CITY OF DELAND
REGULAR MEETING OF THE PLANNING BOARD
JANUARY 19, 2022 AT 5:00 PM
CITY HALL, COMMISSION CHAMBERS
120 SOUTH FLORIDA AVENUE

AGENDA

CALL TO ORDER

PLEDGE OF ALLEGIANCE

ROLL CALL

VERBAL REPORT ON CITY COMMISSION MEETINGS

MINUTES

1. Approval of the minutes from the December 15, 2021 meeting.

VARIANCE OLD BUSINESS

VARIANCE NEW BUSINESS

1. Applicant Name: Michael Raney
   Project Name: V21-244 - Variance
   Project Location: 407 S Stone St
   Project Description: Variance to: Reduce required side yard setback for accessory structures from 7.5' to 1.8' on the north side and require rear yard setback for accessory structures from 7.5' to 2.8'

PUBLIC PARTICIPATION PROCEEDINGS

PLANNING - OLD BUSINESS

PLANNING - NEW BUSINESS

1. Applicant Name: Michael Woods – Cobb Cole
   Project Name: AN21-197 – Annexation for Taylor Ridge
   Project Location: +/- 27 acres located at 1298 S Blue Lake Ave
   Project Description: To annex +/- 27 acres into the corporate limits of DeLand

2. Applicant Name: Michael Woods – Cobb Cole
   Project Name: SMLU21-199 – Comprehensive Plan Amendment for Taylor Ridge
   Project Location: +/- 27 acres located 1298 S Blue Lake Ave
   Project Description: Change of FLU from VC Rural to ULI for single family

3. Applicant Name: Michael Woods – Cobb Cole
   Project Name: Z21-198 – PD Rezoning for Taylor Ridge
   Project Location: 27 acres located 1298 S Blue Lake Ave
   Project Description: Change of Zoning from A-2 to PD for single family

4. Applicant Name: Howard Lefkowitz – Manchester Communities, LLC
   Project Name: PSB21-152 – Preliminary Plat for Manchester Neighborhood PH 1A
   Project Location: 12.16 acres located at 801 Sol Y Sombra
   Project Description: 95 Single Family Attached Units

5. Applicant Name: Howard Lefkowitz – Manchester Communities, LLC
   Project Name: PSB21-153 – Preliminary Plat for Manchester Neighborhood PH 1B
   Project Location: 7.32 acres located at 801 Sol Y Sombra
   Project Description: 61 Single Family Attached Units

6. Applicant Name: LAM Development
   Project Name: Z21-202 – PD Change of Zoning for 425 Woodland
   Project Location: 1.9 acres located at 425 S. Woodland Blvd
   Project Description: Change of zoning from C-2/R-1 to PD

7. Land Development Regulations Changes to Address Housing and Nonconforming Conditions

OTHER BUSINESS

ADJOURNMENT

CITY OF DELAND
PLANNING BOARD REGULAR MEETING
MINUTES
WEDNESDAY, DECEMBER 15, 2021 -5:00 P.M.
CITY HALL

A. CALL TO ORDER

The meeting began at 5:00 p.m.

B. PLEDGE OF ALLEGIANCE

Pledge of Allegiance – Ms. Comella, *Chairperson*

C. ROLL CALL

Nora Lewis	Present
Don Liska	Present
Buz Nesbit	Present
Jeremy Owens	Present
Dan Reed	Present
Albert Neumann	Present, Arrived 5:10 pm
Virginia Comella, *Chairperson*	Present

Quorum: Yes

Present – Mike Holmes, Planning Director; Darren Elkind, City Attorney; Caroline Turgeon, Senior Planner; Belinda Williams-Collins, Senior Planner; MarLa Ivey, Community Development Coordinator; applicants; and members of the public.

D. VERBAL REPORT ON CITY COMMISSION MEETINGS

Mr. Holmes gave the report.

E. MINUTES

Mr. Liska moved to approve the November 17, 2021 Meeting Minutes with the following correction. Mr. Reed seconded the motion.

Correction: Ms. Comella asked the minutes need to be corrected to a vote of 5-2 for V21-195 with Members Neumann and Owens dissenting, instead of the vote of 3-2.

F. VARIANCE OLD BUSINESS

None.

G. VARIANCE NEW BUSINESS

1. Applicant Name: Francisco Monzon
   Case Number: V21-210
   Project Location: E. Euclid Ave
   Project Description: Request to:
   1. Reduce required interior parking spaces from 2 to 0
   2. Reduce required side yard setback (east & west) from 10' to 7.5'

Public Participation: Mr. Elkind answered a question from a member of the public.

Mr. Owens moved to approve the request with the following condition. Mr. Reed seconded the motion. The motion passed unanimously.

Condition: To waive the requirement for 2 garaged parking spaces with the following condition – the lot is still required to provide 4 total parking spaces.

2. Applicant Name: Thomas O'Keefe
   Case Number: V21-218
   Project Location: 625 N. Amelia Ave
   Project Description: Request to reduce the rear yard setback from 25' to 15'

Public Participation: Barbara O'Keefe, applicant, spoke and answered questions from the Board.

Mr. Reed moved to approve the request with the following condition. Mr. Liska seconded the motion. The motion passed unanimously.

Condition: Subject to only the footprint of the proposed screen room only.

H. PUBLIC PARTICIPATION PROCEEDINGS

Ms. Comella read the Public Participation procedures.

I. PLANNING – OLD BUSINESS

None.

J. PLANNING – NEW BUSINESS

1. Applicant Name: Michael Woods
   Case Number: AN21-126
   Project Location: Kepler Rd., North of Beresford Ave Extension
   Project Description: To annex 64 acres into the corporate city limits of DeLand

Public Participation: Michael Woods, applicant, spoke and answered questions from the Board. Also, members of the public spoke in favor and against.

Mr. Neumann recused himself from voting due to a conflict of interest. Voting Conflict form on file.

Mr. Owens moved to approve the request to City Commission. Ms. Lewis seconded the motion. The motion passed unanimously, with one recusal.

2. Applicant Name: Michael Woods
   Case Number: LU21-127
   Project Location: Kepler Road, North of Beresford Ave Extension
   Project Description: To amend the existing land use from Low Density Residential to Urban Low Intensity

Public Participation: Michael Woods, applicant, spoke and answered questions from the Board. Also, members of the public spoke in favor and against.

Mr. Neumann recused himself from voting due to a conflict of interest. Voting Conflict form on file.

Mr. Reed moved to approve the request to City Commission. Ms. Lewis seconded the motion. The motion passed unanimously, with one recusal.

3. Applicant Name: Michael Woods
   Case Number: Z21-128
   Project Location: Kepler Road, North of Beresford Ave Extension
   Project Description: Change of Zoning from Volusia County Rural Residential (RR) to Planned Development (PD) for Single Family/Townhomes

Public Participation: Michael Woods, applicant, spoke and answered questions from the Board. Also, members of the public spoke in favor and against.

Mr. Neumann recused himself from voting due to a conflict of interest. Voting Conflict form on file.

Mr. Owens moved to approve the request to City Commission with the following recommendations. Mr. Reed seconded the motion. The motion passed unanimously, with one recusal.

Recommendations:

1. Any decorative feature or on street parking inside the right of way will be maintained by the HOA;
2. Revise the building separation for the townhomes to be 20 feet;

3. Accessory setback for townhomes is to apply to the rear yard;
4. Address the Fire Marshal's comment to provide documentation that the cul-de-sac's can be modified as proposed;
5. Remove section referencing open burning of vegetative debris;
6. Remove section referencing creation of Community Development Districts;
7. Increase buffers along right of way and entrances;
8. Revise development agreement to insure any low impact development infrastructure is to be retained and maintained by the HOA; and
9. Work with staff to insure stormwater system hydroperiods will not impact off site properties;
10. Increase rear setback for screen enclosures to 5 feet.

The Board also wanted to inform the City Commission that several members are concerned that side setbacks should be increased.

K. OTHER BUSINESS

Planning Board Handbook

Mr. Holmes stated the handbook is for the board members' use and to review and inform him of any comments.

L. ADJOURNMENT

The meeting ended at 9:25 p.m.

PLANNING STAFF REPORTTO CITY OF DELAND PLANNING BOARD

January 19, 2022

A. APPLICATION NO: V21-244

APPLICANT: Michael Raney (Applicant)

REQUEST: To maintain existing shed structure and reduce side set back from 7.5' to 2.8' and rear set back from 7.5' to the 1.8'.

APPLICABLE ORDINANCES: Sec. 33-28.01 (c) - *Accessory structures, General requirements.*

B. SITE FACTORS:

LOCATION: 407 S Stone ST,

PARCEL SIZE: +/- 14,342 sq. ft.

EXISTING ZONING/USE: R-1A Single-Family Dwelling

Required Minimum Setbacks in Feet				
Front	Rear	Side	Street Side	Accessory Structures
30'	25'	12.5'	20'	7.5'

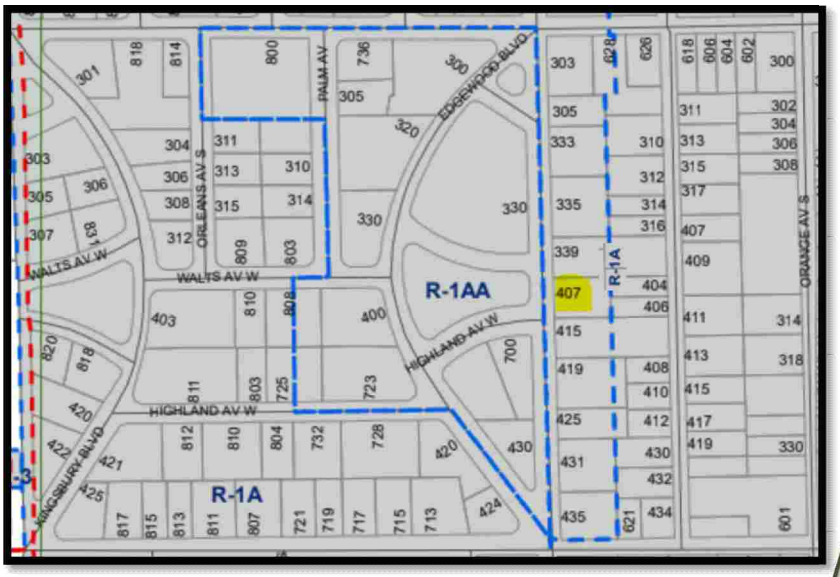
	SURROUNDING USE:	SURROUNDING ZONING:
NORTH:	Single-Family Dwelling	R-1A
SOUTH:	Single-Family Dwelling	R-1A
EAST:	Single-Family Dwelling	R-1
WEST:	Single-Family Dwelling	R-1AA

DOES THE APPLICANT OWN PROPERTY WHICH IS ADJACENT TO THE PROPERTY FORWHICH HE OR SHE SEEKS A VARIANCE? Yes ☐ No ☒

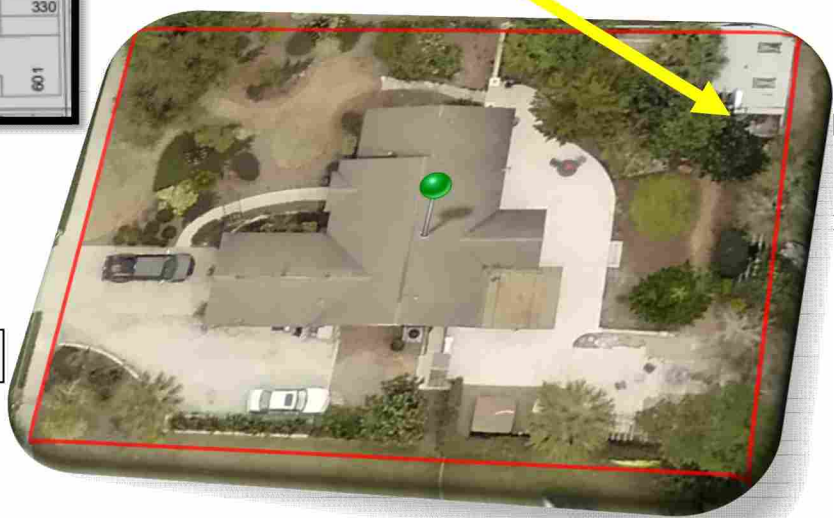
C. LAND USE PLAN DESIGNATION: Medium Density Residential

CHRONOLOGY: This property is located on South Stone St and is in the R-1A Single Family Dwelling Zone. Per the applicant, the structure has been in place for more than 13 years and was constructed without a permit. Improvements were made in 2020 to improve weather proofing. The original structure had a tin roof and only fencing for walls. The shed location for the property was chosen to facilitate a more natural setting of the yard and to minimize any large tree removals. The applicant is requesting to minimize rear and side setbacks for an accessory structure (shed). Currently the set back to the east is 2.8' and set back to the north is 1.8' instead of the 7.5' required.

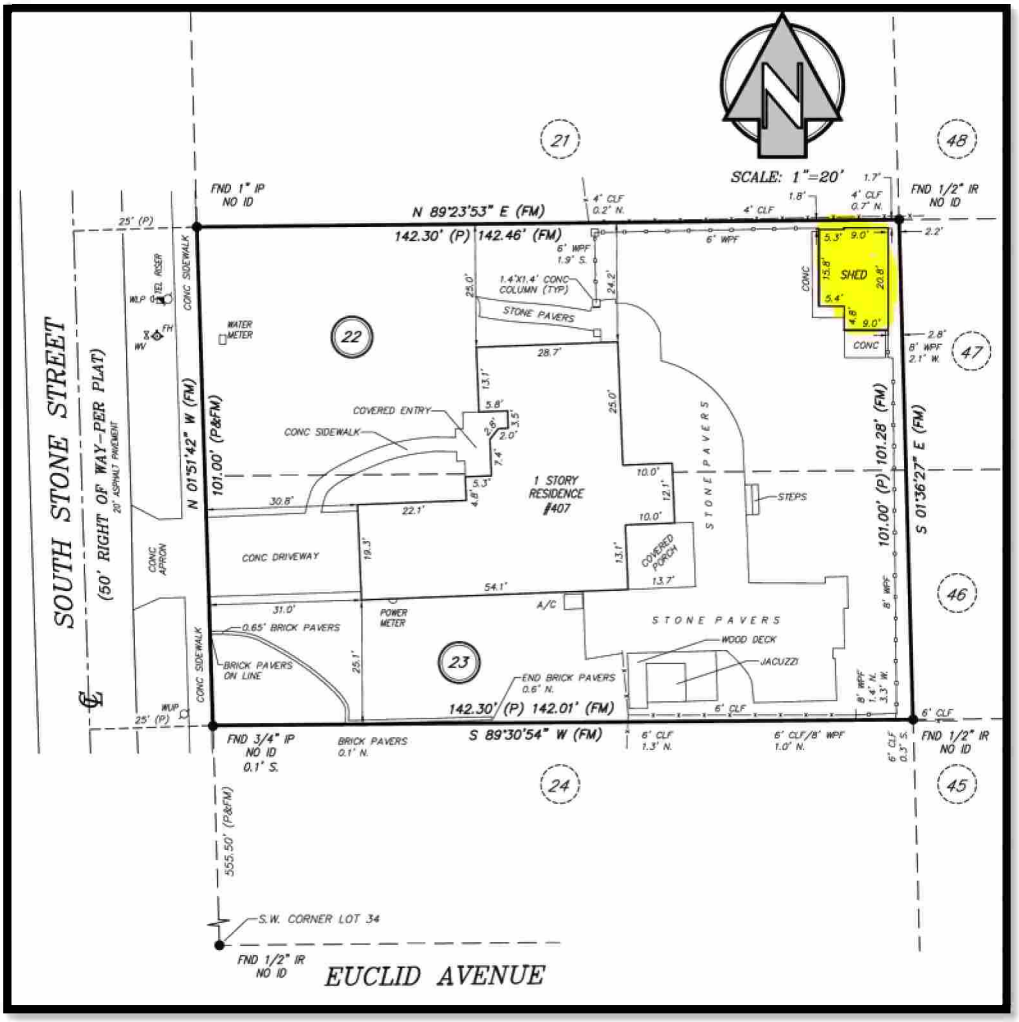
Zoning Map



Shed



Current Use



D. ANALYSIS: This property abuts 4 other single-family residences to the rear and either side. The accessory structure setbacks requirements for the R-1A development is 7.5'. However, the property does not meet this requirement on either side. The rear setback is currently 2.8' and 1.8'to the side. The applicant is requesting a variance to keep the current 2.8'and 1.8' setbacks. The structure is located at the extreme northeast quadrant of property. According to the applicant, the shed is constructed in two sections with different sizes the one side measure 7.2' and the side of the shed measures 7' in height. The two sections are connected under a flat rolled shingle roof. One section is 15.5' x 5'-4" and the other section is 21' x 9'. The wall foundation is constructed of 6" crushed concrete with varying wall heights between 12" and 18" of solid concrete. The floors for both sections have 3" of crushed concrete base with 3" of poured concrete. Wall supports are constructed of 6" x 6" pressure treated posts buried 4' and encompassed within the solid concrete base wall. The applicant is seeking the variance to allow the shed to encroach rear setbacks by 4.7 and side setbacks by 5.7'. Considering the sheds location, height and materials it essentially appears to be a wooden fence The structure is not harmful aesthetically or physically to residents and surrounding area as reported by the applicant.

E. VARIANCE CRITERIA: Per Section 33-103.03, as amended, the Planning Board will consider the following criteria in making a determination concerning the granting or denial of the requested variance:

1. Special conditions and circumstances exist which are peculiar to the land, structure, or building involved, and which are not applicable to other lands, structures, or

buildings in the same zoning district.

This structure is built with unusual materials that indicate fence like properties which do not impose harm or a nuisance to neighboring properties. The subject accessory structure is connected by electoral power from the home, this connection consists of 3' deep trench and 2' conduit with two 120-volt circuits.

2. Granting of the variance request will not confer on the applicant any special privilege thatis denied by the development code to other lands, building, or structures in the same zoningdistrict.

   Granting of the variance would confer special privileges, as the structure encroaches the required 7.5' setback.

3. Literal interpretation and enforcement of the development code regulations would deprive the applicant of rights commonly enjoyed by other properties in the same zoning district under the terms of the development code, and would work unnecessary and undue hardship on the applicant such as natural site conditions, size or shape of lot, or existing structures(s).

   The literal interpretation and enforcement of the code would not deprive the applicant of rights commonly enjoyed by other properties in the neighborhood. The existing structure encroaches setbacks however being that the structure has been up for 13 plus year makes it a natural site condition. As stated by the applicant the shed location for the property was chosen to facilitate a more natural setting of the yard and to minimize any large tree removals. Not allowing the shed to stay would deprive the yard of its natural beauty and most importantly trees.

4. The granting of the variance will be in harmony with the general intent and purpose of this code and the Comprehensive Plan, as amended, and will not be injurious to the surrounding properties or detrimental to the public welfare.

   The accessory structure is unlikely to be injurious to the surrounding properties. According to the applicant the structure appears to be a wooden fence and the structure is not harmful aesthetically or physically

North Side (rear set back)

West Side

to residents and surrounding areas.

East Side (side set back)

South Side

5. The Variance, if granted, is the minimum variance necessary to make possible the reasonable use of the land, building or structure.

   Requiring the shed to be 7.5' all around would reduce the number of trees and plants surrounding the structure and would divest the yards aesthetic.

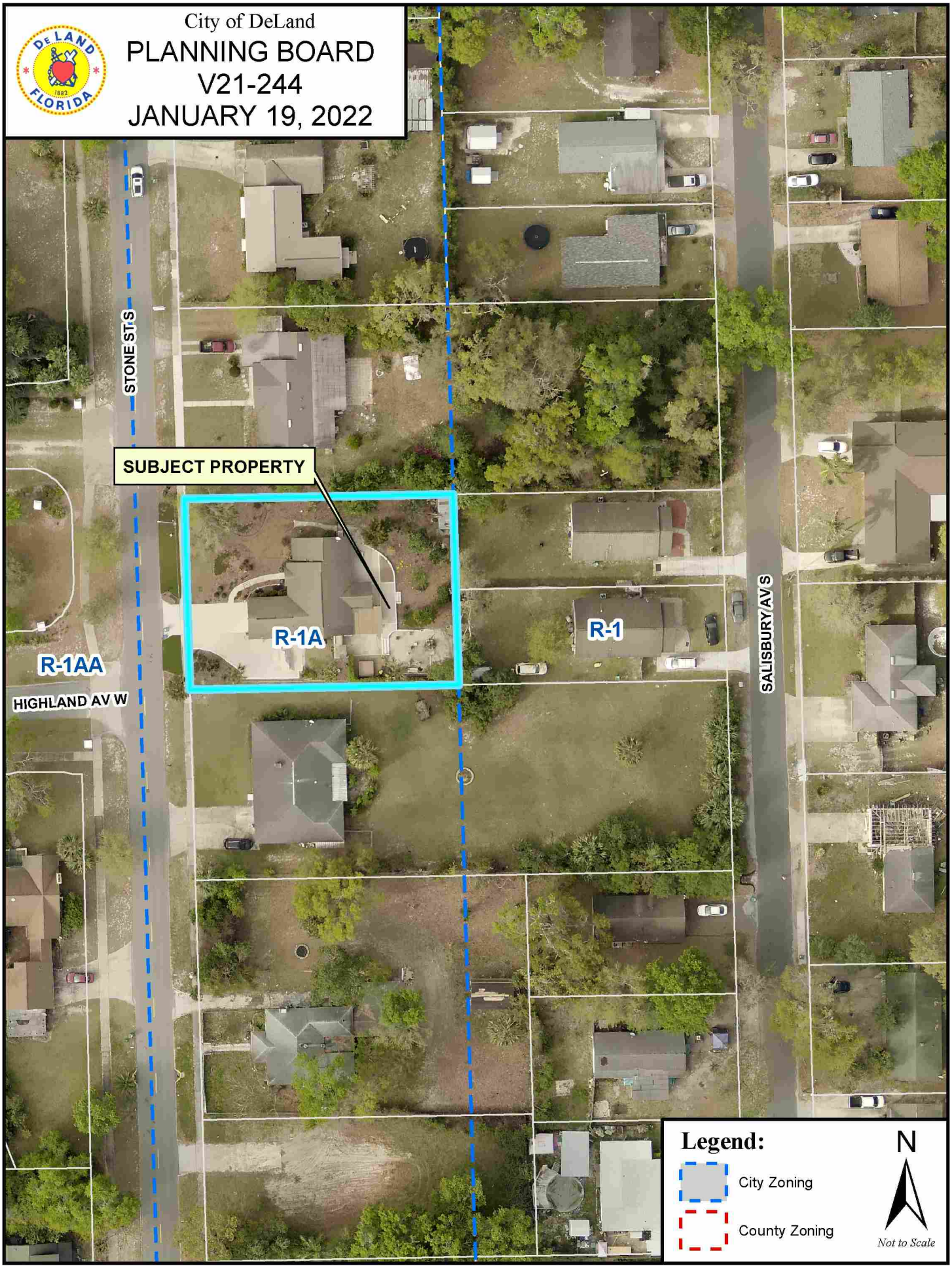
6. The special conditions or circumstances are not the result of actions of the applicant or owner.

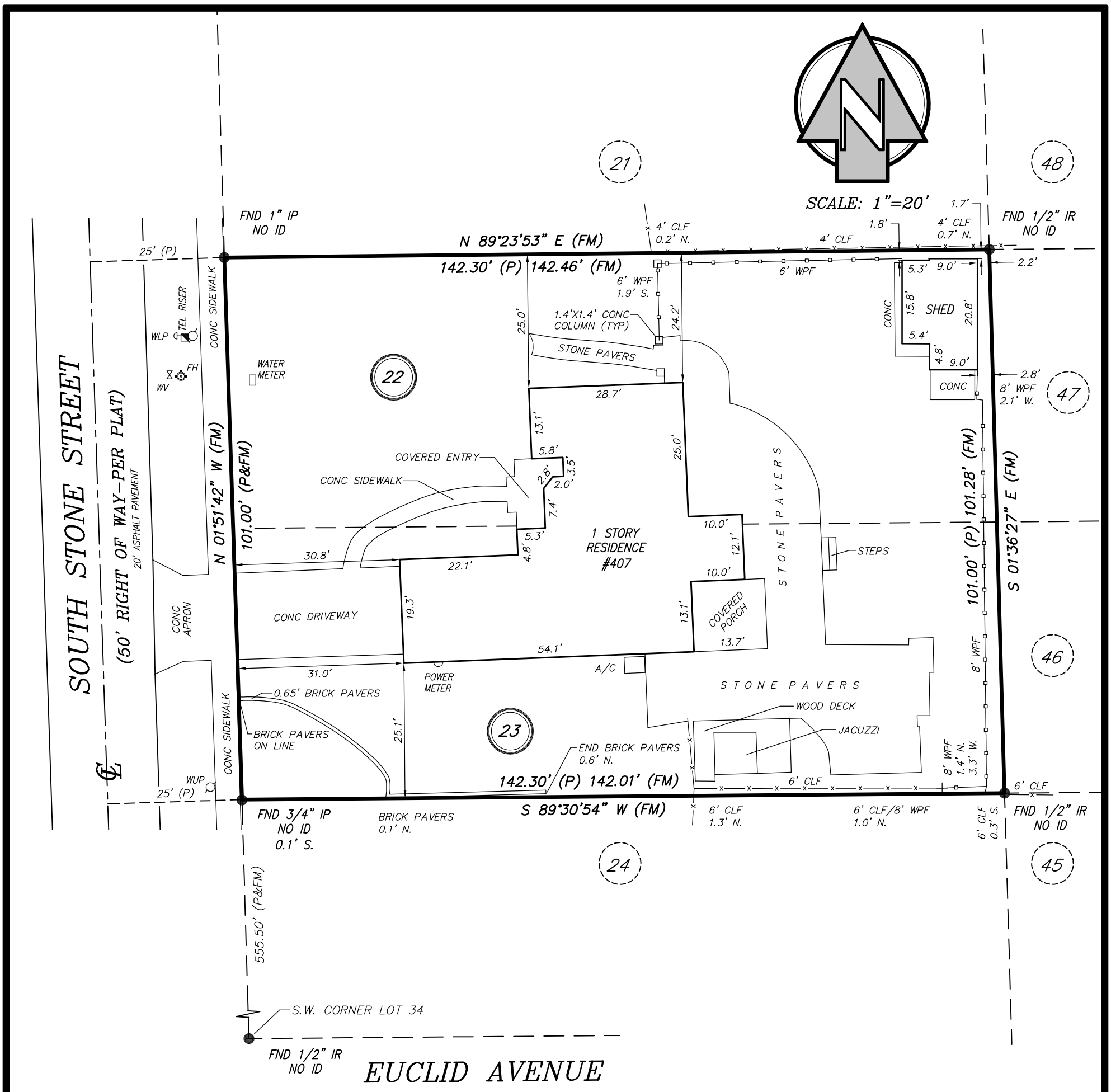
   The special conditions and circumstances are the result of the applicant however, if removed and conformed with the required setbacks it would destroy the beauty of his yard

F. STAFF SUMMARY:

The applicant is requesting this variance, in order to permit encroachment in the rear yard setback by 4.7' and side setback by 5.7'. This is considered a hardship, as defined by the Land Development Regulations, as the natural site condition and aesthetic would become deprived. Without the variance the applicant will have to destroy many trees and possibly change the aesthetic of his yard for an accessory structure. If the variance is granted, it should be limited to the current height of the existing shed.

City of DeLand
PLANNING BOARD
V21-244
JANUARY 19 , 2022
EDGEWOOD BLVD
R-1AA
SUBJECT PROPERTY
R-1A
R-1
SALISBURY AV S
HIGHLAND AV W
STONE ST S
HIGHLAND AV W
EDGEWOOD BLVD
R-1A
Legend:
City Zoning
County Zoning
N
Not to Scale


City of DeLand
PLANNING BOARD
V21-244
JANUARY 19, 2022
STONE ST S
SUBJECT PROPERTY
R-1A
R-1
R-1AA
HIGHLAND AV W
SALISBURY AV S
Legend:
City Zoning
County Zoning
N
Not to Scale



NOTES:

BEARINGS SHOWN HEREON ARE BASED ON THE EAST RIGHT-OF-WAY LINE OF SOUTH STONE STREET AS BEING A BEARING OF N 01°51'42" W (ASSUMED).

THE FLOODPLAIN BOUNDARY, IF SHOWN HEREON, WAS SCALED FROM A LARGE SCALE FEMA FLOOD INSURANCE MAP AND AS SUCH HAS AN INHERENT ERROR OF 10% OF THE FEMA MAP SCALE.

UNDERGROUND UTILITIES AND FOUNDATION MAY EXIST AND HAVE NOT BEEN LOCATED, EXCEPT AS SHOWN.

I HEREBY CERTIFY THAT THE SURVEY SHOWN HEREON WAS MADE UNDER MY RESPONSIBLE CHARGE AND THAT IT HAS BEEN PREPARED IN ACCORDANCE WITH THE STANDARDS OF PRACTICE (MINIMUM TECHNICAL STANDARDS) AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17, OF THE FLORIDA ADMINISTRATIVE CODE, SECTION 472.027, FLORIDA STATUTES.

LEGAL DESCRIPTION: (O.R. 5724 PG. 1976)

LOTS 22 AND 23, WEST LAWN, ACCORDING TO MAP OR PLAT THEREOF AS RECORDED IN PLAT BOOK 7, PAGE 8, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA

FLOOD CERTIFICATION:

(Per map dated FEB. 19, 2017)
This is to certify that I have consulted the Federal Insurance Flood Hazard Boundary Map and found the ABOVE named Property IS NOT located in a special flood hazard area, according to Community Panel Map No. 12127C-0465-H Map Panel 465 of 930, Zone "X".

LEGEND AND ABBREVIATIONS

A	Arc Length	LB	Land Surveying Business
A/C	A/C=Air Conditioning Unit	M.B.	Map Book
BM	Benchmark	MON	Monument
℄	Center Line	N&C	Nail & Cap
CALC	Calculated	NO I.D.	No Identity
CATV	Cable TV Service	O.R.	Official Record Book
CLF	Chainlink Fence	(P)	Plat
CHBRG	Chord Bearing	PC	Point of Curve
CHD	Chord Distance	PCC	Point of Compound Curve
CONC	Concrete	PCP	Permanent Control Point
CUP	Concrete Utility Pole	PRC	Point of Reverse Curve
(D)	Deed Call	PRM	Permanent Reference Monument
D.R.O.W.	Drainage Right of Way	PSI	Point of Street Intersection
EL	Elevation	PSM	Professional Surveyor & Mapper
FND	Found	PVC	Poly-Vinyl-Chloride Pipe
FH	Fire Hydrant	R	Radius of Curve or Radial Line
F.F.E.	Finish Floor Elevation	R.P.	Radius Point
(FM)	Field Measurement	RLS	Registered Land Surveyor
INV.	Invert	TYP	Typical
IR	Iron Rod	TBM	Temporary Benchmark
IRC	Iron Rod & Cap	WPF	Wood Privacy Fence
L	Length of Arc	WUP	Wood Utility Pole

BLACKWELL & ASSOCIATES LAND SURVEYORS, INC
995 W. VOLUSIA AVE. * DELAND, FL. * PH: (386)-734-8050
WWW.BLACKWELLSURVEYING.COM

BOUNDARY SURVEY CERTIFIED TO:

MICHAEL RANEY

NOTE:

This Plat of Survey is certified to and prepared for the sole and exclusive benefit of the entities and or individuals shown hereon, valid on the most current date shown hereon, and shall not be relied upon by any other entity or individual whomsoever.

This Survey / Sketch has been prepared without benefit of abstract or title search unless otherwise noted hereon.

There may be additional restrictions and/or other matters of record not shown on this Survey / Sketch that may be found in the Public Records of the county or contained within the Title Commitment.

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

BLACKWELL & ASSOCIATES LAND SURVEYORS, INC. (LB #2791)

BY:_____
REGISTERED LAND SURVEYOR
ROBERT R. EVERS – P.S.M.
FLORIDA CERTIFICATE No. 5675

DATE :	10 DEC. 2021
W.O. No.	10-631-21
DRAWN BY :	THEO
FIELD BOOK :	747-52
CADD FILE :	10-631-21

PLANNING DEPARTMENT STAFF REPORT
TO
PLANNING BOARD

January 19, 2022

APPLICATION: AN21-197

1. **Requested Action:** Annexation of property located in unincorporated Volusia County into the City limits of DeLand

2. **Location:** Northwest corner of S. Blue Lake Ave. & E. Taylor Rd.

3. **Petitioner**: Mr. Michael Woods, Esq., Cobb Cole

4. **Owner**: Stewart Family Properties, LLC

5. **Size of parcel(s):** ± 26.01 acres

6. **Parcel ID**: 7022-00-00-0090 & 7022-00-00-0191

7. **Land Use Designation & Zoning of Subject Property:**

Future Land Use: Volusia County: Rural

Existing Zoning: Volusia County: A-2 – Rural Agriculture

Existing Use: Undeveloped

8. **Surrounding Land Use & Zoning:**

	LAND USE	ZONING
North:	VC: Rural; LDR	VC: A-2; Saddlebrook PD
South:	VC: Rural; New Community Development	Bridle Oaks PD; Victoria Park PD
East:	VC: Rural	VC: A-3
West:	VC: Urban Low Intensity	VC: RA; VC: A-4

9. **Physical Characteristics:** The proposed annexation consists of ± 26.01 acres, as well as the northern half of the E. Taylor Road right-of-way and the west half of the S. Blue Lake Ave. right-of-way. The subject property does not contain any wetlands and lies outside of the FEMA floodplain. The parcel is undeveloped, heavily wooded and has a 100' wide FPL easement that runs north to south, near the center of the property. Road frontage for the subject property consists of ± 1,250 linear ft. along E. Taylor Rd. and ± 451 linear ft. along S. Blue Lake Ave.

The subject property is owned by the Stewart Family Estate whom wish to subdivide the property. The applicant's ultimate goal is to develop the parcels into 71 single-family residential lots.

10. Public Services & Utilities: The City's Utilities Department states that the closest city water and sewer mains are found within the right-of-way of E. Taylor Road, in front of the property. The property is located within Police Patrol Zone 5, and service is available to the site with an approximate response time of 7 minutes. The Fire Department confirmed that adequate fire protection can be provided, with an approximate response time of less than 5 minutes. The County of Volusia has indicated that there are no code enforcement actions or liens associated with this property.

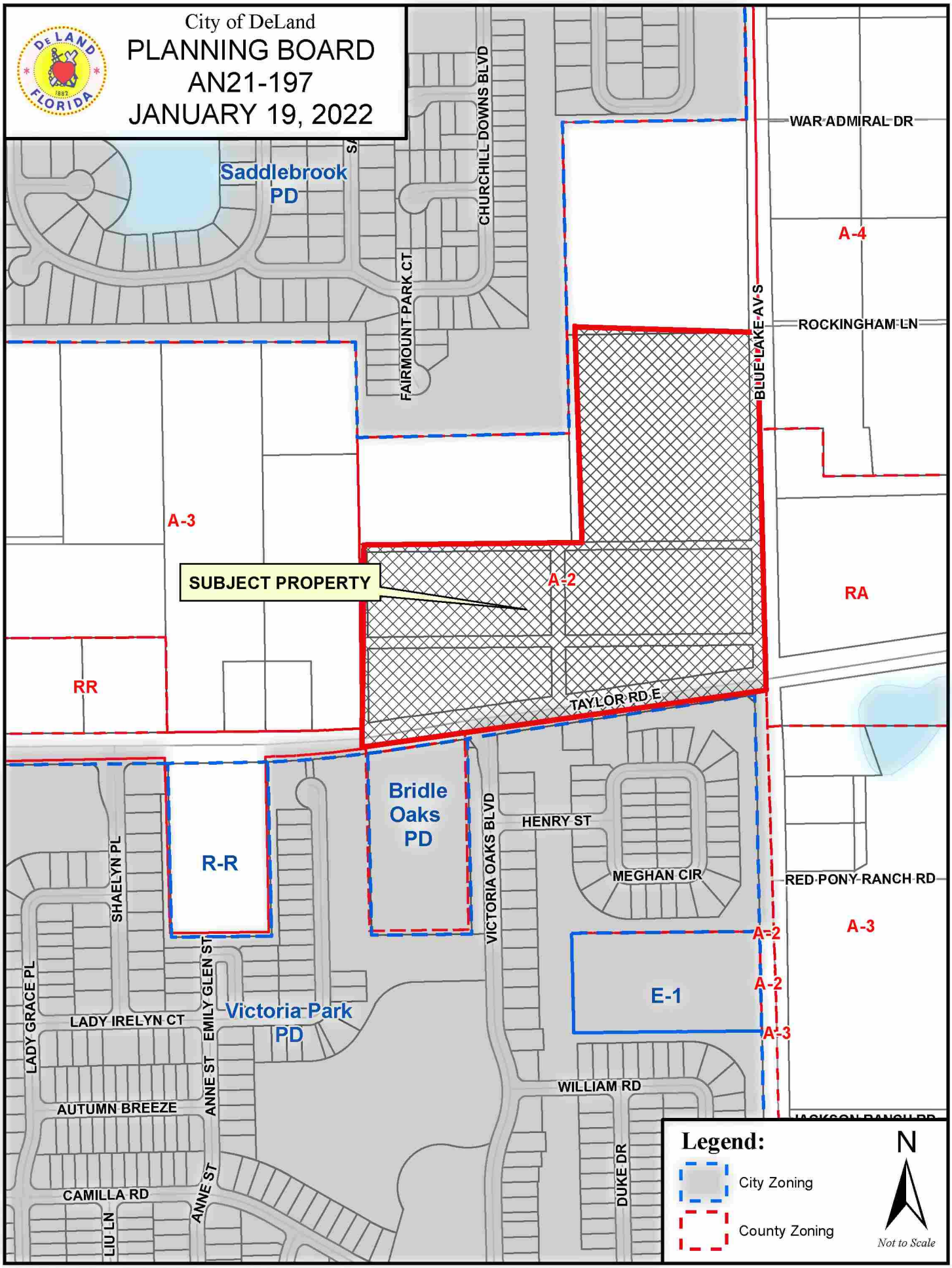
11. Growth Management Plan Consistency: An application for a change in land use (SMLU-21-199) has been submitted to amend the future land use from Volusia County Rural (R) to the City's Urban Low Intensity (ULI) designation. Additionally, an application for a zoning change (Z21-198) from Volusia County A-2 (Rural Agriculture) to the City's PD (Planned Development) has also been submitted. To the north of the subject property is the Saddlebrook residential Planned Development which consists of single-family residential lots ranging in widths from 50-70 ft. wide. Immediately to the south of the subject property is the E. Taylor Rd. right-of-way which is a 100 ft. wide right-of-way. South of E. Taylor Rd. is the Victoria Oaks Phase D Planned Development which consists of single-family residential lots ranging in widths from 40-60 ft. wide. To the west is Volusia County's A-3 (Transitional Agriculture) zoning district which requires 1 acre per dwelling unit. To the east is Volusia County's RA (Rural Agricultural Estates) zoning district and requires 1.5 acres per dwelling unit.

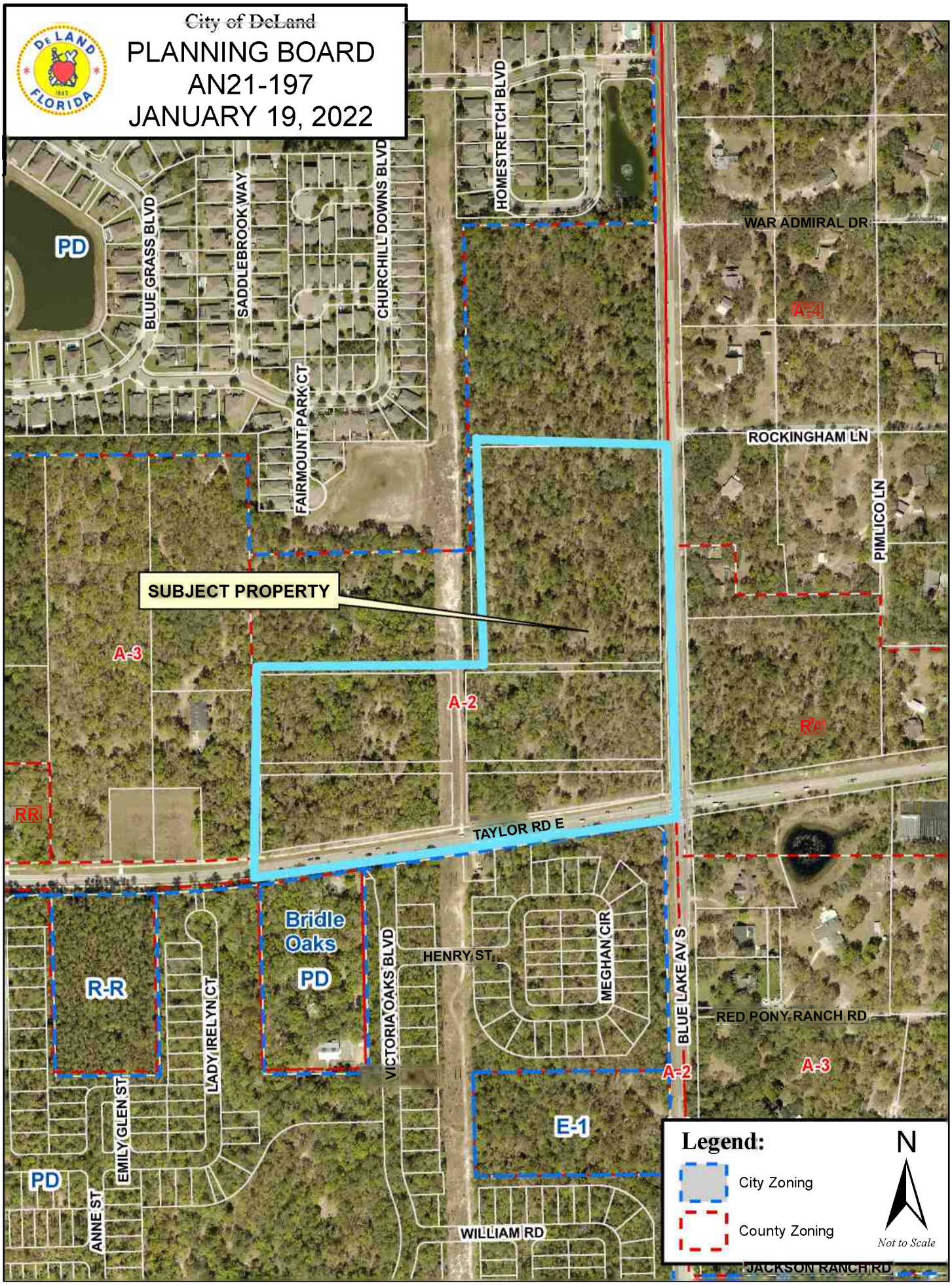
12. Analysis: The City's guidelines for annexation require a property be sufficiently **contiguous** to property already within the city limits and to be accessible to public services provided. In addition, the State requires the property be **reasonably compact**, **not circuitous**, and **does not create an enclave**. The subject property is contiguous to the City of DeLand, is reasonably compact and is not circuitous. However, the subject property is currently located inside an existing enclave of County jurisdiction. The requested annexation will reduce the enclave and will not adversely impact the provisions of governmental services. The parcel is contiguous to the northwest by ± 334 ft., and to the south by ± 1,250 ft.

Recommendation: The annexation of this property will not create a new enclave for either the City or the County; therefore, Staff recommends that the Planning Board forward this annexation petition to the City Commission, with a recommendation for approval.

Based upon the concurrency requirements of the State of Florida and the City's concurrency management plan, as adopted in Article 5, Sec. 33-41 of the Land Development Regulations, approval of the proposed annexation does not automatically provide vested development rights. At the time the developer applies for a development permit, adequate infrastructure must exist to support the proposed development. If such infrastructure does not exist, the developer may be required to incur additional expense to ensure that the necessary infrastructure is provided.

L\P\SR\2021\SR-AN21-197 Taylor Ridge PD.docx


City of DeLand
PLANNING BOARD
AN21-197
JANUARY 19, 2022
Saddlebrook PD
CHURCHILL DOWNS BLVD
FAIRMOUNT PARK CT
WAR ADMIRAL DR
A-4
ROCKINGHAM LN
BLUE LAKE AV S
A-3
SUBJECT PROPERTY
A-2
RA
RR
TAYLOR RD E
Bridle Oaks PD
R-R
HENRY ST
MEGHAN CIR
VICTORIA OAKS BLVD
RED PONY RANCH RD
A-3
A-2
A-2
A-3
E-1
SHAELYN PL
LADY GRACE PL
LADY IRELYN CT
EMILY GLEN ST
Victoria Park PD
ANNE ST
AUTUMN BREEZE
WILLIAM RD
CAMILLA RD
LIU LN
DUKE DR
Legend:
City Zoning
County Zoning
N
Not to Scale


City of DeLand
PLANNING BOARD
AN21-197
JANUARY 19, 2022
PD
BLUE GRASS BLVD
SADDLEBROOK WAY
CHURCHILL DOWNS BLVD
HOMESTRETCH BLVD
WAR ADMIRAL DR
A-4
FAIRMOUNT PARK CT
ROCKINGHAM LN
PIMLICO LN
SUBJECT PROPERTY
A-3
A-2
RA
RR
TAYLOR RD E
Bridle Oaks
PD
R-R
HENRY ST
MEGHAN CIR
VICTORIA OAKS BLVD
BLUE LAKE AV S
RED PONY RANCH RD
LADY IRELYN CT
EMILY GLEN ST
E-1
PD
ANNE ST
WILLIAM RD
JACKSON RANCH RD
Legend:
City Zoning
County Zoning
N
Not to Scale

PLANNING DEPARTMENT STAFF REPORT
TO
THE CITY OF DELAND PLANNING BOARD

January 19, 2022

A. APPLICATION NO.: SMLU21-199

APPLICANT: Mr. Michael Woods, Esq., Cobb Cole

REQUEST: To amend the land use designation from Volusia County Rural to City of DeLand Urban Low Intensity

B. SITE FACTORS:

Location: Northwest corner of S. Blue Lake Ave. & E. Taylor Rd.
Parcel ID #: 7022-00-00-0090 & 7022-00-00-0191
Parcel Size: ± 26.01 acres
Land Use: Volusia County Rural
Existing Use: Vacant, undeveloped

	SURROUNDING USE:
North:	VC: Rural; LDR
South:	VC: Rural; New Community Development
East:	VC: Rural
West:	VC: Urban Low Intensity

C. <u>REQUESTED ACTION & HISTORY</u>:

1. REQUEST: The applicant is requesting the future land use designation be amended for a parcel located on the northwest corner of S. Blue Lake Ave. & E. Taylor Rd., from Volusia County's Rural land use designation to the City of DeLand's Urban Low Intensity land use designation. The ± 26.01 acres proposed for annexation is being proposed to be subdivided into 71 residential lots. *The Applicant has petitioned for annexation (#AN21-197), and is requesting a rezoning of the property to City of DeLand's Planned Development zoning district (#Z21-198).*

2. CHRONOLOGY OF PAST EVENTS: The southern portion of the subject property includes a portion of the Carroll and Marshall subdivision plat. In 1925 it was originally platted into 4 blocks, each containing 36 lots. A current survey of the Carroll and Marshall plat includes a 100' wide FPL easement that runs north to south, down the center of the property.

D. <u>ALTERNATIVES & ANALYSIS</u>:

The purpose of this section is to analyze the reasonableness of the applicant's request for an amendment of the land use designation for the subject property. This analysis will include a description of the current and future land uses of the site and the surrounding area, potential impacts on the transportation system, and any significant adverse environmental impacts. Due to recent legislation, small scale land use amendments now have a maximum acreage of up to 50 acres. The original maximum was 10 acres.

1. **Availability of Public Facilities (water, sewer, solid waste, drainage, traffic, recreation, and schools if residential):**

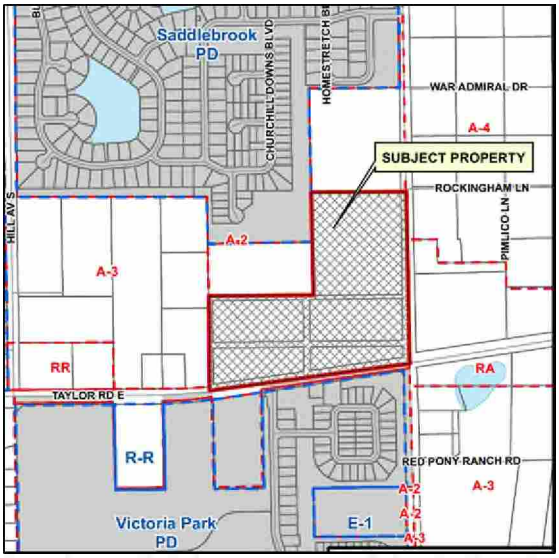
   The City's Utilities Department states that the closest city water main is found in front of the property on E. Taylor Rd. and on S. Blue Lake Ave. The closest sewer main is also found in front of the property on E. Taylor Rd. and on S. Blue Lake Ave.

   Due to the proposed use and size, a Traffic Impact Analysis was not required.

   The change in designation will not generate a new demand for recreation.

   Volusia County already provides a sanitary landfill for the disposal of solid waste. The landfill has adequate capacity at this time.

2. **Compatibility with Land Use and Other Elements:** The Future Land Use element requires that the subject property be consistent with surrounding development. The Comprehensive Plan describes the Urban Low Intensity (ULI) land use designation as being located in "areas for suburban density residential dwelling units." Density shall range from 0.2 to 4 dwelling units per acre; specific density depends on locational factors, in particular, compatibility with adjacent uses and availability of public facilities.



   The applicant has submitted a corresponding application to rezone (Z21-198) to PD, Planned Development, which will allow 2.73 dwelling unit per acre. To the northwest, the subject property is adjacent to the Saddlebrook PD; south of E. Taylor Rd. is the Victoria Park PD. The Saddlebrook subdivision consists of single-family residential lots ranging in widths from 50-75 ft. wide, with a density of approximately 3.1 dwelling units per acre. Immediately to the west is Volusia County's Urban Low Intensity (ULI) future land use which allows densities ranging from 0.2 to 4 dwelling units per acre. To the east is S. Blue Lake Ave. which abuts Volusia County's Rural (R) future land use, which requires a minimum of 1 acre per dwelling unit.

3. **Future Land Use Map:** The proposed change in the land use designation to Urban Low Intensity will be shown on the revised Future Land Use Map.

4. **Location of Lakes, Floodplains, and Wetlands:** The property does not contain bodies of water, nor is it located within a floodplain.

5. **Analysis of Natural Resources:**
   - ***a.*** *Soil types:*
     Astatula Fine Sand, 0-8% slope
   - ***b.*** *Presence of Endangered Species*: None known of at this time.

6. **Existing and Future Impact upon Infrastructure Capacity:**

   a. *Water* – The City's Utility Department indicates sufficient water supply is available for the proposed use.

   b. *Sewer* – The City's Utility Department has indicated sufficient existing capacity.

   c. *Drainage* – The City adheres to the County's 100-year frequency, 24-hour storm event standard for landlocked basins. Stormwater capture for future development will be addressed on-site.

   d. *Solid Waste* – Solid waste services are available for the property.

   e. *Transportation* – The proposed use of the property is for residential use.

   In order to estimate traffic generation by development on the subject property, Staff must make projections for the most intense type of development allowed under the existing and proposed land use designations. Development under the most intensive of the uses allowed under the current land use designation of Volusia County Rural must be compared with the most intensive use proposed under the City's Urban Low Intensity designation.

   The Volusia County Rural land use designation allows, under specific conditions (if the parcel is within 660 ft. of an existing residential subdivision), a maximum allowable density of 1 dwelling unit per acre; and with the most-intense allowable use (single-family residential); would generate **249** calculated trips per day according to Trip Generation by the Institute of Transportation Engineers. (8th ed.)

   Assuming adoption of the Urban Low Intensity land use designation for the ± 26.01 acres of property, traffic generation will be calculated based on the DeLand Comprehensive Plan assumption of utilization of 4 dwelling units per acre for single-family residential uses; and therefore, would generate **995** calculated trips per day at build-out, according to Trip Generation. Consequently, the requested land use amendment would result in an increase of **746** trips per day. Per 2018 Volusia County Traffic Counts, this area of E. Taylor Rd., from Stratford Dr. to MLK Jr. Beltway, has a current Daily LOS of "C", and an Allowable LOS of "E", and therefore has sufficient capacity at the land use category's most-intense use. The same is true for the portion of S. Blue Lake Ave., from E. Taylor Rd. to Beresford Ave., which is currently operating at a Daily LOS of "C", and having an Allowable LOS of "E".

   f. *Fire/Rescue Service* - The City can provide an adequate LOS of Fire/Rescue service.

   g. *Police Service* - The Police Department states that the City can provide an adequate LOS of Police protection.

7. **Impact upon Recreation and Open Space:** No need for new recreational facilities is anticipated.

8. **New Public Facilities Needed to Serve Land Use:** No need for new public facilities is anticipated.

9. **Impact Upon Existing Deficiencies:** As identified in the City's Comprehensive Plan, drainage is the only existing deficiency within the City. Any future development on this site will be required to manage its own stormwater.

10. **Impact upon Ability of the City to Fund Capital Improvements:** The development should not create an additional impact upon the City's ability to fund the projects listed in the adopted Five-Year Capital Improvement Program.

11. **Impact upon Adopted Five-Year Schedule in Capital Improvements Element:** The proposed land use amendment will not require revision to the City's adopted Five-Year Capital Improvement Program.

12. **Compatibility with Existing Zoning Classification:** The existing zoning classification will be amended upon approval of the land use amendment to a classification permitted by the new land use designation.

13. **Will the proposed land use change impact schools?** Although the project will allow for a maximum of 104 houses, the applicant is proposing a lesser amount of 71. The applicant will need to provide a Finding of Adequate Capacity letter from the Volusia County School Board.

14. **How does this proposal fit with the guidelines developed for DeLand 2050 and the City's Strategic Plan?**

    a. Located in the Urban Core (Category 2) – i.e. "where the majority of the new, higher intensity growth will take place." Based on these criteria, a significant increase in density is not appropriate but changes in keeping with the surrounding development pattern would be acceptable. – *Consistent; the increase in density is appropriate based on the surrounding properties and location.*

    b. DeLand 2050 Land Use Guidelines: "Concentrate development at the core of the city or at transit-oriented sites and corridors. The urban core is the key area to focus development, maintaining a strong job base and taking advantage of existing infrastructure. Locating higher intensity along select corridors or major centers will encourage transit and lessen traffic congestion." – *Consistent; subject property is located at the intersection of E. Taylor Rd. and S. Blue Lake Ave., and provides access to both Interstate 4 and the Downtown.*

E. CONCLUSION: The facility analysis presented in the above sections suggests the proposed land use should not cause any of the City's facilities to degrade below the adopted or current operational LOS. The proposed land use designation, Urban Low Intensity, is consistent with the surrounding area, and is not expected to create land use incompatibilities.

F. STAFF RECOMMENDATION: Staff recommends approval of the proposed amendment of the subject property's future land use designation to the City's Urban Low Intensity.

G. VGMC INFRASTRUCTURE IMPACT ASSESSMENT:

In accordance with standard practice from the Florida Department of Economic Opportunity (DEO) and other review agencies, an impact comparison analysis of the proposed amendment has been completed based upon the theoretical maximum development potential under the currently adopted future land use designation versus the proposed designation.

The following seven public facilities and services were examined: (Table 4)

1. Transportation
2. Sanitary Sewer
3. Potable Water
4. Solid Waste
5. Stormwater Drainage
6. Recreation
7. Schools

Table 4. Impact Analysis (Theoretical Max.)

Development Variable	Future Land Use	Proposed Future Land Use	Net Change
	Theoretical Maximum		
Dwelling Units	26	104	+78
Non-residential (retail, square feet)	N/A	N/A	N/A
1. Population	67	268	+201
2. PM Peak Hour Trips/Daily Trips	26/249	105/995	+79/+746
3. Sanitary Sewer (gallons/day)	5,200	20,800	+15,600
4. Potable Water (gallons/day)	7,800	31,200	+23,400
5. Solid Waste (pounds/person)	84	334	+250
6. Stormwater Drainage	TBD	TBD	TBD
7. Recreation/Open Space (comm. use)	.31	1.23	+0.92

Notes:

1. Population: 2.58 persons per household (per 2010 Census)
2. Transportation: ITE Trip Generation Manual, 8th Edition: 1.01 PM peak hour trips per dwelling unit and 9.57 daily trips per dwelling unit; Single Family Homes (210)
3. Sanitary Sewer: 200 GPD per Equivalent Residential Unit; 0.10 GPD per sq. ft. commercial use
4. Potable Water: 300 GPD per Equivalent Residential Unit; 0.10 GPD per sq. ft. commercial use
5. Solid Waste 3.21 pounds per person per day; 10 lbs. per 1,000 sq. ft. non-residential development per day
6. Stormwater Drainage: LOS standard = 25-year, 24-hour event. Drainage system is required to be designed to meet the requirements of the Land Development Code during subdivision or site plan review.
7. Rec. & Open Space: 4.6 acres/1,000 persons (0.0046 acres/person)

The proposed amendment results in increased impacts to all public infrastructure and services based on the theoretical maximum impact analysis.

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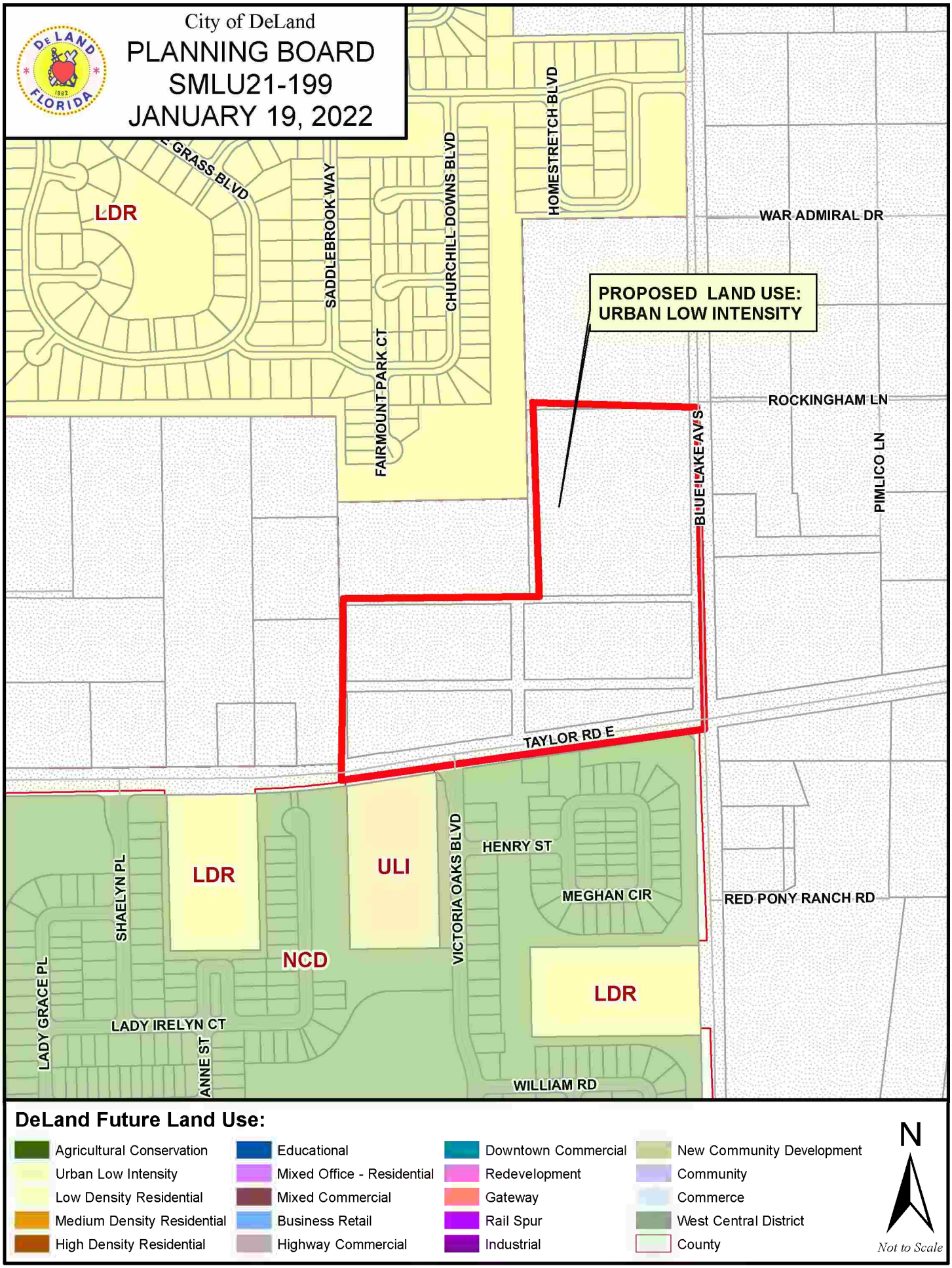
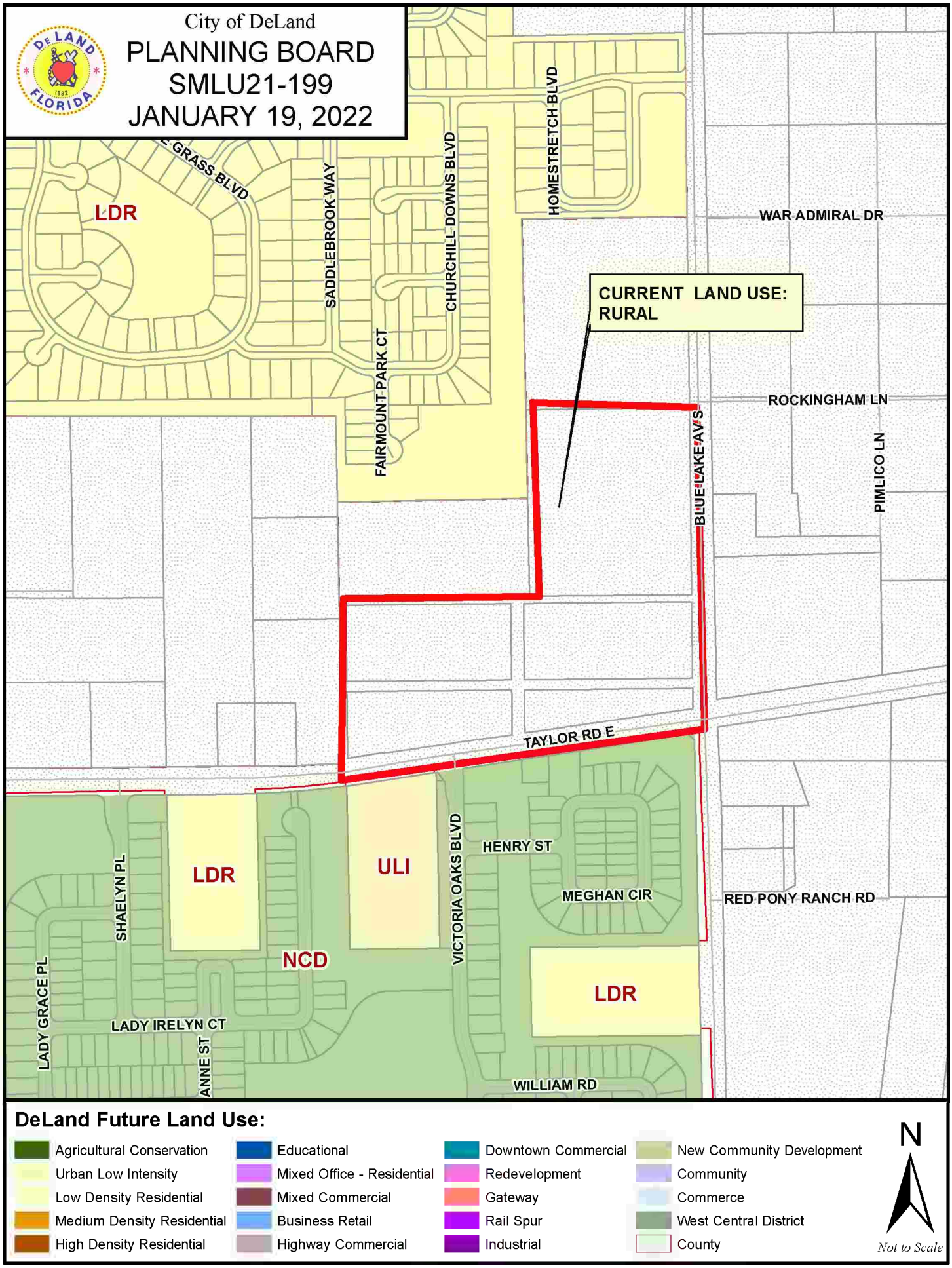

City of DeLand
PLANNING BOARD
SMLU21-199
JANUARY 19, 2022
LDR
E GRASS BLVD
SADDLEBROOK WAY
CHURCHILL DOWNS BLVD
HOMESTRETCH BLVD
WAR ADMIRAL DR
PROPOSED LAND USE:
URBAN LOW INTENSITY
FAIRMOUNT PARK CT
ROCKINGHAM LN
BLUE LAKE AVE S
PIMLICO LN
TAYLOR RD E
LDR
ULI
VICTORIA OAKS BLVD
HENRY ST
MEGHAN CIR
RED PONY RANCH RD
SHAELYN PL
NCD
LDR
LADY GRACE PL
LADY IRELYN CT
ANNE ST
WILLIAM RD
DeLand Future Land Use:
Agricultural Conservation
Urban Low Intensity
Low Density Residential
Medium Density Residential
High Density Residential
Educational
Mixed Office - Residential
Mixed Commercial
Business Retail
Highway Commercial
Downtown Commercial
Redevelopment
Gateway
Rail Spur
Industrial
New Community Development
Community
Commerce
West Central District
County
N
Not to Scale


City of DeLand
PLANNING BOARD
SMLU21-199
JANUARY 19, 2022
LDR
GRASS BLVD
SADDLEBROOK WAY
CHURCHILL DOWNS BLVD
HOMESTRETCH BLVD
WAR ADMIRAL DR
CURRENT LAND USE:
RURAL
FAIRMOUNT PARK CT
ROCKINGHAM LN
BLUE LAKE AVE S
PIMLICO LN
TAYLOR RD E
LDR
ULI
SHAELYN PL
VICTORIA OAKS BLVD
HENRY ST
MEGHAN CIR
RED PONY RANCH RD
NCD
LDR
LADY GRACE PL
LADY IRELYN CT
ANNE ST
WILLIAM RD
DeLand Future Land Use:
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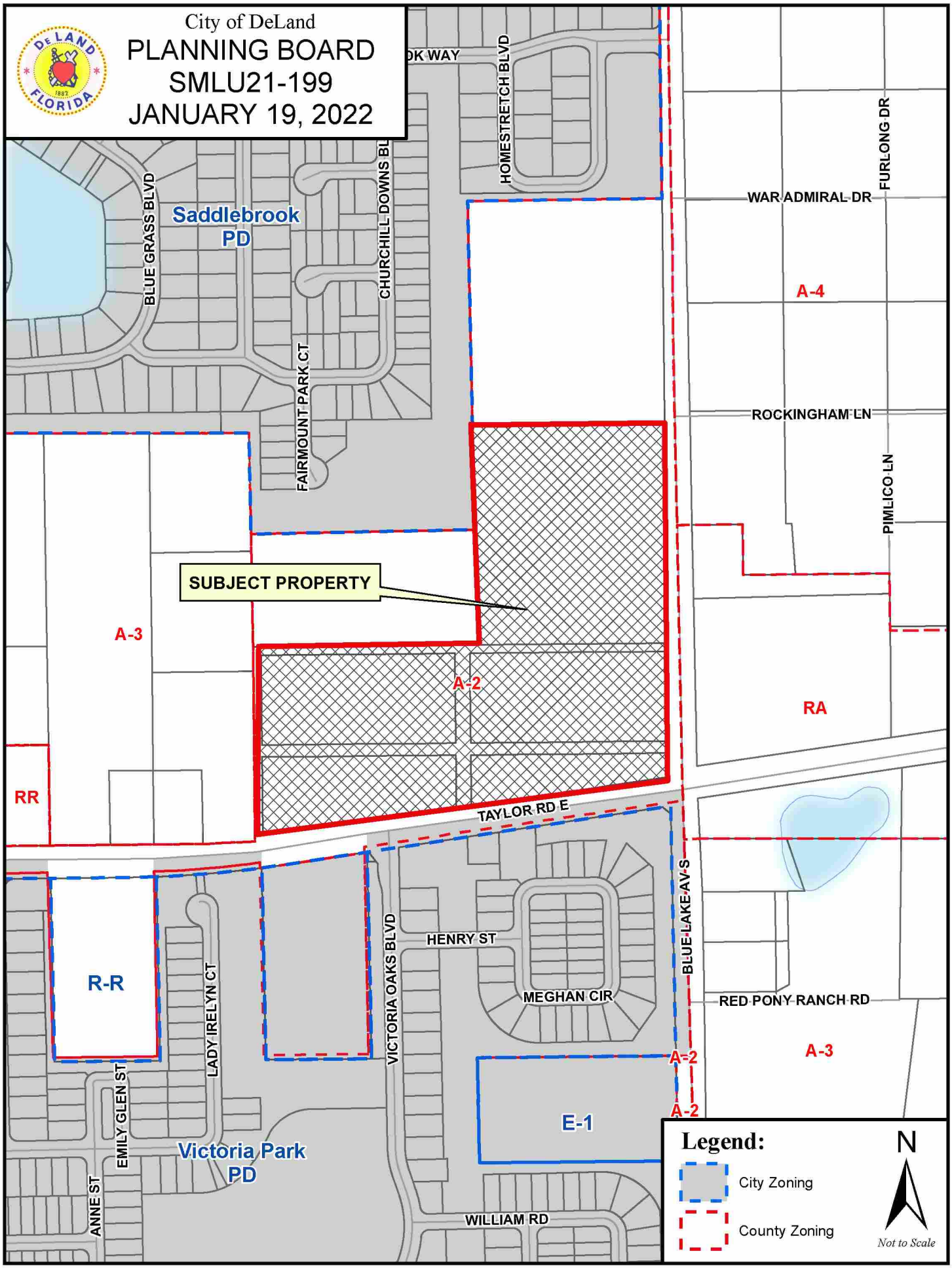
Low Density Residential
Medium Density Residential
High Density Residential
Educational
Mixed Office - Residential
Mixed Commercial
Business Retail
Highway Commercial
Downtown Commercial
Redevelopment
Gateway
Rail Spur
Industrial
New Community Development
Community
Commerce
West Central District
County
N
Not to Scale


City of DeLand
PLANNING BOARD
SMLU21-199
JANUARY 19, 2022
DeLAND FLORIDA 1882
OK WAY
HOMESTRETCH BLVD
FURLONG DR
WAR ADMIRAL DR
BLUE GRASS BLVD
Saddlebrook PD
CHURCHILL DOWNS BL
A-4
FAIRMOUNT PARK CT
ROCKINGHAM LN
PIMLICO LN
SUBJECT PROPERTY
A-3
A-2
RA
RR
TAYLOR RD E
R-R
LADY IRELYN CT
VICTORIA OAKS BLVD
HENRY ST
MEGHAN CIR
BLUE LAKE AV S
RED PONY RANCH RD
A-3
A-2
A-2
E-1
EMILY GLEN ST
Victoria Park PD
ANNE ST
WILLIAM RD
Legend:
City Zoning
County Zoning
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Not to Scale

City of DeLand
PLANNING BOARD
SMLU21-199
JANUARY 19, 2022
DELAND FLORIDA
PD
BLUE GRASS BLVD
SADDLEBROOK WAY
CHURCHILL DOWNS BL
HOMESTRETCH BLVD
WAR ADMIRAL DR
A-4
FAIRMOUNT PARK CT
ROCKINGHAM LN
PIMLICO LN
SUBJECT PROPERTY
A-3
A-2
R4
RR
TAYLOR RD E
R-R
PD
LADY IRELYN CT
VICTORIA OAKS BLVD
HENRY ST
MEGHAN CIR
BLUE LAKE AV S
RED PONY RANCH RD
A-2
A-3
A-2
E-1
EMILY GLEN ST
PD
ANNE ST
WILLIAM RD
Legend:
City Zoning
County Zoning
N
Not to Scale

PLANNING DEPARTMENT STAFF REPORT
TO
PLANNING BOARD

January 19, 2022

APPLICATION NO.: Z21-198

APPLICANT: Mr. Michael Woods, Esq., Cobb Cole

REQUEST: Amend the existing zoning designation from Volusia County's A-2 to City of DeLand's Taylor Ridge PD

APPLICABLE REGULATIONS:

Article IV — OVERLAY AND FLOATING ZONES
Sec. 33-32 – Planned Development District.

Article XII — ADMINISTRATION AND ENFORCEMENT
Sec. 33-135 – Procedure for text amendments & rezoning.

A. SITE FACTORS:

Location: Northwest corner of S. Blue Lake Ave. & E. Taylor Rd.
Parcel Size: ± 26.01 acres
Land Use: Volusia County Rural
Existing Zoning: Volusia County A-2 – Rural Agriculture
Existing Use: Undeveloped

	SURROUNDING USE:	SURROUNDING ZONING:
North:	VC: Rural; LDR	VC: A-2; Saddlebrook PD
South:	VC: Rural; New Community Development	Bridle Oaks PD; Victoria Park PD
East:	VC: Rural	VC: A-3
West:	VC: Urban Low Intensity	VC: RA; VC: A-4

B. ANALYSIS:

The proposed development consists of ± 26.01 acres of vacant, wooded land, located on the northwest corner of S. Blue Lake Ave. & E. Taylor Rd. The applicant is requesting to rezone the subject property from Volusia County's A-2, Rural Agriculture, to City of DeLand's Taylor Ridge Planned Development. A portion of the subject property was originally platted in 1925 as the Carroll & Marshall Plat, which consisted of 200 residential lots, approximately 25' wide and 140' deep. The Taylor Ridge PD will be a residential planned development, consisting of 71 single-family lots.

The applicant has submitted concurrent applications for an annexation (AN21-197) and for a future land use amendment (SMLU21-199) to change the future land use designation from Volusia County's Rural to City of DeLand's Urban Low Intensity.

There is a 100' wide power line easement that runs north to south at the center of the property which will remain clear. There is also an access easement for the abutting property to the west which provides the property owner of 1275 E. Taylor Rd. to reach the right-of-way. The applicant will continue to provide access for the abutting property via a 20' wide easement running to the west of the powerline easement. However, staff is requesting for a 25' wide easement. Widening the easement to 25' would allow for a future connection. Access to Taylor Ridge will be from S. Blue Lake Ave. and E. Taylor Rd.

The proposed PD Development Agreement allows a maximum of 71 single-family lots. The conceptual plan proposes 40 lots that will be 50-ft wide (56%) and 31 lots that will be 60-ft wide (44%). Each parcel will be designed to accommodate 4 parking spaces (2 driveway spaces and 2 garage spaces). An additional 37 on-street parking spaces will be provided throughout the development for visitors.

Allowable impervious area is limited to 50% on a per-lot basis within the Development. The project will have an overall density of approximately 2.73 units per acre. In general, unless otherwise stated in the PD Agreement, the development standards will mirror the R-1 district regulations from the city's land development regulations.

As required by section 33-57.07(b) of the land development regulations, a minimum of 15% of the subject property will be dedicated as Tree Protection Area (TPA). The development will be required to maintain a minimum setback of 25' from abutting residential properties to the north and west.

Per Ordinance 2019-10, residential buffers along arterial or collector roads shall contain a berm along with the required plant material to screen the view of the roadway. If existing vegetation provides appropriate screening, a berm would not be required. Residential subdivisions along collector roads such as S. Blue Lake Ave., and arterial roads such as E. Taylor Rd., shall follow the Type D buffer standards. Additionally, E. Taylor Rd. is part of the Emerging Gateway Corridor which contains supplemental buffer standards that supersede the general landscape code requirements. The developer has also committed to providing recreational/community uses such as an amenity center, clubhouse, cabana, community garden or sport courts within the development.

On November 18, 2021, the Technical Review Committee recommended that the proposed Planned Development Agreement be forwarded on to the Planning Board, subject to addressing remaining Staff comments.

The applicant submitted a revised version of the Planned Development Agreement on January 3, 2022, responding to prior Staff issues. Below are the remaining Staff comments after said resubmittal, along with a summary of the updated comments that remain.

THE FOLLOWING TRC COMMENTS REMAIN:

Planning Revised Comments:

1. Staff is requesting for a 25' access easement be provided to the neighboring property (Mr. & Mrs. Wise, 1275 E. Taylor Rd.) in lieu of the 20' one being provided. This would allow a connection for future development.

Engineering Revised Comments:

1. Page 8, #2 On-Street Parking: "On-Street parallel parking is 8.5 feet by 22 feet measured to back of drop curb (2 feet of curb plus 6.5 feet of asphalt)". Assuming Miami curb will be utilized for this subdivision, a minimum of an 8-foot wide parallel parking is required excluding 2 feet of curb.

   Last comment from reviewer: Understood. Please remember that per City LDC, parallel parking is required to be 9' x 22'.

Forestry Revised Comments:

1. If you say "in excess of 6" DBH" does that include 6" DBH trees? They will need to be surveyed as well.

   Last comment from reviewer: Now on Line 19.

2. Change "all trees in excess of 6 inches DBH" to "all trees 6" DBH and larger."

Fire Revised Comments:

1. No vertical construction or combustibles may be stored on the project until the infrastructure is complete.
   The road and water utility must be inspected and approved by engineering /utilities and fire prevention before it may start.
2. Any deviation from the proposed plan would need to be reviewed and approved.
3. The apparatus information has to be uploaded in documents/attachments. Verify.

Section 33-135 of the Land Development Regulations provides the following criteria, which the City Commission shall utilize in reviewing a rezoning request:

1. **Is the proposed rezoning consistent with the Comprehensive Land Use Plan, the land use, zoning pattern and character of the surrounding area?**

The proposed development abuts the Saddlebrook residential Planned Development as well as unincorporated County acreage estates to the west; the Victoria Park residential Planned Development to the south; and residential unincorporated County acreage to the north and east. These nearby plats to the south and west have lot sizes averaging around 50-70 ft. in width, with houses built roughly between the 2000's and 2010's. Proposed lot sizes in the subject development are of a similar range as those found in both Saddlebrook and Victoria Park; and at an overall density of 2.73 dwelling units per acre, it is of a similar intensity to Saddlebrook's 3.10 dwelling units per acre.

The development is consistent with the Comprehensive Plan, in that the underlying land use of Urban Low Intensity allows up to 4 dwelling units per acre.

2. **Will the proposed rezoning have an impact upon the environment or natural resources?**

The subject site is heavily wooded and the proposed development would reduce the tree coverage significantly. However, the PD Agreement and associated plan will ensure that tree preservation areas, buffering and other tree requirements meet the minimum requirements of the Land Development Regulations. The proposed development should not have any other negative impacts on the environment or natural resources on the site or in the surrounding area. An endangered species report will be required at time of the preliminary subdivision plat.

3. **Will the proposed rezoning have an impact upon the economy of the affected area?**

The infusion of newer homes in this project should have a positive impact on the general area and potentially raise overall values. Additionally, the subject property's proximity to a major transportation corridor will benefit the new residents of the development.

4. **Will the proposed rezoning have an impact upon governmental services?**

Governmental services such as potable water, sewer, code enforcement, police, and fire are available for the subject property and will be provided by the City.

The City's Utilities Department has indicated that there is both water and sewer capacity to serve a development of this size.

Volusia County Schools provided a Finding of Adequate Capacity Letter, dated November 22, 2021. Per the letter, the student projections generated by this project **will** increase the existing percentage above 100% permanent capacity at all school levels. Currently, the DeLand planning area (west) for Freedom Elementary, DeLand Middle, and DeLand High is at or over 100% but below 115% for both elementary and middle school levels, and 120% for the high school level, for concurrency. Based on this, the school district has no objections to the proposed development plan.

Based on information provided in the Trip Generation Memo provided by the applicant and the ITE Trip Generation Manual (10th edition), 71 dwelling units would generate approximately 754 average daily trips; this is an increase of 470 trips based on the current VC A-2 zoning district. A full Traffic Impact Analysis will not be required because the projected average daily trips is less than 1,000 trips.

The subject property is on S. Blue Lake Ave. to the east which is categorized as a major collector road. To the south of the subject property is E. Taylor Rd., which is categorized as a minor arterial road.

The portion of S. Blue Lake Ave. roadway affected by the proposed development currently operates at a Daily LOS of "C", per the latest Volusia County Traffic Counts, with an Allowable LOS of "E". This segment can handle an additional 5,400 daily trips before reaching capacity.

The portion of E. Taylor Rd. roadway affected by the proposed development currently operates at a Daily LOS of "C" per latest Volusia County Traffic Counts, with an Allowable LOS of "E". This segment can handle an additional 6,270 daily trips before failing.

5. Are there changes in the circumstances or conditions affecting the area since the original assignment of zoning that will support the proposed zoning?

The subject property abuts less dense, rural, unincorporated residential/agricultural land as well as incorporated developments that are similar to the proposed Taylor Ridge PD. The proposed development is within the city's Urban Core; according to the DeLand 2050 Land Use guide, this area is the key area to focus development, and maintain a strong job base, taking advantage of existing infrastructure. Locating higher intensity along select corridors or major centers will encourage transit and lessen traffic congestion.

6. Was there a mistake in the original classification?

There was no mistake in the original classification.

7. Will the proposed rezoning have any effect upon the use or value of the affected area?

The proposed development abuts the Saddlebrook residential Planned Development as well as unincorporated County acreage estates to the west; the Victoria Park residential Planned Development to the south; and residential unincorporated County acreage to the north and east. These nearby plats to the south and west have similar lot sizes, with houses built roughly between the 2000's and 2010's. The infusion of newer homes in this project should have a positive impact on the general area and potentially raise overall values.

Additionally, staff has requested the applicant widen the easement that provides access to the north; this would allow for a connection in the future for properties to the north, thus adding value.

8. Will the proposed rezoning have an impact upon public health, safety and welfare?

There is no indication at this time that the new proposal will create additional impacts upon public health, safety or welfare, as all provided public services have the capacity needed to accommodate the proposed development. Impacts, if any, to the surrounding County roadway network will be required to be mitigated proportionally by the developer.

C. CONCLUSION:

The Applicant is proposing a rezoning from Volusia County's A-2 to a Planned Development in order to develop the subject property for 71 detached, single-family units. Submittal of a plat will be required to ensure the provisions of the Planned Development Agreement are satisfied, as determined by TRC Staff.

D. STAFF RECOMMENDATION:

Staff recommends that the Planning Board forward the zoning request to the City Commission with a recommendation for approval, from Volusia County's A-2 to "Taylor Ridge PD", subject to addressing all comments from Staff and the Planning Board.

U\P\SR\2021\SR-Z21-198 Taylor Ridge PD Rezone.docx

PLANNED DEVELOPMENT AGREEMENT

IN THE CITY COMMISSION OF THE

CITY OF DELAND, FLORIDA

IN RE: Case # Z21-_____, Application of

HANOVER LAND COMPANY, LLC

ORDINANCE # 20___-____

ORDER AND RESOLUTION

GRANTING A REQUEST FOR CHANGE OF ZONING FROM COUNTY A-2 TO

TAYLOR RIDGE PD

The application of Hanover Land Company, LLC, hereinafter, "Applicant", for rezoning was heard by and before the City Commission, DeLand Florida, on _____, 20___, Based upon the verified Application and other supporting documents, maps, charts, overlays, other evidence and instruments; the advice, report, and recommendations of the Community Development, and other Departments and agencies of DeLand, Florida; and the testimony adduced and evidence received at the Public Hearing on this Application by the Planning Board on _____, 20___, and otherwise being fully advised, the City Commission does hereby find and determine as follows:

GENERAL FINDINGS

A. That the application of Hanover Land Company, LLC was duly and properly filed herein on _____, 2021 as required by law.

B. That all fees and costs which are by law, regulation, or Ordinance required to be borne and paid by the applicant have been paid.

C. That the Applicant is the Contract Purchaser of a 26.01 +/- acre parcel of land which is the subject of this application and which land is situated in DeLand, Florida.

D. That the Applicant has complied with the Planned Development Plan provision as required by Land Development Regulations Ordinance No. 2013-11, as amended.

E. That the Applicant has complied with the "Due Public Notice" requirements of the City Commission, Land Development Regulations Ordinance No. 2013-11, as amended.

F. That the owners of the properties, Tom B. Stewart EST & Mary S. Howarth EST, Stewart Family Properties, LLC, agree with the provisions of the Development Agreement.

FINDINGS REGARDING REZONING

A. That the applicant has applied for a change of zoning from the present zoning classification of the parcels described in Exhibit "A" from County A-2 to Taylor Ridge PD (Planned Development).

B. That the said rezoning to a PD is consistent with both the City of DeLand Comprehensive Plan Ordinance No. 1990-04, as amended, and the intent and purpose of the City of DeLand Development Regulations Ordinance No. 2013-11, as amended, and does promote the public health, safety, morals, general welfare and orderly growth of the area affected by the rezoning request.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED BY THE CITY OF DELAND, FLORIDA, IN OPEN MEETING DULY ASSEMBLED IN THE CITY COMMISSION CHAMBERS, 120 SOUTH FLORIDA AVENUE, DELAND, FLORIDA, THIS _____ DAY OF _____, 20____, AS FOLLOWS:

A. That the Application of Hanover Land Company, LLC, a Florida limited liability company, for the rezoning of the subject parcels are hereby granted.

B. That the zoning classification of the subject parcels described in Exhibit "A" attached hereto is hereby amended from County A-2 to Taylor Ridge PD as described in Article VII of the City of DeLand, Land Development Regulations Ordinance No. 2013-11, as amended.

C. That the Official Zoning Map of the City of DeLand, is hereby amended to show the rezoning of said parcels to Taylor Ridge PD.

D. That the City of DeLand, Land Development Regulations Ordinance No. 2013-11, as amended, is consistent with the provisions of the "Development Agreement" as hereinafter set forth in this Ordinance and with respect to any conflict between Land Development Regulations Ordinance No. 2013-11, as amended, and the "Development Agreement", the provisions of the "Development Agreement" shall govern. Ordinance No. 2013-11, as amended, shall govern with respect to any matter not covered by the "Development Agreement". The City of DeLand will ensure overall compliance with this Ordinance.

E. Unless otherwise provided for herein the City of DeLand, Land Development Regulations Ordinance No. 2013-11, as amended, shall apply to the PD in the same manner as the R-1 zoning classification.

F. Except as otherwise stated herein, nothing in the Development Agreement is intended to abridge the requirements of Ordinance No. 2013-11, as amended, and any other City Ordinances.

DEVELOPMENT AGREEMENT AMENDMENT

A. Development Concept. The properties shall be developed as Taylor Ridge PD, substantially in accordance with the Planned Development Plan. The Planned Development Plan shall govern the development of the property as a PD and shall regulate the future land use of this parcel.

B. Planned Development Plan. The Planned Development Plan shall consist of the Development Plan Map prepared by Kelly, Collins & Gentry, Inc., and dated December 10, 2021 and this Development Agreement. The Planned Development Plan is hereby approved and incorporated in this Ordinance by reference as Exhibit "B". The Planned Development Plan shall be filed and retained for public inspection in the Planning Department and it shall constitute a supplement to the Official Zoning Map of the City of DeLand.

C. Amendments. All amendments of the Planned Development Plan, other than those deemed by the Planning Department to be minor amendments as set out in Land Development Regulations Ordinance No. 2013-11, as amended, shall require the review and recommendation of the Planning Board and action by the City Commission in the same manner as a rezoning of the parcel.

D. Subdivision Approval. After the Planned Development Plan is recorded, and prior to any construction, including clearing and landfill, a final plat of the area to be subdivided, consisting of a single phase, shall be submitted for review and approval in the manner required by Article 13 of the City of DeLand Land Development Regulations,

Ordinance No. 2013-11, as amended.

E. Unified Ownership. The applicant or his successors shall maintain unified ownership of the individual phases of the subject parcels until after issuance of the Final Subdivision Plat Development Order for a particular phase.

F. Phases of Development. Development of the Property shall be accomplished in a single phase. Mass-grading of the site may only occur over the development area included in a particular phase, as approved by the City during the subdivision review process, but not over the Tree Protection Areas or any portion of the parcel not included within an approved phase. Mass-graded areas will be stabilized with vegetative cover.

G. Land Uses Within the PD. The development of the parcels shall be consistent with the uses prescribed for each area within the proposed Taylor Ridge PD. The location and size of said land use areas are shown on the Development Plan Map, Exhibit "B". The following land uses shall be allowed as permitted principal uses and structures along with their customary accessory uses and structures:

Permitted Uses within Residential Areas:

1. Single-Family Residences:

Single-family dwellings, except mobile homes, and their customary accessory uses

Family day care home.

Mini and neighborhood parks.

Community uses including but not limited to passive recreation areas with gazebo.

H. Development Standards. All development for the property shall rely upon the standards set forth below as identified on the Planned Development Plan. Where this document is silent, the R-1 Zoning regulations shall apply.

1. Single-Family Residences:

a. Maximum unit count: 71

	50' Lots	60' Lots
1. Minimum lot area:	5,750 sq. ft.	6,900 sq. ft.
2. Minimum lot width:*+	50 ft.	60 ft.
3. Minimum lot length:	115 ft.	115 ft.
4. Minimum building setbacks:		
a. Front yard to garage face/door:	25 ft.	25 ft.
b. Front yard to structure:	15 ft.	15 ft.
c. Rear yard:	20 ft.	20 ft.
d. Side yard:	5 ft.	5 ft.
e. Side street	15 ft.	15 ft.
5. Min. screen enclosure setbacks:		
f. Rear yard screen enclosure	5 ft.	5 ft.
g. Side yard screen enclosure	5 ft.	5 ft.
Side street screen enclosure:	15 ft.	15 ft.
6. Min. pool and accessory structure setbacks:		
h. Side setback for pools and accessory structures:	5 ft.	5 ft.

i. Side street setback for pools and accessory structures:	15 ft.	15 ft.
j. Rear setback for pools and accessory structures:	5 ft.	5 ft.
7. Minimum floor area:	1300 sq. ft.	1300 sq. ft.
8. Maximum lot coverage:	65%	65%
9. Maximum building height:	35 ft.	35 ft.
10. Maximum number of lots:	40	31

* The minimum lot width for and area must be 15% greater than the standard for an interior lot.
+ Lots fronting a curve must be at least 50 feet wide at the street line.

2. Accessory Structures. Unless otherwise stated herein, all accessory structures shall meet the development standards of Section 33-28 of the Land Development Regulations Ordinance No. 2013-11, as amended.

3. Parking Standards

1. Off-Street Parking: Each parcel shall be designed to accommodate no less than two (2) parking spaces via use of an on-parcel driveway and two (2) spaces in an internal garage. All driveway parking spaces shall be a minimum of nine (9) feet wide by twenty (20) feet long (per each vehicle).

2. On-Street Parking:

a. On-street parking, as illustrated on Exhibit "B", shall be provided in various locations within the Property.

b. No less than 37 on-street parking spaces shall be provided.

c. On-street parallel parking is 8.5 feet by 22 feet measured to

back of drop curb (2 feet of curb plus 6.5 feet of asphalt).

d. Perpendicular parking spaces are sized 9 feet by 20 feet.

e. Cross sections of the roadway illustrating typical design for parking on one or both sides of the street are included in Exhibit "B".

4. Sidewalks: Sidewalks shall be provided throughout the subdivision and along its exterior roadways pursuant to the terms and obligations of Section 33-90.04 of the City's Land Development Code.

5. Subdivision Entryways: Entryways into the subdivision shall screen the sides of any proposed single-family dwellings by one of the following methods or combination of methods: 1) Perimeter roadway buffers shall be extended along any roadway entrance into the subdivision, a minimum distance of 100 feet complying with Buffer Standard "B"; 2) stormwater facilities with perimeter landscaping and fountain; or 3) signage, complying with Section 33-75.04(e).

6. Signage: Signage for the subdivision shall be provided per the Land Development Regulations. One monument sign identifying the subdivision shall be placed at the entrance along E. Taylor Road and one monument sign identifying the subdivision shall be placed at the entrance along S. Blue Lake Avenue. The entrance along E. Taylor Road shall be designated as the primary entrance.

7. Open Space. Open Space and Common Area shall meet the requirements of the Land Development Regulations Ordinance No. 2013-11, and are as provided in the Conceptual Plan.

8. Design. The City shall encourage a mixture of design facades within the single-family home phases of the development, and the Developer shall avoid a repeating

sequence of designs and shall not utilize the same design on lots within 3 single-family lots of each other on the same side of the street. The property owners' association shall ensure that an individual lot owner seeking building permits shall demonstrate compliance with this Section as part of the construction permit submittal for a lot.

9. Model Homes and Temporary Sales Offices. The Developer may designate and construct up to 4 lots as Model Homes and 1 lot as Temporary Sales Offices as identified on the Planning Development Plan. Construction of a Model Home and/or Temporary Sales Office may commence in conjunction with the construction of infrastructure improvements for said phase, however, a final certificate of occupancy for said Model Home and/or Temporary Sales Office shall not be issued until final plat approval for said phase and acceptance of the roadway with its infrastructure by the City of DeLand.

10. Exterior Buffer/Landscaping. Notwithstanding the landscape requirements provided for herein along the Subdivision Entryways, the perimeter buffers of the subdivision shall comply with the landscape buffer width and planning requirements provided for in Section 33-92.02 of the City of DeLand Land Development Code.

11. Compliance. In the event that future development cannot comply with the standards set forth herein, then said entitlements shall be process through an amendment to this Development Agreement.

I. Environmental Considerations. The development shall comply with the requirements for preservation of environmental resources as set forth in the Land Development Regulations Ordinance No. 2013-11, as amended. This includes compliance with the Land Development Regulations regarding analysis, preservation and mitigation for historic trees. Tree Protection Areas (TPAs) preserving a minimum of 15% of the net developable area, which excludes required right-of-way dedication areas and on-site

easements, shall be required and maintained as shown on Exhibit "B". Tree Protection Areas are proposed as shown on Exhibit "B" and may be modified based upon an updated tree survey so long as the minimum 15% of net developable areas is preserved and the ultimate configuration is finalized at final site plan. Nothing shall prevent the grading of Tree Protection Areas prior to creation of said areas, but any portion of the property with grading shall require replanting as provided for in the Land Development Regulations.

The development has been laid out in a manner to best accommodate the existing topography, drainage, and known environmental conditions identified on the property. However, the actual location and layout of the developed areas within the development shall be determined during subdivision review and may be modified based on environmental conditions identified during the brownfield remediation process. In addition, all landscaping, including buffers, shall predominantly utilize Florida-Friendly Landscaping, as defined by the University of Florida/Institute of Food and Agricultural Sciences ("UF/IFAS") Center for Landscape Conservation and Ecology, native, or low-water plant material.

1. The City shall grant mitigation credit for Live Oak trees measuring 2" DBH to 5" DBH and maintained in TPAs. If said provision regarding 2"-5" Live Oak trees within the TPAs is utilized, the City will require an additional conservation easement to prevent the future removal of said trees as the default provisions of the Land Development Code only protects trees 6" DBH or larger. Credit for preservation of these 2"-5" Live Oak trees shall be based on an actual tree survey rather than a statistical analysis.

2. Due to the City's recognition that Laurel Oaks larger than 20" DBH are nearing the end of their lifespan, any Laurel Oak 20" DBH or larger removed from the Property during development will require reduced replacement of one 3" caliper canopy tree for each Laurel Oak removed. Each 3" caliper canopy tree shall receive 2" DBH credit

towards tree replacement calculations.

3. Street trees may be planted within the rights of way within the Property and said trees may be included in mitigation calculations. However, if any such trees are planted, the HOA shall be responsible for the maintenance of said trees. Moreover, the HOA shall also be responsible to repair any and all impacts upon the right of way infrastructure created by the presence of said trees, including any road or sidewalk facility.

4. A tree survey is required as part of the review process for the project. The survey shall be conducted based on the following standards:

a. The Applicant will survey all specimen and historic trees.

b. For non-specimen or non-historic trees, the Applicant will engage an arborist to identify statistically significant sample area(s). Sample areas are to be identified based upon cover types of species. The sample area for each cover type must have an area that is at least 10 percent of its total area and may not be less than one acre in size. The Applicant's arborist shall provide the City Forester with the proposed sample areas for review, comment and approval. The proportionate area of each statistically significant sample area will be calculated as a percentage of the overall property area.

c. Upon approval of the statistically significant sample areas by the City Forester, the Applicant will cause all trees in excess of 6 inches DBH to be identified and surveyed in the selected sample area.

d. The tree density determined by the survey of the sample area(s) will be used to determine tree replacement or mitigation requirements. The tree mitigation requirements will be weighted based on the proportionate area represented by each sample area.

5. Tree replacement and tree mitigation may be provided on a phase by phase basis so long as there is no clearing in any phase for which tree replacement and mitigation is not being contemporaneously provided. All tree mitigation required for any particular phase shall be determined and approved by the City Forester based upon landscape plans submitted by the Applicant and approved by the City Forester. With the exception of required street trees, all tree mitigation required for any particular phase, based upon the approved landscape plan, shall be installed prior to the issuance of certificate of occupancy for a home in that phase. Street tree installation, based upon the approved landscape plan, shall be required on a lot-by-lot basis and must be planted prior to the issuance of a certificate of occupancy for that particular lot.

6. Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area.

J. Sewage Disposal, Potable Water and Reclaimed Water. Provision for sewage disposal, potable and reclaimed water needs of the PD will be provided in accordance with the Comprehensive Plan, Ordinance No. 1990-04, as amended, the Land Development Regulations Ordinance No. 2013-11, as amended, and State of Florida Administrative Code 64E-6.

K. Stormwater Drainage. Provision for stormwater retention shall be in accordance with the Land Development Regulations Ordinance No. 2013-11, as amended. All stormwater retention systems will be designed to meet all required governmental regulations.

L. Access and Transportation System Improvements. All access and transportation system improvements shall be provided in accordance with the Land Development Regulations, Ordinance No. 2013-11, as amended. The parcel shall be developed in substantial accordance with the following access and transportation system improvements:

1. Access Points. Access to the site will be from E. Taylor Road and S. Blue Lake Ave. The Planned Development Plan indicates the anticipated connection locations; however, the final locations may vary due to final engineering design and permitting considerations.

2. Transportation System Improvements. Transportation system improvements will be provided as required by permitting agencies and as needed according to the Traffic Impact Analysis (TIA) for the project.

M. Internal Roadways. All rights-of-way will be a minimum of fifty (50) feet wide, and constructed in accordance with the Land Development Regulations, Ordinance No. 2013-11, as amended. All internal roads will be dedicated to the city. Dead end parking area will be accessible to accommodate fire trucks and garbage trucks.

N. Home or Property Owners Association. The Applicant shall create a homeowners' association. The charter and by-laws of said association and any other agreements, covenants, easements or restrictions shall be furnished to the City of DeLand at the time of creation. The Applicant shall be responsible for recording said information in the Public Records of Volusia County, Florida. Also, the applicant shall bear and pay all costs for recording all of the aforementioned documents.

As stated above, the City shall encourage a mixture of design facades within the

development, and the Applicant shall avoid a repeating sequence of designs and shall not utilize the same design on lots within 3 single-family lots of each other on the same side of the street. The homeowners' association shall ensure that an individual lot owner seeking building permits shall demonstrate compliance with this Section as part of the construction permit submittal for the lot.

With respect to the enforcement of said agreements, covenants, easements or restrictions entered into between the Applicant and the owners or occupiers of property within the Taylor Ridge PD, the City of DeLand shall only enforce the provisions of the "Development Agreement" and City of DeLand Land Development Regulations Ordinance No. 2013-11, as amended, whichever is applicable, and not the private agreements entered into between the aforementioned parties.

O. Reverter Provision: The terms of this Development Agreement shall be vested upon issuance of a final development order for the first phase of the development, which shall occur within five (5) years from the effective date of this ordinance. If not vested, the City Commission may rezone the property as may be necessary or appropriate to protect adjoining properties or the public health, safety and welfare, unless the City Commission, for good cause shown, shall extend the time period indicated in this paragraph.

