Exhibit C: Historical Aerial

Martin County, FL
Legend
Parcel Polygons
Parcel Backlines
Parcel Easements
High : 255
Low : 0


Martin County, FL
SE Way
SE Burning Tree Cir
SE Mariner Sands DR
SE Pacific DR
SE Winged Foot DR
SE Federal Hwy
SE Devenwood Way
SE Seagate LN
SE Fiddlewood LN
SE Seabranch Blv
SE Forest Oak LN
Preserve Trc
820
Feet
N
Date: 10/18/2017
This Geographic Information System Map Product received from Martin County (COUNTY) in fulfillment of a public records request is provided "as is" without warranty of any kind, and the COUNTY expressly disclaims all express and implied warranties, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. the COUNTY does not warrant, guarantee, or make any representation regarding the use, or the results of the use, of the information provided to you by the COUNTY in terms of correctness, accuracy, reliability, timeliness or otherwise. The entire risk as to the results and performance of any information obtained from the COUNTY is assumed by the recipient.
Author: Martin County GIS
Copyright: Copyright 2015

Exhibit D: Soils Map

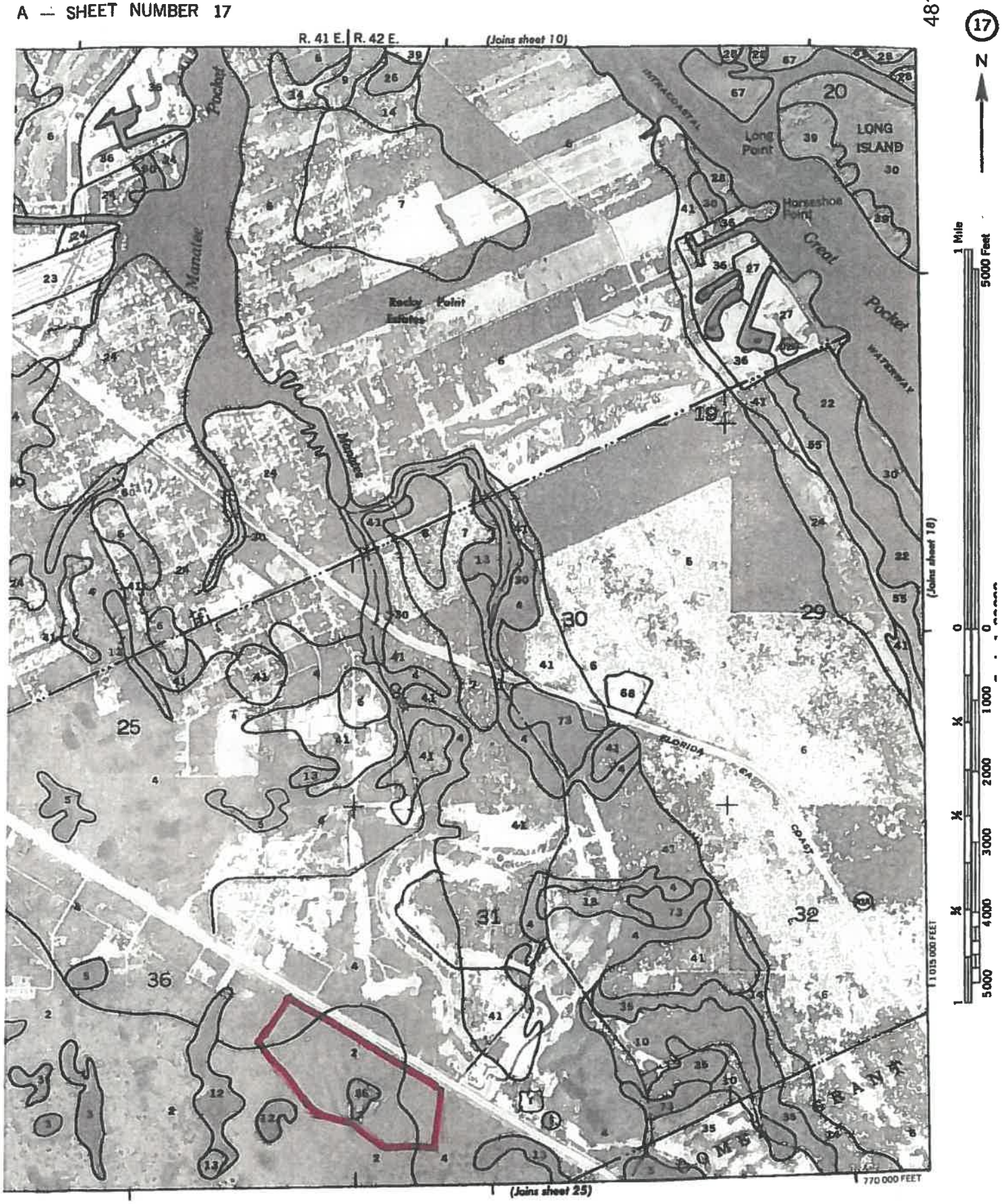

R. 41 E.
R. 42 E.
(Joins sheet 10)
Manatee Pocket
Manatee River
Rocky Point Estates
INTRACOASTAL WATERWAY
Long Point
LONG ISLAND
Horseshoe Point
Great Pocket
FLORIDA GULF COAST
(Joins sheet 18)
(Joins sheet 25)
770 000 FEET
1 015 000 FEET
1 Mile
5000 Feet
N
17

Exhibit E:
Florida Land Use Cover Classification System (FLUCCS) Map

Mariner Village Square
FLUCCS Map

Florida Land Use Cover Classification System (FLUCCS)

Total Site Area: 883,434 sf / 20.28 ac.

	Existing Developed Area:	81,078 sf / 1.86 ac.
OSW	(Other Surface Waters):	69,956 sf / 1.61 ac.
FLUCCS #192	(Inactive Urban Land):	564,015 sf / 12.94 ac.
FLUCCS #411	(Pine Flatwoods):	129,256 sf / 2.97 ac.
FLUCCS #641	(Freshwater Marsh):	39,129 sf / 0.90 ac.

Exhibit F: Agency Correspondence

Morris Crady

From: Huffman, Jessica <jhuffman@sfwmd.gov>
Sent: Tuesday, November 19, 2019 12:23 PM
To: lleonard@bowmanconsulting.com; Morris Crady
Subject: 190520-1438; Mariner Village Sqaure

Good afternoon Lisa,

After a review of the 2nd RAI response for the referenced application, there are various comments that still need to be addressed. Please review the following and provide answers as soon as possible in order to complete our review:

Since the 2nd RAI response submitted on October 28, 2019 was not a complete response, I ask that you upload a letter to ePermitting indicating that the response was not meant to be a full response the RAI and you would like to retract the previous response. This will reset our timeclock and allow us to coordinate with you until a full response can be achieved.

1) **The application fee ($5,500) has not been received.** Please note an application cannot be considered complete until the appropriate application fee is received.
2) **Will dewatering be required?** If so please indicate whether dewatering will qualify for a General Permit by Rule or if a dewatering permit will be required.
3) To demonstrate that the areas to be placed under easement are free and clear of easements or other encumbrances that could be inconsistent with the purpose of the conservation easement (liens, utility lines, roadways, flow ways, mineral rights, etc.), **please provide an Ownership and Encumbrance report from a title company.** Any encumbrances that are inconsistent with the easement must be resolved prior to issuance of the permit.
4) Please update the work schedule to remove specific calendar dates by replacing it with the one below:

ACTIVITY SCHEDULE	APPROX. TIMEFRAME (no later than)
1. Baseline Monitoring Report	30 days after permit issuance
2. Submit Recorded Conservation Easement	30 days after permit issuance
3. Control Structures Construction/Temporary Impact Restoration	6 months after permit issuance
4. Submit First Monitoring Report	1 year after permit issuance
5. Submit Second Monitoring Report	1 year after report 1
6. Submit Third Monitoring Report	1 year after report 2
7. Submit Fourth Monitoring Report	1 year after report 3
8. Submit Fifth Monitoring Report	1 year after report 4

After the initial five-year monitoring period, the Conservation Easement may be subject to periodic review and, if conditions warrant, will be subject to further monitoring and maintenance to ensure environmental integrity, consistent with the provisions of this Plan.

Thank you,

JESSICA HUFFMAN
Environmental Analyst 2
Environmental Resource Bureau | Regulation Division
South Florida Water Management District
316 NW 5th Street., Okeechobee, FL 34972
Phone: (863) 462-5260, x3018
jhuffman@sfwmd.gov

To electronically submit a new application or a response to a request for additional information, go to:

NOTE:

While the District supports that it is commonplace and convenient to collaborate via email during the pre-application/application process, Permit Applications and Responses to a Request for Additional Information (RAI) submitted via email are not an official submittal (Section 4.4 of Environmental Resource Permit Applicant's Handbook Volume I). For timely and efficient processing of permit applications and RAI responses, please submit online using ePermitting (link above).

Please note that Florida has a broad public records law and that all correspondence via email may be subject to disclosure.

Morris Crady

From: Huffman, Jessica <jhuffman@sfwmd.gov>
Sent: Monday, October 28, 2019 9:07 AM
To: Morris Crady
Subject: RE: Mariner Village Square Phase 2 master and final site plan

Morris,

Based on the provided documents, it appears the wetland line matches what the District verified in the field.

JESSICA HUFFMAN
Environmental Analyst 2
Environmental Resource Bureau | Regulation Division
South Florida Water Management District
316 NW 5th Street., Okeechobee, FL 34972
Phone: (863) 462-5260, x3018
jhuffman@sfwmd.gov

To electronically submit a new application or a response to a request for additional information, go to:
sfwmd.gov/ePermitting

NOTE:
While the District supports that it is commonplace and convenient to collaborate via email during the pre-application/application process, Permit Applications and Responses to a Request for Additional Information (RAI) submitted via email are not an official submittal (Section 4.4 of Environmental Resource Permit Applicant's Handbook Volume I). For timely and efficient processing of permit applications and RAI responses, please submit online using ePermitting (link above).

Please note that Florida has a broad public records law and that all correspondence via email may be subject to disclosure.

From: Morris Crady <mcrady@lucidodesign.com>
Sent: Tuesday, October 22, 2019 4:12 PM
To: Daniel Saskowsky <dsaskowsky@bellsouth.net>; Huffman, Jessica <jhuffman@sfwmd.gov>; Shawn Mccarthy <smccarth@martin.fl.us>
Subject: RE: Mariner Village Square Phase 2 master and final site plan

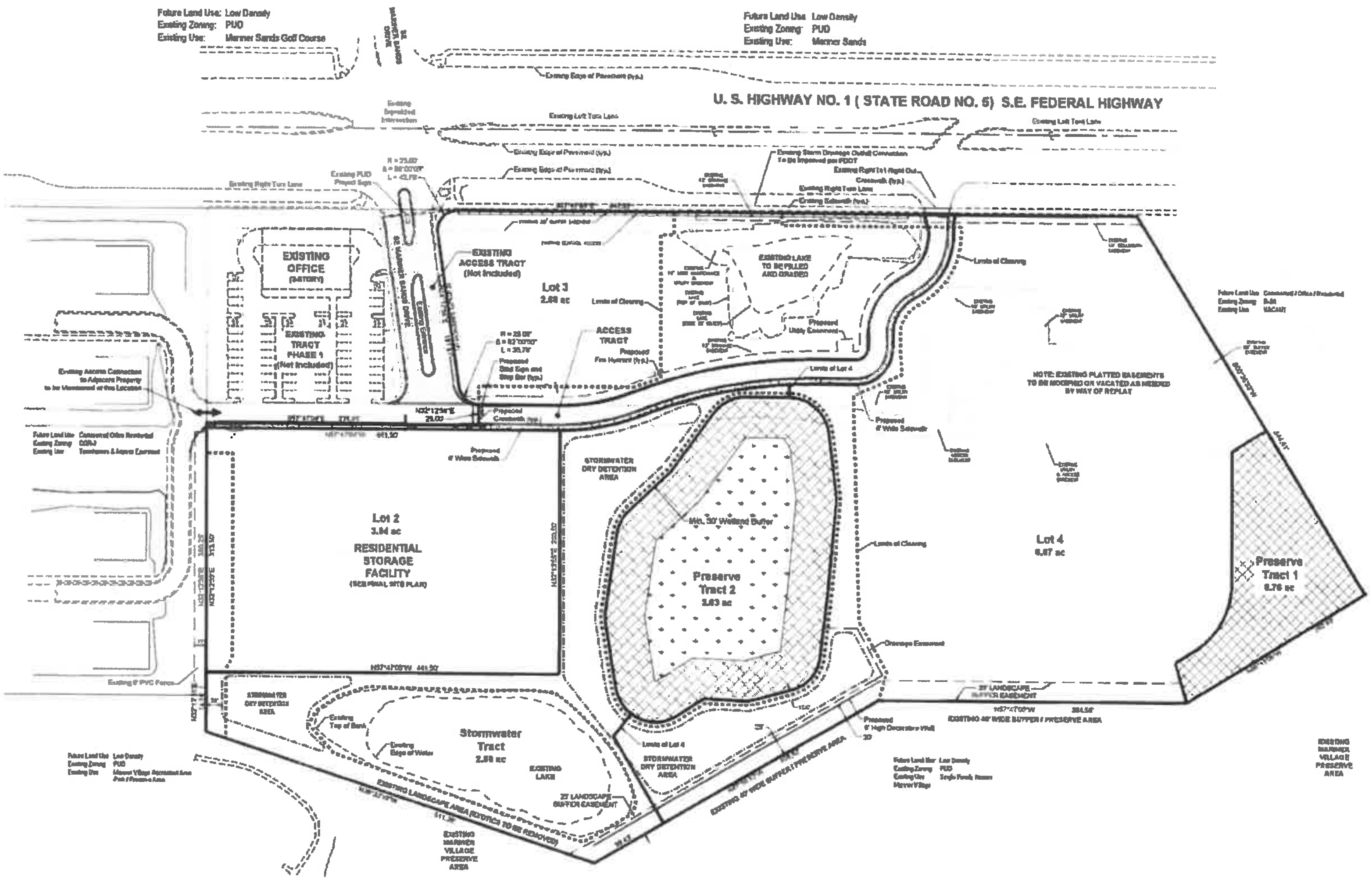
Thanks Dan.

Shawn,
We are in the process of obtaining the SFWMD permit, which will be attached to the PAMP upon receipt. The original wetland JD that is shown on the approved master plan was accepted.

Jessica,
Please confirm the wetland jurisdictional determination per our site visit as shown on the attached plans and documents or provide a preliminary JD letter as requested by Shawn.

Thank you!

Exhibit G: Final Site Plan & Landscape Plans



Legend

- Upland Preserve
- Wetland Buffer
- Wetland Preserve
- Boundary, Lot, Tract Line
- Phase 2 Plat Infrastructure (Limits of Clearing and Grading)
- Stormwater Dry Detention Area (Top of Bank)

General Notes:

[illegible]

Site Data

Lot 2 (See Final Site Plan)

Total Site Area:	132,450 s.f.	(3.04 ac.)	
Impervious Area.	103,132 s.f.	(2.37 ac.)	(78%)
Buildings Footprint	38,479 s.f.	(1.20 ac.)	
Pavement	52,124 s.f.	(0.89 ac.)	
Covered Parking	12,533 s.f.	(0.29 ac.)	
Pervious Area.	29,318 s.f.	(0.67 ac.)	(22%)
Landscape \ Open Space Areas	29,318 s.f.	(0.67 ac.)	

Access Tract

Total Site Area	24,441 s.f.	(0.56 ac.)	
Impervious Area.	24,441 s.f.	(0.56 ac.)	(100%)
Pavement	24,441 s.f.	(0.56 ac.)	
Pervious Area	0 s.f.	(0.00ac.)	(0%)

Preserve Tracts

Total Site Area:	121,027 s.f.	(2.78 ac.)
Wetland	39,130 s.f.	(0.90 ac.)
Upland Buffer	81,897 s.f.	(1.88 ac.)

Stormwater Tract

Total Site Area:	116,741 s.f.	(2.68 ac.)	
Impervious Area.	33,436 s.f.	(0.77 ac.)	(29%)
Existing Lake	33,436 s.f.	(0.77 ac.)	
Pervious Area.	83,305 s.f.	(1.91ac.)	(71%)
Landscape \ Open Space Areas	49,878 s.f.	(1.14 ac.)	
Stormwater Treatment Areas	33,436 s.f.	(0.77 ac.)	

Lot 3*

Total Site Area:	117,032 s.f.	(2.69 ac.)
Cleared and Filled Areas	55,371 s.f.	(1.28 ac.)
Undisturbed Areas	61,661 s.f.	(1.42 ac.)

Lot 4*

Total Site Area:	290,803 s.f.	(6.67 ac.)
Cleared and Filled Areas	42,317 s.f.	(0.97 ac.)
Undisturbed Areas	231,321 s.f.	(5.31 ac.)
Stormwater Treatment Areas	16,925 s.f.	(0.39 ac.)

* Note
Refer to Revised Master Plan for overall Pervious/Impervious area calculations.

Lot & Tract Areas

Lot 2:	132,450 s.f.	(3.04 ac.)
Lot 3:	117,032 s.f.	(2.69 ac.)
Lot 4:	290,803 s.f.	(6.67 ac.)
Access Tract:	24,441 s.f.	(0.56 ac.)
Stormwater Tract:	116,741 s.f.	(2.68 ac.)
Preserve Tracts:	121,027 s.f.	(2.78 ac.)
Total Site Area:	802,294 s.f.	(18.42 ac.)

Site Data

Existing Zoning	PUD
Future Land Use Designation	General Commercial
Existing Use:	Existing Office and Vacant
Parcel Control Numbers:	31-38-42-000-014-00010-6
	31-38-42-008-000-00042-9

lucido & associates

Key / Location:

Project Team

Mariner Village Square PUD

Martin County, Florida

Phase 2
Plat Infrastructure
Final Site Plan

Date | By | Description

SCALE: 1" = 60'

Thomas P. Lucido

1 of 1

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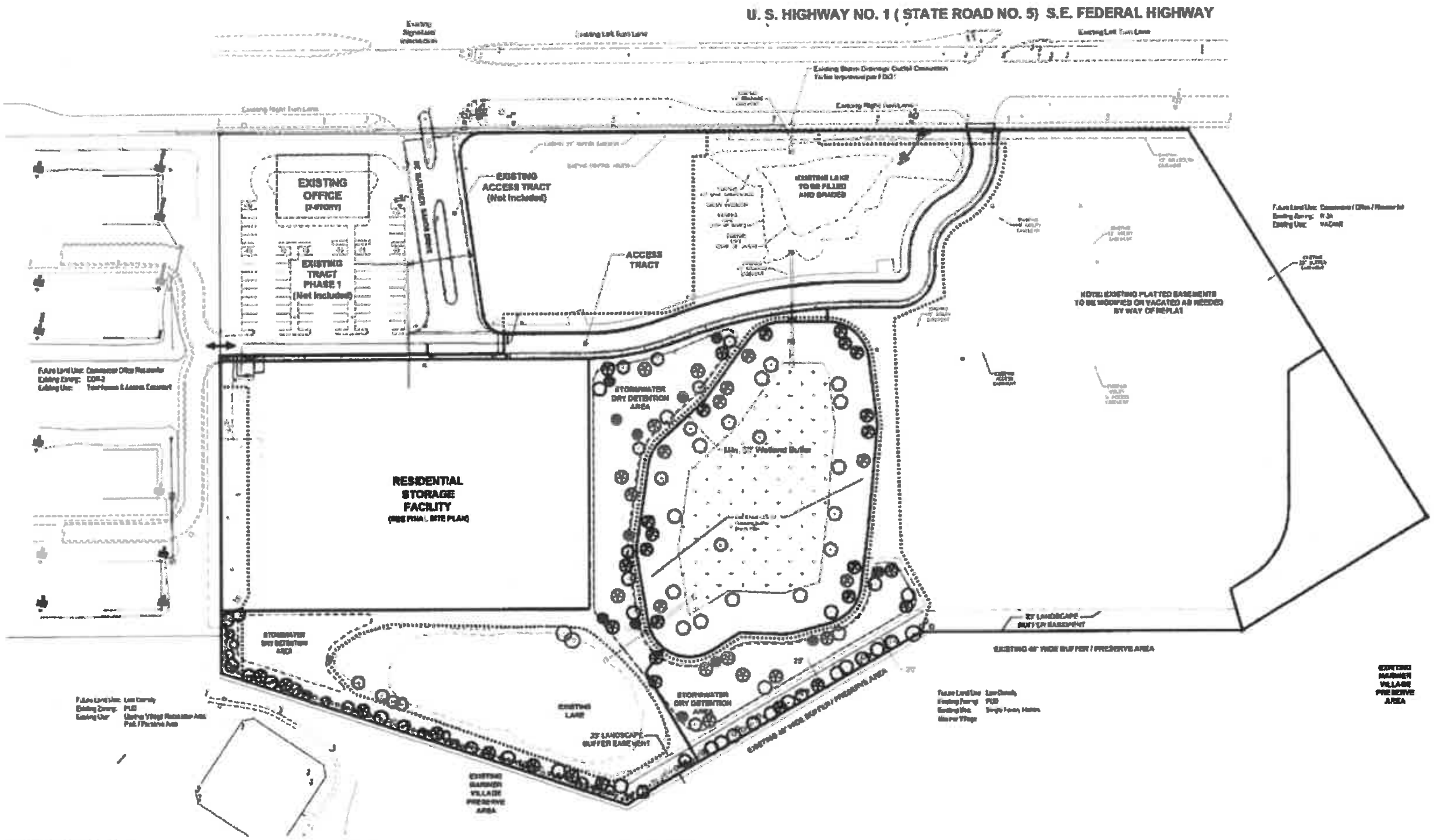

Landscape Notes:

[illegible]

Site Data

Access Tract

Total Site Area:	24,441 s.f.	(0.56 ac.)
Impervious Area:	24,441 s.f.	(0.56 ac.)
Pavement:	24,441 s.f.	(0.56 ac.)
Pervious Area:	0 s.f.	(0.00ac.)

Stormwater Tract

Total Site Area:	116,741 s.f.	(2.68 ac.)
Impervious Area:	33,436 s.f.	(0.77 ac.)
Existing Lake	33,436 s.f.	(0.77 ac.)
Pervious Area:	83,305 s.f.	(1.91ac.)
Landscape / Open Space Areas.	49,879 s.f.	(1.14 ac.)
Stormwater Treatment Areas.	33,436 s.f.	(0.77 ac.)

Lot 3*

~~Total Site Area:~~	~~117,032 s.f.~~	~~(2.69 ac.)~~
Cleared and Filled Areas:	65,371 s.f.	(1.35 ac.)
~~Undisturbed Areas:~~	[illegible]	[illegible]

Lot 4*

~~Total Site Area:~~	[illegible]	[illegible]
Cleared and Filled Areas	42,337 s.f.	(0.97 ac.)
~~Undisturbed Areas:~~	[illegible]	[illegible]
Stormwater Treatment Areas	16,925 s.f.	(0.39 ac.)

Preserve Tracts

~~Total Site Area:~~	~~121,527 s.f.~~	~~(2.79 ac.)~~
~~Wetland~~	[illegible]	[illegible]
~~Upland Buffer~~	[illegible]	[illegible]

Landscape Data:

Total Landscape Area Required:
255,835 sf (20%) = 51,167 SF 1.17 AC
Total Landscape Area Provided:
197,958 SF, 4.5 AC

Landscape Requirements

Total Site Developed Area: 255,835 SF
Required Trees. 103 Trees
Provided Trees 142 Trees (39 Used on Mitigation Credits)

Sheet Index:

Landscape Plan	LA-1
Detail Landscape Plan	LA-2
Plant Schedule & Wetland Buffer Plan	LA-3
Details	LA-4
Specifications	LA-5

lucido & associates

Key / Location:

Project Team:

Mariner Village Square PUD

Martin County, Florida

Phase 2
Plat Infrastructure
Landscape Plan

Date	By	Description
4.29.2019	PC	Initial Submittal

Sheet LA-1 of 5

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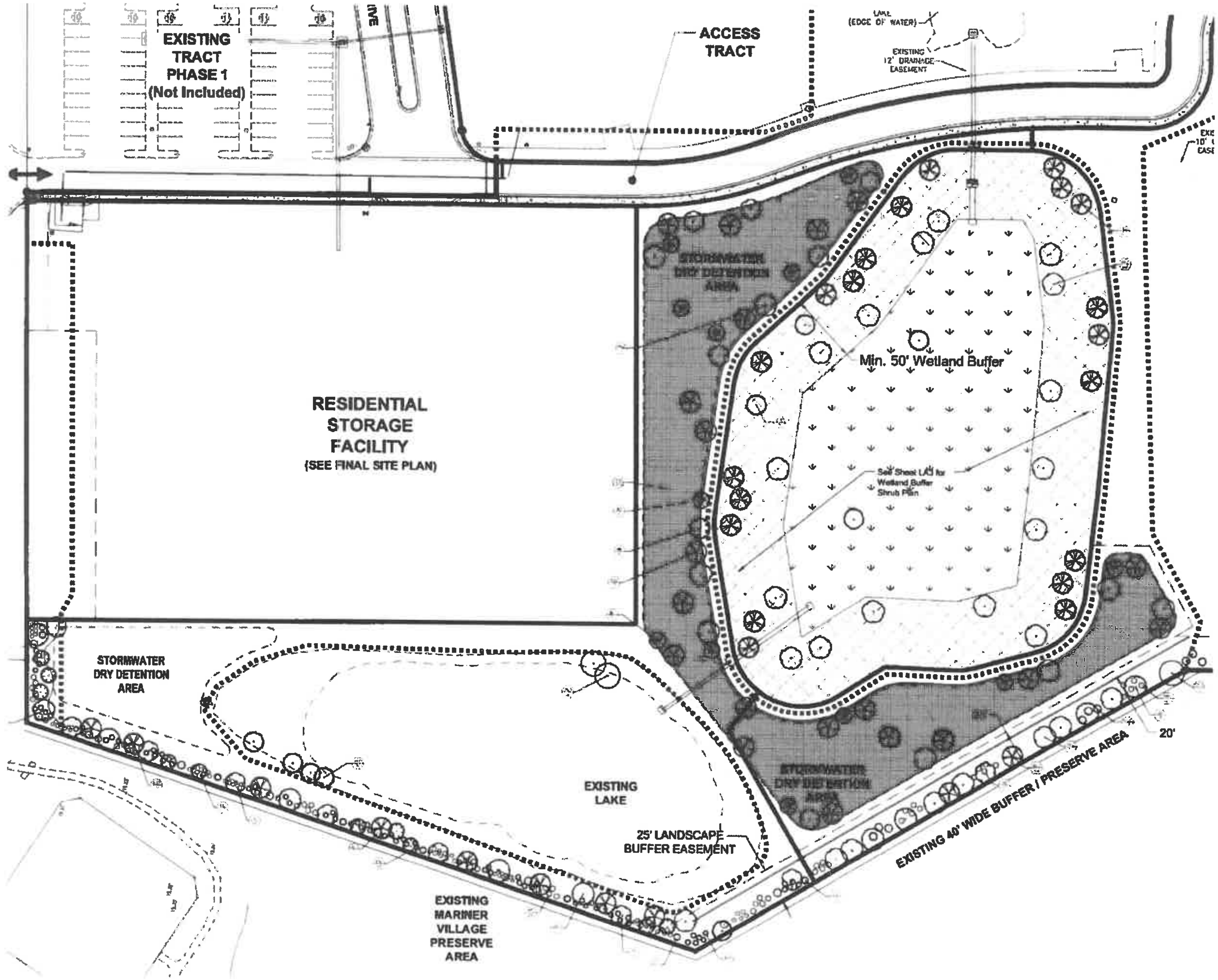

lucido & associates

Key / Location:

Project Team:

Mariner Village Square PUD

Martin County, Florida

Phase 2
Plat Infrastructure
Detail Landscape Plan

Date	By	Description
	PO	Initial Submittal

LA-2 of 5

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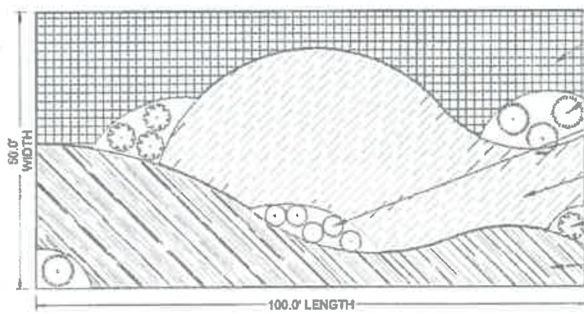
PLANT SCHEDULE PLAT INFRASTRUCTURE

NATIVE	TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SPECS	
x		AR	15	Acer rubrum	Red Maple	FG, 12' HT x 5' SPR, 3"C, HD, AS	
x		AR2	33	Acer rubrum	Red Maple	FG, 14' HT x 6' SPR, 4" C, F, 5P (13 Used as Mitigation Tree Credits)	
x		EPE	9	Pinus elliottii	Slash Pine	Existing to Remain (17 Preserve Tree Credits)	
x		PE	10	Pinus elliottii 'Densa'	South Florida Slash Pine	F... 14' 16' HT x 7' SPR, F, 5P, HD 3 months min., Sprayed for borers, AS	
x		PD2	20	Pinus elliottii 'Densa'	Slash Pine	FG, 16' HT x 8' SPR, 4" C, HD, 5P (20 Used as Mitigation Tree Credits)	
x		QV	9	Quercus virginiana	Southern Live Oak	65G, 14' X8', 4"C (Preserve Tree Credits)	
x		QV3	3	Quercus virginiana	Southern Live Oak	Existing to Remain	
		TD	12	Taxodium distichum	Bald Cypress	25G, 10' x4', 2"C, 5P	
x		TD2	30	Taxodium distichum	Bald Cypress	FG, 14' HT x 6' SPR, 4"C, F, 5P	
	SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SPECS	
x		CAA	26	Callicarpa americana	American Beautyberry	3G, 24" OA, F	
x		GAG	36	Galphimia glauca	Thryallis	3G, 24" HT x 18" SPR, FTB, 36" OC	
x		HPP	51	Hamelia patens	Fire Bush	3G, 24" OA, F,	
		MYF	8	Myrcianthes fragrans	Simpson's Stopper	3G, 24" OA, F	
x		MCC	19	Myrica cerifera	Wax Myrtle	CG, 6' HTx5' SPR, FTB	
		SCP	8	Serenoa repens 'Cinerea'	Silver Saw Palmetto	7G, 36" OA, F	
x		TRD	73	Tripsacum dactyloides	Fakahatchee Grass	3G, 24" OA, F, 48" OC	
	GRASSES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SPECS	SPACING
		SPB	4,886	Spartina bakeri	Sand Cordgrass	1G, 18" HT x 12" SPR, F	36" o.c.

NATIVE TREES PROVIDED: 143 (100%)

NATIVE SHRUBS PROVIDED: 5,071 (99%)



PLANT SCHEDULE - 100' TYPICAL WETLAND BUFFER

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SPECS	
HFP	5	Hamelia patens	Fire Bush	3G, 24" OA, F,	
MCC	4	Myrica cerifera	Wax Myrtle	CG, 6' HTx5' SPR, FTB	
SCP	4	Serenoa repens 'Cinerea'	Silver Saw Palmetto	7G, 36" OA, F	
SHRUB AREAS	QTY	BOTANICAL NAME	COMMON NAME	SPECS	SPACING
TD3	155	Tripsacum floridanum	Florida Gamagrass	1G, 18" OA, F	36" o.c.
GRASSES	QTY	BOTANICAL NAME	COMMON NAME	SPECS	SPACING
SPB	166	Spartina bakeri	Sand Cordgrass	1G, 18" HT x 12" SPR, F	36" o.c.
TDA	194	Tripsacum dactyloides	Fakahatchee Grass	1G, 18" OA, F	36" o.c.

PLANT SCHEDULE - TOTAL WETLAND BUFFER (1,020')

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SPECS	
HFP	50	Hamelia patens	Fire Bush	3G, 24" OA, F,	
MCC	40	Myrica cerifera	Wax Myrtle	CG, 6' HTx5' SPR, FTB	
SCP	40	Serenoa repens 'Cinerea'	Silver Saw Palmetto	7G, 36" OA, F	
SHRUB AREAS	QTY	BOTANICAL NAME	COMMON NAME	SPECS	SPACING
TD3	1,550	Tripsacum floridanum	Florida Gamagrass	1G, 18" OA, F	36" o.c.
GRASSES	QTY	BOTANICAL NAME	COMMON NAME	SPECS	SPACING
SPB	1,660	Spartina bakeri	Sand Cordgrass	1G, 18" HT x 12" SPR, F	36" o.c.
TDA	1,940	Tripsacum dactyloides	Fakahatchee Grass	1G, 18" OA, F	36" o.c.

lucido & associates

Key / Location:

Project Team

Applicant: ... Ventures, LLC, P.O. Box 418, Boynton Beach, FL

Land Planner / Landscape Architect / Environmental Planner: Lucido & Associates, 701 SE Ocean Boulevard, Stuart, FL

Engineer / Traffic Engineer / Surveyor: ... Consulting Group, 301 SE Ocean Blvd., Suite 301, Stuart, FL

Attorney: McCarty, ..., 2400 SE Federal Highway, 4th Floor, Stuart, FL

Mariner Village Square PUD

Martin County, Florida

Phase 2

Plat Infrastructure Plant Schedule & Wetland Buffer Plan

Date	By	Description

SCALE:

LA-3 of 5

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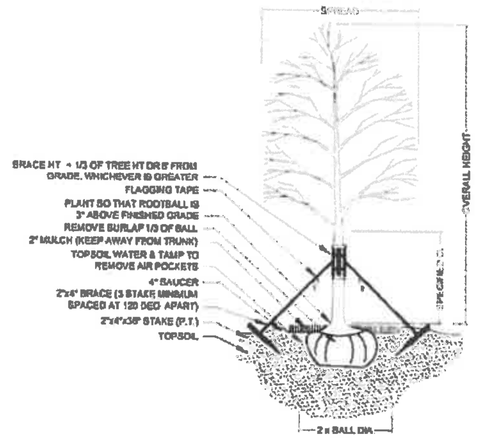
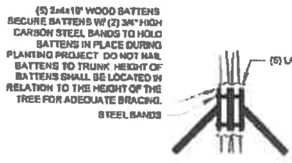
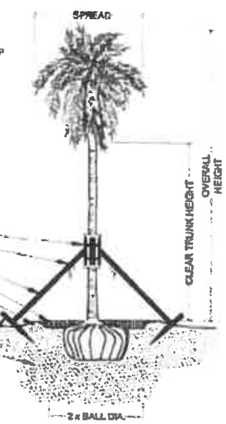


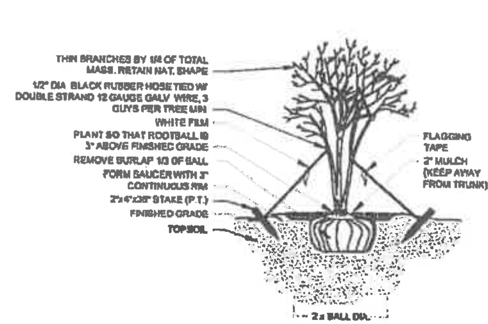
TREE PLANTING & STAKING
NOT TO SCALE



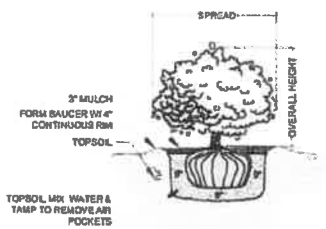
BRACING DETAIL
NOT TO SCALE



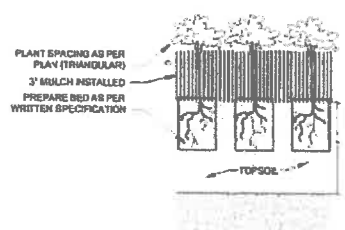
PALM PLANTING - ANGLE STAKE
NOT TO SCALE



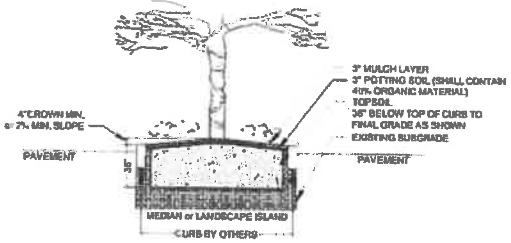
MULTI-TRUNK PLANTING & GUYING
NOT TO SCALE



SHRUB PLANTING
NOT TO SCALE

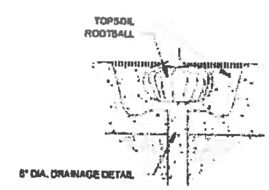


GROUNDCOVER PLANTING DETAIL
NOT TO SCALE

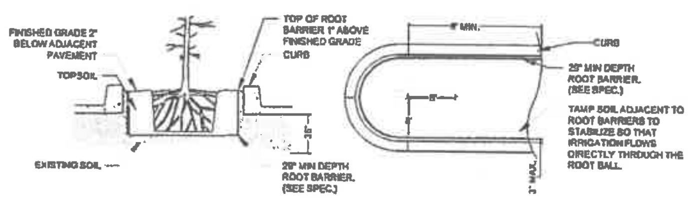


THIS DETAIL SHOWN DEPICTS A MEDIAN AND/OR LANDSCAPE ISLAND AND IS FOR GRAPHIC PURPOSES ONLY. SOIL PREPARATION SHALL APPLY TO ALL TREE, SHRUB, & GROUND COVER AREAS. THIS DOES NOT INCLUDE SOD AREAS

LANDSCAPE AREA PREPARATION DETAIL
NOT TO SCALE

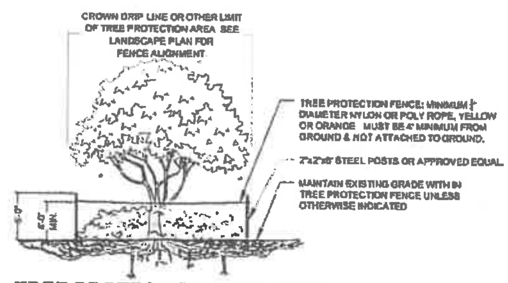


DRAINAGE TESTING DETAIL
NOT TO SCALE



SPECIAL APPLICATIONS ROOT BARRIER DETAIL
NOT TO SCALE

NOTES:
1- ROOT BARRIER SHALL BE INSTALLED WHEN ROOT BALL IS LOCATED WITHIN 8' OF PAVEMENT AND OR CURB.
2- ROOT BARRIER SHALL BE "BIO-BARRIER 29" DEPTH OR APPROVED EQUAL.
3- ROOT BARRIER SHALL BE INSTALLED PER MANUFACTURE'S SPECIFICATIONS AND RECOMMENDATIONS



TREE PROTECTION BARRICADE
NOT TO SCALE

NOTES:
1- SEE LANDSCAPE PLAN FOR FENCE ALIGNMENT.
3- NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST
4- NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.

DRAINAGE TESTING/DRAINAGE CHANNEL REQUIREMENTS.

PRIOR TO PLANTING, ALL PLANTING PITS SELECTED FOR TESTING SHALL BE TESTED IN THE FOLLOWING MANNER

A. DIG EACH PLANTING PIT TO THE MINIMUM SPECIFIED SIZE.

B. FILL PLANTING PIT WITH TWELVE INCHES (12") OF WATER. IF THE WATER LEVEL DROPS FOUR (4") OR MORE WITHIN FOUR (4) HOURS, THE DRAINAGE IS SUFFICIENT AND A DRAINAGE CHANNEL IS NOT REQUIRED. IF THE WATER LEVEL DROPS LESS THAN FOUR INCHES (4") WITHIN THE FOUR (4) HOUR PERIOD, A DRAINAGE CHANNEL IS REQUIRED.

C. WHERE REQUIRED, THE DRAINAGE CHANNEL MUST EXTEND DOWN THROUGH THE NON POROUS SOIL AND INTO POROUS SOIL. (SEE DETAIL)

D. ALL MATERIAL REMOVED FROM THE DRAINAGE CHANNEL SHALL BE DISCARDED

E. WHEN BACKFILLING PLANTING PITS WITH NATIVE TOPSOIL, CARE MUST BE TAKEN TO KEEP THE CONSISTENCY OF THE SOIL MIX THE SAME THROUGHOUT THE PLANTING PIT AND DRAINAGE CHANNEL.

lucido & associates

Key / Location:

Project Team

Mariner Village Square PUD

Martin County, Florida

Phase 2
Plat Infrastructure
Landscape Details

Date	By	Description

Sheet

LA-4 of 5

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LANDSCAPE SPECIFICATIONS

PART 1: GENERAL CONDITIONS

1.01 SCOPE.
A. The landscape contract includes the supplying and planting of all trees, shrubs, vines, and ground cover together with all necessary labor, equipment, tools and materials needed for the successful completion, execution and maintenance of the landscape plans.

1.02 AGENCY STANDARDS
A. Grades and standards of plant materials to be used shall be true to name, size, condition and graded Florida #1 or better as stated in Grades and Standards of Florida Plant Materials published by the State of Florida Department of Agriculture, Tallahassee, Florida.

1.03 SITE EXAMINATION
A. The Landscape Contractor shall personally examine the site and fully acquaint him/herself with all of the existing conditions in order that no misunderstanding may afterwards arise as to the character or extent of the work to be performed and, additionally, in order to acquaint him/herself with all precautions to be taken in order to avoid injury to property or persons. No additional compensation will be granted because of any unusual difficulties which may be encountered in the execution or maintenance of any portion of the work.

1.04 ERRORS AND OMISSIONS:
A. The plant list is a part of the drawings and is furnished as a convenience. The plant list indicates the name, size and quantities of specific plant materials as called for and is located on the drawings. The Landscape Contractor is responsible for his/her own quantity count, and any discrepancy between drawings and plant list shall be considered as correct on the drawings.

B. The Landscape Contractor shall not take advantage of errors or omissions in the specifications or contract drawings. Full instruction will be given if such errors are discovered. Upon the discovery of any discrepancies in, or omissions for the drawings or documents, or should the Landscape Contractor be in doubt as to their meaning, the Landscape Architect shall be called and will determine the actions necessary to each query.

C. If plans and specifications are found to disagree after the contract is awarded, the Landscape Architect will be the judge as to which was intended.

1.05 EXECUTION OF THE WORK:
A. The Landscape Contractor shall have his labor crews controlled and directed by a Foreman well versed in plant materials, planting methods, reading plans, and coordination between job and nursery in order to execute installation correctly and in a timely manner.

B. The Landscape Contractor shall provide a competent English speaking Foreman on the project at all times, who shall be fully authorized as the Contractor's agent on the work. The Foreman shall be capable of reading and thoroughly understanding the Plans, Specifications and other Contract Documents. [illegible]

C. [illegible]

1.06 PROTECTION OF PUBLIC AND PROPERTY:
A. [illegible]

1.07 CHANGES AND EXTRAS:
A. [illegible]

1.08 GUARANTEE:
A. [illegible]

B. [illegible]

1.09 CARE AND MAINTENANCE:
A. [illegible]

B. The Owner agrees to execute the instructions for such care and maintenance.

1.10 SAFETY
A. [illegible]

B. [illegible]

1.11 CONTRACTOR QUALIFICATION:
A. [illegible]
1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]

1.12 INSURANCE AND BONDING
A. [illegible]

B. [illegible]

1.13 PERMITS AND CERTIFICATES:
A. [illegible]

PART 2 MATERIALS

2.01 PLANT MATERIALS:
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

E. [illegible]

F. [illegible]

2.02 INSPECTION
A. [illegible]

2.03 PROTECTION OF PLANT MATERIALS
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

2.04 STORAGE
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

2.05 PROTECTION DURING PLANTING
A. [illegible]

2.06 TOP SOIL
A. [illegible]

B. [illegible]

2.07 FERTILIZER:
A. [illegible]

B. [illegible]

C. [illegible]

1 gallon container	1 tablet
3 gallon container	2 tablets
5 gallon container	3 tablets
7 gallon container	5 tablets

[illegible]

2.08 MULCH:
A. [illegible]

B. [illegible]

PART 3 EXECUTION

3.01 DIGGING:
A. [illegible]

3.02 GRADING:
A. [illegible]

B. [illegible]

3.03 PLANTING
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

E. [illegible]

F. [illegible]

G. [illegible]

H. [illegible]

I. [illegible]

J. [illegible]

K. [illegible]

L. [illegible]

3.04 PRUNING
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

3.05 GUYING
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

3.06 WATER
A. [illegible]

B. [illegible]

3.07 SOD:
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

E. [illegible]

F. [illegible]

G. [illegible]

H. [illegible]

3.08 SEEDING:
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

3.09 CLEANING UP
A. [illegible]

3.10 MAINTENANCE
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

E. [illegible]

3.11 COMPLETION, INSPECTION AND ACCEPTANCE
A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

E. [illegible]

lucido & associates

Key / Location:

Project Team:

Applicant:	[illegible]
Land Planner / Landscape Architect / Environmental Planner	Lucido & Associates, 701 SE Ocean Boulevard, Stuart, FL 34994
Engineer / Traffic Engineer / Surveyor:	[illegible]
Attorney:	Terry McCarthy [illegible] Stuart, FL 34994

Mariner Village Square PUD

Martin County, Florida

Phase 2

Plat Infrastructure

Landscape Specifications

Date	By	Description
6.25.2019	PO	Initial Submittal

Sheet LA-5 of 5

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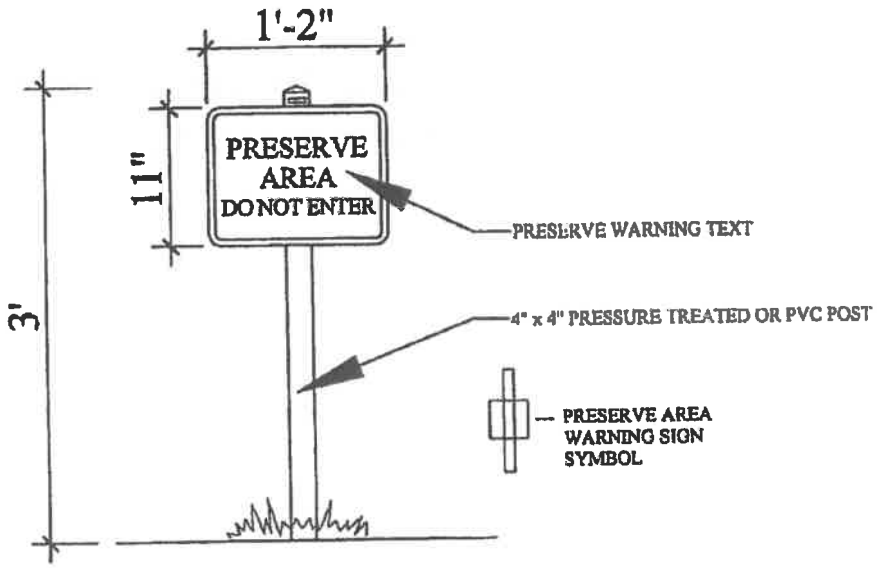
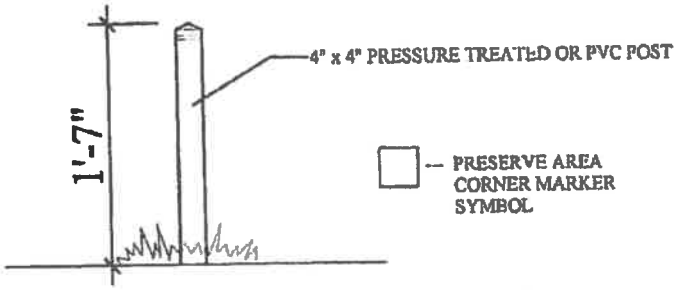
Exhibit H: Illustrations of Preserve Area Boundary Markers and Signs

lucido & associates





Preserve Boundary Markers and Signs

Exhibit H

Exhibit J: Firewise Toolkit

A guide to Firewise principles

THE FIREWISE COMMUNITIES PROGRAM provides homeowners with simple and easy steps to help reduce a home's wildfire risk by preparing ahead of a wildfire. These steps are rooted in principles based on solid fire science research into how homes ignite. The research comes from the world's leading fire experts whose experiments, models and data collection are based on some of the country's worst wildland fire disasters.

Below are Firewise principles and tips that serve as a guide for residents:

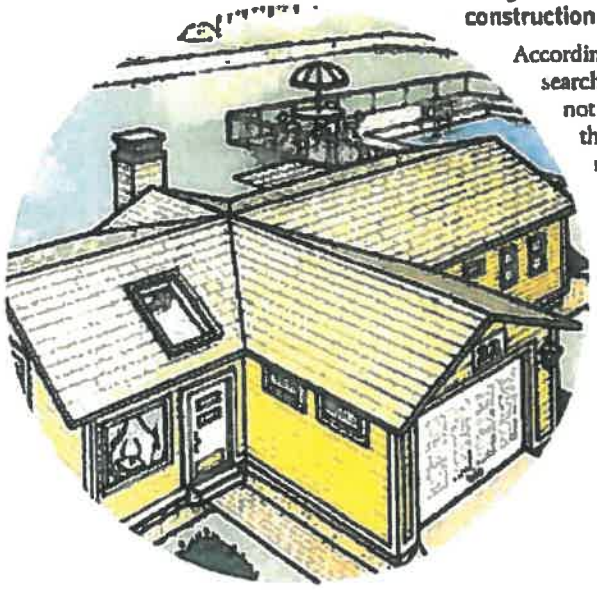
When it comes to wildfire risk, it is not a geographical location, but a set of conditions that determine the home's ignition potential in any community.

Wildfire behavior is influenced by three main factors: topography (lie of the land), weather (wind speed, relative humidity and ambient temperature) and fuel (vegetation and man-made structures). In the event of extreme wildfire behavior, extreme weather conditions are normally present, like extended drought, high winds, low humidity and high temperatures, coupled with excess fuel build up including the accumulation of live and dead vegetation material. Additionally, the inherent lie of the land influences the intensity and spread a fire takes. Fires tend to move upslope, and the steeper the slope the faster it moves.

Of these three factors, fuel is the one we can influence.

Debris like dead leaves and pine needles left on decks, in gutters and strewn across lawns can ignite from flying embers. Fire moving along the ground's surface can "ladder" into shrubs and low hanging tree limbs to create longer flames and more heat. If your home has flammable features or vulnerable openings, it can also serve as fuel for the fire, and become part of a disastrous chain of ignitions to other surrounding homes and structures.

A home's ignition risk is determined by its immediate surroundings or its "home ignition zone" and the home's construction materials.



According to fire science research and case studies, it's not where a home is located that necessarily determines ignition risk, but the landscape around it, often referred to as the "home ignition zone." The home ignition zone is defined as the home and its immediate surroundings up to 200 feet (60 m).

The Firewise Communities Program provides tips for reducing wildfire risk based on the home ignition zone concept:

Home Zone: Harden your home against wildfire. This includes fences, decks, porches and other attachments. From the point of view of a fire, if it's attached to the house it is a part of the house. Non-flammable or low flammability construction materials—especially for roofs, siding and windows—are recommended for new homes or retrofits. Keep any flammables, including plantings and mulch out of the area within 5 feet of your home's perimeter.

Zone 1: This well-irrigated area encircles the structure for at least 30 feet on all sides including decks and fences, and provides space for fire suppression equipment in the event of an emergency. Lawns should be well maintained and mowed. Plantings should be limited to carefully-spaced low flammability species. In particularly fire prone areas, non-flammable mulch should be considered.

Zone 2: This area encircles 30 - 100 feet from the home. Low flammability plant materials should be used here. Plants should be low-growing and the irrigation system should extend into this section. Shrubs and trees should be limbed up and spaced to prevent crowns of trees from touching.

Zone 3: This area encompasses 100 - 200 feet from the home. Place low-growing plants and well-spaced trees in this area, remembering to keep the volume of vegetation (fuel) low.

FIREWISE COMMUNITIES

Zone 4: This furthest zone from the structure is a natural area. Selectively prune and thin all plants and remove highly flammable vegetation.

Homeowners can and must take primary responsibility for wildfire safety action around the home.

There are not enough fire fighting resources to protect every house during severe wildfires, and with shrinking budgets it means we need to do more with less. Fire fighters are trained to safely and efficiently suppress wildland fires, but their effectiveness is reduced when they must sweep decks, move wood piles and patio furniture while trying to fight a fire. According to fire science research, individual efforts do make a difference even in the face of a catastrophic wildfire.

The following steps are outlined by the Firewise program to reduce home ignition risk, based on this principle:

- Prune low hanging limbs to reduce ladder fuels
- Clean roofs and gutters of pine needles and dead leaves
- Keep flammable plants and mulches at least 5 feet away from your home's perimeter
- Use low-growing, well pruned and fire-resistive plants around home
- Screen or box in areas below patios and decks with wire screening no larger than 1/8-inch mesh
- Sweep decks and porches clear of fallen leaves
- Move woodpiles away from the home during non-winter months
- Bring doormats and furniture cushions inside when an area is threatened by a wildfire
- Close garage doors when leaving your home in the event of an evacuation

We all have a role to play in protecting ourselves and others.

Your home ignition zone extends up to 200 feet—and it's quite common to have neighbors whose home ignition zone overlaps yours. Buildings closer than 100 feet apart can ignite one another if they are in flames. In addition, many communities have commonly owned property, including natural or wooded areas that can pose fire risks to all. This means that to be most effective, neighbors need to work together and with their local fire service to achieve greater wildfire safety.

Together, community residents can work with agencies and elected officials to accomplish the following:

- Ensure that homes and neighborhoods have legible/clearly marked street names and numbers
- Create "two ways out" of the neighborhood for safe evacuation during a wildfire emergency
- Create phone trees to alert residents about an impending fire
- Review any existing community rules or regulations on vegetation management and construction materials to see if they are "Firewise-friendly"
- Use the "Ready, Set, Go!" program with the fire department to educate neighbors
- Use the Firewise Communities/USA® Recognition Program to create and implement an ongoing action plan that will also earn the neighborhood national recognition for their efforts

LEARN MORE about how to keep families safe and reduce homeowners' risk for wildfire damage at www.firewise.org.

ADDITIONALLY, complimentary brochures, booklets, pamphlets, videos and much more can be found on the information and resources page of the website and ordered online through the Firewise catalog.

FIREWISE

Firewise tips checklist for homeowners

WILDFIRE DOESN'T HAVE TO BURN everything in its path. In fact, cleaning your property of debris and maintaining your landscaping are important first steps to helping minimize damage and loss.

The work you do today can make a difference. Follow these simple action steps now and throughout the year to prepare and help reduce the risk of your home and property becoming fuel for a wildfire:

- ☐ Clear leaves and other debris from gutters, eaves, porches and decks. This prevents embers from igniting your home.
- ☐ Remove dead vegetation from under your deck and within 10 feet of the house.
- ☐ Remove anything stored underneath decks or porches.
- ☐ Screen or box-in areas below patios and decks with wire mesh to prevent debris and combustible materials from accumulating.
- ☐ Remove flammable materials (firewood stacks, propane tanks, dry vegetation) within 30 feet of your home's foundation and outbuildings, including garages and sheds. If it can catch fire, don't let it touch your house, deck or porch.
- ☐ Wildfire can spread to tree tops. If you have trees on your property, prune so the lowest branches are 6 to 10 feet from the ground.
- ☐ Keep your lawn hydrated and maintained. If it is brown, cut it down to reduce fire intensity. Dry grass and shrubs are fuel for wildfire.
- ☐ Don't let debris and lawn cuttings linger. Dispose of these items quickly to reduce fuel for fire.
- ☐ Inspect shingles or roof tiles. Replace or repair those that are loose or missing to prevent ember penetration.
- ☐ Cover exterior attic vents with metal wire mesh no larger than 1/8 inch to prevent sparks from entering the home.
- ☐ Enclose under-eave and soffit vents or screen with metal mesh to prevent ember entry.

Learn more about how to keep your family safe and reduce your home's risk for wildfire damage at www.firewise.org.

FIREWISE COMMUNITY

Firewise Communities / USA® Recognition Program checklist

BY WORKING WITH NEIGHBORS, individual residents can make their own property – and their neighborhood – much safer from the flames and embers of a wildfire. The Firewise Communities/USA® Recognition Program provides a series of steps so you and your neighbors can act now ahead of a wildfire threat.

Ready to begin? Follow these steps on your way to becoming an official Firewise community.

☐ **1. Talk to your neighbors.**
You may be surprised to learn that other residents are just as concerned as you are about wildfire, so make a pledge to get started ... now.

☐ **2. Recruit interested community members.**
These people will form a diverse Firewise® board or committee. The group should include homeowners and fire professionals, but may also include planners, land managers, urban foresters and members of other interest groups in your community.

- Choose a group leader/representative. (This person, often known as the "sparkplug," will serve as the spokesperson and take the lead on Firewise initiatives.)

☐ **3. Contact Firewise.**
Have the community representative complete an on-line request form on the "contact us" page on the Firewise website (www.firewise.org), or call the Firewise Communities Program office at 617-984-7486. A Firewise representative can answer your questions, and help you get started.

☐ **4. Schedule a site assessment visit.**
This is the first step of the process of achieving Firewise Communities/USA recognition status.

- Have the community representative contact your state's Firewise Communities/USA liaison, a specialist in wildland/urban interface (WUI) fire, to inquire about a site assessment and evaluation of your community's current wildfire readiness. Your state liaison's contact information is available on the Firewise website.
- Schedule a time to meet with the state liaison or his/her designee to provide a community wildfire risk evaluation. Plan on at least one full day for this activity.
- At the same time, contact your local fire official who will accompany the state liaison for the evaluation.
- A site assessment is **not** a Community Wildland Protection Plan (CWPP). It is a wildfire risk evaluation of the potential Firewise Communities/USA site that is applying for national recognition.

☐ **5. Review the site assessment and evaluation document.**
The assessment does not have a specific format, but the program endorses an assessment style that:

- Includes a simple document for homeowners/residents to review the potential community site.
- Familiarizes the homeowner/resident with the way ignitions are likely to occur and how homes are likely to be lost in the event of a wildfire.
- Explains and illustrates common strengths and vulnerabilities with respect to this site's wildfire risk.

Upon completion of the evaluation, the state liaison or designee will schedule a meeting with your local Firewise committee to review the findings of your community assessment. At this time, your committee will determine whether they accept the findings or reject them. If you accept the evaluation, the process continues; if you don't, the process is terminated.

FIREWISE COMMUNITIES

☐ **6. Create a plan.**
Based on the evaluation and assessment, your Firewise committee develops a plan to tackle problem areas. In your plan, remember to include deadlines and a schedule to keep you on track. Record your action plan, and have all members of your committee sign it. Your plan should include:

- One day during the year that is designated as "Firewise Day." Whether it's a "chipper day" that gathers equipment and volunteers to chip up brush and tree limbs, a state fair exhibit or a community clean-up day, the Firewise Day helps you get the work done to make your community safer.
- Firewise mitigation activities that amount to a community investment of more than $2/capita/year of 'in-kind' volunteer contribution or grants.
- Once the plan is finished, share it with your state liaison.

☐ **7. Implement your plan.**
Tackle the items in your plan. Designate the party responsible for each action, including who will take the lead on Firewise Day. Remember, everything you do should be documented, so you can send the paperwork in with your application form.

☐ **8. Apply for recognition in the Firewise Communities/USA Recognition Program.**
You've completed your plan; now it's time to receive the recognition you deserve. Not only is your community safer from wildfire, you will now be able to celebrate your official status as a nationally recognized Firewise community. Remember to:

- Fill out the application form
- Attach your completed Firewise community plan
- Attach the Firewise Day document that lists names of volunteers, the hours involved and activities you've accomplished
- Attach any photos that illustrate your great work
- Send your completed application and attached documents to your state liaison for review
- Your state liaison will forward the application to the NFPA Firewise program headquarters. You can expect to receive your recognition materials (sign, plaque and other items) within 2-4 weeks after NFPA receives your application.

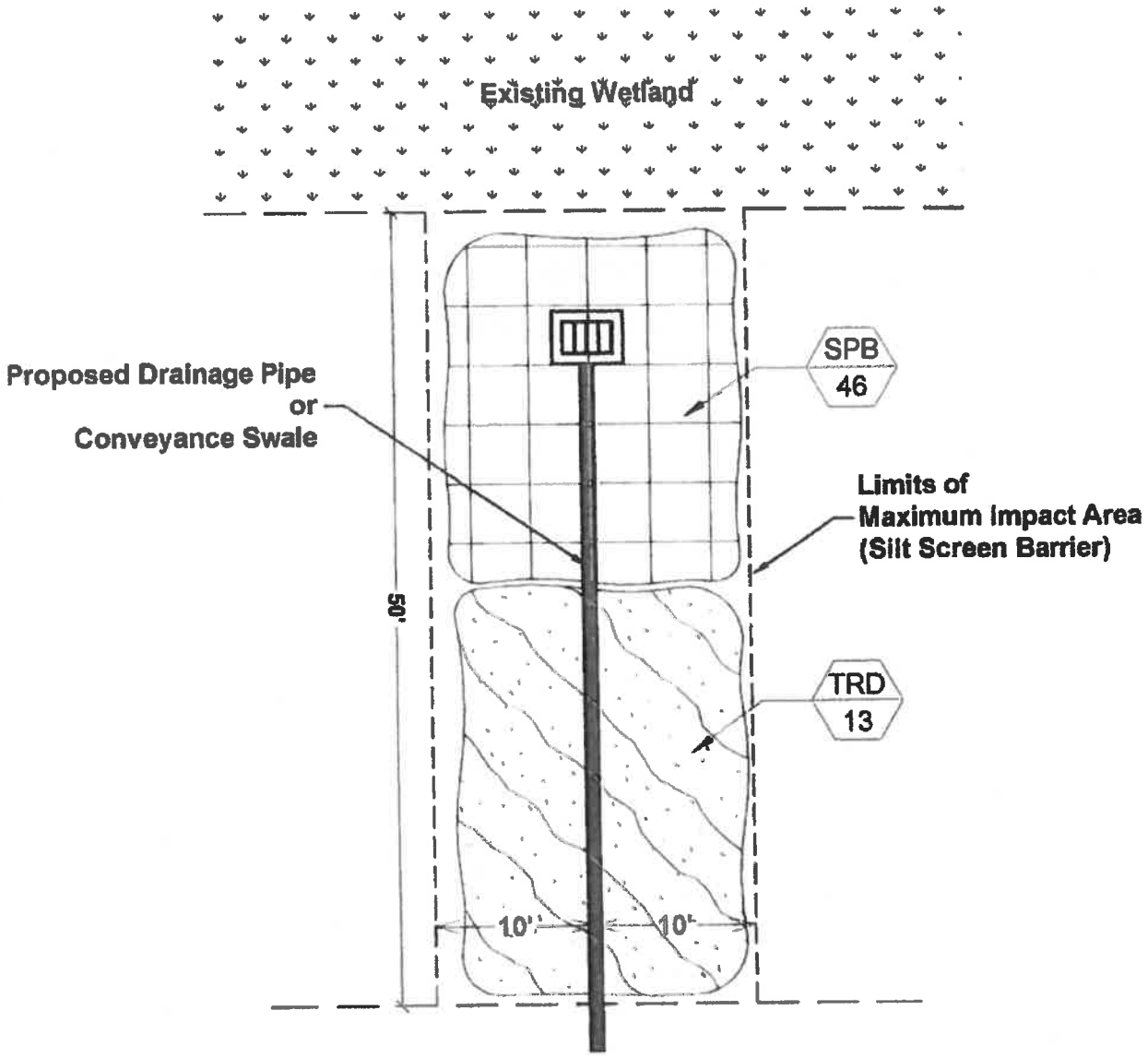
☐ **9. Renew your application each year.**
The work of a Firewise community is never done. To maintain active status in the program, you must continue the work throughout the year, documenting all activities, including your Firewise Day, the hours involved, and the volunteers. The information is easy to report through the Firewise website.

