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE INTO THE PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

TEMPORARY CONSTRUCTION ENTRANCE (CE)

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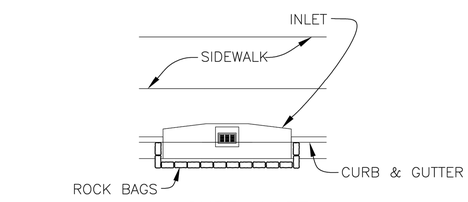
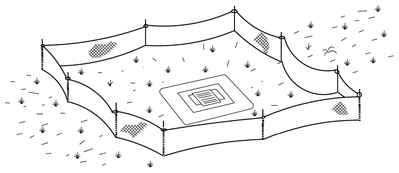


CURB INLET



TYPE III SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS

ALTERNATE DESIGNS MAY BE PROPOSED BY ENGINEER

INLET PROTECTION (N.T.S.)

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL G-3

MADDEN
MOORHEAD & STOKES, LLC
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431 E. Horatio Avenue
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CA# 0007723

EROSION CONTROL DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

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MASTER COMMUNITY PLAN
FOR
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LAKE COUNTY

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SITE DATA

1. **TOTAL PROJECT AREA:**
   91.00 AC.
2. **PROPOSED USE**
   SINGLE FAMILY RESIDENTIAL
3. **EXISTING USE**
   VACANT
4. **ZONING/FUTURE LAND USE:**
   CURRENT ZONING IS "PUD" (PLANNED UNIT DEVELOPMENT)
5. **BUILDING AREAS (TYPICAL):**
   50' COTTAGE HOME LOTS - 0.09 A.C.
   60' + COTTAGE HOME LOTS - 0.12 A.C.
   VILLAS (PAIRED HOME LOTS) - 0.16 A.C.
6. **MAX BUILDING HEIGHT:** 35' (2 STORIES)
7. **C.R. 48 LANDSCAPE BUFFER:**
   MIN. WIDTH 15'
8. **SETBACKS:**

VILLA LOTS (PAIRED HOME LOTS)	
-FRONT	20'
-SIDE	10'
-STREET SIDE	15'
ACCESSORY STRUCTURE (POOL)	
-REAR	10'
-SIDE	5'
SINGLE FAMILY (50' AND 60"+ COTTAGE HOME LOTS	
-FRONT	20'
-FRONT PORCH	15'
-SIDE	5'
-STREET SIDE	15'
ACCESSORY STRUCTURE (POOL)	
-REAR	10'
-SIDE	5'

9. ACCORDING TO FIRM MAP PANEL NO. 12069C0485E DATED 12/18/2012
10. WATER & SEWER WILL BE PROVIDED BY HOWEY-IN-THE-HILLS UTILITIES DEPARTMENT .
11. STORM RUNOFF GENERATED ON SITE SHALL BE TREATED USING ON SITE STORMWATER SYSTEMS UTILIZING BOTH WET DETENTION AND DRY RETENTION.
12. ALL CONSTRUCTION MATERIALS AND OTHER PROPOSED IMPROVEMENTS SHALL MEET THE APPLICABLE CODES OF THE TOWN HOWEY-IN-THE-HILLS.
13. A MANDATORY HOA SHALL BE CREATED TO PROVIDE FOR THE MANAGEMENT OF COMMON AREA AND FACILITIES
14. **PERVIOUS/IMPERVIOUS**

BUILDINGS	36.97 AC	41%
SIDEWALKS	2.95 AC	3%
PAVEMENT	11.87 AC	13%
STORMWATER MANAGEMENT	11.34 AC	12%
OPEN SPACE	20.28 AC	22%
WETLANDS	7.65 AC	8%
TOTAL PERVIOUS	27.93 AC	31%
TOTAL IMPERVIOUS	51.79 AC	57%
STORMWATER MANAGEMENT	11.34 AC	12%
TOTALS	91 AC	100%

Tract Table		
Tract I.D.	Area	Description
A 1	6.19 A.C.	AMMENITY / COMMUNITY PARK
A 2	6.86 A.C.	OPEN SPACE / TOWN PARK
L.S. 1	0.09 A.C.	LIFT STATION
O.S. 3	0.04 A.C.	OPEN SPACE
O.S. 4	0.08 A.C.	OPEN SPACE
O.S. 5	0.21 A.C.	OPEN SPACE
O.S. 7	0.06 A.C.	DRAINAGE EASEMENT / OPEN SPACE
O.S. 8	0.04 A.C.	OPEN SPACE
O.S. 9	0.05 A.C.	OPEN SPACE
O.S. 12	0.20 A.C.	OPEN SPACE
O.S. 17	0.08 A.C.	OPEN SPACE
O.S. 20	0.03 A.C.	OPEN SPACE
O.S. 21	0.08 A.C.	OPEN SPACE
O.S. 22	0.02 A.C.	OPEN SPACE
O.S. 23	0.04 A.C.	OPEN SPACE
O.S. 24	0.19 A.C.	OPEN SPACE
O.S. 25	0.17 A.C.	OPEN SPACE
O.S. 27	0.06 A.C.	DRAINAGE EASEMENT/OPEN SPACE
O.S. 28	0.19 A.C.	OPEN SPACE

Tract Table		
Tract I.D.	Area	Description
O.S. 30	0.06 A.C.	OPEN SPACE
O.S. 31	0.03 A.C.	OPEN SPACE
O.S. 32	0.06 A.C.	OPEN SPACE
O.S. 33	0.03 A.C.	OPEN SPACE
O.S. 34	0.42 A.C.	OPEN SPACE
P 1	5.30 A.C.	POND
P 2	7.14 A.C.	OPEN SPACE / POND 2
P 3	1.80 A.C.	POND
P 9	1.49 A.C.	POND
P 12	2.75 A.C.	POND
R.O.W. 1	2.77 A.C.	SUMMERLANE DRIVE RIGHT OF WAY
R.O.W. 2	2.90 A.C.	R.O.W.
R.O.W. 3	4.04 A.C.	R.O.W.
R.O.W. 4	3.44 A.C.	R.O.W.
W 3	1.17 A.C.	WETLAND
W 4	4.72 A.C.	WETLAND
W.B. 3	0.62 A.C.	WETLAND BUFFER W3
W.B. 4	1.14 A.C.	WETLAND BUFFER W4

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
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Maitland, Florida 32751
(407) 629-8330
CA# 0007723

PHASE 1 SITE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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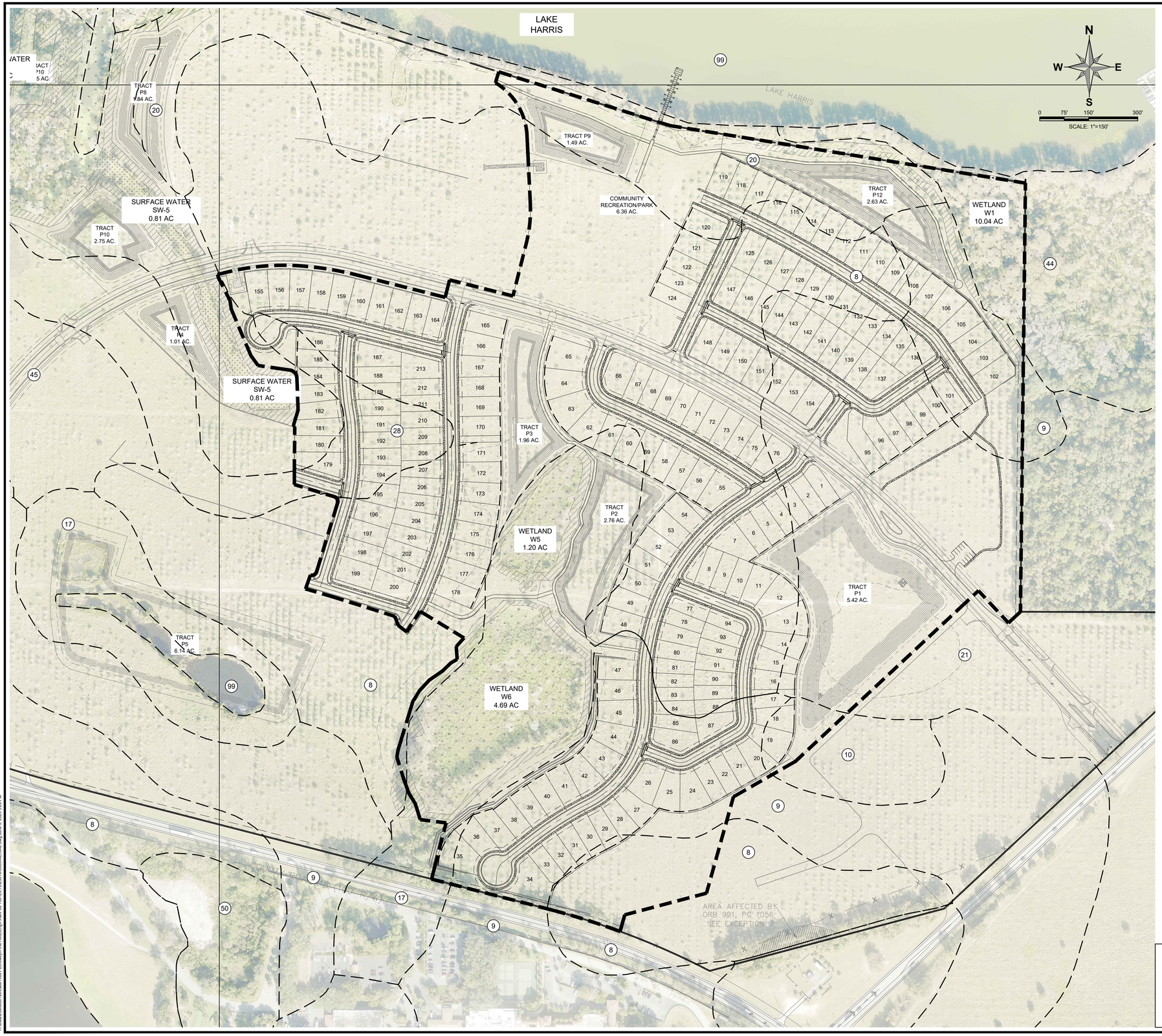

SOIL LEGEND

MAP UNIT SYMBOL	MAP UNIT NAME
1	SPARR SAND, 0 TO 5 % SLOPES
4	ANCLOTE AND MYAKKA SOILS
8	CANDLER SAND, 0 TO 5 % SLOPES
9	CANDLER SAND, 5 TO 12 % SLOPES
10	CANDLER SAND, 12 TO 40 % SLOPES
17	ARENTS
20	IMMOKALEE SAND
21	LAKE SAND, 0 TO 5 % SLOPES
28	MYAKKA-MYAKKA, WET, SANDS, 0 TO 2 % SLOPES
44	SWAMP
45	TAVARES SAND, 0 TO 5 % SLOPES
50	BORROW PITS
99	WATER

LEGEND

- SOIL TYPE LIMIT
- WETLAND LINE
- FLOOD ZONE LINE (ZONE X / ZONE AE)
- PHASE 1 BOUNDARY
- WETLAND BUFFER
- WETLANDS
- WETLAND IMPACT

FLOOD ZONE:

ACCORDING TO FIRM MAP PANEL NOS. 12069C0485E DATED 12/18/2012, MAJORITY OF THIS PROPERTY LIES WITHIN FLOOD ZONE 'X' - AND IS NOT LOCATED WITHIN THE 100 YEAR FLOOD HAZARD AREA WITH A PORTION OF THE PROPERTY LYING WITHIN FLOOD ZONE "A" & "AE" AND IS IN A SPECIAL FLOOD HAZARD AREA SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD.

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: XX/20XX

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(407) 629-8330
CA# 0007723

AERIAL SITE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
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APPROVED BY:	DAS

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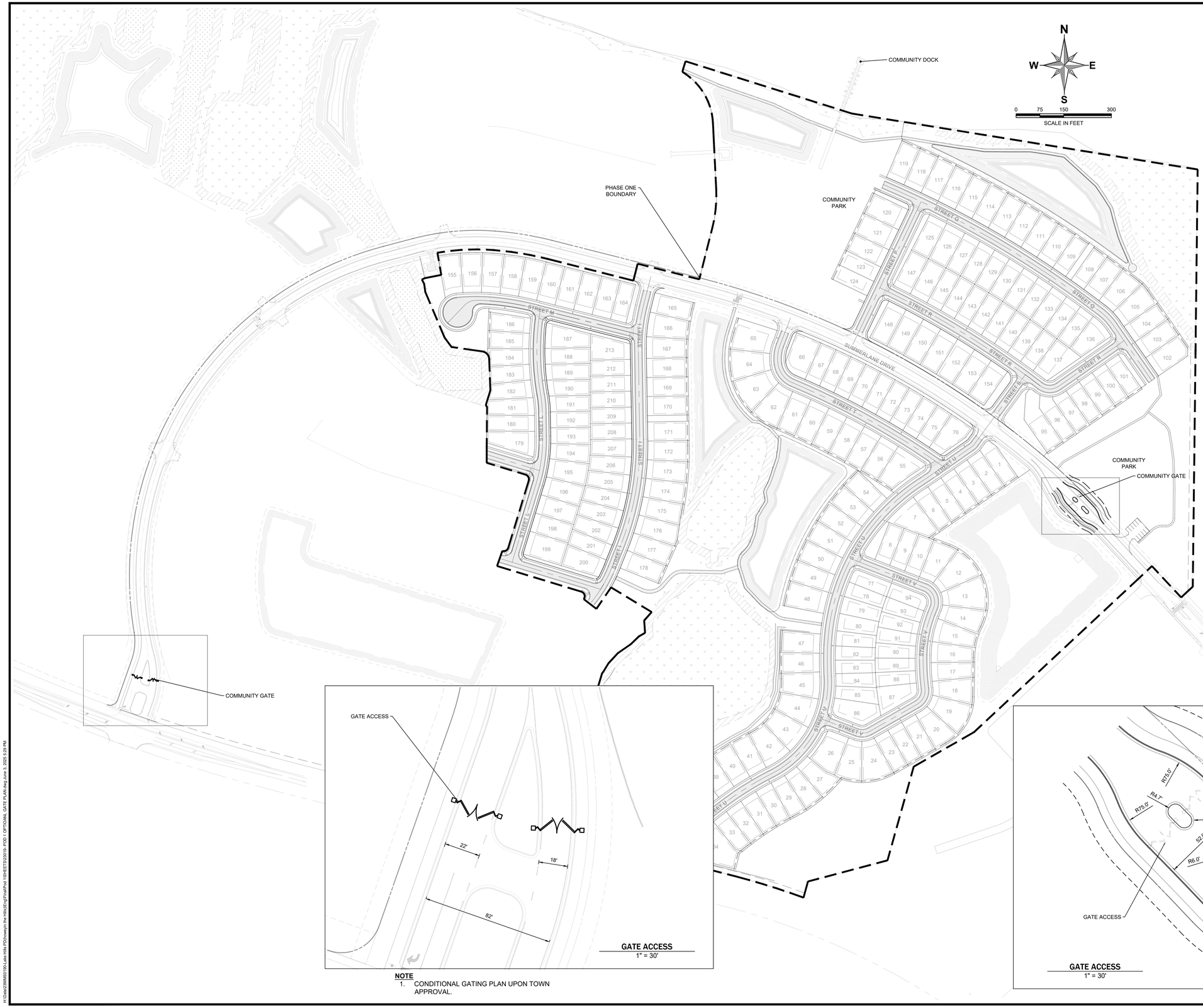
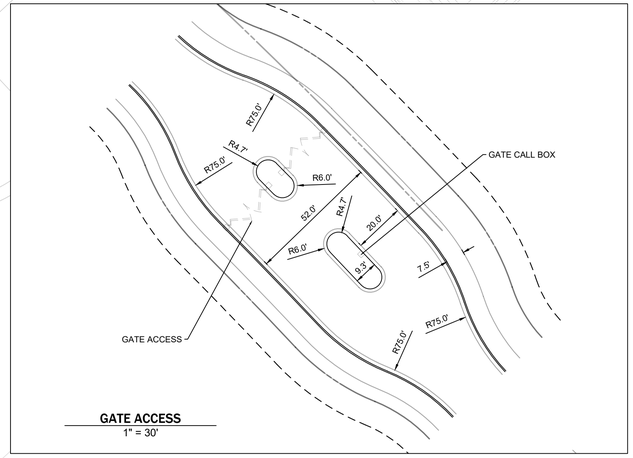


NOTE

1. CONDITIONAL GATING PLAN UPON TOWN APPROVAL.



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Maitland, Florida 32751
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CA# 0007723

OPTIONAL GATE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4869

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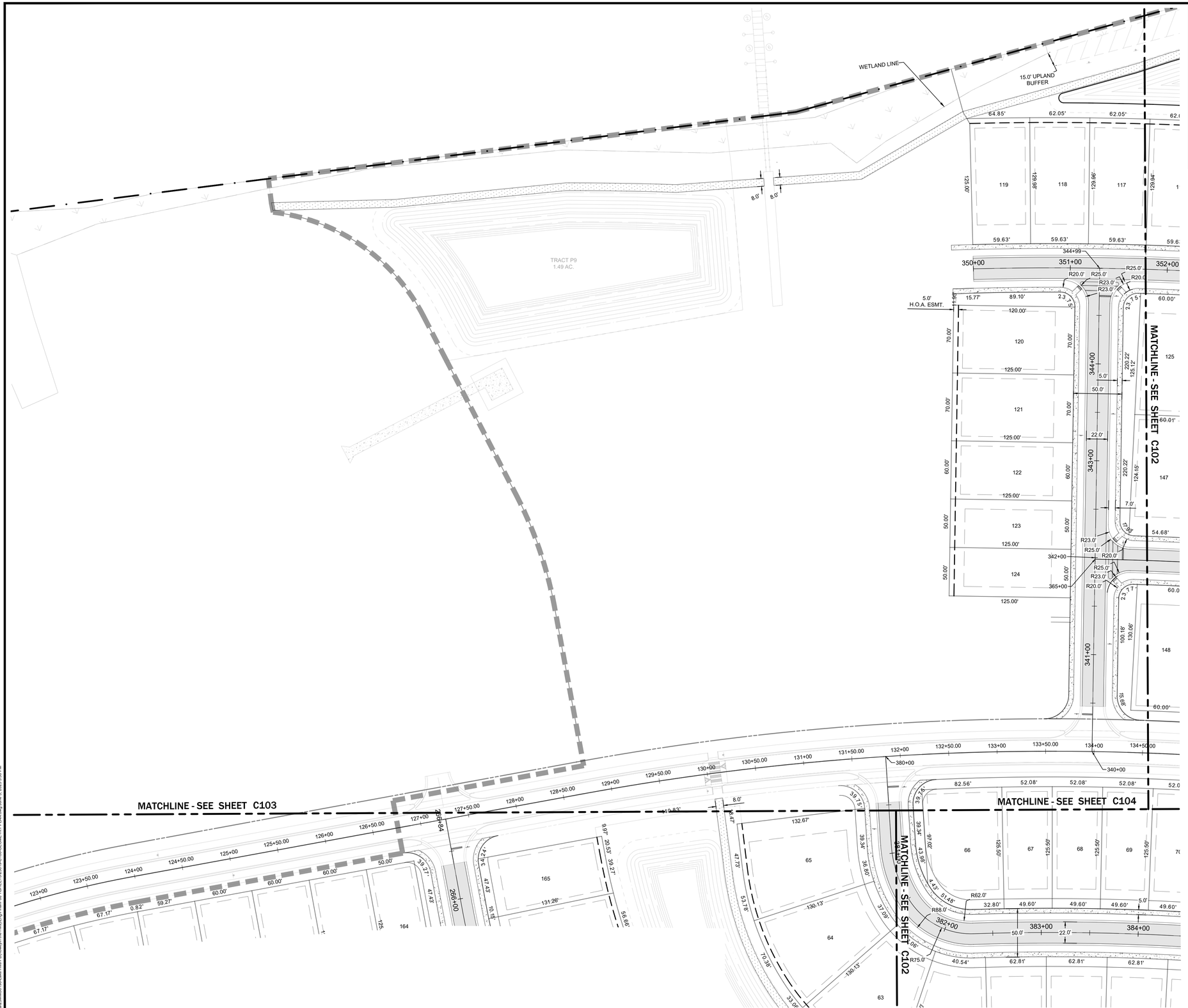

KEY MAP
NTS

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
5860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 858-4899

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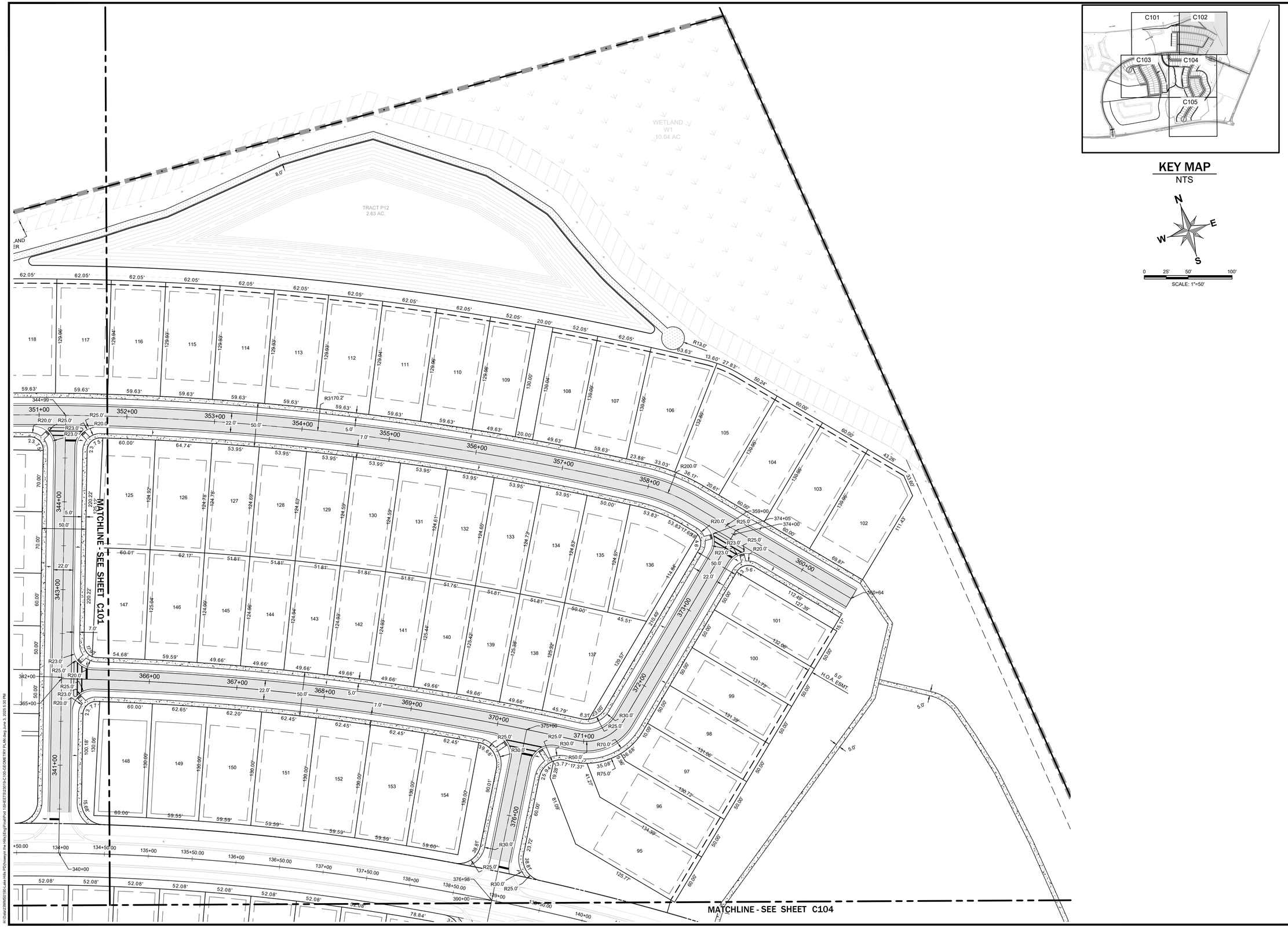

KEY MAP
NTS

N
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0 25' 50' 100'

SCALE: 1"=50'

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CIVIL ENGINEERS
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Suite 260
Maitland, Florida 32751
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CA# 0007723

GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

1	2	3	4	5	6	7	8	9	10	11	DATE	REVISIONS

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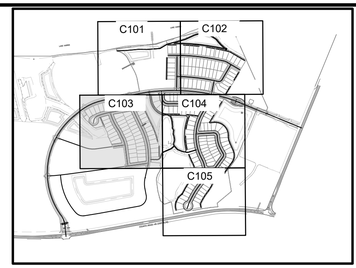
MATCHLINE - SEE SHEET C101

MATCHLINE - SEE SHEET C104

SURFACE-WATER
SW-5
0.81 AC

TRACT P3
1.96 AC.

H.O.A. ESMT



KEY MAP
NTS

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0 25' 50' 100'
SCALE: 1"=50'

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MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
5850 T.G. LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 858-4899

DATE	REVISIONS
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DAVID ASHLEY STOKES
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MATCHLINE - SEE SHEET C101

MATCHLINE - SEE SHEET C102

MATCHLINE - SEE SHEET C103

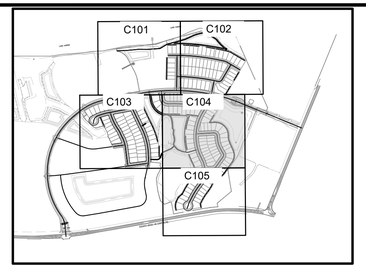
MATCHLINE - SEE SHEET C105

TRACT P1
5.42 AC.

TRACT P2
2.76 AC.

TRACT P3
1.96 AC.

WETLAND
W5
1.20 AC



KEY MAP
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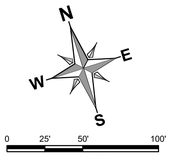

SCALE: 1"=50'

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Maitland, Florida 32751
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CA# 0007723

GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

DATE	REVISIONS
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DAVID ASHLEY STOKES
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Item 1.

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CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 628-8330
CA# 0007723

GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

REAGERS & PARTNERS, LLC
5860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

NO.	DATE	REVISIONS
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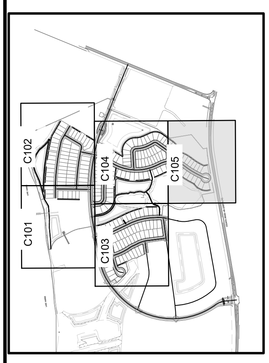

KEY MAP
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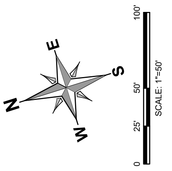

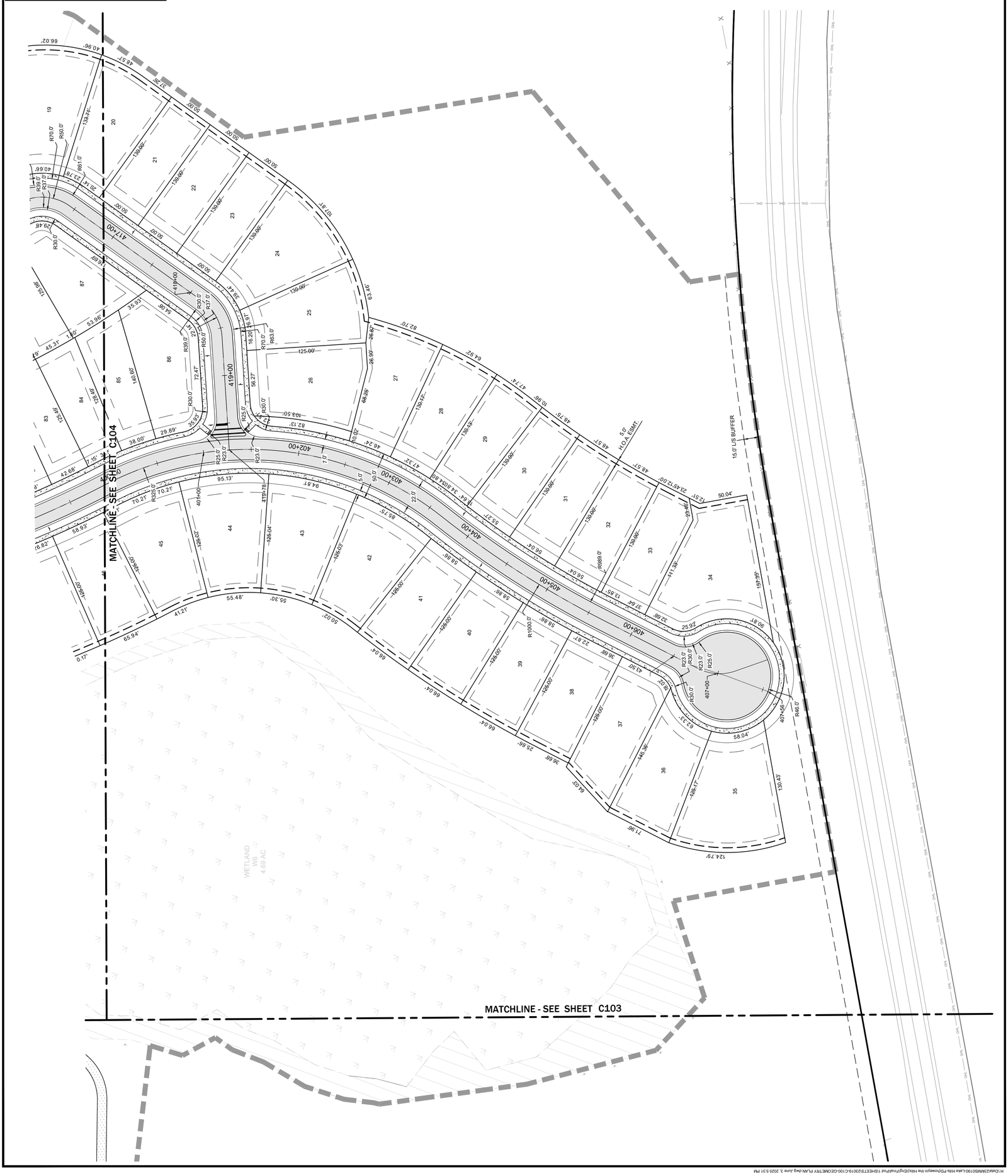

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PAVEMENT SPECIFICATIONS

(1) 1.5" FDOT SUPERPAVE (SP) ASPHALTIC CONCRETE. THE SURFACE COURSE SHOULD CONSIST OF FDOT SP-9.5 FINE MIX FOR LIGHT-DUTY AREAS.

(1) 2.5" FDOT SUPERPAVE (SP) ASPHALTIC CONCRETE. FDOT SP-12.5 TOPPED WITH SP-9.5 FINE MIX FOR HEAVY DUTY AREAS.

(2) 6" LIMEROCK BASE, MINIMUM DENSITY OF 98 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY AND EXHIBIT A MINIMUM LBR OF 100.

OR

(2) 6" SOIL-CEMENT BASE, MAXIMUM 6-INCH LIFTS UNIFORM AND COMPACT IN PLACE TO A MINIMUM DENSITY OF 95 PERCENT OF THE MAXIMUM DRY DENSITY ACCORDING TO SPECIFICATIONS IN ASTM D-558, "MOISTURE DENSITY RELATIONS OF SOIL CEMENT MIXTURES".

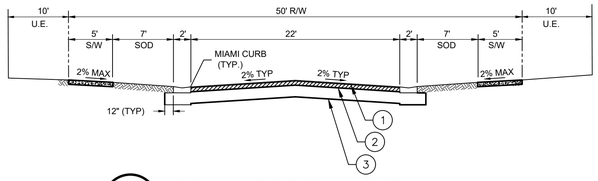
OR

(2) 6" RECYCLED CONCRETE AGGREGATE (RCA), MATERIAL SHOULD BE SOURCED FROM AN FDOT APPROVED SUPPLIER. THE BASE SHOULD BE COMPACTED TO A MINIMUM DENSITY OF 98 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY AND EXHIBIT A MINIMUM LBR OF 150. THE BASE MATERIAL SHOULD COMPLY WITH THE LATEST EDITION OF THE FDOT ROAD AND BRIDGE CONSTRUCTION SPECIFICATIONS.

(3) 12" STABILIZED SUBGRADE, MINIMUM FBV=75 (OR MINIMUM LBR=40) AND COMPACTED TO A MINIMUM DENSITY EQUIVALENT TO 98 PERCENT OF THE SOIL'S MODIFIED PROCTOR DENSITY VALUE AS DETERMINED BY ASTM D 1557 TEST METHOD.

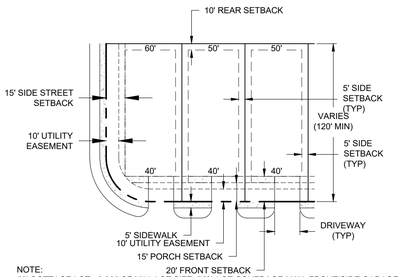
NOTE:

1. ROADS SHALL BE CONSTRUCTED PER CITY OF LEESBURG CONSTRUCTION STANDARDS AND SPECIFICATIONS.



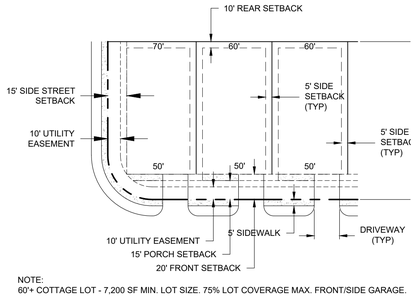
RW50 — **TYPICAL 50' RIGHT OF WAY SECTION**

N.T.S.



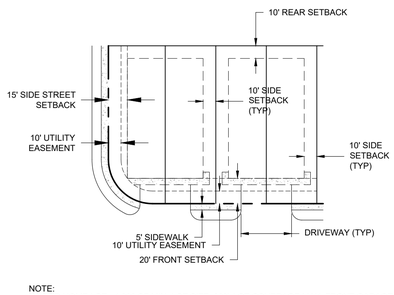
NOTE:
50' COTTAGE LOT - 6,000 SF MIN. LOT SIZE. 75% LOT COVERAGE MAX. FRONT/SIDE GARAGE.

50' COTTAGE HOME LOTS



NOTE:
60'+ COTTAGE LOT - 7,200 SF MIN. LOT SIZE. 75% LOT COVERAGE MAX. FRONT/SIDE GARAGE.

60'+ COTTAGE HOME LOTS



NOTE:
PAIRED HOME LOT - 4,800 SF MIN. LOT SIZE. 90% LOT COVERAGE MAX. FRONT GARAGE.

PAIRED HOME LOTS

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

TYPICAL SECTIONS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9800 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

DATE	REVISIONS
1	
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C106

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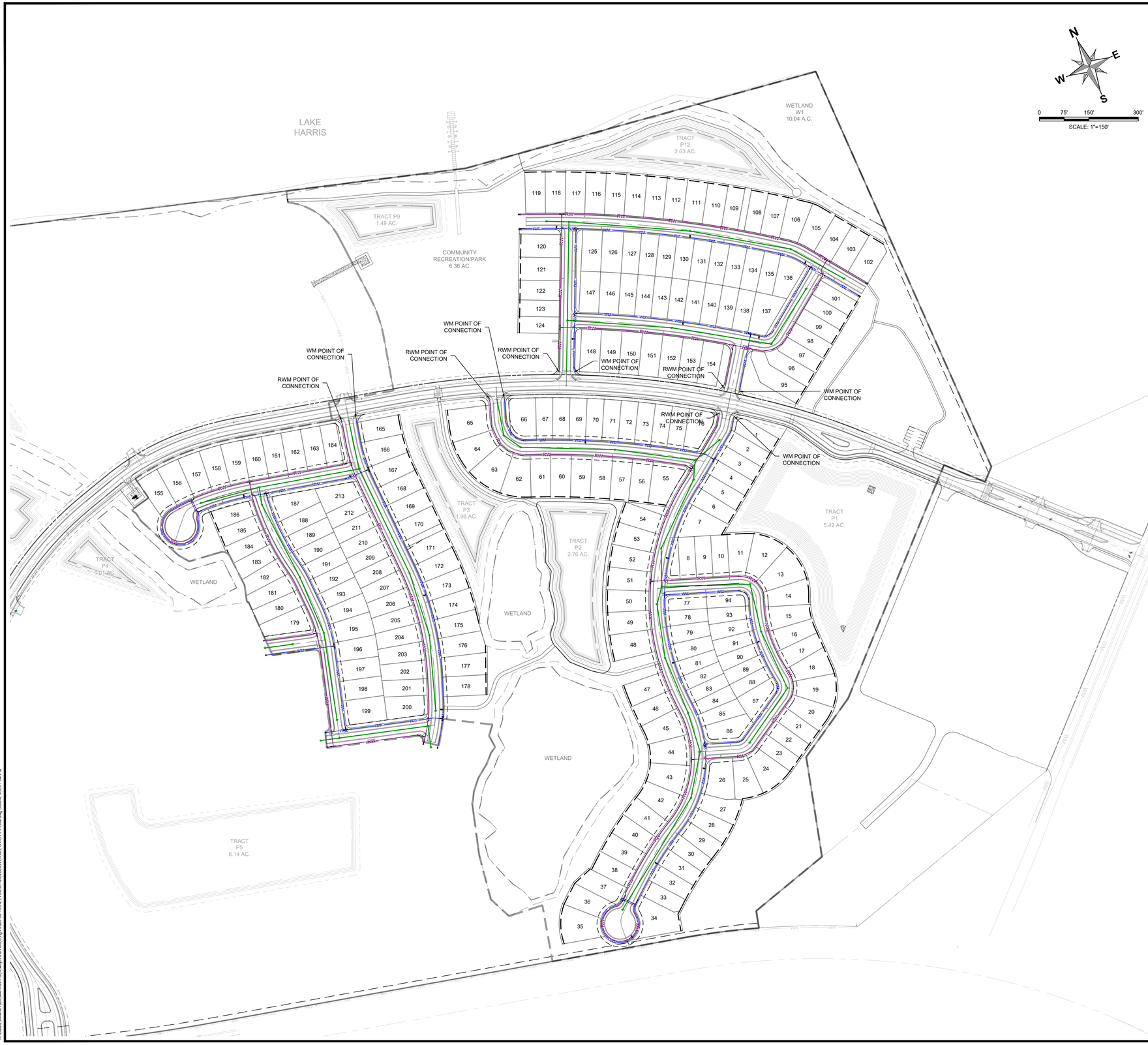

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
		DITCH CENTER
		CURB
		CONCRETE WALK
		ASPHALT PAVEMENT
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	8"	WATER MAIN (WM)
	OR	WATER METER
		GATE VALVE
		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
	OR	TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
	OR	RECLAIM WATER METER
	SS-100	SANITARY SEWER STRUCTURE #
S	S	SANITARY SEWER
		PHASE LINE

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

OVERALL UTILITY PLAN FOR LAKE HILLS PHASE 1

FLORIDA

LAKE COUNTY

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READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
1		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C200

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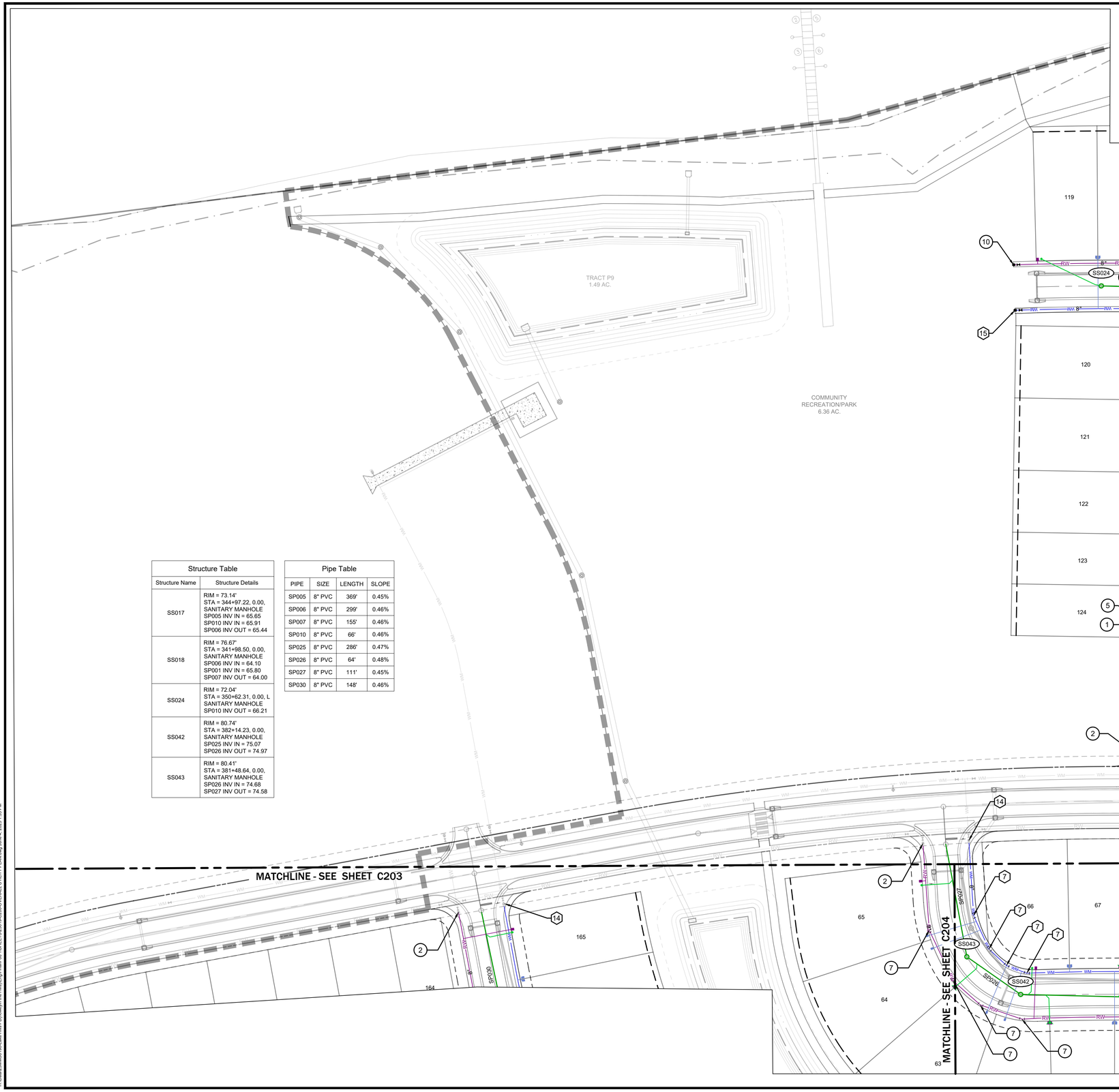
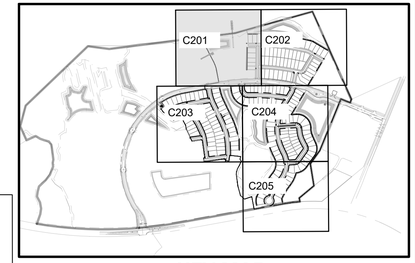


Structure Table	
Structure Name	Structure Details
SS017	RIM = 73.14' STA = 344+97.22, 0.00, SANITARY MANHOLE SP005 INV IN = 65.65 SP010 INV IN = 65.91 SP006 INV OUT = 65.44
SS018	RIM = 76.67' STA = 341+98.50, 0.00, SANITARY MANHOLE SP006 INV IN = 64.10 SP001 INV IN = 65.80 SP007 INV OUT = 64.00
SS024	RIM = 72.04' STA = 350+62.31, 0.00, L SANITARY MANHOLE SP010 INV OUT = 66.21
SS042	RIM = 80.74' STA = 382+14.23, 0.00, SANITARY MANHOLE SP025 INV IN = 75.07 SP026 INV OUT = 74.97
SS043	RIM = 80.41' STA = 381+48.64, 0.00, SANITARY MANHOLE SP026 INV IN = 74.68 SP027 INV OUT = 74.58

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP005	8" PVC	369'	0.45%
SP006	8" PVC	299'	0.46%
SP007	8" PVC	155'	0.46%
SP010	8" PVC	66'	0.46%
SP025	8" PVC	286'	0.47%
SP026	8" PVC	64'	0.48%
SP027	8" PVC	111'	0.45%
SP030	8" PVC	148'	0.46%



KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
		DITCH CENTER
		CURB
		CONCRETE WALK
		ASPHALT PAVEMENT
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	8"	WATER MAIN (WM)
	OR	WATER METER
		GATE VALVE
		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
	OR	TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
	OR	RECLAIM WATER METER
	SS-100	SANITARY SEWER STRUCTURE #
S	S	SANITARY SEWER
		PHASE LINE

WATER NOTES

1. FIRE DEPARTMENT CONNECTION (NOTE: FIRE LINES DESIGNED BY OTHERS. SHOWN FOR INFORMATIONAL PURPOSES ONLY.)
2. POST INDICATOR VALVE
3. 6" FIRE HYDRANT ASSEMBLY PER P.C. DETAILS FIGURE XX-##
4. 8" TEE
5. 8" GATE VALVE
6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" CAP
11. 2" CAP
12. 4" DDCV
13. AUTOMATIC AIR RELEASE VALVE
14. CONNECT TO EXISTING 8" STUB OUT
15. 8" GATE VALVE AND 2" BLOW OFF
16. 8" X 4" REDUCER

RECLAIM NOTES

1. 8" GATE VALVE
2. CONNECT TO EXISTING 8" STUB OUT
3. 8" RECLAIM METER (SEE SHEET XX-## FOR DETAIL)
4. 8" BACKFLOW PREVENTER
5. 8" TEE
6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" GATE VALVE AND 2" BLOW OFF
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MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
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(407) 629-8330
CA# 0007723

UTILITY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY, FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 836-4899

#	DATE	REVISIONS
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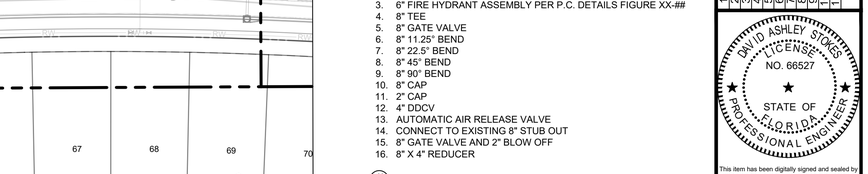

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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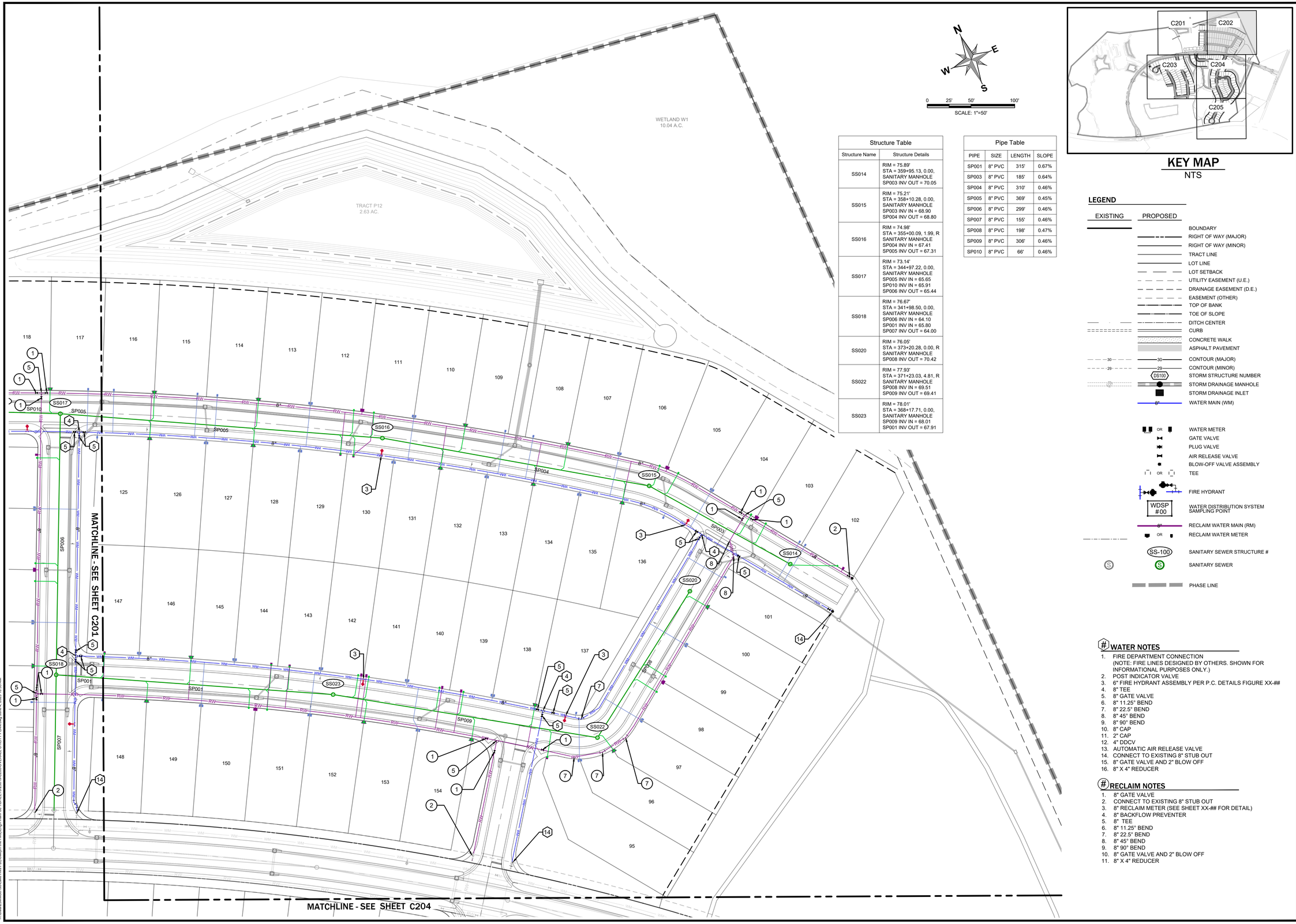

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0 25' 50' 100'
SCALE: 1"=50'

KEY MAP
NTS

Structure Table	
Structure Name	Structure Details
SS014	RIM = 75.89' STA = 359+95.13, 0.00, SANITARY MANHOLE SP003 INV OUT = 70.05
SS015	RIM = 75.21' STA = 358+10.28, 0.00, SANITARY MANHOLE SP003 INV IN = 68.90 SP004 INV OUT = 68.80
SS016	RIM = 74.98' STA = 355+00.09, 1.99, R SANITARY MANHOLE SP004 INV IN = 67.41 SP005 INV OUT = 67.31
SS017	RIM = 73.14' STA = 344+97.22, 0.00, SANITARY MANHOLE SP005 INV IN = 65.65 SP010 INV IN = 65.91 SP006 INV OUT = 65.44
SS018	RIM = 76.67' STA = 341+98.50, 0.00, SANITARY MANHOLE SP006 INV IN = 64.10 SP001 INV IN = 65.80 SP007 INV OUT = 64.00
SS020	RIM = 76.05' STA = 373+20.28, 0.00, R SANITARY MANHOLE SP008 INV OUT = 70.42
SS022	RIM = 77.93' STA = 371+23.03, 4.81, R SANITARY MANHOLE SP008 INV IN = 69.51 SP009 INV OUT = 69.41
SS023	RIM = 78.01' STA = 368+17.71, 0.00, SANITARY MANHOLE SP009 INV IN = 68.01 SP001 INV OUT = 67.91

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP001	8" PVC	315'	0.67%
SP003	8" PVC	185'	0.64%
SP004	8" PVC	310'	0.46%
SP005	8" PVC	369'	0.45%
SP006	8" PVC	299'	0.46%
SP007	8" PVC	155'	0.46%
SP008	8" PVC	198'	0.47%
SP009	8" PVC	306'	0.46%
SP010	8" PVC	66'	0.46%

LEGEND

EXISTING | PROPOSED

- BOUNDARY
- RIGHT OF WAY (MAJOR)
- RIGHT OF WAY (MINOR)
- TRACT LINE
- LOT LINE
- LOT SETBACK
- UTILITY EASEMENT (U.E.)
- DRAINAGE EASEMENT (D.E.)
- EASEMENT (OTHER)
- TOP OF BANK
- TOE OF SLOPE
- DITCH CENTER
- CURB
- CONCRETE WALK
- ASPHALT PAVEMENT
- 30 — 30 CONTOUR (MAJOR)
- 29 — 29 CONTOUR (MINOR)
- DS100 STORM STRUCTURE NUMBER
- STORM DRAINAGE MANHOLE
- STORM DRAINAGE INLET
- 8" WATER MAIN (WM)
- OR WATER METER
- GATE VALVE
- PLUG VALVE
- AIR RELEASE VALVE
- BLOW-OFF VALVE ASSEMBLY
- OR TEE
- FIRE HYDRANT
- WDSP #00 WATER DISTRIBUTION SYSTEM SAMPLING POINT
- 8" RECLAIM WATER MAIN (RM)
- OR RECLAIM WATER METER
- SS-100 SANITARY SEWER STRUCTURE #
- S SANITARY SEWER
- PHASE LINE

WATER NOTES

1. FIRE DEPARTMENT CONNECTION (NOTE: FIRE LINES DESIGNED BY OTHERS. SHOWN FOR INFORMATIONAL PURPOSES ONLY.)
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FOR
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LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

REVISIONS	DATE
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
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APPROVED BY:	DAS

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MATCHLINE - SEE SHEET C201

MATCHLINE - SEE SHEET C204

TRACT P3
1.96 AC.