P. On-Site Burning of Cleared Vegetation Prohibited: Vegetation and other biomass cleared from the Property during development may not be incinerated on-site.

Q. Binding Effect of Plans; Recording; and Effective Date. The Planned Development Plan, including any and all amendments shall bind and inure to the benefit of the Applicant and his successor in title or interest. The Taylor Ridge PD zoning, provisions

of the "Development Agreement," and all approved plans shall run with the land and shall be administered in a manner consistent with Article XII of the City of DeLand Land Development Regulations Ordinance No. 2013-11, as amended.

This Ordinance and all subsequent amendments shall be filed with the Clerk of the Court and recorded within forty-five (45) days following execution of the document by the City Commission, in the Official Records of Volusia County, Florida. One copy of the document, bearing the book and page number of the Official Record in which the document was recorded, shall be submitted to the Planning Department for placement in the public file. The date of recording of this document shall constitute the effective date of the Taylor Ridge PD or its subsequent amendments. The applicant shall pay all filing costs for recording documents.

DONE and ORDERED by the City Commission, City of DeLand, Florida, this ____ day of _____, 20____.

[remainder of page left blank]

ATTEST: City Commission of DeLand Florida

_____	_____
Michael P. Pleus	Robert F. Apgar
City Manager	Mayor

STATE OF FLORIDA

CITY OF DELAND

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization this ____ day of _____, 20___, by Michael P. Pleus and Robert F. Apgar, as City Manager and Mayor of the City of DeLand, respectively, on behalf of the City of DeLand, and who are personally known to me.

NOTARY PUBLIC, STATE OF FLORIDA

Type or Print Name:

_____

Commission No.:_____

My Commission Expires:_____

WITNESSES:

APPLICANT
HANOVER LAND COMPANY, LLC
a Florida limited liability company

_____

By:_____
ANDREW J. OROSZ, Vice President

_____
Printed Name

_____

_____
Printed Name

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization this ____ day of _____, 20___, by ANDREW J. OROSZ, as Vice President of HANOVER LAND COMPANY, LLC, who is personally known to me or who has produced _____ as identification.

NOTARY PUBLIC, STATE OF FLORIDA

Type or Print Name:

_____

Commission No.:_____

My Commission Expires:_____

WITNESSES:

OWNER:
Stewart Family Properties, LLC

_____

By:_____

Name: _____

_____
Printed Name

_____

By:_____

Name: _____

_____
Printed Name

STATE OF FLORIDA
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization this ____ day of _____, 20____, by _____, _____ & _____, of Stewart Family Properties, LLC, who are _____ personally known to me or _____ who has produced _____ as identification.

NOTARY PUBLIC, STATE OF FLORIDA

Type or Print Name:

_____

Commission No.:_____

My Commission Expires:_____

WITNESSES:

OWNER:
CENTRAL FLORIDA INVESTMENT CO, LLC,
a Florida limited liability company

_____

By:_____

Print Name:_____

_____
Printed Name

_____

_____
Printed Name

STATE OF FLORIDA
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization this ____ day of _____, 2021, by _____, _____ of CENTRAL FLORIDA INVESTMENT CO, LLC, who is _____ personally known to me or _____ who has produced _____ as identification.

NOTARY PUBLIC, STATE OF FLORIDA

Type or Print Name:

_____

Commission No.:_____

My Commission Expires:_____

WITNESSES:

OWNER:
CMM INVESTMENTS, LLC,
a Florida limited liability company

_____

By:_____

Print Name:_____

_____
Printed Name

_____

_____
Printed Name

STATE OF FLORIDA
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization this ____ day of _____, 2021, by _____, _____ of CMM INVESTMENTS, LLC, who is _____ personally known to me or _____ who has produced _____ as identification.

NOTARY PUBLIC, STATE OF FLORIDA

Type or Print Name:

_____

Commission No.:_____

My Commission Expires:_____

EXHIBIT "A"
LEGAL DESCRIPTION

Parcel 1:
The South ½ of the Southeast ¼ of the Southeast ¼, lying North of Taylor Road, Section 22, Township 17 South, Range 30 East, Volusia County, Florida, Less and Except Road Right of Ways.

also described as:

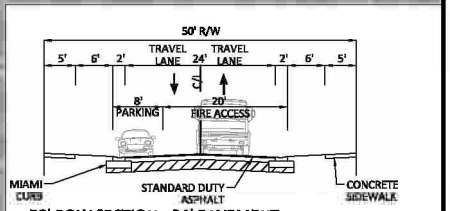
All of Blocks 1 and 2, and that portion of Blocks 3 and 4, lying North of Taylor Road, Carroll and Marshall Addition to Deland, according to the map thereof as recorded in Map Book 9, Page 22, Public Records of Volusia County, Florida, Less and Except Road Right of Ways.

Parcel 2:
The Northeast ¼ of the Southeast ¼ of the Southeast ¼, Section 22, Township 17 South, Range 30 East, Volusia County, Florida, Less Road Right of Way.

CONTAINING: 26.011 acres, more or less

EXHIBIT "B"

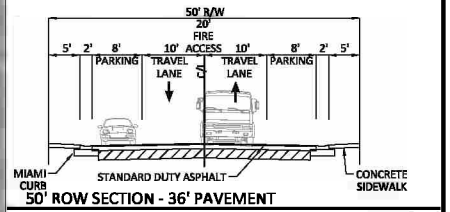
PLANNED DEVELOPMENT PLAN



50' ROW SECTION - 24' PAVEMENT

TYPICAL CROSS SECTION

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 10'



50' ROW SECTION - 36' PAVEMENT

TYPICAL CROSS SECTION

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 10'

LEGEND:	COUNT:	PERCENT:
50' LOT	40	56 %
60' LOT	31	44 %
TOTAL:	71 LOTS/UNITS	
LANDSCAPE BUFFER / TREE PROTECTION AREA		
AMENITY		

SITE DATA

AREA SUMMARY:	AREA	PERCENT
RESIDENTIAL LOT AREA	10.51 AC	40%
INTERNAL RIGHT OF WAY	3.88 AC	15%
AMENITY	0.49 AC	2%
OPEN SPACE / STORM WATER TRACTS	11.13 AC	43%
TREE PROTECTION AREA (15% MIN)	3.90 AC	
TOTAL AREA	26.01 AC	100%

KCG
KELLY, COLLINS & GENTRY, INC.
1700 NORTH ORANGE AVENUE, SUITE 400
ORLANDO, FLORIDA 32804
(407) 896-7508 FAX (407) 896-

NO.	DATE	REVISION
5		
4		
3		
2		
1		

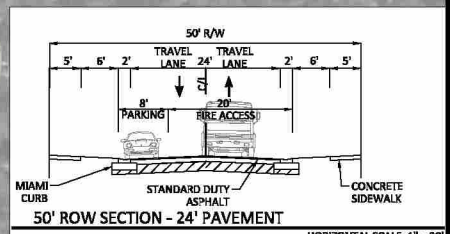
PREPARED FOR:
HANOVER COMPANY

PROJECT:
TAYLOR LAND SUBDIVISION

CONCEPT PLAN

DRAWN: GBH
DESIGN: RCF
CHECKED: RCF
JOB NO.: 88.009
DATE: 12/30/2021

SHEET
1 OF 1



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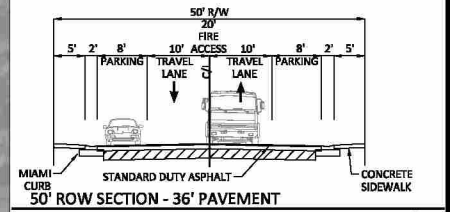

50' ROW SECTION - 36' PAVEMENT

TYPICAL CROSS SECTION

HORIZONTAL SCALE: 1" = 20'
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LEGEND:	COUNT:	PERCENT:
50' LOT	40	56 %
60' LOT	31	44 %
TOTAL:	71 LOTS/UNITS	
LANDSCAPE BUFFER / TREE PROTECTION AREA		
AMENITY		

SITE DATA

AREA SUMMARY:	AREA	PERCENT
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AMENITY	0.49 AC	2%
OPEN SPACE / STORM WATER TRACTS	11.13 AC	43%
TREE PROTECTION AREA (15% MIN)	3.90 AC	
TOTAL AREA	26.01 AC	100%

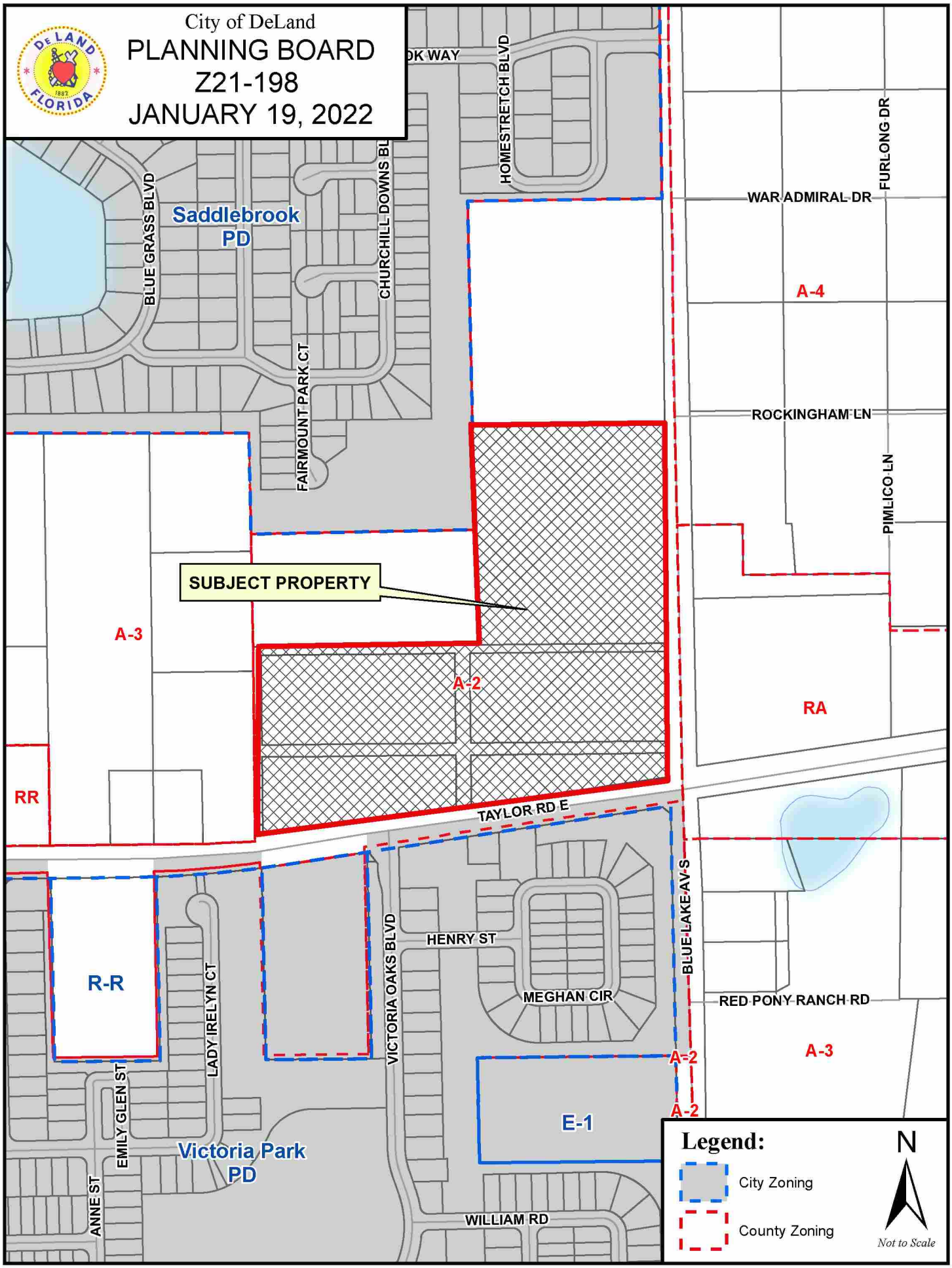
KCG KELLY, COLLINS & GENTRY, INC.

PREPARED FOR: HANOVER COMPANY

PROJECT: TAYLOR LAND SUBDIVISION

CONCEPT PLAN

DESIGN:
CHECKED:
SHEET 1 OF 1


City of DeLand
PLANNING BOARD
Z21-198
JANUARY 19, 2022
DK WAY
HOMESTRETCH BLVD
FURLONG DR
WAR ADMIRAL DR
BLUE GRASS BLVD
Saddlebrook PD
CHURCHILL DOWNS BL
A-4
FAIRMOUNT PARK CT
ROCKINGHAM LN
PIMLICO LN
SUBJECT PROPERTY
A-3
A-2
RA
RR
TAYLOR RD E
BLUE LAKE AV S
HENRY ST
R-R
LADY IRELYN CT
VICTORIA OAKS BLVD
MEGHAN CIR
RED PONY RANCH RD
A-3
A-2
A-2
E-1
EMILY GLEN ST
Victoria Park PD
ANNE ST
WILLIAM RD
Legend:
City Zoning
County Zoning
N
Not to Scale

City of DeLand

PLANNING BOARD
Z21-198
JANUARY 19, 2022

PLANNING STAFF REPORT
To
PLANNING BOARD

January 19, 2022

APPLICATION: PSB21-152

SUBJECT: Preliminary Plat for Manchester Phase 1A

1. **Location**: West side of N. Stone St., north of W. Plymouth Ave.

2. **Applicant**: Howard Lefkowitz, Manchester Communities

3. **Size:** +/- 12.16 acres

4. **Existing Zoning & Land Use:**
   Land Use: Low Density Residential
   Zoning: Manchester PD
   Overlay: Community Health Overlay

5. **Surrounding Conditions:**

	SURROUNDING USE:	SURROUNDING ZONING:
North:	VC: Urban Low Intensity	VC: A-3&M; VC: A-3
South:	VC: Commercial	VC: B-1&M
East:	Mixed-Office Residential	VC: P-1&M
West:	Low Density Residential; Mixed-Office Residential	Cascades PD; C-1

6. **Applicable Regulations:**
   Sec. 33-146.05. *Subdivision of Land.*
   Manchester Planned Development Agreement

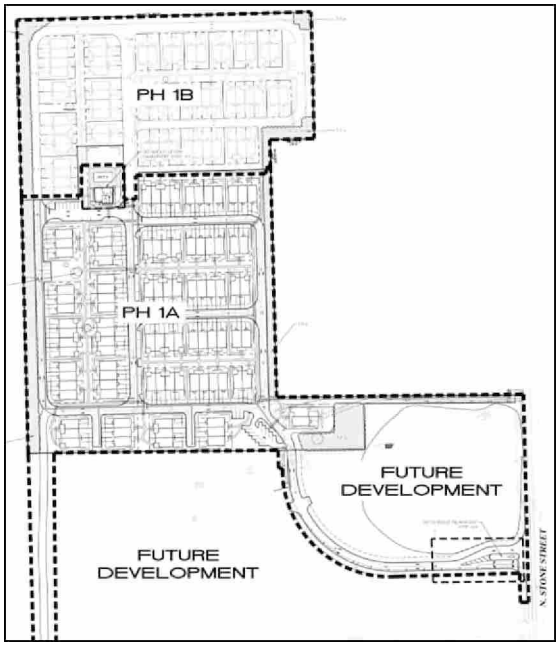
7. **Physical Characteristics:**
   The subject property is located on the west side of N. Stone St., north of W. Plymouth Ave. The north side of the property is sparsely wooded, and the south side of the property is heavily wooded with mature trees. The property lies outside of the 100-year floodplain and is clear of any wetlands.

8. Public Utilities and Service:

Water: The proposed development will be served by City potable water facilities.
Sewer: The proposed development will be served by City sanitary sewer facilities.
Irrigation: The proposed development will be served by City reclaimed water facilities.

9. Type of Development:

The proposed development is bordered by The Cascades residential PD to the west; transitional agriculture zoning to the north; assisted living & nursing facilities to the east; and medical uses to the south. The limits of the development were annexed into the City on July 26, 2006. (Ord. #2006-45) On April 23, 2021, the City Commission voted to approve a rezone for the subject property from the previously defunct Scarlet PD to the current Manshester PD (Ord. #2021-11). The northern 19.48 acres of the Manchester PD will be developed as residential townhomes. The southern 19.02 acres of the Manchester PD is labeled as "Future Tract" on the development plan. The Future Tract will allow for either additional residential units to be developed in a similar manner or for medical-support type uses, in-line with those listed and promoted by the Community Health Overlay (such as professional offices, clincs, nursing facilities, light retail, food services, etc.).



The applicant seeks to develop Phase 1A of the residential portion of the subject property. Phase 1A will include 95 attached, age-restricted townhome lots, an amenity/community center and a pool.

10. Analysis:

The residential portion will be gated-off from the rest of the development (future tract).
The future tract will allow for either additional residential units or for medical-support type uses, in-line with those listed and promoted by the Community Health Overlay (such as professional offices, clincs, nursing facilities, light retail, food services, etc.) Shared access for both sections of the PD will be off of S. Stone St., with a proposed emergency access-only drive (for the time-being) down to W. Plymouth Ave. Internal roadways will be private.

The total acreage of Phase 1A and Phase 1B equals to 19.48 acres. The code requires a minimum tree protection area of 15%. Therefore, the TPA must total at least 2.9 acres (15%). The applicant is splitting the 2.9 acres of total TPA amongst both phases, with Phase 1A providing 1 acre of TPA and Phase 1B providing 2 acres of TPA, providing a total of 3 acres of TPA in all (approximately 15.4% TPA).

The proposed plat is consistent with the adopted PD agreement, concept plan, and applicable land development regulations.

At the December 16, 2021 Technical Review Committee meeting, members recommended the Preliminary Plat be forwarded on to the Planning Board, subject to the addressing of Staff comments. The following Staff comments remain:

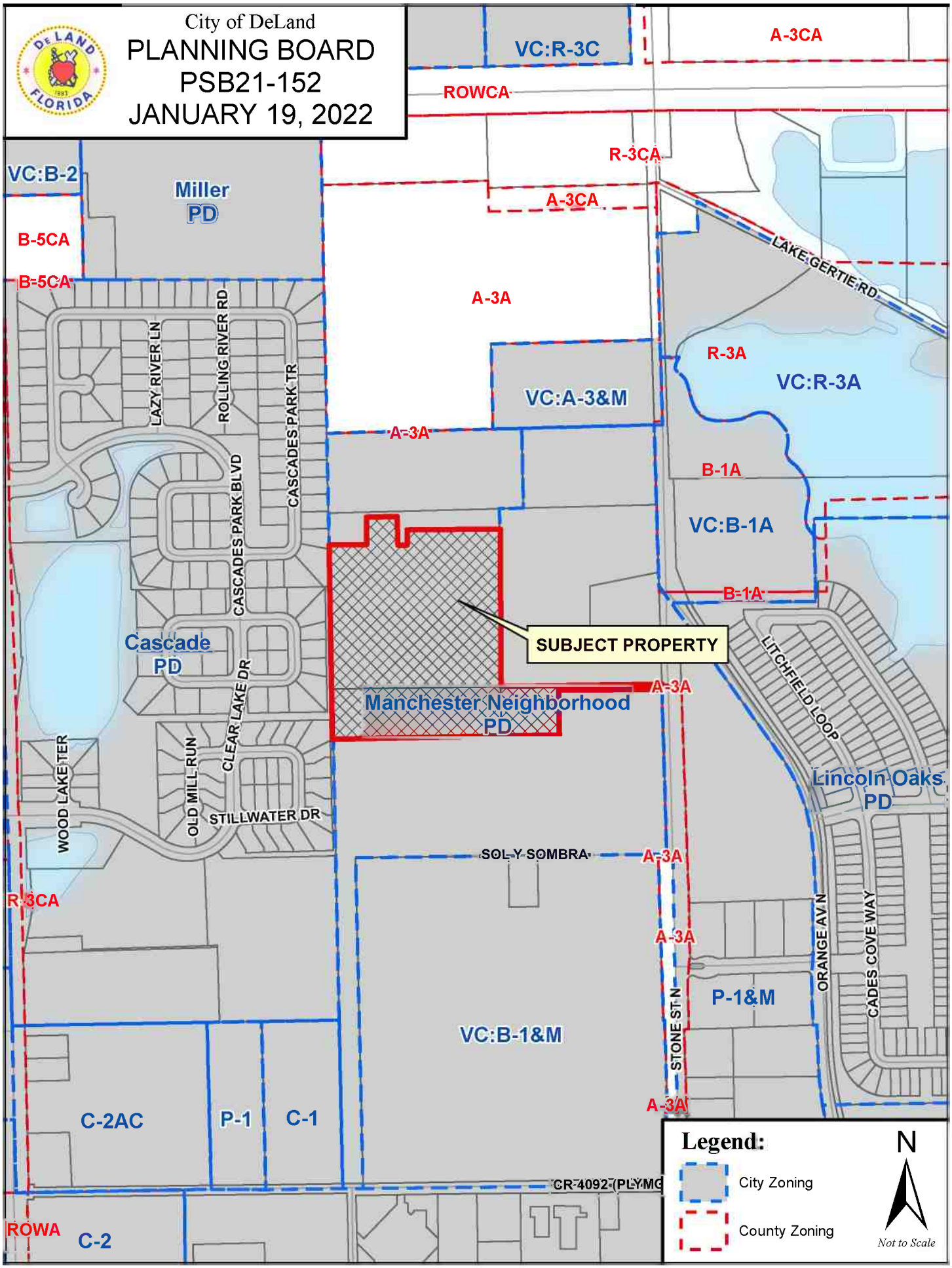
Forestry Revised Comments:

1. Insufficient Landscape Data has been provided for review.
2. Please provide Mitigation and Maintenance Plan Referenced on this page.
3. Minimum coverage is calculated by inches DBH. If your site is 12.16 acres, you would need ((12.16 ac x 43,560sf/ac)/2,500)x 6 = 1,271" DBH total on site to meet minimum coverage requirements. I'm not sure were 423 DBH and 220 come from on your plan.
4. Please label as Tree Protection Area to be consistent with Code Language.
5. Please rename Tree Protection Area to be consistent with Code Language.
6. Remove the letter e from the end of deficit.
7. Our Code does not allow for Statistical Surveys. If you have not obtained approval to do this in your PD, remove reference to statistical surveys and provide actual data.
8. What measures are you proposing to preserve the 24" DBH Live Oak located between two buildings and adjacent to a sidewalk? That's not a lot of space for a tree that size. Depending on the date and accuracy of your survey, the tree may be historic.
9. Is this number or DBH? Either way, it doesn't match what is shown on the landscape plan
10. Please provide Tree Worksheets for the project
11. Items marked as *.33 or 30% Mitigation Requirement are actually one third DBH required. Divide these numbers by 3
    104/3 should be 35" DBH
    475/3 should be 158" DBH
12. These numbers will need to be updated when your tree survey and landscape plans are revised.
13. The majority of your landscape plan consists of Crape Myrtles as shown on Sheets LA2 and LA3. I'm not sure where the 223 oaks are; I couldn't find them on the landscape plan.
14. Sheet LA 2 has 3 magnolia and Sheet LA3 has 2. Where did the 40 trees come from?
15. Your landscape plan lists these species in caliper, which is not the same as DBH. A 3.5" caliper tree would receive 2.5" DBH credit, and a 4.5" caliper would receive 3.5" DBH credit, etc.
16. One tree times 0.71 acres plot would be 0.71 trees which would round back to 1, not zero. Also, where did the 20 come from?
17. Label this section as Southern Calculations and provide actual data.

18. I think that you carried over numbers from another plan. Check your formulas under each protected tree replacement calculation on the left side of the page.
19. Please run orange fence around all areas designated as "Natural Preservation Area" if you don't want to have to wrap each individual tree. Label these areas as Tree Protection Area if they will be used to meet this requirements.
20. Add label for T.P.A. or spell it out as a Tree Protection Area. Add note indicating that orange fencing will be placed around TPA.

Recommendation:
Staff recommends approval of the preliminary plat by the Planning Board, subject to all comments being met, and that the plans be forwarded to City Commission for review, after the above comments have been addressed.

L:\COMMDEV\PLANNING\SR\2021\SR-PSB21-152 Manchester 1A Preliminary Plat


City of DeLand
PLANNING BOARD
PSB21-152
JANUARY 19, 2022
VC:R-3C
A-3CA
ROWCA
R-3CA
A-3CA
VC:B-2
Miller
PD
B-5CA
B-5CA
A-3A
LAKE GERTIE RD
R-3A
VC:R-3A
VC:A-3&M
A-3A
B-1A
VC:B-1A
B-1A
LAZY RIVER LN
ROLLING RIVER RD
CASCADES PARK TR
CASCADES PARK BLVD
SUBJECT PROPERTY
Cascade
PD
CLEAR LAKE DR
A-3A
Manchester Neighborhood
PD
LITCHFIELD LOOP
WOOD LAKE TER
OLD MILL RUN
STILLWATER DR
Lincoln Oaks
PD
SOL Y SOMBRA
A-3A
R-3CA
A-3A
ORANGE AV N
CADES COVE WAY
P-1&M
STONE ST N
VC:B-1&M
A-3A
C-2AC
P-1
C-1
CR 4092 (PLYMC
ROWA
C-2
Legend:
City Zoning
County Zoning
N
Not to Scale

City of DeLand
PLANNING BOARD
PSB21-152
JANUARY 19, 2022
R-3A
VC:R-3A
VC:A-3&M
A-3A
B-1A
VC:B-1A
BLUE STREAM RD
CASCADES PARK BLVD
SUBJECT PROPERTY
GLEN FALLS RD W
PD
P-1&M
PD
PD
A-3A
ORANGE AV N
CLEAR LAKE DR
OLD MILL RUN
STILLWATER DR
SOL Y SOMBRA
A-3A
A-3A
PEACHWOOD DR
VC:B-1&M
C-2AC
P-1
C-1
Legend:
City Zoning
County Zoning
N
Not to Scale

MANCHESTER NEIGHBORHOOD PHASE 1A

CITY OF DELAND - VOLUSIA, COUNTY, FL

FINAL ENGINEERING PLANS

DEVELOPER:
MANCHESTER COMMUNITIES, LLC
300 INTERCHANGE BLVD, SUITE D
ORMOND BEACH, FL 32174
PHONE NUMBER: (386) 673-5650
FAX NUMBER:
CONTACT PERSON: HOWARD LEFKOWITZ
e-mail: hlefkowitz@manchestercommunities.com

CIVIL ENGINEER:
ZEV COHEN & ASSOCIATES, ,INC.
300 INTERCHANGE BLVD, SUITE C
ORMOND BEACH, FL 32174
PHONE NUMBER: (386) 677-2482
FAX NUMBER: (386) 677-2505
CONTACT PERSON: HALUK KILIC, P.E.
e-mail: hkilic@zevcohen.com

SURVEYOR:
SLIGER & ASSOCIATES, INC.
3921 NOVA ROAD
PORT ORANGE, FL. 32127
PHONE NUMBER: (386) 761-5385
FAX NUMBER: N/A
CONTACT PERSON: JOE ZAPERT, P.L.S.
e-mail: jzaperl@sligerassociates.com

GEOTECHNICAL ENGINEER:
UNIVERSAL ENGINEERING SCIENCES, INC.
911 BEVILLE ROAD
SOUTH DAYTONA, FL 32119
PHONE NUMBER (386) 756-1105
FAX NUMBER (386) 760-4067
CONTACT PERSON: MICHAEL MOHNEY
e-mail: mmohney@universalengineering.com

LANDSCAPE ARCHITECT:
ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD, SUITE C
ORMOND BEACH, FL 32174
PHONE NUMBER: (386) 677-2482
FAX NUMBER: (386) 677-2505
CONTACT PERSON: JAKE STEHR
e-mail: jstehr@zevcohen.com

PROJECT DESCRIPTION:

THIS PROJECT INCLUDES PHASE 1A CONSTRUCTION OF 95 SENIOR RESIDENTIAL TOWNHOME UNITS, AMENITY CENTER AND POOL, ALONG WITH ACCESS ROADS, DRIVEWAYS, DRAINAGE CONTROL AND UTILITIES.

SITE INFORMATION:	
SITE ADDRESS:	801 SOL Y SOMBRA, DELAND, FL 32720
TOTAL PD AREA:	38.5 AC
PROPOSED PROJECT AREA.	12.16 AC
TAX PARCEL I.D. #:	700500000076, 700500000085, 700500000078,
EXISTING ZONING:	PLANNED DEVELOPMENT (PD) (COMMUNITY HEALTH OVERLAY)
PROPOSED ZONING:	PLANNED DEVELOPMENT (PD) (COMMUNITY HEALTH OVERLAY)
EXISTING LAND USE:	VACANT
PROPOSED LAND USE:	SENIOR RESIDENTIAL (TOWNHOMES)
EXISTING FUTURE LAND USE:	LOW DENSITY RESIDENTIAL (LDR)
UNIT/LOT COUNT:	95
MIN. LOT AREA:	1000 SF
MIN. LOT WIDTH:	25 FT
UNIT/LOT DENSITY:	8.0 DU/ PER ACRE
SETBACKS:	
FRONT:	15 FT
SIDE:	0 FT
REAR:	10 FT
BUILDING SEPERATION SIDE TO SIDE:	15 FT
BUILDING SEPERATION FRONT TO FRONT:	40 FT
REQUIRED LANDSCAPE BUFFER(S):	30 FT- ALONG WEST PROPERTY LINE (EXISTING RESIDENTIAL)
	20 FT - ALONG NORTH ANE EAST PROPERTY LINE
MINIMUM LIVING AREA:	600 SF
MAXIMUM BUILDING LOT COVERAGE.	85%
MAXIMUM BUILDING HEIGHT	35 FT OR 28' FOR UNITS WITHIN 200' OF WESTERN BOUNDARY.
UTILITIES:	PROVIDED BY CITY OF DELAND

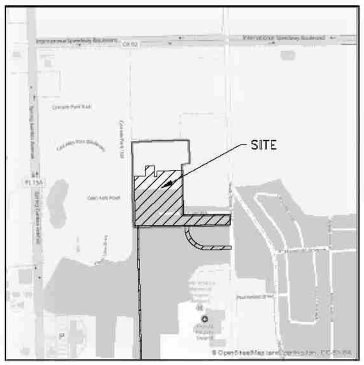
LAND USE TABLE:		
	ACREAGE	PERCENTAGE
EXISTING CONDITIONS:		
WETLAND AREA	0 AC	0%
UPLAND AREA	12.16 AC	100%
PROPOSED IMPROVEMENTS:		
BUILDING(S)	3.38 AC	27.80%
PAVEMENT & SIDEWALK	3.55 AC	29.19%
POND AREA(S)	2.84 AC	23.36%
LANDSCAPE/OPEN SPACE	2.39 AC	19.65%
TOTAL PERVIOUS	5.23 AC	43.01%
TOTAL IMPERVIOUS	6.93 AC	56.99%

PARKING CALCULATIONS. PH1A & PH 1B =156 COVERED + 70 = 226 SPACES.

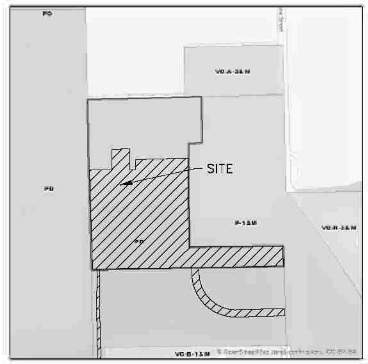
USE	PARKING REQUIREMENT	SF/UNITS	SPACES REQUIRED
SENIOR (TOWNHOMES)	(SEE ABOVE)	95 UNITS	
		TOTAL =	
PARKING SPACES PROVIDED:	(COVERED SPACES PHASE 1A)	95	
	OTHERS PHASE 1A (90°, 60° AND PARALLEL)	42	
TOTAL PARKING PROVIDED PHASE1A:		137	

NOTE: 8 ADDITIONAL SPACES TO BE PROVIDED IN AMENITY AREA.

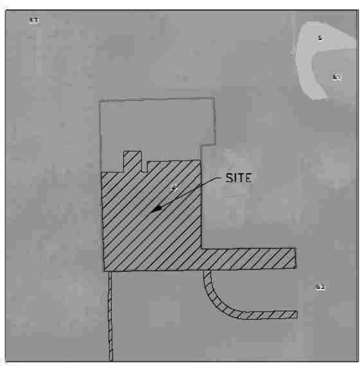
NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.



VICINITY MAP
SCALE: 1" = 800'



ZONING MAP



SOILS MAP

FLOOD ZONE MAP
SCALE: 1" = 400'
THE PROPERTY LIES IN:
FLOOD ZONE X PER FEMA MAPS 12127C0465H EFF. 2/19/2014

SHEET INDEX:

C1	COVER SHEET
C2-C4	CONSTRUCTION NOTES
C5	DEMOLITION & EROSION CONTROL PLAN
C6	OVERALL DEVELOPMENT PLAN
C7-C10	GEOMETRY, SIGNAGE & STRIPING PLAN(S)
C11-C14	PAVING, GRADING & DRAINAGE PLAN(S)
C14A	OVERALL PAVING, GRADING & DRAINAGE PLAN
C15-C18	UTILITY PLAN(S)
C19-C25	PLAN & PROFILE(S)
C26-C35	CONSTRUCTION DETAILS
TP1-TP2	TREE PROTECTION PLAN & DETAILS
HA1	HARDSCAPE PLAN & DETAILS
LA1-LA4	LANDSCAPE PLAN & DETAILS

LEGAL DESCRIPTION:

[illegible]

MANDATORY PRE-CONSTRUCTION MEETING NOTE:

NO CONSTRUCTION ON THE PROPOSED PORTIONS OF THIS PROJECT MAY COMMENCE UNTIL A MANDATORY PRE-CONSTRUCTION MEETING IS HELD WITH THE CITY.

ZEV COHEN & ASSOCIATES, INC.
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

MANCHESTER NEIGHBORHOOD
PHASE 1A
FINAL ENGINEERING PLANS
COVER SHEET

SHEET: C1 OF 36

GENERAL NOTES

1. ALL CONSTRUCTION, DRAINAGE STRUCTURES AND OTHER SITE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITIONS OF FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OR THE CITY OF DELAND'S LAND DEVELOPMENT CODE REQUIREMENTS, STANDARD CONSTRUCTION DETAILS & STANDARD SPECIFICATIONS, WHICHEVER IS MORE STRINGENT

2. SHOP DRAWINGS AND CERTIFICATIONS FOR ALL MATERIALS AND STRUCTURES ARE REQUIRED. THE CONTRACTOR SHALL REVIEW AND SIGN SHOP DRAWINGS. THE CONTRACTOR SHALL SUBMIT REVIEWED SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE MATERIALS REQUIRED FOR CONSTRUCTION.

3. CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL REQUIRED PERMITS. THE CONTRACTOR SHALL MAINTAIN COPIES OF ALL RELEVANT PERMITS AND CONSTRUCTION DOCUMENTS AVAILABLE ON THE JOB SITE AT ALL TIMES

4. CONTRACTOR TO MAINTAIN THE SITE IN A SAFE AND SECURE MANNER TO PROTECT PUBLIC SAFETY AND THE CONDITIONS OF THE IMPROVEMENTS.

5. THE CONTRACTOR SHALL MAINTAIN, AT THE JOB SITE, A RECORD COPY OF ALL CONSTRUCTION DRAWINGS AND SPECIFICATIONS ON WHICH ALL FIELD CHANGES ARE TO BE SHOWN. THESE CHANGES ARE TO BE INCORPORATED IN THE "AS-BUILT" SURVEY FURNISHED TO THE ENGINEER.

6. SHOULD CONDITIONS VARY FROM THOSE SHOWN ON THESE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF RECORD PRIOR TO CONTINUING CONSTRUCTION

7. ANY FIELD MODIFICATIONS OR DEVIATIONS TO THESE CONSTRUCTION PLANS REQUIRES APPROVAL BY BOTH THE ENGINEER OF RECORD AND THE CITY OF DELAND PRIOR TO PERFORMING THE WORK.

8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AN "AS-BUILT" SURVEY OF THE COMPLETED CONSTRUCTION THE "AS-BUILT" SURVEY SHALL BE PREPARED IN ACCORDANCE WITH APPROPRIATE GOVERNMENTAL REGULATIONS AND ZCA REQUIREMENTS. THE "AS-BUILT" SURVEY SHALL BE PREPARED ON ZCA'S DESIGN/PERMITTED PLANS. ELECTRONIC AND PAPER COPIES OF THE AS-BUILT SURVEY SHALL BE PROVIDED TO THE ENGINEER OF RECORD. THE "AS-BUILT" SHALL BE SIGNED AND SEALED BY A FLORIDA REGISTERED PROFESSIONAL LAND SURVEYOR.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING VEHICULAR AND PEDESTRIAN TRAFFIC SAFELY THROUGH THE WORK ZONE AT ALL TIMES, IF APPLICABLE. ANY SIDEWALK, LANE OR ROAD CLOSURE REQUIRES REVIEW AND APPROVAL IN ADVANCE AND A SEVEN (7) DAY MINIMUM NOTICE TO THE CITY OF DELAND/VOLUSIA COUNTY TRAFFIC OPERATIONS (386-239-6535). THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REQUIRED COORDINATION.

10. MAINTENANCE OF TRAFFIC WILL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAY CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD PLANS, LATEST EDITIONS.

11. CONTRACTOR TO NOTIFY THE REGULATORY AGENCIES FORTY EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL SEND COPIES OF ALL TESTING REPORTS TO THE REGULATORY AGENCIES AND THE ENGINEER OF RECORD.

12. SURVEY INFORMATION PROVIDED BY SLICER & ASSOCIATES, INC. DATED 05-28-21. ALL ELEVATIONS BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND ARE SHOWN IN FEET. STATE PLANE COORDINATES ARE BASED UPON NAD 83.

13. ALL PUBLIC LAND CORNERS AND MONUMENTS WITHIN THE LIMITS OF CONSTRUCTION ARE TO BE PROTECTED. THE CONTRACTOR SHALL EMPLOY A SURVEYOR, REGISTERED IN THE STATE OF FLORIDA, TO REPLACE/RESTORE ANY PROPERTY OR LAND MARKERS DISTURBED BY CONSTRUCTION ACTIVITIES.

14. NO LAND SHALL BE CLEARED, EXCAVATED OR FILLED AND NO STRUCTURES SHALL BE ERECTED, REPAIRED OR DEMOLISHED WITHOUT PROPER PERMIT(S)

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS AS WELL AS THE REQUIREMENTS OF ST. JOHNS RIVER WATER MANAGEMENT DISTRICT AND E.P.A. (NPDES). CONTRACTOR SHALL ESTABLISH BEST MANAGEMENT PRACTICES AND EROSION CONTROL METHODS PRIOR TO COMMENCING ANY SITE CLEARING OR DEMOLITION AND SHALL MAINTAIN THOSE BARRIERS UNTIL FINAL ACCEPTANCE OF THE PROJECT.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROJECT'S NPDES PERMITTING, INSPECTION AND REPORTING, IF APPLICABLE.

17. ALL DELINEATED WETLAND AREAS SHALL BE STAKED AND FENCED WITH TYPE III SILT FENCING PRIOR TO CONSTRUCTION. FENCING SHALL NOT BE REMOVED UNTIL ALL CONSTRUCTION IS COMPLETED. LIMITS OF SILT FENCE SHOWN ON PLANS ARE APPROXIMATE AND ARE TO BE ADJUSTED AS NECESSARY TO MEET FIELD CONDITIONS AND/OR AS DIRECTED BY THE ENGINEER.

18. THE EROSION, SEDIMENT AND TURBIDITY CONTROL MEASURES DELINEATED HEREON ARE THE MINIMUM REQUIRED. ADDITIONAL CONTROLS MAY BE NEEDED, DEPENDING UPON THE ACTUAL SITE CONDITIONS, JURISDICTIONAL AGENCY PERMIT REQUIREMENTS AND CONSTRUCTION OPERATIONS. STAKED SILT FENCE SHALL BE UTILIZED TO CONTROL EROSION AND RELEASE OF SUSPENDED SOLIDS. SEDIMENT TRACKING CONTROL DEVICES SHALL BE USED TO PREVENT THE OFFSITE TRANSPORT OF SEDIMENT BY MOTORIZED VEHICLES. IF CONTROL MEASURES DO NOT PROVE SATISFACTORY, WORK SHALL CEASE UNTIL NEW MEASURES ARE ADOPTED WITH SATISFACTORY RESULTS.

19. [illegible] FOLLOWING A RAINFALL EVENT. REFER TO PROJECT'S STORMWATER POLLUTION PREVENT PLAN (SWPPP). ANY DEFICIENCIES FOUND IN THE EROSION CONTROL MEASURES SHALL BE REPAIRED IMMEDIATELY. THE CONTRACTOR SHALL KEEP A LOG BOOK DOCUMENTING THESE DAILY INSPECTIONS, DEFICIENCIES AND REMEDIAL ACTIONS.

20. ALL UNSUITABLE SOILS AND UNSUITABLE MATERIALS (SUCH AS CLAY, ORGANICS, ROCK, CEMENTED COQUINA, DEBRIS, ETC.) SHALL BE REMOVED, DISPOSED OF IN A LEGAL MANNER AND REPLACED WITH DRY COMPACTED GRANULAR MATERIAL SATISFACTORY TO THE CITY OF DELAND. THE COST OF ALL WORK AND MATERIALS IS TO BE INCLUDED IN THE UNIT PRICE OF THE ASSOCIATED CONSTRUCTION ITEMS UNLESS OTHERWISE SHOWN IN THE PLANS

21. IN THE EVENT THAT WATER IS ENCOUNTERED DURING CONSTRUCTION, DEWATERING SHALL BE PERFORMED AS NEEDED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, PERMITTING, INSTALLATION, OPERATION AND SUBSEQUENT REMOVAL OF DEWATERING SYSTEMS AND THEIR SAFETY AND CONFORMITY WITH APPLICABLE CODES AND REGULATIONS.

22. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE ELECTRIC, TELEPHONE, GAS, CABLE TELEVISION, COMMUNICATIONS, ETC. COMPANIES TO DETERMINE THE TYPE AND LOCATION OF ALL UNDERGROUND FACILITIES IN THE AREA OF CONSTRUCTION.

23. ALL UNDERGROUND UTILITIES HAVE BEEN LOCATED HORIZONTALLY AND VERTICALLY BASED ON THE BEST INFORMATION AVAILABLE AND SHOULD BE CONSIDERED APPROXIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL ELEVATIONS OF EXISTING UTILITIES (PUBLIC AND PRIVATE) SHOWN OR NOT SHOWN PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE VARIOUS UTILITY COMPANIES TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATION, DISRUPTION OF SERVICE OR CLARIFICATION OF ACTIVITY REGARDING SAID UTILITY. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING NEAR OR CROSSING A UTILITY, WHETHER SHOWN ON THESE PLANS OR FIELD LOCATED. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE AND NOTIFY THE UTILITY COMPANIES FOR UTILITIES WHICH NEED TO BE RELOCATED FOR THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO PAY FOR ANY REPAIR, RELOCATION OR TEMPORARY MEASURES NEEDED FOR EXISTING OR PROPOSED UTILITIES.

24. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND AVOID ALL UTILITIES, OTHER STRUCTURES AND OBSTRUCTIONS BOTH ABOVE AND BELOW GROUND. ALL DAMAGE RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

25. THE CONTRACTOR SHALL NOTIFY ALL UTILITY PROVIDERS AT LEAST TWO (2) BUSINESS DAYS PRIOR TO ANY CONSTRUCTION.

26. THE CONTRACTOR SHALL MAINTAIN UNINTERRUPTED SERVICE AT ALL SERVICE CONNECTIONS. THE MANNER IN WHICH THIS IS ACCOMPLISHED SHALL BE LEFT TO THE DISCRETION OF THE CONTRACTOR, SUBJECT TO THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS.

27. ALL EXISTING DRAINAGE STRUCTURES AND UTILITIES WITHIN THE CONSTRUCTION LIMITS SHALL REMAIN, UNLESS OTHERWISE NOTED IN PLANS.

28. ALL STATIONS AND OFFSETS REFER TO CENTERLINE CONSTRUCTION UNLESS OTHERWISE NOTED IN PLANS.

29. THE LENGTH OF ALL DRAINAGE PIPES AND LOCATION OF ALL DRAINAGE STRUCTURES ARE APPROXIMATE THE LOCATION OF THE DRAINAGE STRUCTURE SHALL DETERMINE THE LENGTH OF PIPE

30. THE TOP OF CASTING ELEVATIONS (TC) OF ALL STRUCTURES ARE SHOWN. HOWEVER, THE CONTRACTOR SHALL INSTALL ALL FRAMES SO AS TO PROVIDE A SMOOTH SURFACE FOR VEHICULAR AND/OR PEDESTRIAN TRAFFIC.

31. CONTRACTOR SHALL CONFIRM PROPOSED TOP OF CASTING (TC) ELEVATIONS WILL ALLOW POSITIVE DRAINAGE TO PROPOSED INLETS IF POSITIVE DRAINAGE DOES NOT EXIST, CONTRACTOR TO COORDINATE WITH ENGINEER OF RECORD FOR SOLUTION AND ADJUST PROPOSED INLETS AS NECESSARY AT NO COST.

32. CONTRACTOR SHALL CONFIRM ELEVATION OF EXISTING GRADE PRIOR TO PLACING DRAINAGE OUTFALL STRUCTURES. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF EXISTING GRADE DOES NOT MATCH PROPOSED OUTFALL INVERT. CONTRACTOR SHALL ADJUST OUTFALL STRUCTURE INVERT AND/OR STRUCTURE LOCATION AS DIRECTED BY ENGINEER OF RECORD AT NO COST.

33. ANY DRAINAGE PROBLEMS CREATED BY CONSTRUCTION, OR EXISTING BEFORE CONSTRUCTION AND NOT ALLEVIATED, SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD AT THE TIME OF DISCOVERY

34. ALL STORMWATER PIPES AND INLETS SHALL BE CLEANED OF DEBRIS AND ERODED MATERIALS AT LAST STAGES OF AND PRIOR TO COMPLETION OF CONSTRUCTION.

GENERAL NOTES

35. SPECIAL ATTENTION IS DIRECTED TO THE FACT THAT PORTIONS OF SOME DRAINAGE STRUCTURES MAY EXTEND INTO THE STABILIZED PORTION OF THE ROADBED. EXTREME CAUTION WILL BE NECESSARY DURING COMPACTION AND STABILIZATION OPERATIONS AT THESE LOCATIONS TO AVOID DAMAGE AND ACHIEVE THE REQUIRED COMPACTION.

36. DURING CONSTRUCTION, AN ALL-WEATHER ACCESSIBLE ROADWAY SHALL BE MAINTAINED AT ALL TIMES FOR FIRE ACCESS.

37. ALL REQUIRED FIRE LINES & HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL & STATE REQUIREMENTS AND OPERATIONAL PRIOR TO THE START OF VERTICAL CONSTRUCTION.

38. NONE OF THE EXISTING LIMEROCK BASE THAT IS REMOVED IS TO BE USED IN THE CONSTRUCTION OF THE NEW LIMEROCK BASE UNLESS OTHERWISE NOTED ON PLANS

39. EXISTING DRIVEWAYS WITHIN THE LIMITS OF THIS PROJECT ARE TO BE REPLACED AT THE SAME LOCATION AND WIDTH WITH THE SAME TYPE OF MATERIAL, UNLESS OTHERWISE SHOWN IN THE PLANS.

40. ALL RAMPS, SIDEWALKS AND ACCESSIBLE ROUTES ARE TO BE IN COMPLIANCE WITH CURRENT A.D.A. REQUIREMENTS.

41. SIGNS THAT ARE REMOVED AND ARE TO BE RELOCATED SHALL BE STOCK PILED BY THE CONTRACTOR. ANY EXISTING SIGNS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AT HIS COST

42. ROADWAY AND PARKING SIGNAGE AND MARKINGS SHALL [illegible] UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.

43. UNLESS OTHERWISE NOTED, PROPOSED GRADES SHOWN ARE FINISHED GRADES.

44. OPERATION AND MAINTENANCE OF THE STORMWATER SYSTEM WILL BE PROVIDED BY THE OWNER OF PROPERTY. MAINTENANCE IS TO INCLUDE BI-WEEKLY MOWING OF SIDE SLOPES FOR VEGETATION CONTROL AND MONTHLY INSPECTION/CLEANING OF CULVERTS & STORM SYSTEMS.

45. ALL DISTURBED AREAS SHALL BE SODDED, UNLESS OTHERWISE SHOWN, AND SHALL HAVE SOD/ VEGETATED COVER ESTABLISHED PRIOR TO THE INSPECTION FOR THE CERTIFICATE OF OCCUPANCY.

46. INSTALLATION OF THE REQUIRED STREET SIGNS, TRAFFIC SIGNS, PAVEMENT STRIPING, STREET LIGHTS AND SIDEWALKS ALONG WITH THE PAINTING OF THE FIRE HYDRANTS MUST BE COMPLETED PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF COMPLETION.

47. CONTRACTOR IS RESPONSIBLE FOR INSPECTING AND PRE-TESTING PRIOR TO SCHEDULING A TEST OR WALK-THROUGH WITH THE UTILITY REPRESENTATIVES, MUNICIPAL REPRESENTATIVES AND ENGINEER OF RECORD. ANY COST ASSOCIATED WITH RETESTING SHALL BE PAID FOR BY THE CONTRACTOR.

48. THE ENGINEER OF RECORD AND LOCAL UTILITY SHALL BE GIVEN SEVENTY-TWO (72) HOURS NOTICE OF ALL REQUESTED MEETINGS AND/OR TESTING MEASURES.

49. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE REGULATORY REPRESENTATIVES TO DETERMINE THE INSPECTIONS NEED FOR THE PROJECT. CONTRACTOR SHALL PROVIDE PROPER NOTIFICATION TO INSPECTING AUTHORITIES BEFORE AND DURING CONSTRUCTION

EROSION & SEDIMENT CONTROL NOTES

1. ALL DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL INCORPORATE APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) TO PREVENT EROSION, OFFSITE SEDIMENTATION, AND THE POTENTIAL FOR DOWNSTREAM WATER QUALITY IMPACTS
2. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL AT A MINIMUM, ENSURE IMPLEMENTATION OF AN APPROVED EROSION PREVENTION AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) CONSTRUCTION ACTIVITY GUIDELINES.
3. A SITE SPECIFIC STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE SUBMITTED WITH THE PROPOSED SITE PLANS FOR REVIEW AND APPROVAL BY THE CITY PER THE CITY'S LAND DEVELOPMENT CODE (LDC) "ADDITIONAL APPLICATION REQUIREMENTS FOR SITE PLANS".
4. SITE SPECIFIC BMP'S SHALL BE INSTALLED BY THE SITE WORK/GRADING AND UTILITIES CONTRACTOR(S) AND APPROVED BY THE CITY, PRIOR TO THE START OF ANY LAND DISTURBANCE ACTIVITIES. PRECONSTRUCTION EROSION CONTROL INSPECTIONS CAN BE SCHEDULED THROUGH ETRAKIT UNDER CODE 601.
5. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL MINIMIZE DISTURBANCES OF EXISTING WETLANDS, VEGETATION AND DRAINAGE PATTERNS ON ADJACENT PROPERTIES TO THE MAXIMUM EXTENT PRACTICABLE DURING CONSTRUCTION ACTIVITIES.
6. STORMWATER RETENTION, DETENTION, STORAGE AND CONVEYANCE SYSTEMS MUST BE EXCAVATED TO ROUGH GRADE PRIOR TO BUILDING CONSTRUCTION OR PLACEMENT OF IMPERVIOUS SURFACE WITHIN THE AREA SERVED BY THOSE SYSTEMS. ADEQUATE BMP'S MUST BE IMPLEMENTED TO PREVENT SILTATION OF THESE TREATMENT SYSTEMS AND CONTROL STRUCTURES DURING CONSTRUCTION. SILTATION MUST BE REMOVED FROM THE STORMWATER SYSTEM WHEN HALF FULL AND IMMEDIATELY PRIOR TO FINAL GRADING AND STABILIZATION OF THE PROJECT.
7. DURING CONSTRUCTION, THE SITE WORK/GRADING AND UTILITIES CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF ALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES REQUIRED TO PREVENT VIOLATIONS OF WATER QUALITY STANDARDS AND PROJECT SPECIFIC PERMIT REQUIREMENTS. BEST MANAGEMENT PRACTICES INSTALLED ONSITE SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT THAT IS 0.50 INCHES OR GREATER (EVEN IF IT RAINS ON THE WEEKEND OR HOLIDAY). THE SITE SHALL BE INSPECTED BY A QUALIFIED INSPECTOR AND CORRECTIVE ACTION TAKEN AS NECESSARY.
8. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL INITIATE STABILIZATION MEASURES WITHIN SEVEN CALENDAR DAYS AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED FOR ANY PORTION OF THE PROJECT. FINAL STABILIZATION IS DEFINED AS A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF GROWTH OF AT LEAST 70% OR GREATER.
9. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR IS RESPONSIBILE FOR MAINTAINING THE PROJECT LIMITS IN COMPLIANCE WITH ALL JURISDICTIONAL PERMITS AND THE CITY'S LAND DEVELOPMENT CODE REQUIREMENTS.
10. FOR ANY LAND DISTURBANCES OF ONE ACRE OR MORE, THE CONTRACTOR SHALL SUBMIT A COMPLETED NPDES CONSTRUCTION GENERIC PERMIT (CGP) NOTICE OF INTENT (NOI) TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) AT LEAST 2 CALENDAR DAYS PRIOR TO COMMENCEMENT OF CLEARING, GRADING, DEMOLITION, OR OTHER CONSTRUCTION RELATED LAND DISTURBANCE ACTIVITIES.
11. FOR PROJECTS THAT MAY DISCHARGE STORMWATER INTO THE CITY'S MS4 STORMWATER CONVEYANCE SYSTEM, THE CITY'S MS4 MUST BE DESIGNATED AS A DISCHARGE LOCATION ON THE FDEP CGP NOI IF DESIGNATED AS SUCH, A COPY OF THE NPDES CGP NOI OR ACKNOWLEDGEMENT LETTER MUST BE SUBMITTED TO THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT WITHIN 7 CALENDAR DAYS.

SITE CLEARING & GRADING NOTES

THE FOLLOWING REPRESENTS MINIMUM STANDARDS TO BE ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OF A PROJECT. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO BE EMPLOYED WHEN WARRANTED BY EXTREME CONDITIONS AND/OR THE FAILURE OF THE CONTRACTOR TO EMPLOY THE APPROPRIATE EROSION CONTROL BEST MANAGEMENT PRACTICES. FAILURE TO COMPLY WITH THESE PROVISIONS SHALL RESULT IN THE ISSUANCE OF A "STOP WORK ORDER".

1. NO DISTURBANCE OF EXISTING OR PROPOSED CONSERVATION EASEMENTS, NATURAL BUFFERS, OR WATER BODIES IS PERMITTED WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER OR DESIGNEE. THE CONTRACTOR SHALL LOCATE THESE AREAS ON SITE AND BARRICADE THEM TO AVOID ANY UNAUTHORIZED CLEARING. BARRICADES AND OTHER PROTECTIVE FENCING ARE TO BE LOCATED AT THE DRIP LINE OF EXISTING NATIVE TREES OR AT THE EDGE OF THE NATIVE UNDER-STORY HABITAT, WHICHEVER IS NEAREST TO THE CONSTRUCTION ACTIVITY.
2. SPECIMEN AND HISTORIC TREES, CONSERVATION EASEMENTS, NATURAL VEGETATION BUFFERS, AND SIMILAR AREAS MUST BE PROTECTED BY BARRICADES OR FENCING PRIOR TO CLEARING. BARRICADES ARE TO BE SET AT THE DRIP LINE OF THE TREES AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. [illegible] PERMITTED AS A PROTECTIVE BARRIER.
3. WHERE A CHANGE OF GRADE OCCURS AT THE DRIP LINE OF A SPECIMEN TREE. SILT FENCE WILL BE REQUIRED DURING CONSTRUCTION AND RETAINING WALLS MUST BE INSTALLED PRIOR TO FINAL ACCEPTANCE BY THE CITY.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL PROTECTIVE VEGETATION BARRICADES AND EROSION CONTROL STRUCTURES AND MEASURES IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK, INCLUDING PRELIMINARY GRUBBING. THESE MEASURES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY CONSTRUCTION FENCES, SYNTHETIC JUTE BALES, SILT FENCES, AND FLOATING TURBIDITY BARRIERS. FURTHER, IT [illegible] THE DURATION OF THE ENTIRE PROJECT. MAINTENANCE SHALL INCLUDE PERIODIC INSPECTION AND REMOVAL OF DEBRIS ABUTTING EROSION CONTROL DEVICES IN ACCORDANCE WITH THE CITY'S UTILITY DEPARTMENT STANDARDS.
5. PRIOR TO THE INSTALLATION OF ANY FILL MATERIAL ON SUBJECT SITE, SILT FENCE SHALL BE INSTALLED:
   a. ALONG SUBJECT SITE BOUNDARY AND PROPERTY LINES.
   b. AT THE EDGE OF CONSERVATION EASEMENTS AND WETLANDS.
   c. ADJACENT TO NATURAL LANDSCAPE BUFFERS.
   d. AROUND THE PERIMETER OF EXISTING STORM WATER TREATMENT FACILITIES.
   e. AT ANY ADDITIONAL AREAS THAT THE CITY DEEMS NECESSARY TO BE PROTECTED FROM POTENTIAL EROSION IMPACTS DURING CONSTRUCTION THESE CONDITIONS SHALL APPLY IN ALL INSTANCES WHERE FILL MATERIAL IS BEING INSTALLED WITHIN 25 FEET OF ANY OF THE AFOREMENTIONED LOCATIONS. WHILE THESE ITEMS REPRESENT THE MINIMUM REQUIREMENTS, THE CITY RESERVES THE RIGHT TO IMPOSE ADDITIONAL PROTECTIVE MEASURES, AS DETERMINED DURING ACTUAL SITE VISITS CONDUCTED AS PART OF THE STANDARD REVIEW OF THE SITE-SPECIFIC CLEARING PERMIT AND THROUGHOUT PROJECT CONSTRUCTION.
6. WHERE FILL MATERIAL IS INTENDED TO BE INSTALLED ADJACENT TO EXISTING VEGETATION WHICH IS INTENDED TO REMAIN NATURAL, THE CONTRACTOR MAY INSTALL SILT FENCING AS A TREE PROTECTION MEASURE, IN LIEU OF INSTALLING EITHER WOOD BRACING OR ORANGE MESH FENCING. THIS PRACTICE IS ENCOURAGED BY THE CITY. IF THE SILT FENCE FAILS TO PROVIDE ADEQUATE PROTECTION FROM IMPACT DUE TO CONSTRUCTION, THEN ADDITIONAL CONSTRUCTION FENCING OR WOOD BRACING SHALL BE REQUIRED.
7. AT A MINIMUM, THE CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS. GRASS COVERAGE IS TO BE ESTABLISHED WITHIN THIRTY DAYS.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THROUGH SCHEDULING, TO MINIMIZE THE DISTURBANCE OF SITE AREAS THAT HAVE BEEN BROUGHT TO THEIR PROPOSED FINAL GRADE. WITHIN TWENTY DAYS OF BRINGING A SUBJECT AREA TO ITS FINAL GRADE, THE CONTRACTOR SHALL INSTALL SEED AND MULCH OR SOD AND WATERING, AS REQUIRED.
9. FOR INDIVIDUAL CONSTRUCTION PROJECTS INVOLVING MULTIPLE PHASES, UPON COMPLETION OF EACH PHASE OF THE PROJECT, SEEDING AND MULCHING AND OR/ SODDING IS TO BE PERFORMED PRIOR TO COMMENCING THE NEXT PHASE OF CONSTRUCTION.
10. ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED, INCLUDING WATERING AND TRIMMING BY THE CONTRACTOR TO ALLOW THE GRASS TO BECOME ESTABLISHED.
11. ALL BURNING OF CLEARED MATERIALS MUST BE APPROVED AND PERMITTED THROUGH THE FL FOREST SERVICE, BUNNELL OFFICE.
12. ABSOLUTELY NO BURYING OF CLEARED & GRUBBED MATERIALS IS PERMITTED.
13. THE REMOVAL OF ALL VEGETATION AND TOPSOIL ON THE FUTURE ROADWAY, PARKING AND BUILDING LOT AREAS IS REQUIRED TO BE COMPLETED PRIOR TO THE PLACEMENT OF FILL ON THOSE AREAS. THE TOPSOIL MAY BE TEMPORARILY STOCKPILED AND USED AS TOPSOIL OVER PROPOSED GREEN AREAS SUCH AS PLANT BEDS, SODDED AREAS, AND WHERE TREES ARE TO BE INSTALLED OR RELOCATED. TEMPORARY STOCKPILE SLOPES SHALL NOT [illegible]

SITE CLEARING & GRADING NOTES (CONT.)

14. A SIGNED, DATED, AND SEALED LETTER FROM A SOILS ENGINEER OR THE ENGINEER OF RECORD CERTIFYING THAT THE AREAS TO BE FILLED HAVE BEEN STRIPPED OF ORGANIC MATERIALS, MUST BE SUBMITTED TO THE CITY PRIOR TO FILLING.
15. FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY (98% FOR PAVED AREAS AND 95% FOR BUILDING PADS AND ALL OTHER AREAS AS PER MODIFIED AASHTO T-180).
16. DURING SUBDIVISION DEVELOPMENT WHEN FUTURE BUILDING LOTS ARE FILLED AS PART OF THE OVERALL SUBDIVISION IMPROVEMENTS, COMPACTION TEST REPORTS MUST BE PERFORMED ON THESE LOTS AT 300' INTERVALS. THESE TESTS ARE TO BE PERFORMED IN 1' VERTICAL INCREMENTS. THE RESULTS OF THESE TESTS ARE TO BE SUBMITTED TO THE CITY UPON COMPLETION OF THE TESTS.
17. IF ANY MUCK OR ANY UNSUITABLE MATERIAL IS DISCOVERED, IT SHALL BE REMOVED AND REPLACED WITH A SUITABLE MATERIAL THAT IS PROPERLY BACKFILLED, COMPACTED AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
18. STOCKPILING IS NOT GENERALLY PERMITTED BY THE CITY. WHEN ALLOWED, STOCKPILES SHALL NOT EXCEED SIX FEET IN HEIGHT MEASURED FROM THE ORIGINAL GRADE. AT A MINIMUM, STOCK PILES THAT WILL REMAIN IN PLACE IN EXCESS OF FIVE DAYS SHALL BE COVERED OR WATERED TO MINIMIZE THE ADVERSE IMPACT ON ADJACENT PROPERTY OWNERS AT NO ADDITIONAL COST TO THE CITY OR OWNER. SEED AND MULCH IMMEDIATELY UPON PLACEMENT OF THE FINAL LIFT.
19. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES. ADEQUATE WATERING METHODS SHOULD BE EMPLOYED TO ALLOW DAILY COVERAGE OF THE ENTIRE LIMITS OF ALL AREAS THAT DO NOT HAVE AN ESTABLISHED VEGETATIVE COVER. METHODS TO BE EMPLOYED INCLUDE, BUT ARE NOT LIMITED TO, WATER TRUCKS, PERMANENT IRRIGATION SYSTEMS, TEMPORARY SPRINKLER SYSTEMS OPERATED BY PUMPING UNITS CONNECTED TO WET RETENTION PONDS, WATER CANNONS, TEMPORARY IRRIGATION SYSTEMS MOUNTED ATOP STOCKPILE AREAS, AND OTHER METHODS AS DEEMED NECESSARY BY THE CITY.
20. ALL FILL MATERIALS LOCATED BENEATH STRUCTURES AND PAVEMENT SHALL CONSIST OF CLEAN GRANULAR SAND FREE FROM ORGANICS AND SIMILAR MATERIAL THAT COULD DECOMPOSE.
21. ALL FILL TO BE PLACED IN LANDSCAPED AREAS SHALL HAVE A PH RANGE BETWEEN 5.5 AND 7.5, BE ORGANIC IN NATURE, FREE OF ROCKS AND DEBRIS, OR MATCH NATIVE EXISTING SOILS.

STORMWATER CONSTRUCTION NOTES

1. ALL SITE SPECIFIC, EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES AT A MINIMUM SHALL BE INSTALLED PER APPROVED SITE PLANS AND STORMWATER POLLUTION PREVENTION PLANS (SWPPP). EPSC DESIGN, INSTALLATION AND MAINTENANCE SHALL BE IN ACCORDANCE WITH THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEWER MANUAL, JULY 2013 UPDATE.
2. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL ENSURE IMPLEMENTATION OF APPROVED SWPPP AND INSTALLATION OF ALL APPROVED EROSION PREVENTION AND SEDIMENT CONTROL PRACTICES. A PRECONSTRUCTION EROSION CONTROL INSPECTION SHALL BE SCHEDULED WITH CITY PERSONNEL PRIOR TO COMMENCEMENT OF ANY LAND DISTURBANCE ACTIVITIES.
3. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL ENSURE THAT THE NPDES CONSTRUCTION GENERIC PERMIT (CGP) NOTICE OF INTENT (NOI) AND ANY REQUIRED DEWATERING PERMITS HAVE BEEN OBTAINED OR SUBMITTED PRIOR TO ANY LAND DISTURBANCE ACTIVITIES.
4. A CODB DEWATERING PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING OR CONSTRUCTION ACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. PERMITABLE DEWATERING ACTIVITIES INCLUDE, THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES, ALLOWING CONSTRUCTION OR MAINTENANCE IN A DRY ENVIRONMENT. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT AND GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BIANNUAL SCHEDULE OF DEWATERING ACTIVITIES DISCHARGING DIRECTLY INTO THE CITY'S PHASE II MS4 STORMWATER CONVEYANCE SYSTEM. DEWATERING PERMITS TO BE APPLIED FOR DIRECTLY THROUGH ETRAKIT. FEES ARE SUBJECT TO ARTICLE 7, SECTION 7.2 OF THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION PRIOR TO ANY USE OF THE CITY'S STORMWATER CONVEYANCE SYSTEM.
5. CONTRACTOR SHALL FOLLOW ALL OF THE CITY'S REQUIRED WASTE MANAGEMENT PRACTICES. ALL CONSTRUCTION, RENOVATION, AND DEMOLITION SITES ARE TO BE KEPT CLEAN AND FREE OF REFUSE, DEBRIS, AND LITTER DURING THE CONSTRUCTION, RENOVATION, OR DEMOLITION PROCESS. A CERTIFICATE OF OCCUPANCY FOR A NEWLY CONSTRUCTED OR RENOVATED BUILDING SHALL NOT BE ISSUED UNTIL ALL REFUSE AND LITTER CAUSED BY THE CONSTRUCTION OR REMODELING IS REMOVED FROM THE SITE PER THE DELAND CODE OF ORDINANCES CHAPTER 78 SECTION 78-5 AND 78-7.
6. ALL DEVELOPMENT PLANS SHALL BE CONSISTENT WITH THE DELAND LAND DEVELOPMENT CODE ARTICLE 6 DEVELOPMENT STANDARDS, SECTION 6.15, 6.18 AND ARTICLE 7 SUBDIVISION AND INFRASTRUCTURE, SECTION 7.2
7. STORMWATER MAINS SHALL HAVE A MINIMUM DRAINAGE MAINTENANCE EASEMENT AND ACCESS WIDTH OF 20 FEET. THE EASEMENT WIDTH MAY BE INCREASED DEPENDING UPON THE SIZE AND DEPTH OF PIPE.
8. CONCRETE EROSION CONTROL BMP'S MUST BE PROVIDED WHERE SWALES OR CULVERTS INTERCEPT DRAINAGE DITCHES.
9. IN GENERAL, ALL RETENTION/DETENTION SITES MUST BE CONSTRUCTED AND VEGETATED PRIOR TO ANY ROAD, PARKING LOT, OR BUILDING CONSTRUCTION OR AS CURRENT PERMIT CONDITIONS DICTATE. SEWER AND WATER MAINS MAY BE INSTALLED PRIOR TO RETENTION/DETENTION SITE CONSTRUCTION IF DEWATERING IS NOT REQUIRED ADDITIONAL BMP'S FOR EROSION AND SEDIMENT CONTROL SHALL BE IMPLEMENTED AS NECESSARY.
10. IT IS THE RESPONSIBILITY OF ALL CONTRACTOR(S) TO REVIEW AND MAINTAIN A COPY OF THE SJRWMD, ERP, NPDES CGP, SITE SPECIFIC SWPPP, AND ALL OTHER JURISDICTIONAL PERMITS AT THE CONSTRUCTION SITE AND ABIDE BY ALL CONDITIONS OF THOSE PERMITS.
11. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF TEMPORARY AND PERMANENT PLANTINGS RELATIVE TO THE LOCATION OF PUBLIC UTILITIES AND STORMWATER INFRASTRUCTURE IN ORDER TO EVALUATE POTENTIAL CONFLICTS.
12. THE MAXIMUM PERMISSIBLE SLOPE OF ANY NEW SITE GRADING IS 1:4 (VERTICAL:HORIZONTAL). THIS LIMIT APPLIES TO ALL AREAS EXCEPT STORMWATER CONVEYANCE AND TREATMENT SYSTEMS WHICH HAVE A MAXIMUM SIDE SLOPE OF 1:4 (EXCEPT BELOW THE WATER TABLE WHERE STEEPER SLOPES ARE PERMISSIBLE AND AS NOTED BELOW).
13. ALL SWALES AND DITCHES SHALL HAVE A MAXIMUM PERMITTED FRONT (SIDE) SLOPE NOT STEEPER THAN 1:4. THE MAXIMUM PERMITTED BACK (SIDE) SLOPE, SHALL BE 1:3, PROVIDED THAT A 5' WIDE BERM IS INSTALLED. DESIGN CENTERLINE AND TOP-OF-BANK ELEVATIONS SHALL BE NOTED AT INTERVALS OF 100' AND AT SIGNIFICANT GRADE CHANCES.
14. SWALES THAT ARE NORMALLY DRY AND INTENDED FOR CONVEYANCE OF STORMWATER RUNOFF AND ARE NOT INTENDED FOR RETENTION SHALL HAVE A MINIMUM DRAINAGE MAINTENANCE EASEMENT WIDTH MEASURING 15 FEET. [illegible] MAINTENANCE MEASURED UPLAND FROM THE TOP OF BANK. AT A MINIMUM, THE EASEMENT SHALL MEASURE 10 FEET IN WIDTH FROM THE TOP OF THE SWALE
15. NORMAL ROADSIDE SWALES ARE PERMITTED TO BE CONSTRUCTED TO A MAXIMUM DEPTH OF 18" BELOW THE OUTSIDE EDGE OF PAVEMENT OR CONCRETE CURB.
16. WHEN CULVERTS ARE INSTALLED TO MAINTAIN THE FLOW OF EXISTING DRAINAGE WAYS WHERE NEWLY PROPOSED ROADS WOULD OTHERWISE SEVER THE DRAINAGE RIGHT-OF-WAY, CULVERTS CROSSING RIGHT-OF-WAYS SHALL EXTEND FROM RIGHT-OF-WAY LINE TO RIGHT-OF-WAY LINE UNDER THE ROADWAY. CULVERTS SHALL BE DESIGNED TO ACCOMODATE THE FLOW FROM THE 100 YEAR - 24 HOUR STORM EVENT WITHOUT FLOODING ADJACENT PROPERTY OR SURCHARGING THE SAID ROADWAY.
17. WET POND DEPTHS SHALL BE EIGHT FEET MINIMUM TO FIFTEEN FEET MAXIMUM, MEASURED FROM THE TOP OF BANK AND MEET SJRWMD CRITERIA.
18. WHEN A WET POND IS INCORPORATED WITHIN A SUBDIVISION AND IS ABUTTED BY LOTS, SUCH ABUTTING LOT LINES SHALL EXTEND INTO THE LAKE PROPORTIONATELY ENCOMPASSING ALL OF THE LAKE AREA.
19. WET POND INFLOW AND OUTLET STRUCTURES SHALL GENERALLY BE CONSTRUCTED WITH REINFORCED CONCRETE AND SHALL BE SUBJECT TO THE APPROVAL OF THE CITY. SKIMMERS FOR WET PONDS SHALL BE CONSTRUCTED SUCH THAT THE BOTTOM EXTENDS 6" BELOW THE NORMAL WATER LEVEL AND 6" ABOVE THE OVERFLOW. FOR DRY PONDS, THE SKIMMER BOTTOM SHALL BE SET 6" BELOW THE LOWEST OVERFLOW ELEVATION AND 6" ABOVE THE HIGHEST POINT OF OVERFLOW. ALL SKIMMERS SHALL BE CONSTRUCTED OF MINIMUM 1/4" THICK ALUMINUM OR CITY APPROVED EQUIVALENT AND BE ADEQUATELY SUPPORTED TO PREVENT DEFLECTION ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
20. THE CITY MAY REQUEST THE DEVELOPER SUBMIT A REPORT BY A QUALIFIED HYDROLOGIST OR [illegible] HYDROGEOLOGIST [illegible] AND AFTER LAKE COMPLETION. THE CITY MAY REQUIRE GROUNDWATER MONITORING DURING THE LAKE EXCAVATION.
21. ADEQUATE MAINTENANCE BERMS, MINIMUM 10' IN WIDTH, SHALL BE PROVIDED AROUND THE ENTIRE PERIMETER OF ALL WET PONDS AND ASSOCIATED OUTFALLS DISCHARGING INTO AND OUT OF LAKES. APPLICABLE CROSS SECTIONS SHALL BE INCLUDED ON ALL FINAL DEVELOPMENT PLANS
22. DEVELOPMENT PLANS FOR ALL STORMWATER MANAGEMENT SYSTEMS SHALL CONTAIN DISCHARGE DATA (OVERFLOW), BOTTOM ELEVATION, NORMAL WATER LEVELS, MEAN ANNUAL SEASONAL HIGH WATER TABLE ELEVATION, TREATMENT VOLUME AND CORRESPONDING ELEVATION, 25 YEAR/100 YEAR HIGH WATER LEVELS, AND THE DESIGN TAILWATER ELEVATION (IF APPLICABLE).
23. ALL STORM SEWERS AND CULVERTS LOCATED IN ROADWAY RIGHT-OF-WAYS AND ROADWAY EASEMENTS SHALL BE A MINIMUM OF CLASS III O-RING REINFORCED CONCRETE PIPE. OUTSIDE OF ROADWAY EASEMENTS AND R.O.W. PIPE MAY BE MADE OF ALTERNATE MATERIALS INCLUDING:
    A. SMOOTH INNER WALL HIGH DENSITY POLYETHYLENE (HDPE) IN ACCORDANCE WITH AASHTO M-294, AASHTO MP7, ASTM D3350 AND ASTM D2412 FOR SIZES UP TO 42" IN DIAMETER OR
    B. PVC IN ACCORDANCE WITH THE PROVISION NOTED IN THE "SEWER DETAILS" OF THESE SPECIFICATIONS.
24. ALL STORM SEWER PIPE JOINTS LOCATED IN ROADWAY RIGHT-OF-WAYS AND ROADWAY EASEMENTS SHALL BE ENTIRELY WRAPPED WITH NON-WOVEN FILTER FABRIC WITH A MINIMUM WIDTH OF 24" AND A MINIMUM OF 24" OVERLAP. GASKETS ARE NOT PERMITTED AS AN EQUIVALENT SUBSTITUTE FOR MEETING THIS REQUIREMENT THIS PRACTICE IS ENCOURAGED ON PRIVATE SITES. ADDITIONALLY, ALL JOINTS SHALL BE RUBBER GASKETED FOR BOTH ROUND AND ELLIPTICAL PIPE
25. DEPTH OF COVER MEASURED TO THE TOP OF PIPE (INCLUDING THE BELL JOINT) SHALL [illegible] FEET OVER RCP. DEVIATION FROM THIS REQUIREMENT MAY BE ALLOWED BY INCREASING THE PIPE'S STRUCTURAL STRENGTH. IF AN ALTERNATE MATERIAL IS APPROVED, DEPTH OF COVER SHALL MEET MANUFACTURER'S RECOMMENDATION.
26. ALL STORM DRAINAGE PIPES LOCATED IN ROADWAY RIGHT-OF-WAYS AND ROADWAY EASEMENTS SHALL BE A MINIMUM OF FIFTEEN INCH (15") INSIDE DIAMETER OR EQUIVALENT STORM DRAINAGE PIPES SMALLER THAN 15" ARE PERMITTED ON PRIVATE SITE PLANS PROVIDING THAT MAINTENANCE SHALL BE PERFORMED BY THE OWNER.
27. STORMWATER FORCE MAINS WILL USE NO. 12 INSULATED SINGLE STRAND COPPER WIRE SHALL BE ATTACHED TO ALL [illegible] WIRE SHALL BE TESTED FOR CONTINUITY UNDER SUPERVISION BY CITY REPRESENTATIVE AFTER INSTALLATION.
28. STORM INLETS, MANHOLES, AND CATCH BASINS SHALL BE FDOT COMPLIANT. EITHER POURED IN PLACE OR PRECAST REINFORCED CONCRETE STRUCTURES ARE REQUIRED AT EACH CHANGE OF PIPE SIZE [illegible] DIRECTION. ALL STRUCTURES SHALL COMPLY WITH ASTM C-478 AND SHALL HAVE 6" THICK WALLS. THINNER WALLS MAY BE PERMITTED PROVIDING THE DESIGN IS IN ACCORDANCE WITH FDOT STANDARD PLANS. THIS REQUIREMENT MUST BE REFLECTED ON BOTH THE SHOP DRAWING AND AS-BUILT PLANS. STRUCTURES PLACED IN HIGH TRAFFIC AREAS SHALL BE OF TRAFFIC BEARING CONSTRUCTION IN ACCORDANCE WITH FDOT STANDARDS
29. STORM INLETS SHALL BE SPACED IN SUCH A MANNER AS TO ACCEPT ONE HUNDRED PERCENT OF THE DESIGN STORM RUNOFF WITHOUT IMPEDING THE FLOW OF TRAFFIC. FOR ROADWAY SECTIONS [illegible] WITH DESIGN SPEEDS OF 45 MPH AND LESS AND WITHOUT FULL WIDTH SHOULDERS, SPREAD [illegible] SITE PLANS, INLET SPACING SHALL BE [illegible] RAINFALL INTENSITY OF FOUR INCHES (4") PER HOUR WITHOUT RESULTING IN PONDING OF WATER AROUND THE INLET.
30. FOR CONNECTIONS BETWEEN INLETS WITH PIPING 15" IN DIAMETER AND LARGER, THE MAXIMUM DISTANCES BETWEEN INLETS AND/OR CLEAN-OUT JUNCTION BOXES SHALL BE 300 FEET. CULVERTS SHALL BE SLOPED TO MAINTAIN A MINIMUM SELF-CLEANING VELOCITY OF 2.5 FEET PER SECOND USING A MANNING'S 'n' OF 0.012. SPACING FOR CLEAN-OUTS AND INLETS FOR SMALLER PIPING SHALL BE REDUCED AND EVALUATED ON A CASE BY CASE BASIS.
31. ALL STORMWATER INLETS SHALL MEET FDOT CRITERIA IN THE FDOT DESIGN STANDARD LATEST EDITION.
32. ALL GASKETS SHALL BE LUBRICATED BEFORE BEING INSTALLED.
33. ALL FITTINGS SHALL MEET THE MINIMUM RESTRAINED REQUIREMENTS PER ANSI/AWWA/EBAA, AND ALL PRESSURE PIPES UNDER THE ROADWAY SHALL BE RESTRAINED.

SANITARY SEWER CONSTRUCTION & DESIGN NOTES

1. THE CITY'S UTILITIES DEPARTMENT SHALL BE GIVEN A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS) PRIOR TO BEGINNING ANY SANITARY SEWER CONSTRUCTION.
2. A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING ACTIVITIES, OR IN ACTIVITIES, OR IN ANY CONSTRUCTION ACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHERS, ALLOWING CONSTRUCTION OR MAINTENANCE TO BE ONE IN THE DRY, OR ANY ACTIVITY WHICH CHANGES THE IMPERVIOUS AREA OF LAND. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BI-ANNUAL SCHEDULE OF DEWATERING ACTIVITIES
3. DISCHARGING DIRECTLY INTO THE CITY'S CONVEYANCE SYSTEM. FEES ARE SUBJECT THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION TO CITY OF DELAND STORM WATER COORDINATOR MAINLINE TOLERANCES FOR SANITARY SEWER VERTICAL DEFLECTION SHALL BE NO MORE THAN 0.5" IN DEPTH AND NOT EXCEEDING THREE (3) FEET IN LENGTH. SEE VIDEO GUIDELINES ON "PIG LAUNCH/ RECEIVING AND VIDEO GUIDELINES" DETAIL SHEET.
4. UPON COMPLETION, THE CONTRACTOR SHALL PROVIDE THE CITY UTILITIES DEPARTMENT WITH A CCTV INSPECTION LOG ON THUMB DRIVE AND A PRINTED REPORT FOR ALL GRAVITY MAINS AND LATERALS CONSTRUCTED. ALL WORK, WITH THE EXCEPTION OF FINAL GRADE ADJUSTMENT TO MANHOLES, BENCHES AND FLOW CHANNELS SHALL BE COMPLETED PRIOR TO COMMENCING THE CCTV INSPECTION. THE CONTRACTOR SHALL COORDINATE THE CCTV INSPECTION TIME WITH THE CITY UTILITY INSPECTOR PRIOR TO INITIATING THE WORK. FINAL PAVING SHALL NOT COMMENCE UNTIL APPROVAL IS RECEIVED FROM THE CITY UTILITY INSPECTOR. CCTV SEWER VIDEOS AND AS-BUILT DOCUMENTS MUST BE REVIEWED AND APPROVED BY THE EOR STATING COMPLIANCE WITH CITY STANDARDS PRIOR TO REVIEW BY THE CITY. CCTV MUST BE PERFORMED WITH CITY INSPECTOR AND/OR EOR PRESENT.
5. SEWER LATERAL LOCATIONS SHALL BE MARKED ALONG THE OUTSIDE OF THE CURB WITH A SAW CUT "S" OR BY A METAL TAB SET INTO THE PAVEMENT.
6. THE CONTRACTOR SHALL BE REQUIRED TO PIG ALL FORCE MAINS EQUAL TO OR GREATER THAN 6" IN DIAMETER AND PRIMARY TRANSMISSION MAINS LOCATED ON COLLECTOR AND ARTERIAL ROADWAYS. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CITY.
7. WITH RESPECT TO TIE-IN CONNECTIONS AND CORING OPERATIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNECTIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 6:00 A.M.) (IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS
8. ALL WORK ON SANITARY SEWER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY SHALL BE PERFORMED BY AN UNDERGROUND UTILITY CONTRACTOR OR GENERAL CONTRACTOR LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.
9. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND AS-BUILTS ARE PROVIDED TO THE CITY'S UTILITIES DEPARTMENT PRIOR TO ANY USE OF THE SYSTEM.
10. PLANS SHALL DIMENSION THE LOCATION OF ALL FORCE MAINS, VALVES, MANHOLES & LATERALS FROM THE BASELINE OF CONSTRUCTION AND FROM THE RIGHT-OF-WAY LINE.
11. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF PUBLIC UTILITIES AND STORM WATER INFRASTRUCTURE.
12. THE CITY'S AS-BUILT DRAWING REQUIREMENTS ARE ATTACHED TO THE BACK OF THE UTILITIES DEPARTMENT'S STANDARD DETAILS.
13. ALL GRAVITY SANITARY SEWER MAINS SHALL BE A MINIMUM OF 8" DIAMETER. COMMERCIAL SERVICE LATERALS SHALL BE GREEN AND A MINIMUM OF 6" IN DIAMETER. OR LARGER. ALL SINGLE FAMILY RESIDENTIAL SERVICE LATERALS SHALL BE 6" SINGLE SERVICES WITH CLEAN OUTS INSTALLED AT PROPERTY LINES.
14. ALL GRAVITY SANITARY SEWER MAINS SHALL BE GREEN PVC SDR-26, ASTM D-3034, OR C-900 DR-18 MINIMUM PRESSURE CLASS 150. IN PLACES WHERE A MINIMUM COVER OF 4 FEET CANNOT BE MAINTAINED OR IN DEPTHS OF 10 FEET OR GREATER (CUT TO INVERT) MAINS SHALL BE C-900 DR-18.
15. FOR SINGLE FAMILY HOMES, SINGLE SIX INCH SEWER SERVICE LATERALS SHALL BE CONSTRUCTED AT EACH LOT OR UNIT AND LOCATED ON THE DOWNSTREAM SIDE OF THE LOT CENTER LINE. THESE SERVICES SHALL BE EXTENDED 4 FEET ABOVE GROUND AT THE PROPERTY LINE WITH A PVC RISER AND PLUG EASILY VISIBLE FROM THE ROAD. RUBBER SEAL FITTINGS SHALL BE USED ON ALL LINES NO GLUED JOINTS ARE PERMITTED ON LATERALS.
16. FOR MULTI-FAMILY AND COMMERCIAL SITES, SIX INCH MINIMUM SEWER SERVICES AND CLEANOUTS SHALL BE PROVIDED AS APPROVED BY THE CITY.
17. FORCE MAINS LESS THAN 18" MAY USE PVC C900 OR C905 DR-18. FORCE MAINS 18" AND LARGER SHALL BE DUCTILE IRON PIPE (D.I.P.), CLASS 350, EPOXY LINED. ALL NON DUCTILE IRON PIPE HORIZONTAL DIRECTIONAL DRILL FORCE MAINS SHALL HAVE A MINIMUM WORKING PRESSURE OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING DEPENDING ON SITE CONDITIONS INSIDE DIAMETER OF NON D.I.P. HORIZONTAL DIRECTIONAL DRILL PIPE SHALL MATCH THE INSIDE DIAMETER OF CONNECTING PIPES. DIRECTIONAL DRILLS SHALL HAVE FUSED MJ ADAPTERS.
18. FORCE MAIN MINIMUM DEPTH OF COVER SHALL BE 48". ALL FORCE MAINS SHALL BE DISTINCTLY MARKED BY GREEN STRIPES OR COLORED GREEN.
19. ALL FITTINGS, VALVES, ETC. SHALL BE DUCTILE IRON (MJ OR FLANGED) AND RESTRAINED. ALL FORCE MAINS SHALL USE THRUST RESTRAINT AS CALCULATED BY A PROGRAM AVAILABLE AT (EBAA.COM). THE [illegible] JOINT LENGTHS SHALL BE SHOWN ON THE PLANS PROVIDED BY THE ENGINEER OF RECORD.
20. ALL RESTRAINED PIPE BELL JOINTS SHALL USE BELL RESTRAINTS. GRIPPER TYPE GASKETS CAN BE USED FOR DUCTILE IRON PIPE JOINTS. CONCRETE THRUST BLOCKS ARE NOT PERMITTED.
21. AS A GENERAL RULE, THE NUMBER OF JOINTS SHALL BE LIMITED WHENEVER POSSIBLE. IN SPECIAL CASES WHERE A POINT REPAIR TO AN 8" TO 12" PVC SEWER MAIN IS REQUIRED, THE PROPER RIGID WRAP AROUND SLEEVE MAY BE ALLOWED BY CITY SPECIAL APPROVAL
22. ALL IN-LINE SANITARY SEWER FORCE MAIN VALVES SHALL BE PLUG VALVES UNLESS OTHERWISE NOTED VALVES SHALL BE INSTALLED AT EACH END OF THE FORCE MAIN AND ON STUB OUTS.
23. ALL C-900 PVC DR-18 PIPE REQUIREMENTS REFERENCE THE C-900 STANDARDS. DR UPGRADES FOR BURST PROTECTION MAY BE REQUIRED WHEN USING THE C-900 STANDARDS.
24. MINIMUM GRAVITY SANITARY SEWER SLOPES ARE AS FOLLOWS: 8" PIPE 0.40%, 10" PIPE 0.28%, 12" PIPE 0.22%, 15" PIPE 0.15%, OR OTHERWISE NOTED BY UTILITIES DEPT.
25. GRAVITY SANITARY SEWER LINES SHALL BE INSTALLED WHENEVER POSSIBLE UNDER PAVED AREAS WITHIN PUBLIC RIGHT-OF-WAYS. UTILITY EASEMENTS SHALL BE PROVIDED WHENEVER PUBLICLY-OWNED SEWER LINES ARE CONSTRUCTED OUTSIDE OF A PUBLIC RIGHT-OF-WAY.
26. GRAVITY SANITARY SEWER LINE CONSTRUCTION SHALL BE ACCOMPLISHED BY THE USE OF A LASER INSTRUMENT UNLESS ANOTHER METHOD IS APPROVED BY THE CITY.
27. DURING PIPE INSTALLATION DEWATER THE GROUND SUFFICIENTLY TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING INSTALLED WITHIN THE AREA OF THE TRENCH.
28. ALL PIPES SHALL BE INSTALLED ON A FIRM FOUNDATION. SOFT OR SPONGY BEDDING FOR PIPES IS NOT ACCEPTABLE. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A DRY, COMPACTED, GRANULAR MATERIAL SATISFACTORY TO THE CITY.
29. ON ALL EXCAVATION AND BACKFILLING THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING AND BRACING IN ORDER TO PROVIDE A SAFE WORKING ENVIRONMENT
30. ALL TRENCHES SHALL BE BACKFILLED WITH ACCEPTABLE MATERIAL AND COMPACTED TO THE SPECIFIED MINIMUM COMPACTION (95% IN UNPAVED AREAS AND 98% IN PAVED AREAS) AND THE OPTIMUM DENSITY BASED ON THE AASHTO T-180 MODIFIED PROCTOR TEST.
31. ALL GASKETS SHALL BE LUBRICATED BEFORE INSTALLATION.
32. THE CONTRACTOR SHALL INSTALL A #12-GAUGE MINIMUM COPPER TRACER WIRE TAPED TO THE TOP OF THE PIPE AT INTERVALS NO GREATER THEN 4-FEET. COPPER WIRE SHALL HAVE A MIN. TENSILE STRENGH/BREAK LOAD OF 452 LBS. AND REQUIRES APPROVAL BY THE CITY FOR THE FULL LENGTH OF ALL SEWER FORCE MAINS. THE PIPE LOCATOR TAPE SHALL BE INSTALLED BETWEEN 15" AND 24" BELOW FINISHED GRADE OR AS DIRECTED BY THE MANUFACTURER. TAPE SHALL BE COLOR CODED GREEN FOR FORCE MAINS. LOCATER WIRE SHALL TERMINATE AT A LOCATION AND IN A MANNER CONVENIENT FOR CITY LOCATER STAFF.
33. TRACER WIRE SHALL BE TESTED FOR CONTINUITY UNDER SUPERVISION OF A CITY REPRESENTATIVE AFTER INSTALLATION.
34. ALL SEWER LINES CONSTRUCTED OUTSIDE OF PUBLIC RIGHT-OF-WAYS WITHIN SIDE YARDS, BACKYARDS, AND OTHER POORLY ACCESSIBLE AREAS SHALL BE CONSTRUCTED OF GREEN C-900 PVC. ABSOLUTELY NO USE OF PLASTIC STYRENE FITTINGS SHALL BE ALLOWED.
35. ALL LOCAL COLLECTION SANITARY SEWER MANHOLES SHALL BE PRECAST WITH A MINIMUM INSIDE DIAMETER OF 4 [illegible]
36. [illegible]
37. MANHOLE RIMS SHALL BE FLUSH WITH THE FINISH GRADE ELEVATION IN PAVED AREAS AND A MINIMUM OF 0.5 FEET AND MAXIMUM OF 1.0 FOOT ABOVE GRADE IN UNPAVED AREAS.
38. THE CONTRACTOR SHALL CONSTRUCT SANITARY SEWER MANHOLES IN SUCH A WAY THAT SEWER LINES DO NOT INTERSECT SEALED JOINTS BETWEEN SECTIONS OF THE MANHOLE.
39. INDIVIDUAL SANITARY SERVICES SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES AND MUST BE CONNECTED TO SEWER MAINS BY USE OF WYE CONNECTIONS UNLESS OTHERWISE APPROVED BY THE CITY.
40. SANITARY SEWER DROP MANHOLES SHALL ONLY BE USED UNDER SPECIAL CONDITIONS AS APPROVED BY THE CITY. DROPS LESS THAN 3.0' ARE NOT ALLOWED. INSIDE DROPS ARE NOT ALLOWED.
41. SANITARY SEWER MANHOLES WITH SEWER FORCE MAINS DISCHARGING DIRECTLY INTO THEM SHALL BE FIBERGLASS OR POLY-ETHYLENE LINED. RETRO-FITTING OF MANHOLES WITH LINERS IS REQUIRED WHEN NEW CONNECTIONS ARE MADE. FIBERGLASS SHALL BE A MINIMUM 1/2" THICK UNLESS APPROVED OTHERWISE BY THE CITY. OTHER LINING METHODS AND MATERIALS MAY BE CONSIDERED ON A CASE BY CASE BASIS. UNDER CIRCUMSTANCES WHERE HYDROGEN SULFIDE IS A SIGNIFICANT CONCERN, MANHOLES UPSTREAM AND/OR DOWNSTREAM OF THE FORCE MAIN TIE-IN MAY BE REQUIRED TO HAVE LININGS INSTALLED
42. EZ-WRAP PLASTIC, AS MANUFACTURED BY PRESS SEAL GASKET CORPORATION, SHALL BE USED ON THE OUTSIDE OF ALL MANHOLE AND WETWELL JOINTS. APPLY ONE LAYER OF 9" WRAP CENTERED ON EACH JOINT. A CITY INSPECTOR SHALL INSPECT ALL JOINT SEALS PRIOR TO BACKFILLING OPERATIONS.
43. CONTRACTOR FOR DEVELOPMENTS WITH THE POTENTIAL TO DISCHARGE INDUSTRIAL OR COMMERCIAL WASTE INTO THE SEWER SYSTEM SHALL CONSTRUCT AND MAINTAIN AT THE OWNER'S EXPENSE A SUITABLE CONTROL MANHOLE OR MANHOLES DOWNSTREAM OF ANY TREATMENT, STORAGE, OR OTHER APPROVED WORKS, PRIOR TO THE CITY'S COLLECTION SYSTEM TO FACILITATE OBSERVATION, MEASUREMENT, AND SAMPLING OF ALL WASTE, INCLUDING ALL DOMESTIC SEWAGE FROM THE ESTABLISHMENT.
44. CONTROL MANHOLE OR MANHOLES SHALL BE CONSTRUCTED AT LOCATIONS EASILY ACCESSIBLE AT ALL TIMES TO CITY PERSONNEL FOR SAMPLING.
45. SANITARY SEWER LIFT STATIONS AND FORCE MAINS SHALL BE APPROVED BY THE CITY. LIFT STATIONS SHALL BE CONSTRUCTED WITH A MINIMUM WET WELL AS SHOWN IN THE LIFT STATION DETAIL
46. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO PREPARE AND SUBMIT FLOTATION CALCULATIONS TO SIZE THE BASE OF THE WET WELL, AND ANY MANHOLES AS DEEMED NECESSARY BY THE CITY.
47. ALL FITTINGS SHALL MEET THE MINIMUM RESTRAINT REQUIREMENTS PER ANSI/AWWA/DIPRA, AND ALL PRESSURE PIPES UNDER ROADWAYS SHALL BE RESTRAINED.

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CONSTRUCTION NOTES

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 18184
DESIGNED BY: HK/ML
DRAWING FILE: 02-04-18184-NOT_PH1A

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:18-05'00'

SHEET: C2 OF 36

SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS
TESTING REQUIREMENTS

THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING LABORATORY AT HIS OWN EXPENSE TO INSURE COMPACTION OF ALL FILL MATERIAL IS COMPLETED PROPERLY. TESTS SHALL BE DONE ONE FOOT ABOVE THE PIPE AND AT ONE FOOT VERTICAL INTERVALS UNTIL FINAL GRADE IS REACHED. TESTS SHALL BE COMPLETED A MINIMUM FREQUENCY OF ONE SET OF TESTS EACH 300 FOOT LENGTH OF PIPING AND ONE ADDITIONAL SET OF TESTS AT EVERY MANHOLE. IDENTIFICATION OF TEST LOCATIONS SHALL BE CLEARLY INDICATED ON TEST REPORTS TEST RESULTS SHALL BE FORWARDED PROMPTLY TO THE CITY'S DESIGNATED SITE INSPECTOR.

ALL TESTING REQUIRED BY THE CITY SHALL BE PAID FOR BY THE CONTRACTOR / DEVELOPER.

THE CITY OF DELAND RESERVES THE RIGHT TO REQUIRE THE DEVELOPER TO PERFORM VACUUM TESTING OF ALL SANITARY MANHOLES AND TO AIR TEST SEWER MAINS

ALL PROPOSED SEWER FORCE MAINS SHALL BE FLUSHED, PRESSURE TESTED AND CLEARED FOR SERVICE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED SITE INSPECTOR AT LEAST 3 BUSINESS DAYS PRIOR TO BEGINNING A FULL-DIAMETER FLUSH OF THE MAINS FOR PRESSURE TESTING.

SANITARY SEWER FORCE MAINS SHALL BE PRESSURE TESTED TO 100 PSI FOR 2 HOURS WITH ALLOWABLE LEAKAGE BASED ON THE TABLE BELOW.

[illegible]

AVERAGE TEST PRESSURE (PSI)	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20	24	30	36	42	48	54	60	64	TEST PRESSURE (PSI)
450	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	400
350	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	350
300	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300
275	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	275
250	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	250
225	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	225
200	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	200
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
150	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.29	[illegible]	1.66	1.84	2.21	2.76	[illegible]	3.86	[illegible]	[illegible]	[illegible]	5.88	150
125	[illegible]	[illegible]	0.67	[illegible]	[illegible]	[illegible]	1.18	[illegible]	1.51	1.68	2.01	2.52	[illegible]	3.53	[illegible]	[illegible]	[illegible]	5.37	125
100	[illegible]	[illegible]	0.60	[illegible]	[illegible]	[illegible]	1.05	[illegible]	1.35	1.50	1.80	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100

[illegible]

$$L = \frac{SD\sqrt{P}}{133,200}$$

WHERE:
L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR
S = LENGTH OF PIPE TESTED, IN FEET
D = NOMINAL DIAMETER OF PIPE, IN INCHES
P = AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH (GAUGE)

POTABLE WATER CONSTRUCTION & DESIGN NOTES

THE CITY'S UTILITIES DEPARTMENT SHALL BE GIVEN A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS OR WEEKENDS) PRIOR TO BEGINNING ANY POTABLE WATER SYSTEM CONSTRUCTION.

A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING OR CONSTRUCTION ACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES, ALLOWING CONSTRUCTION OR MAINTENANCE IN A DRY ENVIRONMENT. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BIANNUAL SCHEDULE OF DEWATERING ACTIVITIES DISCHARGING DIRECTLY INTO THE CITY'S CONVEYANCE SYSTEM. FEES ARE SUBJECT TO THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION TO THE CITY OF DELAND STORM WATER COORDINATOR PRIOR TO ANY USE OF THE CITY'S CONVEYANCE SYSTEM. FAILURE TO COMPLY WILL RESULT IN IMMEDIATE TERMINATION OF ACCESS TO THE CITY'S SYSTEM.

ALL WORK PERFORMED ON POTABLE WATER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY SHALL BE CONSTRUCTED BY AN UNDERGROUND UTILITY CONTRACTOR OR GENERAL CONTRACTOR LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.

UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE DEPARTMENT OF HEALTH, AND THAT AS-BUILT DRAWINGS MEETING THE CITY'S REQUIREMENTS ARE PROVIDED TO THE CITY AND ACCEPTED PRIOR TO ANY USE OF THE SYSTEM

THE WATER DISTRIBUTION SYSTEM SHALL BE DESIGNED TO COMPLY WITH THE CITY'S FIRE (WATER) FLOW CODE.