☐ **10. Celebrate your success!**
We want to hear from you! Share your story with the Firewise Communities Program family. We'll include your photos and activities on the Firewise website, feature your community in our blog, and promote your hard work through our social media platforms.

Questions?
Contact the Firewise Communities Program. More information can be found on the Firewise website.

FIREWISE COMMUNITIES

Exhibit K: Preserve Area Planting Plan for Temporary Impacts



GRASSES	QTY / AREA	T. QTY	BOTANICAL NAME	COMMON NAME	SPECS	SPACING	REMARKS
SPB	46	92	Spartina bakeri	Sand Cordgrass	1G, 18" OA, F	36" o.c.	Native
TRD	13	26	Tripsacum dactyloides	Fakahatchee Grass	3G, 24" OA, F	72" o.c.	Native

lucido & associates

Temporary Buffer Impact Area Planting Detail

Exhibit L: Annual Monitoring Report Form

MARTIN COUNTY, FLORIDA

PRESERVE AREA MANAGEMENT PLAN

ANNUAL MONITORING REPORT FOR (*Year*)

Annual monitoring shall be conducted at the end of the wet season (usually by November 30) for five years from the date of PAMP approval. A report of the results of each monitoring event shall be submitted by the property owner to the Martin County Environmental Planning Administrator within 30 days of the completion of the monitoring. Monitoring and reporting are the responsibility of the property owner. However, a qualified environmental professional may conduct the monitoring, prepare the Annual Monitoring Reports, or submit the Reports.

All Annual Monitoring Reports shall contain the following information:

- Name and address of current owner of Preserve Area;
- Location of Preserve Area *(site/project location, Martin County Parcel Control Number, section/township/range, etc)*;
- Date PAMP approved;
- Documentation of vegetation changes, including encroachment of exotic vegetation;
- Fixed-point panoramic photos of all Preserve Areas;
- Synopsis of maintenance activities conducted in compliance with the PAMP requirements such as exotic vegetation removal, revegetation, and additional enhancement activities necessary to maintain the Preserve Area;
- A timetable for action within 90 days of the report;
- A list of all violations of the PAMP; and
- Recommendations for remedial actions, with a proposed schedule for the coming year.

Signature/Date : _____

Typed Name/Title : _____

Company Name (if applicable) : _____

Water & Wastewater Service Agreement
Information Form

Please complete the requested information below and return to the Martin County Utilities and Solid Waste Department. This information will be inserted into the standard "Water & Wastewater Service Agreement". The draft agreement will then be returned for your review. Note: Upon final Martin County approval of the project the owner/developer must execute the agreement and submit all applicable fees within 60 days of said approval.

Date: December 2, 2019

Project Name:
Mariner Village Square PUD - Phase 2

Of Water ERCs Proposed: 2
Of Previously Purchased or Assessed Water ERC's (If Known): _____
Of Irrigation Water ERCs Proposed: _____
Of Wastewater ERCs Proposed: 2
Of Previously Purchased or Assessed Wastewater ERC's (If Known): _____

Justification of ERC calculations (i.e. flow calculations): Flow Calculations

Indicate whether "DEVELOPER" as referred to in the agreement is either a(n) (please check one):

- [x] Corporation - Please Provide Federal Tax ID # 47-4171354
- [ ] Individual(s) - Please Provide Driver's License # _____
- [ ] Partnership - Please Provide Federal Tax ID # _____

Name/Title, Address, and Telephone No. of Individual(s)/Corporation/Partnership executing agreement (MUST BE THE CURRENT PROPERTY OWNER):

Ribbon Ventures, LLC
PO Box 418
Boynton Beach, FL 33435

email address: _____

Name/Title of person(s) executing on behalf of Corporation/Partnership:
Rita M. Wilson , Manager

email address: _____

Engineer/Agent Name, Address & Telephone No.:

Lisa Leonard, PE / Bowman Consulting Group, Ltd.

301 SE Ocean Blvd, Suite 301
Stuart, FL 34994
772-283-1413

email address: lleonard@bowmanconsulting.com

Name, Address & Telephone No. of Individual/Organization to receive notices, updated correspondence, etc. if different from the developer:

email address:

If "DEVELOPER" is a Corporation or Partnership, an original or certified copy of the appropriate corporate resolution or proof of the general partner's authority is required.

Attach a copy of the Legal Description and the Warranty Deed of the property to be serviced.

If you have any questions please contact Leo Repetti, P.E at (772) 320-3065.

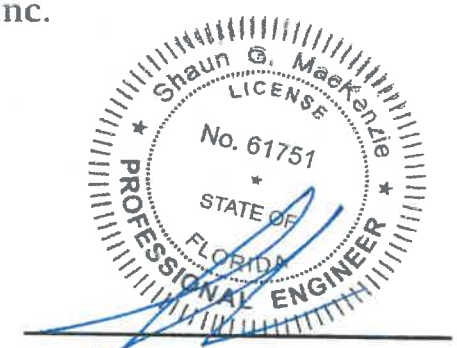
TRAFFIC IMPACT ANALYSIS

Mariner Village Square PUD
Martin County, FL

Prepared for:
Bowman Consulting
Stuart, Florida

Prepared by:

MacKenzie
Engineering & Planning, Inc.
1172 SW 30th Street, Suite 500
Palm City, FL 34990
(772) 286-8030



Shaun G. MacKenzie P.E.
PE Number 61751

11/25/19

027008
November 2019

CA 29013

EXECUTIVE SUMMARY

MacKenzie Engineering and Planning, Inc. performed an analysis of the traffic resulting from Mariner Village. Mariner Village is a mixed use project located on the west side of US Highway 1 and Mariner Sands Drive in Martin County, Florida (Parcel IDs 313842000014000106, 313842008000000429, 313842008000000303, 313842008000000410, 313842008000000270, 313842008000000036, 313842008000000018 and 313842008000000107). The site proposes adding 10,000 SF of retail use, 6,000 SF of restaurant use, a 115,000 SF of self-storage and a 152 bed nursing home.

The traffic analysis was performed in accordance with the Martin County Article 5, Division 3. Traffic Impact Analysis. The project meets the thresholds of Section 5.64.C. The results of the analysis show that the roadways are projected to operate acceptably with the addition of the proposed development and the project meets Martin County's concurrency requirements.

The proposed project is expected to generate the following net external trips:

- 1,652 daily, 76 AM peak hour (46 in/30 out), and 135 PM peak hour (65 in/70 out)

The proposed project is expected to generate the following driveway trips:

- 2,568 daily, 107 AM peak hour (65 in/42 out), and 211 PM peak hour (105 in/106 out)

All roadway segments are projected to operate acceptably in 2024 with the proposed development.

Based on project traffic volumes the driveways are projected to operate acceptably and the existing queue storage at the intersection is adequate.

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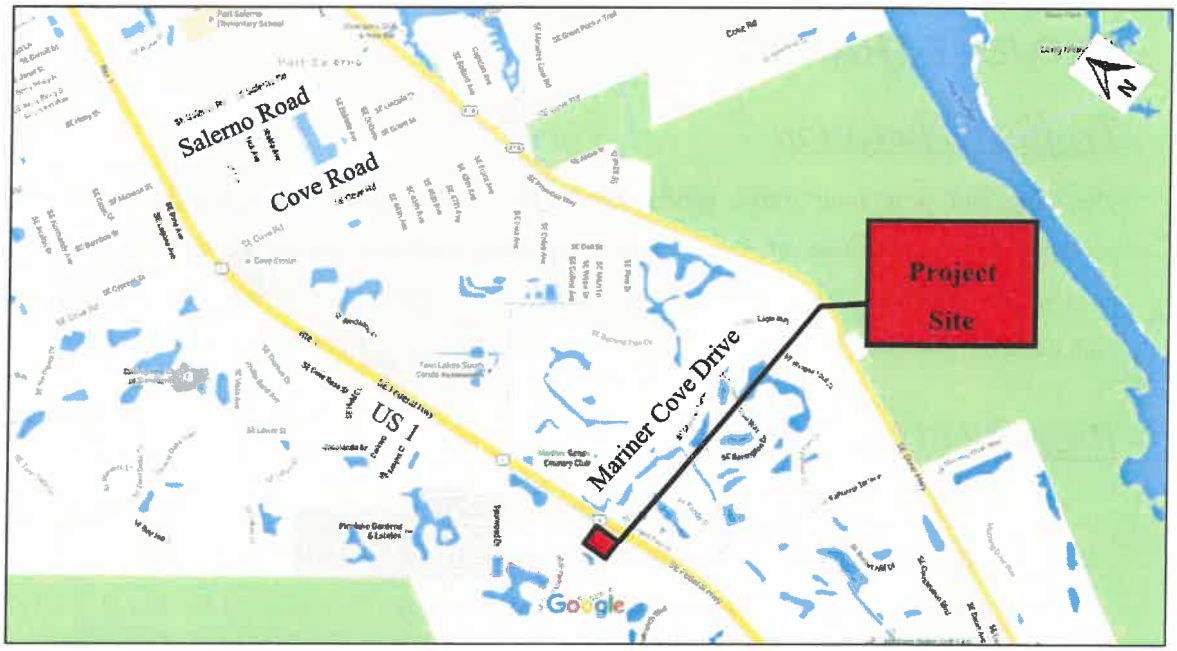
INTRODUCTION

MacKenzie Engineering & Planning, Inc. was retained to prepare an analysis of the traffic impacts from Mariner Village. Mariner Village is a mixed use project located on the west side of US Highway 1 and Mariner Sands Drive in Martin County, Florida. (Parcel IDs 313842000014000106, 313842008000000429, 313842008000000303, 313842008000000410, 313842008000000270, 313842008000000036, 313842008000000018 and 313842008000000107). The site proposes adding 10,000 SF of retail use, 6,000 SF of restaurant use, a 115,000 SF of self-storage and a 152 bed nursing home. The development is planned for completion by the end of 2024. The analysis was performed for the 2024 roadway conditions. A site location map is shown below in Figure 1.

Figure 1. Site Location Map



INVENTORY AND PLANNING DATA

The traffic data used in this analysis were obtained from Martin County, MacKenzie Engineering and Planning, Inc. (MEP), and FDOT. The data included:

- FDOT's Q/LOS Manual
- *Trip Generation, 10th Edition* (ITE report)
- Martin County's 2018 Roadway Level of Service Inventory Report
- Martin County Impact Fee Study Technical Report, 12/2012, Walter H. Keller, Inc.
- Martin County, Turning Movement Counts and Signal Timings

Lucido and Associates provided project development information.

PROJECT TRAFFIC

Traffic Generation

The daily and peak hour traffic generation for the development used the trip generation rates published by the Institute of Transportation Engineers (ITE)'s report, *Traffic Generation (10th Edition)* for Land Use 151, Mini-Warehouse; 620, nursing home; 820, general commercial and 932, high turnover sit-down restaurant. The proposed development plan consists of the following:

Proposed Uses

- 115,000 SF of Mini Warehouse (ITE Land Use 151)
- 152 Bed Nursing Home (ITE Land Use 620)
- 10,000 SF of General Commercial (ITE Land Use 820)
- 6,000 SF of High Turnover Sit-Down Restaurant (ITE Land Use 932)

The proposed project is expected to generate the following net external trips:

- 1,652 daily, 76 AM peak hour (46 in/30 out), and 135 PM peak hour (65 in/70 out)

The proposed project is expected to generate the following driveway trips:

- 2,568 daily, 107 AM peak hour (65 in/42 out), and 211 PM peak hour (105 in/106 out)

Exhibit 1 presents the proposed project's trip generation.

Table 1. Trip Generation

Land Use	Intensity	Daily	AM Peak Hour			PM Peak Hour		
		Trips	Total	In	Out	Total	In	Out
Proposed Site Traffic								
Gen. Commercial	10.000 1000 SF	1,256	9	6	3	99	48	51
High Turnover Sit-Down Rest	6.000 1000 SF	673	60	33	27	59	37	22
Mini-Warehouse/SS	115 1000 SF	174	12	7	5	20	9	11
Nursing Home	152 beds	465	26	19	7	33	11	22
Subtotal		2,568	107	65	42	211	105	106
Pass-By Traffic								
Gen. Commercial	48.0%	603	4	3	1	48	23	25
High Turnover Sit-Down Rest	44.0%	296	26	15	11	26	16	10
Mini-Warehouse/SS	10.0%	17	1	1	0	2	1	1
Subtotal		916	31	19	12	76	40	36
NET PROPOSED TRIPS		***1,652***	***76***	***46***	***30***	***135***	***65***	***70***
Total Proposed Driveway Volumes		***2,568***	***107***	***65***	***42***	***211***	***105***	***106***
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)		**1,652**	**76**	**46**	**30**	**135**	**65**	**70**
NET CHANGE IN DRIVEWAY VOLUMES		**2,568**	**107**	**65**	**42**	**211**	**105**	**106**

Note: Trip generation was calculated using the following data:

Land Use	ITE Code	Unit	Daily Rate	Pass-by Rate	AM Peak Hour in/out	AM Peak Hour Rate	PM Peak Hour in/out	PM Peak Hour Equation
Gen. Commercial	8202	1000 SF	Ln(T) = 0.68 Ln(X) + 5.57	48%	62/38	0.94	48/52	Ln(T) = 0.74 Ln(X) + 2.89
High Turnover Sit-Down	932	1000 SF	112.18	44%	55/45	9.94	62/38	9.77
Mini-Warehouse/SS	151	1000 SF	1.51	10%	60/40	0.10	47/53	0.17
Nursing Home	620	beds	3.06	0%	72/28	0.17	33/67	0.22

* The site consists of a previously approved General Office & Drive-In Bank that has not been included in the Trip Generation.

Internal Capture

In order to provide a conservative analysis, internal capture is not utilized.

Pass-by Capture

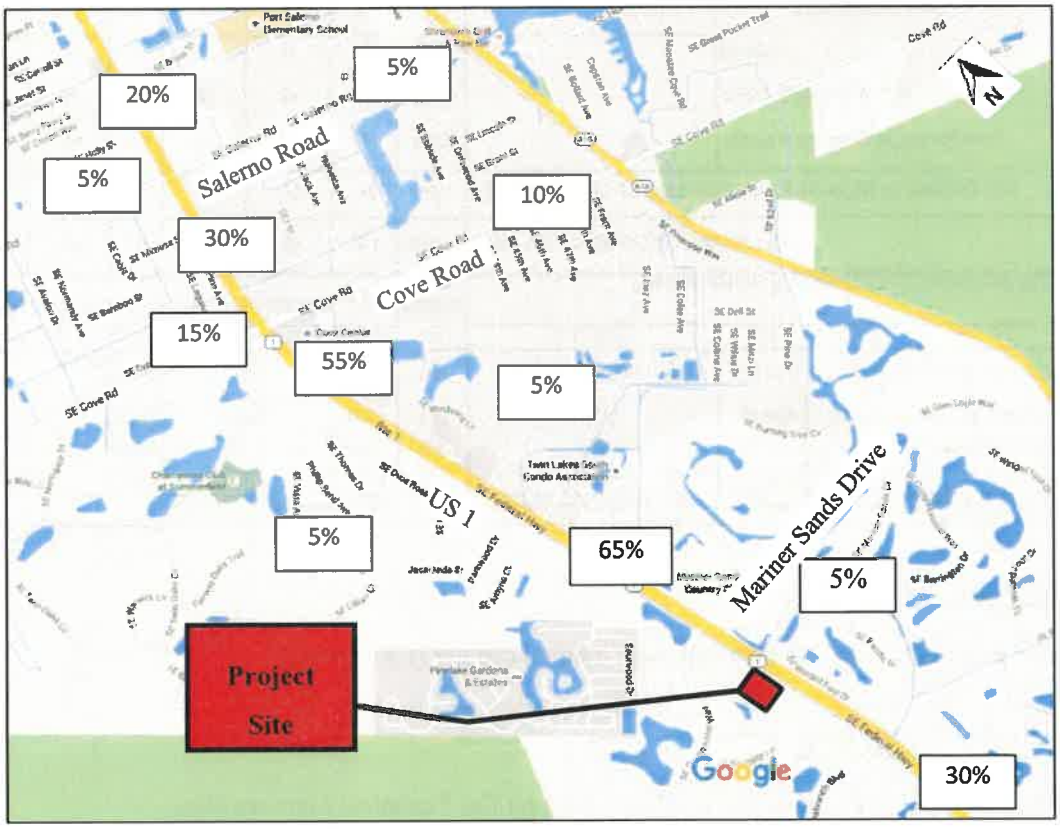
Pass-by rates are based on the Martin County Impact Fee Technical Memorandum.

TRAFFIC ASSIGNMENT

The traffic assignment was developed based upon existing and proposed developments, generators, destinations, and knowledge of the local area. These factors were applied using traffic engineering rationale similar to the gravity model.

- North – 65%
- South – 30%
- East – 5%

Figure 2. Traffic Assignment



SIGNIFICANCE

Significant Impact

A project significantly impacts a facility if its peak hour trips use more than two percent (2%) of a roadway's capacity (MC Article 5, Division 3. Traffic Impact Analysis). The project's traffic assignment and net external trips were utilized to determine the number of project trips on each road segment. Road capacities from Martin County's Roadway Inventory report were utilized in the study. In order to determine the project significance, the project's trips were divided by the roadway segment capacity. Based on the County's significance methodology, the proposed project does not significantly impact US 1. However, the study area will include the intersection at US 1 & Mariner Sands Drive. The roadway capacities and the project significance are shown in Table 2.

Radius of Impact

Based on Martin County Land Development Code (MC LDC) Article 5 Division 3 Section 5.64.C.5, the Radius of Impact for transportation concurrency is all links and aggregated segments or parts thereof, on the major road network on which the project traffic has an impact of at least 2 percent.

Table 2. Project Impacts 1-Way Peak Hour (Significance)

Roadway	From	To	Lanes	Generalized Service Capacity	Assign	Project Traffic	Significance	Significant Impact (Y/N)
Cove Rd	SR-76	Willoughby Blvd	2	880	10%	7	0.80%	no
	Willoughby Blvd	SR-5	2	880	15%	11	1.25%	no
	SR-5	CR-A1A	2	750	10%	7	0.93%	no
	CR-A1A	End	2	675	5%	4	0.59%	no
Salerno Rd	Willoughby Blvd	SR-5	2	790	5%	4	0.51%	no
	SR-5	Commerce Ave	2	750	5%	4	0.53%	no
SR-5 (US-1)	CR-708	Osprey St	4	2000	3%	2	0.10%	no
	Osprey St	Seabranch Blvd	4	2000	15%	11	0.55%	no
	Seabranch Blvd	Mariner Sands	6	3020	30%	21	0.70%	no
	Mariner Sands	Cove Rd	6	3020	65%	46	1.52%	no
	Cove Rd	Salerno Rd	6	3020	30%	21	0.70%	no
	Salerno Rd	Monroe St	6	3020	20%	14	0.46%	no

ANALYSIS

Roadway Analysis

The adjacent road was analyzed using service volumes based on Martin County's 2018 LOS Inventory Report. Traffic volumes and growth rates were obtained from Martin County's level of service spreadsheet.

Table 3 shows that US 1 in the existing and pre-development (background) traffic condition in 2024 is projected to operate acceptably.

Table 4 analyzed the roadway network with the addition of project traffic. US 1 is projected to operate acceptably with the project.

Table 3. Background Traffic Analysis

Background Roadway Analysis
PM Peak Hour Peak Direction Background Traffic Analysis

Roadway	From	To	Lanes	Generalized Service Capacity	2018 PM Peak Hour Traffic	Annual Growth	2024 Traffic Growth	2024 Bckgrnd Traffic	Meets Service Volume
SR-5 (US-1)	Mariner Sands	Cove Rd	6	3,020	1,313	0.5%	40	1,353	YES

Table 4. Roadway Analysis

Roadway Analysis - Total Traffic - PM Peak Hour Peak Direction

Roadway	From	To	Lanes	Generalized Service Capacity	2024 Bckgrnd Traffic	Assign	Project Traffic	2024 Total Traffic	Meets Service Volume
SR-5 (US-1)	Mariner Sands	Cove Rd	6	3,020	1,353	65%	46	1,399	YES

Intersection Analysis

The study analyzed the following intersections:

- US Highway No. 1 & Mariner Sands Drive – Signalized intersection

All intersection traffic volumes were grown to the buildout year of 2024. The traffic volumes at the US 1 and Mariner Sands Drive intersection utilized the project's full driveway trips in order to provide a conservative analysis. Based on this analysis, the intersection is projected to operate acceptably.

ACCESS

The project has two existing points of access. The accesses are as follows:

- Northern/Mariner Sands Drive – Signalized Full Access
- Southern – Left-In/Right-In/Right-Out (Directional) Access

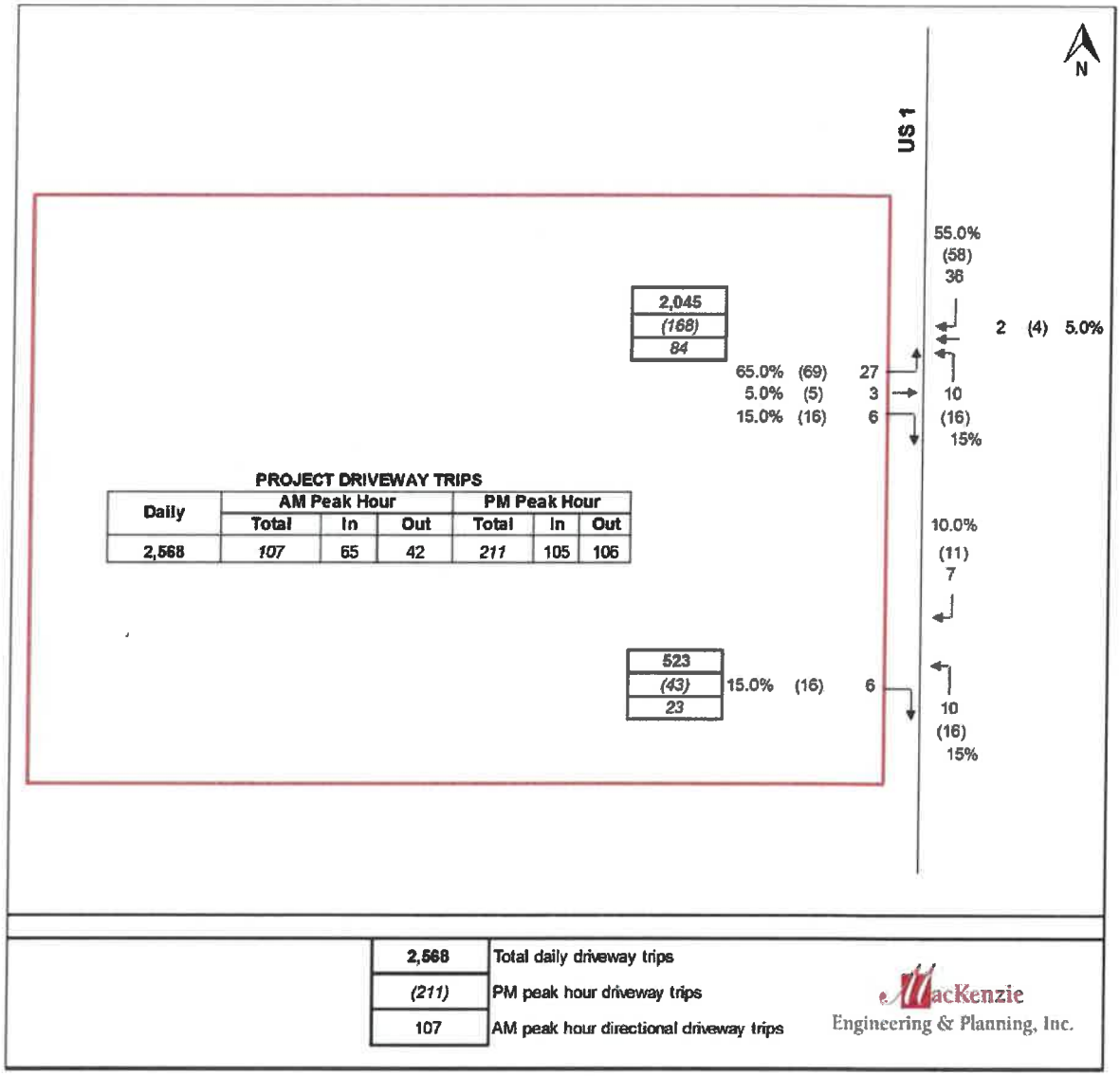
Queuing was evaluated at the Mariner Sand Drive and US 1 intersection. Based on the analysis, the queue storage at the intersection is acceptable as shown in Table 5.

Table 5. US 1 & Mariner Sands Drive Queue Storage Analysis

	ebl	ebr	nbl	nbr	sbl	sbr
95th Percentile Queue	90	27	19	0	63	0
Existing Turn Lane Length	260	260	575	365	560	375
Adequate?	YES	YES	YES	YES	YES	YES

Based on FDOT's Median Handbook (2014), the southern access point requires 285 LF of total length for the northbound left-turn lane into the project. The existing left-turn lane is approximately 410 LF. Therefore, the turn-lane length is acceptable. Based on project traffic volumes the driveways are projected to operate acceptably and the existing queue storage at the intersection is adequate. Figure 3 displays the driveway volumes.

Figure 3. Driveway Trips



CONCLUSION

MacKenzie Engineering and Planning, Inc. performed an analysis of the traffic resulting from Mariner Village. Mariner Village is a mixed use project located on the west side of US Highway 1 and Mariner Sands Drive in Martin County, Florida (Parcel IDs 313842000014000106, 313842008000000429, 313842008000000303, 313842008000000410, 313842008000000270, 313842008000000036, 313842008000000018 and 313842008000000107). The site proposes adding 10,000 SF of retail use, 6,000 SF of restaurant use, a 115,000 SF of self-storage and a 152 bed nursing home.

The traffic analysis was performed in accordance with the Martin County Article 5, Division 3. Traffic Impact Analysis. The project meets the thresholds of Section 5.64.C. The results of the analysis show that the roadways are projected to operate acceptably with the addition of the proposed development and the project meets Martin County's concurrency requirements.

The proposed project is expected to generate the following net external trips:

- 1,652 daily, 76 AM peak hour (46 in/30 out), and 135 PM peak hour (65 in/70 out)

The proposed project is expected to generate the following driveway trips:

- 2,568 daily, 107 AM peak hour (65 in/42 out), and 211 PM peak hour (105 in/106 out)

All roadway segments are projected to operate acceptably in 2024 with the proposed development.

Based on project traffic volumes, the driveways are projected to operate acceptably and the existing queue storage at the intersection is adequate.

EXHIBITS

Exhibit 1. Trip Generation

APPENDICES

Intersection Volume Development

Pre-Development Intersection Analysis

Post-Development Intersection Analysis

Martin County 2018 Roadway Level of Service

Martin County Impact Fee

Site Plan

EXHIBIT 1
Mariner Village
Trip Generation

Land Use	Intensity		Daily Trips	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
Proposed Site Traffic									
Gen. Commercial	10.000	1000 SF	1,256	9	6	3	99	48	51
High Turnover Sit-Down Rest	6.000	1000 SF	673	60	33	27	59	37	22
Mini-Warehouse/SS	115	1000 SF	174	12	7	5	20	9	11
Nursing Home	152	beds	465	26	19	7	33	11	22
Subtotal			2,568	107	65	42	211	105	106
Pass-By Traffic									
Gen. Commercial	48.0%		603	4	3	1	48	23	25
High Turnover Sit-Down Rest	44.0%		296	26	15	11	26	16	10
Mini-Warehouse/SS	10.0%		17	1	1	0	2	1	1
Subtotal			916	31	19	12	76	40	36
NET PROPOSED TRIPS			***1,652***	***76***	***46***	***30***	***135***	***65***	***70***
Total Proposed Driveway Volumes			***2,568***	***107***	***65***	***42***	***211***	***105***	***106***
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)			**1,652**	**76**	**46**	**30**	**135**	**65**	**70**
NET CHANGE IN DRIVEWAY VOLUMES			**2,568**	**107**	**65**	**42**	**211**	**105**	**106**

Note: Trip generation was calculated using the following data:

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Nursing Home	620	beds	3.06	0%	72/28	0.17	33/67	0.22

* The site consists of a previously approved General Office & Drive-In Bank that has not been included in the Trip Generation.

s:\jobs - share drive\027 - bowman\010 - mariner village tia - storage\11-25-19\[mariner village 11-25-19.xlsx]tgen

Mariner Village
PM PEAK HOUR TURNING MOVEMENTS
EXHIBIT 2
US 1 & Mariner Sands Drive

		ebu	ebl	ebt	ebr	wbu	wbl	wbt	wbr	nbu	nbl	nbt	nbr	sbu	sbl	sbt	sbr	totals
4:00 PM	4:15 PM		2	0	0		2	1	0		0	330	13		29	260	5	642
4:15 PM	4:30 PM		8	1	0		6	1	0		4	352	12		28	259	2	673
4:30 PM	4:45 PM		5	1	0		8	1	0		0	321	10		28	320	4	698
4:45 PM	5:00 PM		10	0	0		4	1	0		1	317	9		37	298	2	679
5:00 PM	5:15 PM		3	0	0		8	0	0		6	346	10		24	318	2	717
5:15 PM	5:30 PM		5	0	0		8	0	0		1	398	9		25	289	0	735
5:30 PM	5:45 PM		4	0	0		4	0	0		3	392	10		27	333	2	775
5:45 PM	6:00 PM		6	0	0		5	0	0		4	441	4		14	281	2	757
5:00 PM	6:00 PM	0	18	0	0	0	25	0	0	0	14	1577	33	0	90	1221	6	2984

Count Taken: 3/10/2015
Buildout year: 2024
Growth Rate: 1.40%
PSCF: 1.00

	ebu	ebl	ebt	ebr	wbu	wbl	wbt	wbr	nbu	nbl	nbt	nbr	sbu	sbl	sbt	sbr
3/10/2015	0	18	0	0	0	25	0	0	0	14	1577	33	0	90	1221	6
Seasonal Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted Volumes	0	18	0	0	0	25	0	0	0	14	1577	33	0	90	1221	6
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	1.4%	0.0%
Growth	0	0	0	0	0	0	0	0	0	0	210	0	0	0	163	0
2024 Volumes	**0**	**18**	**0**	**0**	**0**	**25**	**0**	**0**	**0**	**14**	**1787**	**33**	**0**	**90**	**1384**	**6**
			0%			0%					0%				0%	
Diversion*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Committed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre W/Committed	0	18	0	0	0	25	0	0	0	14	1787	33	0	90	1384	6
Post W/ Div	0	18	0	0	0	25	0	0	0	14	1787	33	0	90	1384	6
Project	0	69	5	16	0	0	5	0	0	16	0	0	0	0	11	58
Post	**0**	**87**	**5**	**16**	**0**	**25**	**5**	**0**	**0**	**30**	**1787**	**33**	**0**	**90**	**1395**	**64**
Project Traffic Assignment		Out	Out	Out			In			In					In	In
	0.0%	65.0%	5.0%	15.0%	0.0%	0.0%	5.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	0.0%	10.0%	55.0%

*The 3/10/2015 TMC continues to provide conservative nbt/sbt volumes (2018 MC LOS - 2,706: 1,461/1,245 and FDOT 895061 - 2,515: 1334/1181)

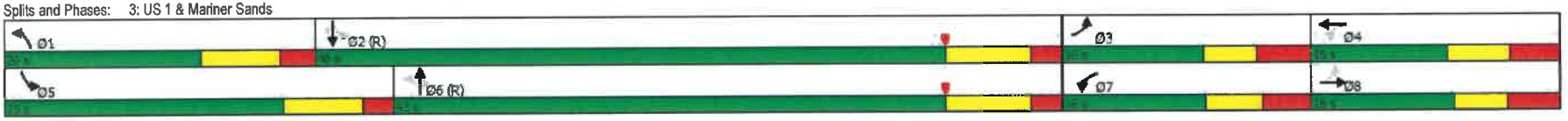
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	0	25	0	0	14	1787	33	90	1384	6
Future Volume (vph)	18	0	0	25	0	0	14	1787	33	90	1384	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	575		0	575		365	560		375
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt									0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	0	1770	1863	0	1770	5085	1583	1770	5085	1583
Flt Permitted	0.950			0.950			0.166			0.087		
Satd. Flow (perm)	1770	1863	0	1770	1863	0	309	5085	1583	162	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									203			203
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		352			1739			913			9047	
Travel Time (s)		8.0			39.5			13.8			137.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	19	0	0	26	0	0	15	1881	35	95	1457	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	0	0	26	0	0	15	1881	35	95	1457	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt			pm+pt			pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	3	8		7	4		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	13.9	16.0		13.8	16.0		14.4	40.5	40.5	14.1	40.5	40.5
Total Split (s)	16.0	16.0		16.0	16.0		20.0	43.0	43.0	25.0	48.0	48.0
Total Split (%)	16.0%	16.0%		16.0%	16.0%		20.0%	43.0%	43.0%	25.0%	48.0%	48.0%
Maximum Green (s)	9.1	9.2		9.2	8.7		12.6	35.5	35.5	17.9	40.5	40.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.4	3.4		3.7	4.0		5.1	5.5	5.5	5.1	5.5	5.5
All-Red Time (s)	3.5	3.4		3.1	3.3		2.3	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8		6.8	7.3		7.4	7.5	7.5	7.1	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min
Walk Time (s)		7.0			7.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		38.0			38.0			28.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	7.5			7.6			80.6	76.4	76.4	84.1	85.2	85.2
Actuated g/C Ratio	0.08			0.08			0.81	0.76	0.76	0.84	0.85	0.85
v/c Ratio	0.14			0.20			0.04	0.48	0.03	0.38	0.34	0.00
Control Delay	45.4			46.6			2.7	7.3	0.0	9.0	4.9	0.0
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4			46.6			2.7	7.3	0.0	9.0	4.9	0.0
LOS	D			D			A	A	A	A	A	A
Approach Delay		45.4			46.6			7.1			5.1	
Approach LOS		D			D			A			A	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 36 (36%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 6.7 Intersection LOS: A
Intersection Capacity Utilization 66.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: US 1 & Mariner Sands

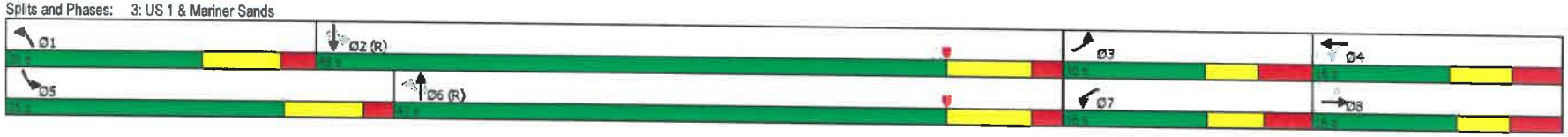


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.4	3.4		3.7	4.0		5.1	5.5	5.5	5.1	5.5	5.5
All-Red Time (s)	3.5	3.4		3.1	3.3		2.3	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8		6.8	7.3		7.4	7.5	7.5	7.1	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min
Walk Time (s)		7.0			7.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		38.0			38.0			28.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	13.0	8.3		9.0	7.1		67.8	63.6	63.6	70.9	67.0	67.0
Actuated g/C Ratio	0.13	0.08		0.09	0.07		0.68	0.64	0.64	0.71	0.67	0.67
v/c Ratio	0.43	0.14		0.16	0.04		0.11	0.58	0.03	0.43	0.43	0.06
Control Delay	42.7	24.7		39.6	43.8		7.4	16.1	0.1	16.7	12.3	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	24.7		39.6	43.8		7.4	16.1	0.1	16.7	12.3	0.1
LOS	D	C		D	D		A	B	A	B	B	A
Approach Delay		39.2			40.3			15.7			12.1	
Approach LOS		D			D			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 36 (36%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 69.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: US 1 & Mariner Sands



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	5	16	25	5	0	30	1787	33	90	1395	64
Future Volume (vph)	87	5	16	25	5	0	30	1787	33	90	1395	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	260		0	575		0	575		365	560		375
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.884							0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1647	0	1770	1863	0	1770	5085	1583	1770	5085	1583
Flt Permitted	0.460						0.138			0.072		
Satd. Flow (perm)	857	1647	0	1863	1863	0	257	5085	1583	134	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17							203			203
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		352			1739			913			9047	
Travel Time (s)		8.0			39.5			13.8			137.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	92	5	17	26	5	0	32	1881	35	95	1468	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	22	0	26	5	0	32	1881	35	95	1468	67
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	3	8		7	4		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	13.9	16.0		13.8	16.0		14.4	40.5	40.5	14.1	40.5	40.5
Total Split (s)	16.0	16.0		16.0	16.0		20.0	43.0	43.0	25.0	48.0	48.0
Total Split (%)	16.0%	16.0%		16.0%	16.0%		20.0%	43.0%	43.0%	25.0%	48.0%	48.0%
Maximum Green (s)	9.1	9.2		9.2	8.7		12.6	35.5	35.5	17.9	40.5	40.5

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	92	22	26	5	32	1881	35	95	1468	67
v/c Ratio	0.43	0.14	0.16	0.04	0.11	0.58	0.03	0.43	0.43	0.06
Control Delay	42.7	24.7	39.6	43.8	7.4	16.1	0.1	16.7	12.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	24.7	39.6	43.8	7.4	16.1	0.1	16.7	12.3	0.1
Queue Length 50th (ft)	57	3	16	3	4	239	0	12	167	0
Queue Length 95th (ft)	90	27	34	15	19	441	0	63	295	0
Internal Link Dist (ft)		272		1659		833			8967	
Turn Bay Length (ft)	260		575		575		365	560		375
Base Capacity (vph)	222	166	192	162	376	3233	1080	392	3406	1127
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.13	0.14	0.03	0.09	0.58	0.03	0.24	0.43	0.06

Intersection Summary

Martin County 2018 Roadway Level of Service Inventory Report

Road Name	From	To	Generalized Service Capacity	2018 Average Annual Daily Traffic	Peak Hour Factor K_{30}	Directional Distribution D_{100}	2018 Peak Hour Directional Volume	2018 Generalized LOS	Avg. Annual Growth Rate
Baker Rd	SR-5	CR-723	750	5,134	0.09	0.51	230	C	2.2%
Berry Ave	Golden Bear Wy	CR-714	750	3,496	0.09	0.50	157	C	0.9%
Berry Ave	CR-714	Sunset Tr	750	1,917	0.09	0.53	91	C	1.0%
Britt Rd	Pine Lake Dr	SR-5	750	4,538	0.08	0.58	208	C	0.5%
Citrus Blvd.	CR-714 (Martin Hwy)	Port St. Lucie Blvd.	1200	5,145	0.12	0.81	479	C	6.3%
Commerce Ave	Salerno Rd	Monroe St	750	6,810	0.10	0.60	413	D	2.5%
Commerce Ave	Monroe St	Indian St	750	6,726	0.11	0.60	432	D	1.2%
Country Club Dr	Palm Beach County	Island Way	750	2,978	0.08	0.53	120	C	4.2%
Country Club Dr	Island Way	Little Club Dr	750	3,665	0.08	0.59	164	C	4.4%
County Line Rd	Little Club Dr	SR-5	750	2,517	0.08	0.53	105	C	0.5%
Cove Rd	SR-76	Willoughby Blvd	880	13,912	0.10	0.51	681	C	3.3%
Cove Rd	Willoughby Blvd	SR-5	880	14,894	0.09	0.54	732	C	2.1%
Cove Rd	SR-5	CR-A1A	750	12,683	0.08	0.52	547	D	4.2%
Cove Rd	CR-A1A	End	675	5,547	0.09	0.57	285	C	0.5%
CR-609 (Allapattah Rd)	SR-710	CR-714	740	1,793	0.09	0.53	85	A/B	5.3%
CR-609 (Allapattah Rd)	CR-714	St Lucie County	740	1,812	0.09	0.65	106	A/B	6.0%
CR-707 (Beach Rd)	Palm Beach County	CR-708	675	1,928	0.09	0.63	111	C	5.3%
CR-707 (Dixie Hwy)	CR-723/CR-707	CR-707 (Indian River Dr)	750	5,401	0.09	0.51	237	C	0.5%
CR-707 (Indian River Dr)	CR-707 (Dixie Hwy)	CR-707A (Jensen Beach Blvd.)	675	10,488	0.10	0.54	578	D	2.2%
CR-707 (Indian River Dr)	CR-707A	SR-732	675	5,683	0.08	0.53	241	C	0.5%
CR-707 (Indian River Dr)	SR-732	St. Lucie County	675	6,216	0.09	0.61	334	C	3.1%

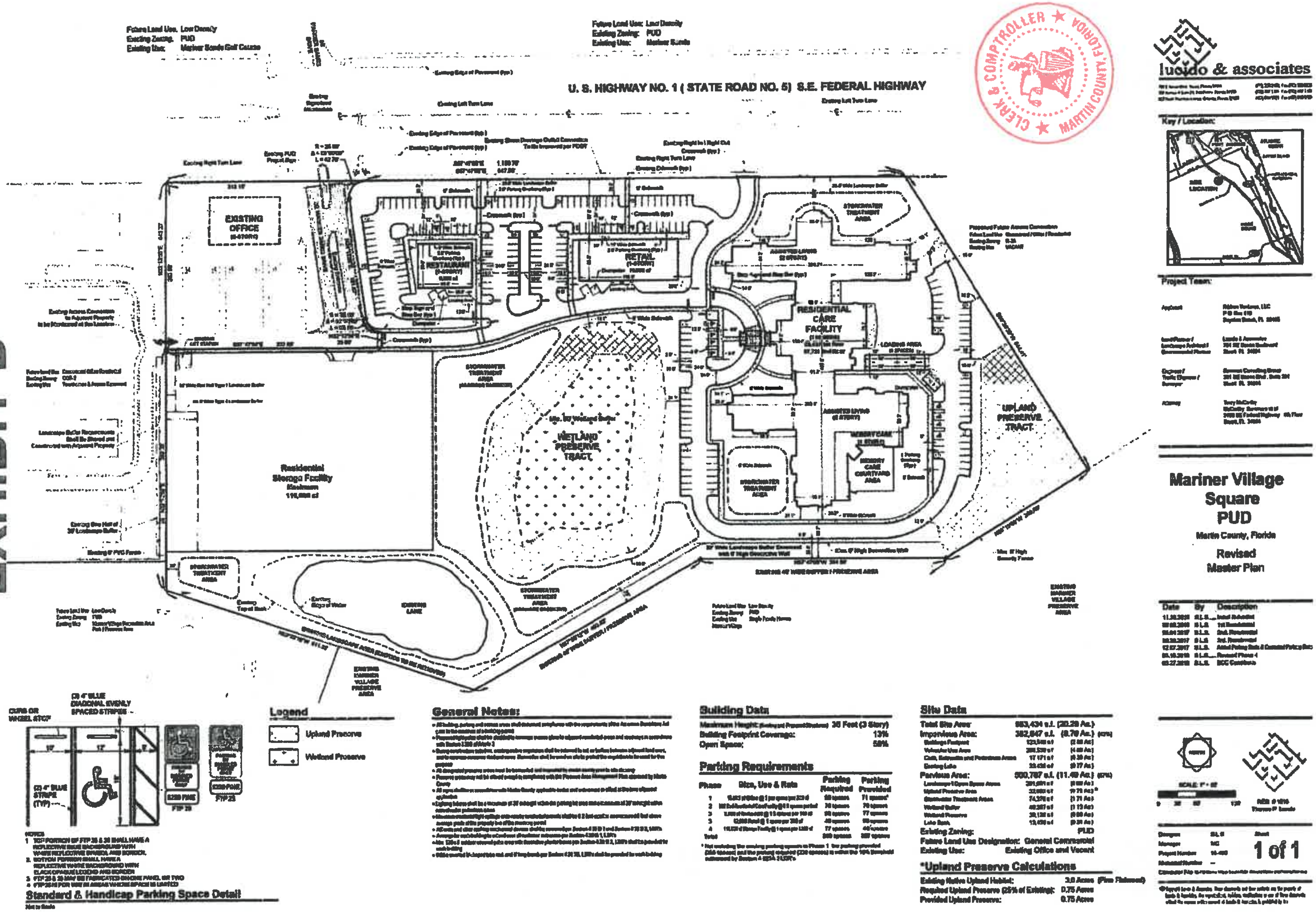
Segments with shaded LOS require additional analysis.
The peaks are: CR-A1A (PM/SB); CR-713 (PM/NB); Murphy Rd (PM/NB); SR-5 (AM/SB); SR-714 [Palm City Bridge] (PM/WB) and SR-714 (PM/WB).

Martin County 2018 Roadway Level of Service Inventory Report

Road Name	From	To	Generalized Service Capacity	2018 Average Annual Daily Traffic	Peak Hour Factor K_{30}	Directional Distribution D_{100}	2018 Peak Hour Directional Volume	2018 Generalized LOS	Avg. Annual Growth Rate
Salerno Rd	Willoughby Blvd	SR-5	790	9,765	0.12	0.62	727	D	1.8%
Salerno Rd	SR-5	Commerce Ave	750	9,439	0.08	0.55	431	D	0.5%
Salerno Rd	Commerce Ave	CR-A1A	750	7,502	0.09	0.51	337	C	0.5%
Seabranch Blvd	Doubletree Dr	SR-5	2000	6,403	0.09	0.55	310	C	0.5%
Sewalls Pt Rd	SR-A1A	Palmer St	675	9,542	0.09	0.52	461	D	1.0%
Skyline Dr	CR-707A	CR-707	675	2,064	0.08	0.55	87	C	3.0%
SR-5 (US-1)	Palm Beach County	CR-A1A	3110	21,690	0.09	0.56	1,032	A/B	3.8%
SR-5 (US-1)	CR-A1A	CR-708	2000	17,113	0.09	0.68	1,094	C	3.1%
SR-5 (US-1)	CR-708	Osprey St	2000	24,451	0.10	0.65	1,589	C	2.0%
SR-5 (US-1)	Osprey St	Seabranch Blvd	2000	24,010	0.08	0.61	1,128	C	1.2%
SR-5 (US-1)	Seabranch Blvd	Cove Rd	3020	30,639	0.08	0.51	1,313	C	0.5%
SR-5 (US-1)	Cove Rd	Salerno Rd	3020	34,682	0.08	0.54	1,461	C	0.5%
SR-5 (US-1)	Salerno Rd	Monroe St	3020	42,146	0.08	0.52	1,775	C	0.9%
SR-5 (US-1)	Monroe St	Indian St	3020	45,627	0.08	0.52	1,922	C	1.3%
SR-5 (US-1)	Indian St	SR-714	3020	45,758	0.09	0.51	2,194	C	0.9%
SR-5 (US-1)	SR-714	SR-5A	3020	38,109	0.09	0.54	1,934	C	0.7%
SR-5 (US-1)	SR-5A(Cut-off Rd)	SR-76	3020	36,130	0.09	0.51	1,640	C	0.5%
SR-5 (US-1)	SR-76	Palm City Rd	2520	49,890	0.08	0.57	2,247	D	1.4%
SR-5 (US-1)	Palm City Rd	Joan Jefferson Wy	2520	55,868	0.08	0.64	2,860	F	0.8%
SR-5 (US-1)	Joan Jefferson Wy	Wright Blvd	3020	59,857	0.08	0.60	2,892	C	1.4%
SR-5 (US-1)	Wright Blvd	Baker Rd	3020	54,975	0.08	0.50	2,172	C	1.1%

Segments with shaded LOS require additional analysis.
The peaks are: CR-A1A (PM/SB); CR-713 (PM/NB); Murphy Rd (PM/NB); SR-5 (AM/SB); SR-714 [Palm City Bridge] (PM/WB) and SR-714 (PM/WB).

EXHIBIT D


lucido & associates
Key / Location:
Project Team:
Mariner Village
Square
PUD
Martin County, Florida
Revised
Master Plan
U. S. HIGHWAY NO. 1 (STATE ROAD NO. 5) S.E. FEDERAL HIGHWAY
EXISTING OFFICE
RESTAURANT
RETAIL
RESIDENTIAL CARE FACILITY
ASSISTED LIVING
MEMORY CARE
STORMWATER TREATMENT AREA
WETLAND PRESERVE TRACT
UPLAND PRESERVE TRACT
Residential Storage Facility
EXISTING LAKE
Legend
Upland Preserve
Wetland Preserve
General Notes:
Building Data
Parking Requirements
Site Data
*Upland Preserve Calculations
Standard & Handicap Parking Space Detail
1 of 1

CONSTRUCTION PLANS
FOR
Mariner Village Square PUD
LOT 2 - BEE SAFE STORAGE
MARTIN COUNTY, FLORIDA
SECTION 31, TOWNSHIP 38 SOUTH, RANGE 42 EAST

CONTACTS

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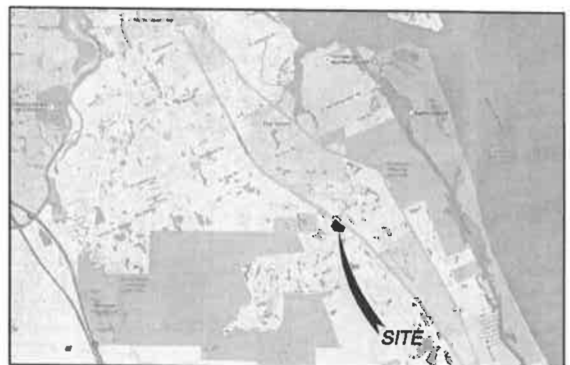


LOCATION MAP
N.T.S.

VICINITY MAP
N.T.S.

DRAWING INDEX

SHEET NO.	SHEET LIST
C0	COVER SHEET
C1	STRIPING & SIGNAGE PLAN
C2	PHASE 2 EROSION & SEDIMENTATION CONTROL PLAN
C3	EROSION & SEDIMENTATION CONTROL DETAILS
C4	PAVING, GRADING & DRAINAGE PLAN
C5	PERIMETER BERM CROSS SECTIONS
C6	WATER & WASTEWATER PLAN
D1 - D5	PAVING, GRADING & DRAINAGE DETAILS
D6	PAVING, GRADING & DRAINAGE GENERAL NOTES
D7	WATER & WASTEWATER GENERAL NOTES
D8 - D9	WATER & WASTEWATER DETAILS

GENERAL NOTES

1. THE CONTRACTOR SHALL HAVE ONE SIGNED COPY OF THE APPROVED PLANS AND THE APPROPRIATE STANDARDS AND SPECIFICATIONS ALONG WITH A COPY OF ALL APPLICABLE PERMITS AND AGREEMENTS NEEDED FOR THE JOB ON-SITE AT ALL TIMES.
2. THE CONTRACTOR SHALL MEET OR EXCEED ALL SITE WORK SPECIFICATIONS AND APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS FOR ALL MATERIALS AND CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS IS ENCOUNTERED.
5. NO REVISION SHALL BE MADE TO THESE PLANS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADWAYS FREE AND CLEAR OF ALL CONSTRUCTION DEBRIS AND DIRT TRACKED FROM THE SITE. AT ALL TIMES.
7. ANY REFERENCE TO PUBLISHED STANDARDS SHALL REFER TO THE LATEST REVISION OF SAID STANDARD, UNLESS SPECIFICALLY STATED OTHERWISE.

811 KNOW WHAT'S BELOW. ALWAYS CALL 811 BEFORE YOU DIG

THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

Bowman CONSULTING

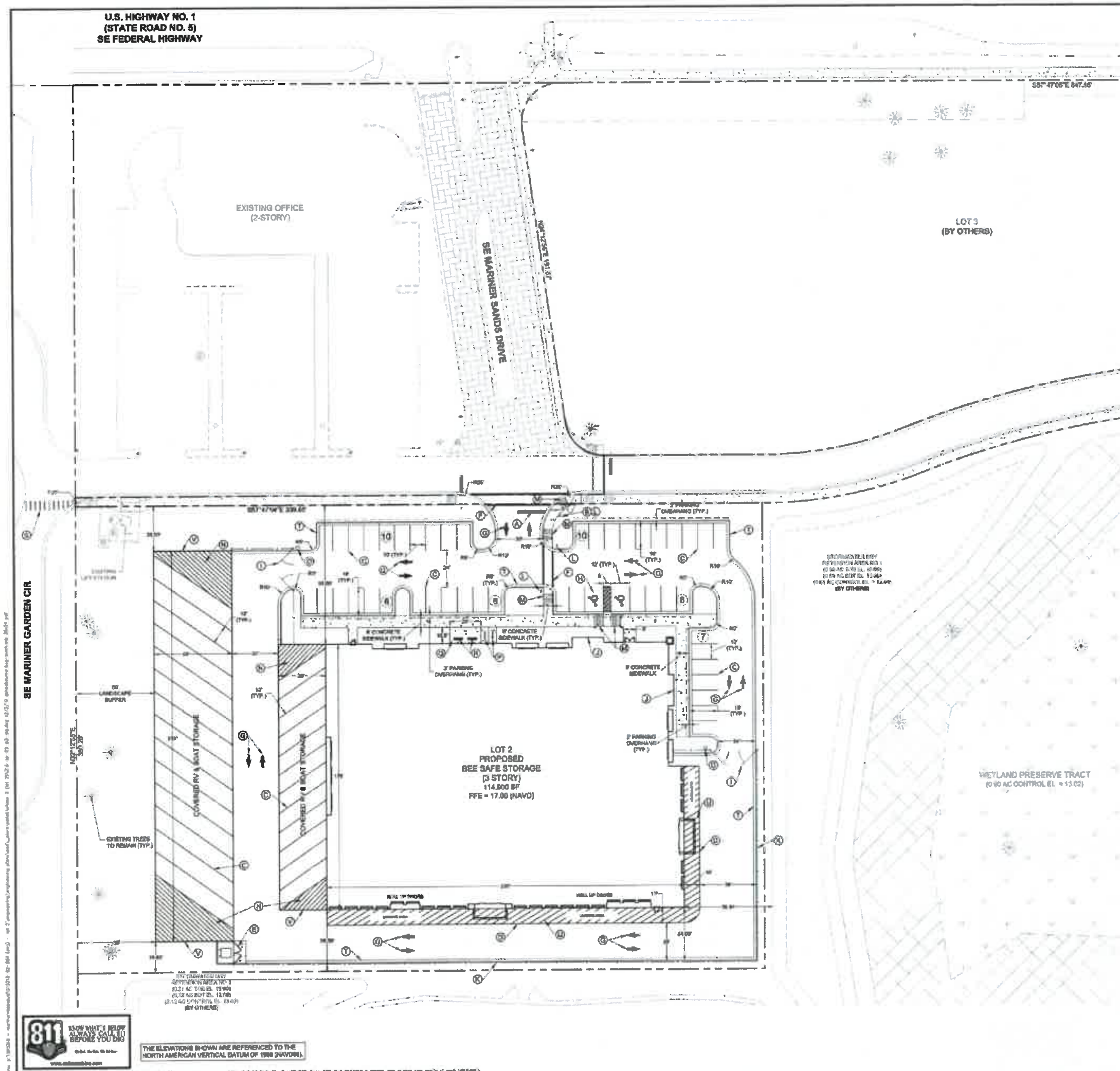
MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
COVER SHEET
MARTIN COUNTY FLORIDA

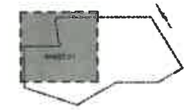
PROJECT NO 010318-02-004

PLAN STATUS: COUNTY COMMENTS

DESIGN	DRAWN	CHKD
L.L.	GC/JB	GMB

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
SHEET C0





KEYNOTE LEGEND

- (A) STOP BAR (TYP.) (SEE DETAIL).
- (B) "STOP" SIGN (TYP.) (SEE DETAIL).
- (C) 4" SOLID WHITE STRIPE.
- (D) 8" SOLID WHITE STRIPE.
- (E) DUMPSTER (REFER TO ARCHITECTURAL PLANS FOR DETAILS).
- (F) 6'-0" WIDE (OR AS SHOWN) PEDESTRIAN CROSSWALK. SEE DETAIL).
- (G) ARROW PAVEMENT MARKINGS TYPICAL (SEE DETAIL).
- (H) ACCESSIBLE PARKING SPACE TYPICAL. SEE DETAIL SHEET FOR ACCESSIBLE PARKING SPACE SIZE, SIGN AND SYMBOL.
- (I) ENTRANCE / EXIT GATE. (SEE DETAIL).
- (J) BUILDING SIGNAGE (SEE SQUARE FEET). (REFER TO ARCH. PLANS).
- (K) 6' HIGH CHAIN LINK FENCE. (SEE DETAIL).
- (L) PEDESTRIAN CROSSING SIGN. TYPICAL AT PEDESTRIAN CROSSWALKS AS NOTED ON PLANS (SEE DETAIL)
- (M) CURB RAMP AND DETECTABLE WARNING STRIP PER LATEST EDITIONS OF FDOT STANDARD PLANS FOR ROAD CONSTRUCTION INDEX 522-002 FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION SECTION 527 AND PER ADA REQUIREMENTS.
- (N) 4" SOLID YELLOW STRIPE AT 2' O.C. AT 45°.
- (O) PROPOSED KNOX BOX.
- (P) BIKE RACK (SEE DETAIL).
- (Q) 200 SF PATIO (REFER TO ARCHITECTURAL PLANS FOR DETAILS).
- (R) PROPOSED BENCH (REFER TO ARCHITECTURAL PLANS FOR DETAILS).
- (S) EXISTING CROSSWALK STRIPING.
- (T) TYPE "F" CURB (TYP.).
- (U) 18" SOLID WHITE STRIPE AT 10' O.C. AT 45°.
- (V) 4" SOLID YELLOW STRIPE.

NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL MARTIN COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
2. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULES, CANOPIES, APRONS, SIDEWALKS, EXIT PORCHES, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
3. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH COUNTY SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
4. ALL ISLANDS WITH CURB & GUTTER SHALL BE LANDSCAPED.
5. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, (UNLESS OTHERWISE NOTED ON PLANS) INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
7. SITE BOUNDARY, TOPOGRAPHY, UTILITY AND ROAD INFORMATION TAKEN FROM A SURVEY PERFORMED BY BOWMAN CONSULTING GROUP DATED OCTOBER 17, 2017.
8. MONUMENT SIGN SHALL BE CONSTRUCTED BY OTHERS.
9. REFER TO ARCH. PLANS FOR SITE LIGHTING AND ELECTRICAL PLANS.
10. ALL SIDEWALKS AND ADA ACCESSIBLE AREAS SHALL HAVE A MAXIMUM RUNNING SLOPE OF 1V:20H & A MAXIMUM CROSS SLOPE OF 1V:50H.
11. ALL CURB RAMPS TO HAVE DETECTABLE WARNING STRIPS & BE CONSTRUCTED PER LATEST EDITION OF FDOT STANDARDS PLANS FOR ROAD CONSTRUCTION, INDEX 522-002. FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, SECTION 527 & PER ADA REQUIREMENTS.
12. F.I.R.M. NO. 12085C0155, EFFECTIVE DATE MARCH 16, 2015 INDICATES THE SITE IS LOCATED IN ZONE X.
13. ALL STRIPING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF FDOT STANDARD PLANS FOR ROAD CONSTRUCTION INDEX 711-001 AND FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION SECTION 711 "THERMO PLASTIC TRAFFIC STRIPES AND MARKINGS", AND MARTIN COUNTY REQUIREMENTS. INSTALL RETRO- REFLECTIVE PAVEMENT MARKINGS (RPM'S).
14. ALL STRIPING SHALL BE INSTALLED AFTER NEW PAVEMENT.

SITE DATA

TOTAL SITE AREA (LOT 2)	132,238 S.F. / 3.04 AC
FUTURE LAND USE	COMMERCIAL / INDUSTRIAL (C/I)
ZONING	GENERAL COMMERCIAL DISTRICT (GC)
OPEN SPACE PROVIDED*	29,478 S.F. / 0.67 AC. (22%)

BUILDING DATA

	HEIGHT	STORIES	SF
BEE SAFE STORAGE	40' MAX	3	114,800
TOTAL			

PARKING CALCULATIONS

REQUIRED PARKING

UNIT DESCRIPTION	SF	RATIO	SPACES
LOT 2 (BEE SAFE STORAGE)	114,800	1 SPACE / 1,500 SF	77 SPACES
		TOTAL	47 SPACES

PROPOSED PARKING SPACES

LOT 2 (BEE SAFE STORAGE)	
10' X 18'	45
ACCESSIBLE	2
TOTAL	47

PROPOSED ACCESSIBLE PARKING SPACES
REQUIRED = 26 TO 50 SPACES = 2 SPACES
PROVIDED = 2 SPACES

SITE STATISTICS

	ACRES	SF	PERCENTAGE%
LOT 2 (BEE SAFE STORAGE) SITE AREA	3.04	132,238	100%
IMPERVIOUS AREA	2.38	103,871	78%
BUILDING TOTAL	0.88	38,380	27%
PAVEMENT	0.93	40,546	40%
CONCRETE & SIDEWALK	0.54	23,585	23%
PERVIOUS AREA	0.67	29,478	22%
LANDSCAPE AREA	0.67	29,478	22%

LEGEND

- BOUNDARY / RIGHT OF WAY LINE
- WETLAND PRESERVE TRACT
- 50' WETLAND BUFFER
- PROPOSED CONCRETE SIDEWALK

GRAPHIC SCALE 1" = 30'

Bowman CONSULTING
Certificate of Authorization License No. 30442

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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
STRIPING & SIGNAGE PLAN
MARTIN COUNTY FLORIDA

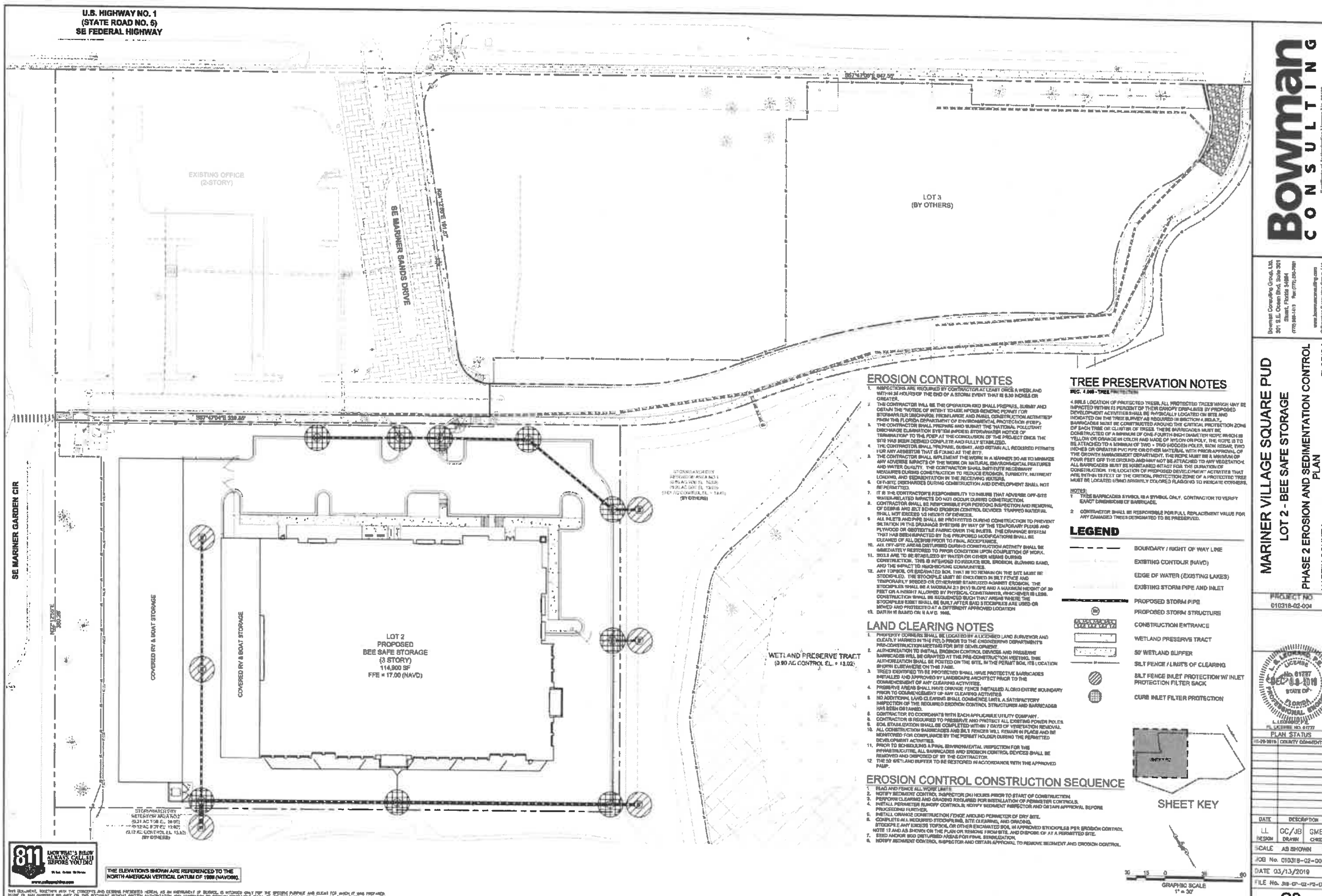
PROJECT NO 010318-02-004

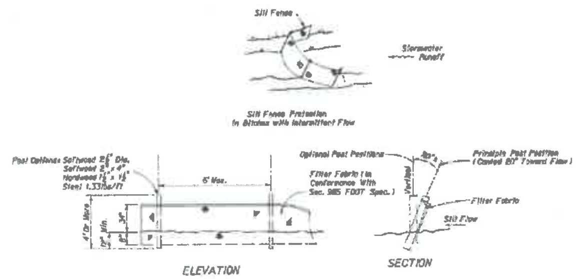
PLAN STATUS

DATE	DESCRIPTION
09-23-2019	COUNTY COMMENTS
12-06-2019	COUNTY COMMENTS

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
SHEET C1


U.S. HIGHWAY NO. 1
(STATE ROAD NO. 5)
SE FEDERAL HIGHWAY
EXISTING OFFICE
(2-STORY)
SE MARINER SANDS DRIVE
LOT 3
(BY OTHERS)
SE MARINER GARDEN CIR
COVERED RV & BOAT STORAGE
COVERED RV & BOAT STORAGE
LOT 2
PROPOSED
BEE SAFE STORAGE
(3 STORY)
114,900 SF
FFE = 17.00 (NAVD)
WETLAND PRESERVE TRACT
(3.90 AC CONTROL EL. = 13.02)
EROSION CONTROL NOTES
TREE PRESERVATION NOTES
LEGEND
BOUNDARY / RIGHT OF WAY LINE
EXISTING CONTOUR (NAVD)
EDGE OF WATER (EXISTING LAKES)
EXISTING STORM PIPE AND INLET
PROPOSED STORM PIPE
PROPOSED STORM STRUCTURE
CONSTRUCTION ENTRANCE
WETLAND PRESERVE TRACT
50' WETLAND BUFFER
SILT FENCE / LIMITS OF CLEARING
SILT FENCE INLET PROTECTION W/ INLET PROTECTION FILTER SACK
CURB INLET FILTER PROTECTION
LAND CLEARING NOTES
EROSION CONTROL CONSTRUCTION SEQUENCE
SHEET KEY
GRAPHIC SCALE
1" = 30'
THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
811
KNOW WHAT'S BELOW
ALWAYS CALL 811
BEFORE YOU DIG
Bowman
CONSULTING
MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
PHASE 2 EROSION AND SEDIMENTATION CONTROL PLAN
MARTIN COUNTY
FLORIDA
PROJECT NO
010318-02-004
PLAN STATUS
COUNTY COMMENTS
DATE
DESCRIPTION
LL
DESIGN
GC/JB
DRAWN
GMB
CHKD
SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
SHEET
C2

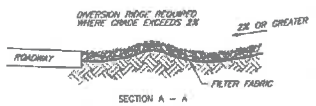


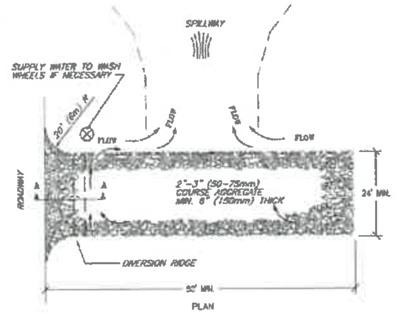
SILT FENCE

NOTES:

1. Do not construct silt fences across permanent flowing watercourses. Silt fences are to be at upland locations and turbidity barriers used at permanent bodies of water.
2. Where used as slope protection, Silt Fence is to be constructed on 0% longitudinal grade to avoid channelizing runoff along the length of the fence.