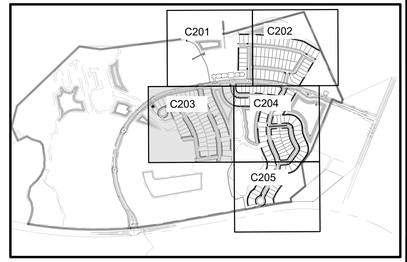
WETLAND

STUB OUT TO FUTURE PHASE

STUB OUT TO FUTURE PHASE

STUB OUT TO FUTURE PHASE

SCALE: 1"=50'



KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
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		CURB
		CONCRETE WALK
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		STORM DRAINAGE INLET
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		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
	OR	TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
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	SS-100	SANITARY SEWER STRUCTURE #
S	S	SANITARY SEWER
		PHASE LINE

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7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" GATE VALVE AND 2" BLOW OFF
11. 8" X 4" REDUCER

Structure Table	
Structure Name	Structure Details
SS045	RIM = 76.45' STA = 301+45.02, 0.09, R SANITARY MANHOLE SP028 INV OUT = 71.09
SS046	RIM = 78.36' STA = 303+28.92, 0.00, R SANITARY MANHOLE SP028 INV IN = 69.51 SP032 INV IN = 69.51 SP029 INV OUT = 69.41
SS047	RIM = 78.18' STA = 264+97.36, -3.90, L SANITARY MANHOLE SP029 INV IN = 67.97 SP037 INV IN = 67.97 SP030 INV OUT = 67.87
SS050	RIM = 77.78' STA = 295+06.19, 0.05, R SANITARY MANHOLE SP031 INV IN = 71.05 SP039 INV OUT = 70.95
SS051	RIM = 83.22' STA = 290+55.75, 0.00, SANITARY MANHOLE SP033 INV OUT = 73.18
SS052	RIM = 80.01' STA = 293+22.27, 0.00, SANITARY MANHOLE SP033 INV IN = 71.98 SP031 INV OUT = 71.88

Structure Table	
Structure Name	Structure Details
SS054	RIM = 83.67' STA = 257+17.72, 0.00, SANITARY MANHOLE SP035 INV OUT = 77.88
SS055	RIM = 81.09' STA = 259+47.89, 0.05, R SANITARY MANHOLE SP035 INV IN = 75.96 SP036 INV OUT = 75.86
SS056	RIM = 78.27' STA = 261+45.25, 0.05, R SANITARY MANHOLE SP036 INV IN = 72.11 SP037 INV OUT = 72.01
SS059	RIM = 78.51' STA = 297+56.16, 0.05, R SANITARY MANHOLE SP039 INV IN = 69.85 SP032 INV OUT = 69.75
SS060	RIM = 83.88' STA = 231+48.63, 0.00, SANITARY MANHOLE SP040 INV IN = 74.19 SP043 INV OUT = 74.09
SS061	RIM = 84.00' STA = 234+20.34, 0.00, R SANITARY MANHOLE SP040 INV OUT = 75.41 SP041 INV OUT = 75.82
SS066	RIM = 77.61' STA = 284+01.58, 0.00, SANITARY MANHOLE SP044 INV OUT = 71.61

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP028	8" PVC	184'	0.88%
SP029	8" PVC	308'	0.47%
SP030	8" PVC	148'	0.46%
SP031	8" PVC	184'	0.46%
SP032	8" PVC	53'	0.48%
SP033	8" PVC	266'	0.46%
SP035	8" PVC	230'	0.85%
SP036	8" PVC	197'	1.94%
SP037	8" PVC	352'	1.16%
SP039	8" PVC	244'	0.45%
SP040	8" PVC	272'	0.46%
SP041	6" PVC	65'	0.48%
SP043	6" PVC	57'	0.47%
SP044	6" PVC	84'	0.16%

MADDEN
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UTILITY PLAN
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LAKE COUNTY

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NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C203

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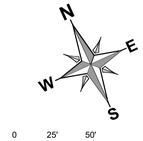

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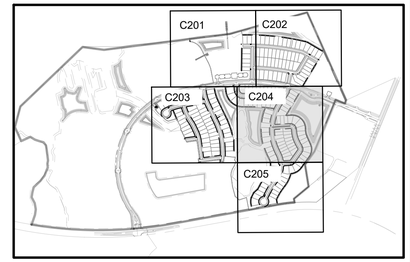

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
		DITCH CENTER
		CURB
		CONCRETE WALK
		ASPHALT PAVEMENT
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	8"	WATER MAIN (WM)
	OR	WATER METER
		GATE VALVE
		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
OR	OR	TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
	OR	RECLAIM WATER METER
	SS-100	SANITARY SEWER STRUCTURE #
S	S	SANITARY SEWER
		PHASE LINE

Structure Table	
Structure Name	Structure Details
SS027	RIM = 91.80' STA = 402+04.12, -0.05, L SANITARY MANHOLE SP002 INV IN = 84.26 SP013 INV OUT = 84.16
SS028	RIM = 90.62' STA = 398+23.18, -0.05, L SANITARY MANHOLE SP013 INV IN = 81.06 SP014 INV OUT = 80.96
SS029	RIM = 88.72' STA = 396+02.76, -12.92, L SANITARY MANHOLE SP022 INV IN = 79.87 SP023 INV IN = 79.87 SP015 INV OUT = 79.77
SS030	RIM = 87.81' STA = 394+88.08, 5.95, R SANITARY MANHOLE SP015 INV IN = 79.25 SP016 INV OUT = 79.15
SS031	RIM = 86.33' STA = 392+04.26, 25.78, R SANITARY MANHOLE SP038 INV IN = 77.75 SP017 INV IN = 77.75 SP024 INV OUT = 77.65
SS036	RIM = 91.99' STA = 416+15.70, -6.05, L SANITARY MANHOLE SP019 INV IN = 85.81 SP020 INV OUT = 85.71
SS037	RIM = 91.05' STA = 414+27.62, -0.05, L SANITARY MANHOLE SP020 INV IN = 84.85 SP021 INV OUT = 84.75
SS038	RIM = 90.20' STA = 412+80.69, -6.03, L SANITARY MANHOLE SP021 INV IN = 84.09 SP022 INV OUT = 83.99
SS039	RIM = 89.30' STA = ???, ???, ??? SANITARY MANHOLE SP014 INV IN = 80.22 SP023 INV OUT = 80.12
SS040	RIM = 86.48' STA = 391+14.32, -6.04, L SANITARY MANHOLE SP017 INV OUT = 78.18
SS041	RIM = 82.21' STA = 384+99.99, 0.00, SANITARY MANHOLE SP024 INV IN = 76.50 SP025 INV OUT = 76.40
SS042	RIM = 80.74' STA = 382+14.23, 0.00, SANITARY MANHOLE SP025 INV IN = 75.07 SP026 INV OUT = 74.97
SS043	RIM = 80.41' STA = 381+48.64, 0.00, SANITARY MANHOLE SP026 INV IN = 74.68 SP027 INV OUT = 74.58
SS057	RIM = 86.36' STA = 392+58.07, -0.04, L SANITARY MANHOLE SP016 INV IN = 78.12 SP038 INV OUT = 78.02

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP002	8" PVC	123'	0.60%
SP013	8" PVC	181'	1.75%
SP014	8" PVC	165'	0.46%
SP015	8" PVC	115'	0.46%
SP016	8" PVC	230'	0.46%
SP017	8" PVC	95'	0.45%
SP019	8" PVC	201'	0.46%
SP020	8" PVC	189'	0.46%
SP021	8" PVC	147'	0.46%
SP022	8" PVC	269'	1.55%
SP023	8" PVC	56'	0.48%
SP024	8" PVC	246'	0.47%
SP025	8" PVC	286'	0.47%
SP026	8" PVC	64'	0.48%
SP027	8" PVC	111'	0.45%
SP038	8" PVC	59'	0.46%

WATER NOTES

1. FIRE DEPARTMENT CONNECTION (NOTE: FIRE LINES DESIGNED BY OTHERS. SHOWN FOR INFORMATIONAL PURPOSES ONLY.)
2. POST INDICATOR VALVE
3. 6" FIRE HYDRANT ASSEMBLY PER P.C. DETAILS FIGURE XX-##
4. 8" TEE
5. 8" GATE VALVE
6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" CAP
11. 2" CAP
12. 4" DDCV
13. AUTOMATIC AIR RELEASE VALVE
14. CONNECT TO EXISTING 8" STUB OUT
15. 8" GATE VALVE AND 2" BLOW OFF
16. 8" X 4" REDUCER

RECLAIM NOTES

1. 8" GATE VALVE
2. CONNECT TO EXISTING 8" STUB OUT
3. 8" RECLAIM METER (SEE SHEET XX-## FOR DETAIL)
4. 8" BACKFLOW PREVENTER
5. 8" TEE
6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" GATE VALVE AND 2" BLOW OFF
11. 8" X 4" REDUCER

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
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(407) 629-8330
CA# 0007723

UTILITY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

REVISIONS	DATE
1	
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C204

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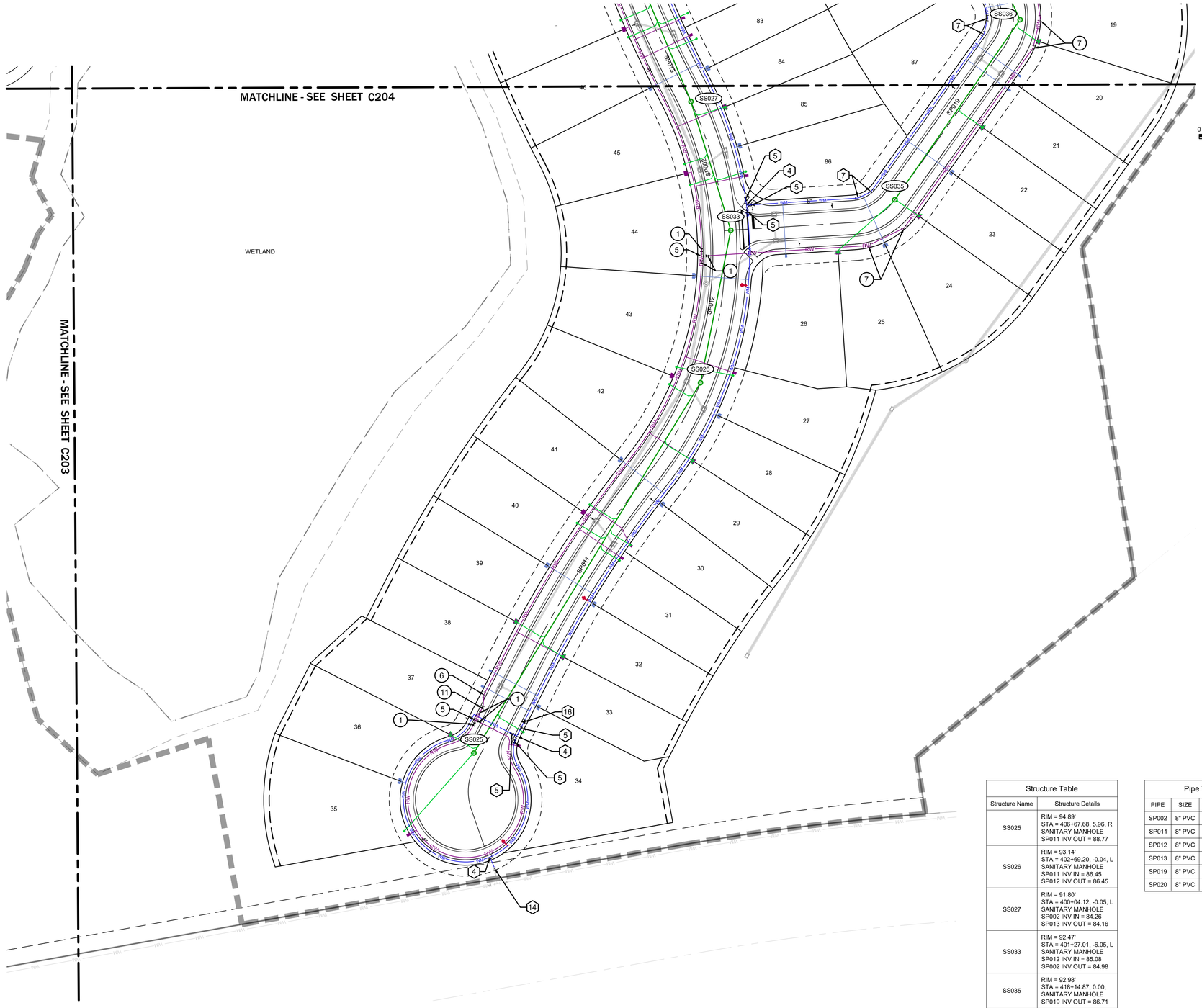

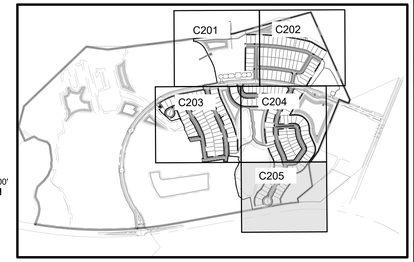

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
		DITCH CENTER
		CURB
		CONCRETE WALK
		ASPHALT PAVEMENT
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	8"	WATER MAIN (WM)
		WATER METER
		GATE VALVE
		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
		TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
		RECLAIM WATER METER
	SS-100	SANITARY SEWER STRUCTURE #
S	S	SANITARY SEWER
		PHASE LINE

Structure Table	
Structure Name	Structure Details
SS025	RIM = 94.89' STA = 406+67.68, 5.96, R SANITARY MANHOLE SP011 INV OUT = 88.77
SS026	RIM = 93.14' STA = 402+69.20, -0.04, L SANITARY MANHOLE SP011 INV IN = 86.45 SP012 INV OUT = 86.45
SS027	RIM = 91.80' STA = 400+04.12, -0.05, L SANITARY MANHOLE SP002 INV IN = 84.26 SP013 INV OUT = 84.16
SS033	RIM = 92.47' STA = 401+27.01, -6.05, L SANITARY MANHOLE SP012 INV IN = 85.08 SP002 INV OUT = 84.98
SS035	RIM = 92.98' STA = 418+14.87, 0.00, SANITARY MANHOLE SP019 INV OUT = 86.71
SS036	RIM = 91.99' STA = 416+15.70, -6.05, L SANITARY MANHOLE SP019 INV IN = 85.81 SP020 INV OUT = 85.71

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP002	8" PVC	123'	0.60%
SP011	8" PVC	398'	0.59%
SP012	8" PVC	142'	0.98%
SP013	8" PVC	181'	1.75%
SP019	8" PVC	201'	0.46%
SP020	8" PVC	189'	0.46%

#WATER NOTES
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11. 8" X 4" REDUCER

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CA# 0007723

UTILITY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

DATE	REVISIONS
1	
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C205

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LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+X.XX EX.	• 0.00 OR 0.00 TC / 0.00 EP • OR • 0.00 TW / 0.00 BW	SPOT ELEVATION
	• 0.00 LP • 0.00 HP	ROAD ℄ ELEVATION
-30-	-30-	CONTOUR (MAJOR)
-29-	-29-	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
	OR	STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT
		PHASE LINE

MADDEN
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CA# 0007723

OVERALL DRAINAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
3850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
1		
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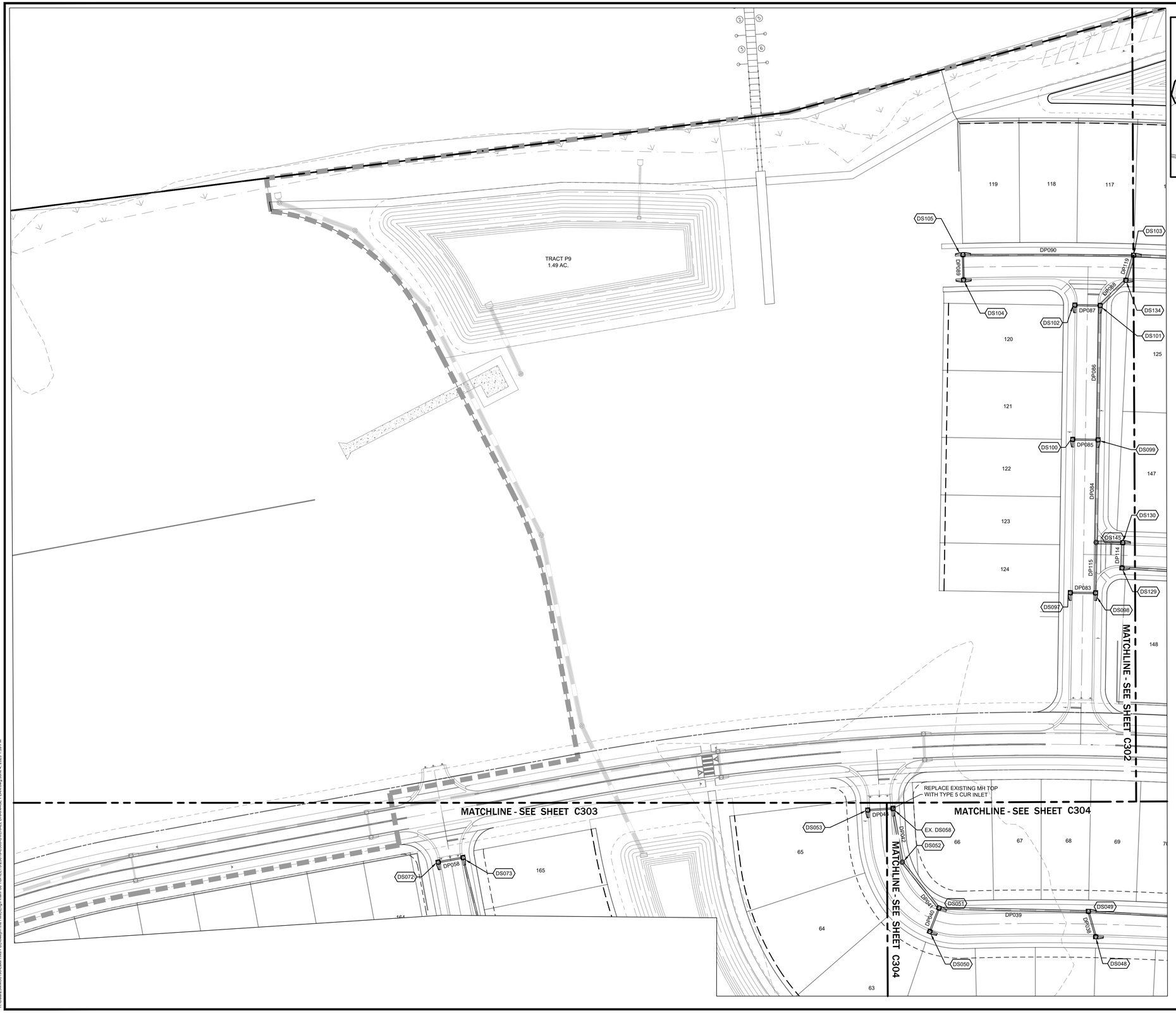

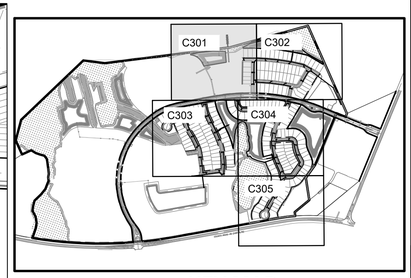

KEY MAP
NTS

N
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W
S

0 25' 50' 100'
SCALE: 1"=50'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
0.00 EX.	0.00 OR 0.00 TC 0.00 EP OR 0.00 TW 0.00 BW 0.00 LP 0.00 HP	SPOT ELEVATION
		ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
	OR OR	STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
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R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
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		PHASE LINE

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DRAINAGE PLAN
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LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

NO.	DATE	REVISIONS
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E HARRIS

WETLAND
W1
10.04 AC

TRACT P12
2.63 AC.

EX. DS088

DP090 DP091 DP093 DP095 DP097 DP107 DP109 DP104 DP102 DP101 DP103 DP105 DP106 DP108 DP110 DP111 DP113 DP112 DP114 DP115 DP116 DP117 DP118 DP119 DP120 DP121 DP122 DP123 DP124 DP125 DP126 DP127 DP128 DP129 DP130 DP131 DP132 DP133 DP134 DP135 DP136 DP137 DP138 DP139 DP140 DP141 DP142 DP143 DP144 DP145 DP146 DP147 DP148 DP149 DP150 DP151 DP152 DP153 DP154 DP083 DP084 DP085 DP086 DP087 DP092 DP094 DP096 DP098 DP099 DP100

DS100 DS099 DS097 DS098 DS102 DS101 DS134 DS103 DS106 DS107 DS108 DS109 DS110 DS111 DS121 DS122 DS124 DS118 DS119 DS123 DS143 DS142 DS141 DS144 DS114 DS115 DS126 DS125 DS127 DS128 DS130 DS145 DS129 DS116 DS117

118 117 116 115 114 113 112 111 110 109 108 107 106 105 104 103 102 101 100 99 98 97 96 95 125 126 127 128 129 130 131 132 133 134 135 136 147 146 145 144 143 142 141 140 139 138 137 148 149 150 151 152 153 154

N E S W

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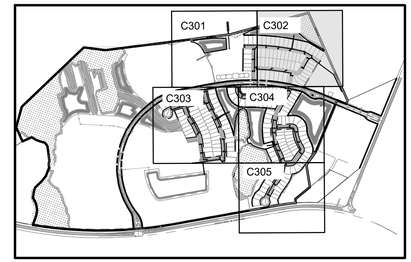

KEY MAP
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LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
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		MIAMI CURB
		CONCRETE WALK
+0.00 EX.	0.00 OR 0.50 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
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		DIRECTION OF SURFACE FLOW
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		POND MAINTENANCE BERM
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	OR OR	STORM DRAINAGE MANHOLE
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	D.S.	DOWNSPOUT
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LAKE COUNTY FLORIDA

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5800 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
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APPROVED BY:	DAS

C302

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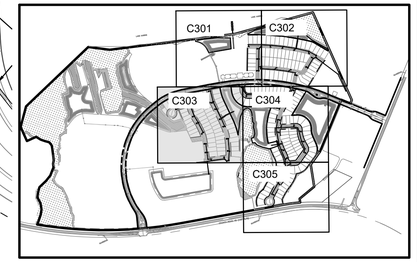
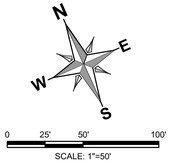


KEY MAP
NTS



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX.	• 0.00 OR 0.50 TC 0.00 EP + OR • 0.00 TW • 0.00 BW	SPOT ELEVATION
	• 0.00 LP • 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
D.S.		DOWNSPOUT
		PHASE LINE

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

DRAINAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 836-8899

REVISIONS	DATE
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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MATCHLINE - SEE SHEET C301

MATCHLINE - SEE SHEET C302

MATCHLINE - SEE SHEET C303

REPLACE EXISTING MH TOP WITH TYPE 5 CUR INLET

REPLACE EXISTING MH TOP WITH TYPE 5 CUR INLET

EX. DS058

EX. DS059

EX. DS078

DS053 DS052 DS051 DS050 DS049 DS048 DS047 DS046 DS057 DS056 DS059 DS039 DS040 DS041 DS042 DS043 DS044 DS045 DS030 DS029 DS031 DS032 DS038 DS037 DS036 DS035 DS034 DS033 DS023 DS022 DS021 DS020 DS062

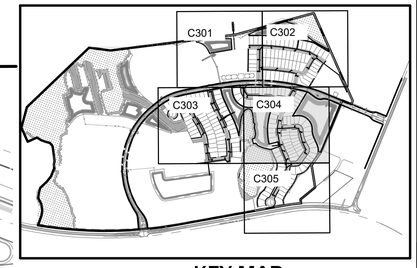
DP048 DP049 DP050 DP051 DP039 DP036 DP037 DP046 DP045 DP047 DP020 DP021 DP035 DP034 DP032 DP033 DP031 DP030 DP022 DP029 DP028 DP027 DP026 DP025 DP024 DP023 DP015 DP016 DP014 DP013 DP012

TRACT P3
1.96 AC.

TRACT P2
2.76 AC.

TRACT P1
5.42 AC.

WETLAND
W5
1.20 AC



KEY MAP
NTS

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0 25' 50' 100'
SCALE: 1"=50'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
★98.EX	● 0.00 OR 0.50 TC 0.00 EP OR ● 0.00 TW ● 0.00 BW ● 0.00 LP ● 0.00 HP	SPOT ELEVATION
		ROAD ℄ ELEVATION
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P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT
		PHASE LINE

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DRAINAGE PLAN
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LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C304

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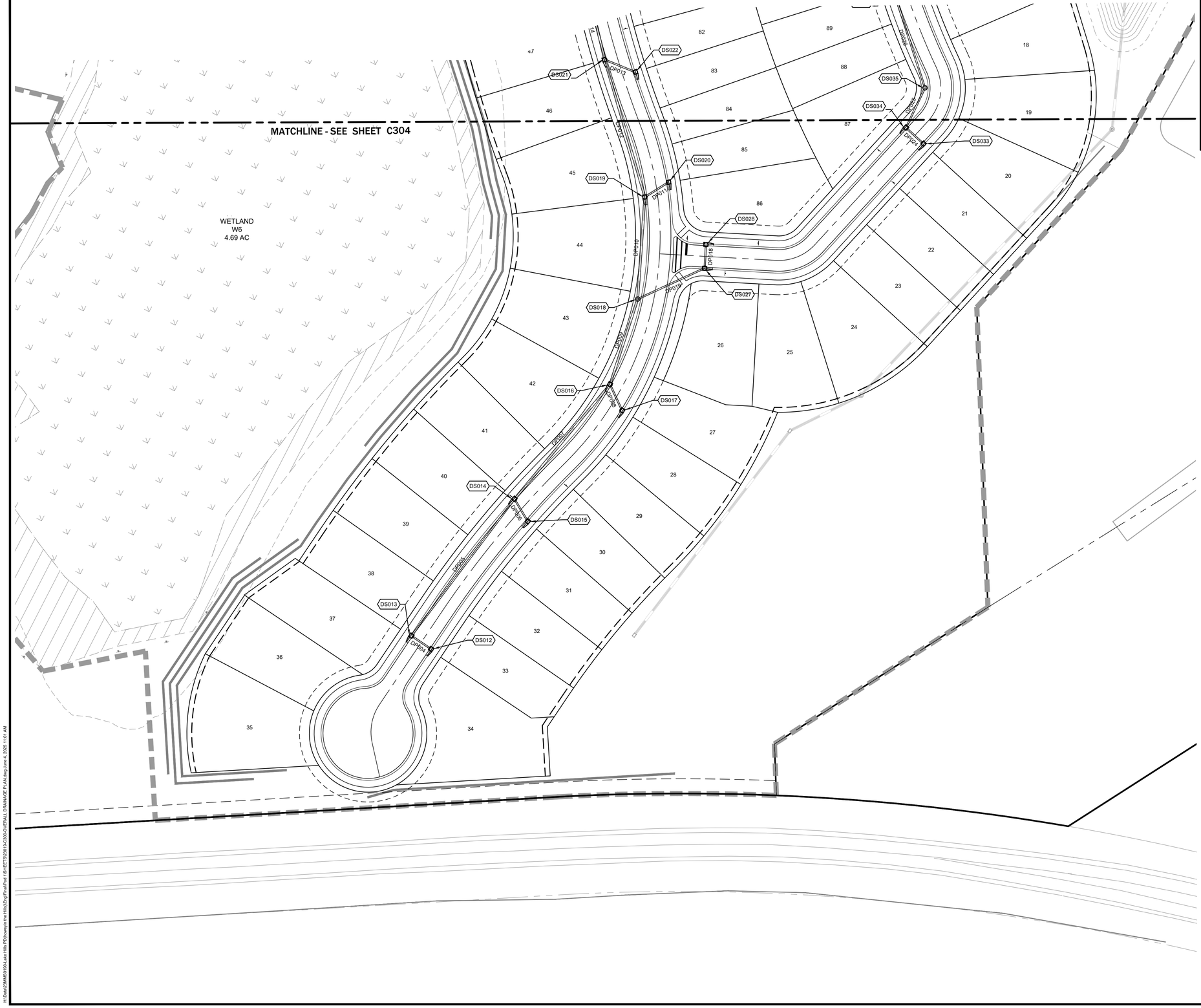

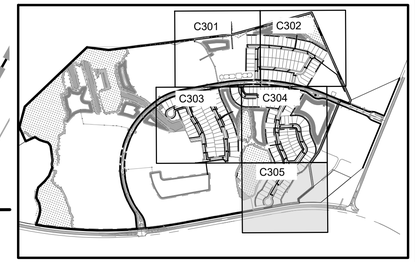

KEY MAP
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		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
0.00 EX	0.00 OR 0.50 TC, 0.00 EP OR 0.00 LP, 0.00 HP	SPOT ELEVATION
	0.00 TW, 0.00 BW	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
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APPROVED BY:	DAS

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C301

Structure Table	
Structure Name	Structure Details
DS048	RIM = 81.74' STA = 383+68.64, 13.00, R TYPE 5 CURB INLET DP038 INV OUT = 77.52
DS049	RIM = 81.70' STA = 383+60.43, -13.00, L TYPE 5 CURB INLET DP038 INV IN = 77.42 DP037 INV IN = 77.42 DP039 INV OUT = 76.69
DS050	RIM = 80.90' STA = 381+99.29, 12.99, R TYPE 5 CURB INLET DP040 INV OUT = 76.36
DS051	RIM = 80.89' STA = 381+99.29, -13.00, L TYPE 5 CURB INLET DP040 INV IN = 76.26 DP039 INV IN = 75.86 DP041 INV OUT = 75.86
DS052	RIM = 80.19' STA = 381+23.59, -15.60, L FDOT TYPE 7 MANHOLE DP041 INV IN = 75.55 DP042 INV OUT = 75.55
DS053	RIM = 80.21' STA = 380+62.55, 13.00, R TYPE 5 CURB INLET DP043 INV OUT = 75.67
DS072	RIM = 77.34' STA = 266+32.18, -13.00, L TYPE 5 CURB INLET DP058 INV OUT = 72.80
DS073	RIM = 77.34' STA = 266+32.18, 13.00, R TYPE 5 CURB INLET DP058 INV IN = 72.70 DP059 INV OUT = 72.70
DS097	RIM = 77.92' STA = 341+58.23, -12.97, L TYPE 5 CURB INLET DP083 INV OUT = 72.90
DS098	RIM = 77.92' STA = 341+58.47, 12.97, R TYPE 5 CURB INLET DP083 INV IN = 71.98 DP115 INV OUT = 71.98
DS099	RIM = 75.34' STA = 343+18.24, 13.00, R TYPE 5 CURB INLET DP084 INV IN = 69.31 DP085 INV IN = 70.21 DP086 INV OUT = 69.31

Structure Table	
Structure Name	Structure Details
DS100	RIM = 75.34' STA = 343+18.24, -13.00, L TYPE 5 CURB INLET DP085 INV OUT = 70.31
DS101	RIM = 73.52' STA = 344+58.44, 12.97, R TYPE 5 CURB INLET DP086 INV IN = 66.16 DP087 INV IN = 67.06 DP088 INV OUT = 66.16
DS102	RIM = 73.52' STA = 344+58.45, -12.97, L TYPE 5 CURB INLET DP087 INV OUT = 67.16
DS103	RIM = 73.63' STA = 351+77.48, -12.96, L TYPE 5 CURB INLET DP119 INV IN = 65.45 DP090 INV IN = 66.30 DP091 INV OUT = 65.45
DS104	RIM = 71.25' STA = 350+00.00, 13.00, R TYPE 6 CURB INLET DP089 INV OUT = 67.01
DS105	RIM = 71.25' STA = 350+00.00, -13.00, L TYPE 6 CURB INLET DP089 INV IN = 66.91 DP090 INV OUT = 66.91
DS129	RIM = 77.07' STA = 365+40.57, 13.00, R TYPE 5 CURB INLET DP113 INV IN = 70.63 DP114 INV OUT = 70.63
DS130	RIM = 77.07' STA = 365+40.57, -13.00, L TYPE 5 CURB INLET DP114 INV IN = 70.39 DP126 INV OUT = 70.39
DS134	RIM = 73.60' STA = 351+70.19, 13.00, R TYPE 5 CURB INLET DP088 INV IN = 65.55 DP119 INV OUT = 65.55
EX. DS058	RIM = 80.21' STA = 380+62.55, -13.00, L TYPE 5 CURB INLET DP043 INV IN = 75.57 DP042 INV IN = 75.17

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP037	15" RCP	198'	0.58%
DP038	15" RCP	27'	0.43%
DP039	24" RCP	156'	0.55%
DP041	24" RCP	61'	0.54%
DP042	24" RCP	57'	0.72%
DP058	15" RCP	26'	0.45%
DP059	15" RCP	154'	0.33%
DP083	15" RCP	26'	4.17%
DP084	30" RCP	107'	0.79%
DP085	15" RCP	26'	0.45%
DP086	30" RCP	140'	2.31%
DP087	15" RCP	26'	0.46%
DP088	30" RCP	38'	1.79%
DP089	15" RCP	26'	0.45%
DP090	15" RCP	178'	0.35%
DP091	30" RCP	118'	0.39%
DP113	24" RCP	189'	0.93%
DP114	30" RCP	26'	1.07%
DP115	18" RCP	53'	3.82%
DP119	30" RCP	27'	0.44%

C302

Structure Table	
Structure Name	Structure Details
DS097	RIM = 77.92' STA = 341+58.23, -12.97, L TYPE 5 CURB INLET DP083 INV OUT = 72.90
DS098	RIM = 77.92' STA = 341+58.47, 12.97, R TYPE 5 CURB INLET DP083 INV IN = 71.98 DP115 INV OUT = 71.98
DS099	RIM = 75.34' STA = 343+18.24, 13.00, R TYPE 5 CURB INLET DP084 INV IN = 69.31 DP085 INV IN = 70.21 DP086 INV OUT = 69.31
DS100	RIM = 75.34' STA = 343+18.24, -13.00, L TYPE 5 CURB INLET DP085 INV OUT = 70.31
DS101	RIM = 73.52' STA = 344+58.44, 12.97, R TYPE 5 CURB INLET DP086 INV IN = 66.16 DP087 INV IN = 67.06 DP088 INV OUT = 66.16
DS102	RIM = 73.52' STA = 344+58.45, -12.97, L TYPE 5 CURB INLET DP087 INV OUT = 67.16
DS103	RIM = 73.63' STA = 351+77.48, -12.96, L TYPE 5 CURB INLET DP119 INV IN = 65.45 DP090 INV IN = 66.30 DP091 INV OUT = 65.45
DS106	RIM = 74.22' STA = 352+95.13, -13.00, L TYPE 5 CURB INLET DP091 INV IN = 65.00 DP092 INV IN = 67.25 DP093 INV OUT = 65.00
DS107	RIM = 74.24' STA = 352+99.03, 13.00, R TYPE 5 CURB INLET DP092 INV OUT = 67.35
DS108	RIM = 75.11' STA = 354+73.28, -12.95, L TYPE 5 CURB INLET DP093 INV IN = 64.40 DP094 INV IN = 68.22 DP095 INV OUT = 64.40
DS109	RIM = 75.06' STA = 354+62.15, 13.00, R TYPE 5 CURB INLET DP094 INV OUT = 68.32
DS110	RIM = 75.00' STA = 356+50.76, -13.00, L TYPE 6 CURB INLET DP107 INV IN = 67.70 DP095 INV IN = 63.80 DP096 INV IN = 70.01 DP097 INV OUT = 63.80

Structure Table	
Structure Name	Structure Details
DS111	RIM = 75.12' STA = 356+25.28, 13.00, R TYPE 6 CURB INLET DP096 INV OUT = 70.12
DS114	RIM = 80.62' STA = 375+43.63, -13.00, L TYPE 5 CURB INLET DP099 INV OUT = 75.32
DS115	RIM = 80.62' STA = 375+43.63, 13.00, R TYPE 5 CURB INLET DP099 INV IN = 75.08 DP100 INV OUT = 75.08
DS116	RIM = 77.34' STA = 372+15.06, -13.00, L TYPE 5 CURB INLET DP101 INV OUT = 74.16
DS117	RIM = 77.34' STA = 372+15.06, 13.00, R TYPE 5 CURB INLET DP101 INV IN = 74.06 DP102 INV OUT = 74.06
DS118	RIM = 75.83' STA = 373+65.23, -12.98, L TYPE 5 CURB INLET DP103 INV OUT = 72.20
DS119	RIM = 75.83' STA = 373+65.24, 12.97, R TYPE 5 CURB INLET DP102 INV IN = 72.10 DP103 INV IN = 72.10 DP104 INV OUT = 72.10
DS121	RIM = 75.48' STA = 358+22.14, -12.97, L TYPE 5 CURB INLET DP109 INV IN = 69.24 DP106 INV IN = 70.44 DP107 INV OUT = 68.83
DS122	RIM = 75.53' STA = 358+37.64, 13.00, R TYPE 5 CURB INLET DP106 INV OUT = 70.53
DS123	RIM = 75.96' STA = 359+53.68, 13.00, R TYPE 5 CURB INLET DP104 INV IN = 70.08 DP124 INV IN = 70.08 DP108 INV OUT = 70.08
DS124	RIM = 75.88' STA = 359+35.12, -12.95, L TYPE 5 CURB INLET DP108 INV IN = 70.00 DP109 INV OUT = 70.00
DS125	RIM = 78.80' STA = 369+48.09, -13.00, L TYPE 5 CURB INLET DP110 INV OUT = 75.17

Structure Table	
Structure Name	Structure Details
DS126	RIM = 78.68' STA = 369+19.84, 13.00, R TYPE 5 CURB INLET DP110 INV IN = 75.07 DP125 INV IN = 74.05 DP111 INV OUT = 74.05
DS127	RIM = 77.88' STA = 367+30.84, 13.00, R TYPE 5 CURB INLET DP111 INV IN = 72.35 DP112 INV IN = 73.77 DP113 INV OUT = 72.35
DS128	RIM = 77.96' STA = 367+51.19, -13.00, L TYPE 5 CURB INLET DP112 INV OUT = 73.87
DS129	RIM = 77.07' STA = 365+40.57, 13.00, R TYPE 5 CURB INLET DP113 INV IN = 70.63 DP114 INV OUT = 70.63
DS130	RIM = 77.07' STA = 365+40.57, -13.00, L TYPE 5 CURB INLET DP114 INV IN = 70.39 DP126 INV OUT = 70.39
DS134	RIM = 73.60' STA = 351+70.19, 13.00, R TYPE 5 CURB INLET DP088 INV IN = 65.55 DP119 INV OUT = 65.55
DS144	RIM = 78.77' STA = 370+20.19, 15.22, R FDOT TYPE 7 MANHOLE DP100 INV IN = 74.81 DP125 INV OUT = 74.81
DS145	RIM = 76.55' STA = 342+11.22, 12.98, R FDOT TYPE 7 MANHOLE DP126 INV IN = 70.12 DP115 INV IN = 70.12 DP084 INV OUT = 70.12
EX. DS088	RIM = 65.82' STA = 356+50.94, -106.69, L FDOT TYPE 7 MANHOLE DP097 INV IN = 62.50 EX. DP063 INV OUT = 61.30
EX. DS089	RIM = 63.10' STA = 356+46.56, -201.20, L MES EX. DP063 INV IN = 60.00

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP63	36" RCP	95'	1.37%
DP083	15" RCP	26'	4.17%
DP084	30" RCP	107'	0.79%
DP085	15" RCP	26'	0.45%
DP086	30" RCP	140'	2.31%
DP087	15" RCP	26'	0.46%
DP088	30" RCP	38'	1.79%
DP090	15" RCP	178'	0.35%
DP091	30" RCP	118'	0.39%
DP092	15" RCP	26'	0.45%
DP093	36" RCP	179'	0.34%
DP094	15" RCP	28'	0.41%
DP095	36" RCP	178'	0.34%
DP096	15" RCP	36'	0.34%
DP097	36" RCP	94'	1.42%
DP099	15" RCP	26'	1.07%
DP100	15" RCP	28'	1.12%
DP101	15" RCP	26'	0.45%
DP102	15" RCP	150'	1.34%
DP103	15" RCP	26'	0.46%
DP104	18" RCP	39'	5.69%
DP107	24" RCP	174'	0.67%
DP108	18" RCP	32'	0.29%
DP109	18" RCP	115'	0.68%
DP110	15" RCP	38'	0.29%
DP111	15" RCP	188'	0.93%
DP112	15" RCP	33'	0.34%
DP113	24" RCP	189'	0.93%
DP115	18" RCP	53'	3.82%
DP119	30" RCP	27'	0.44%
DP124	18" RCP	123'	0.36%
EX. DP063	36" RCP	95'	1.41%

Structure Table	
Structure Name	Structure Details
DS140	RIM = 86.00' TYPE C INLET DP121 INV OUT = 81.00
DS141	RIM = 86.00' TYPE C INLET DP121 INV IN = 75.71 DP122 INV OUT = 75.71
DS142	RIM = 76.00' TYPE C INLET DP122 INV IN = 70.51 DP123 INV IN = 70.51 DP124 INV OUT = 70.51
DS143	RIM = 76.76' TYPE C INLET DP123 INV OUT = 70.65

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP121	18" RCP	257'	2.08%
DP122	18" RCP	252'	2.09%
DP123	18" RCP	40'	0.37%
DP124	18" RCP	123'	0.36%

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DRAINAGE STRUCTURE TABLE
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
5860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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APPROVED BY: DAS

C306

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C303

Structure Table	
Structure Name	Structure Details
DS052	RIM = 80.19' STA = 381+23.59, -15.60, L FDOT TYPE 7 MANHOLE DP041 INV IN = 75.55 DP042 INV OUT = 75.55
DS061	RIM = 83.27' STA = 257+66.17, -12.00, L TYPE 5 CURB INLET DP049 INV OUT = 78.60
DS062	RIM = 83.35' STA = 257+58.96, 12.00, R TYPE 5 CURB INLET DP050 INV IN = 78.51 DP049 INV IN = 78.51 DP052 INV OUT = 78.51
DS063	RIM = 81.41' STA = 259+32.87, 12.00, R TYPE 5 CURB INLET DP051 INV IN = 78.86 DP050 INV OUT = 78.86
DS064	RIM = 81.40' STA = 259+33.59, -12.00, L TYPE 5 CURB INLET DP051 INV OUT = 78.91
DS065	RIM = 79.00' STA = 261+04.04, 12.00, R TYPE 5 CURB INLET DP053 INV IN = 75.32 DP054 INV OUT = 74.82
DS066	RIM = 78.91' STA = 261+09.77, -12.00, L TYPE 5 CURB INLET DP053 INV OUT = 75.42
DS067	RIM = 77.96' STA = 262+20.90, 13.00, R TYPE 6 CURB INLET DP054 INV IN = 72.86 DP065 INV IN = 68.40 DP057 INV IN = 73.30 DP055 INV OUT = 68.40
DS070	RIM = 77.96' STA = 262+18.82, -13.00, L TYPE 6 CURB INLET DP057 INV OUT = 73.38
DS072	RIM = 77.34' STA = 266+32.18, -13.00, L TYPE 5 CURB INLET DP058 INV OUT = 72.80
DS073	RIM = 77.34' STA = 266+32.18, 13.00, R TYPE 5 CURB INLET DP058 INV IN = 72.70 DP059 INV OUT = 72.70
DS076	RIM = 78.74' STA = 264+75.71, 12.97, R TYPE 5 CURB INLET DP062 INV IN = 69.80 DP059 INV IN = 72.20 DP063 INV OUT = 69.80

Structure Table	
Structure Name	Structure Details
DS077	RIM = 78.61' STA = 264+69.17, -13.29, L TYPE 5 CURB INLET DP082 INV IN = 69.90 DP062 INV OUT = 69.90
DS078	RIM = 78.52' STA = 263+60.90, 12.00, R TYPE 5 CURB INLET DP063 INV IN = 68.90 DP064 INV IN = 74.01 DP065 INV OUT = 68.70
DS079	RIM = 78.56' STA = 263+68.83, -12.00, L TYPE 5 CURB INLET DP064 INV OUT = 74.11
DS080	RIM = 82.70' STA = 291+09.84, -12.00, L Index No. 425-021 - Curb Inlet Type 5 (Left) with Round Structure Base DP066 INV OUT = 78.16
DS081	RIM = 82.70' STA = 291+09.84, 12.00, R Index No. 425-021 - Curb Inlet Type 5 (Right) with Round Structure Base DP067 INV IN = 78.10 DP066 INV IN = 78.10 DP069 INV OUT = 78.10
DS082	RIM = 81.26' STA = 292+29.84, 12.00, R TYPE 5 CURB INLET DP068 INV IN = 78.39 DP067 INV OUT = 78.39
DS083	RIM = 81.26' STA = 292+29.84, -12.00, L TYPE 5 CURB INLET DP068 INV OUT = 78.45
DS084	RIM = 79.42' STA = 304+44.68, 403.00, R TYPE 5 CURB INLET DP070 INV IN = 73.95 DP071 INV OUT = 73.95
DS085	RIM = 79.59' STA = 293+73.62, -13.00, L TYPE 5 CURB INLET DP070 INV OUT = 74.15
DS086	RIM = 77.90' STA = 295+32.78, 13.00, R TYPE 6 CURB INLET DP071 INV IN = 72.19 DP072 INV IN = 72.19 DP073 INV OUT = 72.19
DS087	RIM = 77.89' STA = 295+35.68, -13.00, L TYPE 6 CURB INLET DP072 INV OUT = 72.29
DS088	RIM = 78.30' STA = 296+36.43, 13.00, R TYPE 5 CURB INLET DP073 INV IN = 71.35 DP074 INV IN = 72.71 DP075 INV OUT = 71.35