EACH WATER SERVICE TERMINATION SHALL BE MARKED WITH 2" X 4" PRESSURE TREATED LUMBER EXTENDING 4' ABOVE GRADE DIRECTLY IN FRONT OF THE METER BOX WITH 2' OF ENDOTRACE POLY-TUBE OR APPROVED EQUAL COILED AND CAPPED WITH AN ELSTER HYDROSERT CAP INSIDE EACH METER BOX.

[illegible]

8. ALL WATER VALVES SHALL BE MARKED WITH AN "V" SAW CUT INTO THE CURB.
9. ALL TAPPING OF MAINS (12" OR SMALLER) SHALL BE PERFORMED BY CITY PERSONNEL. SCHEDULING OF THESE CONNECTIONS REQUIRES A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE AND SHALL BE COORDINATED WITH THE CITY INSPECTOR (TAPS ON MONDAY – THURSDAY ONLY).
10. THE PLANS SHALL INCLUDE RIGHT OF WAY LINES AND STATIONING AND OFFSETS FROM THE CENTER LINE OF CONSTRUCTION.
11. DEWATERING ACTIVITIES SHALL KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW THE WATER MAIN BEING INSTALLED
12. ALL WATER MAINS SHALL BE INSTALLED ON A FIRM UNYIELDING FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
13. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 98% IN PAVED AREAS AND 95% IN UNPAVED AREAS IN ACCORDANCE WITH AASHTOT-180 MODIFIED PROCTOR TEST.
14. WHERE POTABLE WATER AND SANITARY SEWER MAINS CROSS WITH LESS THAN SIX (6) INCHES OF VERTICAL CLEARANCE OR WHERE THE SEWER MAIN IS ABOVE THE WATER MAIN, MEDIATION MUST BE REVIEWED AND APPROVED BY FDEP.
15. WATER MAINS SHALL BE CONSTRUCTED A MINIMUM OF 4 FEET BEHIND THE BACK OF CURB OR THE EDGE OF ROADWAY PAVEMENT, WHICHEVER IS GREATER, AS MEASURED FROM OUTSIDE WALL OF THE WATER MAIN.
16. 3 INCH METALIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES TO 24 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY THE MANUFACTURER FOR ALL WATER LINES. BLUE TRACER WIRE SHALL BE ATTACHED TO ALL PIPES. WIRE RUNS SHALL BE CONNECTED WITH SILICONE FILLED WIRE CONNECTORS. SERVICES SHALL BE CONNECTED TO THE MAIN WIRE WITH SILICONE FILLED WIRE CONNECTORS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE AND TEST FOR CONTINUITY (SEE CITY SPECIFICATION #15049 TRACER WIRE AND ALARMING TAPE). TRACER WIRE SHALL BE TESTED FOR CONTINUITY UNDER THE SUPERVISION OF A CITY REPRESENTATIVE AFTER INSTALLATION. IF A METER BOX IS NOT WITHIN 200 FEET OF A VALVE AND VALVE BOX AN ADDITIONAL VALVE BOX FOR TRACER WIRE IS REQUIRED.
17. SINGLE RESIDENTIAL WATER SERVICES SHALL BE A MINIMUM 1-INCH ENDOT, ENDOTRACE OR APPROVED EQUAL POLY-TUBE (MEETING THE SPECIFICATIONS OF NSF-14, AND AWWA C901.)
18. ALL WATER MAINS SHALL BE NSF-APPROVED FOR POTABLE WATER USE AND HAVE A MINIMUM COVER OF 36-INCHES.
19. WATER MAINS LESS THAN 18" MAY USE POLYVINYL CHLORIDE (PVC) C900, OR C905, SHALL MEET AWWA REQUIREMENTS AND HAVE A MINIMUM DIMENSION RATIO (DR-18) PRESSURE CLASS 150. WATER MAINS 18" AND [illegible] HORIZONTAL DIRECTIONAL DRILL WATER MAINS SHALL HAVE A MINIMUM WORKING PRESSURE OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING BASED ON SITE CONDITIONS. INSIDE DIAMETER OF NON D.I.P. HORIZONTAL DIRECTIONAL DRILL PIPE SHALL MATCH THE INSIDE DIAMETER OF CONNECTING PIPES. ALL GASKETS SHALL BE LUBRICATED BEFORE INSTALLATION.
20. DIRECTIONAL DRILLS SHALL HAVE FUSED MJ ADAPTERS.
21. ALL POTABLE WATER MAINS SHALL USE THRUST RESTRAINT AS CALCULATED BY A PROGRAM AVAILABLE AT EBAA.COM. THE RESTRAINED JOINT LENGTHS SHALL BE SHOWN ON PLANS PROVIDED BY EOR.
22. ALL FITTINGS, VALVES, ETC. SHALL BE DUCTILE IRON CEMENT LINED (MJ OR FLANGED) AND SHALL BE RESTRAINED.
23. ALL RESTRAINED PIPE BELL JOINTS SHALL USE BELL RESTRAINTS OR GRIPPER TYPE GASKETS CAN BE USED FOR DUCTILE IRON PIPE JOINTS. CONCRETE THRUST BLOCKS ARE NOT PERMITTED.
24. WATER VALVES SHALL BE INSTALLED AT ALL STREET INTERSECTIONS AND AT A MAXIMUM SPACING OF 750 FEET. SPACING OF VALVES ON PRIMARY TRANSMISSION MAINS WILL BE DETERMINED BY THE CITY.
25. VALVES SHALL BE INSTALLED ON ALL LEGS OF WATER MAIN TEES EXCEPT ONE.
26. ALL FITTINGS SHALL MEET MINIMUM RESTRAINT REQUIREMENTS PER ANSI/AWWA/EBAA, AND ALL PRESSURE PIPES UNDER THE ROADWAYS SHALL BE RESTRAINED.
27. METER LENGTHS REQUIRED FOR WATER METERS INSTALLATION ARE AS FOLLOWS: 3/4" TO 2" METER REQUIRES 6', 4" METER REQUIRES 12', 6" AND 8" METER REQUIRES 14', AND A 10" METER REQUIRES 20'.
28. ALL WATER VALVE BOXES SHALL BE ADJUSTED, INCLUDING DEBRIS CAP, AND CONCRETE COLLAR TO FINISHED GRADE. VALVE BOX LIDS SHALL BE PAINTED BLUE TO MAKE THEM CLEARLY VISIBLE.
29. UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS, WATER VALVES SHALL BE COMPLETELY OPENED BY CITY UTILITIES PERSONNEL. THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING VALVES WITHOUT A CITY REPRESENTATIVE PRESENT.
30. ALL VALVES 2 INCHES AND SMALLER SHALL BE CURB STOPS. VALVES LARGER THAN 2 INCHES SHALL BE GATE VALVES.
31. A MINIMUM OF ONE FIRE HYDRANT SHALL BE LOCATED AT EVERY INTERSECTION. OTHER FIRE HYDRANTS SHALL BE LOCATED TO PRODUCE A MAXIMUM 500 FOOT RADIUS OF COVERAGE. ALL FIRE HYDRANTS SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS FOR FIRE PERSONNEL. THE PRIMARY HYDRANT PORT SHALL FACE THE STREET.
32. THE CONTRACTOR SHALL PIG ALL PIPES 4 INCHES OR LARGER IN DIAMETER. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR AND CITY REPRESENTATIVE. REUSE WATER MAY ONLY BE USED FOR PIGGING OF LINES 14" OR LARGER AT THE CITY'S DIRECTION AND BE DIRECTLY DISCHARGED TO A SANITARY CONNECTION, APPROVED BY THE CITY.
33. FOR PIPE FLUSHING, PIGGING, TESTING, AND TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 6 A.M.) THE CONTRACTOR SHALL COORDINATE WITH THE CITY REPRESENTATIVE AND WATER PLANT OPERATIONS TO SCHEDULE THE DATE AND TIME FOR THESE ACTIVITIES.
34. THE CITY RESERVES THE RIGHT TO PERFORM THE SAMPLING AND ANALYSIS FOR BACTERIOLOGICAL CLEARANCE OF THE WATER MAIN. ANY RETESTING WILL BE AT THE CONTRACTORS EXPENSE.
35. POTABLE WATER LINES SHALL NOT BE USED OR PLACED INTO SERVICE UNTIL CLEARANCE IS ACCEPTED BY VOLUSIA COUNTY HEALTH DEPARTMENT AND THE CITY OF DELAND
36. BACKFLOW PREVENTERS (BFP) SHALL BE PLACED ON ALL POTABLE AND FIRE LINES SERVING COMMERCIAL AND RESIDENTIAL PROPERTIES. THE TYPE OF BACKFLOW PREVENTERS REQUIRED ARE AS FOLLOWS:
    POTABLE WATER SERVICE; REDUCED PRESSURE ZONE (RPZ)(BFP)
    FIRE LINE SERVICING A FIRE SPRINKLER SYSTEM AND/OR PRIVATE FIRE HYDRANT, DOUBLE CHECK VALVE ASSEMBLY
    FIRE LINE; DOUBLE CHECK VALVE ASSEMBLY
    IN CASES WHERE A WATER LINE SERVES BOTH DOMESTIC AND FIRE SERVICES, A REDUCED PRESSURE ZONE BFP IS REQUIRED.

POTABLE WATER CONSTRUCTION & DESIGN NOTES (CONT'D)

37. ALL JACK & BORES REQUIRED FOR COMMERCIAL DEVELOPMENT SHALL BE PERFORMED AT THE SOLE COST OF THE OWNER\DEVELOPER.
38. ALL C-900 DR-18 PVC PIPE REQUIREMENTS REFERENCE TO THE C-900 STANDARDS.
39. CHLORINATED WATER MUST BE DECHLORINATED PRIOR TO DISCHARGE INTO ANY JURISDICTIONAL WETLAND OR WATER BODY PER AWWA STANDARD, ANSI/AWWA C655.

POTABLE WATER CONSTRUCTION & DESIGN STANDARDS
TESTING REQUIREMENTS

IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TRENCH COMPACTION TESTS AT POINTS 12 INCHES ABOVE THE PIPE AND AT 12-INCH VERTICAL INTERVALS TO FINISHED GRADE AT A MAXIMUM HORIZONTAL SPACING OF 300 FEET. TEST RESULTS ARE TO BE PROVIDED TO THE CITY ON ALL PUBLIC UTILITIES.

ON ALL PROJECTS OTHER THAN THOSE INITIATED BY THE CITY THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING LABORATORY AT HIS OWN EXPENSE TO INSURE THAT COMPACTION OF ALL FILL MATERIAL IS COMPLETED PROPERLY. ON ALL CITY PROJECTS THE TESTING WILL BE DONE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. IDENTIFICATION OF TEST LOCATIONS SHALL BE CLEARLY INDICATED ON TEST REPORTS. TEST RESULTS SHALL BE FORWARDED PROMPTLY TO THE CITY'S INSPECTOR.

ALL POTABLE WATER MAINS SHALL BE FLUSHED, DISINFECTED, PRESSURE TESTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE WHEN APPROPRIATE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED INSPECTOR WHO SHALL COORDINATE WITH CITY PERSONNEL AT THE WATER TREATMENT PLANT AT LEAST 3 BUSINESS DAYS PRIOR TO BEGINNING FLUSHING THE MAINS BEFORE PRESSURE TESTING. THE CITY MAY REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 6 AM). THE DATE AND TIME SCHEDULE FOR FLUSHING AND PIGGING MUST BE APPROVED BY THE WATER PLANT OPERATIONS. NO HOSE OR FIRE HYDRANT SHALL BE USED IN THE COLLECTION OF BACTERIOLOGICAL SAMPLES. THE SAMPLING TAP MUST BE DEDICATED, CLEAN, DISINFECTED AND FLUSHED PRIOR TO SAMPLING. SAMPLING TAP SHALL BE SMOOTH, UNTHREADED 1/2 INCH HOSE BIB. DISINFECTION AND SAMPLING SHALL BE SCHEDULED AT THE CITY'S CONVENIENCE.

PRESSURE TEST FOR TAPPING SADDLES AND VALVES FOR A MINIMUM OF 30 MINUTES AT 150 PSI OR 30 MINUTES AT MANUFACTURER'S RECOMMENDED TESTING PRESSURE.

WATERMAINS SHALL BE PRESSURE TESTED AT 150 PSI FOR 3 HOURS. TESTING SHALL BE IN ACCORDANCE WITH AWWA C-600 AND AWWA C-605 AS APPLICABLE WITH ALLOWABLE LEAKAGE TO BE BASED ON THE TABLE BELOW.

[illegible]

AVERAGE PRESSURE [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16	[illegible]	20	24	30	36	42	48	54	60	64	PRESSURE (PSI)
450	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.55	[illegible]	[illegible]	3.82	[illegible]	[illegible]	6.69	7.64	[illegible]	[illegible]	[illegible]	450
400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	400
350	[illegible]	[illegible]	[illegible]	[illegible]	1.40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	350
300	[illegible]	[illegible]	[illegible]	[illegible]	1.30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300
275	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	275
250	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	250
225	[illegible]	[illegible]	0.68	[illegible]	[illegible]	1.35	[illegible]	1.60	[illegible]	2.25	2.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
200	[illegible]	[illegible]	0.64	[illegible]	[illegible]	1.28	[illegible]	1.70	[illegible]	2.12	2.55	[illegible]	3.82	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	200
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.19	[illegible]	1.59	[illegible]	1.98	[illegible]	[illegible]	3.58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
150	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	150
125	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	125
100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100

[illegible]

$$L = \frac{SD\sqrt{P}}{133,200}$$

WHERE:
L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR
S = LENGTH OF PIPE TESTED, IN FEET
D = NOMINAL DIAMETER OF PIPE, IN INCHES
P = AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH (GAUGE)

RECLAIMED WATER CONSTRUCTION & DESIGN NOTES

1. THE CITY'S UTILITIES DEPARTMENT SHALL BE GIVEN A MINIMUM OF THREE BUSINESS DAYS NOTICE (NOT INCLUDING HOLIDAYS) PRIOR TO BEGINNING ANY RECLAIMED WATER SYSTEM CONSTRUCTION.
2. A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING OR CONSTRUCTIONACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES, ALLOWING CONSTRUCTION OR MAINTENANCE IN A DRY ENVIRONMENT. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BIANNUAL SCHEDULE OF DEWATERING ACTIVITIES DISCHARGING DIRECTLY INTO THE CITY'S CONVEYANCE SYSTEM. FEES ARE SUBJECT TO THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION TO THE CITY OF DELAND STORM WATER COORDINATOR PRIOR TO ANY USE OF THE CITY'S CONVEYANCE SYSTEM. FAILURE TO COMPLY WILL RESULT IN IMMEDIATE TERMINATION OF ACCESS TO THE CITY'S SYSTEM.
3. RECLAIMED WATER SERVICE ENDINGS SHALL BE SECURED BY WIRE TO 2" X 4" PRESSURE TREATED STAKES, APPROXIMATELY 2' ABOVE GRADE OR MAY BE PLACED IN RECLAIMED WATER METER BOXES PROVIDED BY THE CONTRACTOR AT THE TIME OF FINAL SUBDIVISION INSPECTION.
4. FOR PIPE FLUSHING, PIGGING, TESTING, AND TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 6 A.M.) IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE WITH THE CITY REPRESENTATIVE THE DATE AND TIME, THAT MUST BE APPROVED BY WATER PLANT OPERATIONS.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUPPLY "AS-BUILT DRAWINGS" TO THE CITY PRIOR TO ANY USE OF THE SYSTEM. **SEE CITY OF DELAND AS-BUILT REQUIREMENTS.**
6. ALL RECLAIMED WATER SERVICES SHALL BE MARKED ALONG THE OUTSIDE EDGE OF CURB WITH AN "R" OR A METAL TABS SET INTO PAVEMENT. VALVES AND BLOW-OFFS FOR RECLAIMED WATER MAINS SHALL BE MARKED BY A "V" SET INTO THE PAVEMENT AND PAINTED WITH PURPLE ENAMEL.
7. RECLAIMED WATER SERVICES SHALL BE LOCATED AT SIDE LOT LINES ALTERNATING WITH POTABLE WATER SERVICE LOCATIONS. IN INSTANCES WHERE RECLAIMED WATER SERVICES MUST BE OFFSET, THE SERVICES MAY BE OFFSET FROM THE LOT LINE A MAXIMUM DISTANCE OF 2 FEET.
8. ALL RECLAIMED WATER HAND-OPERATED CONNECTIONS AND OUTLETS SHALL BE CONTAINED IN UNDERGROUND SERVICE VAULTS AND APPROPRIATELY TAGGED OR LABELED TO WARN THE PUBUC AND EMPLOYEES THAT THE WATER IS NOT INTENDED FOR DRINKING OR SWIMMING. ANY SIGNIFICANT IRRIGATION SITE UTILIZING RECLAIMED WATER, SUCH AS AN ATHLETIC FIELD, GOLF COURSE, PARK OR POND, IS REQUIRED TO POST A 12" x 12" RECLAIMED WATER SIGN WARNING THE PUBLIC AND EMPLOYEES THAT RECLAIMED WATER IS NOT INTENDED FOR DRINKING OR SWIMMING. THIS SIGN SHALL BE PLACED AT THE ENTRANCE TO THE SITE AND THE LOCATION OF THE PRIVATE REUSE SYSTEM. SEE 'RECLAIMED WATER IN USE' DETAIL.
9. VAULTS FOR OUTLETS SHALL BE LOCKED OR REQUIRE A SPECIAL TOOL FOR OPERATION.
10. A 75 FOOT SETBACK DISTANCE SHALL BE PROVIDED FROM PUBLIC ACCESS RECLAIMED WETTED AREAS TO PUBLIC OR PRIVATE POTABLE WATER SUPPLY WELLS.
11. LOW TRAJECTORY NOZZLES ARE REQUIRED WITHIN 100 FEET OF PUBLIC EATING, DRINKING OR BATHING FACILITIES.
12. ALL RECLAIMED WATER MAINS SHALL BE INSTALLED ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
13. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 95% IN UNPAVED AREAS AND 98% IN PAVED AREAS IN ACCORDANCE WITH AASHTO T-180.
14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TRENCH COMPACTION TESTS AT POINTS 12 INCHES ABOVE THE PIPE AND AT 12 INCHES VERTICAL INTERVALS TO FINISH GRADE AT A MAXIMUM SPACING OF EVERY 300 FEET.
15. ALL SINGLE RESIDENTIAL WATER SERVICES SHALL BE 1". SERVICES SHALL BE CTS 3408 HIGH DENSITY POLYETHYLENE TUBING RATED FOR A MINIMUM OF 200 PSI WITH STANDARD OUTSIDE DIMENSION RATIO (SODR) = 9 (CTS). THE TUBING SHALL HAVE A VIRGIN HIGH DENSITY POLYETHYLENE CENTER FOR WHICH THE MANUFACTURER SHALL FURNISH A CERTIFICATE OF PURITY. THE TUBING SHALL BE PURPLE IN COLOR AND SHALL HAVE THE WORDS "RECLAIMED WATER" PERMANENTLY PRINTED ON THE OUTSIDE. THE TUBING SHALL HAVE U.V. PROTECTION AND [illegible] STANDARDS OF A.S.T.M. D1248, D3350, 02239, D2737, N.S.F.-14 AND A.W.W.A. C901 AND SHALL COME WITH A LIFETIME WARRANTY. APPROVED SIZES: 1" AND 2" DIAMETERS.
16. RECLAIMED WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF THE CURB ON THE OPPOSITE SIDE OF THE ROAD OF THE POTABLE WATER MAINS, OR AS APPROVED BY THE CITY. RECLAIMED WATER MAINS SHOULD NOT BE INSTALLED UNDER SIDEWALK.
17. ALL RECLAIMED WATER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON PRESSURE CLASS 350 OR CONCRETE ENCASEMENT/PROTECTIVE SLAB MAY BE USED AT THE DISCRETION OF THE UTILITIES DEPARTMENT. ALL DIP SHALL HAVE 2" PURPLE STRIPES PAINTED AT 12 O'COLCK, 3 O'CLOCK, 6 O'CLOCK AND 9 O'CLOCK FOR THE FULL LENGTH OF PIPE. NON PAINTED RECLAIMED PIPE OR PIPES SHALL BE PAINTED WITH AN EPOXY PAINT (PANTONE PURPLE) TO CLEARLY MARK THE RECLAIM PIPE OR PIPES.
18. RECLAIMED WATER MAINS SHALL BE PURPLE PVC, DR-18 AWWA CLASS C-900 OR C-905, CL 150, OR DIP PRESSURE CLASS 350, STANDARD CEMENT LINED (PAINTED PANTONE PURPLE) UNLESS APPROVED OTHERWISE BY THE CITY. ALL HORIZONTAL DIRECTIONAL DRILLS SHALL HAVE A MINIMUM WORKING PRESSURE OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING BASED ON SITE CONDITIONS. INSIDE DIAMETER OF HORIZONTAL DIRECTIONAL DRILL PIPE SHALL MATCH THE INSIDE DIAMETER OF CONNECTING PIPES. ALL GASKETS SHALL BE LUBRICATED BEFORE INSTALLATION.
19. DIRECTIONAL DRILLS SHALL HAVE FUSSED MJ ADAPTERS
20. ALL RECLAIMED WATER MAINS SHALL USE THRUST RESTRAINT AS CALCULATED BY A PROGRAM AVAILABLE AT EBAA.COM, THE RESTRAINED JOINT LENGTHS SHALL BE SHOWN DN PLANS PROVIDED BY EOR.
21. ALL FITTINGS, VALVES, ECT. SHALL BE DUCTILE IRON (MJ OR FLANGED) AND SHALL BE RESTRAINED.
22. BELL RESTRAINTS OR GRIPPER TYPE GASKETS CAN BE USED FOR ALL RESTRAINED PIPE BELL JOINTS. CONCRETE THRUST BLOCKS ARE NOT PERMITTED.
23. VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACINGS OF 750 FEET.
24. VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE AT ALL RECLAIMED WATER MAIN TEES AND CROSSES
25. ALL VALVES SHALL BE ADJUSTED TO FINISH GRADE AND CAPS SHALL BE PAINTED PURPLE.
26. THE CONTRACTOR IS REQUIRED TO PIG ALL RECLAIMED WATER MAINS EQUAL TO OR GREATER THAN 4" IN DIAMETER AND PRIMARY DISTRIBUTION MAINS LOCATED ON COLLECTOR AND ARTERIAL ROADWAYS LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR.
27. IN AREAS WHERE RECLAIMED WATER IS AVAILABLE, RECLAIMED WATER WILL BE UTILIZED IN THE PRESSURE TESTING OF NEW NON-POTABLE WATER LINES.
28. RECLAIMED WATER MAINS SHALL NOT BE PLACED IN SERVICE UNTIL A PRESSURE TEST AT 150 PSI FOR 3 HOURS HAS PASSED AND THE RESULTS ARE FORWARDED TO THE CITY.
29. THE CONTRACTOR SHALL PERFORM RECLAIMED WATER TAPS WITH A CITY REPRESENTIVE PRESENT.
30. WITH RESPECT TO TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNECTIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW.

RECLAIMED WATER CONSTRUCTION & DESIGN NOTES (CONT'D)

31. THE PLANS SHALL INCLUDE THE PROPOSED LOCATIONS OF ALL RECLAIMED WATER MAINS MEASURED FROM THE BACK OF CURB (EDGE OF PAVEMENT IF NO CURB EXISTS) AND THE RIGHT_OF_WAY LINE.
32. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF PUBLIC UTILITIES AND STORM WATER INFRASTRUCTURE.
33. THE RECLAIMED WATER MAIN SHALL NOT BE PLACED IN SERVICE UNTIL AN APPROVED BACKFLOW PREVENTER HAS BEEN INSTALLED ON THE CUSTOMER'S POTABLE SERVICE UNE
34. PRESSURE TESTS FOR TAPPING SADDLES AND VALVES SHALL BE A MINIMUM OF 30 MINUTES AT 150 PSI OR 30 MINUTES AT THE MANUFACTURER'S RECOMMENDED TESTING PRESSURE
35. 3 INCH METALIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES TO 24 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY THE MANUFACTURER FOR ALL WATER LINES. BLUE TRACER WIRE SHALL BE ATTACHED TO ALL PIPES. WIRE RUNS SHALL BE CONNECTED WITH SILICONE FILLED WIRE CONNECTORS. SERVICES SHALL BE CONNECTED TO THE MAIN WIRE WITH SILICONE FILLED WIRE CONNECTORS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE AND TEST FOR CONTINUITY (SEE CITY SPECIFICATION #15049 TRACER WIRE AND ALARMING TAPE). TRACER WIRE SHALL BE TESTED FOR CONTINUITY UNDER THE SUPERVISION OF A CITY REPRESENTATIVE AFTER INSTALLATION. IF A METER BOX IS NOT WITHIN 200 FEET OF A VALVE AND VALVE BOX AN ADDITIONAL VALVE BOX FOR TRACER WIRE IS REQUIRED.
36. ALL FITTINGS SHALL MEET MINIMUM RESTRAINT REQUIREMENTS PER ANSI/AWWA/EBAA, AND ALL PRESSURE PIPES UNDER THE ROADWAYS SHALL BE RESTRAINED.
37. IN AREAS WHERE RECLAIMED WATER IS NOT AVAILABLE, THE CONTRACTOR IS REQUIRED TO USE THE NECESSARY BACKFLOW PREVENTION DEVICES TO TRANSFER POTABLE WATER TO NON-POTABLE WATER LINES TO PERFORM THE REQUIRED PRESSURE TEST.
38. WHERE POTABLE WATER MAINS, RECLAIMED WATER MAINS, FORCE MAINS, SANITARY SEWER MAINS OR STORMWATER MAINS CROSS WITH LESS THAN 12 INCHES OF VERTICAL CLEARANCE OR WHERE THE SEWER OR THE RECLAIMED WATER MAIN IS ABOVE THE WATER MAIN, MEDIATION MUST BE REVIEWED AND APPROVED BY FDEP.

FDOT GENERAL NOTES

MAINTENANCE OF TRAFFIC TO BE SUPERVISED BY A CERTIFIED PERSON.

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT A MINIMUM OF TWO BUSINESS DAYS PRIOR TO ANY LANE CLOSURES OR BEGINNING ANY CONSTRUCTION WITHIN THE FDOT RIGHT-OF-WAY.

ALL WORK PERFORMED WITHIN THE FDOT RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF FDOT DESIGN STANDARDS, SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE UTILITY ACCOMMODATION MANUAL.

IF THE DEPARTMENT DETERMINES THAT AS-BUILT CONDITIONS VARY SIGNIFICANTLY FROM THE APPROVED PLANS, THE PERMITTEE SHALL PROVIDE AS-BUILT PLANS, ALONG WITH A RECORD DRAWINGS REPORT BY PERMITTEE'S PROFESSIONAL ENGINEER, FORM 850-040-19, WITHIN 30 DAYS.

IT WILL BE THE RESPONSIBILITY OF THE PERMITTEE TO REPAIR ANY DAMAGE TO FDOT FACILITIES CAUSED BY CONSTRUCTION OF THE PROJECT.

TEST RESULTS OF ANY TESTS TAKEN FOR OR DURING CONSTRUCTION OF THE PERMITTED WORK SHALL BE PROVIDED TO THE FDOT UPON REQUEST.

ALL CONCRETE TO BE REMOVED SHALL BE SAW CUT AT THE NEAREST JOINT IN GOOD CONDITION, SO AS TO PRODUCE A CONNECTION WITH NEW CONCRETE THAT IS FREE OF CRACKS, DEFORMITY IN SHAPE, NOTICEABLE VOIDS, SURFACE IRREGULARITIES, AND OTHER DEFECTS.

ALL CONCRETE SHALL BE AN APPROVED FDOT MIX DESIGN OF 3,000 PSI.

ALL MATERIALS INSTALLED WITHIN FDOT RIGHT OF WAY SHALL BE LIMITED TO THOSE ON THE FDOT'S QUALIFIED PRODUCTS LIST OR APPROVED PRODUCT LIST OF TRAFFIC CONTROL SIGNALS AND DEVICES.

ROADWAY CONSTRUCTION NOTES

ALL MATERIALS AND INSTALLATION METHODS USED FOR LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS FOR SUBDIVISIONS AND SITE PLANS SHALL BE IN CONFORMANCE WITH THE CITY'S DESIGN STANDARDS, FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION), AND THE FDOT DESIGN STANDARDS (LATEST EDITION).

ALL RIGHT-OF-WAY OTHER THAN ROADWAY AREAS SHALL BE GRASSED AND MULCHED OR SODDED. ALL SLOPES STEEPER THAN 6:1 SHALL REQUIRE SODDING. THE CITY RESERVES THE RIGHT TO REQUIRE SODDING IN SPECIAL AREAS WHERE EROSION IS A CONCERN.

THE FOLLOWING WILL BE THE STANDARD PROTECTION FOR DITCHES UNLESS DRAINAGE CALCULATIONS INDICATE OTHERWISE:

[illegible]	PROTECTION REQUIRED
[illegible]	GRASSING AND MULCHING
[illegible]	SODDING
4.0% AND GREATER	DITCH PAVING

3. THE PAVEMENT, BASE, AND SUBBASE THICKNESS PRESENTED ON DETAILS REPRESENTS THE MINIMUM REQUIREMENTS FOR LOCAL PUBLIC STREETS AND PRIVATE PARKING LOTS. THE CITY RESERVES THE RIGHT AT ITS' DISCRETION TO INCREASE THESE REQUIREMENTS FOR COLLECTOR AND ARTERIAL ROADWAYS AND PRIVATE PARKING LOTS SUBJECTED TO HEAVY VEHICULAR COMMERCIAL TRAFFIC.
4. THE DEVELOPER SHALL PROVIDE AT THEIR OWN EXPENSE A CERTIFIED SOILS ENGINEERING LABORATORY TO PERFORM ALL FIELD AND LABORATORY TESTING REQUIRED TO VERIFY THAT THE CONSTRUCTION IS IN COMPLIANCE WITH THE CITY'S MINIMUM STANDARDS. IT IS THE RESPONSIBILITY OF THE DEVELOPER TO ENSURE THAT COPIES OF ALL TEST REPORTS ARE PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR PRIOR TO THE PROJECT FINAL INSPECTION IN ORDER TO ALLOW PROJECT ACCEPTANCE BY THE CITY.
5. THE LIMITS OF STABILIZED SUBBASE SHALL EXTEND TO A DEPTH OF TWELVE INCHES (12") BELOW THE BOTTOM OF THE BASE AND OUTWARD TO TWELVE INCHES (12") BEYOND THE CURB.
6. THE STABILIZING MATERIAL, IF REQUIRED, SHOULD BE A HIGH BEARING VALUE SOIL, SAND-CLAY, LIMEROCK, RECYCLED CONCRETE, SHELL, OR OTHER MATERIAL AS APPROVED BY THE CITY'S ENGINEER OR DESIGNEE AND A UCENSED SOILS ENGINEER.
7. COMPACTION. STABILITY AND DENSITY TESTING FOR PAVEMENT. BASE AND SUB-BASE ARE TO BE DONE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS FOR ROADWAY & BRIDGE CONSTRUCTION, LATEST EDITION.
8. FOR ROADWAYS, TESTS FOR SUBBASE BEARING CAPACITY AND COMPACTION SHALL BE DONE AT A MINIMUM OF EVERY 300 FEET AND SHALL BE STAGGERED TO THE LEFT, RIGHT, AND AT CENTER LINE OF THE ROADWAY. FOR SITE PLANS, TEST SHALL BE PERFORMED FOR EVERY 600 SQUARE YARDS OF STABILIZED AREA, OR PORTIONS THEREOF.
9. CEMENT DELIVERY TICKETS SHALL BE PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR AT THE TIME OF PLACEMENT. IF THE INSPECTOR IS NOT ON SITE THROUGHOUT THE ENTIRE INSTALLATION, ACCUMULATED DELIVERY TICKETS CAN BE PROVIDED TO THE INSPECTOR BY THE CONTRACTOR ON THE FOLLOWING DAY.
10. TESTING OF THE IN-PLACE BASE SHALL BE DONE AT INTERVALS EQUIVALENT TO SUBGRADE TESTING AND SHALL CONSIST OF, AS A MINIMUM, A MOISTURE CONTENT AND COMPACTION TEST.
11. PORTLAND CEMENT CONCRETE, LIMEROCK, RECYCLED CONCRETE, OR FULL DEPTH ASPHALT PAVEMENT MAY BE USED IN PLACE OF SOIL CEMENT BASE. ALL BASE AND ROADWAY DESIGNS SHALL BE SUBJECT TO THE APPROVAL [illegible]
12. RECYCLED CONCRETE CAN BE USED AS A BASE MATERIAL PROVIDED THE MATERIAL IS A MINIMUM OF 60% CARBONATE OF CALCIUM AND MAGNESIUM. THE MATERIAL SHALL BE LIMITED TO MAXIMUM OF 3% OF WATER SENSITIVE CLAY MATERIAL, LIQUID LIMIT SHALL NOT EXCEED 35 AND BE NON-PLASTIC, AND THE PLASTICITY INDEX SHALL NOT EXCEED 10. THE MATERIAL SHALL NOT CONTAIN ORGANIC MATERIAL, CHERTY OR OTHER EXTREMELY HARD PIECES, LUMPS, BALLS OR POCKETS OF SAND SIZE MATERIAL OF A QUANTITY AS TO BE DETRIMENTAL TO THE PROPER BONDING, FINISHING, OR STRENGTH OF THE RECYCLED CONCRETE BASE. FOR BASE APPLICATIONS, AT LEAST 97% (BY WEIGHT) OF THE MATERIAL SHALL PASS A 1" SIEVE AND FOR SUBBASE APPLICATIONS, AT LEAST 97% (BY WEIGHT) OF THE MATERIAL SHALL PASS A 1-½" SIEVE. FOR BOTH APPLICATIONS, THE MATERIAL SHALL BE GRADED UNIFORMLY DOWN TO DUST AND THE MINIMUM LBR VALUES ARE TO BE NOT LESS THAN 120. COARSE AGGREGATE USED IN THE RECYCLED CONCRETE SHALL HAVE A MAXIMUM LOSS OF 45% PER LOS ANGELES ABRASION TEST. ALL MATERIALS SHALL BE WELL GRADED N ACCORDANCE WITH REQUIREMENTS SET FORTH IN SECTION 204, F.D.O.T., STANDARD SPEC. FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION).
13. RECYCLED CONCRETE OR LIMEROCK FOR BASE OR SUBBASE APPLICATIONS SHALL BE ALLOWED ON CITY ROADWAYS ONLY WHERE THE LOWEST ELEVATION OF THE ROADWAY SUBBASE IS A MINIMUM OF 6" ABOVE THE SEASONAL HIGH GROUNDWATER TABLE AS CERTIFIED BY A FLORIDA LICENSED PROFESSIONAL SOILS ENGINEER AND SUBSEQUENTLY APPROVED FOR BY THE CITY. ALL CRUSHING OF RECYCLED CONCRETE SHALL BE DONE PRIOR TO THE MATERIAL BEING PLACED IN THE ROADWAY. TESTING SHALL HAVE THE SAME REQUIREMENTS AND BE PERFORMED AT THE SAME LOCATION AND INTERVALS AS REQUIRED FOR LIMEROCK.
14. DESIGN MIXES AND PRODUCT GRADATION INFORMATION FOR ALL MATERIALS TO BE INSTALLED AS PART OF THE LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS SHALL BE SUBMITTED TO THE CITY'S DESIGNATED SITE INSPECTOR FOR ACCEPTANCE BY THE CITY. THE INFORMATION SHALL BE SUBMITTED NO LESS THAN THREE (3) WORKING DAYS PRIOR TO ANY CONSTRUCTION. SUBMITTALS SHALL INCLUDE, BUT NOT BE LIMITED TO, INFORMATION TO EVALUATE THE MATERIALS PROPOSED FOR INSTALLATION AS SUBBASE, BASE, AND PAVEMENT FOR ALL ROADWAY AND PARKING AREA SURFACES AS WELL AS SIMILAR INFORMATION FOR ALL OTHER CONCRETE SIDEWALKS, CURBING, AND COMPARABLE STRUCTURES AND APPLICATIONS
15. PRIOR TO PLACEMENT FLORIDA STATE CERTIFIED BATCH PLANTS MUST CERTIFY TO THE CITY'S RESIDENT PROJECT INSPECTOR THAT THE ASPHALT DELIVERED TO THE SITE IS IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

ROADWAY CONSTRUCTION NOTES (CONT'D)

16. EXTRACTION AND GRADATION TESTS ON ASPHALT MIXES SHALL BE PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR FOR EVERY 2500 SQUARE YARDS OF ASPHALT, OR PART THEREOF, TO ENSURE THAT DESIGN MIXES MEET THE CITY STANDARD SPECIFICATIONS AT NO ADDITIONAL COST TO THE CITY.
17. ASPHALT PAVEMENT TESTING IS TO BE DONE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONAS FOR ROAD & BRIDGE CONSTRUCTION TABLE 334-5, LATEST EDITION.
18. IN ADDITION TO THE FIELD DENSITY TESTS NOTED, THE CITY RESERVES THE RIGHT TO REQUIRE CORE SAMPLES OF PAVEMENT SECTIONS EXTRACTED AND TESTED BY A CERTIFIED SOILS ENGINEERING LABORATORY AT THE DEVELOPER'S EXPENSE. THE CITY'S DESIGNATED SITE INSPECTOR SHALL DESIGNATE THE LOCATIONS OF THE TEST CORE LOCATIONS.
19. THE ROADWAY CROWN SHALL HAVE A STANDARD ONE QUARTER INCH (¼") PER FOOT CROSS SLOPE.
20. ALL ROADWAYS WITH CURB AND GUTTER SECTIONS SHALL HAVE AS A STANDARD A MINIMUM LONGITUDINAL SLOPE OF 0.30%. THE ROADWAY CENTERLINE SHALL BE CLEARLY MARKED ON THE DESIGN PLANS. AT A MINIMUM, DESIGN ROADWAY CENTERLINE ELEVATIONS SHALL BE NOTED AT ALL GRADE CHANGES AND AT 50' min. INTERVALS ALONG THE ROADWAY PROFILE ON BOTH THE DESIGN PLANS AND AS-BUILT DRAWINGS.
21. THE FINISHED PAVEMENT EDGE SHALL BE WITHIN ONE EIGHTH INCH (⅛") ABOVE THE ADJACENT CONCRETE CURB FOR CURBS COLLECTING AND CONVEYING STORMWATER.
22. CONCRETE CURBS SHALL BE PROVIDED ON BOTH SIDES OF ALL STREETS AND ALL CONCRETE CURBS SHALL BE CONSTRUCTED WITH 3500 P.S.I. CONCRETE AT 28 DAYS.
23. CONTROL JOINTS IN CONCRETE CURBING, SIDEWALKS, PAVEMENT AND SIMILAR CONCRETE AREAS SHALL BE SAW CUT WITHIN 4 TO 18 HOURS OF PLACEMENT. SAW CUTS SHALL BE ¼" IN WIDTH TO A DEPTH OF ONE FORTH OF THE TOTAL DEPTH OF CONCRETE OR 1-½", WHICHEVER IS LESS. SAW CUTS SHALL BE LOCATED AT INTERVALS OF TEN FEET (10') FOR CURBING & FIVE FEET (5') FOR SIDEWALKS WITH EXPANSION JOINTS AT STREET INTERSECTIONS, RADIUS POINTS, STRUCTURES, AND ALONG CURVES AT SIXTY FEET (60') INTERVALS. ALL EXPANSION JOINT MATERIAL IS REQUIRED TO BE INSTALLED THROUGH THE ENTIRE DEPTH OF THE CONCRETE CURB. FOR LINEAL SECTIONS OF CURBS, EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING OF FIVE-HUNDRED FEET (500') AND SHALL BE ½" IN WIDTH.
24. AN "X" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF WATER DISTRIBUTION SYSTEM VALVE.
25. A "V" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL SEWER SERVICES.
26. A "Λ" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL RECLAIMED WATER SERVICES.
27. A "ɵ" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL POTABLE WATER SERVICES.
28. THREE (3) CONCRETE CYLINDERS SHALL BE TAKEN AND TESTED (1 IN 14 DAYS, 1 IN 28 DAYS & 1 IN 56 DAYS) FOR EVERY FIFTY (50) CUBIC YARDS OF CONCRETE OR LESS PLACED. TEST RESULTS SHALL THEN BE PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR AS THEY BECOME AVAILABLE.
29. A CONCRETE SLUMP TEST SHALL BE REQUIRED WITHIN THE FIRST 30 CUBIC YARDS OF CONCRETE. THEREAFTER, SLUMP TESTS SHALL BE REQUIRED FOR EVERY FIFTY (50) CUBIC YARDS OF CONCRETE, OR FRACTION THEREOF, WITH COPIES OF THE RESULTS PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR. THE SLUMP TEST SHALL MEET THE REQUIRED MIX DESIGN ON EACH LOAD DELIVERED.
30. THE DEVELOPER SHALL PROVIDE ALL REQUIRED PAVEMENT MARKINGS ON ALL ROADWAYS PER CITY, COUNTY, AND STATE REQUIREMENTS. CENTERLINE STRIPES SHALL BE PROVIDED ON EXTENSIONS OF CITY COLLECTOR OR ARTERIAL ROADS, COUNTY ROADS, STATE HIGHWAYS, AND ALONG LOCAL STREETS IN THE VICINITY OF THEIR INTERSECTION [illegible]
31. A FDOT APPROVED STOP SIGN AND A 24"-WIDE WHITE THERMOPLASTIC STOP BAR ARE REQUIRED AT ALL ROADWAY INTERSECTIONS.
32. ALL TRAFFIC CONTROL DEVICES PLACED AT INTERSECTIONS, PRIVATE STREETS, PUBLIC STREETS, COUNTY ROADS, AND STATE HIGHWAYS WITHIN THE CITY LIMITS SHALL BE INSTALLED ACCORDING TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. THE MAINTENANCE-OF-TRAFFIC (MOT) INSTALLATION AND SUBSEQUENT OPERATION SHALL BE OVERSEEN BY A CONTRACTOR CERTIFIED BY THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION, OR EQUIVALENT CERTIFICATION RECOGNIZED BY FDOT.
33. THE DEVELOPER IS RESPONSIBLE FOR PAYING FEES FOR TRAFFIC CONTROL DEVICES TO THE CITY FOR INSTALLATION. STREET SIGNS AND STOP SIGNS SHALL BE PLACED AT ALL INTERSECTIONS, INCLUDING BUT NOT [illegible]
34. THE DEVELOPER IS RESPONSIBLE FOR PAYING FEES FOR ALL STREET LIGHTS PRIOR TO ACCEPTANCE OF THE PROJECT BY THE CITY.
35. FIVE FOOT min. (5') WIDE SIDEWALKS SHALL BE PROVIDED ON BOTH SIDES OF ALL RESIDENTIAL STREETS. PER THE CITY &/OR FDOT DESIGN STANDARDS. LATEST EDITION.
36. EIGHT FOOT min. (8') WIDE BIKE PATHS SHALL BE ALONG ARTERIAL HIGHWAYS AS DIRECTED BY THE CITY PER THE CITY &/OR FDOT DESIGN STANDARDS, LATEST EDITION.
37. STANDARD TURNING RADII FOR INTERSECTIONS:
    RESIDENTIAL STREETS WITH STATE & COUNTY ROADWAYS, OR MAJOR THOROUGHFARES WITHIN THE CITY; [illegible]
    ENTRANCES TO COMMERCIAL SITES OFF OF CITY STREETS; [illegible]
    INTERSECTIONS INTERIOR IN SUBDIVISIONS; [illegible]
    SHOULD VOLUSIA COUNTY OR THE FLORIDA DEPARTMENT OF TRANSPORTATION (F.D.O.T.) DETERMINE THAT LARGER RADII ARE WARRANTED WITHIN THEIR RIGHT-OF-WAY, THE LARGER RADII SHALL PREVAIL.
38. CONSTRUCTION METHODS AND DESIGN FOR CONCRETE PAVEMENT SHALL CONFORM TO FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION
39. ALL CONTRACTORS THAT ARE PERFORMING THE CONSTRUCTION OF LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS (INCLUDING WATER MAINS, SANITARY SEWER MAINS, RECLAIMED WATER MAINS, STORM WATER PIPES AND INLETS, ROADWAYS, AND PARKING FACILITIES) SHALL BE CERTIFIED WITH THE STATE OF FLORIDA BOARD OF PROFESSIONAL REGULATIONS (BPR) FOR THE TYPE OF WORK THAT THEY PERFORM.
40. ALL CONTRACTORS THAT ARE PERFORMING THE CONSTRUCTION WORK OF LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS SHALL BE LICENSED BY THE STATE OF FLORIDA AND REGISTERED WITH THE CITY OF DELAND THE LICENSE AND REGISTRATION SHALL PERTAIN DIRECTLY TO THE TYPE OF WORK BEING PERFORMED.
41. EXCEPT AS PROVIDED IN THE LAND DEVELOPMENT CODE, ALL ELECTRIC, TELEPHONE, TELEVISION LINES AND SIMILAR UTILITIES ARE REQUIRED TO BE INSTALLED UNDERGROUND AT THE EXPENSE OF THE OWNER, DEVELOPER, AND BUILDER.
42. UTILITY DEPTH:
    A. HIGH VOLTAGE UTIUTIES SUCH AS POWER (FEEDER, SERVICE, AND DROPS) SHALL BE BURIED A MINIMUM OF 30 INCHES IN DEPTH.
    B. LOW VOLTAGE UTILITIES SUCH AS PHONE AND CABLE TV SHALL BE BURIED A MINIMUM OF 18 INCHES IN DEPTH FOR FEEDER AND SERVICES. SERVICE DROPS SHALL BE BURIED A MINIMUM OF 12 INCHES IN DEPTH.
    C. IN NO INSTANCE SHALL THE DEPTH OF COVER BE LESS THAN 36" FROM FINISHED GRADE TO THE TOP OF PIPE FOR POTABLE WATER MAINS, SANITARY SEWER MAINS, AND RECLAIMED WATER MAINS HOWEVER, IN THE EVENT THAT THIS CONDITION CANNOT BE MET DUE TO UNANTICIPATED CONFLICTS DURING THE CONSTRUCTION PROCESS, DUCTILE IRON PRESSURE CLASS 350 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY PUBLIC UTIUTIES DEPARTMENT.
43. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF UNDERGROUND AND OVERHEAD PUBLIC UTILITIES AND STORMWATER INFRASTRUCTURE IN ORDER TO ELIMINATE ANY POTENTIAL CONFLICTS.

TRAFFIC CONTROL NOTES

1. CONTRACTOR SHALL PERFORM ALL PROJECT WORK IN ACCORDANCE WITH FDOT DESIGN STANDARDS, LATEST EDITION. NO LANE CLOSURES ARE PERMITTED BETWEEN THE HOURS OF 7 A.M. AND 7 P.M. NIGHT WORK MAY BE SCHEDULED TO LESSEN TRAFFIC IMPACT & INCONVENIENCE TO GENERAL PUBLIC AND MUST BE APPROVED BY CITY ENGINEER PRIOR TO COMMENCEMENT OF WORK.
2. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL OF HIS MAINTENANCE OF TRAFFIC (MOT) PLANS FOR ANY LANE CLOSURES FROM THE CITY TRAFFIC ENGINEERING DIVISION AT LEAST TWO (2) WEEKS IN ADVANCE OF ANY LANE CLOSURE.
3. EXISTING SIGNING AND PAVEMENT MARKINGS TO BE MAINTAINED UNLESS SHOWN OTHERWISE IN THESE PLANS.
4. TWO (2) WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT ENTIRE LENGTH OF PROJECT.
5. TWO (2) WAY ACCESS TO BUSINESSES AND PRIVATE DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES. TEMPORARY DRIVEWAY CLOSURES MAY BE ALLOWED IF SHARED ACCESS IS AVAILABLE OR IF WRITTEN AUTHORIZATION FROM THE PROPERTY OWNER IS PROVIDED TO CITY PRIOR TO COMMENCEMENT OF WORK ACTIVITIES.
6. VARIABLE MESSAGE BOARDS SHALL BE INSTALLED 48 HOURS PRIOR TO LANE CLOSURES. CONTRACTOR IS RESPONSIBLE FOR ADEQUATE NUMBER OF BOARDS AND LOCATIONS, TO BE VERIFIED PRIOR TO COMMENCEMENT OF WORK.
7. ALL TRAFFIC CONTROL SIGN AND PAVEMENT MARKINGS SHALL COMPLY WITH THE F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.
8. CONTRACTOR TO MAINTAIN TRAFFIC AND PROPER DROP OFF CRITERIA PER INDEX 600 CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING PROPER DEVICES WHEN A DROP OFF CONDITION CANNOT BE AVOIDED
9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE GENERAL PUBLIC AND PUBLIC AGENCIES OF ROAD CLOSURES AT LEAST 48 HOURS IN ADVANCE.
10. AFFECTED ROADWAYS SHALL BE RESTORED AND NO LANE CLOSURES WILL BE PERMITTED DURING THE CITY OF DELAND SPECIAL EVENT PERIOD UNLESS PRIOR WRITTEN NOTIFICATION IS OBTAINED FROM CITY OF DELAND TRAFFIC ENGINEERING DIVISION.

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CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	REVISIONS
[illegible]	07-[illegible]	[illegible]	CITY C[illegible]
[illegible]	08-21	[illegible]	SJRWMD [illegible] MITTAL-REVIS[illegible] PER [illegible] DATED 07-1[illegible]
[illegible]	10-22	[illegible]	CITY C[illegible]
[illegible]	[illegible]	[illegible]	VBEC [illegible] -22-21
[illegible]	[illegible]	[illegible]	VBEC [illegible] 1-08-21

MANCHESTER NEIGHBORHOOD PHASE 1A
FINAL ENGINEERING PLANS
CONSTRUCTION NOTES

CITY OF DELAND, VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19184
DESIGNED BY: HK/ML
[illegible]
[illegible]
DRAWING FILE: 02-04-19184-NOT_PH1A

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:20-05'00'

SHEET: C3 OF 36

SITE PLAN & SUBDIVISION TESTING

A. MATERIALS:
THE INSPECTION AND TESTING OF MATERIALS AND FINISHED ARTICLES TO BE INCORPORATED IN THE WORK SHALL BE MADE BY BUREAUS, LABORATORIES, OR AGENCIES APPROVED BY THE ENGINEER OF RECORD. THE CONTRACTOR SHALL SUBMIT SUCH SAMPLES OR TEST PIECES OF MATERIALS AS THE ENGINEER OF RECORD MAY REQUIRE. THE CONTRACTOR SHALL NOT INCORPORATE ANY MATERIAL OR FINISHED ARTICLE INTO THE WORK UNTIL THE RESULTS OF THE INSPECTIONS OR TESTS ARE KNOWN AND THE CONTRACTOR HAS BEEN NOTIFIED BY THE ENGINEER OF RECORD THAT THE MATERIAL OR FINISHED ARTICLE IS ACCEPTED. ALL MATERIALS MUST BE OF THE SPECIFIED QUALITY AND BE EQUAL TO THE APPROVED SAMPLE IF A SAMPLE HAS BEEN SUBMITTED. CERTIFIED COPIES OF ALL TESTS MADE SHALL BE SUBMITTED TO THE ENGINEER OF RECORD AS WELL AS TO THE CITY'S DESIGNATED SITE INSPECTOR THE CITY'S DESIGNATED SITE INSPECTOR MUST RECEIVE COPIES OF ALL TESTING REPORTS AND CERTIFICATES PRIOR TO THE ENGINEER OF RECORD REQUESTING A FINAL PROJECT INSPECTION FROM THE CITY.

B. LABORATORY CONTROL AND CERTIFICATES.
1. SPECIFICATIONS: SAMPLING, TESTING, AND LABORATORY METHODS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE AASHTO OR ASTM. WHERE AASHTO OR ASTM SPECIFICATIONS ARE USED, THE REFERENCE SHALL BE CONSTRUED TO BE THE MOST RECENT STANDARD SPECIFICATIONS OR TENTATIVE SPECIFICATIONS OF THE AASHTO OR ASTM IN FORCE ON THE DATE OF THE TEST.
2. TEST & CERTIFICATES: THE CONTRACTOR SHALL ENGAGE AN APPROVED TESTING LABORATORY TO PROVIDE THE FOLLOWING TESTS AND CERTIFICATIONS SIGNED BY A REGISTERED ENGINEER OF THE STATE OF FLORIDA. ALL TECHNICIANS PERFORMING THE TESTS SHALL BE STATE CERTIFIED FOR THE TESTING PERFORMED. ADDITIONAL TESTS THAT MAY BE REQUIRED BY EITHER THE ENGINEER OF RECORD OR THE CITY SHALL ALSO BE PROVIDED BY THE CONTRACTOR, AND THE FOLLOWING SHALL NOT BE TAKEN AS A COMPLETE AND EXHAUSTIVE LIST OF THE CONTRACTOR'S TESTING RESPONSIBILITIES.
   a. SOIL ANALYSIS FOR STRUCTURAL FILL MATERIAL PRIOR TO INSTALLATION. SOIL ANALYSIS FOR STRUCTURAL FILL MATERIAL PRIOR TO INSTALLATION.
   b. PROCTOR DENSITIES, MOISTURE CONTENT, COMPACTED FIELD DENSITIES AND ATTERBERG LIMITS.
   c. ANALYSIS OF RECYCLED CONCRETE BASE MATERIAL PRIOR TO INSTALLATION.
   d. SPHALT MIX DESIGN, BITUMEN CONTENT, SIEVE ANALYSIS, HUBBARD FIELD STABILITY TESTS, NUCLEAR DENSITY TESTS (BACKSCATTER METHOD), AND ANALYSIS OF CORE SAMPLES.
   e. CONCRETE MIX DESIGNS FOR ALL APPLICATIONS INCLUDING PAVEMENT, CAST-IN-PLACE STRUCTURES, CURBING, GUTTERS, SIDEWALKS, BIKE PATHS, APRONS AND DRIVEWAYS.
   f. COMPRESSIVE TEST CYLINDERS AND SLUMP TESTS FOR ALL APPLICATIONS OF CONCRETE, INCLUDING PAVEMENT, CAST-IN-PLACE STRUCTURES, CURBING, GUTTERS, SIDEWALKS, BIKE PATHS, APRONS, AND DRIVEWAYS.
   g. ALL UNDERGROUND UTILITY TESTING TO BE COMPLETED IN ACCORDANCE WITH THE CITY'S UTILITIES DEPARTMENT DESIGN STANDARDS

AS-BUILT DRAWING REQUIREMENTS

IN ORDER TO ENSURE THAT NEW SUBDIVISIONS AND SITE PLANS ARE CONSTRUCTED SUBSTANTIALLY IN ACCORDANCE WITH CITY REGULATIONS AND THE APPROVED DRAWINGS, THE FOLLOWING INFORMATION IS REQUIRED ON ALL AS-BUILT DRAWINGS.

1. PAVEMENT AND CURB WIDTHS SHALL BE VERIFIED AND DIMENSIONED FOR EACH STREET AT EACH BLOCK. (FOR SUBDIVISIONS) AND AS APPROPRIATE TO CONFIRM PAVING LIMITS (ON SITE PLANS).
2. ALL RADII AT INTERSECTIONS SHALL BE VERIFIED AND DIMENSIONED. THIS INFORMATION IS TO BE CLEARLY INDICATED ON THE AS-BUILT.
3. ROADWAY ELEVATIONS SHALL BE RECORDED AT ALL GRADE CHANGES, 100' INTERVALS ALONG ROADWAY, AND OTHER INTERVALS AS NEEDED ALONG ALL STREETS. STREET CENTERLINE AND CURB INVERT ELEVATIONS SHALL BE RECORDED AS NOTED. THE AS-BUILT CENTERLINE PROFILE OF ALL STREETS SHALL ALSO BE SHOWN ON THE PLAN AND PROFILE SO IT MAY BE COMPARED TO THE DESIGN PROFILE GRADE LINES. IN THE EVENT THAT THE AS-BUILT CENTERLINE LONGITUDINAL GRADE DOES NOT MEET THE CITY MINIMUM STANDARDS, ADDITIONAL LONGITUDINAL GRADES OF THE ADJACENT CURBING AND SIMILAR ROADWAY CROSS-SECTION SURVEYS TO VERIFY THE CORRECT CROSS SLOPE, SHALL BE REQUIRED TO VERIFY THAT THE SYSTEM WILL FUNCTION AS ORIGINALLY DESIGNED.
4. ALL APPLICABLE TOPOGRAPHIC INFORMATION PERTINENT TO THE ON-SITE DRAINAGE SYSTEM, SUCH AS DITCHES, SWALES, LAKES, CANALS, ETC. THAT ARE DEEMED NECESSARY BY THE CITY TO VERIFY THE FUNCTIONAL PERFORMANCE OF THE STORM WATER SYSTEM, SHALL BE NOTED. NORMALLY, RECORDING ELEVATIONS EVERY 100 FEET AT THE TOP OF BANK AND TOE OF SLOPE WILL BE REQUIRED. MEASUREMENTS SHALL BE TAKEN AND RECORDED IN ORDER TO ACCURATELY TIE DOWN THESE FEATURES TO THE ROADWAY CENTERLINES AND TO PLAT LINES. WHENEVER POSSIBLE, CONTOUR LINES SHALL BE UTIUZED TO GRAPHICALLY DESCRIBE THESE TOPOGRAPHIC FEATURES.
5. RETENTION AREAS SHALL HAVE THEIR TOP-OF-BANK AND BOTTOM ELEVATIONS RECORDED. ACTUAL MEASUREMENTS SHALL BE TAKEN AND DIMENSIONS RECORDED OF THE SIZE OF ALL RETENTION AREAS. MEASUREMENTS SHALL BE DONE FROM TOP-OF-BANK TO TOP-OF-BANK WITH SIDE SLOPES INDICATED. SEPARATE CALCULATIONS SHALL BE SUBMITTED TO INDICATE REQUIRED AND PROVIDED RETENTION VOLUMES.
6. ACTUAL MATERIALS USED AND ELEVATIONS AND DIMENSIONS OF OVERFLOW WEIR STRUCTURES AND SKIMMERS SHALL BE NOTED ON THE AS-BUILT.
7. STORM DRAINAGE SWALE CENTERLINES SHALL BE LOCATED AND ELEVATIONS OF FLOW LINE AND TOP OF BANK SHALL BE RECORDED EVERY 100 FEET OR CHANGE IN GRADE. SIDE SLOPES SHALL ALSO BE INDICATED
8. FOR SUBDIVISIONS, PROPOSED DESIGN FINISHED FLOOR ELEVATIONS SHALL APPEAR ON ALL SUBDIVISION LOTS ON THE APPROPRIATE PLAN AND PROFILE SHEET AS WELL AS ON THE MASTER DRAINAGE PLAN.
9. ANY SPECIAL FEATURES SUCH AS, CONCRETE FLUMES, LAKE BANKS, WALLS, FENCING, ETC., WHICH WERE A PART OF THE APPROVED CONSTRUCTION DRAWINGS SHOULD ALSO BE LOCATED AND DIMENSIONED
10. IF AN APPROVED SUBDIVISION PLAT OR SITE PLAN SHOWS A CONSERVATION EASEMENT, THE PROJECT SURVEYOR SHOULD PROVIDE THE EXACT LOCATION OF THE SPECIMEN TREE(S) FROM THE RIGHT-OF-WAY OR PROPERTY LINES AND PROPOSED EASEMENT BOUNDARIES ON THE AS-BUILT DRAWING THE AS-BUILT LOCATION OF THESE TREES WILL HELP VERIFY THE SUFFICIENCY OF THE CONSERVATION EASEMENT PRIOR TO PLAT RECORDING OR CERTIFICATE OF OCCUPANCY.
11. AS BUILT DRAWINGS ARE TO BE PREPARED BY A FLORIDA UCENSED SURVEYOR AND SHALL INCLUDE A SIGNED CERTIFICATION STATEMENT BY THE FLORIDA LICENSED ENGINEER OF RECORD. TWO (2) SIGNED & SEALED PAPER SETS OF AS-BUILT RECORD DRAWINGS SHALL BE PROVIDED ALONG WITH A DIGITAL COPY IN BOTH, A COMPATIBLE AutoCAD FORMAT & PDF FORMAT.

AS-BUILTS/RECORD DOCUMENTS

PART 1 – GENERAL
1.1 SCOPE OF WORK:
A. THIS SECTION SETS FORTH THE REQUIREMENTS FOR PREPARING AS-BUILT/RECORD DRAWINGS AND DOCUMENTS FOR VERIFICATION OF CONSTRUCTION AND ARCHIVING.

CONTRACTOR SHALL SECURE THE SERVICES OF A FLORIDA LICENSED SURVEYOR TO COLLECT DATA AND PREPARE AS-BUILT/RECORD DRAWINGS IN ACCORDANCE WITH CITY OF DELAND UTILITIES STANDARDS AS FOLLOWS:

1.2 REFERENCE:
A. THE PREPARATION WORK SHALL BE IN ACCORDANCE WITH THIS SECTION AND SUPPLEMENTARY DETAILS IN THE CITY OF DELAND UTILITIES DEPARTMENT STANDARD DETAILS, LATEST EDITION.

1.3 AS-BUILTS/RECORD DRAWINGS AND DOCUMENTS:
IN ORDER TO ENSURE THAT THE PROJECT RECORDS ARE MAINTAINED TO THE HIGHEST STANDARDS AND THE INFORMATION CAN EASILY BE ADDED TO THE CITY'S ELECTRONIC RECORDS THE FOLLOWING INFORMATION IS REQUIRED ON ALL AS-BUILT/RECORD DRAWINGS.
A. THE INTENT OF THESE DETAILS FOR AS-BUILT/RECORD DRAWNGS ARE REQUIRED FOR ALL PUBLIC FACIUTIES CONSTRUCTED. PRIOR TO CONSTRUCTION COMPLETION THESE AS-BUILT/RECORD REQUIREMENTS WILL BE REVIEWED TO BE CERTAIN THE CONTRACTOR'S SURVEYOR HAS A CLEAR UNDERSTANDING OF WHAT IS REQUIRED FOR COMPLETION OF THIS WORK.
1. PAVEMENT AND CURB WIDTHS SHALL BE VERIFIED AND DIMENSIONED FOR EACH STREET AT EACH BLOCK (FOR SUBDIVISIONS) AND AS APPROPRIATE TO CONFIRM PAVING LIMITS (ON SITE PLANS).
2. ALL RADII AT INTERSECTIONS SHALL BE VERIFIED AND DIMENSIONED. THIS INFORMATION IS TO BE CLEARLY INDICATED ON THE AS-BUILT/RECORD DRAWINGS.
3. ROADWAY ELEVATION SHALL BE RECORDED AT ALL GRADE CHANGES, 100' INTERVALS ALONG ROADWAY, AND OTHER INTERVALS AS NEEDED ALONG ALL STREETS STREET CENTERLINE AND CURB INVERT ELEVATIONS SHALL BE RECORDED AS NOTED. THE AS-BUILT CENTERLINE PROFILE OF ALL STREETS SHALL ALSO BE SHOWN ON THE PLAN AND PROFILE SO IT MAY BE COMPARED TO THE DESIGN PROFILE GRADE LINES. IN THE EVENT THAT THE AS-BUILT CENTERLINE LONGITUDINAL GRADE DOES NOT MEET THE CITY MINIMUM STANDARDS. ADDITIONAL LONGITUDINAL GRADES OF THE ADJACENT CURBING AND SIMILAR ROADWAY CROSS-SECTION SURVEYS TO VERIFY THE CORRECT CROSS SLOPE, SHALL BE REQUIRED TO VERIFY THAT THE SYSTEM WILL FUNCTION AS ORIGINALLY DESIGNED.
4. STORM DRAINAGE STRUCTURES SHALL BE LOCATED AND/OR DIMENSIONED FROM CENTERUNES OR LOT LINES AS APPROPRIATE. EACH STRUCTURE SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE, AND ELEVATION DATA.
5. STORM DRAINAGE PIPE INVERT AND INLET ELEVATION SHALL BE RECORDED AND CLEARLY DENOTED AS AS-BUILT INFORMATION. DESIGN ELEVATION SHALL BE CROSSED OUT AND AS-BUILT INFORMATION WRITTEN NEXT TO IT.
6. STORM DRAINAGE PIPE MATERIAL, LENGTH, SIZE SHALL BE MEASURED AND/OR VERIFIED. THIS INFORMATION IS TO BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION.
7. ALL APPLICABLE TOPOGRAPHIC INFORMATION PERTINENT TO THE ON-SITE DRAINAGE SYSTEM, SUCH AS DITCHES, SWALES, LAKES, CANALS, ETC. THAT ARE DEEMED NECESSARY BY THE CITY TO VERIFY THE FUNCTIONAL PERFORMANCE OF THE STORM SYSTEM, SHALL BE NOTED. NORMALLY, RECORDING ELEVATION EVERY 100 FEET AT THE TOP OF BANK TO TOE OF SLOE WILL BE REQUIRED. MEASUREMENTS SHALL BE TAKEN AND RECORDED IN ORDER TO ACCURATELY TIE DOWN THESE FEATURES TO THE ROADWAY CENTERUNES AND TO PLAT LINES. WHENEVER POSSIBLE, CONTOUR LINES SHALL BE UTILIZED TO GRAPHICALLY DESCRIBE THESE TOPOGRAPHIC FEATURES
8. RETENTION AREAS SHALL HAVE THEIR TOP OF BANK AND BOTTOM ELEVATIONS RECORDED. ACTUAL MEASUREMENTS SHALL BE TAKEN AND DIMENSIONS RECORDED OF THE SIZE OF ALL RETENTION AREAS. MEASUREMENTS SHALL BE DONE FROM TOP OF BANK WITH SIDE SLOPES INDICATED. SEPARATE CALCULATIONS SHALL BE SUBMITTED TO INDICATE REQUIRED AND PROVIDED RETENTION VOLUMES.
9. ACTUAL MATERIALS USED AND ELEVATIONS AND DIMENSIONS OF OVERFLOW WEIR STRUCTURES AND SKIMMERS SHALL BE NOTED ON THE AS-BUILT.
10. STORM DRAINAGE SWALES CENTERLINES SHALL BE LOCATED AND ELEVATIONS OF FLOW LINE AND TOP OF BANK SHALL BE RECORDED EVERY 100 FEET. SIDE SLOPES SHALL ALSO BE INDICATED..
11. SANITARY SEWER MANHOLES SHALL BE VERIFIED AND DIMENSIONED FROM STREET CENTERLINES OR LOT LINES AS APPROPRIATE. EACH STRUCTURE SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE, AND ELEVATION DATA. ALL RIM AND INVERT ELEVATION SHALL BE VERIFIED AND RECORDED. THIS INFORMATION SHALL BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION. DESIGN ELEVATIONS SHALL BE CROSSED OUT AND AS-BUILT INFORMATION WRITTEN NEXT TO IT
12. FOR SUBDIVISIONS, PROPOSED DESIGN FINISH FLOOR ELEVATIONS SHALL APPEAR ON ALL SUBDIVISION LOTS ON THE APPROPRIATE PLAN AND PROFILE SHEET AS WELL AS ON THE MASTER DRAINAGE PLAN.
13. SANITARY SEWER LINE LENGTHS, SIZES, MATERIAL, SLOPE, ETC., SHALL BE VERIFIED AND RECORDED, THIS INFORMATION IS TO BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION
14. SEWER LATERALS SHALL BE VERIFIED AND RECORDED AT THE CLEAN OUT LOCATIONS, STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM UPSTREAM MANHOLES TOWARDS DOWNSTREAM MANHOLES. INVERT INFORMATION AT CLEAN OUT SHALL BE PROVIDED AND BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE, AND ELEVATION DATA.
15. LIFT STATION AND FORCEMAIN SHALL BE VERIFIED AND DIMENSIONED FROM STREET CENTERLINES OR LOT LINES AS APPROPRIATE. FORCEMAIN DEPTH AND LOCATION INCLUDING VALVES WLL BE PROVIDED AND TIED TO PERMANENT ABOVE GRADE FEATURES. DIMENSIONAL AND ELEVATION INFORMATION INDICATED ON THE APPROVED PLAN SHALL BE VERIFIED AND RECORDED. THIS INFORMATION SHALL BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION. BURIED POTABLE WATER LINES AND ELECTRICAL SERVICE LINES SHALL BE CLEARLY DIMENSIONED, LOCATED AND LABELED. EACH LIFT STATION SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE AND ELEVATION DATA
16. CURB CUTS OR METAL TABS, USED TO MARK SEWER LATERALS, WATER SERVICES AND WATER VALVES, SHALL BEE VERIFIED FOR PRESENCE AND ACCURACY OF LOCATION.
17. POTABLE AND RECLAIMED WATER MAIN LINES SHALL BE DIMENSIONED OFF THE BASELINE CONSTRUCTION. WATER MAIN LINE MATERIAL SIZE, LENGTH AND DEPTH, PLACED SHALL BE NOTED LOCATIONS OF VALVES SHALL ALSO BE TIED TO BASELINE CONSTRUCTION. THIS INFORMATION SHALL BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION.
18. POTABLE AND RECLAIMED WATER VALVES, TEES, BENDS, ALL SERVICES, AND FIRE HYDRANTS SHALL BE LOCATED BY TYING THEM TO BASELINE CONSTRUCTION (STA. & OFFSET). SIMILARLY, FORCE MAIN VALVES, TEES, AND BENDS SHALL BE LOCATED IN THE SAME MANNER. STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM UPSTREAM MANHOLES TO DOWNSTREAM MANHOLES. ALL SERVICES, VALVES, TEES, BENDS, AND HYDRANTS SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE AND ELEVATION DATA.
19. FOR PERPENDICULAR CROSSINGS OF STORM WATER, SANITARY SEWER, POTABLE WATER, OR RECLAIMED WATER, THE AS-BUILT PLANS SHALL CLEARLY INDICATE WHICH UTILITIES ARE LOCATED OVER OR UNDER OTHER UTILITIES, AS NECESSARY.
20. ANY SPECIAL FEATURES SUCH AS, CONCRETE FLUMES, LAKE BANKS, WALLS, FENCING, ETC. WHICH ARE A PART OF THE APPROVED CONSTRUCTION DRAWINGS SHOULD ALSO BE LOCATED AND DIMENSIONED.
21. IF AN APPROVED SUBDIVISION PLAT OR SITE PLAN SHOWS A CONSERVATION EASEMENT, THE PROJECT SURVEYOR SHOULD PROVIDE THE EXACT LOCATION OF THE SPECIMEN TREE(S) FROM THE RIGHT-OF-WAY OR PROPERTY LINES AND PROPOSED EASEMENT BOUNDARIES ON THE AS-BUILT DRAWING. THE AS-BUILT LOCATION OF THESE TREES WILL HELP VERIFY THE SUFFICIENCY OF THE CONSERVATION EASEMENT PRIOR TO PLAT RECORDING OR CERTIFICATE OF OCCUPANCY.
22. WHEN STORM WATER, POTABLE WATER, RECLAIMED WATER, OR SANITARY SEWER IMPROVEMENTS ARE LOCATED WITHIN AN EASEMENT, THE AS-BUILT DRAWING WILL ACCURATELY DEPICT THE LOCATION OF THE EASEMENT ITSELF AS WELL AS THE EXACT LOCATION OF THE IMPROVEMENTS WITHIN THE EASEMENT. THIS IS REQUIRED IN ORDER TO VERIFY THAT THE IMPROVEMENTS HAVE BEEN PROPERLY LOCATED AND TO ENSURE THAT FUTURE SUBSURFACE EXCAVATION TO PERFORM REMEDIAL REPAIR CAN BE ACCOMPLISHED WITHOUT DISTURBANCE BEYOND THE EASEMENT.
23. AS-BUILT DRAWINGS ARE TO BE PREPARED, SIGNED AND SEALED BY A FLORIDA LICENSED SURVEYOR. THESE AS-BUILT DRAWINGS SHALL ALSO BE SIGNED AND SEALED BY A FLORIDA LICENSED ENGINEER OF RECORD. TWO (2) PAPER COPY SETS OF AS-BUILT RECORD DRAWINGS SHALL BE PROVIDED, A CD WITH A DIGITAL COPY IN A COMPATIBLE AUTOCAD FORMAT, AND PDF FORMAT.
24. ELEVATIONS SHALL BE REFERENCED TO NAVD 1988 DATA. AS-BUILT SURVEY INFORMATION SHALL BE REFERENCED TO AT LEAST TWO FLORIDA STATE PLANE EAST COORDINATES NAD 83.
25. BENCHMARK DATUM UTILIZES MONUMENTATION FROM THE NORTH AMERICAN VERTICAL DATUM OF 1929 WITH ELEVATIONS ADJUSTED TO NGVD 1888 DATA. ANY NAVD 1929 MONUMENT WITH THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED.
26. NEW CONDUITS THAT ARE INSTALLED SHALL SHOW LOCATION OF TEES AND BENDS AND RECORD ELEVATIONS EVERY 100'. ALL SHALL BE LOCATED BY TYING THEM TO BASELINE/CENTERLINE CONSTRUCTION (STA. & OFFSET). SIMILARLY, WATER MAINS, TEES AND BENDS SHALL BE LOCATED IN THE SAME MANNER. ALL BENDS AND TEES SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE & LONGITUDE AND ELEVATION DATA.

1.4 SUBMITTALS:
A. CONTRACTOR SHALL SUBMIT EACH MONTH TO CITY THE PROJECT ACTIVITY SUMMARY THAT SHOWS CURRENT CONSTRUCTION ACTIVITIES AND A COPY OF NOTICES TO AGENCIES INCLUDING THE CITY REGARDING ROAD CLOSURES; PLUS A RECORD OF EVENTS THAT WILL BE NEEDED IN THE FUTURE.
B. CONTRACTOR SHALL SUBMIT TO CITY AS REQUIRED THE PROPOSED SHUT-OFF SCHEDULE, CAPPING, TEMPORARY SERVICE SCHEDULING, RECORD OF NOTICES TO CUSTOMERS AND PROPOSED ROADWAY CLOSINGS.
C. CONTRACTOR SHALL SUBMIT COPIES OF PUBLISHED NOTICES.
D. CONTRACTOR SHALL SUBMIT FINAL AS-BUILTS FOR EACH UTILITY INCLUDED IN THE PLANS. SEND THE TWO PAPER COPIES AND THE AUTOCAD FILES FOR PRE-APPROVAL. THE FINAL SUBMITTAL SHALL INCLUDE TWO (2) PAPER COPIES OF RECORD, A CD WITH THE AUTOCAD FILES, AND A SET OF PDF FILES (MYLARS ARE NO LONGER REQUIRED). WHEN THE AS-BUILTS ARE DELIVERED FOR CLEARANCE OF WATER LINES (TWO PAPER SIGNED AND SEALED COPIES), THEY WILL BE SCHEDULED FOR CHLORINATION. CITY WILL NOT RELEASE THE DRINKING WATER BACTERIOLOGICAL LABORATORY REPORT TO VOLUSIA COUNTY HEALTH DEPARTMENT UNTIL THE AS-BUILT INFORMATION MEETS CITY REQUIREMENTS. CONTRACTOR WILL HAVE 60 DAYS FROM THE TIME THAT THE BACTERIOLOGICAL SAMPLES ARE COLLECTED TO SUBMIT ANY CORRECTION THAT NEEDED TO BE DONE TO THE AS-BUILT AND CD TO CITY. IF CONTRACTOR GOES PAST THE 60 DAYS RE-CHLORINATION WILL BE REQUIRED AND PAY FOR THE BACTERIOLOGICAL LABORATORY REPORT WILL BE REQUIRED. THE FOLLOWING ARE MINIMUM DETAIL SAMPLES OF HOW THE AS-BUILT DRAWING INFORMATION WILL NEED TO BE PRESENTED.
E. HERE ARE EXAMPLES OF HOW TO DISPLAY AND LABEL VALVES, FITTINGS, AND PIPES ON THE PLANS IN MODEL SPACE. INCLUDE A LOCATION ARROW GOING TO THE IDENTIFIED OBJECT:

VALVE EXAMPLE:
20" GATE VALVE
[illegible]
[illegible]
LONG.= 81°04'03.355"W
N = 1,774,373.4058
E= 634,602.7566
TOP OF NUT ELEV. = 27.50
GROUND ELEV. = 30.50

20" DIP WATER MAIN
STA 22+00 (RT.55.0')
LAT= 29°12'50.009"N
[illegible]
N = 1,774,373.4058
E= 634,602.7566
TOP OF PIPE ELEV. = 27.50
GROUND ELEV. = 30.50

MANHOLE EXAMPLE:
MANHOLE NO. 25
[illegible]
[illegible]
LONG. = 81°04'03.355"W
N = 1,774,373.4058
E= 634,602.7566
RIM ELEV. = 27.50
NORTH 15" RCP ELEV. = 8.50
WEST 24" CMP ELEV. = 7.50
BOTTOM ELEV. = 9.30

2" PVC CONDUIT
STA. 22+00 (RT.55.0')
LAT.=29°12'50.009"N
LONG.=81°04'26.355"W
N = 1,774,373.4058
E= 634,602.7566
TOP OF PIPE ELEV. = 2[illegible]
GROUND ELEV. = 30.50

AS-BUILTS/RECORD DOCUMENTS (CONT'D)

(ALL BENCH MARKS USED MUST BE SHOWN ON THE PLANS) BENCH MARK EXAMPLE:

BM#13
[illegible]
3/4" IRON ROD WITH PLASTIC CAP..
N= 1,774,373.4058
E = 634,602.7566
LAT. = 29°04'53.355"W
LONG. = 81°04'53.355"W
ELEV= 32.55

PART 2– EXECUTION
2.1 GENERAL:
ALL DRAWINGS SHALL BE PREPARED TO TRUE STATE PLANE COORDINATES. CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, LABOR NEEDED TO PREPARE AND SUBMIT ACCURATE AS-BUILT/RECORD DRAWINGS.
A. IT IS ACCEPTABLE TO CITY IF THE SURVEYOR UTILIZES AN AFTER THE FACT APPROACH TO COLLECTING AND VERIFYING THE LOCATION AND DEPTH BY VERTICAL PVC PIPES PLACED BY THE CONTRACTOR AS MARKERS FOR THIS PURPOSE. THE SURVEYOR SHALL VERIFY TO THE ACCURACY DEFINED IN FLORIDA STATUES THE AS-BUILT CONDITIONS AND CERTIFY THE RECORD DRAWINGS.
B. CITY SHALL NOT BE CONSIDERED THE BEST SOURCE OF INFORMATION FOR VALVE LOCATIONS THAT MAY HAVE BEEN LOST DURING FINAL GRADING, THE SURVEYOR OR CONTRACTOR SHALL EXCAVATE AND PROPERLY MARK ALL VALVE BOXES AND EACH VALVE SHALL HAVE A TAG OR COLOR CODED TO DEFINE WATER, SEWER, OR REUSE WATER VALVES. THE USE OF TEMPORARY PVC PIPE MARKERS COLOR CODED IS ACCEPTABLE SO LONG AS CROSS REFERENCES ARE PROVIDED ON THE RECORD DRAWINGS TO PREVENT THE TOPS FROM A WATER VALVE BEING PLACED ON A SEWER VALVE.
C. THE CONTRACTOR SHALL PROVIDE THE UTILITIES DEPARTMENT ENGINEERING DIVISION THE FINAL AS BUILT/RECORD DRAWINGS ON CD AND MYLARS. THE AS BUILT RECORD DRAWINGS SHALL BE PREPARED USING AUTOCAD FORMAT 2010 OR LATER. IN MODEL SPACE THE DRAWING SHALL BE IN FL83-EF (NAD83 FLORIDA STATE PLANES, EAST ZONE, US FOOT) STATE PLANE COORDINATES AND SHALL BE ABLE TO BE INSERTED INTO THE CITY'S OVERALL GIS SYSTEM. THE RECORD DRAWINGS SHALL ALSO BE PRINTED, SIGNED AND SEALED AS ALLOWED BY STATE OF FLORIDA REGULATIONS. A DISCLAIMER MAY BE NOTED IN A TRANSMITTAL LETTER PLUS THE SURVEYOR MAY ADD A SPECIAL NOTICE ON EACH SHEET REGARDING THE LOCATION OF THE TRUE ORIGINAL RECORD DRAWINGS OR PLACE LIMITS ON RESPONSIBILITY SHOULD SOMEONE IN THE FUTURE NEED TO MODIFY THE DRAWNGS
D. IDENTIFY THE SOURCE MARKERS FOR THE SURVEY USED FOR RECORD DRAWINGS.

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PLANNING
TRANSPORTATION

NO.	DATE	BY	REVISIONS
[illegible]	07-[illegible]	[illegible]	[illegible]
[illegible]	08-21	[illegible]	CITY [illegible]
[illegible]	10-22	[illegible]	SJRWMD [illegible] MITTAL-REVIS[illegible] PER [illegible] MME[illegible] DATED 07-1[illegible]
[illegible]	[illegible]	[illegible]	CITY [illegible]
[illegible]	[illegible]	[illegible]	VBEC [illegible] -22-21
[illegible]	[illegible]	[illegible]	VBEC [illegible] -08-21

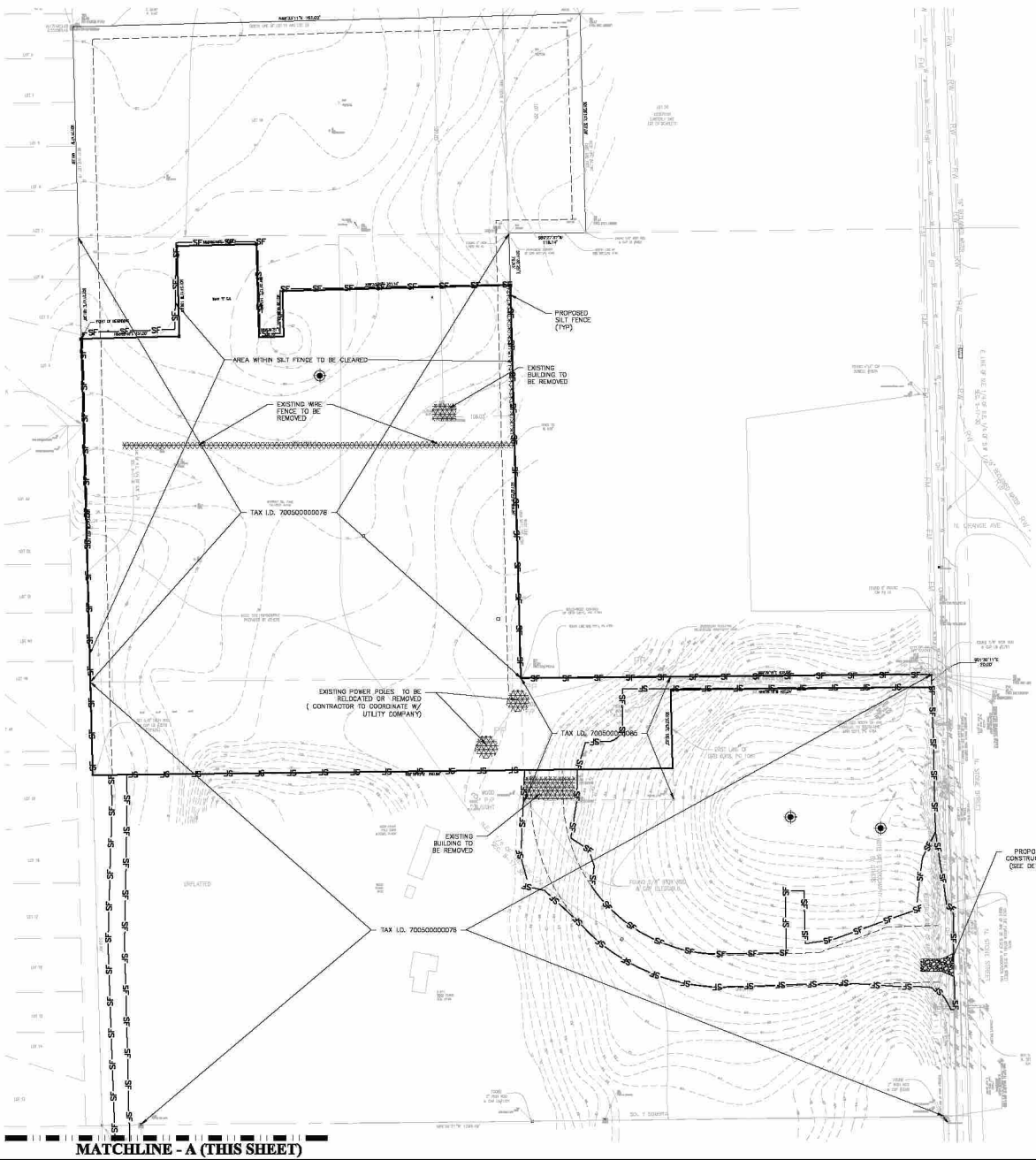
MANCHESTER NEIGHBORHOOD PHASE 1A
FINAL ENGINEERING PLANS
CONSTRUCTION NOTES

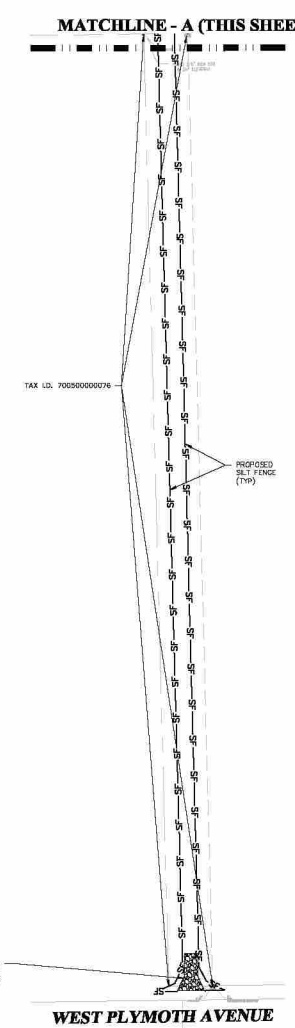
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 02-04-19194-NOT_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:23-05'00'

SHEET C4 OF 36





0 40 80 120 160
SCALE : 1" = 80'

LEGEND:

- SF — PROPOSED SILT FENCE
- x — PROPOSED TEMPORARY CONSTRUCTION FENCE
- SOIL BORING LOCATION (REFER TO GEOTECHNICAL REPORT)
- PROPOSED DEMOLITION

NOTES:
1. THE EMERGENCY ACCESS FROM W. PLYMOTH AVE. CAN ONLY BE USED AS A TEMPORARY ACCESS UNTIL BUILDING CONSTRUCTION STARTS. IT MUST BE INSPECTED AND APPROVED FOR EMERGENCY ACCESS ONLY BEFORE ANY BUILDING PERMITS WILL BE ALLOWED.

SITE INFORMATION:

SITE ADDRESS:	801 SOL Y SOMBRA, DELAND, FL 32720
TOTAL PD AREA:	38.5 AC
PROPOSED PROJECT AREA:	12.16 AC
TAX PARCEL I.D. #:	700500000076, 700500000085, 700500000078
EXISTING ZONING:	PLANNED DEVELOPMENT (PD) (COMMUNITY HEALTH OVERLAY)
PROPOSED ZONING:	PLANNED DEVELOPMENT (PD) (COMMUNITY HEALTH OVERLAY)

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1900 SW 81ST AVENUE, SUITE 1
PINEVILLE, FL 33324
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/ REVISIONS
1	06-19-21	HK	S.WMD SUBMITTAL
2	08-05-21	HK	CITY OF DELAND SUBMITTAL
3	09-21-21	J.P.K.	S.FWMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-26-21	J.P.K.	CITY OF DELAND RE-SUBMITTAL PH1A & PH1B
5	11-19-21	J.P.K.	REVISED PER CITY COMMENTS DATED 11-12-21
6	12-13-21	J.P.K.	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS DEMOLITION & EROSION CONTROL PLAN

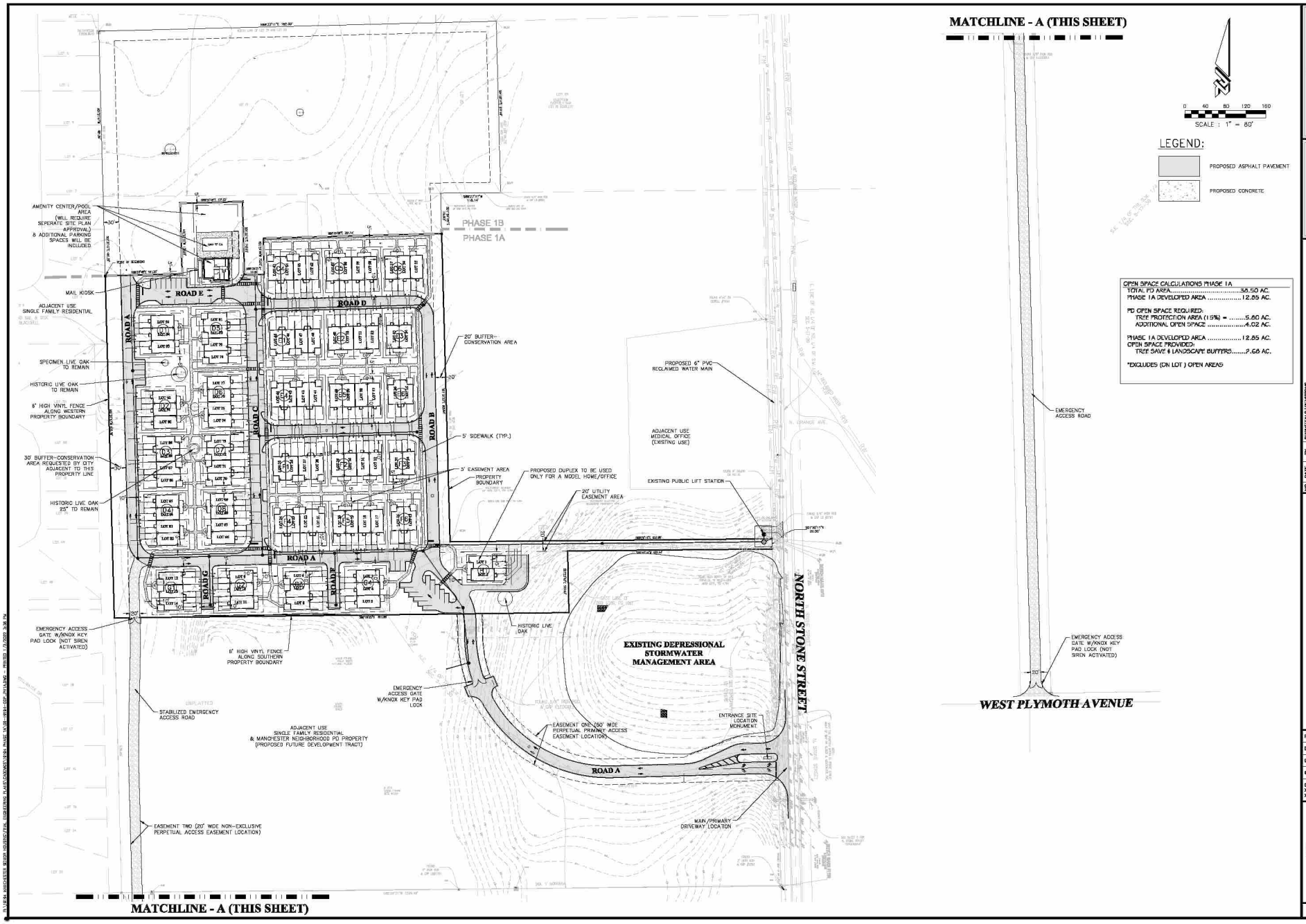
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 05-19194-ECP_PH1A
XREFS: 19194_BASE.DWG
XREFS: XOOOOLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:27-05'00'

RANDY M. HUSAK, P.E., NO.52929
HALUK KILIC, P.E., NO.56244
NOT VALID WITHOUT SEAL

SHEET: C5 OF 36



OPEN SPACE CALCULATIONS PHASE 1A

TOTAL PD AREA	56.50 AC.
PHASE 1A DEVELOPED AREA	12.85 AC.
PD OPEN SPACE REQUIRED:	
TREE PROTECTION AREA (15%) =	5.80 AC.
ADDITIONAL OPEN SPACE	4.02 AC.
PHASE 1A DEVELOPED AREA	12.85 AC.
OPEN SPACE PROVIDED:	
TREE SAVE & LANDSCAPE BUFFERS	2.66 AC.

*EXCLUDES (ON LOT) OPEN AREAS

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5100 ROCKSIDE ROAD, SUITE 210
INDEPENDENCE, OHIO 44131
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CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS/REVISIONS
1	11-09-21	HKUL	SUBMITTAL TO CITY OF DAYTONA BEACH
2	12-17-21	HKUL	SUBMITTAL TO CITY
3	02-25-22	HKUL	SUBMITTAL TO VOLUSIA COUNTY
4	06-05-23	???	REVISE/REVISION
5	06-06-23	???	REVISE/REVISION
6	06-06-23	???	REVISE/REVISION

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS OVERALL DEVELOPMENT PLAN

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKUML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 06-19194-DDP_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:30-05'00'

RANDY M. HUDAK, P.E., N.J.#6805
HALUK KILIC, P.E., FL#63284
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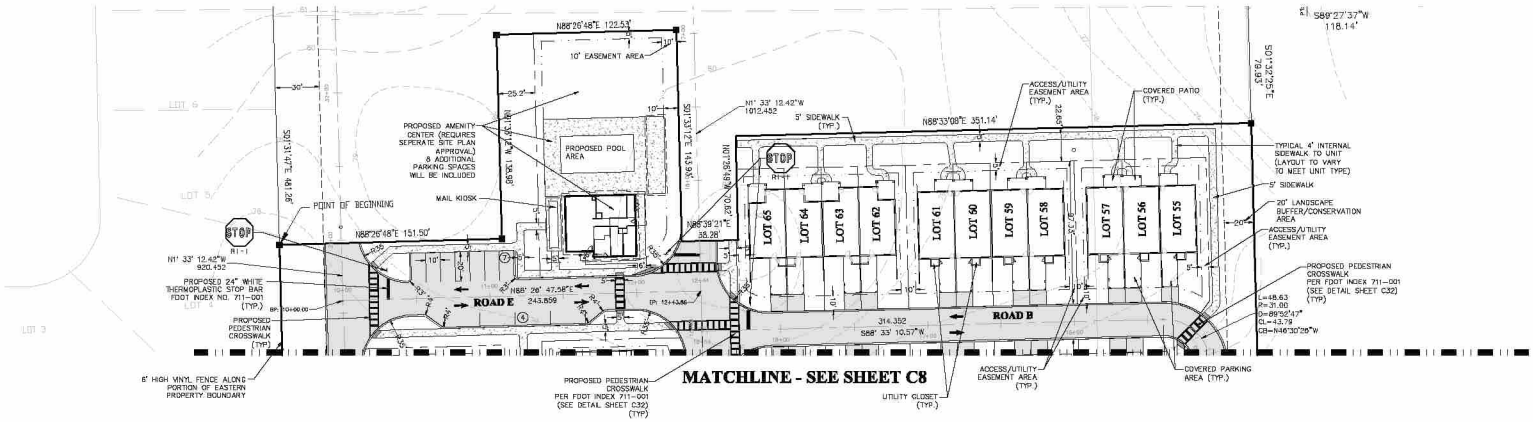
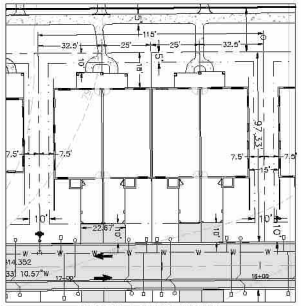
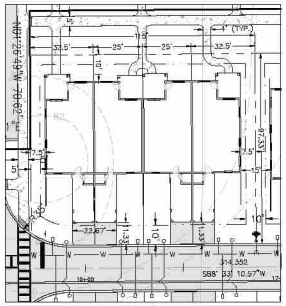


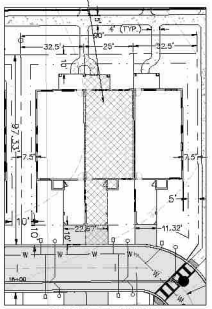


MODEL A QUADRIPLEX
TYPICAL LAYOUT

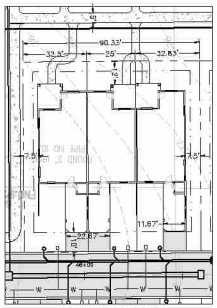


MODEL B QUADRIPLEX
TYPICAL LAYOUT

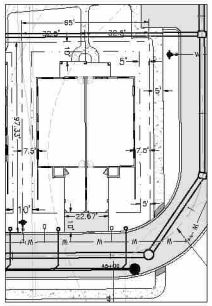
PERCENT LOT COVERAGE MOST CONSERVATIVE (SEE NOTE #4 ABOVE)



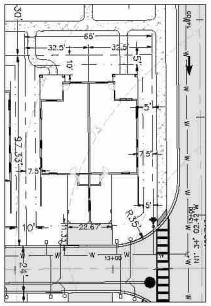
MODEL A TRIPLEX
TYPICAL LAYOUT



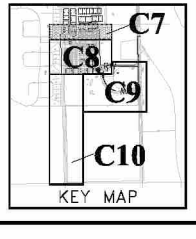
MODEL B TRIPLEX
TYPICAL LAYOUT



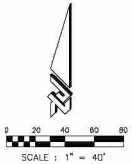
MODEL A DUPLEX
TYPICAL LAYOUT



MODEL B DUPLEX
TYPICAL LAYOUT



KEY MAP



LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- (3) PROPOSED PARKING COUNT
- PROPOSED HANDICAP PARKING SPACE
- PROPOSED STREET LIGHT

NOTES:
1. ALL HANDICAP RAMPS ARE TO BE CONSTRUCTED PER FDOT INDEX NO. 522-002, LATEST EDITION.
2. POSTED AND DESIGN SPEED IS 15 MPH.
3. ALL SIGNAGE TO BE COORDINATED WITH PROJECT SIGNAGE PACKAGE FOR AESTHETIC PURPOSES.
4. INDIVIDUAL LOT COVERAGE: 97.33' X 25' = 2433.25 S.F. IMPROVEMENT AREA=1702 S.F. = ±70.0% (80% MAX.)