SEDIMENTATION/SILT FENCE DETAIL
N.T.S.

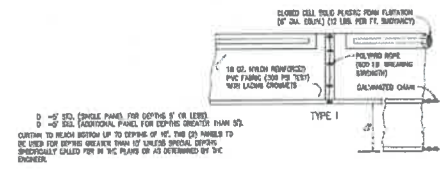




NOTES.

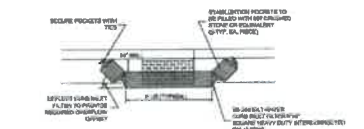
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.
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 GRAVEL CONSTRUCTION ENTRANCE/EXIT DETAIL
N.T.S.



D –5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS)
D –5' STD. (ADDITIONAL PANEL FOR DEPTHS GREATER THAN 5').
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10'. TWO (2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10' UNLESS SPECIAL DEPTHS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

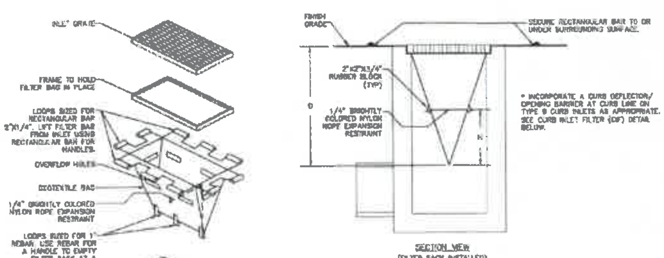
FLOATING TURBIDITY BARRIER DETAIL
N.T.S.



INSTALLATION PROCEDURE:

1. IDENTIFY OPENING DIMENSIONS TO DETERMINE THE NUMBER OF SS-300 CURB INLET FILTERS THAT WILL BE REQUIRED.
2. COMPLETELY FILL THE STABILIZATION CHAMBER ON EACH END OF EACH SS-300 CURB INLET FILTER WITH #57 CRUSHED STONE
3. SECURE ENDS OF THE STABILIZATION POCKETS WITH TIES.
4. PLACE THE SS-300 CURB INLET FILTER(S) IN FRONT OF THE CURB INLET OR OPENING TO PREVENT THE MIGRATION OF SILT INTO THE STORM DRAIN SYSTEM.

CURB INLET FILTER DETAIL
N.T.S.



NOTES:

1. GEOTEXTILE SHALL BE A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS REQUIREMENTS IN THE SPECIFICATIONS TABLE.
2. PLACE AN OIL ABSORBENT PAD OR PILLOW OVER INLET GRATE WHEN OIL SPILLS ARE A CONCERN.
3. THE WIDTH, "W", OF THE FILTER SACK SHALL MATCH THE INSIDE WIDTH OF THE GRATED INLET BOX.
4. THE DEPTH, "D", OF THE FILTER SACK SHALL BE BETWEEN 18 INCHES AND 36 INCHES.
5. THE LENGTH, "L", OF THE FILTER SACK SHALL MATCH THE INSIDE LENGTH OF THE GRATED INLET BOX.

MAINTENANCE NOTES:

1. INLET PROTECTION DEVICES MUST BE INSPECTED FOR SEDIMENT ACCUMULATION WITHIN THE CATCH BASIN. REMOVE TRAPPED SEDIMENT WHEN BRIGHTLY COLORED EXPANSION RESTRAINT CAN NO LONGER BE SEEN.
2. REMOVAL OF SEDIMENT ACCUMULATED IN OR ADJACENT TO A STORM DRAIN INLET MUST BEGIN IMMEDIATELY UPON DISCOVERY, WITH COMPLETION OF THE ACTIVITY OCCURRING NO LATER THAN THE END OF THE FOLLOWING BUSINESS DAY.
3. INLET PROTECTION DEVICES SHALL BE INSPECTED FOR UNINTENDED BYPASS OR IMPROPER FLOW–RATES THAT MAY CAUSE DOWNSTREAM FLOODING.
4. CONTACT THE ENGINEER FOR ALTERNATE INLET PROTECTION IF THE DESIGNED PROTECTION MAY IMPACT DOWNSTREAM SMPS, ADJACENT SLOPES, ETC., DUE TO PONDING ISSUES. ENSURE THAT NO UNDERMINING OF INLET PROTECTION DEVICES HAS OCCURRED.
5. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.

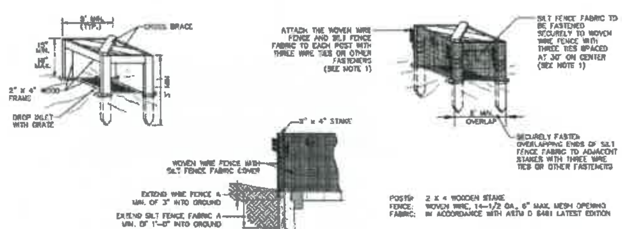
LOW TO MODERATE FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D–4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D–4632	20 %
PUNCTURE	ASTM D–4833	120 LBS
MULLEN BURST	ASTM D–3786	800 PSI
TRAPEZOID TEAR	ASTM D–4533	120 LBS
UV RESISTANCE	ASTM D–4355	80 %
APPARENT OPENING SIZE	ASTM D–4751	40 US SIEVE
FLOW RATE	ASTM D–4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D–4491	0.55 SEC –1

MODERATE TO HIGH FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D–4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D–4632	20 %
PUNCTURE	ASTM D–4833	135 LBS
MULLEN BURST	ASTM D–3786	420 PSI
TRAPEZOID TEAR	ASTM D–4533	45 LBS
UV RESISTANCE	ASTM D–4355	90 %
APPARENT OPENING SIZE	ASTM D–4751	20 US SIEVE
FLOW RATE	ASTM D–4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D–4491	1.5 SEC –1

INLET PROTECTION FILTER SACK AT PAVED AREAS
N.T.S.



POSTS: 2 X 4 WOODEN STAKE
FENCE: WOVEN WIRE, 14–1/2 GA., 6" MAX. MESH OPENING
FABRIC: IN ACCORDANCE WITH ASTM D 6461 LATEST EDITION

NOTES:

1. ATTACH THE WOVEN WIRE FENCE AND THE GEOTEXTILE TO EACH POST (SPACED EVERY 30") WITH THREE WIRE TIES OR OTHER FASTENERS, ALL SPACED WITHIN THE TOP 8" OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1" VERTICALLY APART.
2. WHEN TWO SECTIONS OF SILT FENCE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED ACROSS TWO POSTS.
3. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE SWPPP. DEPTH OF ACCUMULATED SEDIMENTS MAY NOT EXCEED ONE–THIRD THE HEIGHT OF THE FABRIC.
4. ALL SILT FENCE INLET PROTECTIONS SHALL INCLUDE WIRE SUPPORT.

MAINTENANCE NOTES:

1. INLET PROTECTION DEVICES MUST BE INSPECTED FOR SEDIMENT ACCUMULATION WITHIN THE CATCH BASIN (IF USING INSERT–TYPE DEVICE) OR UPGRADIENT OF THE INLET.
2. REMOVAL OF SEDIMENT ACCUMULATED IN OR ADJACENT TO A STORM DRAIN INLET MUST BEGIN IMMEDIATELY UPON DISCOVERY, WITH COMPLETION OF THE ACTIVITY OCCURRING NO LATER THAN THE END OF THE FOLLOWING BUSINESS DAY.
3. INLET PROTECTION DEVICES SHALL BE INSPECTED FOR UNINTENDED BYPASS OR IMPROPER FLOW–RATES THAT MAY CAUSE DOWNSTREAM FLOODING.
4. CONTACT THE ENGINEER FOR ALTERNATE INLET PROTECTION IF THE DESIGNED PROTECTION MAY IMPACT DOWNSTREAM SMPS, ADJACENT SLOPES, ETC., DUE TO PONDING ISSUES. ENSURE THAT NO UNDERMINING OF INLET PROTECTION DEVICES HAS OCCURRED.
5. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.

SILT FENCE INLET PROTECTION DETAIL AT UNPAVED AREAS
N.T.S.

B.M.P.'s (BEST MANAGEMENT PRACTICES)

THESE PLANS ADDRESSES THE FOLLOWING AREAS:

A. GENERAL EROSION CONTROL.
B. PROTECTION OF SURFACE WATER QUALITY DURING AND AFTER CONSTRUCTION.
C. CONTROL OF WIND EROSION.

THE VARIOUS TECHNIQUES OR ACTIONS IDENTIFIED UNDER EACH SECTION INDICATE THE APPROPRIATE SITUATION WHEN THE TECHNIQUES SHOULD BE EMPLOYED. IT SHOULD BE NOTED THAT THE MEASURES IDENTIFIED ON THIS PLAN ARE ONLY SUGGESTED BMPS. THE CONTRACTOR SHALL PROVIDE POLLUTION PREVENTION AND EROSION CONTROL MEASURES AS NECESSARY FOR EACH SPECIFIC APPLICATION.

SECTION A – GENERAL EROSION CONTROL

A.1 GENERAL EROSION CONTROL BMPS SHALL BE EMPLOYED TO MINIMIZE SOIL EROSION AND POTENTIAL LAKE SLOPE CAVE–INS. WHILE THE VARIOUS TECHNIQUES REQUIRED WILL BE SITE AND PLAN SPECIFIC, THEY SHOULD BE EMPLOYED AS SOON AS POSSIBLE DURING CONSTRUCTION ACTIVITIES.

A.2 CLEARED SITE DEVELOPMENT AREAS NOT CONTINUALLY SCHEDULED FOR CONSTRUCTION ACTIVITIES SHALL BE SEEDED AND MULCHED AND PERIODICALLY WATERED SUFFICIENT TO STABILIZE THE TEMPORARY GROUNDCOVER.

A.3 SLOPES OF BANKS OF WET DETENTION PONDS SHALL BE CONSTRUCTED NOT STEEPER THAN 4H:1V FROM TOP OF BANK TO (3) FEET BELOW NORMAL WATER LEVEL.

A.4 ALL GRASS SLOPES CONSTRUCTED 4H:1V AND STEEPER SHALL BE SODDED AS SOON AS PRACTICAL AFTER THEIR CONSTRUCTION.

A.5 SOD SHALL BE PLACED FOR A 3–FOOT WIDE STRIP ADJOINING ALL CURBING AND AROUND ALL INLETS AS REQUIRED BY PLAN. SOD SHALL BE PLACED AND A SATISFACTORY STAND OF GRASS ESTABLISHED BEFORE SILT BARRIERS ARE REMOVED.

A.6 WHERE REQUIRED TO PREVENT EROSION FROM SHEET FLOW ACROSS BARE GROUND FROM ENTERING A LAKE OR SWALE, A TEMPORARY SEDIMENT SUMP SHALL BE CONSTRUCTED. THE TEMPORARY SEDIMENT SUMP SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED ON THE GROUND DRAINING TO THE SUMP.

SECTION B – PROTECTION OF SURFACE WATER QUALITY DURING & AFTER CONSTRUCTION

B.1 SURFACE WATER QUALITY SHALL BE MAINTAINED BY EMPLOYING THE FOLLOWING BMPS, AT A MINIMUM, IN THE CONSTRUCTION PLANNING AND CONSTRUCTION OF ALL IMPROVEMENTS.

B.2 WHERE PRACTICAL, STORMWATER SHALL BE CONVEYED BY SWALES.

B.3 EROSION CONTROL MEASURES SHALL BE EMPLOYED TO MINIMIZE TURBIDITY OF SURFACE WATERS LOCATED DOWNSTREAM OF ANY CONSTRUCTION ACTIVITY. WHILE THE VARIOUS MEASURES REQUIRED WILL BE SITE SPECIFIC, THEY SHALL BE EMPLOYED AS NEEDED IN ACCORDANCE WITH THE FOLLOWING:

a. IN GENERAL, EROSION SHALL BE CONTROLLED AT THE FURTHEST PRACTICAL UPSTREAM LOCATION.

b. STORMWATER INLETS SHALL BE PROTECTED DURING CONSTRUCTION AS SHOWN. PROTECTION MEASURES SHALL BE EMPLOYED AS SOON AS PRACTICAL DURING THE VARIOUS STAGES OF INLET CONSTRUCTION. SILT BARRIERS SHALL REMAIN IN PLACE UNTIL SODDING AROUND INLETS IS COMPLETE AND A SATISFACTORY STAND OF GRASS ESTABLISHED.

B.4 HEAVY CONSTRUCTION EQUIPMENT PARKING AND MAINTENANCE AREAS SHALL BE DESIGNED TO PREVENT OIL, GREASE, AND LUBRICANTS FROM ENTERING SITE DRAINAGE FEATURES INCLUDING STORMWATER COLLECTION AND TREATMENT SYSTEMS. CONTRACTORS SHALL PROVIDE BROAD DIKES, HAY BALES OR SILT SCREENS AROUND, AND SEDIMENT SUMPS WITHIN, SUCH AREAS AS REQUIRED TO CONTAIN SPILLS OF OIL, GREASE OR LUBRICANTS. CONTRACTORS SHALL HAVE AVAILABLE, AND SHALL USE, ABSORBENT FILTER PADS TO CLEAN UP SPILLS AS SOON AS POSSIBLE AFTER OCCURRENCE.

B.5 SILT BARRIERS, ANY SILT WHICH ACCUMULATES BEHIND THE BARRIERS, AND ANY FILL USED TO ANCHOR THE BARRIERS SHALL BE REMOVED PROMPTLY AFTER THE END OF THE MAINTENANCE PERIOD SPECIFIED FOR THE BARRIERS.

SECTION C – CONTROL OF WIND EROSION

C.1 WIND EROSION SHALL BE CONTROLLED BY EMPLOYING THE FOLLOWING METHODS AS NECESSARY AND APPROPRIATE:

a. BARE EARTH AREAS SHALL BE WATERED DURING CONSTRUCTION AS NECESSARY TO MINIMIZE THE TRANSPORT OF FUGITIVE DUST. IT MAY BE NECESSARY TO LIMIT CONSTRUCTION VEHICLE SPEED IF BARE EARTH HAS NOT BEEN EFFECTIVELY WATERED. IN NO CASE SHALL FUGITIVE DUST BE ALLOWED TO LEAVE THE SITE UNDER CONSTRUCTION.

b. AS SOON AS PRACTICAL AFTER COMPLETION OF CONSTRUCTION, BARE EARTH AREAS SHALL BE VEGETATED.

c. AT ANY TIME BOTH DURING AND AFTER SITE CONSTRUCTION THAT WATERING AND/OR VEGETATION ARE NOT EFFECTIVE IN CONTROLLING WIND EROSION AND/OR TRANSPORT OF FUGITIVE DUST, OTHER METHODS AS ARE NECESSARY FOR SUCH CONTROL SHALL BE EMPLOYED. THESE METHODS MAY INCLUDE ERECTION OF DUST CONTROL FENCES. IF REQUIRED, DUST CONTROL FENCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAIL FOR A SILT FENCE, AS SHOWN, EXCEPT THE MINIMUM HEIGHT SHALL BE 4 FEET.

811 KNOW WHAT'S BELOW. ALWAYS CALL 811 BEFORE YOU DIG

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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
EROSION AND SEDIMENTATION CONTROL DETAILS

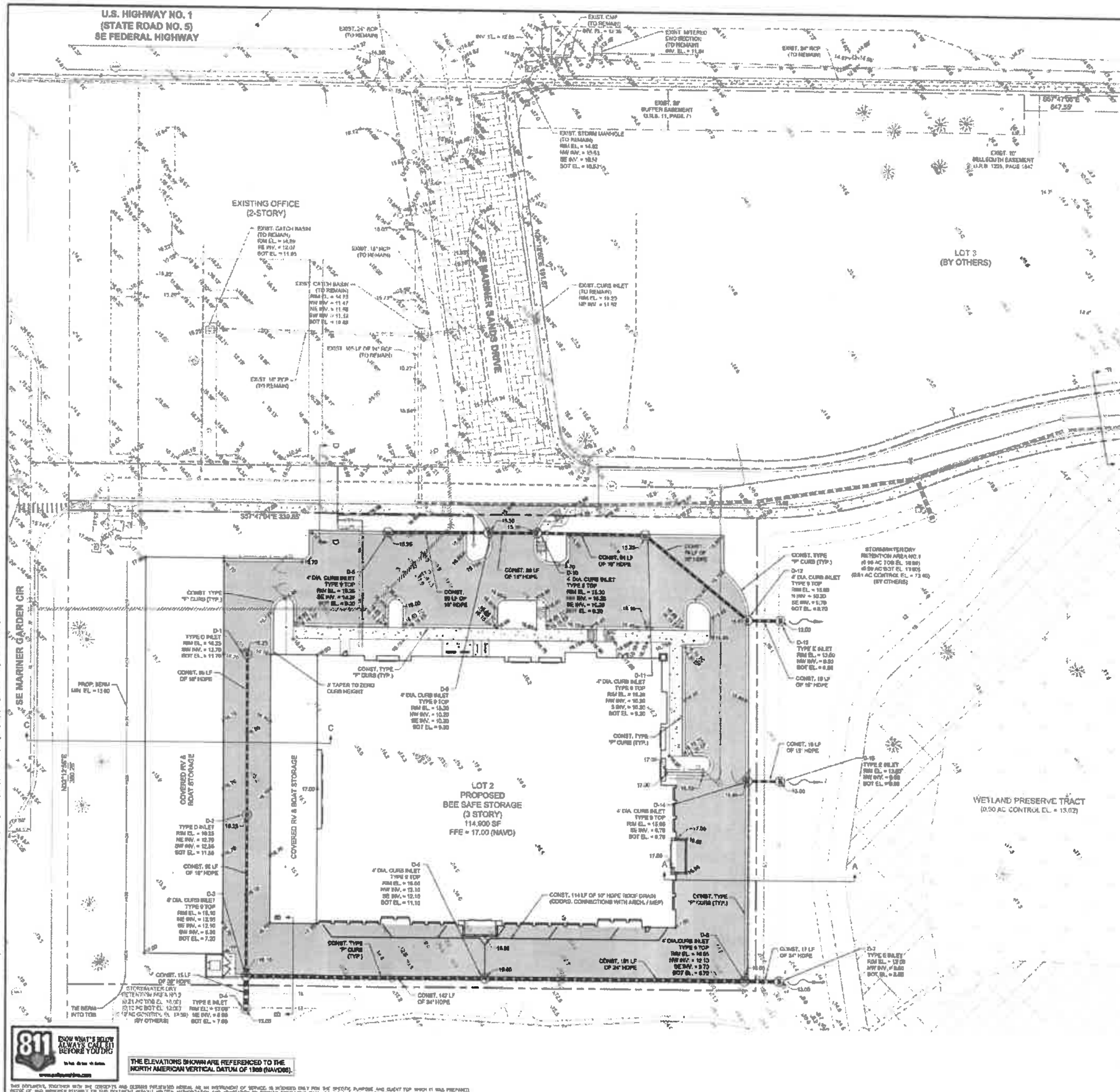
MARTIN COUNTY — FLORIDA

PROJECT NO: 010318-02-004

PLAN STATUS: 3-26-2019 COUNTY COMMENTS

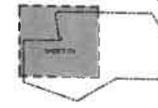
DATE	DESCRIPTION	
LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE: AS SHOWN
JOB No. 010318-02-004
DATE: 03/13/2019
FILE No. 318-CP-02-P1-C00
SHEET C3



LEGEND

- BOUNDARY LINE / RIGHT OF WAY LINE
- EXISTING CONTOUR (NAVD)
- EXISTING SPOT EL. (NAVD)
- EDGE OF WATER (EXISTING LAKES)
- EXISTING STORM PIPE AND INLET
- WETLAND PRESERVE TRACT
- 50' WETLAND BUFFER
- PROPOSED WATER MAIN
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM PIPE
- PROPOSED STORM STRUCTURE
- DIRECTION OF FLOW
- PROPOSED CONTOUR (NAVD)
- PROPOSED PERIMETER BERM (EL. 15.50)
- PROPOSED STANDARD DUTY ASPHALT PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED GRADE
- PROPOSED GRADES -TC = TOP OF CURB -EP = EDGE OF PAVEMENT



SHEET KEY

GRADING NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. CONTRACTOR TO VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
3. PRECAST STRUCTURES MAY BE USED AT CONTRACTOR'S OPTION.
4. STORM PIPE SHALL BE IN ACCORDANCE WITH SITE SPECIFICATIONS.
5. ALL EXISTING PIPES AND STRUCTURES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
6. ALL STORM PIPES & STRUCTURES TO BE CLEANED, VACUUMED & DESILTED PRIOR TO PROJECT TURN OVER. DRY DETENTION AREA TO BE DESILTED PRIOR TO PROJECT TURN OVER.
7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
8. ALL STORM PIPE ENTERING STORM STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STORM STRUCTURE IS WATERTIGHT.
9. SEE ARCHITECTURAL/MEP PLANS FOR STORM PIPE CONNECTIONS TO BUILDINGS.
10. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER".
11. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE EPA, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP), NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) "GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES" AND THE PROJECT SPECIFICATIONS.
12. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
13. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
14. TOPOGRAPHIC INFORMATION IS TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY BOWMAN CONSULTING GROUP. IF THE CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY, AT THEIR EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR TO THE OWNER FOR REVIEW.
15. CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH GOVERNING SPECIFICATIONS UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED. ALSO REFER TO THE LANDSCAPE PLANS FOR ADDITIONAL REQUIREMENTS FOR LANDSCAPE/OPEN SPACE AREAS.
16. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
17. PROPOSED GRADE ELEVATIONS SHOWN ARE AT THE EDGE OF PAVEMENT LINE OR UNLESS OTHERWISE NOTED.
18. CONTRACTOR TO PAY SPECIAL ATTENTION WHEN COMPACTING SOIL AROUND SANITARY AND DRAINAGE STRUCTURES AND SHALL ENSURE THAT THE SOIL IS PROPERLY COMPACTED TO ELIMINATE DIFFERENTIAL SETTLEMENT. THE PAVEMENT SUBGRADE FILL PLACED WITHIN 24 INCHES OF FINISHED SUBGRADE ELEVATION AND AT LEAST THE UPPER 24 INCHES OF SUBGRADE IN ALL CUT AREAS SHALL BE COMPACTED TO AT LEAST 98% OF THE MATERIAL'S MAXIMUM MODIFIED PROCTOR DRY DENSITY (ASTM D1557).
19. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SUFFICIENT COVER OVER ALL PIPES DURING ALL CONSTRUCTION PHASES IN ORDER TO PREVENT DAMAGE TO THE DRAINAGE SYSTEM AND TO COMPLY WITH INDIAN RIVER COUNTY REQUIREMENTS.
20. ANY DAMAGE TO THE DRAINAGE SYSTEM DURING CONSTRUCTION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR / REPLACE AND INCUR ALL COSTS.
21. CONTRACTOR SHALL TAKE SPECIAL CARE TO AVOID UNNECESSARY DISTURBANCE OF EXISTING SOILS, ESPECIALLY THOSE W/ SENSITIVE OPTIMAL MOISTURE CONTENT.
22. DRAINAGE STRUCTURE SYMBOLS SHOWN ON PLANS ARE NOT TO SCALE.
23. SAW CUT PAVEMENT AT CONFORMS AND PROTECT EDGE.
24. ALL CURB CUT RAMPS SHALL HAVE DETECTABLE WARNING STRIPS AND CONSTRUCTED PER LATEST EDITION OF FDOT STANDARD SPECIFICATIONS SECTION 522-2 AND PER ADA REQUIREMENTS.
25. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
26. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH GOVERNING SPECIFICATIONS UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED.
27. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.

GRAPHIC SCALE 1" = 30'

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MARINER VILLAGE SQUARE PUD

LOT 2 - BEE SAFE STORAGE

PAVING GRADING AND DRAINAGE PLAN

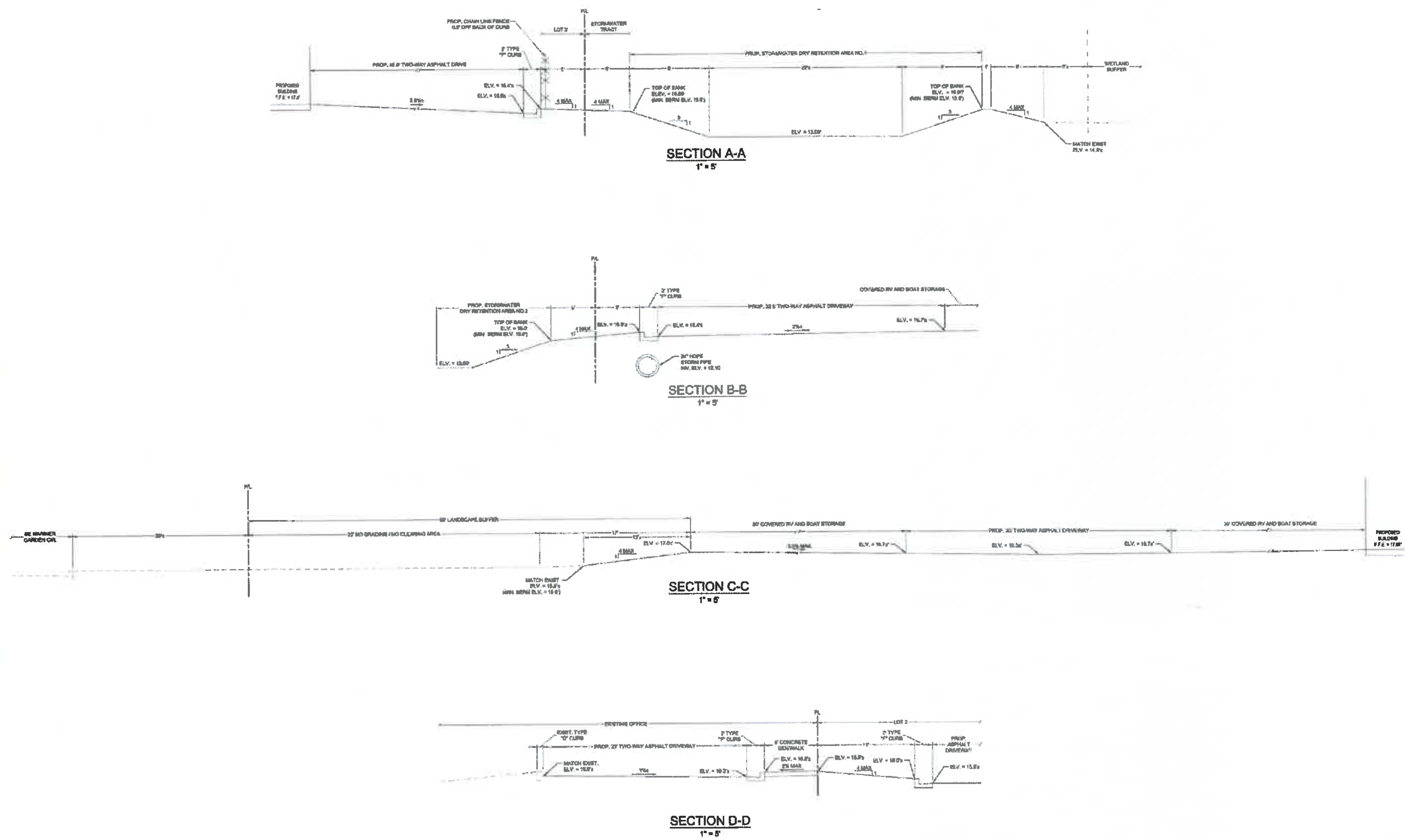
MARTIN COUNTY FLORIDA

PROJECT NO. 010318-02-004

L.B. LEONARD, P.E. No. 81737 STATE OF FLORIDA PROFESSIONAL ENGINEER

PLAN STATUS	
3-29-2019	COUNTY COMMENTS
DATE	DESCRIPTION
LL DESIGN	GC/JB DRAWN	GMB CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-OP-02-P2-PGD
SHEET C4



THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

811 KNOW WHAT'S BELOW. ALWAYS CALL 811 BEFORE YOU DIG.

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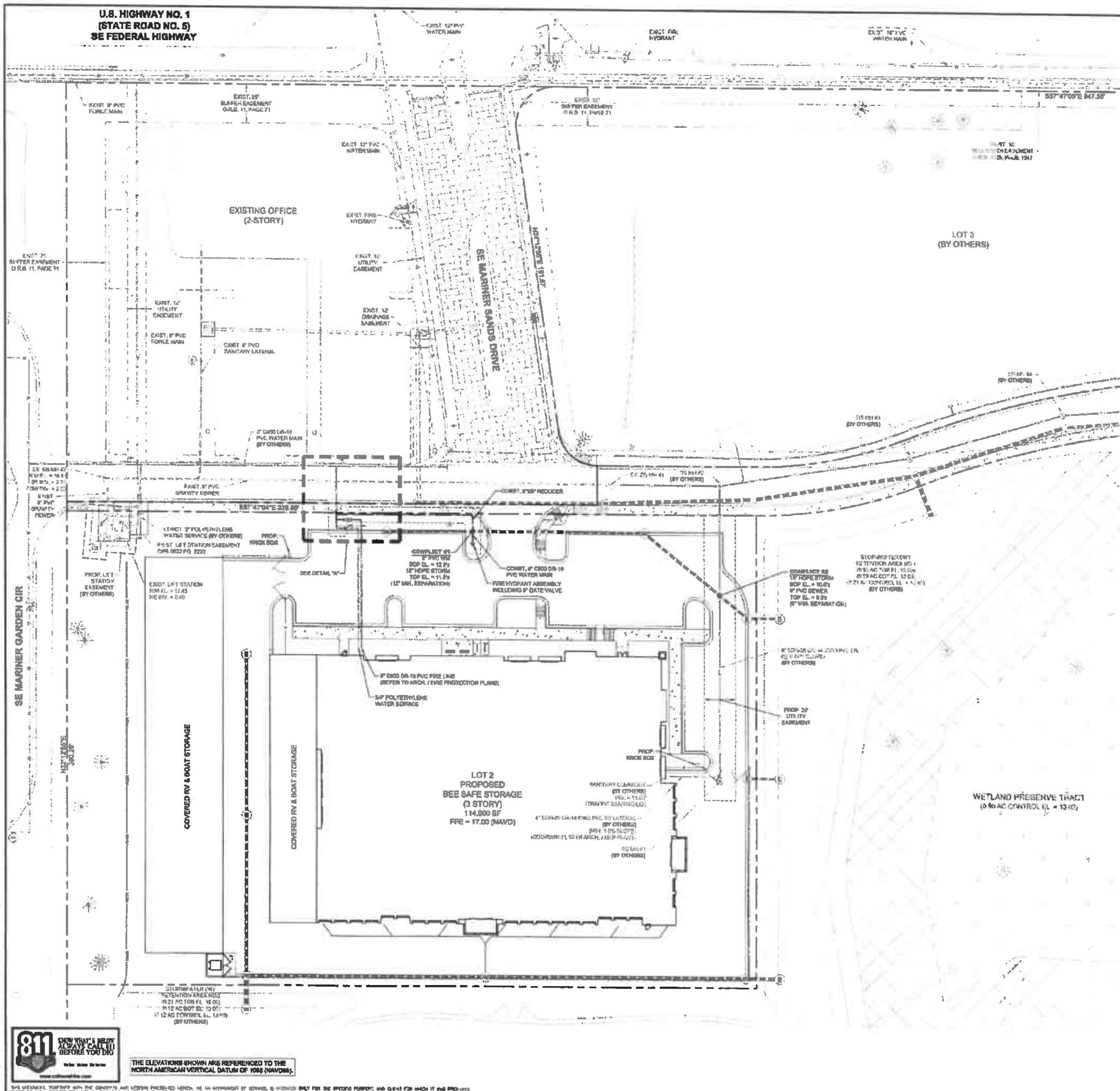
MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
PERIMETER BERM CROSS SECTIONS
MARTIN COUNTY FLORIDA

PROJECT NO
010318-02-004

PLAN STATUS
COUNTY COMMENTS

LL DESIGN	GC/JB DRAWN	GMB CHKD

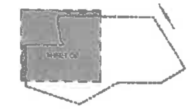
SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
SHEET C5



THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

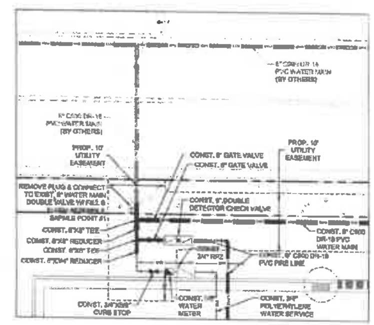
LEGEND

- BOUNDARY LINE / RIGHT OF WAY LINE
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER AND MANHOLE
- EXISTING STORM PIPE AND INLET
- WETLAND PRESERVE TRACT
- 50' WETLAND BUFFER
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY MANHOLE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED STORM PIPE



UTILITY NOTES

1. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
2. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE
3. SANITARY SEWER PIPE SHALL BE AS FOLLOWS:
   - 6" PVC SDR26 PER ASTM D 3034
   - 8" PVC SDR26 PER ASTM D 3034
4. WATER LINES SHALL BE AS FOLLOWS:
   - 2" AND SMALLER, POLYETHYLENE AS DEFINED BY ASTM D2737 SDR9 COPPER TUBE SIZE
   - 4"-12", PVC DR-18 C-900
5. DUCTILE IRON PIPE (DIP) SHALL BE REQUIRED WHEN WITHIN SIX (6) FEET HORIZONTALLY OF SEWAGE FACILITIES OR PIPES.
6. DUCTILE IRON PIPE (DIP) SHALL BE A MINIMUM OF PRESSURE CLASS 350 AND CONFORM TO THE LATEST STANDARDS OF ANSI/AWWA C150/A21.50 FOR THE THICKNESS DESIGN OF DIP.
7. ALL UTILITIES SHOULD HAVE A MINIMUM HORIZONTAL SEPARATION OF 3' TO POWER POLES, LIGHT POLES, OR OTHER UTILITIES, 15' TO BUILDINGS, TOP OF BANKS OF LAKES & CANALS AND OTHER STRUCTURES, OR ABSOLUTE MINIMUM OF 10' WITH DIP
8. ALL WATER FITTINGS ARE TO BE DUCTILE IRON MECHANICAL JOINTS AS CALLED OUT IN MARTIN COUNTY MINIMUM DESIGN & CONSTRUCTION STANDARDS.
9. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 30" COVER ON ALL WATERLINES, 8" OR SMALLER. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATER LINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE WATER LINE SHALL HAVE APPROPRIATE RESTRAINTS AS REQUIRED BY MARTIN COUNTY UTILITIES & A MINIMUM OF 6" CLEARANCE (12" PREFERRED).
10. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
11. TOPS OF EXISTING MANHOLES SHALL BE RAISED AS NECESSARY TO BE FLUSH WITH PROPOSED PAVEMENT ELEVATIONS, AND TO BE ONE FOOT ABOVE FINISHED GROUND ELEVATIONS WITH WATERTIGHT LIDS WHEN LOCATED IN UNPAVED AREAS.
12. EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.
13. REFER TO INTERIOR PLUMBING DRAWINGS BY THE MEP FOR TIE-IN OF ALL UTILITIES.
14. CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE LOCAL AUTHORITIES REGARDING TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
15. ALL EXISTING VALVES TO BE ADJUSTED TO FINAL FINISHED GRADE.
16. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
17. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES. THIS AND THE FINAL CONNECTIONS OF THE SERVICE SHALL BE COMPLETED AT LEAST 30 DAYS PRIOR TO C.O.
18. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
19. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITY DURING CONSTRUCTION AT NO COST TO THE OWNER.
20. SEE MARTIN COUNTY UTILITIES MINIMUM DESIGN & CONSTRUCTION STANDARDS FOR BACKFILLING AND COMPACTION REQUIREMENTS ON UTILITY TRENCHES. CONTRACTOR SHALL COMPLY WITH MARTIN COUNTY UTILITIES MINIMUM DESIGN & CONSTRUCTION STANDARDS, LATEST EDITION.
21. CONTRACTOR SHALL GROUT ALL PIPE ENTRANCES AND PIPE REMOVALS TO/FROM MANHOLES TO ASSURE WATER TIGHT CONNECTIONS AND PLUGS.
22. DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING UTILITIES.
23. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ACTUAL LOCATION OF ALL UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRICAL, TELEPHONE, FIBER OPTIC, AND GAS SERVICE. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND ASSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH MARTIN COUNTY UTILITY REQUIREMENTS AS TO LOCATION AND SCHEDULING FOR TIE-INS, CONNECTIONS AND INSPECTIONS PRIOR TO CONNECTING TO EXISTING UTILITIES.
24. CONTRACTOR SHALL CONDUCT ALL REQUIRED TESTS TO THE SATISFACTION OF THE RESPECTIVE UTILITY COMPANIES AND THE OWNER'S INSPECTING AUTHORITIES.
25. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OF OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING AND ANY OTHER MEANS OF PROTECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE TO COMPLY WITH PERFORMANCE CRITERIA FOR OSHA.
26. THE INSTALLATION OR REPAIR OF ANY UNDERGROUND FACILITIES OF PIPING WHICH CONNECTS TO OR FURNISHES WATER FOR THE FIRE PROTECTION SPRINKLER SYSTEM SHALL BE PERFORMED ONLY BY A LICENSED UTILITY CONTRACTOR, FIRE PROTECTION SPRINKLER CONTRACTOR OR LICENSED PLUMBER. SEE O.C.G.A. TITLE 25-11-7(a). A COPY OF THE LICENSE OR CERTIFICATE OF COMPETENCY SHALL BE PROVIDED TO THE INSPECTOR AT THE FINAL INSPECTION
27. CONTRACTOR SHALL COMPLY WITH MARTIN COUNTY UTILITIES MINIMUM DESIGN & CONSTRUCTION STANDARDS, LATEST EDITION



DETAIL "A"
SCALE : 1" = 10'

GRAPHIC SCALE
1" = 30'

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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
WATER & WASTEWATER PLAN
MARTIN COUNTY FLORIDA

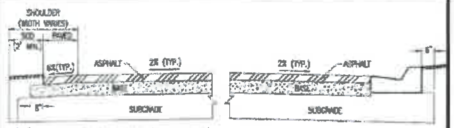
PROJECT NO 010318-02-004

PLAN STATUS

DATE	DESCRIPTION
05-29-2019	COUNTY COMMENTS
10-03-2019	COUNTY COMMENTS

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-P1-UTP
SHEET C6



LOCAL RESIDENTIAL (SN-3.0 MIN.)

MIN. E.O.P. ELEVATION - PEAK STAGE OF 10-YR / 24-HR STORM EVENT

- SURFACE COURSE: 1½" TYPE SP-9.5 ASPHALTIC CONCRETE
- BASE COURSE: OPTIONAL BASE GROUP 6 PER FDOT FLEXIBLE PAVEMENT DESIGN MANUAL TABLE 5.6
- SUBGRADE: 12" COMPACTED OR STABILIZED SUBGRADE (LBR-40)

COLLECTOR & LOCAL COMMERCIAL/INDUSTRIAL (SN-3.5 MIN.)

MIN. E.O.P. ELEVATION - PEAK STAGE OF 10-YR / 24-HR STORM EVENT (MINOR)

MIN. E.O.P. ELEVATION - PEAK STAGE OF 25-YR / 24-HR STORM EVENT (MAJOR)

- SURFACE COURSE: 1½" TYPE SP-12.5 ASPHALTIC CONCRETE (1ST LIFT) 1" TYPE SP-9.5 ASPHALTIC CONCRETE (2ND LIFT)
- BASE COURSE: OPTIONAL BASE GROUP 6 PER FLEXIBLE PAVEMENT DESIGN MANUAL TABLE 5.6
- SUBGRADE: 12" COMPACTED OR STABILIZED SUBGRADE (LBR-40)

ARTERIAL (SN-4.0 MIN.)

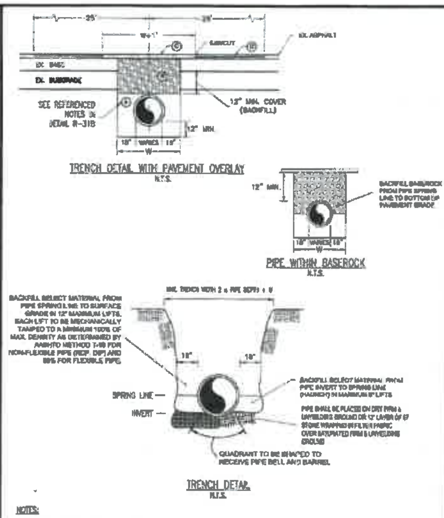
MIN. E.O.P. ELEVATION - PEAK STAGE OF 25-YR / 72-HR STORM EVENT

- SURFACE COURSE: 2" TYPE S-I OR SP-12.5 ASPHALTIC CONCRETE (1ST LIFT) 1" TYPE SP-9.5 ASPHALTIC CONCRETE (2ND LIFT)
- BASE COURSE: OPTIONAL BASE GROUP 9 PER FDOT FLEXIBLE PAVEMENT DESIGN MANUAL TABLE 5.6
- SUBGRADE: 12" COMPACTED OR STABILIZED SUBGRADE (LBR-40)

NOTES:

1. SHOULDER DESIGN:
   - SURFACE COURSE: SAME AS TRAVEL LANE SURFACE COURSE
   - BASE COURSE: OPTIONAL BASE GROUP 4 PER FDOT FLEXIBLE PAVEMENT DESIGN MANUAL TABLE 5.6
2. STRUCTURAL NUMBER (SN) PER FDOT STANDARDS (REFER TO FDOT FLEXIBLE PAVEMENT DESIGN MANUAL).
3. SUBSTITUTIONS MAY BE APPROVED BY MARTIN COUNTY, PROVIDED MINIMUM SN IS DEMONSTRATED.
4. ASPHALT MIX SHALL NOT CONTAIN MORE THAN 30% RECLAIMED ASPHALT PAVEMENT (R.A.P.)
5. ALL MATERIAL USED WITHIN THE ROADWAY MUST MEET FDOT SPECIFICATIONS AND BE SUPPLIED FROM A FDOT CERTIFIED MINING OPERATION AND ASPHALT PLANT.
6. A MINIMUM OF TWO DENSITY TESTS SHALL BE TAKEN FOR EACH SIX (6) INCH LIFT OF SUB GRADE AND BASE. WHEN THE SPECIFIED COMPACTED BASE IS GREATER THAN SIX AND ONE-HALF (6 ½") INCHES THE BASE SHALL BE CONSTRUCTED IN TWO OR MORE COURSES. PROCTORS FOR MATERIALS USED IN BACK-FILLING SHALL BE OBTAINED BY A CERTIFIED LABORATORY. DENSITY TESTS SHALL BE CONDUCTED BY A CERTIFIED LABORATORY. THE PERCENTAGE OF MAXIMUM DENSITY REQUIRED SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. A COPY OF ALL COMPLETED AND ACCEPTED DENSITY TESTS SHALL BE FURNISHED TO THE COUNTY ENGINEER'S OFFICE PRIOR TO FINAL INSPECTION.
7. CRUSHED CONCRETE MAY NOT BE USED WITHIN COUNTY-MAINTAINED ROADWAY.
8. ANY IN-LINE PARKING DEFICIENCIES SHALL BE ADDRESSED IN ACCORDANCE TO FDOT SPECIFICATION SECTION 330.

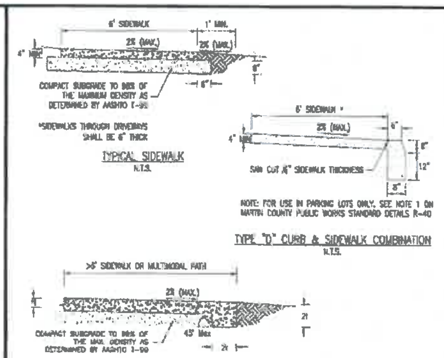
MARTIN COUNTY ENGINEERING - STANDARD DETAILS | FLEXIBLE PAVEMENT | DETAIL R-10 | DATE: 04/23/19



NOTES:

SEE SPECIFICATIONS & NOTES ON DETAIL R-31B

MARTIN COUNTY ENGINEERING - STANDARD DETAILS | TYPICAL OPEN CUT TRENCH | DETAIL R-31A | DATE: 04/23/19



* IS TYPICALLY 4" - 6" AND SHALL BE SPECIFIED BY ENGINEER OF RECORD

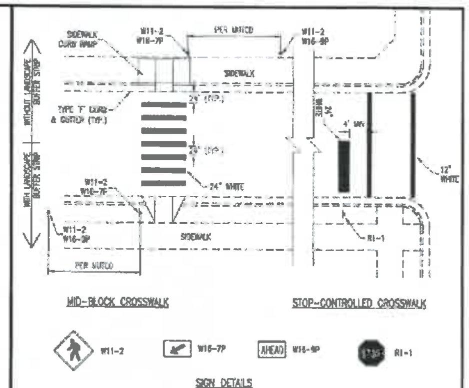
TYPICAL MULTIMODAL PATHWAY or SIDEWALK > 6'

N.T.S.

NOTES:

1. SIDEWALK MATERIALS AND CONSTRUCTION SHOWN HEREIN SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT STANDARD SPECIFICATIONS 522 AND FDOT STANDARD PLANS INDEX 522.
2. FIBER-REINFORCED CONCRETE FOR CURBS AND SIDEWALKS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS WITH A WATER TO CEMENT RATIO NOT MORE THAN 0.53 (LB/LB).
3. THICKENED EDGE SHALL CONTAIN APPLICABLE SUBGRADE COMPACTED TO 98% OF MAXIMUM DRY DENSITY (AASHTO T-99)
4. A DESIRED 8 FEET SHALL BE MAINTAINED BETWEEN EDGE OF TRAVEL LANE AND SIDEWALK WHERE CURB AND GUTTER DOES NOT EXIST (MINIMUM SHALL BE 4.5 FEET, UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER).

MARTIN COUNTY ENGINEERING - STANDARD DETAILS | SIDEWALK | DETAIL R-41 | DATE: 04/23/19

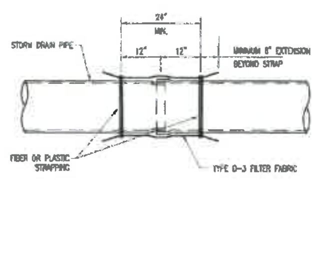


SIGN DETAILS

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC IN ACCORDANCE WITH FDOT STANDARD SPECIFICATION 711.
2. MID-BLOCK CROSSWALK MARKINGS SHALL BE WHITE SPECIAL EMPHASIS.
3. STOP-CONTROLLED CROSSWALK MARKINGS SHALL BE STANDARD.
4. PUBLIC SIDEWALK CURB RAMPS AND DETECTABLE WARNING SURFACES SHALL BE DESIGNED IN ACCORDANCE WITH FDOT STANDARD PLANS INDEX 522. DETECTABLE WARNING SURFACES SHALL BE CAST IN PLACE ARMOR TILE OR APPROVED EQUAL AND BRICK RED IN COLOR. BOLT OR SCREW DOWN TYPES ARE PROHIBITED.
5. CROSSWALK WARNING SIGNAGE SHALL BE YELLOW, UNLESS CROSSWALK IS LOCATED IN A SCHOOL ZONE WHERE LIME-GREEN SHALL BE USED.
6. SIGN INSTALLATION SHALL BE PER TRAFFIC CONTROL DETAIL, R-140A.

MARTIN COUNTY ENGINEERING - STANDARD DETAILS | CROSSWALK | DETAIL R-120A | DATE: 04/23/19



NOTES:

1. ALL PIPE LOCATED UNDER ROADWAYS AND/OR RESIDENTIAL PARKING AREAS SHALL BE REINFORCED CONCRETE PIPE (RCP).
2. MINIMUM PIPE DIAMETER SHALL BE 15" OR ELLIPTICAL EQUIVALENT.
3. FILTER FABRIC SHALL BE OVERLAPPED 2'-0" MINIMUM AT ALL JOINTS, INCLUDING ALL END TREATMENTS, REGARDLESS OF PIPE CULVERT MATERIAL.
4. A CONTINUOUS PIECE OF FILTER FABRIC, CONFORMING TO TYPE "D-3" OF FDOT STANDARD SPECIFICATIONS 985, SHALL BE USED AT ALL JOINTS, INCLUDING STRUCTURES AND END TREATMENTS.

MARTIN COUNTY ENGINEERING - STANDARD DETAILS | STORM DRAIN PIPE AND PIPE JOINT | DETAIL R-70 | DATE: 04/23/19

MAINTENANCE OF TRAFFIC CONTROL DEVICES

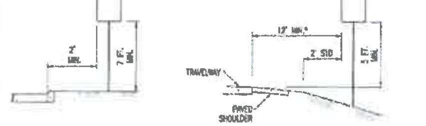
TRAFFIC SIGNS ON PRIVATELY MAINTAINED ROADS ARE THE RESPONSIBILITY OF THE MAINTAINING ENTITY, TYPICALLY, THE HOMEOWNERS OR PROPERTY OWNERS ASSOCIATION. WHERE PRIVATELY MAINTAINED ROADS INTERSECT STATE OR COUNTY MAINTAINED ROADS, THE TRAFFIC SIGNS (SUCH AS STREET NAME "BLADES" AND REGULATORY SIGNS) AND MARKINGS (SUCH AS STOP BARS) "SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER AND CURRENT USER ENTITY" NOT THE COUNTY OR THE STATE. PRIOR TO THE MARTIN COUNTY SHERIFF'S OFFICE PATROLLING ON PRIVATE ROADS, AN AGREEMENT FOR TRAFFIC CONTROL ON PRIVATE ROADS MUST BE EXECUTED WITH MARTIN COUNTY. THE HOMEOWNERS OR PROPERTY OWNERS ASSOCIATION SHALL SUBMIT A CERTIFICATION OF COMPLIANCE WITH THESE REGULATIONS PRIOR TO THE EXECUTION OF THE AGREEMENT FOR TRAFFIC CONTROL ON PRIVATE ROADS; THE CERTIFICATION MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF FLORIDA.

THE DESIGN AND MANUFACTURING OF ALL SIGNING AND MARKINGS REQUIRED FOR THE OPERATION OF THE CONNECTION (SUCH AS STOP BARS AND STOP SIGNS FOR THE CONNECTION) SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER AND CURRENT ENTITY RESPONSIBLE FOR THE CONNECTION, OR GOVERNMENTAL ENTITY HAVING JURISDICTION OVER THE CONNECTION, ROAD, OR INTERSECTION OF THE COUNTY ROAD REGARDLESS OF THE OWNER OF THE RIGHT-OF-WAY AS PROVIDED IN CHAPTER 318, FLORIDA STATUTES.

ALL TRAFFIC CONTROL DEVICES INSTALLED ON COUNTY OR PRIVATELY MAINTAINED ROADS SHALL BE IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD PLANS, AND THESE STANDARDS.

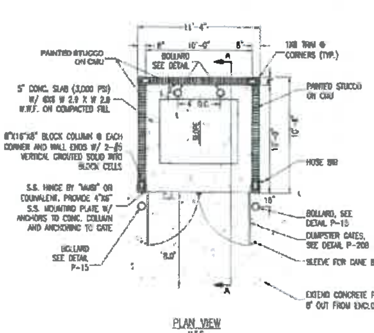
PLACEMENT OF TRAFFIC CONTROL DEVICES

PER FLORIDA STATUTE 316.0747, THE PLACEMENT OR POSITION OF TRAFFIC CONTROL DEVICES ALONG ROADS WHERE THE PUBLIC IS INVITED, INCLUDING THOSE DEVICES INSTALLED ON PRIVATE PROPERTY, SHALL MEET THE STATE STANDARDS ADOPTED BY THE FDOT, WHICH INCLUDES THOSE IDENTIFIED IN THE MUTCD. IF THE STANDARD POSITION CANNOT BE ATTAINED DUE TO IMMOBILE OBSTRUCTIONS, ALTERNATIVE PLACEMENT MAY BE PERMITTED BY THE COUNTY ENGINEER.



*THE SETBACK FOR STOP OR YIELD SIGNS MAY BE REDUCED TO 3' MINIMUM FROM THE DRIVING LANE IF REQUIRED FOR VISIBILITY IN BUSINESS OR RESIDENTIAL AREAS WITH NO CURB AND SPEEDS OF 30 MPH OR LESS

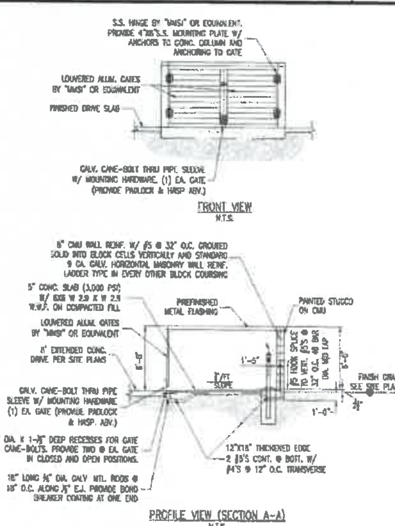
MARTIN COUNTY ENGINEERING - STANDARD DETAILS | TRAFFIC CONTROL | DETAIL R-140A | DATE: 04/23/19



PLAN VIEW

N.T.S.

MARTIN COUNTY ENGINEERING - STANDARD DETAILS | DUMPSTER ENCLOSURE | DETAIL P-20A | DATE: 04/23/19



MARTIN COUNTY ENGINEERING - STANDARD DETAILS | DUMPSTER ENCLOSURE | DETAIL P-20B | DATE: 04/23/19

NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD SPECIFICATIONS.

811 KNOW WHAT'S BELOW. ALWAYS CALL 811 BEFORE YOU DIG.

Bowman CONSULTING

Certificate of Authorization License No. 30499

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301 S.E. Ocean Blvd, Suite 301
Stuart, Florida 34994

MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
PAVING GRADING AND DRAINAGE DETAILS

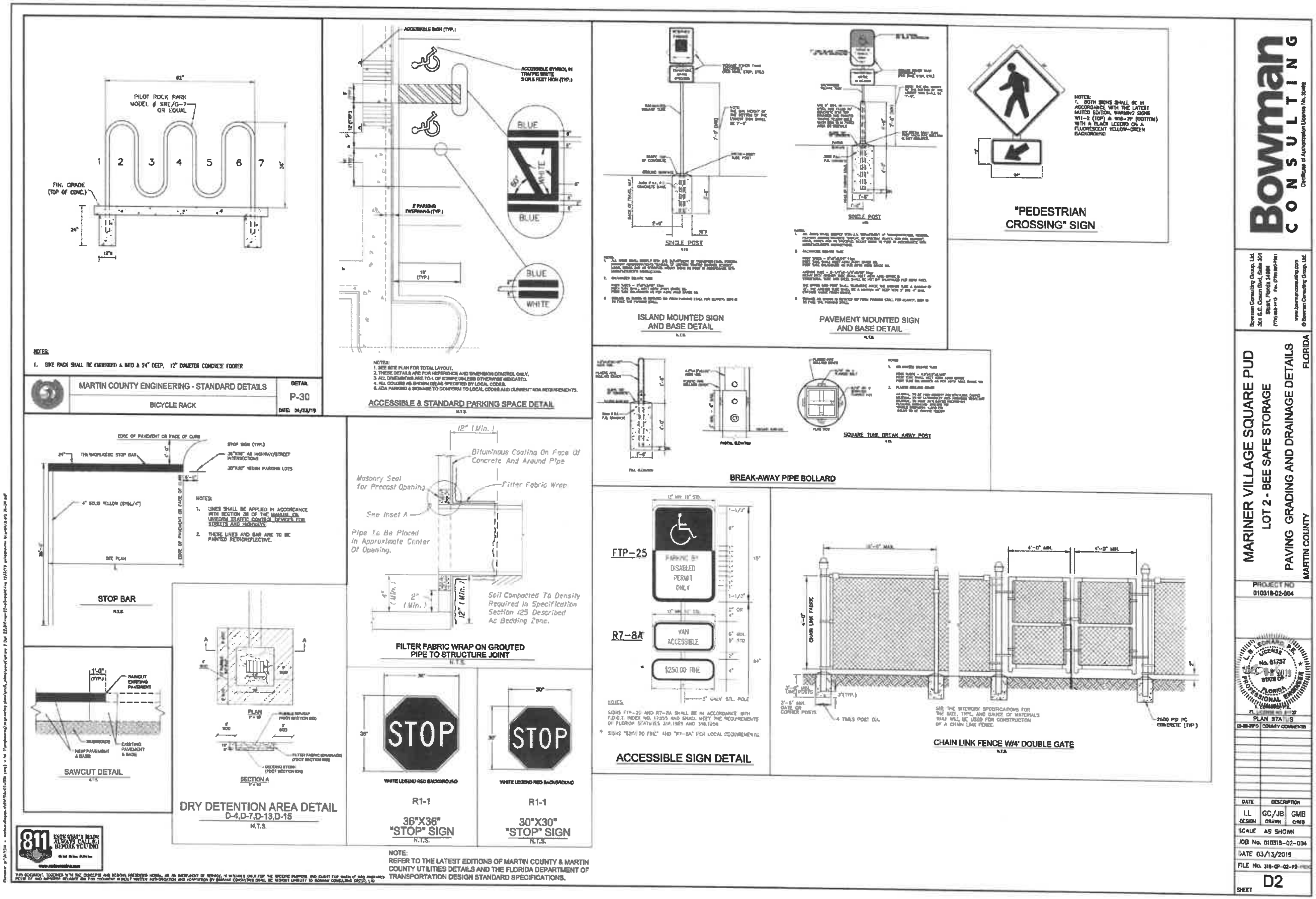
MARTIN COUNTY — FLORIDA

PROJECT NO. 010318-02-004

PLAN STATUS: COUNTY COMMENTS

DATE	DESCRIPTION
LL (DESIGN)	CC/JB (DRAWN) / GMB (CHKD)
SCALE	AS SHOWN
JOB No.	010318-02-004
DATE	03/13/2019

SHEET D1


BICYCLE RACK
PILOT ROCK PARK MODEL # SRE/G-7 OR EQUAL
FIN. GRADE (TOP OF CONC.)
NOTES:
1. BIKE RACK SHALL BE EMBEDDED & INTO A 24" DEEP, 12" DIAMETER CONCRETE FOOTER
MARTIN COUNTY ENGINEERING - STANDARD DETAILS
DETAIL P-30
DATE: 04/23/19
ACCESSIBLE & STANDARD PARKING SPACE DETAIL
N.T.S.
BLUE
WHITE
ISLAND MOUNTED SIGN AND BASE DETAIL
PAVEMENT MOUNTED SIGN AND BASE DETAIL
SINGLE POST
"PEDESTRIAN CROSSING" SIGN
BREAK-AWAY PIPE BOLLARD
SQUARE TUBE BREAK AWAY POST
STOP BAR
N.T.S.
SAWCUT DETAIL
Bituminous Coating On Face Of Concrete And Around Pipe
Filter Fabric Wrap
Masonry Seal for Precast Opening
See Inset A
Pipe To Be Placed In Approximate Center Of Opening.
Soil Compacted To Density Required In Specification Section 125 Described As Bedding Zone.
12" (Min.)
2" (Min.)
FILTER FABRIC WRAP ON GROUTED PIPE TO STRUCTURE JOINT
N.T.S.
DRY DETENTION AREA DETAIL
D-4,D-7,D-13,D-15
N.T.S.
STOP
R1-1
36"X36" "STOP" SIGN
N.T.S.
30"X30" "STOP" SIGN
N.T.S.
FTP-25
PARKING BY DISABLED PERMIT ONLY
R7-8A
VAN ACCESSIBLE
$250.00 FINE
ACCESSIBLE SIGN DETAIL
CHAIN LINK FENCE W/4' DOUBLE GATE
NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD SPECIFICATIONS.
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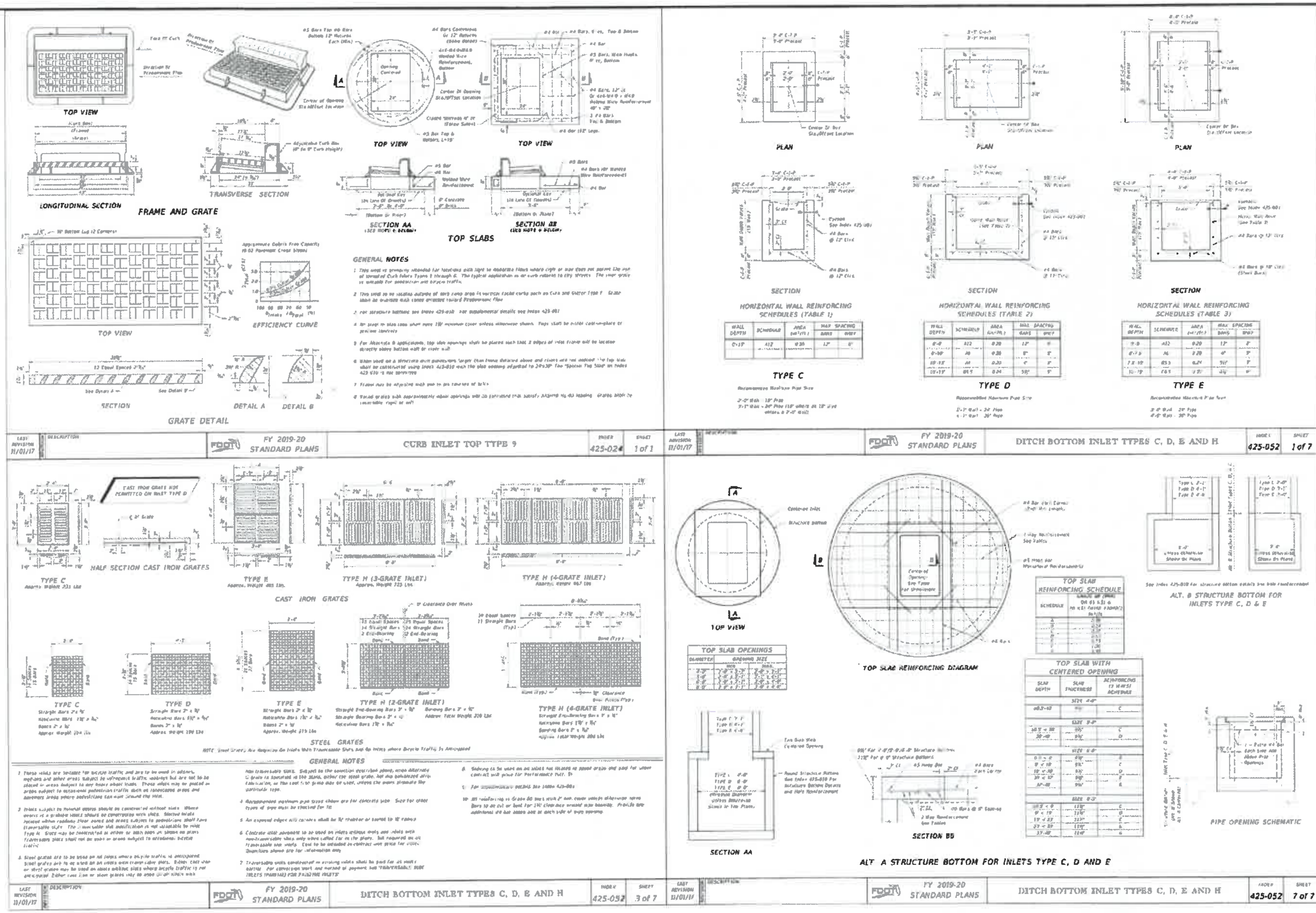
MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
PAVING GRADING AND DRAINAGE DETAILS
MARTIN COUNTY
FLORIDA
PROJECT NO 010318-02-004
PLAN STATUS
SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
SHEET D2



NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD SPECIFICATIONS.