Structure Table	
Structure Name	Structure Details
DS089	RIM = 78.31' STA = 296+37.74, -13.00, L TYPE 5 CURB INLET DP074 INV OUT = 72.81
DS090	RIM = 78.43' STA = 303+38.18, 11.72, R FDOT TYPE 7 MANHOLE DP075 INV IN = 70.88 DP078 INV IN = 70.88 DP076 INV OUT = 70.88
DS091	RIM = 78.72' STA = 303+65.57, 13.00, R TYPE 5 CURB INLET DP076 INV IN = 70.78 DP079 INV IN = 73.71 DP080 INV OUT = 70.78
DS092	RIM = 78.19' STA = 302+36.14, -13.00, L TYPE 5 CURB INLET DP077 INV OUT = 72.95
DS093	RIM = 78.47' STA = 302+36.14, 13.00, R TYPE 5 CURB INLET DP118 INV IN = 71.10 DP077 INV IN = 72.85 DP078 INV OUT = 71.10
DS094	RIM = 78.73' STA = 303+33.04, -13.00, L TYPE 5 CURB INLET DP079 INV OUT = 73.81
DS095	RIM = 77.33' STA = 305+33.04, 13.00, R TYPE 5 CURB INLET DP080 INV IN = 70.20 DP081 INV IN = 74.43 DP082 INV OUT = 70.20
DS096	RIM = 77.24' STA = 305+33.04, -12.00, L TYPE 5 CURB INLET DP081 INV OUT = 74.53
DS132	RIM = 76.95' STA = 301+32.79, 12.99, R TYPE 6 CURB INLET DP117 INV IN = 71.58 DP118 INV OUT = 71.38
DS133	RIM = 76.97' STA = 301+33.03, -12.94, L TYPE 6 CURB INLET DP117 INV OUT = 71.67
EX. DS076	RIM = 72.87' STA = 262+32.86, 89.62, R FDOT TYPE 7 MANHOLE DP055 INV IN = 68.00 EX. DP081 INV OUT = 68.00

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP041	24" RCP	61'	0.54%
DP042	24" RCP	57'	0.72%
DP049	15" RCP	25'	0.42%
DP050	15" RCP	175'	0.20%
DP051	15" RCP	24'	0.26%
DP052	15" RCP	124'	0.21%
DP053	15" RCP	25'	0.48%
DP054	18" RCP	118'	1.72%
DP055	54" RCP	78'	0.53%
DP057	15" RCP	26'	0.36%
DP058	15" RCP	26'	0.45%
DP059	15" RCP	154'	0.33%
DP062	42" RCP	25'	0.43%
DP063	42" RCP	114'	0.81%
DP064	15" RCP	25'	0.47%
DP065	54" RCP	140'	0.22%
DP066	15" RCP	24'	0.29%
DP067	15" RCP	120'	0.25%
DP068	15" RCP	24'	0.29%
DP069	15" RCP	98'	0.21%
DP070	15" RCP	30'	0.78%
DP071	18" RCP	147'	1.23%
DP072	15" RCP	26'	0.45%
DP073	24" RCP	102'	0.85%
DP074	15" RCP	26'	0.45%
DP075	36" RCP	157'	0.31%
DP076	42" RCP	27'	0.43%
DP077	15" RCP	26'	0.45%
DP078	36" RCP	91'	0.25%
DP079	15" RCP	26'	0.45%
DP080	42" RCP	227'	0.26%
DP081	15" RCP	25'	0.48%
DP082	42" RCP	44'	0.75%
DP117	24" RCP	26'	0.41%
DP118	36" RCP	111'	0.26%

C304

Structure Table	
Structure Name	Structure Details
DS020	RIM = 92.37' STA = 400+55.80, -13.00, L TYPE 5 CURB INLET DP011 INV OUT = 86.78
DS021	RIM = 91.48' STA = 399+18.76, 13.00, R TYPE 5 CURB INLET DP012 INV IN = 83.21 DP013 INV IN = 84.75 DP014 INV OUT = 83.21
DS022	RIM = 91.62' STA = 399+40.13, -13.05, L TYPE 5 CURB INLET DP013 INV OUT = 84.84
DS023	RIM = 90.90' STA = 398+44.32, 12.00, R TYPE 5 CURB INLET DP014 INV IN = 81.86 DP023 INV IN = 81.86 DP015 INV IN = 83.26 DP016 INV OUT = 79.00
DS024	RIM = 90.90' STA = 398+44.32, -12.00, L TYPE 5 CURB INLET DP015 INV OUT = 83.36
DS029	RIM = 88.22' STA = 395+06.34, -12.00, L TYPE 5 CURB INLET DP020 INV OUT = 83.81
DS030	RIM = 88.22' STA = 395+06.34, 12.00, R TYPE 5 CURB INLET DP020 INV IN = 83.71 DP021 INV OUT = 83.71
DS031	RIM = 89.68' STA = 396+75.16, 13.00, R TYPE 5 CURB INLET DP120 INV IN = 83.10 DP022 INV IN = 84.15 DP023 INV OUT = 82.75
DS032	RIM = 89.71' STA = 396+79.05, -13.00, L TYPE 5 CURB INLET DP022 INV OUT = 84.24
DS033	RIM = 92.57' STA = 416+64.24, -12.00, L TYPE 5 CURB INLET DP024 INV OUT = 88.13
DS034	RIM = 92.57' STA = 416+64.24, 12.00, R TYPE 5 CURB INLET DP024 INV IN = 88.05 DP025 INV OUT = 88.05
DS035	RIM = 91.97' STA = 416+06.72, 16.24, R FDOT TYPE 7 MANHOLE DP025 INV IN = 87.81 DP026 INV OUT = 87.81

Structure Table	
Structure Name	Structure Details
DS036	RIM = 91.50' STA = 414+90.21, 12.00, R TYPE 5 CURB INLET DP026 INV IN = 87.02 DP027 INV IN = 87.02 DP028 INV OUT = 87.02
DS037	RIM = 91.57' STA = 415+03.70, -12.00, L TYPE 5 CURB INLET DP027 INV OUT = 87.11
DS038	RIM = 90.79' STA = 413+46.89, 12.00, R TYPE 5 CURB INLET DP028 INV IN = 86.30 DP029 INV IN = 86.27 DP030 INV OUT = 85.85
DS039	RIM = 90.82' STA = 413+53.52, -12.00, L TYPE 5 CURB INLET DP029 INV OUT = 86.37
DS040	RIM = 90.27' STA = 412+87.42, 15.94, R FDOT TYPE 7 MANHOLE DP030 INV IN = 85.60 DP031 INV OUT = 85.60
DS041	RIM = 90.16' STA = 412+21.00, 12.00, R TYPE 5 CURB INLET DP031 INV IN = 85.21 DP032 INV IN = 85.62 DP033 INV OUT = 85.21
DS042	RIM = 90.16' STA = 412+21.00, -12.00, L TYPE 5 CURB INLET DP032 INV OUT = 85.71
DS043	RIM = 89.28' STA = 410+46.45, 12.00, R TYPE 5 CURB INLET DP033 INV IN = 84.34 DP034 INV IN = 84.75 DP035 INV OUT = 83.84
DS044	RIM = 89.28' STA = 410+46.45, -12.00, L TYPE 5 CURB INLET DP034 INV OUT = 84.84
DS045	RIM = 89.07' STA = 396+19.07, 16.36, R FDOT TYPE 7 MANHOLE DP035 INV IN = 83.30 DP021 INV IN = 83.30 DP120 INV OUT = 83.30
DS046	RIM = 83.14' STA = 385+57.25, -13.00, L TYPE 5 CURB INLET DP036 INV IN = 78.55 DP037 INV OUT = 78.55
DS047	RIM = 83.15' STA = 385+58.18, 13.00, R TYPE 5 CURB INLET DP036 INV OUT = 78.64

Structure Table	
Structure Name	Structure Details
DS048	RIM = 81.74' STA = 383+68.64, 13.00, R TYPE 5 CURB INLET DP038 INV OUT = 77.52
DS049	RIM = 81.70' STA = 383+60.43, -13.00, L TYPE 5 CURB INLET DP038 INV IN = 77.42 DP037 INV IN = 77.42 DP039 INV OUT = 76.69
DS050	RIM = 80.90' STA = 381+99.29, 12.99, R TYPE 5 CURB INLET DP040 INV OUT = 76.36
DS051	RIM = 80.89' STA = 381+99.29, -13.00, L TYPE 5 CURB INLET DP040 INV IN = 76.26 DP039 INV IN = 75.86 DP041 INV OUT = 75.86
DS052	RIM = 80.19' STA = 381+23.59, -15.60, L FDOT TYPE 7 MANHOLE DP041 INV IN = 75.55 DP042 INV OUT = 75.55
DS053	RIM = 80.21' STA = 380+62.55, 13.00, R TYPE 5 CURB INLET DP043 INV OUT = 75.67
DS056	RIM = 86.42' STA = 392+68.48, -12.00, L TYPE 6 CURB INLET DP045 INV OUT = 81.96
DS057	RIM = 86.42' STA = 392+68.55, 12.01, R TYPE 6 CURB INLET DP045 INV IN = 81.86 DP046 INV OUT = 81.86
DS059	RIM = 86.53' STA = 390+54.80, -12.00, L TYPE 5 CURB INLET DP047 INV OUT = 81.28
EX. DS058	RIM = 80.21' STA = 380+62.55, -13.00, L TYPE 5 CURB INLET DP043 INV IN = 75.57 DP042 INV IN = 75.17
EX. DS059	RIM = 86.53' STA = 390+54.80, 12.00, R TYPE 5 CURB INLET DP047 INV IN = 81.20 DP046 INV IN = 81.20
EX. DS078	RIM = 83.79' STA = 398+28.01, 114.79, R FDOT TYPE 7 MANHOLE DP016 INV IN = 76.00

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP012	24" RCP	146'	1.57%
DP013	15" RCP	34'	0.30%
DP014	24" RCP	76'	1.88%
DP015	15" RCP	24'	0.50%
DP016	30" RCP	104'	2.99%
DP020	15" RCP	24'	0.50%
DP021	15" RCP	115'	0.37%
DP022	15" RCP	26'	0.40%
DP023	30" RCP	172'	0.53%
DP024	15" RCP	24'	0.40%
DP025	15" RCP	45'	0.58%
DP026	15" RCP	111'	0.74%
DP027	15" RCP	28'	0.38%
DP028	18" RCP	147'	0.50%
DP029	15" RCP	25'	0.48%
DP030	24" RCP	46'	0.59%
DP031	24" RCP	53'	0.79%
DP032	15" RCP	24'	0.45%
DP033	24" RCP	175'	0.51%
DP034	15" RCP	24'	0.45%
DP035	24" RCP	64'	0.90%
DP036	15" RCP	26'	0.38%
DP037	15" RCP	198'	0.58%
DP038	15" RCP	27'	0.43%
DP039	24" RCP	156'	0.55%
DP040	15" RCP	26'	0.45%
DP041	24" RCP	61'	0.54%
DP042	24" RCP	57'	0.72%
DP043	15" RCP	26'	0.45%
DP045	15" RCP	24'	0.50%
DP046	18" RCP	208'	0.32%
DP047	15" RCP	24'	0.39%
DP120	30" RCP	57'	0.37%

C305

Structure Table	
Structure Name	Structure Details
DS012	RIM = 94.83' STA = 406+01.91, -12.00, L TYPE 5 CURB INLET DP004 INV OUT = 90.43
DS013	RIM = 94.83' STA = 406+01.91, 12.00, R TYPE 5 CURB INLET DP004 INV IN = 90.35 DP005 INV OUT = 90.35
DS014	RIM = 93.89' STA = 404+28.61, 12.00, R TYPE 5 CURB INLET DP005 INV IN = 89.30 DP006 INV IN = 89.30 DP007 INV OUT = 88.87
DS015	RIM = 94.02' STA = 404+36.61, -13.00, L TYPE 5 CURB INLET DP006 INV OUT = 89.39
DS016	RIM = 93.29' STA = 402+73.04, 12.00, R TYPE 5 CURB INLET DP007 INV IN = 88.06 DP008 INV IN = 88.40 DP009 INV OUT = 87.56
DS017	RIM = 93.35' STA = 402+89.68, -12.00, L TYPE 5 CURB INLET DP008 INV OUT = 88.49
DS018	RIM = 92.71' STA = 401+77.07, 16.15, R FDOT TYPE 7 MANHOLE DP009 INV IN = 87.17 DP019 INV IN = 87.17 DP010 INV OUT = 87.17
DS019	RIM = 92.44' STA = 400+67.27, 13.00, R TYPE 5 CURB INLET DP010 INV IN = 85.94 DP011 INV IN = 86.70 DP012 INV OUT = 85.44

Structure Table	
Structure Name	Structure Details
DS020	RIM = 92.37' STA = 400+55.80, -13.00, L TYPE 5 CURB INLET DP011 INV OUT = 86.78
DS021	RIM = 91.48' STA = 399+18.76, 13.00, R TYPE 5 CURB INLET DP012 INV IN = 83.21 DP013 INV IN = 84.75 DP014 INV OUT = 83.21
DS022	RIM = 91.62' STA = 399+40.13, -13.05, L TYPE 5 CURB INLET DP013 INV OUT = 84.84
DS027	RIM = 92.53' STA = 419+31.62, -12.00, L TYPE 5 CURB INLET DP018 INV IN = 88.00 DP019 INV OUT = 88.00
DS028	RIM = 92.53' STA = 419+31.62, 12.00, R TYPE 5 CURB INLET DP018 INV OUT = 88.09
DS033	RIM = 92.57' STA = 416+64.24, -12.00, L TYPE 5 CURB INLET DP024 INV OUT = 88.13
DS034	RIM = 92.57' STA = 416+64.24, 12.00, R TYPE 5 CURB INLET DP024 INV IN = 88.05 DP025 INV OUT = 88.05
DS035	RIM = 91.97' STA = 416+06.72, 16.24, R FDOT TYPE 7 MANHOLE DP025 INV IN = 87.81 DP026 INV OUT = 87.81

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP004	15" RCP	24'	0.39%
DP005	15" RCP	175'	0.61%
DP006	15" RCP	26'	0.40%
DP007	24" RCP	152'	0.55%
DP008	15" RCP	29'	0.36%
DP009	24" RCP	92'	0.45%
DP010	24" RCP	104'	1.22%
DP011	15" RCP	28'	0.33%
DP012	24" RCP	146'	1.57%
DP013	15" RCP	34'	0.30%
DP014	24" RCP	76'	1.88%
DP018	15" RCP	24'	0.45%
DP019	15" RCP	75'	1.16%
DP024	15" RCP	24'	0.40%
DP025	15" RCP	45'	0.58%
DP026	15" RCP	111'	0.74%

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CIVIL ENGINEERS
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Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

DRAINAGE PIPE TABLE
FOR
LAKE HILLS PHASE 1
LAKE COUNTY
FLORIDA

READERS & PARTNERS, LLC
3850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

DATE	REVISIONS
	1
	2
	3
	4
	5
	6
	7
	8
	9
	10
	11

DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB # 23019
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DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C307

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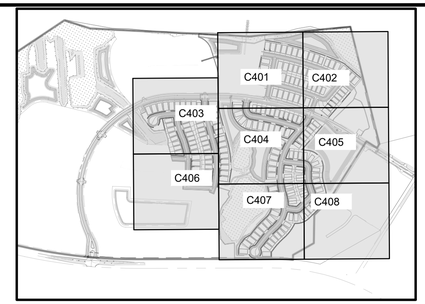

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX.	• 0.00 OR 0.00 TC 0.00 EP OR • 0.00 TW • 0.00 BW	SPOT ELEVATION
	• 0.00 LP • 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES
1. STEM WALL

MADDEN
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CIVIL ENGINEERS
431 E. Horatio Avenue
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Maitland, Florida 32751
(407) 629-8330
CA# 0007723

OVERALL GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9950 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C400

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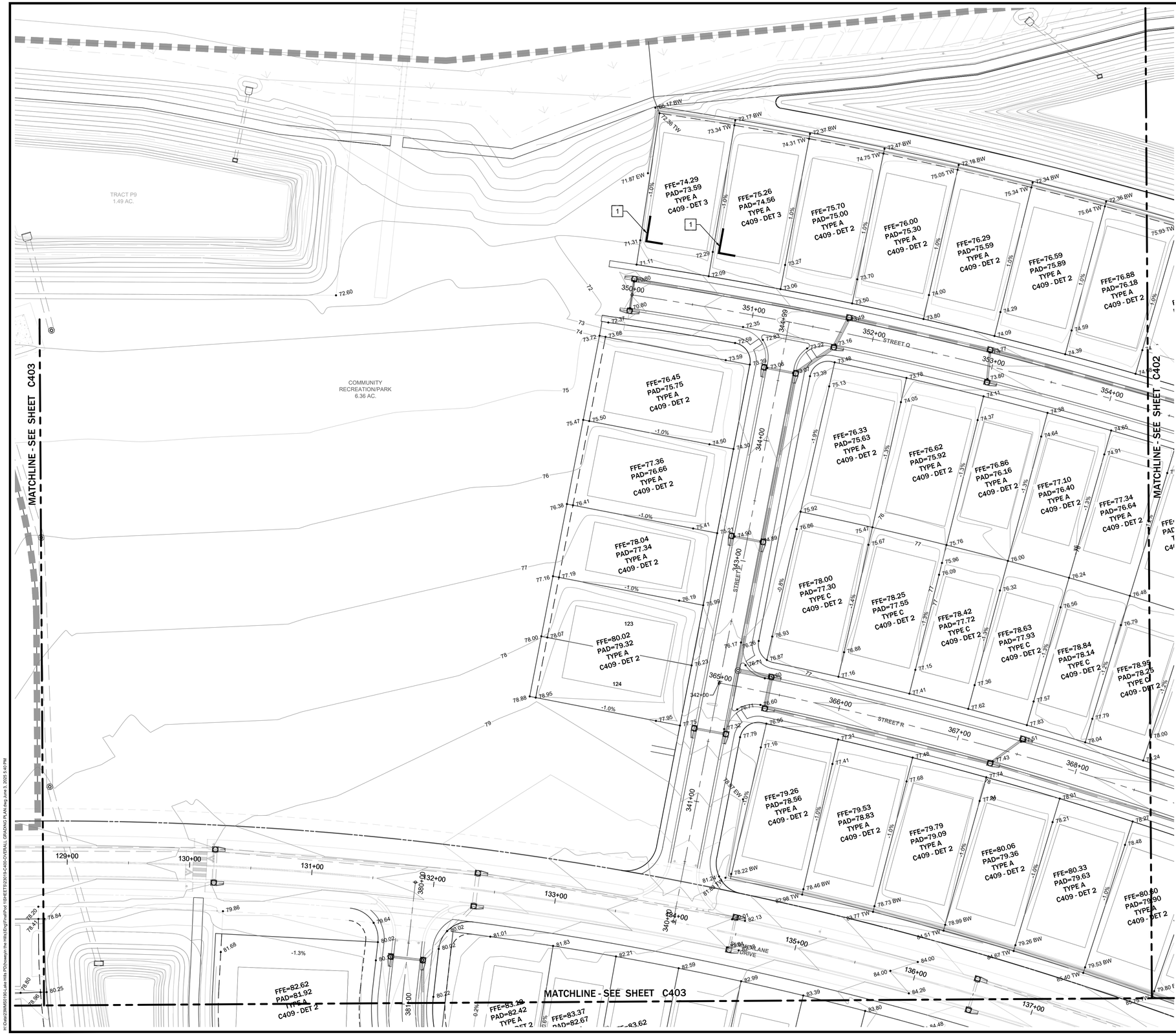
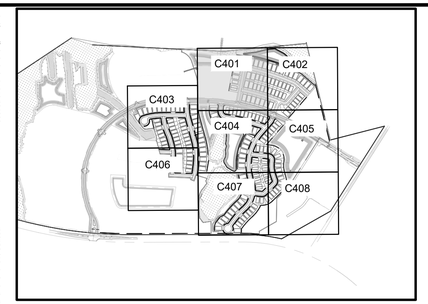
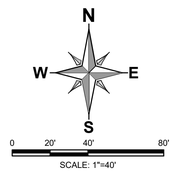




KEY MAP
NTS



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX	0.00 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
DS		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
	OR	CONTROL STRUCTURE
	OUT-1	OUTFALL STRUCTURE
		PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES
1. STEM WALL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

#	DATE	REVISIONS
1		
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11		

DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C401

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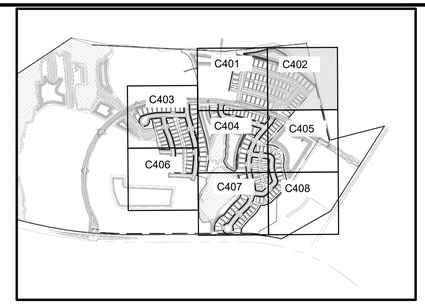

KEY MAP
NTS

N
W
E
S

0 20' 40' 80'

SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX	0.00 OR 0.50 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100 (S)	DS-100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
D.S.		DOWNSPOUT

[#] CONSTRUCTION NOTES

1. STEM WALL

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MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
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CA# 0007723

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LAKE COUNTY FLORIDA

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ORLANDO FL, 32822
(407) 855-4899

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DRAWN BY:	JSK
APPROVED BY:	DAS

C402

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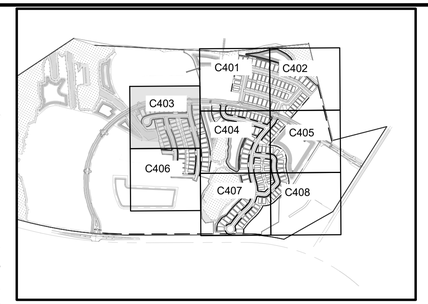
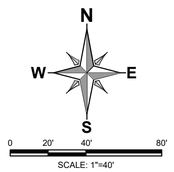


KEY MAP
NTS



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+78.00 EX	0.00 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
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		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
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CONSTRUCTION NOTES
1. STEM WALL

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Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4999

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MATCHLINE - SEE SHEET C403

MATCHLINE - SEE SHEET C406

MATCHLINE - SEE SHEET C405

MATCHLINE - SEE SHEET C407

TRACT P3 1.96 AC.

TRACT P2 2.76 AC.

WETLAND

STREET T

STREET U

STREET V

FFE=83.42 PAD=82.42 TYPE A C409 - DET 2

FFE=83.37 PAD=82.67 TYPE A C409 - DET 2

FFE=83.62 PAD=82.92 TYPE A C409 - DET 2

FFE=83.86 PAD=83.16 TYPE A C409 - DET 2

FFE=84.11 PAD=83.41 TYPE A C409 - DET 2

FFE=84.35 PAD=83.65 TYPE A C409 - DET 2

FFE=85.03 PAD=84.33 TYPE A C409 - DET 2

FFE=85.93 PAD=85.23 TYPE A C409 - DET 3

FFE=86.84 PAD=86.14 TYPE A C409 - DET 3

FFE=87.73 PAD=87.03 TYPE A C409 - DET 3

FFE=87.73 PAD=87.03 TYPE A C409 - DET 2

FFE=88.94 PAD=88.2 TYPE A C409 - DE

FFE=92.93 PAD=82.23 TYPE A C409 - DET 2

FFE=83.10 PAD=82.40 TYPE A C409 - DET 2

FFE=83.21 PAD=82.51 TYPE A C409 - DET 2

FFE=83.54 PAD=82.84 TYPE A C409 - DET 2

FFE=83.54 PAD=82.84 TYPE A/B C409 - DET 2

FFE=83.46 PAD=82.76 TYPE B C409 - DET 1

FFE=83.62 PAD=82.92 TYPE B C409 - DET 1

FFE=84.88 PAD=84.18 TYPE A/B C409 - DET 1

FFE=86.35 PAD=85.65 TYPE A C409 - DET 3

FFE=87.41 PAD=86.71 TYPE A C409 - DET 3

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FFE=90.88 PAD=90.18 TYPE A C409 - DET 2

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FFE=91.78 PAD=91.08 TYPE A C409 - DET 2

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FFE=91.35 PAD=90.65 TYPE A C409 - DET 2

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FFE=92.24 PAD=91.54 TYPE A C409 - DET 1

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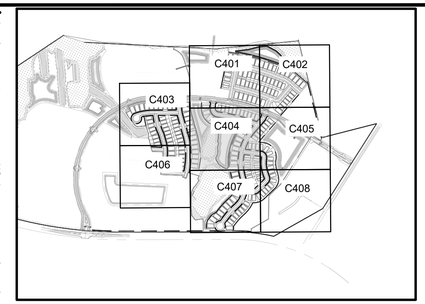

KEY MAP

NTS

N W E S

0 20' 40' 80'

SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX	0.00 OR 0.00 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
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		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
D.S.		DOWNSPOUT

CONSTRUCTION NOTES

1. STEM WALL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
1		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C404

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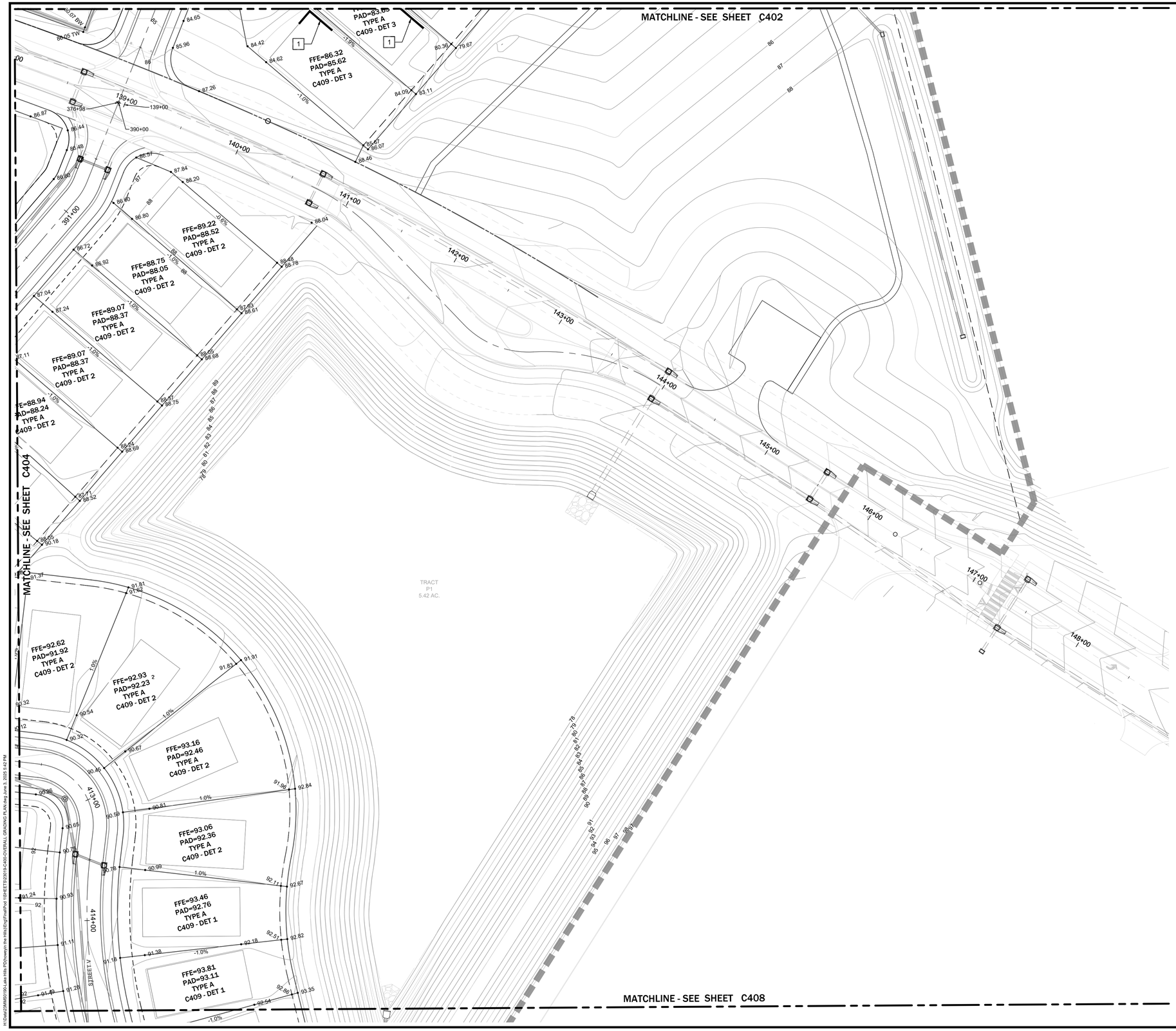

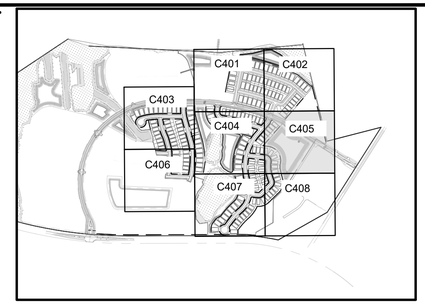

KEY MAP
NTS

N
W
E
S

0 20' 40' 80'

SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
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		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX	0.00 OR 0.50 TC, 0.00 EP OR 0.00 TW, 0.00 BW	SPOT ELEVATION
	0.00 LP, 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
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ORLANDO FL, 32822
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MATCHLINE - SEE SHEET C404

MATCHLINE - SEE SHEET C407

STREET L

STREET T

FFE=80.92
PAD=80.22
TYPE A
C409 - DET 1

FFE=82.21
PAD=81.41
TYPE A
C409 - DET 2

FFE=81.94
PAD=81.24
TYPE A
C409 - DET 2

FFE=82.88
PAD=82.18
TYPE A
C409 - DET 2

FFE=82.81
PAD=82.11
TYPE A
C409 - DET 2

FFE=83.44
PAD=82.74
TYPE A
C409 - DET 2

FFE=83.64
PAD=82.94
TYPE A
C409 - DET 2

FFE=84.15
PAD=83.45
TYPE A
C409 - DET 2

FFE=84.30
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TYPE A
C409 - DET 2

FFE=84.86
PAD=84.16
TYPE A
C409 - DET 2

FFE=84.92
PAD=84.22
TYPE A
C409 - DET 2

FFE=85.60
PAD=84.90
TYPE A
C409 - DET 2

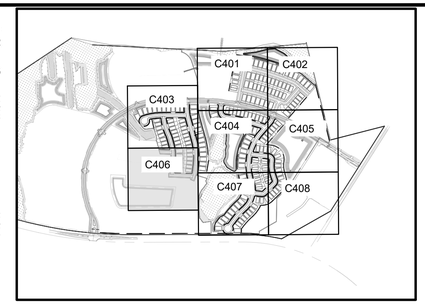
FFE=85.44
PAD=84.74
TYPE A
C409 - DET 2

FFE=85.97
PAD=85.27
TYPE A
C409 - DET 2

TRACT
P5
6.14 AC.

226+00 227+00 228+00 229+00 230+00 231+00 232+00 233+00 234+00 234+41

290+00 291+00 292+00 293+00



KEY MAP
NTS

N W E S

0 20' 40' 80'

SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
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		UTILITY EASEMENT (U.E.)
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		EASEMENT (OTHER)
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		CURB AND GUTTER
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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C406

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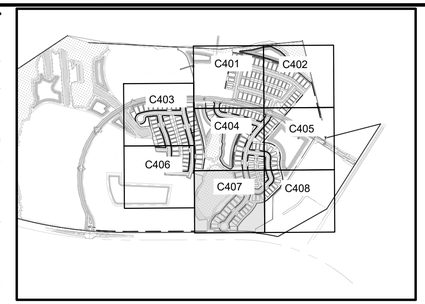

KEY MAP
NTS

N
W E
S

0 20' 40' 80'
SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+XX.XX EX.	0.00 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
	OR	STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
	OR	CONTROL STRUCTURE
	OUT-1	OUTFALL STRUCTURE
		PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES
1. STEM WALL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
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Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

#	DATE	REVISIONS
1		
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11		

DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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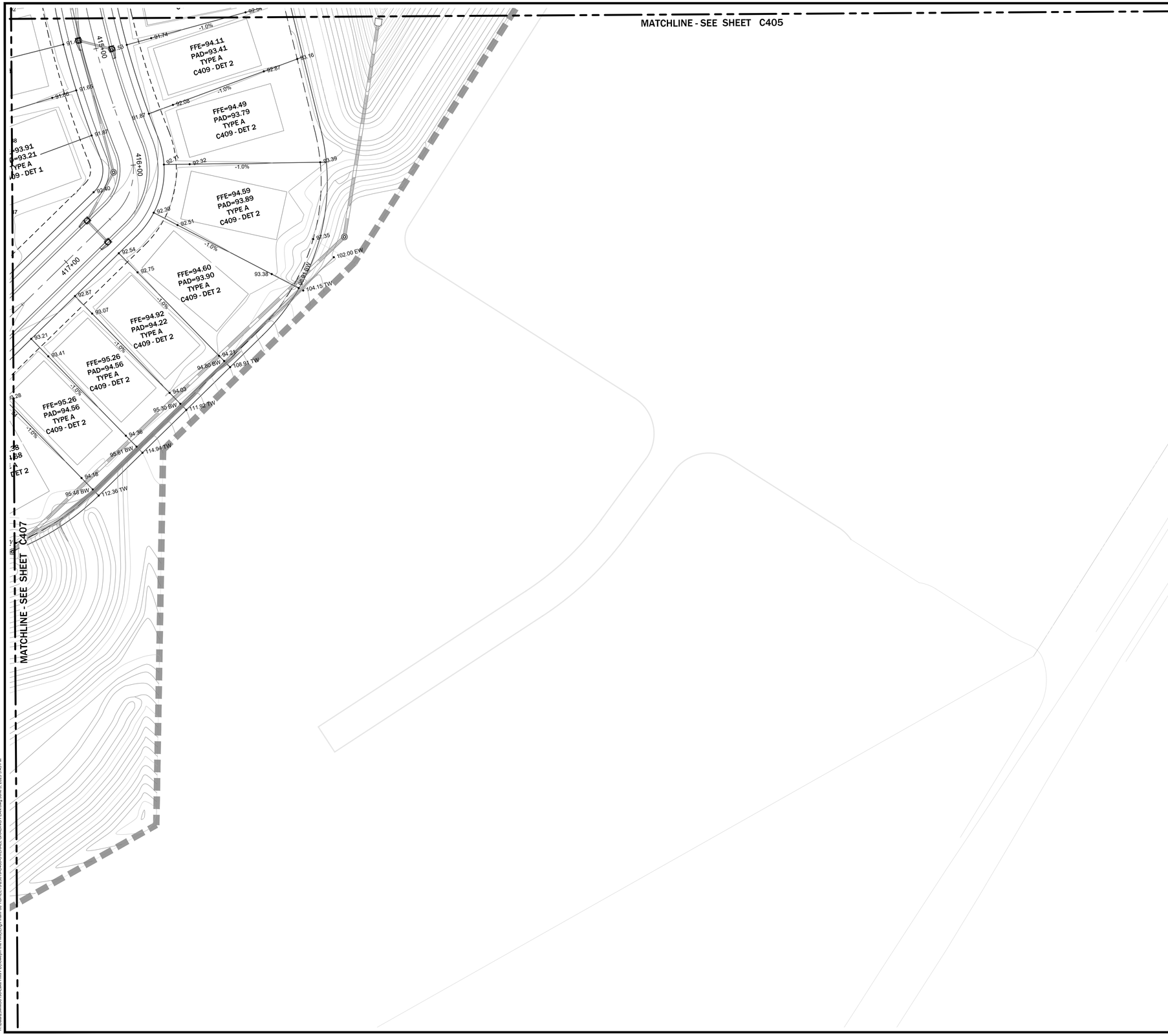
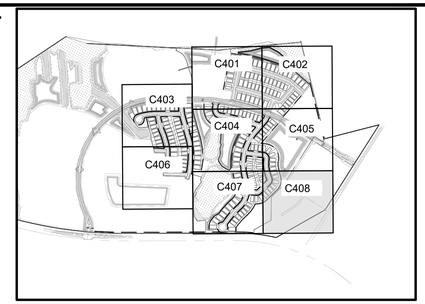
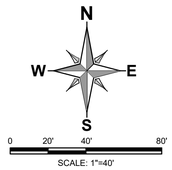




KEY MAP
NTS



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+93.98 EX.	• 0.00 OR 0.50 TC, 0.00 EP OR • 0.00 TW, • 0.00 BW • 0.00 LP, • 0.00 HP	SPOT ELEVATION
		ROAD ℄ ELEVATION
— — 30 — —	30	CONTOUR (MAJOR)
— — 29 — —	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
(S)	OR (S) OR	STORM DRAINAGE MANHOLE
	OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES

1. MIAMI CURB
2. TYPE 'A' CURB PER FDOT INDEX NO. 520-001
3. TYPE 'F' CURB PER FDOT INDEX NO. 520-001
4. 6' CURB TRANSITION
5. 5' SIDEWALK
6. CURB RAMP DETECTABLE WARNING PER FDOT INDEX NO. 522-002
7. TYPE 'D' CURB PER FDOT INDEX NO. 520-001
8. THICKENED EDGE SIDEWALK
9. 6' SIDEWALK
10. 8' - 6" CONCRETE DRIVEWAY
11. 25' - 6" CONCRETE DRIVEWAY
12. 6' CONCRETE FLUME

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FOR
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LAKE COUNTY, FLORIDA

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3850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

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ENGINEER OF RECORD

JOB # 23019
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DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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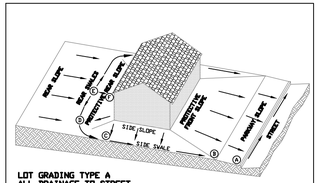
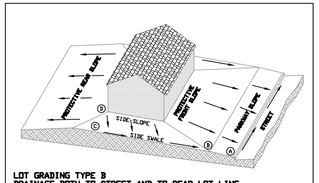


LOT GRADING TYPE A
ALL DRAINAGE TO STREET

SAMPLE COMPUTATION OF GRADING CONTROL LINE A-F FOR A 60' LOT ON AN O.S.S. STREET, WITH 28' SETBACK, 28' BUILDING DEPTH AND 2% SWALES	RESULTS USING 1% SWALES
A Curb-top on lot-line extension at high lot corner	
A-B Parkway slope, 12' grass and walk at 1/4"/Ft. (2%) . . . 3" (0.3')	3" (0.3')
B-C Side swale, 56' grass at 1/4"/Ft. (2%) . . . . . 14" (1.2')	7" (0.6')
C-D Swale turn with 10' radius, 16' grass at 1/4"/Ft. . . . 4" (0.3')	4" (0.3')
D-E Rear swale, 12' grass at 1/4"/Ft. (2%) . . . . . 3" (0.3')	3" (0.3')
E-F Protective rear slope up from high-point of swales . . . 52" (4.3')	52" (4.3')
Sub-total A-F From curb-top to ground at rear building wall. . 30" (2.5')	19" (1.6')
Minimum rise from curb-top to slab floor: 30" + 8" . . . . 38" (3.2')	27" (2.3')
Minimum rise for wood floor using 8" joists: 30" + 19" . . 49" (4.1')	38" (3.2')

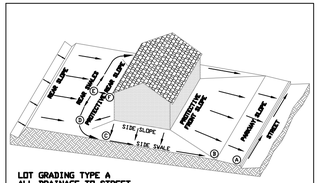
900A - FHA TYPE 'A' LOT GRADING
NOT TO SCALE



LOT GRADING TYPE B
DRAINAGE BOTH TO STREET AND TO REAR LOT LINE

SAMPLE COMPUTATION OF GRADING CONTROL LINE A-D FOR A 60' LOT WITH 28' SETBACK, 28' BUILDING DEPTH AND 2% SWALES	RESULTS USING 1% SWALES
A Curb-top on lot-line extension at high lot corner	
A-B Parkway slope, 12' grass and walk at 1/4"/Ft. (2%) . . . 3" (0.3')	3" (0.3')
B-C Side swale, 56' grass at 1/4"/Ft. (2%) . . . . . 14" (1.2')	7" (0.6')
C-D Protective side slope at extension of rear wall. . . . . 6" (0.5')	6" (0.5')
Sub-total A-D From curb-top to ground at rear building wall. . 23" (1.9')	16" (1.3')
Minimum rise from curb-top to slab floor: 23" + 8" . . . . 31" (2.6')	24" (2.0')
Minimum rise for wood floor using 8" joists: 23" + 19" . . 42" (3.5')	35" (2.9')

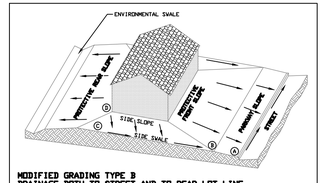
900B - FHA TYPE 'B' LOT GRADING
NOT TO SCALE



LOT GRADING TYPE A
ALL DRAINAGE TO STREET

SAMPLE COMPUTATION OF GRADING CONTROL LINE A-F FOR A 60' LOT ON AN O.S.S. STREET, WITH 28' SETBACK, 28' BUILDING DEPTH AND 2% SWALES	RESULTS USING 1% SWALES
A Curb-top on lot-line extension at high lot corner	
A-B Parkway slope, 12' grass and walk at 1/4"/Ft. (2%) . . . 3" (0.3')	3" (0.3')
B-C Side swale, 56' grass at 1/4"/Ft. (2%) . . . . . 14" (1.2')	7" (0.6')
C-D Swale turn with 10' radius, 16' grass at 1/4"/Ft. . . . 4" (0.3')	4" (0.3')
D-E Rear swale, 12' grass at 1/4"/Ft. (2%) . . . . . 3" (0.3')	3" (0.3')
E-F Protective rear slope up from high-point of swales . . . 52" (4.3')	52" (4.3')
Sub-total A-F From curb-top to ground at rear building wall. . 30" (2.5')	19" (1.6')
Minimum rise from curb-top to slab floor: 30" + 8" . . . . 38" (3.2')	27" (2.3')
Minimum rise for wood floor using 8" joists: 30" + 19" . . 49" (4.1')	38" (3.2')

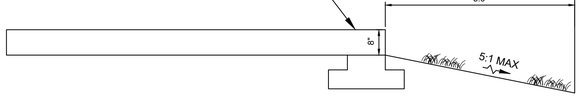
900AM - FHA TYPE 'A' MOD. LOT GRADING
NOT TO SCALE



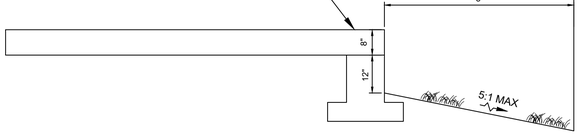
MODIFIED GRADING TYPE B
DRAINAGE BOTH TO STREET AND TO REAR LOT LINE

SAMPLE COMPUTATION OF GRADING CONTROL LINE A-D FOR A 60' LOT WITH 28' SETBACK, 28' BUILDING DEPTH AND 2% SWALES	RESULTS USING 1% SWALES
A Curb-top on lot-line extension at high lot corner	
A-B Parkway slope, 12' grass and walk at 1/4"/Ft. (2%) . . . 3" (0.3')	3" (0.3')
B-C Side swale, 56' grass at 1/4"/Ft. (2%) . . . . . 14" (1.2')	7" (0.6')
C-D Protective side slope at extension of rear wall. . . . . 6" (0.5')	6" (0.5')
Sub-total A-D From curb-top to ground at rear building wall. . 23" (1.9')	16" (1.3')
Minimum rise from curb-top to slab floor: 23" + 8" . . . . 31" (2.6')	24" (2.0')
Minimum rise for wood floor using 8" joists: 23" + 19" . . 42" (3.5')	35" (2.9')

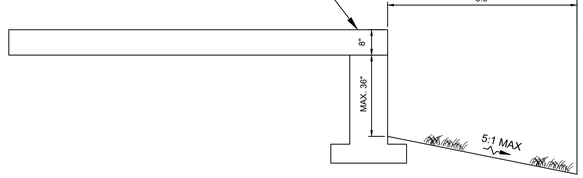
900BM - FHA TYPE 'B' MOD. LOT GRADING
NOT TO SCALE



DET 1 - STANDARD FOUNDATION
NOT TO SCALE



DET 2 - STANDARD FOUNDATION + 12" MAX. LEAVE DOWN
NOT TO SCALE



DET 3 - STANDARD FOUNDATION + STEM WALL
NOT TO SCALE

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CIVIL ENGINEERS
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(407) 629-8330
CA# 0007723

GRADING DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9800 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

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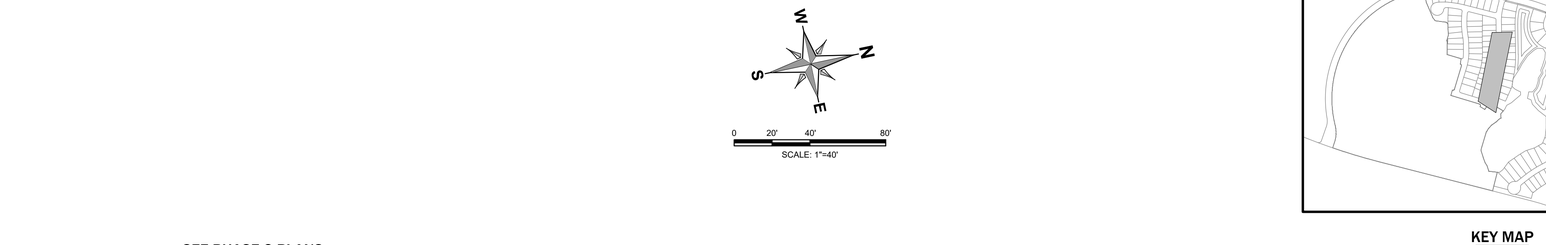
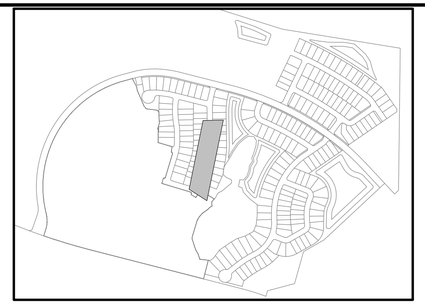




KEY MAP
NTS

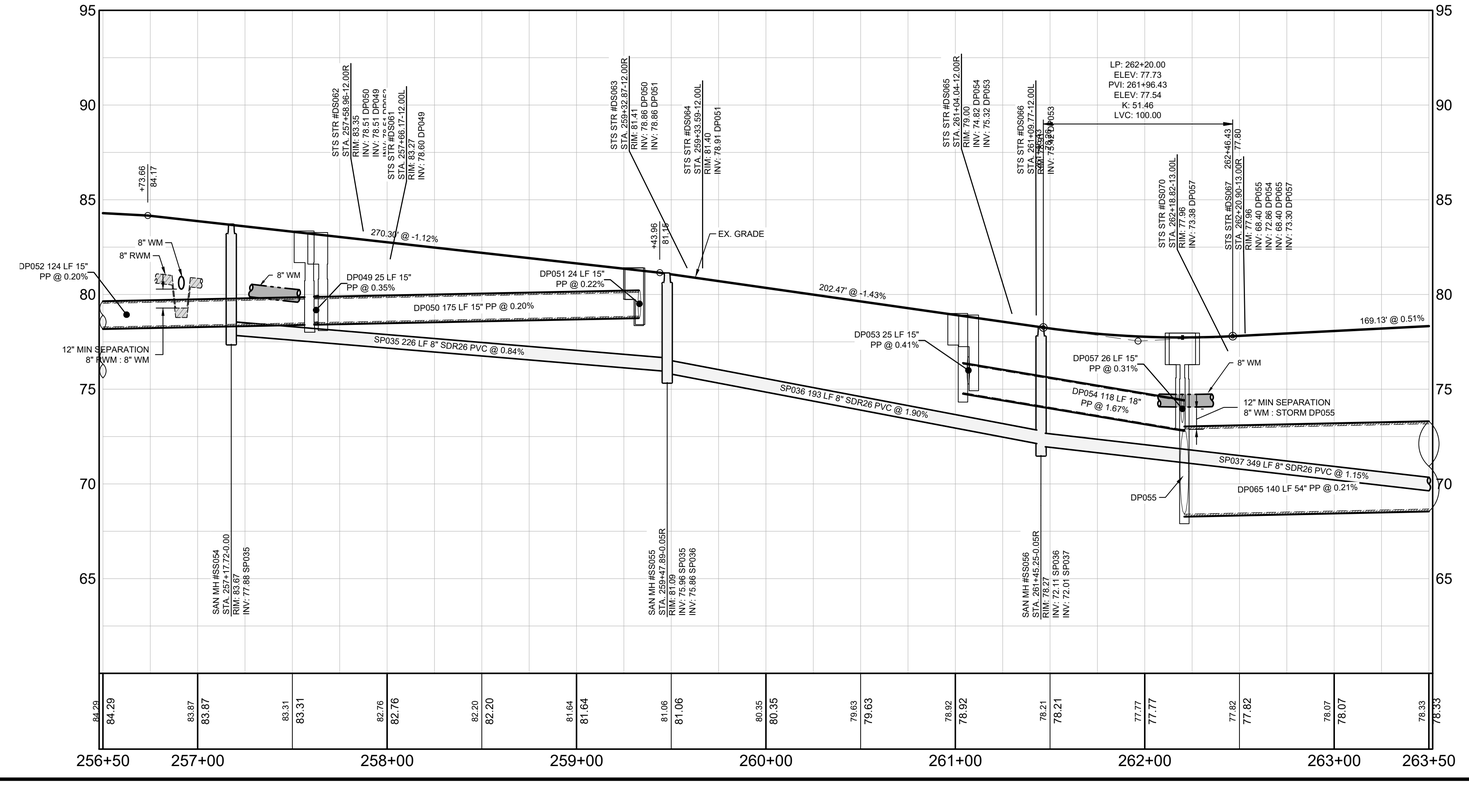
LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
	DS100	STORM DRAINAGE MANHOLE
	OR OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DCCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	RPP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)

STREET "I"

HORZ. SCALE: 1" = 40'

VERT. SCALE: 1" = 4'



ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES, PROJECT NO. 0130.2200427.000)

WATER MAIN AND RE-USE WATER LINES SHALL BE BURIED WITH A MINIMUM 36" GROUND COVER.