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NO.	DATE	BY	ISSUE/TITLE/REVISIONS
1	06-19-21	HK	S.WMD SUBMITTAL
2	09-15-21	HK	CITY FIRST SUBMITTAL
3	09-21-21	JJ/K	S.WMD RESUBMITTAL-REVISED PER COMMENTS DATED 9-16-21
4	10-25-21	JJ/K	CITY OF DELAND RE-SUBMITTAL PH-A & PH-B
5	11-19-21	JJ/K	REVISED PER CITY COMMENTS DATED 11-12-21
6	12-9-21	JJ/K	REVISED PER CITY COMMENTS DATED 12-06-21

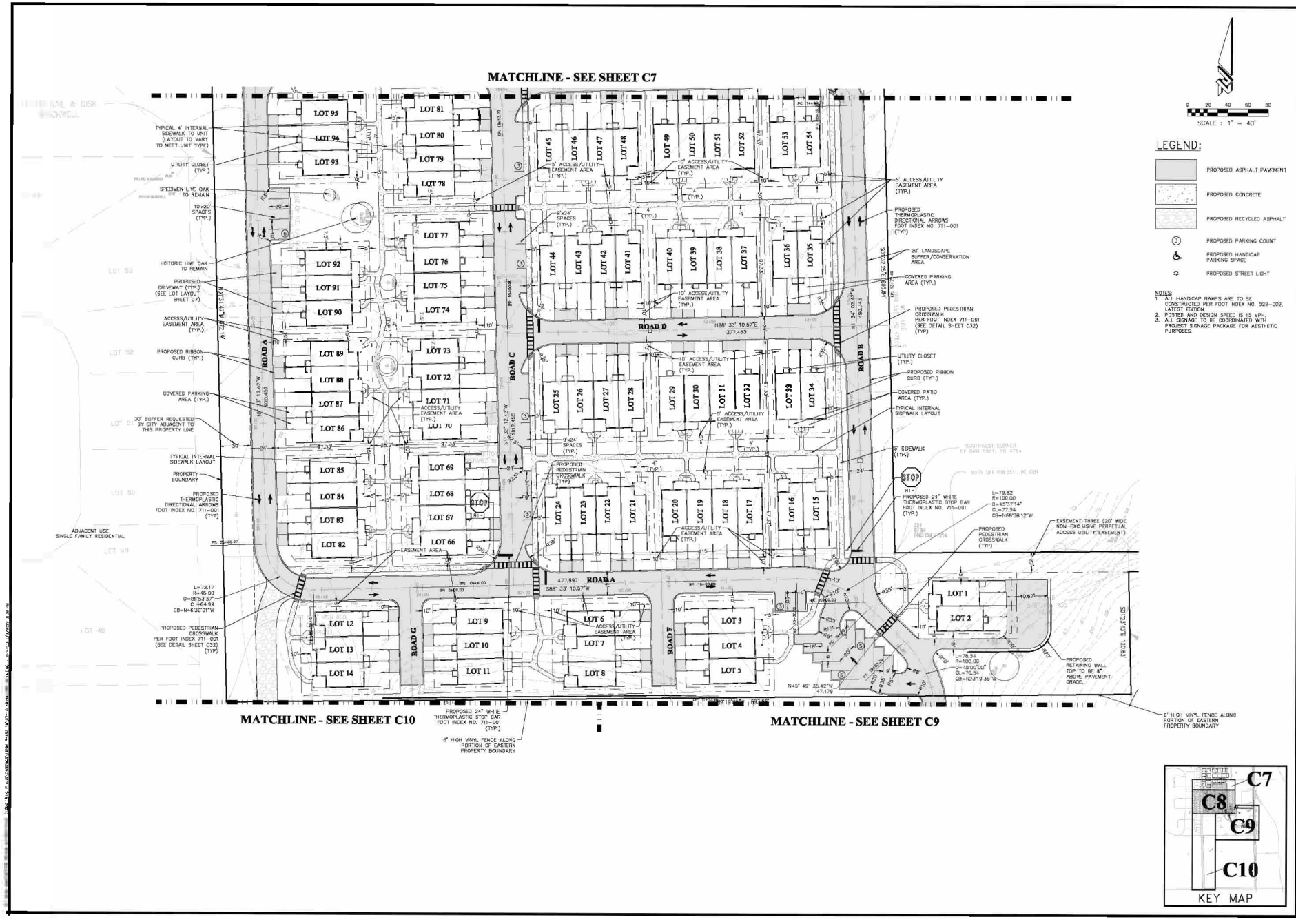
MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS GEOMETRY, SIGNAGE & STRIPING PLAN

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 07-10_19194-GSS_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:33-05'00'

SHEET: C7 OF 36



ZEV COHEN & ASSOCIATES, INC.
6300 SOUTH ORANGE BLOSSOM TRAIL, SUITE E
ORLANDO, FL 32809
(407) 855-2900
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

EB #418

NO.	DATE	BY	REVISIONS
1	06-18-21	HK	SUBMITTAL REVISIONS
2	07-02-21	HK	CITY OF DELAND SUBMITTAL
3	08-06-21	JJ/HK	REVISED PER CITY COMMENTS DATED 07-19-21
4	10-22-21	JJ/HK	CITY OF DELAND RE-SUBMITTAL PH 1A & PH 1B
5	11-24-21	JJ/HK	REVISED PER CITY COMMENTS DATED 11-23-21
6	11-29-21	JJ/HK	REVISED PER CITY COMMENTS DATED 11-24-21
7			
8			

MANCHESTER NEIGHBORHOOD PHASE 1A
FINAL ENGINEERING PLANS GEOMETRY, SIGNAGE & STRIPING PLAN

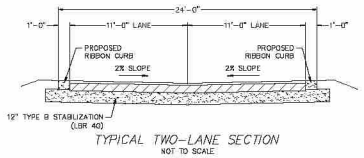
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 07-15_19194-GSS_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:36-05'00'

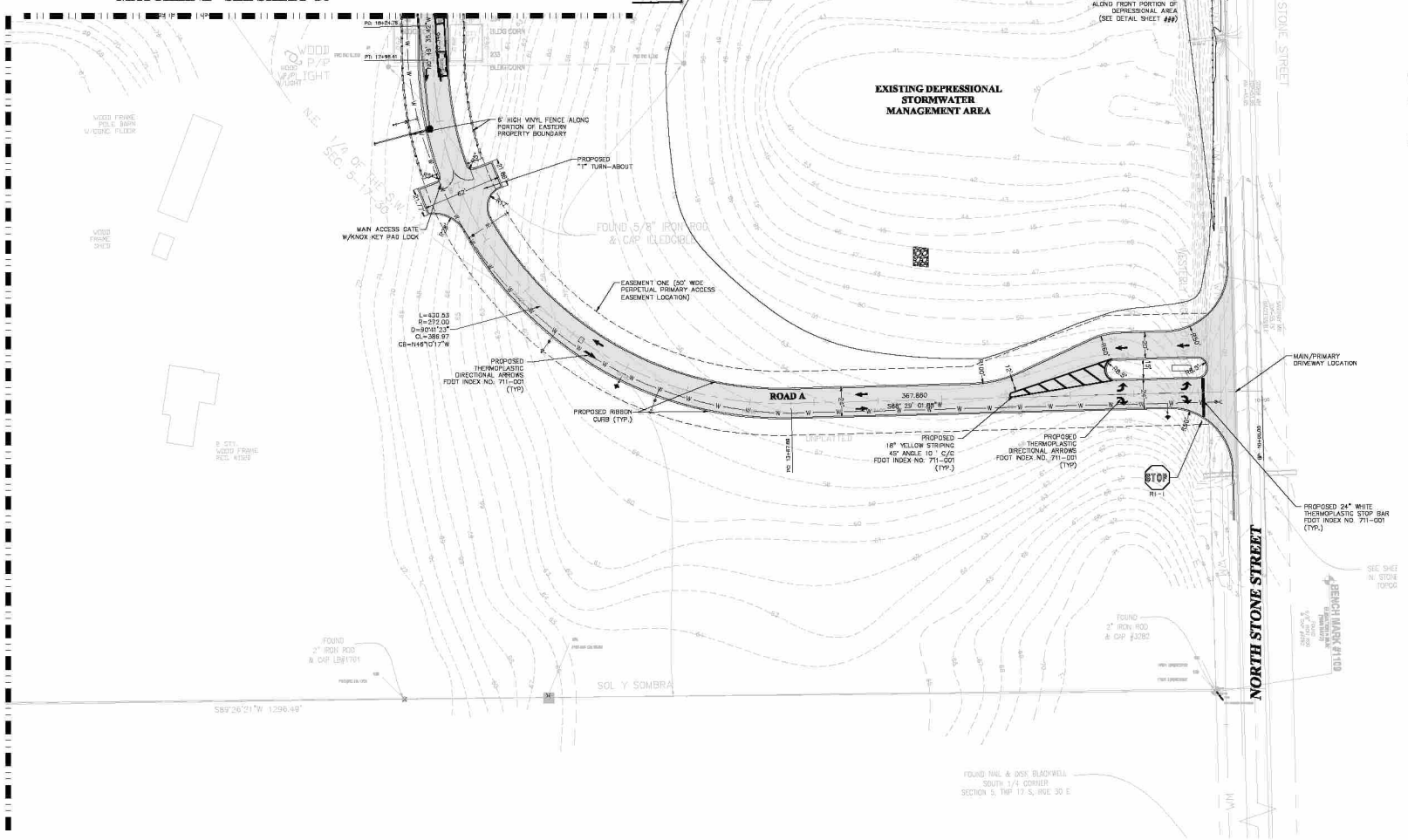
HANDY M. HUGAN, P.E., #52815
FAX (407) 855-2900
NOT VALID WITHOUT SEAL

SHEET: C8 OF 36



TYPICAL TWO-LANE SECTION
NOT TO SCALE

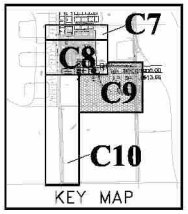
NEW CONSTRUCTION
2" TYPE "SP-12.5" STRUCTURAL COURSE W/
8" CRUSHED CONCRETE BASE COURSE (LBR 125)
AND 12" TYPE B STABILIZATION (LBR 40)



LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- PROPOSED PARKING COUNT
- PROPOSED HANDICAP PARKING SPACE
- PROPOSED STREET LIGHT

NOTES:
1. ALL HANDICAP RAMPS ARE TO BE CONSTRUCTED PER FDOT INDEX NO. 522-002, LATEST EDITION.
2. NATURAL CONSERVATION AREA SIGNS ARE TO BE PLACED AT THE REAR OF EACH LOT CORNER AND AT EVERY TURN OF THE CONSERVATION EASEMENT. PLEASE REFER TO THE SIGN DETAIL ON SHEET C##.
3. POSTED AND DESIGN SPEED IS 15 MPH.
4. ALL SIGNAGE TO BE COORDINATED WITH PROJECT SIGNAGE PACKAGE FOR AESTHETIC PURPOSES.



ZEV COHEN & ASSOCIATES, INC.
2500 S.E. OCEAN BLVD., STUART, FL 34996
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS/ REVISIONS
1	06-15-21	HK	S. DUNCO SUBMITTAL
2	08-04-21	HK	CITY OF DELAND 1st SUBMITTAL
3	09-21-21	JJK	S. DUNCO RESUBMITTAL-REVISED PER COMMENTS DATED 27-18-21
4	10-26-21	JJK	CITY OF DELAND RE-SUBMITTAL PH A & 1A-10-27
5	12-06-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21
6	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS GEOMETRY, SIGNAGE & STRIPING PLAN

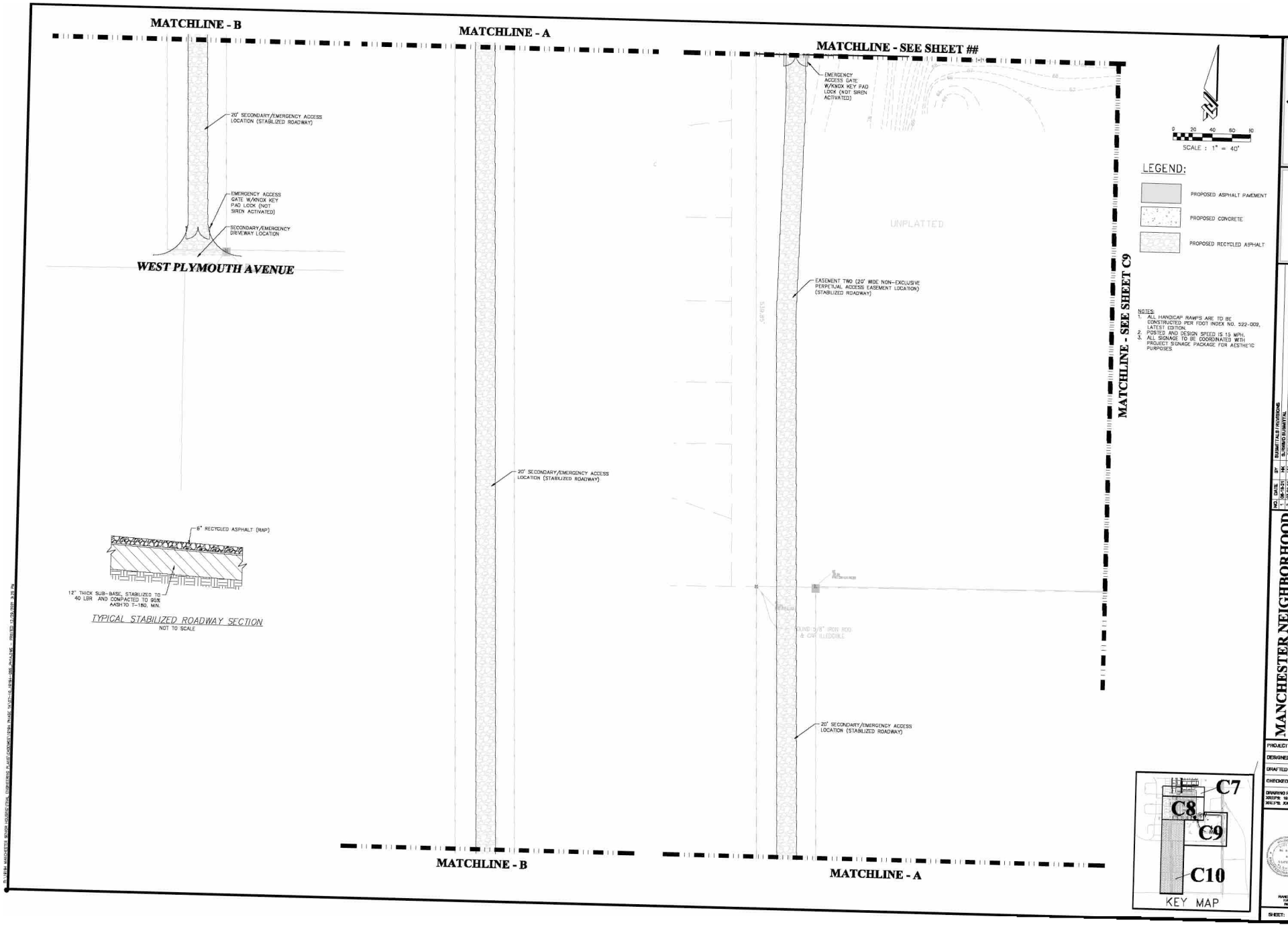
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 02-10_19194-GSS_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Hiduk Kilic
Date: 2022.01.03 16:02:40-05'00'

RANDY M. HUSKINS, P.E., NO. 56005
HKLIM, INC. E.B. #2, INC. 26294
NOT VALID WITHOUT SEAL

SHEET: C9 OF 36



ZEV COHEN & ASSOCIATES, INC.
80 WESTGATE WAY, STE. C
DELAND, FL 32720
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS / REVISIONS
1	06-19-21	HK	SUBMITTED TO CITY
2	09-03-21	HK	CITY OF DELAND SUBMITTAL
3	10-22-21	JJ/HK	SUBMITTED REVISED PER COMMENTS DATED 10-18-21
4	10-22-21	JJ/HK	CITY OF DELAND SUBMITTAL
5	11-12-21	JJ/HK	REVISED PER CITY COMMENTS DATED 11-10-21
6	11-23-21	JJ/HK	REVISED PER CITY COMMENTS DATED 11-18-21
7	12-22-21	JJ/HK	REVISED PER CITY COMMENTS DATED 12-16-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS GEOMETRY, SIGNAGE & STRIPING PLAN

CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKUML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 07-10_19194-GSS_PH1A
XREF'S: 19194_BASE.DWG
XREF'S: XXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:43-05'00'

HAVEY M. HUSNYK, P.E., 70148208
HALUK KILIC, P.E., 76128204
NOT VALID WITHOUT SEAL

SHEET: C10 OF 36

STORMWATER STRUCTURE TABLE			
STRUCTURE NUMBER	STRUCTURE TYPE	STRUCTURE T.C.	PIPE INVERT(S), DIRECTION(S), SIZE(S)
ST-1	MES (30") – INDEX NO. 430-021	48.78	46.00 (S) 30" RCP
ST-2	TYPE D INLET – INDEX NO. 425-052	53.74	47.58 (W) 24" RCP 47.00 (N) 30" RCP
ST-3	TYPE D INLET – INDEX NO. 425-052	55.18	49.41 (W) 18" RCP 49.41 (E) 24" RCP
ST-4	TYPE C INLET – INDEX NO. 425-052	57.41	52.98 (E) 18" RCP
ST-5	MES (48") – INDEX NO. 430-021	50.98	46.00 (W) 54" RCP
ST-6	TYPE C INLET – INDEX NO. 425-052	65.40	61.90 (N) 18" RCP
ST-7	TYPE C INLET RISER WITH 60"X60" TYPE J BOTTOM – INDEX NO. 425-010 & 052	71.20	63.83 (NW) 48" RCP 66.00 (E) 54" RCP 59.46 (S) 18" RCP
ST-8	MANHOLE (72" DIA.) – INDEX NO. 425-001	74.22	68.27 (W) 36" RCP 64.90 (SE) 48" RCP 67.20 (N) 42" RCP
ST-9	TYPE C INLET RISER WITH 60"X60" TYPE J BOTTOM – INDEX NO. 425-010 & 052	74.46	68.76 (E) 36" RCP 68.76 (W) 36" RCP
ST-10	TYPE C INLET RISER WITH 60"X60" TYPE J BOTTOM – INDEX NO. 425-010 & 052	75.16	69.50 (E) 36" RCP 69.50 (W) 36" RCP
ST-11	TYPE C INLET RISER WITH 60"X60" TYPE J BOTTOM – INDEX NO. 425-010 & 052	75.69	69.99 (E) 36" RCP 70.71 (W) 24" RCP 70.62 (N) 30" RCP
ST-12	TYPE D INLET – INDEX NO. 425-052	76.62	71.87 (E) 24" RCP 71.87 (NW) 24" RCP
ST-13	MANHOLE (48" DIA.) – INDEX NO. 425-001	76.97	71.97 (SE) 24" RCP 71.97 (N) 24" RCP
ST-14	TYPE D INLET – INDEX NO. 425-052	77.46	72.51 (S) 24" RCP 72.51 (N) 24" RCP
ST-15	TYPE D INLET – INDEX NO. 425-052	78.50	73.56 (S) 24" RCP 73.56 (N) 24" RCP 73.56 (E) 12" HP
ST-16	15" YARD DRAIN WITH CIRCULAR GRATE	77.80	74.21 (W) 12" HP
ST-17	TYPE D INLET – INDEX NO. 425-052	79.38	74.45 (S) 24" RCP 74.45 (N) 18" RCP
ST-18	TYPE D INLET – INDEX NO. 425-052	76.54	71.32 (S) 30" RCP 71.32 (N) 24" RCP 73.00 (W) 12" HP 71.76 (E) 12" HP
ST-18A	15" YARD DRAIN WITH CIRCULAR GRATE	76.70	73.57 (E) 12" HP
ST-18B	15" YARD DRAIN WITH CIRCULAR GRATE	75.90	72.90 (W) 12" HP

STORMWATER STRUCTURE TABLE			
STRUCTURE NUMBER	STRUCTURE TYPE	STRUCTURE T.C.	PIPE INVERT(S), DIRECTION(S), SIZE(S)
ST-19	TYPE D INLET – INDEX NO. 425-052	77.72	72.45 (S) 24" RCP 72.45 (N) 24" RCP 73.34 (E) 12" HP
ST-19A	15" YARD DRAIN WITH CIRCULAR GRATE	77.39	74.30 (W) 12" HP
ST-20	TYPE C INLET – INDEX NO. 425-052	78.62	73.25 (S) 24" RCP 73.25 (N) 24" RCP
ST-22	TYPE D INLET – INDEX NO. 425-052	73.69	67.80 (S) 42" RCP 67.80 (N) 36" RCP 69.80 (W) 12" HP
ST-22A	15" YARD DRAIN WITH CIRCULAR GRATE	74.33	70.93 (E) 12" HP
ST-23	TYPE D INLET – INDEX NO. 425-052	73.06	68.47 (S) 36" RCP 68.47 (N) 30" RCP 70.03 (W) 18" RCP
ST-24	TYPE C INLET – INDEX NO. 425-052	74.50	71.40 (E) 18" RCP 71.40 (W) 18" RCP
ST-24A	TYPE C INLET – INDEX NO. 425-052	76.26	72.89 (E) 18" RCP
ST-25	TYPE C INLET – INDEX NO. 425-052	74.21	69.05 (S) 30" RCP 70.61 (W) 18" HP 69.05 (N) 30" RCP
ST-25A	24" YARD DRAIN WITH CIRCULAR GRATE	75.21	70.85 (E) 18" HP
ST-26	MANHOLE (48" DIA.) – INDEX NO. 425-001	75.87	70.37 (N) 30" RCP 70.37 (S) 30" RCP 71.56 (W) 18" RCP
ST-27	TYPE C INLET – INDEX NO. 425-052	76.43	73.52 (E) 18" RCP
ST-28	TYPE C INLET – INDEX NO. 425-052	76.30	71.87 (W) 18" HP 70.95 (N) 24" RCP 70.95 (S) 30" RCP
ST-28A	24" YARD DRAIN WITH CIRCULAR GRATE	77.40	74.75 (E) 18" HP
STUB-OUT	24" DIAMETER CAP	75.82	73.44 (S) 24" RCP
STUB-OUT2	18" DIAMETER CAP	77.00	75.20 (S) 18" RCP

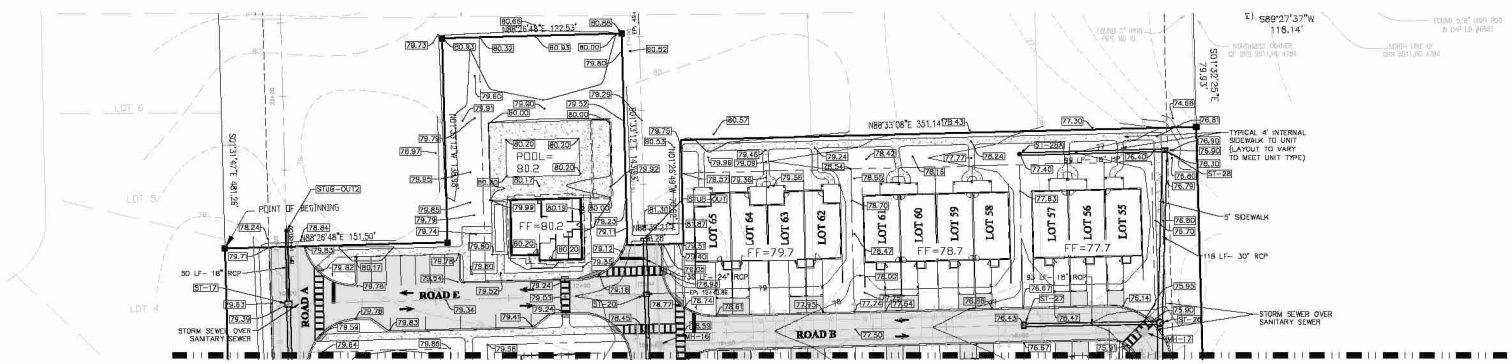
0 20 40 60 80

SCALE : 1" = 40'

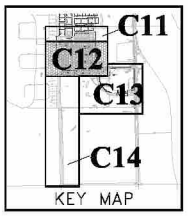
LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- DIR — PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES
- PROPOSED YARD DRAIN
- 38.20 — PROPOSED GRADE
- 37.61 — PROPOSED MATCH EXISTING GRADE LABEL
- E.G. — EXISTING GRADE LABEL
- FFE — PROPOSED FINISHED FLOOR ELEVATION
- PROPOSED FLOW DIRECTION
- PROPOSED STREET LIGHT

NOTES:
1. SEE THIS SHEET FOR STORMWATER STRUCTURE TABLES.
2. CONTRACTOR TO REFER TO GEOTECHNICAL REPORT FOR SOIL REQUIREMENTS AND RECOMMENDATIONS.
3. MINIMUM FINISHED FLOOR ELEVATIONS SHALL COMPLY WITH LAND DEVELOPMENT CODE.



MATCHLINE - SEE SHEET C12



ZEV COHEN & ASSOCIATES, INC.
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3188 RIDGE BARN, N. 1624
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	ISSUE/TITLE/REVISIONS
1	06-19-21	HK	S. DRAKO SUBMITTAL
2	06-21-21	JJNL	CITY OF DELAND SUBMITTAL
3	09-21-21	JJNL	S. DRAKO RESUBMITTAL-REVISED PER COMMENTS DATED 7-16-21
4	10-26-21	JJNL	CITY OF DELAND RE-SUBMITTAL PH A & 1-A1B
5	12-06-21	JJNL	REVISED PER CITY COMMENTS DATED 11-18-21
6	12-13-21	JJNL	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A
FINAL ENGINEERING PLANS
PAVING, GRADING & DRAINAGE PLAN

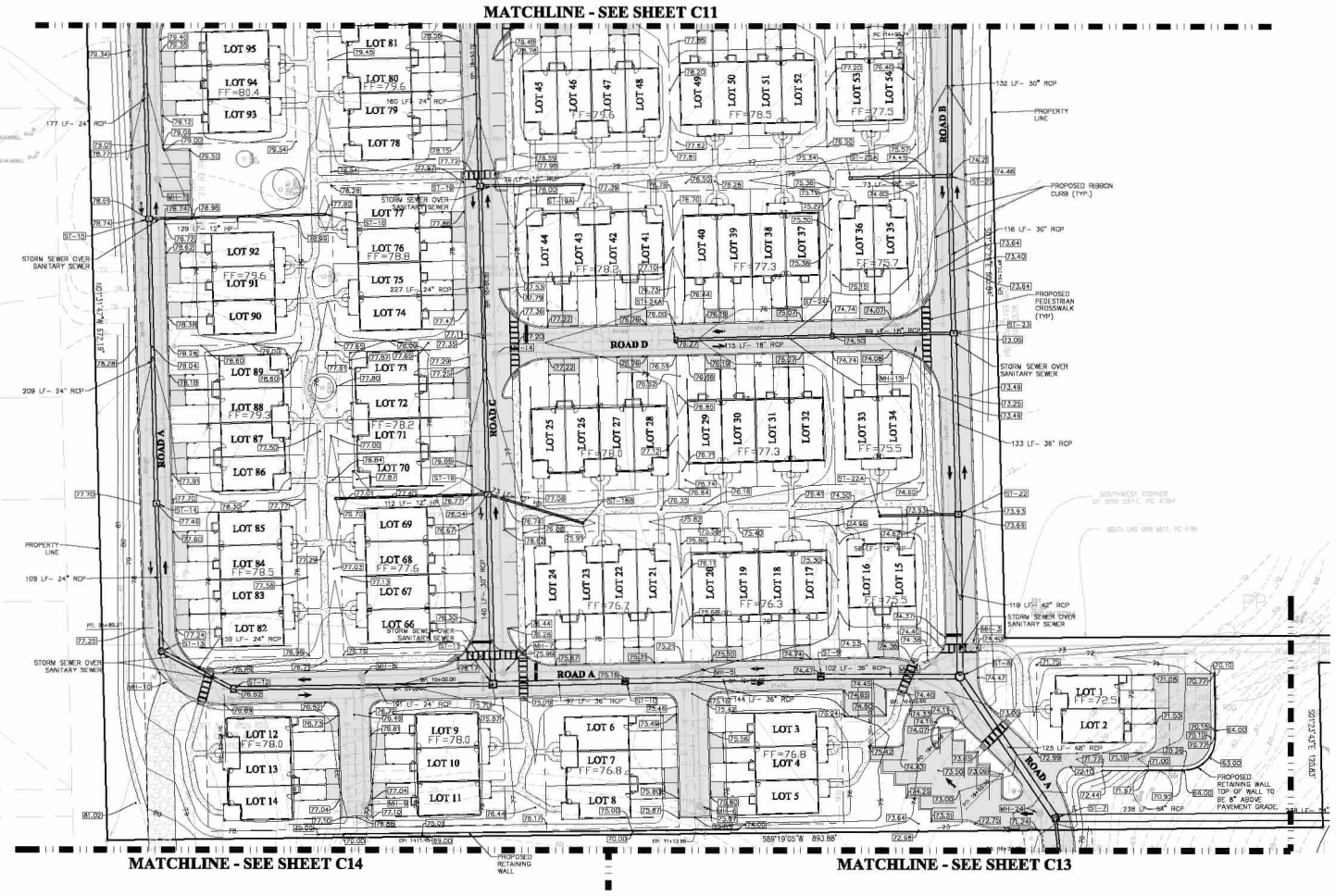
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

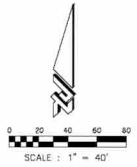
PROJECT NO: ZC 19194
DESIGNED BY: HK/JNL
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 11-14_19194-PGD_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:47-05'00'

RANEY M. HUDAK, P.E., NO.39685
HALUK KILIC, P.E., NO.80044
NOT VALID WITHOUT SEAL

SHEET: C11 OF 36

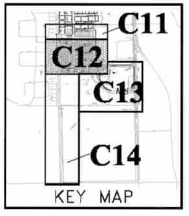




LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- GR — PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES
- PROPOSED YARD DRAIN
- 98.20 — PROPOSED GRADE
- 98.20 — PROPOSED MATCH EXISTING GRADE LABEL
- E.G. — EXISTING GRADE LABEL
- FF — PROPOSED FINISHED FLOOR ELEVATION
- PROPOSED FLOW DIRECTION
- PROPOSED STREET LIGHT

NOTES:
1. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.
2. CONTRACTOR TO REFER TO GEOTECHNICAL REPORT FOR SOIL REQUIREMENTS AND RECOMMENDATIONS.
3. MINIMUM FINISHED FLOOR ELEVATIONS SHALL COMPLY WITH LAND DEVELOPMENT CODE.



ZEV COHEN & ASSOCIATES, INC.
2601 SOUTH BAYSHORE DRIVE, SUITE C
MIAMI, FLORIDA 33133
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	REVISIONS
1	06-15-21	HK	SUBMITTALS/REVISIONS
2	07-15-21	JLK	S.WMD SUBMITTAL
3	09-13-21	JLK	S.WMD RESUBMITTAL-REVISED PER COMMENTS DATED 09-9-21
4	10-25-21	JLK	CITY OF DELAND RE-SUBMITTAL PHA & PH1B
5	12-13-21	JLK	REVISED PER CITY COMMENTS DATED 12-6-21
6	12-30-21	JLK	REVISED PER CITY COMMENTS DATED 12-28-21

MANCHESTER NEIGHBORHOOD PHASE 1A
FINAL ENGINEERING PLANS
PAVING, GRADING & DRAINAGE PLAN

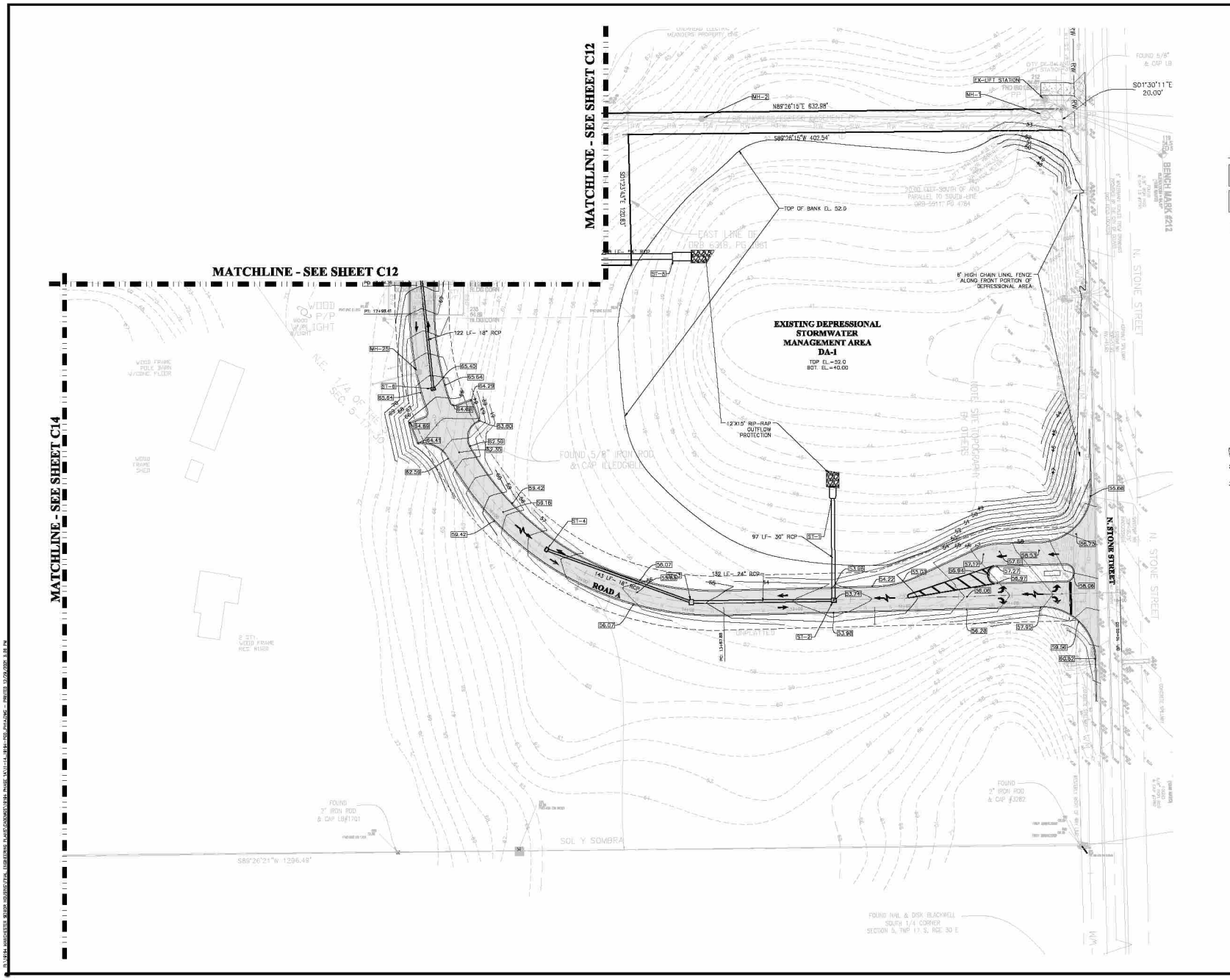
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKU/ML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 11-14_19194-PGD_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:50-05'00'

RANDY M. HIGGINS, P.E., INSPECTOR
HALUK KILIC, P.E., PROJ.MGR.
NOT VALID WITHOUT SEAL

SHEET: C12 OF 36



ZEV COHEN & ASSOCIATES, INC.
2500 S. PARKER ROAD, SUITE 1
DENVER, COLORADO 80210
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	ISSUANCE / SUBMITTAL REVISIONS
1	06-15-21	HK	S. DONAO SUBMITTAL
2	09-10-21	HK	CITY OF DELAND SUBMITTAL
3	09-11-21	J.J.K.	S. DONAO RESUBMITTAL - REVISED PER COMMENTS DATED 9-16-21
4	11-26-21	J.J.K.	CITY OF DELAND RE-SUBMITTAL PH A & 1B
5	12-13-21	J.J.K.	REVISED PER CITY COMMENTS DATED 12-06-21
6	12-30-21	J.J.K.	REVISED PER CITY COMMENTS DATED 12-30-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS PAVING, GRADING & DRAINAGE PLAN

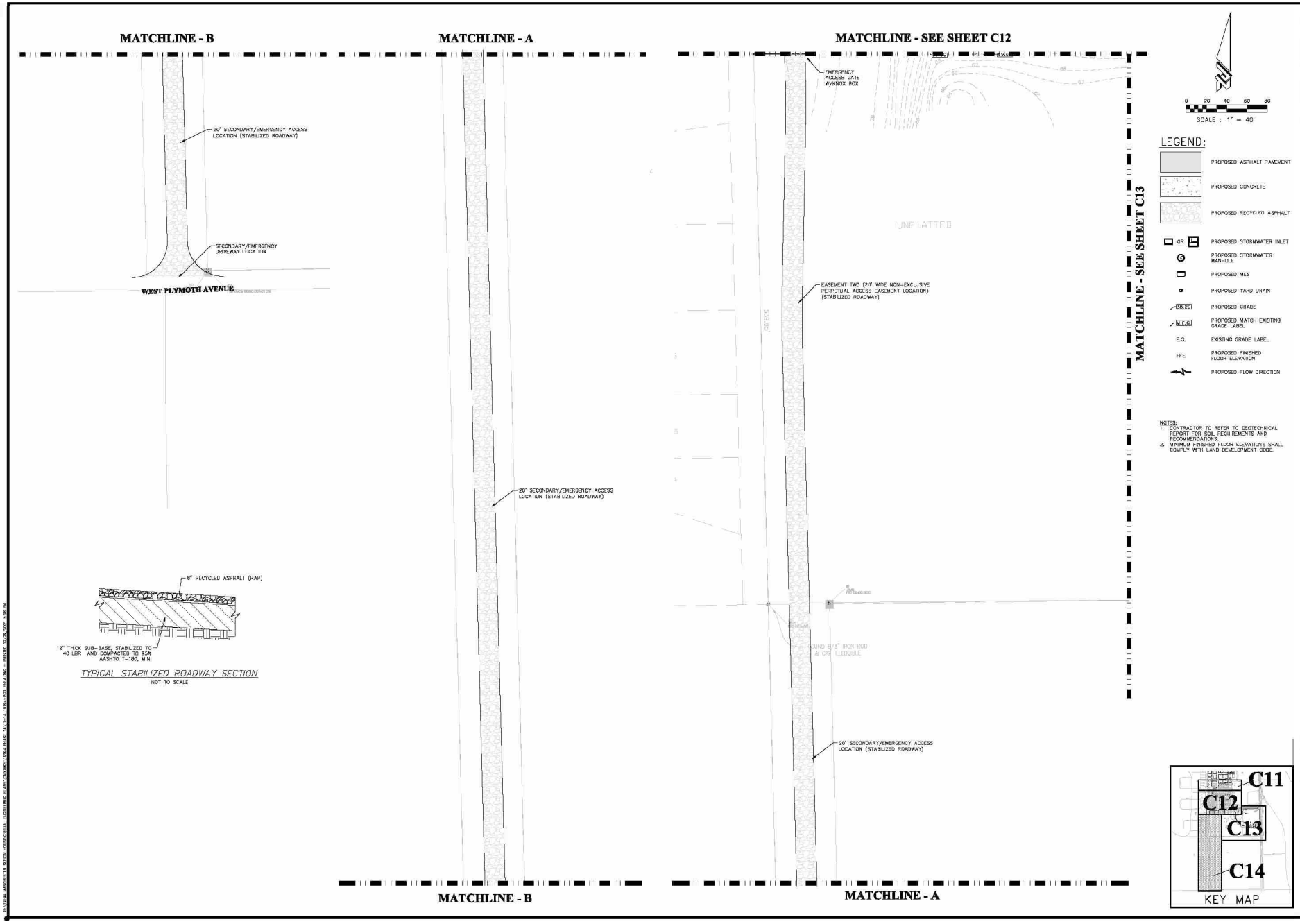
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKUML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 11-14_19194-PSD_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Hatuk Kilic
Date: 2022.01.03 16:02:53-05'00'

HANDY M. HICKS, P.E., REGISTERED PROFESSIONAL ENGINEER, FLORIDA REG. NO. 57262
NOT VALID WITHOUT SEAL

SHEET: C13 OF 36



ZEV COHEN & ASSOCIATES, INC.
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CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	ISSUE / TALLY REVISIONS
1	06-15-21	HK	SUBMIT FOR FINAL SUBMITTAL
2	10-05-21	J.P.K.	SUBMIT FOR FINAL SUBMITTAL
3	09-21-21	J.P.K.	5-REVISED RESUBMITTAL-REVISED PER COMMENTS DATED 7-16-21
4	10-25-21	J.P.K.	CITY OF DELAND RESUBMITTAL-PH A & PH B
5	11-24-21	J.P.K.	REVISED PER CITY COMMENTS DATED 11-10-21
6	12-3-21	J.P.K.	REVISED PER CITY COMMENTS DATED 12-02-21

MANCHESTER NEIGHBORHOOD
PHASE 1A
FINAL ENGINEERING PLANS
PAVING, GRADING & DRAINAGE PLAN

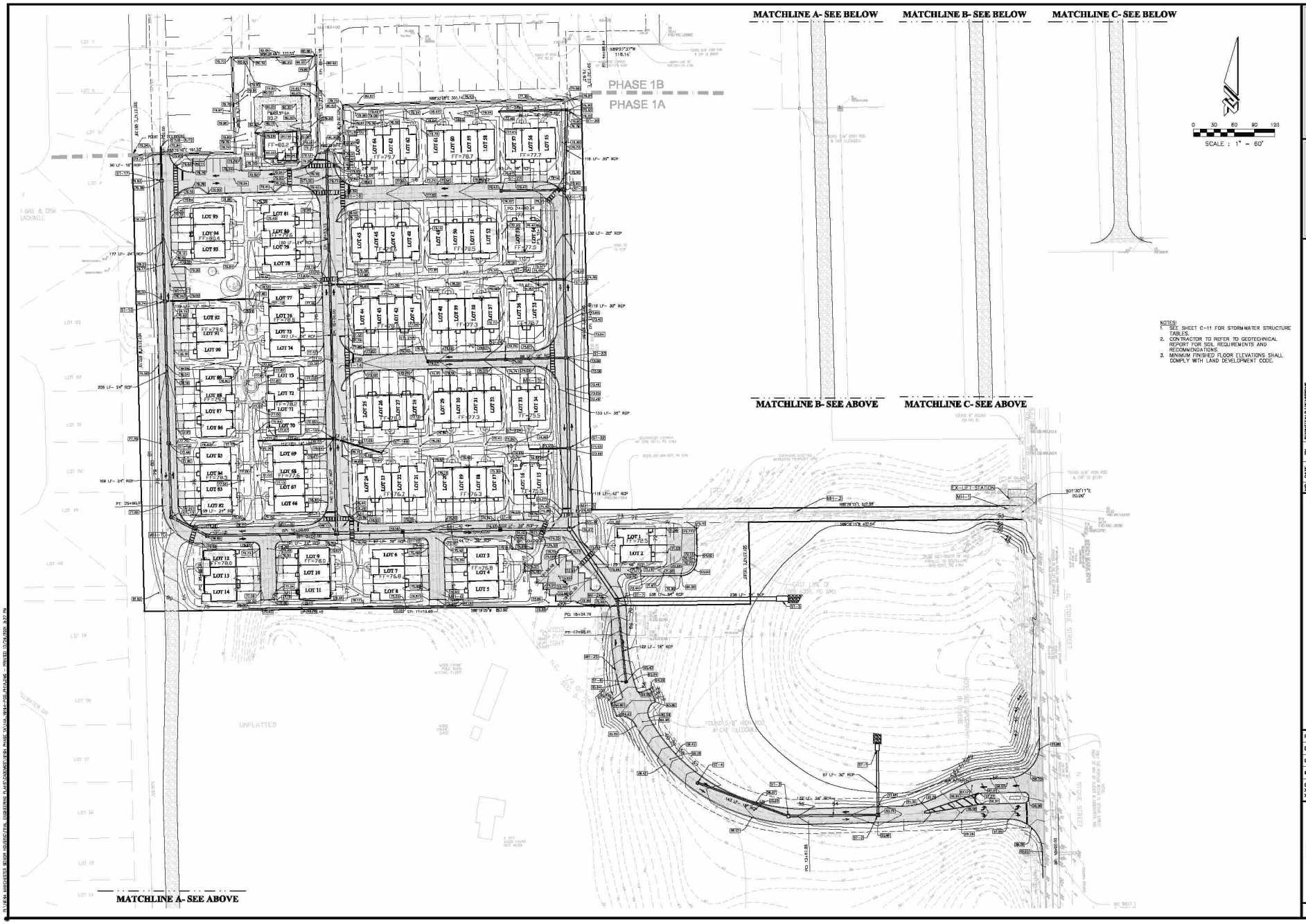
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194

DESIGNED BY: HK
DRAWN BY: JPK
CHECKED BY: HK

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:02:56-05'00'

SHEET: C14 of 36



ZEV COHEN & ASSOCIATES, INC.
2500 NW 79TH AVENUE, SUITE 315
PEMBROKE PINES, FL 33024
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS/REVISIONS
1	06-15-21	HK	S. DUNCO SUBMITTAL
2	08-06-21	JJK	CITY OF DELAND SUBMITTAL
3	09-21-21	JJK	S. DUNCO RESUBMITTAL - REVISED PER COMMENTS DATED 27-18-21
4	10-26-21	JJK	CITY OF DELAND RE-SUBMITTAL PH A & PH B
5	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21
6	12-30-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS OVERALL PAVING, GRADING & DRAINAGE PLAN

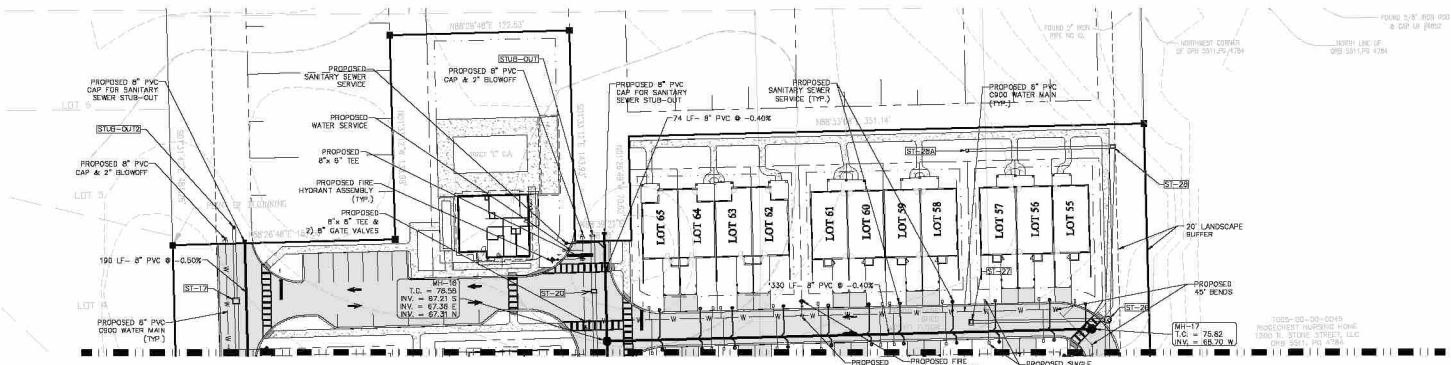
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

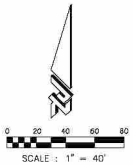
PROJECT NO: ZC 19194
DESIGNED BY: HKU/ML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 14A_19194-PGD_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:03:00-05'00'

HALUK KILIC, P.E. NO.36264
NOT VALID WITHOUT SEAL

SHEET: C14A OF 36

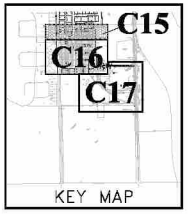




LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- PROPOSED SANITARY MAIN AND MANHOLE
- SS — PROPOSED SANITARY SERVICE
- W — PROPOSED WATERMAIN
- F — PROPOSED FIRE MAIN
- R — PROPOSED RECLAIMED WATERMAIN
- FM — PROPOSED FORCEMAIN
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED GATE VALVE
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED STREET LIGHT

NOTES:
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C26).
4. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.



ZEV COHEN & ASSOCIATES, INC.
2500 S.E. 17 STREET
OCALA, FLORIDA 34471
(352) 732-8404
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/ REVISIONS
1	06-15-21	HK	S.WMD SUBMITTAL
2	08-17-21	JJNL	CITY OF DELAND SUBMITTAL
3	09-21-21	JJNL	S.WMD RESUBMITTAL-REVISED PER COMMENTS DATED 9-16-21
4	10-25-21	JJNL	CITY OF DELAND RE-SUBMITTAL PH-1A & 1-B(1)
5	11-15-21	JJNL	REVISED PER CITY COMMENTS DATED 11-15-21
6	12-9-21	JJNL	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS UTILITY PLAN

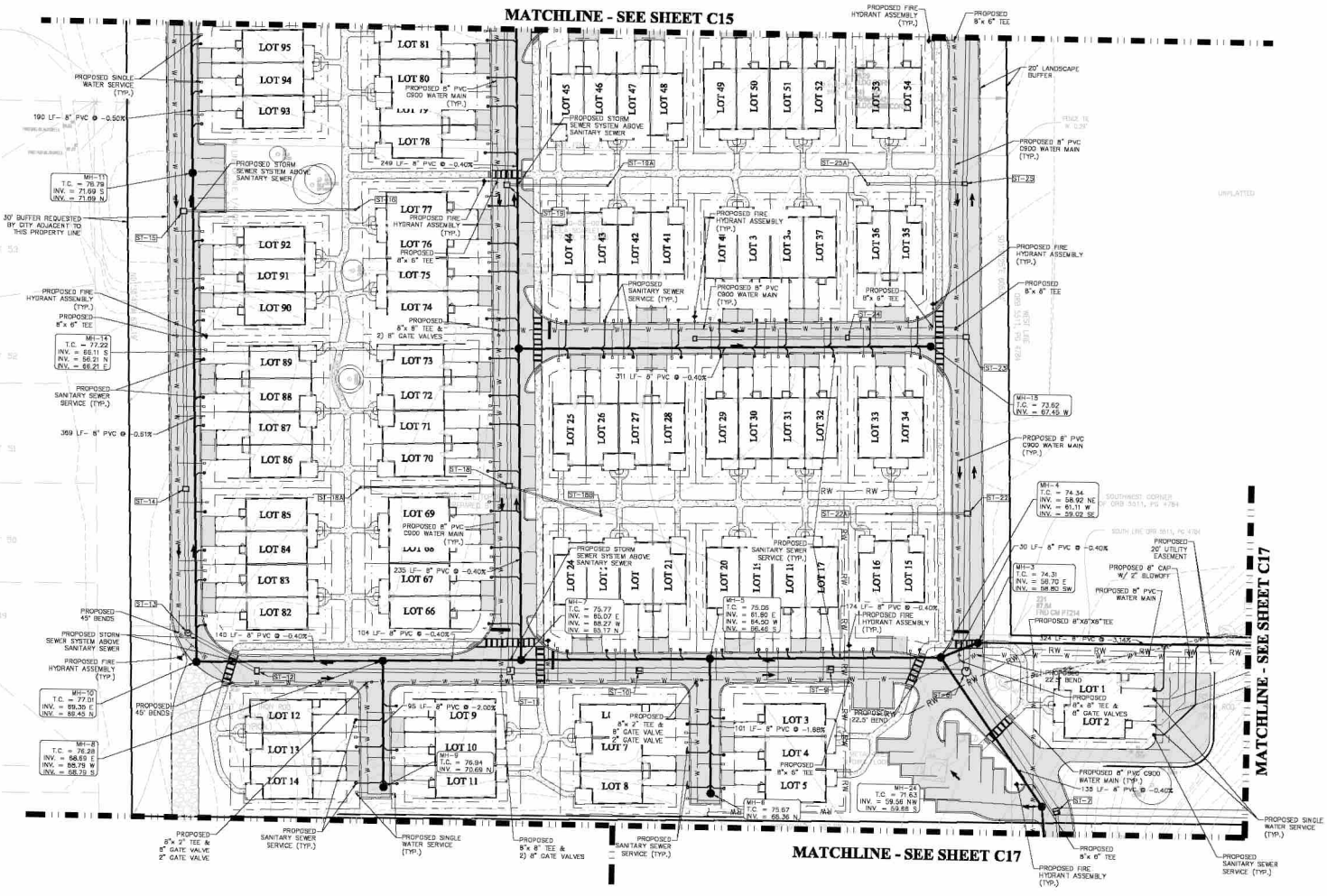
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JJNL
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 19-18_19194-UTI_PH-1A
XREFS: 19194_BASE.DWG
XREFS: XGOODLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:03:03-05'00'

RANDY M. HIGGAS, P.E., NO.56265
HKILIC@ZEVCOHEN.COM
NOT VALID WITHOUT SEAL

SHEET: C15 OF 36

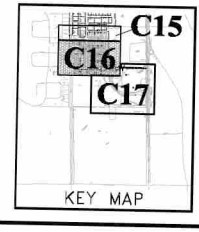


SCALE : 1" = 40'

LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- PROPOSED RECYCLED ASPHALT
- PROPOSED SANITARY MAIN AND MANHOLE
- SS PROPOSED SANITARY SERVICE
- W PROPOSED WATERMAIN
- F PROPOSED FIRE MAIN
- R PROPOSED RECLAIMED WATERMAIN
- FM PROPOSED FORCEMAIN
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED GATE VALVE
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED STREET LIGHT

NOTES:
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C29).
4. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.



KEY MAP

ZEV COHEN
& ASSOCIATES, INC.
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION
WWW.ZEVCOHEN.COM

NO.	DATE	BY	SUBMITTAL/REVISIONS
1	06-18-21	HK	SUBMITTAL/REVISIONS
2	07-07-21	HK	CITY OF DELAND REVIEW
3	08-05-21	HK	REVISED PER CITY COMMENTS DATED 07-16-21
4	09-28-21	JJK	CITY OF DELAND RE-SUBMITTAL PER A-4119
5	10-26-21	JJK	REVISED PER CITY COMMENTS DATED 10-14-21
6	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS UTILITY PLAN

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

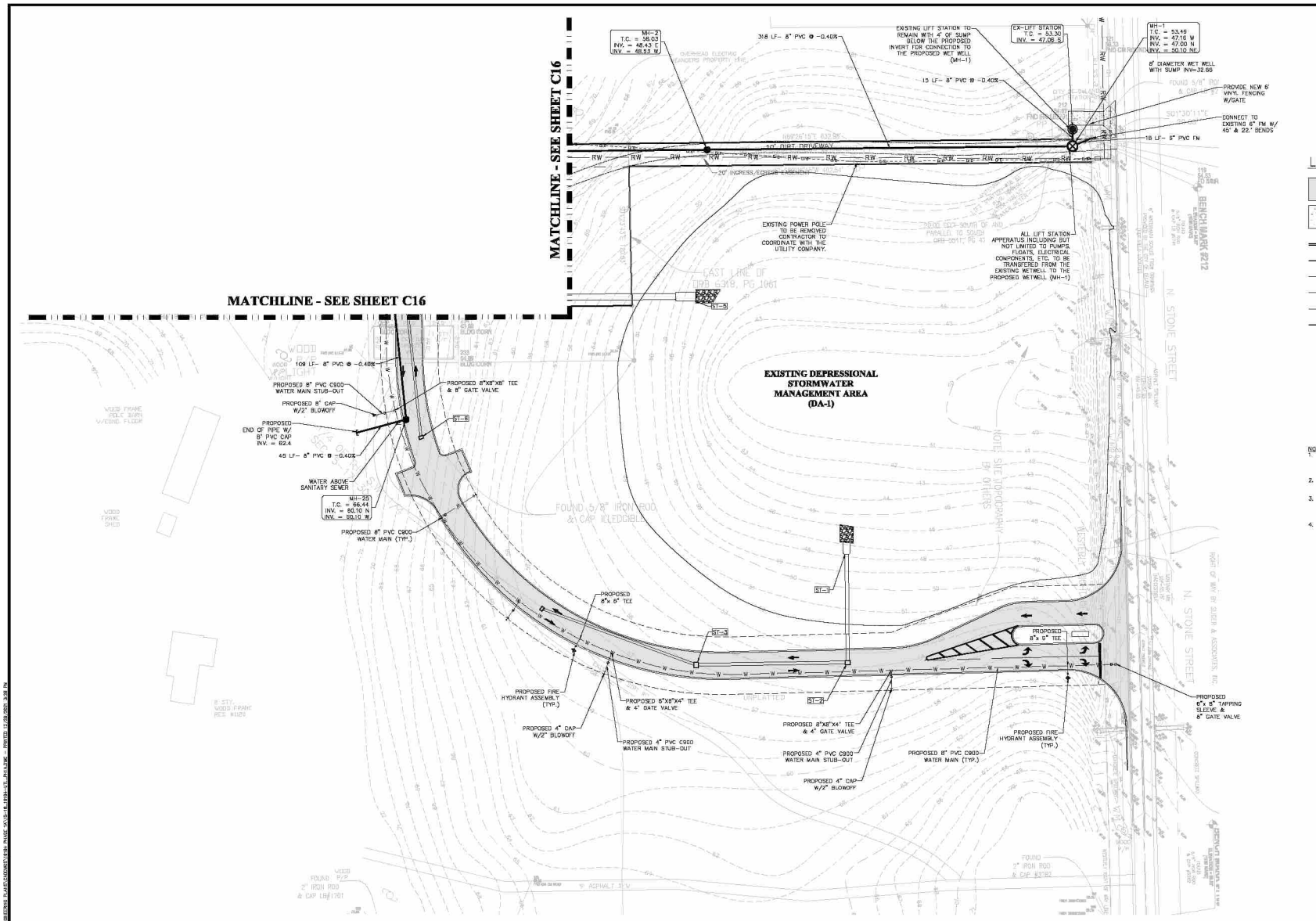
PROJECT NO: ZC 19104
DESIGNED BY: HKUML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 19-19_19104-UTL_PH1A
XREF'S: 19104_BASE.DWG
XREF'S: XXXXXLIVING

STATE OF FLORIDA — No. 81234

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:03:06-05'00'

HARRY M. HUGHES, P.E., NO.81213
HALUK KILIC, P.E., NO.81234
NOT VALID WITHOUT SEAL

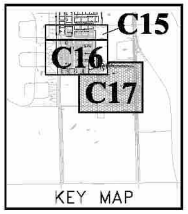
SHEET: C16 OF 36



LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- PROPOSED SANITARY MAIN AND MANHOLE
- SS — PROPOSED SANITARY SERVICE
- W — PROPOSED WATERMAIN
- F — PROPOSED FIRE MAIN
- R — PROPOSED RECLAIMED WATERMAIN
- FM — PROPOSED FORCEMAIN
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED GATE VALVE
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED STREET LIGHT

NOTES:
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C26).
4. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.



ZEV COHEN & ASSOCIATES, INC.
2500 SOUTH ROMAN AVENUE
STANFORD MARK, FL 32771
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS/ REVISIONS
1	06-15-21	HK	S. FOWCO SUBMITTAL
2	09-10-21	HK	S. FOWCO REVISED SUBMITTAL
3	09-11-21	JJK	S. FOWCO RESUBMITTAL-REVISED PER COMMENTS DATED 27-16-21
4	10-26-21	JJK	CITY OF DELAND RE-SUBMITTAL PH 1A 1-10-22
5	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 12-13-21
6	12-16-21	JJK	REVISED PER CITY COMMENTS DATED 12-16-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS UTILITY PLAN

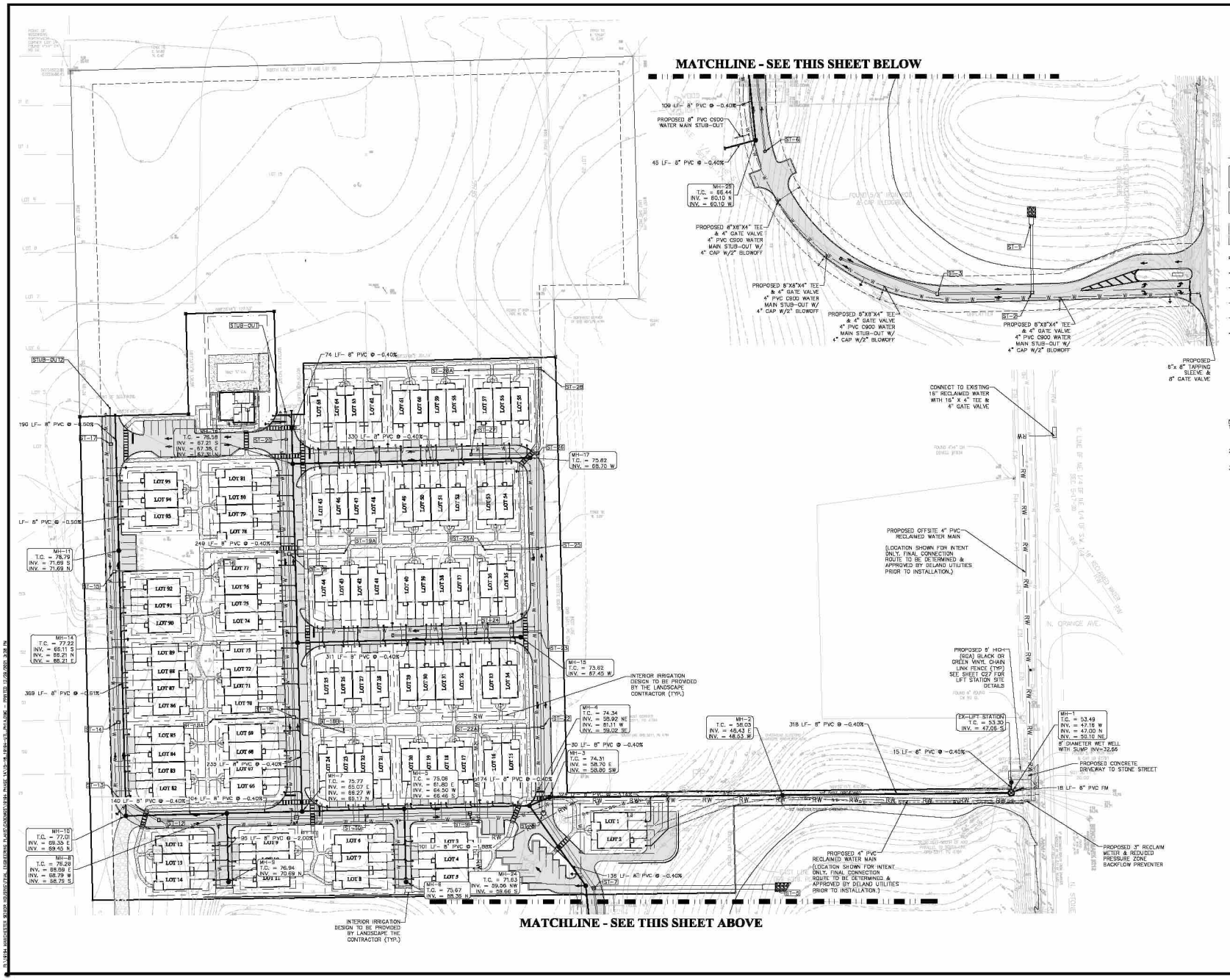
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKUML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 19-18_19194-UTI_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Hiduk Kilic
Date: 2022.01.03 16:03:10-05'00'

RANEY M. HUDAK, P.E., NO.56088
HIDUK KILIC, P.E., NO.56094
NOT VALID WITHOUT SEAL

SHEET: C17 OF 36



ZEV COHEN & ASSOCIATES, INC.
2500 SOUTH MAIN, N. NLR
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	ISSUMITTALS/REVISIONS
1	06-15-21	HK	S. FORMAL SUBMITTAL
2	08-04-21	JJ	S. FORMAL SUBMITTAL
3	09-11-21	JJ/HK	S. FORMAL RESUBMITTAL-REVISED PER COMMENTS DATED 27-18-21
4	11-29-21	JJ/HK	CITY OF DELAND RE-SUBMITTAL PH A & 1-11-19
5	12-13-21	JJ/HK	REVISED PER CITY COMMENTS DATED 12-06-21
6	12-30-21	JJ/HK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS OVERALL UTILITY PLAN

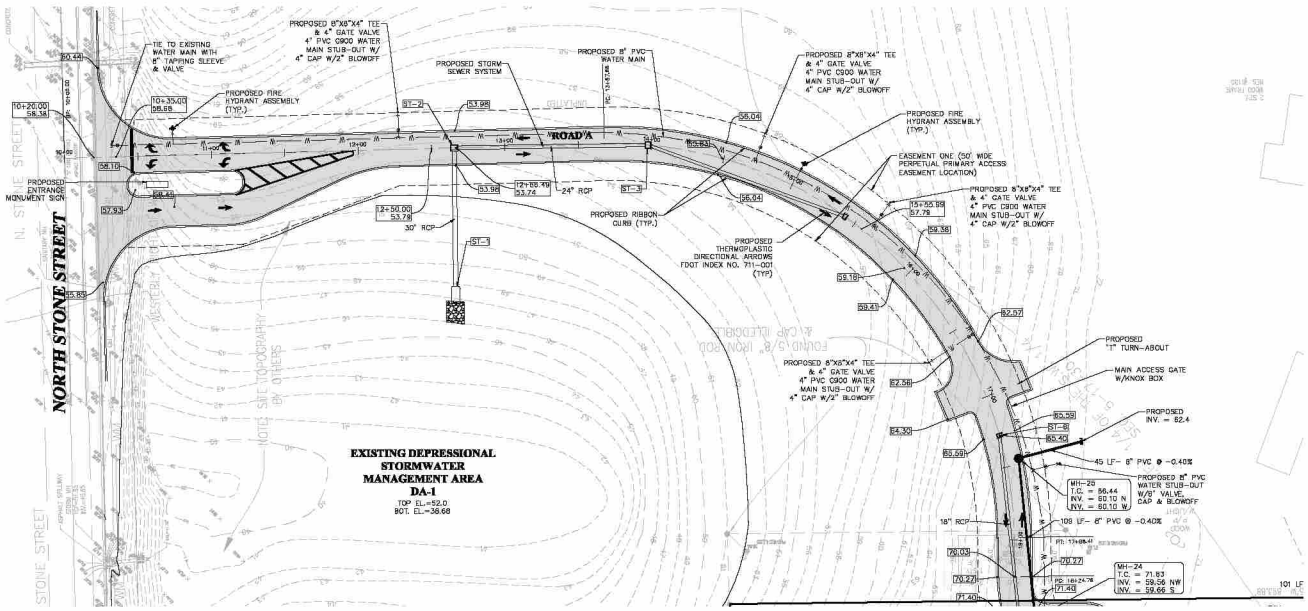
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

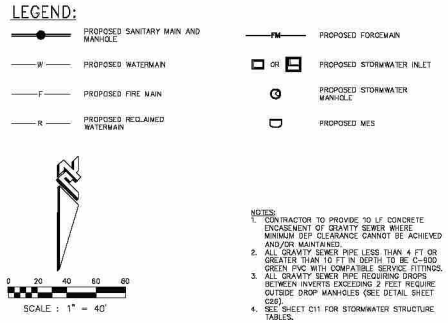
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 19-18_19194-UTI_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Hsiuk Kilic
Date: 2022.01.03 16:03:13-05'00'

RANDY M. HUSUNG, P.E., NO.35265
HSIUK KILIC, P.E., NO.56244
NOT VALID WITHOUT SEAL

SHEET: C18 OF 36

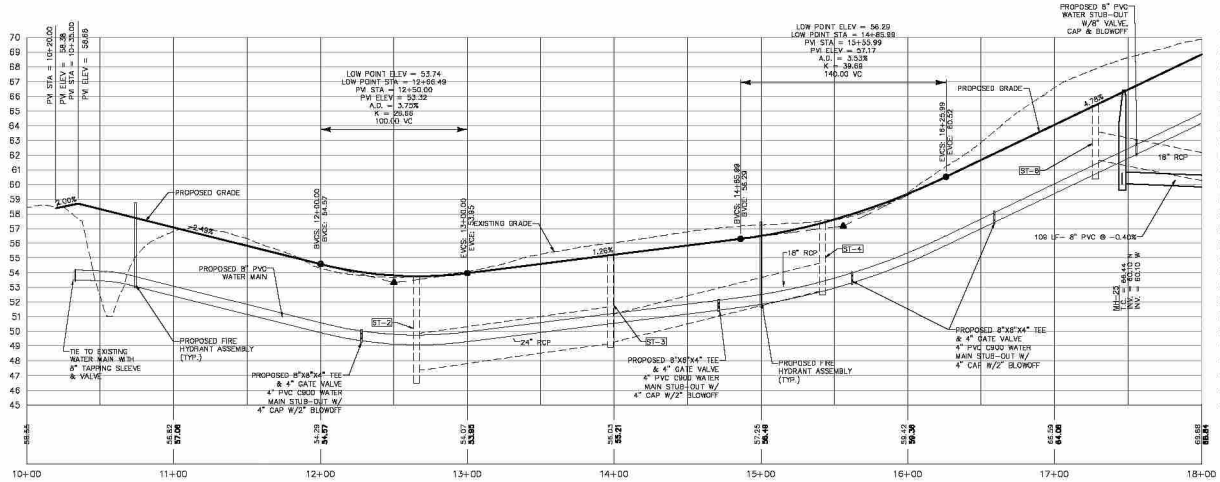


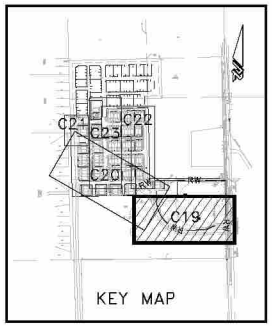


NOTES:
1. CONTRACTOR TO PROVIDE 50 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C28).
4. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.

ROAD A PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ.1"=40' VERT.1"=4'





ZEV COHEN & ASSOCIATES, INC.
2500 S.E. OCEAN BLVD., STUART, FL 34996
(772) 287-1446 FAX (772) 287-1446
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/ REVISIONS
1	06-15-21	HK	S.WMD SUBMITTAL
2	06-15-21	HK	CITY OF DELAND SUBMITTAL
3	09-14-21	J.A.K.	S.WMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-28-21	J.A.K.	CITY OF DELAND RE-SUBMITTAL PHAS 1-11/12
5	12-13-21	J.A.K.	REVISED PER CITY COMMENTS DATED 11-30-21
6	12-13-21	J.A.K.	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS PLAN & PROFILE

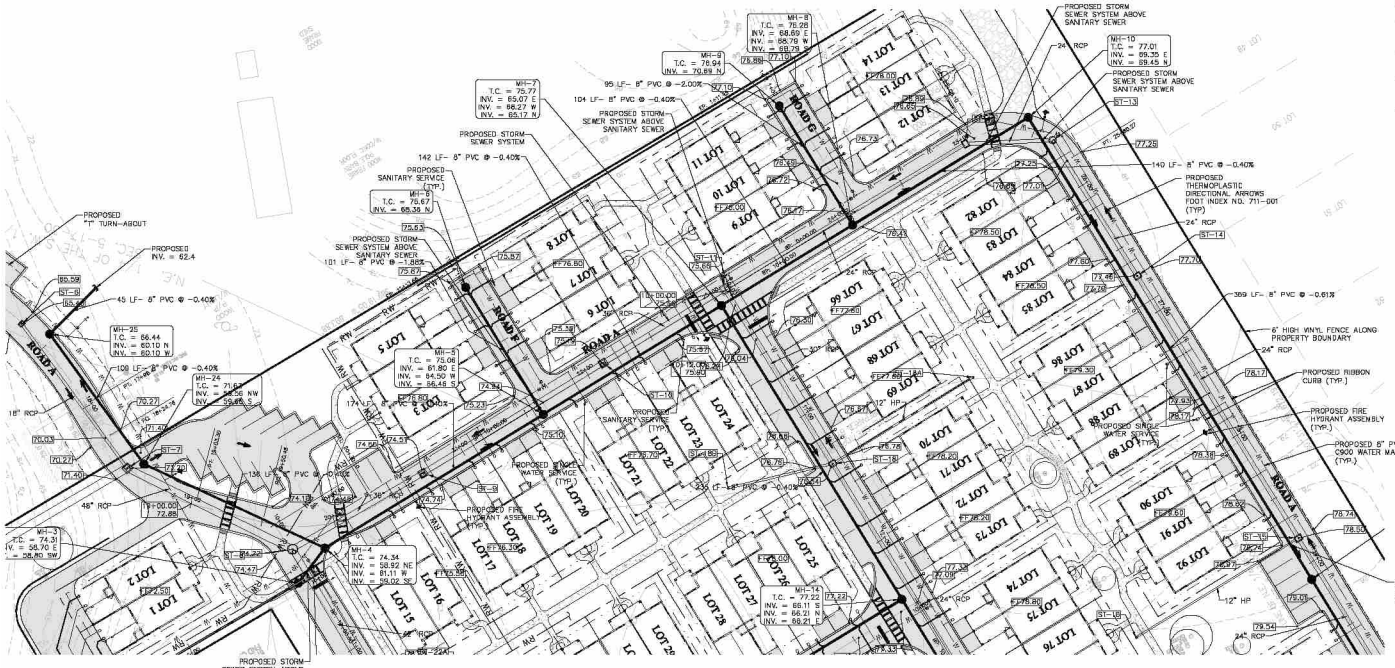
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 19-08_19194-PP_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Hatuk Kilic
Date: 2022.01.03 16:03:16-05'00'

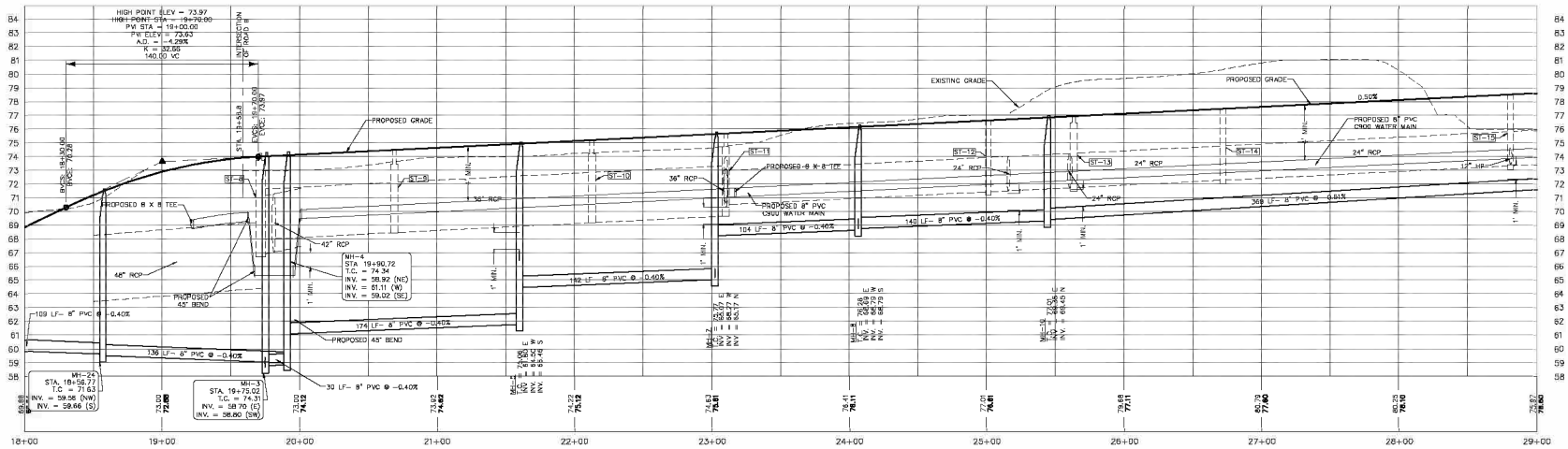
RANDY M. HUSMAN, P.E., NO.60923
1400 JIM ALL ST., P.O. BOX 2004
NOT VALID WITHOUT SEAL

SHEET: C19 OF 36



ROAD A PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40'
VERT:1"=4'



ZEV COHEN & ASSOCIATES, INC.
7800 RED ROAD, S. 101
SOUTH MIAMI, FL 33143
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	ISSUE / TABLE REVISIONS
1	06-15-21	HK	SJ. MINOR SUBMITTAL
2	08-13-21	JJK	SJ. MINOR SUBMITTAL
3	09-24-21	JJK	S.JOWOD RESUBMITTAL-REVISED PER COMMENTS DATED 07-15-21
4	10-25-21	JJK	CITY OF DELAND RE-SUBMITTAL OF R.A.S. 19-118
5	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 11-29-21
6	12-30-21	JJK	REVISED PER CITY COMMENTS DATED 12-16-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS PLAN & PROFILE

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 19-08_19194-PP_PM1A
XREFS: 19194_BASE.DWG
XREFS: X0000CLDWG

Digitally signed by Hasik Kilic
Date: 2022.01.03 16:03:20-05'00'

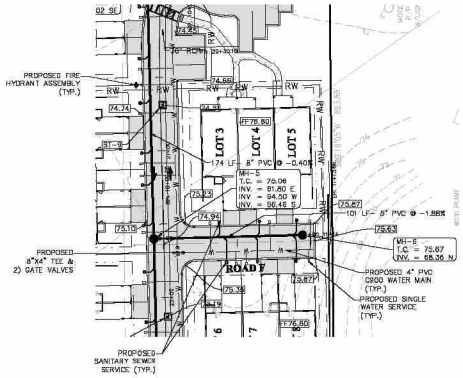
RANDY M. HUGHES, P.E. NO.50028
1140 JIM ROE EST., P.E. NO.36094
NOT VALID WITHOUT SEAL

SHEET: C20 OF 36

LEGEND:

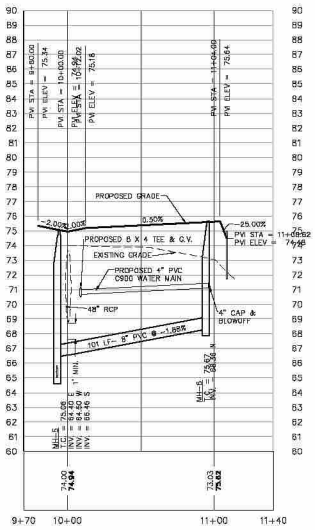
- PROPOSED SANITARY MAIN AND MANHOLE
- PROPOSED WATERMAIN
- PROPOSED FIRE MAIN
- PROPOSED RECLAIMED WATERMAIN
- PROPOSED FORCEMAIN
- PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES

SCALE : 1" = 40'

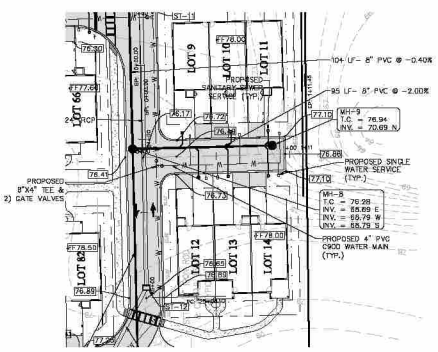


ROAD F - PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40' VERT:1"=4'

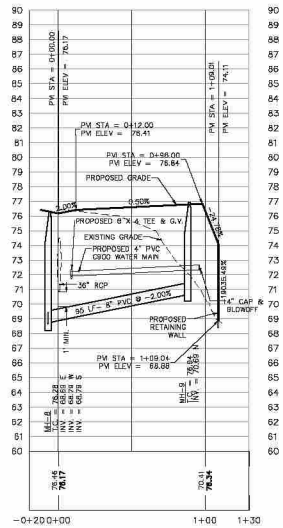


SCALE : 1" = 40'

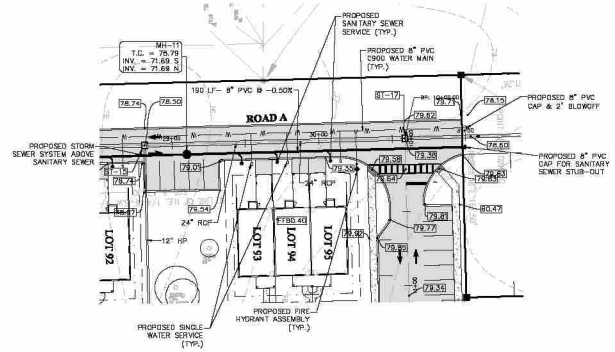


ROAD G - PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40' VERT:1"=4'

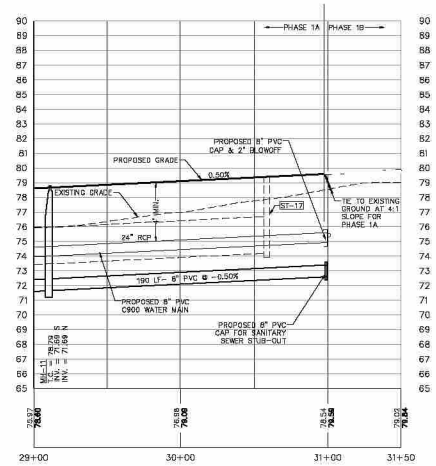


SCALE : 1" = 40'



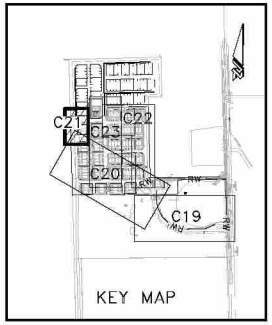
ROAD A PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40' VERT:1"=4'



NOTES:

1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE D-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C26).
4. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.



ZEV COHEN & ASSOCIATES, INC.
2500 WEST MAIN, N. 32114
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	ISSUE/TITLE/REVISIONS
1	06-19-21	HK	S.DWRD SUBMITTAL
2	07-06-21	JJK	S.DWRD REVISED SUBMITTAL
3	09-14-21	JJK	S.DWRD RESUBMITTAL-REVISED PER COMMENTS DATED 27-19-21
4	10-26-21	JJK	CITY OF DELAND RE-SUBMITTAL PHA A 1-19-19
5	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 12-13-21
6	12-30-21	JJK	REVISED PER CITY COMMENTS DATED 12-30-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS PLAN & PROFILE

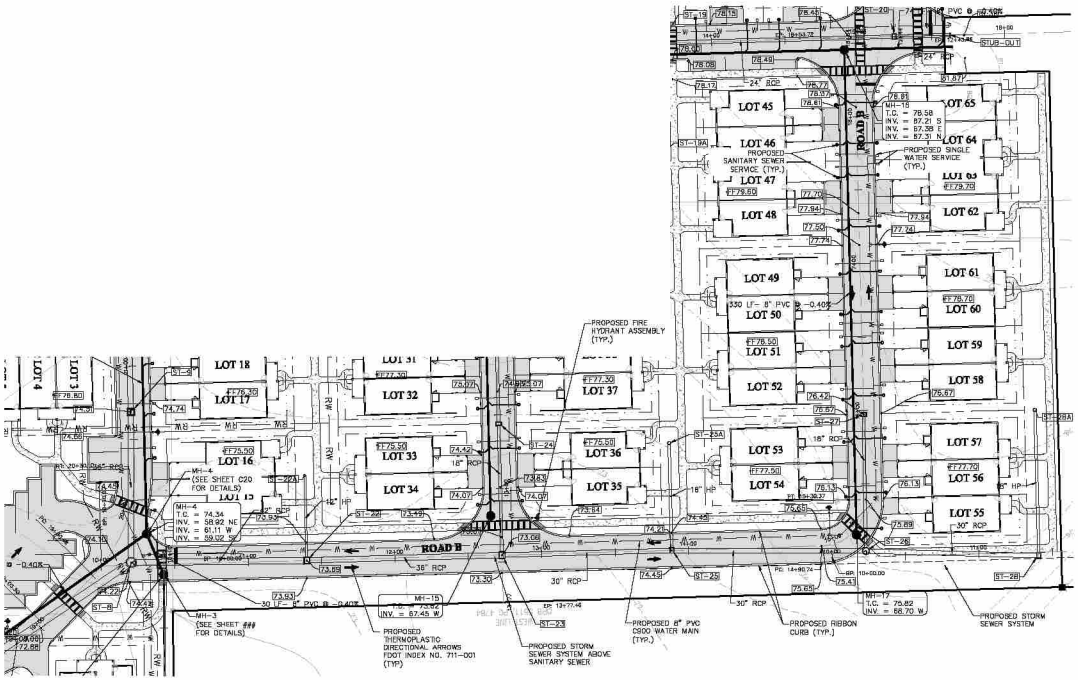
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKU/ML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 19-08_19194-PP_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLOWG

Digitally signed by Hriluk Kitc
Date: 2022.01.03 16:03:23-05'00'

RANDY M. HLUSAK, P.E., NO 56063
HRILUK KELLY, P.E., NO 86044
NOT VALID WITHOUT SEAL

SHEET: C21 OF 36

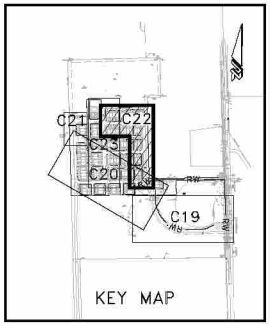


LEGEND:

- PROPOSED SANITARY MAIN AND MANHOLE
- PROPOSED WATERMAIN
- PROPOSED FIRE MAIN
- PROPOSED RECLAIMED WATERMAIN
- PROPOSED FORCEMAIN
- PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES

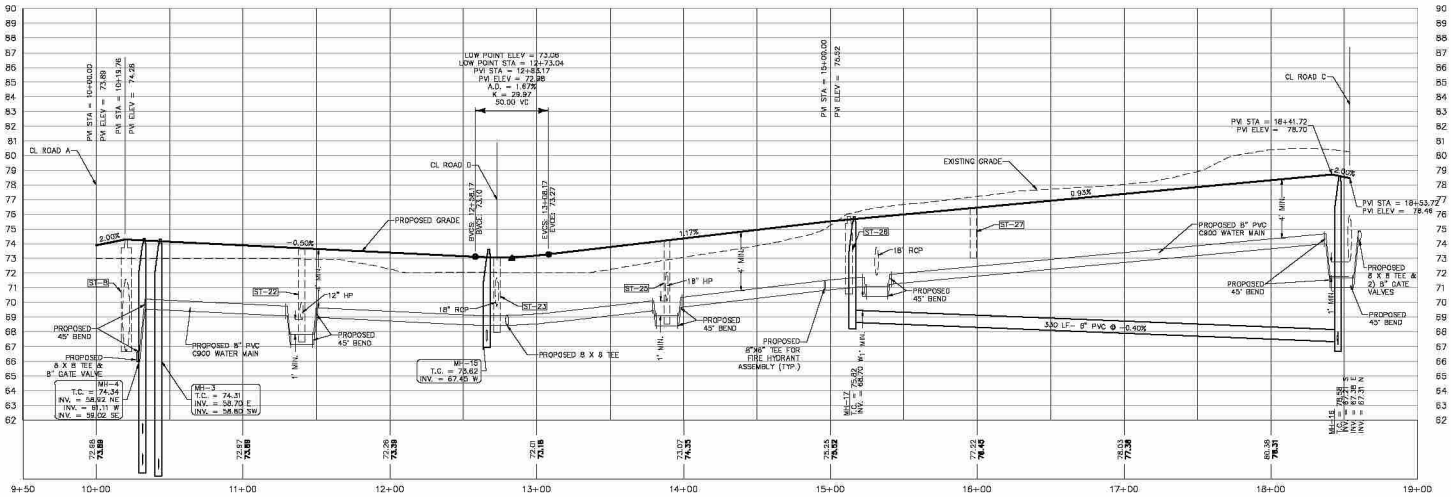
0 20 40 60 80
SCALE : 1" = 40'

NOTES:
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C26).
4. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.



ROAD B PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40'
VERT:1"=4'



ZEV COHEN & ASSOCIATES, INC.
2500 S. IVANHOE BLVD.
ORANGE CITY, FL 32763
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	REVISIONS
1	06-15-21	HK	SUBMITTAL/ REVISIONS
2	06-21-21	HK	S. ROAD SUBMITTAL
3	09-14-21	JJK	CITY OF DELAND RE-SUBMITTAL
4	10-26-21	JJK	S. ROAD RESUBMITTAL-REVISED PER COMMENTS DATED 27-19-21
5	12-13-21	JJK	CITY OF DELAND RE-SUBMITTAL PHAS 1A-1B
6	12-30-21	JJK	REVISED PER CITY COMMENTS DATED 12-30-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS PLAN & PROFILE

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

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CHECKED BY: RMH
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XREF'S: 19194_BASE.DWG
XREF'S: XXXXXLOWG

Digitally signed by Hiruk Kilic
Date: 2022.01.03 16:03:26-05'00'

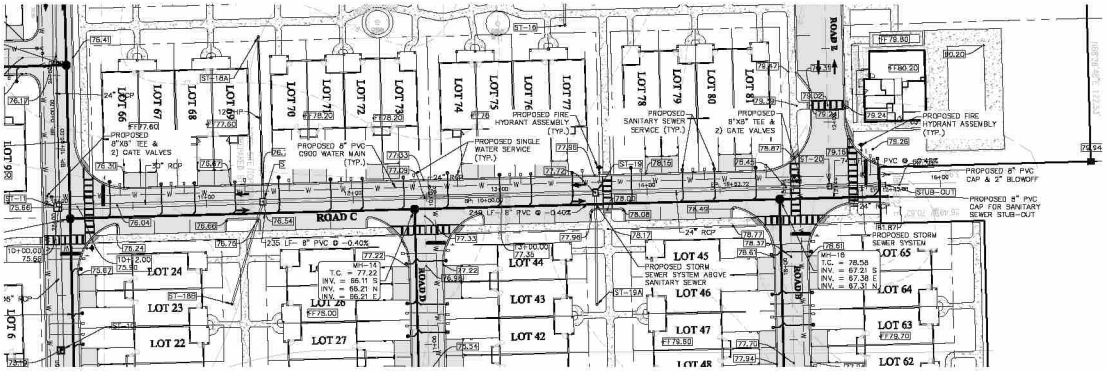
SHEET: C22 OF 36

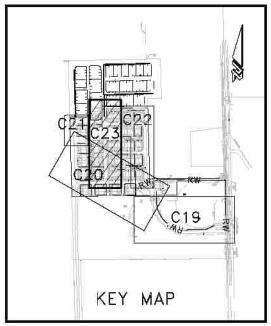
LEGEND:

- PROPOSED SANITARY MAIN AND MANHOLE
- W — PROPOSED WATERMAIN
- F — PROPOSED FIRE MAIN
- R — PROPOSED RECLAIMED WATERMAIN
- FM — PROPOSED FORCEMAIN
- CB — PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES

SCALE : 1" = 40'

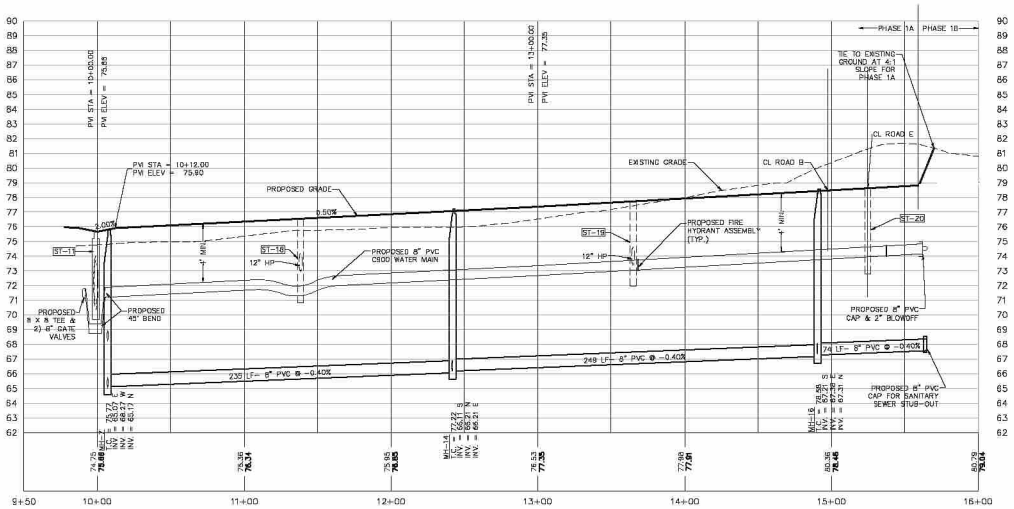
NOTES:
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DCP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C28).
4. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.





ROAD C PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40'
VERT:1"=4'



ZEV COHEN & ASSOCIATES, INC.
2500 S.E. 17TH STREET
OCALA, FLORIDA 34471
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS/REVISIONS
1	06-15-21	HK	S. ROAD SUBMITTAL
2	08-04-21	HK	CITY OF DELAND SUBMITTAL
3	09-21-21	JJK	S. ROAD RESUBMITTAL-REVISED PER COMMENTS DATED 9-16-21
4	10-26-21	JJK	CITY OF DELAND RE-SUBMITTAL PHASE 1-10/19
5	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21
6	12-30-21	JJK	REVISED PER CITY COMMENTS DATED 12-30-21

MANCHESTER NEIGHBORHOOD
PHASE 1A
FINAL ENGINEERING PLANS
PLAN & PROFILE

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

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XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Frank Kilic
Date: 2022.01.03 16:03:29-05'00'

RANDY M. HIGGINS, P.E., REGISTERED
FLORIDA P.E. NO. 71 - NO SEAL
NOT VALID WITHOUT SEAL

SHEET: C23 OF 36

LEGEND:

- PROPOSED SANITARY MAIN AND MANHOLE
- PROPOSED WATERMAIN
- PROPOSED FIRE MAIN
- PROPOSED RECLAIMED WATERMAIN
- PROPOSED FORCEMAIN
- PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES

SCALE : 1" = 40'

NOTES:
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
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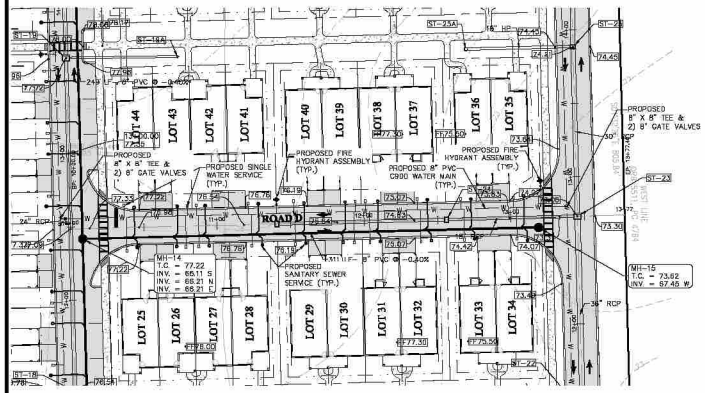
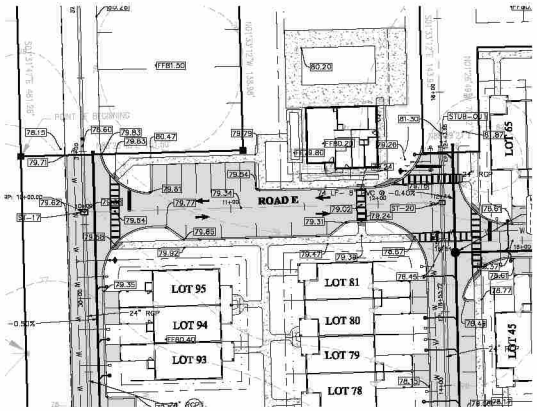
4. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.



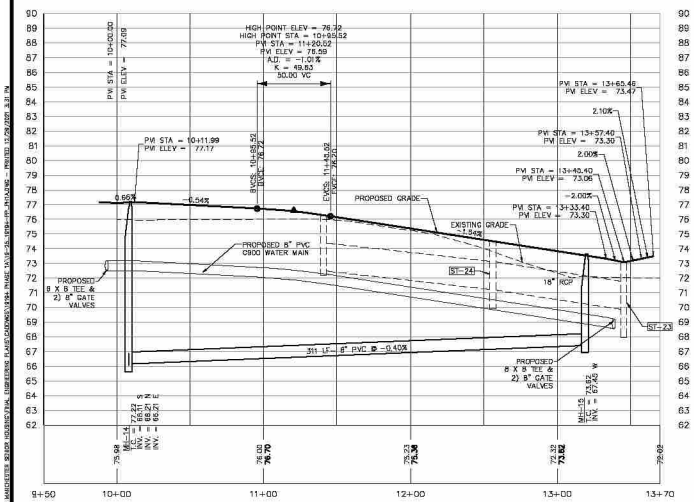
ROAD D - PLAN & PROFILE

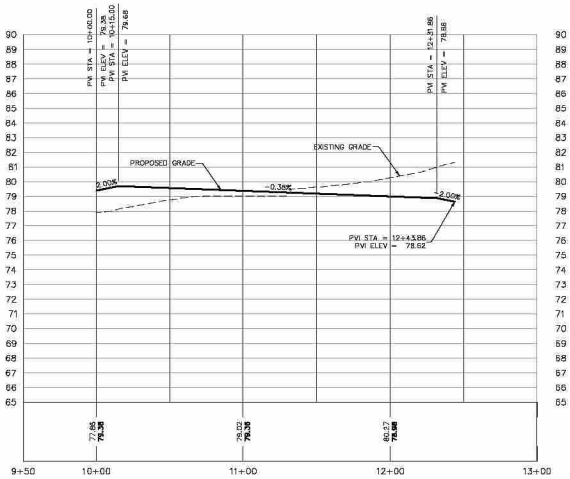
PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40' VERT:1"=4'



ROAD E - PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40' VERT:1"=4'





ZEV COHEN & ASSOCIATES, INC.
2500 MAITLAND CENTER PKWY.
MAITLAND, FL 32751
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	REVISIONS
1	06-15-21	HK	SUBMITTAL/F REVISIONS
2	06-17-21	HK	S-DWRD SUBMITTAL
3	08-31-21	JJK	CITY OF DELAND RE-SUBMITTAL
4	10-26-21	JJK	S-DWRD RESUBMITTAL-REVISED PER COMMENTS DATED 27-10-21
5	11-17-21	JJK	CITY OF DELAND RE-SUBMITTAL PH A & PH B
6	12-14-21	JJK	S-DWRD RESUBMITTAL-REVISED PER COMMENTS DATED 12-10-21
7	12-30-21	JJK	REVISED PER CITY COMMENTS DATED 12-30-21

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XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

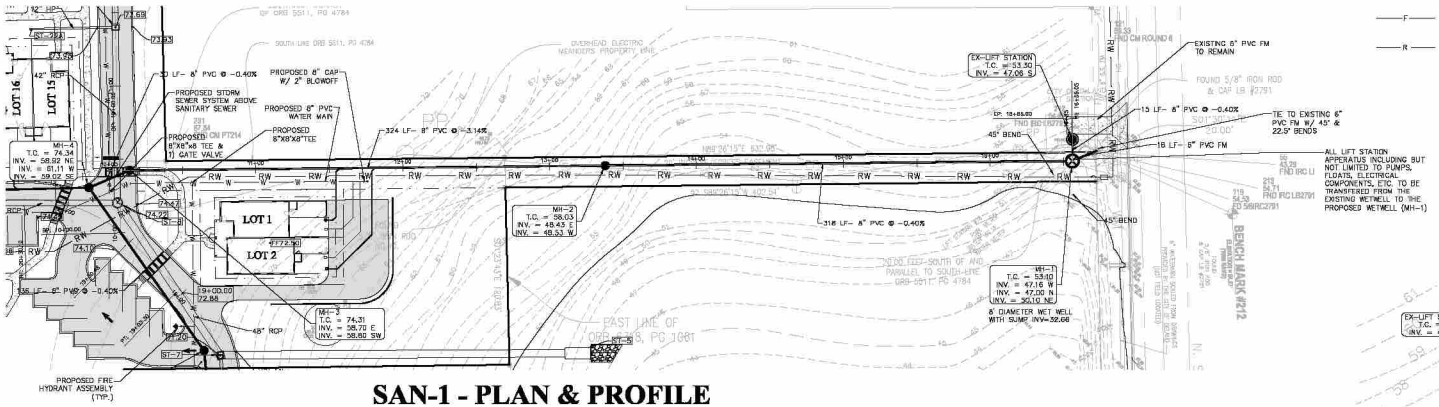
Digitally signed by Hilary Kilto
Date: 2022.01.03 16:03:33-05'00'

RANDY M. HUDAK, P.E., NO.89088
1414 LAKE ST., P.E., NO.84344
NOT VALID WITHOUT SEAL

SHEET: C24 OF 36

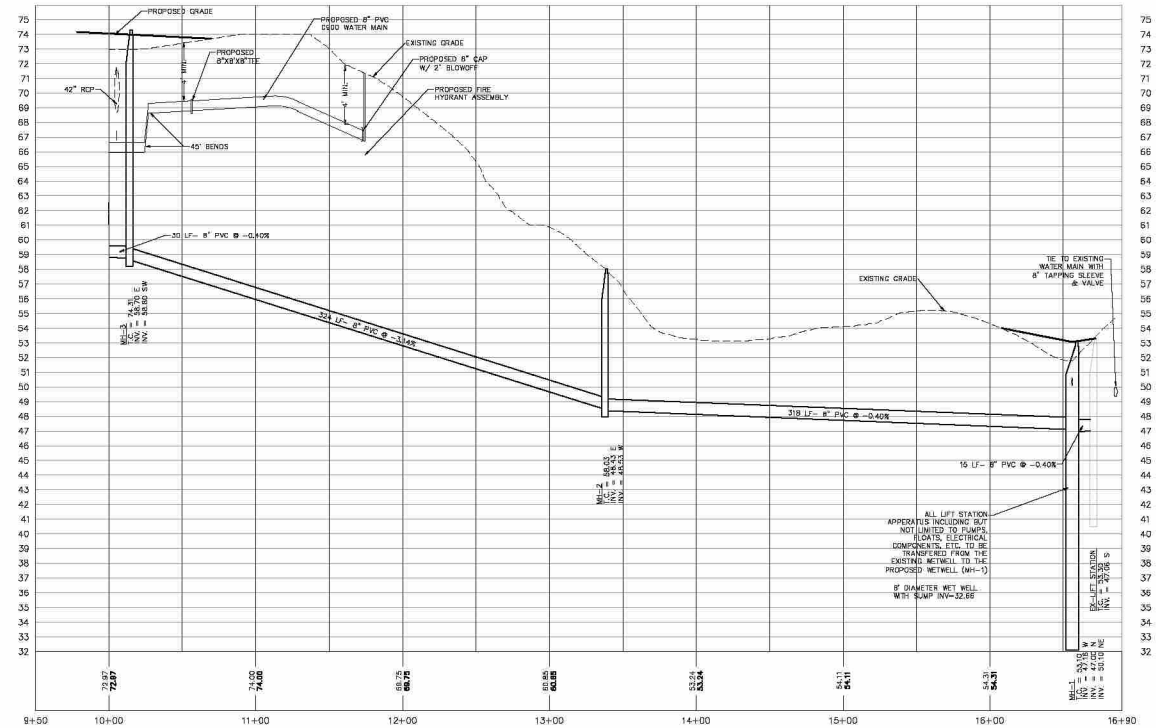
LEGEND:

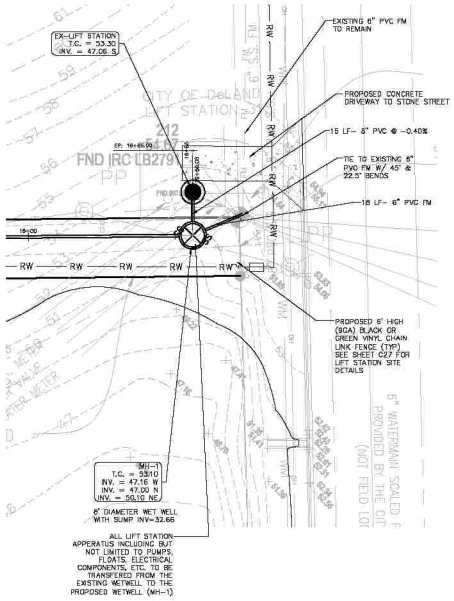
- PROPOSED SANITARY MAIN AND MANHOLE
- W — PROPOSED WATERMAIN
- F — PROPOSED FIRE MAIN
- R — PROPOSED RECLAIMED WATERMAIN
- FM — PROPOSED FORCEMAIN
- CR — PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES



SAN-1 - PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ: 1"=40' VERT: 1"=4'





LIFT STATION ENLARGEMENT

PLAN VIEW: 1"=20'

NOTES:
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
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3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C26).
4. SEE SHEET C11 FOR STORMWATER STRUCTURE TABLES.