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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
PAVING GRADING AND DRAINAGE DETAILS
MARTIN COUNTY
FLORIDA

PROJECT NO
010318-02-004

L. LEONARD, P.E.
FL LICENSE NO. 61737

PLAN STATUS

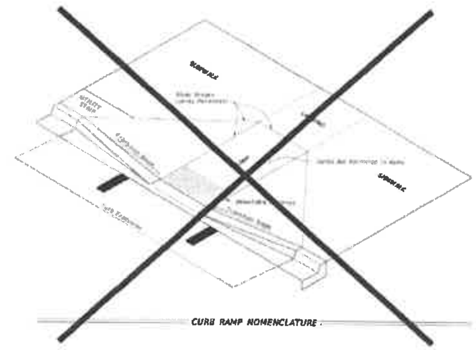
DATE	DESCRIPTION
	COUNTY COMMENTS

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No.
SHEET D3

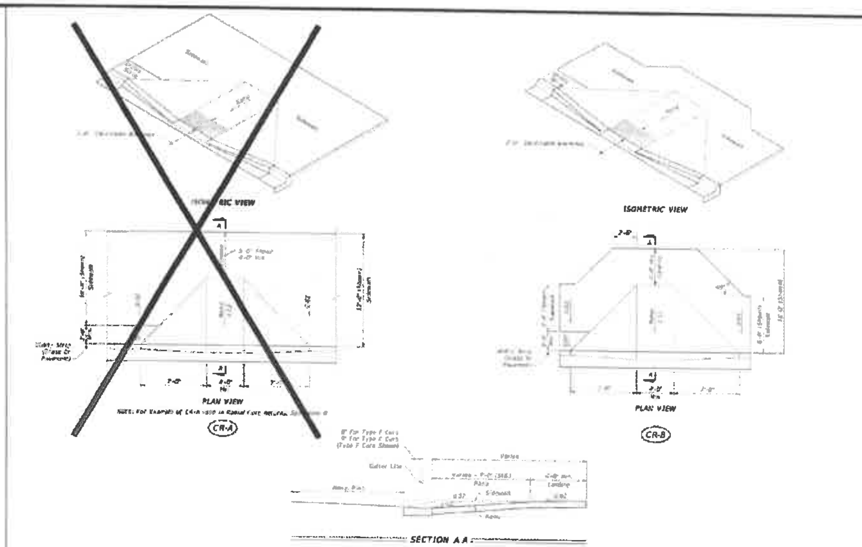
GENERAL NOTES:

1. Cross Slopes and Grades.
   A. Sidewalk, ramp, and landing slopes (i.e. 0.02, 0.83, and 1:12) shown in this Index are maximums. With approval of the Engineer, provide the minimum feasible slope which the requirements can be met.
   B. Landings must have cross-slopes less than or equal to 0.02 in any direction.
   C. Maintain a single longitudinal slope along each side of the curb ramp. Ramp slopes are not required to exceed 15 feet in length.
   D. Joints permitted at the location of Slope Breaks. Otherwise locate joints in accordance with Index 522-001. No joints are permitted within the ramp portion of the Curb Ramp.
2. Grade Breaks.
   Grade breaks at the top and bottom of ramps must be parallel to each other and perpendicular to the direction of the ramp slope.
3. Curb, Curb and Gutter, and/or Sidewalk:
   A. Refer to Index 522-001 for concrete thickness and sidewalk details.
   B. Remove any existing curb, curb and gutter, or sidewalk to the nearest joint beyond the curb transition or to the extent that no remaining section is less than 5 feet long.
4. Curb Ramp Alpha-Identification:
   A. Sidewalk curb ramp alpha-identifications (e.g. CR-A) are provided for reference purposes in the Plans.
   B. Alpha-identifications CR-I and CR-J are intentionally omitted.
5. Detectable Warnings:
   A. Install detectable warnings in accordance with Specification 527.
   B. Place detectable warnings across the full width of the ramp or landing, to a minimum depth of 2 feet measured perpendicular to the curb line and no greater than 5 feet from the back of the curb or edge of pavement.
   C. If detectable warnings are shown in the Plans on slopes greater than 5%, align the truncated domes with the centerline of the ramp, otherwise, the truncated domes are not required to be aligned.
6. Detectable Warnings - Acceptance Criteria:
   A. Color and texture shall be complete and uniform.
   B. 90% of individual truncated domes shall be in accordance with the Americans with Disabilities Act Standards for Transportation Facilities, Section 705.
   C. There shall be no more than 4 non-compliant domes in any one square foot.
   D. Non-compliant domes shall not be adjacent to other non-compliant domes.
   E. Surfaces shall not deviate more than 0.10" from a true plane.



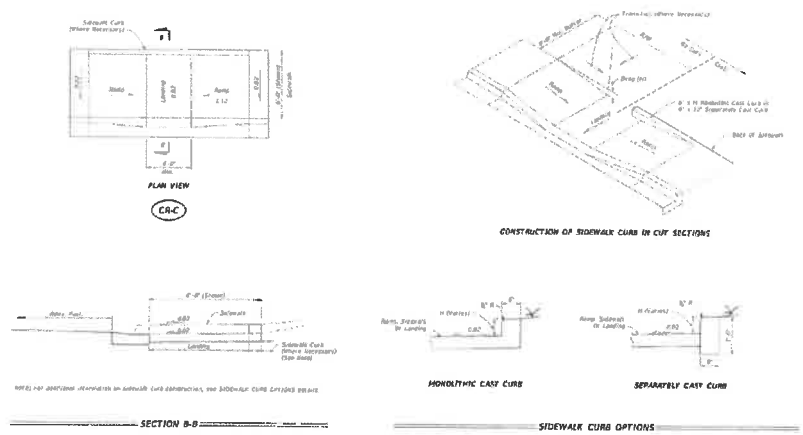
CURB RAMP NOMENCLATURE

LAST REVISION 11/01/18	DESCRIPTION:	FDOT FY 2019-20 STANDARD PLANS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX 522-002	SHEET 1 of 8



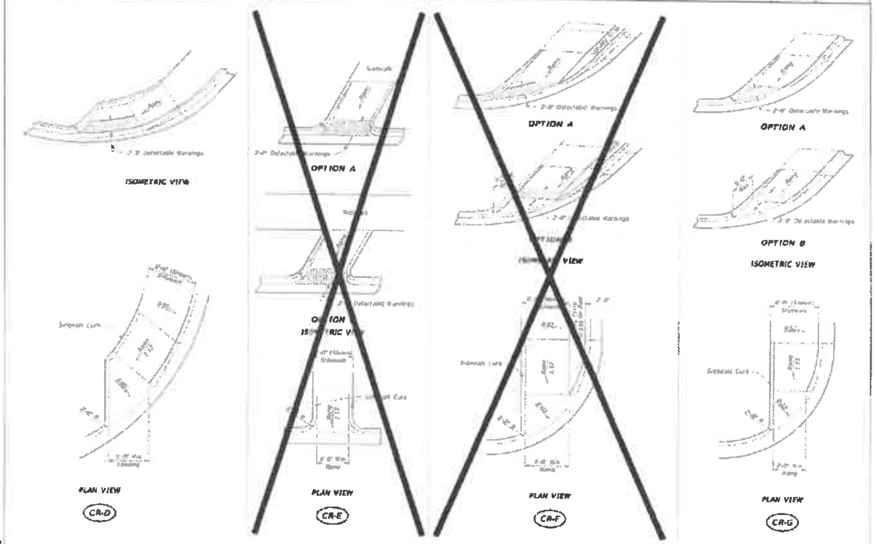
SIDEWALK CURB RAMPS CR-A AND CR-B

LAST REVISION 11/01/18	DESCRIPTION:	FDOT FY 2019-20 STANDARD PLANS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX 522-002	SHEET 2 of 8



SIDEWALK CURB RAMPS CR-C AND SIDEWALK CURB

LAST REVISION 11/01/18	DESCRIPTION:	FDOT FY 2019-20 STANDARD PLANS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX 522-002	SHEET 3 of 8



SIDEWALK CURB RAMPS CR-D, CR-E, CR-F & CR-G

LAST REVISION 11/01/18	DESCRIPTION:	FDOT FY 2019-20 STANDARD PLANS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX 522-002	SHEET 4 of 8

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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
PAVING GRADING AND DRAINAGE DETAILS
MARTIN COUNTY FLORIDA

PROJECT NO 010318 02 004

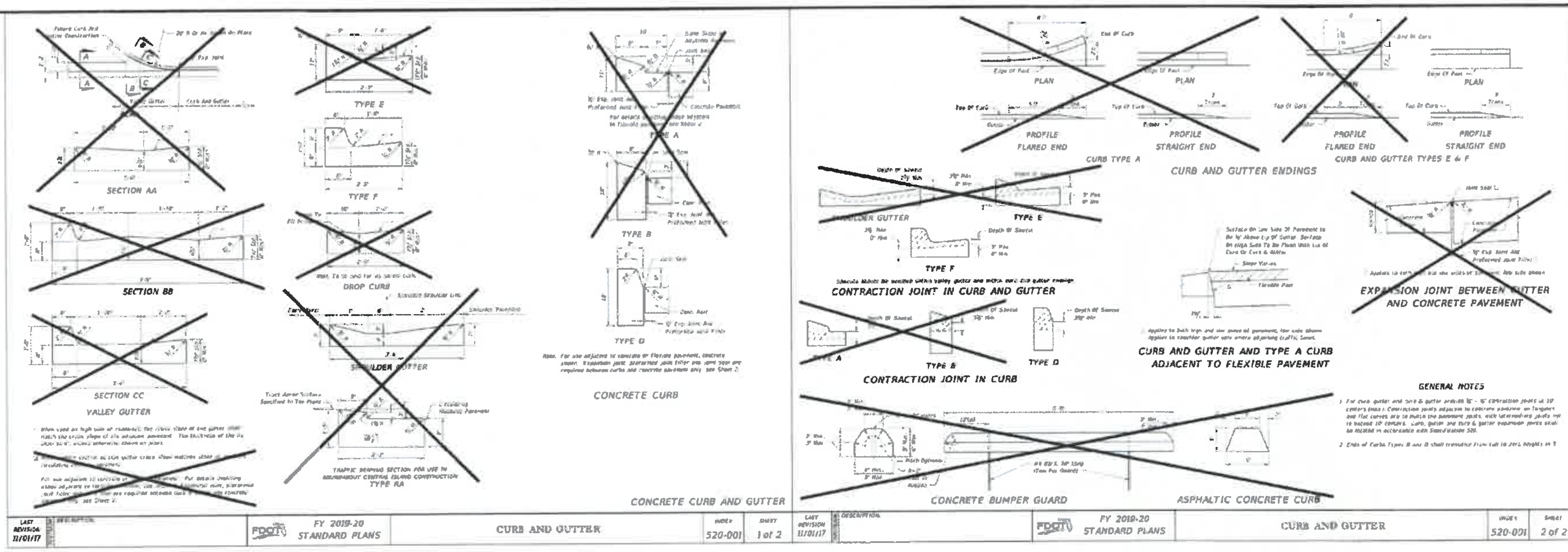
L. LEONARD, P.E.
FL LICENSE NO. 81737

PLAN STATUS
DATE	DESCRIPTION
11-29-2019	COUNTY COMMENTS

LL DESIGN	GC/JB DRAWN	GMB CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-P2

SHEET D4



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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
PAVING GRADING AND DRAINAGE DETAILS
MARTIN COUNTY
FLORIDA

PROJECT NO
010318-02-004

L. LEONARD, P.E.
FL LICENSE NO. 61737

PLAN STATUS

DATE	DESCRIPTION
	COUNTY COMMENTS

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-P3-PGDD

SHEET D5

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PAVING AND DRAINAGE

IT IS INTENDED THAT THE FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION "DESIGN STANDARDS", LATEST EDITION, BE USED WHERE APPLICABLE FOR VARIOUS WORK, AND THAT WHERE SUCH WORDING THEREIN REFERS TO THE STATE OF FLORIDA AND ITS DEPARTMENT OF TRANSPORTATION AND PERSONNEL, SUCH WORDING IS INTENDED TO BE REPLACED WITH THAT WORDING WHICH WOULD PROVIDE PROPER TERMINOLOGY, THEREBY MAKING SUCH "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND "DESIGN STANDARDS" AS THE "STANDARD SPECIFICATIONS" FOR THIS PROJECT.

IF WITHIN THAT PARTICULAR SECTION ANOTHER SECTION, ARTICLE OR PARAGRAPH IS REFERRED TO, IT SHALL BE A PART OF THE "STANDARD SPECIFICATIONS" ALSO.

ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER AND SHALL CONFORM WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL REGULATIONS AND/OR CODES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND LICENSES REQUIRED TO BEGIN WORK.

1. THE CONTRACTOR SHALL GIVE THE ENGINEER AT LEAS 48 HOURS NOTICE PRIOR TO REQUESTING REQUIRED CONSTRUCTION OBSERVATIONS AND SHALL SUPPLY ALL EQUIPMENT NECESSARY TO PROPERLY TEST AND INSPECT THE COMPLETED WORK.

2. THE CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION, DURING WHICH TIME ALL FAULTY CONSTRUCTION AND/OR MATERIALS SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING ABOVE-GROUND, UNDERGROUND, AND ON THE SURFACE STRUCTURES AND UTILITIES AGAINST THE CONSTRUCTION OPERATION THAT MAY CAUSE DAMAGE TO SAID FACILITY.

4. THE LOCATIONS AND SIZES OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION SIZE AND MATERIAL OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

5. THE CONTRACTOR SHALL GIVE ADEQUATE NOTIFICATION TO ALL AFFECTED UTILITY OWNERS FOR REMOVAL, RELOCATION AND ALTERATION OF THEIR EXISTING FACILITIES.

6. STREET OR HIGHWAY RESTORATION WORK IS TO BE DONE AS PER THE LOCAL OR STATE AGENCY HAVING JURISDICTION.

7. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE RULES AND REGULATIONS OF THE STATE, COUNTY AND CITY AUTHORITIES REGARDING CLOSING OR RESTRICTING THE USE OF PUBLIC STREETS OR HIGHWAYS.

8. TRAFFIC CONTROL ON ALL CITY, COUNTY AND STATE HIGHWAY RIGHTS-OF-WAY SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND THE REQUIREMENTS OF THE STATE AND ANY LOCAL AGENCY HAVING JURISDICTION.

9. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN A CONFLICT BETWEEN THE DRAWINGS AND ACTUAL CONDITIONS IS DISCOVERED DURING THE COURSE OF CONSTRUCTION.

10. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE PRIOR TO BIDDING THE WORK AND TO PERFORM SUCH TESTS, STUDIES AND SURVEYS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO ACTUAL SURFACE AND SUBSURFACE CONDITIONS EXISTING AT THE SITE. ACTUAL CONDITIONS THAT DIFFER FROM THOSE SHOWN ON DRAWINGS SHALL NOT CONSTITUTE A BASIS FOR ADDITIONAL PAYMENT.

11. ALL ELEVATIONS REFER TO N.A.V.D. 1988 DATUM, UNLESS OTHERWISE NOTED.

12. ALL CONSTRUCTION DEWATERING (WELL POINTS, SUMPS ETC.) WILL REQUIRE A DEWATERING PERMIT FROM THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT. THIS SHALL BE OBTAINED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

13. ANY CHANGES DUE TO FIELD CONDITIONS OR ANY OTHER DEVIATIONS FROM THE APPROVED DRAWINGS MUST BE APPROVED BY THE ENGINEER AND THE GOVERNING AUTHORITY HAVING JURISDICTION PRIOR TO BEING CONSTRUCTED.

14. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS HAVING FACILITIES IN THE AREA WITHIN AND ADJACENT TO THE PROPOSED CONSTRUCTION AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING CONSTRUCTION.

15. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES: ONE (1) SET OF "APPROVED" CONSTRUCTION DRAWINGS, ONE (1) COPY OF THE APPLICABLE UTILITY COMPANY'S "UNIFORM DESIGN AND CONSTRUCTION STANDARDS", ONE (1) COPY OF ALL CONTRACT DOCUMENTS AND, ONE (1) COPY OF ALL APPLICABLE LOCAL, STATE AND FEDERAL PERMITS REQUIRED FOR CONSTRUCTION.

16. THE CONTRACTOR SHALL PROVIDE A QUALIFIED SUPERINTENDENT TO REMAIN AT THE JOB SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. THE SUPERINTENDENT SHALL BE PRESENT AT ALL SCHEDULED CONSTRUCTION OBSERVATION MEETINGS.

SEDIMENTATION AND EROSION CONTROL:

PRIOR TO AND DURING CONSTRUCTION, THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN ALL SEDIMENTATION AND EROSION CONTROL MEASURES REQUIRED TO RETAIN SEDIMENT ON SITE AND TO PREVENT VIOLATIONS OF STATE WATER QUALITY STANDARDS. SEDIMENTATION AND EROSION CONTROL FEATURES MAY INCLUDE, BUT ARE NOT LIMITED TO, SILT FENCES, SILTATION BARRIERS, GEOTEXTILE FILTER BARRIERS, TURBIDITY SCREENS AND SEDIMENTATION BASINS. CONSTRUCTION AND MAINTENANCE OF SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH SECTION 104 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL REQUIRED SEDIMENTATION AND EROSION CONTROL FOR THE DURATION OF CONSTRUCTION.

STORMWATER RETENTION/DETENTION FACILITIES SHALL BE EXCAVATED AND ROUGH GRADED PRIOR TO BUILDING CONSTRUCTION OR CONSTRUCTION OF IMPERVIOUS SURFACES WITHIN THE AREA SERVED BY THOSE RETENTION/DETENTION FACILITIES. DRY DETENTION AREAS SHALL INITIALLY BE ROUGH GRADED TO APPROXIMATELY 6" ABOVE THEIR FINISHED GRADE. FINAL GRADING (TO DESIGN ELEVATION) SHALL BE DONE JUST BEFORE FINAL STABILIZATION. ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT EROSION PRIOR TO FINAL GRADING AND STABILIZATION OF THE RETENTION/DETENTION FACILITIES.

STABILIZATION MEASURES, INCLUDING BUT NOT LIMITED TO, SODDING OR SEEDING AND MULCHING, SHALL BE INITIATED FOR SEDIMENTATION AND EROSION CONTROL ON ALL DISTURBED AREAS AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN SEVEN (7) DAYS AFTER CONSTRUCTION ACTIVITY HAS CEASED. THE CONTRACTOR SHALL INSPECT ALL SEDIMENTATION AND EROSION CONTROL MEASURES DAILY DURING CONSTRUCTION. ANY DEFICIENCIES SHALL BE IMMEDIATELY CORRECTED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY OFF SITE WATER QUALITY IMPACTS OR OTHER ADVERSE IMPACTS DUE TO SEDIMENTATION AND EROSION FROM THE PROJECT SITE DURING CONSTRUCTION.

CLEARING AND GRUBBING:

ALL TREES, BRUSH, STUMPS, ROOTS, GRASS, WEEDS, RUBBISH AND ALL OTHER OBSTRUCTIONS RESTING ON OR LYING WITHIN 12" BELOW FINISHED GRADE OR SUBGRADE SHALL BE COMPLETELY REMOVED FOR THE FULL WIDTH OF ALL ROAD RIGHT-OF-WAYS, ROAD EASEMENTS, SWALES, UTILITY EASEMENTS AND DRAINAGE EASEMENTS. ALL WORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. CLEARING AND GRUBBING AREAS TO BE INSPECTED AND APPROVED PRIOR TO PLACEMENT OF ANY FILL OR CONSTRUCTION WORK. ALL MATERIAL FROM CLEARING AND GRUBBING SHALL BE REMOVED AND LEGALLY DISPOSED OF.

BURNING:

BURNING IS NOT ALLOWED.

EXCAVATION:

THE CONTRACTOR SHALL PERFORM ALL EXCAVATION NECESSARY TO ACCOMPLISH THE CONSTRUCTION INDICATED ON THE DRAWINGS. EXCAVATION SHALL BE UNCLASSIFIED REGARDLESS OF MATERIAL ENCOUNTERED. ALL EXCAVATED MATERIAL NOT REQUIRED FOR FILL OR EMBANKMENT, SHALL BE REMOVED FROM THE SITE, AS DIRECTED BY THE OWNER, OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL DO ALL SHORING NECESSARY TO PERFORM AND PROTECT THE EXCAVATION, AND AS NECESSARY FOR THE SAFETY OF THE WORKERS AND ANY EXISTING FACILITIES IN ACCORDANCE WITH THE STATE OF FLORIDA "TRENCH SAFETY ACT". WHEREVER EXCAVATIONS ARE MADE BELOW THE GRADES INDICATED ON THE DRAWINGS, CLEAN FILL MATERIAL APPROVED BY THE ENGINEER SHALL BE USED TO RESTORE THE AREA TO THE PROPER GRADE, AND SHALL BE COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS FOR COMPACTION INCLUDED IN THESE SPECIFICATIONS.

UNSUITABLE MATERIAL:

WHERE MUCK, ROCK, CLAY, ORGANIC MATERIAL OR OTHER DELETERIOUS MATERIAL WITHIN THE LIMITS OF CONSTRUCTION IS, IN THE OPINION OF THE ENGINEER, UNSUITABLE IN ITS ORIGINAL POSITION, THE CONTRACTOR SHALL EXCAVATE SUCH MATERIAL, AND BACKFILL THE EXCAVATED AREA WITH SUITABLE MATERIAL, WHICH SHALL BE COMPACTED AND SHAPED TO CONFORM TO THE REQUIRED SECTION. BACKFILL MATERIAL AND COMPACTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS INCLUDED IN THESE SPECIFICATIONS.

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SELECT FILL:

A. THIS WORK SHALL CONSIST OF FURNISHING AND PLACING THE MATERIALS REQUIRED FOR FILL OR EMBANKMENT FOR THE CONSTRUCTION AS SHOWN ON THE DRAWINGS. THE MATERIAL USED FOR EMBANKMENT SHALL BE CLEAN UNIFORM FREE DRAINING GRANULAR SOIL CONSISTING OF SAND, GRAVEL, OR A MIXTURE THEREOF, AND/OR OTHER SUITABLE MATERIAL APPROVED BY THE ENGINEER. IF THE MATERIALS ARE OF A VARIABLE QUALITY, THE CONTRACTOR SHALL PLAN HIS OPERATIONS SO THAT THE UPPER TWO FEET OF THE FILL IS CONSTRUCTED OF SELECTED MATERIALS AS APPROVED AND DIRECTED BY THE ENGINEER.

B. PRIOR TO PLACING ANY FILL, THE SURFACE TO RECEIVE THE FILL, SHALL BE PLOWED OR SCARIFIED. FILL SHALL BE PLACED IN SUCCESSIVE UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12"), MEASURED LOOSE, OR AS APPROVED BY THE ENGINEER. EACH LAYER SHALL BE COMPACTED BY AN APPROVED METHOD IN ACCORDANCE WITH THE REQUIREMENTS FOR COMPACTION INCLUDED IN THESE SPECIFICATIONS. THE COMPACTION SHALL BE VERIFIED THROUGH TESTING AS INDICATED IN THE TESTING SPECIFICATIONS.

BACKFILL:

ALL BACKFILL MATERIAL SHALL BE CLEAN, UNIFORM, FREE DRAINING SOIL AND FREE OF LUMBER, TRASH OR OTHER DEBRIS, AND SHALL BE THOROUGHLY COMPACTED IN LAYERS NOT TO EXCEED TWELVE INCHES (12") MEASURED LOOSE AND BROUGHT TO AN ELEVATION ABOVE THE FINISHED GRADE, SUFFICIENT TO ALLOW FOR SETTLEMENT. PRIOR TO PLACING BACKFILL, THE AREAS AROUND STRUCTURES UPON WHICH THE BACKFILL IS TO BE PLACED, SHALL BE CLEANED OF ALL TRASH AND DEBRIS OF ANY NATURE. SHEETING AND BRACING ALLOWED TO BE LEFT IN PLACE SHALL BE CUT OFF A MINIMUM OF 2.5 FEET BELOW FINISHED GRADE. COMPACTION FOR EACH LIFT SHALL BE EQUAL TO 100% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.

EMBANKMENT GRADING:

THE CONTRACTOR SHALL PERFORM ALL NECESSARY GRADING TO ACHIEVE THE FINISHED GRADING AS PER THE DRAWINGS. ALL WORKMANSHIP SHALL BE IN ACCORDANCE WITH THESE SPECIFICATIONS.

COMPACTION:

ALL AREAS TO BE COMPACTED SHALL BE MOISTENED AND COMPACTED BY TAMPING OR USE OF VIBRATORY ROLLERS, VIBRATORY PLATE COMPACTORS OR ANY OTHER METHOD APPROVED BY THE ENGINEER IN ORDER TO OBTAIN THE REQUIRED DENSITY. WHERE USE OF VIBRATORY EQUIPMENT MAY AFFECT ADJACENT STRUCTURES, COMPACTION SHALL BE PERFORMED USING OTHER EQUIPMENT THAT WILL SATISFY THE DENSITY REQUIREMENTS WITHOUT DAMAGING EXISTING STRUCTURES. THE CONTRACTOR SHALL INSPECT ALL COMPACTED AREAS PRIOR TO FURTHER CONSTRUCTION OPERATIONS, TO ENSURE THAT SATISFACTORY COMPACTION HAS BEEN OBTAINED. ALL EMBANKMENT, INCLUDING BACKFILL AND EMBANKMENT ADJACENT TO STRUCTURES, SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 100 PERCENT (100%) OF THE MAXIMUM DENSITY, AS DETERMINED BY AASHTO T-99.

THE CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO COMPACTION IN AREAS AROUND STRUCTURES AND OTHER FEATURES WHERE ACCESS BY SELF PROPELLED VIBRATORY COMPACTORS MAY BE DIFFICULT.

BACKFILL AND COMPACTION WITHIN PIPE TRENCHES SHALL BE IN ACCORDANCE WITH THE TYPICAL TRENCH DETAIL SHOWN ON THE DRAWINGS. FOR NON-FLEXIBLE PIPE MATERIALS, ALL BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 100 PERCENT (100%) OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99. FOR FLEXIBLE PIPE MATERIALS, ALL BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95 PERCENT (95%) OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.

REQUIRED DENSITY TESTS SHALL BE MADE AT THE EXPENSE OF THE CONTRACTOR. THE TESTING LABORATORY SHALL FORWARD COPIES OF ALL TEST REPORTS TO THE ENGINEER, CONTRACTOR, AND OWNER.

STABILIZED SUBGRADE:

STABILIZED SUBGRADE SHALL BE CONSTRUCTED TO THE LIMEROCK BEARING RATIO AS PER THE DRAWINGS FOR THE DEPTH AND LIMITS SHOWN ON THE PLAN, AND IN ACCORDANCE WITH SECTION 160 OF THE STANDARD SPECIFICATIONS FOR TYPE C STABILIZATION. THE STABILIZED SUBGRADE SHALL BE CONSTRUCTED TO A LIMEROCK BEARING RATIO (LBR) OF NOT LESS THAN 40 AND SHALL BE COMPACTED TO NOT LESS THAN 98% OF THE MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR ASTM D-1557.

COMPACTED SUBGRADE:

COMPACTED SUBGRADE SHALL BE CONSTRUCTED TO THE DEPTH AND LIMITS SHOWN ON THE DRAWINGS. ALL COMPACTED SUBGRADE SHALL BE COMPACTED TO NOT LESS THAN 98% OF THE MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR ASTM D-1557.

ROCK BASE:

ROCK BASE SHALL BE CONSTRUCTED OF EITHER LIMEROCK MATERIAL OR CEMENTED COQUINA SHELL MATERIAL IN ACCORDANCE WITH SECTION 911OF THE STANDARD SPECIFICATIONS.

LIMEROCK BASE AND CEMENTED COQUINA SHELL BASE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. CONTRACTOR SHALL PROVIDE ROCK PIT CERTIFICATION FOR CEMENTED COQUINA SHELL MATERIAL.

ROCK BASE SHALL BE CONSTRUCTED TO THE DEPTH AND LIMITS AS SHOWN ON THE DRAWINGS. THE ROCK BASE MATERIAL SHALL HAVE A LIMEROCK BEARING RATIO (LBR) OF NOT LESS THAN 100. THE ROCK BASE SHALL BE COMPACTED TO NOT LESS THAN 98% OF THE MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR ASTM D-1557. A PRIME COAT AND SAND SEAL SHALL BE APPLIED TO THE ROCK BASE AFTER CONSTRUCTION OBSERVATION AND APPROVAL BY THE ENGINEER.

PRIME AND TACK COAT:

A BITUMINOUS PRIME COAT SHALL BE APPLIED TO THE ROCK BASE. PRIME COAT SHALL BE CUT BACK ASPHALT GRADE RC-70 OR RC-250 APPLIED AT A RATE OF NOT LESS THAN 0.10 GALLONS PER SQUARE YARD. THE PRIME COAT SHALL BE COVERED WITH SAND FREE FROM ANY APPRECIABLE AMOUNT OF SILT, CLAY, TRASH OR ORGANIC MATTER. A TACK COAT, WHERE SPECIFIED ON THE DRAWINGS, SHALL BE EMULSIFIED ASPHALT GRADES RS-1 AND RS-2 APPLIED AT A RATE OF BETWEEN 0.02 AND 0.08 GALLONS PER SQUARE YARD.

CONSTRUCTION OF THE PRIME AND TACK COATS SHALL BE IN ACCORDANCE WITH SECTION 300 OF THE STANDARD SPECIFICATIONS. BITUMINOUS MATERIALS FOR THE PRIME AND TACK COATS SHALL BE IN ACCORDANCE WITH SECTION 300 OF THE STANDARD SPECIFICATIONS.

ASPHALTIC CONCRETE SURFACE COURSE (A.C.S.C.):

THE A.C.S.C. SHALL BE CONSTRUCTED FOR THE DEPTH AND LIMITS SHOWN ON THE DRAWINGS, IN ACCORDANCE WITH SECTIONS 330 AND 334 OF THE STANDARD SPECIFICATIONS. A.C.S.C. SHALL HAVE A MARSHALL STABILITY OF NOT LESS THAN 1,500 LBS. BITUMINOUS MATERIAL SHALL BE ASPHALT CEMENT VISCOSITY GRADE AC-30 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TESTING:

THE CONTRACTOR SHALL PROVIDE THE SPECS AND SCOPE OF SERVICES FOR THE INDEPENDENT TESTING LABORATORY TO CONDUCT ALL REQUIRED TESTS. THE ENGINEER SHALL BE PRESENT FOR ALL TESTING. THE CONTRACTOR SHALL GIVE THE ENGINEER AT LEAST FORTY-EIGHT (48) HOURS NOTICE PRIOR TO ANY SCHEDULED TESTING. TEST RESULTS MUST BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL CERTIFICATION OR ANY REQUEST FOR PAYMENT ON THE ABOVE ITEMS. SEE ARCHITECTURAL PLANS AND SPECIFICATIONS FOR REQUIREMENTS WITHIN LIMITS OF BUILDING PADS.

THE SCHEDULE FOR TESTING OF ROADWAY AND PARKING CONSTRUCTION SHALL BE AS FOLLOWS:

A. SUBGRADE:
1. SAMPLES OF SUBGRADE MATERIAL SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 5,000 SF, OR CLOSER AS MIGHT BE NECESSARY IN THE EVENT OF VARIATIONS IN SUBSOIL CONDITIONS. LIMEROCK BEARING RATIO (LBR) TESTS SHALL BE PERFORMED ON A COMPOSITE OF SAMPLES OF SUBGRADE MATERIALS, CONSISTING OF MATERIAL FROM FOUR (4) CONSECUTIVE SAMPLES, SUCH THAT ONE (1) LBR TEST IS PERFORMED AT INTERVALS OF NOT MORE THAN 40,000 SQUARE FEET.

2. DENSITY TESTS SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 5000 SQUARE FEET OR CLOSER AS MIGHT BE NECESSARY.

B. BASE:
1. SAMPLES OF BASE MATERIAL SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 5,000 SF, OR CLOSER AS MIGHT BE NECESSARY IN THE EVENT OF VARIATIONS IN SUBSOIL CONDITIONS. LIMEROCK BEARING RATIO (LBR) TESTS SHALL BE PERFORMED ON A COMPOSITE OF SAMPLES OF BASE MATERIALS, CONSISTING OF MATERIAL FROM FOUR (4) CONSECUTIVE SAMPLES, SUCH THAT ONE (1) LBR TEST IS PERFORMED AT INTERVALS OF NOT MORE THAN 40,000 SQUARE FEET.

2. DENSITY TESTS SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 10,000 SF OR CLOSER AS MIGHT BE NECESSARY.

NOTE: A "NON-SOAKED" LBR TEST MAY BE USED IN LIEU OF A "STANDARD" (SOAKED) LBR TEST, PROVIDED THAT THE REQUIREMENT FOR ACCEPTANCE IS INCREASED BY 5 UNITS. I.e. "STANDARD" LBR=40, "NON-SOAKED" LBR=45

C. SELECT FILL
1. REPRESENTATIVE SAMPLES OF SELECT FILL MATERIAL SHALL BE TAKEN FOR EACH SOIL TYPE TO BE USED FOR FILL. AT MINIMAL, EACH SAMPLE SHALL BE TESTED TO DETERMINE GRADATION, CLASSIFICATION AND MAXIMUM DRY DENSITY. ADDITIONAL TESTING MAY BE REQUIRED AS INDICATED HEREIN OR AS DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

D. REPORTS
1. ALL SAMPLES TAKEN SHALL UNIQUELY NUMBERED
2. ALL FIELD DENSITY TESTS SHALL REFER TO UNIQUELY NUMBERED SAMPLES FOR DETERMINATION OF ADEQUATE COMPACTION.
3. THE GEOTECHNICAL ENGINEER SHALL RECORD THE LOCATION OF EACH TEST ON A COPY OF THE SITE PLAN, ALONG WITH THE EXTENT OF THE FILL PLACED.

IF ANY TEST INDICATES THAT THE WORK DOES NOT MEET THE SPECIFICATIONS, THE SUBSTANDARD AREA SHALL BE REWORKED OR CORRECTED AND RETESTED, AT THE CONTRACTOR'S EXPENSE, UNTIL THE PROVISIONS OF THESE SPECIFICATIONS ARE MET. ALL FAILING TESTS SHALL BE PAID FOR BY THE CONTRACTOR.

MILLING:

MILLING OF EXISTING ASPHALT CONCRETE PAVEMENT SHALL BE IN ACCORDANCE WITH SECTION 327 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN FOR REVIEW AND APPROVAL, PRIOR TO SCHEDULING AND MILLING.

CONCRETE:

UNLESS OTHERWISE SPECIFIED OR INDICATED, ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 3000 PSI. ALL WORK SHALL COMPLY WITH THE CURRENT EDITION OF THE AMERICAN CONCRETE INSTITUTE (ACI) BUILDING CODE AND APPLICABLE BUILDING CODES HAVING JURISDICTION IN THE AREA.

CONCRETE CURB:

CONCRETE CURB, CURB AND GUTTER, VALLEY GUTTER AND HEADER CURB SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, UNLESS OTHERWISE SPECIFIED OR INDICATED, ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 3000 PSI.

CONCRETE SIDEWALK:

CONCRETE SIDEWALK SHALL BE CONSTRUCTED TO THE DEPTH AND LIMITS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, UNLESS OTHERWISE SPECIFIED OR INDICATED. ALL CONCRETE FOR SIDEWALK CONSTRUCTION SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF AT 28 DAYS OF 3000 PSI. CONTRACTION JOINTS SHALL BE SAW CUT AT 5' SPACING OR AS SHOWN ON THE DRAWING. SIDEWALKS WILL HAVE A "BROOM FINISH"

CURING:

WHITE PIGMENTED CURING COMPOUND IN ACCORDANCE WITH SECTION 925 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL EXPOSED CONCRETE IMMEDIATELY UPON FINISHING OF CONCRETE OR IMMEDIATELY AFTER REMOVAL OF FORMS. CURING COMPOUND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 520 OF THE STANDARD SPECIFICATIONS.

JOINTING – GENERAL

JOINTS MAY BE FORMED IN THE PLASTIC CONCRETE OR SAWED AFTER THE CONCRETE HAS HARDENED AND SHALL BE TO A DEPTH OF 1/4 THE THICKNESS OF PAVEMENT. FORMED JOINTS MAY BE CONSTRUCTED BY DEPRESSING AN APPROVED TOOL INTO THE PLASTIC MATERIAL. SAWING OF JOINTS SHALL BEGIN AS SOON AS THE PAVEMENT HAS HARDENED SUFFICIENTLY TO PERMIT SAWING WITHOUT EXCESSIVE RAVELING AND BEFORE UNCONTROLLED CRACKING OCCURS.

CONSTRUCTION JOINTS:

ALL LONGITUDINAL JOINTS MAY BE CONSTRUCTION JOINTS AT THE CONTRACTOR'S OPTION. TRANSVERSE CONSTRUCTION JOINTS SHALL BE INSTALLED WHENEVER THE PLACING OF CONCRETE IS SUSPENDED A SUFFICIENT LENGTH OF TIME THAT THE CONCRETE MAY BEGIN TO HARDEN.

DRAINAGE – GENERAL:

STORM SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH SECTION 430 AND RELATED SECTIONS OF THE "STANDARD SPECIFICATIONS" OF THE FLORIDA DEPARTMENT OF TRANSPORTATION.

STORM INLETS AND MANHOLES SHALL BE CONSTRUCTED IN GENERAL ACCORDANCE WITH SECTION 425 OF THE "STANDARD SPECIFICATIONS". ALL REINFORCING STEEL TO BE ASTM A 615-72 GRADE 40 FYP = 40,000 PSI, AND SHALL BE HANDLED AND PLACED IN ACCORDANCE WITH ACI 318-71.

ALL INLETS, MANHOLES, AND PIPE SHALL BE PROTECTED DURING CONSTRUCTION TO PREVENT SILTATION IN THE DRAINAGE SYSTEM BY USE OF TEMPORARY PLUGS, PLYWOOD OR PLASTIC COVERS OR USE OF GEOTEXTILE FILTER FABRIC. THE ENTIRE DRAINAGE SYSTEM SHALL BE CLEANED OF ALL DEBRIS PRIOR TO FINAL INSPECTION AND CERTIFICATION.

PRECAST INLETS AND MANHOLES:

ALL STORM DRAINAGE INLETS AND MANHOLES SHALL BE PRECAST REINFORCED CONCRETE IN ACCORDANCE WITH SECTION 425 OF THE "STANDARD SPECIFICATIONS" AND THE DETAILS SHOWN ON THE DRAWINGS. TYPE II PORTLAND CEMENT SHALL BE USED IN THE CONCRETE MIX. CONCRETE FOR PRECAST STRUCTURES SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4000 PSI.

MANUFACTURER'S SHOP DRAWINGS FOR PRECAST DRAINAGE INLETS AND MANHOLES SHALL BE REVIEWED BY THE ENGINEER. THE CONTRACTOR SHALL ALLOW THE ENGINEER A MINIMUM OF FIVE (5) WORKING DAYS FOR REVIEW OF SHOP DRAWINGS.

CULVERT PIPES:

REINFORCED CONCRETE PIPE (RCP) SHALL BE IN ACCORDANCE WITH SECTION 941 OF THE "STANDARD SPECIFICATIONS".

CORRUGATED POLYETHYLENE PIPE (CPEP) SHALL BE IN ACCORDANCE WITH SECTION 948 OF THE "STANDARD SPECIFICATIONS".

POLYVINYL-CHLORIDE PIPE (PVC) SHALL BE IN ACCORDANCE WITH SECTION 947 OF THE "STANDARD SPECIFICATIONS".

THE CONTRACTOR SHALL COMPLETELY WRAP ALL PIPE JOINTS AND ALL PIPE CONNECTIONS INTO STRUCTURES WITH GEOTEXTILE FILTER FABRIC. FILTER FABRIC TO BE SECURED AROUND PIPE WITH BANDS SUITABLE FOR THE PIPE MATERIAL USED.

DISTURBED AREAS:

ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE GRASSED AS SPECIFIED IN THE STANDARD SPECIFICATIONS:

SODDING:

WITHIN THE LIMITS DELINEATED ON THE DRAWINGS, THE CONTRACTOR SHALL, AFTER FINAL GRADING AND CLEANUP, ESTABLISH A STAND OF GRASS BY FURNISHING AND PLACING SOD IN ACCORDANCE WITH SECTION 570 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL WATER THE SODDED AREA TO MAINTAIN MOISTURE LEVELS FOR OPTIMUM GROWTH TO ASSURE A HEALTHY STAND OF GRASS. SOD SHALL BE BAHIA GRASS SOD UNLESS OTHERWISE SPECIFIED.

SEEDING:

WITHIN THE LIMITS DELINEATED IN THE DRAWINGS THE CONTRACTOR SHALL, AFTER FINAL GRADING AND CLEAN-UP, ESTABLISH A STAND OF GRASS BY SEEDING IN ACCORDANCE WITH SECTION 570 OF THE STANDAR SPECIFICATIONS. THE CONTRACTOR SHALL WATER THE SEEDED AREA(S) TO MAINTAIN MOISTURE LEVELS FOR OPTIMUM GROWTH TO ASSURE A HEALTHY STAND OF GRASS. SEED SHALL BE BAHIA GRASS UNLESS OTHERWISE SPECIFIED.

RECORD DRAWINGS:

THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON THE PROJECT SITE AT ALL TIMES WHICH SHALL BE ANNOTATED BY THE CONTRACTOR DEPICTING ANY CHANGES MADE IN THE FIELD WHICH DIFFER FROM THE APPROVED CONSTRUCTION DRAWINGS. UPON COMPLETION OF CONSTRUCTION, BUT PRIOR TO FINAL INSPECTION AND CERTIFICATION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A REPRODUCIBLE MYLAR COPY AND AT LEAST THREE (3) BLUE LINE OR BLACK LINE COPIES OF THE RECORD DRAWINGS. THE RECORD DRAWINGS SHALL BE AT THE SAME SCALE AS THE APPROVED CONSTRUCTION DRAWINGS AND SHALL ACCURATELY DEPICT THE HORIZONTAL AND VERTICAL LOCATION OF ALL FACILITIES INCLUDING BUT NOT LIMITED TO:

A. CULVERTS INCLUDING PIPE INVERT ELEVATIONS
B. INLETS, MANHOLES, AND OTHER STRUCTURES INCLUDING DIMENSIONS, TOP, BOTTOM AND PIPE INVERT ELEVATIONS
C. PAVEMENT FINISH GRADES
D. PIPE AND UTILITY CROSSING INCLUDING ELEVATIONS AND HORIZONTAL AND VERTICAL CLEARANCE BETWEEN FACILITIES.

THE RECORD DRAWINGS SHALL BE PREPARED AND CERTIFIED BY A PROFESSIONAL SURVEYOR AND MAPPER LICENSED BY THE STATE OF FLORIDA.

CONSTRUCTION OBSERVATION:

MINIMUM CONSTRUCTION OBSERVATION CHECKPOINTS

I. EROSION AND SEDIMENT CONTROL, PRIOR TO BEGINNING CONSTRUCTION

II. CLEARING AND GRUBBING PRIOR TO PLACEMENT OF FILL OR BEGINNING CONSTRUCTION

III. DRAINAGE
A. ALL MATERIALS
B. DURING LAYING OF PIPE AND PRIOR TO BACKFILLING PIPE TRENCHES.
C. COMPLETION OF ALL DRAINAGE STRUCTURES AND PIPE LAYING (PRIOR TO BACKFILL).
D. CONSTRUCTION AND STABILIZATION OF LAKES, SWALES AND STORMWATER RETENTION/DETENTION AREAS
E. SEEDING AND/OR SODDING WHERE EROSION IS EVIDENT OR WHERE DRAWINGS SO IDENTIFY

IV. UTILITIES
A. ALL MATERIALS
B. ALL PIPE LAYING PRIOR TO BACKFILL
C. JACK AND BORING AND/OR DIRECTIONAL DRILLING
D. RESTORATION
E. INSPECTOR MUST SEE ALL CONFLICT CROSSING IF NOT PIPE WILL BE DUG UP SO SEPARATION MAY BE SEEN
F. PRESSURE TESTING
G. LAMPING AND/OR VIDEO OBSERVATION OF LINES
H. PIPE/UTILITY CROSSINGS

V. CONCRETE
A. COMPLETION OF FORMING FOR PAVEMENT, CURBING, SIDEWALK, RETAINING WALLS AND ALL OTHER CONCRETE STRUCTURES PRIOR TO PLACEMENT OF CONCRETE INCLUDING SOIL COMPACTION, SOIL CONDITION (DRY / WET) AND SOIL ELEVATION
B. PLACING OF ALL CONCRETE
C. APPLICATION OF APPROVED MOISTURE BARRIER

VI. PAVEMENT
A. LINE AND GRADE
B. SUB-GRADE (PRIOR TO PLACING BASE MATERIAL)
C. BASE (PRIOR TO PRIMING AND SAND SEAL)
D. BASE (AFTER PRIMING, SAND SEAL AND BEFORE PLACING ASPHALT)
E. ASPHALT OR CONCRETE (WHILE PAVING IS IN PROGRESS)

VII. TESTING
A. SUB-GRADE
B. BASE
C. SURFACE COURSE
D. COMPACTION

VIII. FINAL PROJECT OBSERVATION
THE ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY SCHEDULED FIELD OBSERVATIONS.

CLEAN-UP:

THE CONTRACTOR MUST PROVIDE CLEAN-UP OF EXCESS CONSTRUCTION MATERIAL UPON COMPLETION OF THE PROJECT. THE SITE MUST BE LEFT IN A NEAT, CLEAN, GRADED CONDITION.

FINAL INSPECTION:

THE FINAL INSPECTION FROM THE ENGINEERING DEPARTMENT IS REQUIRED TO RECEIVE A CERTIFICATE OF OCCUPANCY. A FINAL ENGINEERING INSPECTION WILL NOT BE SCHEDULED UNTIL THE FOLLOWING ITEM ARE SUBMITTED TO THE ENGINEERING DEPARTMENT.

1. CERTIFICATION OF COMPLETION OF CONSTRUCTION FROM THE ENGINEER.
2. ACCEPTANCE OF CERTIFICATION OF COMPLETION OF CONSTRUCTION FRO THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT
3. AN ELECTRONIC COPY AND HARD COPY OF THE RECORD DRAWINGS (AS-BUILT SURVEY) OF THE COMPLETED IMPROVEMENTS
4. A COPY OF ALL INSPECTION AND TEST REPORTS

DENSITY TESTING SUMMARY:

FOR SANITARY SEWER AND DRAINAGE SYSTEMS WITH STRUCTURES:

1. ONE (1) STRUCTURE FOR STRUCTURE BEDDING
2. TWO (2) TESTS PER LIFT OF BACKFILL, AT EACH STRUCTURE
3. ONE (1) TEST PER LIFT OF BACKFILL FOR EACH PIPE RUN BETWEEN STRUCTURES FOR RUNS OF 200' OR LESS, INCLUDING THE BEDDING IF DISTURBED OR OVER-EXCAVATED
4. TWO (2) TESTS PER LIFT OF BACKFILL FORE EACH PIPE RUN BETWEEN STRUCTURES FOR RUNS OVER 200', INCLUDING THE BEDDING IF DISTURBED OR OVER-EXCAVATED

FOR TRENCHES AND PAVEMENT:

1. ONE (1) TEST PER LIFT OF BACKFILL FOR EACH 100' OF TRENCH OR FRACTION THEREOF
2. ONE (1) TEST PER LIFT OF BACKFILL FOR EACH 2,500 SQUARE FEET OF TRENCH OR FRACTION THEREOF
3. ONE (1) TESTS PER LIFT OF EMBANKMENT FILL FOR EACH 10,000 SQUARE FEET BELOW THE PAVEMENT SUBGRADE
4. ONE (1) TEST PER LIFT FOR EACH 10,000 SQUARE FEET OR FRACTION THEREOF OF SUBGRADE
5. ONE (1) TEST PER LIFT FOR EACH 10,000 SQUARE FEET OR FRACTION THEREOF OF ROCK BASE

SUBMITTALS AND TEST REPORTS

1. PROVIDE A TESTING LOG OR SPREADSHEET IN ORDER OF AREAS TO BE TESTED SEPARATED BY SYSTEM. (A SPREADSHEET SAMPLE SHALL BE PROVIDED TO THE ENGINEER PRIOR TO COMMENCING CONSTRUCTION.)
2. A SAMPLE (BLANK) SPREADSHEET SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL WITH THE INITIAL SHOP DRAWING SUBMITTALS
3. TEST REPORTS SHALL INCLUDE A MAP DEPICTING THE LOCATION OF EACH TEST, INCLUDING STRUCTURE NUMBERS AND/OR OTHER RELEVANT INFORMATION REGARDING THE LOCATION OF EACH TEST.

NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD SPECIFICATIONS.

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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
PAVING, GRADING AND DRAINAGE GENERAL NOTES
MARTIN COUNTY FLORIDA

PROJECT NO 010318-02-004

PLAN STATUS

DATE	DESCRIPTION
11-20-2019	COUNTY COMMENTS

LL DESIGN	GC/JB DRAWN	GMB CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CF-03-P3
SHEET D6

GENERAL NOTES:

FOR THE PURPOSE OF THE GENERAL NOTES BELOW, THE TERM DEPARTMENT SHALL MEAN "MARTIN COUNTY UTILITIES & SOLID WASTE DEPARTMENT".

1. ALL CONNECTIONS TO EXISTING MAINS SHALL BE OBSERVED BY THE DEPARTMENT. VALVES ON EXISTING MAINS SHALL BE OPERATED BY DEPARTMENT PERSONNEL OR UNDER THEIR DIRECT SUPERVISION. TAPPING SLEEVE AND VALVE SHALL BE PRESSURE TESTED PRIOR TO TAPPING. IF SERVICE MUST BE CUT OFF TO EXISTING CUSTOMERS, THE DEPARTMENT MUST HAVE THREE DAYS NOTICE TO MAKE NECESSARY NOTIFICATIONS. THE CONTRACTOR MAY BE REQUIRED TO ASSIST IN NOTIFICATIONS. IN THIS EVENT, CONTRACTOR SHALL BE READY TO PROCEED WITH AS MUCH MATERIAL PREASSEMBLED AS POSSIBLE AT THE SITE TO MINIMIZE THE LENGTH OF SERVICE INTERRUPTION. THE DEPARTMENT WILL POSTPONE A SERVICE CUT OFF IF THE CONTRACTOR IS NOT READY TO PROCEED ON SCHEDULE. SUCH CONNECTIONS SHALL BE MADE AT NIGHT TO MINIMIZE EFFECTS UNLESS OTHERWISE AUTHORIZED BY THE DEPARTMENT. NO CUSTOMER SHOULD BE WITHOUT SERVICE FOR MORE THAN FOUR HOURS.

LOCAL CHLORINATION WILL BE REQUIRED FOR ALL PIPE AND FITTINGS USED TO COMPLETE CONNECTIONS WITH POTABLE WATER.

2. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF MARTIN COUNTY UTILITIES MINIMUM DESIGN AND CONSTRUCTION STANDARDS, ONE COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS AND SPECIAL PROVISIONS, AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.

3. THE CONTRACTOR SHALL CONTACT ALL CONCERNED UTILITIES AT LEAST 48 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS.

4. THE LOCATION AND SIZE OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITIES BY ELECTRONIC METHOD AND BY HAND EXCAVATION IN COORDINATION WITH ALL UTILITY COMPANIES PRIOR TO BEGINNING ANY CONSTRUCTION OPERATIONS. ANY AND ALL CONFLICTS OF EXISTING UTILITIES WITH PROPOSED IMPROVEMENTS SHALL BE RESOLVED BY THE ENGINEER AND DEPARTMENT PRIOR TO BEGINNING ANY CONSTRUCTION OPERATIONS. THIS WORK BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

5. LOCATION OF PROPOSED FACILITIES WILL BE STAKED BY CONTRACTOR. CONTRACTOR MUST GIVE 48 HOURS NOTICE TO THE DEPARTMENT IN ADVANCE OF LAYOUT.

6. PROJECT SUPERINTENDENT: THE CONTRACTOR SHALL PROVIDE A QUALIFIED SUPERINTENDENT TO REMAIN ON THE JOB SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. THE SUPERINTENDENT SHALL BE PRESENT AT THE PRE-CONSTRUCTION MEETINGS. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT BY LETTER PRIOR TO THE PRE-CONSTRUCTION MEETING APPOINTING THE SUPERINTENDENT FOR THIS PROJECT INCLUDING A FORMAL RESUME SHOWING QUALIFICATIONS. IN THE EVENT THE SUPERINTENDENT WILL NOT BE PRESENT FOR ANY PERIOD OF TIME DURING CONTRACT WORK THE CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE IN WRITING TO THE DEPARTMENT, INCLUDING THE APPOINTMENT OF A QUALIFIED REPLACEMENT SUPERINTENDENT WHO WILL BE PRESENT DURING THE CONSTRUCTION. WORK SHALL NOT BE ALLOWED TO PROCEED UNLESS THE ASSIGNED SUPERINTENDENT IS PRESENT.

7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE HIS COMPLETE FAMILIARITY WITH THE PROJECT SITE AND COMPONENTS TO INCLUDE SUBSURFACE CONDITIONS OF SOIL AND GROUNDWATER TABLE.

WARNING: EXACT LOCATION OF UNDERGROUND UTILITIES IS NOT KNOWN NOR IS THIS DRAWING TO BE CONSTRUED AS DEPICTING THE LOCATION OF ALL UNDERGROUND UTILITIES OR STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINATION OF LOCATION PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR IS RESPONSIBLE, THEREFORE, FOR ALL DAMAGE AND REPAIR COSTS.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	GENERAL NOTES, SPECIFICATIONS AND SEPARATION STATEMENT	1A

GENERAL NOTES (Cont.):

8. DENSITY TESTS OF TRENCH BACKFILL MATERIAL SHALL BE REQUIRED AT INTERVALS OF NOT MORE THAN 800 FEET. DENSITY TESTS OF PAVEMENT OPEN-CUT AREAS INCLUDING ROADS, TURNLANES, AND DRIVES SHALL BE REQUIRED AT EACH OPEN-CUT AT INTERVALS OF NOT MORE THAN 50 FEET. ALL TESTS SHALL COMMENCE AT THE TOP OF CONDUIT AND EVERY 12 INCHES TO THE FINISH GRADE. COMPACTION SHALL BE IN ACCORDANCE WITH MARTIN COUNTY UTILITIES CONSTRUCTION STANDARDS "TYPICAL TRENCH DETAIL" AND "FLEXIBLE PAVEMENT REPLACEMENT DETAIL". FLORIDA BEARING TESTS FOR THE STABILITY OF EXISTING SUBSOIL SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 300 FEET, AND CLOSER AS MIGHT BE NECESSARY IN THE EVENT OF VARIATIONS IN THE STRATA. A CERTIFIED COPY OF THE TESTS SHALL BE PROVIDED TO THE DEPARTMENT AND THE FLORIDA DEPARTMENT OF TRANSPORTATION OR MARTIN COUNTY ENGINEERING DEPARTMENT DEPENDING ON JURISDICTION. CONTRACTORS BID PRICE SHALL INCLUDE PAYMENT FOR ALL TESTS CONDUCTED BY AN INDEPENDENT TESTING LAB.

9. ANY LANDSCAPING DISTURBED, UNLESS OTHERWISE SHOWN ON THE PLANS, SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE DEPARTMENT AT THE CONTRACTORS EXPENSE.

10. ANY SIDEWALK, CURB AND GUTTER OR PAVEMENT DISTURBED, UNLESS OTHERWISE SHOWN ON PLANS, SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. UNLESS OTHERWISE SPECIFIED OR INDICATED, ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 psi AT 28 DAYS AND ALL CONCRETE WORK SHALL COMPLY WITH THE CURRENT EDITION OF THE AMERICAN CONCRETE INSTITUTE (ACI) BUILDING CODE AND THE APPLICABLE BUILDING CODES HAVING JURISDICTION IN THE AREA. ALL CONSTRUCTION SHALL MEET ADA REQUIREMENTS. THIS INCLUDES, BUT IS NOT LIMITED TO, DETECTABLE WARNING SURFACES.

11. ALL SOD IS TO BE PLACED FOR THE FULL WIDTH DISTURBED AT THE PER LINEAR FOOT UNIT PRICE FOR SOD. SOD SHALL BE REPLACED TO MATCH EXISTING KIND UNLESS OTHERWISE SHOWN ON PLANS.

12. CONTRACTOR SHALL PROVIDE PROPER BENDS TO MAINTAIN REQUIRED DEPTH AND ALIGNMENT OF PIPE. COST OF BENDS NOT DESIGNATED ON PLANS SHALL BE INCLUDED WITH THE UNIT PRICE FOR PIPE.

13. ANY TREES AND/OR SCRUB OR OTHER VEGETATION NOT TO BE REPLACED SHALL BE REMOVED FROM THE PROJECT AT THE CONTRACTOR'S EXPENSE.

14. ALL RUBBLE AND UNSUITABLE MATERIAL MUST BE REMOVED FROM THE PROJECT AND DISPOSED OF PROPERLY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

15. MAILBOXES MUST BE CAPABLE OF RECEIVING MAIL AT ALL TIMES.

16. DEFLECT PIPE AS NECESSARY TO OBTAIN THE REQUIRED ALIGNMENT. USE APPROPRIATE FITTINGS WHEN DEFLECTION EXCEEDS 75% OF MANUFACTURER'S RECOMMENDED MAXIMUM DEFLECTION.

17. ALL FITTINGS SHALL BE MECHANICALLY RESTRAINED. REFER TO MARTIN COUNTY UTILITIES DEPARTMENT MINIMUM DESIGN & CONSTRUCTION STANDARDS (LATEST EDITION).

18. ALL CONSTRUCTION DEWATERING (WELL POINTS, SUMPS, ETC) WILL REQUIRE A DEWATERING PERMIT FROM SOUTH FLORIDA WATER MANAGEMENT DISTRICT. THIS SHALL BE OBTAINED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE PRIOR TO BEGINNING OF CONSTRUCTION.

19. THE "TRENCH SAFETY ACT" SHALL BE INCORPORATED INTO THIS CONTRACT AS ENACTED BY THE LEGISLATURE OF THE STATE OF FLORIDA TO BE IN EFFECT AS OF OCTOBER 1, 1990.

20. A U-2 PERMIT IS REQUIRED FOR ALL WORK WITHIN COUNTY RIGHT-OF-WAY. THIS PERMIT MUST BE OBTAINED BY THE CONTRACTOR FROM THE MARTIN COUNTY ENGINEERING DEPARTMENT. ALL COSTS PAYABLE BY THE CONTRACTOR. A COPY OF THIS PERMIT MUST BE MAINTAINED ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.

21. ALL CONCRETE AND ASPHALT DRIVES MUST BE REPLACED FROM SAW CUT TO EDGE OF PAVEMENT.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
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GENERAL NOTES (Cont.):

22. LOCATIONS OF FIRE HYDRANTS AND AIR RELEASE VALVES ARE APPROXIMATE ONLY. FINAL LOCATIONS WILL BE DETERMINED BY DEPARTMENT PERSONNEL IN FIELD.

23. MAXIMUM LENGTH OF WATER MAIN AND FORCE MAIN PRESSURE TEST SHALL BE 1500 FEET. WATER SOURCE FOR FLUSHING, FILLING AND PRESSURE TESTING THE WATER MAIN SHALL BE FROM A TREATED SOURCE APPROVED BY THE DEPARTMENT.

24. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION AND RESTORATION (IF DAMAGED) OF ALL EXISTING STRUCTURES WITHIN THE CONSTRUCTION LIMITS OF THE PROJECT, INCLUDING BUT NOT LIMITED TO WALLS, FENCES, POWER POLES, MAIL BOXES, DRAINAGE PIPES AND STRUCTURES, ETC.

25. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING WATER SERVICES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROTECT THE EXISTING WATER SERVICES FROM DAMAGE AND REPAIR ANY BREAKS IMMEDIATELY.

26. "RECORD DRAWINGS" SHALL INCLUDE FURNISHING MARTIN COUNTY UTILITIES DEPARTMENT WITH ALL INFORMATION NECESSARY FOR A COMPLETE SET OF RECORD DRAWINGS AS STIPULATED IN THE MARTIN COUNTY UTILITIES DEPARTMENT MINIMUM DESIGN AND CONSTRUCTION STANDARDS (LATEST EDITION).

27. MECHANICALLY RESTRAIN LENGTHS, AS INDICATED ON DRAWING No. 20, ON EACH SIDE OF ALL BENDS AND AS INSTRUCTED IN MARTIN COUNTY UTILITIES DEPARTMENT SPECIFICATIONS. MECHANICAL RESTRAINTS SHALL BE EITHER MEG-A-LUG, TYLER OR UNIFLANGE. THE CONTRACTORS BID PRICE FOR PIPE, GATE VALVES AND FITTINGS SHALL INCLUDE MECHANICAL RESTRAINT.

28. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL SUPPORT UTILITIES AND SHORE TRENCH AS REQUIRED TO PROTECT AND MAINTAIN EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY EACH UTILITY PRIOR TO ATTEMPTING TO SUPPORT THEIR FACILITIES. IF THE UTILITY REQUIRES THAT ONLY THEIR CREWS SHALL BE ALLOWED TO SUPPORT THEIR FACILITIES, THEN IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO COORDINATE WORK AND PAY THE UTILITY FOR THEIR EXPENSES IF REQUIRED. ALL COSTS FOR THIS WORK SHALL BE AT THE CONTRACTORS EXPENSE AND INCLUDED IN THE CONTRACTORS BID PRICE.

29. ALL PRESSURE TESTS SHALL BE IN ACCORDANCE WITH AWWA STANDARDS.

30. AIR RELEASE VALVE VAULT COVERS SHALL BE CONSTRUCTED PER DETAIL AS SHOWN IN THE DEPARTMENT'S MINIMUM DESIGN AND CONSTRUCTION STANDARDS.

31. ALL WATER SERVICES SHALL BE DIRECTIONALLY DRILLED UNDER EXISTING PAVEMENT.

32. VALVE STEM RISER SHALL BE REQUIRED WHERE OPERATING NUT DEPTH EXCEEDS 4 FEET. THE RISER SHALL BE BOLTED TO THE VALVE NUT. METHOD AND MATERIALS SHALL BE APPROVED BY THE DEPARTMENT. COST FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACTORS BID UNIT PRICE FOR GATE VALVES.

33. THE CONTRACTOR SHALL CLEAN MAINS USING APPROVED POLYURETHANE PIGS. TEMPORARY CLEANING STATIONS SHALL BE CONSTRUCTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A CLEANING PLAN SHOWING METHOD OF FILLING AND CLEANING MAINS PRIOR TO START OF CONSTRUCTION. THE CLEANING PLAN SHALL BE APPROVED BY THE DEPARTMENT PRIOR TO CONSTRUCTION. ALL COSTS FOR FILLING AND CLEANING SHALL BE AT THE CONTRACTORS EXPENSE.

34. A FLORIDA DEPARTMENT OF TRANSPORTATION PERMIT IS REQUIRED FOR ALL WORK, EXCEPT PERPENDICULAR CONNECTIONS, WITHIN THE STATE RIGHT-OF-WAY. A COPY OF THIS PERMIT MUST BE MAINTAINED ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.

35. THE CONTRACTOR SHALL INSTALL TESTING POINTS FOR PRESSURE & BACTERIOLOGICAL TESTING OF WATER MAINS. THE CONTRACTOR SHALL INSTALL AND REMOVE AND PLUG CORP. STOPS PER MARTIN COUNTY UTILITIES STANDARDS "SAMPLE POINT DETAIL". THE LOCATION OF TEST POINTS SHALL BE APPROVED BY THE DEPARTMENT.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
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GENERAL NOTES (Cont.):

36. WATER MAIN DISINFECTION SHALL BE IN ACCORDANCE WITH CURRENT AWWA, BULLETIN C-651.

37. WATER MAINS AND APPURTENANCES SHALL BE IN ACCORDANCE WITH CURRENT AWWA, FDEP AND NSF STANDARDS.

38. MINIMUM COVER TO FINISHED GRADE OVER WATER MAINS SHALL BE 30 INCHES UP TO 8" DIAMETER. 10" OR LARGER SHALL HAVE 36" COVER OR GREATER TO PROVIDE A MINIMUM 18" COVER OVER OPERATING NUT OF GATE VALVES.

39. ALL MAINS SHALL BE TESTED FOR LEAKAGE. WATER SHALL BE SUPPLIED TO THE MAIN AND PUMPED TO THE REQUIRED 150 PSI PRESSURE. THE MAIN TESTED SHALL EITHER BE ISOLATED FROM PRESENTLY POTABLE LINES OR PROTECTED FROM LEAKAGE BY A DOUBLE VALVE ARRANGEMENT.

40. NEWLY CONSTRUCTED FIRE HYDRANTS THROUGHOUT THE PROJECT SHALL HAVE A RED "OUT OF SERVICE" DISK (JOSEPH G. POLLARD CO. OR EQUAL) ATTACHED TO 4" PUMPER NOZZLE CAP. DISK TO BE REMOVED AFTER WATER SYSTEM HAS BEEN APPROVED FOR SERVICE BY THE DEPARTMENT.

THE DEPARTMENT SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF ANY TESTING PROCEDURES. AFTER FLUSHING IS COMPLETED, LINE PRESSURE SHALL BE APPLIED TO THE WATER SYSTEM TO DETERMINE IF ANY MAJOR DEFECTS ARE PRESENT. THE COMPLETE WATER SYSTEM SHALL THEN BE TESTED AT A PRESSURE OF 150 PSI FOR A PERIOD OF NOT LESS THAN TWO HOURS. THE DEPARTMENT MAY, AT ITS DISCRETION, INCREASE THE PERIOD TO FOUR HOURS. MAXIMUM LENGTH OF LINE TO BE TESTED AT ONE TIME SHALL NOT EXCEED 1500 LINEAR FEET. AN OIL FILLED PRESSURE GAUGE UP TO 200 PSI AT 2 POUND INCREMENTS SHALL BE USED FOR ALL PRESSURE TESTS. NO VISIBLE MOVEMENT OF THE SYSTEM SHALL OCCUR AND LEAKAGE SHALL NOT EXCEED:

$L = \frac{ND\sqrt{P}}{7400}$ PER HOUR

WHERE:
L= LEAKAGE IN GALLONS
N= NUMBER OF JOINTS IN TEST SECTION
P= TEST PRESSURE IN PSI
D= DIAMETER OF PIPE IN INCHES

NOTE: MARTIN COUNTY UTILITIES DEPARTMENT'S MINIMUM DESIGN AND CONSTRUCTION STANDARDS (LATEST EDITION), ARE TO BE ADHERED TO AND WILL BE ENFORCED TO AT LEAST THESE MINIMUM STANDARDS.

48 HOURS BEFORE DIGGING
CALL TOLL-FREE
1-800-432-4770
SUNSHINE STATE ONE CALL
OF FLORIDA, INC

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	GENERAL NOTES, SPECIFICATIONS AND SEPARATION STATEMENT	1D

STANDARD WATER/SEWER SEPARATION STATEMENT

[illegible]

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	GENERAL NOTES, SPECIFICATIONS AND SEPARATION STATEMENT	1E

811 Know what's below. Always call before you dig.

NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD SPECIFICATIONS.

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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
WATER AND WASTEWATER GENERAL NOTES
MARTIN COUNTY FLORIDA

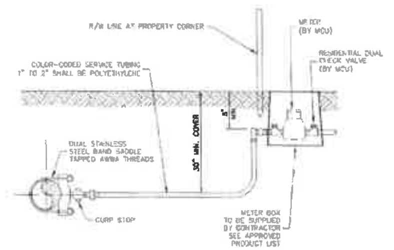
PROJECT NO 010318-02-004

L. B. LEONARD, P.E. LICENSE No. 61737 STATE OF FLORIDA PROFESSIONAL ENGINEER

PLAN STATUS
03-2019 COUNTY COMMENTS

DATE	DESCRIPTION	
LL DESIGN	GC/JB DRAWN	CMB CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
SHEET D7

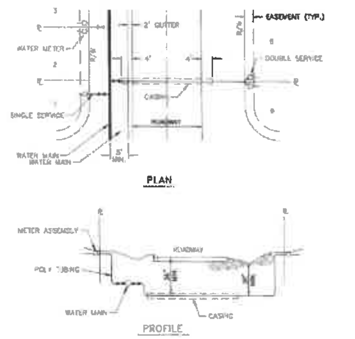


NOTES:

1. MIN. SERVICE LINES SHALL BE AS FOLLOWS: 1" FOR SINGLE AND DOUBLE SERVICES WHERE METER SIZE IS 5/8"; 2" FOR SINGLE AND DOUBLE SERVICES WHERE METER SIZE IS 1".
2. COMPRESSION FITTINGS SHALL BE SUITABLE FOR TUBING USED AND REQUIRE METAL (S.S.) INSERTS.
3. DOUBLE SERVICES REQUIRE "U" BRANCH WITH ANGLE CURB STOPS.
4. POLYETHYLENE SHALL BE AS DEFINED BY A.S.T.M. D2737 SDR9 COPPER TUBE SIZE (CTS) AND A.W.W.A. 901, LATEST EDITION, AND BE PRESSURE RATED FOR 200 PSI AND SHALL BE "ENDOPURE" BY ENDOT INDUSTRIES, INC., ROCKAWAY, N.J., OR APPROVED EQUAL.
5. TUBING SHALL BE MARKED WITH SIZE, MANUFACTURERS NAME, WORKING PRESSURE, NATIONAL SANITATION FOUNDATION APPROVAL, A.S.T.M. SPECIFICATION AND PRODUCTION CODE. TUBING SHALL HAVE AN OUTSIDE DIAMETER EQUIVALENT TO THE OUTER DIAMETER OF COPPER TUBING.
6. SERVICE LOCATOR WIRE SHALL BE LAID IN THE TRENCH WITH ALL SERVICES, CONNECTED TO THE MAIN WIRE AND WRAPPED AROUND THE SERVICE PIPING OR TUBING. WIRE FOR POTABLE WATER SHALL BE BLUE IN COLOR.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	SERVICE CONNECTION DETAIL 5/8" OR 1" METER	2

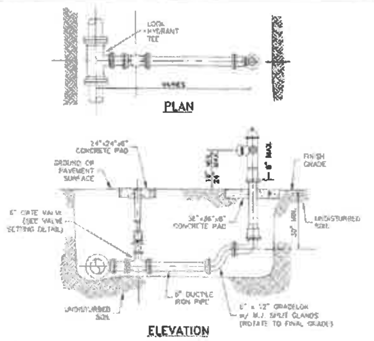


NOTES:

1. HOUSE SERVICE LATERAL UNDER PAVEMENT SHALL BE INSTALLED THROUGH A 2" MINIMUM PVC SCH. 80 CASING OR HDPE CASING (EXISTING ROADWAYS).
2. TAPPING SADDLE AND CORPORATION STOP MUST BE PLACED IN ACCESSIBLE AREAS, OUT FROM UNDER ANY PAVED AREAS.
3. SERVICE LOCATION WIRE SHALL BE LAID IN THE TRENCH WITH ALL SERVICES, CONNECTED TO THE MAIN WIRE AND WRAPPED AROUND THE SERVICE PIPING OR TUBING. WIRE FOR POTABLE WATER SHALL BE BLUE IN COLOR.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	WATER SERVICE CONNECTIONS (SINGLE OR DOUBLE) PLAN / PROFILE	3

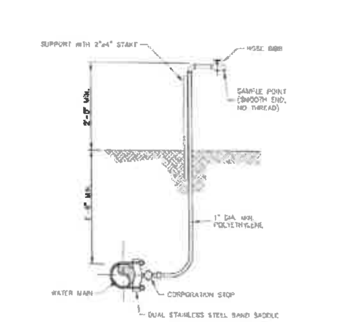


NOTES:

1. HYDRANTS SHALL BE INSTALLED PLUMB AND TRUE.
2. VALVES SHALL BE PLACED ADJACENT TO MAIN, AND TIED TO TEE.
3. ANCHOR TEES ARE REQUIRED.
4. ALL HYDRANTS SHALL BE TEE'D OFF OF MAIN.
5. HYDRANTS SHALL NOT BE PLACED IN SIDEWALK, ROADWAYS OR BIKEPATHS.
6. PIPE FROM VALVE TO HYDRANT SHALL BE RESTRAINED.
7. HYDRANT BARREL AND BONNET COLOR TO BE OSHA YELLOW.
8. THE CONNECTOR PIPE SHALL BE CEMENT LINED DUCTILE IRON, CLASS 350 AND POSITIONED BETWEEN THE FIRE HYDRANT AND GATE VALVE.
9. THE CONNECTOR PIPE SHALL HAVE AN ANCHORING FEATURE AT BOTH ENDS SO THAT WHEN USED WITH M.J. SPLIT GLANDS A RESTRAINED JOINT IS PROVIDED.
10. HYDRANT EXTENSIONS SHALL NOT BE ALLOWED.
11. NEWLY CONSTRUCTED FIRE HYDRANTS THROUGHOUT THE PROJECT SHALL HAVE A RED "OUT OF SERVICE" DISK (JOSEPH G. POLLARD CO. OR EQUAL) ATTACHED TO 4" PUMPER NOZZLE CAP. DISK TO BE REMOVED AFTER WATER SYSTEM HAS BEEN APPROVED FOR SERVICE BY THE DEPARTMENT.
12. A MAXIMUM OF 20 FEET OF HORIZONTAL PIPE SHALL TYPICALLY BE INSTALLED BETWEEN THE 6" GATE VALVE AT THE WATER MAIN AND THE HYDRANT. IF IT IS NECESSARY TO INSTALL MORE THAN 20 FEET OF HORIZONTAL PIPE, AN ADDITIONAL 6" GATE VALVE WILL BE REQUIRED AT THE HYDRANT LOCATION.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	FIRE HYDRANT INSTALLATION DETAIL AND NOTES	7

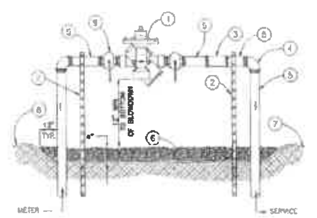


NOTES:

1. SAMPLE POINT SHOULD BE A SERVICE LINE.
2. AFTER SAMPLING IS COMPLETED AND APPROVED, SHUT OFF CORP. STOP, REMOVE TUBING, PLUG WITH BRASS PLUG AND LOCATE FOR RECORD DRAWINGS.
3. MOUNT METAL OR PLASTIC TAG INDICATING "SAMPLE POINT — DO NOT TURN OFF"

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	SAMPLE POINT DETAIL	9



MATERIALS

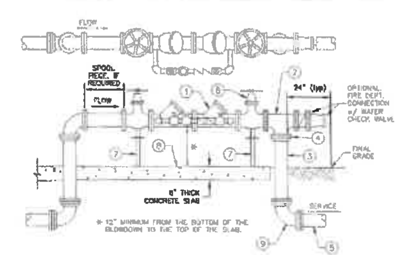
ITEM	QUANT.		DESCRIPTION
1	1	2"	BACKFLOW PREVENTER
2	2	1"	S.S. UNISTRUT W/ S.S. STRAPS
3	1	2"	COUPLING – COMPRESSION
4	2	2" X 90°	ELBOW
5	4	2" X 6"	NIPPLES
6			PEA GRAVEL
7			FILTER FABRIC
8			FINISHED GRADE
9	2	[illegible]	BALL VALVE

NOTES:

1. INSTALLATION SHOWN ABOVE IS FOR A 2" SERVICE. CHANGE PIPING MATERIALS ACCORDINGLY FOR SERVICE SIZE.
2. USE COPPER, BRASS OR STAINLESS STEEL FOR FITTINGS AND PIPE MATERIAL.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	REDUCED PRESSURE BACKFLOW PREVENTER SINGLE SERVICE 3/4", 1", 1-1/2" AND 2"	13



* 12" MINIMUM FROM THE BOTTOM OF THE BLOWDOWN TO THE TOP OF THE SLAB.

MATERIAL

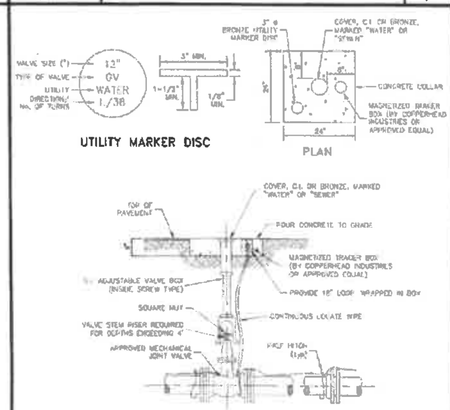
ITEM	QUANT.		DESCRIPTION
1	1	2", 4", 6", 8"	DOUBLE CHECK DETECTOR BACKFLOW PREVENTER
2	2	2", 4", 6", 8"	TEE (FLANGE-FLANGE)
3	[illegible]	2", 4", 6", 8"	PIPE, DUCTILE IRON (CLASS 350)
4	3	2", 4", 6", 8"	ADAPTER FLANGE, DIP
5	2	2", 4", 6", 8"	PIPE
6	2	2", 4", 6", 8"	GATE VALVE, C.I. (FLANGE-FLANGE) OS&Y
7	2		ADJUSTABLE PIPE SUPPORTS (316 SS)
8	1	8"	CONCRETE SLAB
9	3		BEND – 90° (MJ-MJ)

NOTES:

1. FIELD ADJUST AND CUT ITEM 3 TO PROPER LENGTH. THIS TYPE OF CONSTRUCTION IS DESIGNED FOR LIMITED WORKING AREA.
2. ALL EXPOSED DUCTILE IRON PIPES AND FITTINGS SHALL BE PAINTED "RED". PAINT SPECIFICATIONS MUST BE SUBMITTED TO MARTIN COUNTY UTILITIES PRIOR TO APPLICATION.
3. DETECTOR METER SHALL READ IN GALLONS AND SHALL BE 5/8" NEPTUNE MAGNETIC DRIVE, MODEL T-10

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	FIRE LINE DOUBLE CHECK DETECTOR ASSEMBLY	17



UTILITY MARKER DISC

PLAN

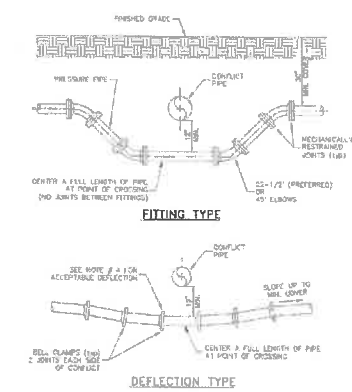
ELEVATION

NOTES:

1. A LOCATION BALL (3M EMS BALL MARKERS, WATER/BLUE, MODEL No. 1403-XR; SEWER/GREEN, MODEL No. 1404-XR OR EQUAL) SHALL BE INSTALLED AT EACH FITTING AND/OR EVERY 100 FEET OF SEPARATION.
2. FOR DEEP VALVE INSTALLATIONS, A 6" C-900 PVC EXTENSION MAY BE USED TO BRING VALVE BOX TO GRADE.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	VALVE SETTING DETAIL	18



FITTING TYPE

DEFLECTION TYPE

NOTES:

1. THESE METHODS ARE TO BE USED WHEN INSUFFICIENT COVER EXISTS TO ALLOW PRESSURE PIPE TO CROSS ABOVE CONFLICT PIPE WITH 6" VERTICAL SEPARATION AND MAINTAIN REQUIRED COVER TO FINISHED GRADE.
2. FITTINGS SHALL BE RESTRAINED WITH RETAINER GLANDS.
3. THE DEFLECTION TYPE CROSSING IS PREFERRED.
4. DO NOT EXCEED 50% OF MANUFACTURER'S RECOMMENDED MAXIMUM JOINT DEFLECTION.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	PRESSURE PIPE CONFLICT DETAIL	20

NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DEIGN STANDARD SPECIFICATIONS.

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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
WATER AND WASTEWATER DETAILS
MARTIN COUNTY FLORIDA

PROJECT NO 010318-02-004

PLAN STATUS
05-28-2019 COUNTY COMMENTS

DATE	DESCRIPTION	
LL DESIGN	GC/JB DRAWN	GMB CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-02-02

SHEET D8

MIN. LENGTH (IN FEET) OF PIPE TO BE RESTRAINED

(SOURCES: EBAA IRON RESTRAINT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 3.1, AND DIPRA THRUST RESTRAINT FOR DUCTILE IRON PIPE, RELEASE 3.2)

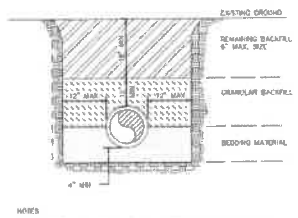
FITTING TYPE		4"	6"	8"	10"	12"	16"	20"	24"
90° HORIZ. BEND		14	20	26	30	36	45	54	62
45° HORIZ. BEND		6	8	11	13	15	19	22	26
22.5° HORIZ. BEND		3	4	5	6	7	9	11	12
11.25° HORIZ. BEND		1	2	2	3	4	4	5	6
90° VERT. OFFSET	UPPER BEND	29	41	53	64	74	95	115	134
	LOWER BEND	7	10	13	16	19	25	30	36
45° VERT. OFFSET	UPPER BEND	12	16	24	29	34	39	48	56
	LOWER BEND	3	4	6	7	8	10	12	[illegible]
22.5° VERT. OFFSET	UPPER BEND	8	9	11	14	17	19	23	27
	LOWER BEND	1	2	4	4	4	5	6	7
11.25° VERT. OFFSET	UPPER BEND	3	4	5	[illegible]	8	9	11	13
	LOWER BEND	1	1	2	2	2	2	3	3
PLUG (DEAD END)		32	45	59	70	83	107	129	151
IN-LINE VALVE		32	48	45	45	45	56	68	80
TEE (BRANCH RESTRAINT)	4" x #	23	-	-	-	-	-	-	
	6" x #	21	35	-	-	-	-	-	-
	8" x #	18	34	47	-	-	-	-	-
	10" x #	16	32	46	58	-	-	-	-
	12" x #	[illegible]	[illegible]	44	57	68	-	-	-
	16" x #	7	26	41	55	67	90	-	-
	20" x #	1	[illegible]	38	52	65	88	109	-
	24" x #	1	16	34	49	62	86	106	129
	30" x #	1	8	29	44	58	85	106	127
	36" x #	1	1	22	39	54	80	[illegible]	124
	42" x #	1	1	15	33	48	77	100	122
	48" x #	1	1	7	27	44	73	97	120
REDUCER (LARGER PIPE RESTRAINT)	6" x #	23	-	-	-	-	-	-	-
	8" x #	38	21	-	-	-	-	-	-
	10" x #	57	43	24	-	-	-	-	-
	12" x #	[illegible]	60	44	41	-	-	-	-
	16" x #	99	90	78	75	45	-	-	-
	20" x #	123	116	107	105	81	45	-	-
	24" x #	148	140	132	131	111	82	45	-

NOTES:

1. THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
   SOIL TYPE-SAND; TEST PRESSURE-150 PSI; DEPTH OF BURY-3'
   TRENCH TYPE-3; SAFETY FACTOR-1.5; VERTICAL OFFSET-3'
   MINIMUM PIPE LENGTH ALONG TEE RUN-5'
2. THE RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON AND PVC PIPE.
3. ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
4. RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF VALVES AND FITTINGS.
5. DESIGN ENGINEER SHALL BE RESPONSIBLE FOR PROPERLY SIZING THE LENGTH OF PIPE TO BE RESTRAINED.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION AUGUST 2016 | MECHANICAL JOINT ANCHORING REQUIREMENTS | DWG No. 21

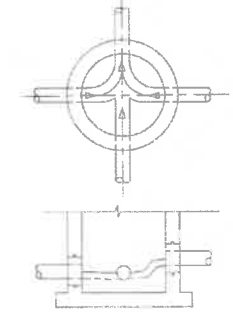


NOTES

1. BEDDING MATERIAL SHALL BE HAND PLACED IN 6" LIFTS AND SHALL CONSIST OF IN-SITU GRANULAR MATERIAL OR WASHED AND GRADED LIMEROCK 3/8"-7/8" SIZING. UNSUITABLE IN-SITU MATERIALS SUCH AS MUCK, DEBRIS AND LARGER ROCK SHALL BE REMOVED.
2. THE PIPE SHALL BE FULLY SUPPORTED FOR ITS ENTIRE LENGTH WITH APPROPRIATE COMPACTION UNDER THE PIPE HAUNCHES.
3. THE PIPE SHALL BE PLACED IN A DRY TRENCH.
4. BACKFILL SHALL BE DONE WITH APPROVED MATERIAL CLEAN AND FREE OF ROCKS, MUCK AND OTHER DELETERIOUS MATTER AND COMPACTED BENEATH THE HAUNCHES OF THE PIPE USING MECHANICAL TAMPERS TO 100% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.
5. BACKFILL TO BE COMPACTED ALONG THE SIDES OF THE PIPE AND TO A POINT ONE FOOT ABOVE THE TOP OF THE PIPE TO 100% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.
6. A. WHERE PAVEMENT IS TO BE CONSTRUCTED OVER THE PIPE, THE REMAINING BACKFILL SHALL BE COMPACTED IN 6 INCH LAYERS AND COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
   B. WHERE "NO" PAVEMENT IS TO BE CONSTRUCTED OVER THE PIPE THE REMAINING FILL SHALL BE COMPACTED IN 6 INCH LAYERS TO A DENSITY 90% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
7. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL TRENCH SAFETY REGULATIONS.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION AUGUST 2015 | TYPICAL TRENCH DETAIL | DWG No. 23



NOTES:

1. ALL INVERT CHANNELS ARE TO BE CONSTRUCTED FOR SMOOTH FLOW WITHOUT OBSTRUCTION.
2. PROPERLY SHAPED SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS TO PROVIDE FOR SMOOTH FLOWS.
3. BRICK AND CONCRETE RUBBLE PERMITTED AS FLOW CHANNEL BUILDUP.
4. SIDEWALLS OF FLOW CHANNEL SHALL BE AT LEAST HALF OF PIPE HEIGHT AT ALL POINTS.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION AUGUST 2016 | INVERT FLOW CHANNEL DETAIL | DWG No. 37

811 KNOW WHAT'S BELOW. ALWAYS CALL 811 BEFORE YOU DIG

NOTE:
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MARINER VILLAGE SQUARE PUD
LOT 2 - BEE SAFE STORAGE
WATER AND WASTEWATER DETAILS
MARTIN COUNTY — FLORIDA

PROJECT NO 010318-02-004

PLAN STATUS: 08-29-2018 COUNTY COMMENTS

LL DESIGN	GC/JB DRAWN	GMB CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
SHEET D9

CONSTRUCTION PLANS
FOR
Mariner Village Square PUD
PLAT INFRASTRUCTURE
MARTIN COUNTY, FLORIDA
SECTION 31, TOWNSHIP 38 SOUTH, RANGE 42 EAST

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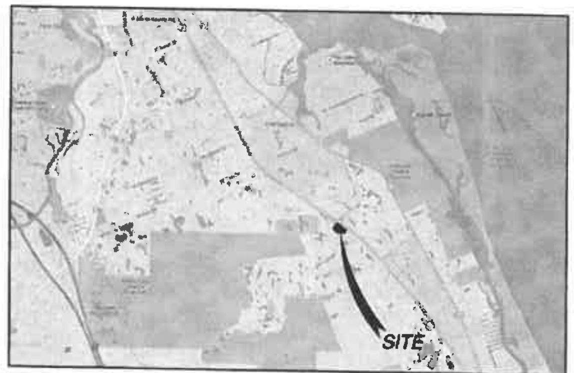

LOCATION MAP
N.T.S.

VICINITY MAP
N.T.S.

DRAWING INDEX

SHEET NO.	SHEET LIST
C0	COVER SHEET
C1	STRIPING & SIGNAGE PLAN
C2	PHASE 1 EROSION & SEDIMENTATION CONTROL AND CLEARING PLAN
C3	PHASE 2 EROSION & SEDIMENTATION CONTROL PLAN
C4	EROSION & SEDIMENTATION CONTROL DETAILS
C5	MASTER PAVING, GRADING & DRAINAGE PLAN
C6 - C7	PAVING, GRADING & DRAINAGE PLAN
C8	PERIMETER BERM CROSS SECTIONS
C9	WATER & WASTEWATER PLAN
C10	SANITARY SEWER PROFILES
TDW1	TEMPORARY SHORT-TERM DEWATERING PLAN
D1 - D4	PAVING, GRADING & DRAINAGE DETAILS
D5	PAVING, GRADING & DRAINAGE GENERAL NOTES
D6	WATER & WASTEWATER GENERAL NOTES
D7 - D8	WATER & WASTEWATER DETAILS

GENERAL NOTES

1. THE CONTRACTOR SHALL HAVE ONE SIGNED COPY OF THE APPROVED PLANS AND THE APPROPRIATE STANDARDS AND SPECIFICATIONS ALONG WITH A COPY OF ALL APPLICABLE PERMITS AND AGREEMENTS NEEDED FOR THE JOB ON-SITE AT ALL TIMES.
2. THE CONTRACTOR SHALL MEET OR EXCEED ALL SITE WORK SPECIFICATIONS AND APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS FOR ALL MATERIALS AND CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS IS ENCOUNTERED.
5. NO REVISION SHALL BE MADE TO THESE PLANS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADWAYS FREE AND CLEAR OF ALL CONSTRUCTION DEBRIS AND DIRT TRACKED FROM THE SITE. AT ALL TIMES.
7. ANY REFERENCE TO PUBLISHED STANDARDS SHALL REFER TO THE LATEST REVISION OF SAID STANDARD, UNLESS SPECIFICALLY STATED OTHERWISE.

THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

Bowman
CONSULTING

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Stuart, Florida 34994

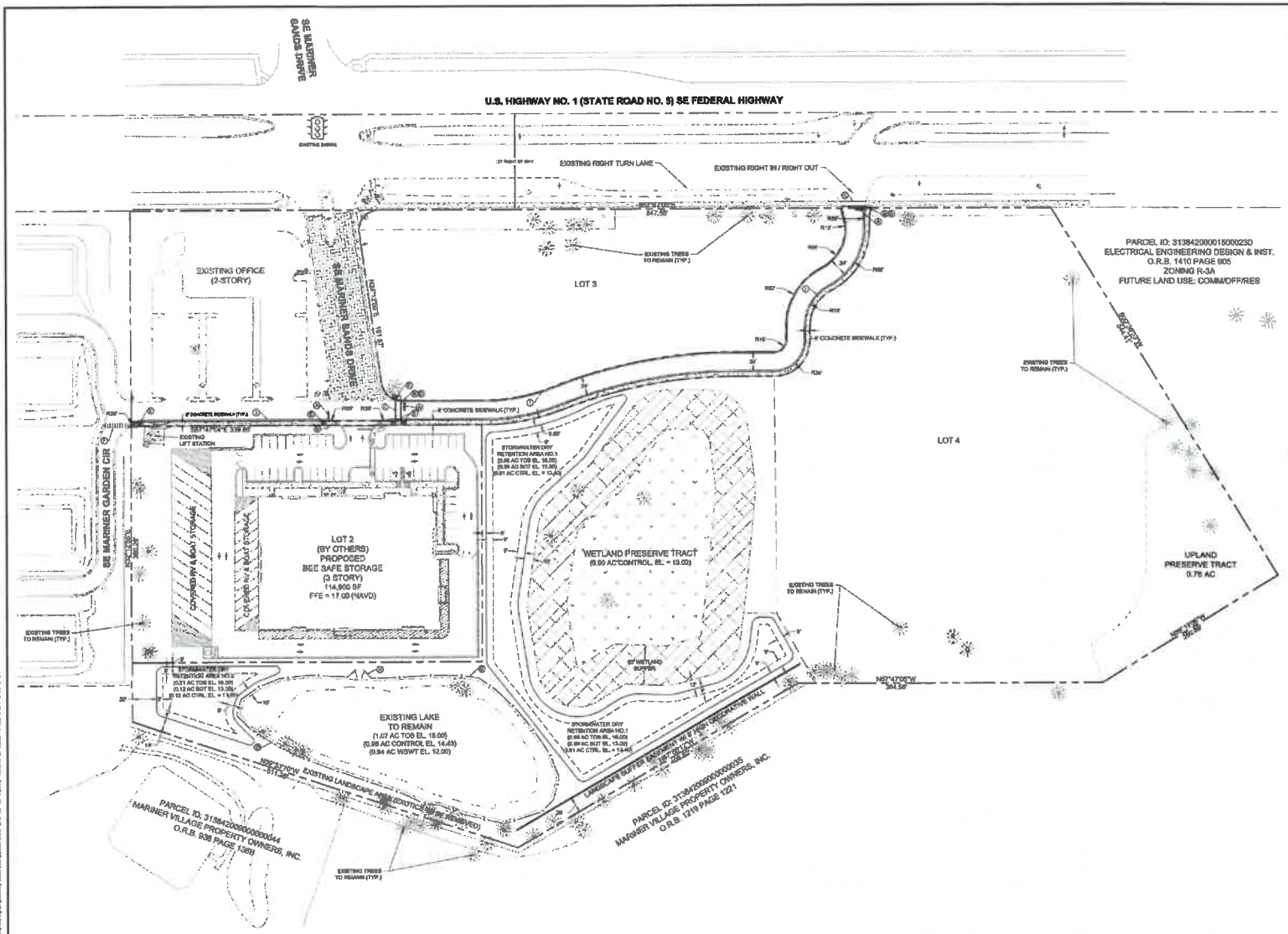
MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
COVER SHEET
MARTIN COUNTY
FLORIDA

PROJECT NO
010318-02-004

PLAN STATUS
COUNTY COMMENTS

DATE	DESCRIPTION	
LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-COV
SHEET C0



KEYNOTE LEGEND

- (A) STOP BAR (TYP.) (SEE DETAIL).
- (B) "STOP" SIGN (TYP.) (SEE DETAIL).
- (C) 6'-0" WIDE (OR AS SHOWN) PEDESTRIAN CROSSWALK. (SEE DETAIL).
- (D) PEDESTRIAN CROSSING SIGN. TYPICAL AT PEDESTRIAN CROSSWALKS AS NOTED ON PLANS. (SEE DETAIL).
- (E) CURB RAMP AND DETECTABLE WARNINGS PER LATEST EDITIONS OF FDOT STANDARD PLANS FOR ROAD CONSTRUCTION INDEX 523-02, FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, SECTION 527 AND PER ADA REQUIREMENTS.
- (F) EXISTING CROSSWALK STRIPING.
- (G) PROPOSED FENCE (SEE DETAIL).
- (H) PROPOSED GATE (SEE DETAIL)
- (I) TYPE "F" CURB (TYP.).

NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL MARTIN COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
2. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULES, CANOPIES, APRONS, SIDEWALKS, EXIT PORCHES, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
3. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH COUNTY SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
4. ALL ISLANDS WITH CURB & GUTTER SHALL BE LANDSCAPED.
5. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATION, (UNLESS OTHERWISE NOTED ON PLANS) INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
7. SITE BOUNDARY, TOPOGRAPHY, UTILITY AND ROAD INFORMATION TAKEN FROM A SURVEY PERFORMED BY BOWMAN CONSULTING GROUP DATED OCTOBER 17, 2017.
8. MONUMENT SIGNS SHALL BE CONSTRUCTED BY OTHERS.
9. REFER TO ARCH. PLANS FOR SITE LIGHTING AND ELECTRICAL PLANS.
10. ALL WALKWAYS AND ADA ACCESSIBLE AREAS SHALL HAVE A MAXIMUM RUNNING SLOPE OF 1V:20H & A MAXIMUM CROSS SLOPE OF 1V:50H.
11. ALL CURB RAMPS TO HAVE DETECTABLE WARNING STRIPS & BE CONSTRUCTED PER LATEST EDITION OF FDOT STANDARDS PLANS FOR ROAD CONSTRUCTION, INDEX 523-002, FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, SECTION 527 & PER ADA REQUIREMENTS.
12. F.I.R.M. NO. 12085C0370K, EFFECTIVE DATE MARCH 16, 2015 INDICATES THE SITE IS LOCATED IN ZONE X.
13. ALL STRIPING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF FDOT STANDARD PLANS FOR ROAD CONSTRUCTION INDEX 711-001 AND FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION SECTION 711 "THERMO PLASTIC TRAFFIC STRIPES AND MARKINGS", AND MARTIN COUNTY REQUIREMENTS. INSTALL RETRO- REFLECTIVE PAVEMENT MARKINGS (RPMS).
14. ALL STRIPING SHALL BE INSTALLED AFTER NEW PAVEMENT.

LEGEND

- BOUNDARY LINE / RIGHT OF WAY LINE
- WETLAND PRESERVE TRACT
- 50' WETLAND SUFFER
- PROPOSED CONCRETE SIDEWALK

811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG www.callsunshine.com

THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

GRAPHIC SCALE 1" = 60'

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
STRIPING & SIGNAGE PLAN
FLORIDA
MARTIN COUNTY

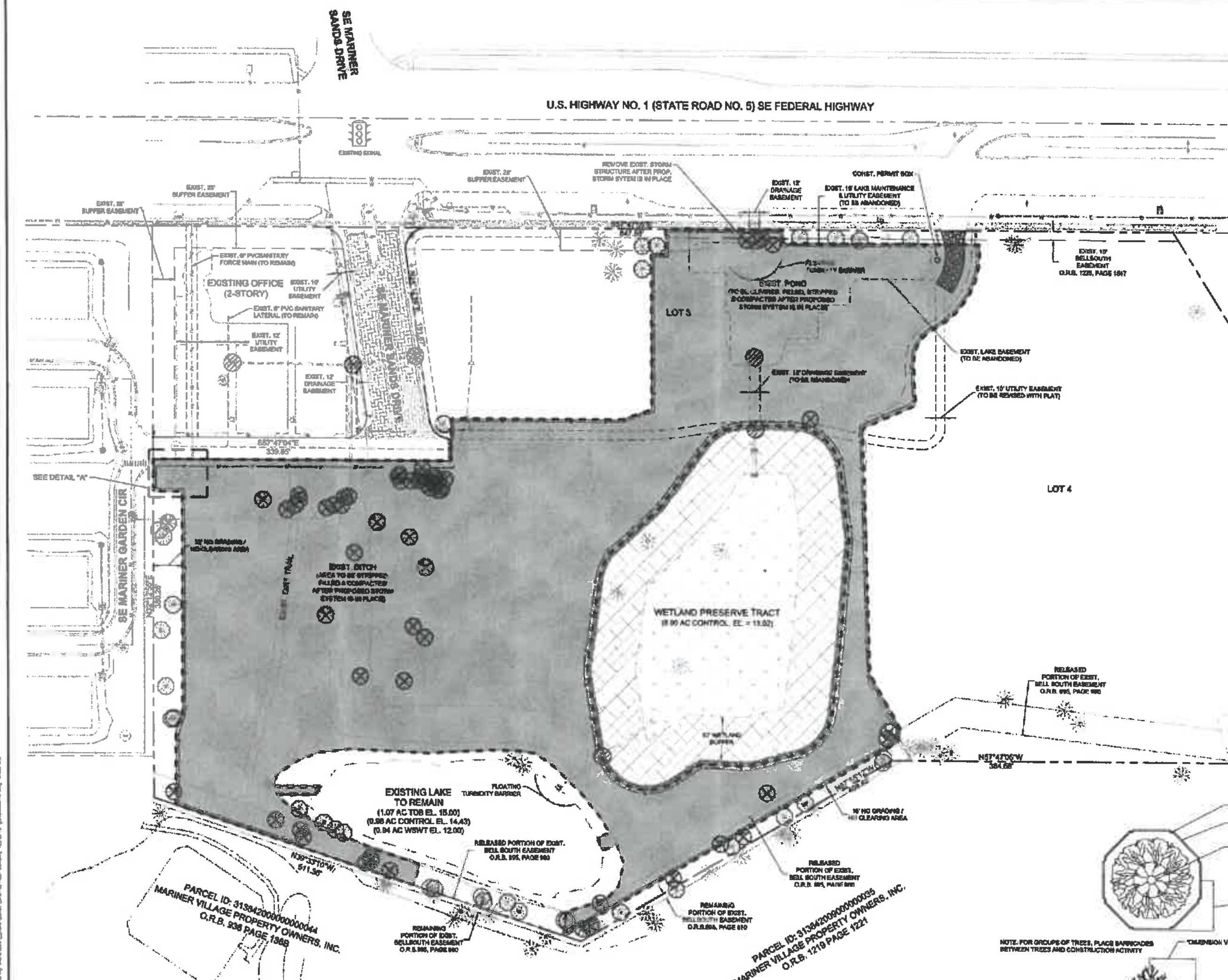
PROJECT NO 010318-02-004

PLAN STATUS

DATE	DESCRIPTION
09-28-2018	COUNTY COMMENTS
12-03-2018	COUNTY COMMENTS

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-SS
SHEET C1

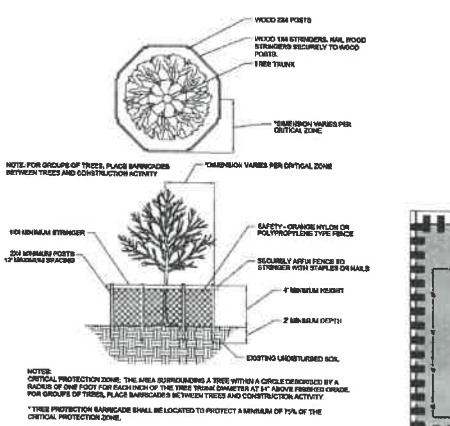


LEGEND

BOUNDARY LINE / RIGHT OF WAY LINE	FLOATING TURBIDITY BARRIER
EXISTING CONTOUR (NAVD)	SILT FENCE
EDGE OF WATER (EXISTING LAKES)	4' HIGH ORANGE CONSTRUCTION FENCE
EXISTING STORM PIPE AND INLET	SILT FENCE INLET PROTECTION W/ INLET PROTECTION FILTER SACK
WETLAND PRESERVE TRACT	CURB INLET FILTER PROTECTION
50' WETLAND BUFFER	EXISTING TREE TO REMAIN (INSTALL TREE PROTECTION BARRICADE)
PROPOSED LIMITS OF DISTURBANCE	TREE TO BE REMOVED
PROPOSED CLEARING & GRUBBING	
CONSTRUCTION ENTRANCE	

811 KNOW WHAT'S BELOW. ALWAYS CALL 811 BEFORE YOU DIG

THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).



TREE BARRIER
NOT TO SCALE

EROSION CONTROL NOTES

1. INSPECTIONS ARE REQUIRED BY CONTRACTOR AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM EVENT THAT IS 0.50 INCHES OR GREATER.
2. THE CONTRACTOR WILL BE THE OPERATOR AND SHALL PREPARE, SUBMIT AND OBTAIN THE "NOTICE OF INTENT TO USE NPDES GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES" FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP).
3. THE CONTRACTOR SHALL PREPARE AND SUBMIT THE "NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER NOTICE OF TERMINATION" TO THE FDEP AT THE CONCLUSION OF THE PROJECT ONCE THE SITE HAS BEEN DEEMED COMPLETE AND FULLY STABILIZED.
4. THE CONTRACTOR SHALL PREPARE, SUBMIT, AND OBTAIN ALL REQUIRED PERMITS FOR ANY ASBESTOS THAT IS FOUND AT THE SITE.
5. THE CONTRACTOR SHALL IMPLEMENT THE WORK IN A MANNER SO AS TO MINIMIZE ANY ADVERSE IMPACTS OF THE WORK ON NATURAL ENVIRONMENTAL FEATURES AND WATER QUALITY. THE CONTRACTOR SHALL INSTITUTE NECESSARY MEASURES DURING CONSTRUCTION TO REDUCE EROSION, TURBIDITY, NUTRIENT LOADING, AND SEDIMENTATION IN THE RECEIVING WATERS.
6. OFF-SITE DISCHARGES DURING CONSTRUCTION AND DEVELOPMENT SHALL NOT BE PERMITTED.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT ADVERSE OFF-SITE WATER-RELATED IMPACTS DO NOT OCCUR DURING CONSTRUCTION.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODIC INSPECTION AND REMOVAL OF DEBRIS AND SILT BEHIND EROSION CONTROL DEVICES. TRAPPED MATERIAL SHALL NOT EXCEED 1/2 HEIGHT OF DEVICES.
9. ALL INLETS AND PIPE SHALL BE PROTECTED DURING CONSTRUCTION TO PREVENT SILTATION IN THE DRAINAGE SYSTEMS BY WAY OF THE TEMPORARY PLUGS AND PLYWOOD OR GEOTEXTILE FABRIC OVER THE INLETS. THE DRAINAGE SYSTEM THAT HAS BEEN IMPACTED BY THE PROPOSED MODIFICATIONS SHALL BE CLEANED OF ALL DEBRIS PRIOR TO FINAL ACCEPTANCE.
10. ALL OFF-SITE AREAS DISTURBED DURING CONSTRUCTION ACTIVITY SHALL BE IMMEDIATELY RESTORED TO PRIOR CONDITION UPON COMPLETION OF WORK.
11. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION, BLOWING SAND, AND THE IMPACT TO NEIGHBORING COMMUNITIES.
12. ANY TOPSOIL OR EXCAVATED SOIL THAT IS TO REMAIN ON THE SITE MUST BE STOCKPILED. THE STOCKPILE MUST BE ENCLOSED IN SILT FENCE AND TEMPORARILY SEEDED OR OTHERWISE STABILIZED AGAINST EROSION. THE STOCKPILES SHALL BE A MAXIMUM 2:1 (H:V) SLOPE AND A MAXIMUM HEIGHT OF 20 FEET OR A HEIGHT ALLOWED BY PHYSICAL CONSTRAINTS, WHICHEVER IS LESS. CONSTRUCTION SHALL BE SEQUENCED SUCH THAT AREAS WHERE THE STOCKPILES EXIST SHALL BE BUILT AFTER SAID STOCKPILES ARE USED OR MOVED AND PROTECTED AT A DIFFERENT APPROVED LOCATION.
13. DATUM IS BASED ON N.A.V.D. 1988.

LAND CLEARING NOTES

1. PROPERTY CORNERS SHALL BE LOCATED BY A LICENSED LAND SURVEYOR AND CLEARLY MARKED IN THE FIELD PRIOR TO THE ENGINEERING DEPARTMENT'S PRE-CONSTRUCTION MEETING FOR SITE DEVELOPMENT.
2. AUTHORIZATION TO INSTALL EROSION CONTROL DEVICES AND PRESERVE BARRICADES WILL BE GRANTED AT THE PRE-CONSTRUCTION MEETING. THIS AUTHORIZATION SHALL BE POSTED ON THE SITE, IN THE PERMIT BOX, ITS LOCATION SHOWN ELSEWHERE ON THIS PAGE.
3. TREES IDENTIFIED TO BE PROTECTED SHALL HAVE PROTECTIVE BARRICADES INSTALLED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO THE COMMENCEMENT OF ANY CLEARING ACTIVITIES.
4. PRESERVE AREAS SHALL HAVE ORANGE FENCE INSTALLED ALONG ENTIRE BOUNDARY PRIOR TO COMMENCEMENT OF ANY CLEARING ACTIVITIES.
5. NO ADDITIONAL LAND CLEARING SHALL COMMENCE UNTIL A SATISFACTORY INSPECTION OF THE REQUIRED EROSION CONTROL STRUCTURES AND BARRICADES HAS BEEN OBTAINED.
6. CONTRACTOR TO COORDINATE WITH EACH APPLICABLE UTILITY COMPANY.
8. CONTRACTOR IS REQUIRED TO PRESERVE AND PROTECT ALL EXISTING POWER POLES.
9. SOIL STABILIZATION SHALL BE COMPLETED WITHIN 7 DAYS OF VEGETATION REMOVAL.
10. ALL CONSTRUCTION BARRICADES AND SILT FENCES WILL REMAIN IN PLACE AND BE MONITORED FOR COMPLIANCE BY THE PERMIT HOLDER DURING THE PERMITTED DEVELOPMENT ACTIVITIES.
11. PRIOR TO SCHEDULING A FINAL ENVIRONMENTAL INSPECTION FOR THE INFRASTRUCTURE, ALL BARRICADES AND EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
14. THE 50' WETLAND BUFFER TO BE RESTORED IN ACCORDANCE WITH THE APPROVED PAMP.

EROSION CONTROL CONSTRUCTION SEQUENCE

1. FLAG AND FENCE ALL [illegible] LIMITS.
2. NOTIFY SEDIMENT CONTROL INSPECTOR (24) HOURS PRIOR TO START OF CONSTRUCTION.
3. PERFORM CLEARING AND GRADING REQUIRED FOR INSTALLATION OF PERIMETER CONTROLS.
4. INSTALL PERIMETER RUNOFF CONTROLS; NOTIFY SEDIMENT INSPECTOR AND OBTAIN APPROVAL BEFORE PROCEEDING FURTHER.
5. INSTALL ORANGE CONSTRUCTION FENCE AROUND PERIMETER OF DRY SITE.
6. COMPLETE ALL REQUIRED STOCKPILING, SITE CLEARING, AND GRADING. STOCKPILE ANY EXCESS TOPSOIL OR OTHER EXCAVATED SOIL IN APPROVED STOCKPILES PER EROSION CONTROL NOTE 12 AND AS SHOWN ON THE PLAN OR REMOVE FROM SITE AND DISPOSE OF AT A PERMITTED SITE.
7. SEED AND/OR SOD DISTURBED AREAS FOR FINAL STABILIZATION.
8. NOTIFY SEDIMENT CONTROL INSPECTOR AND OBTAIN APPROVAL TO REMOVE SEDIMENT AND EROSION CONTROL.

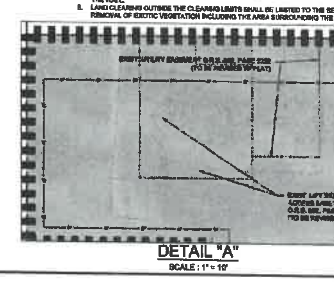
TREE PRESERVATION NOTES

SEC. 4.666 - TREE PROTECTION

4.666.B LOCATION OF PROTECTED TREES. ALL PROTECTED TREES WHICH MAY BE IMPACTED WITHIN 75 PERCENT OF THEIR CANOPY DRIP-LINES BY PROPOSED DEVELOPMENT ACTIVITIES SHALL BE PHYSICALLY LOCATED ON SITE AND INDICATED ON THE TREE SURVEY AS REQUIRED IN SECTION 4.662.A.7., BARRICADES MUST BE CONSTRUCTED AROUND THE CRITICAL PROTECTION ZONE OF EACH TREE OR CLUSTER OF TREES. THESE BARRICADES MUST BE CONSTRUCTED OF A MINIMUM OF ONE-FOURTH-INCH DIAMETER ROPE WHICH IS YELLOW OR ORANGE IN COLOR AND MADE OF NYLON OR POLY. THE ROPE IS TO BE ATTACHED TO A MINIMUM OF TWO × TWO WOODEN POLES, IRON REBAR, TWO INCHES OR GREATER PVC PIPE OR OTHER MATERIAL WITH PRIOR APPROVAL OF THE GROWTH MANAGEMENT DEPARTMENT. THE ROPE MUST BE A MINIMUM OF FOUR FEET OFF THE GROUND AND MAY NOT BE ATTACHED TO ANY VEGETATION. ALL BARRICADES MUST BE MAINTAINED INTACT FOR THE DURATION OF CONSTRUCTION. THE LOCATION OF PROPOSED DEVELOPMENT ACTIVITIES THAT ARE WITHIN 15 FEET OF THE CRITICAL PROTECTION ZONE OF A PROTECTED TREE MUST BE LOCATED USING BRIGHTLY COLORED FLAGGING TO INDICATE CORNERS.

NOTES:

1. TREE BARRICADES SYMBOL IS A SYMBOL ONLY. CONTRACTOR TO VERIFY EXACT DIMENSIONS OF BARRICADE.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR FULL REPLACEMENT VALUE FOR ANY DAMAGED TREES DESIGNATED TO BE PRESERVED.
3. ALL PROTECTED TREES TO BE RETAINED AND CREDITED TOWARDS MINIMUM TREE REQUIREMENTS SHALL BE BARRICADED PRIOR TO CLEARING IN ACCORDANCE WITH MARTIN COUNTY REQUIREMENTS.
4. NATIVE TREES WITHIN THE PERIMETER BUFFER, WHICH ARE LOCATED LESS THAN 10 FEET FROM THE PROPOSED BUFFER WALL AND HAVE BEEN MITIGATED FOR REMOVAL, SHALL BE FIELD-LOCATED AND PROTECTED IF POSSIBLE BY ADJUSTING THE LOCATION OR DESIGN OF THE WALL.
5. LAND CLEARING OUTSIDE THE CLEARING LIMITS SHALL BE LIMITED TO THE SELECTIVE REMOVAL OF EXOTIC VEGETATION INCLUDING THE AREA SURROUNDING THE EXISTING LAKE.



DETAIL "A"
SCALE: 1" = 10'

Bowman
CONSULTING

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
PHASE 1 EROSION & SEDIMENTATION CONTROL AND CLEARING PLAN
MARTIN COUNTY FLORIDA

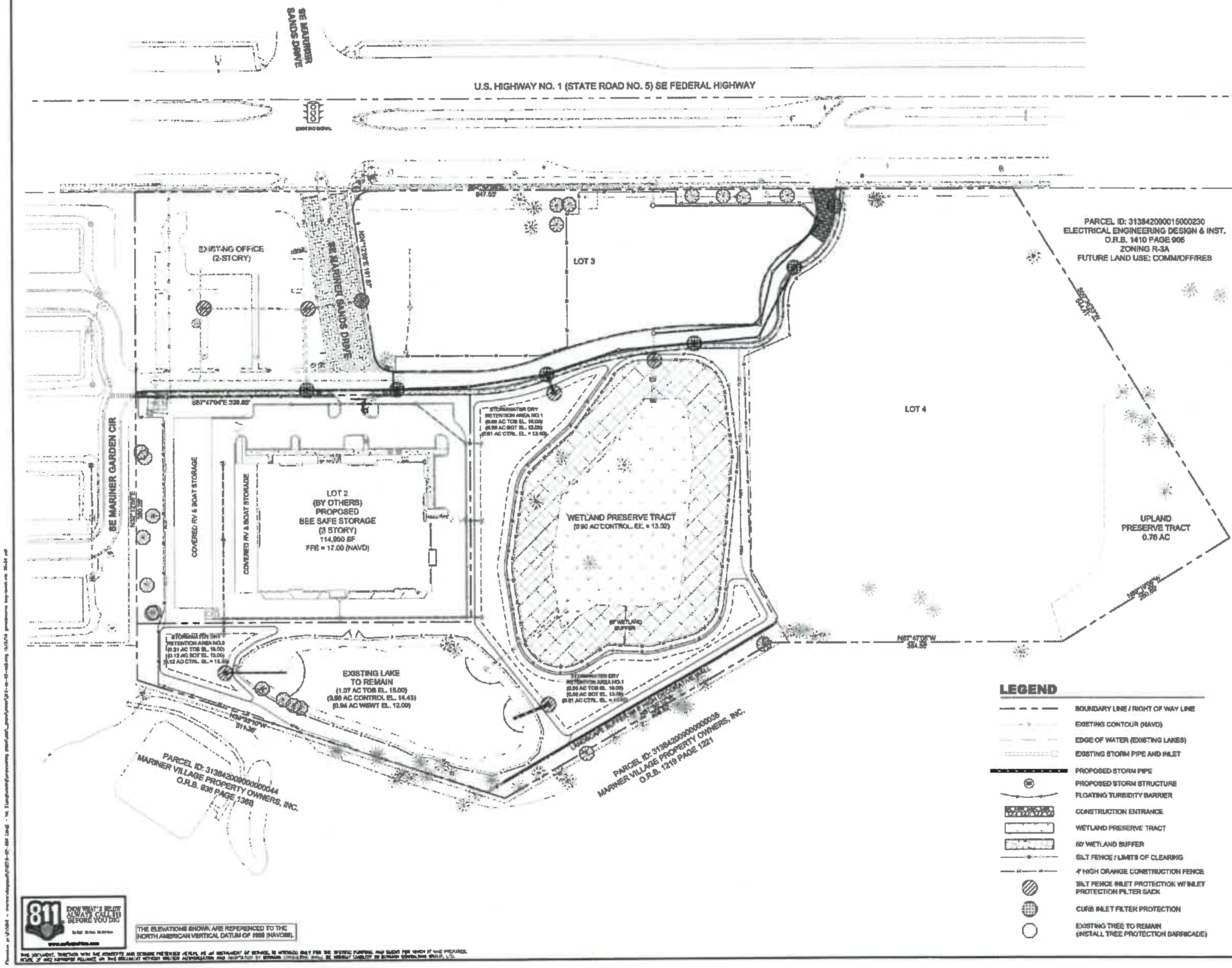
PROJECT NO. 010318-02-004

PLAN STATUS

DATE	DESCRIPTION
	COUNTY COMMENTS
	COUNTY COMMENTS

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
SHEET C2



LEGEND

- BOUNDARY LINE / RIGHT OF WAY LINE
- EXISTING CONTOUR (NAVD)
- EDGE OF WATER (EXISTING LAKES)
- EXISTING STORM PIPE AND INLET
- PROPOSED STORM PIPE
- PROPOSED STORM STRUCTURE
- FLOATING TURBIDITY BARRIER
- CONSTRUCTION ENTRANCE
- WETLAND PRESERVE TRACT
- 50' WETLAND BUFFER
- SILT FENCE / LIMITS OF CLEARING
- 4' HIGH ORANGE CONSTRUCTION FENCE
- SILT FENCE INLET PROTECTION W/ INLET PROTECTION FILTER SACK
- CURB INLET FILTER PROTECTION
- EXISTING TREE TO REMAIN (INSTALL TREE PROTECTION BARRICADE)

EROSION CONTROL NOTES

1. INSPECTIONS ARE REQUIRED BY CONTRACTOR AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM EVENT THAT IS 0.50 INCHES OR GREATER.
2. THE CONTRACTOR WILL BE THE OPERATOR AND SHALL PREPARE, SUBMIT AND OBTAIN THE "NOTICE OF INTENT TO USE NPDES GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES" FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP).
3. THE CONTRACTOR SHALL PREPARE AND SUBMIT THE "NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER NOTICE OF TERMINATION" TO THE FDEP AT THE CONCLUSION OF THE PROJECT ONCE THE SITE HAS BEEN DEEMED COMPLETE AND FULLY STABILIZED.
4. THE CONTRACTOR SHALL PREPARE, SUBMIT, AND OBTAIN ALL REQUIRED PERMITS FOR ANY ASBESTOS THAT IS FOUND AT THE SITE.
5. THE CONTRACTOR SHALL IMPLEMENT THE WORK IN A MANNER SO AS TO MINIMIZE ANY ADVERSE IMPACTS OF THE WORK ON NATURAL ENVIRONMENTAL FEATURES AND WATER QUALITY. THE CONTRACTOR SHALL INSTITUTE NECESSARY MEASURES DURING CONSTRUCTION TO REDUCE EROSION, TURBIDITY, NUTRIENT LOADING, AND SEDIMENTATION IN THE RECEIVING WATERS.
6. OFF-SITE DISCHARGES DURING CONSTRUCTION AND DEVELOPMENT SHALL NOT BE PERMITTED.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT ADVERSE OFF-SITE WATER-RELATED IMPACTS DO NOT OCCUR DURING CONSTRUCTION.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODIC INSPECTION AND REMOVAL OF DEBRIS AND SILT BEHIND EROSION CONTROL DEVICES. TRAPPED MATERIAL SHALL NOT EXCEED 1/2 HEIGHT OF DEVICES.
9. ALL INLETS AND PIPE SHALL BE PROTECTED DURING CONSTRUCTION TO PREVENT SILTATION IN THE DRAINAGE SYSTEMS BY WAY OF THE TEMPORARY PLUGS AND PLYWOOD OR GEOTEXTILE FABRIC OVER THE INLETS. THE DRAINAGE SYSTEM THAT HAS BEEN IMPACTED BY THE PROPOSED MODIFICATIONS SHALL BE CLEANED OF ALL DEBRIS PRIOR TO FINAL ACCEPTANCE.
10. ALL OFF-SITE AREAS DISTURBED DURING CONSTRUCTION ACTIVITY SHALL BE IMMEDIATELY RESTORED TO PRIOR CONDITION UPON COMPLETION OF WORK.
11. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION, BLOWING SAND, AND THE IMPACT TO NEIGHBORING COMMUNITIES.
12. ANY TOPSOIL OR EXCAVATED SOIL THAT IS TO REMAIN ON THE SITE MUST BE STOCKPILED. THE STOCKPILE MUST BE ENCLOSED IN SILT FENCE AND TEMPORARILY SEEDED OR OTHERWISE STABILIZED AGAINST EROSION. THE STOCKPILES SHALL BE A MAXIMUM 2:1 (H:V) SLOPE AND A MAXIMUM HEIGHT OF 25 FEET OR A HEIGHT ALLOWED BY PHYSICAL CONSTRAINTS, WHICHEVER IS LESS. CONSTRUCTION SHALL BE SEQUENCED SUCH THAT AREAS WHERE THE STOCKPILES EXIST SHALL BE BUILT AFTER SAID STOCKPILES ARE USED OR MOVED AND PROTECTED AT A DIFFERENT APPROVED LOCATION.
13. DATUM IS BASED ON N.A.V.D. 1988.

LAND CLEARING NOTES

1. PROPERTY CORNERS SHALL BE LOCATED BY A LICENSED LAND SURVEYOR AND CLEARLY MARKED IN THE FIELD PRIOR TO THE ENGINEERING DEPARTMENT'S PRE-CONSTRUCTION MEETING FOR SITE DEVELOPMENT.
2. AUTHORIZATION TO INSTALL EROSION CONTROL DEVICES AND PRESERVE BARRICADES WILL BE GRANTED AT THE PRE-CONSTRUCTION MEETING. THIS AUTHORIZATION SHALL BE POSTED ON THE SITE, IN THE PERMIT BOX, ITS LOCATION SHOWN ELSEWHERE ON THIS PAGE.
3. TREES IDENTIFIED TO BE PROTECTED SHALL HAVE PROTECTIVE BARRICADES INSTALLED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO THE COMMENCEMENT OF ANY CLEARING ACTIVITIES.
4. PRESERVE AREAS SHALL HAVE ORANGE FENCE INSTALLED ALONG ENTIRE BOUNDARY PRIOR TO COMMENCEMENT OF ANY CLEARING ACTIVITIES.
5. NO ADDITIONAL LAND CLEARING SHALL COMMENCE UNTIL A SATISFACTORY INSPECTION OF THE REQUIRED EROSION CONTROL STRUCTURES AND BARRICADES HAS BEEN OBTAINED.
6. CONTRACTOR TO COORDINATE WITH EACH APPLICABLE UTILITY COMPANY.
8. CONTRACTOR IS REQUIRED TO PRESERVE AND PROTECT ALL EXISTING POWER POLES.
9. SOIL STABILIZATION SHALL BE COMPLETED WITHIN 7 DAYS OF VEGETATION REMOVAL.
10. ALL CONSTRUCTION BARRICADES AND SILT FENCES WILL REMAIN IN PLACE AND BE MONITORED FOR COMPLIANCE BY THE PERMIT HOLDER DURING THE PERMITTED DEVELOPMENT ACTIVITIES.
11. PRIOR TO SCHEDULING A FINAL ENVIRONMENTAL INSPECTION FOR THE INFRASTRUCUTRE, ALL BARRICADES AND EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
12. THE 50' WETLAND BUFFER TO BE RESTORED IN ACCORDANCE WITH THE APPROVED RAMP.