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ESTIMATED SEASONAL HIGH WATER LEVEL

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ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY
FLORIDA

READERS & PARTNERS, LLC
5860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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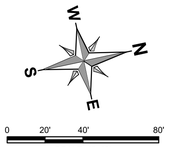
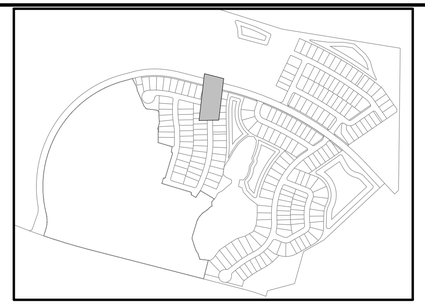
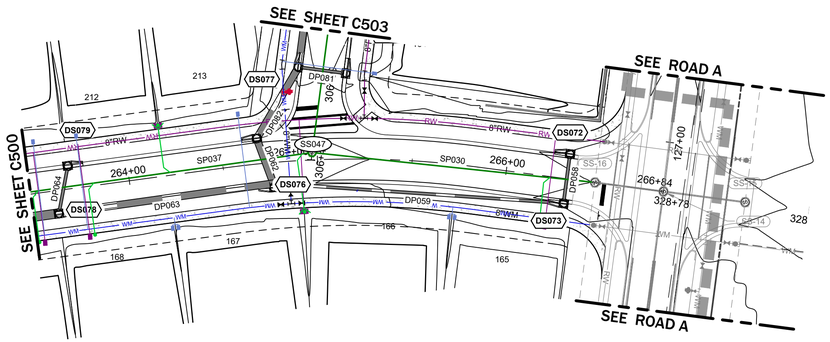
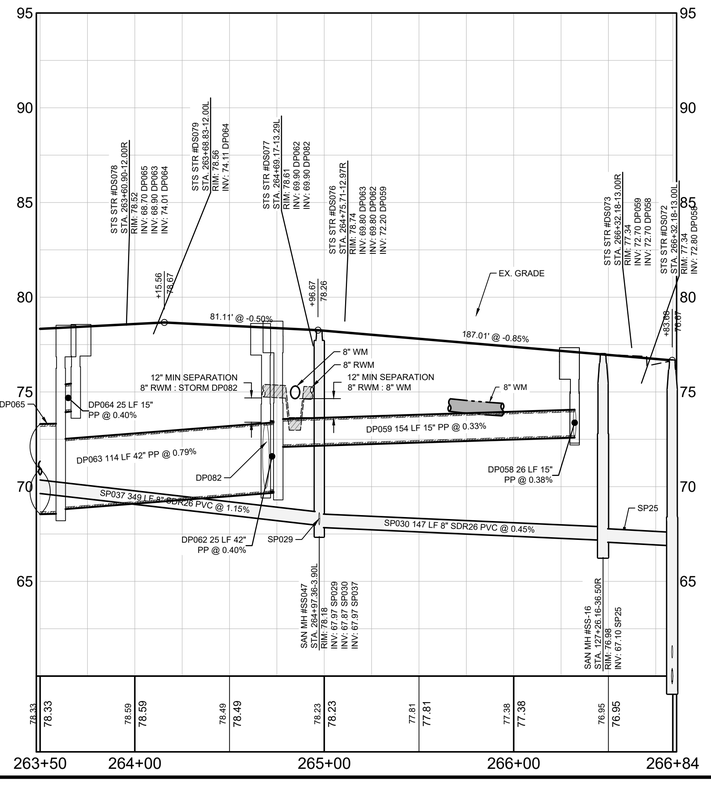




KEY MAP
NTS



STREET "I"



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
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		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	RPB	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)

HORZ. SCALE: 1" = 40'

VERT. SCALE: 1" = 4'

ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES LLC, PROJECT NO. 0130.2200427.000)

WATER MAIN AND RE-USE WATER LINES SHALL BE BURIED WITH A MINIMUM 36" GROUND COVER.

THE ENGINEER OF RECORD SHALL BE NOTIFIED IF ANY CROSSINGS DO NOT MEET THE REQUIRED SEPARATION CRITERIA PRIOR TO BACKFILLING. THE EOR WILL ASSIST THE PROJECT TEAM IN DETERMINING THE APPROPRIATE MODIFICATIONS NEEDED IN ORDER TO MEET THE SEPARATION REQUIREMENTS. NO BACKFILLING SHALL OCCUR UNTIL AFTER THE MODIFICATIONS ARE APPROVED BY THE OWNER AND AHJ (IF REQUIRED), CORRECTIONS COMPLETED, AND CORRECTIONS HAVE BEEN FIELD VERIFIED.

ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

NO.	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C501

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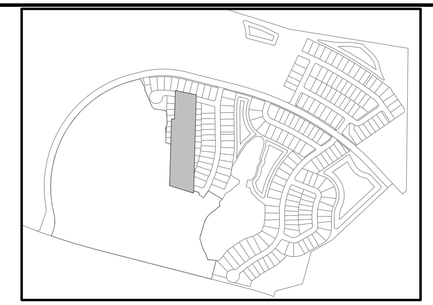
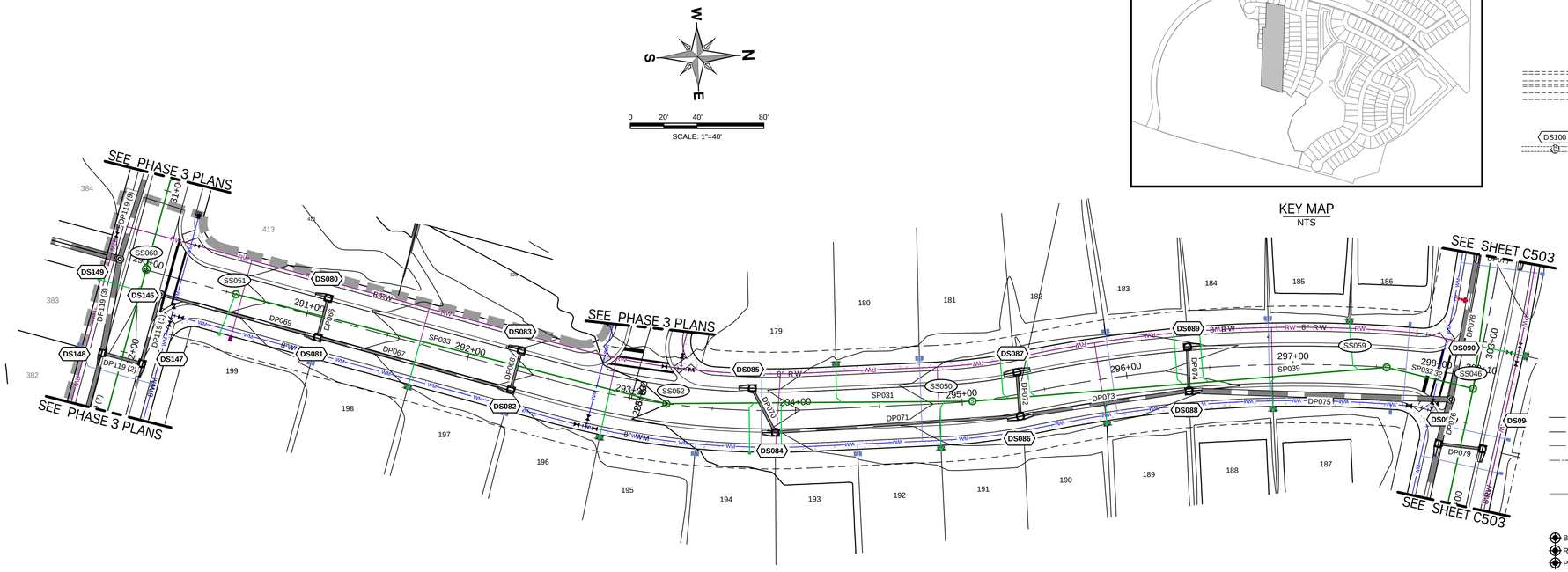


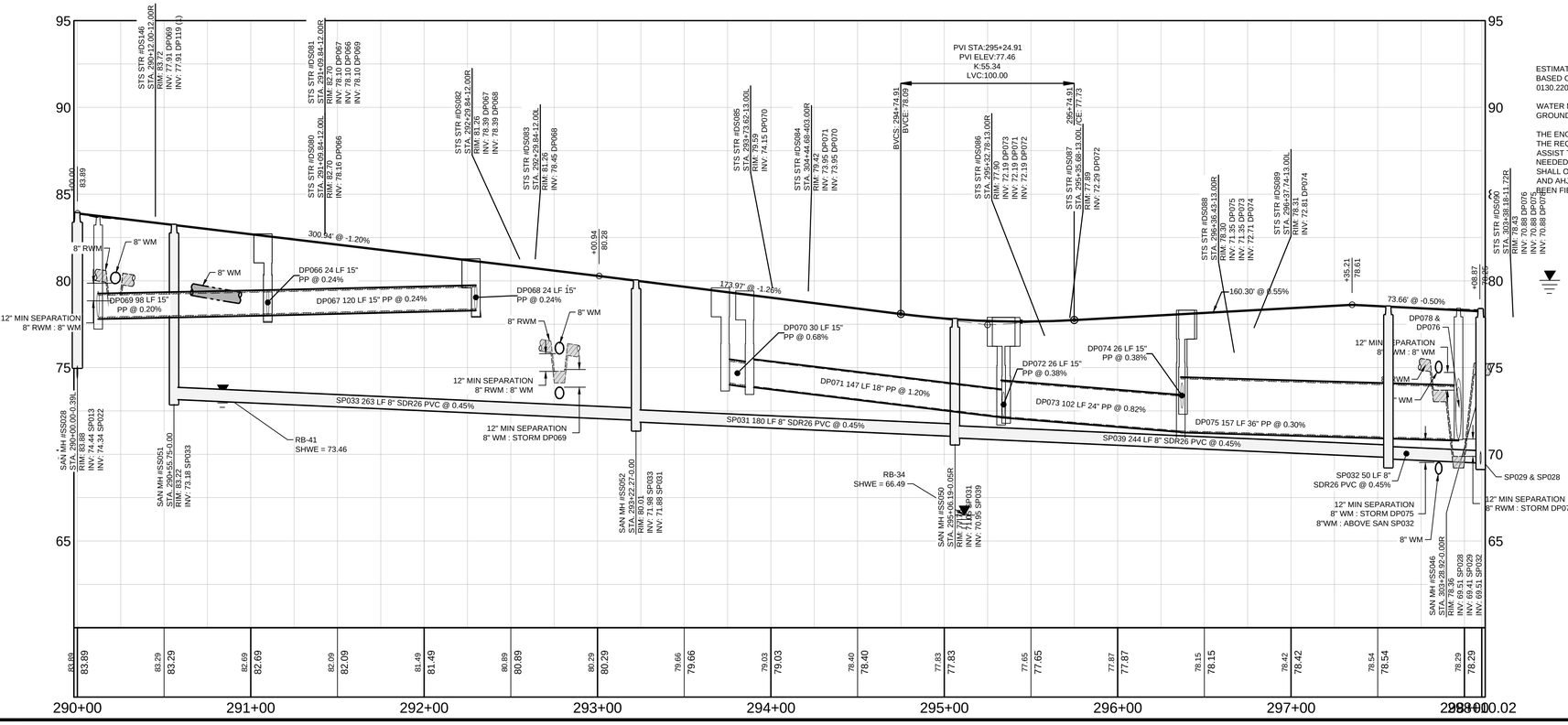
KEY MAP
NTS



STREET "L"

HORZ. SCALE: 1" = 40'

VERT. SCALE: 1" = 4'



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ESTIMATED SEASONAL HIGH WATER LEVEL

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
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	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
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	S	SANITARY SEWER
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LAKE COUNTY FLORIDA

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ENGINEER OF RECORD

JOB #: 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C502

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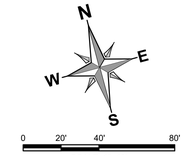

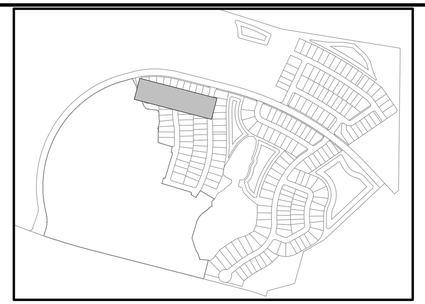

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
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		GATE VALVE & BOX
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		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
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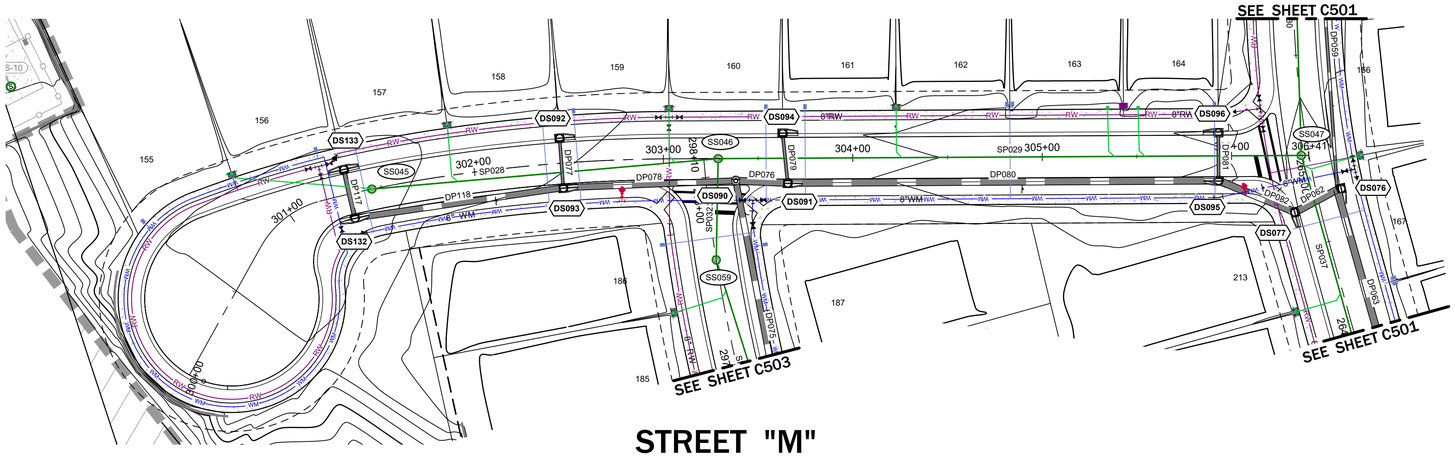
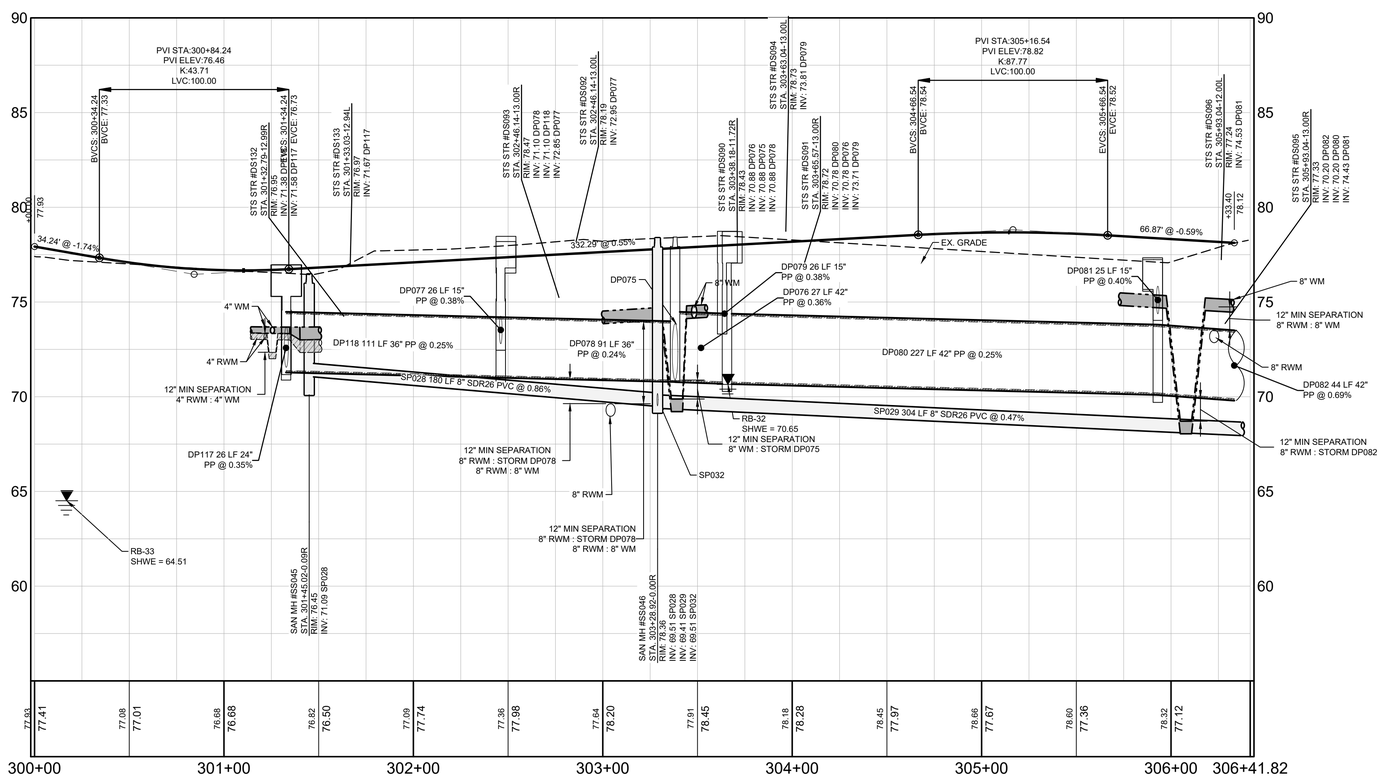


HORZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES, PROJECT NO. 0130.2200427.000)

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ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G. LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

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DAVID ASHLEY STOKES
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NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C503

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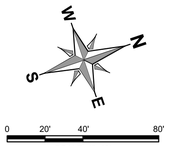
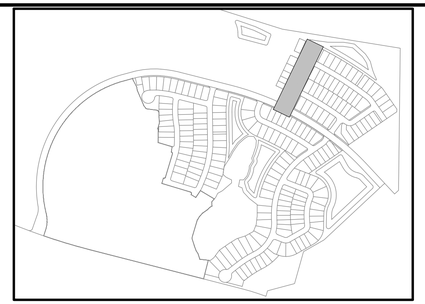
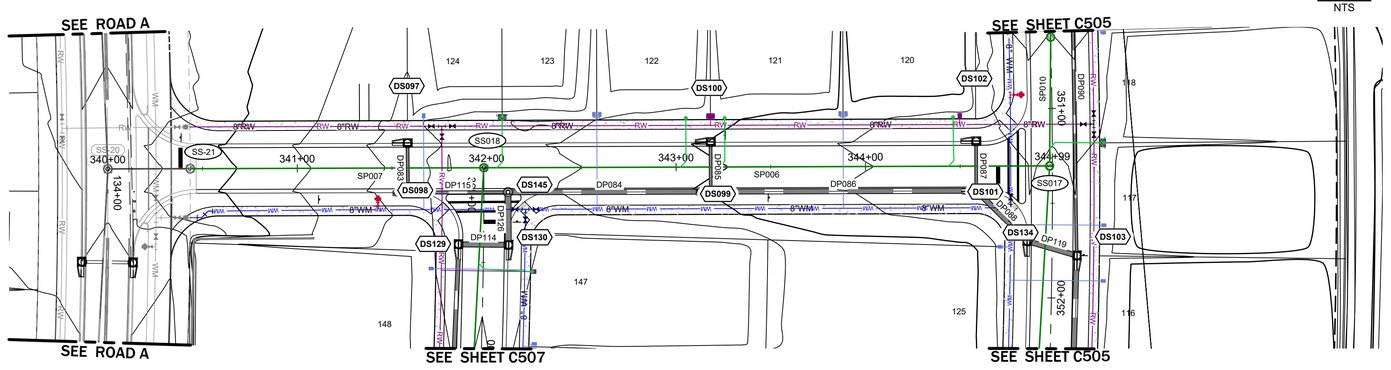


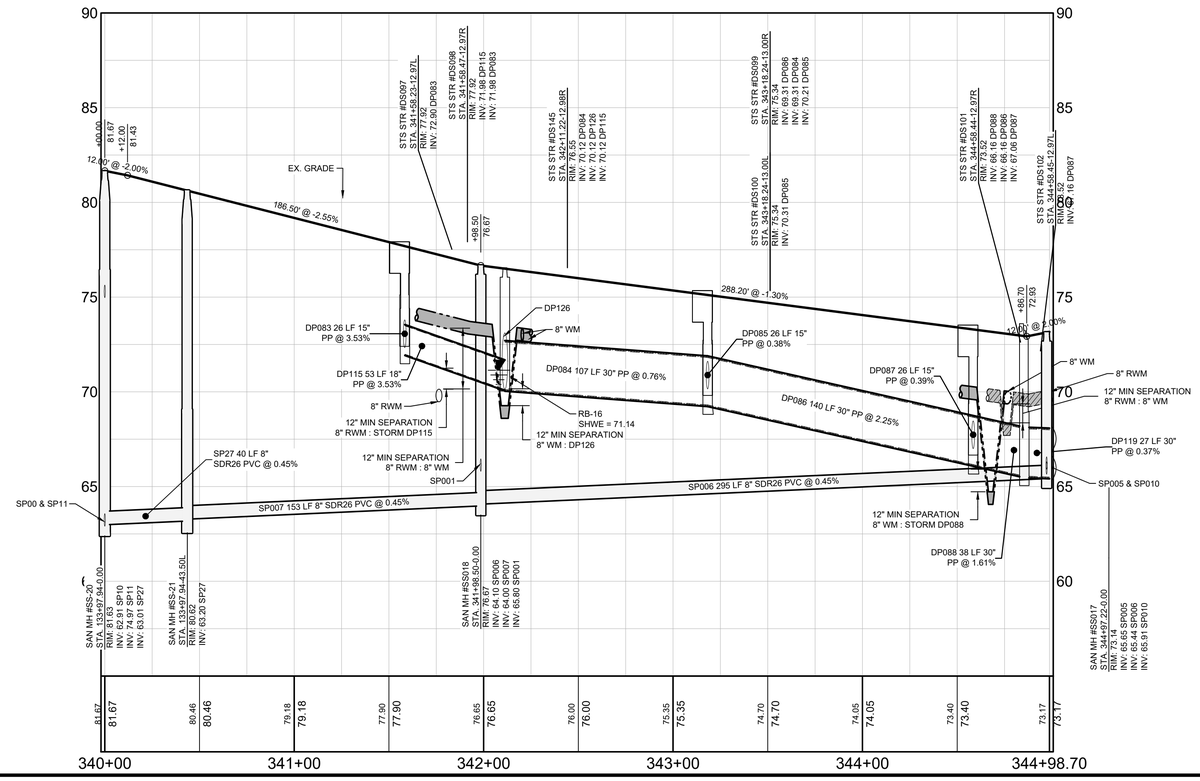


KEY MAP
NTS



STREET "P"

HORZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
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		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
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	DS100	STORM DRAINAGE MANHOLE
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		GATE VALVE & BOX
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		CHECK VALVE
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	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
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R-1		SOIL BORING (ROADWAY)
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ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES
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PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C504

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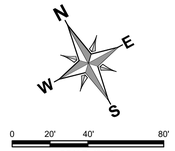
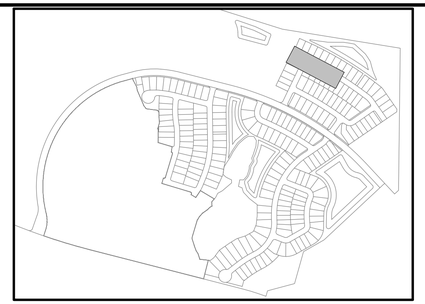
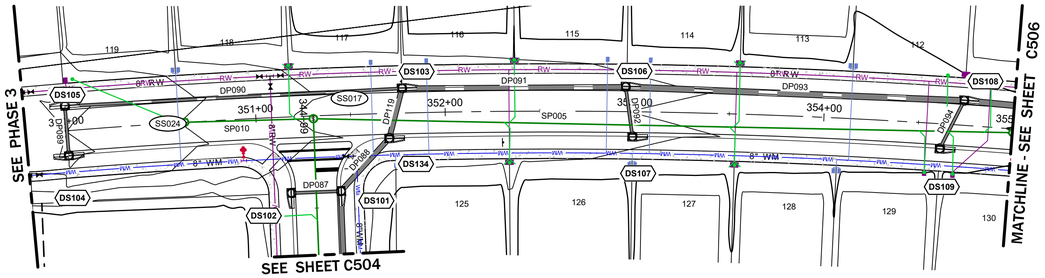
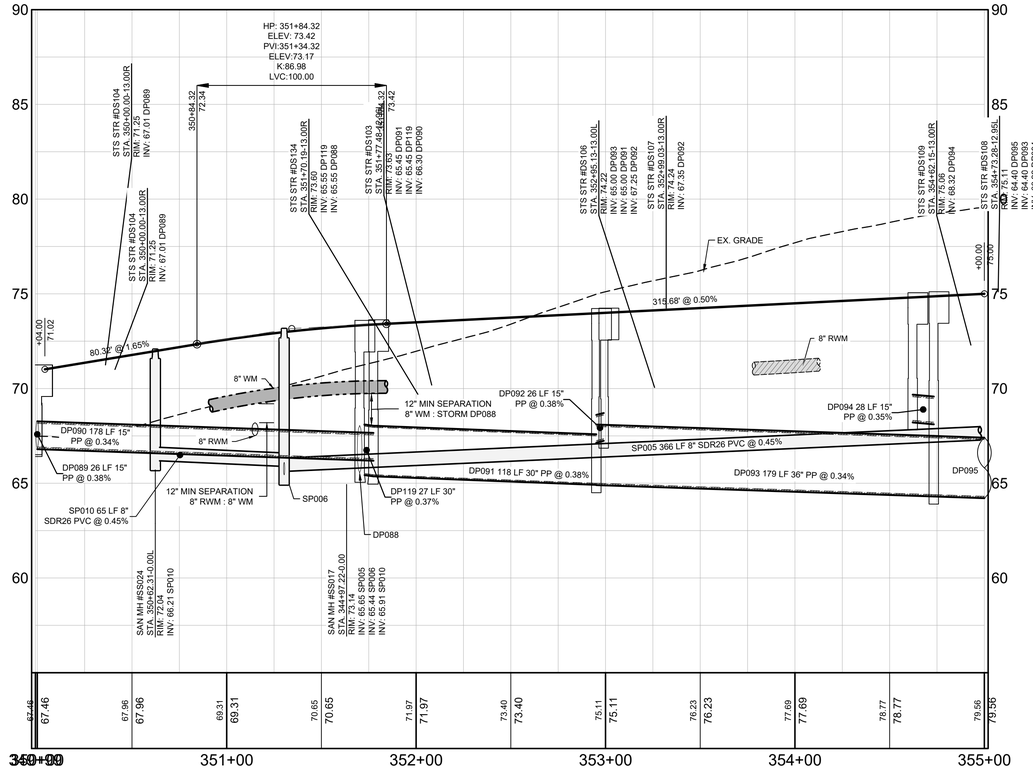




KEY MAP
NTS



STREET "Q"



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LEGEND

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		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
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		UTILITY EASEMENT (U.E.)
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DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C505

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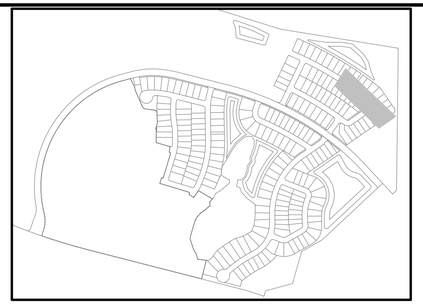
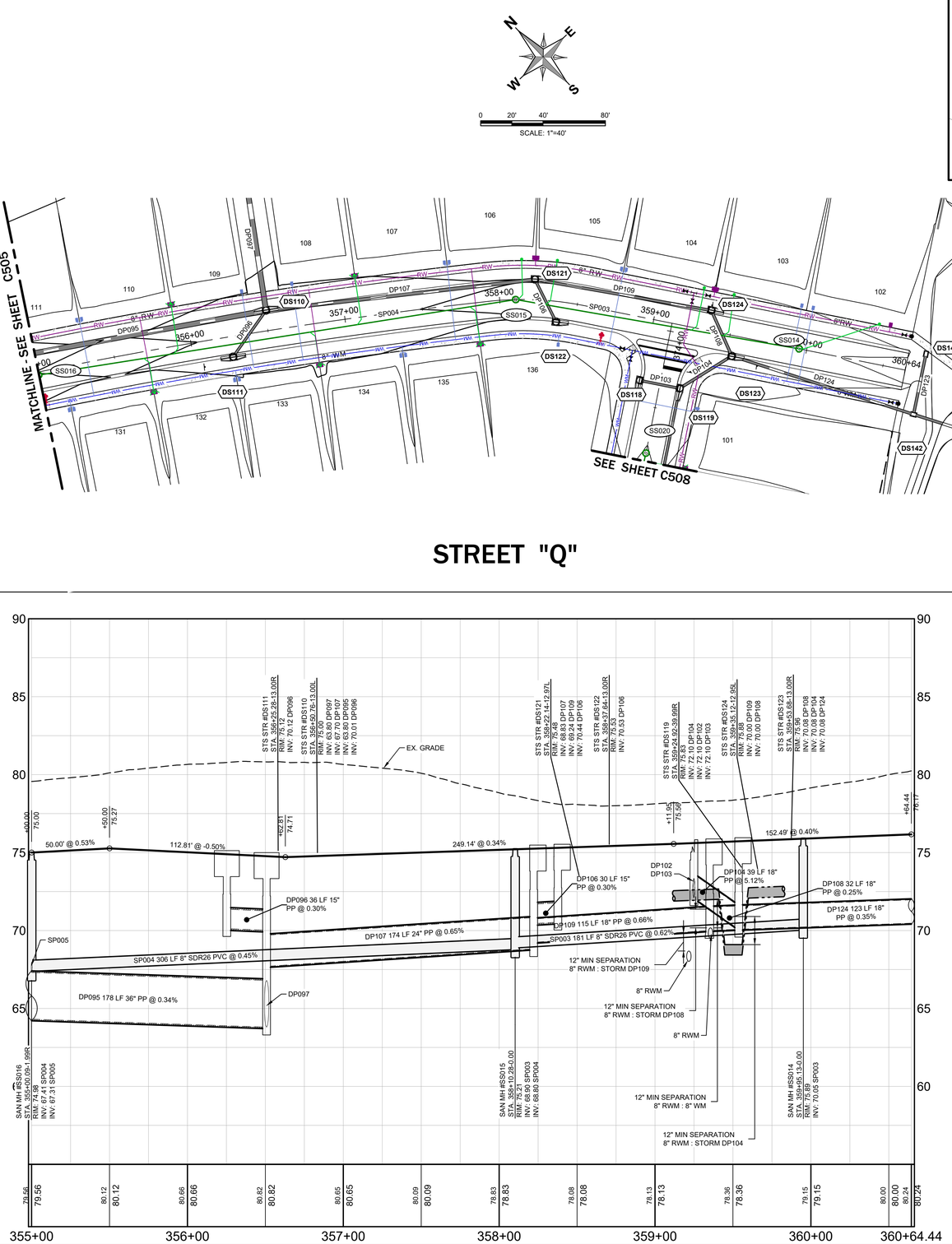


KEY MAP
NTS

STREET "Q"



HORZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'

ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES, PROJECT NO. 0130.2200427.000)

WATER MAIN AND RE-USE WATER LINES SHALL BE BURIED WITH A MINIMUM 36" GROUND COVER.

THE ENGINEER OF RECORD SHALL BE NOTIFIED IF ANY CROSSINGS DO NOT MEET THE REQUIRED SEPARATION CRITERIA PRIOR TO BACKFILLING. THE EOR WILL ASSIST THE PROJECT TEAM IN DETERMINING THE APPROPRIATE MODIFICATIONS NEEDED IN ORDER TO MEET THE SEPARATION REQUIREMENTS. NO BACKFILLING SHALL OCCUR UNTIL AFTER THE MODIFICATIONS ARE APPROVED BY THE OWNER AND AHJ (IF REQUIRED), CORRECTIONS COMPLETED, AND CORRECTIONS HAVE BEEN FIELD VERIFIED.

ESTIMATED SEASONAL HIGH WATER LEVEL

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DCCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	BFP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)

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(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G. LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 858-4899

DATE	REVISIONS
	1
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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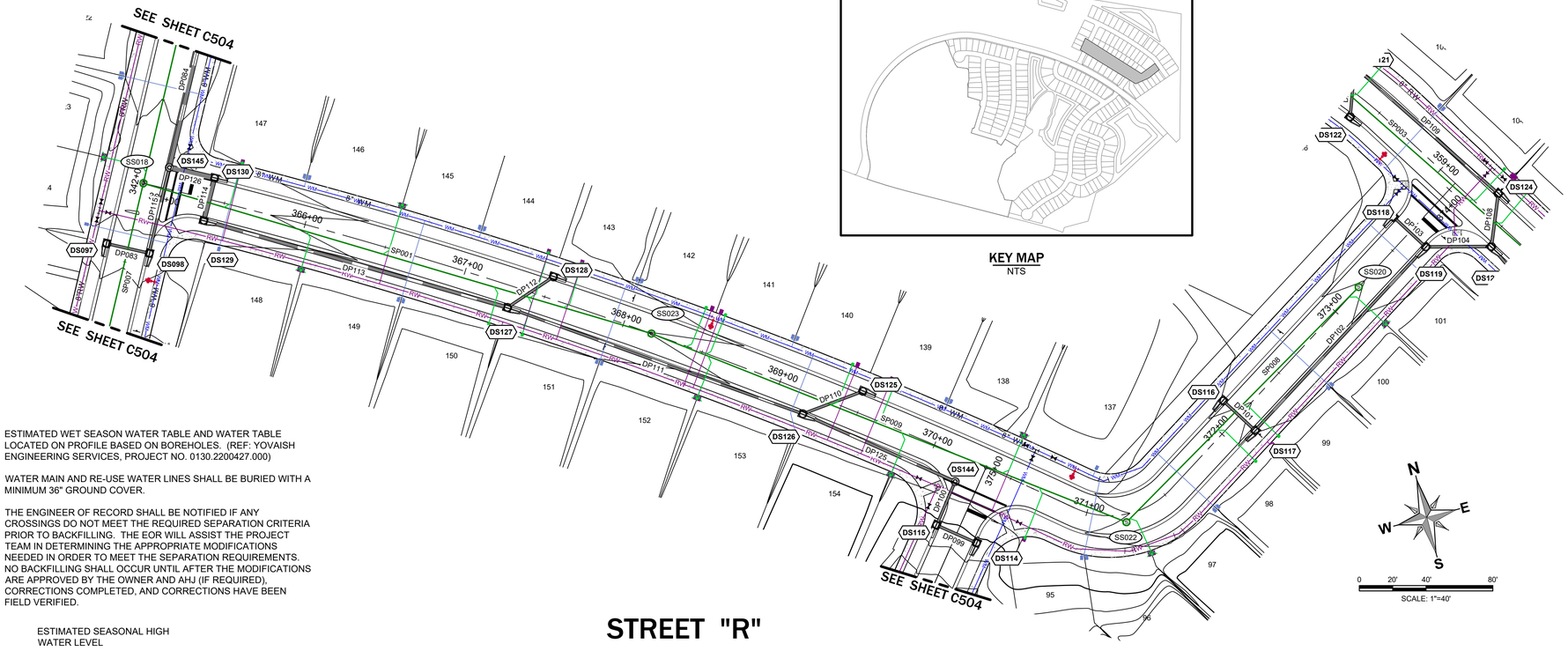

ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES, PROJECT NO. 0130.2200427.000)

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ESTIMATED SEASONAL HIGH WATER LEVEL

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
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		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
	OR	YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
	OR	BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	RPP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
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B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
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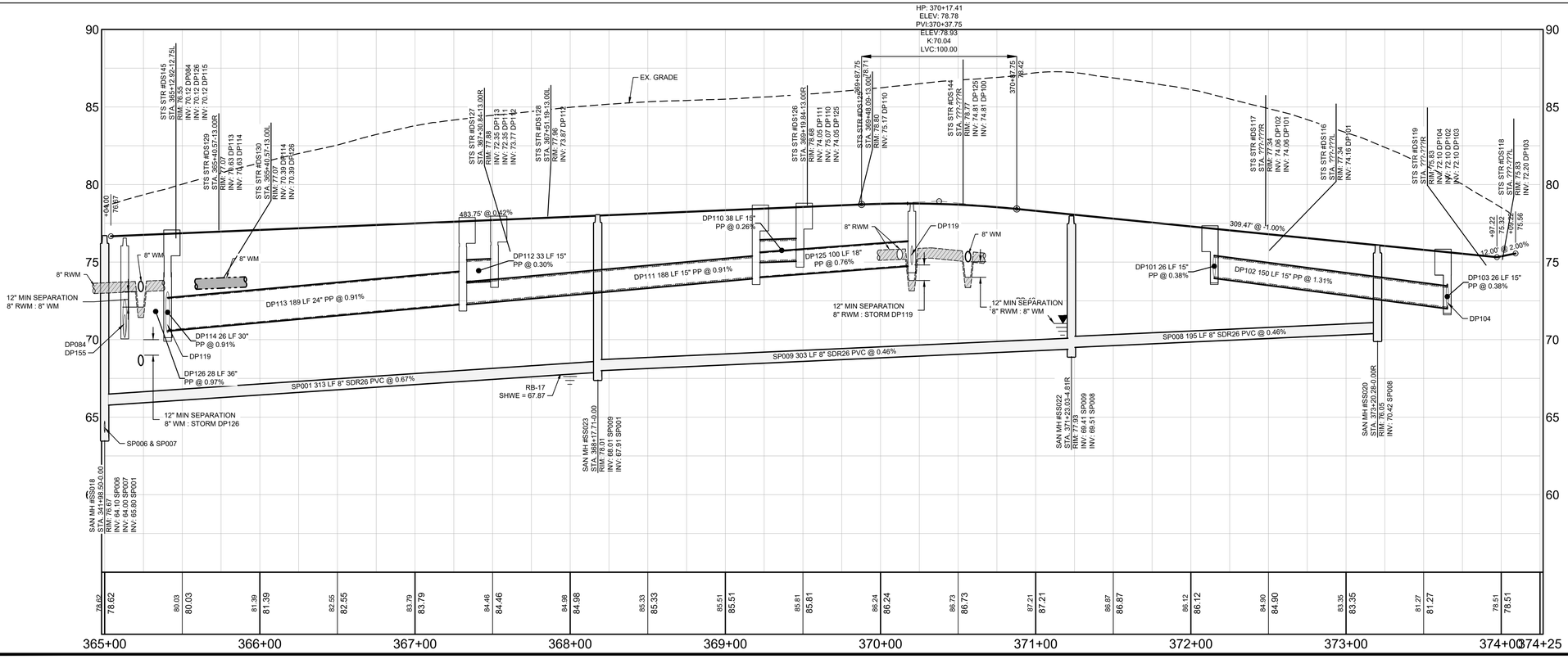

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FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

1	2	3	4	5	6	7	8	9	10	11		DATE
												REVISIONS

DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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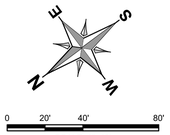
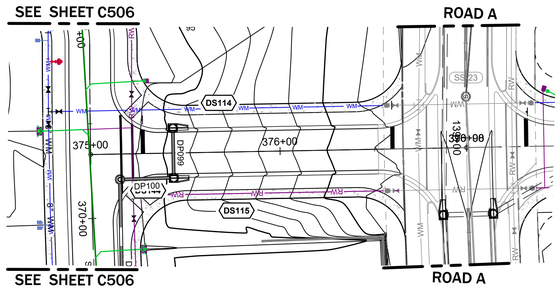
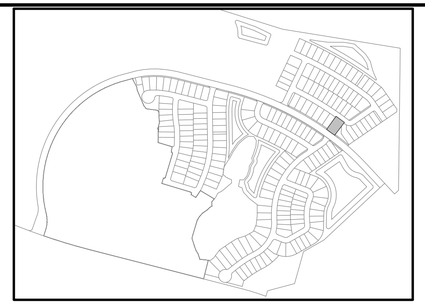




STREET "S"



KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
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		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
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ESTIMATED SEASONAL HIGH WATER LEVEL

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LAKE COUNTY FLORIDA

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9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
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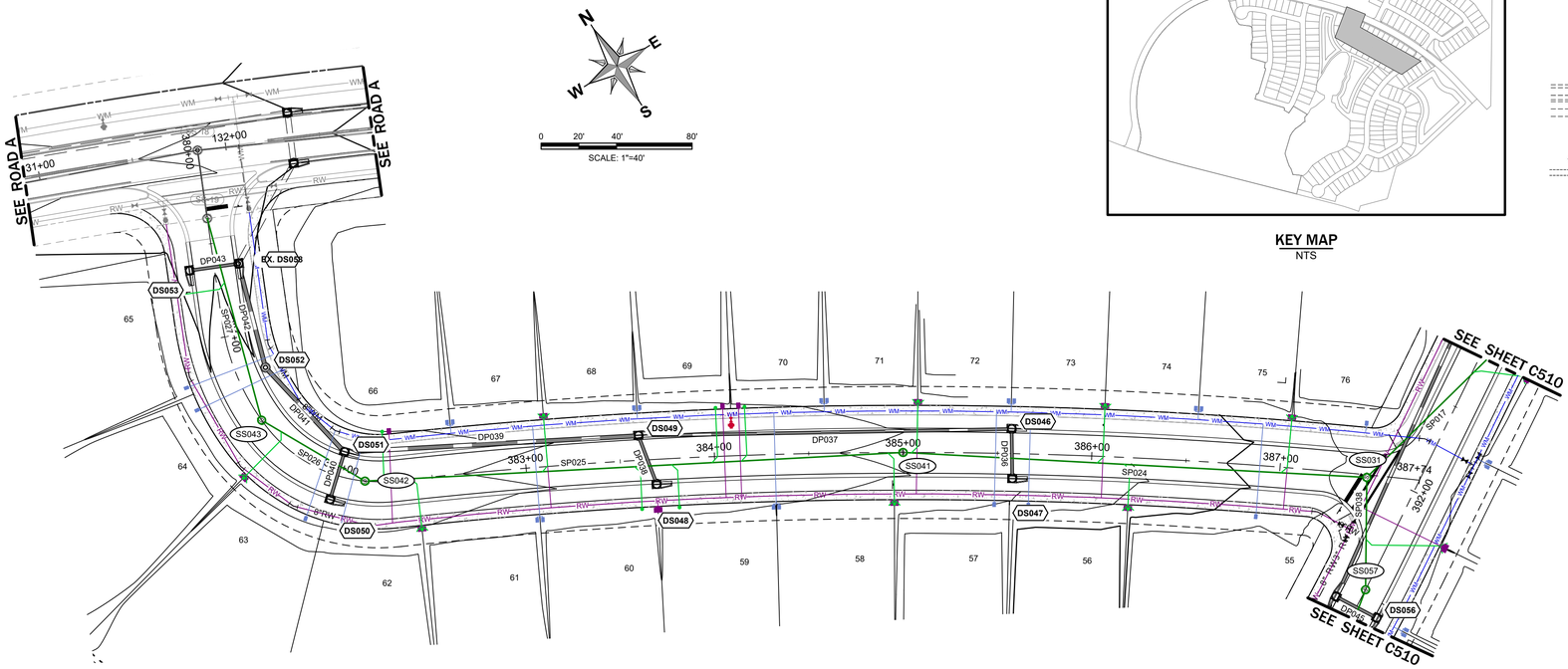
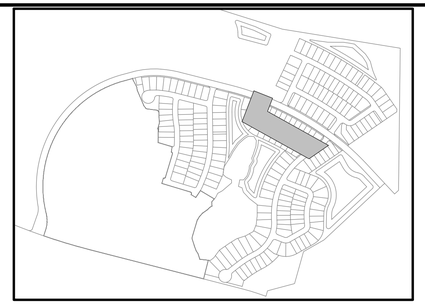


STREET "T"



KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
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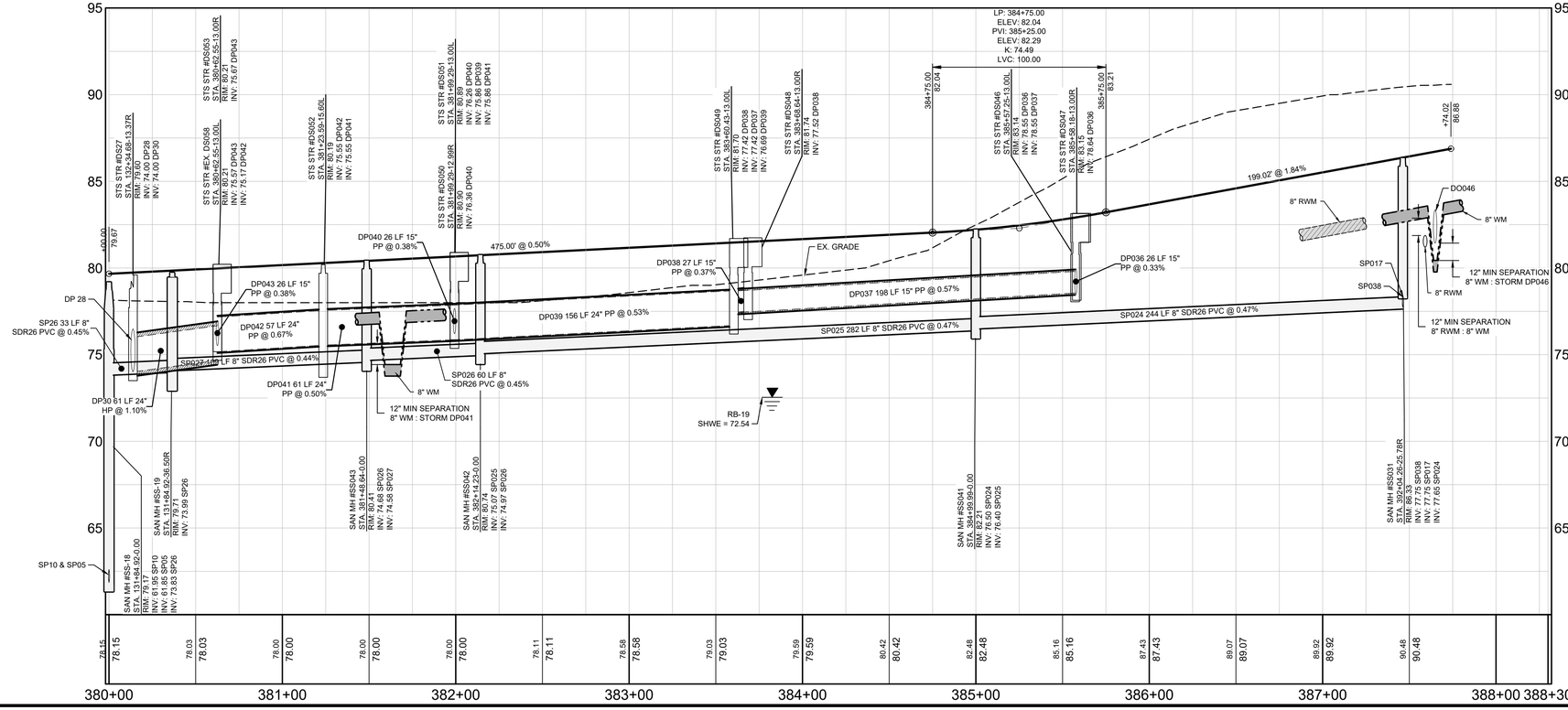

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ESTIMATED SEASONAL HIGH WATER LEVEL