ZEV COHEN & ASSOCIATES, INC.
2500 S. CONGRESS AVENUE, STE. 1
DELRAY BEACH, FL 33445
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS/REVISIONS
1	06-15-21	HK	S. DRAKE SUBMITTAL
2	06-21-21	HK	S. DRAKE SUBMITTAL
3	08-11-21	JJK	S. DRAKE REVISED PER COMMENTS DATED 07-16-21
4	10-26-21	JJK	CITY OF DELAND RE-SUBMITTAL PH1A & 1B
5	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 11-09-21
6	12-30-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS PLAN & PROFILE

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

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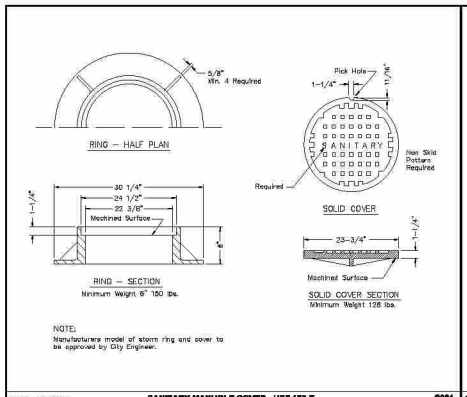
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic Date: 2022.01.03 16:03:36-05'00'

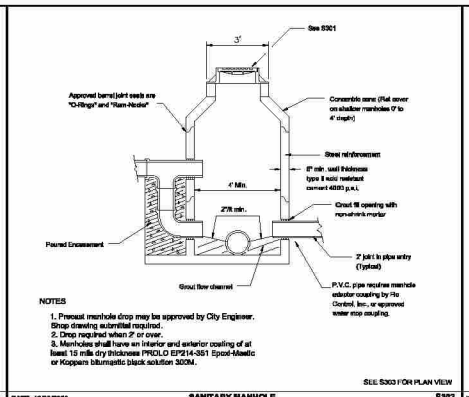
SURVEY M. HIGGINS, P.E., NO 86269
HALUK ALIC, P.E., NO 86264
NOT VALID WITHOUT SEAL

SHEET: C25 OF 36



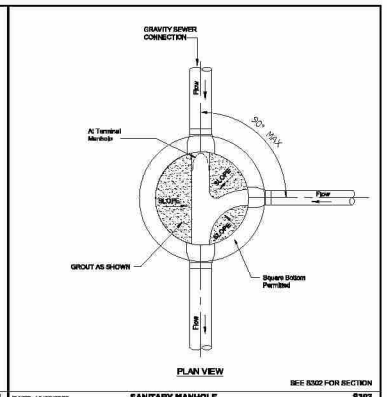
DATE: 10/28/2020 **SANITARY MANHOLE COVER - USF 179-E** S301

City of DeLand - Standard Details



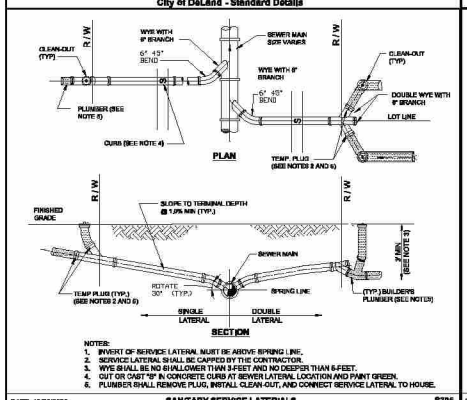
DATE: 10/28/2020 **SANITARY MANHOLE** S302

City of DeLand - Standard Details



DATE: 10/28/2020 **SANITARY MANHOLE** S303

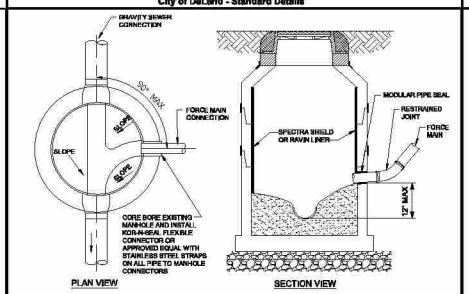
City of DeLand - Standard Details



NOTES:
1. INVERT OF SERVICE LATERAL MUST BE ABOVE SPRING LINE.
2. SERVICE LATERAL SHALL BE CAPPED BY THE CONTRACTOR.
3. WYE SHALL BE NO SHALLOWER THAN 3-FEET AND NO DEEPER THAN 6-FEET.
4. CUT OR CAST "S" IN CONCRETE CURB AT SEWER LATERAL LOCATION AND PAINT GREEN.
5. PLUMBER SHALL REMOVE PLUG, INSTALL CLEAN-OUT, AND CONNECT SERVICE LATERAL TO HOUSE.

DATE: 10/28/2020 **SANITARY SERVICE LATERALS** S306

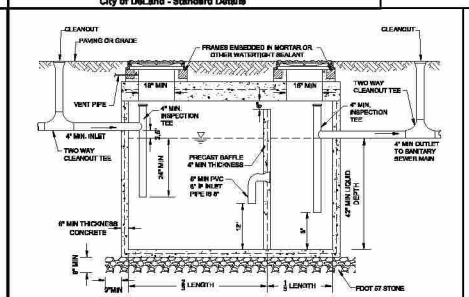
City of DeLand - Standard Details



NOTES:
1. FORCE MAIN ORIENTED TO FACILITATE FLOW AND SHALL ENTER MANHOLE WITHIN 1' ABOVE INVERT OF THE EFFLUENT PIPE.
2. BENCH AS REQUIRED FOR NEW FORCE MAIN.
3. MANHOLE RECEIVING FORCE MAIN AND NEXT MANHOLE SHALL BE LINED. EXISTING MANHOLES RECEIVING FORCE MAIN SHALL BE LINED WITH SPECTRA SHIELD OR RAVIN.
4. CONTRACTOR TO COORDINATE THE PRESENCE OF UTILITIES INSPECTOR DURING CORING AND CONNECTIONS TO EXISTING MANHOLES.

DATE: 10/28/2020 **FORCE MAIN TO GRAVITY SEWER CONNECTION** S306

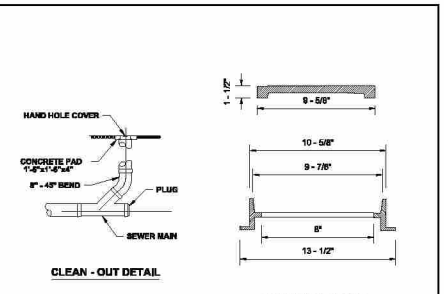
City of DeLand - Standard Details



NOTES:
1. SPECIFIC DESIGN DETAILS MUST IN ALL ASPECTS MEET APPLICABLE FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
2. SIZE GREASE INTERCEPTOR - MINIMUM SIZE 750 GAL; MAXIMUM SIZE 1500 GAL.
3. INTERCEPTORS SHALL BE WATER AND GAS TIGHT.
4. ALL FIXTURES LOCATED IN FOOD AND BEVERAGE PREPARATION AREAS SHALL BE ROUTED THROUGH GREASE INTERCEPTOR. RESTROOM WASTE SHALL NOT BE ROUTED THROUGH INTERCEPTOR.
5. BAFFLE RECEPTOR: ALTERNATIVE DESIGNS ARE ACCEPTABLE THAT MEET FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
6. LOADS/COVER TO MEET H-20 TRUCK WHEELS WITH 30% IMPACT PER AASHTO. TRAFFIC BEARING FRAME AND COVER TO MEET FDOT STANDARDS AND SHALL BE IMPRINTED WITH THE WORDS "GREASE TRAP".

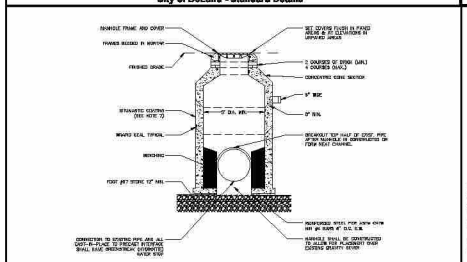
DATE: 10/28/2020 **GREASE TRAP** S307

City of DeLand - Standard Details



DATE: 10/28/2020 **CLEAN - OUT** S308

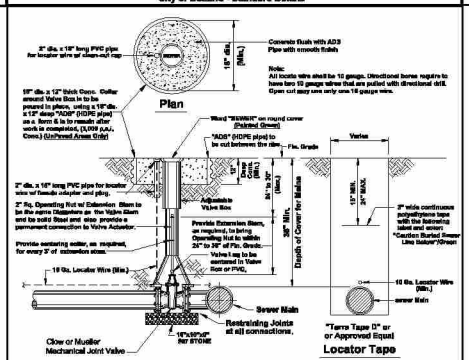
City of DeLand - Standard Details



NOTES:
1. DOGHOUSE OPENING MAY ONLY BE USED WHEN PLACING A NEW MANHOLE OVER AN EXISTING LINE; OTHERWISE, THE OPENING MUST BE CAST. SIZE, LOCATION AND ANGLE OF ENTRY SHOULD BE AS REQUIRED BY THE PLANS.
2. OPENINGS IN PRE-CAST UNITS ARE TO BE 4" MINIMUM TO 8" MAXIMUM LARGER THAN THE OUTSIDE DIAMETER OF THE PROPOSED PIPE.
3. MANHOLE COVERS TYPICAL FOR ALL FRAME TYPES.
4. WRAPS SEAL MUST BE USED ON ALL JOINTS, CASTINGS AND RISER RINGS ON ALL JOINTS ON ROUND AIR RELEASE AND ROUND MANHOLE STRUCTURES.
5. WRAPS SEAL MUST BE USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. MAX. MANHOLE DEPTH SHALL BE 15' TO LOWEST PIPE INVERT.
7. MANHOLES SHALL HAVE AN INTERIOR AND EXTERIOR COATING OF AT LEAST 15 MILS DRY THICKNESS PROLO EP214-351 EPOXI-MASTIC OR KOPPERS BITUMASTIC BLACK SOLUTION 300M.

DATE: 10/28/2020 **DOGHOUSE MANHOLE** S309

City of DeLand - Standard Details



DATE: 10/28/2020 **FORCE MAIN VALVE SETTING** S315

City of Deland - Standard Details

ZEV COHEN & ASSOCIATES, INC.
6500 SW 40TH STREET
GAINESVILLE, FL 32608
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
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NO.	DATE	BY	REVISIONS
1	06-15-21	HK	SUBMITTALS REVISIONS
2	06-21-21	JJ	S. FOWKO SUBMITTAL
3	09-21-21	JJ/K	S. FOWKO RESUBMITTAL
4	10-26-21	JJ/K	S. FOWKO RESUBMITTAL - REVISED PER COMMENTS DATED 09-16-21
5	12-8-21	JJ/K	CITY OF DELAND RESUBMITTAL PH 1A 4-19-19
6	12-13-21	JJ/K	CITY OF DELAND RESUBMITTAL PH 1A 12-13-21
7	12-16-21	JJ/K	REVISED PER CITY COMMENTS DATED 12-16-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKU/ML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 20-08-19194-DET_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:03:40-05'00'

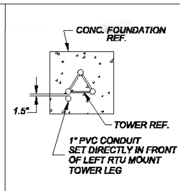
SHEET: C26 OF 36

NOTE: EXISTING PUBLIC LIFT-STATION AND ALL ELECTRICAL COMPONENTS TO REMAIN W/MODIFICATION AS SHOWN ON THESE PLANS.

SPARE PARTS

1. VACUUM PUMP AND FLOAT CHECK VALVE
2. CHECK VALVE
3. CW OR CCW IMPELLER
4. PARKER SOLENOID VALVE (25 PSI)
5. MECHANICAL SEAL
6. SONIC START VACUUM DOME HOUSING
7. SONIC START REPLACEMENT PRIME SENSOR

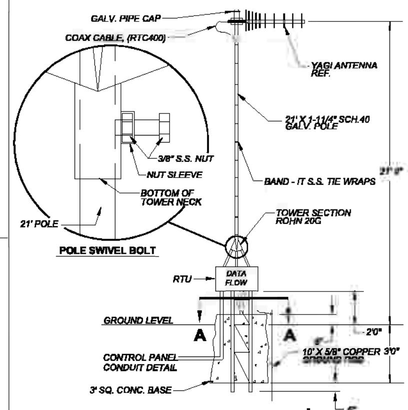
MOTORS:
THE PUMP MOTORS SHALL BE VERTICAL, SOLID SHAFT, NEMA P-BASE, SQUIRREL-CAGE INDUCTION TYPE, SUITABLE FOR 3 PHASE, 60 CYCLE, 480 VOLT ELECTRIC CURRENT. THEY SHALL HAVE CLASS F INSULATION. INSULATION TEMPERATURE SHALL, HOWEVER, BE LIMITED TO CLASS B. THE MOTORS SHALL HAVE NORMAL STARTING TORQUE AND LOW-STARTING CURRENT, AS SPECIFIED BY NEWMAN DESIGN B CHARACTERISTICS. THEY SHALL BE OPEN DRIP-PROOF DESIGN WITH FORCED AIR CIRCULATION BY INTEGRAL FAN, OPENINGS FOR VENTILATION SHALL BE UNIFORMLY SPACED AROUND THE FRAME, LEADS SHALL BE TERMINATED IN CAST CONNECTION BOX AND SHALL BE CLEARLY IDENTIFIED.
THE MOTORS SHALL HAVE 1.15 SERVICE FACTOR. THE SERVICE FACTOR SHALL BE RESERVED THE OWNER'S PROTECTION. THE MOTORS SHALL NOT BE OVERLOADED BEYOND THEIR NAMEPLATE RATING, AT THE DESIGN CONDITIONS, NOR AT ANY HEAD IN THE OPERATING RANGE AS SPECIFIED UNDER OPERATING CONDITIONS.
THE MOTOR-PUMP SHAFT SHALL BE CENTERED, IN RELATION TO THE MOTOR BASE, WITHIN 0.005".
THE SHAFT RUNOUT SHALL NOT EXCEED 0.002".
THE MOTORS SHAFT SHALL BE EQUAL OR EXCEED THE DIAMETER SPECIFIED UNDER MAIN PUMPS AT ALL POINTS FROM IMMEDIATELY BELOW THE TOP BEARING TO THE TOP OF THE IMPELLER HUB. A BEARING CAP SHALL BE PROVIDED TO HOLD THE BOTTOM MOTOR BEARING IN A FIXED POSITION. BEARING HOUSINGS SHALL BE PROVIDED WITH FITTING FOR LUBRICATION AS WELL AS PURGING OLD LUBRICANT. THE MOTORS SHALL BE FITTED WITH HEAVY LIFTING EYES OR LUGS, EACH CAPABLE OF SUPPORTING THE ENTIRE WEIGHT OF THE PUMP AND MOTOR.



CONDUIT DETAIL

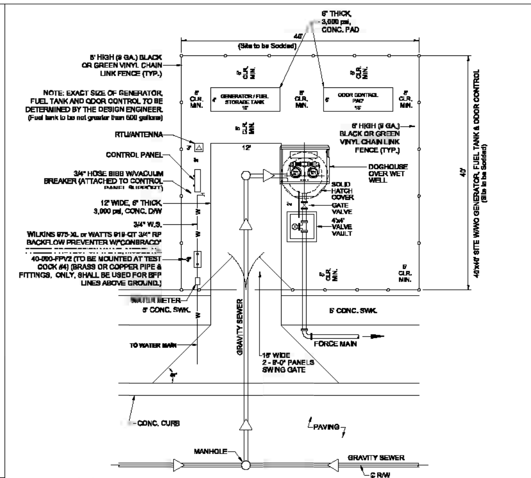
SECTION "A-A"

N.T.S.



ANTENNA DETAIL

N.T.S.



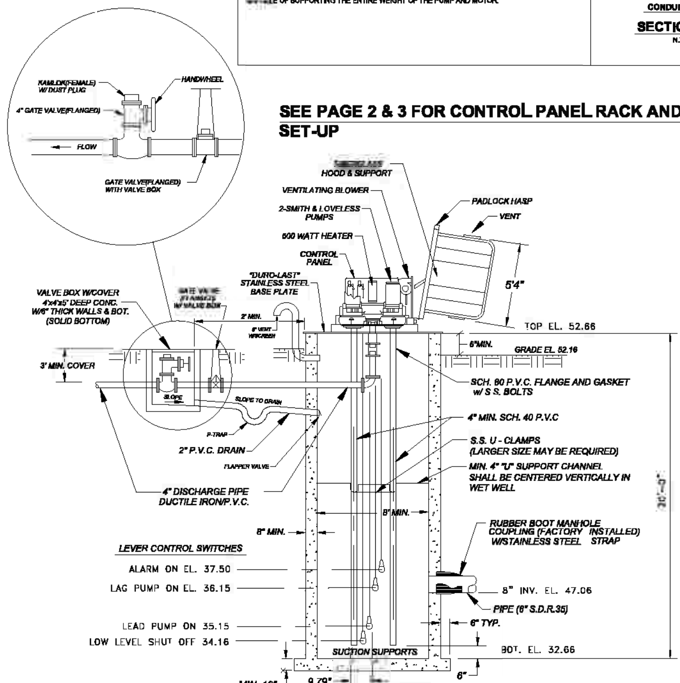
NOTES:
1. MINIMUM 20'-0" ACCESS DRIVEWAY FROM EDGE OF PAVEMENT TO THE GATE SHALL BE PROVIDED ON NON-RESIDENTIAL ROADS.
2. MINIMUM DISTANCE BETWEEN FENCE AND ALL INSTALLED EQUIPMENT SHALL BE 5 FEET UNLESS OTHERWISE NOTED.
3. ALL WORK SHALL BE PER CITY STANDARDS & SPECIFICATIONS.
4. BRASS OR COPPER PIPE & FITTINGS, ONLY, SHALL BE USED FOR HOSE BIBBS AND ALL WATER LINES ABOVE GROUND.

NOTE: 40'x40' UTILITY EASEMENT SITE TO BE DEDICATED TO CITY OF DELAND

shall be provided to Site if required)

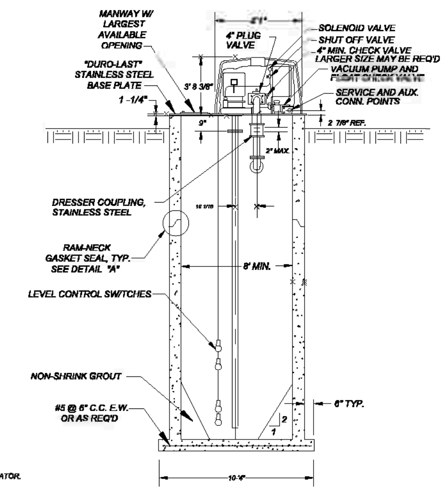
LIFT STATION SITE PLAN

SEE PAGE 2 & 3 FOR CONTROL PANEL RACK AND SET-UP

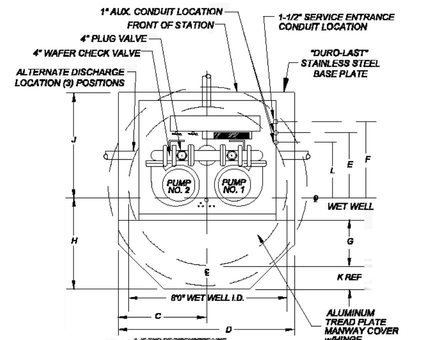


SECTIONAL ELEVATION

1. ALL MAJOR COMMERCIAL OR RESIDENTIAL PROJECTS MUST PROVIDE AN ON- SITE GENERATOR OR CONTRIBUTE TO THE GENERATOR FUND.
2. GENERATOR MAKE SHALL BE A FLORIDA DETROIT DIESEL OR CATERPILLAR.
3. DIESEL FUEL TANK WITH THREE DAY RUN TIME MIN. (500 Gallon Maximum Storage)
4. AUTOMATIC TRANSFER SWITCH SHALL BE REQUIRED.
5. GENERATOR SHALL BE CONNECTED TO THE REMOTE TELEMETRY UNIT FOR MONITORING.
6. NEW SUBDIVISIONS OF 60 HOMES OR MORE WILL BE REQUIRED TO PROVIDE A UNIT W/GENERATOR. (LESS THAN 60 HOMES WILL PAY A PRO RATA SHARE $450 PER UNIT)



CROSS SECTION



PRIMING LOCK LOOP MAY BE REQ'D., (CONSULT FACTORY)
2. IF DISCHARGE LINE IS LESS THAN 200' IN LENGTH AN ADDITIONAL CHECK VALVE OR PRIMING LOCK LOOP MAY BE REQ'D. (CONSULT FACTORY)
3. PROVIDE 60° SLOPE IN WET WELL, AS REQ'D.
4. VOLUME IN GALLONS BETWEEN L.L. ON AND L.L. OFF SHOULD BE EQUAL OR GREATER THAN THE PUMPING RATE IN G.P.M.
5. MAXIMUM CAPACITY - 400 G.P.M.

PLAN VIEW

MACH. CHAMBER (SHOWN LESS HOOD)

GENERAL SITE PLAN NOTES:

1. BACKFLOW PREVENTER SHALL BE, WILKINS 3/4" 975-XL RP or WATTS 3/4" 919-QT RP , W/ "CONBRACO" FREEZE PROTECTION VALVE, MODEL No. 40-000-FPV2, TO BE MOUNTED AT TEST COCK #4.
2. ALL 3/4" HOSE BIBBS SHALL ALSO HAVE A VACUUM BREAKER.
3. LIFT STATION SITE SHALL BE SODDED.
4. PRIOR TO ACCEPTANCE OF THIS LIFT STATION, CITY STAFF WILL OBSERVE THAT THIS STATION WILL PUMP DOWN TO THE CITY'S SPECIFIED CUT-OFF LEVEL UNDER THE CONDITIONS OF A FULL DISCHARGE PRESSURE SEWER, BEING PRESSURIZED W/ ALL OTHER PUMP STATIONS OPERATING, IF THERE EXISTS A MANIFOLD CONDITION. THE DEVELOPER WILL SUPPLY LABOR AND MATERIALS FOR THIS DEMONSTRATION.
5. DO NOT PLACE TRANSFORMERS OR OTHER APPURTENANCES WITHIN THE DESIGNATED EASEMENT THAT WILL IMPEDE MAINTENANCE ACTIVITIES OF THIS STATION.
6. ORIENTATE THE MANWAY TOWARD THE STREET SIDE FOR EASY ACCESS BY OPERATING & MAINTENANCE PERSONNEL.
7. PROVIDE ADEQUATE PAVING (CONC. OR ASPHALT) 12' WIDE DRIVE FROM STREET TO PUMP STATION FOR SAFE ACCESS OF EMERGENCY GENERATOR, SEWER CLEANER, AND OTHER MAINTENANCE VEHICLES.
8. FENCE WITH 8' HIGH COMMERCIAL GRADE CYCLONE FENCE, USING TWO 8 FOOT GATES . FENCE SHOULD BE LOCATED IN SUCH A WAY AS NOT TO INTERFERE WITH ANY PANEL DOORS OR HATCH OPENINGS, AND GATE POSITIONED TO ALLOW EASY ACCESS TO WET WELL. (BLACK OR GREEN VINYL COATED), (REFER TO SITE PLAN)
9. A 40' x 40' TRACT SHALL BE DEDICATED TO THE CITY OF DELAND FOR THE LIFT STATION SITE.
10. PROVIDE "DURO-LAST" STAINLESS STEEL BASE PLATE ON LIFT STATION.
11. BRASS OR COPPER PIPE & FITTINGS, ONLY, SHALL BE USED FOR BFP & HOSE BIBBS AND LINES ABOVE GROUND.
12. ALL SEWER AIR RELEASE VALVES SHALL BE 2" A.R.I. MODEL D-025TPO2.
13. MIN. 2'x2' AROUND AND 6' CLEARANCE ABOVE METER

CONTROLS:
THE CONTROL EQUIPMENT SHALL BE MOUNTED IN A NEMA TYPE 1 STEEL ENCLOSURE WITH A REMOVABLE ACCESS COVER. THE CIRCUIT BREAKERS, STARTER RESET BUTTONS, AND CONTROL SWITCHES SHALL BE OPERABLE WITHOUT REMOVING THE ACCESS COVER, FOR DEADFRONT OPERATION.
A GFCI TYPE CONVENIENCE OUTLET SHALL BE PROVIDED ON THE SIDE OF THE CABINET FOR OPERATION OF 120 VOLT AC DEVICES. THERMAL MAGNETIC AIR CIRCUIT BREAKERS SHALL BE PROVIDED FOR BRANCH DISCONNECT SERVICE AND SHORT CIRCUIT PROTECTION OF ALL MOTOR CONTROL AND AUXILIARY CIRCUITS.
MAGNETIC ACROSS-THE-LINE STARTERS WITH UNDER-VOLTAGE RELEASE AND OVERLOAD COILS FOR EACH PHASE SHALL BE PROVIDED FOR EACH PUMP MOTOR TO GIVE POSITIVE PROTECTION. EACH SINGLE-PHASE AUXILIARY MOTOR SHALL BE EQUIPPED WITH AN OVER-CURRENT PROTECTION DEVICE IN ADDITION TO THE BRANCH CIRCUIT BREAKER, OR SHALL BE IMPEDANCE PROTECTED. ALL SWITCHES SHALL BE LABELED AND A CODED WIRING DIAGRAM SHALL BE PROVIDED.
TO CONTROL THE OPERATION OF THE PUMPS WITH VARIATIONS OF LIQUID LEVEL IN THE WET WELL, A MINIMUM OF FOUR (4) DISPLACEMENT SWITCHES SHALL BE PROVIDED. A 30' CORD SHALL BE PROVIDED WITH EACH SWITCH. THE CORD SHALL HAVE A CORROSION-RESISTANT VINYL JACKET AND BE MULTI-STRANDED IN ORDER TO PREVENT FATIGUE.
AN AUTOMATIC ALTERNATOR WITH MANUAL SWITCH SHALL BE PROVIDED TO CHANGE THE SEQUENCE OF OPERATION OF THE PUMPS EVERY EIGHT HOURS. ALTERNATING THE PUMPS AT LESS THAN EIGHT HOUR INTERVALS WILL NOT BE ACCEPTABLE. PROVISIONS SHALL ALSO BE [illegible]

Index No.
30800
REVISED 5/31/07
REVISED 8/6/08
REVISED 10/12/09
REVISED 4/8/10
REVISED 8/1/13
REVISED 9/2/14
REVISED 5/15/17
REVISED 7/24/18
SHEET 1 OF 3

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CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

VOLUSIA COUNTY, FLORIDA

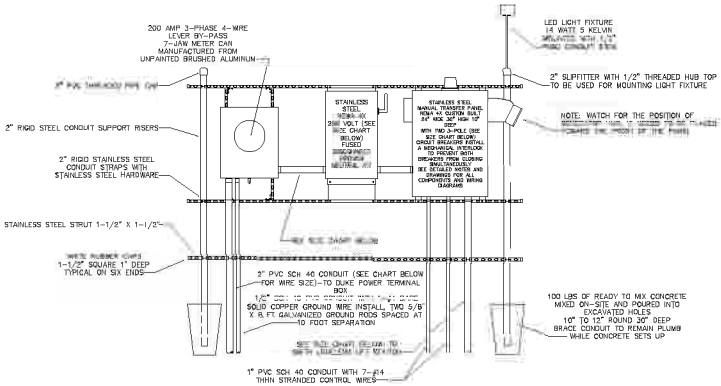
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAWING FILE: 26-38-19194-DET_PH1A

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:03:43-05'00'

SHEET: C27 OF 36

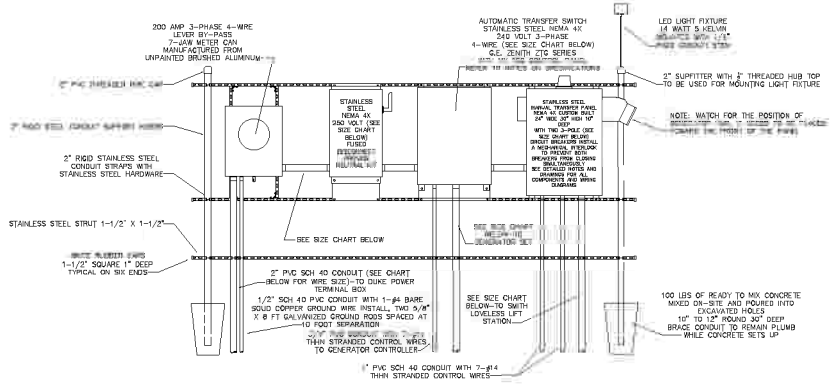
NOTE: EXISTING PUBLIC LIFT-STATION AND ALL ELECTRICAL COMPONENTS TO REMAIN W/MODIFICATION AS SHOWN ON THESE PLANS.

DETAIL "A"

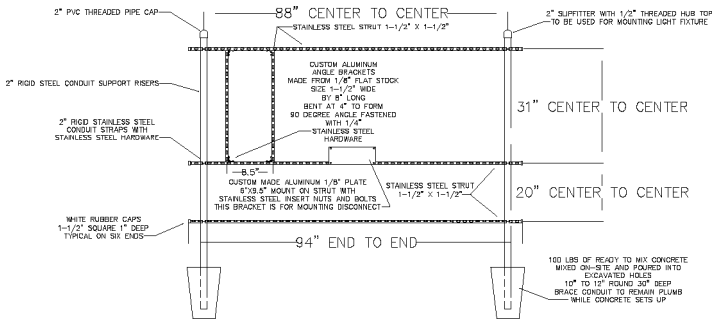


240 VOLT POWER RACK WITHOUT GENERATOR

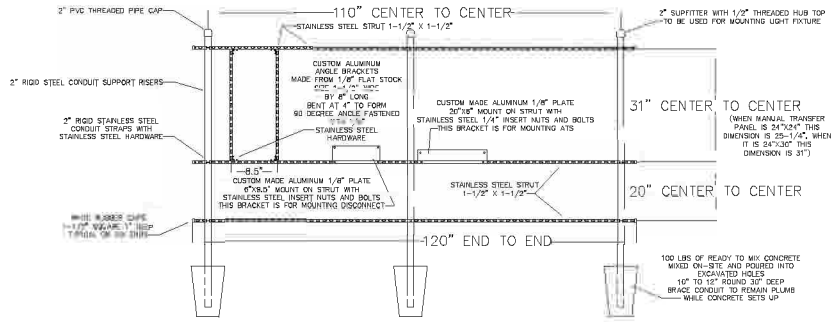
DETAIL "B"



240 VOLT POWER RACK WITH GENERATOR AUTOMATIC TRANSFER SWITCH



RACK FRAMING DETAILS
240 VOLT WITHOUT AUTOMATIC TRANSFER SWITCH



RACK FRAMING DETAILS
240 VOLT WITH AUTOMATIC TRANSFER SWITCH

CONTROL GENERATOR RECEPTACLE PANEL

1. ENCLOSURE ; NEMA 4X STAINLESS, 304 GRADE, 14 GAUGE, GASKETED, 14 BRUSHED FINISH, U.L. AND CSA APPROVED, HASP AND STAPLE FOR PADLOCKING, INSIDE PRINT POCKET, STAINLESS STEEL HINGE: MIN. SIZE: 24" x 24"x 8" FOR UP TO 15 H.P.
2. MAIN BREAKER : SQUARE D HEAVY DUTY SIZED PROPERLY FOR FULL LOAD OF STATION PLUS 20%.
3. EMERGENCY BKR.: SQUARE D HEAVY DUTY SIZED PROPERLY FOR FULL LOAD OF STATION PLUS 20%.
4. MECH. INTERLOCK: ALL ALUMINUM AND STAINLESS STEEL W/POSITIVE MEANS OF LOCKING OFF BREAKER NOT IN USE. THE BREAKERS WILL PROTRUDE THROUGH INNER DOOR.
5. RECEPTACLE: RUSSELL STYLL JRS1044FR (250 VOLT ONLY), MELTRIC PART 837-98047 (480 VOLT ONLY)
6. ANGLE ADAPTER: RUSSELL STOLL JAA8-10, 20 USG, ADAPTER
7. LIGHTNING ARRESTOR: HEAVY DUTY, SQUARE D P/N SDASA3800, OR INTERMATIC AG803C 800V.
8. PHASE MONITOR: DIVERSIFIED P/N SLA-230-ASA, 8 PIN WITH N.O. AND N.C. CONTACTS WIRE TO TERMINAL FOR RTU EQUIPMENT.
9. HIGH WATER ALARM: RED, LEXAN, WING EXTERNAL SCREWS.
10. HWA RELAY: SQUARE D OR OMRON, 8 PIN DOUBLE POLE, DOUBLE THROW WIRED TO RTU TERMINAL.
11. ALARM HORN: RED, WHEELLOCK P/N 37T-110 MOUNTED TO RED WEATHER PROOF CAST BOX ON EXTERIOR OF ENCLOSURE.
12. ALARM RELAY: SQUARE D OR OMRON, 8 PIN DOUBLE POLE, DOUBLE THROW WIRED TO RTU TERMINAL.
13. ALARM HSB6120A.: SQUARE D, WEATHER PROOF MOUNTED ON EXTERIOR OF ENCLOSURE.
14. ENCL. BACKPLATE: ALUMINUM, 12 GAUGE
15. TERMINAL STRIP: BUCHANON P/N 0926
16. GROUND LUG: BUCHANON P/N 6S4
17. NEUTRAL LUG: BUCHANON P/N 6S4
18. MAIN LOAD LUG: SQUARE D P/N U3
19. LABELS: ALL BREAKERS AND SWITCHES TO BE IDENTIFIED BY PERMANENTLY ATTACHED LABEL TO PANEL DOOR INTERIOR
20. MOUNTING SCREWS: STAINLESS STEEL 304
21. SCHEMATIC DWG.: PROTECTED BY PLASTIC COATING AND ATTACHED TO PANEL DOOR INTERIOR.
22. MANUFACTURER: STACON, FCS OR CITY OF DELAND APPROVAL.
23. R.T.U.: (DATA FLOW MELBOURNE FLA. (R.T.U. 204) OR EQUAL TO BE INSTALLED BY CITY- DEVELOPER TO BEAR ALL COSTS.
24. PROVIDE SPARE PARTS - SEE SPARE PARTS LIST
25. WET WELL TO BE COATED INSIDE AND OUT WITH MIN. 24 MILS OF COALTAR EPOXY

SIZE CHART

STEP #1: DETERMINE LIFT STATION SIZE & SPECIFICATIONS FROM THE UTILITY CONTRACTOR OR CITY OF DELAND ENGINEERING DEPT.

STEP #2: MAKE NOTE OF THE FOLLOWING: THE VOLTAGE FOR THE STATION, THE NUMBER OF PUMPS (2 OR 3) & THE HORSEPOWER OF PUMPS.

STEP #3: REFER TO THE ELECTRICAL SERVICE DATA CHARTS FOR THE STANDARD 2 PUMP OR 3 PUMP STATION (FOUND ON SHEET 3 OF 3).

STEP #4: USE THE VOLTAGE COLUMN AND THE HORSEPOWER ROW TO FIND THE TOTAL STATION FULL LOAD AMPS.

STEP #5: UPON DETERMINING THE FULL LOAD AMPS OF THE STATION, THE SERVICE ENTRANCE SIZE SHALL NOT BE SMALLER THAN 100 AMPS. STATIONS THAT REQUIRE A SERVICE SIZE LARGER THAN 100 AMPS SHALL BE SIZED CLOSEST TO THE STANDARD SIZES LISTED BELOW.

SERVICE SIZE	CONDUIT SIZE	WIRE SIZE	BREAKER OR FUSE RATING
100 AMP	1-1/2"	#3 THHN CU	100 AMP
125 AMP	1-1/2"	#2 THHN CU	125 AMP
150 AMP	2"	#1 THHN CU	150 AMP
200 AMP	2"	3/0 THHN CU	200 AMP
225 AMP	2-1/2"	4/0 THHN CU	225 AMP

Index No.
30800
SHEET 2 OF 3

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1	08/11		
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25	09/11		

MANCHESTER NEIGHBORHOOD
PHASE 1A
FINAL ENGINEERING PLANS
CONSTRUCTION DETAILS

CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

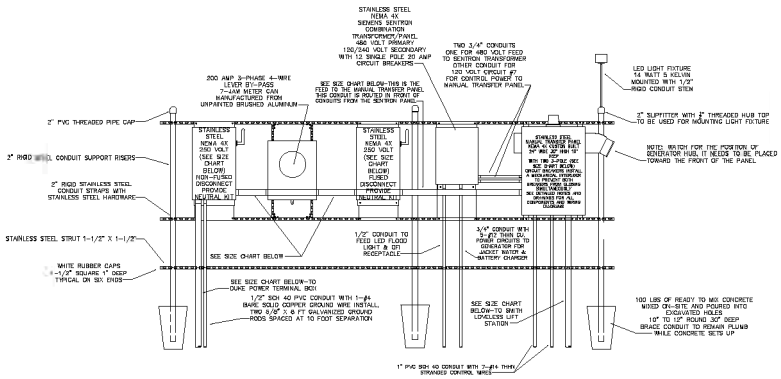
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAWING FILE: 26-30-19194-DET_PH1A

Digitally signed by Heluk Kilic
Date: 2022.01.03 16:03:47-05'00'

SHEET: C28 OF 36

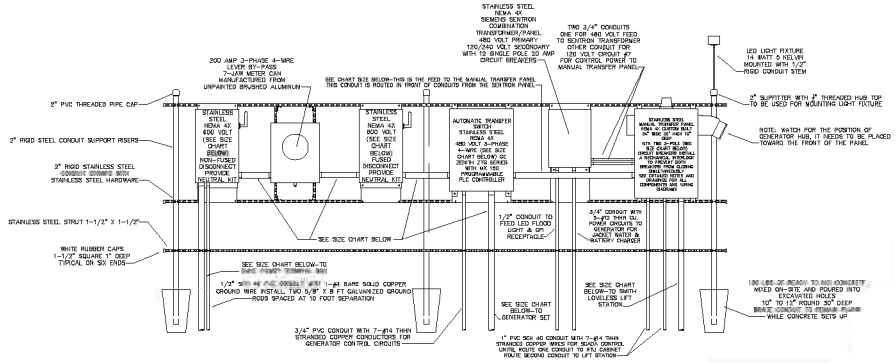
NOTE: EXISTING PUBLIC LIFT-STATION AND ALL ELECTRICAL COMPONENTS TO REMAIN W/MODIFICATION AS SHOWN ON THESE PLANS.

DETAIL "C"

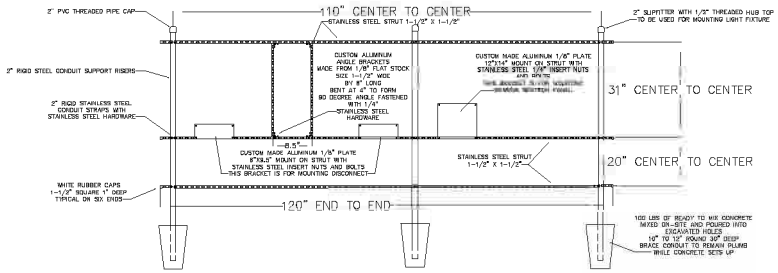


480 VOLT POWER RACK WITHOUT GENERATOR AUTOMATIC TRANSFER SWITCH

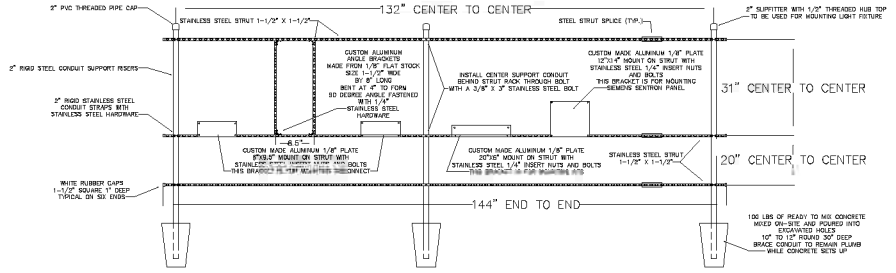
DETAIL "D"



480 VOLT POWER RACK WITH GENERATOR WITH AUTOMATIC TRANSFER SWITCH



RACK FRAMING DETAILS
480 VOLT WITHOUT AUTOMATIC TRANSFER SWITCH



RACK FRAMING DETAILS
480 VOLT WITH AUTOMATIC TRANSFER SWITCH

CONTROL GENERATOR RECEPTACLE PANEL

1. ENCLOSURE : NEMA 4X STAINLESS, 304 GRADE, 14 GAUGE, GASKETED, #4 BRUSHED FINISH, U.L. AND CSA APPROVED, HASP AND STAPLE FOR PADLOCKING, INSIDE PRINT POCKET, STAINLESS STEEL HINGE. MIN. SIZE 24" x 24"x 8" FOR UP TO 15 H.P.
2. MAIN BREAKER : SQUARE D HEAVY DUTY SIZED PROPERLY FOR FULL LOAD OF STATION PLUS 25%.
3. EMERGENCY BRK.: SQUARE D HEAVY DUTY SIZED PROPERLY FOR FULL LOAD OF STATION PLUS 25%.
4. MECH. INTERLOCK: ALL ALUMINUM AND STAINLESS STEEL W/POSITIVE MEANS OF LOCKING OFF BREAKER NOT IN USE. THE BREAKERS WILL PROTRUDE THROUGH INNER DOOR.
5. RECEPTACLE: RUSSELL STOLL (RS1044FR (230 VOLT ONLY), MELTRIC PART 377-48047 (460 VOLT ONLY)
6. ANGLE ADAPTER: RUSSELL STOLL JAAB-16, 20 DEG. ADAPTER
7. LIGHTNING ARRESTOR: HEAVY DUTY, SQUARE D PIN 9DA9A3600, OR INTERMATIC AG5330 600V.
8. PHASE MONITOR: DIVERSIFIED PIN SLA-230-A3/4, 8 PIN WITH N.O. AND N.C. CONTACTS WIRE TO TERMINAL FOR RTU EQUIPMENT.
9. HIGH WATER ALARM: RED, LEGAN, WIRO EXTERNAL SCREWS.
10. HWA RELAY: SQUARE D OR CHARON, 8 PIN DOUBLE POLE, DOUBLE THROW WIRED TO RTU TERMINAL.
11. ALARM HORN: RED, WHELLOCK PIN 9T1-115 MOUNTED TO RED WEATHER PROOF CAST BOX ON EXTERIOR OF ENCLOSURE.
12. ALARM RELAY: SQUARE D OR CHARON, 8 PIN DOUBLE POLE, DOUBLE THROW WIRED TO RTU TERMINAL.
13. ALARM RESETSW.: SQUARE D, WEATHER PROOF MOUNTED ON EXTERIOR OF ENCLOSURE.
14. ENCL. BACKPLATE: ALUMINUM, 12 GAUGE
15. TERMINAL STRIP: BUCHANON PIN 0625
16. GROUND LUG: BUCHANON P/N 624
17. NEUTRAL LUG: BUCHANON P/N 624
18. MAIN LOAD LUG: SQUARE D PIN U3
19. LABELS: ALL BREAKERS AND SWITCHES TO BE IDENTIFIED BY PERMANENTLY ATTACHED LABEL TO PANEL DOOR INTERIOR
20. MOUNTING SCREWS: STAINLESS STEEL 304
21. SCHEMATIC DWG.: PROTECTED BY PLASTIC COATING AND ATTACHED TO PANEL DOOR INTERIOR.
22. MANUFACTURER: STACON, ECS OR CITY OF DELAND APPROVAL.
23. R.T.U.: (DATA FLOW MELBOURNE FLA. (R.T.U. 204) OR EQUAL TO BE INSTALLED BY CITY. DEVELOPER TO BEAR ALL COSTS.
24. PROVIDE SPARE PARTS - SEE SPARE PARTS LIST
25. WET WELL TO BE COATED INSIDE AND OUT WITH MIN. 24 MILS OF COALTAR EPOXY

ELECTRICAL SERVICE DATA
STANDARD 2-PUMP WET WELL MOUNTED PUMP STATION

MAIN PUMP MOTOR SIZE	TOTAL STATION FULL LOAD AMPS		
RATED HP EACH	208 VOLT	230 VOLT	460 VOLT
1	17.6	15.3	7.6
1-1/2	21.8	18.9	9.5
2	25.9	22.5	11.3
3	33.1	28.8	14.5
5	47.7	41.4	20.7
7-1/2	65.3	56.7	28.4
10	80.8	70.2	35.1
15	117.0	101.7	50.9
20	148.1	128.7	64.4
25	190.44	160.2	80.1
30	215.3	187.2	93.6
40	——	——	120.6
50	——	——	150.0

ELECTRICAL SERVICE DATA
STANDARD 3-PUMP WET WELL MOUNTED PUMP STATION

MAIN PUMP MOTOR SIZE	TOTAL STATION FULL LOAD AMPS		
RATED HP EACH	208 VOLT	230 VOLT	460 VOLT
1	27.3	23.7	11.9
1-1/2	33.3	28.9	14.5
2	39.3	34.1	17.1
3	49.6	43.2	21.6
5	70.6	61.4	30.7
7-1/2	96.1	83.5	41.8
10	118.5	103.0	51.5
15	170.9	148.5	74.3
20	215.7	187.5	93.8
25	——	——	116.5
30	——	——	136.0
40	——	——	175.0
50	——	——	217.3

Index No.
30800

SHEET 3 OF 3

ZEV COHEN & ASSOCIATES, INC.
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION
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NO.	DATE	BY	REVISIONS
1	08/21	HK	CITY COMMENTS
2	09/21	HK	CITY COMMENTS
3	10/21	HK	CITY COMMENTS
4	12/21	HK	CITY COMMENTS
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99	12/21	HK	CITY COMMENTS
100	12/21	HK	CITY COMMENTS

MANCHESTER NEIGHBORHOOD
PHASE 1A
FINAL ENGINEERING PLANS
CONSTRUCTION DETAILS

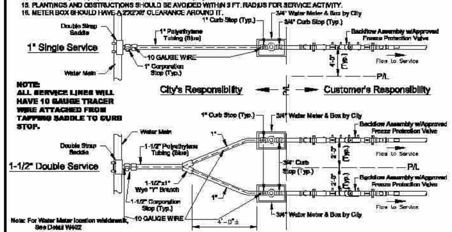
CITY OF DELAND

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAWING FILE: 20-30-19194-DET_P1-1A

Digitally signed by Heluk Kilic
Date: 2022.01.03 16:03:50-05'00'

SHEET: C29 OF 36

NOTES:
1. WATER MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE CHLORINATED and PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING and CHLORINATION, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. FREEZE PROTECTION VALVE, SHALL BE "CONBRACO" 40LF000FPV2F.
12. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
13. ALL BRASS FITTINGS SHALL BE LEAD FREE.
14. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS.
15. PLANTINGS AND OBSTRUCTIONS SHOULD BE AVOIDED WITHIN 3 FT. RADIUS FOR SERVICE ACTIVITY.
16. METER BOX SHOULD HAVE A 2'X2'X8' CLEARANCE AROUND IT.



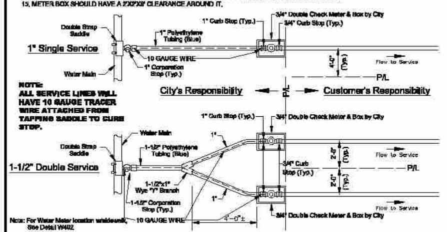
NOTE: ALL SERVICE LINES WILL HAVE 10 GAUGE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

Note: For Water Meter location w/sidewalk, See Detail W402

DATE: 10/28/2020 — **WATER MAIN SERVICE CONNECTION (BACKFLOW)** — W401

City of DeLand - Standard Details

NOTES:
1. WATER MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE CHLORINATED and PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING and CHLORINATION, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
12. ALL BRASS FITTINGS SHALL BE LEAD FREE.
13. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS.
14. PLANTINGS AND OBSTRUCTIONS SHOULD BE AVOIDED WITHIN 3 FT. RADIUS FOR SERVICE ACTIVITY.
15. METER BOX SHOULD HAVE A 2'X2'X8' CLEARANCE AROUND IT.



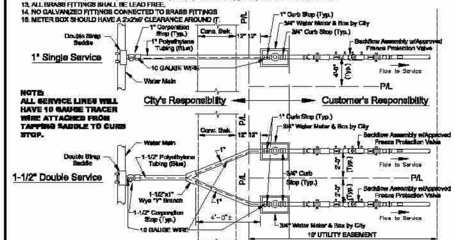
NOTE: ALL SERVICE LINES WILL HAVE 10 GAUGE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

Note: For Water Meter location w/sidewalk, See Detail W402

DATE: 10/28/2020 — **WATER MAIN SERVICE CONNECTION (DOUBLE CHECK METER)** — W401A

City of DeLand - Standard Details

NOTES:
1. WATER MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE CHLORINATED and PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING and CHLORINATION, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. FREEZE PROTECTION VALVE, SHALL BE "CONBRACO" 40LF000FPV2F.
12. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
13. ALL BRASS FITTINGS SHALL BE LEAD FREE.
14. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS
15. METER BOX SHOULD HAVE A 2'x2'x6' CLEARANCE AROUND IT.

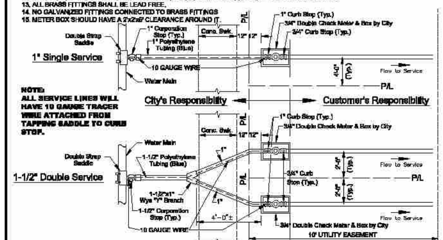


NOTE: ALL SERVICE LINES WILL HAVE 10 GAUGE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

DATE: 10/28/2020 — **WATER MAIN SERVICE CONNECTION WITH SIDEWALK (BACKFLOW)** — W402

City of DeLand - Standard Details

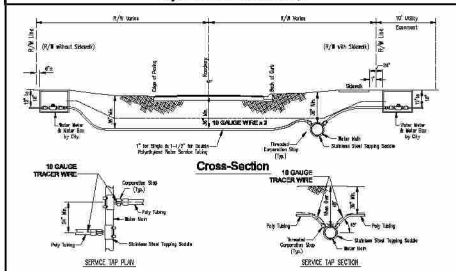
NOTES:
1. WATER MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE CHLORINATED and PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING and CHLORINATION, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. FREEZE PROTECTION VALVE, SHALL BE "CONBRACO" 40LF000FPV2F.
12. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
13. ALL BRASS FITTINGS SHALL BE LEAD FREE.
14. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS
15. METER BOX SHOULD HAVE A 2'x2'x6' CLEARANCE AROUND IT.



NOTE: ALL SERVICE LINES WILL HAVE 10 GAUGE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

DATE: 10/28/2020 — **WATER MAIN SERVICE CONN. WITH SIDEWALK (DBL. CHECK METER)** — W402A

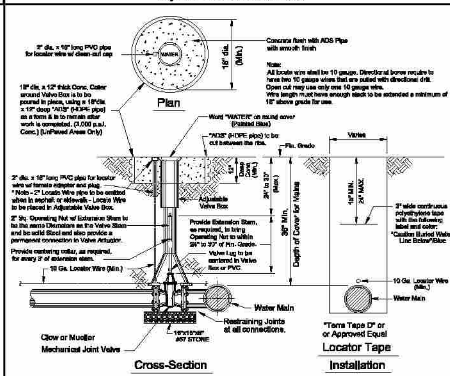
City of DeLand - Standard Details



NOTES:
1. SINGLE WATER SERVICE SHALL BE, 1" POLYETHYLENE TUBING (BLUE).
2. DOUBLE WATER SERVICE SHALL BE, 1-1/2" POLYETHYLENE TUBING (BLUE).
3. WATER MAINS TO BE MIN. 36" BELOW GRADE and APPROX. 4' BACK OF CURB.
4. CURB STOP TO BE LOCATED APPROX. 2 FOOT BACK OF RIGHT-OF-WAY AND MUST HAVE LOCK WING.
5. SERVICE LINE TO BE MIN. 36" BELOW GRADE IN RIGHT-OF-WAY.
6. ALL 3/4", 1", 1-1/2" & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
7. ALL LOCATE WIRE SHALL BE 10 GAUGE. DIRECTIONAL BORES REQUIRE TO HAVE TWO 10 GAUGE WIRES THAT ARE PULLED WITH DIRECTIONAL DRILL. OPEN CUT MAY USE ONLY ONE 10 GAUGE WIRE.
8. ALL SERVICE TAPS TO MEET AWWA STANDARD 45° FROM HORIZONTAL UNLESS PRIOR AUTHORIZATION RECEIVED FROM CITY.
9. ALL LOCATE WIRE SHALL BE 10 GAUGE. DIRECTIONAL BORES REQUIRE TO HAVE TWO 10 GAUGE WIRES THAT ARE PULLED WITH DIRECTIONAL DRILL. OPEN CUT MAY USE ONLY ONE 10 GAUGE WIRE.
10. ALL SERVICE LINES WILL HAVE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

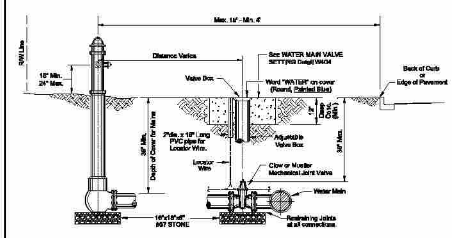
DATE: 10/28/2020 — **WATER MAIN SERVICE LINES** — W403

City of DeLand - Standard Details



DATE: 10/28/2020 — **WATER MAIN VALVE SETTING** — W404

City of Deland - Standard Details



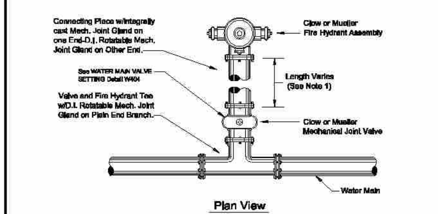
NOTES:
1. Steamer Connection to Face Street.
2. All Fire Hydrants to have 5 1/4" Valve Seat.
3. Fire Hydrants Shall be Placed at Street Corners or in the R.O.W. Adjacent to Side Lot Lines Wherever Possible.
4. See Detail W406 for Typical Connections & Fittings.
5. Fire Hydrants Shall be Painted City Safety Yellow w/Richards Paint No. 1000, Rust Shield Polyurethane.
6. Remove Chains from Cap.
7. Min. 3 ft. Clearance Should be Maintained Around Fire Hydrant for Emergency Operation Purposes.
8. All locate wire shall be 10 gauge. Directional bores require to have two 10 gauge wires that are pulled with directional drill. Open cut may use only one 10 gauge wire.

ONLY APPROVED CITY FIRE HYDRANTS
- Mueller Super Centurion 200
- Clow Medallion

See W406 for Plan View

DATE: 10/28/2020 — **FIRE HYDRANT SETTING SECTION** — W405

City of DeLand -Standard Details



NOTES:
1. On Fire Hydrants Requiring Runout Last Two Joints Must Be Restrained Per Detail W409.
2. Fire Hydrants Should Have a 2'x2'x6' Clearance Around It.

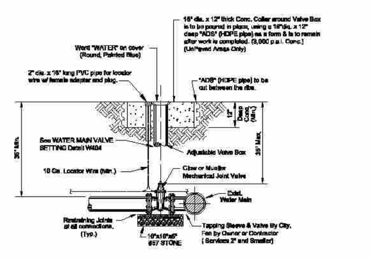
ONLY APPROVED CITY FIRE HYDRANTS
- Mueller Super Centurion 200
- Clow Medallion

See W405 for Cross Section

DATE: 10/26/2020 — **FIRE HYDRANT SETTING PLAN** — W406

City of DeLand - Standard Details

Notes:
1. All locate wire shall be 10 gauge. Directional bores require to have two 10 gauge wires that are pulled with directional drill. Open cut may use only one 10 gauge wire.

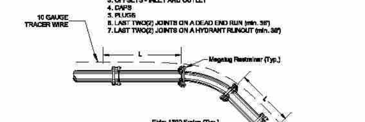


Note:
For Wet Taps larger than 2", Sleeves & Valves will be furnished and installed by the contractor in the presence of the city inspector. Tapping sleeve shall be Ford, Romac, or JCM stainless steel only.

DATE: 10/26/2020 — **TAPPING SLEEVE & VALVE** — W407

City of DeLand - Standard Details

THE FOLLOWING JOINTS MUST BE RESTRAINED IN ALL APPLICATIONS:
1. BEND - INLET AND OUTLET
2. TEE - OUTLET BRANCH
3. OFFSETS - INLET AND OUTLET
4. CAPS
5. PLUGS
6. LAST TWO(2) JOINTS ON A DEAD END RUN (min. 36')
7. LAST TWO(2) JOINTS ON A HYDRANT RUNOUT (min. 36')



L = MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTING (ft.)

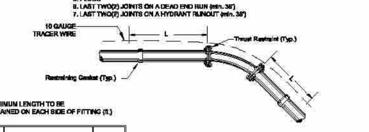
NOM. PIPE SIZE	ELBOWS (deg.)				VALVE TEES
	11.25	22.50	45	90	
4	3	5	8	12	8
6	4	6	10	15	11
8	4	7	13	20	14
10	5	9	15	26	18
12	6	10	17	29	21
14	6	13	26	61	30
16	7	14	26	67	49
18	6	15	31	73	65
20	8	16	33	80	85

NOTE: THRUST RESTRAINT AT FITTINGS AND VALVES SHALL BE BY USE OF EBBA IRON MEGALUG RESTRAINERS. THRUST RESTRAINT BETWEEN PIPE JOINTS SHALL BE BY EBBA IRON SERIES 1500 RESTRAINERS.

DATE: 10/28/2020 — **THRUST RESTRAINING DETAIL FOR PVC PIPE** — W408

City of DeLand - Standard Details

THE FOLLOWING JOINTS MUST BE RESTRAINED IN ALL APPLICATIONS:
1. BEND - INLET AND OUTLET
2. TEE - OUTLET BRANCH
3. OFFSETS - INLET AND OUTLET
4. CAPS
5. PLUGS
6. LAST TWO(2) JOINTS ON A DEAD END RUN (min. 36')
7. LAST TWO(2) JOINTS ON A HYDRANT RUNOUT (min. 36')



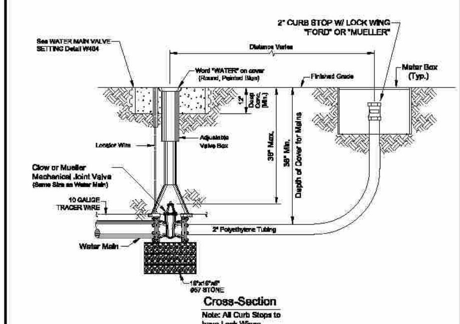
L = MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTING (ft.)

NOM. PIPE SIZE	ELBOWS (deg.)				VALVE TEES
	11.25	22.50	45	90	
4	3	5	6	12	6
6	4	6	10	15	11
8	4	7	13	20	14
10	5	8	15	25	18
12	6	10	17	29	21
16	8	16	26	63	70
18	9	17	30	88	88
20	10	18	38	94	108
24	11	22	45	109	145

NOTE: THRUST RESTRAINT ON SLIPJOINT DUCTILE IRON PIPE SHALL BE U.S. PIPE FIELD LOCK GASKETS FOR TYTON JOINT PIPE or AMERICAN FAST-GRIP GASKETS FOR AMERICAN FASTITE PIPE. THRUST RESTRAINT ON DUCTILE IRON FITTINGS SHALL BE PROVIDED BY THE USE OF MEGALUG RETAINERS AND MECHANICAL JOINT FITTINGS.

DATE: 10/28/2020 — **THRUST RESTRAINING DETAIL FOR DUCTILE IRON PIPE** — W409

City of DeLand - Standard Details



Notes:
1. All locate wire shall be 10 gauge. Directional bores require to have two 10 gauge wires that are pulled with directional drill. Open cut may use only one 10 gauge wire.

DATE: 10/28/2020 — **WATER MAIN BLOWOFF DETAIL** — W410

City of DeLand - Standard Details

ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD., STE. C
ORMOND BEACH, FL 32174
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS / REVISIONS
1	06-18-21	HK	SJRWMD SUBMITTAL
2	07-02-21	HK	CITY OF DELAND SUBMITTAL
3	09-21-21	JL/HK	SJRWMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-22-21	JL/HK	CITY OF DELAND RE-SUBMITTAL PH1A & PH1B
5	11-29-21	JL/HK	REVISED PER CITY COMMENTS DATED 11-22-21
6	12-28-21	JL/HK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A
FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

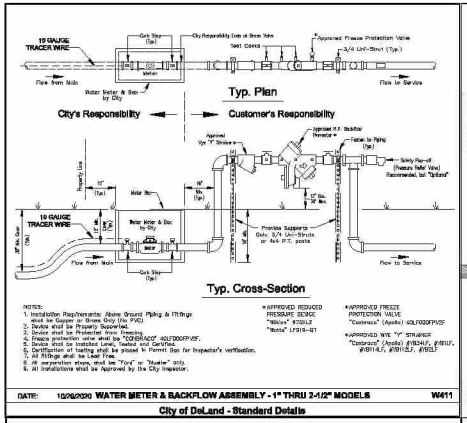
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 26-35-19194-DET_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:03:53-05'00'

RANDY M. HUDAK P.E. NO.55653
HALUK KILIC, P.E., NO.84344
NOT VALID WITHOUT SEAL

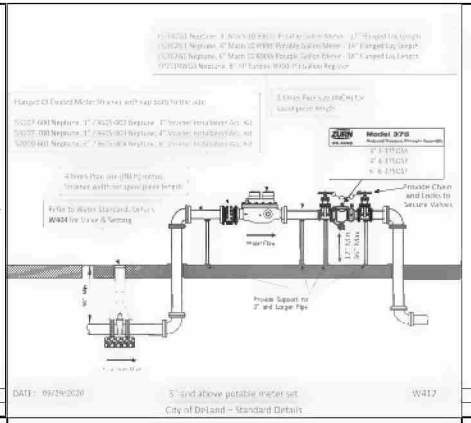
SHEET: C30 OF 36

R:\19194 MANCHESTER SENIOR HOUSING\FINAL ENGINEERING PLANS\CADDWGS\19194 PHASE 1A\26-35-19194-DET_PH1A.DWG -- PRINTED 12/28/2021 3:31 PM



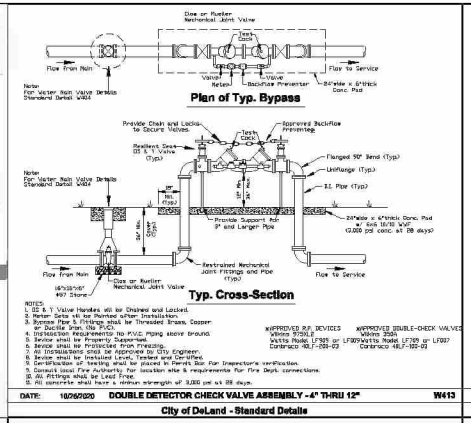
DATE: 10/26/2020 **WATER METER & BACKFLOW ASSEMBLY - 1" THRU 2-1/2" MODELS** W411

City of DeLand - Standard Details



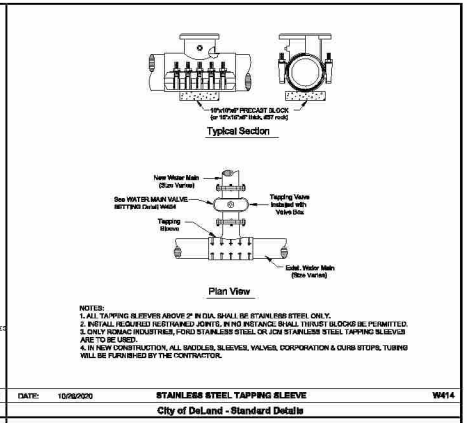
DATE: 09/29/2020 3" and above potable meter set W412

City of DeLand - Standard Details



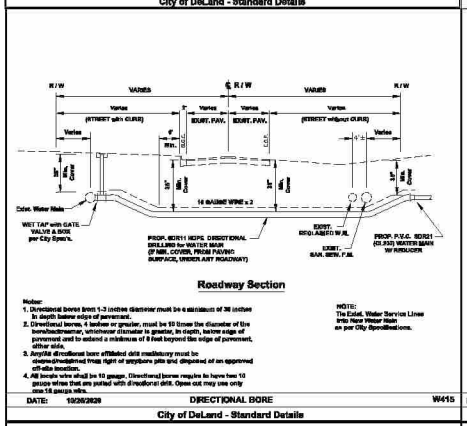
DATE: 10/26/2020 **DOUBLE DETECTOR CHECK VALVE ASSEMBLY - 4" THRU 12"** W413

City of DeLand - Standard Details



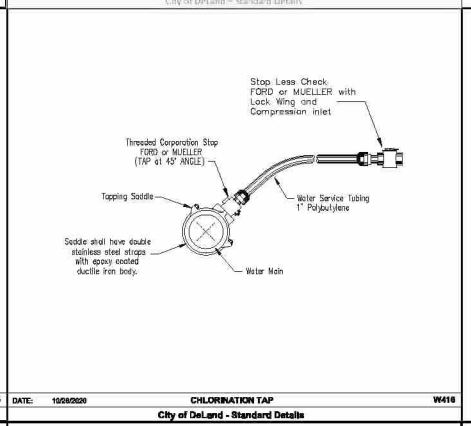
DATE: 10/26/2020 **STAINLESS STEEL TAPPING SLEEVE** W414

City of DeLand - Standard Details



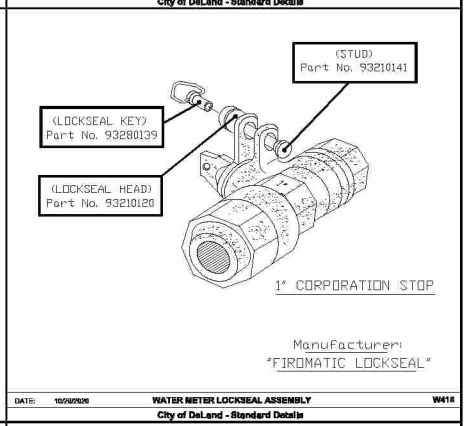
DATE: 10/26/2020 **DIRECTIONAL BORE** W415

City of DeLand - Standard Details



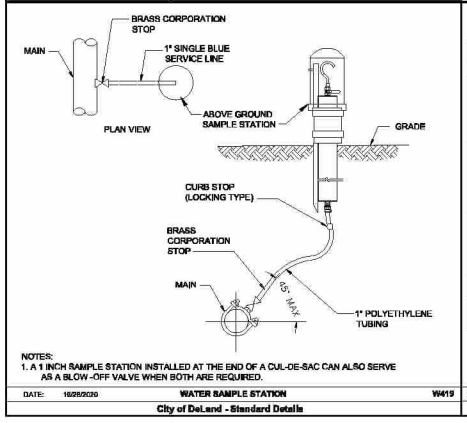
DATE: 10/26/2020 **CHLORINATION TAP** W416

City of DeLand - Standard Details



DATE: 10/26/2020 **WATER METER LOCKSEAL ASSEMBLY** W418

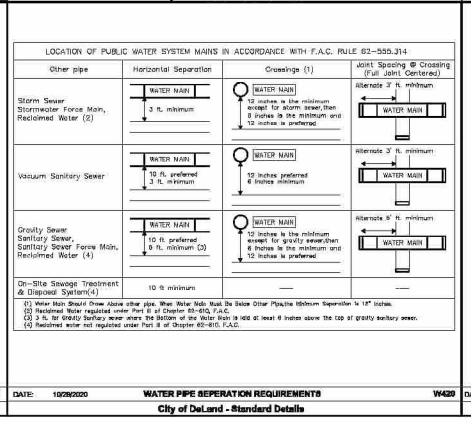
City of DeLand - Standard Details



NOTES:
1. A 1 INCH SAMPLE STATION INSTALLED AT THE END OF A CUL-DE-SAC CAN ALSO SERVE AS A BLOW -OFF VALVE WHEN BOTH ARE REQUIRED.

DATE: 10/26/2020 **WATER SAMPLE STATION** W419

City of DeLand - Standard Details



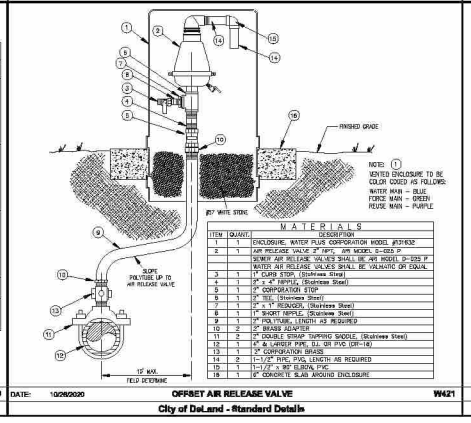
LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossing (Full Joint Centered)
Storm Sewer Stormwater Force Main, Reclaimed Water (2)	WATER MAIN 3 ft. minimum	WATER MAIN 12 inches is the minimum except for storm sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 3' ft. minimum WATER MAIN
Vacuum Sanitary Sewer	WATER MAIN 10 ft. preferred 3 ft. minimum	WATER MAIN 12 inches preferred 6 inches minimum	Alternate 3' ft. minimum WATER MAIN
Gravity Sewer Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water (4)	WATER MAIN 10 ft. preferred 6 ft. minimum (3)	WATER MAIN 12 inches is the minimum except for gravity sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 6' ft. minimum WATER MAIN
On-Site Sewage Treatment & Disposal System(4)	10 ft minimum	—	—

(1) Water Main Should Crow Above other pipe. When Water Main Must Be Below Other Pipeline Minimum Separation is 18" inches.
(2) Reclaimed Water regulated under Part III of Chapter 62-610, F.A.C.
(3) 3 ft. for Gravity Sanitary sewer where the Bottom of the Water Main is kept at least 6 inches above the top of gravity sanitary sewer.
(4) Reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

DATE: 10/26/2020 **WATER PIPE SEPERATION REQUIREMENTS** W420

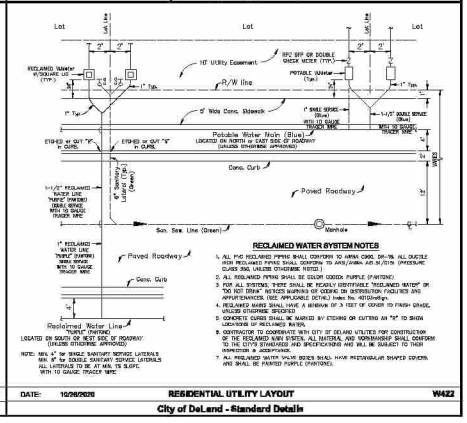
City of DeLand - Standard Details



ITEM	QUANT.	MATERIALS DESCRIPTION
1	1	ENCLOSURE, WATER PLUS CORPORATION MODEL #137632
2	1	AIR RELEASE VALVE 2" NPT, APV MODEL S-025 P SEWAY AIR RELEASE VALVES SHALL BE APV MODEL S-025 P WATER AIR RELEASE VALVES SHALL BE VALMATIC OR EQUAL
3	1	1" CURB STOP, (Stainless Steel)
4	1	2" x 4" NIPPLE, (Stainless Steel)
5	1	2" CORPORATION STOP
6	1	2" BUL, (Stainless Steel)
7	1	2" x 1" REDUCER, (Stainless Steel)
8	1	1" SHORT NIPPLE, (Stainless Steel)
9	1	2" POLYTUBE, LENGTH AS REQUIRED
10	2	2" BRASS ADAPTER
11	2	2" DOUBLE STRAP TAPPING SADDLE, (Stainless Steel)
12	1	4" & LARGER PIPE, D.I. OR PVC (DR-18)
13	1	2" CORPORATION BRASS
14	2	1-1/2" PIPE, PVC, LENGTH AS REQUIRED
15	1	1-1/2" x 90° ELBOW, PVC
16	1	8" CONCRETE SLAB AROUND ENCLOSURE

DATE: 10/26/2020 **OFFSET AIR RELEASE VALVE** W421

City of DeLand - Standard Details



RECLAIMED WATER SYSTEM NOTES

1. ALL PVC RECLAIMED PIPING SHALL CONFORM TO AWWA C900, DR-18. ALL DUCTILE IRON RECLAIMED PIPING SHALL CONFORM TO AWWA/ANSI A21.51/115 (PRESSURE CLASS 350, UNLESS OTHERWISE NOTED).
2. ALL RECLAIMED PIPING SHALL BE COLOR CODED PURPLE (PANTONE).
3. FOR ALL EXISTING PIPE SHALL BE PLAINLY IDENTIFIABLE "RECLAIMED WATER" OR "NON-POTABLE WATER" EVERY 10 FEET ON EXTERIOR FACILITIES AND ANY INTERVENING SEE APPLICABLE DETAILS (Water Distribution).
4. RECLAIMED WATER SHALL HAVE A MINIMUM OF 3 FEET OF COVER TO FINISH GRADE, UNLESS OTHERWISE APPROVED.
5. CONCRETE CURBS SHALL BE MARKED BY STAMPS OR CUTTING AS "R" TO SHOW LOCATIONS OF RECLAIMED WATER.
6. CONTRACTOR TO COORDINATE WITH CITY OF DELAND UTILITIES FOR CONSTRUCTION OF THE RECLAIMED MAIN SYSTEM. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE CITY'S STANDARDS AND SPECIFICATIONS AND WILL BE SUBJECT TO THEIR INSPECTION & ACCEPTANCE.
7. ALL RECLAIMED WATER VALVE BOXES SHALL HAVE RECTANGULAR SHAPED COVERS AND SHALL BE PAINTED PURPLE (PANTONE).

DATE: 10/26/2020 **RESIDENTIAL UTILITY LAYOUT** W422

City of DeLand - Standard Details

ZEV COHEN & ASSOCIATES, INC.
1000 SOUTH MAIN, FL 32174
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	ISSUE/TITLE/REVISIONS
1	06-15-21	HK	S-PWD SUBMITTAL
2	06-15-21	JJ	S-PWD SUBMITTAL
3	08-31-21	JJ/JK	S-PWD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-25-21	JJ/JK	CITY OF DELAND RE-SUBMITTAL PH1A & 1-R1B
5	12-13-21	JJ/JK	REVISED PER CITY COMMENTS DATED 11-16-21
6	12-30-21	JJ/JK	REVISED PER CITY COMMENTS DATED 12-16-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

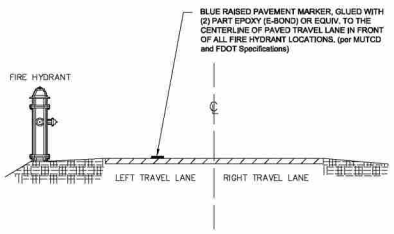
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 26-30-31B194-DET_PH1A
XREFS: 19194_BASE.DWG
XREFS: XDOCCLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:03:56-05'00'

RANDY M. HELGAS, P.E., NO.52028
HELGAS & CO., P.C. NO.30846
NOT VALID WITHOUT SEAL

SHEET: C31 OF 36

B:\19194 MANCHESTER SENIOR NEIGHBORHOOD - ENGINEERING PLANS\CONSTRUCTION\19194-PH1A.DWG - PAGES: 26-30-31B194-DET_PH1A.DWG - PLOTTED: 12/29/2021 8:31 AM



DATE: 10/26/2020 **REFLECTIVE PAVEMENT MARKER FOR FIRE HYDRANT LOCATION** W423

City of DeLand - Standard Details

Approved Ford Valve for Service Lines

1" SERVICE

Pack Joint for Copper or Plastic Tubing (CTS) Inlet by Meter Swivel Nut

Catalog Number	Valve Size	Description: Size, Line Size	Meter Size	Approx. Wt. Lbs.
B43-211W-NL	5/8"	1/2"	5/8"	1.4
B43-212W-NL	5/8"	1/2"	5/8"x3/4" & 3/4"	1.5
►► B43-231W-NL	5/8"	3/4"	5/8"	1.8
►► B43-232W-NL	5/8"	3/4"	5/8"x3/4" & 3/4"	1.7
►► B43-331W-NL	3/4"	3/4"	5/8"	2.1
►► B43-332W-NL	3/4"	3/4"	5/8"x3/4" & 3/4"	2.4
►► B43-334W-NL	3/4"	3/4"	3/4"	2.3
► B43-341W-NL	3/4"	1"	3/4"	2.5
►► B43-342W-NL	3/4"	1"	5/8"x3/4" & 3/4"	2.4
►► B43-344W-NL	3/4"	1"	1"	2.7
►► B43-444W-NL	1"	1"	1"	3.3
B43-454W-NL	1"	1-1/4"	1"	3.4

2" SERVICE

Pack Joint for Copper or Plastic Tubing (CTS) by Female Iron Pipe Thread

Catalog Number	Valve Size	CTS End	FIP End	Approx. Wt. Lbs.
►► * B41-333-NL	3/4"	3/4"	3/4"	2.0
►► B41-334-NL	3/4"	3/4"	1"	2.1
►► B41-343-NL	3/4"	1"	3/4"	2.2
►► B41-344-NL	3/4"	1"	1"	2.4
► BL41-344-4-875-NL	3/4"	1"	1"	3.1
►► * B41-444-NL	1"	1"	1"	2.8
► B41-454-NL	1"	1-1/4"	1"	3.2
► B41-455-NL	1"	1-1/4"	1-1/4"	3.7
► B41-555-NL	1-1/4"	1-1/4"	1-1/4"	5.6
► *B41-666-NL	1-1/2"	1-1/2"	1-1/2"	7.0
B41-677-NL	1-1/2"	2"	2"	9.6
► *B41-777-NL	2"	2"	2"	11.1

DATE: 10/26/2020 **VALVE FOR WATER AND RECLAIM SERVICE LINE** W424

City of DeLand - Standard Details

Approved Muller Valve for Service Lines

1" SERVICE

P-24350N

Mueller 300 Ball Straight Meter Valve
Mueller Pack Joint Connection for CTS O.D.* tubing x meter swivel nut**.
Quarter turn check - lock wing. 360° turn option available by adding -3 suffix to catalog number.
Example: P-24350-3

Catalog size	3/4"x5/8" R †	3/4" R †	3/4"	5/8"x3/4"x1"	1"R †	1"
Meter size	5/8"	5/8"x3/4", 3/4"	5/8"x3/4", 3/4"	5/8"x3/4", 3/4"	1"	1"
Tubing size	3/4"	3/4"	3/4"	1"	1"	1"

2" SERVICE

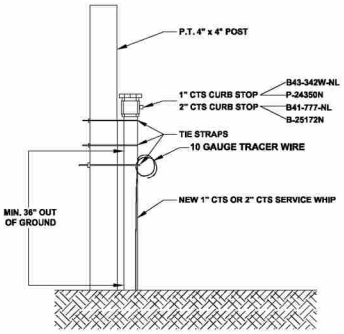
P-25172N

Mueller 300 Ball Curb Valve
Inlet: Mueller Pack Joint Connection for CTS O.D.* tubing
Outlet: F.I.P. thread
Quarter turn check-this valve may be ordered with 360° turn option by adding -3 to end of catalog number (P-25172-3).

3/4"R	3/4"	1"R	1"	1-1/2"	2"

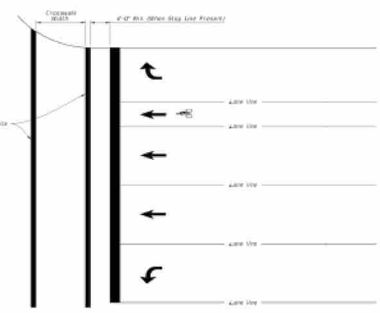
DATE: 10/26/2020 **VALVE FOR WATER AND RECLAIM SERVICE LINE** W425

City of DeLand - Standard Details

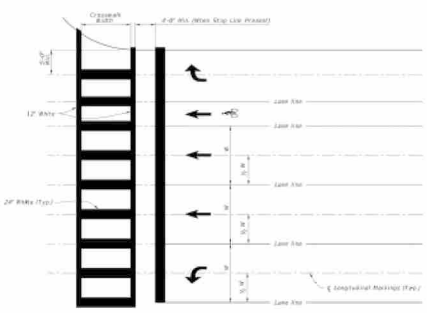


DATE: 10/26/2020 **NEW POTABLE AND REUSE SERVICE WHIP** W426

City of DeLand - Standard Details



STANDARD CROSSWALK DETAILS



SPECIAL EMPHASIS CROSSWALK DETAILS

NOTES:
1. For crosswalk width, extend width of the adjacent sidewalk, but do not make width less than 8' for intersection crosswalks and 10' for midblock crosswalks. Measure width from the inside of the transverse crosswalk markings.
2. When the Special Emphasis Crosswalk is not perpendicular to the lane lines, make the longitudinal markings parallel to the lane lines.
3. Refer to Index 522-002 when Curb Ramps are present.

LAST REVISION	DESCRIPTION			INDEX	SHEET
11/01/18		FDOT FY 2020-21 STANDARD PLANS	PAVEMENT MARKINGS	711-001	10 of 13

ZEV COHEN & ASSOCIATES, INC.
6061 STIRLING ROAD
DAVIE, FL 33314
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS / REVISIONS
1	06-15-21	HK	S-WMD SUBMITTAL
2	07-07-21	HK	S-WMD SUBMITTAL
3	09-21-21	JLHK	S-WMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-26-21	JLHK	CITY OF DELAND 95-SUBMITTAL PH 1A & 1B/1B
5	11-29-21	JLHK	REVISED PER CITY COMMENTS DATED 11-15-21
6	12-06-21	JLHK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

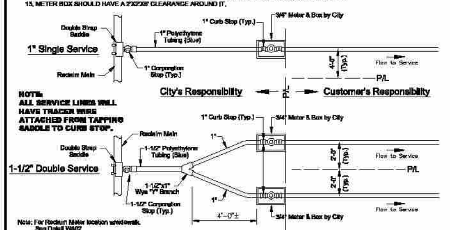
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 26-35-19194-DET_PH1A
XREF'S: 19194_BASE.DWG
XREF'S: XXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:04:00-05'00'

RANDY M. HUDAK, P.E., NO.85093
HALUK KILIC, P.E., NO.94344
NOT VALID WITHOUT SEAL

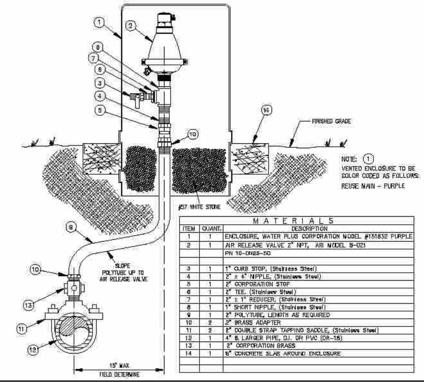
SHEET: C32 OF 36

NOTES:
1. RECLAIM MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (PURPLE) POLYETHYLENE TUBING.
12. ALL BRASS FITTINGS SHALL BE LEAD FREE.
13. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS.
14. PLANTINGS AND OBSTRUCTIONS SHOULD BE AVOIDED WITHIN 3 FT. RADIUS FOR SERVICE ACTIVITY.
15. METER BOX SHOULD HAVE A 2'X2'X8' CLEARANCE AROUND IT.



DATE: APRIL 07, 2020 — **RECLAIM MAIN SERVICE CONNECTION** — R401A

City of DeLand - Standard Details

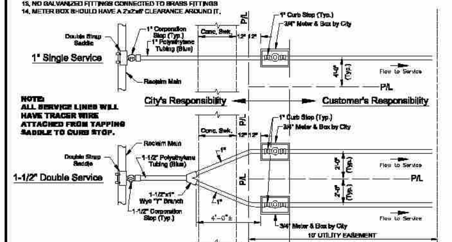


MATERIALS		
ITEM	QUANT.	DESCRIPTION
1	1	ENCLOSURE, WATER PLUS CORPORATION MODEL #131832 PURPLE
2	1	AIR RELEASE VALVE 2" NPT, ARI MODEL S-021 PN 10-DN25-50
3	1	1" CURB STOP, (Stainless Steel)
4	1	2" x 4" NIPPLE, (Stainless Steel)
5	1	2" CORPORATION STOP
6	1	2" TEE, (Stainless Steel)
7	1	2" x 1" REDUCER, (Stainless Steel)
8	1	1" SHORT NIPPLE, (Stainless Steel)
9	1	2" POLYTUBE, LENGTH AS REQUIRED
10	2	2" BRASS ADAPTER
11	2	2" DOUBLE STRAP TAPPING SADDLE, (Stainless Steel)
12	1	4" & LARGER PIPE, D.I. OR PVC (DR-18)
13	1	2" CORPORATION BRASS
14	1	6" CONCRETE SLAB AROUND ENCLOSURE

DATE: April 08, 2020 — **OFFSET AIR RELEASE VALVE** — R421

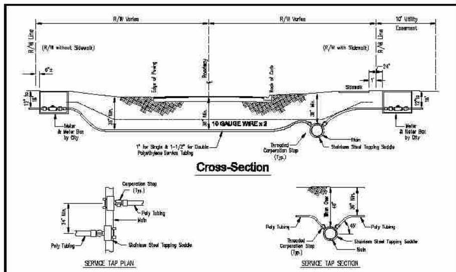
City of DeLand - Standard Details

NOTES:
1. RECLAIM MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (PURPLE) POLYETHYLENE TUBING.
12. ALL BRASS FITTINGS SHALL BE LEAD FREE.
13. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS.
14. METER BOX SHOULD HAVE A 2'x2'x8' CLEARANCE AROUND IT.



DATE: APRIL 07, 2020 — **RECLAIM MAIN SERVICE CONN. WITH SIDEWALK** — R402A

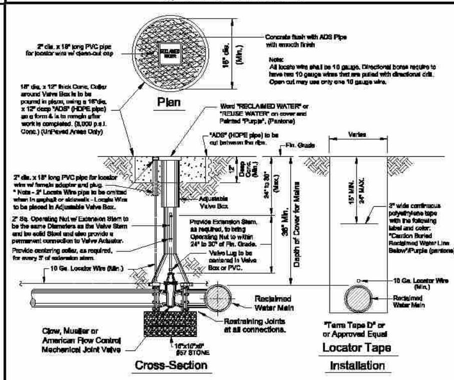
City of DeLand - Standard Details



NOTES:
1. SINGLE RECLAIM SERVICE SHALL BE, 1" POLYETHYLENE TUBING (PURPLE).
2. DOUBLE RECLAIM SERVICE SHALL BE, 1-1/2" POLYETHYLENE TUBING (PURPLE).
3. RECLAIM MAINS TO BE MIN. 36" BELOW GRADE and APPROX. 4' BACK OF CURB.
4. CURB STOP TO BE LOCATED APPROX. 2 FOOT BACK OF RIGHT-OF-WAY AND MUST HAVE LOCK WING.
5. SERVICE LINE TO BE MIN. 36" BELOW GRADE IN RIGHT-OF-WAY.
6. ALL 3/4", 1", 1-1/2" & 2" R.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (PURPLE) POLYETHYLENE TUBING.
7. ALL LOCATE WIRE SHALL BE (PURPLE) 10 GAUGE. DIRECTIONAL BORES REQUIRE TO HAVE TWO 10 GAUGE WIRES THAT ARE PULLED WITH DIRECTIONAL DRILL. OPEN CUT MAY USE ONLY ONE 10 GAUGE WIRE.
8. ALL SERVICE TAPS TO MEET AWWA STANDARD 45° FROM HORIZONTAL UNLESS PRIOR AUTHORIZATION RECEIVED FROM CITY.
9. ALL LOCATE WIRE SHALL BE 10 GAGE. DIRECTIONAL BORES REQUIRE TO HAVE TWO 10 GAGE WIRES THAT ARE PULLED WITH DIRECTIONAL DRILL. OPEN CUT MAY USE ONLY ONE 10 GAGE WIRE.
10. ALL SERVICE LINES WILL HAVE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

DATE: APRIL 07, 2020 — **RECLAIM MAIN SERVICE LINES** — R403

City of DeLand - Standard Details



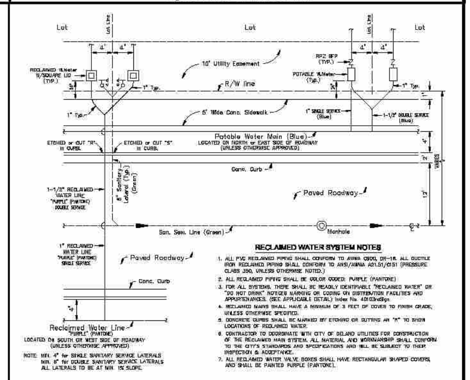
DATE: MARCH 08, 2020 — **RECLAIMED WATER VALVE SETTING** — R450

City of Deland - Standard Details

NOTES:
1. Sign background shall be white, letters shall be black (Helvetica, Swiss 721, corel, or acceptable equal) and border shall be Pantone Purple 522C.
2. Height of sign will depend on location and surrounding landscape plant types. In all cases, the sign shall visable to the public.
3. Engineering grade refective materials shall be used for sign.
4. Sign materials shall be of 0.040 gauge metal.
5. Sign post shall be 2-3/8" OD steel pipe, hot dip galvanized per ASTM A-123, post to be provided by customer.
6. Mounting hardware shall be stainless steel.
7. Signs shall be place by the contractor in accordance with the City approved plans and/ or as approved by the City. (e.g.) Sign should be posted by entrance to subdivision, storage ponds, irrigation pumps, gate entrances to school facility or game fields, and first and ninth Tees at Golf courses.
8. Public notification should occur in HOA document and City Reclaimed Water Brochure with meter application.

DATE: MARCH 08, 2020 — **RECLAIMED WATER SIGNAGE** — R451

City of DeLand - Standard Details



RECLAIMED WATER SYSTEM NOTES

1. ALL PVC RECLAIMED PIPING SHALL CONFORM TO AWWA C900, DR-18. ALL DUCTILE IRON RECLAIMED PIPING SHALL CONFORM TO ANSI/AWWA A21.51/C151 (PRESSURE CLASS 350, UNLESS OTHERWISE NOTED.)
2. ALL RECLAIMED PIPING SHALL BE COLOR CODED: PURPLE (PANTONE)
3. FOR ALL SYSTEMS, THERE SHALL BE READILY IDENTIFIABLE "RECLAIMED WATER" OR "DO NOT DRINK" NOTICES MARKING OR CODING ON DISTRIBUTION FACILITIES AND APPURTENANCES. (SEE APPLICABLE DETAIL) Index No. 40103reSign.
4. RECLAIMED MAINS SHALL HAVE A MINIMUM OF 3 FEET OF COVER TO FINISH GRADE, UNLESS OTHERWISE SPECIFIED.
5. CONCRETE CURBS SHALL BE MARKED BY ETCHING OR CUTTING AN "R" TO SHOW LOCATIONS OF RECLAIMED WATER.
6. CONTRACTOR TO COORDINATE WITH CITY OF DELAND UTILITIES FOR CONSTRUCTION OF THE RECLAIMED MAIN SYSTEM. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE CITY'S STANDARDS AND SPECIFICATIONS AND WILL BE SUBJECT TO THEIR INSPECTION & ACCEPTANCE.
7. ALL RECLAIMED WATER VALVE BOXES SHALL HAVE RECTANGULAR SHAPED COVERS, AND SHALL BE PAINTED PURPLE (PANTONE).

DATE: MARCH 08, 2020 — **RECLAIMED WATER SYSTEM LAYOUT** — R452

City of DeLand - Standard Details

1. THE CITY OF DeLand's UTILITIES DEPARTMENT (386-626-7250) SHALL BE GIVEN A MINIMUM OF 48 HOURS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS OR WEEKENDS) PRIOR TO the BEGINNING OF ANY RECLAIMED WATER SYSTEM CONSTRUCTION.
2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW PROPSED RECLAIMED WATER MAIN.
3. ALL RECLAIMED WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
4. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 95% IN UNPAVED AREAS AND 98% IN PAVED AREAS IN ACCORDANCE WITH AASHTO T-180.
5. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS ARE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET
6. 3" METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED BETWEEN 15" AND 24" BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE PROVIDED ON ALL DIPS AS WELL.
7. ALL SINGLE RESIDENTIAL RECLAIMED WATER SERVICES SHALL BE 1" AND DOUBLE RESIDENTIAL SERVICES SHALL BE 1-1/2". SERVICES SHALL BE CTS 3408 HIGH DENSITY POLYETHYLENE TUBING RATED FOR A MINIMUM OF 200 PSI WITH SDR 9 (CTS). THE TUBING SHALL HAVE A VIRGIN HIGH DENSITY POLYETHYLENE CENTER FOR WHICH THE MANUFACTURER SHALL FURNISH A CERTIFICATE OF PURITY. THE TUBING SHALL BE "PURPLE" (PANTONE) IN COLOR AND SHALL HAVE THE WORDS "RECLAIMED WATER" PERMANENTLY PRINTED ON THE OUTSIDE. THE TUBING SHALL HAVE U.V. PROTECTION AND SHALL NOT BE AFFECTED BY DIRECT SUNLIGHT. THE TUBING SHALL COMPLY WITH OR EXCEED THE APPLICABLE STANDARDS OF A.S.D.M. D1248, D3350, D2239, D2737, N.S.F.-14 AND A.W.W.A. C901 AND SHALL COME WITH A LIFETIME WARRANTY. APPROVED SIZES: 1", 1-1/2" AND 2" DIAMETERS. ACCEPTABLE MANUFACTURERS: ENDOT ENDOCORE RWT OR APPROVED EQUAL
8. ALL RECLAIMED WATER SERVICE ENDINGS SHALL BE MARKED WITH A 2" x 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 12" MAXIMUM ABOVE THE GROUND AND ANY "U" BRANCHES FOR DOUBLE SERVICES SHALL BE AT GROUND LEVEL. ALL SERVICES SHALL BE LOCKED.
9. RECLAIMED WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 1,000 FEET.
10. AT ALL RECLAIMED WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
11. APPROVED WATER VALVE TYPES MUELLER OR CLOW:
    A. STANDARD GATE VALVES EQUAL TO OR LESS THAN 24" DIAMETER (AWWA C-500) OR RESILIENT SEAT GATE VALVES (AWWA C-509)
    B. TAPPING VALVES WITH MECHANICAL OR STAINLESS STEEL TAPPING SLEEVE.
12. ALL RECLAIMED WATER VALVES SHALL BE ADJUSTED TO FINISH GRADE AND THE CAPS SHALL BE PAINTED PURPLE (PANTONE) TO MAKE THEM PLAINLY DISTINGUISHABLE.
13. AS STANDARD PRACTICE RECLAIMED WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF THE CURB ON THE OPPOSITE SIDE OF THE POTABLE WATER LINES OR AS APPROVED BY THE CITY.

DATE: MARCH 06, 2020 — **RECLAIMED WATER NOTES - 1 OF 3** — R460

City of DeLand - Standard Details

14. ALL RECLAIMED WATER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON PRESSURE CLASS 350 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY.
15. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED INSPECTOR PRIOR TO ATTEMPTING TO CLEAR ANY RECLAIMED WATER MAIN FOR USE. THE INSPECTOR SHALL COORDINATE WITH CITY PERSONNEL AT THE RECLAIMED WATER PLANT 48 HOURS PRIOR TO BEGINNING OF ANY FULL-DIAMETER FLUSH OF MAINS. THE CONTRACTOR WILL CONDUCT A STANDARD WATER PRESSURE TEST. 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA POTABLE WATER STANDARDS. THE RECLAIMED LINES WILL THEN BE DISINFECTED WITH CHLORINE, FLUSHED CLEAR AGAIN.
16. THE CONTRACTOR SHALL BE REQUIRED TO PIG ALL RECLAIMED MAINS IN EXCESS OF 4" IN DIAMETER AND PRIMARY DISTRIBUTION MAINS LOCATED ON COLLECTOR AND ARTERIAL ROADWAYS. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR. ALL PIGGING OPERATIONS SHALL BE WITNESSED BY A PUBLIC UTILITIES REPRESENTATIVE OR CITY UTILITY INSPECTOR.
17. RECLAIMED WATER MAINS SHALL BE PVC AWWA CLASS C-900 OR C-905, CL 150 (COLOR: "PURPLE" PANTONE) OR DIP PRESSURE CLASS 350, STANDARD CEMENT LINED UNLESS APPROVED OTHERWISE BY THE CITY.
18. ALL RECLAIMED WATER MAINS SHALL USE A THRUST RESTRAINED JOINT METHOD IN COMPLIANCE WITH THE DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA) GUIDELINES. IN THE EVENT THAT PVC FITTINGS ARE SPECIFIED, THE RESTRAINED JOINT SHALL BE MODIFIED IN ACCORDANCE WITH THE RECOMMENDED ADDITIONAL RESTRAINED LENGTH REQUIRED FOR PIPE WRAPPED WITH POLYETHYLENE. <u>IN NO INSTANCE SHALL THRUST BLOCKS BE PERMITTED.</u>
19. MEGALUGS, BOLTLESS RESTRAINED JOINTS, OR GRIPPER GASKETS SHALL BE USED ON ALL RESTRAINED JOINT INSTALLATIONS. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES. SEE DETAILS W408 AND W409.
20. GRIPPER RING GASKETS BY ROMAC MAY BE USED AS APPROPRIATE FOR RESTRAINING PRESSURE PIPE TO FITTINGS, VALVES, ETC.
21. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO INSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE CITY OF DeLand UTILITIES AND "AS-BUILTS" ARE PROVIDED TO THE CITY, PRIOR TO ANY USE OF THIS SYSTEM.
22. ALL RECLAIMED WATER MAINS AND SERVICE LINES SHALL BE READILY DISTINGUISHABLE BY THEIR "PURPLE" (PANTONE) COLOR OR TAPE MARKINGS. DUCTILE IRON PIPE SHALL BE WRAPPED WITH PURPLE POLYETHYLENE.
23. ALL RECLAIMED WATER SERVICES SHALL BE MARKED ALONG THE OUTSIDE EDGE OF CURB WITH AN "R". VALVES AND BLOW-OFFS FOR RECLAIMED WATER MAINS SHALL BE MARKED BY AN "X" SET INTO THE CURB.
24. RECLAIM WATER SERVICES SHALL BE NORMALLY DOUBLE 1-1/2" SERVICES LOCATED AT SIDE LOT LINES ALTERNATING WITH POTABLE WATER SERVICE LOCATIONS. IN INSTANCES WHERE RECLAIMED WATER SERVICES NEED TO BE OFFSET, DUE TO SEWER LATERAL CONNECTION, 1" SINGLE SERVICES SHALL BE SPECIFIED. THESE SERVICES MAY BE OFFSET FROM THE LOT LINE A MAXIMUM DISTANCE OF 4.0'.