EROSION CONTROL CONSTRUCTION SEQUENCE

1. FLAG AND FENCE ALL WORK LIMITS.
2. NOTIFY SEDIMENT CONTROL INSPECTOR (24) HOURS PRIOR TO START OF CONSTRUCTION.
3. PERFORM CLEARING AND GRADING REQUIRED FOR INSTALLATION OF PERIMETER CONTROLS.
4. INSTALL PERIMETER RUNOFF CONTROLS: NOTIFY SEDIMENT INSPECTOR AND OBTAIN APPROVAL BEFORE PROCEEDING FURTHER.
5. INSTALL ORANGE CONSTRUCTION FENCE AROUND PERIMETER OF DRY SITE
6. COMPLETE ALL REQUIRED STOCKPILING, SITE CLEARING, AND GRADING. STOCKPILE ANY EXCESS TOPSOIL OR OTHER EXCAVATED SOIL IN APPROVED STOCKPILES PER EROSION CONTROL NOTE 12 AND AS SHOWN ON THE PLAN OR REMOVE FROM SITE AND DISPOSE OF AT A PERMITTED SITE.
7. SEED AND/OR SOD DISTURBED AREAS FOR FINAL STABILIZATION.
8. NOTIFY SEDIMENT CONTROL INSPECTOR AND OBTAIN APPROVAL TO REMOVE SEDIMENT AND EROSION CONTROL.

TREE PRESERVATION NOTES

SEC. 4.666 - TREE PROTECTION

4.666.B LOCATION OF PROTECTED TREES. ALL PROTECTED TREES WHICH MAY BE IMPACTED WITHIN 75 PERCENT OF THEIR CANOPY DRIP-LINES BY PROPOSED DEVELOPMENT ACTIVITIES SHALL BE PHYSICALLY LOCATED ON SITE AND INDICATED ON THE TREE SURVEY AS REQUIRED IN SECTION 4.663.A.7., BARRICADES MUST BE CONSTRUCTED AROUND THE CRITICAL PROTECTION ZONE OF EACH TREE OR CLUSTER OF TREES. THESE BARRICADES MUST BE CONSTRUCTED OF A MINIMUM OF ONE-FOURTH-INCH DIAMETER ROPE WHICH IS YELLOW OR ORANGE IN COLOR AND MADE OF NYLON OR POLY. THE ROPE IS TO BE ATTACHED TO A MINIMUM OF TWO × TWO WOODEN POLES, IRON REBAR, TWO INCHES OR GREATER PVC PIPE OR OTHER MATERIAL WITH PRIOR APPROVAL OF THE GROWTH MANAGEMENT DEPARTMENT. THE ROPE MUST BE A MINIMUM OF FOUR FEET OFF THE GROUND AND MAY NOT BE ATTACHED TO ANY VEGETATION. ALL BARRICADES MUST BE MAINTAINED INTACT FOR THE DURATION OF CONSTRUCTION. THE LOCATION OF PROPOSED DEVELOPMENT ACTIVITIES THAT ARE WITHIN 15 FEET OF THE CRITICAL PROTECTION ZONE OF A PROTECTED TREE MUST BE LOCATED USING BRIGHTLY COLORED FLAGGING TO INDICATE CORNERS.

NOTES:
1. TREE BARRICADES SYMBOL IS A SYMBOL ONLY. CONTRACTOR TO VERIFY EXACT DIMENSIONS OF BARRICADE.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR FULL REPLACEMENT VALUE FOR ANY DAMAGED TREES DESIGNATED TO BE PRESERVED.

Bowman CONSULTING

Certificate of Authorization License No. 20452

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Stuart, Florida 34994
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MARINER VILLAGE SQUARE PUD

PLAT INFRASTRUCTURE

PHASE 2 EROSION AND SEDIMENTATION CONTROL PLAN

MARTIN COUNTY FLORIDA

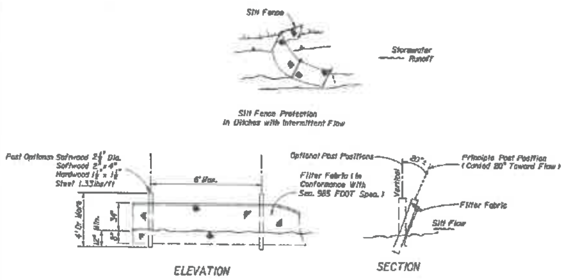
PROJECT NO 010316-02-004

PLAN STATUS

DATE	DESCRIPTION
05-29-2019	COUNTY COMMENTS
11-25-2019	COUNTY COMMENTS

DESIGN	DRAWN	CHKD
LL	GC/JB	GMB

SCALE AS SHOWN
JOB No. 010316-02-004
DATE 03/13/2019
FILE No. 316-CP-02-EC2
SHEET C3



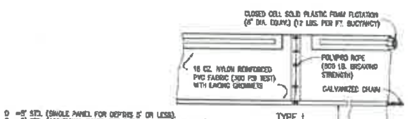
SILT FENCE

NOTES:

1. Do not construct silt fences across permanent flowing watercourses. Silt fences are to be at upland locations and turbidity barriers used at permanent bodies of water.
2. Where used as slope protection, Silt Fence is to be constructed on 0% longitudinal grade to avoid channelizing runoff along the length of the fence.

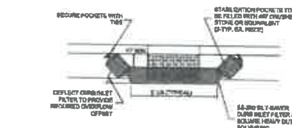
SEDIMENTATION/SILT FENCE DETAIL

N.T.S.



FLOATING TURBIDITY BARRIER DETAIL

N.T.S.

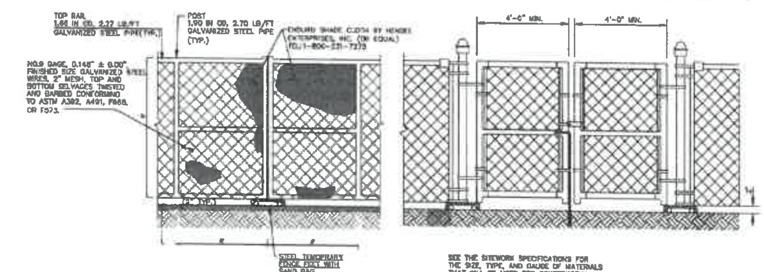


INSTALLATION PROCEDURE:

1. IDENTIFY OPENING DIMENSIONS TO DETERMINE THE NUMBER OF SS-300 CURB INLET FILTERS THAT WILL BE REQUIRED.
2. COMPLETELY FILL THE STABILIZATION CHAMBER ON EACH END OF EACH SS-300 CURB INLET FILTER WITH #57 CRUSHED STONE.
3. SECURE ENDS OF THE STABILIZATION POCKETS WITH TIES.
4. PLACE THE SS-300 CURB INLET FILTER(S) IN FRONT OF THE CURB INLET OR OPENING TO PREVENT THE MIGRATION OF SILT INTO THE STORM DRAIN SYSTEM.

CURB INLET FILTER DETAIL

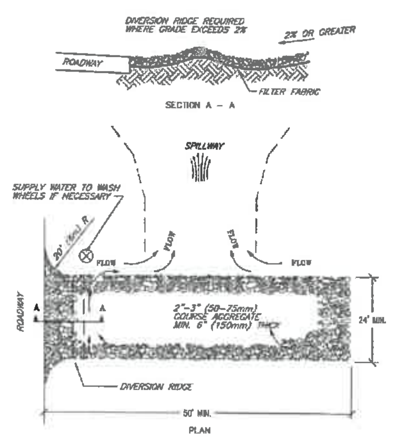
N.T.S.



SEE THE SITEWORK SPECIFICATIONS FOR THE SIZE, TYPE, AND GAUGE OF MATERIALS THAT WILL BE USED FOR CONSTRUCTION OF A TEMPORARY CONSTRUCTION CHAIN LINK FENCE.

TEMPORARY CONSTRUCTION FENCE W/SHADE CLOTH AND 4' DOUBLE GATE

N.T.S.

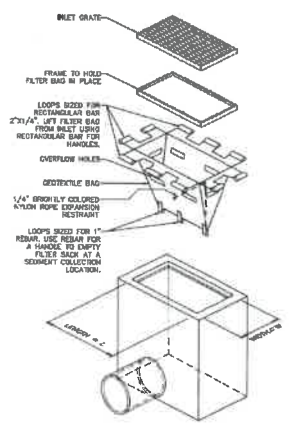


NOTES:

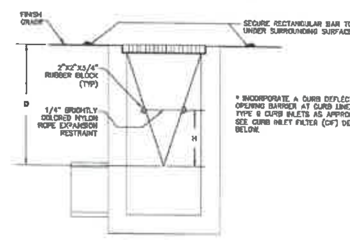
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
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 GRAVEL CONSTRUCTION ENTRANCE/EXIT DETAIL

N.T.S.



ISOMETRIC VIEW



SECTION VIEW
(FILTER SACK INSTALLED)

* INCORPORATE A CURB DEFLECTOR/ OPENING BARRIER AT CURB LINE ON TYPE 9 CURB INLETS AS APPROPRIATE. SEE CURB INLET FILTER (CF) DETAIL BELOW.

NOTES:

1. GEOTEXTILE SHALL BE A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS REQUIREMENTS IN THE SPECIFICATIONS TABLE.
2. PLACE AN OIL ABSORBENT PAD OR PILLOW OVER INLET GRATE WHEN OIL SPILLS ARE A CONCERN.
3. THE WIDTH, "W", OF THE FILTER SACK SHALL MATCH THE INSIDE WIDTH OF THE GRATED INLET BOX.
4. THE DEPTH, "D", OF THE FILTER SACK SHALL BE BETWEEN 18 INCHES AND 30 INCHES.
5. THE LENGTH, "L", OF THE FILTER SACK SHALL MATCH THE INSIDE LENGTH OF THE GRATED INLET BOX.

MAINTENANCE NOTES:

1. INLET PROTECTION DEVICES MUST BE INSPECTED FOR SEDIMENT ACCUMULATION WITHIN THE CATCH BASIN. REMOVE TRAPPED SEDIMENT WHEN BRIGHTLY COLORED EXPANSION RESTRAINT CAN NO LONGER BE SEEN.
2. REMOVAL OF SEDIMENT ACCUMULATED IN OR ADJACENT TO A STORM DRAIN INLET MUST BEGIN IMMEDIATELY UPON DISCOVERY, WITH COMPLETION OF THE ACTIVITY OCCURRING NO LATER THAN THE END OF THE FOLLOWING BUSINESS DAY.
3. INLET PROTECTION DEVICES SHALL BE INSPECTED FOR UNINTENDED BYPASS OR IMPROPER FLOW-RATES THAT MAY CAUSE DOWNSTREAM FLOODING.
4. CONTACT THE ENGINEER FOR ALTERNATE INLET PROTECTION IF THE DESIGNED PROTECTION MAY IMPACT DOWNSTREAM BMPS, ADJACENT SLOPES, ETC., DUE TO PONDING ISSUES. ENSURE THAT NO UNDERMINING OF INLET PROTECTION DEVICES HAS OCCURRED.
5. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.

LOW TO MODERATE FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE		
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

MODERATE TO HIGH FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE		
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMISSIVITY	ASTM D-4491	1.5 SEC -1

INLET PROTECTION FILTER SACK AT PAVED AREAS

N.T.S.

B.M.P.'s (BEST MANAGEMENT PRACTICES)

THESE PLANS ADDRESSES THE FOLLOWING AREAS:

A. GENERAL EROSION CONTROL.
B. PROTECTION OF SURFACE WATER QUALITY DURING AND AFTER CONSTRUCTION
C. CONTROL OF WIND EROSION.

THE VARIOUS TECHNIQUES OR ACTIONS IDENTIFIED UNDER EACH SECTION INDICATE THE APPROPRIATE SITUATION WHEN THE TECHNIQUES SHOULD BE EMPLOYED. IT SHOULD BE NOTED THAT THE MEASURES IDENTIFIED ON THIS PLAN ARE ONLY SUGGESTED BMP(S). THE CONTRACTOR SHALL PROVIDE POLLUTION PREVENTION AND EROSION CONTROL MEASURES AS NECESSARY FOR EACH SPECIFIC APPLICATION.

SECTION A – GENERAL EROSION CONTROL

A.1 GENERAL EROSION CONTROL BMPS SHALL BE EMPLOYED TO MINIMIZE SOIL EROSION AND POTENTIAL LAKE SLOPE CAVE-INS. WHILE THE VARIOUS TECHNIQUES REQUIRED WILL BE SITE AND PLAN SPECIFIC, THEY SHOULD BE EMPLOYED AS SOON AS POSSIBLE DURING CONSTRUCTION ACTIVITIES.

A.2 CLEARED SITE DEVELOPMENT AREAS NOT CONTINUALLY SCHEDULED FOR CONSTRUCTION ACTIVITIES SHALL BE SEEDED AND MULCHED AND PERIODICALLY WATERED SUFFICIENT TO STABILIZE THE TEMPORARY GROUNDCOVER.

A.3 SLOPES OF BANKS OF WET DETENTION PONDS SHALL BE CONSTRUCTED NOT STEEPER THAN 4H:1V FROM TOP OF BANK TO (3) FEET BELOW NORMAL WATER LEVEL.

A.4 ALL GRASS SLOPES CONSTRUCTED 4H:1V AND STEEPER SHALL BE SODDED AS SOON AS PRACTICAL AFTER THEIR CONSTRUCTION.

A.5 SOD SHALL BE PLACED FOR A 3-FOOT WIDE STRIP ADJOINING ALL CURBING AND AROUND ALL INLETS AS REQUIRED BY PLAN. SOD SHALL BE PLACED AND A SATISFACTORY STAND OF GRASS ESTABLISHED BEFORE SILT BARRIERS ARE REMOVED.

A.6 WHERE REQUIRED TO PREVENT EROSION FROM SHEET FLOW ACROSS BARE GROUND FROM ENTERING A LAKE OR SWALE, A TEMPORARY SEDIMENT SUMP SHALL BE CONSTRUCTED. THE TEMPORARY SEDIMENT SUMP SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED ON THE GROUND DRAINING TO THE SUMP.

SECTION B – PROTECTION OF SURFACE WATER QUALITY DURING & AFTER CONSTRUCTION

B.1 SURFACE WATER QUALITY SHALL BE MAINTAINED BY EMPLOYING THE FOLLOWING BMPS, AT A MINIMUM, IN THE CONSTRUCTION PLANNING AND CONSTRUCTION OF ALL IMPROVEMENTS.

B.2 WHERE PRACTICAL, STORMWATER SHALL BE CONVEYED BY SWALES.

B.3 EROSION CONTROL MEASURES SHALL BE EMPLOYED TO MINIMIZE TURBIDITY OF SURFACE WATERS LOCATED DOWNSTREAM OF ANY CONSTRUCTION ACTIVITY. WHILE THE VARIOUS MEASURES REQUIRED WILL BE SITE SPECIFIC, THEY SHALL BE EMPLOYED AS NEEDED IN ACCORDANCE WITH THE FOLLOWING:

a. IN GENERAL, EROSION SHALL BE CONTROLLED AT THE FURTHEST PRACTICAL UPSTREAM LOCATION.

b. STORMWATER INLETS SHALL BE PROTECTED DURING CONSTRUCTION AS SHOWN. PROTECTION MEASURES SHALL BE EMPLOYED AS SOON AS PRACTICAL DURING THE VARIOUS STAGES OF INLET CONSTRUCTION. SILT BARRIERS SHALL REMAIN IN PLACE UNTIL SODDING AROUND INLETS IS COMPLETE AND A SATISFACTORY STAND OF GRASS ESTABLISHED.

B.4 HEAVY CONSTRUCTION EQUIPMENT PARKING AND MAINTENANCE AREAS SHALL BE DESIGNED TO PREVENT OIL, GREASE, AND LUBRICANTS FROM ENTERING SITE DRAINAGE FEATURES INCLUDING STORMWATER COLLECTION AND TREATMENT SYSTEMS. CONTRACTORS SHALL PROVIDE BROAD DIKES, HAY BALES OR SILT SCREENS AROUND, AND SEDIMENT SUMPS WITHIN, SUCH AREAS AS REQUIRED TO CONTAIN SPILLS OF OIL, GREASE OR LUBRICANTS. CONTRACTORS SHALL HAVE AVAILABLE, AND SHALL USE, ABSORBENT FILTER PADS TO CLEAN UP SPILLS AS SOON AS POSSIBLE AFTER OCCURRENCE.

B.5 SILT BARRIERS, ANY SILT WHICH ACCUMULATES BEHIND THE BARRIERS, AND ANY FILL USED TO ANCHOR THE BARRIERS SHALL BE REMOVED PROMPTLY AFTER THE END OF THE MAINTENANCE PERIOD SPECIFIED FOR THE BARRIERS.

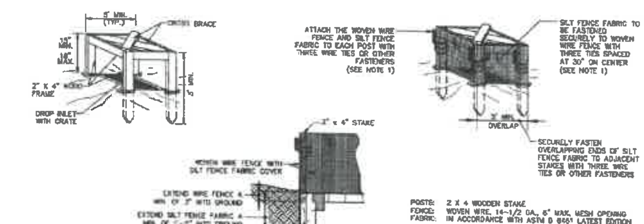
SECTION C – CONTROL OF WIND EROSION

C.1 WIND EROSION SHALL BE CONTROLLED BY EMPLOYING THE FOLLOWING METHODS AS NECESSARY AND APPROPRIATE:

a. BARE EARTH AREAS SHALL BE WATERED DURING CONSTRUCTION AS NECESSARY TO MINIMIZE THE TRANSPORT OF FUGITIVE DUST. IT MAY BE NECESSARY TO LIMIT CONSTRUCTION VEHICLE SPEED IF BARE EARTH HAS NOT BEEN EFFECTIVELY WATERED. IN NO CASE SHALL FUGITIVE DUST BE ALLOWED TO LEAVE THE SITE UNDER CONSTRUCTION.

b. AS SOON AS PRACTICAL AFTER COMPLETION OF CONSTRUCTION, BARE EARTH AREAS SHALL BE VEGETATED.

c. AT ANY TIME BOTH DURING AND AFTER SITE CONSTRUCTION THAT WATERING AND/OR VEGETATION ARE NOT EFFECTIVE IN CONTROLLING WIND EROSION AND/OR TRANSPORT OF FUGITIVE DUST, OTHER METHODS AS ARE NECESSARY FOR SUCH CONTROL SHALL BE EMPLOYED. THESE METHODS MAY INCLUDE ERECTION OF DUST CONTROL FENCES. IF REQUIRED, DUST CONTROL FENCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAIL FOR A SILT FENCE, AS SHOWN, EXCEPT THE MINIMUM HEIGHT SHALL BE 4 FEET.



POSTS: 2 X 4 WOODEN STAKE
FENCE: WOVEN WIRE, 14-1/2 GA., 6" MAX. MESH OPENING
FABRIC: IN ACCORDANCE WITH ASTM D 6461 LATEST EDITION

NOTES:

1. ATTACH THE WOVEN WIRE FENCE AND THE GEOTEXTILE TO EACH POST (SPACED EVERY 30") WITH THREE WIRE TIES OR OTHER FASTENERS, ALL SPACED WITHIN THE TOP 8" OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1" VERTICALLY APART.
2. WHEN TWO SECTIONS OF SILT FENCE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED ACROSS TWO POSTS.
3. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE SWPPP. DEPTH OF ACCUMULATED SEDIMENTS MAY NOT EXCEED ONE-THIRD THE HEIGHT OF THE FABRIC.
4. ALL SILT FENCE INLET PROTECTIONS SHALL INCLUDE WIRE SUPPORT.

MAINTENANCE NOTES:

1. INLET PROTECTION DEVICES MUST BE INSPECTED FOR SEDIMENT ACCUMULATION WITHIN THE CATCH BASIN (IF USING INSERT-TYPE DEVICE) OR UPGRADIENT OF THE INLET.
2. REMOVAL OF SEDIMENT ACCUMULATED IN OR ADJACENT TO A STORM DRAIN INLET MUST BEGIN IMMEDIATELY UPON DISCOVERY, WITH COMPLETION OF THE ACTIVITY OCCURRING NO LATER THAN THE END OF THE FOLLOWING BUSINESS DAY.
3. INLET PROTECTION DEVICES SHALL BE INSPECTED FOR UNINTENDED BYPASS OR IMPROPER FLOW-RATES THAT MAY CAUSE DOWNSTREAM FLOODING.
4. CONTACT THE ENGINEER FOR ALTERNATE INLET PROTECTION IF THE DESIGNED PROTECTION MAY IMPACT DOWNSTREAM BMPS, ADJACENT SLOPES, ETC., DUE TO PONDING ISSUES. ENSURE THAT NO UNDERMINING OF INLET PROTECTION DEVICES HAS OCCURRED.
5. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.

SILT FENCE INLET PROTECTION DETAIL AT UNPAVED AREAS

N.T.S.

Bowman CONSULTING

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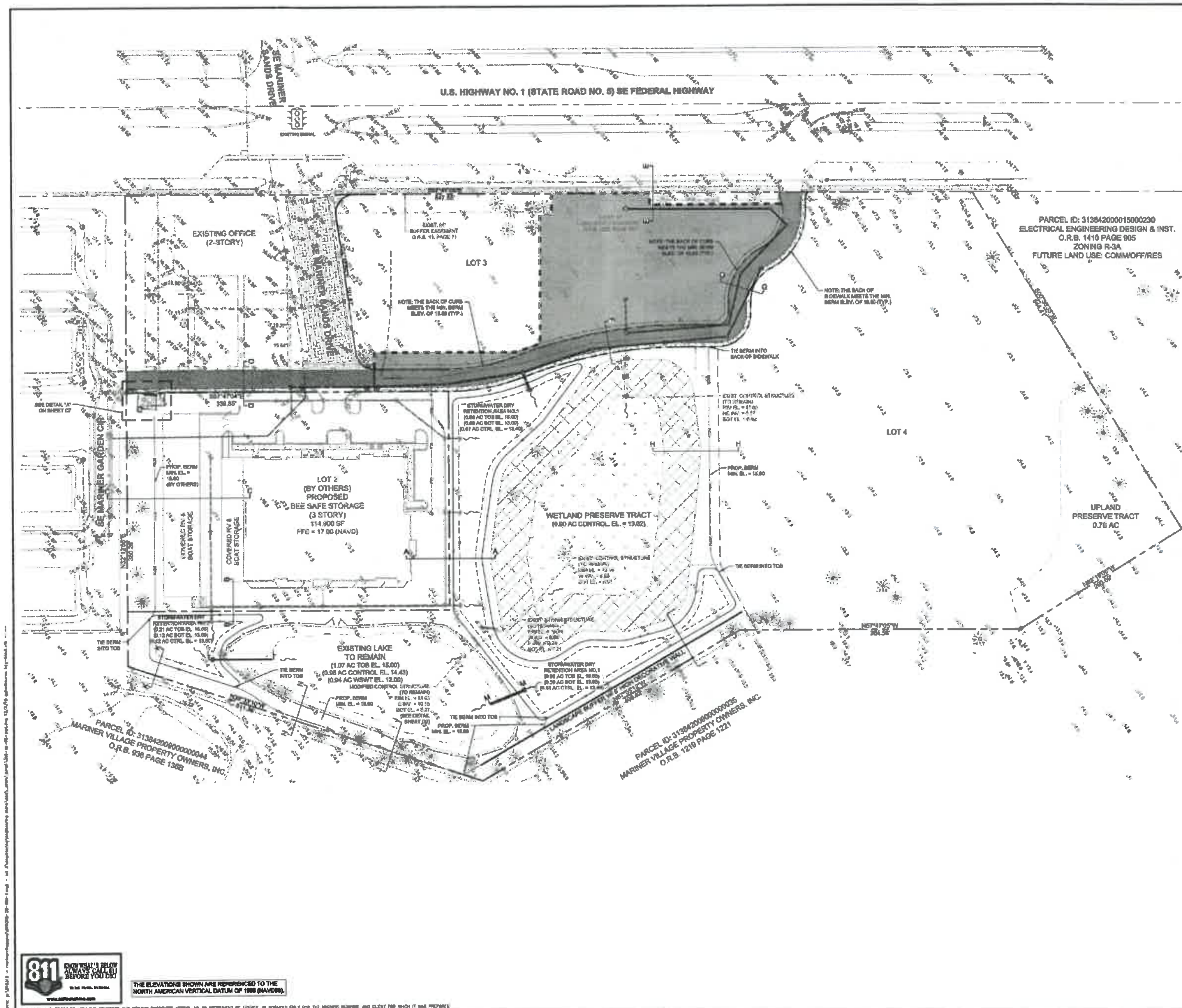
MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
EROSION AND SEDIMENTATION CONTROL DETAILS
MARTIN COUNTY FLORIDA

PROJECT NO 010318-02-004

PLAN STATUS
DATE: 03/13/2019
SCALE: AS SHOWN
JOB No. 010318-02-004
SHEET C4



811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG

THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

LEGEND

	BOUNDARY LINE / RIGHT OF WAY LINE
	EXISTING CONTOUR (NAVD)
13.9	EXISTING SPOT EL. (NAVD)
	EDGE OF WATER (EXISTING LAKES)
	EXISTING STORM PIPE AND INLET
	WETLAND PRESERVE TRACT
	50' WETLAND BUFFER
	PROPOSED WATER MAIN
	PROPOSED SANITARY MANHOLE
	PROPOSED STORM PIPE
	PROPOSED STORM STRUCTURE
	DIRECTION OF FLOW
	PROPOSED CONTOUR (NAVD)
	PROPOSED PERIMETER BERM (EL. 15.50)
	PROPOSED CONCRETE REMOVAL
	PROPOSED CLEARING & GRUBBING (SEE NOTE #27)
	PROPOSED HEAVY DUTY ASPHALT PAVEMENT REPLACEMENT (SEE NOTE #28)
	PROPOSED CONCRETE SIDEWALK
16.20	PROPOSED GRADE

GRADING NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. CONTRACTOR TO VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
3. PRECAST STRUCTURES MAY BE USED AT CONTRACTOR'S OPTION.
4. STORM PIPE SHALL BE IN ACCORDANCE WITH SITE SPECIFICATIONS.
5. ALL EXISTING PIPES AND STRUCTURES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
6. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
7. ALL STORM PIPE ENTERING STORM STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STORM STRUCTURE IS WATERTIGHT.
8. SEE ARCHITECTURAL/MEP PLANS FOR STORM PIPE CONNECTIONS TO BUILDINGS.
9. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER".
10. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE EPA, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP), NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) "GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES" AND THE PROJECT SPECIFICATIONS.
11. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
12. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
13. TOPOGRAPHIC INFORMATION IS TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY BOWMAN CONSULTING GROUP. IF THE CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY, AT THEIR EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR TO THE OWNER FOR REVIEW.
14. CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH GOVERNING SPECIFICATIONS UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED. ALSO REFER TO THE LANDSCAPE PLANS FOR ADDITIONAL REQUIREMENTS FOR LANDSCAPE/OPEN SPACE AREAS.
15. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
16. PROPOSED GRADE ELEVATIONS SHOWN ARE AT THE EDGE OF PAVEMENT LINE OF UNLESS OTHERWISE NOTED.
17. CONTRACTOR TO PAY SPECIAL ATTENTION WHEN COMPACTING SOIL AROUND SANITARY AND DRAINAGE STRUCTURES AND SHALL ENSURE THAT THE SOIL IS PROPERLY COMPACTED TO ELIMINATE DIFFERENTIAL SETTLEMENT. THE PAVEMENT SUBGRADE FILL PLACED WITHIN 24 INCHES OF FINISHED SUBGRADE ELEVATION AND AT LEAST THE UPPER 24 INCHES OF SUBGRADE IN ALL CUT AREAS SHALL BE COMPACTED TO AT LEAST 98% OF THE MATERIAL'S MAXIMUM MODIFIED PROCTOR DRY DENSITY (ASTM D1557).
18. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SUFFICIENT COVER OVER ALL PIPES DURING ALL CONSTRUCTION PHASES IN ORDER TO PREVENT DAMAGE TO THE DRAINAGE SYSTEM AND TO COMPLY WITH INDIAN RIVER COUNTY REQUIREMENTS.
19. ANY DAMAGE TO THE DRAINAGE SYSTEM DURING CONSTRUCTION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR / REPLACE AND INCUR ALL COSTS.
20. CONTRACTOR SHALL TAKE SPECIAL CARE TO AVOID UNNECESSARY DISTURBANCE OF EXISTING SOILS, ESPECIALLY THOSE W/ SENSITIVE OPTIMAL MOISTURE CONTENT.
21. DRAINAGE STRUCTURE SYMBOLS SHOWN ON PLANS ARE NOT TO SCALE.
22. SAW CUT PAVEMENT AT CONFORMS AND PROTECT EDGE.
23. ALL CURB CUT RAMPS SHALL HAVE DETECTABLE WARNING STRIPS AND CONSTRUCTED PER LATEST EDITION OF FDOT STANDARD SPECIFICATIONS SECTION 522/305 AND PER ADA REQUIREMENTS.
24. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF AND EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
25. ALL UNSURFACED ARES DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH GOVERNING SPECIFICATIONS UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED.
26. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
27. AREA TO BE STRIPPED, CLEARED & GRUBBED IN ACCORDANCE WITH SITE SPECIFICATIONS. CONTRACTOR TO ROUGH GRADE AREA AT A CROSS SLOPE OF 0.5-1.0%, MORE OR LESS, AND AN AVERAGE ELEVATION OF 15.0, NAVD. AREA SHALL BE GRADED IN SUCH A MANOR IN WHICH THE BUILDABLE AREA AND VALUE OF THE PROPERTY IS MINIMIZED.
28. CONTRACTOR TO REMOVE AND REPLACE EXISTING ASPHALT WITH 2" SP9.5 OR EQUIVALENT.

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Certificate of Authorization License No. 30482

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
MASTER PAVING, GRADING AND DRAINAGE PLAN
MARTIN COUNTY FLORIDA

PROJECT NO
010318-02-004

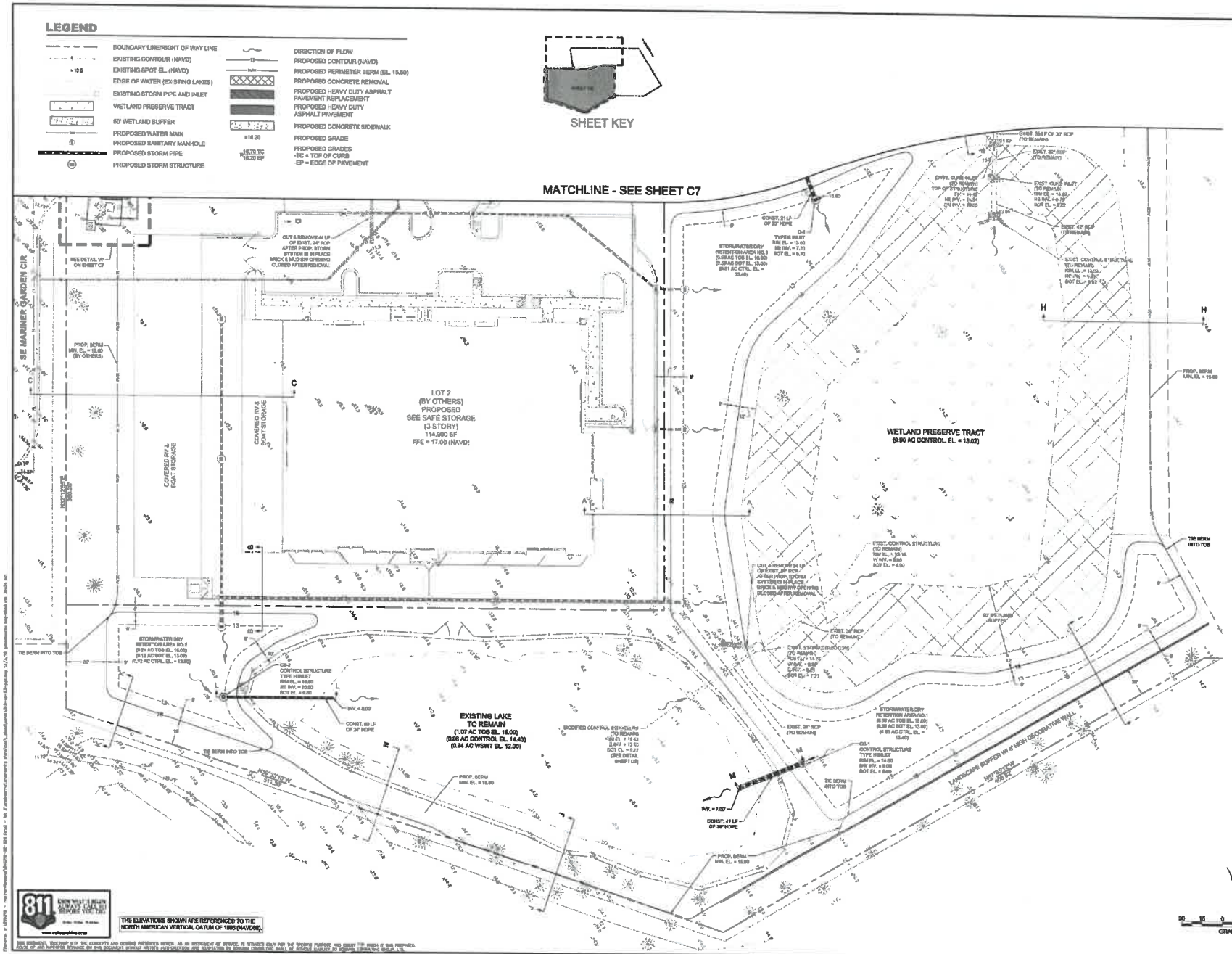
L. B. LEONARD, P.E. LICENSE No. 61737

PLAN STATUS

05-29-2019	COUNTY COMMENTS
12-05-2019	COUNTY COMMENTS

DATE	DESCRIPTION	
LL DESIGN	GC/JB DRAWN	GMB CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-P00
SHEET C5



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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
PAVING, GRADING AND DRAINAGE PLAN
MARTIN COUNTY FLORIDA

PROJECT NO
010318-02-004

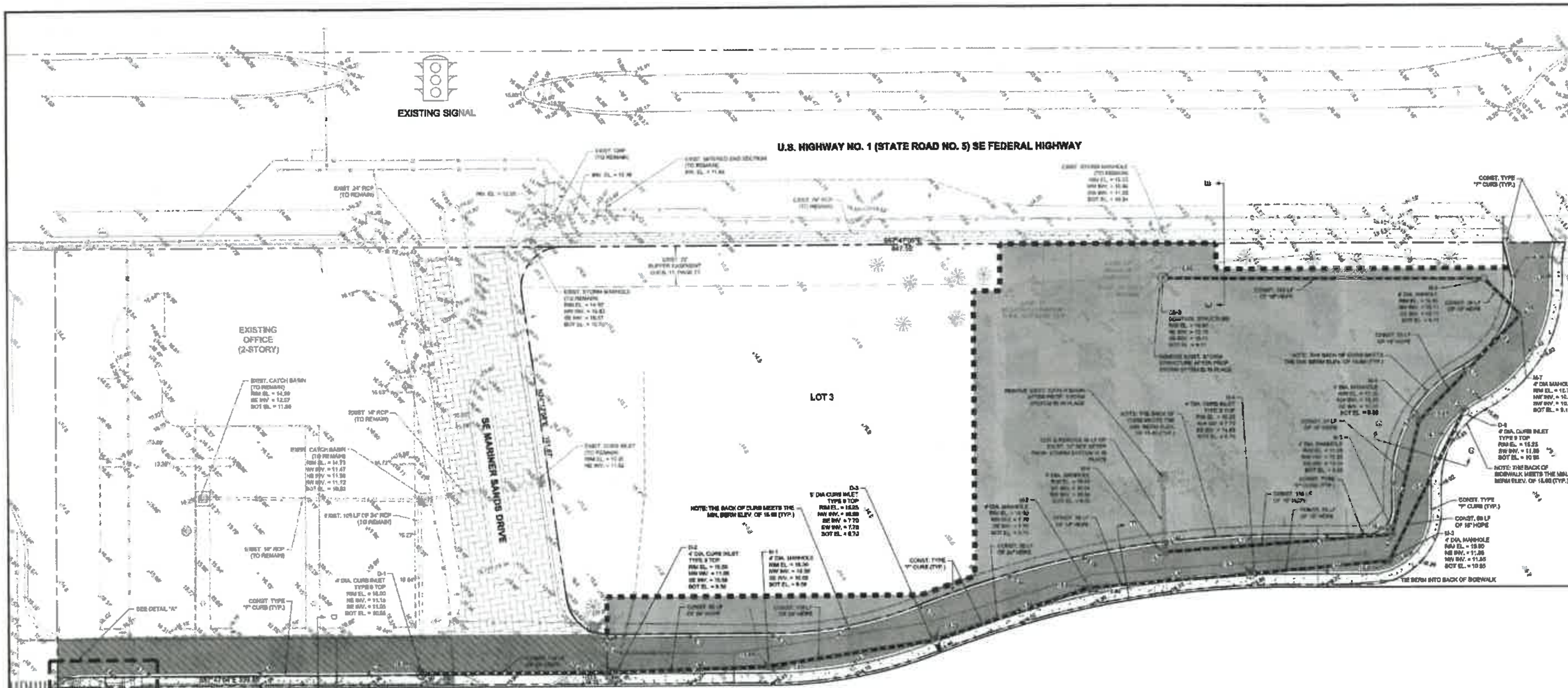
LICENSED PROFESSIONAL ENGINEER No. 61737 STATE OF FLORIDA
FL LICENSE NO. E 727

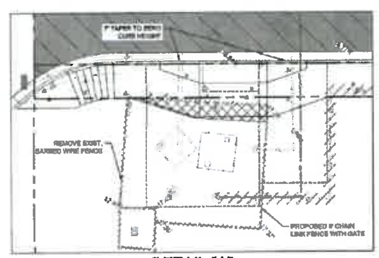
PLAN STATUS

DATE	DESCRIPTION
09-26-2018	COUNTY COMMENTS
12-03-2018	COUNTY COMMENTS

DESIGN	DRAWN	CHKD
LL	GC/JB	GMB

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-POD
SHEET C6



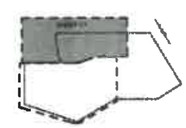


DETAIL "A"
SCALE : 1" = 10'

LEGEND

- BOUNDARY LINE / RIGHT OF WAY LINE
- EXISTING CONTOUR (NAVD)
- EXISTING SPOT EL. (NAVD)
- EDGE OF WATER (EXISTING LAKES)
- EXISTING STORM PIPE AND INLET
- WETLAND PRESERVE TRACT
- 50' WETLAND BUFFER
- PROPOSED WATER MAIN
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM PIPE
- PROPOSED STORM STRUCTURE
- DIRECTION OF FLOW
- PROPOSED CONTOUR (NAVD)
- PROPOSED PERIMETER BERM (EL. 15.50)
- PROPOSED CONCRETE REMOVAL
- PROPOSED CLEARING & GRUBBING (SEE NOTE #27)
- PROPOSED HEAVY DUTY ASPHALT PAVEMENT REPLACEMENT (SEE NOTE #28)
- PROPOSED CONCRETE SIDEWALK
- PROPOSED GRADE

GRAPHIC SCALE
1" = 30'



SHEET KEY

811 KNOW WHAT'S BELOW. ALWAYS CALL 811 BEFORE YOU DIG

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
PAVING, GRADING AND DRAINAGE PLAN
MARTIN COUNTY FLORIDA

PROJECT NO
010318-02-004

L. LEONARD, P.E. FL LICENSE No. 61737

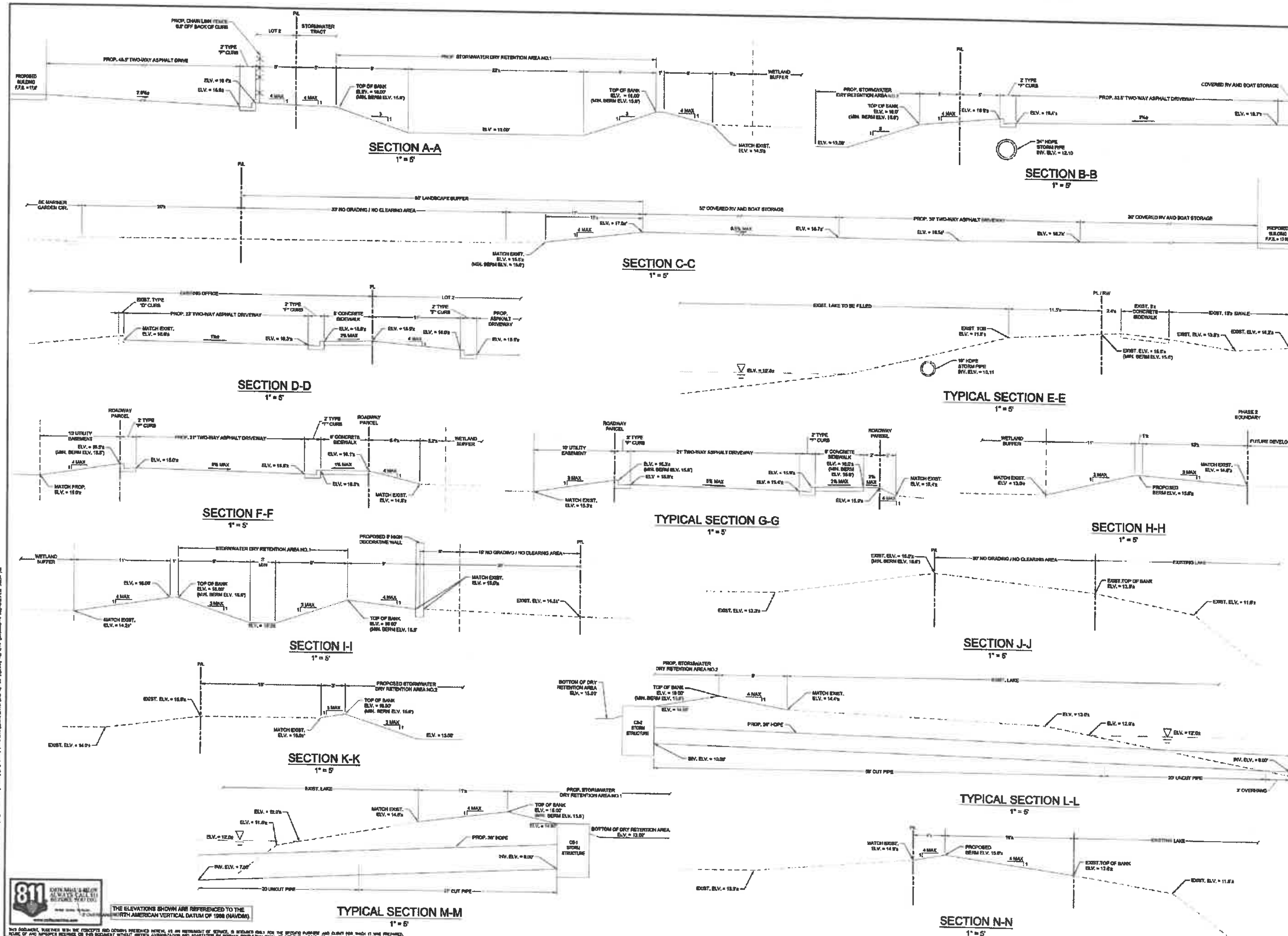
PLAN STATUS

DATE	DESCRIPTION
05-29-2019	COUNTY COMMENTS
12-03-2019	COUNTY COMMENTS

DESIGN	DRAWN	CHKD
LL	GC/JB	GNB

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019

SHEET C7



THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
PERIMETER BERM CROSS SECTIONS

MARTIN COUNTY — FLORIDA

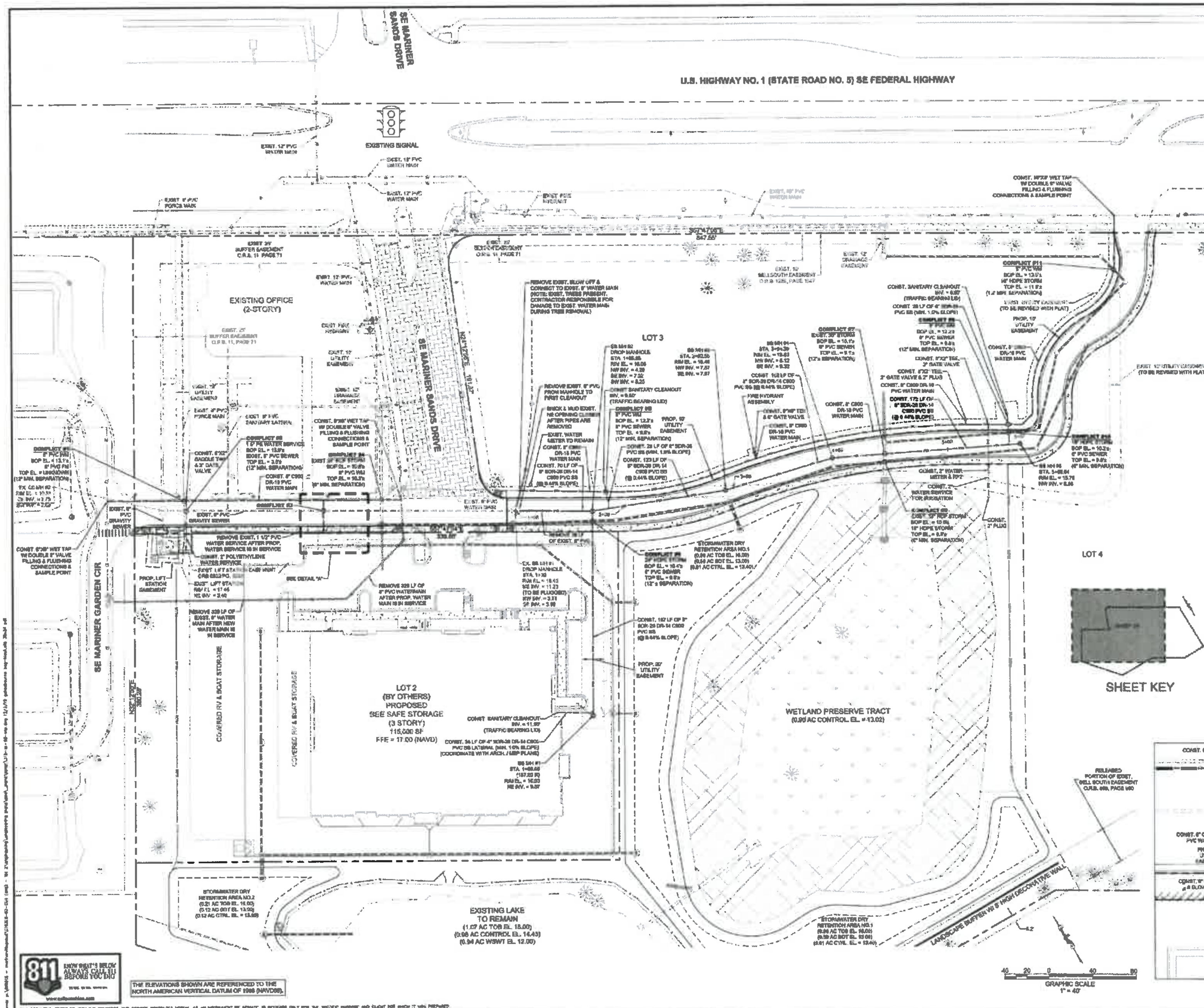
PROJECT NO 010318-02-004

PLAN STATUS

DATE	DESCRIPTION
05-29-2019	COUNTY COMMENTS
12-02-2019	COUNTY COMMENTS

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-EP-02-PCD
SHEET C8

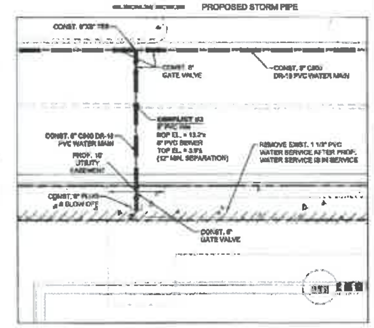


UTILITY NOTES

1. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
2. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
3. SANITARY SEWER PIPE SHALL BE AS FOLLOWS:
   - 6" PVC SDR26 PER ASTM D 3034
   - 8" PVC SDR26 PER ASTM D 3034
4. WATER LINES SHALL BE AS FOLLOWS:
   - 2" AND SMALLER, POLYETHYLENE AS DEFINED BY ASTM D2737 SDR9 COPPER TUBE SIZE
   - 4"-12", PVC DR-18 C-900
5. DUCTILE IRON PIPE (DIP) SHALL BE REQUIRED WHEN WITHIN SIX (6) FEET HORIZONTALLY OF SEWAGE FACILITIES OR PIPES.
6. DUCTILE IRON PIPE (DIP) SHALL BE A MINIMUM OF PRESSURE CLASS 350 AND CONFORM TO THE LATEST STANDARDS OF ANSI/AWWA C150/A21.50 FOR THE THICKNESS DESIGN OF DIP
7. ALL UTILITIES SHOULD HAVE A MINIMUM HORIZONTAL SEPARATION OF 3' TO POWER POLES, LIGHT POLES, OR OTHER UTILITIES, 10' TO BUILDINGS, TOP OF BANKS OF LAKES & CANALS AND OTHER STRUCTURES, OR ABSOLUTE MINIMUM OF 10' WITH DIP.
8. ALL WATER FITTINGS ARE TO BE DUCTILE IRON MECHANICAL JOINTS AS CALLED OUT IN MARTIN COUNTY MINIMUM DESIGN & CONSTRUCTION STANDARDS.
9. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 30" COVER ON ALL WATERLINES 8" OR SMALLER. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATER LINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE WATER LINE SHALL HAVE APPROPRIATE RESTRAINTS AS REQUIRED BY MARTIN COUNTY UTILITIES & A MINIMUM OF 6" CLEARANCE (12" PREFERRED)
10. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
11. TOPS OF EXISTING MANHOLES SHALL BE RAISED AS NECESSARY TO BE FLUSH WITH PROPOSED PAVEMENT ELEVATIONS, AND TO BE ONE FOOT ABOVE FINISHED GROUND ELEVATIONS WITH WATERTIGHT LIDS WHEN LOCATED IN UNPAVED AREAS.
12. EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.
13. REFER TO INTERIOR PLUMBING DRAWINGS BY THE MEP FOR TIE-IN OF ALL UTILITIES.
14. CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE LOCAL AUTHORITIES REGARDING TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
15. ALL EXISTING VALVES TO BE ADJUSTED TO FINAL FINISHED GRADE.
16. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
17. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES. THIS AND THE FINAL CONNECTIONS OF THE SERVICE SHALL BE COMPLETED AT LEAST 30 DAYS PRIOR TO C.O.
18. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
19. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITY DURING CONSTRUCTION AT NO COST TO THE OWNER.
20. SEE MARTIN COUNTY UTILITIES MINIMUM DESIGN & CONSTRUCTION STANDARDS FOR BACKFILLING AND COMPACTION REQUIREMENTS ON UTILITY TRENCHES. CONTRACTOR SHALL COMPLY WITH MARTIN COUNTY UTILITIES MINIMUM DESIGN & CONSTRUCTION STANDARDS, LATEST EDITION.
21. CONTRACTOR SHALL GROUT ALL PIPE ENTRANCES AND PIPE REMOVALS TO/FROM MANHOLES TO ASSURE WATER TIGHT CONNECTIONS AND PLUGS.
22. DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING UTILITIES.
23. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ACTUAL LOCATION OF ALL UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRICAL, TELEPHONE, FIBER OPTIC, AND GAS SERVICE. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND ASSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH MARTIN COUNTY UTILITY REQUIREMENTS AS TO LOCATION AND SCHEDULING FOR TIE-INS, CONNECTIONS AND INSPECTIONS PRIOR TO CONNECTING TO EXISTING UTILITIES.
24. CONTRACTOR SHALL CONDUCT ALL REQUIRED TESTS TO THE SATISFACTION OF THE RESPECTIVE UTILITY COMPANIES AND THE OWNER'S INSPECTING AUTHORITIES.
25. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OF OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING AND ANY OTHER MEANS OF PROTECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE TO COMPLY WITH PERFORMANCE CRITERIA FOR OSHA.
26. THE INSTALLATION OR REPAIR OF ANY UNDERGROUND FACILITIES OF PIPING WHICH CONNECTS TO OR FURNISHES WATER FOR THE FIRE PROTECTION SPRINKLER SYSTEM SHALL BE PERFORMED ONLY BY A LICENSED UTILITY CONTRACTOR, FIRE PROTECTION SPRINKLER CONTRACTOR OR LICENSED PLUMBER. SEE O.C.G.A. TITLE 25-11-7-(a). A COPY OF THE LICENSE OR CERTIFICATE OF COMPETENCY SHALL BE PROVIDED TO THE INSPECTOR AT THE FINAL INSPECTION.
27. CONTRACTOR SHALL COMPLY WITH MARTIN COUNTY UTILITIES MINIMUM DESIGN & CONSTRUCTION STANDARDS, LATEST EDITION.

LEGEND

- BOUNDARY LINE / RIGHT OF WAY LINE
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER AND MANHOLE
- EXISTING STORM PIPE AND INLET
- WETLAND PRESERVE TRACT
- 50' WETLAND BUFFER
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY MANHOLE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED STORM PIPE



DETAIL "A"
SCALE : 1" = 10'

MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
WATER & WASTEWATER PLAN

MARTIN COUNTY · FLORIDA

PROJECT NO 010318-02-004

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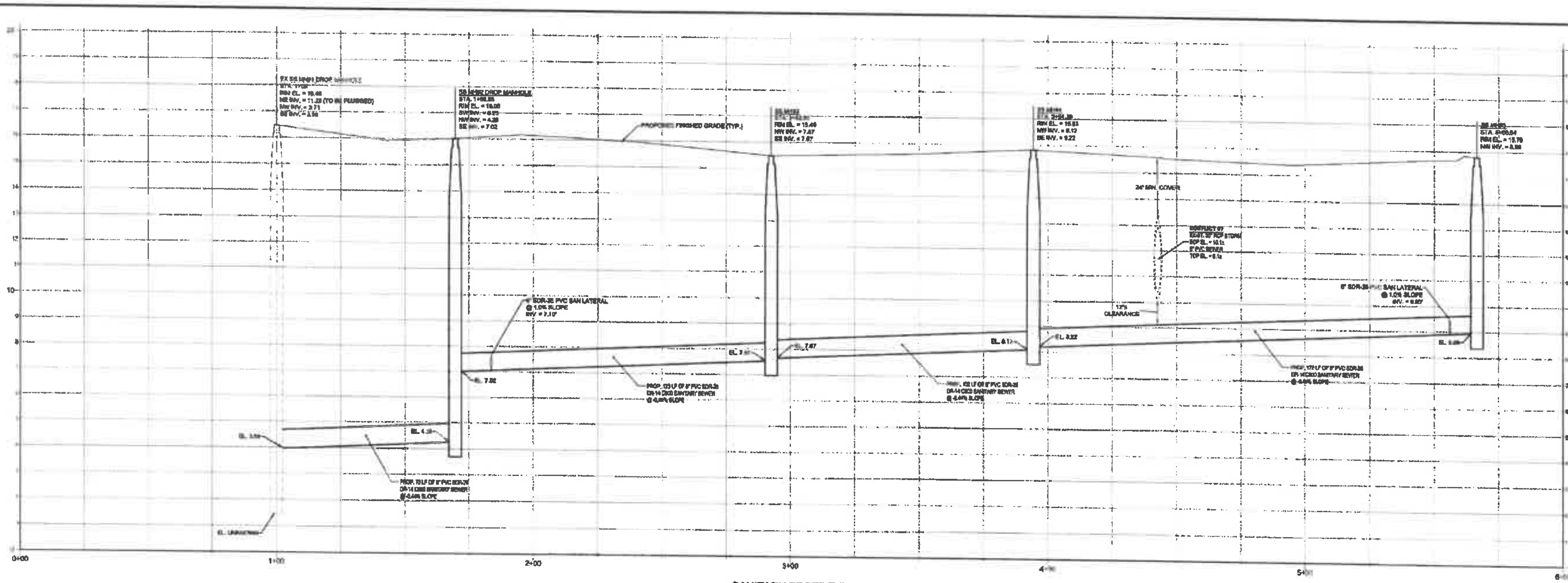
PLAN STATUS

05-28-2019	COUNTY COMMENTS
12-03-2019	COUNTY COMMENTS

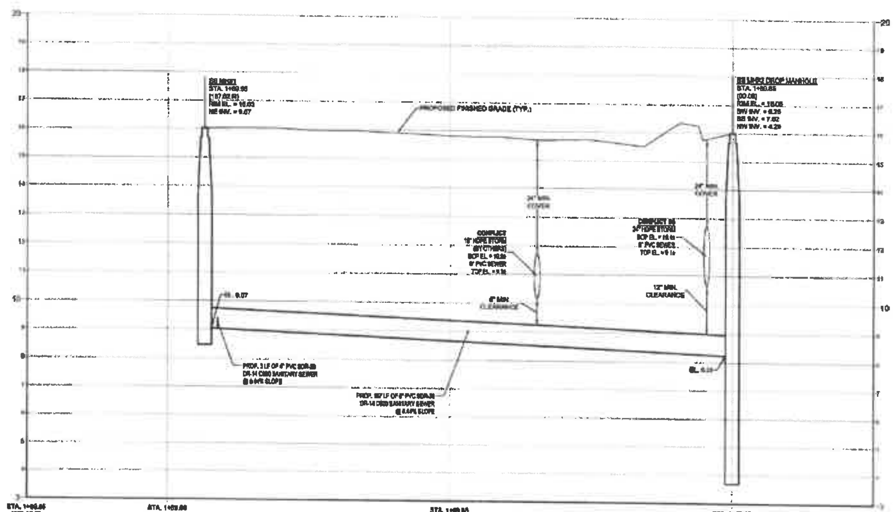
DATE	DESCRIPTION	
LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-UTP

SHEET C9



SANITARY PROFILE #1
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'



SANITARY PROFILE #2
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG

THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

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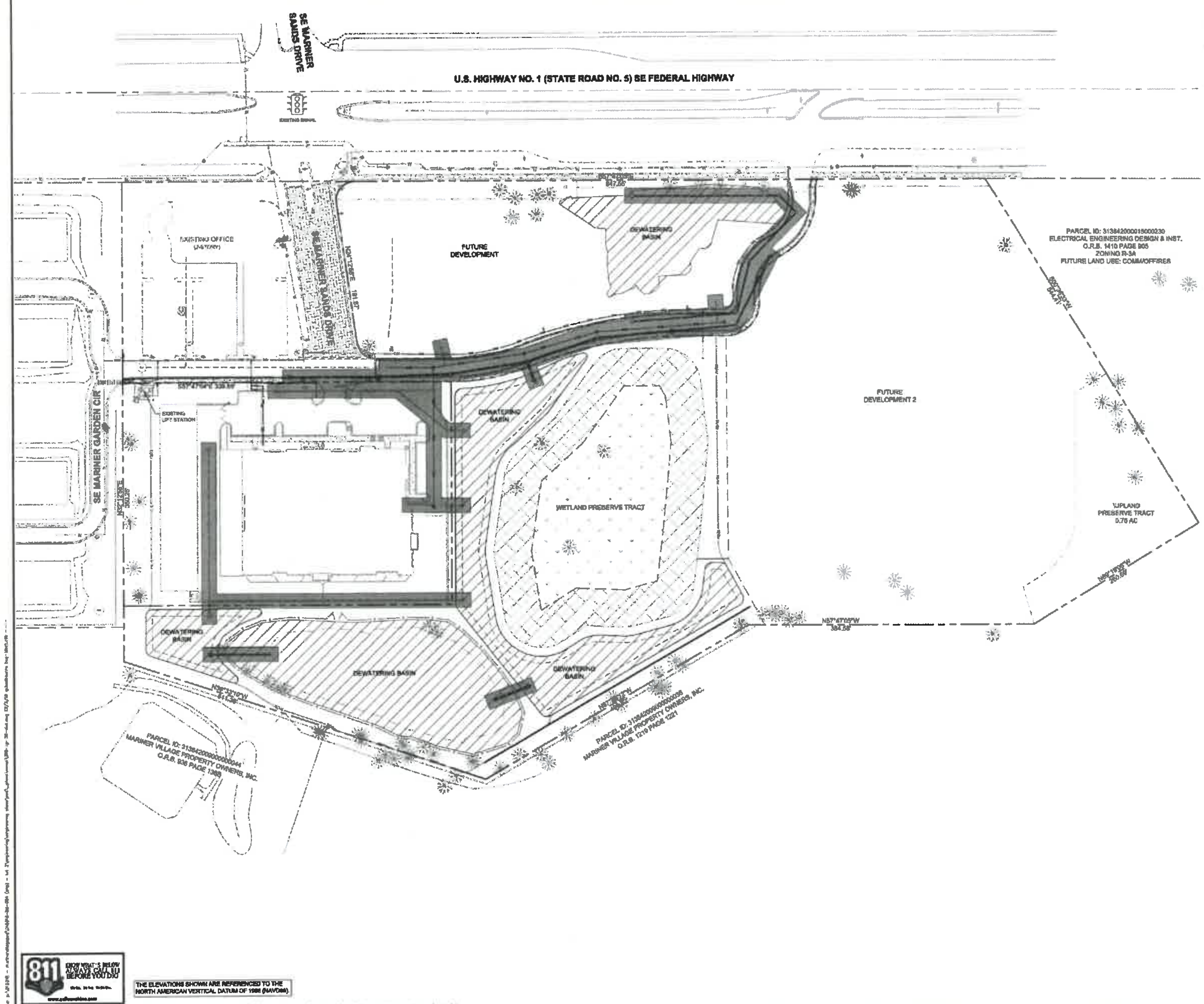
MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
SANITARY SEWER PROFILE
MARTIN COUNTY FLORIDA

PROJECT NO. 010318-02-004

PLAN STATUS
10-29-2018	COUNTY COMMENTS
2-02-2019	COUNTY COMMENTS
DATE	DESCRIPTION

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-PCD
SHEET C10



SUGGESTED SEQUENCE OF ACTIVITIES RELATED TO DEWATERING

1. INSTALL SILT FENCE PER PHASE 1 EROSION & SEDIMENTATION CONTROL AND CLEARING PLAN.
2. EXCAVATE FOR CONTROL STRUCTURES.
3. UTILIZE LOCAL DEWATERING VIA SUMP PUMP OR WELLPOINT (IF NECESSARY) AND DISCHARGE ON SITE.
4. INSTALL CONTROL STRUCTURES, OUTFALL AND CONNECTING PIPE.
5. DISCHARGE WATER TO DEWATERING BASINS ONSITE.