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LAKE COUNTY FLORIDA

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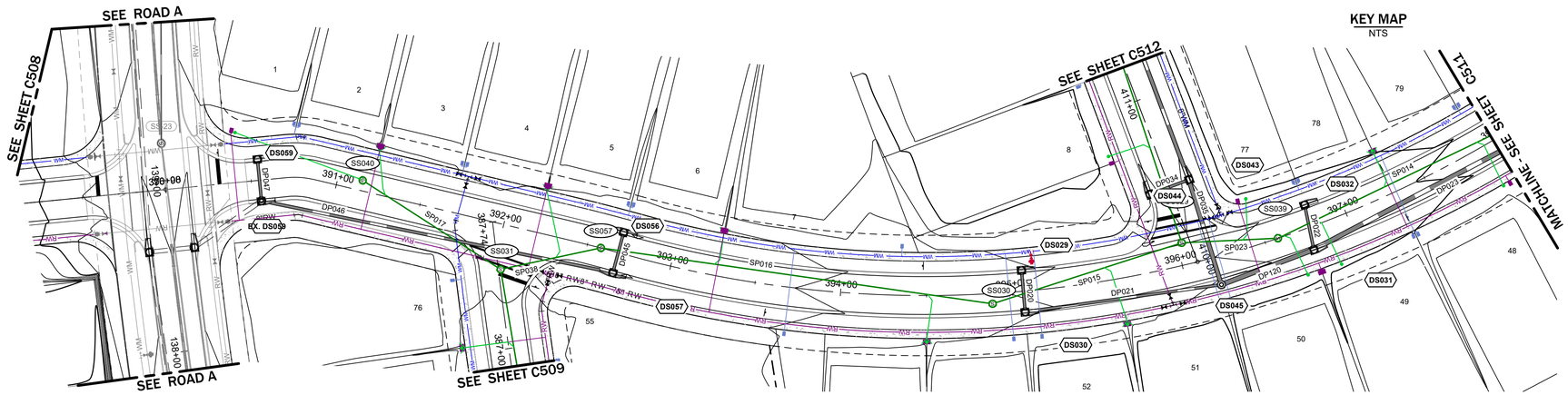
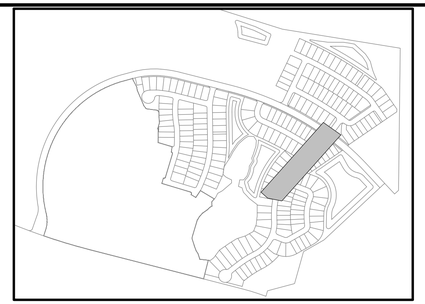
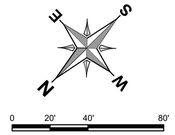


KEY MAP
NTS





LEGEND

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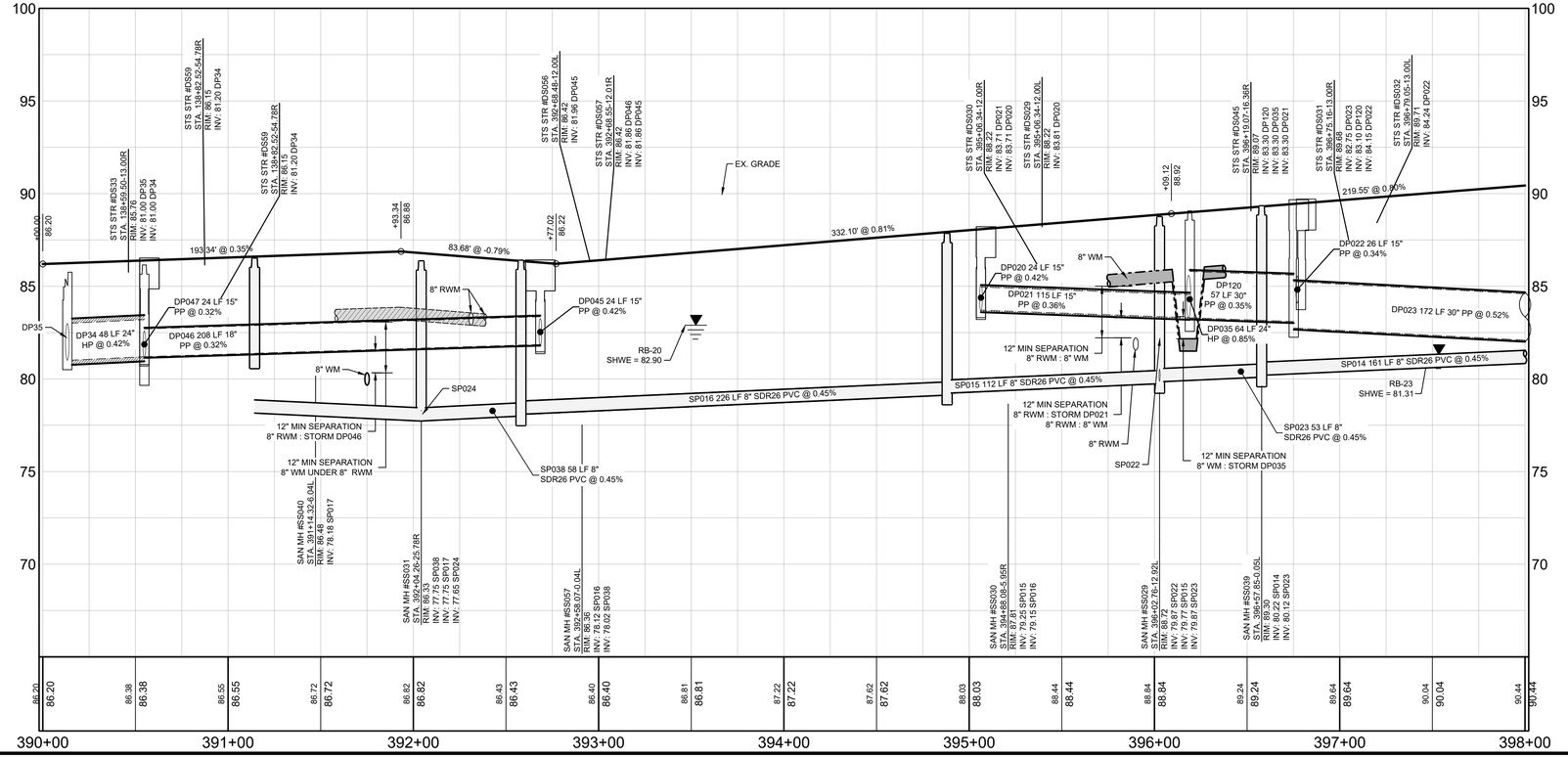

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LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5880 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C510

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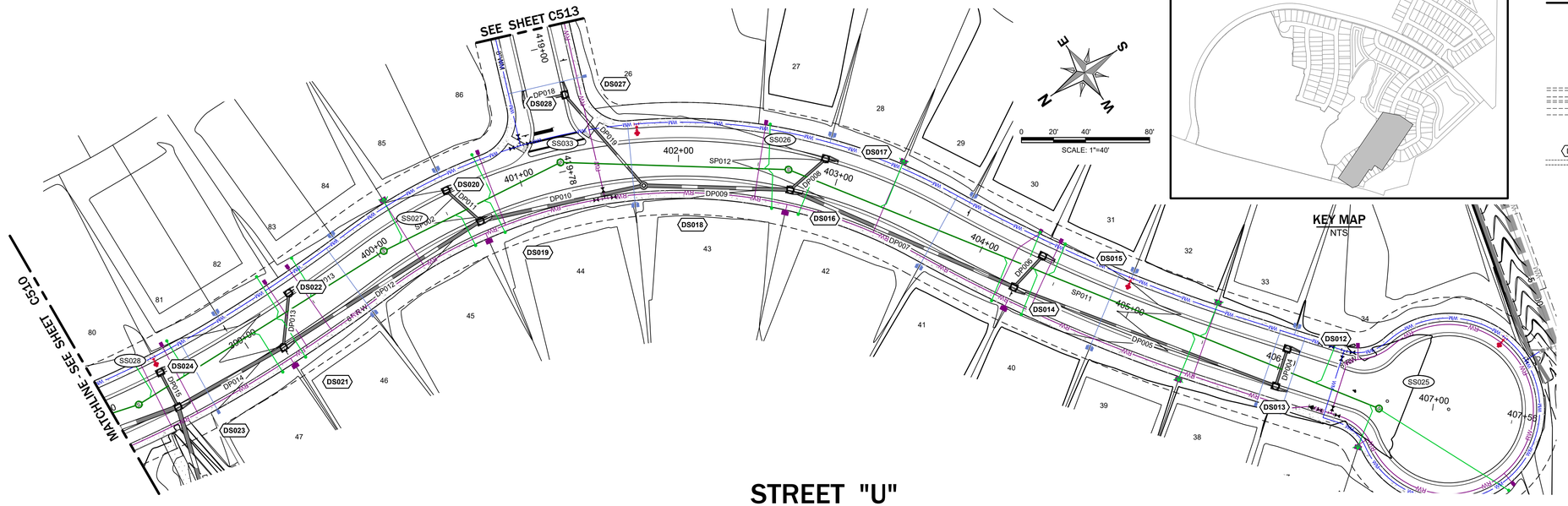
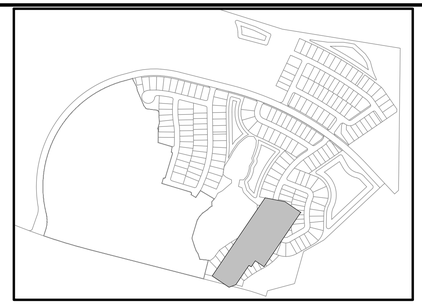


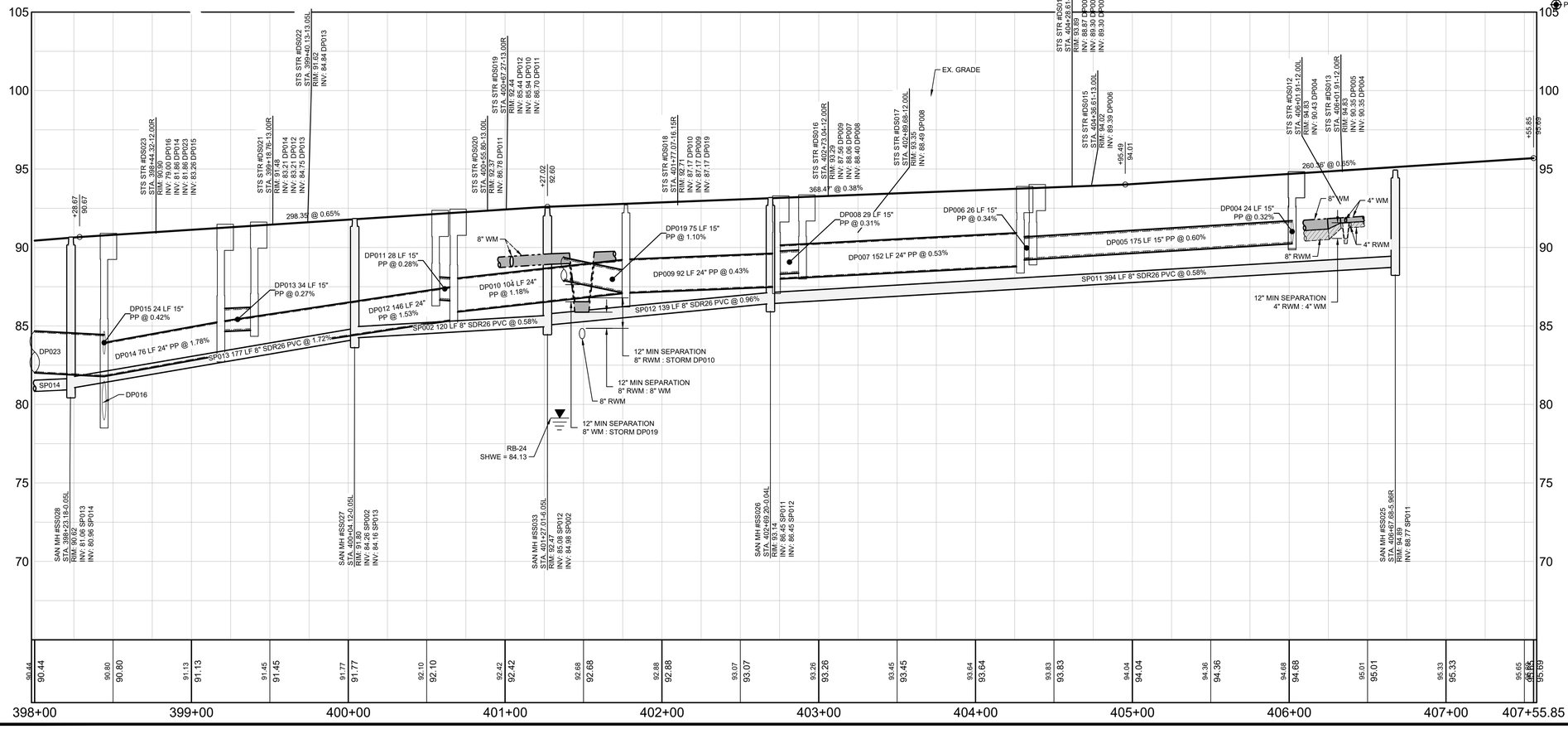


KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	BFP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
	B-1	SOIL BORING
	R-1	SOIL BORING (ROADWAY)
	P-1	SOIL BORING (POND)

HORZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES, PROJECT NO. 0130.2200427.000)

WATER MAIN AND RE-USE WATER LINES SHALL BE BURIED WITH A MINIMUM 36" GROUND COVER.

THE ENGINEER OF RECORD SHALL BE NOTIFIED IF ANY CROSSINGS DO NOT MEET THE REQUIRED SEPARATION CRITERIA PRIOR TO BACKFILLING. THE EOR WILL ASSIST THE PROJECT TEAM IN DETERMINING THE APPROPRIATE MODIFICATIONS NEEDED IN ORDER TO MEET THE SEPARATION REQUIREMENTS. NO BACKFILLING SHALL OCCUR UNTIL AFTER THE MODIFICATIONS ARE APPROVED BY THE OWNER AND AHJ (IF REQUIRED), CORRECTIONS COMPLETED, AND CORRECTIONS HAVE BEEN FIELD VERIFIED.

ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

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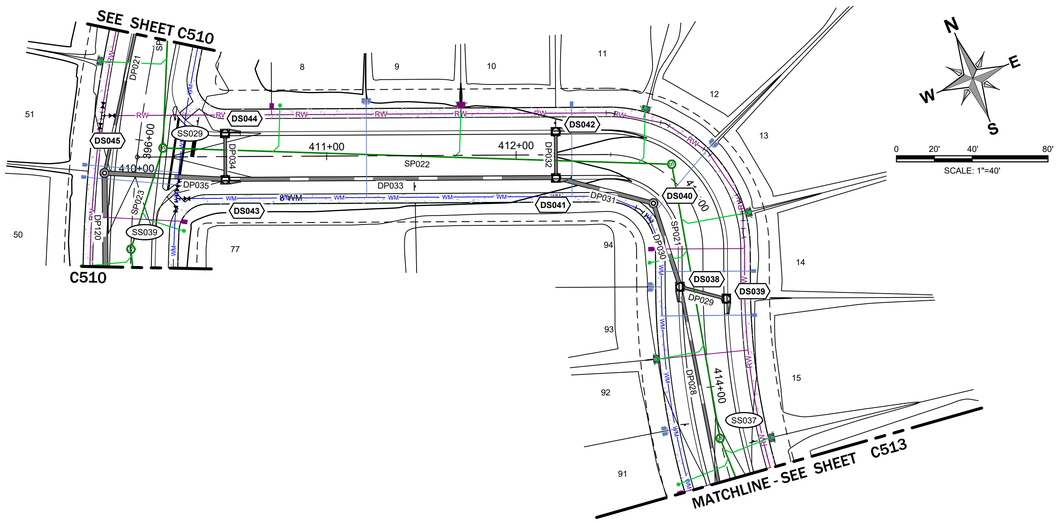

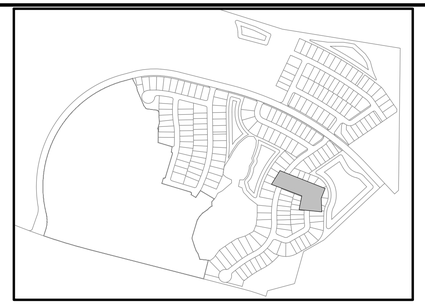

KEY MAP
NTS

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		LOT LINE
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		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
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	OR	TEE
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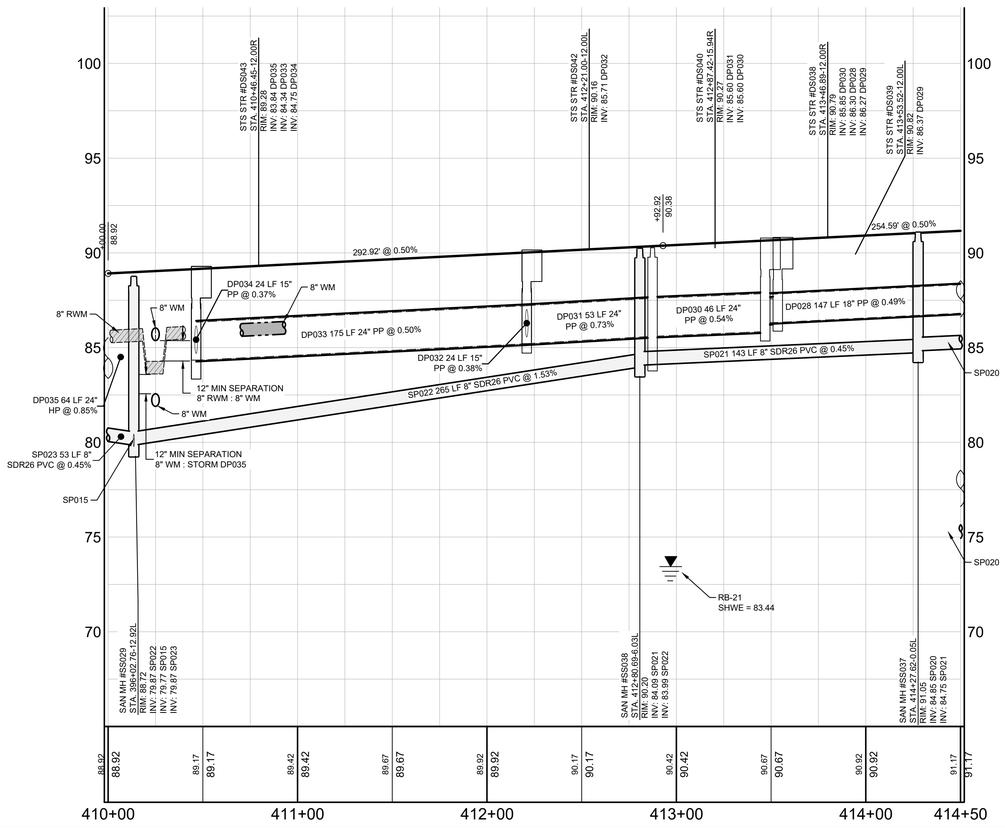
STREET "V"



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ESTIMATED SEASONAL HIGH WATER LEVEL

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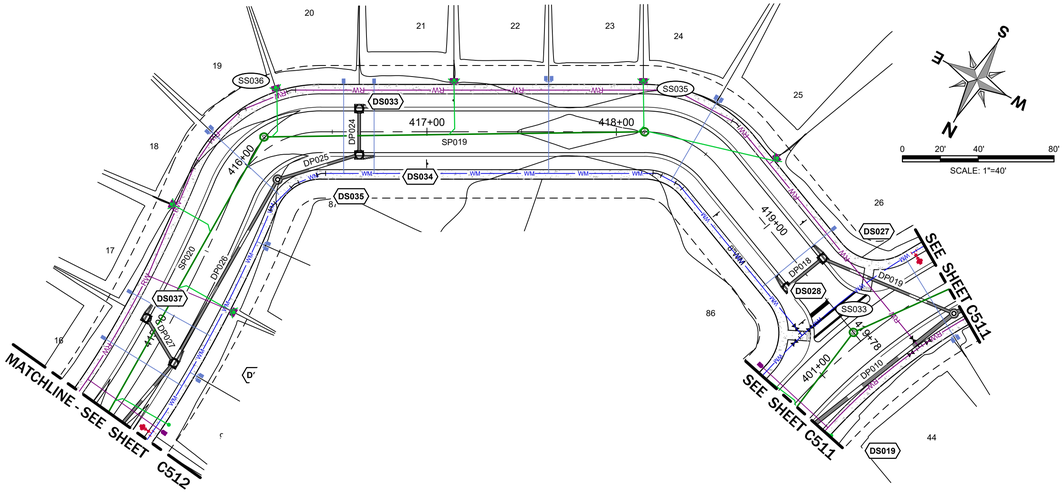

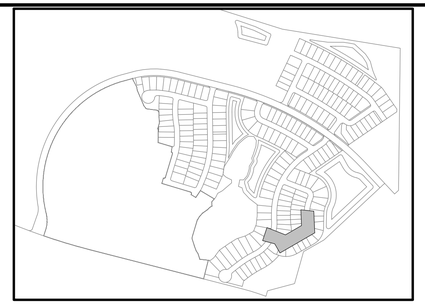

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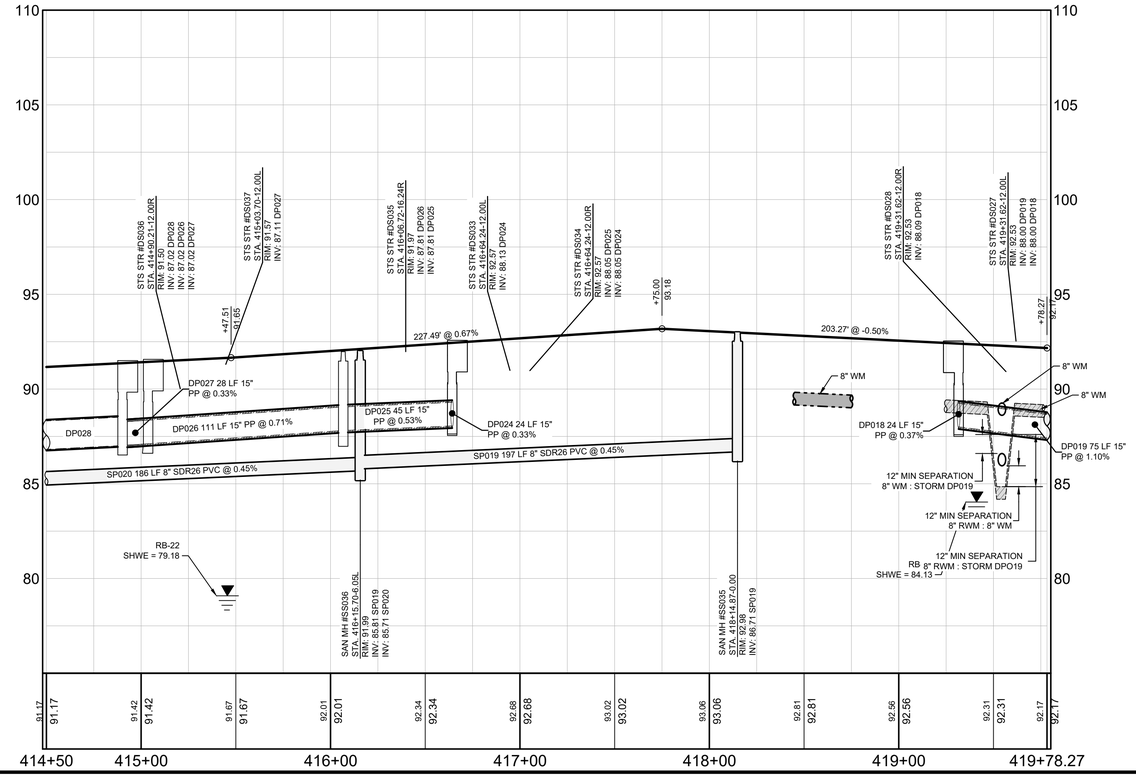

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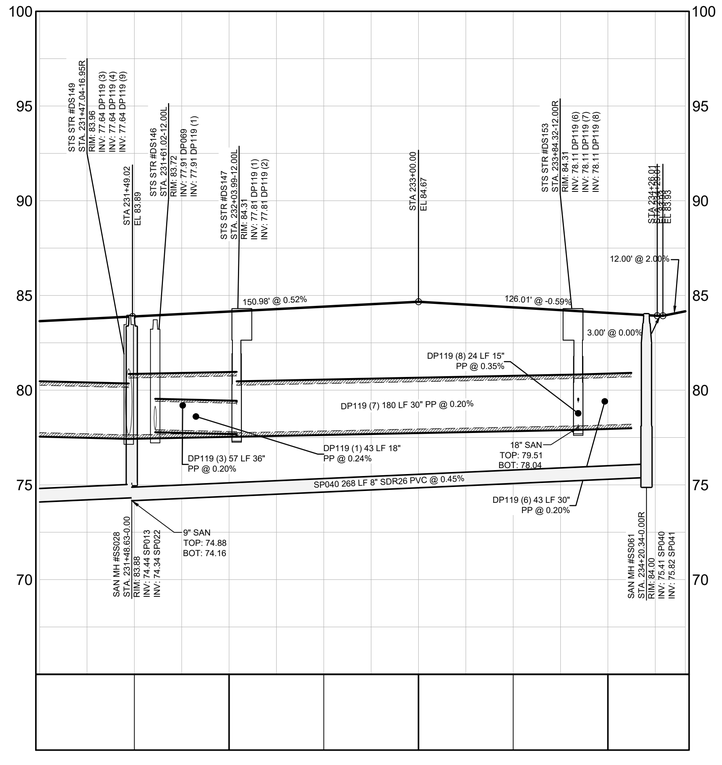

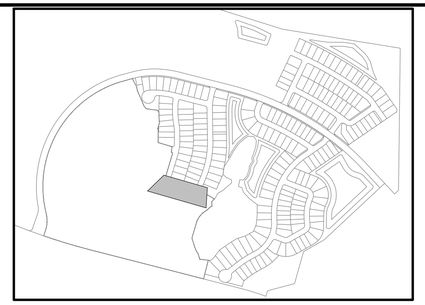

KEY MAP
NTS

LEGEND

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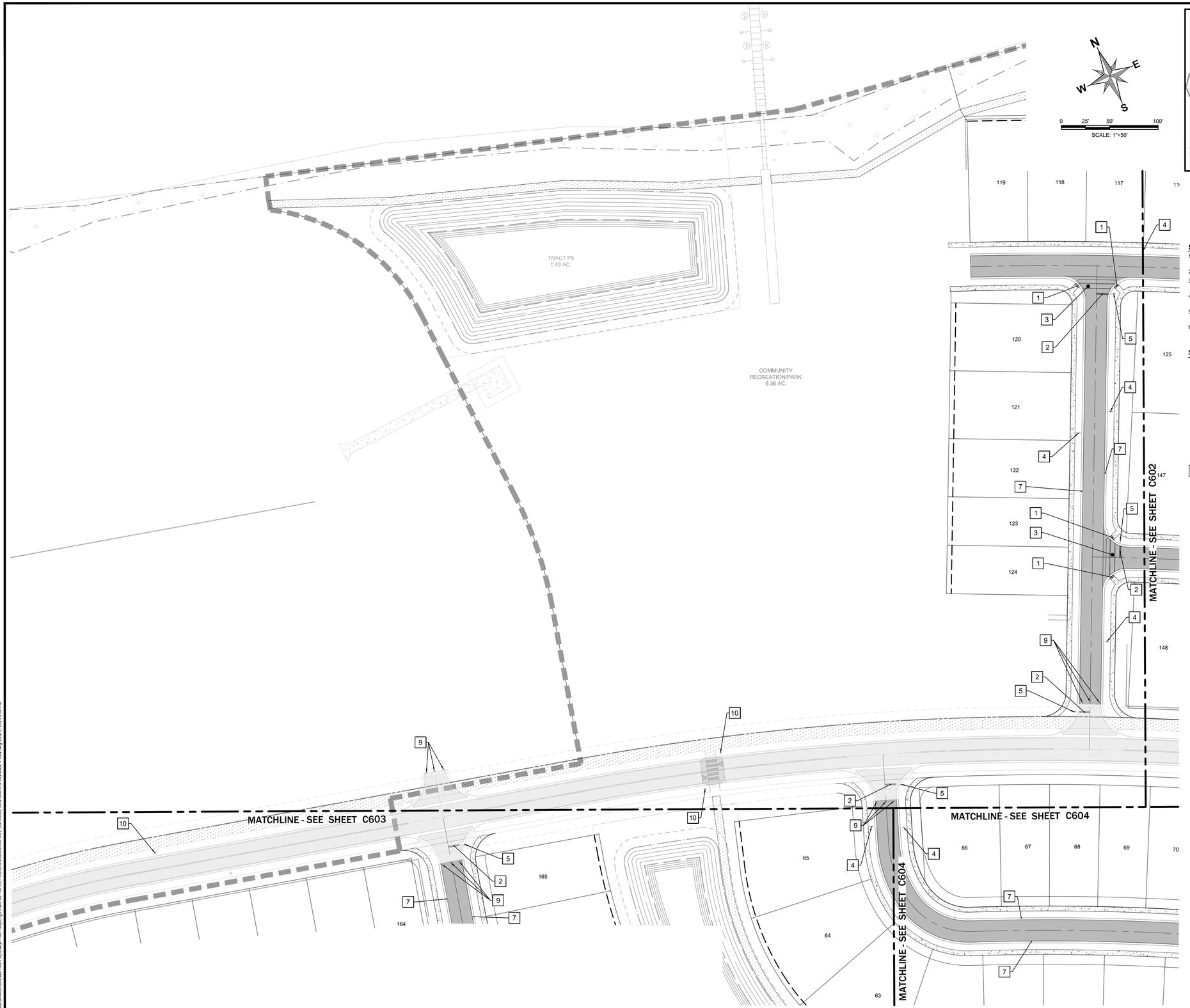
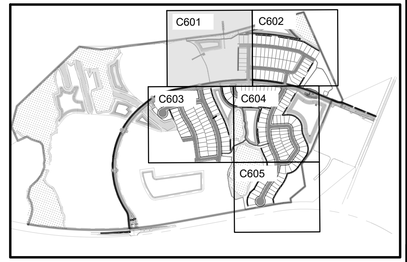


0 25' 50' 100'

SCALE: 1"=50'



KEY MAP
NTS

SIGNAGE NOTES
1. ALL STREET NAME SIGNS ARE TO BE WHITE ON BLUE INDICATING PRIVATE ROADS (NON-COUNTY).
2. ALL STREET SIGNS TO BE DECORATIVE.
3. ALL TEMPORARY DEAD END (9) BUTTON SIGN ARE TO BE NON-DECORATIVE.
4. CONTRACTOR MUST SUBMIT SIGNAGE SHOP DRAWINGS FOR APPROVAL.
5. ALL STRIPING WITHIN RIGHT OF WAY TO BE THERMOPLASTIC.
6. ALL REFLECTIVE PAVEMENT MARKINGS SHALL BE INSTALL PER FDOT INDEX 17352.

SIGN LEGEND: (PER FDOT INDEX 17349)

OM4-1
24" x 24"

R1-1
30" x 30"
HIGH INTENSITY

R2-1
18" x 24"
HIGH INTENSITY

PAVEMENT, SIDEWALK, & CURBING NOTES
1. DETECTABLE WARNING AND SIDEWALK RAMPS (FDOT INDEX 522-002)
2. 24" WHITE THERMOPLASTIC STOP BAR PER FDOT INDEX 711-001
3. CROSSWALK PER FDOT INDEX 711-011
4. SPEED LIMIT SIGN PER FDOT INDEX
5. R1-1 STOP SIGN PER FDOT INDEX
6. RIBBON CURB
7. TYPE "V" CURB
8. HANDICAP RAMP
9. EXISTING SIGN TO BE REMOVED
10. EXISTING SIGN TO BE SAVED

HATCH LEGEND
- TYPICAL SIDEWALKS
- INTERIOR WALKING TRAIL
- EXISTING WALKING TRAIL
- EXISTING SIDEWALK

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STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

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APPROVED BY:	DAS

C601

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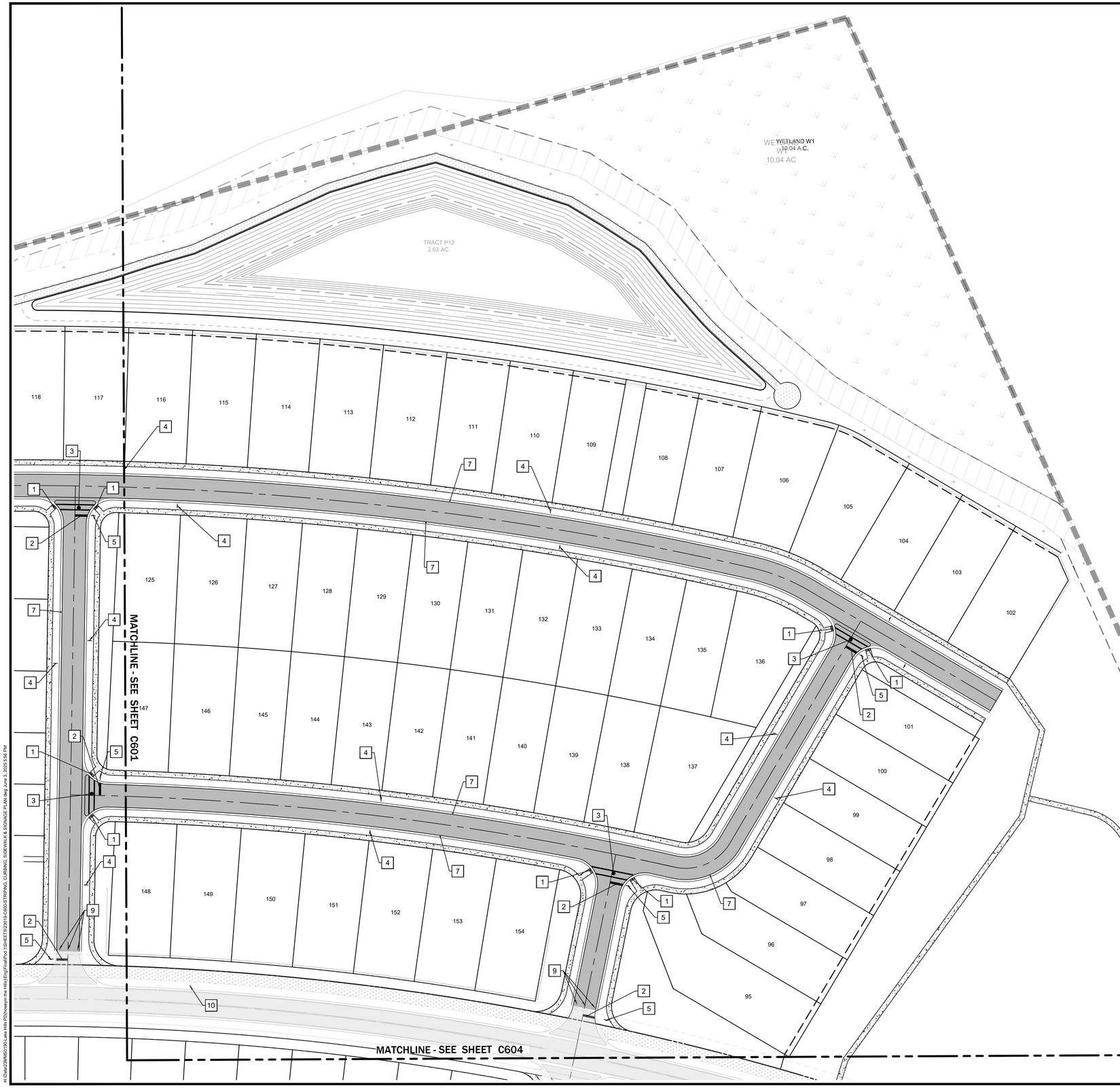

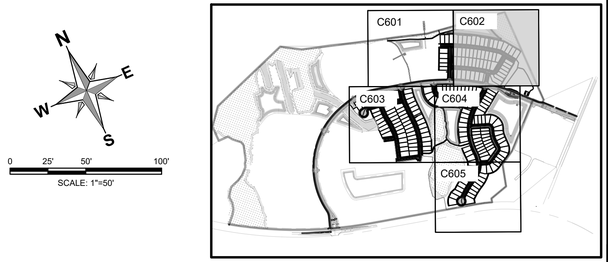

KEY MAP
NTS

SIGNAGE NOTES

1. ALL STREET NAME SIGNS ARE TO BE WHITE ON BLUE INDICATING PRIVATE ROADS (NON-COUNTY).
2. ALL STREET SIGNS TO BE DECORATIVE.
3. ALL TEMPORARY DEAD END (9) BUTTON SIGN ARE TO BE NON-DECORATIVE.
4. CONTRACTOR MUST SUBMIT SIGNAGE SHOP DRAWINGS FOR APPROVAL.
5. ALL STRIPING WITHIN RIGHT OF WAY TO BE THERMOPLASTIC.
6. ALL REFLECTIVE PAVEMENT MARKINGS SHALL BE INSTALL PER FDOT INDEX 17352.

SIGN LEGEND: (PER FDOT INDEX 17349)

OM4-1
24" x 24"

R1-1
30" x 30"
HIGH INTENSITY

R2-1
18" x 24"
HIGH INTENSITY

 # PAVEMENT, SIDEWALK, & CURBING NOTES

1. DETECTABLE WARNING AND SIDEWALK RAMPS (FDOT INDEX 522-002)
2. 24" WHITE THERMOPLASTIC STOP BAR PER FDOT INDEX 711-001
3. CROSSWALK PER FDOT INDEX 711-011
4. SPEED LIMIT SIGN PER FDOT INDEX
5. R1-1 STOP SIGN PER FDOT INDEX
6. RIBBON CURB
7. TYPE "V" CURB
8. HANDICAP RAMP
9. EXISTING SIGN TO BE REMOVED
10. EXISTING SIGN TO BE SAVED

HATCH LEGEND

- TYPICAL SIDEWALKS
- INTERIOR WALKING TRAIL
- EXISTING WALKING TRAIL
- EXISTING SIDEWALK

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9950 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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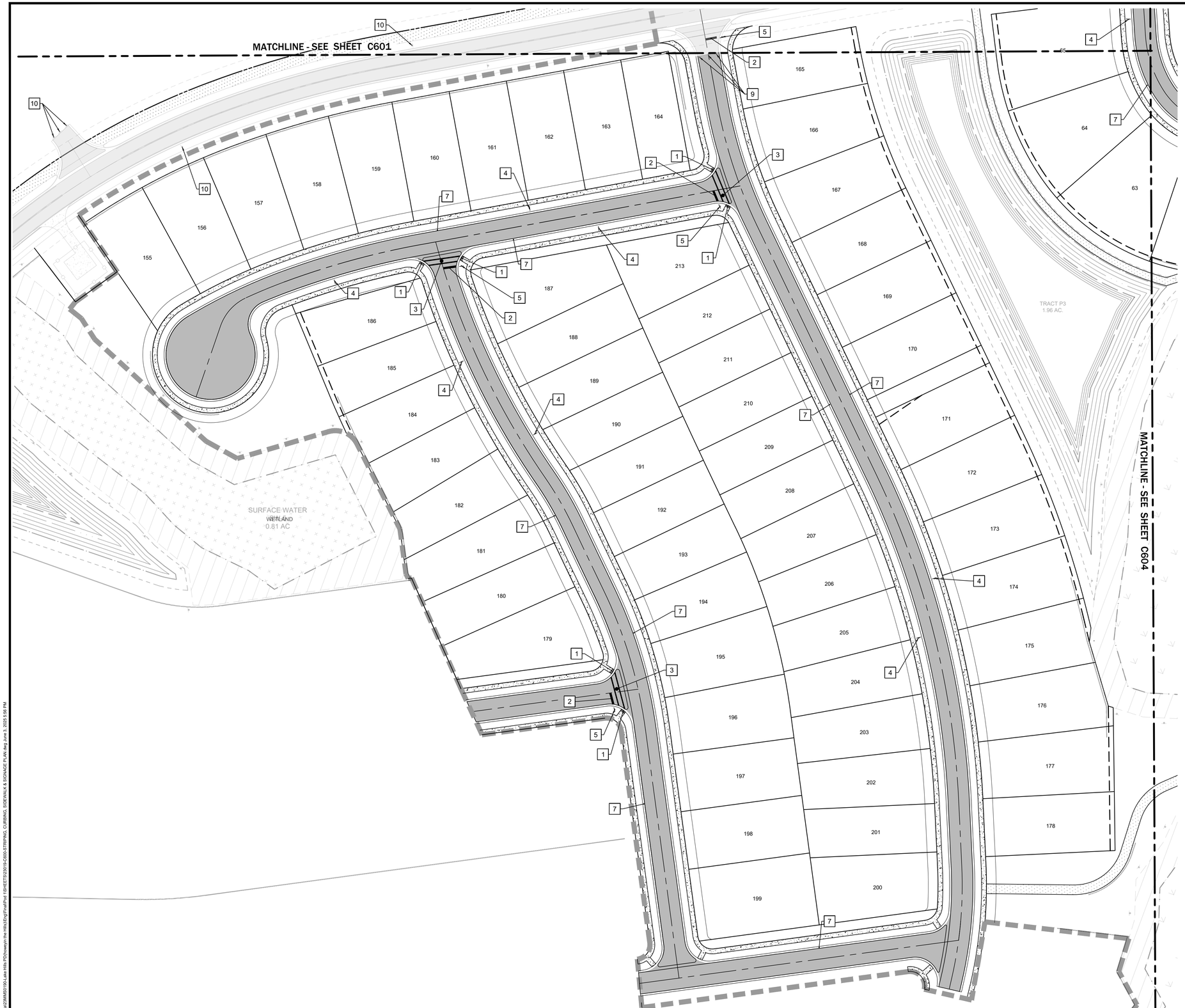

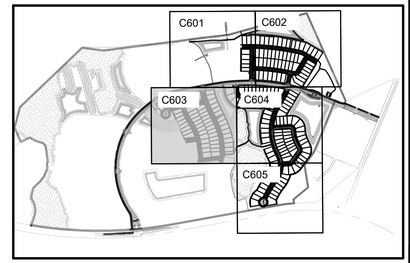

KEY MAP
NTS

N E S W

0 25' 50' 100'

SCALE: 1"=50'

SIGNAGE NOTES
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SIGN LEGEND: (PER FDOT INDEX 17349)

OM4-1
24" x 24"

STOP
R1-1
30" x 30"
HIGH INTENSITY

SPEED LIMIT 25
R2-1
18" x 24"
HIGH INTENSITY

PAVEMENT, SIDEWALK, & CURBING NOTES
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HATCH LEGEND
- TYPICAL SIDEWALKS
- INTERIOR WALKING TRAIL
- EXISTING WALKING TRAIL
- EXISTING SIDEWALK

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CA# 0007723

STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
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APPROVED BY: DAS

C603

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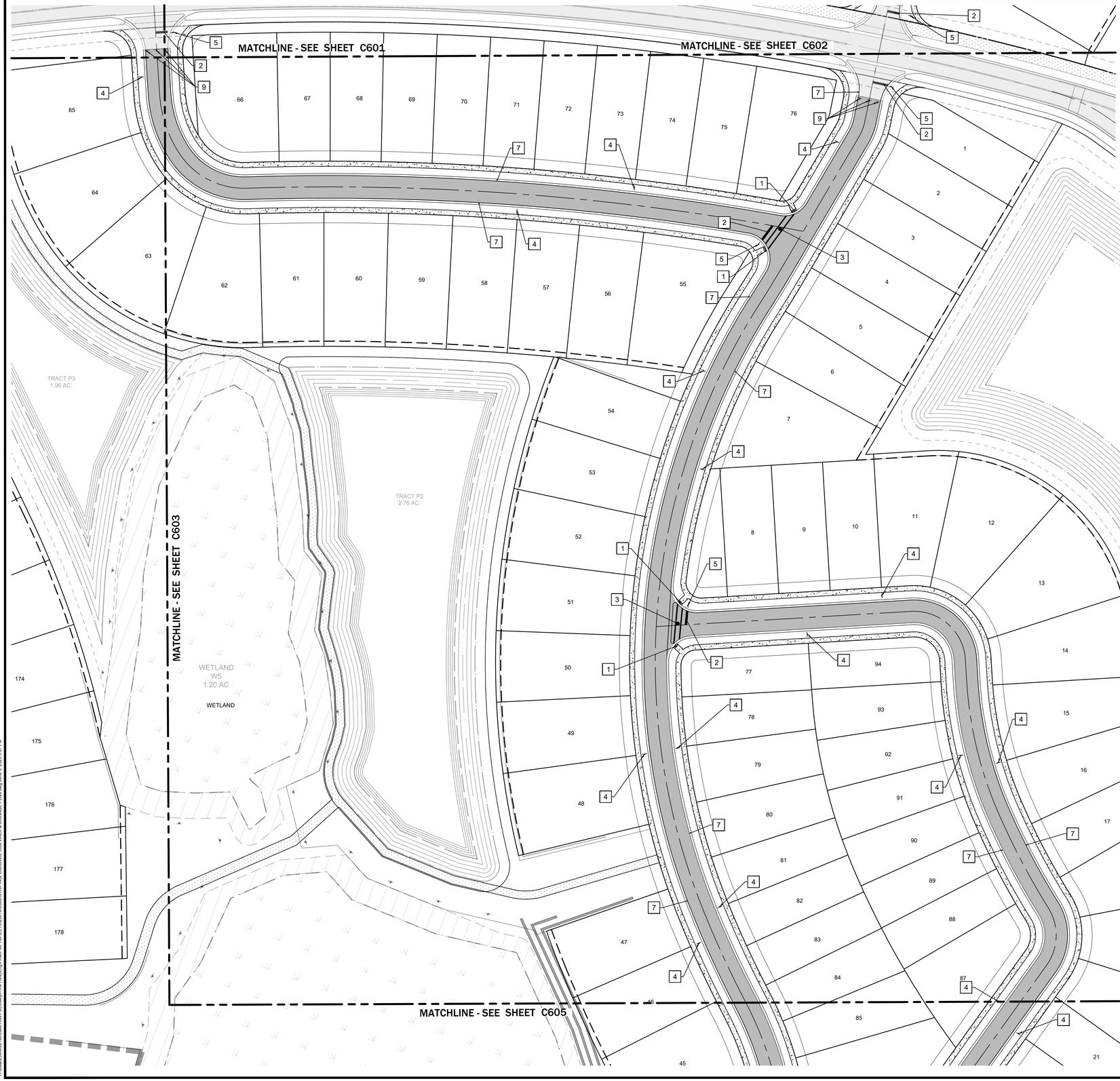

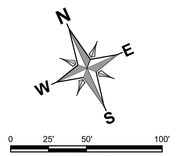

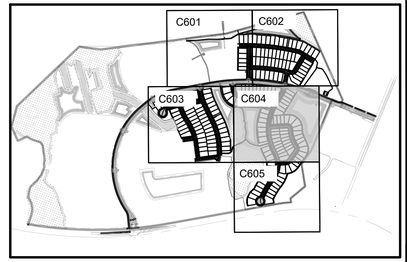

KEY MAP
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30" x 30"
HIGH INTENSITY

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18" x 24"
HIGH INTENSITY

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HATCH LEGEND
- TYPICAL SIDEWALKS
- INTERIOR WALKING TRAIL
- EXISTING WALKING TRAIL
- EXISTING SIDEWALK

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CIVIL ENGINEERS
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CA# 0007723

STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5859 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 858-4899

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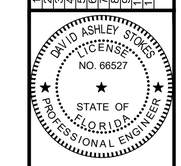

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DATUM: NAVD 88
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DRAWN BY: JSK
APPROVED BY: DAS

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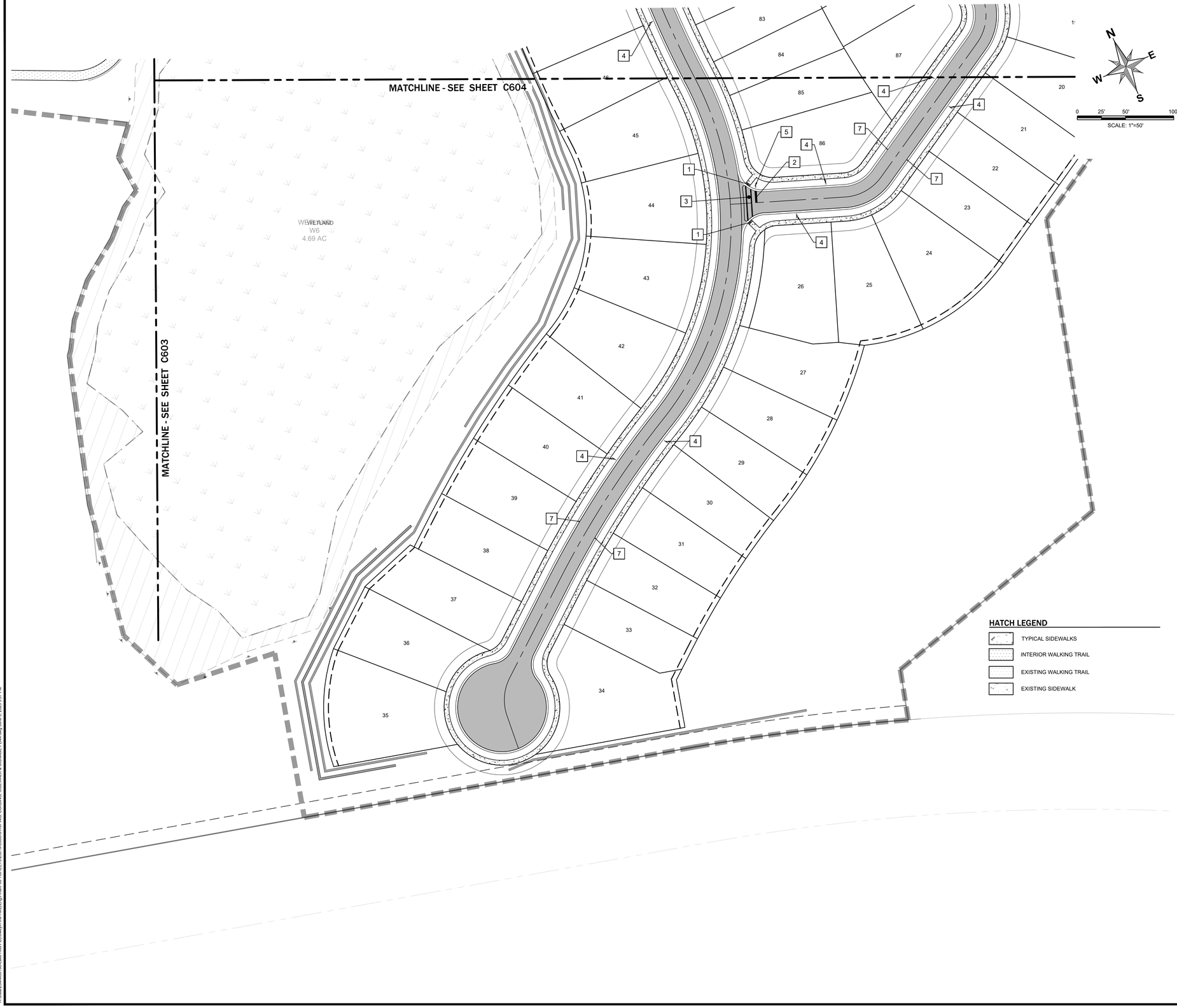