DATE: MARCH 06, 2020 — **RECLAIMED WATER NOTES - 2 OF 3** — R461

City of DeLand - Standard Details

25. MAXIMUM OBTAINABLE SEPARATION OF PUBLIC RECLAIMED WATER MAINS, STORMWATER MAINS, AND SANITARY SEWER MAINS SHALL BE MAINTAINED. A MINIMUM HORIZONTAL SEPARATION OF THREE (3) FEET (OUTSIDE TO OUTSIDE), TEN (10) FEET PREFERRED. A MINIMUM VERTICAL SEPARATION OF SIX (6) INCHES, IF WATER MAIN IS ABOVE STORM, SAN. SEW. & RECLAIMED MAINS. A MINIMUM VERTICAL SEPARATION OF EIGHTEEN (18) INCHES, IF WATER MAIN IS BELOW STORM, SAN. SEW. & RECLAIMED MAINS. (Ref Detail W420)
26. <u>NO RECLAIMED WATER HOSE BIBBS ARE PERMITTED.</u>
27. A 75-FOOT SETBACK DISTANCE SHALL BE PROVIDED FROM PUBLIC ACCESS REUSE WETTED AREAS TO ANY PUBLIC AND ANY PRIVATE POTABLE WATER SUPPLY WELLS.
28. LOW TRAJECTORY NOZZLES ARE REQUIRED WITHIN 100 FEET OF PUBLIC EATING, DRINKING OR BATHING FACILITIES.
29. ALL TAPPING OF MAINS SHALL BE PERFORMED BY THE CONTRACTOR AND WITNESSED BY THE CITY INSPECTOR. SCHEDULING OF THESE CONNECTIONS SHALL REQUIRED A MINIMUM 48 HOUR NOTIFICATION (MEASURED ON NORMAL WORK DAYS) DIRECTED TO THE CITY'S DESIGNATED SITE INSPECTOR WHO SHALL COORDINATE THE WORK DIRECTLY WITH THE CITY'S UTILITIES DEPARTMENT. SUBSEQUENTLY, THE CONNECTION SHALL BE SCHEDULED TO COMMENCE BETWEEN 7:00 A.M. AND NOON ON THE APPROPRIATE DAY, UNLESS ALTERNATE TIMES HAVE BEEN APPROVED BY THE CITY.
30. WITH RESPECT TO TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNECTIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS.
31. ALL WORK PERFORMED UPON RECLAIMED WATER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY, SHALL BE CONSTRUCTED BY AN UNDERGROUND UTILITY OR GENERAL CONTRACTOR LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.
32. FOR CONSTRUCTION PURPOSES, THE PLANS SHALL PROVIDE DIMENSION OF THE PROPOSED LOCATIONS OF ALL RECLAIMED WATER MAINS MEASURED FROM THE BACK OF CURB (OR EDGE OF PAVEMENT IF NO CURB EXISTS).
33. ALL HDPE PIPE RECLAIMED WATER MAINS SHALL BE SDR 11 UNLESS SPECIFICALLY NOTED OTHERWISE. THE HDPE PIPE SHALL BE SIZED TO MATCH THE EXTERNAL DIAMETER OF THE PVC OR DIP TO WHICH IT IS ATTACHED.
34. ALL P.V.C. PIPE SHALL BE STORED IN SUCH A WAY AS TO PREVENT WARPING, DEFLECTION, OR ANY DEFORMATION.
35. <u>RECLAIMED WATER HYDRANTS ARE NOT ALLOWED BY THE CITY.</u>
36. NO USED, RE-USED, RUSTED, SECOND HAND, OR ANY MATERIAL THAT IS NOT "NEW" SHALL BE USED IN ANY UTILITY IMPROVEMENT PROJECTS WITHIN THE CITIES SERVICE AREA.
37. LARGE RECLAIMED WATER METERS GREATER THAN 2" TAKES A MINIMUM OF 6 WEEKS FOR DELIVERY. IN ADDITION, ALL METERS AND VAULTS GREATER THAN 2" SHALL BE INSTALLED BY THE OWNER/ DEVELOPER OR CONTRACTOR. THE FEE COLLECTED BY THE CITY IS FOR MATERIALS ONLY. ALL METERS, 2" AND LESS, SHALL BE INSTALLED BY THE CITY, AFTER ALL FEES HAVE BEEN PAID.
38. TYPICALLY, THE CITY PREFERS DOUBLE SERVICE INSTALLATIONS WHEREVER FEASIBLE. WHEN DESIGN CONFLICTS EXIST, SINGLE SERVICES MAY BE ALLOWED. THIS MAY APPLY AT STORMWATER INLETS, FIRE HYDRANTS, FPL TRANSFORMERS, ETC. AND OTHER LOCATIONS DEEMED APPROPRIATE BY THE CITY.
39. ALL RECLAIMED WATER VALVE BOXES SHALL HAVE RECTANGULAR SHAPED COVERS, AND SHALL BE PAINTED "PURPLE" (PANTONE) AND LABELED REUSE OR RECLAIM.

NOTE: DIP = DUCTILE IRON PIPE

DATE: MARCH 06, 2020 — **RECLAIMED WATER NOTES - 3 OF 3** — R462

City of DeLand - Standard Details

ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD., STE. C
ORMOND BEACH, FL 32174
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS / REVISIONS
1	06-18-21	HK	SJRWMD SUBMITTAL
2	07-02-21	HK	CITY OF DELAND SUBMITTAL
3	08-21-21	JL/HK	SJRWMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-22-21	JL/HK	CITY OF DELAND RE-SUBMITTAL PH1A & PH1B
5	11-29-21	JL/HK	REVISED PER CITY COMMENTS DATED 11-22-21
6	12-28-21	JL/HK	REVISED PER CITY COMMENTS DATED 12-08-21

MANCHESTER NEIGHBORHOOD PHASE 1A
FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

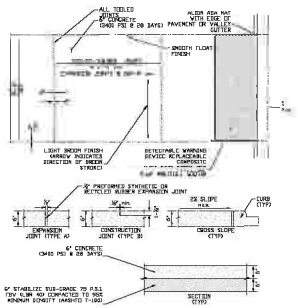
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 26-35-19194-DET_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:04:03-05'00'

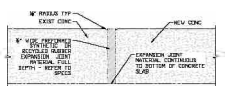
HALUK KILIC, P.E., NO.84264
NOT VALID WITHOUT SEAL

SHEET: C33 OF 36

R:\19194 MANCHESTER SENIOR HOUSING\FINAL ENGINEERING PLANS\CADDWGS\19194 PHASE 1A\26-35-19194-DET_PH1A.DWG - PRINTED 12/28/2021 3:32 PM

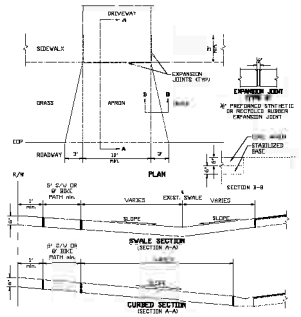


SIDEWALK CONSTRUCTION DETAIL



NOTES:
1. EXPANSION JOINTS ARE TO BE ½" PREFORMED SYNTHETIC OR RECYCLED RUBBER.
2. ALL EXPANSION JOINTS ARE REQUIRED TO BE INSTALLED THROUGH TO THE FULL DEPTH AND WIDTH OF THE CONCRETE AREA.
3. EXPANSION JOINTS SHALL BE SPACED AT INTERVALS OF EIGHTY FEET (80'0") FOR CURBING, THIRTY FEET (30') FOR 8FWC TRAILS AND ONE HUNDRED FEET (100') FOR SIDEWALKS.
4. EXPANSION JOINTS SHALL BE PLACED AT STREET INTERSECTIONS, RADIUS POINTS, STRUCTURES, AND ALONG CURVES AT SIXTY FEET (60') INTERVALS.
5. FOR LINEAR SECTIONS OF CURBS, EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING OF FIVE-HUNDRED FEET (500') AND SHALL BE ½" IN WIDTH.

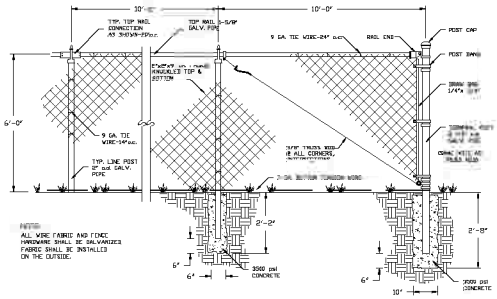
EXPANSION JOINT (TYPE A) DETAIL



NOTES:
1. DRIVEWAY APRON SHALL BE CONSTRUCTED OF PLAIN PORTLAND CEMENT CONCRETE WITH A MAXIMUM SLUMP OF 5". A MINIMUM DEVELOPMENT COMPRESSIVE STRENGTH OF 3400 P.S.I. @ 28 DAYS.
2. CONCRETE DRIVEWAY APRON WITHIN CITY RIGHT OF WAY SHALL BE MINIMUM UNIFORM THICKNESS OF 6".
3. DRIVEWAY APRON BASE SHALL BE COMPACTED AND TESTED TO 98% DENSITY WITH MINIMUM LBR 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
4. NO APRON SHALL TO BE USED WITHIN CITY RIGHT OF WAY.
5. CONCRETE APRON TO HAVE LIGHT BROOM FINISH.

CONCRETE DRIVEWAY APRON DETAIL

STEEL PIPE BOLLARD CONCRETE FILLED DETAIL

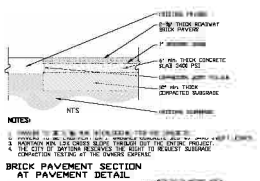


NOTE:
ALL WIRE FABRIC AND TIMOC HARDWARE SHALL BE GALVANIZED. FABRIC SHALL BE INSTALLED ON THE OUTSIDE.

TYPICAL LINE POST FOOTING

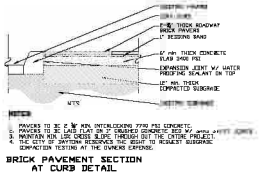
TYPICAL CORNER POST FOOTING

CHAIN LINK FENCE



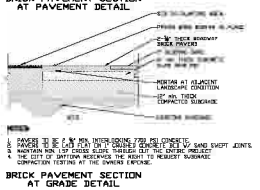
NOTES:
1. PAVERS TO BE 2 ¾" MIN. INTERLOCKING 7750 PSI CONCRETE.
2. PAVERS TO BE LAID FLAT ON 1" CRUSHED GRANITE BED W/ SAND SWEPT JOINTS.
3. MAINTAIN MIN 1/8" CROSS SLOPE THROUGH OUT THE ENTIRE PROJECT.
4. THE CITY OF DAYTONA RESERVES THE RIGHT TO REQUEST SUBGRADE COMPACTION TESTING AT THE OWNERS EXPENSE.

BRICK PAVEMENT SECTION AT PAVEMENT DETAIL



NOTES:
1. PAVERS TO BE 2 ¾" MIN. INTERLOCKING 7750 PSI CONCRETE.
2. PAVERS TO BE LAID FLAT ON 1" CRUSHED GRANITE BED W/ SAND SWEPT JOINTS.
3. MAINTAIN MIN 1/8" CROSS SLOPE THROUGH OUT THE ENTIRE PROJECT.
4. THE CITY OF DAYTONA RESERVES THE RIGHT TO REQUEST SUBGRADE COMPACTION TESTING AT THE OWNERS EXPENSE.

BRICK PAVEMENT SECTION AT CURB DETAIL



NOTES:
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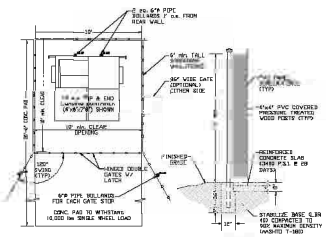
3. MAINTAIN MIN 1/8" CROSS SLOPE THROUGH OUT THE ENTIRE PROJECT.
4. THE CITY OF DAYTONA RESERVES THE RIGHT TO REQUEST SUBGRADE COMPACTION TESTING AT THE OWNERS EXPENSE.

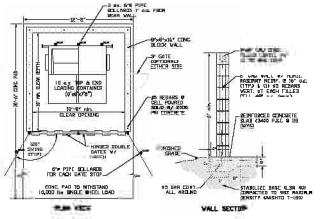
BRICK PAVEMENT SECTION AT GRADE DETAIL

BRICK PAVEMENT PARKING AND APRON DETAIL



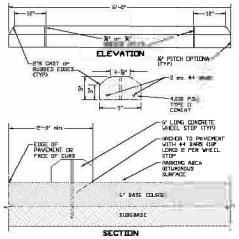
NOTES:
1. THE CONCRETE PAD BASE SHALL BE COMPACTED AND TESTED TO 98% WITH MINIMUM LBR 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
2. DUMPSTER ENCLOSURE SHALL MEET THE REQUIREMENTS OF SECTION 6.50 OF THE CITY OF DAYTONA LAND DEVELOPMENT CODE (LDC).
3. SCREENING MATERIAL SHALL MEET THE REQUIREMENTS OF THE CITY OF DAYTONA CODE OF ORDINANCE 28-45(b)(7).
4. SLATS SHALL BE PVC VINYL. PVVO FENCE RECOMMENDED AS A SCREENING MATERIAL. PLASTIC COATED VINYL MESH CHAIN-LINK FENCE KILITY & SCREENING STRIPS AS AN ACCEPTABLE OPTION.
5. SUBSURFACE SCREENING MAY BE ALLOWED BY CITY ENGINEERING APPROVAL.
6. GATES SHALL BE CONSTRUCTED OF PVC PANELS, PLASTIC COATED CLT WITH SCREENING STRIPS, PRESSURE TREATED WOOD OR APPROVED EQUAL PANELS.
7. BOLLARDS TO BE 6" STEEL PIPE, CONCRETE FILLED SET IN CONCRETE 3' BELOW FINISHED GRADE & EXTENDED VERTICALLY 4' ABOVE GRADE FINISHED GRADE BOLLARDS SHALL BE PAINTED CSHA YELLOW.

STANDARD DUMPSTER ENCLOSURE DETAIL



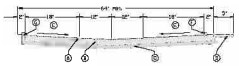
NOTES:
1. THE CONCRETE PAD BASE SHALL BE COMPACTED AND TESTED TO 98% WITH MINIMUM LBR 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
2. DUMPSTER BLOCK WALL SHALL BE FINISHED WITH FRONT, STUCCO OR BROOK VENEER TO MATCH PROJECT SPECIFICATION OR ASSOCIATED BUILDING DESIGN.
3. DUMPSTER STRUCTURE SHALL MEET THE REQUIREMENTS OF SECTION 6.50 OF THE CITY OF DAYTONA LAND DEVELOPMENT CODE (LDC).
4. GATES SHALL BE CONSTRUCTED OF PVC PANELS, PLASTIC COATED CLT WITH SCREENING STRIPS, PRESSURE TREATED WOOD OR APPROVED EQUAL PANELS.
5. BOLLARDS TO BE 6" STEEL PIPE, CONCRETE FILLED SET IN CONCRETE 3' BELOW FINISHED GRADE & EXTENDED VERTICALLY 4' ABOVE GRADE FINISHED GRADE BOLLARDS SHALL BE PAINTED CSHA YELLOW.

CMU DUMPSTER ENCLOSURE DETAIL



NOTES:
1. CONCRETE WHEEL STOP TO BE PRE-MANUFACTURED REINFORCED 4,000 PSI TYPE I CONCRETE.
2. #4 ANCHOR BAR DOWS TO BE INSTALLED FLUSH WITH TOP OF WHEEL STOP.
3. CONTOUR WHEEL STOP IN EACH STALL, SIDE TO SIDE.

PARKING SPACE WHEEL STOP DETAIL



TYPICAL PARKING LOT SECTION DETAIL

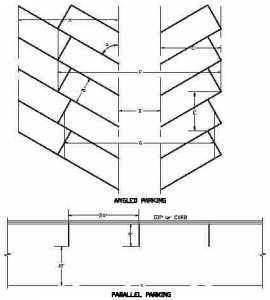
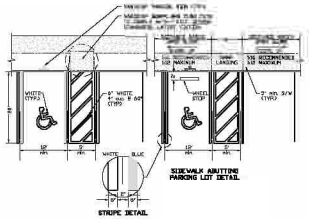


TABLE FOR ANGLED PARKING DIMENSIONS						
A	B	C	D	E	F	G
30°	9'	15'-0"	18'	16'-0"	18'	8'-0"
45°	9'	19'-0"	18'	18'-0"	18'	8'-0"
60°	9'	20'-0"	18'	19'-0"	18'	8'-0"
70°	9'	20'	18'-9"	19'-0"	18'	8'-0"
90°	9'	19'	18'	19'	18'	8'-0"

PARKING SPACE LAYOUT & STRIPING DETAIL

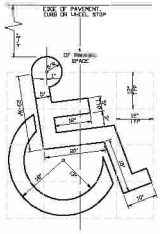


SIDEWALK ABUTTING PARKING LOT DETAIL

STRIPE DETAIL

NOTES:
1. ALL HANDICAP PARKING STALLS, 5' ACCESS AISLES, HANDICAP RAMPS AND ACCESSIBLE ROUTES SHALL BE PAVED.
2. PERPENDICULAR AND DIAGONAL HANDICAP PARKING STALLS WILL BE 12'-0" WIDE AND 20'-0" LONG WITH A 5'-0" WIDE ACCESS AISLE ADJACENT TO EACH STALL. THE 5' ACCESS AISLE MAY BE SHARED BY TWO ADJACENT HANDICAP PARKING STALLS.
3. PARALLEL HANDICAP PARKING STALLS WILL BE 10'-0" WIDE AND 22'-0" LONG WITH A 5'-0" MIN WIDE ACCESS AISLE ADJACENT TO EACH STALL.
4. ALL HANDICAP RAMPS SHALL BE 36" 5'-0" MIN WIDE EXCLUSIVE OF THE FLARED SIDES WITH A 1:12 MAXIMUM SLOPE. HANDICAP RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FDOT STANDARDS LATEST EDITION.
5. BLUE STRIPING SHALL BE BLUE PAINT TO MATCH SHADE 15180 OF FEDERAL STANDARD 595a.
6. WHEN FOUR TYPES OF CURB IS USED IN LIEU OF WHEEL STOPS, SIDEWALK ABUTTING CURB SHALL BE WIDENED BY 18" MIN. SO THAT THE TOTAL SIDEWALK WIDTH IS 7'0" MIN. ALLOWING 36" MIN. CLEAR PEDESTRIAN PATH.
7. 12" WHITE STRIPE AND TEXT SHALL BE BLUE IN EACH PARKING STALL. REFER TO CDSS STANDARD DETAIL W-1 FOR FINISH.
8. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 (2%) IN ALL DIRECTIONS.
9. FOR COMPLETE DETAIL OF PAVEMENT MARKINGS.
10. FOR COMPLETE DETAIL OF HANDICAP SIGN INSTALLATION, REFER TO CDSS STANDARD DETAIL

HANDICAP PARKING SPACE STRIPING DETAIL



NOTE:
1. PAVEMENT SYMBOL SHALL BE SOLID WHITE IN COLOR AND COMPLY WITH FDOT STANDARD PLANS FOR ROAD CONSTRUCTION, LATEST EDITION.

HANDICAP PARKING PAVEMENT SYMBOL DETAIL

ZEV COHEN & ASSOCIATES, INC.
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION
WWW.ZEVCOHEN.COM

NO.	DATE	BY	ISSUE/REVISION
1	06-13-18	RK	ISSUED FOR PERMITS
2	08-24-18	RK	ISSUED FOR PERMITS
3	09-24-18	RK	ISSUED FOR PERMITS
4	10-24-18	RK	ISSUED FOR PERMITS
5	12-21-18	RK	ISSUED FOR PERMITS
6	12-21-18	RK	ISSUED FOR PERMITS
7	12-21-18	RK	ISSUED FOR PERMITS
8	12-21-18	RK	ISSUED FOR PERMITS
9	12-21-18	RK	ISSUED FOR PERMITS
10	12-21-18	RK	ISSUED FOR PERMITS
11	12-21-18	RK	ISSUED FOR PERMITS
12	12-21-18	RK	ISSUED FOR PERMITS
13	12-21-18	RK	ISSUED FOR PERMITS
14	12-21-18	RK	ISSUED FOR PERMITS
15	12-21-18	RK	ISSUED FOR PERMITS
16	12-21-18	RK	ISSUED FOR PERMITS
17	12-21-18	RK	ISSUED FOR PERMITS
18	12-21-18	RK	ISSUED FOR PERMITS
19	12-21-18	RK	ISSUED FOR PERMITS
20	12-21-18	RK	ISSUED FOR PERMITS

MANCHESTER NEIGHBORHOOD PHASE 1A
FINAL ENGINEERING PLANS
CONSTRUCTION DETAILS

CITY OF ELANDO

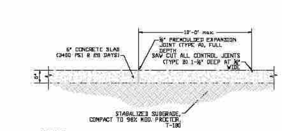
PROJECT NO: ZC 19194

DESIGNED BY: HKUML

DRAWING FILE: 26-58-19194-DET_PH1A

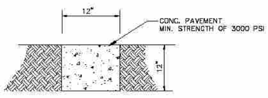
Digitally signed by Haluk Kilic
Date: 2022.01.03 16:04:07-05'00'

SHEET: C34 OF 36

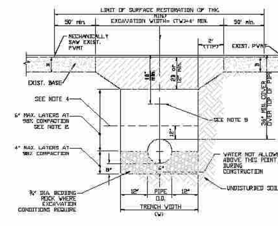


NOTES:
1. EXPANSION JOINTS ARE TO BE ¾" PREFORMED SYNTHETIC OR RECYCLED RUBBER.
2. ALL EXPANSION JOINTS ARE REQUIRED TO BE INSTALLED THROUGH TO THE FULL DEPTH AND WIDTH OF THE CONCRETE AREA.
3. EXPANSION JOINTS SHALL BE SPACED AT INTERVALS OF SIXTY FEET (60') FOR CURBING, THIRTY FEET (30') FOR BIKE TRAILS AND ONE HUNDRED FEET (100') FOR SIDEWALKS.
4. EXPANSION JOINTS SHALL BE PLACED AT STREET INTERSECTIONS, RADIUS POINTS, STRUCTURES, AND ALONG CURVES AT SIXTY FEET (60') INTERVALS.
5. FOR LINEAL SECTIONS OF CURBS, EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING OF FIVE-HUNDRED FEET (500') AND SHALL BE ¾" IN WIDTH CONTROL JOINTS SHALL BE HAND TOOLED INTO FRESH CONCRETE OR SAW CUT INTO CURED CONCRETE.
6. SAW CUT CONTROL JOINTS IN CONCRETE CURBING, SIDEWALKS, PAVEMENT AND SIMILAR CONCRETE AREAS SHALL BE DONE WITHIN 4 TO 18 HOURS OF CONCRETE PLACEMENT.
7. ALL CONTROL JOINTS SHALL BE ⅛" IN WIDTH TO A DEPTH OF 25% OF THE TOTAL DEPTH OF CONCRETE OR 1-¾", WHICHEVER IS LESS.
8. CONTROL JOINTS SHALL BE SPACED AT INTERVALS OF TEN FEET (10') FOR CURBING, TEN FEET (10') FOR BIKE TRAILS & FIVE FEET (5') FOR SIDEWALKS.

CONCRETE HANDICAP PARKING SECTION DETAIL
NTS

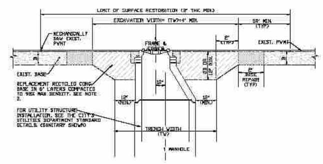


RIBBON CURB DETAIL
N.T.S.



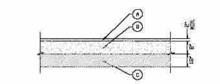
NOTES:
1. ALL MATERIALS ARE TO BE APPROVED BY THE CITY ENGINEER AND THE PROJECT'S LICENSED SOILS ENGINEER PRIOR TO PLACEMENT.
2. COMPACTION, STABILITY & DENSITY TESTING ARE TO BE DONE IN ACCORDANCE WITH FDOT STANDARD PLANS FOR ROADWAY & BRIDGE CONSTRUCTION, LATEST EDITION.
3. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
4. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
5. FOR PVC PIPE ONLY - INSTALL METALLIC TAPE AND I/F #12 INSULATED SINGLE STRAND COPPER WIRE OVER FULL LENGTH OF PIPE.
6. SHEETING WILL BE REQUIRED AS DETERMINED BY FIELD CONDITIONS.
7. NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED & FEATHERED JOINTS (2' MIN. THK.).
8. CONTRACTOR MAY USE FLOWABLE FILL IN LIEU OF RECYCLED CONC. UNDER THE APPROVAL FROM THE CITY ENGINEER OR DESIGNEE.
9. TRENCH WIDTH (TW)= PIPE OD (CENTERED)+24" (MINIMUM).
10. (XD)= EXISTING BASE DEPTH.
11. TEMPORARY PATCH MAY BE RECYCLED ASPHALT, FDOT APPROVED COLD PATCH OR APPROVED EQUAL.
12. FINAL PATCH TO BE 3" MIN. SP 9.5
13. PATCH SHALL BE TOTAL ROADWAY WIDTH.

PAVEMENT CUT & PATCH OVER PIPE TRENCH DETAIL
NTS



NOTES:
1. THIS DETAIL PERTAINS TO ALL UTILITY SANITARY AND STORM STRUCTURES WITHIN THE CITY OF DAYTONA BEACH RIGHTS-OF-WAY.
2. ALL MATERIALS ARE TO BE APPROVED BY THE CITY ENGINEER AND THE PROJECT'S LICENSED SOILS ENGINEER PRIOR TO PLACEMENT.
3. COMPACTION, STABILITY & DENSITY TESTING ARE TO BE DONE IN ACCORDANCE WITH FDOT STANDARD PLANS FOR ROADWAY & BRIDGE CONSTRUCTION, LATEST EDITION.
4. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
5. SHEETING WILL BE REQUIRED AS DETERMINED BY FIELD CONDITIONS.
6. NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED & FEATHERED JOINTS (2' MIN. THK).
7. CONTRACTOR MAY USE FLOWABLE FILL IN LIEU OF RECYCLED CONC. UNDER THE APPROVAL FROM THE CITY ENGINEER OR DESIGNEE.
8. TRENCH WIDTH (TW)= STRUCTURE WIDTH (CENTERED) + 24" (MINIMUM).
9. (XD)= EXISTING BASE DEPTH.
10. TEMPORARY PATCH MAY BE RECYCLED ASPHALT, FDOT APPROVED COLD PATCH OR APPROVED EQUAL.
11. FINAL PATCH TO BE 3" MIN. SP 9.5
12. PATCH SHALL BE TOTAL ROADWAY WIDTH UNLESS DIRECTED BY CITY ENGINEER.

PAVEMENT CUT & PATCH OVER UTILITY STRUCTURE DETAIL
NTS



(A) ASPHALT PAVEMENT: 2" MIN. ASPHALT BITUMINOUS CONCRETE TYPE SP-9.5 SEE NOTE 2

(B) BASE: 8" RECYCLED CONCRETE BASE (LBR 130). SEE NOTE 2

ALTERNATE 1: 5" ASPHALT BASE MINIMUM BEARING (LBR 100). SEE NOTE 2

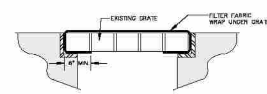
ALTERNATE 2: 8" LIMEROCK BASE (LBR 100). SEE NOTE 2 TO BE USED ONLY WHEN BOTTOM OF BASE LAYER IS 24" ABOVE ANNUAL GROUND WATER MAXIMUM ELEVATION AND UPON APPROVAL OF THE CITY ENGINEER.

(C) SUB-GRADE: 12" STABILIZED SUB-BASE (LBR 40). COMPACTED TO 98% MAXIMUM DENSITY. SEE NOTE 2 BELOW.

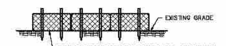
NOTES:
1. ALL MATERIALS ARE TO BE APPROVED BY THE CITY ENGINEER AND THE PROJECT'S LICENSED SOILS ENGINEER PRIOR TO PLACEMENT.
2. ASPHALT PAVEMENT TESTING IS TO BE DONE IN ACCORDANCE WITH FDOT STANDARD PLANS FOR ROAD & BRIDGE CONSTRUCTION, LATEST EDITION.
3.

GRADED AGGREGATE BASE	
SIEVE SIZE	PERCENT BY WEIGHT PASSING
2" (50mm)	100
1-1/2" (37.5mm)	95 to 100
3/4" (19mm)	60 to 90
3/8" (9.5mm)	45 to 75
No.4 (4.75mm)	35 to 60
No.10 (2mm)	25 to 45
No.50 (300um)	5 to 25
No.200 (75um)	0 to 10

TYPICAL ASPHALT PAVEMENT SECTION DETAIL
NTS

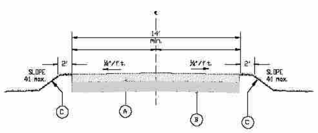


CATCH BASIN SEDIMENT PROTECTION DETAIL
N.T.S.



NOTE:
CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (SYNTHETIC BALES OR SILTATION CURTAIN) TO PREVENT SILTATION OF ADJACENT PROPERTY, STREETS, STORM SEWERS AND WATERWAYS. IN ADDITION, CONTRACTOR SHALL PLACE STRAW, MULCH OR OTHER SUITABLE MATERIAL ON GROUND IN AREAS WHERE CONSTRUCTION RELATED TRAFFIC IS TO ENTER AND EXIT SITE. IF, IN THE OPINION OF THE ENGINEER AND/OR LOCAL AUTHORITIES, EXCESSIVE QUANTITIES OF EARTH ARE TRANSPORTED OFF-SITE EITHER BY NATURAL DRAINAGE OR BY VEHICULAR TRAFFIC, THE CONTRACTOR IS TO REMOVE AND CLEAN SAID EARTH TO THE SATISFACTION OF THE ENGINEER AND/OR LOCAL AUTHORITIES.

SEDIMENT BARRIER
N.T.S.



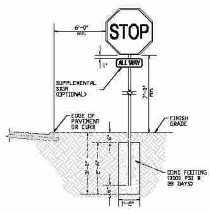
(A) STABILIZED DRIVE: 8" min RECYCLED CONCRETE BASE (LBR 130) COMPACTED TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.

(B) SUB-BASE: 6" min COMPACTED SUB-BASE (LBR 40) COMPACTED TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.

(C) SOD OR SEED AND MULCH PER FDOT DESIGN STANDARDS, CURRENT EDITION, WHERE APPLICABLE. MAINTAIN POSITIVE DRAINAGE FROM EDGE OF ROAD.

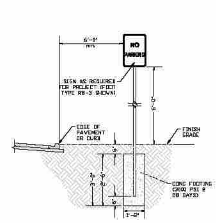
NOTES:
1. ALL MATERIALS ARE TO BE APPROVED BY THE CITY ENGINEER AND THE PROJECT'S LICENSED SOILS ENGINEER PRIOR TO PLACEMENT.
2. TURN AROUND REQUIRED ON DEAD END ACCESS ROAD SUITABLE FOR FIRE TRUCKS AND EMERGENCY EQUIPMENT UTILIZED BY THE CITY OF DAYTONA BEACH FIRE DEPARTMENT.

EMERGENCY EQUIPMENT ACCESS ROAD SECTION DETAIL
NTS



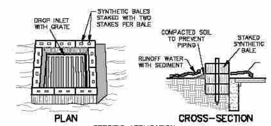
NOTES:
1. STOP SIGN SHALL CONFORM WITH CURRENT FEDERAL, STATE & LOCAL CODES & REGULATIONS, LATEST EDITION.
2. STOP SIGN R1-1 SHALL BE OCTAGONAL IN SHAPE. ALUMINUM SHALL BE A MINIMUM OF 0.80 IN THICKNESS. LEGEND AND BOARDER OF WHITE (RETROREFLECTIVE) AND A BACKGROUND OF RED (RETROREFLECTIVE) TABLE 2B-1 OF THE MUTCD SHALL BE USED TO DETERMINE THE APPROPRIATE SIZE OF THE SIGN FOR THE APPLICATION.
3. LEGEND AND BOARDER SIZES SHALL BE IN ACCORDANCE WITH THE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL, LATEST EDITION, FOR THE SIZE OF SIGN REQUIRED FOR THE APPLICATION.
4. ALUMINUM SIGN POSTS TO BE 2-⅜"Ø. ALL BOLTS, NUTS, WASHERS AND SCREWS MUST BE 316 STAINLESS STEEL.
5. CONCRETE FOOTING SHALL BE OF PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I.
6. SIGN POST SHALL BE MINIMUM 6'-0" CLEAR FROM BACK OF CURB OR EDGE OF PAVEMENT.
7. SIGN POST SHALL BE DESIGNED TO WITHSTAND 120 M.P.H. WIND LOAD.
8. SUPPLEMENTAL PLAQUE "ALL WAY" (R1-3P) SHALL BE INSTALLED PER MUTCD SPECIFICATIONS AT INTERSECTIONS WHERE ALL APPROACHES ARE CONTROLLED BY STOP SIGNS.

STOP SIGN INSTALLATION DETAIL (FDOT TYPE R1-1)
NTS



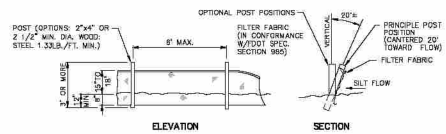
NOTES:
1. NO PARKING SIGN SHALL CONFORM WITH CURRENT FEDERAL, STATE & LOCAL CODES & REGULATIONS, LATEST EDITION.
2. SIGNS WILL BE FABRICATED BY USING A REFLECTING COATING IN THE TEXT & BORDER APPLIED TO A SHEET ALUMINUM BACKING (0.080" IN THICKNESS).
3. LEGEND AND BOARDER SIZES SHALL BE IN ACCORDANCE WITH THE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL, LATEST EDITION, FOR THE SIZE OF SIGN REQUIRED FOR THE APPLICATION.
4. METAL SIGN POSTS TO BE GALVANIZED U-IRON. ALL BOLTS, NUTS, WASHERS AND SCREWS MUST BE 316 STAINLESS STEEL.
5. CONCRETE FOOTING SHALL BE OF PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I.
6. SIGN POST SHALL BE MINIMUM 6'-0" CLEAR FROM BACK OF CURB OR EDGE OF PAVEMENT.
7. SIGN POST SHALL BE DESIGNED TO WITHSTAND 120 M.P.H. WIND LOAD.

STANDARD SIGN INSTALLATION DETAIL (FDOT TYPE R11-1)
NTS

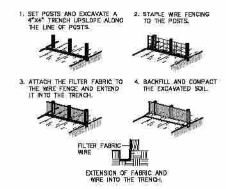


SPECIFIC APPLICATION
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5 PERCENT) WHERE SHEET OR OVERLAND FLOWS ARE TYPICAL.

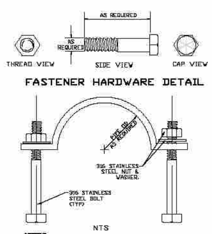
SYNTHETIC BALE DROP INLET SEDIMENT FILTER
N.T.S.



TYPE III SILT FENCE DETAIL
N.T.S.

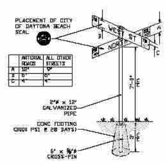


SILT FENCE CONSTRUCTION
N.T.S.



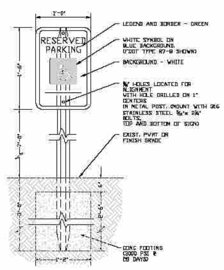
NOTES:
1. 316 STAINLESS STEEL BOLT HEX HEAD BOLT SHOWN. EITHER HEX HEAD OR SQUARE HEAD BOLT MAY BE USED. ONLY HEX HEAD NUT TO BE USED.
2. INSTALL WASHER WITH CHAMFERED FACE DOWN
3. APPLY ANTI-SEIZE TO BOLT THREAD PRIOR TO TIGHTENING.

316 STAINLESS STEEL SIGN MOUNTING HARDWARE DETAIL
NTS



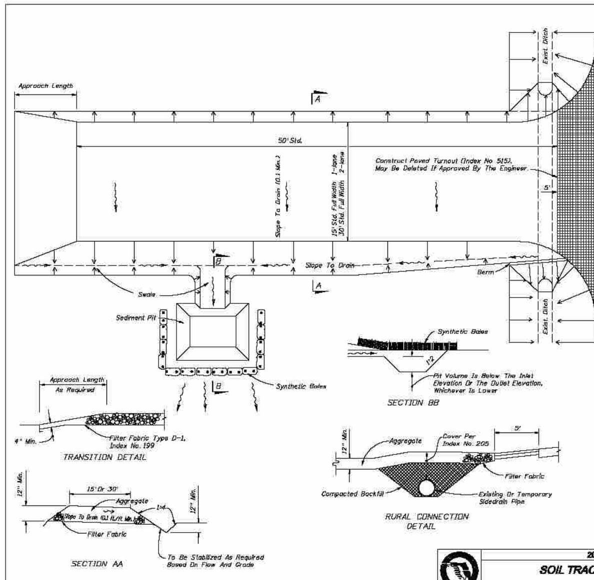
NOTES:
1. ALUMINUM SIGN PLATES .080" min. THICKNESS, DIE CUT ALCOA ALLOY 6061-T6, OR EQUAL. WHITE REFLECTIVE LETTERS WITH GREEN REFLECTIVE BACKGROUND TO MEET STANDARDS OF SECTION 63306 FP-79 FOR TYPE 3A SHEET REFLECTIVE MATERIAL. CITY SEAL TO BE PURCHASED FROM THE CITY.
2. CONCRETE FOOTING SHALL BE OF PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I.
3. 6"Ø CONCRETE FOOTING @ TOP AND FLUSH WITH GRADE. 6" x ⅜"Ø CROSS-PIN THROUGH PIPE @ MID-POINT IN CONCRETE FOOTING. 12"Ø CONCRETE FOOTING @ 3'-0" BELOW GRADE.
4. SIGN PLATES SHALL BE RIVETED USING TWO RIVETS ON SIGN POST AND ONE AT EACH END OF SIGN PLATES.

CITY STREET NAME SIGN INSTALLATION DETAIL
NTS



NOTES:
1. HANDICAP PARKING SIGN SHALL CONFORM WITH CURRENT FEDERAL, STATE LOCAL & ADA CODES & REGULATIONS, LATEST EDITION.
2. SIGNS WILL BE FABRICATED BY USING A REFLECTING COATING IN THE SYMBOL, MESSAGE AND BORDERS APPLIED TO A SHEET ALUMINUM BACKING (12"x18"x0.80").
3. LEGEND, SYMBOL AND BORDER SIZES SHALL BE IN ACCORDANCE WITH THE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL, LATEST EDITION.
4. THE SYMBOL IS COMPOSED OF TWO ELEMENTS, A WHITE WHEEL-CHAIR FIGURE (WHICH SHOULD ALWAYS FACE RIGHT) ON A SQUARE BACKGROUND. INTERNATIONAL BLUE IN COLOR (FED. STD. 595a, COLOR #15180).
5. METAL SIGN POSTS TO BE GALVANIZED U-IRON. ALL BOLTS, NUTS, WASHERS AND SCREWS MUST BE 316 STAINLESS STEEL.
6. CONCRETE FOOTING SHALL BE OF PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I.
7. SIGN POST SHALL BE MINIMUM 2'-8" CLEAR FROM BACK OF CURB OR WHEEL STOP.
8. SIGN POST SHALL BE DESIGNED TO WITHSTAND 120 M.P.H. WIND LOAD.

HANDICAP PARKING SIGN DETAIL (FDOT TYPE R7-8)
NTS



GENERAL NOTES

1. A Soil Tracking Prevention Device (STPD) shall be constructed at locations designated by the engineer for points of egress from unstabilized areas of the project to public roads where off-site tracking of mud could occur. Traffic from unstabilized areas of the construction project shall be directed thru a STPD. Barriers, flagging, or other positive means shall be used as required to limit and direct vehicular egress across the STPD.
2. The Contractor may propose an alternative technique to minimize off-site tracking of sediment. The alternative must be reviewed and approved by the Engineer prior to its use.
3. All materials spilled, dropped, or tracked onto public roads (including the STPD aggregate and construction mud) shall be removed daily, or more frequently if so directed by the Engineer.
4. Aggregates shall be as described in Section 901 excluding 901-2.3. Aggregates shall be FDOT size #1. If this size is not available, the next available smaller size aggregate may be substituted with the approval of the Engineer. Sizes containing excessive small aggregate will track off the project and are unsuitable.
5. The sediment pit should provide a retention volume of 3600 cubic feet/acre of surface area draining to the pit. When the STPD is isolated from other drainage areas, the following pit volumes will satisfy this requirement: 15' x 50'=100 ft.³ 30' x 50'=200 ft.³ As an option to the sediment pit, the width of the swale bottom can be increased to obtain the volume. When the sediment pit or swale volume has been reduced to one half, it shall be cleaned. When a swale is used, synthetic bales or silt fence shall be placed along the entire length.
6. The swale ditch draining the STPD shall have a 0.02% minimum and a 1.0% maximum grade along the STPD and to the sediment pit.
7. Mitered end sections are not required when the sidedrain pipe satisfies the clear zone requirements.
8. The STPD shall be maintained in a condition that will allow it to perform its function. To prevent off-site tracking, the STPD shall be rinsed (daily when in use) to move accumulated mud downward thru the stone. Additional stabilization of the vehicular route leading to the STPD may be required to limit the mud tracked.
9. A STPD shall be paid for under the contract unit price for Soil Tracking Prevention Device, EA. The unit price shall constitute full compensation for construction, maintenance, replacement of materials, removal, and restoration of the area utilized for the STPD; including but not limited to excavation, grading, temporary pipe (including MES when required), filter fabric, aggregate, paved turnout (including asphalt and base construction), ditch stabilization, approach route stabilization, sediment removal and disposal, water, rinsing and cleaning of the STPD and cleaning of public roads, grassing and sod. Synthetic Bale or Bale Type Barrier shall be paid for under the contract unit price for Synthetic Bales, LF. Silt fence shall be paid for under the contract unit price for Staked Silt Fence, LF.
10. The nominal size of a standard STPD is 15' x 50' unless otherwise shown in the plans. If the volume of entering and existing vehicles warrant, a 30' width STPD may be used if approved by the Engineer. When a double width (30') STPD is used, the pay quantity shall be 2 for each location.

2010 FDOT Design Standards

SOIL TRACKING PREVENTION DEVICE TYPE A

Last Revision 07/01/07 | Sheet No. 1 of 1 | Index No. 106

NO.	DATE	BY	SUBMITTALS / REVISIONS
1	06-18-21	HK	SJRWMD SUBMITTAL
2	07-02-21	HK	CITY OF DELAND SUBMITTAL
3	09-21-21	JL/HK	SJRWMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-22-21	JL/HK	CITY OF DELAND RE-SUBMITTAL PH1A & PH1B
5	11-29-21	JL/HK	REVISED PER CITY COMMENTS DATED 11-22-21
6	12-29-21	JL/HK	REVISED PER CITY COMMENTS DATED 12-06-21

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD., STE. C
ORMOND BEACH, FL 32174
WWW.ZEVCOHEN.COM

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 26-35-19194-DET_PH1A
XREFS: 19194_BASE.DWG
XREFS: XXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 16:04:10-05'00'

RANDY B. HUDAK, P.E., NO.XXXXX
HALUK KILIC, P.E., NO.XXXXX
NOT VALID WITHOUT SEAL

SHEET: C35 of 36

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SPECIMEN TREE TO REMAIN
- EXISTING SPECIMEN TREE TO BE REMOVED
- EXISTING HISTORIC TREE TO REMAIN
- DENOTES TREE PRESERVATION / CONSERVATION AREA TO REMAIN
- DENOTES ROOT ZONE PROTECTION AREA REQUIRED TREE PROTECTION PER TREE BARRICADE DETAIL THIS SHEET.

NOTE: SEE TREE SYMBOL LEGEND FOR SPECIES AND PLAN VIEW FOR DBH.

TREE LEGEND

QL	LAUREL OAK
QV & OK	LIVE OAK
PC	PRUNUS CAROLINIANA
PS	PRUNUS SEROTINA
SP	SABAL PALM

MINIMUM ON SITE TREES

TOTAL SITE ACREAGE	12.16 AC.
MINIMUM TREES REQUIRED ON SITE	220
CALCULATION: 1 / 2500 S.F. = 425 D.B.H.	
EXISTING TREES TO BE PRESERVED	25
NUMBER OF TREES PROVIDED ON LANDSCAPE PLAN	208
TOTAL NUMBER OF TREES EXISTING PLUS PROVIDED	233

15% TREE PRESERVATION AREA

TOTAL SITE ACREAGE	12.16 AC
TOTAL PRESERVATION AREA REQUIRED	2.8 AC.
(CALCULATION: 18.46 AC. x 15% = XX AC.	
UNDISTURBED NATURAL PRESERVATION AREA	1.0 AC.
TOTAL PRESERVATION AREA DEFICIT	1.8 AC.*

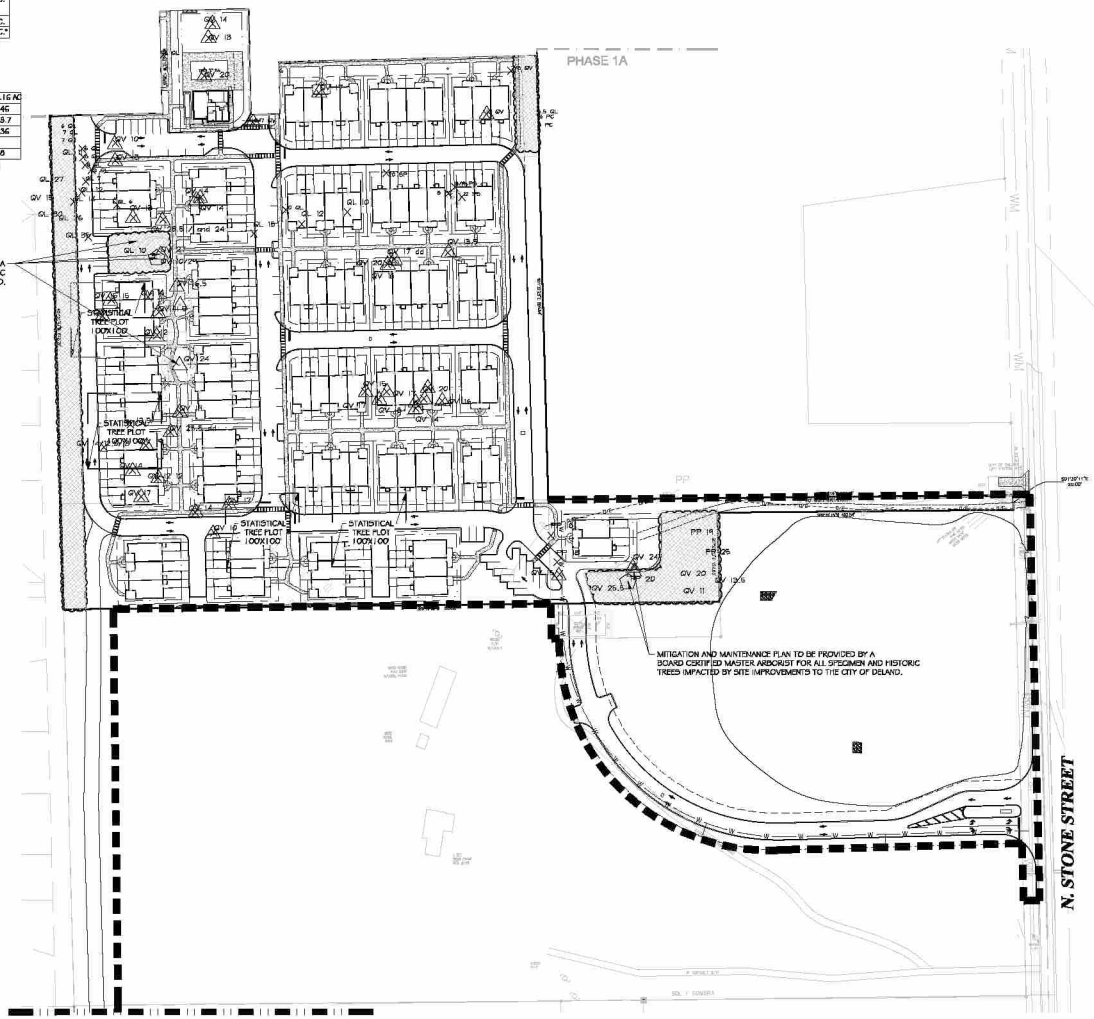
*REMAINED OF PRESERVATION TO BE PROVIDED IN SOUTHERN PORTION FOR PLANNED DEVELOPMENT AGREEMENT.

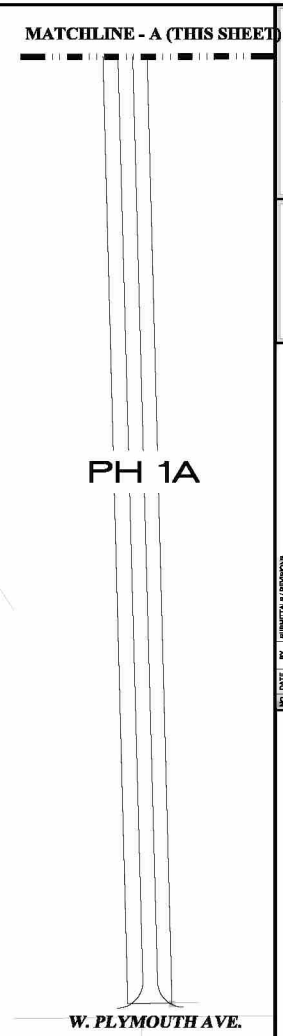
SPECIMEN TREE REQUIREMENTS

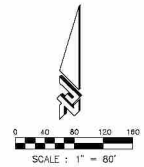
TOTAL SITE ACREAGE	12.16 AC
SPECIMEN TREES ON SITE	46
SPECIMEN TREES PER ACRE	3.7
SPECIMEN TREES REQUIRED TO BE PRESERVED	36
(CALCULATION: 3/ACRE	
SPECIMEN TREES PRESERVED IN PHASE 1A	8

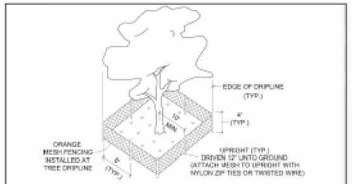
NOTE: REMAINING SPECIMEN TREES ARE TO BE PRESERVED IN SOUTHERN PD AREA.

MITIGATION AND MAINTENANCE PLAN TO BE PROVIDED BY A BOARD CERTIFIED MASTER ARBORIST FOR ALL SPECIMEN AND HISTORIC TREES IMPACTED BY SITE IMPROVEMENTS TO THE CITY OF DELAND.









TYP. CITY TREE BARRICADE DETAIL

N.T.S.

TREE BARRICADES ARE REQUIRED AROUND ALL TREES WHICH HAVE BEEN DESIGNATED ON THE SITE PLAN TO BE RETAINED AND PROTECTED PRIOR TO ANY CLEARING OR CONSTRUCTION ACTIVITY OCCURING ON THE SITE. TREE BARRICADES SHALL BE CONSTRUCTED BY THE CONTRACTOR AND APPROVED BY BY THE CITY. TREE BARRICADES SHALL BE PLACED AT THE EDGE OF THE DRIPLINE OR A MINIMUM OF 10' FROM THE TRUNK OF THE TREE, WHICH EVER IS GREATER.

FOR THE BARRIER THE CITY RECOMMENDS SAFETY BARRICADE FENCING.

NOTE: EXISTING TREES IN LANDSCAPE BUFFER SHALL ALSO BE PROTECTED.

DATE: May 22, 2018	TREE BARRICADE DETAIL	00112
	City of DeLand - Standard Details	

ZEV COHEN & ASSOCIATES, INC.
2100 W. ORANGE BLOSSOM TRAIL
APOPKA, FL 32712
(407) 889-8899
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/REVISIONS

FOR REVIEW ONLY NOT FOR CONSTRUCTION

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS TREE PROTECTION PLAN & DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19184
DESIGNED BY: JES
DRAFTED BY: JES
CHECKED BY: SWG
DRAWING FILE: 19184-TP_1A
XREFS: SAB_DWG
XREFS: SURV.DWG

Jake E Stehr:A01410D000001781797F90400001546
Digitally signed by Jake E Stehr:A01410D000001781797F90400001546
Date: 2021.11.29 16:37:16 -05'00'

SHEET: TP1 OF 2

Manchester northern calculations

CITY OF DELAND, VOLUSIA COUNTY, FLORIDA

PROTECTED TREE REPLACEMENT CALCULATIONS

DESIGNATED BREAST HEIGHT (D.B.H)

Required Live Oak replacement:

D.B.H	#TREES	TOTAL D.B.H	
6	5	30.00	
7	2	14.00	
8	3	24.00	
9	4	36.00	
	TOTAL D.B.H REMOVED	104.00	D.B.H.
	Total required replacement: (104) *.33 =	34.32	D.B.H.
10	7	70.00	
11	2	22.00	
12	2	24.00	
13	3	39.00	
14	5	70.00	
15	5	75.00	
16	3	48.00	
17	2	34.00	
18	1	18.00	
19	0	0.00	
20	3	60.00	
21	0	0.00	
	TOTAL D.B.H REMOVED	460.00	D.B.H.
	Total required replacement: (460) *.5 =	230.00	D.B.H.

Required Laurel Oak replacement:

D.B.H	#TREES	TOTAL D.B.H
6	7	42.00
7	8	56.00
8	6	48.00
9	1	9.00
10	1	10.00
11	3	33.00
12	1	12.00
14	2	28.00
15	3	45.00
16	2	32.00
17	1	17.00
18	0	0.00
19	0	0.00
20	0	0.00
35	0	0.00
	TOTAL D.B.H REMOVED	269.00 D.B.H.
	Total required replacement: (257.00) / 3 =	89.67 D.B.H.

Required Sabal Palm replacement:

D.B.H	#TREES	TOTAL D.B.H
10	0	0.00
11	0	0.00
12	0	0.00
13	0	0.00
14	2	28.00
18	1	18.00
20	3	60.00
23	1	23.00
	TOTAL D.B.H REMOVED	129.00 D.B.H.
	Total required replacement: (356.00) / 3 =	43.00 D.B.H.

Required Cherry replacement:

D.B.H	#TREES	TOTAL D.B.H
6	2	12.00
7	1	7.00
8	1	8.00
9	1	9.00
10	1	10.00
12	1	12.00
	TOTAL D.B.H REMOVED	58.00 D.B.H.
	Total required replacement: (58.00) / 3 =	19.33 D.B.H.

Required Cherry Laurel replacement:

D.B.H	#TREES	TOTAL D.B.H
6	4	24.00
7	2	14.00
8	4	32.00
9	1	9.00
10	1	10.00
11	1	11.00
	TOTAL D.B.H REMOVED	100.00 D.B.H.
	Total required replacement: (100.00) / 3 =	33.33 D.B.H.

REPLACEMENT REQUIRED NORTHERN:	1,781.44
REPLACEMENT REQUIRED NORTHERN:	447.67
TOTAL REPLACEMENT REQUIRED:	2,231.09

MANCHESTER SENIOR HOUSEING Statistical

CITY OF DELAND, VOLUSIA COUNTY, FLORIDA

PROTECTED TREE REPLACEMENT CALCULATIONS

DESIGNATED BREAST HEIGHT (D.B.H)

Required Laurel Oak replacement: 20 inches and Greater:

D.B.H	#TREES	TOTAL D.B.H
20	1	20.00
	TOTAL # OF 20 INCHES OR GREATER CALCULATED	1.00
	Total required replacement: (1.00) / 3 =	0.00

Statistical Tree Calculations for Specimen:

D.B.H	#TREES	TOTAL D.B.H
6	2	12.00
7	1	7.00
8	5	40.00
9	7	63.00
10	7	70.00
11	2	22.00
12	1	12.00
13	1	13.00
14	1	14.00
15	8	120.00
16	2	32.00
17	1	17.00
18	1	18.00
	TOTAL D.B.H REMOVED	368.00
	Tree D.B.H. PER ACRE (368/9.7) =	37.94
	50% MITIGATION REQUIRED	184.00

Tree Calculations Specimen (20):

D.B.H	#TREES	TOTAL D.B.H
10	1	10.00
11	1	11.00
12	5	60.00
13	3	39.00
14	6	84.00
15	4	60.00
16	3	48.00
17	4	68.00
18	0	0.00
19	2	38.00
20	2	40.00
22	0	0.00
24	3	72.00
	TOTAL D.B.H REMOVED	530.00
	50% MITIGATION REQUIRED	265.00

REQUIRED MITIGATION (184.00/9.7 Acres)+265):	1,782.44
TOTAL 20" AND GREATER (4.20/(18.42)):	0.00

TREES PLANTED FOR PROTECTED TREE REPLACEMENT

(See plant schedule on Landscape Plans)

Magnolia

D.B.H	#TREES	TOTAL D.B.H
4.5	32	145.00
	TOTAL D.B.H PROVIDED	145.00 D.B.H

Live Oak

D.B.H	#TREES	TOTAL D.B.H
4.0	223	1,003.50
	TOTAL D.B.H PROVIDED	1,003.50 D.B.H

Sabal Palm

D.B.H	#TREES	TOTAL D.B.H
4	80	400.00
	TOTAL D.B.H PROVIDED	400.00 D.B.H

Japanese Blueberry

D.B.H	#TREES	TOTAL D.B.H
3	28	84.00
	TOTAL D.B.H PROVIDED	84.00 D.B.H

Weeping Yaupon Holly

D.B.H	#TREES	TOTAL D.B.H
3	4	12.00
	TOTAL D.B.H PROVIDED	12.00 D.B.H

Crape Myrtle

D.B.H	#TREES	TOTAL D.B.H
3	127	381.00
	TOTAL D.B.H PROVIDED	381.00 D.B.H

TOTAL D.B.H REPLACEMENT REQUIRED:	2,231.09
TOTAL D.B.H REPLACEMENT PROVIDED:	2,150.50

There is an excess of 81.5 D.B.H provided for Protected Tree mitigation

ZEV COHEN
& ASSOCIATES, INC.
CIVIL ENGINEERS • LAND SURVEYORS • PLANNERS
2500 SO. MAIN, FL 32174
WWW.ZEVCOHEN.COM

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LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/REVISIONS

FOR REVIEW ONLY NOT FOR CONSTRUCTION

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS TREE PROTECTION PLAN & DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

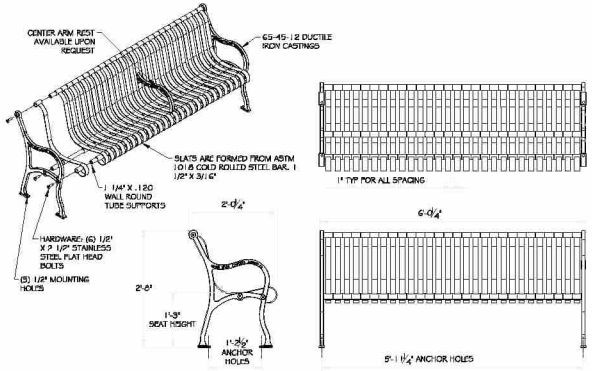
PROJECT NO: ZC 19194
DESIGNED BY: JEB
DRAFTED BY: JEB
CHECKED BY: BMG
DRAWING FILE: 19194-TP_1A
XREFS: BAR_DWG
XREFS: BURV2.DWG

Jake E Stehr:A01410D0000001781797F90400001546

Digitally signed by Jake E Stehr:A01410D0000017817 97F90400001546
Date: 2021.11.29 16:37:38 -05'00'

JAKE E. STEHR, R.L.A. NO.6666
NOT VALID WITHOUT SEAL

SHEET: TP2 OF 2



KINGS·RIVER·CASTING
SANGER, CA
www.kingsrivercasting.com

NOTES:
1. ALL METAL FABRICATED PARTS ARE ETCHED, PHOSPHATIZED, PREHEATED, PRIMER POWDER COATED, AND FINAL COAT ELECTROSTATICALLY POWDER COATED.
2. COLORS INCLUDE: BLACK, EVERGREEN, DARK GREEN WHITE, TAN, DARK BROWN, AND BLUE. -SPECIAL ORDER COLORS AVAILABLE.
3. THIS PRODUCT CAN SHIP EITHER KNOCKED DOWN OR ASSEMBLED.
4. IT IS NOT RECOMMENDED TO LOCATE ANCHOR BOLTS UNTIL THE BENCH IS IN PLACE. ANCHOR BOLTS NOT INCLUDED.

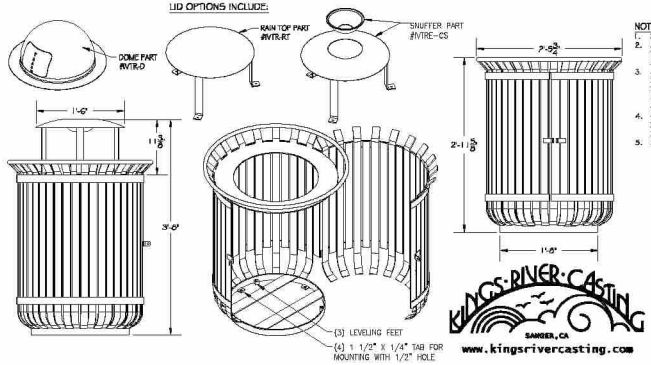
ADDRESS:
1350 NORTH AVE. SANGER
CALIFORNIA 93657
PHONE: (559) 875-8250
FAX: (559) 875-1491
kingsrivercasting@verizon.net

WEIGHT: 210 LBS
MODEL NO.: IVBC-72
SIZE: B

1 6' IRON VALLEY BENCH

NTS

PX-SF-KRC-BNCH-26



NOTES:
1. LINER INCLUDED. CAPACITY - 45 GALLONS.
2. 2-1/4" SPACE BETWEEN SLATS. SLATS ARE FORMED FROM ASTM 1018 ROLLED STEEL BAR, 1-1/2"X3/16"
3. ALL METAL FABRICATED PARTS ARE ETCHED, PHOSPHATIZED, PREHEATED, PRIMER POWDER COATED, AND FINAL COAT ELECTROSTATICALLY POWDER COATED.
4. COLORS INCLUDE: BLACK, EVERGREEN, DARK GREEN WHITE, TAN, DARK BROWN, AND BLUE
5. SPECIAL ORDER COLORS AVAILABLE.

KINGS·RIVER·CASTING
SANGER, CA
www.kingsrivercasting.com

ADDRESS:
1350 NORTH AVE. SANGER
CALIFORNIA 93657
PHONE: (559) 875-8250
FAX: (559) 875-1491
kingsrivercasting@verizon.net

WEIGHT: 145 LBS
MODEL NO.: IVTR
SIZE: B

2 IRON VALLEY TRASH RECEPTACLE

NTS

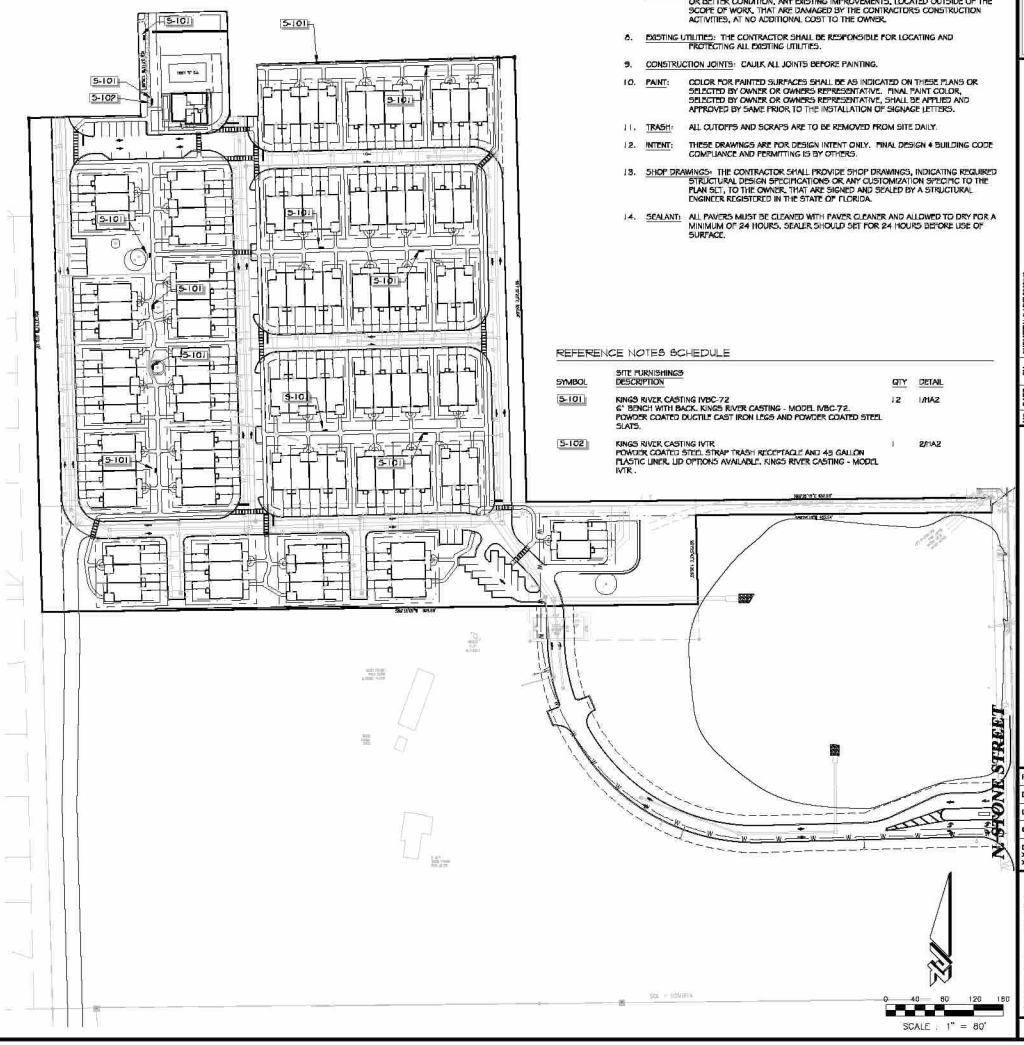
PX-SF-KRC-RECP-03

HARDSCAPE NOTES

1. DIMENSIONS: ALL LAYOUT DIMENSIONS ARE TO EDGE OF PAVEMENTS UNLESS OTHERWISE NOTED.
2. LAYOUT: ALL LAYOUT DIMENSIONS SHOWN ON DETAILS ARE APPROXIMATE.
3. CONCRETE: REFER TO CIVIL DRAWINGS FOR CONCRETE DESIGN SPECIFICATIONS AS WELL AS GRADING AND DRAINAGE INFORMATION.
4. ACCESSIBILITY: ALL CONSTRUCTION SHALL CONFORM WITH THE REQUIREMENTS FOR HANDICAP ACCESSIBILITY AS OUTLINED UNDER THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG).
5. STAKING AND LAYOUT: THE CONTRACTOR SHALL STAKE AND LAYOUT ALL IMPROVEMENTS USING THE GEOMETRIC DATA PROVIDED. IT IS THE CONTRACTORS RESPONSIBILITY TO COMPLETELY STAKE AND VERIFY THE ALIGNMENT, BOTH VERTICAL AND HORIZONTAL, AND TO INSURE PROPER POSITIONING, PRIOR TO THE MANUFACTURING AND INSTALLATION OF ANY IMPROVEMENT. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY, IN WRITING, IF ANY DISCREPANCIES ARE FOUND, AND SHALL NOT PROCEED WITH THE WORK UNTIL DIRECTED.
6. CONTROL JOINTS: UNLESS OTHERWISE EXPRESSLY APPROVED, IN WRITING, BY THE OWNER ALL CONTROL JOINTS SHALL BE COORDINATED WITH CIVIL PLANS FOR ADDITIONAL SPECIFICATIONS. ALL CONTROL JOINT SHALL BE TOOLED, SAW CUTTING WILL NOT BE ACCEPTABLE.
7. EXISTING IMPROVEMENTS: THE CONTRACTOR SHALL REPAIR OR REPLACE, TO AN EQUAL TO OR BETTER CONDITION, ANY EXISTING IMPROVEMENTS, LOCATED OUTSIDE OF THE SCOPE OF WORK, THAT ARE DAMAGED BY THE CONTRACTORS CONSTRUCTION ACTIVITIES, AT NO ADDITIONAL COST TO THE OWNER.
8. EXISTING UTILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES.
9. CONSTRUCTION JOINTS: CAULK ALL JOINTS BEFORE PAINTING.
10. PAINT: COLOR FOR PAINTED SURFACES SHALL BE AS INDICATED ON THESE PLANS OR SELECTED BY OWNER OR OWNERS REPRESENTATIVE. FINAL PAINT COLOR, SELECTED BY OWNER OR OWNERS REPRESENTATIVE, SHALL BE APPLIED AND APPROVED BY SAME PRIOR TO THE INSTALLATION OF SIGNAGE LETTERS.
11. TRASH: ALL CUTOFFS AND SCRAPS ARE TO BE REMOVED FROM SITE DAILY.
12. INTENT: THESE DRAWINGS ARE FOR DESIGN INTENT ONLY. FINAL DESIGN & BUILDING CODE COMPLIANCE AND PERMITTING IS BY OTHERS.
13. SHOP DRAWINGS: THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS, INDICATING REQUIRED STRUCTURAL DESIGN SPECIFICATIONS OR ANY CUSTOMIZATION SPECIFIC TO THE PLAN SET, TO THE OWNER, THAT ARE SIGNED AND SEALED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
14. SEALANT: ALL PAVERS MUST BE CLEANED WITH PAVER CLEANER AND ALLOWED TO DRY FOR A MINIMUM OF 24 HOURS. SEALER SHOULD SET FOR 24 HOURS BEFORE USE OF SURFACE.

REFERENCE NOTES SCHEDULE

SYMBOL	SITE FURNISHINGS DESCRIPTION	QTY	DETAIL
S-101	KINGS RIVER CASTING IVBC-72 6' BENCH WITH BACK. KINGS RIVER CASTING - MODEL IVBC-72. POWDER COATED DUCTILE CAST IRON LEGS AND POWDER COATED STEEL SLATS.	12	1/HA2
S-102	KINGS RIVER CASTING IVTR POWDER COATED STEEL STRAP TRASH RECEPTACLE AND 45 GALLON PLASTIC LINER. LID OPTIONS AVAILABLE. KINGS RIVER CASTING - MODEL IVTR.	1	2/HA2



ZEV COHEN & ASSOCIATES, INC.
2500 N. MILITARY TRAIL, SUITE 470
BOCA RATON, FL 33431
561-994-9646
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CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/REVISIONS

FOR REVIEW ONLY NOT FOR CONSTRUCTION

MANCHESTER NEIGHBORHOOD PHASE 1A FINAL ENGINEERING PLANS HARDSCAPE PLAN & DETAILS

CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: JEB
DRAFTED BY: JEB
CHECKED BY: BMG
DRAWING FILE: 19194-HA_1A
XREFS: BAR_DWG
XREFS: BURV.DWG

Jake E Stehr:A01410D000001781797F90400001546
Digitally signed by Jake E Stehr:A01410D0000017817 97F90400001546
Date: 2021.11.29 16:37:48 -05'00'
J. E. STEHR, R.L.A. NO.2286469
NOT VALID WITHOUT SEAL

SHEET: HA1 OF 1

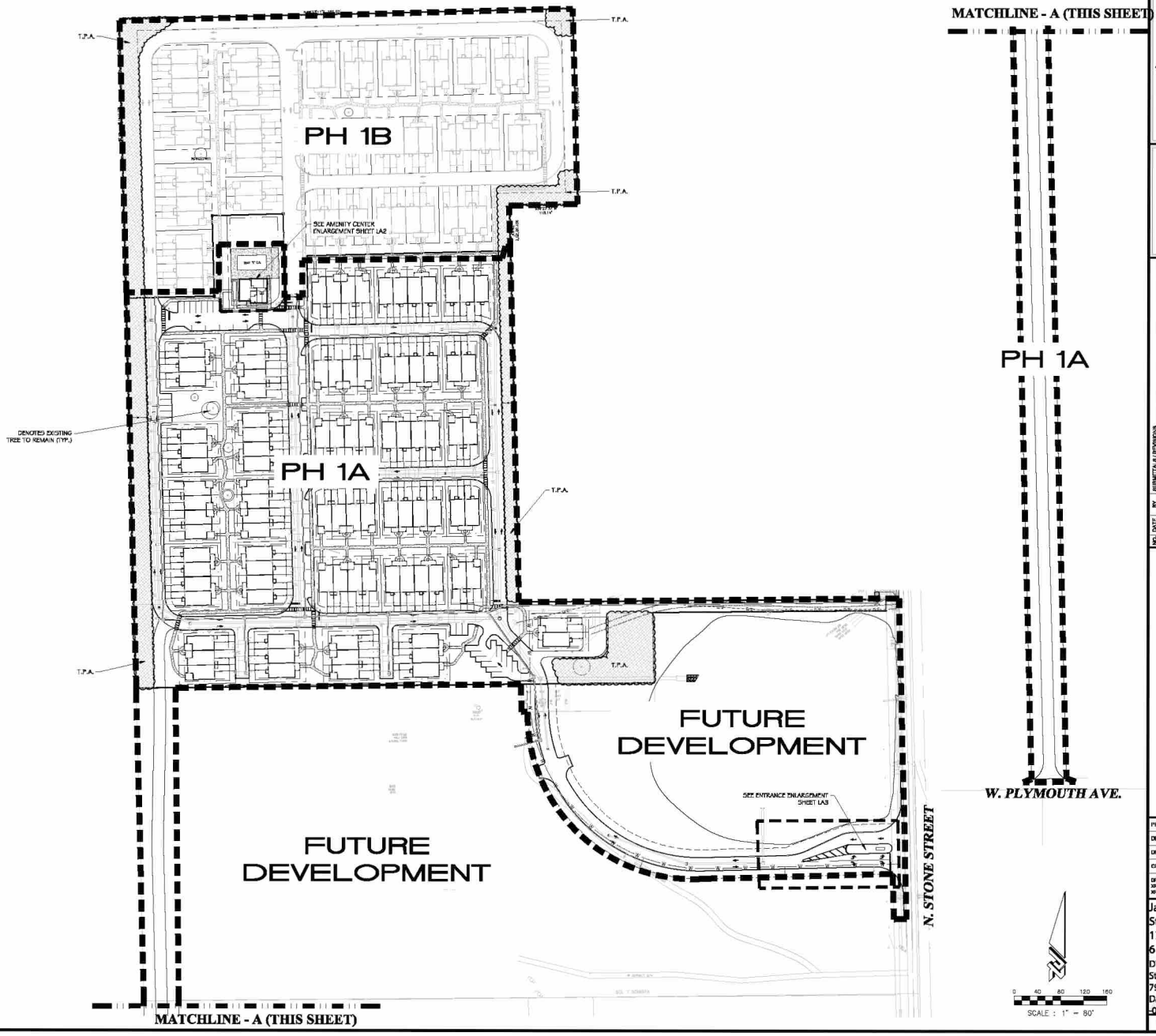
MINIMUM ON SITE TREES

TOTAL SITE ACREAGE	12.16 AC
MINIMUM TREES REQUIRED ON SITE	473 D.B.H.
CALCULATION: 1 / 2500 S.F. = 423 D.B.H.	
EXISTING TREES TO BE PRESERVED	736 D.B.H.
NUMBER OF TREES PROVIDED ON LANDSCAPE PLAN	2,246.5 D.B.H.
TOTAL NUMBER OF TREES EXISTING PLUS PROVIDED	3,040.5 D.B.H.

LANDSCAPE BUFFER REQUIREMENTS

SOUTH	TO BE INSTALLED UPON SOUTHERN DEVELOPMENT		
EAST	TYPE A BUFFER (685 L.F.)		
	MINIMUM WIDTH	20'	20'
	2.4 CANOPY TREES PER 100 L.F.	17	17
	1.2 UNDERSTORY TREES PER 100 L.F.	8	8
	12 SHRUBS PER 100 L.F.	82	82*
WEST	TYPE C BUFFER (652 L.F.)		
	MINIMUM WIDTH	30'	30'
	3.6 CANOPY TREES PER 100 L.F.	36	36*
	2 UNDERSTORY TREES PER 100 L.F.	14	23*
	20 SHRUBS PER 100 L.F.	136	136*

*DENOTES REQUIREMENTS BEING PROVIDED BY PRESERVATION OF EXISTING VEGETATION.



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PHASE 1A
FINAL ENGINEERING PLANS
LANDSCAPE PLAN & DETAILS

CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: JES
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XREFS: BAS_DWG
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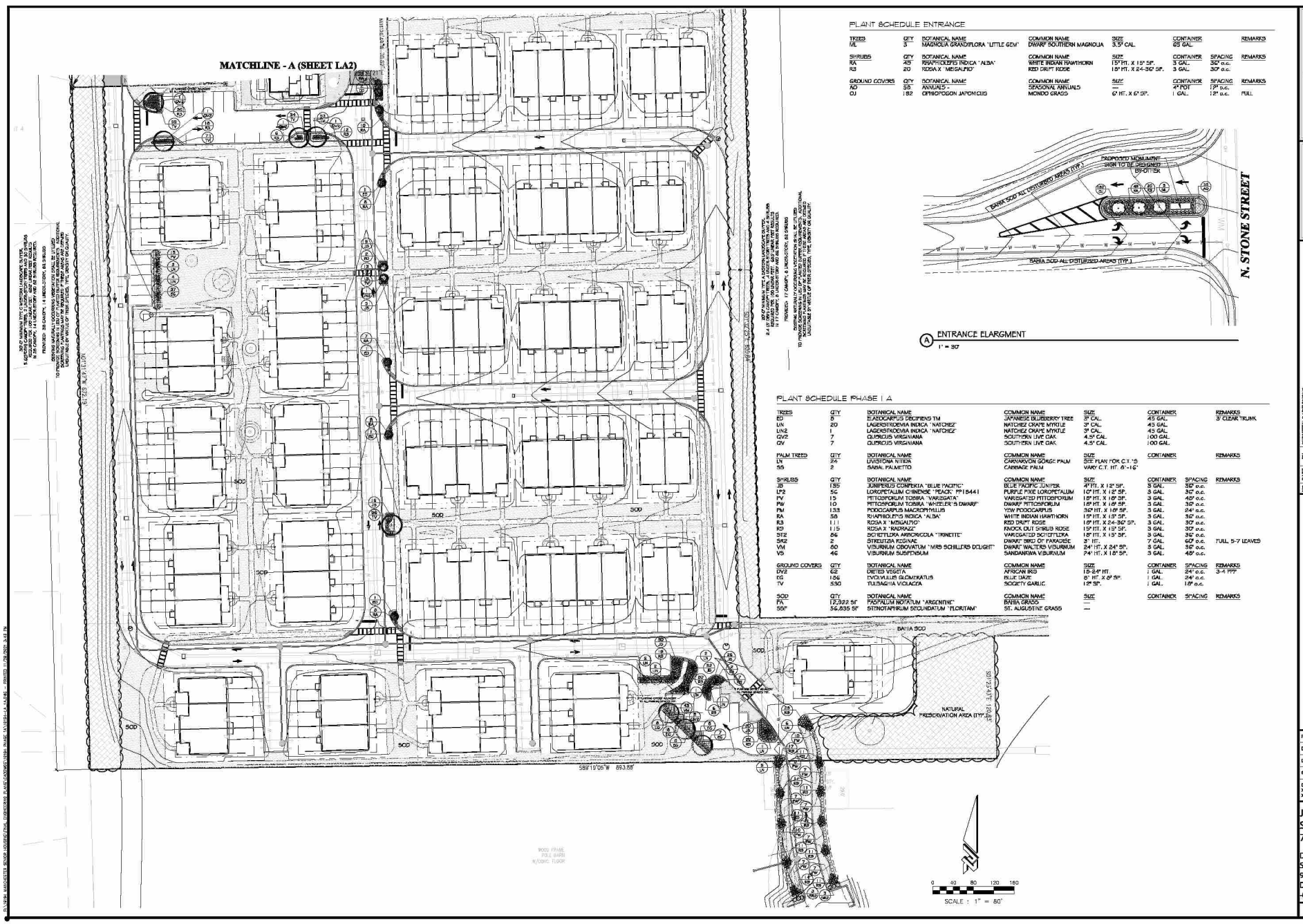
SHEET: LA1 OF 4



PLANT SCHEDULE ENTRANCE

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
ML	3	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	DWARF SOUTHERN MAGNOLIA	3.5" CAL.	65 GAL.	

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
RA	45	RHAPHIOLEPIS INDICA 'ALBA'	WHITE INDIAN HAWTHORN	15" HT. X 15" SP.	3 GAL.	36" o.c.	
R3	20	ROSA X 'MEGALITO'	RED DRUM ROSE	18" HT. X 24-36" SP.	3 GAL.	30" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
AD	55	ANNUALS -	SEASONAL ANNUALS	—	4" POT	12" o.c.	
OJ	182	OPHIOPOGON JAPONICUS	MONDO GRASS	6" HT. X 6" SP.	1 GAL.	12" o.c.	FULL

PLANT SCHEDULE PHASE 1 A

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
EO	8	ELAEOCARPUS DECIPIENS TM	JAPANESE BLUEBERRY TREE	3" CAL.	45 GAL.	
LN	20	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.	
LN2	1	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.	
QV2	7	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.	
QV	7	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.	

PALM TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
LN	24	LIVISTONA NITIDA	CARNARVON GORGE PALM	SEE PLAN FOR C.T.'S		
SS	2	SABAL PALMETTO	CABBAGE PALM	VARY C.T. HT. 8'-16'		

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
JB	135	JUNIPERUS CONFERTA 'BLUE PACIFIC'	BLUE PACIFIC JUNIPER	4" HT. X 12" SP.	3 GAL.	36" o.c.	
LP2	56	LOROPETALUM CHINENSE 'PEACK' PP18441	PURPLE PIXIE LOROPETALUM	10" HT. X 12" SP.	3 GAL.	30" o.c.	
PV	15	PITTOSPORUM TOBIRA 'VARIEGATA'	VARIEGATED PITTOSPORUM	18" HT. X 18" SP.	3 GAL.	48" o.c.	
PW	10	PITTOSPORUM TOBIRA 'WHEELER'S DWARF'	DWARF PITTOSPORUM	18" HT. X 18" SP.	3 GAL.	30" o.c.	
PM	133	PODOCARPUS MACROPHYLLUS	YEW PODOCARPUS	36" HT. X 18" SP.	3 GAL.	24" o.c.	
RA	58	RHAPHIOLEPIS INDICA 'ALBA'	WHITE INDIAN HAWTHORN	15" HT. X 15" SP.	3 GAL.	36" o.c.	
R3	111	ROSA X 'MEGALITO'	RED DRUM ROSE	18" HT. X 24-36" SP.	3 GAL.	30" o.c.	
R9	115	ROSA X 'RADRAZZ'	KNOCK OUT SHRUB ROSE	15" HT. X 15" SP.	3 GAL.	30" o.c.	
ST2	86	SCHETTLDKA ARBORICOLA "TRINETTE"	VARIGATED SCHOTTLDKA	18" HT. X 15" SP.	3 GAL.	36" o.c.	
SK2	2	STRELITZIA REGINAE	DWARF "BIRD OF PARADISE	3' HT.	7 GAL.	60" o.c.	FULL, 5-7 LEAVES
VM	80	VIBURNUM ODOVATUM 'MRS SCHILLER'S DELIGHT'	DWARF WALTER'S VIBURNUM	24" HT. X 24" SP.	3 GAL.	36" o.c.	
VS	46	VIBURNUM SUSPENSUM	SANDANKWA VIBURNUM	24" HT. X 18" SP.	3 GAL.	48" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
DV2	62	DIETES VEGETA	AFRICAN IRIS	15-24" HT.	1 GAL.	24" o.c.	3-4 FFF
EG	156	EVOLVULUS GLOMERATUS	BLUE DAZE	6" HT. X 24" SP.	1 GAL.	24" o.c.	
TV	330	TULBAGHIA VIOLACEA	SOCIETY GARLIC	12" SP.	1 GAL.	18" o.c.	

SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
PA	12,322 SF	PASPALUM NOTATUM "ARGENTINE"	BAHIA GRASS	—			
SSF	56,835 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			

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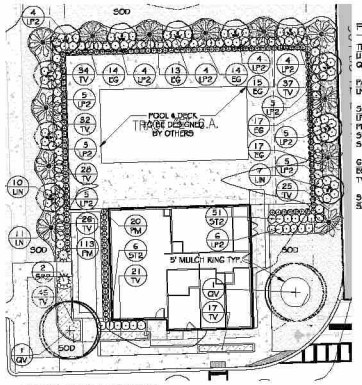
Digitally signed by Jake E Stehr:A01410D000001781797F90400001546
Date: 2021.11.29 16:39:10 -05'00'
JAKE E. STEHR, R.L.A. No.3286480
NOT VALID WITHOUT SEAL



A AMENITY ENLARGEMENT
1" = 20'

PLANT SCHEDULE AMENITY CENTER

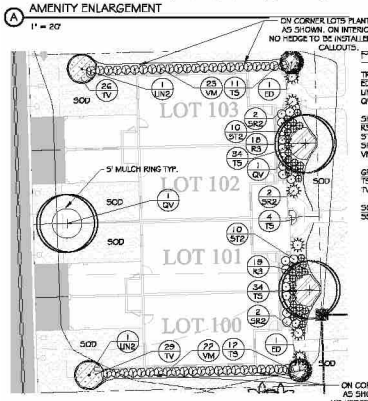
TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
LN	11	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.	
QV	2	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.	

PALM TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
LN	12	LIVISTONA NITIDA	CARNARVON GORGE PALM	SEE PLAN FOR C.T.'S		

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
LP2	56	LOROPETALUM CHINENSE 'PIZACK' PP10441	PURPLE FIRE LOROPETALUM	10" HT. X 12" SP.	3 GAL.	36" o.c.	
PM	133	PODOCARPUS MACROPHYLLUS	YEW PODOCARPUS	30" HT. X 18" SP.	3 GAL.	24" o.c.	
SI2	86	SCHEFFLERA ARBORICOLA "TRINETTE"	VARIEGATED SCHEFFLERA	18" HT. X 15" SP.	3 GAL.	36" o.c.	
SK2	2	STRELITZIA REGINAE	DWARF BIRD OF PARADISE	3" HT.	7 GAL.	60" o.c.	FULL, 5-7 LEAVES

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
EG	63	EVOLVULUS GLOMERATUS	BLUE DAZE	8" HT. X 8" SP.	1 GAL.	24" o.c.	
TV	265	TULBAGHIA VIOLACEA	SOCIETY GARLIC	12" SP.	1 GAL.	18" o.c.	

SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SSF	1,452 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			



B QUADPLEX PROTOTYPICAL 1
1" = 20'

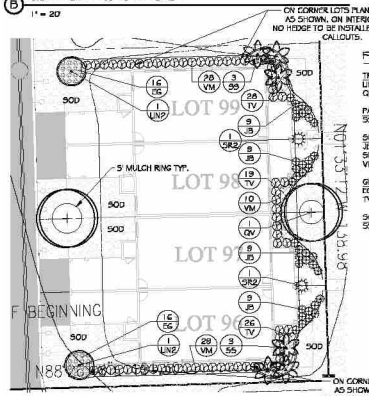
PLANT SCHEDULE QUADPLEX 1 (8 UNITS)

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
EO	2	ELAEOCARPUS DECIPIENS TM	JAPANESE BLUEBERRY TREE	3" CAL.	45 GAL.	3' CLEAR TRUNK
LN2	2	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.	
QV	3	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.	

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
R3	57	ROSA X "MEIGALPIO"	RED DRIFT ROSE	18" HT. X 24-32" SP.	3 GAL.	30" o.c.	
SI2	20	SCHEFFLERA ARBORICOLA "TRINETTE"	VARIEGATED SCHEFFLERA	18" HT. X 15" SP.	3 GAL.	36" o.c.	
SK2	6	STRELITZIA REGINAE	DWARF BIRD OF PARADISE	3" HT.	7 GAL.	60" o.c.	FULL, 5-7 LEAVES
VM	45	VIBURNUM ODOVATUM "MRS SCHILLERS DELIGHT"	DWARF WALTERS VIBURNUM	24" HT. X 24" SP.	3 GAL.	36" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
TS	95	TRACHELOSPERMUM ASIATICUM "SUMMER SUNSET"	SUMMER SUNSET ASIATIC JASMINE	12" SP.	1 GAL.	18" o.c.	
TV	55	TULBAGHIA VIOLACEA	SOCIETY GARLIC	12" SP.	1 GAL.	18" o.c.	

SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SSF	2,344 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			



C QUADPLEX PROTOTYPICAL 2
1" = 20'

PLANT SCHEDULE QUADPLEX 2 (9 UNITS)

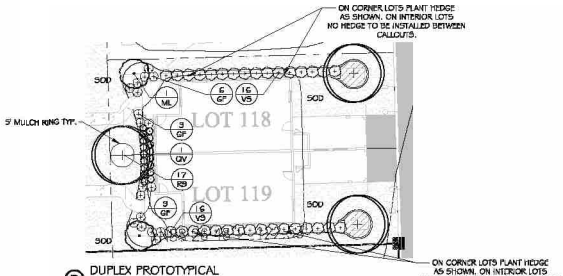
TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
LN2	2	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.	
QV	2	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.	

PALM TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
SS	6	SABAL PALMETTO	CABBAGE PALM	VARY C.T. HT. 8'-16'		

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
J3	36	JUNIPERUS CONFERTA "BLUE PACINC"	BLUE PACINC JUNIPER	4" HT. X 12" SP.	3 GAL.	36" o.c.	
SK2	7	STRELITZIA REGINAE	DWARF BIRD OF PARADISE	3" HT.	7 GAL.	60" o.c.	FULL, 5-7 LEAVES
VM	67	VIBURNUM ODOVATUM "MRS SCHILLERS DELIGHT"	DWARF WALTERS VIBURNUM	24" HT. X 24" SP.	3 GAL.	36" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
EG	32	EVOLVULUS GLOMERATUS	BLUE DAZE	8" HT. X 8" SP.	1 GAL.	24" o.c.	
TV	73	TULBAGHIA VIOLACEA	SOCIETY GARLIC	12" SP.	1 GAL.	18" o.c.	

SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SSF	2,971 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			



D DUPLEX PROTOTYPICAL
1" = 20'

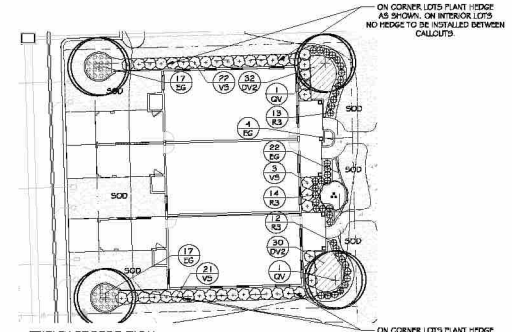
PLANT SCHEDULE DUPLEX (5 UNITS)

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
ML	2	MAGNOLIA GRANDIFLORA "LITTLE GEM"	DWARF SOUTHERN MAGNOLIA	3.5" CAL.	65 GAL.	
QV	3	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.	

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
GF	15	GARDENIA JASMINOIDES "FROSTPROOF"	FROSTPROOF GARDENIA	24" HT. X 24" SP.	3 GAL.	30" o.c.	
R8	17	ROSA X "RADRAZZ"	KNOCK OUT SHRUB ROSE	15" HT. X 15" SP.	3 GAL.	30" o.c.	
VS	32	VIBURNUM SUSPENSUM	SANDANKWA VIBURNUM	24" HT. X 18" SP.	3 GAL.	48" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
DV2	35	DIETES VEGETA	AFRICAN IRIS	18-24" HT.	1 GAL.	24" o.c.	3-4 PPP

SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SSF	2,151 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			



E TRIPLEX PROTOTYPICAL
1" = 20'

PLANT SCHEDULE TRIPLEX (6 UNITS)

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
LN	1	LAGERSTROEMIA INDICA "NATCHEZ"	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.	
QV	4	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.	

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
R3	59	ROSA X "MEIGALPIO"	RED DRIFT ROSE	18" HT. X 24-32" SP.	3 GAL.	30" o.c.	
VS	46	VIBURNUM SUSPENSUM	SANDANKWA VIBURNUM	24" HT. X 18" SP.	3 GAL.	48" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
DV2	62	DIETES VEGETA	AFRICAN IRIS	18-24" HT.	1 GAL.	24" o.c.	3-4 PPP
EG	60	EVOLVULUS GLOMERATUS	BLUE DAZE	6" HT. X 8" SP.	1 GAL.	24" o.c.	

SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SSF	2,047 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			

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CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

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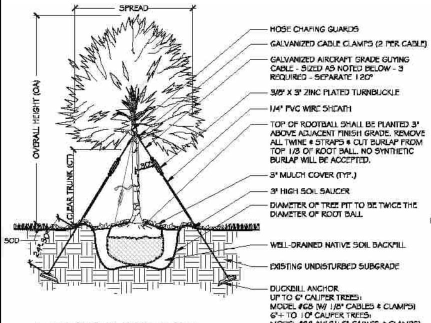
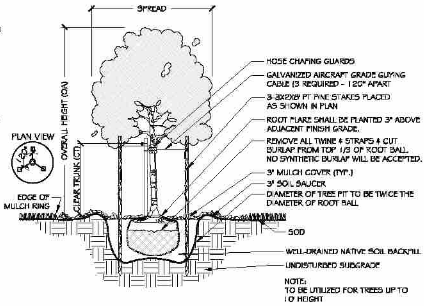
JAKE E. STEHR, R.L.A. No.2666449 NOT VALID WITHOUT SEAL

SHEET: LA3 OF 4



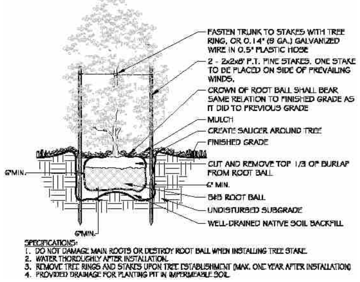
① LARGE TREE PLANTING DETAIL

N.T.S. P-LA-TRE1-01



② SMALL TREE PLANTING DETAIL

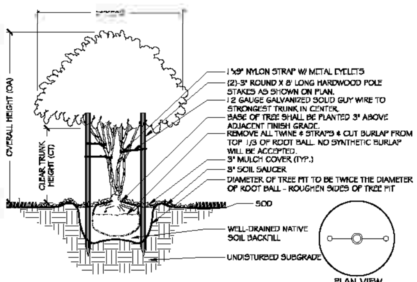
N.T.S. P-LA-TRE1-03



SPECIFICATIONS:
1. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKE.
2. WATER THOROUGHLY AFTER INSTALLATION.
3. REMOVE TREE RINGS AND STAKES UPON TREE ESTABLISHMENT (MAX. ONE YEAR AFTER INSTALLATION)
4. PROVIDED DRAINAGE FOR PLANTING PIT IN IMPERMEABLE SOIL.

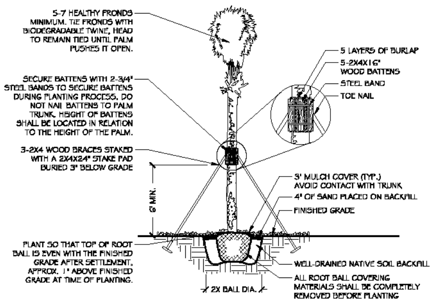
③ FULL TO GROUND TREE PLANTING DETAIL

N.T.S. P-LA-TRE1-02



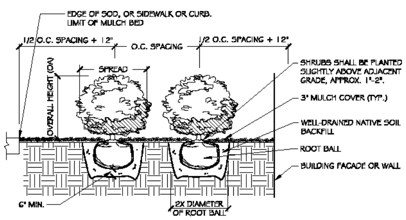
④ SMALL MULTI-TRUNK TREE PLANTING DETAIL

N.T.S. P-LA-TRE1-04



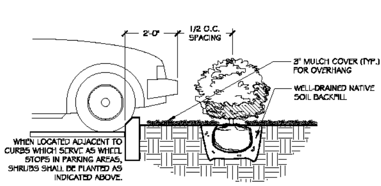
⑤ PALM PLANTING DETAIL

N.T.S. P-LA-PAL-PALM-01



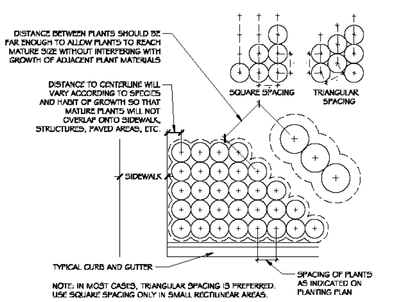
⑥ SHRUB PLANTING DETAIL

N.T.S. P-LA-SHR-SHRU-02



⑦ HEDGE PLANTING ADJACENT TO PARKING

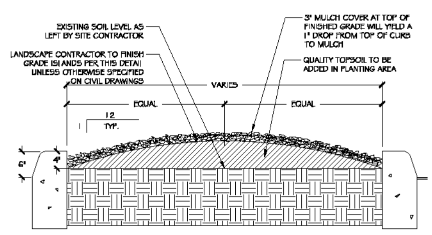
N.T.S. P-LA-SHR-HEDG-01



NOTE: IN MOST CASES, TRIANGULAR SPACING IS PREFERRED. USE SQUARE SPACING ONLY IN SMALL RECTILINEAR AREAS.

⑧ PLANT SPACING DETAIL

N.T.S. P-LA-SHR-PLAN-01



⑨ INTERIOR CURB ISLAND GRADING DETAIL

N.T.S. P-LA-SHR-INTE-01

LANDSCAPE SPECIFICATIONS

1. FLORIDA #1: ALL PLANT MATERIAL SHALL BE GRADE FLORIDA NO. 1 OR BETTER IN QUALITY AS DESIGNATED IN THE MOST RECENT PUBLICATION OF "GRADES AND STANDARDS FOR NURSERY PLANTS", PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES.

2. EXISTING PLANTS: IF EXISTING LANDSCAPING INTERFERES WITH PROPOSED PLANTINGS SHOWN ON PLAN, THE EXISTING LANDSCAPING IS TO BE REMOVED IN FAVOR OF THE NEW PLANTINGS, UNLESS OTHERWISE INDICATED. IF THE EXISTING VEGETATION IS INTENDED TO REMAIN, THE PROPOSED LANDSCAPING SHALL BE LOCATED AS CLOSE AS POSSIBLE TO ITS INTENDED LOCATION.

3. MULCH: ALL PLANTING BEDS SHALL BE TOP DRESSED WITH 3" PINE BARK MULCH, GRADE "B" OR APPROVED EQUAL. ALL TREES NOT IN BEDS SHALL HAVE A 5' DIAMETER MULCH RING. ALL PALMS NOT IN BEDS SHALL HAVE A 3' DIAMETER MULCH RING UNLESS OTHERWISE NOTED ON PLANS.