NOTES:

1. DEWATERING ACTIVITIES ARE ANTICIPATED FOR STORM, SEWER AND GRAVITY SEWER CONSTRUCTION, UTILIZING WELL POINTS WITH CLEAN DISCHARGE.
2. ALL DEWATERING WATER SHALL BE RETAINED ON SITE.
3. CONTRACTOR SHALL IMMEDIATELY CEASE DEWATERING OPERATIONS IF ANY DEWATERING WATER LEAVES THE SITE.
4. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MONITORING A FIELD MARKER THAT CLEARLY DELINEATES THE MAXIMUM WATER ELEVATION
5. IT IS ANTICIPATED THAT THE CONTRACTOR WILL USE MULTIPLE HYDRAULIC & VACUUM PUMPS WITH WELL POINTS WITH MAXIMUM TOTAL DISCHARGE OF 700 GALLONS PER MINUTE. SHOULD THIS CHANGE, THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING TOM COLIOS OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT AT (561) 682-6944.
6. PUMP LOCATIONS WILL VARY THROUGHOUT THE DEWATERING AREA. MULTIPLE PUMPS MAY BE USED AT ANY GIVEN TIME BUT AT NO TIME WILL THE SUM OF THE DISCHARGE EXCEED THE PERMITTED MAXIMUM DAILY OUTPUT.
7. DEWATERING OPERATION DETAILS ALONG WITH SPECIFIC MEANS AND METHODS WILL BE DETERMINED BY THE CONTRACTOR AT THE TIME OF OPERATION.
8. CONTRACTOR SHALL CONTACT GUY BOISCLAIR WITH SFWMD AT (800) 462-3290 EXT. 3821 AND JEREMY HENDERSON WITH FDOT AT (772) 713-0668 PRIOR TO COMMENCING PUMPING OPERATIONS.
9. PERIMETER SILT FENCING SHALL BE INSTALLED AND APPROVED PRIOR TO SITE CLEARING. CONTRACTOR SHALL ROUGH GRADE THE SITE SO THAT DEWATERING & STORM WATER WILL BE RETAINED INTERNALLY.

RATED CAPACITY SOURCE	SOURCE	GPM	MGD	MGM
WATER TABLE	PUMP	400	0.86	18.4

LEGEND

- BOUNDARY LINE/RIGHT OF WAY LINE
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER AND MANHOLE
- EXISTING STORM PIPE AND INLET
- EXISTING WETLAND
- EXISTING WETLAND BUFFER (50')
- LIMITS OF DEWATERING
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY MANHOLE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED STORM PIPE

THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
TEMPORARY SHORT-TERM DEWATERING PLAN
MARTIN COUNTY FLORIDA

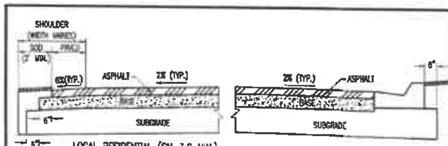
PROJECT NO. 010318-02-004

PLAN STATUS

DATE	DESCRIPTION
05-29-2019	COUNTY COMMENTS
11-20-2019	COUNTY COMMENTS

DESIGN	DRAWN	CHKD
LL	GC/JB	GMB

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-007
SHEET TDW1



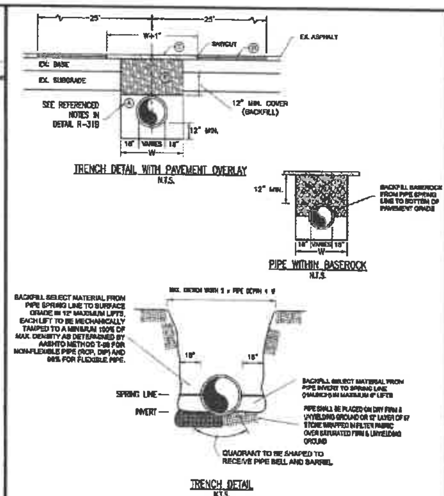
LOCAL RESIDENTIAL (SN–3.0 MIN.)
MIN. E.O.P. ELEVATION > PEAK STAGE OF 10-YR / 24-HR STORM EVENT
- SURFACE COURSE: 1½" TYPE SP-9.5 ASPHALTIC CONCRETE
- BASE COURSE: OPTIONAL BASE GROUP 8 PER FDOT FLEXIBLE PAVEMENT DESIGN MANUAL TABLE 5.6
- SUBGRADE: 12" COMPACTED OR STABILIZED SUBGRADE (LBR-40)

COLLECTOR & LOCAL COMMERCIAL/INDUSTRIAL (SN–3.5 MIN.)
MIN. E.O.P. ELEVATION > PEAK STAGE OF 10-YR / 24-HR STORM EVENT (MINOR)
MIN. E.O.P. ELEVATION > PEAK STAGE OF 25-YR / 24-HR STORM EVENT (MAJOR)
- SURFACE COURSE: 1½" TYPE SP-12.5 ASPHALTIC CONCRETE (1ST LIFT); 1" TYPE SP-9.5 ASPHALTIC CONCRETE (2ND LIFT)
- BASE COURSE: OPTIONAL BASE GROUP 8 PER FLEXIBLE PAVEMENT DESIGN MANUAL TABLE 5.6
- SUBGRADE: 12" COMPACTED OR STABILIZED SUBGRADE (LBR-40)

ARTERIAL (SN–4.0 MIN.)
MIN. E.O.P. ELEVATION > PEAK STAGE OF 25-YR / 72-HR STORM EVENT
- SURFACE COURSE: 2" TYPE S-I OR SP-12.5 ASPHALTIC CONCRETE (1ST LIFT); 1" TYPE SP-9.5 ASPHALTIC CONCRETE (2ND LIFT)
- BASE COURSE: OPTIONAL BASE GROUP 9 PER FDOT FLEXIBLE PAVEMENT DESIGN MANUAL TABLE 5.6
- SUBGRADE: 12" COMPACTED OR STABILIZED SUBGRADE (LBR-40)

NOTES:
1. SHOULDER DESIGN:
   - SURFACE COURSE: SAME AS TRAVEL LANE SURFACE COURSE
   - BASE COURSE: OPTIONAL BASE GROUP 4 PER FDOT FLEXIBLE PAVEMENT DESIGN MANUAL TABLE 5.6
2. STRUCTURAL NUMBER (SN) PER FDOT STANDARDS (REFER TO FDOT FLEXIBLE PAVEMENT DESIGN MANUAL).
3. SUBSTITUTIONS MAY BE APPROVED BY MARTIN COUNTY, PROVIDED MINIMUM SN IS DEMONSTRATED.
4. ASPHALT MIX SHALL NOT CONTAIN MORE THAN 30% RECLAIMED ASPHALT PAVEMENT (R.A.P.)
5. ALL MATERIAL USED WITHIN THE ROADWAY MUST MEET FDOT SPECIFICATIONS AND BE SUPPLIED FROM A FDOT CERTIFIED MINING OPERATION AND ASPHALT PLANT.
6. A MINIMUM OF TWO DENSITY TESTS SHALL BE TAKEN FOR EACH SIX (6) INCH LIFT OF SUB GRADE AND BASE. WHEN THE SPECIFIED COMPACTED BASE IS GREATER THAN SIX AND ONE-HALF (6 ½") INCHES THE BASE SHALL BE CONSTRUCTED IN TWO OR MORE COURSES. PROCTORS FOR MATERIALS USED IN BACK-FILLING SHALL BE OBTAINED BY A CERTIFIED LABORATORY. DENSITY TESTS SHALL BE CONDUCTED BY A CERTIFIED LABORATORY. THE PERCENTAGE OF MAXIMUM DENSITY REQUIRED SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. A COPY OF ALL COMPLETED AND ACCEPTED DENSITY TESTS SHALL BE FURNISHED TO THE COUNTY ENGINEER'S OFFICE PRIOR TO FINAL INSPECTION.
7. CRUSHED CONCRETE MAY NOT BE USED WITHIN COUNTY-MAINTAINED ROADWAY.
8. ANY IN-LINE PARKING DEFICIENCIES SHALL BE ADDRESSED IN ACCORDANCE TO FDOT SPECIFICATION SECTION 330.

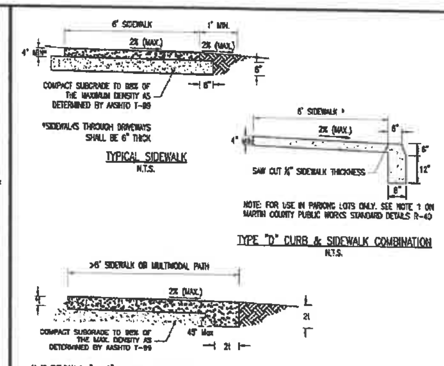
MARTIN COUNTY ENGINEERING - STANDARD DETAILS — FLEXIBLE PAVEMENT — DETAIL R-10 — DATE: 04/23/19



TRENCH DETAIL WITH PAVEMENT OVERLAY (N.T.S.)
PIPE WITHIN BASEROCK (N.T.S.)
TRENCH DETAIL (N.T.S.)

NOTES:
SEE SPECIFICATIONS & NOTES ON DETAIL R-31B

MARTIN COUNTY ENGINEERING - STANDARD DETAILS — TYPICAL OPEN CUT TRENCH — DETAIL R-31A — DATE: 04/23/19



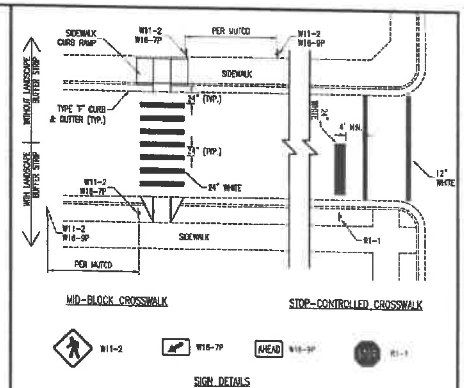
TYPICAL SIDEWALK (N.T.S.)
TYPE "D" CURB & SIDEWALK COMBINATION (N.T.S.)

*t IS TYPICALLY 4" - 6" AND SHALL BE SPECIFIED BY ENGINEER OF RECORD

TYPICAL MULTIMODAL PATHWAY or SIDEWALK > 6' (N.T.S.)

NOTES:
1. SIDEWALK MATERIALS AND CONSTRUCTION SHOWN HEREIN SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT STANDARD SPECIFICATIONS 522 AND FDOT STANDARD PLANS INDEX 522.
2. FIBER-REINFORCED CONCRETE FOR CURBS AND SIDEWALKS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS WITH A WATER TO CEMENT RATIO NOT MORE THAN 0.53 (LB/LB).
3. THICKENED EDGE SHALL CONTAIN APPLICABLE SUBGRADE COMPACTED TO 98% OF MAXIMUM DRY DENSITY (AASHTO T-99)
4. A DESIRED 8 FEET SHALL BE MAINTAINED BETWEEN EDGE OF TRAVEL LANE AND SIDEWALK WHERE CURB AND GUTTER DOES NOT EXIST (MINIMUM SHALL BE 4.5 FEET, UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER).

MARTIN COUNTY ENGINEERING - STANDARD DETAILS — SIDEWALK — DETAIL R-41 — DATE: 04/23/19

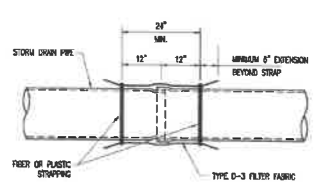


MID-BLOCK CROSSWALK
STOP-CONTROLLED CROSSWALK

SIGN DETAILS

NOTES:
1. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC IN ACCORDANCE WITH FDOT STANDARD SPECIFICATION 711.
2. MID-BLOCK CROSSWALK MARKINGS SHALL BE WHITE SPECIAL EMPHASIS.
3. STOP-CONTROLLED CROSSWALK MARKINGS SHALL BE STANDARD.
4. PUBLIC SIDEWALK CURB RAMPS AND DETECTABLE WARNING SURFACES SHALL BE DESIGNED IN ACCORDANCE WITH FDOT STANDARD PLANS INDEX 522. DETECTABLE WARNING SURFACES SHALL BE CAST IN PLACE ARMOR TILE OR APPROVED EQUAL AND BRICK RED IN COLOR. BOLT OR SCREW DOWN TYPES ARE PROHIBITED.
5. CROSSWALK WARNING SIGNAGE SHALL BE YELLOW, UNLESS CROSSWALK IS LOCATED IN A SCHOOL ZONE WHERE LIME-GREEN SHALL BE USED.
6. SIGN INSTALLATION SHALL BE PER TRAFFIC CONTROL DETAIL, R-140A.

MARTIN COUNTY ENGINEERING - STANDARD DETAILS — CROSSWALK — DETAIL R-120A — DATE: 04/23/19



NOTES:
1. ALL PIPE LOCATED UNDER ROADWAYS AND/OR RESIDENTIAL PARKING AREAS SHALL BE REINFORCED CONCRETE PIPE (RCP).
2. MINIMUM PIPE DIAMETER SHALL BE 15" OR ELLIPTICAL EQUIVALENT.
3. FILTER FABRIC SHALL BE OVERLAPPED 2'-0" MINIMUM AT ALL JOINTS, INCLUDING ALL END TREATMENTS, REGARDLESS OF PIPE CULVERT MATERIAL.
4. A CONTINUOUS PIECE OF FILTER FABRIC, CONFORMING TO TYPE "D-3" OF FDOT STANDARD SPECIFICATIONS 985, SHALL BE USED AT ALL JOINTS, INCLUDING STRUCTURES AND END TREATMENTS.

MARTIN COUNTY ENGINEERING - STANDARD DETAILS — STORM DRAIN PIPE AND PIPE JOINT — DETAIL R-70 — DATE: 04/23/19

MAINTENANCE OF TRAFFIC CONTROL DEVICES

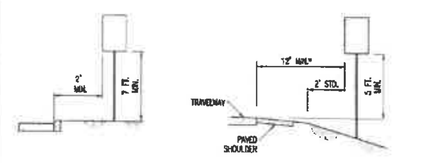
TRAFFIC SIGNS ON PRIVATELY MAINTAINED ROADS ARE THE RESPONSIBILITY OF THE MAINTAINING ENTITY, TYPICALLY, THE HOMEOWNERS OR PROPERTY OWNERS ASSOCIATION. WHERE PRIVATELY MAINTAINED ROADS INTERSECT STATE OR COUNTY MAINTAINED ROADS, THE TRAFFIC SIGNS (SUCH AS STREET NAME "BLADES" AND REGULATORY SIGNS) AND MARKINGS (SUCH AS STOP BARS) "SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER AND CURRENT USER ENTITY" NOT THE COUNTY OR THE STATE. PRIOR TO THE MARTIN COUNTY SHERIFF'S OFFICE PATROLLING ON PRIVATE ROADS, AN AGREEMENT FOR TRAFFIC CONTROL ON PRIVATE ROADS MUST BE EXECUTED WITH MARTIN COUNTY. THE HOMEOWNERS OR PROPERTY OWNERS ASSOCIATION SHALL SUBMIT A CERTIFICATION OF COMPLIANCE WITH THESE REGULATIONS PRIOR TO THE EXECUTION OF THE AGREEMENT FOR TRAFFIC CONTROL ON PRIVATE ROADS. THE CERTIFICATION MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF FLORIDA.

THE DESIGN AND MANUFACTURING OF ALL SIGNING AND MARKINGS REQUIRED FOR THE OPERATION OF THE CONNECTION (SUCH AS STOP BARS AND STOP SIGNS FOR THE CONNECTION) SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER AND CURRENT ENTITY RESPONSIBLE FOR THE CONNECTION, OR GOVERNMENTAL ENTITY HAVING JURISDICTION OVER THE CONNECTION, ROAD, OR INTERSECTION OF THE COUNTY ROAD REGARDLESS OF THE OWNER OF THE RIGHT-OF-WAY AS PROVIDED IN CHAPTER 316, FLORIDA STATUTES.

ALL TRAFFIC CONTROL DEVICES INSTALLED ON COUNTY OR PRIVATELY MAINTAINED ROADS SHALL BE IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD PLANS, AND THESE STANDARDS.

PLACEMENT OF TRAFFIC CONTROL DEVICES

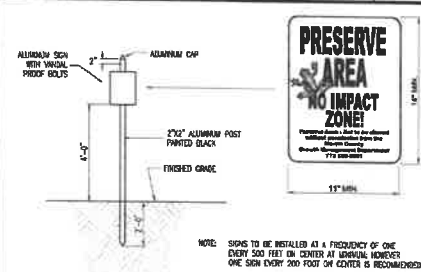
PER FLORIDA STATUTE 316.0747, THE PLACEMENT OR POSITION OF TRAFFIC CONTROL DEVICES ALONG ROADS WHERE THE PUBLIC IS INVITED, INCLUDING THOSE DEVICES INSTALLED ON PRIVATE PROPERTY, SHALL MEET THE STATE STANDARDS ADOPTED BY THE FDOT, WHICH INCLUDES THOSE IDENTIFIED IN THE MUTCD. IF THE STANDARD POSITION CANNOT BE ATTAINED DUE TO IMMOBILE OBSTRUCTIONS, ALTERNATIVE PLACEMENT MAY BE PERMITTED BY THE COUNTY ENGINEER.



*THE SETBACK FOR STOP OR YIELD SIGNS MAY BE REDUCED TO 3' MINIMUM FROM THE DRIVING LANE IF REQUIRED FOR VISIBILITY IN BUSINESS OR RESIDENTIAL AREAS WITH NO CURB AND SPEEDS OF 30 MPH OR LESS

MARTIN COUNTY ENGINEERING - STANDARD DETAILS — TRAFFIC CONTROL — DETAIL R-140A — DATE: 04/23/19

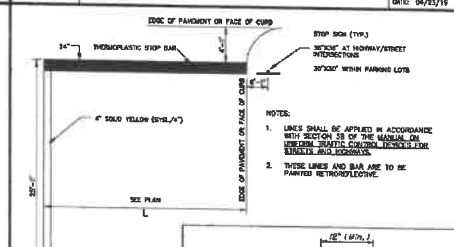
NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD SPECIFICATIONS.



NOTE: SIGNS TO BE INSTALLED AT A FREQUENCY OF ONE EVERY 500 FEET ON CENTER AT MINIMUM; HOWEVER ONE SIGN EVERY 200 FOOT ON CENTER IS RECOMMENDED.

NOTES:
1. THE STRUCTURAL INTEGRITY OF THE SIGNS SHALL BE THE RESPONSIBILITY OF THE SIGN MANUFACTURER.
2. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR FABRICATION.
3. FASTENERS AND ATTACHMENTS SHALL BE NON-CORROSIVE AND NON-CONDUCTIVE AND INSULATED WHEN JOINING NON-COMPATIBLE MATERIALS.
4. COLORS SHALL BE SELECTED BY THE OWNER.
5. ALL SIGNS AND COMPONENTS SHALL BE OF TOP QUALITY WORKMANSHIP AND MATERIALS, AND BE FREE OR DEFECTS. DEFECTIVE IS DEFINED TO INCLUDE DELAMINATION, ABNORMAL DETERIORATION, FADING AND DISCOLORATION, WEATHERING, FAILURE OF SECURING TO SUBSTRATES, CRACKING, CORROSION, OR COATING DAMAGE, OR VISIBLE SCRATCHES ON THE SURFACE.
6. SIGNAGE SHALL NOT BEAR MANUFACTURER'S CODE OR OTHER IDENTIFYING MARKS ON ANY AREA OR PART WHICH MAY BE VISIBLE TO THE NORMAL POSITION, ATTITUDE, OR USE OF THE SIGN ITEM.
7. PROVIDE SCALED DRAWINGS OF ALL ELEMENTS AND ACTUAL PAINTED SAMPLES OF ALL MATERIALS FOR APPROVAL.
8. ALL SIGNS SHALL BE CONSTRUCTED OF VANDAL-RESISTANT CONSTRUCTION MATERIALS, METHODS, AND ATTACHMENTS.

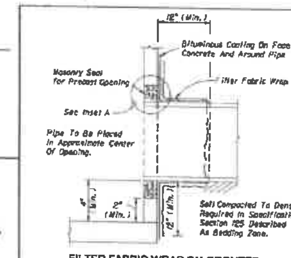
MARTIN COUNTY ENGINEERING - STANDARD DETAILS — PRESERVE AREA SIGN — DETAIL P-40 — DATE: 04/23/19



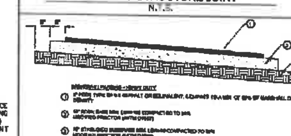
STOP BAR
N.T.S.

NOTES:
1. BOTH SIGNS SHALL BE IN ACCORDANCE WITH THE LATEST MUTCD EDITION. WARNING SIGNS W11-2 (TOP) & W16-7P (BOTTOM) WITH A BLACK LEGEND ON A FLUORESCENT YELLOW-GREEN BACKGROUND

"PEDESTRIAN CROSSING" SIGN



FILTER FABRIC WRAP ON GROUTED PIPE TO STRUCTURE JOINT
N.T.S.



HEAVY DUTY ASPHALT PAVING
N.T.S.

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
PAVING, GRADING AND DRAINAGE DETAILS
MARTIN COUNTY — FLORIDA

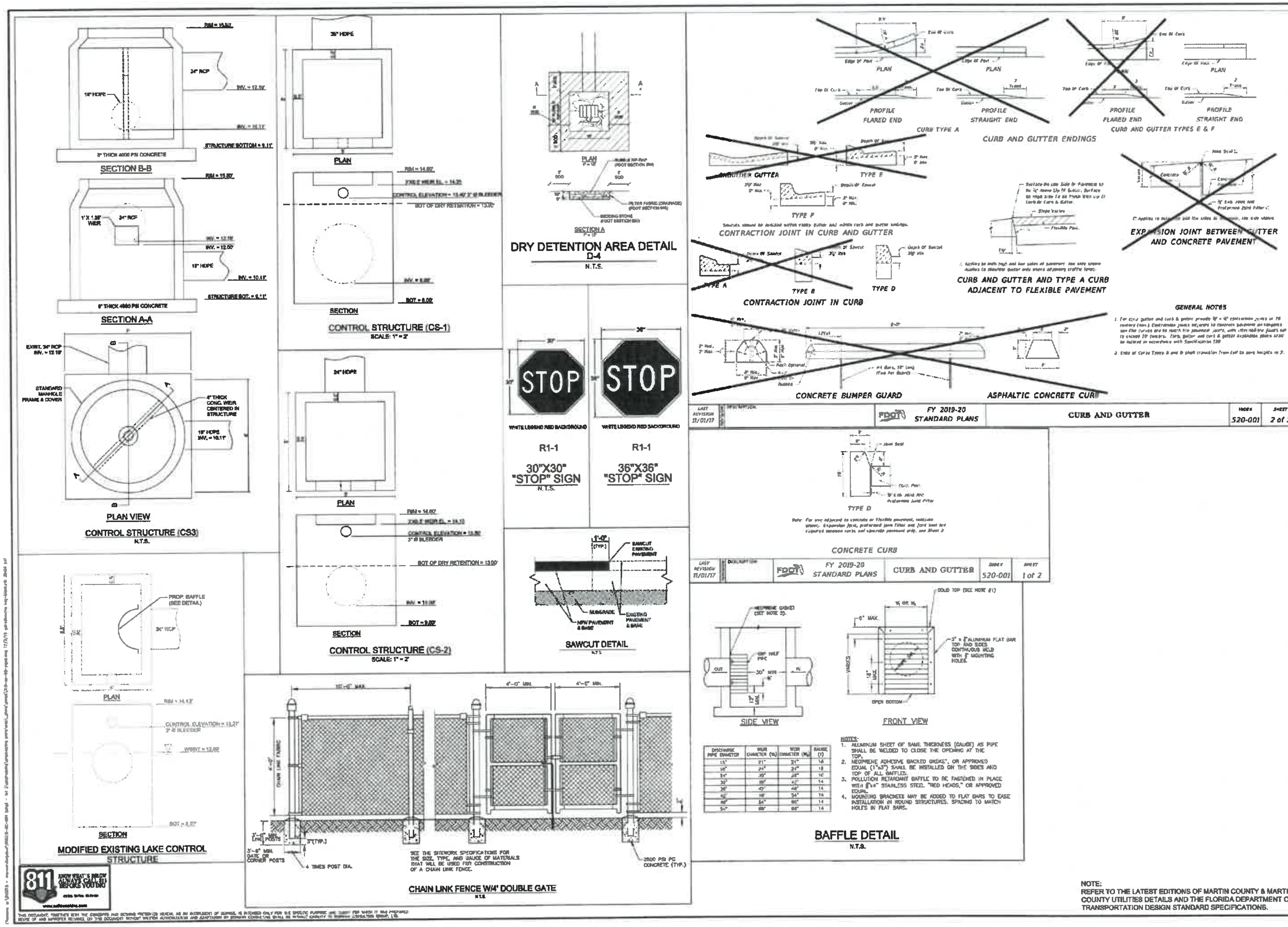
PROJECT NO. 010318-02-004

L. LEONARD, P.E.
FL LICENSE NO. 61737

PLAN STATUS	
03-25-2019	COUNTY COMMENTS

DATE	DESCRIPTION
LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-P000
SHEET D1



DISCHARGE PIPE DIAMETER	WEIR DIAMETER (W)	WEIR DIAMETER (W)	GAUGE (T)
15"	21"	21"	16
18"	24"	24"	16
24"	30"	36"	16
30"	36"	42"	14
36"	42"	48"	14
42"	48"	54"	14
48"	54"	60"	14
54"	60"	66"	14

NOTES:
1. ALUMINUM SHEET OF SAME THICKNESS (GAUGE) AS PIPE SHALL BE WELDED TO CLOSE THE OPENING AT THE TOP.
2. NEOPRENE ADHESIVE BACKED GASKET, OR APPROVED EQUAL (1"x3") SHALL BE INSTALLED ON THE SIDES AND TOP OF ALL BAFFLES.
3. POLLUTION RETARDANT BAFFLE TO BE FASTENED IN PLACE WITH ⅜"x4" STAINLESS STEEL "RED HEADS," OR APPROVED EQUAL.
4. MOUNTING BRACKETS MAY BE ADDED TO FLAT BARS TO EASE INSTALLATION IN ROUND STRUCTURES. SPACING TO MATCH HOLES IN FLAT BARS.

NOTE:
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MARINER VILLAGE SQUARE PUD

PLAT INFRASTRUCTURE

PAVING, GRADING AND DRAINAGE DETAILS

MARTIN COUNTY FLORIDA

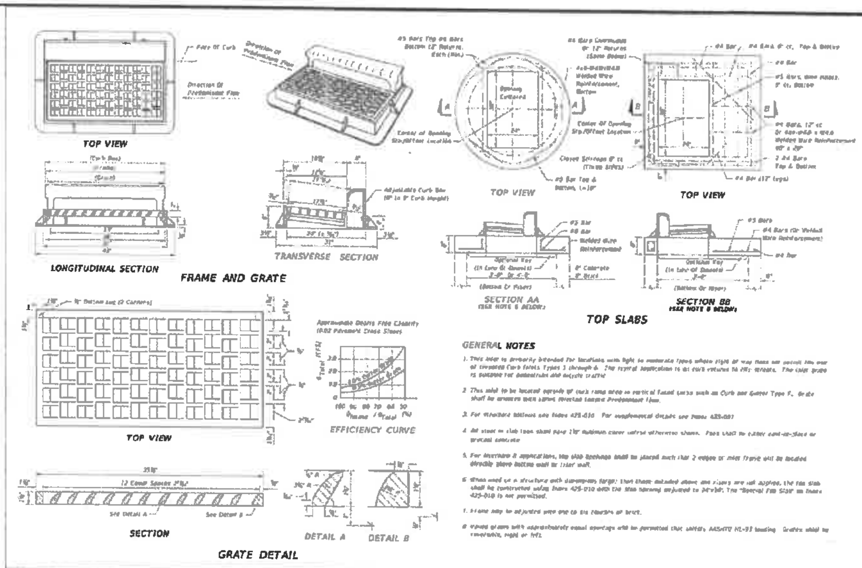
PROJECT NO 010318-02-004

DATE	DESCRIPTION
11-26-2019	COUNTY COMMENTS
12-03-2019	COUNTY COMMENTS

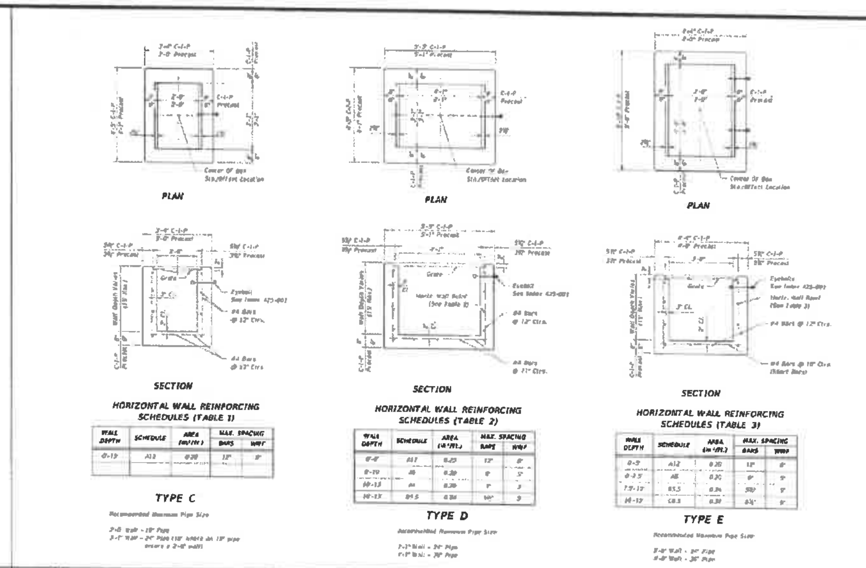
PLAN STATUS

DESIGN	DRAWN	CHKD
LL	GC/JB	GMB

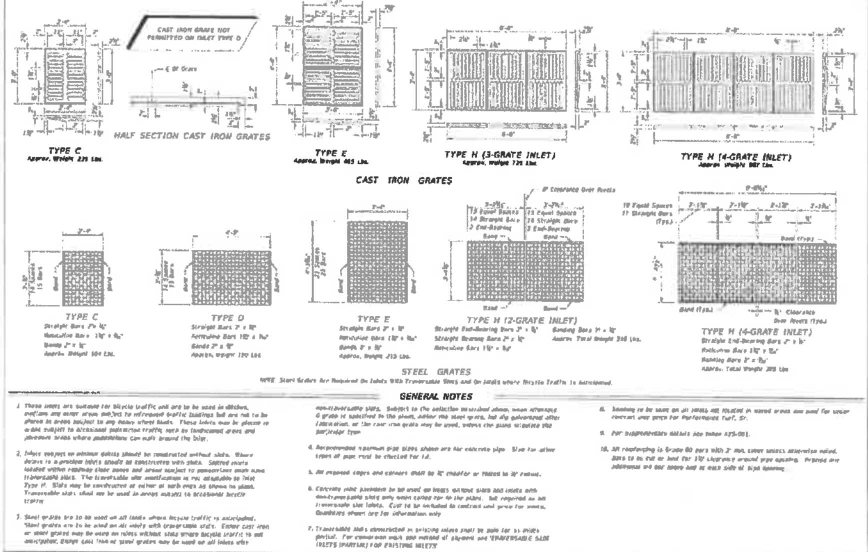
SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-PG00
SHEET D2



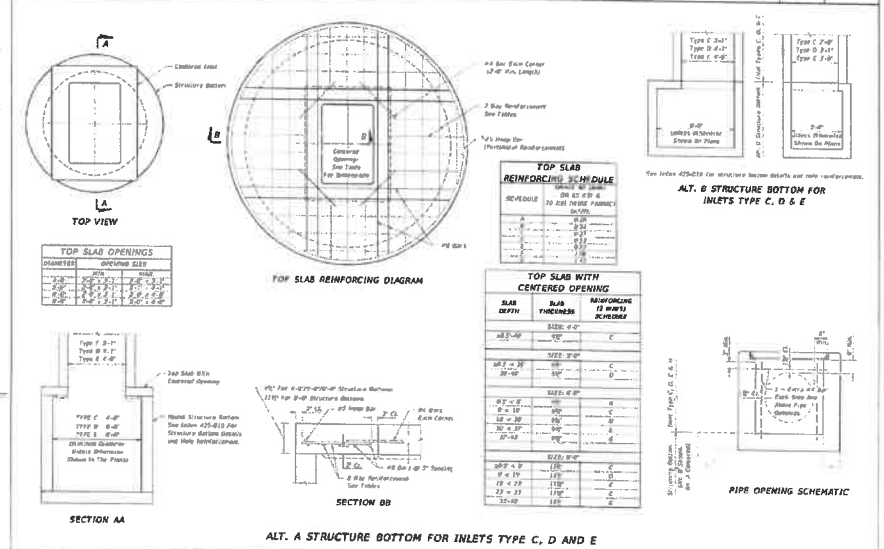
LAST REVISION	DESCRIPTION			INDEX	SHEET
11/01/17		FDOT FY 2019-20 STANDARD PLANS	CURB INLET TOP TYPE 9	425-024	1 of 1



LAST REVISION	DESCRIPTION			INDEX	SHEET
11/01/17		FDOT FY 2019-20 STANDARD PLANS	DITCH BOTTOM INLET TYPES C, D, E AND H	425-052	1 of 7



LAST REVISION	DESCRIPTION			INDEX	SHEET
11/01/17		FDOT FY 2019-20 STANDARD PLANS	DITCH BOTTOM INLET TYPES C, D, E AND H	425-052	3 of 7



LAST REVISION	DESCRIPTION			INDEX	SHEET
11/01/17		FDOT FY 2019-20 STANDARD PLANS	DITCH BOTTOM INLET TYPES C, D, E AND H	425-052	7 of 7

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NOTE:
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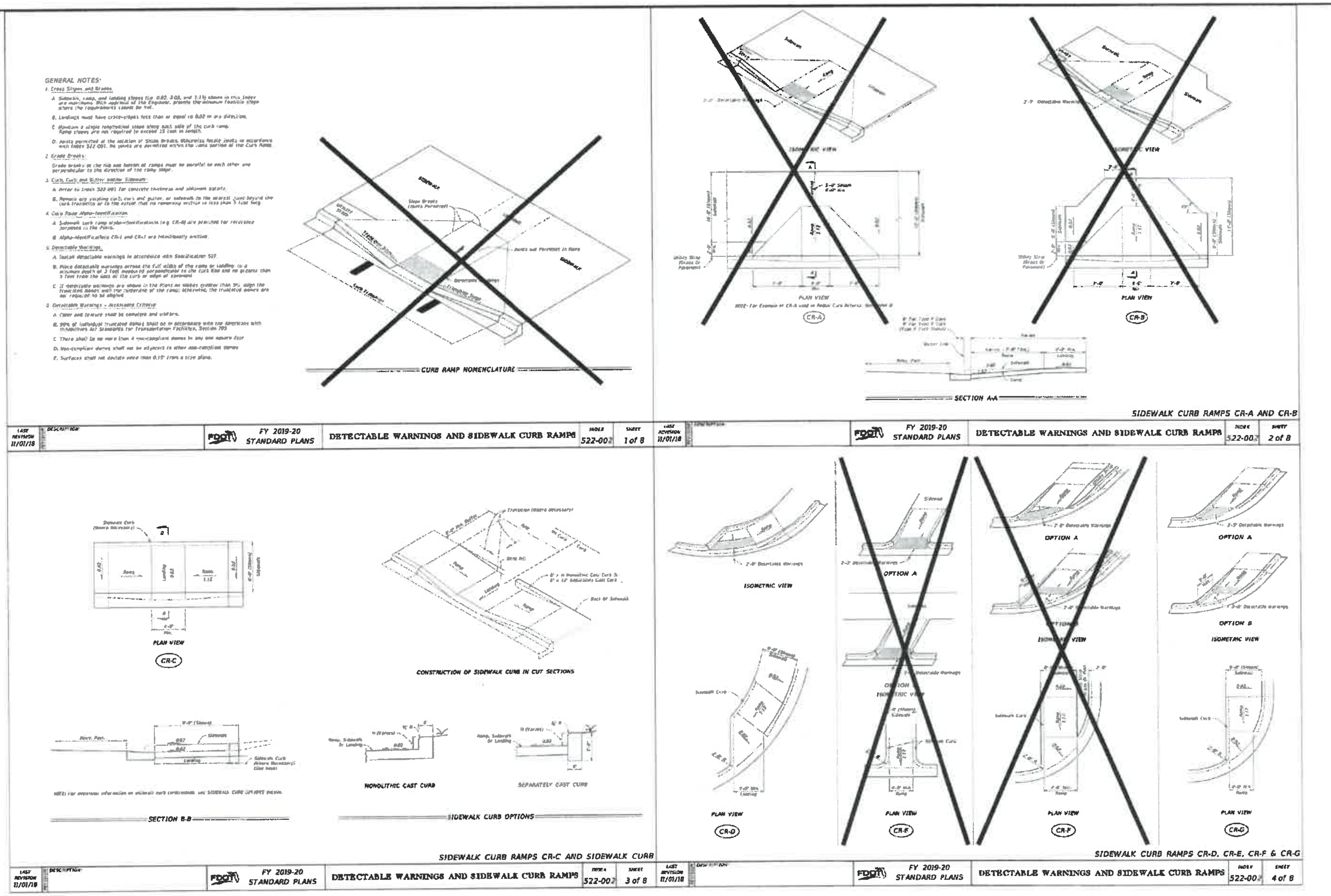
MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
PAVING, GRADING AND DRAINAGE DETAILS
MARTIN COUNTY — FLORIDA

PROJECT NO
010318-02-004

PLAN STATUS
11-29-2018 COUNTY COMMENTS

DATE	DESCRIPTION

LL — DESIGN; GC/JB — DRAWN; GMB — CHKD
SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No.
SHEET D3



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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
PAVING GRADING AND DRAINAGE DETAILS
MARTIN COUNTY FLORIDA

PROJECT NO
010318-02-004

L. LEONARD, P.E.
PLAN STATUS
05-29-2019 COUNTY COMMENTS

DATE	DESCRIPTION	
LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-PGDD
SHEET D4

NOTE:
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PAVING AND DRAINAGE

IT IS INTENDED THAT THE FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION "DESIGN STANDARDS", LATEST EDITION, BE USED WHERE APPLICABLE FOR VARIOUS WORK, AND THAT WHERE SUCH WORDING THEREIN REFERS TO THE STATE OF FLORIDA AND ITS DEPARTMENT OF TRANSPORTATION AND PERSONNEL, SUCH WORDING IS INTENDED TO BE REPLACED WITH THAT WORDING WHICH WOULD PROVIDE PROPER TERMINOLOGY, THEREBY MAKING SUCH "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND "DESIGN STANDARDS" AS THE "STANDARD SPECIFICATIONS" FOR THIS PROJECT.

IF WITHIN THAT PARTICULAR SECTION ANOTHER SECTION, ARTICLE OR PARAGRAPH IS REFERRED TO, IT SHALL BE A PART OF THE "STANDARD SPECIFICATIONS" ALSO.

ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER AND SHALL CONFORM WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL REGULATIONS AND/OR CODES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND LICENSES REQUIRED TO BEGIN WORK.

1. THE CONTRACTOR SHALL GIVE THE ENGINEER AT LEAS 48 HOURS NOTICE PRIOR TO REQUESTING REQUIRED CONSTRUCTION OBSERVATIONS AND SHALL SUPPLY ALL EQUIPMENT NECESSARY TO PROPERLY TEST AND INSPECT THE COMPLETED WORK.

2. THE CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION, DURING WHICH TIME ALL FAULTY CONSTRUCTION AND/OR MATERIALS SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING ABOVE-GROUND, UNDERGROUND, AND ON THE SURFACE STRUCTURES AND UTILITIES AGAINST THE CONSTRUCTION OPERATION THAT MAY CAUSE DAMAGE TO SAID FACILITY.

4. THE LOCATIONS AND SIZES OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION SIZE AND MATERIAL OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

5. THE CONTRACTOR SHALL GIVE ADEQUATE NOTIFICATION TO ALL AFFECTED UTILITY OWNERS FOR REMOVAL, RELOCATION AND ALTERATION OF THEIR EXISTING FACILITIES.

6. STREET OR HIGHWAY RESTORATION WORK IS TO BE DONE AS PER THE LOCAL OR STATE AGENCY HAVING JURISDICTION.

7. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE RULES AND REGULATIONS OF THE STATE, COUNTY AND CITY AUTHORITIES REGARDING CLOSING OR RESTRICTING THE USE OF PUBLIC STREETS OR HIGHWAYS.

8. TRAFFIC CONTROL ON ALL CITY, COUNTY AND STATE HIGHWAY RIGHTS-OF-WAY SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND THE REQUIREMENTS OF THE STATE AND ANY LOCAL AGENCY HAVING JURISDICTION.

9. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN A CONFLICT BETWEEN THE DRAWINGS AND ACTUAL CONDITIONS IS DISCOVERED DURING THE COURSE OF CONSTRUCTION.

10. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE PRIOR TO BIDDING THE WORK AND TO PERFORM SUCH TESTS, STUDIES AND SURVEYS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO ACTUAL SURFACE AND SUBSURFACE CONDITIONS EXISTING AT THE SITE. ACTUAL CONDITIONS THAT DIFFER FROM THOSE SHOWN ON DRAWINGS SHALL NOT CONSTITUTE A BASIS FOR ADDITIONAL PAYMENT.

11. ALL ELEVATIONS REFER TO N.A.V.D. 1988 DATUM, UNLESS OTHERWISE NOTED.

12. ALL CONSTRUCTION DEWATERING (WELL POINTS, SUMPS ETC.) WILL REQUIRE A DEWATERING PERMIT FROM THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT. THIS SHALL BE OBTAINED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

13. ANY CHANGES DUE TO FIELD CONDITIONS OR ANY OTHER DEVIATIONS FROM THE APPROVED DRAWINGS MUST BE APPROVED BY THE ENGINEER AND THE GOVERNING AUTHORITY HAVING JURISDICTION PRIOR TO BEING CONSTRUCTED.

14. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS HAVING FACILITIES IN THE AREA WITHIN AND ADJACENT TO THE PROPOSED CONSTRUCTION AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING CONSTRUCTION.

15. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES: ONE (1) SET OF "APPROVED" CONSTRUCTION DRAWINGS, ONE (1) COPY OF THE APPLICABLE UTILITY COMPANY'S "MINIMUM DESIGN AND CONSTRUCTION STANDARDS", ONE (1) COPY OF ALL CONTRACT DOCUMENTS AND, ONE (1) COPY OF ALL APPLICABLE LOCAL, STATE AND FEDERAL PERMITS REQUIRED FOR CONSTRUCTION.

16. THE CONTRACTOR SHALL PROVIDE A QUALIFIED SUPERINTENDENT TO REMAIN AT THE JOB SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. THE SUPERINTENDENT SHALL BE PRESENT AT ALL SCHEDULED CONSTRUCTION OBSERVATION MEETINGS.

SEDIMENTATION AND EROSION CONTROL:

PRIOR TO AND DURING CONSTRUCTION, THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN ALL SEDIMENTATION AND EROSION CONTROL MEASURES REQUIRED TO RETAIN SEDIMENT ON SITE AND TO PREVENT VIOLATIONS OF STATE WATER QUALITY STANDARDS. SEDIMENTATION AND EROSION CONTROL FEATURES MAY INCLUDE, BUT ARE NOT LIMITED TO, SILT FENCES, SILTATION BARRIERS, GEOTEXTILE FILTER BARRIERS, TURBIDITY SCREENS AND SEDIMENTATION BASINS. CONSTRUCTION AND MAINTENANCE OF SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH SECTION 104 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL REQUIRED SEDIMENTATION AND EROSION CONTROL FOR THE DURATION OF CONSTRUCTION.

STORMWATER RETENTION/DETENTION FACILITIES SHALL BE EXCAVATED AND ROUGH GRADED PRIOR TO BUILDING CONSTRUCTION OR CONSTRUCTION OF IMPERVIOUS SURFACES WITHIN THE AREA SERVED BY THOSE RETENTION/DETENTION FACILITIES. DRY DETENTION AREAS SHALL INITIALLY BE ROUGH GRADED TO APPROXIMATELY 6" ABOVE THEIR FINISHED GRADE. FINAL GRADING (TO DESIGN ELEVATION) SHALL BE DONE JUST BEFORE FINAL STABILIZATION. ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT EROSION PRIOR TO FINAL GRADING AND STABILIZATION OF THE RETENTION/DETENTION FACILITIES.

STABILIZATION MEASURES, INCLUDING BUT NOT LIMITED TO, SODDING OR SEEDING AND MULCHING, SHALL BE INITIATED FOR SEDIMENTATION AND EROSION CONTROL ON ALL DISTURBED AREAS AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN SEVEN (7) DAYS AFTER CONSTRUCTION ACTIVITY HAS CEASED. THE CONTRACTOR SHALL INSPECT ALL SEDIMENTATION AND EROSION CONTROL MEASURES DAILY DURING CONSTRUCTION. ANY DEFICIENCIES SHALL BE IMMEDIATELY CORRECTED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY OFF SITE WATER QUALITY IMPACTS OR OTHER ADVERSE IMPACTS DUE TO SEDIMENTATION AND EROSION FROM THE PROJECT SITE DURING CONSTRUCTION.

CLEARING AND GRUBBING:

ALL TREES, BRUSH, STUMPS, ROOTS, GRASS, WEEDS, RUBBISH AND ALL OTHER OBSTRUCTIONS RESTING ON OR LYING WITHIN 12" BELOW FINISHED GRADE OR SUBGRADE SHALL BE COMPLETELY REMOVED FOR THE FULL WIDTH OF ALL ROAD RIGHT-OF-WAYS, ROAD EASEMENTS, SWALES, UTILITY EASEMENTS AND DRAINAGE EASEMENTS. ALL WORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. CLEARING AND GRUBBING AREAS TO BE INSPECTED AND APPROVED PRIOR TO PLACEMENT OF ANY FILL OR CONSTRUCTION WORK. ALL MATERIAL FROM CLEARING AND GRUBBING SHALL BE REMOVED AND LEGALLY DISPOSED OF.

BURNING:

BURNING IS NOT ALLOWED.

EXCAVATION:

THE CONTRACTOR SHALL PERFORM ALL EXCAVATION NECESSARY TO ACCOMPLISH THE CONSTRUCTION INDICATED ON THE DRAWINGS. EXCAVATION SHALL BE UNCLASSIFIED REGARDLESS OF MATERIAL ENCOUNTERED. ALL EXCAVATED MATERIAL NOT REQUIRED FOR FILL OR EMBANKMENT, SHALL BE REMOVED FROM THE SITE, AS DIRECTED BY THE OWNER, OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL DO ALL SHORING NECESSARY TO PERFORM AND PROTECT THE EXCAVATION, AND AS NECESSARY FOR THE SAFETY OF THE WORKERS AND ANY EXISTING FACILITIES IN ACCORDANCE WITH THE STATE OF FLORIDA "TRENCH SAFETY ACT". WHEREVER EXCAVATIONS ARE MADE BELOW THE GRADES INDICATED ON THE DRAWINGS, CLEAN FILL MATERIAL APPROVED BY THE ENGINEER SHALL BE USED TO RESTORE THE AREA TO THE PROPER GRADE, AND SHALL BE COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS FOR COMPACTION INCLUDED IN THESE SPECIFICATIONS.

UNSUITABLE MATERIAL:

WHERE MUCK, ROCK, CLAY, ORGANIC MATERIAL OR OTHER DELETERIOUS MATERIAL WITHIN THE LIMITS OF CONSTRUCTION IS, IN THE OPINION OF THE ENGINEER, UNSUITABLE IN ITS ORIGINAL POSITION, THE CONTRACTOR SHALL EXCAVATE SUCH MATERIAL, AND BACKFILL THE EXCAVATED AREA WITH SUITABLE MATERIAL, WHICH SHALL BE COMPACTED AND SHAPED TO CONFORM TO THE REQUIRED SECTION. BACKFILL MATERIAL AND COMPACTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS INCLUDED IN THESE SPECIFICATIONS.

EARTHWORK:

DRY DETENTION AREAS:

ALL HARDPAN, CLAY AND/OR SILTY MATERIAL SHALL BE REMOVED FROM BENEATH THE TWO (2) PROPOSED DRY DETENTION AREAS TO A DEPTH OF AT LEAST FOUR (4) FEET BELOW EXISTING GROUND (BEG). THE MATERIAL SHALL BE REPLACED WITH A MATERIAL MEETING THE REQUIREMENTS OF SECTION 902-4 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT GRADATION AND CERTIFICATION OF THE MATERIAL THAT IS TO BE USED AT THE SITE.

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SELECT FILL:

A. THIS WORK SHALL CONSIST OF FURNISHING AND PLACING THE MATERIALS REQUIRED FOR FILL OR EMBANKMENT FOR THE CONSTRUCTION AS SHOWN ON THE DRAWINGS. THE MATERIAL USED FOR EMBANKMENT SHALL BE CLEAN UNIFORM FREE DRAINING GRANULAR SOIL CONSISTING OF SAND, GRAVEL, OR A MIXTURE THEREOF, AND/OR OTHER SUITABLE MATERIAL APPROVED BY THE ENGINEER. IF THE MATERIALS ARE OF A VARIABLE QUALITY, THE CONTRACTOR SHALL PLAN HIS OPERATIONS SO THAT THE UPPER TWO FEET OF THE FILL IS CONSTRUCTED OF SELECTED MATERIALS AS APPROVED AND DIRECTED BY THE ENGINEER.

B. PRIOR TO PLACING ANY FILL, THE SURFACE TO RECEIVE THE FILL SHALL BE PLOWED OR SCARIFIED. FILL SHALL BE PLACED IN SUCCESSIVE UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12"), MEASURED LOOSE, OR AS APPROVED BY THE ENGINEER. EACH LAYER SHALL BE COMPACTED BY AN APPROVED METHOD IN ACCORDANCE WITH THE REQUIREMENTS FOR COMPACTION INCLUDED IN THESE SPECIFICATIONS. THE COMPACTION SHALL BE VERIFIED THROUGH TESTING AS INDICATED IN THE TESTING SPECIFICATIONS.

BACKFILL:

ALL BACKFILL MATERIAL SHALL BE CLEAN, UNIFORM, FREE DRAINING SOIL AND FREE OF LUMBER, TRASH OR OTHER DEBRIS, AND SHALL BE THOROUGHLY COMPACTED IN LAYERS NOT TO EXCEED TWELVE INCHES (12"), MEASURED LOOSE AND BROUGHT TO AN ELEVATION ABOVE THE FINISHED GRADE, SUFFICIENT TO ALLOW FOR SETTLEMENT. PRIOR TO PLACING BACKFILL, THE AREAS AROUND STRUCTURES UPON WHICH THE BACKFILL IS TO BE PLACED, SHALL BE CLEANED OF ALL TRASH AND DEBRIS OF ANY NATURE. SHEETING AND BRACING ALLOWED TO BE LEFT IN PLACE SHALL BE CUT OFF A MINIMUM OF 2.5 FEET BELOW FINISHED GRADE. COMPACTION FOR EACH LIFT SHALL BE EQUAL TO 100% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.

EMBANKMENT GRADING:

THE CONTRACTOR SHALL PERFORM ALL NECESSARY GRADING TO ACHIEVE THE FINISHED GRADING AS PER THE DRAWINGS. ALL WORKMANSHIP SHALL BE IN ACCORDANCE WITH THESE SPECIFICATIONS.

COMPACTION:

ALL AREAS TO BE COMPACTED SHALL BE MOISTENED AND COMPACTED BY TAMPING OR USE OF VIBRATORY ROLLERS, VIBRATORY PLATE COMPACTORS OR ANY OTHER METHOD APPROVED BY THE ENGINEER IN ORDER TO OBTAIN THE REQUIRED DENSITY. WHERE USE OF VIBRATORY EQUIPMENT MAY AFFECT ADJACENT STRUCTURES, COMPACTION SHALL BE PERFORMED USING OTHER EQUIPMENT THAT WILL SATISFY THE DENSITY REQUIREMENTS WITHOUT DAMAGING EXISTING STRUCTURES. THE CONTRACTOR SHALL INSPECT ALL COMPACTED AREAS PRIOR TO FURTHER CONSTRUCTION OPERATIONS, TO ENSURE THAT SATISFACTORY COMPACTION HAS BEEN OBTAINED. ALL EMBANKMENT, INCLUDING BACKFILL AND EMBANKMENT ADJACENT TO STRUCTURES, SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 100 PERCENT (100%) OF THE MAXIMUM DENSITY, AS DETERMINED BY AASHTO T-99.

THE CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO COMPACTION IN AREAS AROUND STRUCTURES AND OTHER FEATURES WHERE ACCESS BY SELF PROPELLED VIBRATORY COMPACTORS MAY BE DIFFICULT.

BACKFILL AND COMPACTION WITHIN PIPE TRENCHES SHALL BE IN ACCORDANCE WITH THE TYPICAL TRENCH DETAIL SHOWN ON THE DRAWINGS. FOR NON-FLEXIBLE PIPE MATERIALS, ALL BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 100 PERCENT (100%) OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99. FOR FLEXIBLE PIPE MATERIALS, ALL BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95 PERCENT (95%) OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.

REQUIRED DENSITY TESTS SHALL BE MADE AT THE EXPENSE OF THE CONTRACTOR. THE TESTING LABORATORY SHALL FORWARD COPIES OF ALL TEST REPORTS TO THE ENGINEER, CONTRACTOR, AND OWNER.

STABILIZED SUBGRADE:

STABILIZED SUBGRADE SHALL BE CONSTRUCTED TO THE LIMEROCK BEARING RATIO AS PER THE DRAWINGS FOR THE DEPTH AND LIMITS SHOWN ON THE PLAN, AND IN ACCORDANCE WITH SECTION 160 OF THE STANDARD SPECIFICATIONS FOR TYPE C STABILIZATION. THE STABILIZED SUBGRADE SHALL BE CONSTRUCTED TO A LIMEROCK BEARING RATIO (LBR) OF NOT LESS THAN 40 AND SHALL BE COMPACTED TO NOT LESS THAN 98% OF THE MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR ASTM D-1557.

COMPACTED SUBGRADE:

COMPACTED SUBGRADE SHALL BE CONSTRUCTED TO THE DEPTH AND LIMITS SHOWN ON THE DRAWINGS. ALL COMPACTED SUBGRADE SHALL BE COMPACTED TO NOT LESS THAN 98% OF THE MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR ASTM D-1557.

ROCK BASE:

ROCK BASE SHALL BE CONSTRUCTED OF EITHER LIMEROCK MATERIAL OR CEMENTED COQUINA SHELL MATERIAL IN ACCORDANCE WITH SECTION 911OF THE STANDARD SPECIFICATIONS.

LIMEROCK BASE AND CEMENTED COQUINA SHELL BASE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. CONTRACTOR SHALL PROVIDE ROCK PIT CERTIFICATION FOR CEMENTED COQUINA SHELL MATERIAL.

ROCK BASE SHALL BE CONSTRUCTED TO THE DEPTH AND LIMITS AS SHOWN ON THE DRAWINGS. THE ROCK BASE MATERIAL SHALL HAVE A LIMEROCK BEARING RATIO (LBR) OF NOT LESS THAN 100. THE ROCK BASE SHALL BE COMPACTED TO NOT LESS THAN 98% OF THE MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR ASTM D-1557. A PRIME COAT AND SAND SEAL SHALL BE APPLIED TO THE ROCK BASE AFTER CONSTRUCTION OBSERVATION AND APPROVAL BY THE ENGINEER.

PRIME AND TACK COAT:

A BITUMINOUS PRIME COAT SHALL BE APPLIED TO THE ROCK BASE. PRIME COAT SHALL BE CUT BACK ASPHALT GRADE RC-70 OR RC-250 APPLIED AT A RATE OF NOT LESS THAN 0.10 GALLONS PER SQUARE YARD. THE PRIME COAT SHALL BE COVERED WITH SAND FREE FROM ANY APPRECIABLE AMOUNT OF SILT, CLAY, TRASH OR ORGANIC MATTER. A TACK COAT, WHERE SPECIFIED ON THE DRAWINGS, SHALL BE EMULSIFIED ASPHALT GRADES RS-1 AND RS-2 APPLIED AT A RATE OF BETWEEN 0.02 AND 0.08 GALLONS PER SQUARE YARD.

CONSTRUCTION OF THE PRIME AND TACK COATS SHALL BE IN ACCORDANCE WITH SECTION 300 OF THE STANDARD SPECIFICATIONS. BITUMINOUS MATERIALS FOR THE PRIME AND TACK COATS SHALL BE IN ACCORDANCE WITH SECTION 300 OF THE STANDARD SPECIFICATIONS.

ASPHALTIC CONCRETE SURFACE COURSE (A.C.S.C.):

THE A.C.S.C. SHALL BE CONSTRUCTED FOR THE DEPTH AND LIMITS SHOWN ON THE DRAWINGS, IN ACCORDANCE WITH SECTIONS 330 AND 334 OF THE STANDARD SPECIFICATIONS. A.C.S.C. SHALL HAVE A MARSHALL STABILITY OF NOT LESS THAN 1,000 LBS. BITUMINOUS MATERIAL SHALL BE ASPHALT CEMENT VISCOSITY GRADE AC-20 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TESTING:

THE CONTRACTOR SHALL PROVIDE THE SPECS AND SCOPE OF SERVICES FOR THE INDEPENDENT TESTING LABORATORY TO CONDUCT ALL REQUIRED TESTS. THE ENGINEER SHALL BE PRESENT FOR ALL TESTING. THE CONTRACTOR SHALL GIVE THE ENGINEER AT LEAST FORTY-EIGHT (48) HOURS NOTICE PRIOR TO ANY SCHEDULED TESTING. TEST RESULTS MUST BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL CERTIFICATION OR ANY REQUEST FOR PAYMENT ON THE ABOVE ITEMS. SEE ARCHITECTURAL PLANS AND SPECIFICATIONS FOR REQUIREMENTS WITHIN LIMITS OF BUILDING PADS.

THE SCHEDULE FOR TESTING OF ROADWAY AND PARKING CONSTRUCTION SHALL BE AS FOLLOWS:

A. SUBGRADE:
1. SAMPLES OF SUBGRADE MATERIAL SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 5,000 SF, OR CLOSER AS MIGHT BE NECESSARY IN THE EVENT OF VARIATIONS IN SUBSOIL CONDITIONS. LIMEROCK BEARING RATIO (LBR) TESTS SHALL BE PERFORMED ON A COMPOSITE OF SAMPLES OF SUBGRADE MATERIALS, CONSISTING OF MATERIAL FROM FOUR (4) CONSECUTIVE SAMPLES, SUCH THAT ONE (1) LBR TEST IS PERFORMED AT INTERVALS OF NOT MORE THAN 40,000 SQUARE FEET.

2. DENSITY TESTS SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 5000 SQUARE FEET OR CLOSER AS MIGHT BE NECESSARY.

B. BASE:
1. SAMPLES OF BASE MATERIAL SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 5,000 SF, OR CLOSER AS MIGHT BE NECESSARY IN THE EVENT OF VARIATIONS IN SUBSOIL CONDITIONS. LIMEROCK BEARING RATIO (LBR) TESTS SHALL BE PERFORMED ON A COMPOSITE OF SAMPLES OF BASE MATERIALS, CONSISTING OF MATERIAL FROM FOUR (4) CONSECUTIVE SAMPLES, SUCH THAT ONE (1) LBR TEST IS PERFORMED AT INTERVALS OF NOT MORE THAN 40,000 SQUARE FEET.

2. DENSITY TESTS SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 10,000 SF OR CLOSER AS MIGHT BE NECESSARY.

NOTE: A "NON-SOAKED" LBR TEST MAY BE USED IN LIEU OF A "STANDARD" (SOAKED) LBR TEST, PROVIDED THAT THE REQUIREMENT FOR ACCEPTANCE IS INCREASED BY 5 UNITS. I.e. "STANDARD" LBR=40, "NON-SOAKED" LBR=45

C. SELECT FILL
1. REPRESENTATIVE SAMPLES OF SELECT FILL MATERIAL SHALL BE TAKEN FOR EACH SOIL TYPE TO BE USED FOR FILL. AT MINIMUM, EACH SAMPLE SHALL BE TESTED TO DETERMINE GRADATION, CLASSIFICATION AND MAXIMUM DRY DENSITY. ADDITIONAL TESTING MAY BE REQUIRED AS INDICATED HEREIN OR AS DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

D. REPORTS
1. ALL SAMPLES TAKEN SHALL UNIQUELY NUMBERED
2. ALL FIELD DENSITY TESTS SHAL REFER TO UNIQUELY NUMBERED SAMPLES FOR DETERMINATION OF ADEQUATE COMPACTION.
3. THE GEOTECHNICAL ENGINEER SHALL RECORD THE LOCATION OF EACH TEST ON A COPY OF THE SITE PLAN, ALONG WITH THE EXTENT OF THE FILL PLACED.

IF ANY TEST INDICATES THAT THE WORK DOES NOT MEET THE SPECIFICATIONS, THE SUBSTANDARD AREA SHALL BE REWORKED OR CORRECTED AND RETESTED, AT THE CONTRACTOR'S EXPENSE, UNTIL THE PROVISIONS OF THESE SPECIFICATIONS ARE MET. ALL FAILING TESTS SHALL BE PAID FOR BY THE CONTRACTOR.

MILLING:

MILLING OF EXISTING ASPHALT CONCRETE PAVEMENT SHALL BE IN ACCORDANCE WITH SECTION 327 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN FOR REVIEW AND APPROVAL, PRIOR TO SCHEDULING AND MILLING.

CONCRETE:

UNLESS OTHERWISE SPECIFIED OR INDICATED, ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 3000 PSI. ALL WORK SHALL COMPLY WITH THE CURRENT EDITION OF THE AMERICAN CONCRETE INSTITUTE (ACI) BUILDING CODE AND APPLICABLE BUILDING CODES HAVING JURISDICTION IN THE AREA.

CONCRETE CURB:

CONCRETE CURB, CURB AND GUTTER, VALLEY GUTTER AND HEADER CURB SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. UNLESS OTHERWISE SPECIFIED OR INDICATED, ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 3000 PSI.

CONCRETE SIDEWALK:

CONCRETE SIDEWALK SHALL BE CONSTRUCTED TO THE DEPTH AND LIMITS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, UNLESS OTHERWISE SPECIFIED OR INDICATED. ALL CONCRETE FOR SIDEWALK CONSTRUCTION SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF AT 28 DAYS OF 3000 PSI. CONTRACTION JOINTS SHALL BE SAW CUT AT 5' SPACING OR AS SHOWN ON THE DRAWING. SIDEWALKS WILL HAVE A "BROOM FINISH".

CURING:

WHITE PIGMENTED CURING COMPOUND IN ACCORDANCE WITH SECTION 925 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL EXPOSED CONCRETE IMMEDIATELY UPON "FINISHING" OF CONCRETE OR IMMEDIATELY AFTER REMOVAL OF FORMS. CURING COMPOUND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 520 OF THE STANDARD SPECIFICATIONS.

JOINTING – GENERAL

JOINTS MAY BE FORMED IN THE PLASTIC CONCRETE OR SAWED AFTER THE CONCRETE HAS HARDENED AND SHALL BE TO A DEPTH OF 1/4 THE THICKNESS OF PAVEMENT. FORMED JOINTS MAY BE CONSTRUCTED BY DEPRESSING AN APPROVED TOOL INTO THE PLASTIC MATERIAL. SAWING OF JOINTS SHALL BEGIN AS SOON AS THE PAVEMENT HAS HARDENED SUFFICIENTLY TO PERMIT SAWING WITHOUT EXCESSIVE RAVELING AND BEFORE UNCONTROLLED CRACKING OCCURS.

CONSTRUCTION JOINTS:

ALL LONGITUDINAL JOINTS MAY BE CONSTRUCTION JOINTS AT THE CONTRACTOR'S OPTION. TRANSVERSE CONSTRUCTION JOINTS SHALL BE INSTALLED WHENEVER THE PLACING OF CONCRETE IS SUSPENDED A SUFFICIENT LENGTH OF TIME THAT THE CONCRETE MAY BEGIN TO HARDEN.

DRAINAGE – GENERAL:

STORM SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH SECTION 430 AND RELATED SECTIONS OF THE "STANDARD SPECIFICATIONS" OF THE FLORIDA DEPARTMENT OF TRANSPORTATION.

STORM INLETS AND MANHOLES SHALL BE CONSTRUCTED IN GENERAL ACCORDANCE WITH SECTION 425 OF THE "STANDARD SPECIFICATIONS". ALL REINFORCING STEEL TO BE ASTM A 615-72 GRADE 40 FYP = 40,000 PSI, AND SHALL BE HANDLED AND PLACED IN ACCORDANCE WITH ACI 318-71.