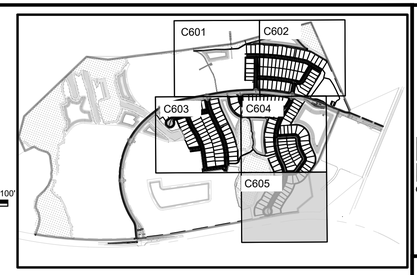

KEY MAP
NTS

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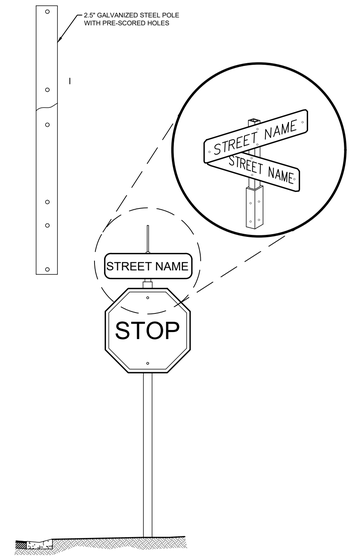
- EXISTING SIDEWALK



SIGN MOUNTING DETAIL
NTS

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY, FLORIDA

READERS & PARTNERS, LLC
3850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 895-8899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C605

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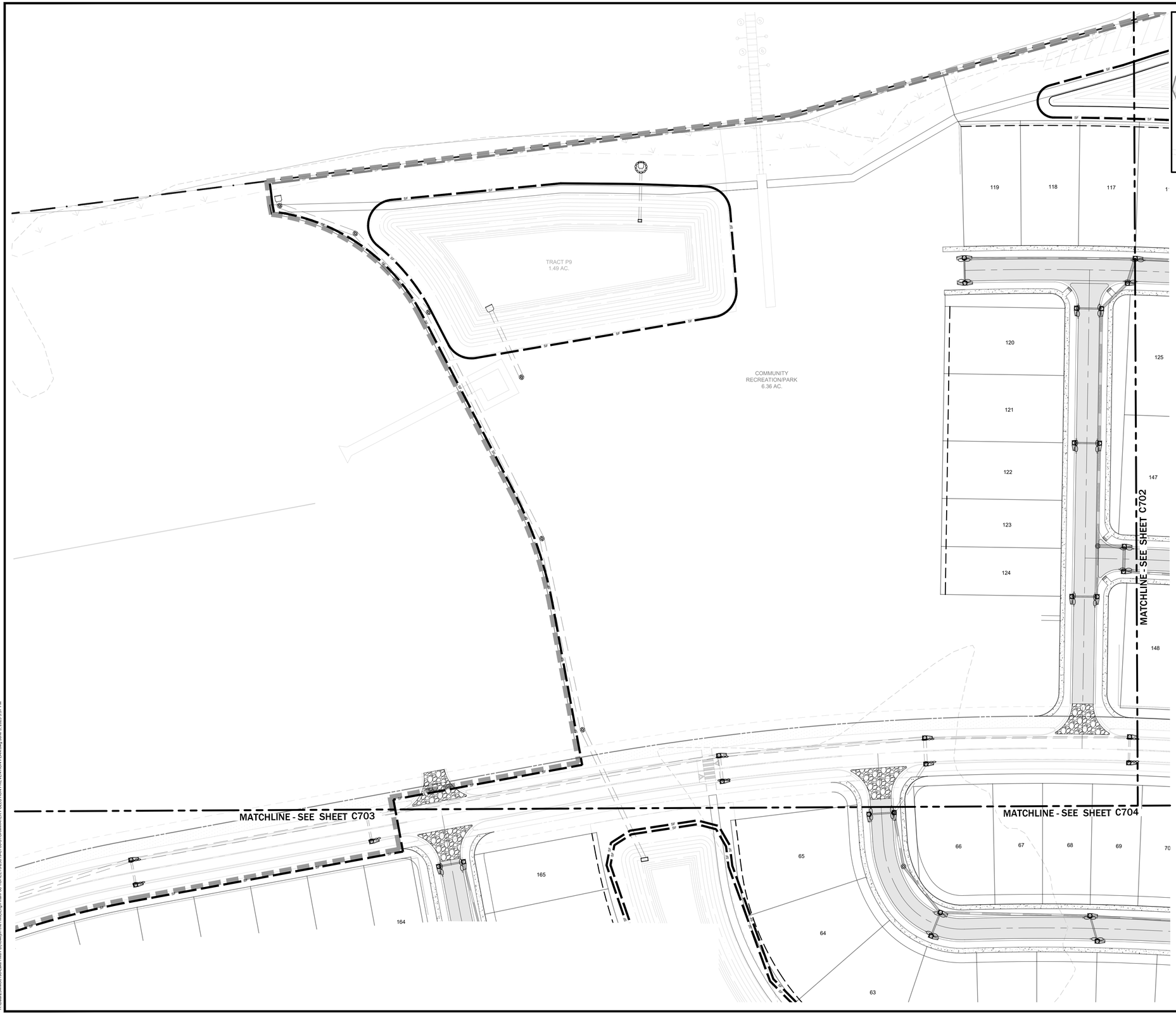

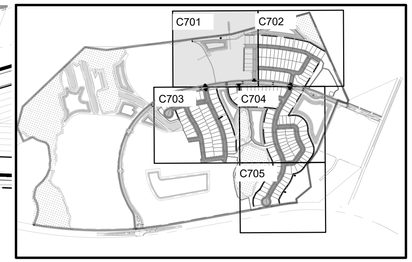

KEY MAP
NTS

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0 25' 50' 100'
SCALE: 1"=50'

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STORMWATER POLLUTION PREVENTION PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
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NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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DATUM: NAVD 88
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APPROVED BY: DAS

C701

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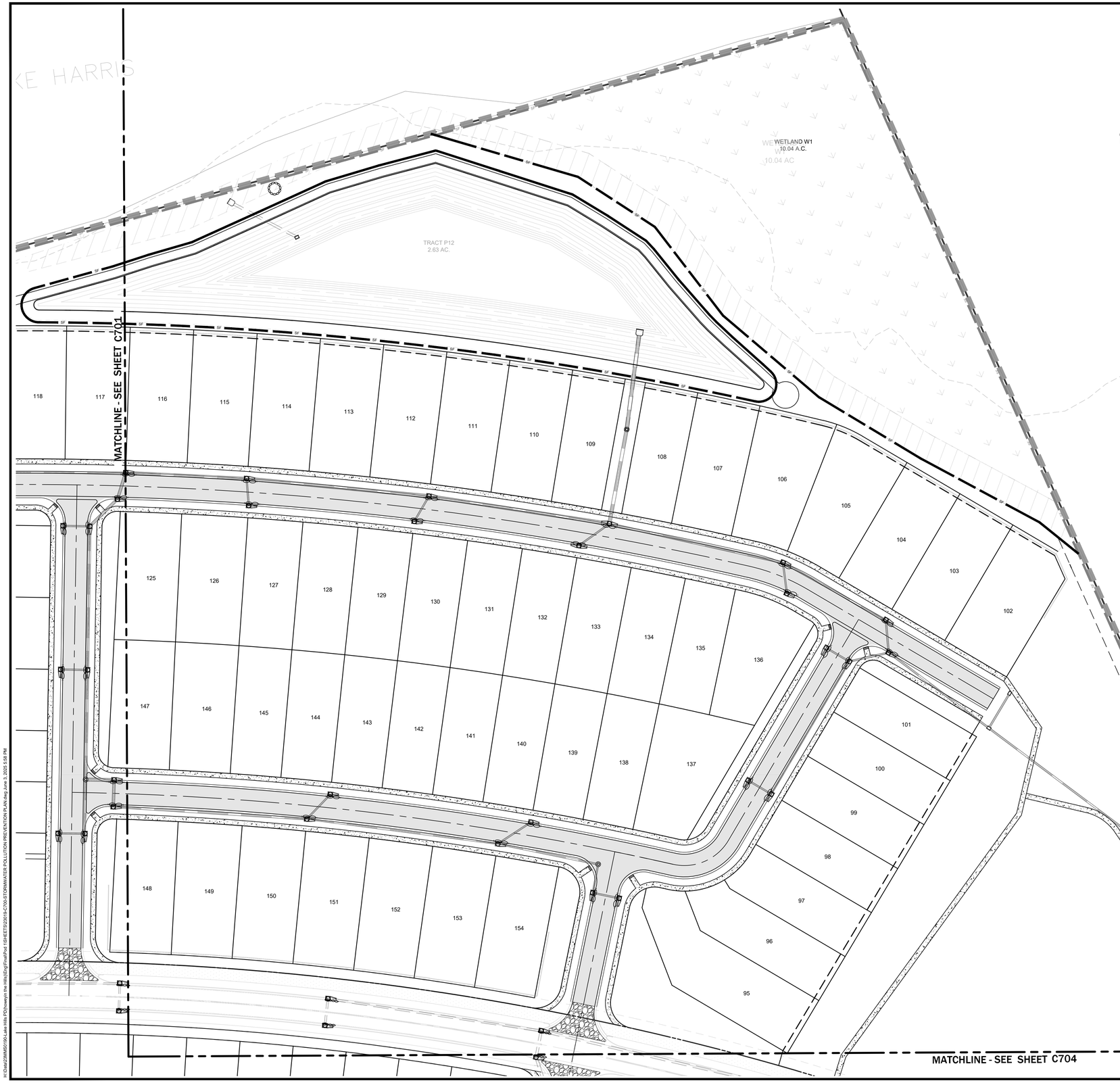

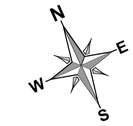

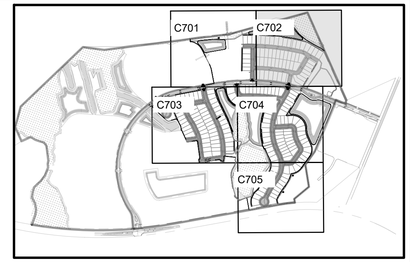

KEY MAP
NTS

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STORMWATER POLLUTION PREVENTION PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
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PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
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DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C702

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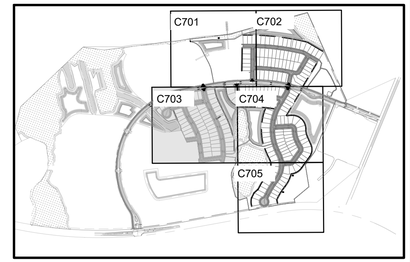
MATCHLINE - SEE SHEET C701

MATCHLINE - SEE SHEET C704

TRACT P3
1.96 AC.

SURFACE WATER
WETLAND
0.81 AC



KEY MAP
NTS

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0 25' 50' 100'
SCALE: 1"=50'

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MOORHEAD & STOKES, LLC
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STORMWATER POLLUTION PREVENTION PLAN
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LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

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ORLANDO FL, 32822
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	DATE	REVISIONS
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APPROVED BY: DAS

C703

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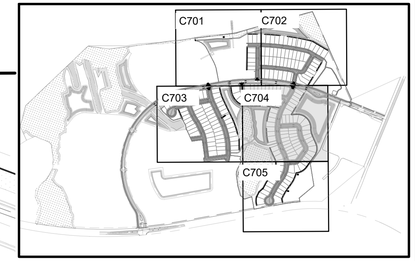
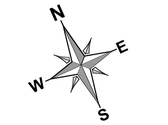


KEY MAP
NTS



0 25' 50' 100'
SCALE: 1"=50'

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STORMWATER POLLUTION PREVENTION PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 858-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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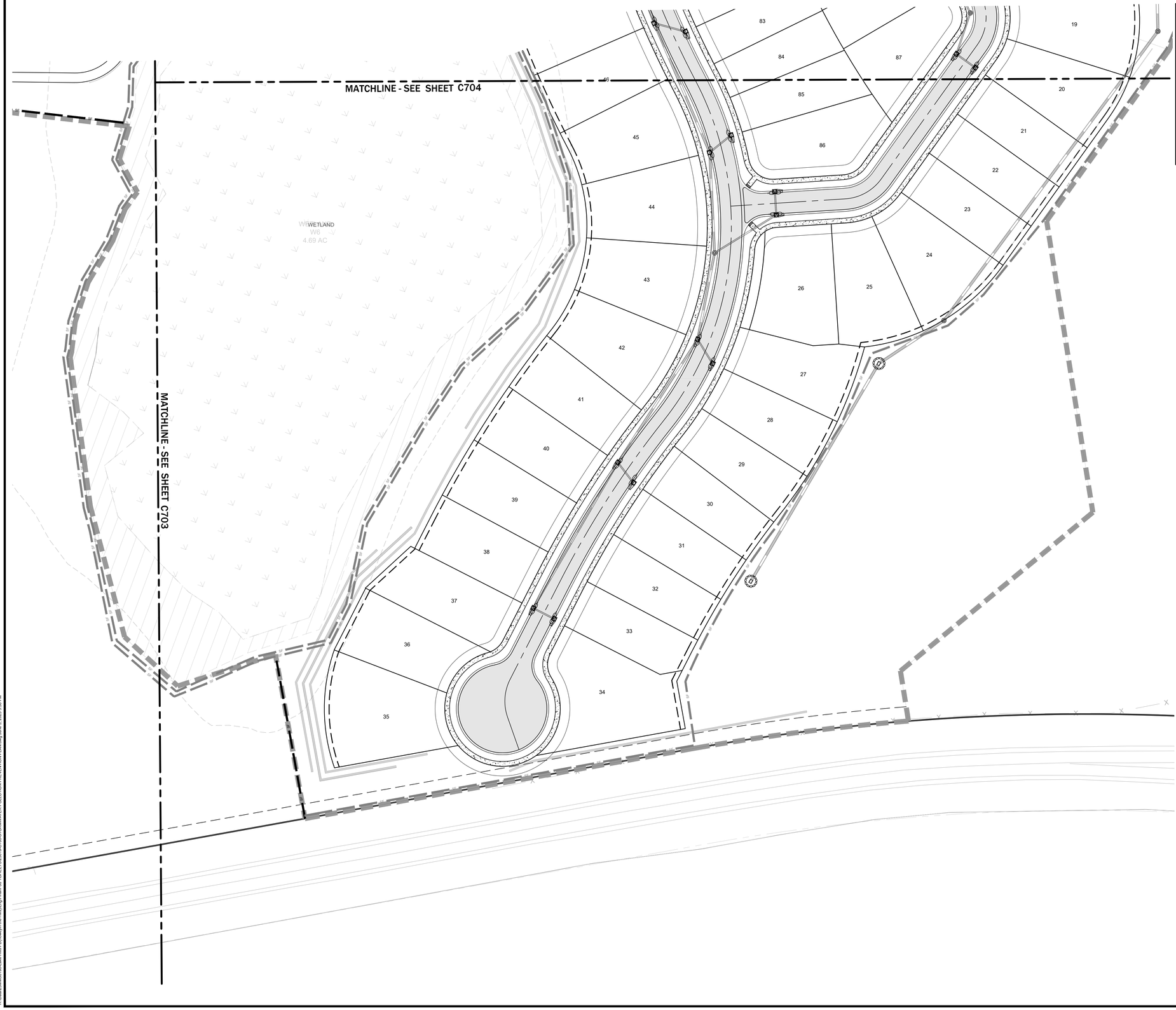

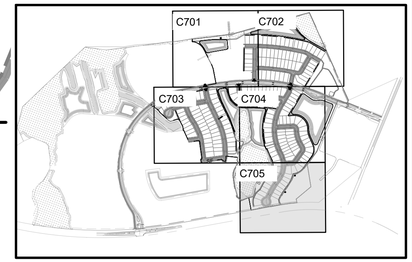

KEY MAP
NTS

N
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0 25' 50' 100'
SCALE: 1"=50'

SIDEWALK & CURBING NOTES

1. RIBBON CURB
2. TYPE "D" CURB
3. HANDICAP RAMP

LEGEND

- 5' WIDE SIDEWALK
- 7' WIDE SIDEWALK
- 7' THICKENED EDGE SIDEWALK
- 10' WIDE SIDEWALK

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STORMWATER POLLUTION PREVENTION PLAN
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LAKE COUNTY FLORIDA

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APPROVED BY: DAS

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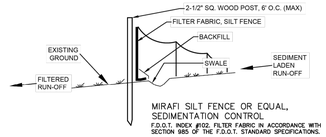


MIRAFI SILT FENCE OR EQUAL, SEDIMENTATION CONTROL

F.D.O.T. INDEX #102. FILTER FABRIC IN ACCORDANCE WITH SECTION 985 OF THE F.D.O.T. STANDARD SPECIFICATIONS.

NOTES:

1. TEMPORARY EROSION CONTROL STRUCTURE TO BE UTILIZED DURING CONSTRUCTION AT AREAS DESIGNATED BY ENGINEER OR AREAS ON-SITE WHERE UNSTABILIZED GRADES MAY CAUSE EROSION PROBLEMS. EROSION CONTROL STRUCTURE MAY BE REMOVED AFTER UPSLOPE AREA HAS BEEN STABILIZED BY SOD, OR COMPACTED AS DETERMINED BY CONTRACTOR.
2. CONSTRUCT STORMWATER SYSTEMS BEFORE ANY BUILDING OR ROAD CONSTRUCTION IS STARTED.
   a.) PROTECT SYSTEM FROM SILTING AND DEBRIS BY METHODS PROVIDED IN DETAILS.
   b.) PROTECT SWALE BOTTOM FROM SEALING BY EXCAVATING ALL SILT DEPOSITS DURING CONSTRUCTION. THIS SHALL BE DONE BEFORE SOD & SEEDING & MULCHING IS FINISHED

THE FOLLOWING LIST REPRESENTS A BASIC EROSION AND SEDIMENT CONTROL PROGRAM WHICH IS TO BE IMPLEMENTED TO HELP PREVENT OFF-SITE SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROJECT.

PERMANENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AT THE EARLIEST PRACTICAL TIME CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. ONE OF THE FIRST CONSTRUCTION ACTIVITIES SHOULD BE THE PLACEMENT OF PERMANENT AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AROUND THE PERIMETER OF THE PROJECT OR THE INITIAL WORK AREA TO PROTECT THE PROJECT, ADJACENT PROPERTIES AND WATER RESOURCES.

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS CONTROL THROUGHOUT THE CONSTRUCTION PHASE. TEMPORARY MEASURES SHALL NOT BE CONSTRUCTED FOR EXPEDIENCY IN LIEU OF PERMANENT MEASURES.

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ADEQUATELY MAINTAINED TO PERFORM THEIR INTENDED FUNCTION DURING CONSTRUCTION OF THE PROJECT.

NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BARRIERS SHALL BE ACCOMPLISHED PROMPTLY.

SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

MATERIAL FROM SEDIMENT TRAPS SHALL NOT BE STOCKPILED OR DISPOSED OF IN A MANNER WHICH MAKES THEM READILY SUSCEPTIBLE TO BEING WASHED INTO ANY WATERCOURSE BY RUNOFF OR HIGH WATER.

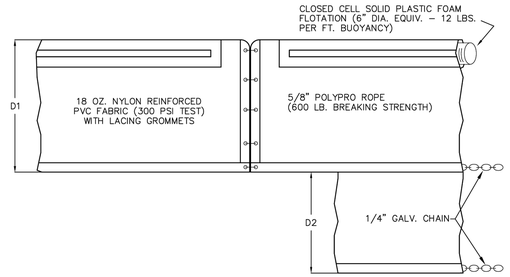
ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

EROSION & SEDIMENT CONTROL (N.T.S.)

Howey-in-the-Hills Standard Details

DATE: FEB 2022

DETAIL G-1



D1 - 5 FT. STANDARD, SINGLE PANEL FOR DEPTHS 5 FT. OR LESS

D2 - 5 FT. STANDARD, ADDITIONAL PANEL FOR DEPTHS GREATER THAN 5 FT.

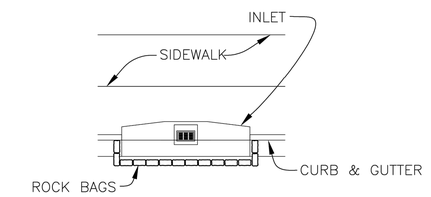
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FT. TWO PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FT., UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN PLANS OR DESIGNATED BY ENGINEER.

FLOATING TURBIDITY BARRIER (N.T.S.)

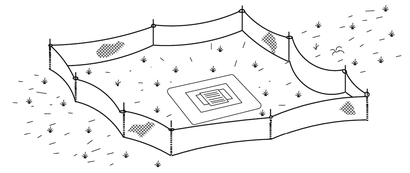
Howey-in-the-Hills Standard Details

DATE: FEB 2022

DETAIL G-2



CURB INLET



TYPE III SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS

ALTERNATE DESIGNS MAY BE PROPOSED BY ENGINEER

INLET PROTECTION (N.T.S.)

Howey-in-the-Hills Standard Details

DATE: FEB 2022

DETAIL G-3

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MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STORMWATER POLLUTION PREVENTION DETAILS FOR LAKE HILLS PHASE 1 LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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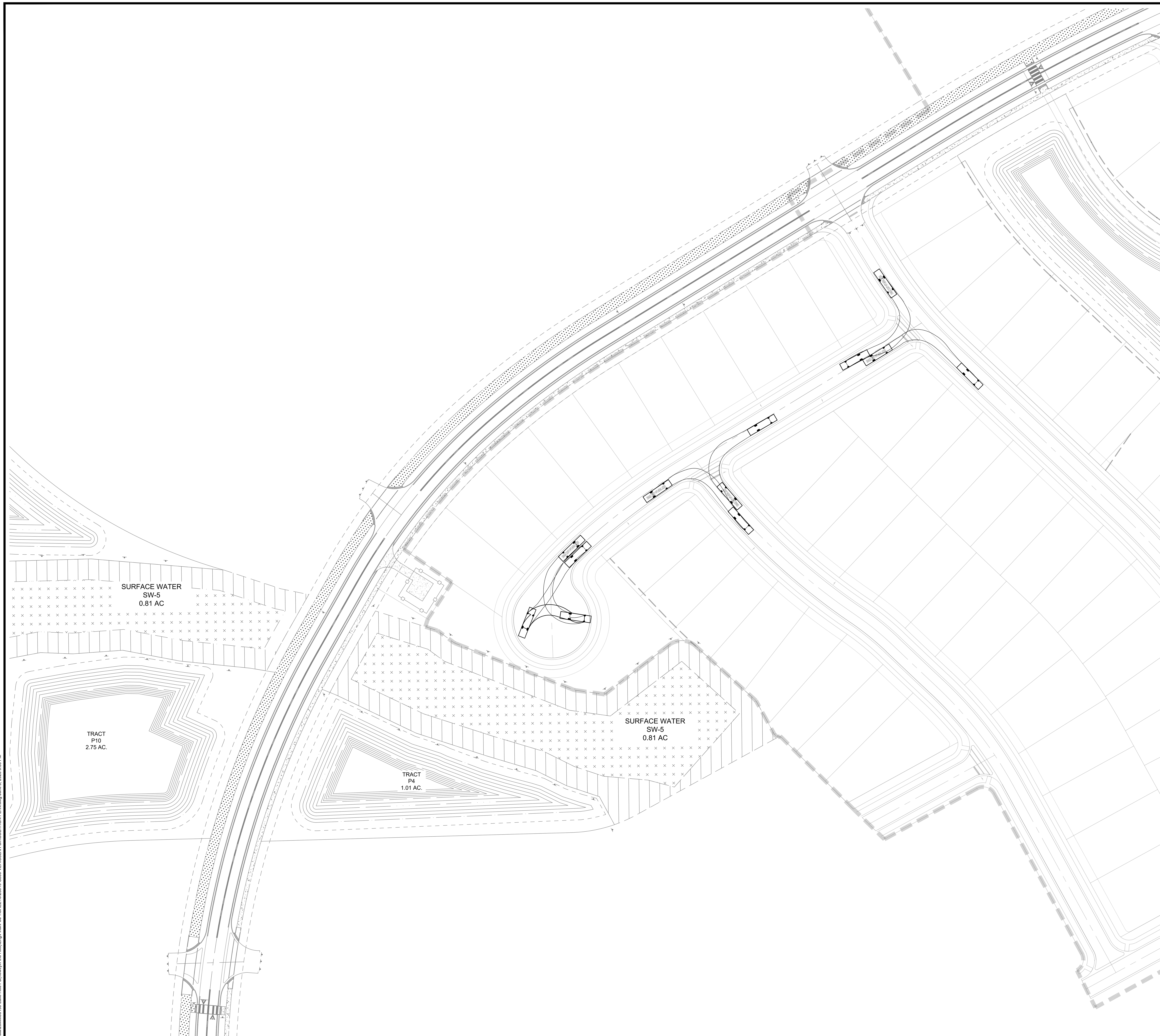
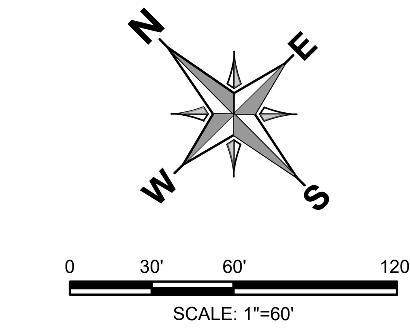
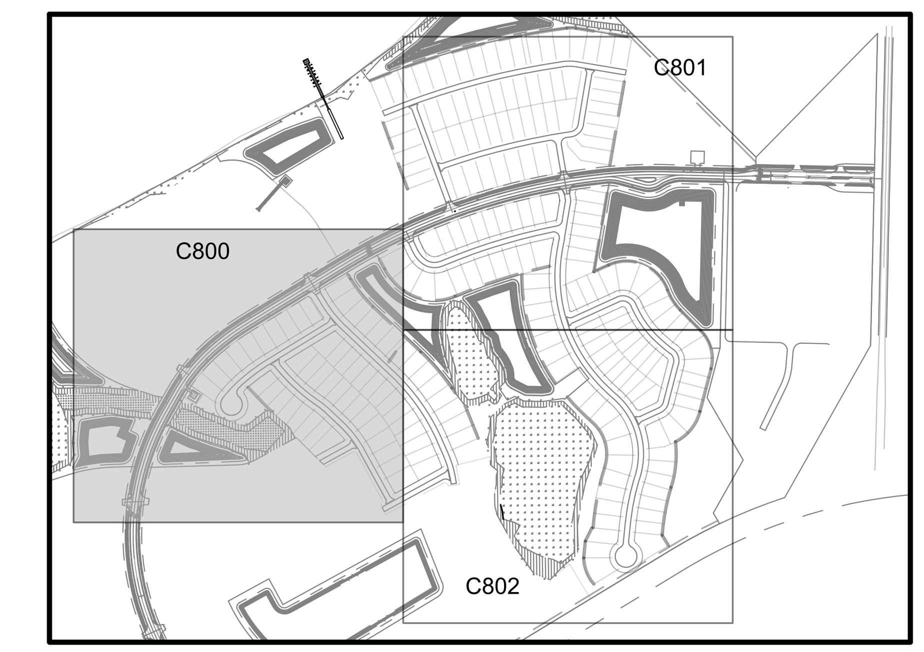
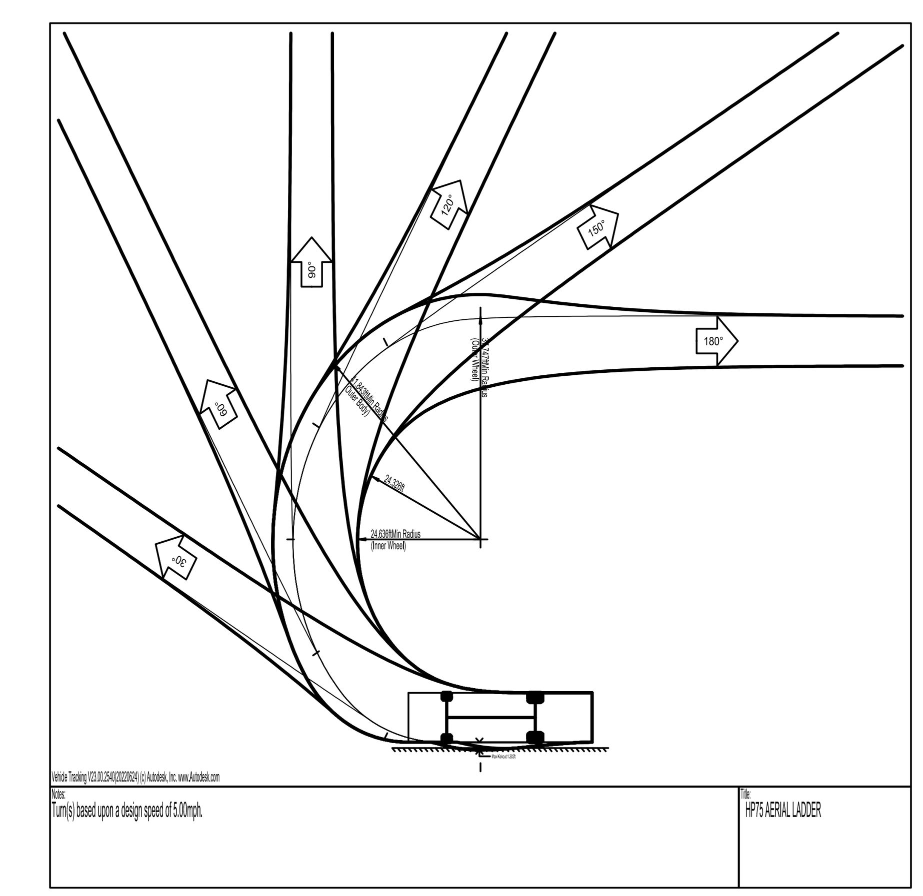
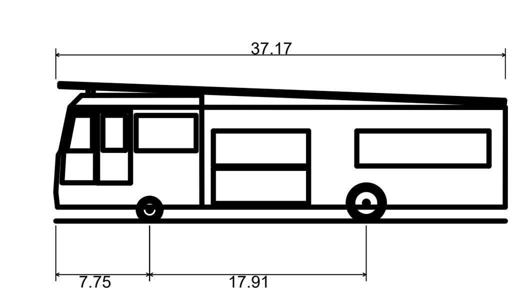






KEY MAP
NTS





LAKE COUNTY	
Overall Length	37.170ft
Overall Width	8.330ft
Overall Body Height	11.367ft
Min Body Ground Clearance	1.147ft
Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	31.80°

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
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Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

VEHICULAR CIRCULATION PLAN

FOR

LAKE HILLS PHASE 1

LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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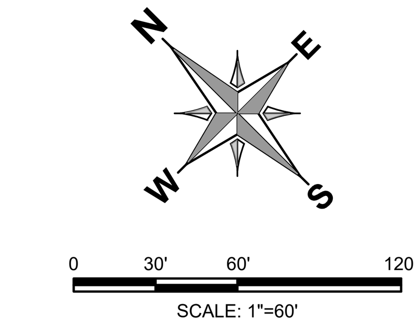

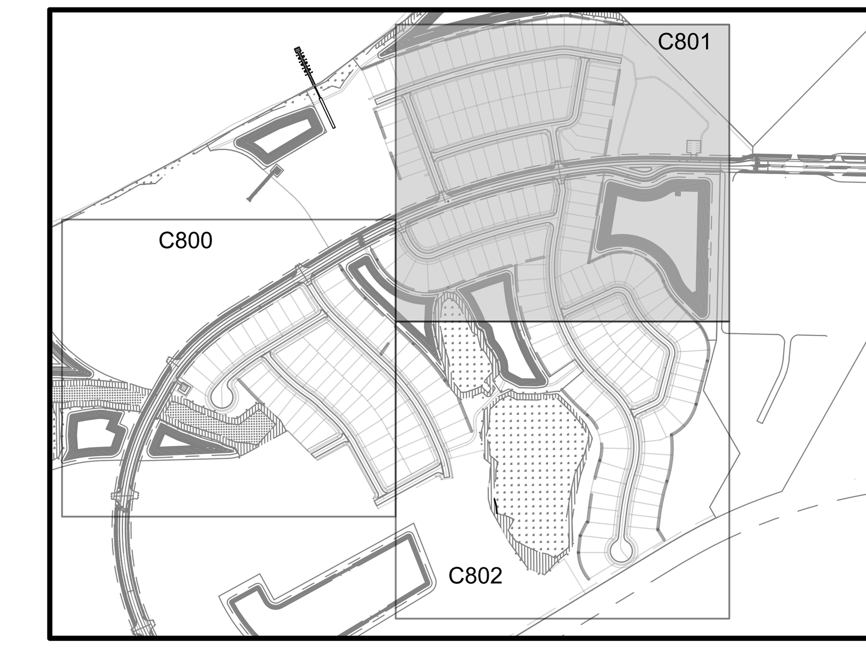

KEY MAP
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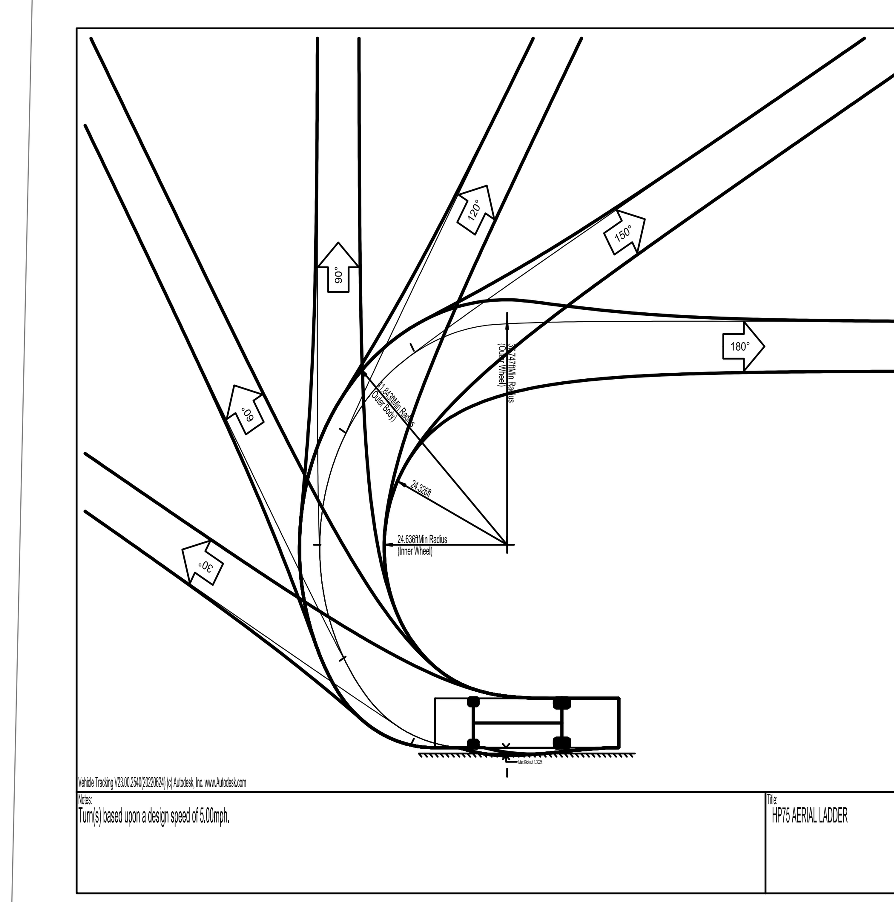

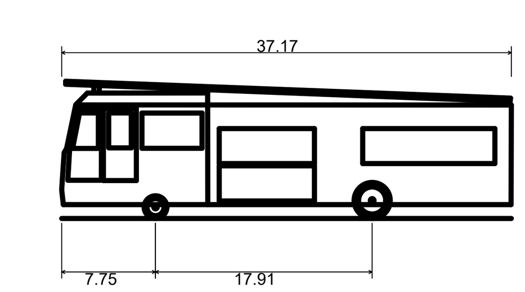

LAKE COUNTY

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CIVIL ENGINEERS
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CA# 0007723

VEHICULAR CIRCULATION PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
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APPROVED BY:	DAS

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WETLAND
W5
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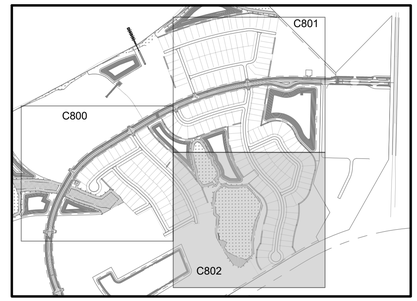
WETLAND

WETLAND
W6
4.69 AC

N E S W

0 30' 60' 120'
SCALE: 1"=60'



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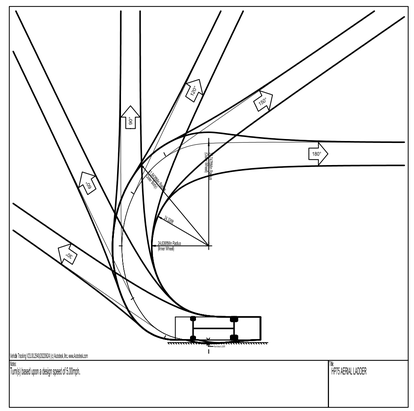

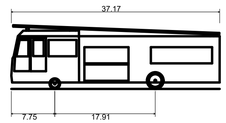

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FOR
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LAKE COUNTY FLORIDA

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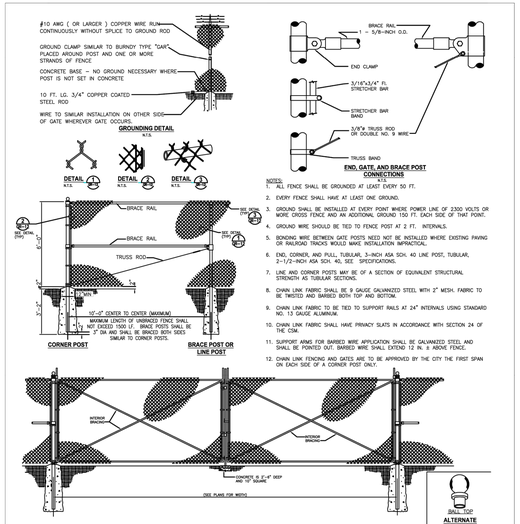
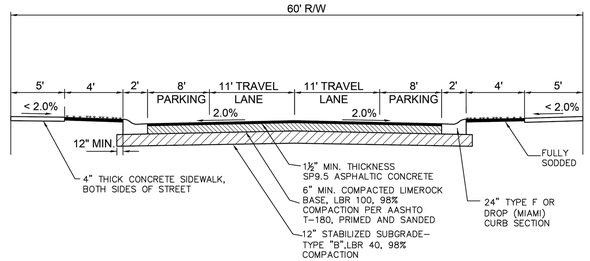


CHAIN LINK FENCE & GATE (N.T.S.)

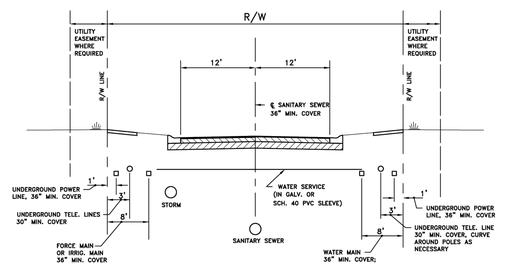
Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL G–6



HEAVY DUTY ROADS
BASE: 8" LIMEROCK CONSTRUCTED IN (2) LIFTS.
ASPHALT: 2" SP12.5 + 1" FRICTION COURSE

LOCAL ROAD CROSS SECTION (N.T.S.)

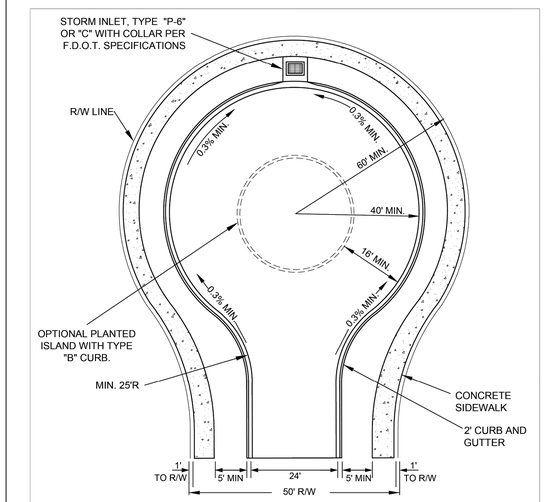
Howey–in–the–Hills	Standard Details	DATE: NOV 2024 DETAIL R–1



N O T E S:
1. REFER TO THE TOWN CONSTRUCTION SPECIFICATION MANUAL FOR DETAILS OF UTILITY DESIGN AND CONSTRUCTION.
2. FIRE HYDRANTS SHALL BE INSTALLED SUCH TO MINIMIZE THEIR VULNERABILITY TO TRAFFIC.

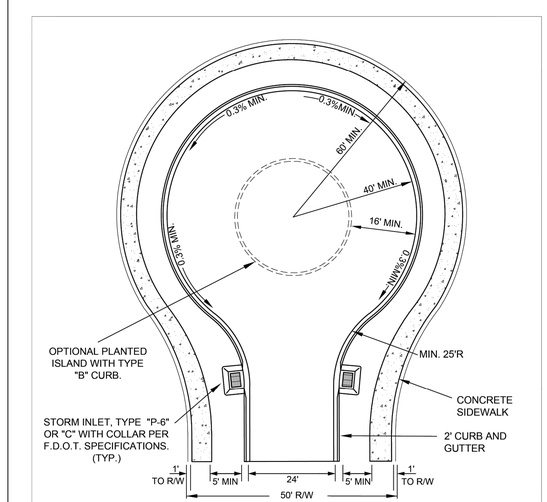
TYPICAL UTILITY LOCATIONS (N.T.S.)

Howey–in–the–Hills	Standard Details	DATE: JAN 2024 DETAIL R–2



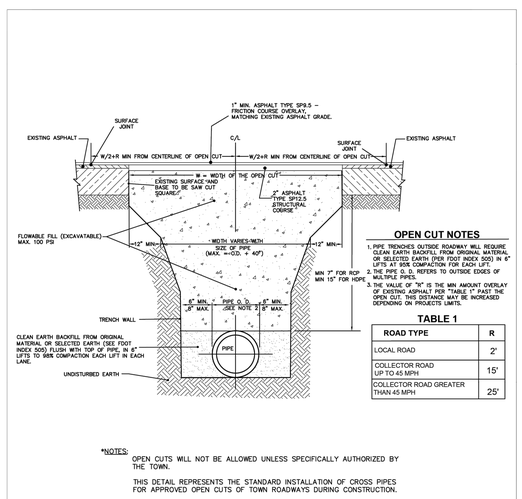
CUL-DE-SAC WITH SINGLE STORM INLET (N.T.S.)

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL R–3



CUL-DE-SAC WITH TWO STORM INLETS (N.T.S.)

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL R–4



OPEN CUT NOTES
1. PIPE TRENCHES OUTSIDE ROADWAY WILL REQUIRE CLEAN EARTH BACKFILL FROM ORIGINAL MATERIAL OR SELECTED EARTH (PER FDOT INDEX 505) IN 6" LIFTS AT 95R COMPACTION FOR EACH LIFT.
2. THE PIPE O. D. REFERS TO OUTSIDE EDGES OF MULTIPLE PIPES.
3. THE VALUE OF "6" IS THE MIN AMOUNT OVERLAY OF ASPHALT ALLOWED BEYOND TABLE 1' PAST THE OPEN CUT. THIS DISTANCE MAY BE INCREASED DEPENDING ON PROJECTS LIMITS.

TABLE 1

ROAD TYPE	R
LOCAL ROAD	2'
COLLECTOR ROAD UP TO 45 MPH	15'
COLLECTOR ROAD GREATER THAN 45 MPH	25'

*NOTES:
OPEN CUTS WILL NOT BE ALLOWED UNLESS SPECIFICALLY AUTHORIZED BY THE TOWN.

THIS DETAIL REPRESENTS THE STANDARD INSTALLATION OF CROSS PIPES FOR APPROVED OPEN CUTS OF TOWN ROADWAYS DURING CONSTRUCTION.

OPEN CUT & REPAIR (N.T.S.)

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL R–5

MADDEN
MOORHEAD & STOKES, LLC
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431 E. Horatio Avenue
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Maitland, Florida 32751
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CITY DETAILS FOR LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

NO.	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C901

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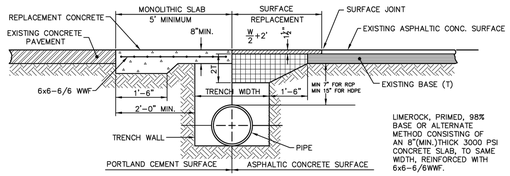
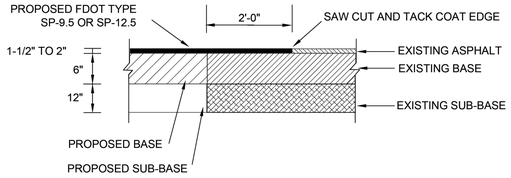


*NOTES:
OPEN CUTS WILL NOT BE ALLOWED UNLESS SPECIFICALLY AUTHORIZED BY THE TOWN.

THIS DETAIL REPRESENTS AN EXCEPTION TO THE STANDARD INSTALLATION OF CROSS PIPES FOR APPROVED OPEN CUTS OF ROADWAYS DURING CONSTRUCTION AND SHALL ONLY BE USED WITH THE PRIOR APPROVAL OF THE TOWN.

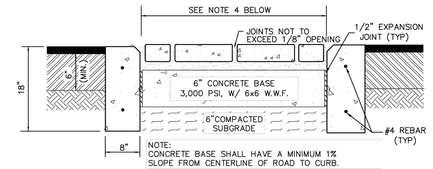
OPEN CUT & REPAIR ALTERNATE (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-6



PAVEMENT BUTT JOINT (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-7



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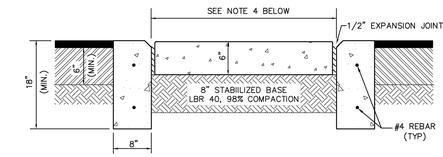


PATTERNED CONCRETE

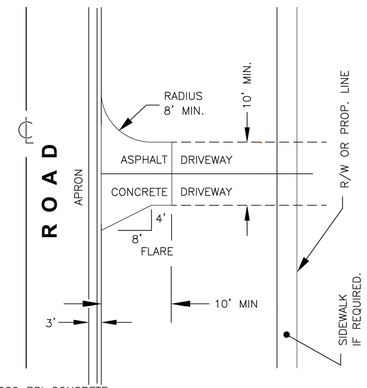
NOTES:

1. CURB RAMPS PER A.D.A. SPECIFICATIONS SHALL BE PROVIDED WHERE CROSSWALK MEETS SIDEWALKS AND CURBS.
2. PAVERS SHALL BE 3-1/8" MINIMUM THICKNESS BEDDED IN 1-1/2" MINIMUM OF SAND OR CRUSHED STONE SCREENINGS.
3. CONCRETE AND PAVER PATTERN AND COLOR SHALL BE DETERMINED BY THE TOWN.
4. MIN. WIDTH OF CROSSWALKS SHALL BE 5 FEET, CROSS SLOPE SHALL NOT EXCEED 1/4" PER LF.
5. SEE STREET SECTIONS FOR BASE AND SUB-BASE REQUIREMENTS OF ROADWAY.

CROSSWALK PAVER & DECORATIVE CONCRETE (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-8

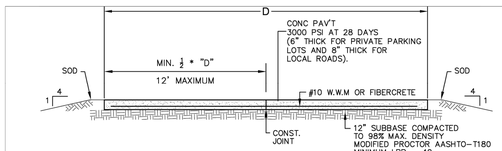
1. 1" ASPHALT W/6" COMPACTED LIMEROCK BASE.



2. 6" 3,000 PSI CONCRETE REINFORCED W/ 10-10x6"x6" MESH
3. 6" COMPACTED SUBGRADE

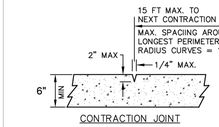
RESIDENTIAL DRIVEWAY WITH MIAMI CURB & GUTTER (Standard M)

Howey-in-the-Hills Standard Details | DATE: FEB 2024 | DETAIL R-9M

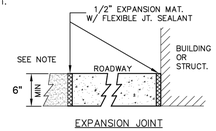


TYPICAL PAVEMENT SECTION

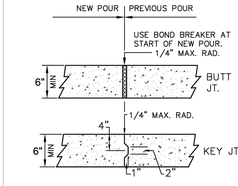
NOTE: FOR ROADWAYS, THE CROSSSLOPE SHALL BE 1/4" PER FOOT. FOR PRIVATE PARKING AREAS THE MINIMUM ALLOWABLE PAVEMENT SLOPE SHALL BE NO LESS THAN 0.50% MEASURED FROM THE RECEIVING INLET, GUTTER, OR FLUME TO ANY PAVEMENT.