4. SOD: SOD SHALL BE FLORATAM ST. AUGUSTINE SOD UNLESS OTHERWISE SPECIFIED ON THE PLANS AS ARGENTINE BAHIA SOD. ALL SOD SHALL BE ROLLED UPON INSTALLATION. CONTRACTOR TO SOD ALL AREAS THAT ARE DISTURBED BY CONSTRUCTION RELATED ACTIVITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE SOD IS FREE OF WEEDS & INSECTS UPON INSTALLATION AND FOR THE DURATION OF THE 90 DAY MAINTENANCE PER OD. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE NO GAPS BETWEEN SOD. SOD QUANTITY TAKEOFFS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

5. QUANTITIES: IN THE EVENT OF A VARIATION BETWEEN THE QUANTITIES SHOWN ON THE PLANT LIST AND THE QUANTITIES OF PLANTS SHOWN ON THE PLAN, THE PLAN SHALL CONTROL.

6. UNFORESEEN CONFLICTS: CONTRACTOR SHALL NOT WILLFULLY INSTALL ANY PORTION OF THE LANDSCAPE PLAN AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNFORESEEN OBSTRUCTIONS, GRADE DIFFERENCES, STANDING WATER, SOIL CONDITIONS OR OTHER CONFLICTS EXIST. SUCH UNFORESEEN CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS REPRESENTATIVE AND THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

7. SUBSTITUTIONS: NO SUBSTITUTIONS OR VARIATIONS OF ANY PLANT MATERIAL OR ITS INSTALLED LOCATION SHALL BE PERMITTED WITHOUT THE PRIOR CONSENT OF THE LANDSCAPE ARCHITECT.

8. CONTAINERS: IF GALLONAGE FOR PLANTS OR TREES IS SHOWN THEY SHALL BE CONTAINER GROWN AND THE SIZE SHOWN SHALL REPRESENT THE MINIMUM ALLOWABLE GALLONAGE. IN ALL CASES THE PLANT SPECIFIED SIZE SHALL GOVERN OVER THE GALLONAGE INDICATED.

9. PLANTING SOIL: CONTRACTOR SHALL VERIFY THAT SOIL CONDITIONS ARE SUITABLE TO THE PLANT SPECIES SPECIFIED. IF SOIL CONDITIONS ARE DEEMED UNSUITABLE FOR PROPER PLANT HEALTH, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT AND PROPER SUBSTITUTIONS SHALL BE SPECIFIED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. THE CONTRACTOR SHALL REMOVE LIME ROCK, CONCRETE AND OTHER DELETERIOUS DEBRIS FROM PLANTING BEDS. IF DEBRIS IS INTEGRATED IN THE SOIL, THE SOIL MUST BE EXCAVATED AND REPLACED WITH ACCEPTABLE SOIL. ALL FILL TO BE PLACED IN LANDSCAPE AREAS MUST HAVE A pH RANGE BETWEEN 5.5 AND 7.5, BE ORGANIC IN NATURE, AND BE FREE OF ROCKS AND DEBRIS.

10. TOPSOIL: TOPSOIL MATERIAL SHALL BE FREE FROM ALL HARD CLODS, WEEDS, STONES OVER 1" IN DIAMETER, CLAY, HARD PAN, NOXIOUS OR OTHER UNDESIRABLE PLANTS, SOD, INSECTS, SEEDS, OR MATERIAL WHICH MAY BE HARMFUL FOR GROWTH.

11. WEEDS: IF PRESENT, THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE ANY WEEDS FROM PLANTING AND SOD AREAS PRIOR TO THE INSTALLATION OF PROPOSED PLANT MATERIAL AND MULCH COVER. CONTRACTOR SHALL BE RESPONSIBLE TO KEEP BEDS AND SOD FREE OF WEEDS FOR THE DURATION OF THE 90 DAY MAINTENANCE PERIOD.

12. GRADING: UNLESS OTHERWISE STATED ON THESE PLANS, THE LANDSCAPE CONTRACTOR SHALL FINE GRADE ALL AREAS TO BE PLANTED AND SODDED IN ORDER TO ELIMINATE BUMPS AND DEPRESSIONS. FINE GRADING SHALL BE DEFINED AS THE FINAL 2" OF GRADE TO BE ACHIEVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND RE-GRADING WASHOUT AREAS CAUSED BY EROSION UNTIL FINAL ACCEPTANCE OF THE PROJECT.

13. STAKING: ALL TREES AND PALMS ARE TO BE STAKED ACCORDING TO THE DETAILS IN THESE PLANS. IF THE CONTRACTOR PREFERS TO USE OTHER STAKING METHODS THAN SHOWN IN THE DETAILS, HE OR SHE MUST SUBMIT PROPOSED STAKING DETAILS TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN, REPAIR, AND/OR REPLACE ANY PLANTS DAMAGED BY FAILURE TO PROPERLY STAKE OR GUY ANY TREES & PALMS ON SITE, AT THEIR OWN EXPENSE.

14. BED LINES: CONTRACTOR TO ENSURE CURVILINEAR LANDSCAPE BEDS ARE TO BE EDGED WITH SMOOTH FLOWING CURVES. STRAIGHT-LINE LANDSCAPE BEDS ARE TO BE EDGED IN A STRAIGHT LINE PARALLEL TO ADJACENT STRUCTURES UNLESS DESIGNED OTHERWISE.

15. FERTILIZER: OSMOCOTE SLOW RELEASE FERTILIZER OR EQUIVALENT SHALL BE APPLIED TO ALL TREE, SHRUB, AND GROUNDCOVER PLANTING AREAS AT THE RATE OF THREE (3) TABLESPOONS PER 2 S.F. OF PLANTING AREA.

16. DRAINAGE: THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT THIS WORK DOES NOT INTERRUPT EXISTING OR PROPOSED DRAINAGE PATTERNS AND SHALL NOTIFY THE OWNERS REPRESENTATIVE IMMEDIATELY SHALL A CONFLICT ARISE. CONTRACTOR IS RESPONSIBLE FOR ALL LANDSCAPE/SOD AREAS TO PROPERLY DRAIN AWAY FROM BUILDINGS/STRUCTURES.

17. SPECIFICATIONS: THE LANDSCAPE ARCHITECT SHALL BE PERMITTED THE RIGHT DURING INSTALLATION, TO REJECT ANY AND ALL PLANT MATERIAL AND WORKMANSHIP WHICH IN HIS OR HER OPINION DOES NOT MEET THE REQUIREMENTS OF THESE SPECIFICATIONS.

18. NATURAL AREAS: NATURALLY PRESERVED VEGETATED AREAS SHALL BE CLEANED UP, INCLUDING BUT NOT LIMITED TO THE REMOVAL OF ANY DEBRIS OR INVASIVE OR WEEDS AND PRUNING OF DEAD OR YELLOW BRANCHES AND PALM FRONDS. MULCH EDGE OF NATURAL AREA 5' FEET.

19. CLEARANCE PRUNING: ANY TREE PRUNING OF LOWER LIMBS AND CANOPY OF CONSERVED AND PROTECTED TREES THAT ARE GROWING OVER SIDEWALK, ROADWAY AND/OR ON-SITE CONSTRUCTION ACTIVITIES SHALL BE OVERSEEN AND/OR CONDUCTED BY AN I.S.A CERTIFIED ARBORIST TO ENSURE PROPER REDUCTION CUTS AND PRUNING IS CONDUCTED TO MAINTAIN THE STRUCTURAL INTEGRITY AND HEALTH OF THE TREE. TREES SHALL BE PRUNED TO ADHERE TO A MINIMUM OF EIGHT FEET (8') CLEARANCE OVER SIDEWALKS (PEDESTRIAN ACTIVITIES) AND SIXTEEN FEET (16') CLEARANCE OVER PARKING AREAS/ROADWAYS.

20. WILDLIFE NOTIFICATION: THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT WHO SHALL PROPOSE PLANT SUBSTITUTIONS UPON WRITTEN NOTIFICATION OF NUISANCE ANIMAL EXISTENCE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE ANY/ALL INSTALLED PLANT MATERIAL DESTROYED/DAMAGED BY WILDLIFE WITHIN THE MAINTENANCE PERIOD..

21. TURNOVER: CONTRACTOR SHALL CONTACT OWNERS REPRESENTATIVE FOR A TURNOVER DATE TO INCLUDE A WALK-THROUGH AND ACCEPTANCE OF WORK BY THE LANDSCAPE ARCHITECT OR OWNER. ANY WORK DEEMED UNACCEPTABLE SHALL BE CORRECTED IMMEDIATELY AND RE-INSPECTED AS SCHEDULED.

22. MAINTENANCE: CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE TO BEGIN AFTER EACH PLANT HAS BEEN INSTALLED AND SHALL CONTINUE 90 DAYS AFTER FINAL WRITTEN ACCEPTANCE BY THE OWNER. MAINTENANCE SHALL INCLUDE WATERING, PRUNING, WEEDING, MULCHING, MOWING, REPLACEMENT OF SICK OR DEAD PLANTS, AND ANY OTHER CARE NECESSARY IN ORDER TO MAINTAIN PROPER PLANT HEALTH AND SOIL MOISTURE CONTENT.

23. GUARANTEE: CONTRACTOR SHALL GUARANTEE AND REPLACE ALL INSTALLED PLANT MATERIAL FOR ONE (1) CALENDAR YEAR STARTING FROM THE TURNOVER DATE FOR WORK FOUND ACCEPTABLE. ANY CORRECTED WORK SHALL HAVE A PROPORTIONAL EXTENSION OF WARRANTY ONCE APPROVED. ANY SICK OR DEAD MATERIAL SHALL BE REPLACED IMMEDIATELY. THE LANDSCAPE CONTRACTOR SHALL NOT BE RESPONSIBLE TO HONOR ANY WARRANTY FOR THE LOSS OF ANY PLANT MATERIAL CAUSED BY FLOODING, FIRE, ABNORMAL FREEZING TEMPERATURES, WINDS OVER 50 MPH, LIGHTNING, ANY OTHER NATURAL DISASTER, OR ANY LOSS/DAMAGE CAUSED BY VANDALISM OR NEGLIGENCE ON THE PART OF THE OWNER.

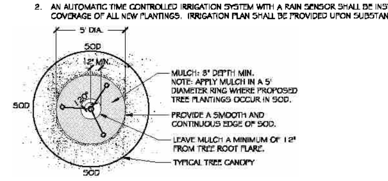
24. CALL BEFORE YOU DIG: CONTRACTOR SHALL NOTIFY SUNSHINE 811 AND HAVE UTILITIES LOCATED, PRIOR TO DIGGING, BY CALLING 811. CONTRACTOR SHALL NOT PLANT TREES WITHIN 3' OF AN UNDERGROUND UTILITY, EITHER AS LOCATED OR AS SHOWN ON THE PLAN, WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM OWNER'S REPRESENTATIVE.

25. RECORD DRAWINGS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT 'REDLINED' MARK-UPS OF THE LANDSCAPE AND IRRIGATION IMPROVEMENTS. THESE AS-BUILT 'REDLINES' SHALL BE REPRESENTED ON ZEV COHEN & ASSOCIATES, INC. PLAN SHEETS AND PROVIDED TO THE LANDSCAPE ARCHITECT.

IRRIGATION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING 'REDLINED' MARK-UPS OF THE IRRIGATION IMPROVEMENTS AND PROVIDE TO THE LANDSCAPE ARCHITECT.

2. AN AUTOMATIC TIME CONTROLLED IRRIGATION SYSTEM WITH A RAIN SENSOR SHALL BE INSTALLED TO PROVIDE 100% HEAD TO HEAD COVERAGE OF ALL NEW PLANTINGS. IRRIGATION PLAN SHALL BE PROVIDED UPON SUBSTANTIAL SITE PLAN APPROVAL.



⑩ TREE MULCHING DETAIL IN SOD AREAS

N.T.S. P-LA-MUL-TREE-01

ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD, STE. C
ORMOND BEACH, FL 32174
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS / REVISIONS

FOR REVIEW ONLY NOT FOR CONSTRUCTION

MANCHESTER NEIGHBORHOOD
PHASE 1A
FINAL ENGINEERING PLANS
LANDSCAPE PLAN & DETAILS

DESIGNED BY: JES
DRAFTED BY: JES
CHECKED BY: BMG
DRAWING FILE: 19194-LA_1A

Jake E Stehr:A01410D000001781797F90400001546
Digitally signed by Jake E Stehr:A01410D000001781797F90400001546
Date: 2021.11.29 16:39:35 -05'00'

JAKE E. STEHR, R.L.A. NOT VALID WITHOUT SEAL

SHEET: LA4 OF 4

PLANNING STAFF REPORT
To
PLANNING BOARD

January 19, 2022

APPLICATION: PSB21-153

SUBJECT: Preliminary Plat for Manchester Phase 1B

1. **Location**: West side of N. Stone St., north of W. Plymouth Ave.

2. **Applicant**: Howard Lefkowitz, Manchester Communities

3. **Size:** +/- 7.32 acres

4. **Existing Zoning & Land Use:**
   Land Use: Low Density Residential
   Zoning: Manchester PD
   Overlay: Community Health Overlay

5. **Surrounding Conditions:**

	SURROUNDING USE:	SURROUNDING ZONING:
North:	VC: Urban Low Intensity	VC: A-3&M; VC: A-3
South:	VC: Commercial	VC: B-1&M
East:	Mixed-Office Residential	VC: P-1&M
West:	Low Density Residential; Mixed-Office Residential	Cascades PD; C-1

6. **Applicable Regulations:**
   Sec. 33-146.05. *Subdivision of Land.*
   Manchester Planned Development Agreement

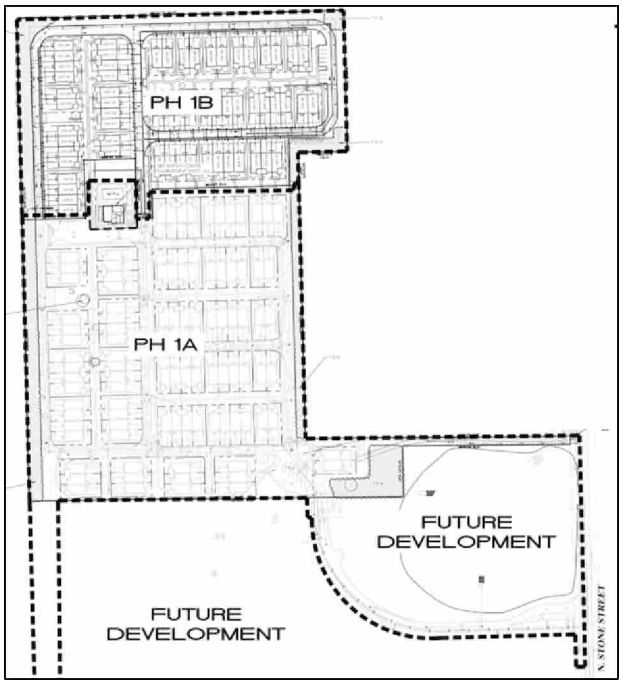
7. **Physical Characteristics:**
   The subject property is located on the west side of N. Stone St., north of W. Plymouth Ave. The north side of the property is sparsely wooded, and the south side of the property is heavily wooded with mature trees. The property lies outside of the 100-year floodplain and is clear of any wetlands.

8. Public Utilities and Service:

Water: The proposed development will be served by City potable water facilities.
Sewer: The proposed development will be served by City sanitary sewer facilities.
Irrigation: The proposed development will be served by City reclaimed water facilities.

9. Type of Development:

The proposed development is bordered by The Cascades residential PD to the west; transitional agriculture zoning to the north; assisted living & nursing facilities to the east; and medical uses to the south. The limits of the development were annexed into the City on July 26, 2006. (Ord. #2006-45) On April 23, 2021, the City Commission voted to approve a rezone for the subject property from the previously defunct Scarlet PD to the current Manshester PD (Ord. #2021-11). The northern 19.48 acres of the Manchester PD will be developed as residential townhomes. The southern 19.02 acres of the Manchester PD is labeled as "Future Tract" on the development plan.



The applicant seeks to develop Phase 1B of the residential portion of the subject property. Phase 1B consists of 7.32 acres and includes 61 attached, age-restricted townhome lots, an amenity/community center and a pool.

10. Analysis:

The residential portion will be gated-off from the rest of the development (Future Tract).
The future tract will allow for either additional residential units or for medical-support type uses, in-line with those listed and promoted by the Community Health Overlay (such as professional offices, clincs, nursing facilities, light retail, food services, etc.) Shared access for both sections of the PD will be off of S. Stone St., with a proposed emergency access-only drive (for the time-being) down to W. Plymouth Ave. Internal roadways will be private.

The total acreage of Phase 1A and Phase 1B equals to 19.48 acres. The code requires a minimum tree protection area of 15%. Therefore, the TPA must total at least 2.9 acres (15%). The applicant is splitting the 2.9 acres of total TPA amongst both phases, with Phase 1A providing 1 acre of TPA and Phase 1B providing 2 acres of TPA, providing a total of 3 acres of TPA in all (approximately 15.4% TPA).

Phase 1B of the proposed plat is consistent with the adopted PD agreement, concept plan, and applicable land development regulations.

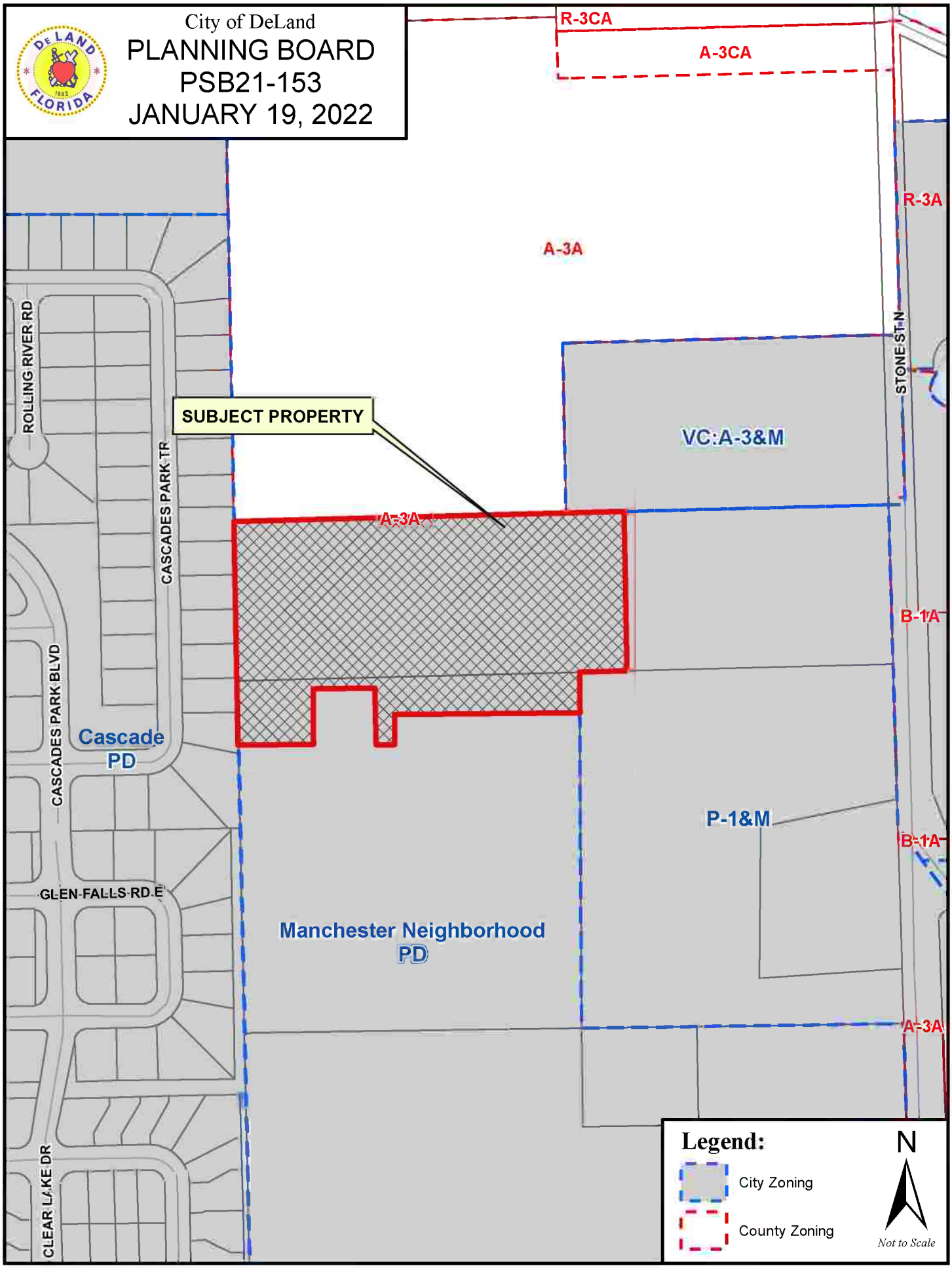
At the December 16, 2021 Technical Review Committee meeting, members recommended the Preliminary Plat be forwarded on to the Planning Board, subject to the addressing of Staff comments. The following Staff comments remain:

Forestry Revised Comments:

1. Please provide mitigation and maintenance plan.
2. The irrigation plan needs to be part of these plans. Please add relevant information from the attached document to your plans. The number and location of plants irrigated needs to match what is shown on this set of plans.
3. Change 104 to 89 and 460 to 277 for Protected Tree Replacement Calculations. Also change 257 to 216, 356 to 103, 13 to 29, and 14 to 90.
4. Add information showing trees that will remain on site.
5. Palms can only be used towards 25% of your total replacement requirement. So, only 80" DBH can count towards replacement (Sec. 33-57.15). This would change your total replacement provided to 561" DBH (not 1,141). It would also change your excess DBH from 894.83 to 244.
6. Change 244.17 to 317" DBH for total replacement. This is either a math error or an error in the calculations above. Please correct whichever is incorrect. This will also need to be fixed on the right side of the page.
7. Change 29.67 to 30, change 138.50 to 139, 34.33 to 34, and 9.67 to 10.

Recommendation:
Staff recommends approval of the preliminary plat by the Planning Board, subject to all comments being met, and that the plans be forwarded to City Commission for review, after the above comments have been addressed.

L:\COMMDEV\PLANNING\SR\2021\SR-PSB21-153 Manchester 1B Preliminary Plat


City of DeLand
PLANNING BOARD
PSB21-153
JANUARY 19, 2022
R-3CA
A-3CA
R-3A
A-3A
ROLLING RIVER RD
CASCADES PARK TR
STONE ST N
SUBJECT PROPERTY
VC:A-3&M
A-3A
B-1A
CASCADES PARK BLVD
Cascade PD
P-1&M
B-1A
GLEN FALLS RD E
Manchester Neighborhood PD
A-3A
CLEAR LAKE DR
Legend:
City Zoning
County Zoning
N
Not to Scale

City of DeLand
PLANNING BOARD
PSB21-153
JANUARY 19, 2022
R-3CA
A-3CA
A-3A
R-3A
STONE ST N
SUBJECT PROPERTY
VC:A-3&M
A-3A
CASCADES PARK TR
B-1A
VC:B-1A
CASCADES PARK BLVD
PD
P-1&M
B-1A
ORANGE AV N
CLEAR LAKE DR
PD
GLEN FALLS RD E
A-3A
STILLWATER DR
Legend:
City Zoning
County Zoning
N
Not to Scale

MANCHESTER NEIGHBORHOOD PHASE 1B

CITY OF DELAND – VOLUSIA, COUNTY, FL

FINAL ENGINEERING PLANS

DEVELOPER:
MANCHESTER COMMUNITIES, LLC
300 INTERCHANGE BLVD, SUITE D
ORMOND BEACH, FL 32174
PHONE NUMBER: (386) 673-5650
FAX NUMBER:
CONTACT PERSON: HOWARD LEFKOWITZ
e-mail: hlefkowitz@manchestercommunities.com

CIVIL ENGINEER:
ZEV COHEN & ASSOCIATES, ,INC.
300 INTERCHANGE BLVD, SUITE C
ORMOND BEACH, FL 32174
PHONE NUMBER: (386) 677-2482
FAX NUMBER: (386) 677-2505
CONTACT PERSON: HALUK KILIC, P.E.
e-mail: hkilic@zevcohen.com

SURVEYOR:
SLICER & ASSOCIATES, INC.
3921 NOVA ROAD
PORT ORANGE, FL. 32127
PHONE NUMBER: (386) 761-5385
FAX NUMBER: N/A
CONTACT PERSON: JOE ZAPERT, P.L.S.
e-mail: jzapert@sligerassociates.com

GEOTECHNICAL ENGINEER:
UNIVERSAL ENGINEERING SCIENCES, INC.
911 BEVILLE ROAD
SOUTH DAYTONA, FL 32119
PHONE NUMBER (386) 756-1105
FAX NUMBER (386) 760-4067
CONTACT PERSON: MICHAEL MOHNEY
e-mail: mmohney@universalengineering.com

LANDSCAPE ARCHITECT:
ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD, SUITE C
ORMOND BEACH, FL 32174
PHONE NUMBER: (386) 677-2482
FAX NUMBER: (386) 677-2505
CONTACT PERSON: JAKE STEHR
e-mail: jstehr@zevcohen.com

PROJECT DESCRIPTION:

THIS PROJECT INCLUDES PHASE 1B CONSTRUCTION OF 61 SENIOR RESIDENTIAL TOWNHOME UNITS, ALONG WITH ACCESS ROADS, DRIVEWAYS, DRAINAGE CONTROL AND UTILITIES.

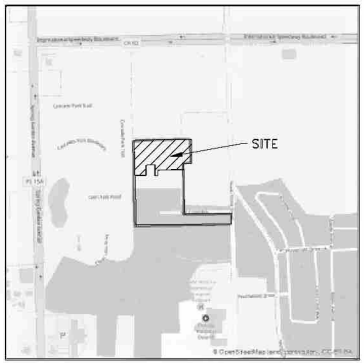
SITE INFORMATION:

SITE ADDRESS:	801 SOL Y SOMBRA, DELAND, FL 32720
TOTAL PD AREA:	38.5 AC
PROPOSED PROJECT AREA:	7.32 AC
TAX PARCEL I.D. #:	700500000078, 700503000190
EXISTING ZONING:	PLANNED DEVELOPMENT (PD) (COMMUNITY HEALTH OVERLAY)
PROPOSED ZONING:	PLANNED DEVELOPMENT (PD) (COMMUNITY HEALTH OVERLAY)
EXISTING LAND USE:	VACANT
PROPOSED LAND USE:	SENIOR RESIDENTIAL (TOWNHOMES)
EXISTING FUTURE LAND USE:	LOW DENSITY RESIDENTIAL (LDR)
UNIT/LOT COUNT:	61
MIN. LOT AREA:	1300 SF
MIN. LOT WIDTH:	25 FT
UNIT/LOT DENSITY:	8.0 DU/ PER ACRE
SETBACKS:	
FRONT:	15 FT
SIDE:	10 FT
REAR:	15 FT
BUILDING SEPERATION SIDE TO SIDE:	15 FT
BUILDING SEPARATION FRONT VS FRONT:	30 FT
REQUIRED LANDSCAPE BUFFER(S):	30 FT- ALONG WEST PROPERTY LINE (EXISTING RESIDENTIAL)
	25 FT – ALONG NORTH AND EAST PROPERTY LINE
MINIMUM LIVING AREA:	1400 SF
MAXIMUM BUILDING LOT COVERAGE:	40%
MAXIMUM BUILDING HEIGHT	35 FT OR 28' FOR UNITS WITHIN 200' OF WESTERN BOUNDARY.
UTILITIES:	PROVIDED BY CITY OF DELAND

LAND USE TABLE:	ACREAGE	PERCENTAGE
EXISTING CONDITIONS:		
WETLAND AREA	0.40 AC	5%
UPLAND AREA	7.32 AC	100%
PROPOSED IMPROVEMENTS:		
BUILDING(S)	2.04 AC	28.23%
PAVEMENT & SIDEWALK	1.76 AC	24.32%
LANDSCAPE/OPEN SPACE	3.40 AC	46.45%
TOTAL PERVIOUS	3.40 AC	46.45%
TOTAL IMPERVIOUS	3.92 AC	53.55%

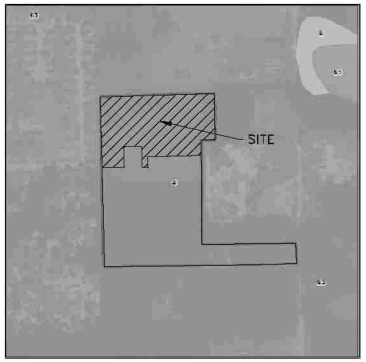
PARKING CALCULATIONS: PH1A & PH 1B =156 COVERED + 70 = 226 SPACES.			
USE	PARKING REQUIREMENT	SF/UNITS	SPACES REQUIRED
SENIOR (TOWNHOMES)	(SEE ABOVE)	61 UNITS	
		TOTAL =	
PARKING SPACES PROVIDED	(COVERED SPACES PHASE 1B)		61
	OTHERS PHASE1B (90°, 60° AND PARALLEL)		92
PARKING PROVIDED IN PHASE 1A & PHASE 1B			153
TOTAL PARKING PROVIDED PHASE 1A & PHASE 1B			226

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.



VICINITY MAP
SCALE: 1" = 800'

ZONING MAP
SCALE: 1" = 400'
CURRENT ZONING FOR THIS SITE IS: PD



SOILS MAP
SCALE: 1" = 400'
THE SITE LIES WITHIN THE FOLLOWING VOLUSIA COUNTY SOIL CLASSIFICATIONS:
4 ASTATULA-FINE SAND, 0 TO 5 PERCENT SLOPES, 5 ASTATULA-FINE SAND, 5 TO 17 PERCENT SLOPES; 61 – ST JOHNS FINE SAND, 33 – TAVARES FINE SAND, 0 TO 5 PERCENT SLOPES

FLOOD ZONE MAP
SCALE: 1" = 400'
THE PROPERTY LIES IN:
FLOOD ZONE X PER FEMA MAPS 12127C0465H EFF. 2/19/2014

SHEET INDEX:

C1	COVER SHEET
C2–C4	CONSTRUCTION NOTES
C5	DEMOLITION & EROSION CONTROL PLAN
C6	OVERALL DEVELOPMENT PLAN
C7	GEOMETRY, SIGNAGE & STRIPING PLAN(S)
C8	PAVING, GRADING & DRAINAGE PLAN(S)
C9	UTILITY PLAN(S)
C10–C12	PLAN & PROFILE(S)
C13–C19	CONSTRUCTION DETAILS
TP1–TP2	TREE PROTECTION PLAN & DETAILS
HA1	HARDSCAPE PLAN & DETAILS
LA1–LA4	LANDSCAPE PLAN & DETAILS

LEGAL DESCRIPTION:

LOT 19 AND LOT 20, SCARLETT SUBDIVISION, A SUBDIVISION IN SECTION 5, TOWNSHIP 17 SOUTH, RANGE 30 EAST, ACCORDING TO THE MAP OR PLAT THEREOF AS RECORDED IN PLAT BOOK 5, PAGE 660, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA, LESS AND EXCEPT THE EAST 545 FEET THEREOF.
TOGETHER WITH A PORTION OF NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 5, TOWNSHIP 17 SOUTH, RANGE 30 EAST, VOLUSIA COUNTY, FLORIDA.

ALL BEING DESCRIBED AS FOLLOWS:

BEGIN AT THE NORTHWEST CORNER OF SAID LOT 19, SCARLETT SUBDIVISION; THENCE RUN N88°33'11"E ALONG THE NORTH LINE OF SAID LOT 19 AND ALONG THE NORTH LINE OF SAID LOT 20, A DISTANCE OF 792.00 FEET TO THE WEST LINE OF THE EAST 545 FEET OF SAID LOT 20; THENCE S01°28'14"E ALONG SAID WEST LINE, 337.09 FEET TO THE NORTH LINE OF THAT PROPERTY DESCRIBED IN OFFICIAL RECORDS BOOK 5511, PAGE 4784, SAID PUBLIC RECORDS; THENCE S89°27'37"W ALONG SAID NORTH LINE, 118.14 FEET TO THE NORTHWEST CORNER OF SAID PROPERTY; THENCE S01°32'25"E ALONG THE WEST LINE OF SAID PROPERTY, 75.83 FEET; THENCE S88°33'08"W, 351.14 FEET; THENCE S01°26'49"E, 70.82 FEET; THENCE S88°36'21"W, 38.28 FEET; THENCE N01°33'12"W, 143.83 FEET; THENCE S88°26'48"W, 122.53 FEET; THENCE S01°33'12"E, 138.98 FEET, THENCE S88°26'48"W, 151.50 FEET TO THE WEST LINE OF THE SOUTHWEST 1/4 OF SAID SECTION 5; THENCE N01°31'47"W ALONG SAID WEST LINE AND ALONG THE WEST LINE OF SAID LOT 19, A DISTANCE OF 481.26 FEET TO THE POINT OF BEGINNING.

MANDATORY PRE-CONSTRUCTION MEETING NOTE:

NO CONSTRUCTION ON THE PROPOSED PORTIONS OF THIS PROJECT MAY COMMENCE UNTIL A MANDATORY PRE-CONSTRUCTION MEETING IS HELD WITH THE CITY.

ZEV COHEN & ASSOCIATES, INC.
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CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	ISSUE/TITLE/REVISIONS
1	06-15-21	HK	SUBMITTAL
2	08-13-21	JJK	REVISED SUBMITTAL
3	09-21-21	JJK	1ST REVIEW REVISIONS, REVISED PER COMMENTS DATED 7-16-21
4	10-25-21	JJK	CITY OF DELAND RESUBMITTAL PH A & PH 1B
5	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 11-29-21
6	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD
PHASE 1B
FINAL ENGINEERING PLANS
COVER SHEET

VOLUSIA COUNTY, FLORIDA
CITY OF DELAND

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAWN BY: JMJ
CHECKED BY: HMH
DRAWING FILE: 01-19194-COV_PH1B

Digitally signed by Haluk Kilic
Date: 2021.01.05 09:30:26-05'00'

SHEET: C1 OF 19

GENERAL NOTES

1. ALL CONSTRUCTION, DRAINAGE STRUCTURES AND OTHER SITE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITIONS OF FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OR THE CITY OF DELAND'S LAND DEVELOPMENT CODE REQUIREMENTS, STANDARD CONSTRUCTION DETAILS & STANDARD SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.
2. SHOP DRAWINGS AND CERTIFICATIONS FOR ALL MATERIALS AND STRUCTURES ARE REQUIRED. THE CONTRACTOR SHALL REVIEW AND SIGN SHOP DRAWINGS. THE CONTRACTOR SHALL SUBMIT REVIEWED SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE MATERIALS REQUIRED FOR CONSTRUCTION.
3. CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL REQUIRED PERMITS. THE CONTRACTOR SHALL MAINTAIN COPIES OF ALL RELEVANT PERMITS AND CONSTRUCTION DOCUMENTS AVAILABLE ON THE JOB SITE AT ALL TIMES.
4. CONTRACTOR TO MAINTAIN THE SITE IN A SAFE AND SECURE MANNER TO PROTECT PUBLIC SAFETY AND THE CONDITIONS OF THE IMPROVEMENTS.
5. THE CONTRACTOR SHALL MAINTAIN, AT THE JOB SITE, A RECORD COPY OF ALL CONSTRUCTION DRAWINGS AND SPECIFICATIONS ON WHICH ALL FIELD CHANGES ARE TO BE SHOWN. THESE CHANGES ARE TO BE INCORPORATED IN THE "AS-BUILT" SURVEY FURNISHED TO THE ENGINEER.
6. SHOULD CONDITIONS VARY FROM THOSE SHOWN ON THESE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF RECORD PRIOR TO CONTINUING CONSTRUCTION.
7. ANY FIELD MODIFICATIONS OR DEVIATIONS TO THESE CONSTRUCTION PLANS REQUIRES APPROVAL BY BOTH THE ENGINEER OF RECORD AND THE CITY OF DELAND PRIOR TO PERFORMING THE WORK.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AN "AS-BUILT" SURVEY OF THE COMPLETED CONSTRUCTION. THE "AS-BUILT" SURVEY SHALL BE PREPARED IN ACCORDANCE WITH APPROPRIATE GOVERNMENTAL REGULATIONS AND 2CA REQUIREMENTS. THE "AS-BUILT" SURVEY SHALL BE PREPARED ON 2CA'S DESIGN/PERMITTED PLANS. ELECTRONIC AND PAPER COPIES OF THE AS-BUILT SURVEY SHALL BE PROVIDED TO THE ENGINEER OF RECORD. THE "AS-BUILT" SHALL BE SIGNED AND SEALED BY A FLORIDA REGISTERED PROFESSIONAL LAND SURVEYOR.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING VEHICULAR AND PEDESTRIAN TRAFFIC SAFELY THROUGH THE WORK ZONE AT ALL TIMES, IF APPLICABLE, ON SIDEWALK, LANE OR ROAD CLOSURE. THE CONTRACTOR REQUIRES REVIEW AND APPROVAL IN ADVANCE AND A SEVEN (7) DAY MINIMUM NOTICE TO THE CITY OF DELAND/VOLUSIA COUNTY TRAFFIC OPERATIONS (386-239-6535). THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REQUIRED COORDINATION.
10. MAINTENANCE OF TRAFFIC WILL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAY CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD PLANS, LATEST EDITION.
11. CONTRACTOR TO NOTIFY THE REGULATORY AGENCIES FORTY EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL SEND COPIES OF ALL TESTING REPORTS TO THE REGULATORY AGENCIES AND THE ENGINEER OF RECORD.
12. SURVEY INFORMATION PROVIDED BY SLIGER AND ASSOCIATES, INC. DATED 05-29-21. ALL ELEVATIONS BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND ARE SHOWN IN FEET. STATE PLANE COORDINATES ARE BASED UPON NAD 83.
13. ALL PUBLIC LAND CORNERS AND MONUMENTS WITHIN THE LIMITS OF CONSTRUCTION ARE TO BE PROTECTED. THE CONTRACTOR SHALL EMPLOY A SURVEYOR, REGISTERED IN THE STATE OF FLORIDA, TO REPLACE/RESTORE ANY PROPERTY OR LAND MARKERS DISTURBED BY CONSTRUCTION.
14. NO LAND SHALL BE CLEARED, EXCAVATED OR FILLED AND NO STRUCTURES SHALL BE ERECTED, REPAIRED OR DEMOLISHED WITHOUT PROPER PERMIT(S).
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS AS WELL AS THE REQUIREMENTS OF ST. JOHNS RIVER WATER MANAGEMENT DISTRICT AND E.P.A. (NPDES). CONTRACTOR SHALL ESTABLISH BEST MANAGEMENT PRACTICES AND EROSION CONTROL METHODS PRIOR TO COMMENCING ANY SITE CLEARING OR DEMOLITION AND SHALL MAINTAIN THOSE BARRIERS UNTIL FINAL ACCEPTANCE OF THE PROJECT.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROJECT'S NPDES PERMITTING, INSPECTION AND REPORTING, IF APPLICABLE.
17. ALL DELINEATED WETLAND AREAS SHALL BE STAKED AND FENCED WITH TYPE III SILT FENCING PRIOR TO CONSTRUCTION. FENCING SHALL NOT BE REMOVED UNTIL ALL CONSTRUCTION IS COMPLETED. LIMITS OF SILT FENCE SHOWN ON PLANS ARE APPROXIMATE AND ARE TO BE ADJUSTED AS NECESSARY TO MEET FIELD CONDITIONS AND/OR AS DIRECTED BY THE ENGINEER.
18. THE EROSION, SEDIMENT AND TURBIDITY CONTROL MEASURES DELINEATED HEREON ARE THE MINIMUM REQUIRED. ADDITIONAL CONTROLS MAY BE NEEDED, DEPENDING UPON THE ACTUAL SITE CONDITIONS, JURISDICTIONAL AGENCY PERMIT REQUIREMENTS AND CONSTRUCTION OPERATIONS. STAKED SILT FENCE SHALL BE UTILIZED TO CONTROL EROSION AND RELEASE OF SUSPENDED SOLIDS. SEDIMENT TRACKING CONTROL DEVICES SHALL BE USED TO PREVENT THE TRANSPORTATION OF SEDIMENT BY MOTORIZED VEHICLES. IF CONTROL MEASURES DO NOT PROVE SATISFACTORY, WORK SHALL CEASE UNTIL NEW MEASURES ARE ADOPTED WITH SATISFACTORY RESULTS.
19. ALL EROSION AND SEDIMENT TRACKING CONTROL DEVICES SHALL BE INSPECTED DAILY AND IMMEDIATELY FOLLOWING A RAINFALL EVENT. REFER TO PROJECT'S STORMWATER POLLUTION PREVENT PLAN (SWPPP). ANY DEFICIENCIES FOUND IN THE EROSION CONTROL MEASURES SHALL BE REPAIRED IMMEDIATELY. THE CONTRACTOR SHALL KEEP A LOG BOOK DOCUMENTING THESE DAILY INSPECTIONS, DEFICIENCIES AND REMEDIAL ACTIONS.
20. ALL UNSUITABLE SOILS AND UNSUITABLE MATERIALS (SUCH AS CLAY, ORGANICS, ROCK, CEMENTED COQUINA, DEBRIS, ETC.) SHALL BE REMOVED, DISPOSED OF IN A LEGAL MANNER AND REPLACED WITH DRY, COMPACTED GRANULAR MATERIAL SATISFACTORY TO THE CITY OF DELAND. THE COST OF ALL CLEARING AND MATERIALS IS TO BE INCLUDED IN THE UNIT PRICE OF THE ASSOCIATED CONSTRUCTION ITEMS UNLESS OTHERWISE SHOWN IN THE PLANS
21. IN THE EVENT THAT WATER IS ENCOUNTERED DURING CONSTRUCTION, DEWATERING SHALL BE PERFORMED AS NEEDED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, PERMITTING, INSTALLATION, OPERATION AND SUBSEQUENT REMOVAL OF DEWATERING SYSTEMS AND THEIR SAFETY AND CONFORMITY WITH APPLICABLE CODES AND REGULATIONS.
22. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE ELECTRIC, TELEPHONE, GAS, CABLE TELEVISION, COMMUNICATIONS, ETC. COMPANIES TO DETERMINE THE TYPE AND LOCATION OF ALL UNDERGROUND FACILITIES IN THE AREA OF CONSTRUCTION.
23. ALL UNDERGROUND UTILITIES HAVE BEEN LOCATED HORIZONTALLY AND VERTICALLY BASED ON THE BEST INFORMATION AVAILABLE AND SHOULD BE CONSIDERED APPROXIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL ELEVATIONS OF EXISTING UTILITIES (PUBLIC AND PRIVATE) SHOWN OR NOT SHOWN PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE VARIOUS UTILITY COMPANIES TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATION, DISRUPTION OF SERVICE OR CLARIFICATION OF ACTIVITY REGARDING SAID UTILITY. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING NEAR OR CROSSING A UTILITY, WHETHER SHOWN ON THESE PLANS OR FIELD LOCATED. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE AND NOTIFY THE UTILITY COMPANIES FOR UTILITIES WHICH NEED TO BE RELOCATED FOR THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO PAY FOR ANY REPAIR, RELOCATION OR TEMPORARY MEASURES NEEDED FOR EXISTING OR PROPOSED UTILITIES.
24. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND AVOID ALL UTILITIES, OTHER STRUCTURES AND OBSTRUCTIONS BOTH ABOVE AND BELOW GROUND. ALL DAMAGE RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
25. THE CONTRACTOR SHALL NOTIFY ALL UTILITY PROVIDERS AT LEAST TWO (2) BUSINESS DAYS PRIOR TO ANY CONSTRUCTION.
26. THE CONTRACTOR SHALL MAINTAIN UNINTERRUPTED SERVICE AT ALL SERVICE CONNECTIONS. THE MANNER IN WHICH THIS IS ACCOMPLISHED SHALL BE LEFT TO THE DISCRETION OF THE CONTRACTOR, SUBJECT TO THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS.
27. ALL EXISTING DRAINAGE STRUCTURES AND UTILITIES WITHIN THE CONSTRUCTION LIMITS SHALL REMAIN, UNLESS OTHERWISE NOTED IN PLANS.
28. ALL STATIONS AND OFFSETS REFER TO CENTERLINE CONSTRUCTION UNLESS OTHERWISE NOTED IN PLANS.
29. THE LENGTH OF ALL DRAINAGE PIPES AND LOCATION OF ALL DRAINAGE STRUCTURES ARE APPROXIMATE. THE LOCATION OF THE DRAINAGE STRUCTURE SHALL DETERMINE THE LENGTH OF PIPE.
30. THE TOP OF GASTING ELEVATIONS (TC) OF ALL STRUCTURES ARE SHOWN. HOWEVER, THE CONTRACTOR SHALL INSTALL ALL FRAMES SO AS TO PROVIDE A SMOOTH SURFACE FOR VEHICULAR AND/OR PEDESTRIAN TRAFFIC.
31. CONTRACTOR SHALL CONFIRM PROPOSED TOP OF CASTING (TC) ELEVATIONS WILL ALLOW POSITIVE DRAINAGE TO PROPOSED INLETS. IF POSITIVE DRAINAGE DOES NOT EXIST, CONTRACTOR TO COORDINATE WITH ENGINEER OF RECORD FOR SOLUTION AND ADJUST PROPOSED INLETS AS NECESSARY AT NO COST.
32. CONTRACTOR SHALL CONFIRM ELEVATION OF EXISTING GRADE PRIOR TO PLACING DRAINAGE OUTFALL STRUCTURES. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IF EXISTING GRADE DOES NOT MATCH PROPOSED OUTFALL INVERT. CONTRACTOR SHALL ADJUST OUTFALL STRUCTURE INVERT AND/OR STRUCTURE LOCATION AS DIRECTED BY ENGINEER OF RECORD AT NO COST.
33. ANY DRAINAGE PROBLEMS CREATED BY CONSTRUCTION, OR EXISTING BEFORE CONSTRUCTION AND NOT ALLEVIATED, SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD AT THE TIME OF DISCOVERY.
34. ALL STORMWATER PIPES AND INLETS SHALL BE CLEANED OF DEBRIS AND ERODED MATERIALS AT LAST STAGES OF AND PRIOR TO COMPLETION OF CONSTRUCTION.

GENERAL NOTES

35. SPECIAL ATTENTION IS DIRECTED TO THE FACT THAT PORTIONS OF SOME DRAINAGE STRUCTURES MAY EXTEND INTO THE STABILIZED CONTROL DRAINAGE EASEMENT. EXTREME CAUTION WILL BE NECESSARY DURING COMPACTION AND STABILIZATION OPERATIONS AT THESE LOCATIONS TO AVOID DAMAGE AND ACHIEVE THE REQUIRED COMPACTION.
36. DURING CONSTRUCTION, AN ALL-WEATHER ACCESSIBLE ROADWAY SHALL BE MAINTAINED AT ALL TIMES FOR FIRE ACCESS.
37. ALL REQUIRED FIRE LINES & HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL & STATE REQUIREMENTS AND OPERATIONAL PRIOR TO THE START OF VERTICAL CONSTRUCTION.
38. NONE OF THE EXISTING LIMEROCK BASE THAT IS REMOVED IS TO BE USED IN THE CONSTRUCTION OF THE NEW BASE UNLESS OTHERWISE ON PLANS OR DIRECTED BY THE CITY.
39. EXISTING DRIVEWAYS WITHIN THE LIMITS OF THIS PROJECT ARE TO BE REPLACED AT THE SAME LOCATION AND WIDTH WITH THE SAME TYPE OF MATERIAL UNLESS OTHERWISE SHOWN IN THE PLANS.
40. ALL RAMPS, SIDEWALKS AND ACCESSIBLE ROUTES ARE TO BE IN COMPLIANCE WITH CURRENT A.D.A. REQUIREMENTS.
41. SIGNS THAT ARE REMOVED AND ARE TO BE RELOCATED SHALL BE STOCK PILED BY THE CONTRACTOR. ANY EXISTING SIGNS DAMAGED BY CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT HIS COST.
42. ROADWAY AND PARKING SIGNAGE AND MARKINGS SHALL BE IN CONFORMANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.
43. UNLESS OTHERWISE NOTED, PROPOSED GRADES SHOWN ARE FINISHED GRADES.
44. OPERATION AND MAINTENANCE OF THE STORMWATER SYSTEM WILL BE PROVIDED BY THE OWNER OF PROPERTY. MAINTENANCE IS TO INCLUDE BI-WEEKLY MOWING OF SIDE SLOPES FOR VEGETATION CONTROL AND MONTHLY INSPECTION/CLEANING OF CULVERTS & STORM SYSTEMS.
45. ALL DISTURBED AREAS SHALL BE SODDED, UNLESS OTHERWISE SHOWN, AND SHALL HAVE SOD/ VEGETATED COVER ESTABLISHED PRIOR TO THE INSPECTION FOR THE CERTIFICATE OF COMPLETION.
46. INSTALLATION OF THE REQUIRED STREET SIGNS, TRAFFIC SIGNS, PAVEMENT STRIPING, STREET LIGHTS AND SIDEWALKS ALONG WITH THE PAINTING OF THE FIRE HYDRANTS MUST BE COMPLETED PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF COMPLETION.
47. CONTRACTOR IS RESPONSIBLE FOR INSPECTING AND PRE-TESTING PRIOR TO SCHEDULING A TEST OR WALK-THROUGH WITH THE UTILITY BUREAU OF REPRESENTATIVES AND ENGINEER OF RECORD. ANY COST ASSOCIATED WITH RETESTING SHALL BE PAID FOR BY THE CONTRACTOR.
48. THE ENGINEER OF RECORD AND LOCAL UTILITY SHALL BE GIVEN SEVENTY-TWO (72) HOURS NOTICE OF ALL REQUESTED MEETINGS AND/OR TESTING MEASURES.
49. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE REGULATORY REPRESENTATIVES TO DETERMINE THE PROJECT SPECIFIC REQUIREMENTS. CONTRACTOR SHALL PROVIDE PROPER NOTIFICATION TO INSPECTING AUTHORITIES BEFORE AND DURING CONSTRUCTION.

EROSION & SEDIMENT CONTROL NOTES

1. ALL DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL INCORPORATE APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) TO PREVENT EROSION, OFFSITE SEDIMENTATION, AND THE POTENTIAL FOR DOWNSTREAM WATER QUALITY IMPACTS.
2. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL AT A MINIMUM, ENSURE IMPLEMENTATION OF AN APPROVED EROSION PREVENTION AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) CONSTRUCTION ACTIVITY GUIDELINES.
3. A SITE SPECIFIC STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE SUBMITTED WITH THE PROPOSED SITE PLANS FOR REVIEW AND APPROVAL BY THE CITY PER THE CITY'S LAND DEVELOPMENT CODE (LDC): "ADDITIONAL APPLICATION REQUIREMENTS" IN PLANS.
4. SITE SPECIFIC BMP'S SHALL BE INSTALLED BY THE SITE WORK/GRADING AND UTILITIES CONTRACTOR(S) AND APPROVED BY THE CITY, PRIOR TO THE START OF ANY LAND DISTURBANCE ACTIVITIES. PRECONSTRUCTION EROSION CONTROL INSPECTIONS CAN BE SCHEDULED THROUGH ETRAKIT UNDER CODE 801.
5. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL MINIMIZE DISTURBANCES OF EXISTING WETLANDS, VEGETATION AND DRAINAGE PATTERNS ON ADJACENT PROPERTIES TO THE MAXIMUM EXTENT PRACTICABLE DURING CONSTRUCTION ACTIVITIES.
6. STORMWATER RETENTION, DETENTION, STORAGE AND CONVEYANCE SYSTEMS MUST BE EXCAVATED TO ROUGH GRADE PRIOR TO BUILDING CONSTRUCTION OR PLACEMENT OF IMPERVIOUS SURFACE WITHIN THE AREA SERVED BY THOSE SYSTEMS. ADEQUATE BMP'S MUST BE IMPLEMENTED TO PREVENT SILTATION OF THESE TREATMENT SYSTEMS AND CONTROL STRUCTURES DURING CONSTRUCTION. SILTATION MUST BE REMOVED FROM THE STORMWATER SYSTEM WHEN HALF FULL AND IMMEDIATELY PRIOR TO FINAL GRADING AND STABILIZATION OF THE PROJECT.
7. DURING CONSTRUCTION, THE SITE WORK/GRADING AND UTILITIES CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF ALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES REQUIRED TO PREVENT VIOLATIONS OF WATER QUALITY STANDARDS AND PROJECT SPECIFIC PERMIT REQUIREMENTS. BEST MANAGEMENT PRACTICES INSTALLED ONSITE SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT THAT IS 0.50 INCHES OR GREATER (EVEN IF IT RAINS ON THE WEEKEND OR HOLIDAY). THE SITE SHALL BE INSPECTED BY A QUALIFIED INSPECTOR AND CORRECTIVE ACTION TAKEN AS NECESSARY.
8. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL INITIATE STABILIZATION MEASURES WITHIN SEVEN CALENDAR DAYS AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED FOR ANY PORTION OF THE PROJECT SITE. STABILIZATION IS DEFINED AS A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF GROWTH OF AT LEAST 70% OF GREATER.
9. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE PROJECT LIMITS IN COMPLIANCE WITH ALL JURISDICTIONAL PERMITS AND THE CITY'S LAND DEVELOPMENT CODE REQUIREMENTS.
10. FOR ANY LAND DISTURBANCES OF ONE ACRE OR MORE, THE CONTRACTOR SHALL SUBMIT A COMPLETED NPDES CONSTRUCTION (FORMERLY FDEP) NOTICE OF INTENT (NOI) TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) AT LEAST 2 CALENDAR DAYS PRIOR TO COMMENCEMENT OF CLEARING, GRADING, DEMOLITION, OR OTHER CONSTRUCTION RELATED LAND DISTURBANCE ACTIVITIES.
11. FOR PROJECTS THAT MAY DISCHARGE STORMWATER INTO THE CITY'S MS4 STORMWATER CONVEYANCE SYSTEM, THE CITY'S MS4 MUST BE DESIGNATED AS A DISCHARGE LOCATION ON THE FDEP CGP NOI. IF DESIGNATED AS SUCH, A COPY OF THE NPDES CGP NOI OR ACKNOWLEDGEMENT LETTER MUST BE SUBMITTED TO THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT WITHIN 7 CALENDAR DAYS.

SITE CLEARING & GRADING NOTES

THE FOLLOWING REPRESENTS MINIMUM STANDARDS TO BE ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OF A PROJECT. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO BE EMPLOYED WHEN DEEMED NECESSARY DUE TO UNFORESEEN CONDITIONS AND/OR THE FAILURE OF THE CONTRACTOR TO EMPLOY THE APPROPRIATE EROSION CONTROL BEST MANAGEMENT PRACTICES. FAILURE TO COMPLY WITH THESE PROVISIONS SHALL RESULT IN THE ISSUANCE OF A "STOP WORK ORDER".

1. NO DISTURBANCE OF EXISTING OR PROPOSED CONSERVATION EASEMENTS, NATURAL BUFFERS, OR WATER BODIES IS PERMITTED UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL DELINEATE THESE AREAS ON SITE AND BARRICADE THEM TO AVOID ANY UNAUTHORIZED CLEARING. BARRICADES AND OTHER PROTECTIVE MEASURES TO BE LOCATED IN THE DRIP LINE OF EXISTING NATIVE TREES OR AT THE EDGE OF THE NATIVE UNDER-STORY HABITAT, WHICHEVER IS NEAREST TO THE CONSTRUCTION ACTIVITY.
2. SPECIMEN AND HISTORIC TREES, CONSERVATION EASEMENTS, NATURAL VEGETATION BUFFERS AND SIMILAR AREAS MUST BE PROTECTED WITH BARRICADES OR FENCING PRIOR TO CLEARING. HIGH WATER MARKS ARE TO BE SET AT THE DRIP LINE OF THE TREES AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. BARBED WIRE IS NOT PERMITTED AS A PROTECTIVE BARRIER.
3. WHERE A CHANGE OF GRADE OCCURS AT THE DRIP LINE OF A SPECIMEN TREE, SILT FENCE WILL BE REQUIRED DURING CONSTRUCTION AND RETAINING WALLS MUST BE INSTALLED PRIOR TO FINAL ACCEPTANCE BY THE CITY.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL PROTECTIVE VEGETATION BARRICADES AND EROSION CONTROL STRUCTURES AND MEASURES IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK, INCLUDING PRELIMINARY GRUBBING. THESE MEASURES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY CONSTRUCTION FENCES, SYNTHETIC BALE BALES, SILT FENCES, AND FLOATING TURBIDITY BARRIERS. FURTHER, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL EROSION CONTROL DEVICES THROUGHOUT THE DURATION OF THE ENTIRE PROJECT. MAINTENANCE SHALL INCLUDE PERIODIC INSPECTION AND REMOVAL OF DEBRIS SUBJECT TO EROSION CONTROL DEVICES IN ACCORDANCE WITH THE CITY'S UTILITY DEPARTMENT STANDARDS.
5. PRIOR TO THE INSTALLATION OF ANY FILL MATERIAL ON SUBJECT SITE, SILT FENCE SHALL BE INSTALLED:
   a. ALONG SUBJECT SITE BOUNDARY AND PROPERTY LINES.
   b. AT THE EDGE OF CONSERVATION EASEMENTS AND WETLANDS.
   c. ADJACENT TO NATURAL LANDSCAPE BUFFERS.
   d. AROUND THE PERIMETER OF EXISTING STORM WATER TREATMENT FACILITIES.
   e. AT ANY ADDITIONAL AREAS THAT THE CITY DEEMS NECESSARY TO BE PROTECTED FROM POTENTIAL EROSION IMPACTS DURING CONSTRUCTION. THESE CONDITIONS SHALL APPLY TO ALL INTERSECTIONS WHERE FILL MATERIAL IS BEING INSTALLED WITHIN 25 FEET OF ANY OF THE AFOREMENTIONED LOCATIONS. WHILE THESE ITEMS REPRESENT THE MINIMUM REQUIREMENTS, THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL PROTECTIVE MEASURES, AS DETERMINED DURING ACTUAL SITE VISITS CONDUCTED AS PART OF THE STANDARD REVIEW OF THE PERMIT AND THROUGHOUT PROJECT CONSTRUCTION PROGRESS.
6. WHERE FILL MATERIAL IS INTENDED TO BE INSTALLED ADJACENT TO EXISTING VEGETATION WHICH IS INTENDED TO REMAIN NATURAL, THE CONTRACTOR MAY INSTALL SILT FENCING AS A TREE PROTECTION MEASURE, IN LIEU OF INSTALLING OTHER WOOD BARRICADES OR ORANGE MESH FENCING. THIS PRACTICE IS ENCOURAGED BY THE CITY. IF THE SILT FENCE FAILS TO PROVIDE ADEQUATE PROTECTION FROM IMPACT DUE TO CONSTRUCTION, THEN ADDITIONAL CONSTRUCTION FENCING OR WOOD BRACING SHALL BE REQUIRED.
7. AT A MINIMUM, THE CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS. GRASS COVERAGE IS TO BE ESTABLISHED WITHIN THIRTY DAYS.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THROUGH SCHEDULING, TO MINIMIZE THE DISTURBANCE OF SITE AREAS THAT HAVE BEEN BROUGHT TO THEIR PROPOSED FINAL GRADE, WITHIN TWENTY DAYS OF BRINGING A SITE AREA TO FINAL GRADE. THE CONTRACTOR SHALL PROVIDE ADEQUATE IRRIGATION AND WATERING AS REQUIRED.
9. FOR INDIVIDUAL CONSTRUCTION PROJECTS INVOLVING MULTIPLE PHASES, UPON COMPLETION OF EACH PHASE OF THE PROJECT, SEEDING AND MULCHING AND OR/ SODDING IS TO BE PERFORMED PRIOR TO COMMENCING THE NEXT PHASE OF CONSTRUCTION.
10. ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED, INCLUDING WATERING AND TRIMMING BY THE CONTRACTOR TO ALLOW THE GRASS TO BECOME ESTABLISHED.
11. ALL BURNING OF CLEARED MATERIALS MUST BE APPROVED AND PERMITTED THROUGH THE FL FOREST SERVICE. BUNNELL OFFICE.
12. ABSOLUTELY NO BURYING OF CLEARED & GRUBBED MATERIALS IS PERMITTED.
13. THE REMOVAL OF ALL VEGETATION AND TOPSOIL ON THE FUTURE ROADWAY, PARKING AND BUILDING LOT AREAS IS REQUIRED TO BE COMPLETED PRIOR TO THE PLACEMENT OF FILL ON THOSE AREAS. THE TOPSOIL MAY BE TEMPORARILY STOCKPILED AND USED AS TOPSOIL OVER PROPOSED GREEN AREAS SUCH AS PLANT BEDS, SODDED AREAS, AND WHERE TREES ARE TO BE INSTALLED OR RELOCATED. TEMPORARY STOCKPILE SLOPES SHALL NOT EXCEED 4:1 (H:V).

SITE CLEARING & GRADING NOTES (CONT.)

14. A SIGNED, DATED, AND SEALED LETTER FROM A SOILS ENGINEER OR THE ENGINEER OF RECORD CERTIFYING THAT THE AREAS TO BE FILLED HAVE BEEN STRIPPED OF ORGANIC MATERIALS, MUST BE SUBMITTED TO THE CITY PRIOR TO FILLING.
15. FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY (95% FOR PAVED AREAS AND 95% FOR BUILDING PADS AND ALL OTHER AREAS AS PER MODIFIED AASHTO T-180).
16. DURING SUBDIVISION DEVELOPMENT WHEN FUTURE BUILDING LOTS ARE FILLED AS PART OF THE OVERALL SUBDIVISION IMPROVEMENTS, COMPACTION TEST REPORTS MUST BE PREPARED ON THESE LOTS AT 300' INTERVALS. THESE TESTS ARE TO BE PERFORMED IN 1' VERTICAL INCREMENTS. THE RESULTS OF THESE TESTS ARE TO BE SUBMITTED TO THE CITY UPON COMPLETION OF THE TESTS.
17. IF ANY MUCK OR ANY UNSUITABLE MATERIAL IS DISCOVERED, IT SHALL BE REMOVED AND REPLACED WITH A SUITABLE MATERIAL THAT IS PROPERLY BACKFILLED, COMPACTED AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
18. STOCKPILING IS NOT GENERALLY PERMITTED BY THE CITY. WHEN ALLOWED, STOCKPILES SHALL NOT EXCEED SIX FEET IN HEIGHT. STOCKPILES SHALL BE LOCATED A MINIMUM OF 25' FROM ANY PROPERTY LINE. SILT FENCE MUST BE IN PLACE IN EXCESS OF FIVE DAYS SHALL BE COVERED OR WATERED TO MINIMIZE THE ADVERSE IMPACT ON ADJACENT PROPERTY OWNERS AND ADJACENT ROADWAYS. COST OF THE COVER OR WATER SHALL BE INCLUDED IMMEDIATELY UPON PLACEMENT OF THE FINAL LIFT.
19. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES. ADEQUATE WATERING METHODS SHOULD BE EMPLOYED TO ALLOW DAILY COVERAGE OF THE ENTIRE LIMITS OF ALL AREAS THAT DO NOT HAVE AN ESTABLISHED VEGETATIVE COVER. METHODS TO BE EMPLOYED INCLUDE, BUT ARE NOT LIMITED TO, WATER TRUCKS, PERMANENT IRRIGATION SYSTEMS, TEMPORARY SPRINKLER SYSTEMS OPERATED BY PUMPING UNITS CONNECTED TO WET RETENTION PONDS, WATER CANNONS, TEMPORARY IRRIGATION SYSTEMS MOUNTED ON WATER TRUCKS AREAS, AND OTHER METHODS AS DEEMED NECESSARY BY THE CITY.
20. ALL FILL MATERIALS LOCATED BENEATH STRUCTURES AND PAVEMENT SHALL CONSIST OF CLEAN GRANULAR SAND FREE FROM ORGANICS AND SIMILAR MATERIAL THAT COULD DECOMPOSE.
21. ALL FILL TO BE PLACED IN LANDSCAPED AREAS SHALL HAVE A PH RANGE BETWEEN 5.5 AND 7.5. BE ORGANIC IN NATURE, FREE OF ROCKS AND DEBRIS, OR MATCH NATIVE EXISTING SOILS.

STORMWATER CONSTRUCTION NOTES

1. ALL SITE SPECIFIC EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES AT A MINIMUM SHALL BE INSTALLED PER APPROVED SITE PLANS AND STORMWATER POLLUTION PREVENTION PLANS (SWPPP). EPSC DESIGN, INSTALLATION AND MAINTENANCE SHALL BE IN ACCORDANCE WITH THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGN AND METHODS MANUAL, LATEST EDITION AND UPDATES.
2. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL ENSURE IMPLEMENTATION OF APPROVED SWPPP AND INSTALLATION OF BEST MANAGEMENT PRACTICES AND EROSION PREVENTION AND SEDIMENT CONTROL PRACTICES. A PRECONSTRUCTION EROSION CONTROL INSPECTION SHALL BE SCHEDULED WITH CITY PERSONNEL PRIOR TO COMMENCEMENT OF ANY LAND DISTURBANCE ACTIVITIES.
3. THE SITE WORK/GRADING AND UTILITIES CONTRACTOR SHALL ENSURE THAT THE NPDES CONSTRUCTION GENERIC PERMIT (CGP) NOTICE OF INTENT (NOI) AND ANY REQUIRED DEWATERING PERMITS HAVE BEEN OBTAINED OR SUBMITTED PRIOR TO ANY LAND DISTURBANCE ACTIVITIES.
4. A CITY DEWATERING PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING OR CONSTRUCTION ACTIVITY THAT DISCHARGES INTO THE CITY'S MS4. PERMITTABLE DEWATERING ACTIVITIES INCLUDE, THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCH

SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS
TESTING REQUIREMENTS

- THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING LABORATORY AT HIS OWN EXPENSE TO INSURE COMPACTION OF ALL FILL MATERIAL IS COMPLETED PROPERLY. TESTS SHALL BE DONE ONE FOOT ABOVE THE PIPE AND AT ONE FOOT VERTICAL INTERVALS UNTIL FINAL GRADE IS REACHED. TESTS SHALL BE COMPLETED A MINIMUM FREQUENCY OF ONE SET OF TESTS EACH 300 FOOT LENGTH OF PIPING AND ONE ADDITIONAL SET OF TESTS AT EVERY MANHOLE. IDENTIFICATION OF TEST LOCATIONS SHALL BE CLEARLY INDICATED ON TEST REPORTS TEST RESULTS SHALL BE FORWARDED PROMPTLY TO THE CITY'S DESIGNATED SITE INSPECTOR.
- ALL TESTING REQUIRED BY THE CITY SHALL BE PAID FOR BY THE CONTRACTOR / DEVELOPER.
- THE CITY OF DAYTONA BEACH RESERVES THE RIGHT TO REQUIRE THE DEVELOPER TO PERFORM VACUUM TESTING OF ALL SANITARY MANHOLES AND TO AIR TEST SEWER MAINS
- ALL PROPOSED SEWER FORCE MAINS SHALL BE FLUSHED, PRESSURE TESTED AND CLEARED FOR SERVICE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED SITE INSPECTOR AT LEAST 3 BUSINESS DAYS PRIOR TO BEGINNING A FULL-DIAMETER FLUSH OF THE MAINS FOR PRESSURE TESTING.
- SANITARY SEWER FORCE MAINS SHALL BE PRESSURE TESTED TO 100 PSI FOR 2 HOURS WITH ALLOWABLE LEAKAGE BASED ON THE TABLE BELOW.

[illegible]

AVERAGE TEST PRESSURE (PSI)	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20	24	30	36	42	48	54	60	64	TEST PRESSURE (PSI)
450	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	400
350	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	350
300	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300
275	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	275
250	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	250
225	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	225
200	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	200
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
150	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.29	[illegible]	1.66	1.84	2.21	2.76	[illegible]	3.86	[illegible]	[illegible]	[illegible]	5.88	150
125	[illegible]	[illegible]	[illegible]	0.67	[illegible]	[illegible]	1.18	[illegible]	1.51	1.68	2.01	2.52	[illegible]	3.53	[illegible]	[illegible]	[illegible]	5.37	125
100	[illegible]	[illegible]	[illegible]	0.60	[illegible]	[illegible]	1.05	[illegible]	1.35	1.50	1.80	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100

[illegible]

$$L = \frac{SD\sqrt{P}}{133,200}$$

WHERE:
L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR
S = LENGTH OF PIPE TESTED, IN FEET
D = NOMINAL DIAMETER OF PIPE, IN INCHES
P = AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH (GAUGE)

POTABLE WATER CONSTRUCTION & DESIGN NOTES

- THE CITY'S UTILITIES DEPARTMENT SHALL BE GIVEN A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS OR WEEKENDS) PRIOR TO BEGINNING ANY POTABLE WATER SYSTEM CONSTRUCTION.
- A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING OR CONSTRUCTION ACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES, ALLOWING CONSTRUCTION OR MAINTENANCE IN A DRY ENVIRONMENT. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BIANNUAL SCHEDULE OF DEWATERING ACTIVITIES DISCHARGING DIRECTLY INTO THE CITY'S CONVEYANCE SYSTEM. FEES ARE SUBJECT TO THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION TO THE CITY OF DELAND STORM WATER COORDINATOR PRIOR TO ANY USE OF THE CITY'S CONVEYANCE SYSTEM. FAILURE TO COMPLY WILL RESULT IN IMMEDIATE TERMINATION OF ACCESS TO THE CITY'S SYSTEM.
- ALL WORK PERFORMED ON POTABLE WATER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY SHALL BE CONSTRUCTED BY AN UNDERGROUND UTILITY CONTRACTOR OR GENERAL CONTRACTOR LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.
- UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE DEPARTMENT OF HEALTH, AND THAT AS-BUILT DRAWINGS MEETING THE CITY'S REQUIREMENTS ARE PROVIDED TO THE CITY AND ACCEPTED PRIOR TO ANY USE OF THE SYSTEM
- THE WATER DISTRIBUTION SYSTEM SHALL BE DESIGNED TO COMPLY WITH THE CITY'S FIRE (WATER) FLOW CODE.
- EACH WATER SERVICE TERMINATION SHALL BE MARKED WITH 2" X 4" PRESSURE TREATED LUMBER EXTENDING 4' ABOVE GRADE DIRECTLY IN FRONT OF THE METER BOX WITH 2' OF ENDOTRACE POLY-TUBE OR APPROVED EQUAL COILED AND CAPPED WITH AN ELSTER HYDROSERT CAP INSIDE EACH METER BOX.
- [illegible]

8. ALL WATER VALVES SHALL BE MARKED WITH AN "V" SAW CUT INTO THE CURB.
9. ALL TAPPING OF MAINS (12" OR SMALLER) SHALL BE PERFORMED BY CITY PERSONNEL. SCHEDULING OF THESE CONNECTIONS REQUIRES A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE AND SHALL BE COORDINATED WITH THE CITY INSPECTOR (TAPS ON MONDAY – THURSDAY ONLY).
10. THE PLANS SHALL INCLUDE RIGHT OF WAY LINES AND STATIONING AND OFFSETS FROM THE CENTER LINE OF CONSTRUCTION.
11. DEWATERING ACTIVITIES SHALL KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW THE WATER MAIN BEING INSTALLED
12. ALL WATER MAINS SHALL BE INSTALLED ON A FIRM UNYIELDING FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
13. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 98% IN PAVED AREAS AND 95% IN UNPAVED AREAS IN ACCORDANCE WITH AASHTOT-180 MODIFIED PROCTOR TEST.
14. WHERE POTABLE WATER AND SANITARY SEWER MAINS CROSS WITH LESS THAN SIX (6) INCHES OF VERTICAL CLEARANCE OR WHERE THE SEWER MAIN IS ABOVE THE WATER MAIN, MEDIATION MUST BE REVIEWED AND APPROVED BY FDEP.
15. WATER MAINS SHALL BE CONSTRUCTED A MINIMUM OF 4 FEET BEHIND THE BACK OF CURB OR THE EDGE OF ROADWAY PAVEMENT, WHICHEVER IS GREATER, AS MEASURED FROM OUTSIDE WALL OF THE WATER MAIN.
16. 3 INCH METALIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES TO 24 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY THE MANUFACTURER FOR ALL WATER LINES. BLUE TRACER WIRE SHALL BE ATTACHED TO ALL PIPES. WIRE RUNS SHALL BE CONNECTED WITH SILICONE FILLED WIRE CONNECTORS. SERVICES SHALL BE CONNECTED TO THE MAIN WIRE WITH SILICONE FILLED WIRE CONNECTORS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE AND TEST FOR CONTINUITY (SEE CITY SPECIFICATION #15049 TRACER WIRE AND ALARMING TAPE). TRACER WIRE SHALL BE TESTED FOR CONTINUITY UNDER THE SUPERVISION OF A CITY REPRESENTATIVE AFTER INSTALLATION. IF A METER BOX IS NOT WITHIN 200 FEET OF A VALVE AND VALVE BOX AN ADDITIONAL VALVE BOX FOR TRACER WIRE IS REQUIRED.
17. SINGLE RESIDENTIAL WATER SERVICES SHALL BE A MINIMUM 1-INCH ENDOT, ENDOTRACE OR APPROVED EQUAL POLY-TUBE (MEETING THE SPECIFICATIONS OF NSF-14, AND AWWA C901.)
18. ALL WATER MAINS SHALL BE NSF-APPROVED FOR POTABLE WATER USE AND HAVE A MINIMUM COVER OF 36-INCHES.
19. WATER MAINS LESS THAN 18" MAY USE POLYVINYL CHLORIDE (PVC) C900, OR C905, SHALL MEET AWWA REQUIREMENTS AND HAVE A MINIMUM DIMENSION RATIO (DR-18) PRESSURE CLASS 150. WATER MAINS 18" AND [illegible] HORIZONTAL DIRECTIONAL DRILL WATER MAINS SHALL HAVE A MINIMUM WORKING PRESSURE OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING BASED ON SITE CONDITIONS. INSIDE DIAMETER OF NON D.I.P. HORIZONTAL DIRECTIONAL DRILL PIPE SHALL MATCH THE INSIDE DIAMETER OF CONNECTING PIPES. ALL GASKETS SHALL BE LUBRICATED BEFORE INSTALLATION.
20. DIRECTIONAL DRILLS SHALL HAVE FUSED MJ ADAPTERS.
21. ALL POTABLE WATER MAINS SHALL USE THRUST RESTRAINT AS CALCULATED BY A PROGRAM AVAILABLE AT EBAA.COM. THE RESTRAINED JOINT LENGTHS SHALL BE SHOWN ON PLANS PROVIDED BY EOR.
22. ALL FITTINGS, VALVES, ETC. SHALL BE DUCTILE IRON CEMENT LINED (MJ OR FLANGED) AND SHALL BE RESTRAINED.
23. ALL RESTRAINED PIPE BELL JOINTS SHALL USE BELL RESTRAINTS OR GRIPPER TYPE GASKETS CAN BE USED FOR DUCTILE IRON PIPE JOINTS. CONCRETE THRUST BLOCKS ARE NOT PERMITTED.
24. WATER VALVES SHALL BE INSTALLED AT ALL STREET INTERSECTIONS AND AT A MAXIMUM SPACING OF 750 FEET. SPACING OF VALVES ON PRIMARY TRANSMISSION MAINS WILL BE DETERMINED BY THE CITY.
25. VALVES SHALL BE INSTALLED ON ALL LEGS OF WATER MAIN TEES EXCEPT ONE.
26. ALL FITTINGS SHALL MEET MINIMUM RESTRAINT REQUIREMENTS PER ANSI/AWWA/EBAA, AND ALL PRESSURE PIPES UNDER THE ROADWAYS SHALL BE RESTRAINED.
27. METER LENGTHS REQUIRED FOR WATER METERS INSTALLATION ARE AS FOLLOWS: 3/4" TO 2" METER REQUIRES 6', 4" METER REQUIRES 12', 6" AND 8" METER REQUIRES 14', AND A 10" METER REQUIRES 20'.
28. ALL WATER VALVE BOXES SHALL BE ADJUSTED, INCLUDING DEBRIS CAP, AND CONCRETE COLLAR TO FINISHED GRADE. VALVE BOX LIDS SHALL BE PAINTED BLUE TO MAKE THEM CLEARLY VISIBLE.
29. UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS, WATER VALVES SHALL BE COMPLETELY OPENED BY CITY UTILITIES PERSONNEL. THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING VALVES WITHOUT A CITY REPRESENTATIVE PRESENT.
30. ALL VALVES 2 INCHES AND SMALLER SHALL BE CURB STOPS. VALVES LARGER THAN 2 INCHES SHALL BE GATE VALVES.
31. A MINIMUM OF ONE FIRE HYDRANT SHALL BE LOCATED AT EVERY INTERSECTION. OTHER FIRE HYDRANTS SHALL BE LOCATED TO PRODUCE A MAXIMUM 500 FOOT RADIUS OF COVERAGE. ALL FIRE HYDRANTS SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS FOR FIRE PERSONNEL. THE PRIMARY HYDRANT PORT SHALL FACE THE STREET.
32. THE CONTRACTOR SHALL PIG ALL PIPES 4 INCHES OR LARGER IN DIAMETER. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR AND CITY REPRESENTATIVE. REUSE WATER MAY ONLY BE USED FOR PIGGING OF LINES 14" OR LARGER AT THE CITY'S DIRECTION AND BE DIRECTLY DISCHARGED TO A SANITARY CONNECTION, APPROVED BY THE CITY.
33. FOR PIPE FLUSHING, PIGGING, TESTING, AND TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 8 A.M.) THE CONTRACTOR SHALL COORDINATE WITH THE CITY REPRESENTATIVE AND WATER PLANT OPERATIONS TO SCHEDULE THE DATE AND TIME FOR THESE ACTIVITIES.
34. THE CITY RESERVES THE RIGHT TO PERFORM THE SAMPLING AND ANALYSIS FOR BACTERIOLOGICAL CLEARANCE OF THE WATER MAIN. ANY RETESTING WILL BE AT THE CONTRACTORS EXPENSE.
35. POTABLE WATER LINES SHALL NOT BE USED OR PLACED INTO SERVICE UNTIL CLEARANCE IS ACCEPTED BY VOLUSIA COUNTY HEALTH DEPARTMENT AND THE CITY OF DELAND
36. BACKFLOW PREVENTERS (BFP) SHALL BE PLACED ON ALL POTABLE AND FIRE LINES SERVING COMMERCIAL AND RESIDENTIAL PROPERTIES. THE TYPE OF BACKFLOW PREVENTERS REQUIRED ARE AS FOLLOWS:
    POTABLE WATER SERVICE; REDUCED PRESSURE ZONE (RPZ)(BFP)
    FIRE LINE SERVICING A FIRE SPRINKLER SYSTEM AND/OR PRIVATE FIRE HYDRANT, DOUBLE CHECK VALVE ASSEMBLY
    FIRE LINE; DOUBLE CHECK VALVE ASSEMBLY
    IN CASES WHERE A WATER LINE SERVES BOTH DOMESTIC AND FIRE SERVICES, A REDUCED PRESSURE ZONE BFP IS REQUIRED.

POTABLE WATER CONSTRUCTION & DESIGN NOTES (CONT'D)

37. ALL JACK & BORES REQUIRED FOR COMMERCIAL DEVELOPMENT SHALL BE PERFORMED AT THE SOLE COST OF THE OWNER\DEVELOPER.
38. ALL C-900 DR-18 PVC PIPE REQUIREMENTS REFERENCE TO THE C-900 STANDARDS.
39. CHLORINATED WATER MUST BE DECHLORINATED PRIOR TO DISCHARGE INTO ANY JURISDICTIONAL WETLAND OR WATER BODY PER AWWA STANDARD, ANSI/AWWA C655.

POTABLE WATER CONSTRUCTION & DESIGN STANDARDS
TESTING REQUIREMENTS

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TRENCH COMPACTION TESTS AT POINTS 12 INCHES ABOVE THE PIPE AND AT 12-INCH VERTICAL INTERVALS TO FINISHED GRADE AT A MAXIMUM HORIZONTAL SPACING OF 300 FEET. TEST RESULTS ARE TO BE PROVIDED TO THE CITY ON ALL PUBLIC UTILITIES.
- ON ALL PROJECTS OTHER THAN THOSE INITIATED BY THE CITY THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING LABORATORY AT HIS OWN EXPENSE TO INSURE THAT COMPACTION OF ALL FILL MATERIAL IS COMPLETED PROPERLY. ON ALL CITY PROJECTS THE TESTING WILL BE DONE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. IDENTIFICATION OF TEST LOCATIONS SHALL BE CLEARLY INDICATED ON TEST REPORTS. TEST RESULTS SHALL BE FORWARDED PROMPTLY TO THE CITY'S INSPECTOR.
- ALL POTABLE WATER MAINS SHALL BE FLUSHED, DISINFECTED, PRESSURE TESTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE WHEN APPROPRIATE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED INSPECTOR WHO SHALL COORDINATE WITH CITY PERSONNEL AT THE WATER TREATMENT PLANT AT LEAST 3 BUSINESS DAYS PRIOR TO BEGINNING FLUSHING THE MAINS BEFORE PRESSURE TESTING. THE CITY MAY REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 8 AM). THE DATE AND TIME SCHEDULE FOR FLUSHING AND PIGGING MUST BE APPROVED BY THE WATER PLANT OPERATIONS. NO HOSE OR FIRE HYDRANT SHALL BE USED IN THE COLLECTION OF BACTERIOLOGICAL SAMPLES. THE SAMPLING TAP MUST BE DEDICATED, CLEAN, DISINFECTED AND FLUSHED PRIOR TO SAMPLING. SAMPLING TAP SHALL BE SMOOTH, UNTHREADED 1/2 INCH HOSE BIB. DISINFECTION AND SAMPLING SHALL BE SCHEDULED AT THE CITY'S CONVENIENCE.
- PRESSURE TEST FOR TAPPING SADDLES AND VALVES FOR A MINIMUM OF 30 MINUTES AT 150 PSI OR 30 MINUTES AT MANUFACTURER'S RECOMMENDED TESTING PRESSURE.
- WATERMAINS SHALL BE PRESSURE TESTED AT 150 PSI FOR 3 HOURS. TESTING SHALL BE IN ACCORDANCE WITH AWWA C-600 AND AWWA C-605 AS APPLICABLE WITH ALLOWABLE LEAKAGE TO BE BASED ON THE TABLE BELOW.

[illegible]

AVERAGE PRESSURE [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16	[illegible]	20	24	30	36	42	48	54	60	64	TEST PRESSURE (PSI)
450	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.55	[illegible]	[illegible]	3.82	[illegible]	[illegible]	6.69	7.64	[illegible]	[illegible]	[illegible]	450
400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	400
350	[illegible]	[illegible]	[illegible]	[illegible]	1.40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	350
300	[illegible]	[illegible]	[illegible]	[illegible]	1.30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300
275	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	275
250	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	250
225	[illegible]	[illegible]	0.68	[illegible]	[illegible]	1.35	[illegible]	1.80	[illegible]	2.25	2.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
200	[illegible]	[illegible]	0.64	[illegible]	[illegible]	1.26	[illegible]	1.70	[illegible]	2.12	2.55	[illegible]	3.82	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	200
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.19	[illegible]	1.59	[illegible]	1.98	[illegible]	[illegible]	3.58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
150	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	150
125	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	125
100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100

[illegible]

$$L = \frac{SD\sqrt{P}}{133,200}$$

WHERE:
L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR
S = LENGTH OF PIPE TESTED, IN FEET
D = NOMINAL DIAMETER OF PIPE, IN INCHES
P = AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH (GAUGE)

RECLAIMED WATER CONSTRUCTION & DESIGN NOTES

- THE CITY'S UTILITIES DEPARTMENT (671-8815) SHALL BE GIVEN A MINIMUM OF THREE BUSINESS DAYS NOTICE (NOT INCLUDING HOLIDAYS) PRIOR TO BEGINNING ANY RECLAIMED WATER SYSTEM CONSTRUCTION.
- A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING OR CONSTRUCTIONACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES, ALLOWING CONSTRUCTION OR MAINTENANCE IN A DRY ENVIRONMENT. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BIANNUAL SCHEDULE OF DEWATERING ACTIVITIES DISCHARGING DIRECTLY INTO THE CITY'S CONVEYANCE SYSTEM. FEES ARE SUBJECT TO THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION TO THE CITY OF DELAND STORM WATER COORDINATOR PRIOR TO ANY USE OF THE CITY'S CONVEYANCE SYSTEM. FAILURE TO COMPLY WILL RESULT IN IMMEDIATE TERMINATION OF ACCESS TO THE CITY'S SYSTEM.
- RECLAIMED WATER SERVICE ENDINGS SHALL BE SECURED BY WIRE TO 2" X 4" PRESSURE TREATED STAKES, APPROXIMATELY 2' ABOVE GRADE OR MAY BE PLACED IN RECLAIMED WATER METER BOXES PROVIDED BY THE CONTRACTOR AT THE TIME OF FINAL SUBDIVISION INSPECTION.
- FOR PIPE FLUSHING, PIGGING, TESTING, AND TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 8 A.M.) IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE WITH THE CITY REPRESENTATIVE THE DATE AND TIME, THAT MUST BE APPROVED BY WATER PLANT OPERATIONS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUPPLY "AS-BUILT DRAWINGS" TO THE CITY PRIOR TO ANY USE OF THE SYSTEM. **SEE CITY OF DELAND AS-BUILT REQUIREMENTS**
- ALL RECLAIMED WATER SERVICES SHALL BE MARKED ALONG THE OUTSIDE EDGE OF CURB WITH A "R" OR BY METAL TABS SET INTO PAVEMENT. VALVES AND BLOW-OFFS FOR RECLAIMED WATER MAINS SHALL BE MARKED BY A "V" SET INTO THE PAVEMENT AND PAINTED WITH PURPLE ENAMEL.
- RECLAIMED WATER SERVICES SHALL BE LOCATED AT SIDE LOT LINES ALTERNATING WITH POTABLE WATER SERVICE LOCATIONS. IN INSTANCES WHERE RECLAIMED WATER SERVICES MUST BE OFFSET. THE SERVICES MAY BE OFFSET FROM THE LOT LINE A MAXIMUM DISTANCE OF 2 FEET.
- ALL RECLAIMED WATER HAND-OPERATED CONNECTIONS AND OUTLETS SHALL BE CONTAINED IN UNDERGROUND SERVICE VAULTS AND APPROPRIATELY TAGGED OR LABELED TO WARN THE PUBLIC AND EMPLOYEES THAT THE WATER IS NOT INTENDED FOR DRINKING OR SWIMMING ANY SIGNIFICANT IRRIGATION SITE UTILIZING RECLAIMED WATER, SUCH AS AN ATHLETIC FIELD, GOLF COURSE, PARK OR POND, IS REQUIRED TO POST A 12" x 12" RECLAIMED WATER SIGN WARNING THE PUBLIC AND EMPLOYEES THAT RECLAIMED WATER IS NOT INTENDED FOR DRINKING OR SWIMMING. THIS SIGN SHALL BE PLACED AT THE ENTRANCE TO THE SITE AND THE LOCATION OF THE PRIVATE REUSE SYSTEM. SEE 'RECLAIMED WATER IN USE' DETAIL.
- VAULTS FOR OUTLETS SHALL BE LOCKED OR REQUIRE A SPECIAL TOOL FOR OPERATION.

10. A 75 FOOT SETBACK DISTANCE SHALL BE PROVIDED FROM PUBLIC ACCESS RECLAIMED WETTED AREAS TO PUBLIC OR PRIVATE POTABLE WATER SUPPLY WELLS.
11. LOW TRAJECTORY NOZZLES ARE REQUIRED WITHIN 100 FEET OF PUBLIC EATING, DRINKING OR BATHING FACILITIES.
12. ALL RECLAIMED WATER MAINS SHALL BE INSTALLED ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
13. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 95% IN UNPAVED AREAS AND 98% IN PAVED AREAS IN ACCORDANCE WITH AASHTO T-180.
14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TRENCH COMPACTION TESTS AT POINTS 12 INCHES ABOVE [illegible]
15. ALL SINGLE RESIDENTIAL WATER SERVICES SHALL BE 1". SERVICES SHALL BE CTS 3408 HIGH DENSITY POLYETHYLENE TUBING RATED FOR A MINIMUM OF 200 PSI WITH STANDARD OUTSIDE DIMENSION RATIO (SODR) = 9 (CTS). THE TUBING SHALL HAVE A VIRGIN HIGH DENSITY POLYETHYLENE CENTER FOR WHICH THE MANUFACTURER SHALL FURNISH A CERTIFICATE OF PURITY. THE TUBING SHALL BE PURPLE IN COLOR AND SHALL HAVE THE WORDS "RECLAIMED WATER" PERMANENTLY PRINTED ON THE OUTSIDE. THE TUBING SHALL HAVE U.V. PROTECTION AND SHALL NOT BE AFFECTED BY DIRECT SUNLIGHT. THE TUBING SHALL COMPLY WITH OR EXCEED THE APPLICABLE STANDARDS OF A.S.T.M. D1248, D3350, D2239, D2737, N.S.F.-14 AND A.W.W.A. C901 AND SHALL COME WITH A LIFETIME WARRANTY. APPROVED SIZES: 1" AND 2" DIAMETERS.
16. RECLAIMED WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF THE CURB ON THE OPPOSITE SIDE OF THE ROAD OF THE POTABLE WATER MAINS, OR AS APPROVED BY THE CITY. RECLAIMED WATER MAINS SHOULD NOT BE INSTALLED UNDER SIDEWALK.
17. ALL RECLAIMED WATER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON PRESSURE CLASS 350 OR CONCRETE ENCASEMENT/PROTECTIVE SLAB MAY BE USED AT THE DISCRETION OF THE UTILITIES DEPARTMENT. ALL DIP SHALL HAVE 2" PURPLE STRIPES PAINTED AT 12 O'COLCK, 3 O'CLOCK, 8 O'CLOCK AND 9 O'CLOCK FOR THE FULL LENGTH OF PIPE. NON PAINTED RECLAIMED PIPE OR PIPES SHALL BE PAINTED WITH AN EPOXY PAINT (PANTONE PURPLE) TO CLEARLY MARK THE RECLAIM PIPE OR PIPES.
18. RECLAIMED WATER MAINS SHALL BE PURPLE PVC, DR-18 AWWA CLASS C-900 OR C-905, CL 150, OR DIP PRESSURE CLASS 350, STANDARD CEMENT LINED (PAINTED PANTONE PURPLE) UNLESS APPROVED OTHERWISE BY THE CITY. ALL HORIZONTAL DIRECTIONAL DRILLS SHALL HAVE A MINIMUM WORKING PRESSURE OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING BASED ON SITE CONDITIONS. INSIDE DIAMETER OF HORIZONTAL DIRECTIONAL DRILL PIPE SHALL MATCH THE INSIDE DIAMETER OF CONNECTING PIPES. ALL GASKETS SHALL BE LUBRICATED BEFORE INSTALLATION.
19. DIRECTIONAL DRILLS SHALL HAVE FUSSED MJ ADAPTERS
20. ALL RECLAIMED WATER MAINS SHALL USE THRUST RESTRAINT AS CALCULATED BY A PROGRAM AVAILABLE AT EBAA.COM, THE RESTRAINED JOINT LENGTHS SHALL BE SHOWN ON PLANS PROVIDED BY EOR.
21. ALL FITTINGS, VALVES, ECT. SHALL BE DUCTILE IRON (MJ OR FLANGED) AND SHALL BE RESTRAINED.
22. BELL RESTRAINTS OR GRIPPER TYPE GASKETS CAN BE USED FOR ALL RESTRAINED PIPE BELL JOINTS. CONCRETE THRUST BLOCKS ARE NOT PERMITTED.
23. VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACINGS OF 750 FEET.
24. VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE AT ALL RECLAIMED WATER MAIN TEES AND CROSSES
25. ALL VALVES SHALL BE ADJUSTED TO FINISH GRADE AND CAPS SHALL BE PAINTED PURPLE.
26. THE CONTRACTOR IS REQUIRED TO PIG ALL RECLAIMED WATER MAINS EQUAL TO OR GREATER THAN 4" IN DIAMETER AND PRIMARY DISTRIBUTION MAINS LOCATED ON COLLECTOR AND ARTERIAL ROADWAYS. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR.
27. IN AREAS WHERE RECLAIMED WATER IS AVAILABLE, RECLAIMED WATER WILL BE UTILIZED IN THE PRESSURE TESTING OF NEW NON-POTABLE WATER LINES.
28. RECLAIMED WATER MAINS SHALL NOT BE PLACED IN SERVICE UNTIL A PRESSURE TEST AT 150 PSI FOR 3 HOURS HAS PASSED AND THE RESULTS ARE FORWARDED TO THE CITY.
29. THE CONTRACTOR SHALL PERFORM RECLAIMED WATER TAPS WITH A CITY REPRESENTIVE PRESENT
30. WITH RESPECT TO TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNECTIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW.

RECLAIMED WATER CONSTRUCTION & DESIGN NOTES (CONT'D)

31. THE PLANS SHALL INCLUDE THE PROPOSED LOCATIONS OF ALL RECLAIMED WATER MAINS MEASURED FROM THE BACK OF CURB (EDGE OF PAVEMENT IF NO CURB EXISTS) AND THE RIGHT_OF_WAY LINE.
32. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF PUBLIC UTILITIES AND STORM WATER INFRASTRUCTURE.
33. THE RECLAIMED WATER MAIN SHALL NOT BE PLACED IN SERVICE UNTIL AN APPROVED BACKFLOW PREVENTER HAS BEEN INSTALLED ON THE CUSTOMER'S POTABLE SERVICE LINE
34. PRESSURE TESTS FOR TAPPING SADDLES AND VALVES SHALL BE A MINIMUM OF 30 MINUTES AT 150 PSI OR 30 MINUTES AT THE MANUFACTURER'S RECOMMENDED TESTING PRESSURE
35. 3 INCH METALIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES TO 24 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY THE MANUFACTURER FOR ALL WATER LINES. BLUE TRACER WIRE SHALL BE ATTACHED TO ALL PIPES. WIRE RUNS SHALL BE CONNECTED WITH SILICONE FILLED WIRE CONNECTORS. SERVICES SHALL BE CONNECTED TO THE MAIN WIRE WITH SILICONE FILLED WIRE CONNECTORS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE AND TEST FOR CONTINUITY (SEE CITY SPECIFICATION #15049 TRACER WIRE AND ALARMING TAPE). TRACER WIRE SHALL BE TESTED FOR CONTINUITY UNDER THE SUPERVISION OF A CITY REPRESENTATIVE AFTER INSTALLATION. IF A METER BOX IS NOT WITHIN 200 FEET OF A VALVE AND VALVE BOX AN ADDITIONAL VALVE BOX FOR TRACER WIRE IS REQUIRED.
36. ALL FITTINGS SHALL MEET MINIMUM RESTRAINT REQUIREMENTS PER ANSI/AWWA/EBAA, AND ALL PRESSURE PIPES UNDER THE ROADWAYS SHALL BE RESTRAINED.
37. IN AREAS WHERE RECLAIMED WATER IS NOT AVAILABLE, THE CONTRACTOR IS REQUIRED TO USE THE NECESSARY BACKFLOW PREVENTION DEVICES TO TRANSFER POTABLE WATER TO NON-POTABLE WATER LINES TO PERFORM THE REQUIRED PRESSURE TEST.
38. WHERE POTABLE WATER MAINS, RECLAIMED WATER MAINS, FORCE MAINS, SANITARY SEWER MAINS OR STORMWATER MAINS CROSS WITH LESS THAN 12 INCHES OF VERTICAL CLEARANCE OR WHERE THE SEWER OR THE RECLAIMED WATER MAIN IS ABOVE THE WATER MAIN, MEDIATION MUST BE REVIEWED AND APPROVED BY FDEP.

FDOT GENERAL NOTES

- MAINTENANCE OF TRAFFIC TO BE SUPERVISED BY A CERTIFIED PERSON.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT A MINIMUM OF TWO BUSINESS DAYS PRIOR TO ANY LANE CLOSURES OR BEGINNING ANY CONSTRUCTION WITHIN THE FDOT RIGHT-OF-WAY.
- ALL WORK PERFORMED WITHIN THE FDOT RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF FDOT DESIGN STANDARDS, SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE UTILITY ACCOMMODATION MANUAL.
- IF THE DEPARTMENT DETERMINES THAT AS-BUILT CONDITIONS VARY SIGNIFICANTLY FROM THE APPROVED PLANS, THE PERMITTEE SHALL PROVIDE AS-BUILT PLANS, ALONG WITH A RECORD DRAWINGS REPORT BY PERMITTEE'S PROFESSIONAL ENGINEER, FORM 850-040-19, WITHIN 30 DAYS.
- IT WILL BE THE RESPONSIBILITY OF THE PERMITTEE TO REPAIR ANY DAMAGE TO FDOT FACILITIES CAUSED BY CONSTRUCTION OF THE PROJECT.
- TEST RESULTS OF ANY TESTS TAKEN FOR OR DURING CONSTRUCTION OF THE PERMITTED WORK SHALL BE PROVIDED TO THE FDOT UPON REQUEST.
- ALL CONCRETE TO BE REMOVED SHALL BE SAW CUT AT THE NEAREST JOINT IN GOOD CONDITION, SO AS TO PRODUCE A CONNECTION WITH NEW CONCRETE THAT IS FREE OF CRACKS, DEFORMITY IN SHAPE, NOTICEABLE VOIDS, SURFACE IRREGULARITIES, AND OTHER DEFECTS.
- ALL CONCRETE SHALL BE AN APPROVED FDOT MIX DESIGN OF 3,000 PSI.
- ALL MATERIALS INSTALLED WITHIN FDOT RIGHT OF WAY SHALL BE LIMITED TO THOSE ON THE FDOT'S QUALIFIED PRODUCTS LIST OR APPROVED PRODUCT LIST OF TRAFFIC CONTROL SIGNALS AND DEVICES.

ROADWAY CONSTRUCTION NOTES

ALL MATERIALS AND INSTALLATION METHODS USED FOR LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS FOR SUBDIVISIONS AND SITE PLANS SHALL BE IN CONFORMANCE WITH THE CITY'S DESIGN STANDARDS, FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION), AND THE FDOT DESIGN STANDARDS (LATEST EDITION).