ALL INLETS, MANHOLES, AND PIPE SHALL BE PROTECTED DURING CONSTRUCTION TO PREVENT SILTATION IN THE DRAINAGE SYSTEM BY USE OF TEMPORARY PLUGS, PLYWOOD OR PLASTIC COVERS OR USE OF GEOTEXTILE FILTER FABRIC. THE ENTIRE DRAINAGE SYSTEM SHALL BE CLEANED OF ALL DEBRIS PRIOR TO FINAL INSPECTION AND CERTIFICATION.

PRECAST INLETS AND MANHOLES:

ALL STORM DRAINAGE INLETS AND MANHOLES SHALL BE PRECAST REINFORCED CONCRETE IN ACCORDANCE WITH SECTION 425 OF THE "STANDARD SPECIFICATIONS" AND THE DETAILS SHOWN ON THE DRAWINGS. TYPE II PORTLAND CEMENT SHALL BE USED IN THE CONCRETE MIX. CONCRETE FOR PRECAST STRUCTURES SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4000 PSI.

MANUFACTURER'S SHOP DRAWINGS FOR PRECAST DRAINAGE INLETS AND MANHOLES SHALL BE REVIEWED BY THE ENGINEER. THE CONTRACTOR SHALL ALLOW THE ENGINEER A MINIMUM OF FIVE (5) WORKING DAYS FOR REVIEW OF SHOP DRAWINGS.

CULVERT PIPES:

REINFORCED CONCRETE PIPE (RCP) SHALL BE IN ACCORDANCE WITH SECTION 941 OF THE "STANDARD SPECIFICATIONS".

CORRUGATED POLYETHYLENE PIPE (CPEP) SHALL BE IN ACCORDANCE WITH SECTION 948 OF THE "STANDARD SPECIFICATIONS".

POLYVINYL-CHLORIDE PIPE (PVC) SHALL BE IN ACCORDANCE WITH SECTION 947 OF THE "STANDARD SPECIFICATIONS".

THE CONTRACTOR SHALL COMPLETELY WRAP ALL PIPE JOINTS AND ALL PIPE CONNECTIONS INTO STRUCTURES WITH GEOTEXTILE FILTER FABRIC. FILTER FABRIC TO BE SECURED AROUND PIPE WITH BANDS SUITABLE FOR THE PIPE MATERIAL USED.

DISTURBED AREAS:

ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE GRASSED AS SPECIFIED IN THE STANDARD SPECIFICATIONS:

SODDING:

WITHIN THE LIMITS DELINEATED ON THE DRAWINGS, THE CONTRACTOR SHALL, AFTER FINAL GRADING AND CLEANUP, ESTABLISH A STAND OF GRASS BY FURNISHING AND PLACING SOD IN ACCORDANCE WITH SECTION 570 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL WATER THE SODDED AREA TO MAINTAIN MOISTURE LEVELS FOR OPTIMUM GROWTH TO ASSURE A HEALTHY STAND OF GRASS. SOD SHALL BE BAHIA GRASS SOD UNLESS OTHERWISE SPECIFIED.

SEEDING:

WITHIN THE LIMITS DELINEATED IN THE DRAWINGS THE CONTRACTOR SHALL, AFTER FINAL GRADING AND CLEAN-UP, ESTABLISH A STAND OF GRASS BY SEEDING IN ACCORDANCE WITH SECTION 570 OF THE STANDAR SPECIFICATIONS. THE CONTRACTOR SHALL WATER THE SEEDED AREA(S) TO MAINTAIN MOISTURE LEVELS FOR OPTIMUM GROWTH TO ASSURE A HEALTHY STAND OF GRASS. SEED SHALL BE BAHIA GRASS UNLESS OTHERWISE SPECIFIED.

RECORD DRAWINGS:

THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON THE PROJECT SITE AT ALL TIMES WHICH SHALL BE ANNOTATED BY THE CONTRACTOR DEPICTING ANY CHANGES MADE IN THE FIELD WHICH DIFFER FROM THE APPROVED CONSTRUCTION DRAWINGS. UPON COMPLETION OF CONSTRUCTION, BUT PRIOR TO FINAL INSPECTION AND CERTIFICATION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A REPRODUCIBLE MYLAR COPY AND AT LEAST THREE (3) BLUE LINE OR BLACK LINE COPIES OF THE RECORD DRAWINGS. THE RECORD DRAWINGS SHALL BE AT THE SAME SCALE AS THE APPROVED CONSTRUCTION DRAWINGS AND SHALL ACCURATELY DEPICT THE HORIZONTAL AND VERTICAL LOCATION OF ALL FACILITIES INCLUDING BUT NOT LIMITED TO:

A. CULVERTS INCLUDING PIPE INVERT ELEVATIONS
B. INLETS, MANHOLES, AND OTHER STRUCTURES INCLUDING DIMENSIONS, TOP, BOTTOM AND PIPE INVERT ELEVATIONS
C. PAVEMENT FINISH GRADES
D. PIPE AND UTILITY CROSSING INCLUDING ELEVATIONS AND HORIZONTAL AND VERTICAL CLEARANCE BETWEEN FACILITIES.

THE RECORD DRAWINGS SHALL BE PREPARED AND CERTIFIED BY A PROFESSIONAL SURVEYOR AND MAPPER LICENSED BY THE STATE OF FLORIDA.

CONSTRUCTION OBSERVATION:

MINIMUM CONSTRUCTION OBSERVATION CHECKPOINTS

I. EROSION AND SEDIMENT CONTROL, PRIOR TO BEGINNING CONSTRUCTION

II. CLEARING AND GRUBBING PRIOR TO PLACEMENT OF FILL OR BEGINNING CONSTRUCTION

III. DRAINAGE
A. ALL MATERIALS
B. DURING LAYING OF PIPE AND PRIOR TO BACKFILLING PIPE TRENCHES.
C. COMPLETION OF ALL DRAINAGE STRUCTURES AND PIPE LAYING (PRIOR TO BACKFILL).
D. CONSTRUCTION AND STABILIZATION OF LAKES, SWALES AND STORMWATER RETENTION/DETENTION AREAS
E. SEEDING AND/OR SODDING WHERE EROSION IS EVIDENT OR WHERE DRAWINGS SO IDENTIFY

IV. UTILITIES
A. ALL MATERIALS.
B. ALL PIPE LAYING PRIOR TO BACKFILL
C. JACK AND BORING AND/OR DIRECTIONAL DRILLING
D. RESTORATION
E. INSPECTOR MUST SEE ALL CONFLICT CROSSING IF NOT PIPE WILL BE DUG UP SO SEPARATION MAY BE SEEN
F. PRESSURE TESTING
G. LAMPING AND/OR VIDEO OBSERVATION OF LINES
H. PIPE/UTILITY CROSSINGS

V. CONCRETE
A. COMPLETION OF FORMING FOR PAVEMENT, CURBING, SIDEWALK, RETAINING WALLS AND ALL OTHER CONCRETE STRUCTURES PRIOR TO PLACEMENT OF CONCRETE INCLUDING SOIL COMPACTION, SOIL CONDITION (DRY / WET) AND SOIL ELEVATION
B. PLACING OF ALL CONCRETE
C. APPLICATION OF APPROVED MOISTURE BARRIER

VI. PAVEMENT
A. LINE AND GRADE
B. SUB-GRADE (PRIOR TO PLACING BASE MATERIAL)
C. BASE (PRIOR TO PRIMING AND SAND SEAL)
D. BASE (AFTER PRIMING, SAND SEAL AND BEFORE PLACING ASPHALT)
E. ASPHALT OR CONCRETE (WHILE PAVING IS IN PROGRESS)

VII. TESTING
A. SUB-GRADE
B. BASE
C. SURFACE COURSE
D. COMPACTION

VIII. FINAL PROJECT OBSERVATION
THE ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY SCHEDULED FIELD OBSERVATIONS.

CLEAN-UP:

THE CONTRACTOR MUST PROVIDE CLEAN-UP OF EXCESS CONSTRUCTION MATERIAL UPON COMPLETION OF THE PROJECT, THE SITE MUST BE LEFT IN A NEAT, CLEAN, GRADED CONDITION.

FINAL INSPECTION:

THE FINAL INSPECTION FROM THE ENGINEERING DEPARTMENT IS REQUIRED TO RECEIVE A CERTIFICATE OF OCCUPANCY. A FINAL ENGINEERING INSPECTION WILL NOT BE SCHEDULED UNTIL THE FOLLOWING ITEM ARE SUBMITTED TO THE ENGINEERING DEPARTMENT.

1. CERTIFICATION OF COMPLETION OF CONSTRUCTION FROM THE ENGINEER.
2. ACCEPTANCE OF CERTIFICATION OF COMPLETION OF CONSTRUCTION FRO THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT
3. AN ELECTRONIC COPY AND HARD COPY OF THE RECORD DRAWINGS (AS-BUILT SURVEY) OF THE COMPLETED IMPROVEMENTS
4. A COPY OF ALL INSPECTION AND TEST REPORTS

DENSITY TESTING SUMMARY:

FOR SANITARY SEWER AND DRAINAGE SYSTEMS WITH STRUCTURES:

1. ONE (1) STRUCTURE FOR STRUCTURE BEDDING
2. TWO (2) TESTS PER LIFT OF BACKFILL AT EACH STRUCTURE
3. ONE (1) TEST PER LIFT OF BACKFILL FOR EACH PIPE RUN BETWEEN STRUCTURES FOR RUNS OF 200' OR LESS, INCLUDING THE BEDDING IF DISTURBED OR OVER-EXCAVATED
4. TWO (2) TESTS PER LIFT OF BACKFILL FORE EACH PIPE RUN BETWEEN STRUCTURES FOR RUNS OVER 200', INCLUDING THE BEDDING IF DISTURBED OR OVER-EXCAVATED

FOR TRENCHES AND PAVEMENT:

1. ONE (1) TEST PER LIFT OF BACKFILL FOR EACH 100' OF TRENCH OR FRACTION THEREOF
2. ONE (1) TEST PER LIFT OF BACKFILL FOR EACH 2,500 SQUARE FEET OF TRENCH OR FRACTION THEREOF
3. ONE (1) TESTS PER LIFT OF EMBANKMENT FILL FOR EACH 10,000 SQUARE FEET BELOW THE PAVEMENT SUBGRADE
4. ONE (1) TEST PER LIFT FOR EACH 10,000 SQUARE FEET OR FRACTION THEREOF OF SUBGRADE
5. ONE (1) TEST PER LIFT FOR EACH 10,000 SQUARE FEET OR FRACTION THEREOF OF ROCK BASE

SUBMITTALS AND TEST REPORTS

1. PROVIDE A TESTING LOG OR SPREADSHEET IN ORDER OF AREAS TO BE TESTED SEPARATED BY SYSTEM. (A SPREADSHEET SAMPLE SHALL BE PROVIDED TO THE ENGINEER PRIOR TO COMMENCING CONSTRUCTION.)
2. A SAMPLE (BLANK) SPREADSHEET SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL WITH THE INITIAL SHOP DRAWING SUBMITTALS
3. TEST REPORTS SHALL INCLUDE A MAP DEPICTING THE LOCATION OF EACH TEST, INCLUDING STRUCTURE NUMBERS AND/OR OTHER RELEVANT INFORMATION REGARDING THE LOCATION OF EACH TEST.

NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD SPECIFICATIONS.

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
PAVING, GRADING & DRAINAGE
GENERAL NOTES
MARTIN COUNTY FLORIDA

PROJECT NO 010318-02-004

J. R. LEONARD, P.E. LICENSE No. 61737 STATE OF FLORIDA PROFESSIONAL ENGINEER
DEC 2019
L. LEONARD, P.E.
FL LICENSE NO. 61737

PLAN STATUS	
12-20-2019	COUNTY COMMENTS

DATE	DESCRIPTION	
LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 316-D-02-P000
SHEET D5

GENERAL NOTES:

FOR THE PURPOSE OF THE GENERAL NOTES BELOW, THE TERM DEPARTMENT SHALL MEAN "MARTIN COUNTY UTILITIES & SOLID WASTE DEPARTMENT".

1. ALL CONNECTIONS TO EXISTING MAINS SHALL BE OBSERVED BY THE DEPARTMENT. VALVES ON EXISTING MAINS SHALL BE OPERATED BY DEPARTMENT PERSONNEL OR UNDER THEIR DIRECT SUPERVISION. TAPPING SLEEVE AND VALVE SHALL BE PRESSURE TESTED PRIOR TO TAPPING. IF SERVICE MUST BE CUT OFF TO EXISTING CUSTOMERS, THE DEPARTMENT MUST HAVE THREE DAYS NOTICE TO MAKE NECESSARY NOTIFICATIONS. THE CONTRACTOR MAY BE REQUIRED TO ASSIST IN NOTIFICATIONS. IN THIS EVENT, CONTRACTOR SHALL BE READY TO PROCEED WITH AS MUCH MATERIAL PREASSEMBLED AS POSSIBLE AT THE SITE TO MINIMIZE THE LENGTH OF SERVICE INTERRUPTION. THE DEPARTMENT WILL POSTPONE A SERVICE CUT OFF IF THE CONTRACTOR IS NOT READY TO PROCEED ON SCHEDULE. SUCH CONNECTIONS SHALL BE MADE AT NIGHT TO MINIMIZE EFFECTS UNLESS OTHERWISE AUTHORIZED BY THE DEPARTMENT. NO CUSTOMER SHOULD BE WITHOUT SERVICE FOR MORE THAN FOUR HOURS.

LOCAL CHLORINATION WILL BE REQUIRED FOR ALL PIPE AND FITTINGS USED TO COMPLETE CONNECTIONS WITH POTABLE WATER.

2. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF MARTIN COUNTY UTILITIES MINIMUM DESIGN AND CONSTRUCTION STANDARDS, ONE COPY OF THE CONTRACT DOCUMENTS, INCLUDING PLANS, SPECIFICATIONS AND SPECIAL PROVISIONS, AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.

3. THE CONTRACTOR SHALL CONTACT ALL CONCERNED UTILITIES AT LEAST 48 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS.

4. THE LOCATION AND SIZE OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITIES BY ELECTRONIC METHOD AND BY HAND EXCAVATION IN COORDINATION WITH ALL UTILITY COMPANIES PRIOR TO BEGINNING ANY CONSTRUCTION OPERATIONS. ANY AND ALL CONFLICTS OF EXISTING UTILITIES WITH PROPOSED IMPROVEMENTS SHALL BE RESOLVED BY THE ENGINEER AND DEPARTMENT PRIOR TO BEGINNING ANY CONSTRUCTION OPERATIONS. THIS WORK BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

5. LOCATION OF PROPOSED FACILITIES WILL BE STAKED BY CONTRACTOR. CONTRACTOR MUST GIVE 48 HOURS NOTICE TO THE DEPARTMENT IN ADVANCE OF LAYOUT.

6. PROJECT SUPERINTENDENT. THE CONTRACTOR SHALL PROVIDE A QUALIFIED SUPERINTENDENT TO REMAIN ON THE JOB SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. THE SUPERINTENDENT SHALL BE PRESENT AT THE PRE-CONSTRUCTION MEETINGS. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT BY LETTER PRIOR TO THE PRE-CONSTRUCTION MEETING APPOINTING THE SUPERINTENDENT FOR THIS PROJECT INCLUDING A FORMAL RESUME SHOWING QUALIFICATIONS. IN THE EVENT THE SUPERINTENDENT WILL NOT BE PRESENT FOR ANY PERIOD OF TIME DURING CONTRACT WORK THE CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE IN WRITING TO THE DEPARTMENT, INCLUDING THE APPOINTMENT OF A QUALIFIED REPLACEMENT SUPERINTENDENT WHO WILL BE PRESENT DURING THE CONSTRUCTION. WORK SHALL NOT BE ALLOWED TO PROCEED UNLESS THE ASSIGNED SUPERINTENDENT IS PRESENT.

7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE HIS COMPLETE FAMILIARITY WITH THE PROJECT SITE AND COMPONENTS TO INCLUDE SUBSURFACE CONDITIONS OF SOIL AND GROUNDWATER TABLE.

WARNING: EXACT LOCATION OF UNDERGROUND UTILITIES IS NOT KNOWN NOR IS THIS DRAWING TO BE CONSTRUED AS DEPICTING THE LOCATION OF ALL UNDERGROUND UTILITIES OR STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINATION OF LOCATION PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR IS RESPONSIBLE, THEREFORE, FOR ALL DAMAGE AND REPAIR COSTS.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	GENERAL NOTES, SPECIFICATIONS AND SEPARATION STATEMENT	1A

GENERAL NOTES (Cont.):

8. DENSITY TESTS OF TRENCH BACKFILL MATERIAL SHALL BE REQUIRED AT INTERVALS OF NOT MORE THAN 300 FEET. DENSITY TESTS OF PAVEMENT OPEN-CUT AREAS INCLUDING ROADS, TURNLANES, AND DRIVES SHALL BE REQUIRED AT EACH OPEN-CUT AT INTERVALS OF NOT MORE THAN 50 FEET. ALL TESTS SHALL COMMENCE AT THE TOP OF CONDUIT AND EVERY 12 INCHES TO THE FINISH GRADE. COMPACTION SHALL BE IN ACCORDANCE WITH MARTIN COUNTY UTILITIES CONSTRUCTION STANDARDS "TYPICAL TRENCH DETAIL" AND "FLEXIBLE PAVEMENT REPLACEMENT DETAIL". FLORIDA BEARING TESTS FOR THE STABILITY OF EXISTING SUBSOIL SHALL BE TAKEN AT INTERVALS OF NOT MORE THAN 500 FEET, AND CLOSER AS MIGHT BE NECESSARY IN THE EVENT OF VARIATIONS IN THE STRATA. A CERTIFIED COPY OF THE TESTS SHALL BE PROVIDED TO THE DEPARTMENT AND THE FLORIDA DEPARTMENT OF TRANSPORTATION OR MARTIN COUNTY ENGINEERING DEPARTMENT DEPENDING ON JURISDICTION. CONTRACTORS BID PRICE SHALL INCLUDE PAYMENT FOR ALL TESTS CONDUCTED BY AN INDEPENDENT TESTING LAB.

9. ANY LANDSCAPING DISTURBED, UNLESS OTHERWISE SHOWN ON THE PLANS, SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE DEPARTMENT AT THE CONTRACTORS EXPENSE.

10. ANY SIDEWALK, CURB AND GUTTER OR PAVEMENT DISTURBED, UNLESS OTHERWISE SHOWN ON PLANS, SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. UNLESS OTHERWISE SPECIFIED OR INDICATED, ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 psi AT 28 DAYS AND ALL CONCRETE WORK SHALL COMPLY WITH THE CURRENT EDITION OF THE AMERICAN CONCRETE INSTITUTE (ACI) BUILDING CODE AND THE APPLICABLE BUILDING CODES HAVING JURISDICTION IN THE AREA. ALL CONSTRUCTION SHALL MEET ADA REQUIREMENTS. THIS INCLUDES, BUT IS NOT LIMITED TO, DETECTABLE WARNING SURFACES.

11. ALL SOD IS TO BE PLACED FOR THE FULL WIDTH DISTURBED AT THE PER LINEAR FOOT UNIT PRICE FOR SOD. SOD SHALL BE REPLACED TO MATCH EXISTING KIND UNLESS OTHERWISE SHOWN ON PLANS.

12. CONTRACTOR SHALL PROVIDE PROPER BENDS TO MAINTAIN REQUIRED DEPTH AND ALIGNMENT OF PIPE. COST OF BENDS NOT DESIGNATED ON PLANS SHALL BE INCLUDED WITH THE UNIT PRICE FOR PIPE.

13. ANY TREES AND/OR SCRUB OR OTHER VEGETATION NOT TO BE REPLACED SHALL BE REMOVED FROM THE PROJECT AT THE CONTRACTOR'S EXPENSE.

14. ALL RUBBLE AND UNSUITABLE MATERIAL MUST BE REMOVED FROM THE PROJECT AND DISPOSED OF PROPERLY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

15. MAILBOXES MUST BE CAPABLE OF RECEIVING MAIL AT ALL TIMES.

16. DEFLECT PIPE AS NECESSARY TO OBTAIN THE REQUIRED ALIGNMENT. USE APPROPRIATE FITTINGS WHEN DEFLECTION EXCEEDS 75% OF MANUFACTURER'S RECOMMENDED MAXIMUM DEFLECTION.

17. ALL FITTINGS SHALL BE MECHANICALLY RESTRAINED. REFER TO MARTIN COUNTY UTILITIES DEPARTMENT MINIMUM DESIGN & CONSTRUCTION STANDARDS (LATEST EDITION).

18. ALL CONSTRUCTION DEWATERING (WELL POINTS, SUMPS, ETC.) WILL REQUIRE A DEWATERING PERMIT FROM SOUTH FLORIDA WATER MANAGEMENT DISTRICT. THIS SHALL BE OBTAINED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE PRIOR TO BEGINNING OF CONSTRUCTION.

19. THE "TRENCH SAFETY ACT" SHALL BE INCORPORATED INTO THIS CONTRACT AS ENACTED BY THE LEGISLATURE OF THE STATE OF FLORIDA TO BE IN EFFECT AS OF OCTOBER 1, 1990.

20. A U-7 PERMIT IS REQUIRED FOR ALL WORK WITHIN COUNTY RIGHT-OF-WAY. THIS PERMIT MUST BE OBTAINED BY THE CONTRACTOR FROM THE MARTIN COUNTY ENGINEERING DEPARTMENT. ALL COSTS PAYABLE BY THE CONTRACTOR. A COPY OF THIS PERMIT MUST BE MAINTAINED ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.

21. ALL CONCRETE AND ASPHALT DRIVES MUST BE REPLACED FROM SAW CUT TO EDGE OF PAVEMENT.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	GENERAL NOTES, SPECIFICATIONS AND SEPARATION STATEMENT	1B

GENERAL NOTES (Cont.):

22. LOCATIONS OF FIRE HYDRANTS AND AIR RELEASE VALVES ARE APPROXIMATE ONLY. FINAL LOCATIONS WILL BE DETERMINED BY DEPARTMENT PERSONNEL IN FIELD.

23. MAXIMUM LENGTH OF WATER MAIN AND FORCE MAIN PRESSURE TEST SHALL BE 1500 FEET. WATER SOURCE FOR FLUSHING, FILLING AND PRESSURE TESTING THE WATER MAIN SHALL BE FROM A TREATED SOURCE APPROVED BY THE DEPARTMENT.

24. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION AND RESTORATION (IF DAMAGED) OF ALL EXISTING STRUCTURES WITHIN THE CONSTRUCTION LIMITS OF THE PROJECT, INCLUDING BUT NOT LIMITED TO WALLS, FENCES, POWER POLES, MAIL BOXES, DRAINAGE PIPES AND STRUCTURES, ETC.

25. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING WATER SERVICES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROTECT THE EXISTING WATER SERVICES FROM DAMAGE AND REPAIR ANY BREAKS IMMEDIATELY.

26. "RECORD DRAWINGS" SHALL INCLUDE FURNISHING MARTIN COUNTY UTILITIES DEPARTMENT WITH ALL INFORMATION NECESSARY FOR A COMPLETE SET OF RECORD DRAWINGS AS STIPULATED IN THE MARTIN COUNTY UTILITIES DEPARTMENT MINIMUM DESIGN AND CONSTRUCTION STANDARDS (LATEST EDITION).

27. MECHANICALLY RESTRAIN LENGTHS, AS INDICATED ON DRAWING No. 20, ON EACH SIDE OF ALL BENDS AND AS INSTRUCTED IN MARTIN COUNTY UTILITIES DEPARTMENT SPECIFICATIONS. MECHANICAL RESTRAINTS SHALL BE EITHER MEG-A-LUG, TYLER OR UNIFLANGE. THE CONTRACTORS BID PRICE FOR PIPE, GATE VALVES AND FITTINGS SHALL INCLUDE MECHANICAL RESTRAINT.

28. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL SUPPORT UTILITIES AND SHORE TRENCH AS REQUIRED TO PROTECT AND MAINTAIN EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY EACH UTILITY PRIOR TO ATTEMPTING TO SUPPORT THEIR FACILITIES. IF THE UTILITY REQUIRES THAT ONLY THEIR CREWS SHALL BE ALLOWED TO SUPPORT THEIR FACILITIES, THEN IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO COORDINATE WORK AND PAY THE UTILITY FOR THEIR EXPENSES IF REQUIRED. ALL COSTS FOR THIS WORK SHALL BE AT THE CONTRACTORS EXPENSE AND INCLUDED IN THE CONTRACTORS BID PRICE.

29. ALL PRESSURE TESTS SHALL BE IN ACCORDANCE WITH AWWA STANDARDS.

30. AIR RELEASE VALVE VAULT COVERS SHALL BE CONSTRUCTED PER DETAIL AS SHOWN IN THE DEPARTMENTS MINIMUM DESIGN AND CONSTRUCTION STANDARDS.

31. ALL WATER SERVICES SHALL BE DIRECTIONALLY DRILLED UNDER EXISTING PAVEMENT.

32. VALVE STEM RISER SHALL BE REQUIRED WHERE OPERATING NUT DEPTH EXCEEDS 4 FEET. THE RISER SHALL BE BOLTED TO THE VALVE NUT. METHOD AND MATERIALS SHALL BE APPROVED BY THE DEPARTMENT. COST FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACTORS BID UNIT PRICE FOR GATE VALVES.

33. THE CONTRACTOR SHALL CLEAN MAINS USING APPROVED POLYURETHANE PIG(S). TEMPORARY CLEANING STATIONS SHALL BE CONSTRUCTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A CLEANING PLAN SHOWING METHOD OF FILLING AND CLEANING MAINS PRIOR TO START OF CONSTRUCTION. THE CLEANING PLAN SHALL BE APPROVED BY THE DEPARTMENT PRIOR TO CONSTRUCTION. ALL COSTS FOR FILLING AND CLEANING SHALL BE AT THE CONTRACTORS EXPENSE.

34. A FLORIDA DEPARTMENT OF TRANSPORTATION PERMIT IS REQUIRED FOR ALL WORK, EXCEPT PERPENDICULAR CONNECTIONS, WITHIN THE STATE RIGHT-OF-WAY. A COPY OF THIS PERMIT MUST BE MAINTAINED ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.

35. THE CONTRACTOR SHALL INSTALL TESTING POINTS FOR PRESSURE & BACTERIOLOGICAL TESTING OF WATER MAINS. THE CONTRACTOR SHALL INSTALL AND REMOVE AND PLUG CORP. STOPS PER MARTIN COUNTY UTILITIES STANDARDS "SAMPLE POINT DETAIL". THE LOCATION OF TEST POINTS SHALL BE APPROVED BY THE DEPARTMENT.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	GENERAL NOTES, SPECIFICATIONS AND SEPARATION STATEMENT	1C

GENERAL NOTES (Cont.):

36. WATER MAIN DISINFECTION SHALL BE IN ACCORDANCE WITH CURRENT AWWA BULLETIN C-651.

37. WATER MAINS AND APPURTENANCES SHALL BE IN ACCORDANCE WITH CURRENT AWWA, FDEP AND NSF STANDARDS.

38. MINIMUM COVER TO FINISHED GRADE OVER WATER MAINS SHALL BE 30 INCHES UP TO 8" DIAMETER, 10" OR LARGER SHALL HAVE 36" COVER OR GREATER TO PROVIDE A MINIMUM 18" COVER OVER OPERATING NUT OF GATE VALVES.

39. ALL MAINS SHALL BE TESTED FOR LEAKAGE. WATER SHALL BE SUPPLIED TO THE MAIN AND PUMPED TO THE REQUIRED 150 PSI PRESSURE. THE MAIN TESTED SHALL EITHER BE ISOLATED FROM PRESENTLY POTABLE LINES OR PROTECTED FROM LEAKAGE BY A DOUBLE VALVE ARRANGEMENT.

40. NEWLY CONSTRUCTED FIRE HYDRANTS THROUGHOUT THE PROJECT SHALL HAVE A RED "OUT OF SERVICE" DISK (JOSEPH G. POLLARD CO. OR EQUAL) ATTACHED TO 4" PUMPER NOZZLE CAP. DISK TO BE REMOVED AFTER WATER SYSTEM HAS BEEN APPROVED FOR SERVICE BY THE DEPARTMENT.

THE DEPARTMENT SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF ANY TESTING PROCEDURES. AFTER FLUSHING IS COMPLETED, LINE PRESSURE SHALL BE APPLIED TO THE WATER SYSTEM TO DETERMINE IF ANY MAJOR DEFECTS ARE PRESENT. THE COMPLETE WATER SYSTEM SHALL THEN BE TESTED AT A PRESSURE OF 150 PSI FOR A PERIOD OF NOT LESS THAN TWO HOURS. THE DEPARTMENT MAY, AT ITS DISCRETION, INCREASE THE PERIOD TO FOUR HOURS. MAXIMUM LENGTH OF LINE TO BE TESTED AT ONE TIME SHALL NOT EXCEED 1500 LINEAR FEET. AN OIL FILLED PRESSURE GAUGE UP TO 200 PSI AT 2 POUND INCREMENTS SHALL BE USED FOR ALL PRESSURE TESTS. NO VISIBLE MOVEMENT OF THE SYSTEM SHALL OCCUR AND LEAKAGE SHALL NOT EXCEED:

$$L = \frac{ND\sqrt{P}}{7400} \text{ PER HOUR}$$

WHERE, L= LEAKAGE IN GALLONS
N= NUMBER OF JOINTS IN TEST SECTION
P= TEST PRESSURE IN PSI
D= DIAMETER OF PIPE IN INCHES

NOTE: MARTIN COUNTY UTILITIES DEPARTMENT'S MINIMUM DESIGN AND CONSTRUCTION STANDARDS (LATEST EDITION), ARE TO BE ADHERED TO AND WILL BE ENFORCED TO AT LEAST THESE MINIMUM STANDARDS.

48 HOURS BEFORE DIGGING
CALL TOLL-FREE
1-800-432-4770
SUNSHINE STATE ONE CALL OF FLORIDA, INC
UNDERGROUND UTILITIES NOTIFICATION CENTER

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	GENERAL NOTES, SPECIFICATIONS AND SEPARATION STATEMENT	1D

STANDARD WATER/SEWER SEPARATION STATEMENT

[illegible]

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	GENERAL NOTES, SPECIFICATIONS AND SEPARATION STATEMENT	1E

811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG

NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD SPECIFICATIONS.

Bowman CONSULTING

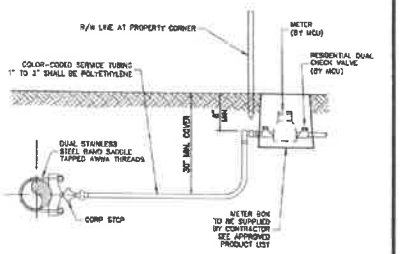
MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
WATER AND WASTEWATER GENERAL NOTES
MARTIN COUNTY FLORIDA

PROJECT NO 010318-02-004

PLAN STATUS
05-29-2019 COUNTY COMMENTS

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
SHEET D6

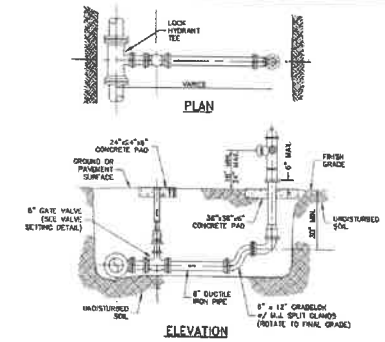


NOTES:

1. MIN. SERVICE LINES SHALL BE AS FOLLOWS: 1" FOR SINGLE AND DOUBLE SERVICES WHERE METER SIZE IS 5/8", 1" FOR SINGLE AND DOUBLE SERVICES WHERE METER SIZE IS 1".
2. COMPRESSION FITTINGS SHALL BE SUITABLE FOR TUBING USED AND REQUIRE METAL (S.S.) INSERTS.
3. DOUBLE SERVICES REQUIRE "U" BRANCH WITH ANGLE CURB STOPS.
4. POLYETHYLENE SHALL BE AS DEFINED BY A.S.T.M. D2737 SDR9 COPPER TUBE SIZE (CTS) AND A.W.W.A. 901, LATEST EDITION, AND BE PRESSURE RATED FOR 200 PSI AND SHALL BE "ENDOPLAST" BY ENDOT INDUSTRIES, INC., RADCLIFF, N.J., OR APPROVED EQUAL.
5. TUBING SHALL BE MARKED WITH SIZE, MANUFACTURER'S NAME, WORKING PRESSURE, NATIONAL SANITATION FOUNDATION APPROVAL, A.S.T.M. SPECIFICATION AND PRODUCTION CODE. TUBING SHALL HAVE AN OUTSIDE DIAMETER EQUIVALENT TO THE OUTER DIAMETER OF COPPER TUBING.
8. SERVICE LOCATOR WIRE SHALL BE LAID IN THE TRENCH WITH ALL SERVICES, CONNECTED TO THE MAIN WIRE AND WRAPPED AROUND THE SERVICE PIPING OR "LOOPED" WIRE FOR POTABLE WATER SHALL BE BLUE IN COLOR.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	SERVICE CONNECTION DETAIL 5/8" OR 1" METER	2

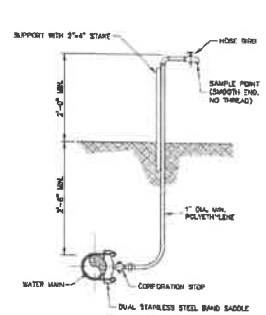


NOTES:

1. HYDRANTS SHALL BE INSTALLED PLUMB AND TRUE.
2. VALVES SHALL BE FLANGED ADJACENT TO MAIN, AND TIED TO TEE.
3. ANCHOR TEES ARE REQUIRED.
4. ALL HYDRANTS SHALL BE TEED OFF OF MAIN.
5. HYDRANTS SHALL NOT BE PLACED IN SIDEWALK, ROADWAYS OR DRIVEWAYS.
6. PIPE FROM VALVE TO HYDRANT SHALL BE RESTRAINED.
7. HYDRANT BARREL AND BONNET COLOR TO BE CHAL YELLOW.
8. THE CONNECTOR PIPE SHALL BE CEMENT LINED DUCTILE IRON, CLASS 350 AND POSITIONED BETWEEN THE FIRE HYDRANT AND GATE VALVE.
9. THE CONNECTOR PIPE SHALL HAVE AN ANCHORING FEATURE AT BOTH ENDS SO THAT WHEN USED WITH M.J. SPLIT GLANDS A RESTRAINED JOINT IS PROVIDED.
10. HYDRANT EXTENSIONS SHALL NOT BE ALLOWED.
11. NEWLY CONSTRUCTED FIRE HYDRANTS THROUGHOUT THE PROJECT SHALL HAVE A RED "OUT OF SERVICE" BAG (ARMOR G. POLLARD CO. OR EQUAL) ATTACHED TO 4" PUMPER NOZZLE CAP. BAG TO BE REMOVED AFTER WATER SYSTEM HAS BEEN APPROVED FOR SERVICE BY THE DEPARTMENT.
12. A MINIMUM OF 50 FEET OF HORIZONTAL PIPE SHALL TYPICALLY BE INSTALLED BETWEEN THE 6" GATE VALVE AT THE WATER MAIN AND THE HYDRANT. IF IT IS NECESSARY TO INSTALL MORE THAN 50 FEET OF HORIZONTAL PIPE, AN ADDITIONAL 6" GATE VALVE WILL BE REQUIRED AT THE HYDRANT LOCATION.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	FIRE HYDRANT INSTALLATION DETAIL AND NOTES	7

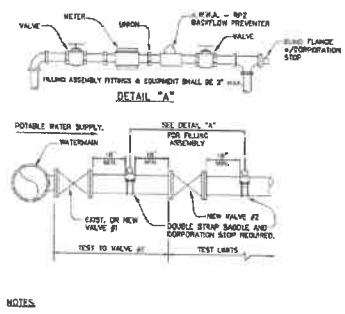


NOTES:

1. SAMPLE POINT SHOULD BE A SERVICE LINE.
2. AFTER SAMPLING IS COMPLETED AND APPROVED, SHUT OFF CORP. STOP, REMOVE TUBING, PLUG WITH BRASS PLUG AND LOCATE FOR RECORD DRAWINGS.
3. MOUNT METAL OR PLASTIC TAG INDICATING "SAMPLE POINT – DO NOT TURN OFF"

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	SAMPLE POINT DETAIL	9

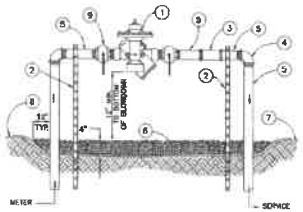


NOTES:

1. MAIN VALVES SHALL BE KEPT CLOSED EXCEPT FOR FILLING, FLUSHING AND BACTERIOLOGICAL TESTING PURPOSES.
2. DEPARTMENT SHALL BE NOTIFIED BEFORE FILLING AND FLUSHING.
3. PRESSURE TEST PUMP CONNECTS TO SERVICE LINE OR BLOWOFF; NO EXTRA TAPS ARE PERMITTED UNLESS PRECEDENCE ARE NOT PRESENT IN TEST SECTION.
4. PRESSURE GAUGE TO BE LOCATED on VICINITY OF TEST PUMP CONNECTION. GAUGE AND RISER TO BE REMOVED AFTER PRESSURE TEST.
5. REMOVE TEMPORARY CONNECTION AT CORPORATION STOPS AFTER FILLING AND FLUSHING HAS BEEN COMPLETED.
6. INJECT CHLORINE ON PROJECT SIDE OF BACKFLOW PREVENTER.
8. CONTRACTOR TO PROVIDE AN RPZ CERTIFICATION (LESS THAN 1 YEAR) PRIOR TO INSTALLATION.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	DOUBLE VALVE DETAIL AND FILLING AND FLUSHING CONNECTION	11



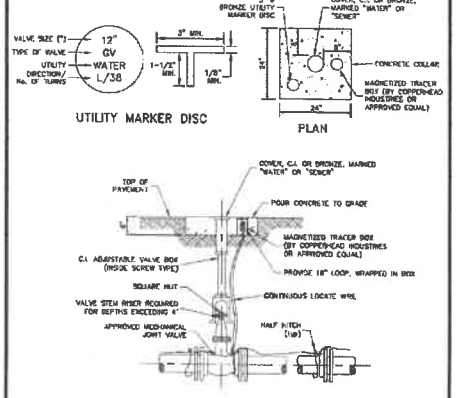
ITEM	QUANT	DESCRIPTION
1	1	BACKFLOW PREVENTER
2	2	S.S. [illegible] STRAPS
3	1	COUPLING – COMPRESSION
4	2	2" x 90° ELBOW
5	4	2" x 6" NIPPLE
6		PEA GRAVEL
7		FILTER FABRIC
8		FINISHED GRADE
9	2	BALL VALVE

NOTES:

1. INSTALLATION SHOWN ABOVE IS FOR A 2" SERVICE. CHANGE PIPING MATERIALS ACCORDINGLY FOR SERVICE SIZE.
2. USE COPPER, BRASS OR STAINLESS STEEL FOR FITTINGS AND PIPE MATERIAL

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	REDUCED PRESSURE BACKFLOW PREVENTER SINGLE SERVICE 3/4", 1", 1-1/2" AND 2"	13

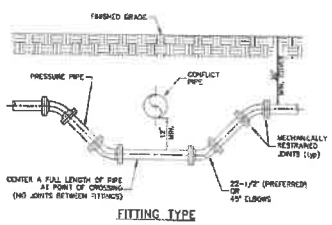


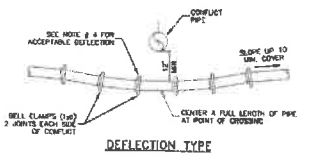
NOTES:

1. A LOCATION BALL (3M EVS BALL MARKERS, WATER/BLUE, MODEL No. 1403-XR, SEWER/GREEN, MODEL No. 1404-XR OR EQUAL) SHALL BE INSTALLED AT EACH FITTING AND/OR EVERY 100 FEET OF SEPARATION.
2. FOR DEEP VALVE INSTALLATIONS, A 6" C-900 PVC EXTENSION MAY BE USED TO BRING VALVE BOX TO GRADE.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	VALVE SETTING DETAIL	18



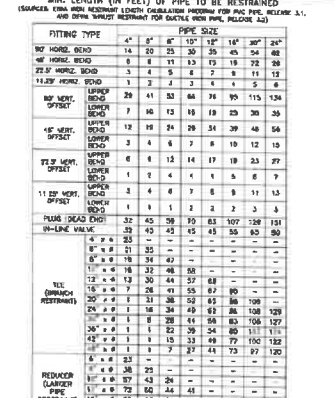


NOTES:

1. THESE METHODS ARE TO BE USED WHEN INSUFFICIENT COVER EXISTS TO ALLOW PRESSURE PIPE TO CROSS ABOVE CONFLICT PIPE WITH 6" VERTICAL SEPARATION AND MAINTAIN REQUIRED COVER TO FINISHED GRADE.
2. FITTINGS SHALL BE RESTRAINED WITH RETAINER GLANDS.
3. THE DEFLECTION TYPE CROSSING IS PREFERRED
4. DO NOT EXCEED 50% OF MANUFACTURER'S RECOMMENDED MAXIMUM JOINT DEFLECTION.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	PRESSURE PIPE CONFLICT DETAIL	20



WIN. LENGTH (IN FEET) OF PIPE TO BE RESTRAINED
(SOURCED FROM IRON REGIMENT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 3.1, AND DIPRA THRUST RESTRAINT FOR DUCTILE IRON PIPE, RELEASE 3.2)

FITTING TYPE		PIPE SIZE 4"	6"	8"	10"	12"	16"	20"	24"
90° HORIZ. BEND		14	20	25	30	35	45	54	66
45° HORIZ. BEND		8	8	11	13	15	19	22	28
22.5° HORIZ. BEND		3	4	5	6	7	9	11	13
11.25° HORIZ. BEND		1	2	3	3	4	4	5	6
90° VERT. OFFSET	UPPER BEND	29	41	53	66	78	99	115	134
	LOWER BEND	7	10	13	16	19	25	30	35
45° VERT. OFFSET	UPPER BEND	12	18	24	29	34	39	48	56
	LOWER BEND	3	4	6	7	8	10	12	15
22.5° VERT. OFFSET	UPPER BEND	6	8	12	14	17	19	23	27
	LOWER BEND	1	2	4	4	4	5	6	7
11.25° VERT. OFFSET	UPPER BEND	3	4	6	7	8	9	11	13
	LOWER BEND	1	1	1	2	2	2	3	4
PLUG (DEAD END)		32	45	58	70	83	107	128	151
IN-LINE VALVE		33	45	45	45	45	58	83	90
TEE (BRANCH RESTRAINT)	4" x 4	23	--	--	--	--	--	--	--
	6" x 6	31	31	--	--	--	--	--	--
	8" x 8	31	35	--	--	--	--	--	--
	8" x 6	18	34	42	--	--	--	--	--
	12" x 6	13	30	44	57	68	--	--	--
	12" x 8	7	26	41	55	67	90	--	--
	20" x 8	2	21	38	52	65	88	108	--
	24" x 8	1	18	34	49	62	84	103	129
	30" x 8	1	11	28	44	56	80	100	127
	36" x 8	1	1	22	39	54	80	101	128
	42" x 8	1	1	15	33	48	77	100	128
	48" x 8	1	1	7	27	44	73	97	120
REDUCER (LARGER PIPE RESTRAINT)	6" x 4	23	--	--	--	--	--	--	--
	6" x 6	38	23	--	--	--	--	--	--
	8" x 6	57	43	26	--	--	--	--	--
	8" x 8	72	60	44	45	--	--	--	--
	12" x 6	88	80	76	73	45	--	--	--
	8" x 8	133	118	107	100	81	45	--	--
	24" x 8	146	140	132	131	111	82	45	--

NOTES:
1. THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
   SOIL TYPE-SAND — TEST PRESSURE-150 PSI — DEPTH OF BURY-3'
   TRENCH TYPE-3 — SAFETY FACTOR- 2.5 — VERTICAL OFFSET-3'
   MINIMUM PIPE LENGTH ALONG ICE RUN-1'
2. THE RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON AND PVC PIPE.
3. ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
4. RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF VALVES AND FITTINGS.
5. DESIGN ENGINEER SHALL BE RESPONSIBLE FOR PROPERLY SIZING THE LENGTH OF PIPE TO BE RESTRAINED.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	MECHANICAL JOINT ANCHORING REQUIREMENTS	21

NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD SPECIFICATIONS.

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
WATER AND WASTEWATER DETAILS
MARTIN COUNTY FLORIDA

PROJECT NO
010318-02-004

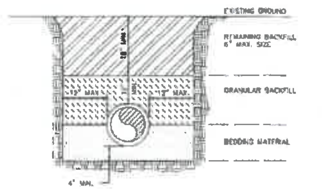
LEONARD LEE
PLUMBING INC. 6117

PLAN STATUS

DATE	DESCRIPTION
5-29-2019	COUNTY COMMENTS

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-02-02-UTPD
SHEET D7

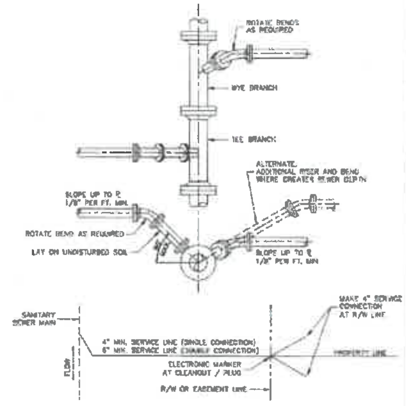


NOTES:

1. BEDDING MATERIAL SHALL BE HAND PLACED IN 6" LIFTS AND SHALL CONSIST OF IN-SITU GRANULAR MATERIAL OR WASHED AND GRADED LIMEROCK 3/8"-7/8" SIZING. UNSUITABLE IN-SITU MATERIALS SUCH AS MUCK, DEBRIS AND LARGER ROCK SHALL BE REMOVED.
2. THE PIPE SHALL BE FULLY SUPPORTED FOR ITS ENTIRE LENGTH WITH APPROPRIATE COMPACTION UNDER THE PIPE HAUNCHES.
3. THE PIPE SHALL BE PLACED IN A DRY TRENCH.
4. BACKFILL SHALL BE DONE WITH APPROVED MATERIAL, CLEAN AND FREE OF ROCKS, MUCK AND OTHER DELETERIOUS MATTER AND COMPACTED BENEATH THE HAUNCHES OF THE PIPE USING MECHANICAL TAMPERS TO 100% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.
5. BACKFILL TO BE COMPACTED ALONG THE SIDES OF THE PIPE AND TO A POINT ONE FOOT ABOVE THE TOP OF THE PIPE TO 100% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.
6. A. WHERE PAVEMENT IS TO BE CONSTRUCTED OVER THE PIPE THE REMAINING BACKFILL SHALL BE COMPACTED IN 6 INCH LAYERS AND COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
   B. WHERE "NO" PAVEMENT IS TO BE CONSTRUCTED OVER THE PIPE THE REMAINING FILL SHALL BE COMPACTED IN 8 INCH LAYERS TO A DENSITY 90% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
7. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL TRENCH SAFETY REGULATIONS.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	TYPICAL TRENCH DETAIL	23

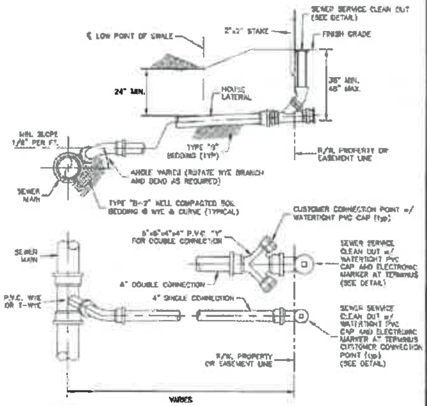


NOTES

1. SERVICE LATERALS SHALL TERMINATE WITH A CLEANOUT AT ℞.
2. LATERAL DEPTH AT ℞ SHALL BE (3) FEET MIN., PLUGGED WATERTIGHT AND MARKED WITH 2" x 2" TREATED STAKE AND ELECTRONIC MARKER.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	TYPICAL SEWER SERVICE CONNECTION	31

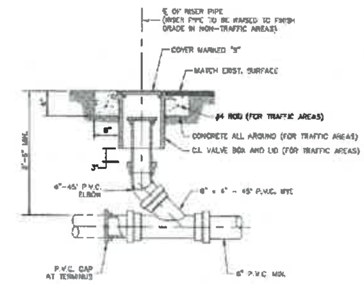


NOTES:

1. INVERT OF LATERAL TO BE 30" FROM FINISHED GRADE EXCEPT ON " WATER LINE SIDE " OF STREET R/W WHERE IT SHALL DROP TO 48" AS SOON AS DEPTH OF SEWER MAIN PERMITS.
2. THIS DETAIL TO BE USED WHEN TOP OF SEWER MAIN IS LESS THAN 7'-0" DEEP.
3. INSTALL MAGNETIC MARKERS AT THE END OF EACH SERVICE LINE OR OPPOSITE WYES AND RECORD LOCATION.
4. SERVICE LATERALS SHALL TERMINATE WITH A CLEANOUT AT ℞.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	SANITARY SEWER LATERAL DETAIL	32

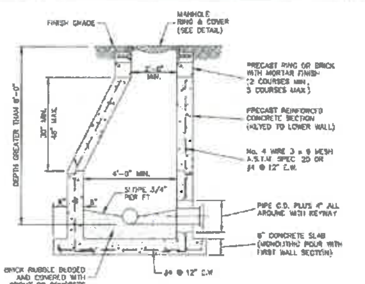


NOTES:

1. CONCRETE PAD w/ REBAR AND CAST IRON VALVE BOX TO BE INSTALLED IN TRAFFIC AREAS ONLY.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	SEWER SERVICE CLEANOUT	33

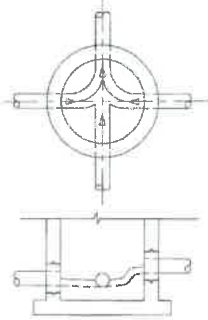


NOTES:

1. PROVIDE 0.1' DROP THROUGH MANHOLE.
2. PRECAST CONCRETE TYPE II, 4000 P.S.I.
3. "RAMNEK" OR EQUAL AT ALL RISER JOINTS (1/2" THICK WITH WIDTH AT LEAST 1/2 THE WALL THICKNESS) WITH GROUT ON INSIDE AND OUTSIDE.
4. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON-SHRINKING GROUT.
5. FLOW CHANNELS SHALL BE CONSTRUCTED TO DIRECT INFLUENT INTO FLOW STREAM. (SEE DETAIL)
6. LIFT HOLES ARE PERMITTED.
7. ALL PIPE HOLES SHALL BE PRECAST OR CORE-DRILLED.
8. SAND COLLAR OR APPROVED RUBBER BOOT MUST BE USED WITH P.V.C. PIPE.
9. MANHOLE TO RECEIVE 2 COATS WATER BASED EPOXY (PRO TECH EW-1 OR APPROVED EQUAL) ON THE INTERIOR AND EXTERIOR. TERMINAL MANHOLES, i.e. THE LAST MANHOLE PRIOR TO DISCHARGE TO A LIFT STATION, SHALL RECEIVE 2 COATS OF WATER BASED EPOXY ON THE EXTERIOR (PRO TECH EW-1 OR APPROVED EQUAL). THE INTERIOR SHALL RECEIVE COATING OF 120 MILS OF MERCLAD E-1255 AR OR MIN. 1/2" SEWPER COAT OR ICT SYSTEMS COATING (10 MILS PRIMARY COAT, 30 MILS INTERMEDIATE COAT, 5-10 MILS FINISH COAT) OR MIN. 1/2" REFRATTA HAC 100.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	STANDARD MANHOLE	34

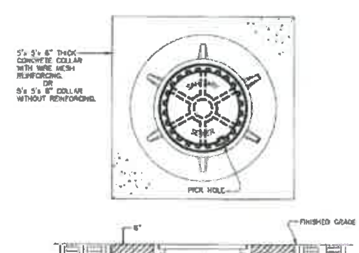


NOTES:

1. ALL INVERT CHANNELS ARE TO BE CONSTRUCTED FOR SMOOTH FLOW WITHOUT OBSTRUCTION.
2. PROPERLY SHAPED SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS TO PROVIDE FOR SMOOTH FLOWS.
3. BRICK AND CONCRETE RUBBLE PERMITTED AS FLOW CHANNEL BUILDUP.
4. SIDEWALLS OF FLOW CHANNEL SHALL BE AT LEAST HALF OF PIPE HEIGHT AT ALL POINTS.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	INVERT FLOW CHANNEL DETAIL	37

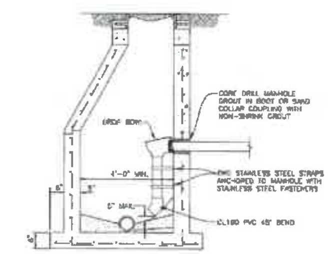


NOTES:

1. COLLAR IS REQUIRED ONLY WHEN MANHOLE IS OUT OF PAVEMENT.
2. MINIMUM WEIGHTS: COVER – 160 LBS., FRAME – 240 LBS.
3. RING AND COVER SHALL BE U.S. FOUNDRY 420-C, VULCAN FOUNDRY V-101 OR APPROVED EQUAL.
4. MANHOLE COVER SHALL HAVE THE WORDS "SANITARY SEWER" CAST IN METAL.
5. MANHOLE COVER SHALL MEET H-20 TRAFFIC LOADING.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	SANITARY SEWER MANHOLE RING AND COVER	38



NOTES:

1. ALL DETAILS AND SPECIFICATIONS FOR STANDARD MANHOLES ARE APPLICABLE EXCEPT FOR REFERENCES TO DROP ASSEMBLY AND COATINGS.
2. THE PRECAST BASE SHALL EXTEND FULLY UNDER THE DROP ASSEMBLY.
3. MASONRY CONSTRUCTION ABOVE THE EXTENDED PRECAST BASE IS PERMISSIBLE IF FILLED WITH CONCRETE.
4. BRICK AND CONCRETE RUBBLE ARE PERMITTED AS FILLER IN DROP ENCASEMENT.
5. DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT INVERT IS LOCATED 2.0 FEET OR MORE ABOVE THE MAIN INVERT CHANNEL. DROP CONNECTIONS SHOULD NOT BE DESIGNED FOR LESS THAN A 24-INCH DROP.
6. SOLVENT TYPE JOINT P.V.C. FITTINGS MAY BE UTILIZED IN THE DROP ASSEMBLY ONLY.
7. THE EXTERIOR SHALL RECEIVE 2 COATS OF WATER BASED EPOXY (PRO TECH EW-1 OR APPROVED EQUAL). THE INTERIOR SHALL RECEIVE COATING OF 120 MILS OF MERCLAD E-1255 AR OR MIN. 1/2" SEWPER COAT OR ICT SYSTEMS COATING (10 MILS PRIMARY COAT, 30 MILS INTERMEDIATE COAT, 5-10 MILS FINISH COAT) OR MIN. 1/2" REFRATTA HAC 100.

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

REVISION		DWG No.
AUGUST 2016	DROP MANHOLE AND SERVICE DROP	39

NOTE:
REFER TO THE LATEST EDITIONS OF MARTIN COUNTY & MARTIN COUNTY UTILITIES DETAILS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DEIGN STANDARD SPECIFICATIONS.

811 KNOW WHAT'S BELOW. ALWAYS CALL 811 BEFORE YOU DIG.

Bowman
CONSULTING
Certificate of Authorization License No. 30468

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MARINER VILLAGE SQUARE PUD
PLAT INFRASTRUCTURE
WATER AND WASTEWATER DETAILS
MARTIN COUNTY FLORIDA

PROJECT NO
010318-02-004

L. B. LEONARD, P.E. LICENSE No. 81737 STATE OF FLORIDA PROFESSIONAL ENGINEER

PLAN STATUS	
08-29-2019	COUNTY COMMENTS
DATE	DESCRIPTION

LL	GC/JB	GMB
DESIGN	DRAWN	CHKD

SCALE AS SHOWN
JOB No. 010318-02-004
DATE 03/13/2019
FILE No. 318-CP-02-UTPD
SHEET D8

Mariner Village PUD

STORMWATER MANAGEMENT REPORT

Plat Infrastructure (Master)

US Highway 1
Martin County, Florida
Parcel IDs: 31-38-42-000-014-00010-6
31-38-42-008-000-00001-8
31-38-42-008-000-00002-7
31-38-42-008-000-00003-6
31-38-42-008-000-00010-7
31-38-42-008-000-00030-3
31-38-42-008-000-00041-0
31-38-42-008-000-00042-9

Issued: ***November 2015***
Revised: ***April 2019***
Revised: ***December 2019***

Prepared by:
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(772) 283-1413

Board of Professional Engineers
Certificate of Authorization No. 30462

LISA B. LEONARD, P.E. LICENSE No. 61737 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-3-19

Lisa Leonard, P.E.
Florida License No. 61737

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY LISA LEONARD ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THE DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

Bowman CONSULTING

Table of Contents

1. PROJECT SUMMARY

The proposed site improvements will consist of redesigning the existing stormwater system, extending the existing internal roadway to connect to the additional existing driveway connection on US Highway 1, and constructing a Self-Storage Facility (Lot 2), along with its supporting infrastructure for parking, driveways, drainage and utilities and the future development of Lots 3 and 4. The proposed project will be completed in multiple phases. The majority of the overall stormwater management infrastructure for the development will be constructed during Phase 2 which includes Lot 2 and driveway connection. The overall stormwater management system has been designed to accommodate the two future development areas (Lot 3 and Lot 4). Lot 4 will be required to provide additional stormwater management area before contributing to the overall stormwater management system. Land use and site elevation assumptions have been established for Lots 3 and 4 along with the required water quality and storage. There is an existing wetland located towards the center of the site. The existing wetland is proposed to remain in current state (except for exotic removal and removal of debris), and a 50' wetland buffer will be provided. The project has an existing permitted outfall to the US Highway 1 Right-of-Way swale system.

2. SITE CONDITIONS

2.1 Existing Conditions

The project (Mariner Village) is located at the southwest corner of SE Federal Highway and SE Mariner Sands Drive, in Martin County, Florida. The site is approximately 20.28 acres. The site is mostly undeveloped. However, there is an existing office building at the northeast corner of the site with associated parking and access drives. There are also two existing lakes, an existing drainage ditch and an existing wetland at the project location. Existing residential developments, which are a part of the overall Mariner Village PUD, border the property to the north and west; SE Federal Highway borders the property to the east; with vacant property to the south. The project site has an existing vegetative cover consisting of ground shrubbery and various trees. Martin County, South Florida Water Management District (SFWMD) and the Florida Department of Transportation (FDOT) have review authority over the project's proposed surface water management system.

The surrounding properties do not contribute runoff to the site. The existing site elevations range from approximately 14.0 to 16.0 feet (NAVD88). However, the existing elevations are lower within the existing lakes, drainage ditch and wetland. The existing lake in the northwest corner of the site is approximately 1.08 acres in size with an existing bottom elevation of approximately -4.5 ft, NAVD and the existing lake in the southeast corner of the site is approximately 0.21 acres in size with an existing bottom elevation of approximately 4.5 ft, NAVD.

During rainfall events, the stormwater on site currently stages up and is collected by the existing on-site lakes, ditches and wetland. They are interconnected via existing pipes and structures. The existing stormwater system ultimately discharges via the existing control structure in the southeastern lake and outfalls to the FDOT roadside ditch along the west side of US Highway 1. This roadside ditch ultimately discharges to the Manatee Pocket.

There is an existing SFWMD permit for the Project site (SFWMD Permit No. 43-00405-S). Excerpts of this permit are provided in Appendix C. This permit established a design discharge of 6 cfs for the 25-year 72-hour storm event for the project site. The outfall is through a permitted control structure to US Highway 1 and an associated swale system. This control structure has been constructed and is operational.

2.2 Proposed Conditions

The proposed site improvements will consist of a redesign of the existing stormwater system, an extension of the existing internal roadway to connect to the additional existing driveway connection to US Highway 1 and development of Lots 2, 3 and 4 along with supporting infrastructure for parking, driveways, drainage and utilities. The overall stormwater management system will provide full water quality and nutrient removal (net improvement). There is an existing wetland located near the center of the site. This wetland is proposed to remain as-is (except for exotic removal and removal of debris), and a 50-foot buffer will be provided around the wetland.

Stormwater runoff will be collected via inlets and conveyed to dry retention areas which then outfall to the existing lake in the northwest corner of the site. The existing lake currently discharges to the existing wetland, and this connection is proposed to remain. The wetland currently discharges to the existing lake in the southeast corner of the site, and then ultimately to an existing outfall structure. This eastern lake is proposed to be filled in, and stormwater conveyance will be provided from the wetland to a new proposed control structure with new storm pipes. The proposed control structure will outfall to the existing storm manhole located in the US Highway 1 right-of-way.

3. GEOTECHNICAL INFORMATION

The USDA/NRCS Soil Survey indicates the majority of the site soils consist of Waveland and Immokalee Fine Sands, and a smaller percentage consisting of Placid and Basinger Fine Sands, depressional (See the Soils Map in Appendix A). These soil types are poorly drained, with a hydraulic soil group of A/D. They are noted to be composed of sandy marine deposits originating from flatwoods and depressions on marine terraces and consist of fine sands and loamy fine sands to depths in excess of 80 inches.

A preliminary geotechnical exploration of the property was performed by Andersen Andre Consulting Engineers, Inc. (AACE) and is referenced herein as the Geotechnical Engineering Exploration and is provided in Appendix F. This report shows that the subsurface soils consist of primarily loose to medium dense fine sands, but occasionally slightly silty sands with a hardpan fragments and traces of organics from 4-5 and 7-8 feet below existing ground surface.

Based on the geotechnical investigations, the anticipated normal seasonal high groundwater level elevation is approximately 1-2 feet above the levels encountered in the borings. Therefore, the estimated normal seasonal high groundwater level is 12.0' (NAVD88).

4. LAND USE BREAKDOWNS

4.1 Existing Land Use Breakdown

The existing areas are as follows:

Area Description	Acres
Site Area (Vacant)	14.74
Office Building	0.19
Office Pavement	1.32
Office Open Space	0.40
Lake	0.98
Lake Bank	0.63
Wetland	0.90
Wetland Buffer	1.13
Total Existing Site Area:	***20.28***

4.2 Proposed Land Use Breakdown

The proposed areas are as follows:

Area Description	Acres
Existing Office/Entrance	1.90
Lot 2	3.04
Lot 3*	2.69
Lot 4*	5.50
Proposed Road	0.51
Existing Lake	1.50
Dry Retention Area No. 1	0.95
Dry Retention Area No. 2	0.21
Wetland Preserve Tract	2.67
Upland Preserve Tract**	0.76
Landscape Buffer**	0.55
Total Project Area:	***20.28***

Notes:

**Lot 3 and Lot 4 are anticipated to have 80% impervious area and 20% pervious area. In addition, it is anticipated that Lot 4 will provide 0.66 acres of stormwater area (0.18 ac-ft of retention and 0.44 ac-ft of detention are assumed in the stormwater calculations).*

***Please note these areas are not part of the contributing drainage areas.*

5. OBJECTIVE/METHODOLOGY

5.1 Proposed Site

The proposed Mariner Village surface water management system will provide water quality treatment for all contributing areas within the project's perimeter berm. The Upland Preserve Tract (area outside of the project's perimeter berm) will be excluded from water quality treatment, since it will remain natural and will not generate stormwater runoff that requires treatment. Water quality and nutrient removal for the proposed project will be achieved within the proposed dry retention areas and the on-site lake. All water quality and required nutrient loading reduction will be provided before entering the on-site wetland. Discharge to FDOT's drainage system along US Highway 1 will be controlled via a new control structure.