CONTRACTION JOINT



EXPANSION JOINT



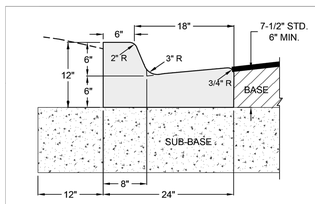
CONSTRUCTION JOINT

NOTES:

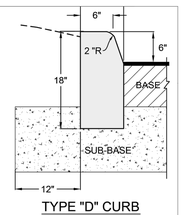
1. CONTRACTION JTS. MAY BE HAND FORMED, SAWED OR CONSTRUCTED W/ A 1/4" PREMOLDED FILLER JT. JOINTS MUST BE SAW CUT THE SAME DAY AS THE POUR.
2. EXPANSION JOINTS TO BE PLACED BETWEEN ROADWAY AND CURB. ALSO AT ANY PERMANENT STRUCTURE ABUTTING OR WITHIN THE PAVED AREA INCLUDING SIDEWALKS.
3. USE OF WOOD IS NOT AN ACCEPTABLE ALTERNATIVE TO FLEXIBLE JOINT SEALANTS.
4. FINAL DETERMINATION OF CONSTRUCTION JOINT SELECTION AND APPLICATION SHALL BE MADE BY THE ENGINEER OF RECORD BASED ON PROJECT REQUIREMENTS AND LOCATION.
5. CONSTRUCTION JOINTS WITHIN THE SLAB AREA SHOULD NOT CONTAIN PREMOLDED EXPANSION JOINT FILLER.

CONCRETE PAVEMENT (N.T.S.)

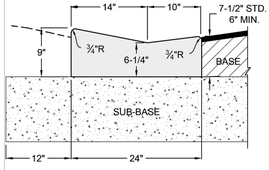
Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-10



TYPE "F" CURB



TYPE "D" CURB



DROP CURB (MIAMI TYPE)

NOTES:

1. ALL CURBS TO BE CONSTRUCTED OF 28 DAY, 3,000 P.S.I. CONCRETE.
2. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED EVERY 500' CONSTRUCTION JOINT REQUIRED EVERY 10' MAXIMUM (4' MINIMUM).
3. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED AT EACH SIDE OF ALL STORM INLET STRUCTURES AND AT ALL RADIUS POINTS.
4. SUB-BASE TO BE COMPACTED AND TESTED TO 98% MINIMUM DENSITY WITH MINIMUM L.B.R. 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
5. EXPANSION JOINT MATERIAL MUST COVER THE ENTIRE CROSS SECTION OF CURB.

CONCRETE CURB (1) (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-11

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(407) 856-4899

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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C902

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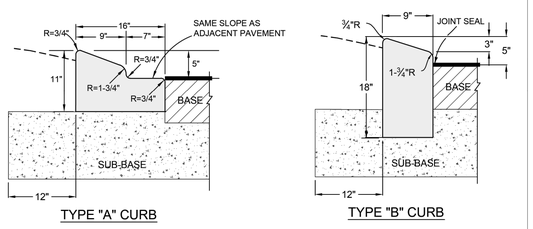
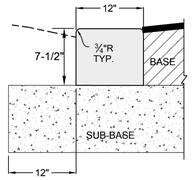


TYPE "A" CURB

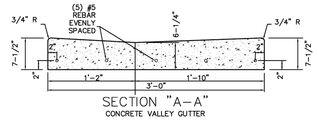
TYPE "B" CURB



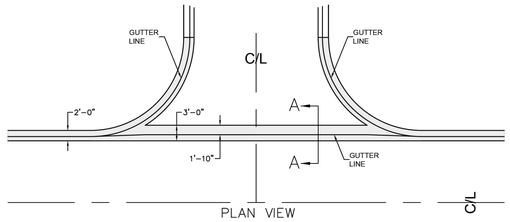
RIBBON CURB

CONCRETE CURB (2) (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—11A



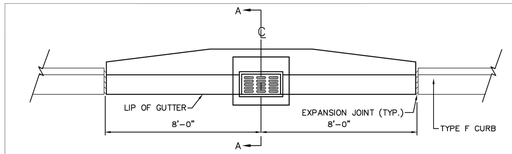
SECTION "A—A"
CONCRETE VALLEY GUTTER



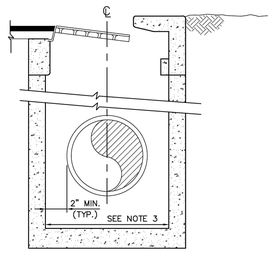
PLAN VIEW

CONCRETE VALLEY GUTTER (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—13



PLAN

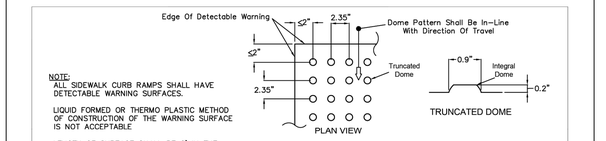


SECTION "A—A"

NOTES:
1. CURB INLET TOPS SHALL BE FDOT TYPE 5 OR TYPE 6. (TYPE 6 SHOWN). FRAME AND COVER SHALL BE STEEL MEETING ASTM A—36 OR CAST IRON, CLASS No. 30 IN ACCORDANCE WITH ASTM A—48.
2. PRECAST STRUCTURES SHALL BE FDOT TYPE P OR J AND MAY BE CIRCULAR, SQUARE OR RECTANGULAR, WALL THICKNESS AND REINFORCEMENT SHALL BE IN ACCORDANCE WITH ASTM C—478.
3. MINIMUM INSIDE DIMENSIONS SHALL BE 4' DIAMETER FOR CIRCULAR AND 3'—6" FOR SQUARE OR RECTANGULAR.
4. ALTERNATE DRAINAGE INLET DESIGNS MAY BE PROPOSED BY ENGINEER.

CURB INLET (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—14



PLAN VIEW

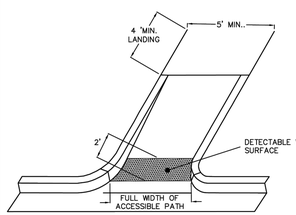
TRUNCATED DOME

NOTE:
ALL SIDEWALK CURB RAMPS SHALL HAVE DETECTABLE WARNING SURFACES.

LIQUID FORMED OR THERMO PLASTIC METHOD OF CONSTRUCTION OF THE WARNING SURFACE IS NOT ACCEPTABLE

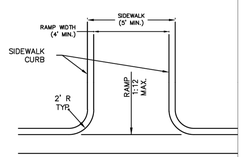
LENGTH OF SURFACE SHALL BE 2' IN THE DIRECTION OF TRAVEL WITH A WIDTH EQUAL TO THE WIDTH OF THE ACCESSIBLE WALKWAY.

CURB RAMP DETECTABLE WARNING SURFACE

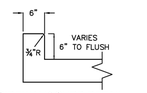


PICTORAL VIEW
CURB RAMP TYPE CR-E
FDOT INDEX 304

NOTE:
CURB RAMPS ON ACCESSIBLE ROUTES SHALL COMPLY WITH FDOT DESIGN STANDARDS, LATEST EDITION, INDEX 304.



PLAN VIEW
CURB RAMP TYPE CR-E
FDOT INDEX 304



SIDEWALK CURB DETAIL
NOT TO SCALE

SIDEWALK CURB RAMP (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—15

CURB RAMP — GENERAL NOTES

ALL REFERENCES TO FDOT AND ADA STANDARDS SHALL MEAN THE LATEST EDITION

1. Public sidewalk curb ramps shall be constructed in the public right of way at locations that will provide continuous unobstructed pedestrian circulation paths to pedestrian areas, elements and facilities in the public right of way and to accessible pedestrian routes on adjacent sites. Curbed facilities with sidewalks and those without sidewalks are to have curb ramps constructed at all street intersections and at turnouts that have curbed returns. Partial curb returns shall extend to the limit prescribed by FDOT Index No. 515 to accommodate curb ramps. Ramps constructed at locations without sidewalks shall have a 5' x 5' landing constructed at the top of each ramp.

2. The location of curb ramps shall be as shown in the plans, but shall conform to F.D.O.T. standard details. All ramps, landings and curbs shall be constructed with minimum 3000 psi, Class A concrete and shall have minimum thickness of 6 inches. All concrete for pedestrian areas shall have a medium broom finish and standard color, unless specifically required by the plans.

3. Curb ramp running slopes at unrestrained sites shall not be steeper than 1 : 12 and cross slope shall not be steeper than 2%. Transition slopes shall not be steeper than 1 : 12. When altering existing pedestrian facilities where existing site development precludes the accommodation of a ramp slope of 1 : 12, a running slope between 1 : 12 and 1 : 10 is permitted for a rise of 6" maximum and a running slope of between 1 : 10 and 1 : 8 is permitted for a rise of 3" maximum.

4. If a curb ramp is located where pedestrians must walk across the ramp, then the walk shall have transitions with a maximum longitudinal slope of 1 : 12. and a 2% cross—slope. Ramps with curb returns may be used to provide guidance, avoid an obstacle, or when R/W limitations prohibit flares. Improvements for directional guidance are required whenever necessary to guide or re—direct the pedestrian towards the receiving ramp.

5. All curb ramps shall have detectable warning surfaces that extend the full width of the ramp and 24" from the back of curb in the direction of travel. Detectable warning surfaces shall be constructed in conformance with A.D.A. Standards For Accessible Design, A.D.A. Accessibility Guidelines, Section 4.29.2, Transition slopes are not to have detectable warnings. Dome pattern shall be in—line with direction of travel.

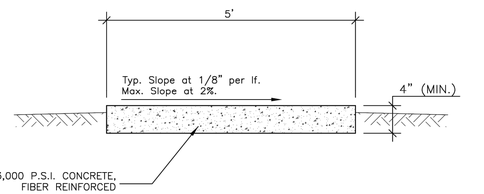
6. The color requirement for detectable warnings is to provide a dark—on—light visual contrast between the detectable warning surface and the adjacent walking surface. Where adjacent walking surfaces are dark colored and/or constructed with materials other than standard Class I Portland Cement Concrete in accordance with the Standard Specifications, the Contractor must provide a detectable warning surface color that provides the necessary contrast, with the adjacent concrete. The standard color is dark red brick or yellow colored detectable warning tile with standard concrete unless otherwise noted.

7. Where a curb ramp is constructed within existing curb, curb and gutter or sidewalk, the existing concrete shall be removed to the nearest joint beyond the transition slope so that no remaining section of concrete is less than 5' long. The existing sidewalk shall be removed to the nearest joint beyond the transition slope, if the ramp must extend into the sidewalk.

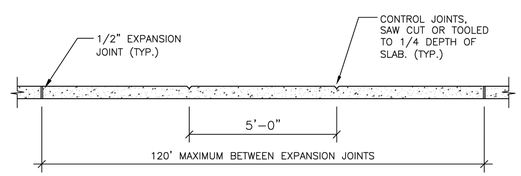
8. Expansion joints shall be placed at all perimeter edges abutting concrete, but no joints shall be made in the ramp itself.

SIDEWALK CURB RAMP GENERAL NOTES

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—15A



SECTION



PROFILE

SIDEWALK (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—16

MADDEN
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CA# 0007723

CITY DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

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DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C903

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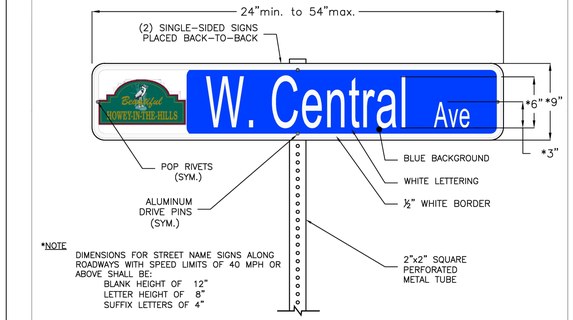
SIDEWALK CONSTRUCTION- GENERAL NOTES

1. SIDEWALKS, BIKE PATHS, RAMPS, AND DRIVEWAY APRONS SHALL BE CONSTRUCTED OF PLAIN PORTLAND CEMENT CONCRETE WITH A MAXIMUM SLUMP OF 3 INCHES, A MINIMUM DEVELOPED COMPRESSIVE STRENGTH OF 3,000 P.S.I. IN 28 DAYS, AND A MINIMUM UNIFORM THICKNESS OF 4 INCHES WHERE INTENDED SOLELY FOR PEDESTRIAN TRAFFIC, AND 6 INCHES THICK WHERE MOTOR VEHICLES ARE LIKELY TO CROSS.
2. SIDEWALKS AND BIKE PATHS SHALL BE PLACED PARALLEL TO, AND ONE FOOT WITHIN THE RIGHT-OF-WAY LINE EXCEPT THAT THE CITY MAY APPROVE DEVIATIONS TO SAVE SPECIMEN TREES PROVIDED THAT THE PAVEMENT REMAINS WITHIN THE RIGHT-OF-WAY, OR ADJACENT EASEMENT DEDICATED FOR SIDEWALK USE, IS NOT DIMINISHED IN WIDTH, AND REMAINS AT LEAST 3 FEET FROM THE EDGE OF THE STREET PAVEMENT, UNLESS OTHERWISE APPROVED BY THE CITY.
3. THE TOP OF THE CONCRETE SHALL BE AT AN ELEVATION NO LOWER THAN THE CROWN OF THE ADJACENT ROADWAY, AND NO HIGHER THAN 6 INCHES ABOVE THE CROWN UNLESS APPROVED BY THE CITY TO MAKE A MORE NATURAL TRANSITION WITH THE ADJACENT LAND. UNDER NO CIRCUMSTANCES WILL THE SIDEWALK EXCEED ADA MAXIMUM GRADES.
4. ISOLATION JOINTS (TYPE A JOINTS) SHALL BE PROVIDED BETWEEN EXISTING SLABS OR STRUCTURES AND FRESH CONCRETE, TO SEPARATE PEDESTRIAN SECTIONS FROM SECTIONS WHICH WILL ENCOUNTER VEHICLE TRAFFIC, TO SEPARATE FRESH PLACEMENT FROM CONCRETE WHICH HAS SET FOR MORE THAN 60 MINUTES, AND NO FARTHER APART THAN 120 FEET IN SIDEWALKS AND BIKE PATHS. JOINT MATERIAL SHALL BE AS SPECIFIED IN FDOT STANDARDS AND SPECIFICATIONS AND SHALL BE RUBBER, PLASTIC OR OTHER APPROVED NON-BIODEGRADABLE ELASTOMERIC MATERIAL. WOOD IS PROHIBITED.
5. CONTROL JOINTS (TYPE B JOINTS) SHALL BE TOOLED INTO THE FRESH CONCRETE, OR SAW-CUT WITHIN 24 HOURS OF PLACEMENT, TO A DEPTH EQUAL TO 1/4 THE SLAB THICKNESS AND SPACED APART A DISTANCE EQUAL TO THE WIDTH OF THE SLAB OR 5 FEET, WHICHEVER IS GREATEST.
6. THE SLAB SURFACE SHALL BE BROOM FINISHED TO BE SLIP RESISTANT, AND SHALL MATCH AS CLOSELY AS POSSIBLE THE FINISH OF EXISTING ADJACENT SLABS AND ALL EDGES SHALL BE TOOLED TO ELIMINATE SHARP CORNERS.
7. THE BEARING SUBSURFACE SHALL HAVE ALL ORGANIC, LOOSE, AND DELETERIOUS MATTER REMOVED, AND THE REMAINING CLEAN SOIL SHALL BE SMOOTH, SOUND, AND SOLID. ANY FILL MATERIAL SHALL BE COMPACTED WITH A VIBRATORY OR IMPACT COMPACTION MACHINE IN MAXIMUM 12 INCH LIFTS OR COMPACTED WITH A HAND TAMPER IN MAXIMUM 4 INCH LIFTS. THE CITY SHALL REQUIRE A COMPACTION TEST FOR EACH LIFT IF THE TOTAL FILLED SECTION IS MORE THEN 12 INCHES DEEP OR IF THE SUBSURFACE HAS BEEN DISTURBED MORE THAN 12 INCHES DEEP. WHERE SUCH TEST IS REQUIRED, THE RESULTS SHALL SHOW A MINIMUM PROCTOR FIELD DENSITY OF 95 PERCENT.
8. ALL CONCRETE WORK IN THE RIGHT-OF-WAY SHALL BE INSPECTED BY THE CITY AFTER THE SUBSOIL IS PREPARED AND THE FORMS ARE SET, BUT BEFORE THE CONCRETE PLACEMENT BEGINS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE FINISHED SLAB FROM ALL DAMAGE AND VANDALISM UNTIL THE CITY ACCEPTS OR APPROVES THE SLAB.
10. SIDEWALKS LOCATED WITHIN THE RIGHT-OF-WAY SHALL NOT BE TINTED, STAINED, COLORED, OR COATED, UNLESS APPROVED BY THE CITY ENGINEER.
11. ALL FORMS SHALL BE REMOVED PRIOR TO ACCEPTANCE OR APPROVAL AND THE DISTURBED GROUND SHALL BE BACK-FILLED, RE-GRADED, AND SODDED SO THAT THE WEAR SURFACE OF THE CONCRETE IS REASONABLY FLUSH WITH THE ADJACENT GRADE.
12. THE CITY MAY REQUIRE ADDITIONAL JOINTS AROUND UTILITY STRUCTURES LOCATED WITHIN THE SIDEWALK.

SIDEWALK - GENERAL NOTES

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL R-16A



*NOTE
DIMENSIONS FOR STREET NAME SIGNS ALONG ROADWAYS WITH SPEED LIMITS OF 40 MPH OR ABOVE SHALL BE:
BLANK HEIGHT OF 12"
LETTER HEIGHT OF 8"
SUFFIX LETTERS OF 4"

SIGN BLANKS:
- .063" ALUMINUM
- ALUMINUM CHEMICALLY TREATED TO MEET ATSM B449 STANDARD (PRE-TREATMENT FOR PAINT OR REFLECTIVE SHEETING)
- DIMENSIONS ARE TO BE 9" or 12" HEIGHT X 24" MINIMUM TO 54" MAXIMUM LENGTH. BLANK LENGTH TO BE DETERMINED BY ROAD NAME LENGTH AND BE ESTABLISHED IN 6" INCREMENTS, I.E. (24",30",36",42",48" OR 54")

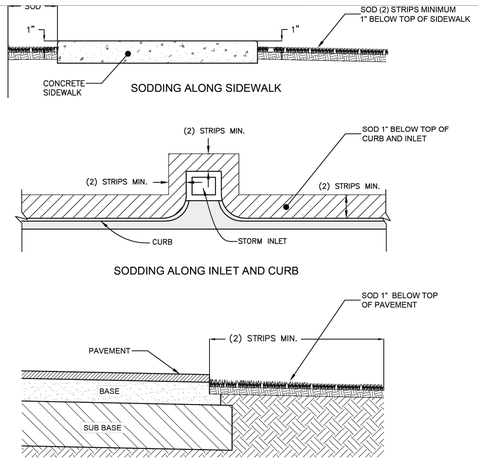
COLOR:
- THE BACKGROUND SHALL BE HIGH INTENSITY PRISMATIC GREATER WHITE SHEETING WITH BLUE TRANSPARENT FILM OVERLAY.

LEGEND/LETTERING:
- ONE-HALF INCH (1/2") WHITE BORDER, 1/2" FROM THE EDGE.
- STREET NAMES SHALL BE 6" or 8" SERIES B LETTERS.
- THE ABBREVIATED SUFFIX "Rd", "Ave", "Dr", ETC., SHALL BE 3" or 4" SERIES B.

MOUNTING:
- MOUNTING SHALL BE TWO SINGLE-SIDED SIGNS WITH ATTRIBUTES ABOVE, MOUNTED BACK TO BACK, WITH ENDS POP RIVETED TOGETHER ON 2"x2" METAL POST, ATTACHED WITH ALUMINUM DRIVE PINS. NO EDGE-CLAMPING STYLE MOUNTING BLOCKS ARE TO BE USED.

STREET SIGN (N.T.S.)

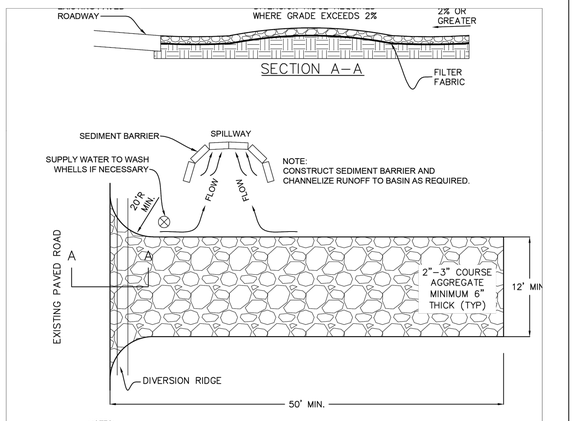
Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL R-20



NOTE:
ANY EXISTING SODDED AREAS THAT ARE DISTURBED BY CONSTRUCTION SHALL BE RESODDED WITH LIKE SOD AND RESTORED TO ITS ORIGINAL STATE.

SOD PLANTING (N.T.S.)

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL R-22



NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OR-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. ALL MATERIALS SPILLED, DROPPED, OR TRACKED ONTO PUBLIC ROADS (INCLUDING AGGREGATE AND CONSTRUCTION MUD) SHALL BE REMOVED DAILY, OR MORE FREQUENTLY IF SO DIRECTED.

TEMPORARY CONSTRUCTION ENTRANCE (N.T.S.)

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL R-23

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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

ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C904

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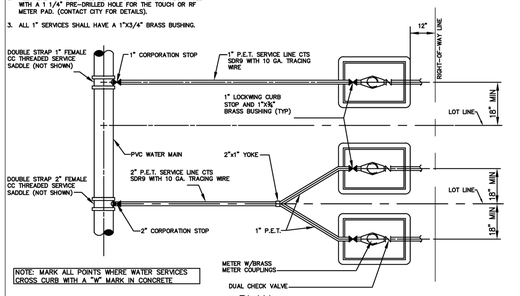
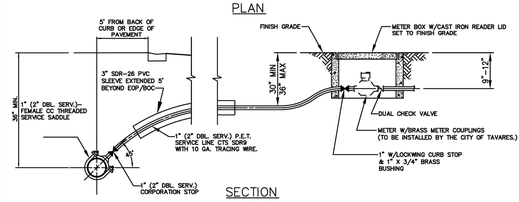
NOTES:

1. METERS TO BE INSTALLED BY THE CITY OF TAVARES.
2. ALL METER BOXES SHALL BE STANDARD PLASTIC RECTANGLE WITH A 1 1/4" PRE-DRILLED HOLE FOR THE TOUCH OR RF METER PAD. (CONTACT CITY FOR DETAILS).
3. ALL 1" SERVICES SHALL HAVE A 1"X3/4" BRASS BUSHING.



PLAN



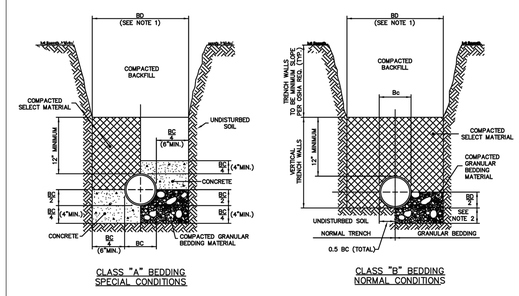
SECTION

SERVICE CONNECTION–SINGLE FAMILY

NOT TO SCALE

(NOTE: METERS TO BE INSTALLED BY CITY OF TAVARES.)

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–1



CLASS "A" BEDDING
SPECIAL CONDITIONS

CLASS "B" BEDDING
NORMAL CONDITIONS

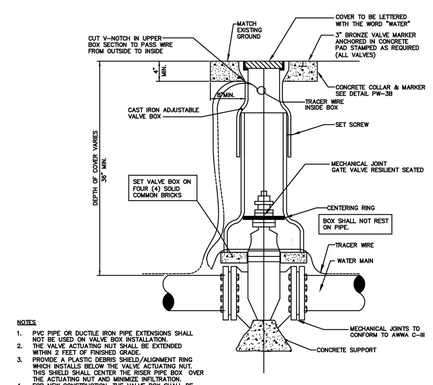
NOTES: FOR BEDDING AND TRENCHING

1. DIMENSION BC = PIPE O.D.
   DIMENSION BD = TRENCH WIDTH AT TOP OF PIPE
   MAXIMUM BD = BC + 30"
   MINIMUM BD = MAXIMUM DIMENSION OF BELL + 8" (UNSHEETED TRENCH)
2. DEPTH FOR REMOVAL FOR UNSUITABLE MATERIAL SHALL BE AS REQUIRED TO REACH SUITABLE FOUNDATION. FOR ROCK OR OTHER NON-CUSHIONING MATERIAL, DEPTH SHALL BE 6" BELOW BOTTOM OF UTILITY.
3. ALL BACKFILL AND SELECT MATERIAL UNDER ALL ROADWAYS, DRIVES (INCLUDING DIRT DRIVES), AND PARKING AREAS SHALL BE COMPACTED TO 98% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY. (AASHTO T-180). BACKFILL AND SELECT MATERIAL UNDER ALL OTHER AREAS SHALL BE COMPACTED AS FOLLOWS: FROM BOTTOM OF TRENCH TO 12" ABOVE TOP OF PIPE – 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180). FROM 12" ABOVE TOP OF PIPE TO TOP OF BACKFILL – 90% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180)

TRENCHING AND BEDDING

NOT TO SCALE

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–2



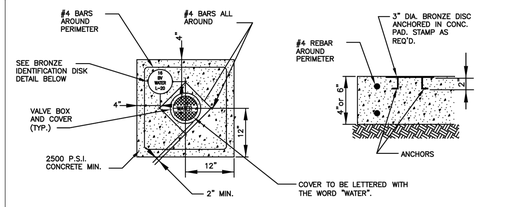
NOTES:

1. PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE VALVE ACTUATING NUT SHALL BE EXTENDED WITHIN 2 FEET OF FINISHED GRADE.
3. PROVIDE A PLASTIC DEBRIS SHIELD/ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
4. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
5. VALVE BOX SHALL BE A TWO PIECE SCREW TYPE.

GATE VALVE AND BOX

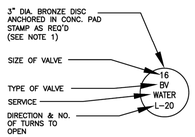
NOT TO SCALE

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–3A



NOTE:

1. BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.
2. 6" THICK CONCRETE PAD IN ROADWAY OR PAVED AREAS, 4" THICK CONCRETE PAD IN OTHER AREAS.

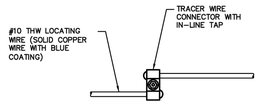


BRONZE IDENTIFICATION DISC DETAIL

VALVE COLLAR

NOT TO SCALE

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–3B



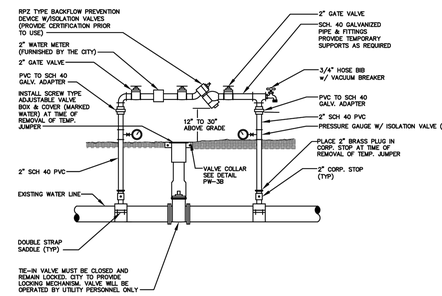
NOTES:

1. TRACER WIRE CONNECTOR SHALL BE DIRECT BURY, SELF-STRIPPING, LOCKING.
2. AFTER INSTALLATION OF THE LOCATING WIRE THE SYSTEM SHALL BE SUBJECTED TO TESTING, IN THE PRESENCE OF CITY UTILITY DIRECTOR OR HIS DESIGNEE PRIOR TO BACKFILL IN ORDER TO CONFIRM THAT THE SYSTEM IS FUNCTIONAL.

LOCATING WIRE SPLICING

NOT TO SCALE

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–5



TEMPORARY JUMPER CONNECTION

NOT TO SCALE

NOTE: LOCATION TO BE DETERMINED AT TIME OF PRECONSTRUCTION CONFERENCE W/ CITY.

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–6A

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY UTILITY DETAILS FOR LAKE HILLS PHASE 1 — LAKE COUNTY, FLORIDA

READERS & PARTNERS, LLC
5950 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

NO.	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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

ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C930

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TEMPORARY JUMPER CONNECTION NOTES

1. A TEMPORARY JUMPER CONNECTION IS REQUIRED AT ALL CONNECTIONS BETWEEN EXISTING ACTIVE WATER MAINS AND PROPOSED NEW WATER MAIN IMPROVEMENTS.
2. THE DETAILS TO BE USED FOR FILLING ANY WATER MAIN OF ANY SIZE FROM EXISTING ACTIVE WATER MAINS AND FOR FLUSHING OF NEW MAINS UP TO 8" DIAMETER (2.5 FPS MINIMUM VELOCITY) AND FOR PULLING BACTERIOLOGICAL SAMPLES FROM ANY NEW WATER MAIN OF ANY SIZE. THE JUMPER CONNECTION SHALL BE MAINTAINED UNTIL AFTER FILLING, FLUSHING, TESTING AND DISINFECTION OF THE NEW MAIN HAS BEEN SUCCESSFULLY COMPLETED AND CLEARANCE FOR USE FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) AND OTHER PERTINENT AGENCIES HAS BEEN RECEIVED. THE JUMPER CONNECTION SHALL ALSO BE USED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI IN THE NEW MAINS ALL THE TIME AFTER DISINFECTION AND UNTIL THE FDEP CLEARANCE LETTER IS OBTAINED. ADEQUATE RESTRAINTS SHALL BE PROVIDED TEMPORARILY, AS REQUIRED. PIPE AND FITTINGS USED FOR CONNECTING THE NEW PIPE TO THE EXISTING PIPE SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651, LATEST EDITION. THIS TAPPING SLEEVE AND THE EXTERIOR OF THE MAIN TO BE TAPPED SHALL BE DISINFECTED BY SPRAYING OR SWABBING PER SECTION II OF AWWA C561, LATEST EDITION.
3. FLUSHING OF 10" DIAMETER AND LARGE WATER MAINS MAY BE DONE THROUGH THE TIE-IN VALVE, IN THE PRESENCE OF THE UTILITY DIRECTOR OR HIS DESIGNEE. THE UTILITY DEPARTMENT WILL NOTIFIED IN WRITING 48 HOURS PRIOR TO THE FLUSHING OF SAID MAINS.

   THE FOLLOWING PROCEDURES SHALL BE FOLLOWED:

   A. THE TIE-IN VALVES SHALL BE OPERATED AND PRESSURE TESTED IN THE PRESENCE OF THE UTILITY COMPANY AND ENGINEER TO VERIFY WATER TIGHTNESS PRIOR TO THE TIE-IN. VALVES WHICH ARE NOT WATERTIGHT SHALL BE REPLACED OR A NEW VALVE INSTALLED IMMEDIATELY ADJACENT TO THE LEAKING VALVE.

   B. THE TEMPORARY JUMPER CONNECTION SHALL BE CONSTRUCTED AS DETAILED. THE JUMPER CONNECTION SHALL BE USED TO FILL THE NEW WATER MAIN AND FOR PROVIDING WATER FOR BACTERIOLOGICAL SAMPLING OF THE NEW MAIN AS REQUIRED BY THE FDEP PERMIT.

   – FLUSHING SHALL NOT BE ATTEMPTED DURING PEAK DEMAND HOURS OF THE EXISTING WATER MAIN.

   – ALL DOWNSTREAM VALVES IN THE NEW SYSTEM MUST BE OPEN PRIOR TO OPENING THE TIE-IN VALVE.

   – PROVIDE FOR AND MONITOR THE PRESSURE AT THE TIE-IN POINT, THE PRESSURE IN THE EXISTING MAIN MUST NOT DROP BELOW 35 psi.

   – TIE-IN VALVE SHALL BE OPENED A FEW TURNS ONLY, ENSURING A PRESSURE DROP ACROSS THE VALE IS ALWAYS GRATER THAN 10 psi.

   C. THE TIE-IN VALVE SHALL BE LOCKED CLOSED BY THE CITY UNTIL FLUSHING BEGINS.

   D. THE TIE-IN VALVE SHALL BE OPENED ONLY A FEW TURNS FOR FLUSHING OF THE NEW MAIN. THE PROCEDURE SHALL BE DIRECTED BY THE CITY AND OBSERVED BY THE ENGINEER.

   E. AFTER FLUSHING, THE TIE-IN VALVE SHALL BE CLOSED AND LOCKED IN THE CLOSED POSITION BY THE CITY.
4. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION DEMONSTRATING THAT THE RPZ BACKFLOW PREVENTION DEVICE HAS BEEN TESTED WITHIN ONE YEAR AT THE TIME OF INSTALLATION AND IS IN GOOD WORKING ORDER AT THE TIME OF INSTALLATION. THE TEST SHALL BE PERFORMED BY A QUALIFIED BACKFLOW PREVENTION TECHNICIAN.
5. EXCEPT AS REQUIRED TO FLUSH LINES OF GREATER THAN 8" IN DIAMETER, THE TIE-IN VALVE SHALL REMAIN CLOSED AND SHALL BE LOCKED IN THE CLOSED POSITION BY THE CITY. THE TIE-IN VALVE SHALL REMAIN LOCKED CLOSED UNTIL THE NEW SYSTEM HAS BEEN CLEARED FOR USE BY FDEP AND ALL OTHER PERTINENT AGENCIES.
6. UPON RECEIPT OF CLEARANCE FOR USE FROM FDEP AND ALL OTHER PERTINENT AGENCIES, THE CONTRACTOR SHALL REMOVE THE JUMPER CONNECTION. THE CORPORATION STOPS ARE TO BE CLOSED AND PLUGGED WITH 2" BRASS PLUGS.
7. ALL INSTALLATION AND MAINTENANCE OF THE TEMPORARY JUMPER CONNECTION AND ASSOCIATED BACKFLOW PREVENTION DEVICE FITTINGS, VALVE, ETC., SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-6B

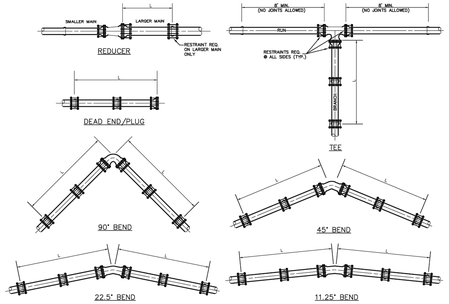


TABLE OF THRUST RESTRAINT LENGTHS

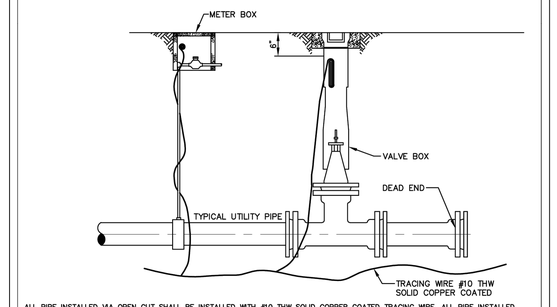
PIPE SIZE (NOMINAL)	90° BEND		45° BEND		22.50° BEND		11.25° BEND		TEES		DEAD END & PLUG		REDUCER		
	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	PIPE SIZES	P.V.C. (L)	DUCTILE IRON (L)
4	20'	16'	8'	7'	4'	3'	2'	2'	15'	10'	45'	29'	6"x4"	33'	21'
6	28'	22'	12'	9'	6'	4'	3'	2'	33'	21'	63'	40'	8"x6"	34'	22'
8	36'	29'	15'	12'	7'	6'	4'	3'	50'	33'	82'	52'	10"x8"	33'	21'
10	43'	34'	18'	14'	9'	7'	4'	3'	68'	43'	98'	63'	12"x10"	34'	22'
12	50'	40'	21'	17'	10'	8'	5'	4'	84'	54'	116'	74'	16"x12"	63'	40'
16	63'	51'	26'	21'	13'	10'	6'	5'	116'	74'	148'	94'	18"x16"	33'	21'
18	70'	56'	29'	23'	14'	11'	7'	6'	131'	83'	163'	103'	20"x18"	33'	21'
20	75'	61'	31'	25'	15'	12'	7'	6'	145'	92'	178'	113'	20"x20"	82'	39'
24	86'	70'	36'	29'	17'	14'	9'	7'	173'	110'	207'	132'			

THRUST RESTRAINT DESIGN NOTES

1. RESTRAINT JOINTS, FITTINGS, & VALVE REQUIREMENTS CALCULATED BY THE THRUST RESTRAINT DESIGN PROGRAM PROVIDED BY EBBA IRON SALES, INC.
2. DATA BASED ON MAX. PRESSURE OF 150 p.s.i., THE UNIFIED SOILS CLASSIFICATION SYSTEM (SOIL TYPE: SP), THE PIPE BEDDED IN NATIVE SOIL w/ A MINIMUM OF 2.5' COMPACTED FILL OVER THE PIPE, AND USING A SAFETY FACTOR OF 1.5 FOR THE DATA.
3. ALL FITTINGS & VALVES SHALL HAVE RESTRAINED WITH "MEGA-LUG" RESTRAINTS, & ALL BELL & SPIGOT JOINTS TO BE RESTRAINED WITH A RESTRAINING HARNESS WITHIN THE REQUIRED LENGTH OF RESTRAINED PIPE (L).

THRUST RESTRAINT
NOT TO SCALE

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-7



ALL PIPE INSTALLED VIA OPEN CUT SHALL BE INSTALLED WITH #10 THW SOLID COPPER COATED TRACING WIRE. ALL PIPE INSTALLED VIA HDD SHALL BE INSTALLED WITH TWO #10 COPPER CLAD STEEL WIRES.

THE TRACING WIRE MUST BE INSTALLED DIRECTLY BELOW THE PIPE AND BROUGHT TO THE SURFACE AT 500' MINIMUM INTERVALS. WIRE SHALL EXTEND A MINIMUM OF 12" ABOVE GRADE AT EACH INTERVAL AND BE COILED AND PLACED IN A VALVE BOX, METER BOX, MANHOLE, CLEANOUT, LOCATE WIRE BOX, OR OTHER APPLICABLE STRUCTURE.

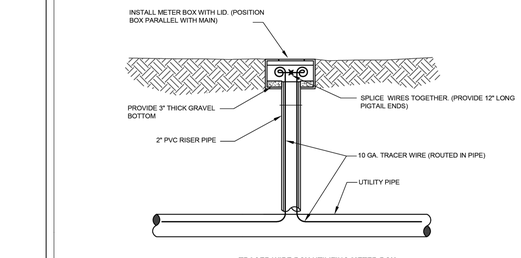
COLOR CODING:

POTABLE WATER SYSTEM: BLUE
REUSE WATER SYSTEM: PANTONE PURPLE
SANITARY SEWER, FORCE MAINS AND LOW PRESSURE SEWER SYSTEMS: GREEN

1. FOR LOW PRESSURE SEWER, POTABLE WATER AND REUSE WATER SYSTEMS: WIRE SHALL BE INSTALLED BELOW ALL MAINS AND SERVICE LINES AND ATTACHED TO VALVES, HYDRANTS AND FITTINGS. WIRE INSTALLED WITH SERVICE LINES SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE CURB STOP.
2. FIRE SPRINKLER LINES: WIRE SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE RISER CONNECTION.
3. SANITARY SEWER FORCE MAINS: WIRE SHALL BE INSTALLED BELOW THE FORCE MAIN AND ATTACHED TO ALL VALVES AND FITTINGS AND BROUGHT TO THE SURFACE AND PLACED IN A METAL, CITY OF TAVARES APPROVED, VALVE BOX.
4. DEAD END MAINS: WIRE SHALL BE PLACED IN A PROPERLY IDENTIFIED METAL VALVE BOX AT THE END OF THE RUN.
5. WIRE SHALL NOT BE FASTENED OR COILED TO VALVE OPERATING NUT.
6. UTILITY TRACING WIRE SHALL BE IN ACCORDANCE WITH CITY CSM AND PER CITY'S APPROVED MANUFACTURER LIST.

UTILITY PIPE LOCATION MATERIAL – WIRE
NOT TO SCALE

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-8



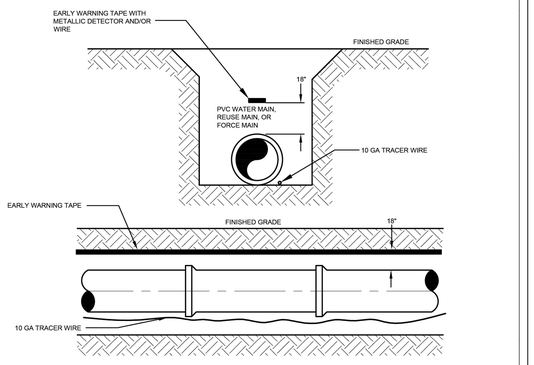
TRACER WIRE BOX UTILIZING METER BOX

NOTES:

1. TRACER WIRE STATION BOX TO BE INSTALLED WHERE THE WIRE CANNOT BE BROUGHT TO GRADE IN A VALVE BOX WITHIN THE MANDATORY 500 FOOT INTERVAL OR WHERE A SPLICE MUST BE MADE ON THE TRACER WIRING. NO UNDERGROUND SPLICES.
2. BOXES SHALL NOT BE LOCATED IN ROADWAYS OR DRIVEWAYS.
3. BOX AND LID PER DETAIL PW-19.
4. TRAFFIC RATED LID (STANDARD-NON BOLT DOWN)
5. LID COLOR SHALL BE PRE-MANUFACTURED OR PAINTED TO MATCH SERVICE (BLUE= POTABLE WATER, GREEN=WASTEWATER, PANTONE PURPLE=RECLAIMED WATER)

TRACER WIRE BOX

Howey-in-the-Hills
NOT TO SCALE
Standard Details
DATE: FEB 2022
DETAIL PW-9

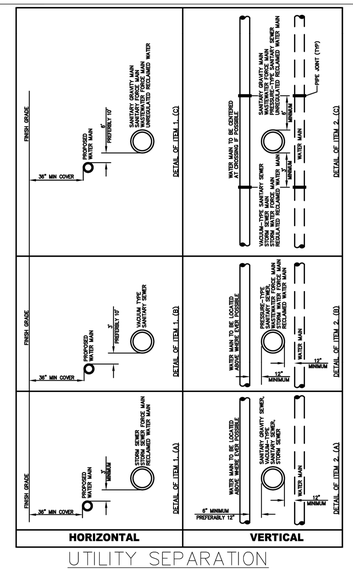


NOTES:

1. ALL MAINS INSTALLED BY OPEN CUT SHALL HAVE AN "EARLY WARNING" PROTECTION TAPE AND WIRE INSTALLED CONTINUOUSLY ALONG THE ALIGNMENT. THE PROTECTION TAPE SHALL BE PER THE CITY'S APPROVED MANUFACTURER LIST. TAPE SHALL BE INSTALLED DURING BACKFILLING 18" ABOVE THE PIPE AND SHALL BE CONTINUOUSLY MARKED FOR THE TYPE OF PIPE (EXAMPLE: CAUTION, WATER MAIN BURIED BELOW"). THE TAPE SHALL HAVE A METALLIC DETECTABLE STRIP INCLUDED AND COLOR CODED AS FOLLOWS:
   BLUE - POTABLE WATER
   GREEN - SANITARY FORCE MAIN, GRAVITY SEWER, LOW PRESSURE MAIN
   PANTONE PURPLE - RECLAIMED WATER
   RED - DEDICATED FIRE LINE
2. ALL PVC MAINS SHALL BE A SOLID COLOR AS DESCRIBED ABOVE.
   ALL DUCTILE IRON MAINS SHALL BE WRAPPED WITH COLOR CODED BAGS.
   ALL POTABLE WATER PIPE SHALL BEAR THE NATIONAL SANITATION FOUNDATION (NSL) SEAL OF APPROVAL.

UTILITY PIPE LOCATION MATERIAL – TAPE
NOT TO SCALE

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-10



UTILITY SEPARATION
NOT TO SCALE

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-11A

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CIVIL ENGINEERS
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Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY UTILITY DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

NO.	DATE	REVISIONS
1		
2		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C931

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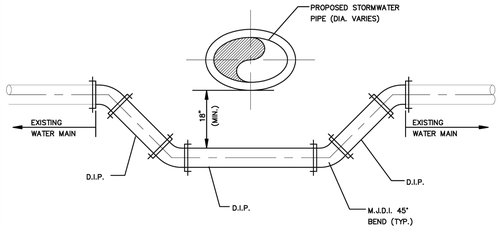


NOTES:

1. ALL PROPOSED JOINTS SHALL BE RESTRAINED.
2. ALL EXISTING JOINTS WITHIN SHALL BE RESTRAINED IN ACCORDANCE WITH GR-6.
3. ALL PIPING CLEARANCES SHALL BE IN ACCORDANCE WITH CHAPTER 62-555.314 F.A.C.

WATER LINE CROSSING

NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-11B

GENERAL WATER NOTES

1. WATER SYSTEM COMPONENTS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND REGULATIONS, CLEANED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND CHAPTER 62-555 FLORIDA ADMINISTRATIVE CODE.
2. ALL PIPING SHALL BEAR THE "NSF" SEAL FOR POTABLE WATER.
3. WATER MAINS SHALL BE PVC CONFORMING TO AWWA C-900, DR 18 FOR PIPE SIZES 4"-12". PIPES 14" OR LARGER SHALL BE AWWA C-905, DR 18. ALL COUPLINGS, CLEANING COMPOUNDS, SOLVENTS, LUBRICANTS, AND PIPE PREPARATION, FOR LAYING, SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURER'S LATEST RECOMMENDATIONS.
4. DEPTH OF WATER LINES TO BE 36" MINIMUM COVER FROM FINISH GRADE.
5. WATER MAINS TO BE LOCATED 5' FROM BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. ALL WATER MAINS UNDER PAVEMENT SHALL BE DUCTILE IRON.
7. ALL CASINGS UNDER PAVEMENT SHALL EXTEND 5' BEYOND THE BACK OF CURB.
8. DISINFECTING: FOLLOWING THE PRESSURE TESTING, THE CONTRACTOR SHALL DISINFECT ALL SECTIONS OF THE NEW WATER DISTRIBUTION SYSTEM. DISINFECTION SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF AWWA STANDARD C651 "DISINFECTING WATER MAINS", AND ALL APPROPRIATE AGENCY APPROVAL.
9. ALL HYDROSTATIC TESTS SHALL BE IN ACCORDANCE WITH AWWA C600 FOR DUCTILE IRON PIPE AND C605/M23 FOR PVC PIPE.
10. ALL WATER MAINS SHALL BE INSTALLED, PRESSURE AND LEAK TESTED IN ACCORDANCE WITH AWWA C600, (62-555.320(21)(B)1 AND 62-555.330, F.A.C. ALL INSTALLATION, TESTING AND FIELD PROCEDURES MUST BE PROVIDED AND MUST CONFORM TO THE APPLICABLE AWWA STANDARDS.
11. ALL PIPING MATERIALS AND SPECIFICATIONS COVERING PIPES, JOINTS AND PACKING MATERIALS, INTERNAL COATING AND LININGS, FITTINGS, SPECIALS AND APPURTENANCES SHALL ALL BE IN ACCORDANCE WITH THE CORRESPONDING AWWA STANDARDS AND BE CONFORMING TO NSF REQUIREMENTS, AS MAY BE APPLICABLE, WITH EXCEPTIONS ALLOWED ONLY IF DOCUMENTATION AND ASSURANCES ARE PROVIDED IN COMPLIANCE WITH PARAGRAPHS 62-555.320(3) (D), 622-555.320 (3) (B), AND 62-555.320 (21) (C), F.A.C. THE LEAD USE PROHIBITION IN RULE 62-555.322, F.A.C. SHALL ALSO APPLY. POLYETHYLENE TUBING SHALL BE PER AWWA C901. UNDERGROUND SERVICE LINES AND VALVES SHALL BE PER AWWA C800.

COLOR CODING

ALL PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT WILL BE COLOR CODED OR MARKED IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320(21)(B)3, F.A.C., USING BLUE AS A PREDOMINANT COLOR. (UNDERGROUND PLASTIC PIPE WILL BE SOLID-WALL BLUE PIPE, WILL HAVE A CO-EXTRUDED BLUE EXTERNAL SKIN, OR WILL BE WHITE OR BLACK PIPE WITH BLUE STRIPES INCORPORATED INTO, OR APPLIED TO, THE PIPE WALL; AND UNDERGROUND METAL OR CONCRETE PIPE WILL HAVE BLUE STRIPES APPLIED TO THE PIPE WALL. PIPE STRIPED DURING MANUFACTURING OF THE PIPE WILL HAVE CONTINUOUS STRIPES THAT RUN PARALLEL TO THE AXIS OF THE PIPE, THAT ARE LOCATED AT NO GREATER THAN 90-DEGREE INTERVALS AROUND THE PIPE, AND THAT WILL REMAIN INTACT DURING AND AFTER INSTALLATION OF THE PIPE. IF TAPE OR PAINT IS USED TO STRIPE PIPE DURING INSTALLATION OF THE PIPE, THE TAPE OR PAINT WILL BE APPLIED IN A CONTINUOUS LINE THAT RUNS PARALLEL TO THE AXIS OF THE PIPE AND THAT IS LOCATED ALONG THE TOP OF THE PIPE; FOR PIPE WITH AN INTERNAL DIAMETER OF 24 INCHES OR GREATER, TAPE OR PAINT WILL BE APPLIED IN CONTINUOUS LINES ALONG EACH SIDE OF THE PIPE AS WELL AS ALONG THE TOP OF THE PIPE. ABOVEGROUND PIPE WILL BE PAINTED BLUE OR WILL BE COLOR CODED OR MARKED LIKE UNDERGROUND PIPE.) [FAC 62/CELL 555.320(21)(B)3]

UNLESS DESCRIBED IN THE CITY CSM ELSEWHERE, ALL WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH **CHAPTER 62-555.314, F.A.C.,** AND ANY UPDATES TO THE F.A.C., AND IN CONFORMANCE WITH ALL SEPARATION REQUIREMENTS AS FOUND THEREIN.

62-555.314 LOCATION OF PUBLIC WATER SYSTEM MAINS.

FOR THE PURPOSE OF THIS SECTION, THE PHRASE "WATER MAINS" SHALL MEAN MAINS, INCLUDING TREATMENT PLANT PROCESS PIPING, CONVEYING EITHER RAW, PARTIALLY TREATED, OR FINISHED DRINKING WATER; FIRE HYDRANT LEADS; AND SERVICE LINES THAT ARE UNDER THE CONTROL OF A PUBLIC WATER SYSTEM AND THAT HAVE AN INSIDE DIAMETER OF THREE INCHES OR GREATER.

(1) HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.

(A) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C

(B) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.

(C) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-11C

GENERAL WATER NOTES

(D) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.

(2) VERTICAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS AND RECLAIMED WATER PIPELINES.

(A) NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY- OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.

(3) SEPARATION BETWEEN WATER MAINS AND SANITARY OR STORM SEWER MANHOLES:

(A) NO WATER MAIN SHALL PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A SANITARY SEWER MANHOLE.

(B) EFFECTIVE AUGUST 28, 2003, WATER MAINS SHALL NOT BE CONSTRUCTED OR ALTERED TO PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A STORM SEWER MANHOLE OR INLET STRUCTURE. WHERE IT IS NOT TECHNICALLY FEASIBLE OR ECONOMICALLY SENSIBLE TO COMPLY WITH THIS REQUIREMENT (I.E., WHERE THERE IS A CONFLICT IN THE ROUTING OF A WATER MAIN AND A STORM SEWER AND WHERE ALTERNATIVE ROUTING OF THE WATER MAIN OR THE STORM SEWER IS NOT TECHNICALLY FEASIBLE OR IS NOT ECONOMICALLY SENSIBLE), THE DEPARTMENT SHALL ALLOW EXCEPTIONS TO THIS REQUIREMENT (I.E., THE DEPARTMENT SHALL ALLOW CONSTRUCTION OF CONFLICT MANHOLES), BUT SUPPLIERS OF WATER OR PERSONS PROPOSING TO CONSTRUCT CONFLICT MANHOLES MUST FIRST OBTAIN A SPECIFIC PERMIT FROM THE DEPARTMENT AND MUST PROVIDE IN THE PRELIMINARY DESIGN REPORT OR DRAWINGS, SPECIFICATIONS, AND DESIGN DATA ACCOMPANYING THEIR PERMIT APPLICATION THE FOLLOWING INFORMATION:

1. TECHNICAL OR ECONOMIC JUSTIFICATION FOR EACH CONFLICT MANHOLE.
2. A STATEMENT IDENTIFYING THE PARTY RESPONSIBLE FOR MAINTAINING EACH CONFLICT MANHOLE.
3. ASSURANCE OF COMPLIANCE WITH THE DESIGN AND CONSTRUCTION REQUIREMENTS IN SUB-PARAGRAPHS A. THROUGH D. BELOW. - 361
   - A. EACH WATER MAIN PASSING THROUGH A CONFLICT MANHOLE SHALL HAVE A FLEXIBLE, WATERTIGHT JOINT ON EACH SIDE OF THE MANHOLE TO ACCOMMODATE DIFFERENTIAL SETTLING BETWEEN THE MAIN AND THE MANHOLE.
   - B. WITHIN EACH CONFLICT MANHOLE, THE WATER MAIN PASSING THROUGH THE MANHOLE SHALL BE INSTALLED IN A WATERTIGHT CASING PIPE HAVING HIGH IMPACT STRENGTH (I.E., HAVING IMPACT STRENGTH AT LEAST EQUAL TO THAT OF 0.25-INCH-THICK DUCTILE IRON PIPE).
   - C. EACH CONFLICT MANHOLE SHALL HAVE AN ACCESS OPENING, AND SHALL BE SIZED, TO ALLOW FOR EASY CLEANING OF THE MANHOLE.
   - D. GRATINGS SHALL BE INSTALLED AT ALL STORM SEWER INLETS UPSTREAM OF EACH CONFLICT MANHOLE TO PREVENT LARGE OBJECTS FROM ENTERING THE MANHOLE.

(4) SEPARATION BETWEEN FIRE HYDRANT DRAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.

(A) NEW OR RELOCATED FIRE HYDRANTS WITH UNDERGROUND DRAINS SHALL BE LOCATED SO THAT THE DRAINS ARE AT LEAST THREE FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; AT LEAST THREE FEET, AND PREFERABLY TEN FEET, FROM ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER; AT LEAST SIX FEET, AND PREFERABLY TEN FEET, FROM ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; AND AT LEAST TEN FEET FROM ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-11D

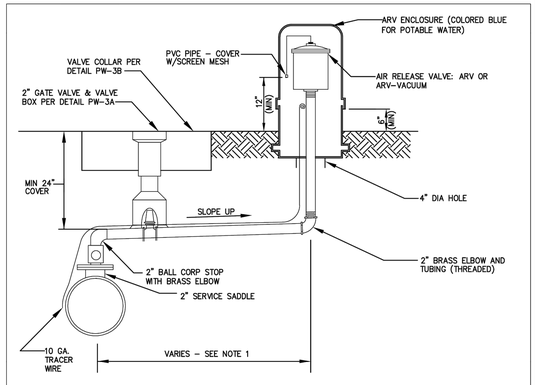
GENERAL WATER NOTES

(5) EXCEPTIONS. WHERE IT IS NOT TECHNICALLY FEASIBLE OR ECONOMICALLY SENSIBLE TO COMPLY WITH THE REQUIREMENTS IN SUBSECTION (1) OR (2) ABOVE, THE DEPARTMENT SHALL ALLOW EXCEPTIONS TO THESE REQUIREMENTS IF SUPPLIERS OF WATER OR CONSTRUCTION PERMIT APPLICANTS PROVIDE TECHNICAL OR ECONOMIC JUSTIFICATION FOR EACH EXCEPTION AND PROVIDE ALTERNATIVE CONSTRUCTION FEATURES THAT AFFORD A SIMILAR LEVEL OF RELIABILITY AND PUBLIC HEALTH PROTECTION. ACCEPTABLE ALTERNATIVE CONSTRUCTION FEATURES INCLUDE THE FOLLOWING:

(A) WHERE AN UNDERGROUND WATER MAIN IS BEING LAID LESS THAN THE REQUIRED MINIMUM HORIZONTAL DISTANCE FROM ANOTHER PIPELINE AND WHERE AN UNDERGROUND WATER MAIN IS CROSSING ANOTHER PIPELINE AND JOINTS IN THE WATER MAIN ARE BEING LOCATED LESS THAN THE REQUIRED MINIMUM DISTANCE FROM JOINTS IN THE OTHER PIPELINE:
1. USE OF PRESSURE-RATED PIPE CONFORMING TO THE AMERICAN WATER WORKS ASSOCIATION STANDARDS INCORPORATED INTO RULE 62-555.330, F.A.C., FOR THE OTHER PIPELINE IF IT IS A GRAVITY- OR VACUUM-TYPE PIPELINE;
2. USE OF WELDED, FUSED, OR OTHERWISE RESTRAINED JOINTS FOR EITHER THE WATER MAIN OR THE OTHER PIPELINE; OR
3. USE OF WATERTIGHT CASING PIPE OR CONCRETE ENCASEMENT AT LEAST FOUR INCHES THICK FOR EITHER THE WATER MAIN OR THE OTHER PIPELINE.

(B) WHERE AN UNDERGROUND WATER MAIN IS BEING LAID LESS THAN THREE FEET HORIZONTALLY FROM ANOTHER PIPELINE AND WHERE AN UNDERGROUND WATER MAIN IS CROSSING ANOTHER PIPELINE AND IS BEING LAID LESS THAN THE REQUIRED MINIMUM VERTICAL DISTANCE FROM THE OTHER PIPELINE:
1. USE OF PIPE, OR CASING PIPE, HAVING HIGH IMPACT STRENGTH (I.E., HAVING AN IMPACT STRENGTH AT LEAST EQUAL TO THAT OF 0.25-INCH-THICK DUCTILE IRON PIPE) OR CONCRETE ENCASEMENT AT LEAST FOUR INCHES THICK FOR THE WATER MAIN; AND
2. USE OF PIPE, OR CASING PIPE, HAVING HIGH IMPACT STRENGTH (I.E., HAVING AN IMPACT STRENGTH AT LEAST EQUAL TO THAT OF 0.25-INCH-THICK DUCTILE IRON PIPE) OR CONCRETE ENCASEMENT AT LEAST FOUR INCHES THICK FOR THE OTHER PIPELINE IF IT IS NEW AND IS CONVEYING WASTEWATER OR RECLAIMED WATER.

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-11E



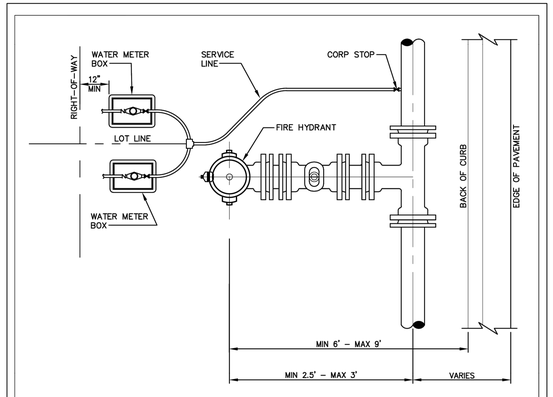
NOTES:

1. OFFSET DISTANCE SHOWN ON DRAWINGS.
2. ADJUST HORIZONTAL LOCATION OF ARV ENCLOSURE, AS REQUIRED TO AVOID SIDEWALK. LOCATE ARV ENCLOSURE WITHIN 1' OF R/W OR AS OTHERWISE DETERMINED BY THE CITY.

OFFSET AIR RELEASE VALVE VAULT

NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-13



NOTES:

1. ALL METER BOXES TO BE LOCATED INSIDE ROAD R/W LINE
2. DETAIL TO BE USED WHERE FIRE HYDRANTS AND WATER SERVICES ARE LOCATED ON PLANS AND CONFLICT APPEARS APPARENT.

TYPICAL WATER SERVICE AND HYDRANT LOCATION

NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-14

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CITY UTILITY DETAILS FOR LAKE HILLS PHASE 1 LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G. LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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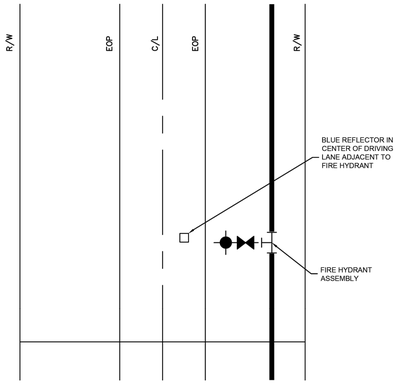
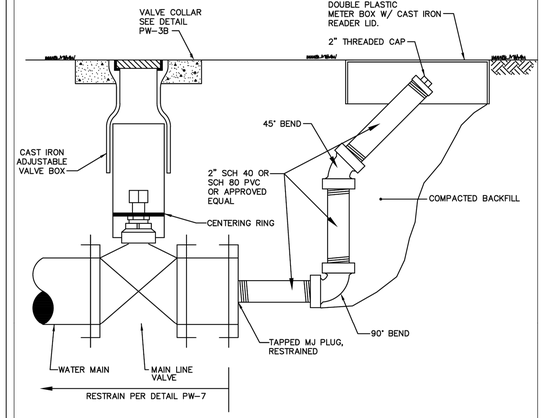


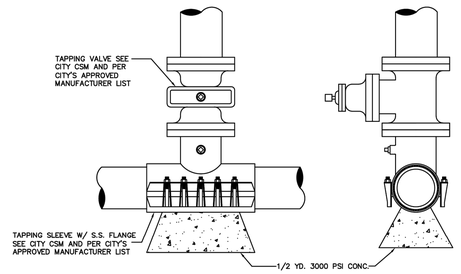
FIRE HYDRANT REFLECTOR
NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-15



BLOWOFF VALVE
NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-16



WET TAP SLEEVE AND TAPPING VALVE
NOT TO SCALE

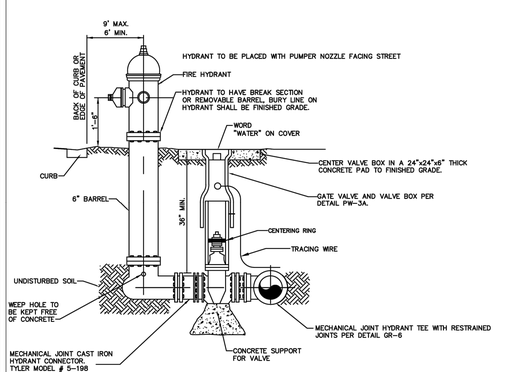
Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-17

PAINTING

1. APPLY TWO COATS OF OSHA SAFETY INDUSTRIAL RED PAINT TO HYDRANT BARREL.
2. APPLY TWO COATS OF OSHA SAFETY INDUSTRIAL ENAMEL PAINT TO THE BONNET AND NOZZLE CAPS. THE UTILITY DEPARTMENT INSPECTOR WILL DETERMINE THE COLOR TO PAINT THE HYDRANT BONNET AND NOZZLE CAPS BY FLOW TESTING HYDRANT.
   - BLUE 1500 GPM OR MORE (SHERWIN WILLIAMS #SW4086)
   - GREEN 1000 GPM TO 1499 GPM (SHERWIN WILLIAMS #B54614)
   - ORANGE 500 GPM TO 999 GPM (SHERWIN WILLIAMS #B54E39)
   - RED 499 GPM OR LESS (SHERWIN WILLIAMS #B54R38)
   - RED HYDRANT BARREL (SHERWIN WILLIAMS #B54R36)

SPECIFICATIONS

1. AWWA SPECIFICATIONS C-502
2. TWO 2-1/2" HOSE NOZZLE DISCHARGE
3. ONE 4-1/2" PUMPER NOZZLE DISCHARGE
4. ONE 1-1/2" OPERATING NUT, LEFT
5. ALL HYDRANTS SHALL BE EQUIPPED WITH FITTINGS TO ALLOW FOR ELEVATION ADJUSTMENTS.
6. 5¼" MAIN VALVE OPENING
7. RESTRAINED JOINTS OR ALL THREADED ROD REQUIRED TO SECURE PIPE, RISER AND VALVE IN THE FIRE HYDRANT ASSEMBLY TO THE MAIN



FIRE HYDRANT WITH VALVE
NOT TO SCALE
(STANDARD FIRE HYDRANT ASSEMBLY)

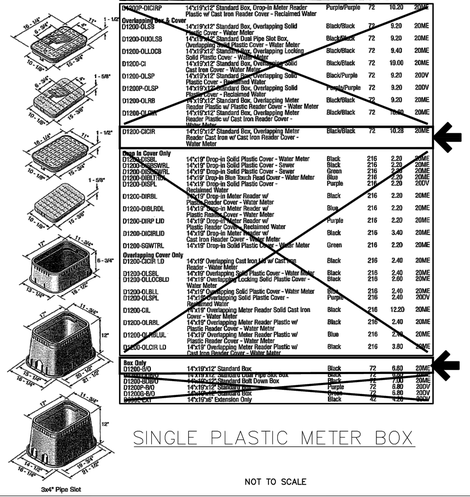
Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-18

NDS METER BOXES

STANDARD COMMERCIAL GRADE

NDS D1200 Meter Boxes (cont.)

Part Number	Description - Marking	Color (Box/Cover)	Pallet Qty	Weight (lb)	Product Class
D1200P-DICRP	14"x19"x12" Standard Box, Drop-In Meter Reader Plastic w/ Cast Iron Reader Cover - Reclaimed Water	Purple/Purple	72	10.20	20ME
Overlapping Box & Cover					
D1200-OLDS	14"x19"x15" Standard Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	72	9.50	20ME
D1200-DUOLSB	14"x19"x12" Standard Dual Pipe Slot Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	72	9.20	20ME
D1200-OLLDCB	14"x19"x15" Standard Box, Overlapping Locking Solid Plastic Cover - Water Meter	Black/Black	72	9.40	20ME
D1200-CI	14"x19"x12" Standard Box, Overlapping Solid Cast Iron Cover - Water Meter	Black/Black	72	19.00	20ME
D1200-OLSP	14"x19"x12" Standard Box, Overlapping Solid Plastic Cover - Reclaimed Water	Black/Purple	72	9.20	200V
D1200P-OLSP	14"x19"x12" Standard Box, Overlapping Solid Plastic Cover - Reclaimed Water	Purple/Purple	72	9.20	200V
D1200-OLRB	14"x19"x12" Standard Box, Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	72	9.20	20ME
D1200-OLCIR	14"x19"x12" Standard Box, Overlapping Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black/Black	72	10.00	20ME
D1200-CICR	14"x19"x12" Standard Box, Overlapping Meter Reader Cast Iron w/ Cast Iron Reader Cover - Water Meter	Black/Black	72	10.28	20ME
Drop In Cover Only					
D1200-OLDSB	14"x19" Drop-In Solid Plastic Cover - Water Meter	Black	216	2.20	20ME
D1200-OLDSGWRL	14"x19" Drop-In Solid Plastic Cover - Sewer	Black	216	2.20	20ME
D1200-OLDSGWRL	14"x19" Drop-In Solid Plastic Cover - Sewer	Green	216	2.20	20ME
D1200-OLDSTPDL	14"x19" Drop-In Blue Teeth Head Cover - Water Meter	Blue	216	2.20	20ME
D1200-OLDSPL	14"x19" Drop-In Solid Plastic Cover - Reclaimed Water	Purple	216	2.20	200V
D1200-DIRRL	14"x19" Drop-In Meter Reader w/ Plastic Reader Cover - Water Meter	Black	216	2.20	20ME
D1200-DIRLIDL	14"x19" Drop-In Meter Reader w/ Plastic Reader Cover - Water Meter	Blue	216	2.20	20ME
D1200-DIRP LID	14"x19" Drop-In Meter Reader w/ Plastic Reader Cover - Reclaimed Water	Purple	216	2.20	20ME
D1200-DICIRLID	14"x19" Drop-In Meter Reader w/ Cast Iron Reader Cover - Water Meter	Black	216	3.40	20ME
D1200-SGWTRL	14"x19" Drop-In Solid Plastic Cover - Water Meter	Green	216	2.20	20ME
Overlapping Cover Only					
D1200-CICR LID	14"x19" Overlapping Cast Iron Lid w/ Cast Iron Reader - Water Meter	Black	216	2.40	20ME
D1203-OLSBL	14"x19" Overlapping Solid Plastic Cover - Water Meter	Black	216	2.40	20ME
D1203-OLLOCBLD	14"x19" Overlapping Locking Solid Plastic Cover - Water Meter	Black	216	2.60	20ME
D1200-OLBLI	14"x19" Overlapping Solid Plastic Cover - Water Meter	Blue	216	2.40	20ME
D1202-OLSPL	14"x19" Overlapping Solid Plastic Cover - Reclaimed Water	Purple	216	2.40	200V
D1200-CIL	14"x19" Overlapping Meter Reader Solid Cast Iron Cover - Water Meter	Black	216	12.20	20ME
D1200-OLRBL	14"x19" Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black	216	2.40	20ME
D1200-OLRBLBL	14"x19" Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Blue	216	2.40	20ME
D1203-OLCIR LID	14"x19" Overlapping Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black	216	3.80	20ME
Box Only					
D1200-BO	14"x19"x12" Standard Box	Black	72	6.80	20ME
D1200-DUOLSBO	14"x19"x12" Standard Dual Pipe Slot Box	Black	72	7.00	20ME
D1200-DUBOBO	14"x19"x12" Standard Bolt Down Box	Black	72	7.00	20ME
D1200P-BO	14"x19"x12" Standard Box	Purple	72	6.80	200V
D1200D-BO	14"x19"x12" Standard Box	Black	72	6.80	200V
1200EXT	14"x19"x6" Extension Only	Black	60	3.20	20ME



SINGLE PLASTIC METER BOX
NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-19

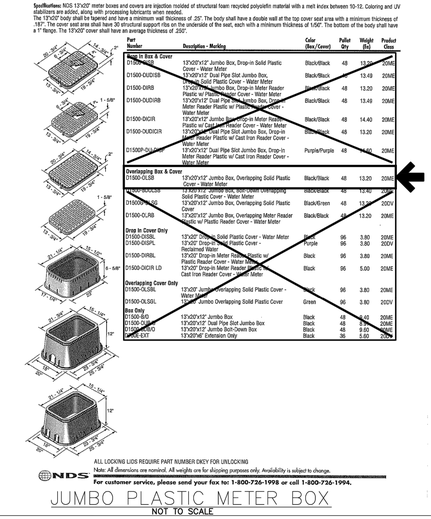
NDS METER BOXES

STANDARD COMMERCIAL GRADE

NDS D1500 Meter Boxes

Specifications: NDS 13"x20" meter boxes and covers are injection molded of structural foam recycled polyolefin material with a melt index between 10-12. Coloring and UV stabilizers are added, along with processing lubricants when needed.
The 13"x20" body shall be tapered and have a minimum wall thickness of .25". The body shall have a double wall at the top cover seat area with a minimum thickness of .187". The cover seat area shall have 30 structural support ribs on the underside of the seat, each with a minimum thickness of 1/32". The bottom of the body shall have a 1" flange. The 13"x20" cover shall have an average thickness of .250".

Part Number	Description - Marking	Color (Box/Cover)	Pallet Qty	Weight (lb)	Product Class
Drop In Box & Cover					
D1500-DI	13"x20"x12" Jumbo Box, Drop-In Solid Plastic Cover - Water Meter	Black/Black	48	13.20	20ME
D1500-DUOLSB	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-In Solid Plastic Cover - Water Meter	Black/Black	48	13.40	20ME
D1500-DIRB	13"x20"x12" Jumbo Box, Drop-In Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	48	13.20	20ME
D1500-DUDIRB	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-In Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	48	13.40	20ME
D1500-DICIR	13"x20"x12" Jumbo Box, Drop-In Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black/Black	48	14.40	20ME
D1500-DUCIRCR	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-In Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black/Black	48	13.20	20ME
D1500P-DUOLSB	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-In Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Purple/Purple	48	13.60	20ME
Overlapping Box & Cover					
D1500-OLSB	13"x20"x12" Jumbo Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	48	13.20	20ME
D1500-BOCLSB	13"x20"x12" Jumbo Box, Bolt Down Overlapping Solid Plastic Cover - Water Meter	Black/Black	48	13.40	20ME
D1500-OLSG	13"x20"x12" Jumbo Box, Overlapping Solid Plastic Cover	Black/Green	48	13.20	200V
D1500-OLRB	13"x20"x12" Jumbo Box, Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	48	13.20	20ME
Drop In Cover Only					
D1500-DISBL	13"x20" Drop-In Solid Plastic Cover - Water Meter	Black	96	3.80	20ME
D1500-DISPL	13"x20" Drop-In Solid Plastic Cover - Reclaimed Water	Purple	96	3.80	200V
D1500-DIRBL	13"x20" Drop-In Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black	96	3.80	20ME
D1500-DICIR LD	13"x20" Drop-In Meter Reader Solid Cast Iron Reader Cover - Water Meter	Black	96	5.00	20ME
Overlapping Cover Only					
D1500-OLSBL	13"x20" Jumbo Overlapping Solid Plastic Cover - Water Meter	Black	96	3.80	20ME
D1500-OLSGL	13"x20" Jumbo Overlapping Solid Plastic Cover	Green	96	3.80	200V
Box Only					
D1500-BO	13"x20"x12" Jumbo Box	Black	48	6.40	20ME
D1500-DUBOBO	13"x20"x12" Dual Pipe Slot Jumbo Box	Black	48	6.60	20ME
D1500-BOBO	13"x20"x12" Jumbo Bolt-Down Box	Black	48	6.60	20ME
1500-EXT	13"x20"x6" Extension Only	Black	36	5.60	20ME



ALL LOCKING LIDS REQUIRE PART NUMBER DIKEY FOR UNLOCKING
Note: All dimensions are nominal. All weights are for shipping purposes only. Availability is subject to change.

NDS
For customer service, please send your fax to: 1-800-726-1998 or call 1-800-726-1994.

JUMBO PLASTIC METER BOX
NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-20

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 000723

CITY UTILITY DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

DATE	REVISIONS
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9	
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11	

DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C933

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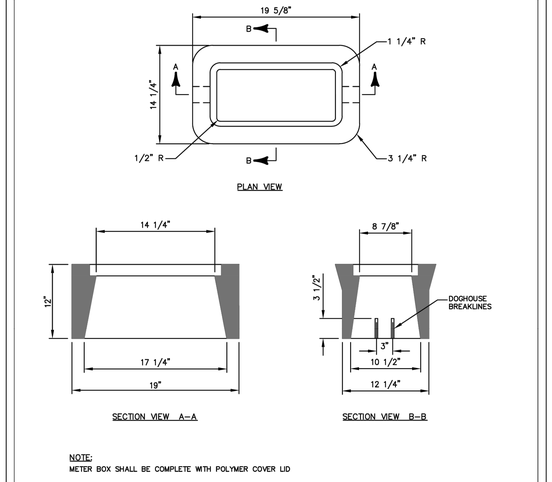


NOTE:
METER BOX SHALL BE COMPLETE WITH POLYMER COVER LID

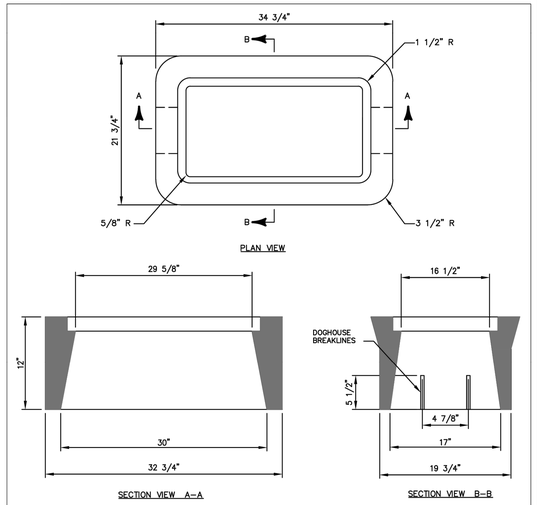
SINGLE POLYMER METER BOX

NOT TO SCALE

Howey–in–the–Hills
Standard Details

DATE: FEB 2022

DETAIL PW–21



NOTE:
METER BOX SHALL BE COMPLETE WITH POLYMER COVER AND LID

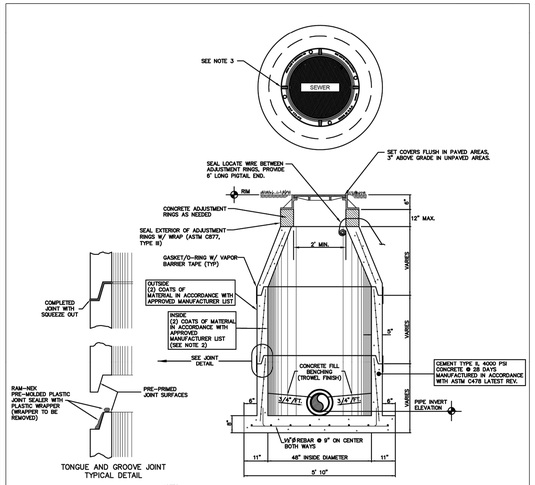
JUMBO POLYMER METER BOX

NOT TO SCALE

Howey–in–the–Hills
Standard Details

DATE: FEB 2022

DETAIL PW–22



NOTES
1. ALTERNATE–PRECAST MANHOLE TOPS MUST BE APPROVED IN ADVANCE.
2. LINER (100 MILS DFT) SHALL BE USED WHERE SHOWN ON DRAWINGS AND/OR REQUIRED BY THE CITY.
3. MANHOLE LID TO BE CENTERED OVER EFFLUENT PIPE.
4. INSTALL ONE CONTINUOUS PIECE OF RAM–NEK AROUND ENTIRE MATING SURFACE BETWEEN ADJUSTMENT RINGS AND MANHOLE FRAME.

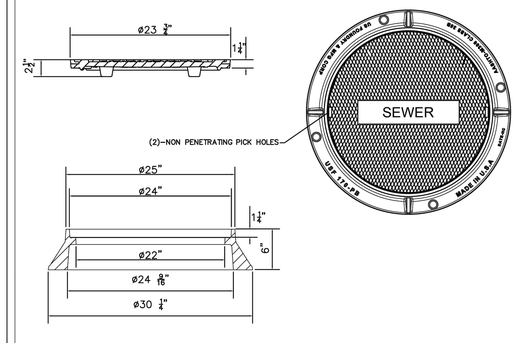
SANITARY PRECAST MANHOLE

NOT TO SCALE

Howey–in–the–Hills
Standard Details

DATE: FEB 2022

DETAIL WW–1



*MODEL USF 170–PB RING AND CE–PB COVER
RING NO. 8021468
COVER NO. 8017774
MATERIAL AASHTO M306 GRAY CAST IRON CLASS 35B

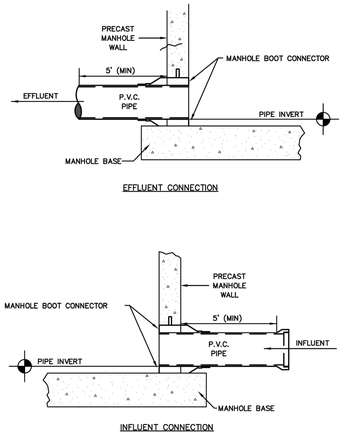
SANITARY MANHOLE COVER

NOT TO SCALE

Howey–in–the–Hills
Standard Details

DATE: FEB 2022

DETAIL WW–2



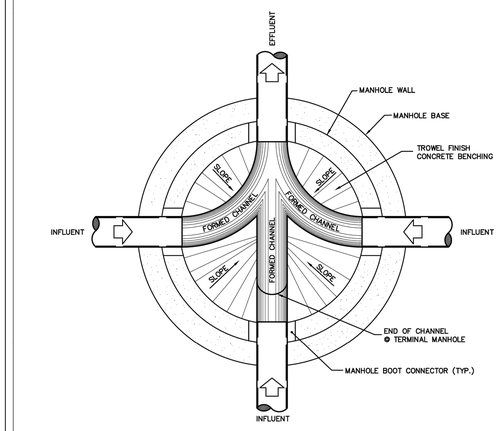
PIPE CONNECTION TO PRECAST SANITARY MANHOLE

NOT TO SCALE

Howey–in–the–Hills
Standard Details

DATE: FEB 2022

DETAIL WW–3



FLOW PATTERNS FOR INVERT CHANNELS

NOTES:
1. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS, HALF PIPE INVERT CHANNELS.
2. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOWS.
3. CHANNELS FOR FUTURE CONNECTIONS (STUBS) SHALL BE CONSTRUCTED, FILLED WITH SAND AND COVERED WITH 1" OF MORTAR.

TYPICAL MANHOLE PLAN

NOT TO SCALE

Howey–in–the–Hills
Standard Details

DATE: FEB 2022

DETAIL WW–4

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY UTILITY DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

	DATE	REVISIONS
1		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C934

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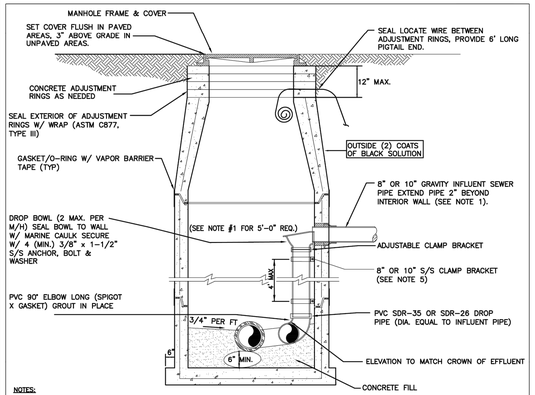


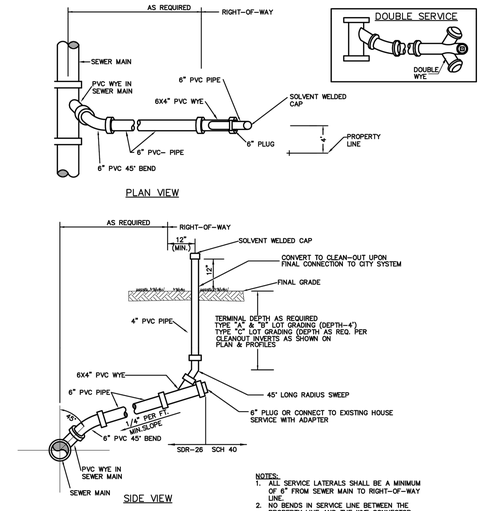
NOTES:

1. THIS ASSEMBLY IS FOR 8" OR 10" GRAVITY INFLUENT LINES ONLY. NO DROPS ALLOWED FOR FORCE MAINS. MAXIMUM OF 2 INSIDE DROP BOWLS PER MANHOLE. A 5'-0" DIA. MANHOLE (6" THICK WALLS) IS REQUIRED. THE INSIDE DROP FOR 8" HIGH-LINE SHALL BE CONSTRUCTED SIMILAR TO ABOVE.
2. PRECAST MANHOLE SECTIONS TO BE MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITIONS OF A.S.T.M. C-478 WITH 4000 LB. CONC., TYPE II CEMENT. ALL LIFTING HOLES AND OUTSIDE INSERTS SHALL BE FILLED WITH NON-SHRINK GROUT AND COATED WITH BITUMINOUS WATERPROOFING MATERIAL.
3. THE INTERIOR OF MANHOLE AND THE INTERIOR OF ADJUSTMENT RINGS SHALL BE LINED (150 MILS DFT) AS INDICATED ON THE DRAWINGS AND/OR REQUIRED BY THE CITY.
4. THE DROP BOWL ASSEMBLY SHALL BE INSTALLED PRIOR TO APPLICATION OF SPECIALTY LINING MATERIAL.
5. ADJUSTABLE CLAMPING BRACKET (MIN. 2 PER DROP BOWL ASSY). 1-1/2" WIDE, 11 GA. W/ 3/8" DIA. 18-8 PINCH BOLTS AND NUTS. SECURE TO M/H WALL WITH (2) 3/8" X 1" BOLT, ANCHOR & WASHER PER BRACKET ASSY. ALL 316 STAINLESS STEEL MATERIALS.
6. INSTALL ONE CONTINUOUS PIECE OF RAM-NEK AROUND ENTIRE MATING SURFACE BETWEEN ADJUSTMENT RINGS AND MANHOLE FRAME.
7. MANHOLE LID SHALL BE CENTERED OVER DROP BOWL.

INSIDE DROP STANDARD PRECAST MANHOLE

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-5

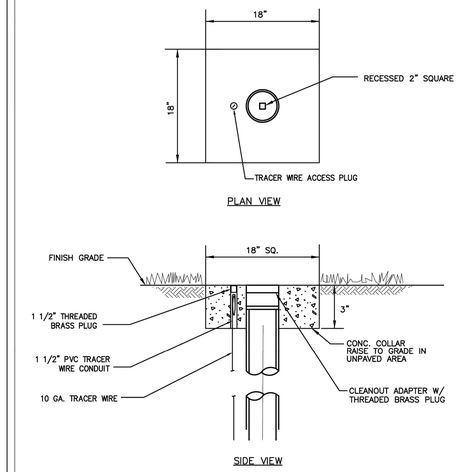


NOTES:
1. ALL SERVICE LATERALS SHALL BE A MINIMUM OF 6" FROM SEWER MAIN TO RIGHT-OF-WAY LINE.
2. NO BENDS IN SERVICE LINE BETWEEN THE PROPERTY LINE AND THE WYE CONNECTOR.

SANITARY SEWER SERVICE

PVC SEWER SERVICE - NOT TO SCALE

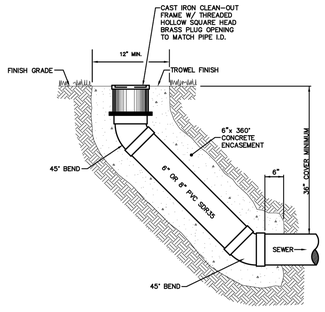
Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-6



SERVICE CLEANOUT

NOT TO SCALE

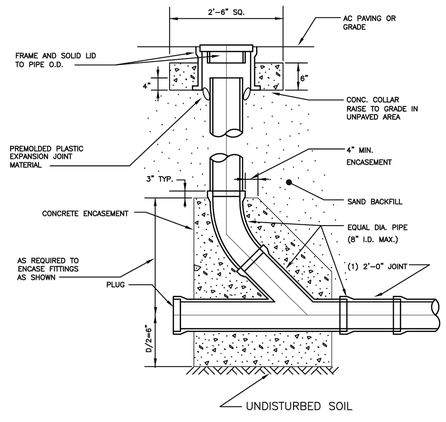
Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-7



TRUNK LINE CLEAN-OUT

NOT TO SCALE

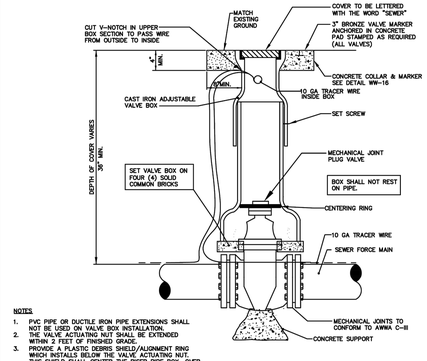
Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-8



GRAVITY CLEAN-OUT

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-9



NOTES

1. PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE VALVE ACTUATING NUT SHALL BE EXTENDED WITHIN 2 FEET OF FINISHED GRADE.
3. PROVIDE A PLASTIC DEBRIS SHIELD/ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
4. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MGRADE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
5. VALVE BOX SHALL BE A TWO PIECE SCREW TYPE.

PLUG VALVE AND BOX

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-13

MADDEN
MOORHEAD & STOKES, LLC
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(407) 629-8330
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CITY UTILITY DETAILS FOR LAKE HILLS PHASE 1 — LAKE COUNTY, FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C935

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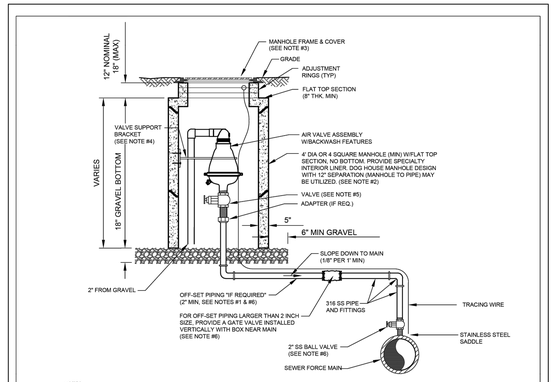


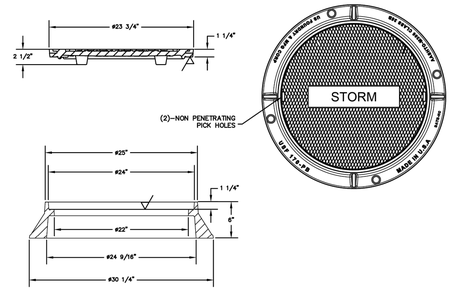
NOTES:

1. THE AIR ASSEMBLY MANHOLE SHALL BE LOCATED OUTSIDE OF THE ROADWAY PAVEMENT AREA. IF OFF-SET PIPING IS REQUIRED, THE PIPING SHALL BE 2 INCH MINIMUM, (SAME SIZE AS AIR VALVE INLET). FOR PIPE SIZES 3 INCH AND SMALLER, PIPING SHALL BE 316 STAINLESS STEEL, SCH 40, STD GRADE, THREADED. FOR PIPE SIZES 4 INCH AND LARGER, PIPING SHALL BE 316 STAINLESS STEEL, SCH 10 (MIN). WELDED.
2. THE CONCRETE MANHOLE SHALL INCLUDE A LINER TO BE INSTALLED ON THE INTERIOR SURFACES INCLUDING THE RISER SECTION TOP AND THE ADJUSTMENT RINGS. A BITUMINOUS WATERPROOFING MATERIAL SHALL BE PROVIDED ON THE OUTSIDE SURFACES OF THE MANHOLE.
3. FRAME AND COVER SHALL BE CITY STANDARD. THE COVER SHALL HAVE NO GASKET TO ALLOW AIR TO EXIT VAULT (REMOVE GASKET IF NECESSARY FROM THE UNDERSIDE OF STANDARD COVER). THE COVER (WHEN FLIPPED OPEN) MUST CLEAR THE AIR VALVE ASSEMBLY AT ALL TIMES OR A SQUARE TOP WITH ALUMINUM DOOR SHALL BE PROVIDED (NON TRAFFIC LOCATIONS ONLY).
4. A VALVE SUPPORT BRACKET IS ONLY REQUIRED FOR ASSEMBLIES WHICH INCLUDE OFF-SET PIPING. THE BRACKET SHALL BE WELDED AND FABRICATED FROM ALL 316 STAINLESS STEEL MATERIALS AND INCLUDE 4"x 4" x ¼" THICK END PLATES (CONTOURED TO MATCH ATTACHING SURFACES), 3" ANGLE IRON FOR SUPPORT ARM AND TWO U-BOLTS 5/8" DIA TO ATTACH AROUND AIR VALVE. SECURE TO CONCRETE MANHOLE WITH FOUR 3/8" DIA X 2" LONG SS ANCHOR (MIN). MODIFY THE ABOVE AS REQUIRED TO FIT SPECIFIC AIR VALVE AND TO ASSURE A SOLID SUPPORT BRACKET.
5. FOR PIPE SIZES 3 INCH AND SMALLER, PROVIDE A STAINLESS STEEL BALL VALVE (2" MIN). FOR PIPE SIZES 4 INCH AND LARGER, PROVIDE A FLANGED PLUG VALVE. (LEVER ARM OPERATOR) SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
6. FOR A 2" AIR VALVE, PROVIDE 2" STAINLESS STEEL BALL VALVE AT THE MAIN. FOR AIR VALVES LARGER THAN 2" SIZE, PROVIDE A TAPPING SLEEVE OR DUCTILE IRON TEE FITTING. ALSO, FOR OFF-SET PIPING LARGER THAN 2 INCH SIZE, PROVIDE A GATE VALVE (INSTALLED VERTICALLY NEAR MAIN WITH A GEAR ACTUATOR). SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

AIR VALVE ASSEMBLY INSIDE MANHOLE

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-14



*MODEL USF 170-PB RING AND CE-PB COVER
RING NO. 8021468
COVER NO. 8017533
MATERIAL AASHTO M306 GRAY IRON CLASS35B

STORMWATER MANHOLE COVER

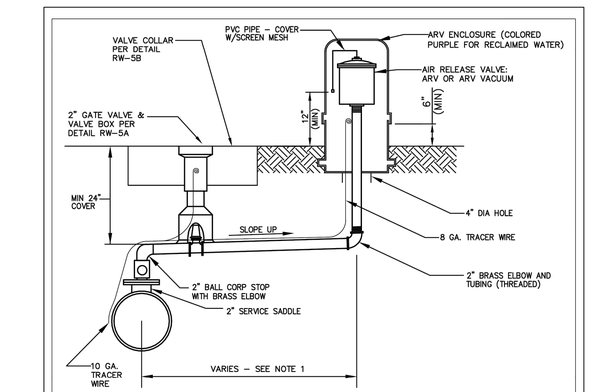
NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL SW-1

1. ALL RECLAIMED WATER PIPING TO BE OWNED AND MAINTAINED BY THE TOWN SHALL BE A SOLID PANTONE PURPLE COLOR.
2. RECLAIMED WATER MAINS SHALL BE PVC CONFORMING TO AWWA C-900, DR 18 FOR PIPE SIZES 4"-12". PIPES 14" & LARGER SHALL BE AWWA C-905, DR 25. PRESSURE CLASS 350 DIP IS AN ACCEPTABLE ALTERNATE. ALL COUPLINGS, CLEANING COMPOUNDS, SOLVENTS, LUBRICANTS, AND PIPE PREPARATION FOR LAYING SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURERS LATEST RECOMMENDATIONS.
3. DEPTH OF RECLAIMED WATER LINES TO BE 36" MIN. BELOW FINISHED GRADE.
4. RECLAIMED WATER MAINS TO BE LOCATED 5' FROM BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
5. ALL PIPING CLEARANCES SHALL BE IN ACCORDANCE WITH CHAPTER 62-555.314, F.A.C.
6. ALL RECLAIMED WATER MAINS UNDER PAVEMENT SHALL BE DUCTILE IRON PIPE AND SHALL EXTEND 5' BEYOND THE EDGE OF PAVEMENT OR BACK OF CURB, EXCEPT DIRECTIONAL BORES, WHICH SHALL BE SDR-11 HDPE.
7. ALL IRRIGATION SLEEVING UNDER PAVEMENT SHALL EXTEND 5' BEYOND THE EDGE OF PAVEMENT OR BACK OF CURB.
8. ALL OTHER REQUIREMENTS OF THE TOWN WATER SYSTEM SHALL APPLY TO THE RECLAIMED WATER SYSTEM.
9. PROPER SIGNAGE FOR PUBLIC ACCESS IRRIGATION AREAS TO BE SUPPLIED BY THE DEVELOPER / CONTRACTOR, IN ACCORDANCE WITH CHAPTER 62-610.418, F.A.C.

GENERAL RECLAIMED WATER NOTES

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL RW-1



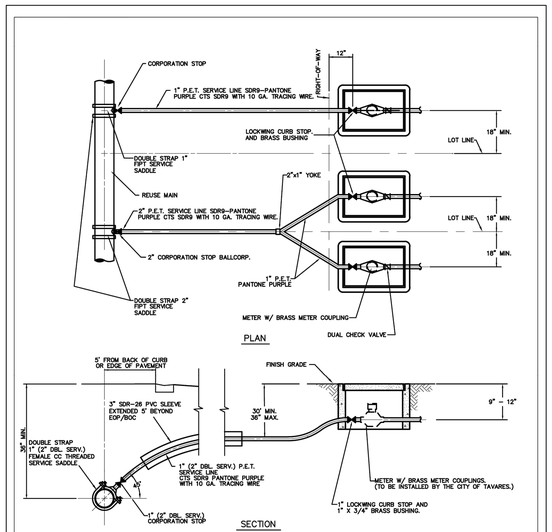
NOTES:

1. OFFSET DISTANCE SHOWN ON DRAWINGS.
2. ADJUST HORIZONTAL LOCATION OF ARV ENCLOSURE, AS REQUIRED TO AVOID SIDEWALK. LOCATE ARV ENCLOSURE WITHIN 1' OF R/W OR AS OTHERWISE DETERMINED BY THE CITY.

OFFSET AIR RELEASE VALVE VAULT

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL RW-2

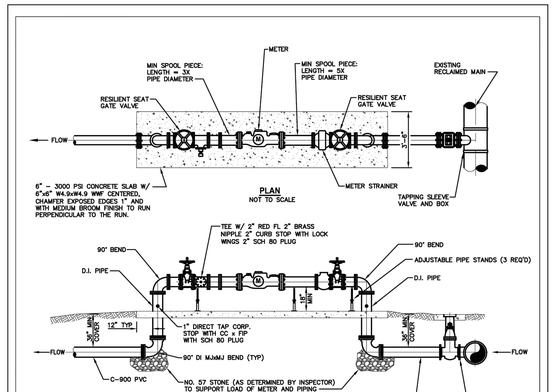


RECLAIMED WATER SERVICE CONNECTION

NOT TO SCALE

(NOTE: METERS TO BE INSTALLED BY CITY OF TAVARES.)

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL RW-3



NOTES:
1. ALL ABOVE GROUND PIPE TO BE PAINTED WITH 2 COATS OF APPROVED PANTONE PURPLE PAINT.

RECLAIMED WATER METERING

NOT TO SCALE

(NOTE: METERS TO BE INSTALLED BY CITY OF TAVARES.)

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL RW-4

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CITY UTILITY DETAILS FOR LAKE HILLS PHASE 1 — FLORIDA — LAKE COUNTY

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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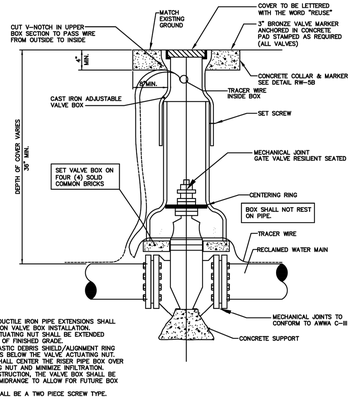

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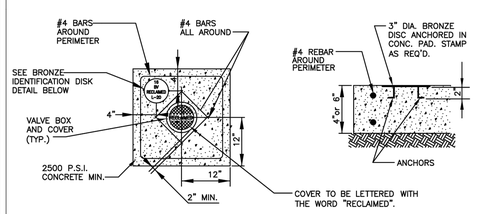
GATE VALVE AND BOX

NOT TO SCALE

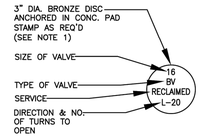
Howey-in-the-Hills
Standard Details

DATE: FEB 2022

DETAIL RW-5A



NOTE:
1. BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.
2. 6" THICK CONCRETE PAD IN ROADWAY OR PAVED AREAS, 4" THICK CONCRETE PAD IN OTHER AREAS.



BRONZE IDENTIFICATION DISC DETAIL

VALVE COLLAR

NOT TO SCALE

Howey-in-the-Hills
Standard Details

DATE: FEB 2022

DETAIL RW-5B

MADDEN
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CITY UTILITY DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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DATUM: NAVD 88
DESIGNED BY: PCR
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APPROVED BY: DAS

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