- ALL RIGHT-OF-WAY OTHER THAN ROADWAY AREAS SHALL BE GRASSED AND MULCHED OR SODDED. ALL SLOPES STEEPER THAN 6:1 SHALL REQUIRE SODDING. THE CITY RESERVES THE RIGHT TO REQUIRE SODDING IN SPECIAL AREAS WHERE EROSION IS A CONCERN.
- THE FOLLOWING WILL BE THE STANDARD PROTECTION FOR DITCHES UNLESS DRAINAGE CALCULATIONS INDICATE OTHERWISE:

[illegible]	PROTECTION REQUIRED
[illegible]	GRASSING AND MULCHING
[illegible]	SODDING
4.0% AND GREATER	DITCH PAVING

3. THE PAVEMENT, BASE, AND SUBBASE THICKNESS PRESENTED ON DETAILS REPRESENTS THE MINIMUM REQUIREMENTS FOR LOCAL PUBLIC STREETS AND PRIVATE PARKING LOTS. THE CITY RESERVES THE RIGHT AT ITS' DISCRETION TO INCREASE THESE REQUIREMENTS FOR COLLECTOR AND ARTERIAL ROADWAYS AND PRIVATE PARKING LOTS SUBJECTED TO HEAVY VEHICULAR COMMERCIAL TRAFFIC.
4. THE DEVELOPER SHALL PROVIDE AT THEIR OWN EXPENSE A CERTIFIED SOILS ENGINEERING LABORATORY TO PERFORM ALL FIELD AND LABORATORY TESTING REQUIRED TO VERIFY THAT THE CONSTRUCTION IS IN COMPLIANCE WITH THE CITY'S MINIMUM STANDARDS. IT IS THE RESPONSIBILITY OF THE DEVELOPER TO ENSURE THAT COPIES OF ALL TEST REPORTS ARE PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR PRIOR TO THE PROJECT FINAL INSPECTION IN ORDER TO ALLOW PROJECT ACCEPTANCE BY THE CITY.
5. THE LIMITS OF STABILIZED SUBBASE SHALL EXTEND TO A DEPTH OF TWELVE INCHES (12") BELOW THE BOTTOM OF THE BASE AND OUTWARD TO TWELVE INCHES (12") BEYOND THE CURB.
6. THE STABILIZING MATERIAL, IF REQUIRED, SHOULD BE A HIGH BEARING VALUE SOIL, SAND-CLAY, LIMEROCK, RECYCLED CONCRETE, SHELL, OR OTHER MATERIAL AS APPROVED BY THE CITY'S ENGINEER OR DESIGNEE AND A LICENSED SOILS ENGINEER.
7. COMPACTION. STABILITY AND DENSITY TESTING FOR PAVEMENT. BASE AND SUB-BASE ARE TO BE DONE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS FOR ROADWAY & BRIDGE CONSTRUCTION, LATEST EDITION.
8. FOR ROADWAYS, TESTS FOR SUBBASE BEARING CAPACITY AND COMPACTION SHALL BE DONE AT A MINIMUM OF EVERY 300 FEET AND SHALL BE STAGGERED TO THE LEFT, RIGHT, AND AT CENTER LINE OF THE ROADWAY. FOR SITE PLANS, TEST SHALL BE PERFORMED FOR EVERY 600 SQUARE YARDS OF STABILIZED AREA, OR PORTIONS THEREOF.
9. CEMENT DELIVERY TICKETS SHALL BE PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR AT THE TIME OF PLACEMENT. IF THE INSPECTOR IS NOT ON SITE THROUGHOUT THE ENTIRE INSTALLATION, ACCUMULATED DELIVERY TICKETS CAN BE PROVIDED TO THE INSPECTOR BY THE CONTRACTOR ON THE FOLLOWING DAY.
10. TESTING OF THE IN-PLACE BASE SHALL BE DONE AT INTERVALS EQUIVALENT TO SUBGRADE TESTING AND SHALL CONSIST OF, AS A MINIMUM, A MOISTURE CONTENT AND COMPACTION TEST.
11. PORTLAND CEMENT CONCRETE, LIMEROCK, RECYCLED CONCRETE, OR FULL DEPTH ASPHALT PAVEMENT MAY BE USED IN PLACE OF SOIL CEMENT BASE. ALL BASE AND ROADWAY DESIGNS SHALL BE SUBJECT TO THE APPROVAL OF THE CITY.
12. RECYCLED CONCRETE CAN BE USED AS A BASE MATERIAL PROVIDED THE MATERIAL IS A MINIMUM OF 60% CARBONATE OF CALCIUM AND MAGNESIUM. THE MATERIAL SHALL BE LIMITED TO MAXIMUM OF 3% OF WATER SENSITIVE CLAY MATERIAL, LIQUID LIMIT SHALL NOT EXCEED 35 AND BE NON-PLASTIC, AND THE PLASTICITY INDEX SHALL NOT EXCEED 10. THE MATERIAL SHALL NOT CONTAIN ORGANIC MATERIAL, CHERTY OR OTHER EXTREMELY HARD PIECES, LUMPS, BALLS OR POCKETS OF SAND SIZE MATERIAL OF A QUANTITY AS TO BE DETRIMENTAL TO THE PROPER BONDING, FINISHING, OR STRENGTH OF THE RECYCLED CONCRETE BASE. FOR BASE APPLICATIONS, AT LEAST 97% (BY WEIGHT) OF THE MATERIAL SHALL PASS A 1" SIEVE AND FOR SUBBASE APPLICATIONS, AT LEAST 97% (BY WEIGHT) OF THE MATERIAL SHALL PASS A 1-½" SIEVE. FOR BOTH APPLICATIONS, THE MATERIAL SHALL BE GRADED UNIFORMLY DOWN TO DUST AND THE MINIMUM LBR VALUES ARE TO BE NOT LESS THAN 120. COARSE AGGREGATE USED IN THE RECYCLED CONCRETE SHALL HAVE A MAXIMUM LOSS OF 45% PER LOS ANGELES ABRASION TEST. ALL MATERIALS SHALL BE WELL GRADED N ACCORDANCE WITH REQUIREMENTS SET FORTH IN SECTION 204, F.D.O.T., STANDARD SPEC. FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION).
13. RECYCLED CONCRETE OR LIMEROCK FOR BASE OR SUBBASE APPLICATIONS SHALL BE ALLOWED ON CITY ROADWAYS ONLY WHERE THE LOWEST ELEVATION OF THE ROADWAY SUBBASE IS A MINIMUM OF 6" ABOVE THE SEASONAL HIGH GROUNDWATER TABLE AS CERTIFIED BY A FLORIDA LICENSED PROFESSIONAL SOILS ENGINEER AND SUBSEQUENTLY APPROVED FOR BY THE CITY. ALL CRUSHING OF RECYCLED CONCRETE SHALL BE DONE PRIOR TO THE MATERIAL BEING PLACED IN THE ROADWAY. TESTING SHALL HAVE THE SAME REQUIREMENTS AND BE PERFORMED AT THE SAME LOCATION AND INTERVALS AS REQUIRED FOR LIMEROCK.
14. DESIGN MIXES AND PRODUCT GRADATION INFORMATION FOR ALL MATERIALS TO BE INSTALLED AS PART OF THE LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS SHALL BE SUBMITTED TO THE CITY'S DESIGNATED SITE INSPECTOR FOR ACCEPTANCE BY THE CITY. THE INFORMATION SHALL BE SUBMITTED NO LESS THAN THREE (3) WORKING DAYS PRIOR TO ANY CONSTRUCTION. SUBMITTALS SHALL INCLUDE, BUT NOT BE LIMITED TO, INFORMATION TO EVALUATE THE MATERIALS PROPOSED FOR INSTALLATION AS SUBBASE, BASE, AND PAVEMENT FOR ALL ROADWAY AND PARKING AREA SURFACES AS WELL AS SIMILAR INFORMATION FOR ALL OTHER CONCRETE SIDEWALKS, CURBING, AND COMPARABLE STRUCTURES AND APPLICATIONS
15. PRIOR TO PLACEMENT FLORIDA STATE CERTIFIED BATCH PLANTS MUST CERTIFY TO THE CITY'S RESIDENT PROJECT INSPECTOR THAT THE ASPHALT DELIVERED TO THE SITE IS IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

ROADWAY CONSTRUCTION NOTES (CONT'D)

16. EXTRACTION AND GRADATION TESTS ON ASPHALT MIXES SHALL BE PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR FOR EVERY 2500 SQUARE YARDS OF ASPHALT, OR PART THEREOF, TO ENSURE THAT DESIGN MIXES MEET THE CITY STANDARD SPECIFICATIONS AT NO ADDITIONAL COST TO THE CITY.
17. ASPHALT PAVEMENT TESTING IS TO BE DONE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONAS FOR ROAD & BRIDGE CONSTRUCTION TABLE 334-5, LATEST EDITION.
18. IN ADDITION TO THE FIELD DENSITY TESTS NOTED, THE CITY RESERVES THE RIGHT TO REQUIRE CORE SAMPLES OF PAVEMENT SECTIONS EXTRACTED AND TESTED BY A CERTIFIED SOILS ENGINEERING LABORATORY AT THE DEVELOPER'S EXPENSE. THE CITY'S DESIGNATED SITE INSPECTOR SHALL DESIGNATE THE LOCATIONS OF THE TEST CORE LOCATIONS.
19. THE ROADWAY CROWN SHALL HAVE A STANDARD ONE QUARTER INCH (¼") PER FOOT CROSS SLOPE.
20. ALL ROADWAYS WITH CURB AND GUTTER SECTIONS SHALL HAVE AS A STANDARD A MINIMUM LONGITUDINAL SLOPE OF 0.30%. THE ROADWAY CENTERLINE SHALL BE CLEARLY MARKED ON THE DESIGN PLANS. AT A MINIMUM, DESIGN ROADWAY CENTERLINE ELEVATIONS SHALL BE NOTED AT ALL GRADE CHANGES AND AT 50' min. INTERVALS ALONG THE ROADWAY PROFILE ON BOTH THE DESIGN PLANS AND AS-BUILT DRAWINGS.
21. THE FINISHED PAVEMENT EDGE SHALL BE WITHIN ONE EIGHTH INCH (⅛") ABOVE THE ADJACENT CONCRETE CURB FOR CURBS COLLECTING AND CONVEYING STORMWATER.
22. CONCRETE CURBS SHALL BE PROVIDED ON BOTH SIDES OF ALL STREETS AND ALL CONCRETE CURBS SHALL BE CONSTRUCTED WITH 3500 P.S.I. CONCRETE AT 28 DAYS.
23. CONTROL JOINTS IN CONCRETE CURBING, SIDEWALKS, PAVEMENT AND SIMILAR CONCRETE AREAS SHALL BE SAW CUT WITHIN 4 TO 18 HOURS OF PLACEMENT. SAW CUTS SHALL BE ¼" IN WIDTH TO A DEPTH OF ONE FORTH OF THE TOTAL DEPTH OF CONCRETE OR 1-½", WHICHEVER IS LESS. SAW CUTS SHALL BE LOCATED AT INTERVALS OF TEN FEET (10') FOR CURBING & FIVE FEET (5') FOR SIDEWALKS WITH EXPANSION JOINTS AT STREET INTERSECTIONS, RADIUS POINTS, STRUCTURES, AND ALONG CURVES AT SIXTY FEET (60') INTERVALS. ALL EXPANSION JOINT MATERIAL IS REQUIRED TO BE INSTALLED THROUGH THE ENTIRE DEPTH OF THE CONCRETE CURB. FOR LINEAL SECTIONS OF CURBS, EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING OF FIVE-HUNDRED FEET (500') AND SHALL BE ½" IN WIDTH.
24. AN "X" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF WATER DISTRIBUTION SYSTEM VALVE.
25. A "V" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL SEWER SERVICES.
26. A "Λ" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL RECLAIMED WATER SERVICES.
27. A "ø" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL POTABLE WATER SERVICES.
28. THREE (3) CONCRETE CYLINDERS SHALL BE TAKEN AND TESTED (1 IN 14 DAYS, 1 IN 28 DAYS & 1 IN 56 DAYS) FOR EVERY FIFTY (50) CUBIC YARDS OF CONCRETE OR LESS PLACED. TEST RESULTS SHALL THEN BE PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR AS THEY BECOME AVAILABLE.
29. A CONCRETE SLUMP TEST SHALL BE REQUIRED WITHIN THE FIRST 30 CUBIC YARDS OF CONCRETE. THEREAFTER, SLUMP TESTS SHALL BE REQUIRED FOR EVERY FIFTY (50) CUBIC YARDS OF CONCRETE, OR FRACTION THEREOF, WITH COPIES OF THE RESULTS PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR. THE SLUMP TEST SHALL MEET THE REQUIRED MIX DESIGN ON EACH LOAD DELIVERED.
30. THE DEVELOPER SHALL PROVIDE ALL REQUIRED PAVEMENT MARKINGS ON ALL ROADWAYS PER CITY, COUNTY, AND STATE REQUIREMENTS. CENTERLINE STRIPES SHALL BE PROVIDED ON EXTENSIONS OF CITY COLLECTOR OR ARTERIAL ROADS, COUNTY ROADS, STATE HIGHWAYS, AND ALONG LOCAL STREETS IN THE VICINITY OF THEIR INTERSECTION WITH THE ABOVE MENTIONED ROADWAYS.
31. A FDOT APPROVED STOP SIGN AND A 24"-WIDE WHITE THERMOPLASTIC STOP BAR ARE REQUIRED AT ALL ROADWAY INTERSECTIONS.
32. ALL TRAFFIC CONTROL DEVICES PLACED AT INTERSECTIONS, PRIVATE STREETS, PUBLIC STREETS, COUNTY ROADS, AND STATE HIGHWAYS WITHIN THE CITY LIMITS SHALL BE INSTALLED ACCORDING TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. THE MAINTENANCE-OF-TRAFFIC (MOT) INSTALLATION AND SUBSEQUENT OPERATION SHALL BE OVERSEEN BY A CONTRACTOR CERTIFIED BY THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION, OR EQUIVALENT CERTIFICATION RECOGNIZED BY FDOT.
33. THE DEVELOPER IS RESPONSIBLE FOR PAYING FEES FOR TRAFFIC CONTROL DEVICES TO THE CITY FOR INSTALLATION. STREET SIGNS AND STOP SIGNS SHALL BE PLACED AT ALL INTERSECTIONS, INCLUDING BUT NOT LIMITED TO PRIVATE STREETS, PUBLIC STREETS, COUNTY ROADS, AND STATE HIGHWAYS WITHIN THE CITY LIMITS.
34. THE DEVELOPER IS RESPONSIBLE FOR PAYING FEES FOR ALL STREET LIGHTS PRIOR TO ACCEPTANCE OF THE PROJECT BY THE CITY.
35. FIVE FOOT min. (5') WIDE SIDEWALKS SHALL BE PROVIDED ON BOTH SIDES OF ALL RESIDENTIAL STREETS. PER THE CITY &/OR FDOT DESIGN STANDARDS. LATEST EDITION.
36. EIGHT FOOT min. (8') WIDE BIKE PATHS SHALL BE ALONG ARTERIAL HIGHWAYS AS DIRECTED BY THE CITY PER THE CITY &/OR FDOT DESIGN STANDARDS, LATEST EDITION.
37. STANDARD TURNING RADII FOR INTERSECTIONS:
    RESIDENTIAL STREETS WITH STATE & COUNTY ROADWAYS, OR MAJOR THOROUGHFARES WITHIN THE CITY; [illegible]
    ENTRANCES TO COMMERCIAL SITES OFF OF CITY STREETS; [illegible]
    INTERSECTIONS INTERIOR IN SUBDIVISIONS; [illegible]
    SHOULD VOLUSIA COUNTY OR THE FLORIDA DEPARTMENT OF TRANSPORTATION (F.D.O.T.) DETERMINE THAT LARGER RADII ARE WARRANTED WITHIN THEIR RIGHT-OF-WAY, THE LARGER RADII SHALL PREVAIL.
38. CONSTRUCTION METHODS AND DESIGN FOR CONCRETE PAVEMENT SHALL CONFORM TO FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION
39. ALL CONTRACTORS THAT ARE PERFORMING THE CONSTRUCTION OF LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS (INCLUDING WATER MAINS, SANITARY SEWER MAINS, RECLAIMED WATER MAINS, STORM WATER PIPES AND INLETS, ROADWAYS, AND PARKING FACILITIES) SHALL BE CERTIFIED WITH THE STATE OF FLORIDA BOARD OF PROFESSIONAL REGULATIONS (BPR) FOR THE TYPE OF WORK THAT THEY PERFORM.
40. ALL CONTRACTORS THAT ARE PERFORMING THE CONSTRUCTION WORK OF LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS SHALL BE LICENSED BY THE STATE OF FLORIDA AND REGISTERED WITH THE CITY OF DELAND THE LICENSE AND REGISTRATION SHALL PERTAIN DIRECTLY TO THE TYPE OF WORK BEING PERFORMED.
41. EXCEPT AS PROVIDED IN THE LAND DEVELOPMENT CODE, ALL ELECTRIC, TELEPHONE, TELEVISION LINES AND SIMILAR UTILITIES ARE REQUIRED TO BE INSTALLED UNDERGROUND AT THE EXPENSE OF THE OWNER, DEVELOPER, AND BUILDER.
42. UTILITY DEPTH:
    A. HIGH VOLTAGE UTIUTIES SUCH AS POWER (FEEDER, SERVICE, AND DROPS) SHALL BE BURIED A MINIMUM OF 30 INCHES IN DEPTH.
    B. LOW VOLTAGE UTILITIES SUCH AS PHONE AND CABLE TV SHALL BE BURIED A MINIMUM OF 18 INCHES IN DEPTH FOR FEEDER AND SERVICES. SERVICE DROPS SHALL BE BURIED A MINIMUM OF 12 INCHES IN DEPTH.
    C. IN NO INSTANCE SHALL THE DEPTH OF COVER BE LESS THAN 36" FROM FINISHED GRADE TO THE TOP OF PIPE FOR POTABLE WATER MAINS, SANITARY SEWER MAINS, AND RECLAIMED WATER MAINS HOWEVER, IN THE EVENT THAT THIS CONDITION CANNOT BE MET DUE TO UNANTICIPATED CONFLICTS DURING THE CONSTRUCTION PROCESS, DUCTILE IRON PRESSURE CLASS 350 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY PUBLIC UTIUTIES DEPARTMENT.
43. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF UNDERGROUND AND OVERHEAD PUBLIC UTILITIES AND STORMWATER INFRASTRUCTURE IN ORDER TO ELIMINATE ANY POTENTIAL CONFLICTS.

TRAFFIC CONTROL NOTES

1. CONTRACTOR SHALL PERFORM ALL PROJECT WORK IN ACCORDANCE WITH FDOT DESIGN STANDARDS, LATEST EDITION. NO LANE CLOSURES ARE PERMITTED BETWEEN THE HOURS OF 7 A.M. AND 7 P.M. NIGHT WORK MAY BE SCHEDULED TO LESSEN TRAFFIC IMPACT & INCONVENIENCE TO GENERAL PUBLIC AND MUST BE APPROVED BY CITY ENGINEER PRIOR TO COMMENCEMENT OF WORK.
2. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL OF HIS MAINTENANCE OF TRAFFIC (MOT) PLANS FOR ANY LANE CLOSURES FROM THE CITY TRAFFIC ENGINEERING DIVISION AT LEAST TWO (2) WEEKS IN ADVANCE OF ANY LANE CLOSURE.
3. EXISTING SIGNING AND PAVEMENT MARKINGS TO BE MAINTAINED UNLESS SHOWN OTHERWISE IN THESE PLANS.
4. TWO (2) WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT ENTIRE LENGTH OF PROJECT.
5. TWO (2) WAY ACCESS TO BUSINESSES AND PRIVATE DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES. TEMPORARY DRIVEWAY CLOSURES MAY BE ALLOWED IF SHARED ACCESS IS AVAILABLE OR IF WRITTEN AUTHORIZATION FROM THE PROPERTY OWNER IS PROVIDED TO CITY PRIOR TO COMMENCEMENT OF WORK ACTIVITIES.
6. VARIABLE MESSAGE BOARDS SHALL BE INSTALLED 48 HOURS PRIOR TO LANE CLOSURES. CONTRACTOR IS RESPONSIBLE FOR ADEQUATE NUMBER OF BOARDS AND LOCATIONS, TO BE VERIFIED PRIOR TO COMMENCEMENT OF WORK.
7. ALL TRAFFIC CONTROL SIGN AND PAVEMENT MARKINGS SHALL COMPLY WITH THE F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.
8. CONTRACTOR TO MAINTAIN TRAFFIC AND PROPER DROP OFF CRITERIA PER INDEX 600 CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING PROPER DEVICES WHEN A DROP OFF CONDITION CANNOT BE AVOIDED
9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE GENERAL PUBLIC AND PUBLIC AGENCIES OF ROAD CLOSURES AT LEAST 48 HOURS IN ADVANCE.
10. AFFECTED ROADWAYS SHALL BE RESTORED AND NO LANE CLOSURES WILL BE PERMITTED DURING THE CITY OF DELAND SPECIAL EVENT PERIOD UNLESS PRIOR WRITTEN NOTIFICATION IS OBTAINED FROM CITY OF DELAND TRAFFIC ENGINEERING DIVISION.

ZEV COHEN & ASSOCIATES, INC.
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CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	REVISIONS
[illegible]	07-[illegible]	[illegible]	[illegible]
[illegible]	08-21	[illegible]	CITY C[illegible]
[illegible]	10-[illegible]	[illegible]	[illegible] PER [illegible] DATED 07-[illegible]
[illegible]	[illegible]	[illegible]	[illegible] -22-21
[illegible]	[illegible]	[illegible]	[illegible] -08-21

MANCHESTER NEIGHBORHOOD
PHASE 1B
FINAL ENGINEERING PLANS
CONSTRUCTION NOTES

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 18184
DESIGNED BY: HK/ML
DRAWN BY: [illegible]
CHECKED BY: [illegible]
DRAWING FILE: 02-04-18184-NOT_PH1B

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:30-05'00'

SHEET: C3 OF 19

SITE PLAN & SUBDIVISION TESTING

A. MATERIALS:
THE INSPECTION AND TESTING OF MATERIALS AND FINISHED ARTICLES TO BE INCORPORATED IN THE WORK SHALL BE MADE BY BUREAUS, LABORATORIES, OR AGENCIES APPROVED BY THE ENGINEER OF RECORD. THE CONTRACTOR SHALL SUBMIT SUCH SAMPLES OR TEST PIECES OF MATERIALS AS THE ENGINEER OF RECORD MAY REQUIRE. THE CONTRACTOR SHALL NOT INCORPORATE ANY MATERIAL OR FINISHED ARTICLE INTO THE WORK UNTIL THE RESULTS OF THE INSPECTIONS OR TESTS ARE KNOWN AND THE CONTRACTOR HAS BEEN NOTIFIED BY THE ENGINEER OF RECORD THAT THE MATERIAL OR FINISHED ARTICLE IS ACCEPTED. ALL MATERIALS MUST BE OF THE SPECIFIED QUALITY AND BE EQUAL TO THE APPROVED SAMPLE IF A SAMPLE HAS BEEN SUBMITTED. CERTIFIED COPIES OF ALL TESTS MADE SHALL BE SUBMITTED TO THE ENGINEER OF RECORD AS WELL AS TO THE CITY'S DESIGNATED SITE INSPECTOR. THE CITY'S DESIGNATED SITE INSPECTOR MUST RECEIVE COPIES OF ALL TESTING REPORTS AND CERTIFICATES PRIOR TO THE ENGINEER OF RECORD REQUESTING A FINAL PROJECT INSPECTION FROM THE CITY.

B. LABORATORY CONTROL AND CERTIFICATES:
1. SPECIFICATIONS: SAMPLING, TESTING, AND LABORATORY METHODS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE AASHTO OR ASTM. WHERE AASHTO OR ASTM SPECIFICATIONS ARE USED, THE REFERENCE SHALL BE CONSTRUED TO BE THE MOST RECENT STANDARD SPECIFICATIONS OR TENTATIVE SPECIFICATIONS OF THE AASHTO OR ASTM IN FORCE ON THE DATE OF THE TEST.
2. TEST & CERTIFICATES: THE CONTRACTOR SHALL ENGAGE AN APPROVED TESTING LABORATORY TO PROVIDE THE FOLLOWING TESTS AND CERTIFICATIONS SIGNED BY A REGISTERED ENGINEER OF THE STATE OF FLORIDA. ALL TECHNICIANS PERFORMING THE TESTS SHALL BE STATE CERTIFIED FOR THE TESTING PERFORMED. ADDITIONAL TESTS THAT MAY BE REQUIRED BY EITHER THE ENGINEER OF RECORD OR THE CITY SHALL ALSO BE PROVIDED BY THE CONTRACTOR, AND THE FOLLOWING SHALL NOT BE TAKEN AS A COMPLETE AND EXHAUSTIVE LIST OF THE CONTRACTOR'S TESTING RESPONSIBILITIES.
   a. SOIL ANALYSIS FOR STRUCTURAL FILL MATERIAL PRIOR TO INSTALLATION. SOIL ANALYSIS FOR STRUCTURAL FILL MATERIAL PRIOR TO INSTALLATION.
   b. PROCTOR DENSITIES, MOISTURE CONTENT, COMPACTED FIELD DENSITIES AND ATTERBERG LIMITS.
   c. ANALYSIS OF RECYCLED CONCRETE BASE MATERIAL PRIOR TO INSTALLATION.
   d. SPHALT MIX DESIGN, BITUMEN CONTENT, SIEVE ANALYSIS, HUBBARD FIELD STABILITY TESTS, NUCLEAR DENSITY TESTS (BACKSCATTER METHOD), AND ANALYSIS OF CORE SAMPLES.
   e. CONCRETE MIX DESIGNS FOR ALL APPLICATIONS INCLUDING PAVEMENT, CAST-IN-PLACE STRUCTURES, CURBING, GUTTERS, SIDEWALKS, BIKE PATHS, APRONS AND DRIVEWAYS.
   f. COMPRESSIVE TEST CYLINDERS AND SLUMP TESTS FOR ALL APPLICATIONS OF CONCRETE, INCLUDING PAVEMENT, CAST-IN-PLACE STRUCTURES, CURBING, GUTTERS, SIDEWALKS, BIKE PATHS, APRONS, AND DRIVEWAYS.
   g. ALL UNDERGROUND UTILITY TESTING TO BE COMPLETED IN ACCORDANCE WITH THE CITY'S UTILITIES DEPARTMENT DESIGN STANDARDS.

AS-BUILT DRAWING REQUIREMENTS

IN ORDER TO ENSURE THAT NEW SUBDIVISIONS AND SITE PLANS ARE CONSTRUCTED SUBSTANTIALLY IN ACCORDANCE WITH CITY REGULATIONS AND THE APPROVED DRAWINGS, THE FOLLOWING INFORMATION IS REQUIRED ON ALL AS-BUILT DRAWINGS.

1. PAVEMENT AND CURB WIDTHS SHALL BE VERIFIED AND DIMENSIONED FOR EACH STREET AT EACH BLOCK. (FOR SUBDIVISIONS) AND AS APPROPRIATE TO CONFIRM PAVING LIMITS (ON SITE PLANS).
2. ALL RADII AT INTERSECTIONS SHALL BE VERIFIED AND DIMENSIONED. THIS INFORMATION IS TO BE CLEARLY INDICATED ON THE AS-BUILT.
3. ROADWAY ELEVATIONS SHALL BE RECORDED AT ALL GRADE CHANGES, 100' INTERVALS ALONG ROADWAY, AND OTHER INTERVALS AS NEEDED ALONG ALL STREETS. STREET CENTERLINE AND CURB INVERT ELEVATIONS SHALL BE RECORDED AS NOTED. THE AS-BUILT CENTERLINE PROFILE OF ALL STREETS SHALL ALSO BE SHOWN ON THE PLAN AND PROFILE SO IT MAY BE COMPARED TO THE DESIGN PROFILE GRADE LINES. IN THE EVENT THAT THE AS-BUILT CENTERLINE LONGITUDINAL GRADE DOES NOT MEET THE CITY MINIMUM STANDARDS, ADDITIONAL LONGITUDINAL GRADES OF THE ADJACENT CURBING AND SIMILAR ROADWAY CROSS-SECTION SURVEYS TO VERIFY THE CORRECT CROSS SLOPE, SHALL BE REQUIRED TO VERIFY THAT THE SYSTEM WILL FUNCTION AS ORIGINALLY DESIGNED.
4. ALL APPLICABLE TOPOGRAPHIC INFORMATION PERTINENT TO THE ON-SITE DRAINAGE SYSTEM, SUCH AS DITCHES, SWALES, LAKES, CANALS, ETC. THAT ARE DEEMED NECESSARY BY THE CITY TO VERIFY THE FUNCTIONAL PERFORMANCE OF THE STORM WATER SYSTEM, SHALL BE NOTED. NORMALLY, RECORDING ELEVATIONS EVERY 100 FEET AT THE TOP OF BANK AND TOE OF SLOPE WILL BE REQUIRED. MEASUREMENTS SHALL BE TAKEN AND RECORDED IN ORDER TO ACCURATELY TIE DOWN THESE FEATURES TO THE ROADWAY CENTERLINES AND TO PLAT LINES. WHENEVER POSSIBLE, CONTOUR LINES SHALL BE UTILIZED TO GRAPHICALLY DESCRIBE THESE TOPOGRAPHIC FEATURES.
5. RETENTION AREAS SHALL HAVE THEIR TOP-OF-BANK AND BOTTOM ELEVATIONS RECORDED. ACTUAL MEASUREMENTS SHALL BE TAKEN AND DIMENSIONS RECORDED OF THE SIZE OF ALL RETENTION AREAS. MEASUREMENTS SHALL BE DONE FROM TOP-OF-BANK TO TOP-OF-BANK WITH SIDE SLOPES INDICATED. SEPARATE CALCULATIONS SHALL BE SUBMITTED TO INDICATE REQUIRED AND PROVIDED RETENTION VOLUMES.
6. ACTUAL MATERIALS USED AND ELEVATIONS AND DIMENSIONS OF OVERFLOW WEIR STRUCTURES AND SKIMMERS SHALL BE NOTED ON THE AS-BUILT.
7. STORM DRAINAGE SWALE CENTERLINES SHALL BE LOCATED AND ELEVATIONS OF FLOW LINE AND TOP OF BANK SHALL BE RECORDED EVERY 100 FEET OR CHANGE IN GRADE. SIDE SLOPES SHALL ALSO BE INDICATED.
8. FOR SUBDIVISIONS, PROPOSED DESIGN FINISHED FLOOR ELEVATIONS SHALL APPEAR ON ALL SUBDIVISION LOTS ON THE APPROPRIATE PLAN AND PROFILE SHEET AS WELL AS ON THE MASTER DRAINAGE PLAN.
9. ANY SPECIAL FEATURES SUCH AS, CONCRETE FLUMES, LAKE BANKS, WALLS, FENCING, ETC., WHICH WERE A PART OF THE APPROVED CONSTRUCTION DRAWINGS SHOULD ALSO BE LOCATED AND DIMENSIONED.
10. IF AN APPROVED SUBDIVISION PLAT OR SITE PLAN SHOWS A CONSERVATION EASEMENT, THE PROJECT SURVEYOR SHOULD PROVIDE THE EXACT LOCATION OF THE SPECIMEN TREE(S) FROM THE RIGHT-OF-WAY OR PROPERTY LINES AND PROPOSED EASEMENT BOUNDARIES ON THE AS-BUILT DRAWING. THE AS-BUILT LOCATION OF THESE TREES WILL HELP VERIFY THE SUFFICIENCY OF THE CONSERVATION EASEMENT PRIOR TO PLAT RECORDING OR CERTIFICATE OF OCCUPANCY.
11. AS BUILT DRAWINGS ARE TO BE PREPARED BY A FLORIDA LICENSED SURVEYOR AND SHALL INCLUDE A SIGNED CERTIFICATION STATEMENT BY THE FLORIDA LICENSED ENGINEER OF RECORD. TWO (2) SIGNED & SEALED PAPER SETS OF AS-BUILT RECORD DRAWINGS SHALL BE PROVIDED ALONG WITH A DIGITAL COPY IN BOTH, A COMPATIBLE AutoCAD FORMAT & PDF FORMAT.

AS-BUILTS/RECORD DOCUMENTS

PART 1 – GENERAL
1.1 SCOPE OF WORK:
A. THIS SECTION SETS FORTH THE REQUIREMENTS FOR PREPARING AS-BUILT/RECORD DRAWINGS AND DOCUMENTS FOR VERIFICATION OF CONSTRUCTION AND ARCHIVING.

CONTRACTOR SHALL SECURE THE SERVICES OF A FLORIDA LICENSED SURVEYOR TO COLLECT DATA AND PREPARE AS-BUILT/RECORD DRAWINGS IN ACCORDANCE WITH CITY OF DELAND UTILITIES STANDARDS AS FOLLOWS:

1.2 REFERENCE:
A. THE PREPARATION WORK SHALL BE IN ACCORDANCE WITH THIS SECTION AND SUPPLEMENTARY DETAILS IN THE CITY OF DELAND UTILITIES DEPARTMENT STANDARD DETAILS, LATEST EDITION.

1.3 AS-BUILTS/RECORD DRAWINGS AND DOCUMENTS:
IN ORDER TO ENSURE THAT THE PROJECT RECORDS ARE MAINTAINED TO THE HIGHEST STANDARDS AND THE INFORMATION CAN EASILY BE ADDED TO THE CITY'S ELECTRONIC RECORDS THE FOLLOWING INFORMATION IS REQUIRED ON ALL AS-BUILT/RECORD DRAWINGS.
A. THE INTENT OF THESE DETAILS FOR AS-BUILT/RECORD DRAWINGS ARE REQUIRED FOR ALL PUBLIC FACILITIES CONSTRUCTED. PRIOR TO CONSTRUCTION COMPLETION THESE AS-BUILT/RECORD REQUIREMENTS WILL BE REVIEWED TO BE CERTAIN THE CONTRACTOR'S SURVEYOR HAS A CLEAR UNDERSTANDING OF WHAT IS REQUIRED FOR COMPLETION OF THIS WORK.
1. PAVEMENT AND CURB WIDTHS SHALL BE VERIFIED AND DIMENSIONED FOR EACH STREET AT EACH BLOCK (FOR SUBDIVISIONS) AND AS APPROPRIATE TO CONFIRM PAVING LIMITS (ON SITE PLANS).
2. ALL RADII AT INTERSECTIONS SHALL BE VERIFIED AND DIMENSIONED. THIS INFORMATION IS TO BE CLEARLY INDICATED ON THE AS-BUILT/RECORD DRAWINGS.
3. ROADWAY ELEVATION SHALL BE RECORDED AT ALL GRADE CHANGES, 100' INTERVALS ALONG ROADWAY, AND OTHER INTERVALS AS NEEDED ALONG ALL STREETS. STREET CENTERLINE AND CURB INVERT ELEVATIONS SHALL BE RECORDED AS NOTED. THE AS-BUILT CENTERLINE PROFILE OF ALL STREETS SHALL ALSO BE SHOWN ON THE PLAN AND PROFILE SO IT MAY BE COMPARED TO THE DESIGN PROFILE GRADE LINES. IN THE EVENT THAT THE AS-BUILT CENTERLINE LONGITUDINAL GRADE DOES NOT MEET THE CITY MINIMUM STANDARDS. ADDITIONAL LONGITUDINAL GRADES OF THE ADJACENT CURBING AND SIMILAR ROADWAY CROSS-SECTION SURVEYS TO VERIFY THE CORRECT CROSS SLOPE, SHALL BE REQUIRED TO VERIFY THAT THE SYSTEM WILL FUNCTION AS ORIGINALLY DESIGNED.
4. STORM DRAINAGE STRUCTURES SHALL BE LOCATED AND/OR DIMENSIONED FROM CENTERLINES OR LOT LINES AS APPROPRIATE. EACH STRUCTURE SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE, AND ELEVATION DATA.
5. STORM DRAINAGE PIPE INVERT AND INLET ELEVATION SHALL BE RECORDED AND CLEARLY DENOTED AS AS-BUILT INFORMATION. DESIGN ELEVATION SHALL BE CROSSED OUT AND AS-BUILT INFORMATION WRITTEN NEXT TO IT.
6. STORM DRAINAGE PIPE MATERIAL, LENGTH, SIZE SHALL BE MEASURED AND/OR VERIFIED. THIS INFORMATION IS TO BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION.
7. ALL APPLICABLE TOPOGRAPHIC INFORMATION PERTINENT TO THE ON-SITE DRAINAGE SYSTEM, SUCH AS DITCHES, SWALES, LAKES, CANALS, ETC. THAT ARE DEEMED NECESSARY BY THE CITY TO VERIFY THE FUNCTIONAL PERFORMANCE OF THE STORM SYSTEM, SHALL BE NOTED. NORMALLY, RECORDING ELEVATION EVERY 100 FEET AT THE TOP OF BANK TO TOE OF SLOE WILL BE REQUIRED. MEASUREMENTS SHALL BE TAKEN AND RECORDED IN ORDER TO ACCURATELY TIE DOWN THESE FEATURES TO THE ROADWAY CENTERLINES AND TO PLAT LINES. WHENEVER POSSIBLE, CONTOUR LINES SHALL BE UTILIZED TO GRAPHICALLY DESCRIBE THESE TOPOGRAPHIC FEATURES.
8. RETENTION AREAS SHALL HAVE THEIR TOP OF BANK AND BOTTOM ELEVATIONS RECORDED. ACTUAL MEASUREMENTS SHALL BE TAKEN AND DIMENSIONS RECORDED OF THE SIZE OF ALL RETENTION AREAS. MEASUREMENTS SHALL BE DONE FROM TOP OF BANK WITH SIDE SLOPES INDICATED. SEPARATE CALCULATIONS SHALL BE SUBMITTED TO INDICATE REQUIRED AND PROVIDED RETENTION VOLUMES.
9. ACTUAL MATERIALS USED AND ELEVATIONS AND DIMENSIONS OF OVERFLOW WEIR STRUCTURES AND SKIMMERS SHALL BE NOTED ON THE AS-BUILT.
10. STORM DRAINAGE SWALES CENTERLINES SHALL BE LOCATED AND ELEVATIONS OF FLOW LINE AND TOP OF BANK SHALL BE RECORDED EVERY 100 FEET. SIDE SLOPES SHALL ALSO BE INDICATED..
11. SANITARY SEWER MANHOLES SHALL BE VERIFIED AND DIMENSIONED FROM STREET CENTERLINES OR LOT LINES AS APPROPRIATE. EACH STRUCTURE SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE, AND ELEVATION DATA. ALL RIM AND INVERT ELEVATION SHALL BE VERIFIED AND RECORDED. THIS INFORMATION SHALL BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION. DESIGN ELEVATIONS SHALL BE CROSSED OUT AND AS-BUILT INFORMATION WRITTEN NEXT TO IT.
12. FOR SUBDIVISIONS, PROPOSED DESIGN FINISH FLOOR ELEVATIONS SHALL APPEAR ON ALL SUBDIVISION LOTS ON THE APPROPRIATE PLAN AND PROFILE SHEET AS WELL AS ON THE MASTER DRAINAGE PLAN.
13. SANITARY SEWER LINE LENGTHS, SIZES, MATERIAL, SLOPE, ETC., SHALL BE VERIFIED AND RECORDED. THIS INFORMATION IS TO BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION.
14. SEWER LATERALS SHALL BE VERIFIED AND RECORDED AT THE CLEAN OUT LOCATIONS, STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM UPSTREAM MANHOLES TOWARDS DOWNSTREAM MANHOLES. INVERT INFORMATION AT CLEAN OUT SHALL BE PROVIDED AND BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE, AND ELEVATION DATA.
15. LIFT STATION AND FORCEMAIN SHALL BE VERIFIED AND DIMENSIONED FROM STREET CENTERLINES OR LOT LINES AS APPROPRIATE. FORCEMAIN DEPTH AND LOCATION INCLUDING VALVES WILL BE PROVIDED AND TIED TO PERMANENT ABOVE GRADE FEATURES. DIMENSIONAL AND ELEVATION INFORMATION INDICATED ON THE APPROVED PLAN SHALL BE VERIFIED AND RECORDED. THIS INFORMATION SHALL BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION. BURIED POTABLE WATER LINES AND ELECTRICAL SERVICE LINES SHALL BE CLEARLY DIMENSIONED, LOCATED AND LABELED. EACH LIFT STATION SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE AND ELEVATION DATA.
16. CURB CUTS OR METAL TABS, USED TO MARK SEWER LATERALS, WATER SERVICES AND WATER VALVES, SHALL BEE VERIFIED FOR PRESENCE AND ACCURACY OF LOCATION.
17. POTABLE AND RECLAIMED WATER MAIN LINES SHALL BE DIMENSIONED OFF THE BASELINE CONSTRUCTION. WATER MAIN LINE MATERIAL SIZE, LENGTH AND DEPTH, PLACED SHALL BE NOTED. LOCATIONS OF VALVES SHALL ALSO BE TIED TO BASELINE CONSTRUCTION. THIS INFORMATION SHALL BE CLEARLY INDICATED AS BEING AS-BUILT INFORMATION.
18. POTABLE AND RECLAIMED WATER VALVES, TEES, BENDS, ALL SERVICES, AND FIRE HYDRANTS SHALL BE LOCATED BY TYING THEM TO BASELINE CONSTRUCTION (STA. & OFFSET). SIMILARLY, FORCE MAIN VALVES, TEES, AND BENDS SHALL BE LOCATED IN THE SAME MANNER. STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM UPSTREAM MANHOLES TO DOWNSTREAM MANHOLES. ALL SERVICES, VALVES, TEES, BENDS, AND HYDRANTS SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE, LONGITUDE AND ELEVATION DATA.
19. FOR PERPENDICULAR CROSSINGS OF STORM WATER, SANITARY SEWER, POTABLE WATER, OR RECLAIMED WATER, THE AS-BUILT PLANS SHALL CLEARLY INDICATE WHICH UTILITIES ARE LOCATED OVER OR UNDER OTHER UTILITIES, AS NECESSARY.
20. ANY SPECIAL FEATURES SUCH AS, CONCRETE FLUMES, LAKE BANKS, WALLS, FENCING, ETC. WHICH ARE A PART OF THE APPROVED CONSTRUCTION DRAWINGS SHOULD ALSO BE LOCATED AND DIMENSIONED.
21. IF AN APPROVED SUBDIVISION PLAT OR SITE PLAN SHOWS A CONSERVATION EASEMENT, THE PROJECT SURVEYOR SHOULD PROVIDE THE EXACT LOCATION OF THE SPECIMEN TREE(S) FROM THE RIGHT-OF-WAY OR PROPERTY LINES AND PROPOSED EASEMENT BOUNDARIES ON THE AS-BUILT DRAWING. THE AS-BUILT LOCATION OF THESE TREES WILL HELP VERIFY THE SUFFICIENCY OF THE CONSERVATION EASEMENT PRIOR TO PLAT RECORDING OR CERTIFICATE OF OCCUPANCY.
22. WHEN STORM WATER, POTABLE WATER, RECLAIMED WATER, OR SANITARY SEWER IMPROVEMENTS ARE LOCATED WITHIN AN EASEMENT, THE AS-BUILT DRAWING WILL ACCURATELY DEPICT THE LOCATION OF THE EASEMENT ITSELF AS WELL AS THE EXACT LOCATION OF THE IMPROVEMENTS WITHIN THE EASEMENT. THIS IS REQUIRED IN ORDER TO VERIFY THAT THE IMPROVEMENTS HAVE BEEN PROPERLY LOCATED AND TO ENSURE THAT FUTURE SUBSURFACE EXCAVATION TO PERFORM REMEDIAL REPAIR CAN BE ACCOMPLISHED WITHOUT DISTURBANCE BEYOND THE EASEMENT.
23. AS-BUILT DRAWINGS ARE TO BE PREPARED, SIGNED AND SEALED BY A FLORIDA LICENSED SURVEYOR. THESE AS-BUILT DRAWINGS SHALL ALSO BE SIGNED AND SEALED BY A FLORIDA LICENSED ENGINEER OF RECORD. TWO (2) PAPER COPY SETS OF AS-BUILT RECORD DRAWINGS SHALL BE PROVIDED, A CD WITH A DIGITAL COPY IN A COMPATIBLE AUTOCAD FORMAT, AND PDF FORMAT.
24. ELEVATIONS SHALL BE REFERENCED TO NAVD 1988 DATA. AS-BUILT SURVEY INFORMATION SHALL BE REFERENCED TO AT LEAST TWO FLORIDA STATE PLANE EAST COORDINATES NAD 83.
25. BENCHMARK DATUM UTILIZES MONUMENTATION FROM THE NORTH AMERICAN VERTICAL DATUM OF 1929 WITH ELEVATIONS ADJUSTED TO NGVD 1988 DATA. ANY NAVD 1929 MONUMENT WITH THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED.
26. NEW CONDUITS THAT ARE INSTALLED SHALL SHOW LOCATION OF TEES AND BENDS AND RECORD ELEVATIONS EVERY 100'. ALL SHALL BE LOCATED BY TYING THEM TO BASELINE/CENTERLINE CONSTRUCTION (STA. & OFFSET). SIMILARLY, WATER MAINS, TEES AND BENDS SHALL BE LOCATED IN THE SAME MANNER. ALL BENDS AND TEES SHALL BE LOCATED BY SUB-METER GPS WITH STATION & OFFSET, NORTHERLY & EASTERLY, LATITUDE & LONGITUDE AND ELEVATION DATA.

1.4 SUBMITTALS:
A. CONTRACTOR SHALL SUBMIT EACH MONTH TO CITY THE PROJECT ACTIVITY SUMMARY THAT SHOWS CURRENT CONSTRUCTION ACTIVITIES AND A COPY OF NOTICES TO AGENCIES INCLUDING THE CITY REGARDING ROAD CLOSURES; PLUS A RECORD OF EVENTS THAT WILL BE NEEDED IN THE FUTURE.
B. CONTRACTOR SHALL SUBMIT TO CITY AS REQUIRED THE PROPOSED SHUT-OFF SCHEDULE, CAPPING, TEMPORARY SERVICE SCHEDULING, RECORD OF NOTICES TO CUSTOMERS AND PROPOSED ROADWAY CLOSINGS.
C. CONTRACTOR SHALL SUBMIT COPIES OF PUBLISHED NOTICES.
D. CONTRACTOR SHALL SUBMIT FINAL AS-BUILTS FOR EACH UTILITY INCLUDED IN THE PLANS. SEND THE TWO PAPER COPIES AND THE AUTOCAD FILES FOR PRE-APPROVAL. THE FINAL SUBMITTAL SHALL INCLUDE TWO (2) PAPER COPIES OF RECORD, A CD WITH THE AUTOCAD FILES, AND A SET OF PDF FILES (MYLARS ARE NO LONGER REQUIRED). WHEN THE AS-BUILTS ARE DELIVERED FOR CLEARANCE OF WATER LINES (TWO PAPER SIGNED AND SEALED COPIES), THEY WILL BE SCHEDULED FOR CHLORINATION. CITY WILL NOT RELEASE THE DRINKING WATER BACTERIOLOGICAL LABORATORY REPORT TO VOLUSIA COUNTY HEALTH DEPARTMENT UNTIL THE AS-BUILT INFORMATION MEETS CITY REQUIREMENTS. CONTRACTOR WILL HAVE 60 DAYS FROM THE TIME THAT THE BACTERIOLOGICAL SAMPLES ARE COLLECTED TO SUBMIT ANY CORRECTION THAT NEEDED TO BE DONE TO THE AS-BUILT AND CD TO CITY. IF CONTRACTOR GOES PAST THE 60 DAYS RE-CHLORINATION WILL BE REQUIRED AND PAY FOR THE BACTERIOLOGICAL LABORATORY REPORT WILL BE REQUIRED. THE FOLLOWING ARE MINIMUM DETAIL SAMPLES OF HOW THE AS-BUILT DRAWING INFORMATION WILL NEED TO BE PRESENTED.
E. HERE ARE EXAMPLES OF HOW TO DISPLAY AND LABEL VALVES, FITTINGS, AND PIPES ON THE PLANS IN MODEL SPACE. INCLUDE A LOCATION ARROW GOING TO THE IDENTIFIED OBJECT:

VALVE EXAMPLE:
20" GATE VALVE
STA. 22+23 (LT.55.0')
LAT.= 29°12'53.009
LONG.= 81°04'03.355"W
N = 1,774,373.4058
E= 634,602.7566
TOP OF NUT ELEV. = 27.50
GROUND ELEV. = 30.50

20" DIP WATER MAIN
STA. 22+00 (RT.55.0')
LAT.= 29°12'50.009"N
LONG.= 81°04'26.355"W
N = 1,774,373.4058
E= 634,602.7566
TOP OF PIPE ELEV. = 27.50
GROUND ELEV. = 30.50

MANHOLE EXAMPLE:
MANHOLE NO. 25
STA. 22+23 (LT.55.0')
LAT. =29°12'53.009
LONG. = 81°04'03.355"W
N = 1,774,373.4058
E= 634,602.7566
RIM ELEV. = 27.50
NORTH 15" RCP ELEV. = 8.50
WEST 24" CMP ELEV. = 7.50
BOTTOM ELEV. = 9.30

2" PVC CONDUIT
STA. 22+00 (RT.55.0')
LAT.=29°12'50.009"N
LONG.=81°04'26.355"W
N = 1,774,373.4058
E= 634,602.7566
TOP OF PIPE ELEV. = 27.50
GROUND ELEV. = 30.50

AS-BUILTS/RECORD DOCUMENTS (CONT'D)

(ALL BENCH MARKS USED MUST BE SHOWN ON THE PLANS) BENCH MARK EXAMPLE:

BM#13
STA. 20+33 (LT. 85.5')
3/4" IRON ROD WITH PLASTIC CAP...
N= 1,774,373.4058
E = 634,602.7566
LAT. = 29°04'53.355"W
LONG. = 81°04'53.355"W
ELEV.= 32.55

PART 2– EXECUTION
2.1 GENERAL:
ALL DRAWINGS SHALL BE PREPARED TO TRUE STATE PLANE COORDINATES. CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, LABOR NEEDED TO PREPARE AND SUBMIT ACCURATE AS-BUILT/RECORD DRAWINGS.
A. IT IS ACCEPTABLE TO CITY IF THE SURVEYOR UTILIZES AN AFTER THE FACT APPROACH TO COLLECTING AND VERIFYING THE LOCATION AND DEPTH BY VERTICAL PVC PIPES PLACED BY THE CONTRACTOR AS MARKERS FOR THIS PURPOSE. THE SURVEYOR SHALL VERIFY TO THE ACCURACY DEFINED IN FLORIDA STATUES THE AS-BUILT CONDITIONS AND CERTIFY THE RECORD DRAWINGS.
B. CITY SHALL NOT BE CONSIDERED THE BEST SOURCE OF INFORMATION FOR VALVE LOCATIONS THAT MAY HAVE BEEN LOST DURING FINAL GRADING, THE SURVEYOR OR CONTRACTOR SHALL EXCAVATE AND PROPERLY MARK ALL VALVE BOXES AND EACH VALVE SHALL HAVE A TAG OR COLOR CODED TO DEFINE WATER, SEWER, OR REUSE WATER VALVES. THE USE OF TEMPORARY PVC PIPE MARKERS COLOR CODED IS ACCEPTABLE SO LONG AS CROSS REFERENCES ARE PROVIDED ON THE RECORD DRAWINGS TO PREVENT THE TOPS FROM A WATER VALVE BEING PLACED ON A SEWER VALVE.
C. THE CONTRACTOR SHALL PROVIDE THE UTILITIES DEPARTMENT ENGINEERING DIVISION THE FINAL AS BUILT/RECORD DRAWINGS ON CD AND MYLARS. THE AS BUILT RECORD DRAWINGS SHALL BE PREPARED USING AUTOCAD FORMAT 2010 OR LATER. IN MODEL SPACE THE DRAWING SHALL BE IN FL83-EF (NAD83 FLORIDA STATE PLANES, EAST ZONE, US FOOT) STATE PLANE COORDINATES AND SHALL BE ABLE TO BE INSERTED INTO THE CITY'S OVERALL GIS SYSTEM. THE RECORD DRAWINGS SHALL ALSO BE PRINTED, SIGNED AND SEALED AS ALLOWED BY STATE OF FLORIDA REGULATIONS. A DISCLAIMER MAY BE NOTED IN A TRANSMITTAL LETTER PLUS THE SURVEYOR MAY ADD A SPECIAL NOTICE ON EACH SHEET REGARDING THE LOCATION OF THE TRUE ORIGINAL RECORD DRAWINGS OR PLACE LIMITS ON RESPONSIBILITY SHOULD SOMEONE IN THE FUTURE NEED TO MODIFY THE DRAWINGS
D. IDENTIFY THE SOURCE MARKERS FOR THE SURVEY USED FOR RECORD DRAWINGS.

NO.	DATE	BY	SUBMITTALS / REVISIONS
1	06-18-21	HK	SJRWMD SUBMITTAL
2	07-02-21	HK	CITY OF DELAND SUBMITTAL
3	09-21-21	JL/HK	SJRWMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-22-21	JL/HK	CITY OF DELAND RE-SUBMITTAL PH1A & PH1B
5	11-29-21	JL/HK	REVISED PER CITY COMMENTS DATED 11-22-21
6	12-29-21	JL/HK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD
PHASE 1B
FINAL ENGINEERING PLANS
CONSTRUCTION NOTES

CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 02-04-19194-NOT_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXX.DWG

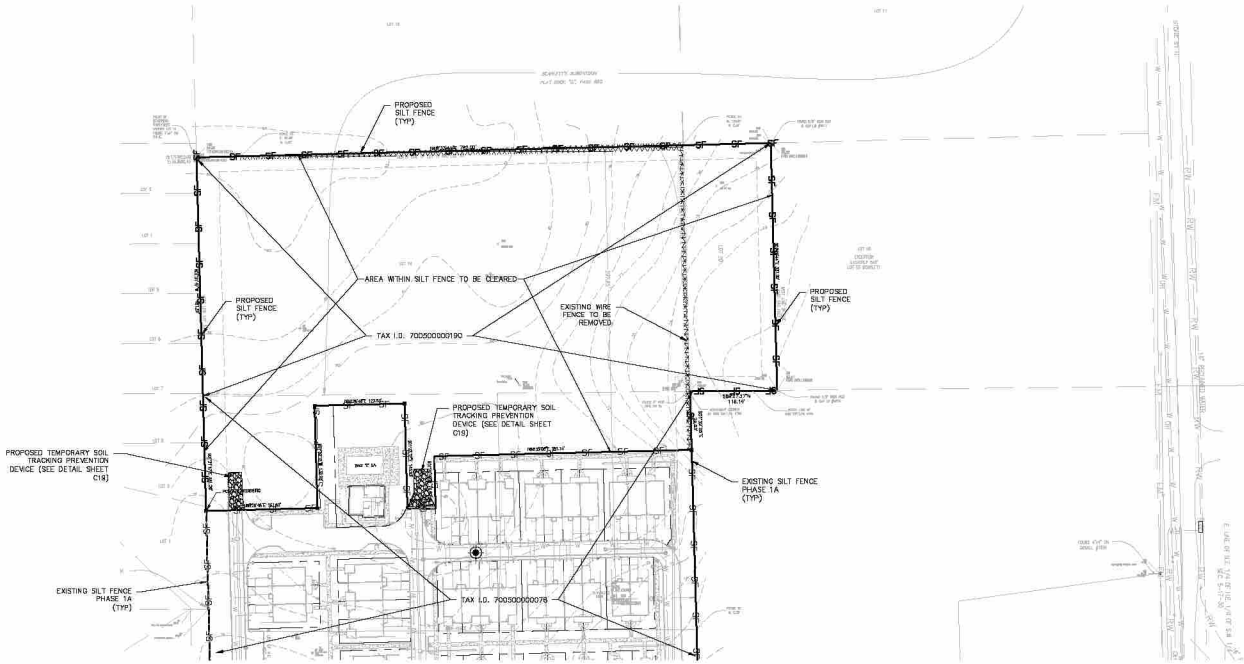
Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:32-05'00'

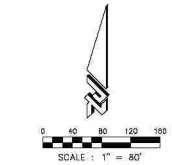
RANDY M. HUDAK, P.E., NO.80280
HALUK KILIC, P.E., NO.84844
NOT VALID WITHOUT SEAL

SHEET: C4 OF 19

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD., STE. C
ORMOND BEACH, FL 32174
WWW.ZEVCOHEN.COM





LEGEND:

- SF — PROPOSED SILT FENCE
- X — PROPOSED TEMPORARY CONSTRUCTION FENCE
- SOIL BORING LOCATION (REFER TO GEOTECHNICAL REPORT)
- PROPOSED DEMOLITION

NOTES:
1.

SITE INFORMATION:

SITE ADDRESS:	801 SOL Y SOMBRA, DELAND, FL 32720
TOTAL PD AREA:	38.5 AC
PROPOSED PROJECT AREA:	7.32 AC
TAX PARCEL I.D. #:	700500000078, 700500000190
EXISTING ZONING:	PLANNED DEVELOPMENT (PD) (COMMUNITY HEALTH OVERLAY)
PROPOSED ZONING:	PLANNED DEVELOPMENT (PD) (COMMUNITY HEALTH OVERLAY)

ZEV COHEN & ASSOCIATES, INC.
2100 SW 60th AVENUE, SUITE 1
DEERFIELD BEACH, FL 33442
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/REVISIONS
1	06-15-21	HK	S.WMD SUBMITTAL
2	07-06-21	HK	CITY OF DELAND SUBMITTAL
3	09-21-21	J.P.K.	S.WMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-28-21	J.P.K.	CITY OF DELAND RE-SUBMITTAL PH A & PH1B
5	11-18-21	J.P.K.	REVISED PER CITY COMMENTS DATED 11-16-21
6	12-9-21	J.P.K.	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1B
FINAL ENGINEERING PLANS
DEMOLITION & EROSION CONTROL PLAN

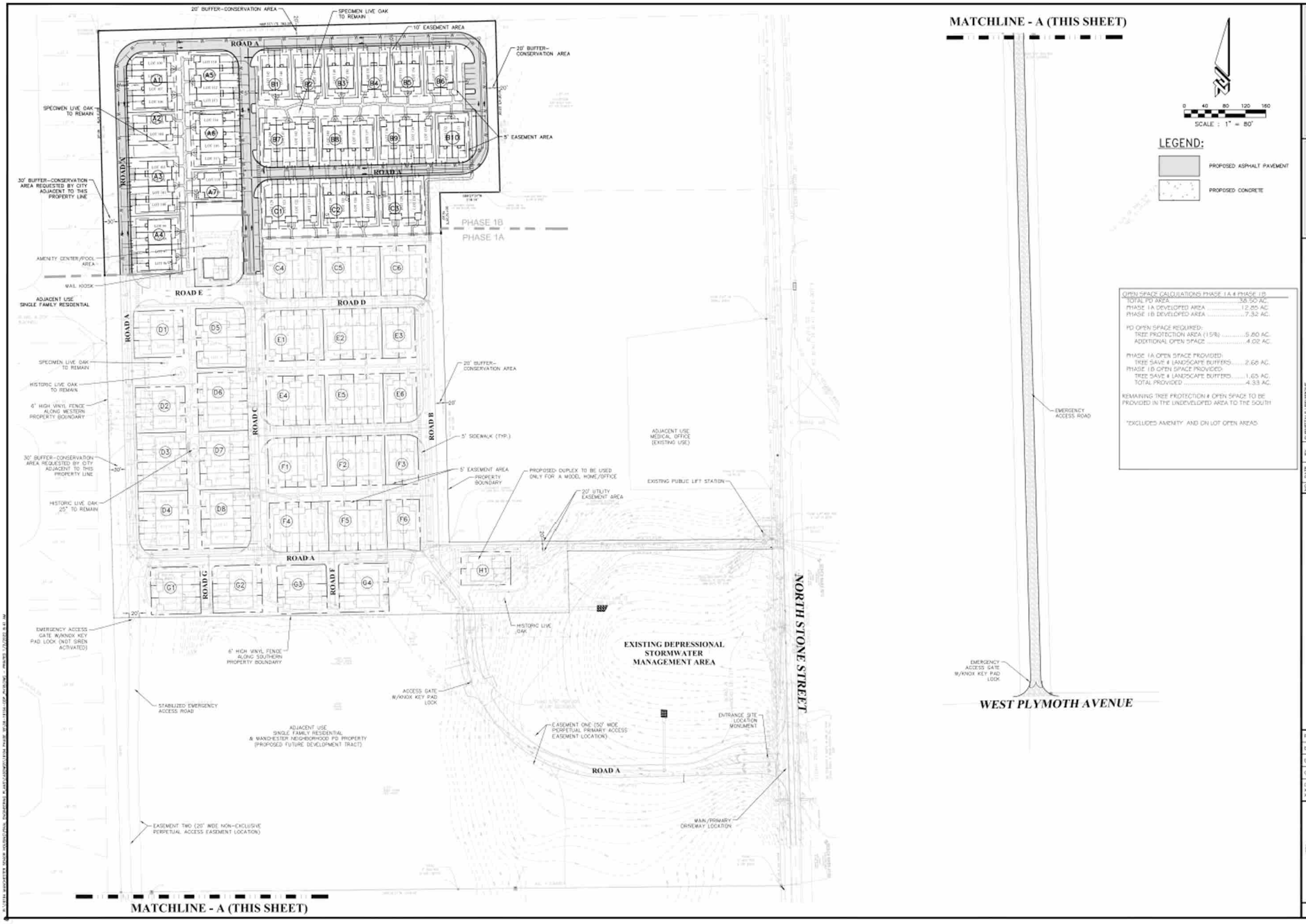
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

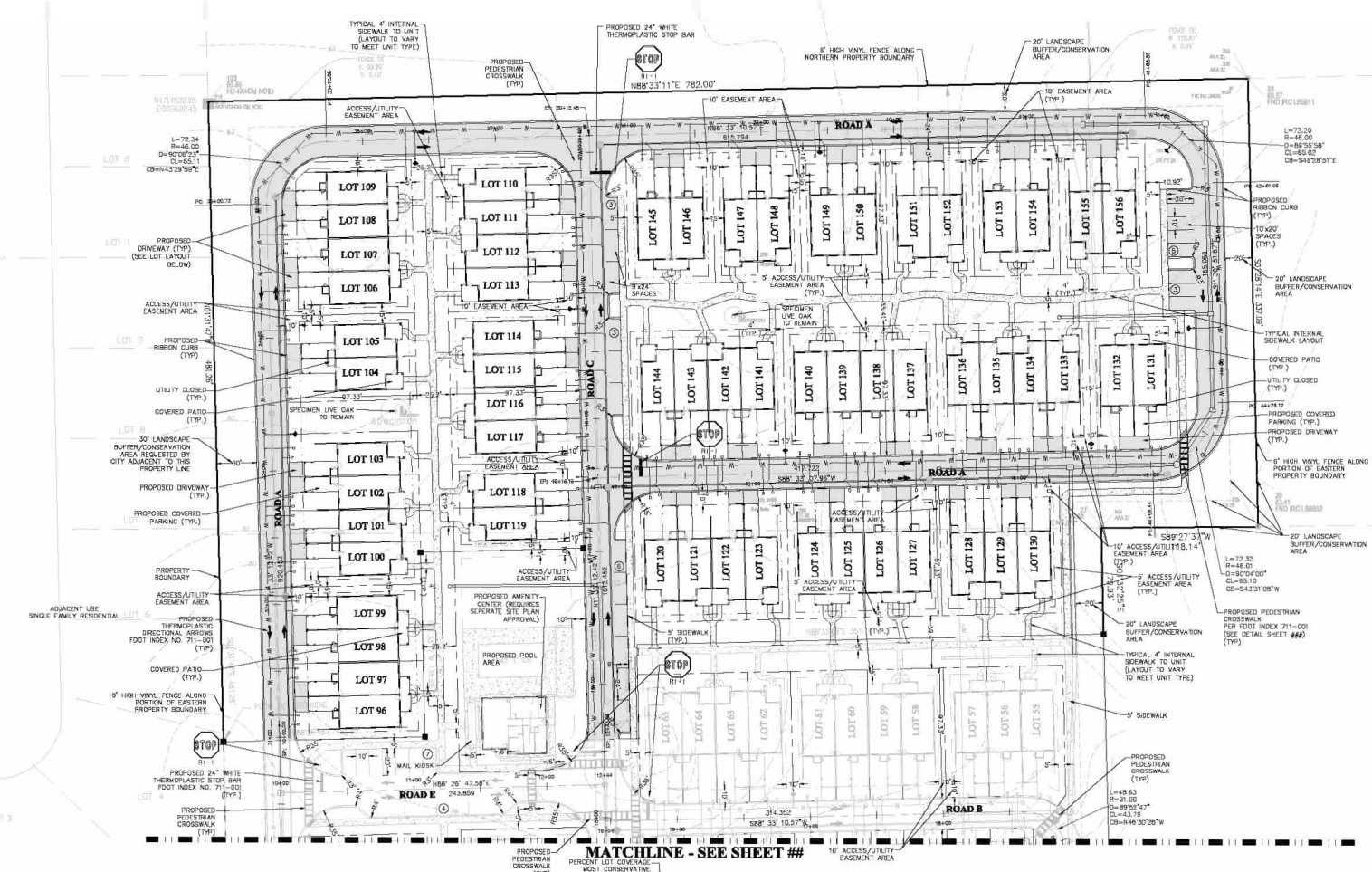
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 06-19194-ECP_PH1B
XREFS: 19194_BASE.DWG
XREFS: XOOOOLD.DWG

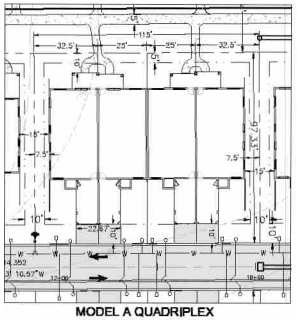
Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:35-05'00'

RANDY M. HUGHES, P.E., NO.56628
HALUK KILIC, P.E., NO.56264
NOT VALID WITHOUT SEAL

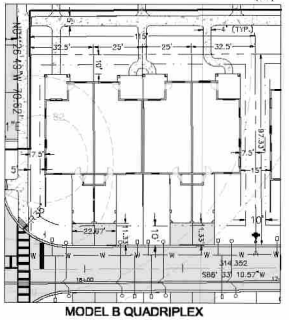
SHEET: C5 OF 19


MATCHLINE - A (THIS SHEET)
20' BUFFER-CONSERVATION AREA
SPECIMEN LIVE OAK TO REMAIN
10' EASEMENT AREA
ROAD A
ROAD B
ROAD C
ROAD D
ROAD E
ROAD F
ROAD G
PHASE 1B
PHASE 1A
AMENITY CENTER/POOL AREA
MAIL KIOSK
ADJACENT USE SINGLE FAMILY RESIDENTIAL
30' BUFFER-CONSERVATION AREA REQUESTED BY CITY ADJACENT TO THIS PROPERTY LINE
HISTORIC LIVE OAK TO REMAIN
6' HIGH VINYL FENCE ALONG WESTERN PROPERTY BOUNDARY
5' SIDEWALK (TYP.)
5' EASEMENT AREA
PROPERTY BOUNDARY
PROPOSED DUPLEX TO BE USED ONLY FOR A MODEL HOME/OFFICE
20' UTILITY EASEMENT AREA
ADJACENT USE MEDICAL OFFICE (EXISTING USE)
EXISTING PUBLIC LIFT STATION
EMERGENCY ACCESS GATE W/KNOX KEY PAD LOCK (NOT GREEN ACTIVATED)
6' HIGH VINYL FENCE ALONG SOUTHERN PROPERTY BOUNDARY
HISTORIC LIVE OAK
EXISTING DEPRESSIONAL STORMWATER MANAGEMENT AREA
NORTH STONE STREET
STABILIZED EMERGENCY ACCESS ROAD
ACCESS GATE W/KNOX KEY PAD LOCK
ADJACENT USE SINGLE FAMILY RESIDENTIAL & MANCHESTER NEIGHBORHOOD PD PROPERTY (PROPOSED FUTURE DEVELOPMENT TRACT)
EASEMENT ONE (50' WIDE PERPETUAL PRIMARY ACCESS EASEMENT LOCATION)
ENTRANCE SITE LOCATION MONUMENT
EASEMENT TWO (20' WIDE NON-EXCLUSIVE PERPETUAL ACCESS EASEMENT LOCATION)
MAIN/PRIMARY DRIVEWAY LOCATION
MATCHLINE - A (THIS SHEET)
EMERGENCY ACCESS ROAD
EMERGENCY ACCESS GATE W/KNOX KEY PAD LOCK
WEST PLYMOTH AVENUE
SCALE : 1" = 80'
LEGEND:
PROPOSED ASPHALT PAVEMENT
PROPOSED CONCRETE
OPEN SPACE CALCULATIONS PHASE 1A & PHASE 1B
TOTAL PD AREA ..... 38.50 AC.
PHASE 1A DEVELOPED AREA ..... 12.85 AC.
PHASE 1B DEVELOPED AREA ..... 7.32 AC.
PD OPEN SPACE REQUIRED:
TREE PROTECTION AREA (15%) ..... 5.80 AC.
ADDITIONAL OPEN SPACE ..... 4.02 AC.
PHASE 1A OPEN SPACE PROVIDED:
TREE SAVE & LANDSCAPE BUFFERS ..... 2.68 AC.
PHASE 1B OPEN SPACE PROVIDED:
TREE SAVE & LANDSCAPE BUFFERS ..... 1.65 AC.
TOTAL PROVIDED ..... 4.33 AC.
REMAINING TREE PROTECTION & OPEN SPACE TO BE PROVIDED IN THE UNDEVELOPED AREA TO THE SOUTH
*EXCLUDES AMENITY AND ON LOT OPEN AREAS
ZEV COHEN & ASSOCIATES, INC.
WWW.ZEVCOHEN.COM
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION
SUBMITTALS REVISIONS
MANCHESTER NEIGHBORHOOD
PHASE 1B
FINAL ENGINEERING PLANS
OVERALL DEVELOPMENT PLAN
CITY OF DELAND
VOLUSIA COUNTY, FLORIDA
PROJECT NO: ZC 19194
DESIGNED BY: HKJ/AL
DRAFTED BY: JML
CHECKED BY: RMH
Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:37-05'00'
SHEET: C6 OF 19

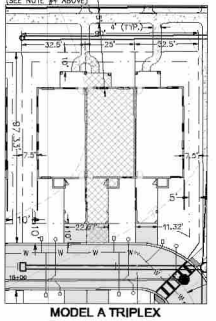




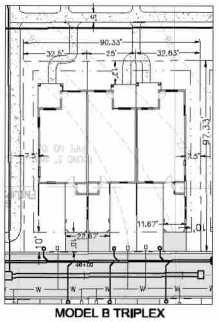
MODEL A QUADRIPLEX
TYPICAL LAYOUT



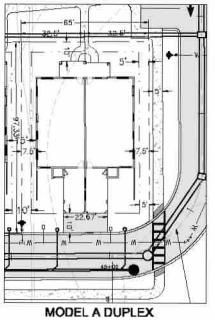
MODEL B QUADRIPLEX
TYPICAL LAYOUT



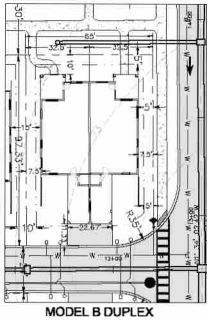
MODEL A TRIPLEX
TYPICAL LAYOUT



MODEL B TRIPLEX
TYPICAL LAYOUT



MODEL A DUPLEX
TYPICAL LAYOUT



MODEL B DUPLEX
TYPICAL LAYOUT

SCALE : 1" = 40'

LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- PROPOSED PARKING COUNT
- PROPOSED HANDICAP PARKING SPACE
- PROPOSED STREET LIGHT

NOTES:
1. ALL HANDICAP RAMPS ARE TO BE CONSTRUCTED PER FDOT INDEX NO. 522-002, LATEST EDITION.
2. POSTED AND DESIGN SPEED IS 15 MPH.
3. ALL SIGNAGE TO BE COORDINATED WITH PROJECT SIGNAGE PACKAGE FOR AESTHETIC PURPOSES.
4. INDIVIDUAL LOT COVERAGE: 97.33' X 25' = 2433.25 S.F.– IMPROVEMENT AREA=1702 S.F. ± 70.0% (80% MAX.)

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TRANSPORTATION

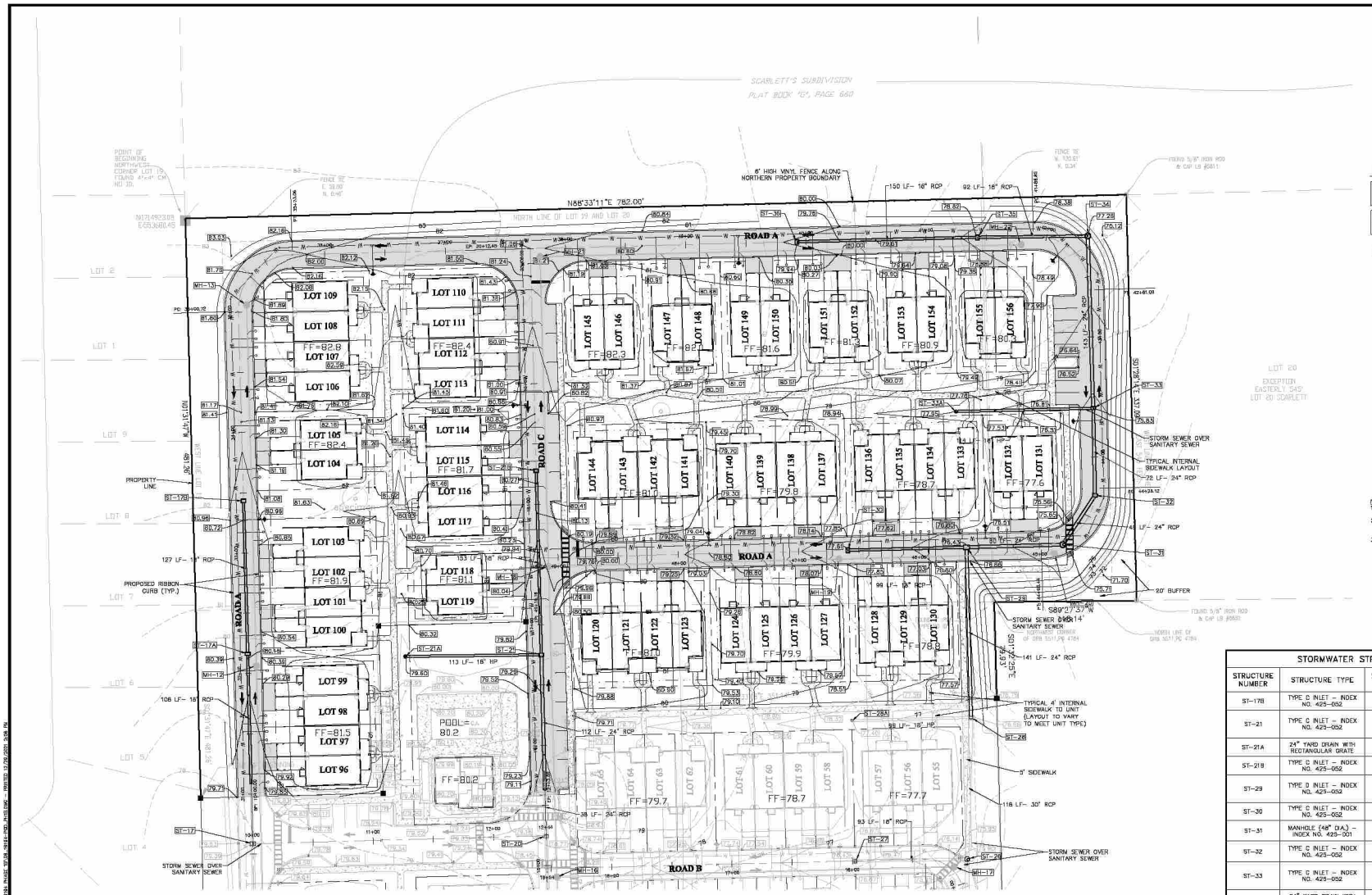
MANCHESTER NEIGHBORHOOD PHASE IB
FINAL ENGINEERING PLANS GEOMETRY, SIGNAGE & STRIPING PLAN

CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

DESIGNED BY: HKJM

Digitally signed by Haluk Kitic
Date: 2022.01.03 09:30:39-05'00'

SHEET: C7 OF 19



LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- CIR — PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES
- PROPOSED YARD DRAIN
- 98.20 — PROPOSED GRADE
- M.E.G. — PROPOSED MATCH EXISTING GRADE LABEL
- E.G. — EXISTING GRADE LABEL
- FFE — PROPOSED FINISHED FLOOR ELEVATION
- PROPOSED FLOW DIRECTION
- PROPOSED STREET LIGHT

NOTES:
1. SEE THIS SHEET STORMWATER STRUCTURE TABLES.
2. CONTRACTOR TO REFER TO GEOTECHNICAL REPORT FOR SOIL REQUIREMENTS AND RECOMMENDATIONS.
3. MINIMUM FINISHED FLOOR ELEVATIONS SHALL COMPLY WITH LAND DEVELOPMENT CODE.

STORMWATER STRUCTURE TABLE

STRUCTURE NUMBER	STRUCTURE TYPE	STRUCTURE T.C.	PIPE INVERT(S), DIRECTION(S), SIZE(S)
ST-17B	TYPE C INLET – INDEX NO. 425-052	80.80	77.57 (S) 18" RCP
ST-21	TYPE C INLET – INDEX NO. 425-052	79.46	74.00 (S) 24" RCP 74.80 (N) 18" RCP 74.80 (W) 18" HP
ST-21A	24" YARD DRAIN WITH RECTANGULAR GRATE	79.60	76.00 (E) 18" HP
ST-21B	TYPE C INLET – INDEX NO. 425-052	80.33	76.02 (S) 18" RCP
ST-29	TYPE D INLET – INDEX NO. 425-052	76.46	72.66 (W) 18" RCP 71.83 (E) 24" RCP 71.64 (S) 24" RCP
ST-30	TYPE C INLET – INDEX NO. 425-052	77.61	72.87 (E) 18" RCP
ST-31	MANHOLE (48" DIA.) – INDEX NO. 425-001	75.59	72.08 (NE) 24" RCP 72.08 (W) 24" RCP
ST-32	TYPE C INLET – INDEX NO. 425-052	75.20	72.20 (SW) 24" RCP 72.20 (N) 24" RCP
ST-33	TYPE C INLET – INDEX NO. 425-052	75.83	72.60 (S) 24" RCP 73.41 (W) 18" HP 72.80 (N) 24" RCP
ST-33A	24" YARD DRAIN WITH RECTANGULAR GRATE	77.95	74.50 (E) 18" HP
ST-34	MANHOLE (48" DIA.) – INDEX NO. 425-001	78.00	73.32 (S) 24" RCP 73.32 (W) 18" RCP
ST-35	TYPE C INLET – INDEX NO. 425-052	78.82	74.23 (E) 18" RCP 74.23 (W) 18" RCP
ST-36	TYPE C INLET – INDEX NO. 425-052	79.95	74.68 (E) 18" RCP

ZEV COHEN & ASSOCIATES, INC.
2500 S.E. 17TH STREET, OCALA, FL 34471
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CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/ REVISIONS
1	06-15-21	HK	S. DWRD SUBMITTAL
2	08-13-21	JJN	CITY OF DELAND SUBMITTAL
3	09-14-21	JJN	S. DWRD RESUBMITTAL-REVISED PER COMMENTS DATED 27-18-21
4	11-12-21	JJN	CITY OF DELAND RE-SUBMITTAL-PH A & PH B
5	11-18-21	JJN	S. DWRD RESUBMITTAL-REVISED PER COMMENTS DATED 11-18-21
6	12-13-21	JJN	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1B
FINAL ENGINEERING PLANS
PAVING, GRADING & DRAINAGE PLAN

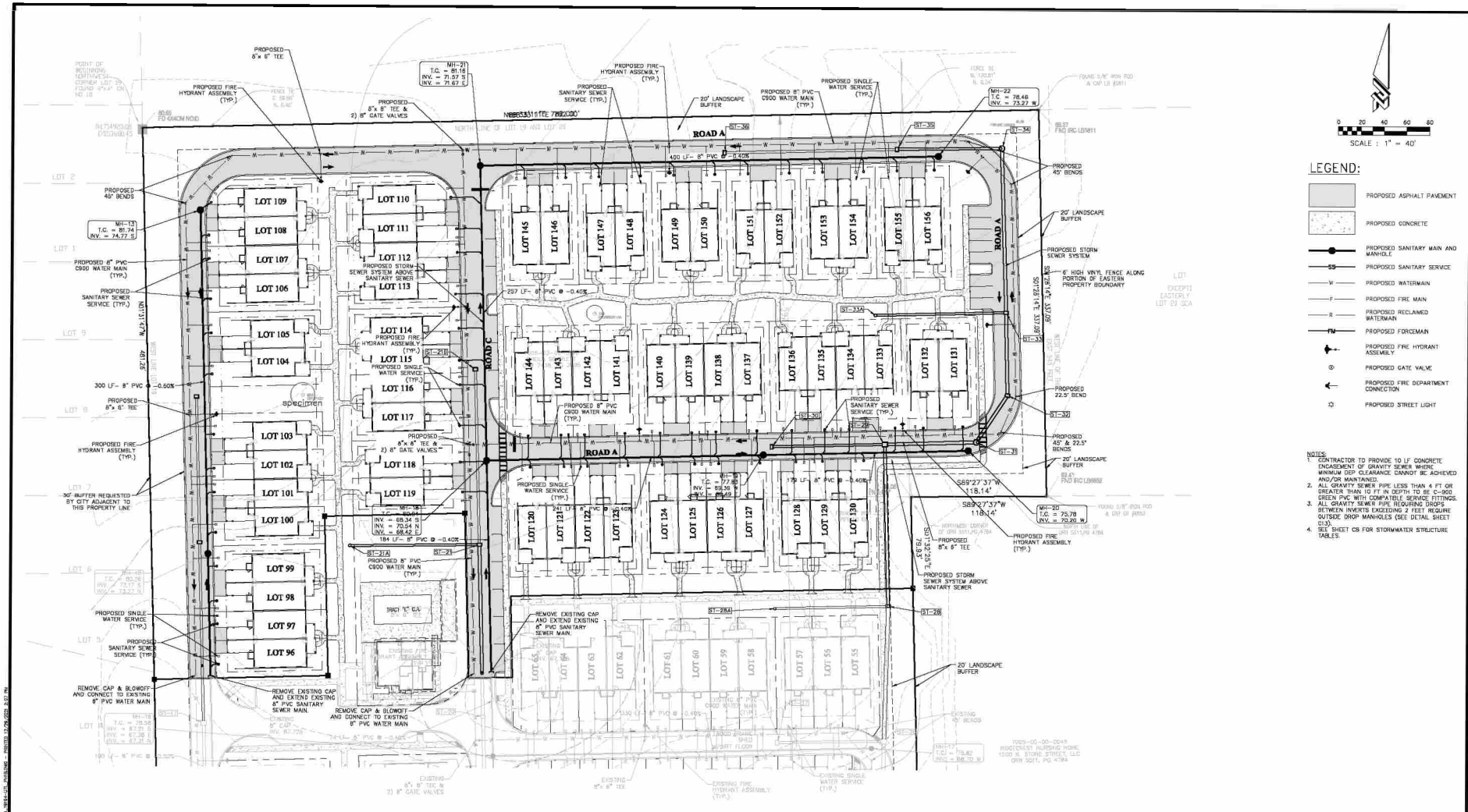
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKUML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 06_19194-PSD_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXXLOWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:41-05'00'

RANDY M. HUDAK, P.E., NO.
HALUK KILIC, P.E., NO.
NOT VALID WITHOUT SEAL

SHEET: C8 OF 19



LEGEND:

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE
- PROPOSED SANITARY MAIN AND MANHOLE
- SS — PROPOSED SANITARY SERVICE
- W — PROPOSED WATERMAIN
- F — PROPOSED FIRE MAIN
- R — PROPOSED RECLAIMED WATERMAIN
- FM — PROPOSED FORCEMAIN
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED GATE VALVE
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED STREET LIGHT

NOTES:

1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET D13).
4. SEE SHEET C8 FOR STORMWATER STRUCTURE TABLES.

ZEV COHEN & ASSOCIATES, INC.
80 SW 8TH ST., SUITE 2100
MIAMI, FL 33130
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/REVISIONS
1	06-15-21	HK	SUBMITTAL
2	07-01-21	HK	CITY OF OAKLAND PARK REVIEW COMMENTS DATED 07-15-21
3	08-26-21	JJ/HK	CITY OF OAKLAND PARK RESUBMITTAL PH1A & 1B
4	10-25-21	JJ/HK	CITY OF OAKLAND PARK RESUBMITTAL PH1A & 1B
5	11-29-21	JJ/HK	REVISED PER CITY COMMENTS DATED 11-15-21
6	12-14-21	JJ/HK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD
PHASE 1B
FINAL ENGINEERING PLANS
UTILITY PLAN

CITY OF OAKLAND PARK — BROWARD COUNTY, FLORIDA

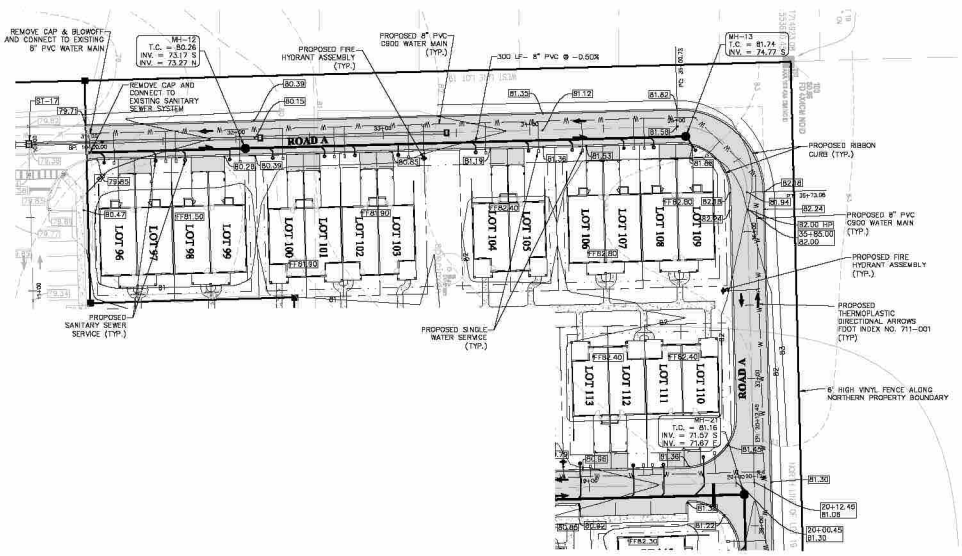
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH

DRAWING FILE: 00_19194-UTL_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:44-05'00'

RANDY M. HUDAK, P.E., NO.39370
HALUK KILIC, P.E., NO.39294
NOT VALID WITHOUT SEAL

SHEET: C9 OF 19



LEGEND:

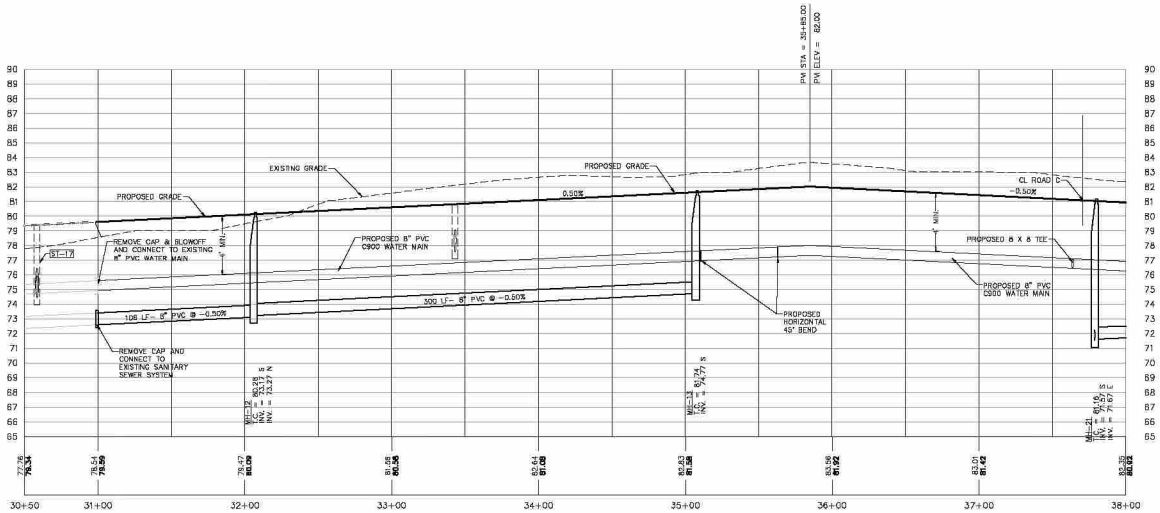
- PROPOSED SANITARY MAIN AND MANHOLE
- W — PROPOSED WATERMAIN
- F — PROPOSED FIRE MAIN
- R — PROPOSED RECLAIMED WATERMAIN
- FM — PROPOSED FORCEMAIN
- CB — PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES

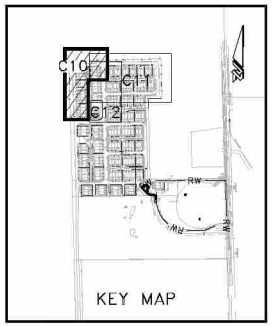
0 20 40 80 80
SCALE : 1" = 40'

NOTES:
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C13).
4. SEE SHEET C8 FOR STORMWATER STRUCTURE TABLES.

ROAD A PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40'
VERT:1"=4'





ZEV COHEN & ASSOCIATES, INC.
3180 RIDGE WOOD, FL 32174
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTAL/REVISIONS
1	06-15-21	HK	S-RING SUBMITTAL
2	08-05-21	JJK	STORM SUBMITTAL
3	09-21-21	JJK	S-RING REMAIT-REVISED PER COMMENTS DATED 9-16-21
4	10-26-21	JJK	CITY OF DELAND RE-SUBMITTAL PH A & PH B
5	11-18-21	JJK	REVISED PER CITY COMMENTS DATED 11-16-21
6	12-9-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1B FINAL ENGINEERING PLANS PLAN & PROFILE

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

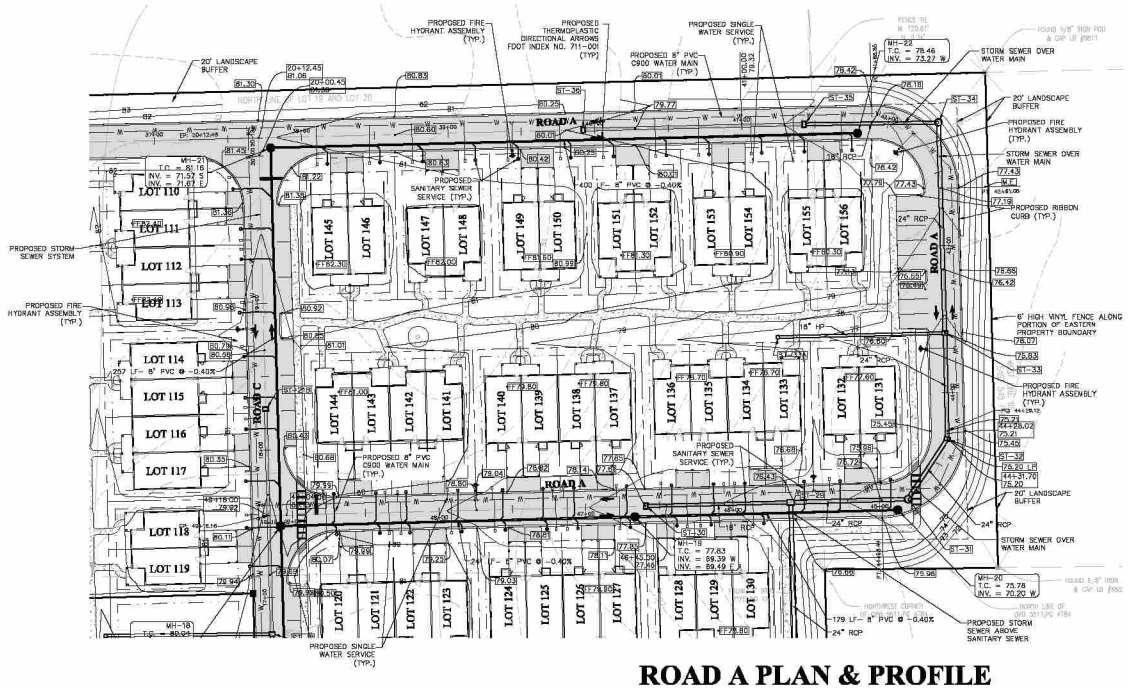
PROJECT NO: ZC 19194
DESIGNED BY: HKU/ML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 10-13_19194-PP_PH1B
XREFS: 1914_BASE.DWG
XREFS: XOOOOLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:46-05'00'

RANDY M. HUGHES, P.E., REGISTERED
HALUK KILIC, P.E., P.G., REGISTERED
NOT VALID WITHOUT SEAL

SHEET: C10 OF 19

B:\19194 MANCHESTER SENIOR HOUSING\FINAL ENGINEERING PLANS\CONSTRUCTION PLANS\19194-PP_PH1B.DWG — PAGE: 10-13-15, 12:14 PM, PHILLIONC — PRINTED: 12/29/2021 3:57 PM

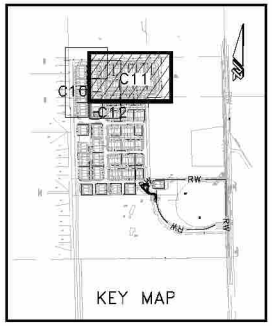


LEGEND:

- PROPOSED SANITARY MAIN AND MANHOLE
- W — PROPOSED WATERMAIN
- F — PROPOSED FIRE MAIN
- R — PROPOSED RECLAIMED WATERMAIN
- FM — PROPOSED FORCEMAIN
- PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES

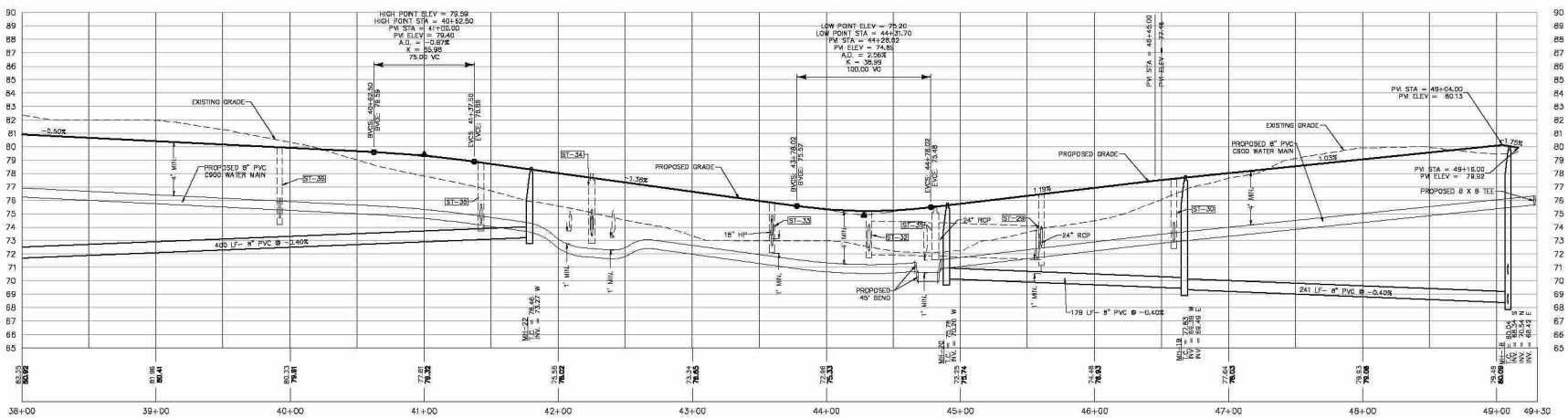
SCALE : 1" = 40'

NOTES:
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DOP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C13)
4. SEE SHEET C6 FOR STORMWATER STRUCTURE TABLES.



ROAD A PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40' VERT:1"=4'



ZEV COHEN & ASSOCIATES, INC.
2500 S. IVANHOE BLVD.
ORANGE BEACH, AL 36561
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS/ REVISIONS
1	06-15-21	HK	S. DUNCO SUBMITTAL
2	09-13-21	HK	CITY OF DELAND RE-SUBMITTAL
3	09-14-21	JJ/HK	S. DUNCO RESUBMITTAL-REVISED PER COMMENTS DATED 9-16-21
4	10-25-21	JJ/HK	CITY OF DELAND RE-SUBMITTAL PH A & PH 1B
5	12-13-21	JJ/HK	REVISED PER CITY COMMENTS DATED 12-06-21
6	12-30-21	JJ/HK	REVISED PER CITY COMMENTS DATED 12-30-21

MANCHESTER NEIGHBORHOOD PHASE 1B FINAL ENGINEERING PLANS PLAN & PROFILE

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 19-13_19194-PP_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:48-05'00'

SHEET: C11 OF 19

R:\19194 MANCHESTER SENIOR HOUSING\FINAL ENGINEERING PLANS\CADDWGS\19194 PHASE 1B\10-12_19194-PP_PH1B.DWG - PRINTED 12/29/2021 3:06 PM

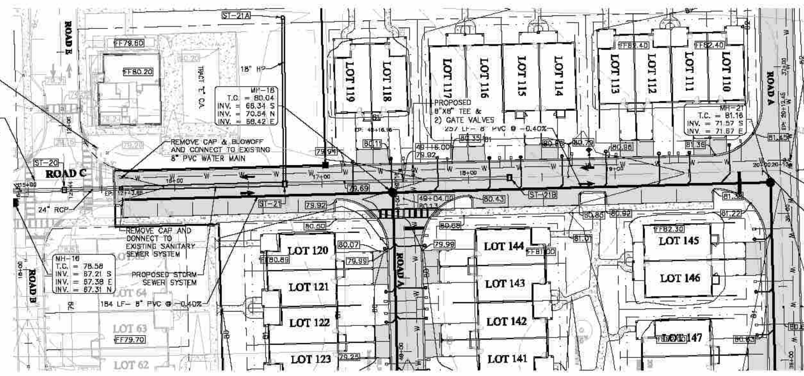
LEGEND:

- PROPOSED SANITARY MAIN AND MANHOLE
- —W— PROPOSED WATERMAIN
- —F— PROPOSED FIRE MAIN
- —R— PROPOSED RECLAIMED WATERMAIN
- —FM— PROPOSED FORCEMAIN
- PROPOSED STORMWATER INLET
- PROPOSED STORMWATER MANHOLE
- PROPOSED MES

SCALE : 1" = 40'

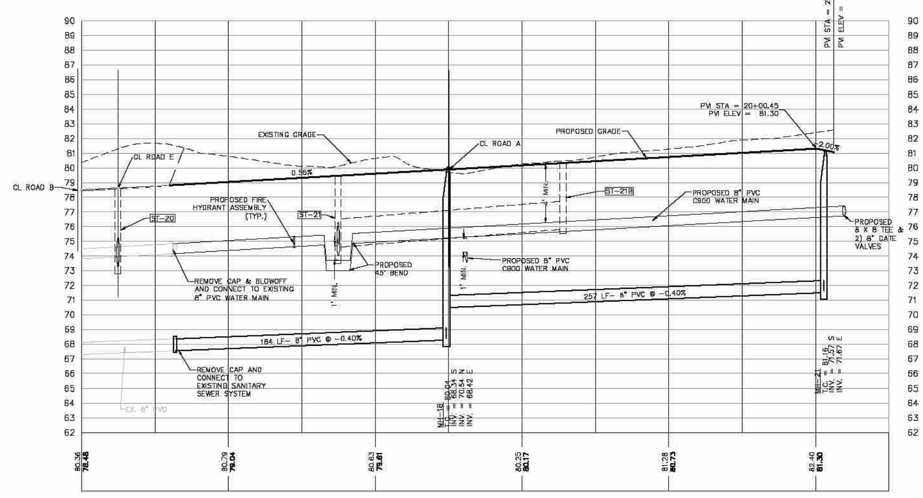
NOTES:

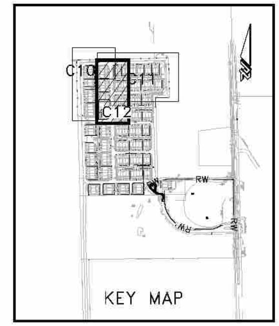
1. CONTRACTOR TO PROVIDE 10 LF CONCRETE ENCASEMENT OF GRAVITY SEWER WHERE MINIMUM DEP CLEARANCE CANNOT BE ACHIEVED AND/OR MAINTAINED.
2. ALL GRAVITY SEWER PIPE LESS THAN 4 FT OR GREATER THAN 10 FT IN DEPTH TO BE C-900 GREEN PVC WITH COMPATIBLE SERVICE FITTINGS.
3. ALL GRAVITY SEWER PIPE REQUIRING DROPS BETWEEN INVERTS EXCEEDING 2 FEET REQUIRE OUTSIDE DROP MANHOLES (SEE DETAIL SHEET C13).
4. SEE SHEET C8 FOR STORMWATER STRUCTURE TABLES.



ROAD C PLAN & PROFILE

PLAN VIEW: 1"=40'
PROFILE VIEW: HORIZ:1"=40' VERT:1"=4'





NO.	DATE	BY	SUBMITTALS / REVISIONS
1	06-18-21	HK	SJRWMD SUBMITTAL
2	07-02-21	HK	CITY OF DELAND SUBMITTAL
3	09-21-21	JL/HK	SJRWMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-19-21
4	10-22-21	JL/HK	CITY OF DELAND RE-SUBMITTAL PH1A & PH1B
5	11-29-21	JL/HK	REVISED PER CITY COMMENTS DATED 11-23-21
6	12-29-21	JL/HK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD
PHASE 1B
FINAL ENGINEERING PLANS
PLAN & PROFILE

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

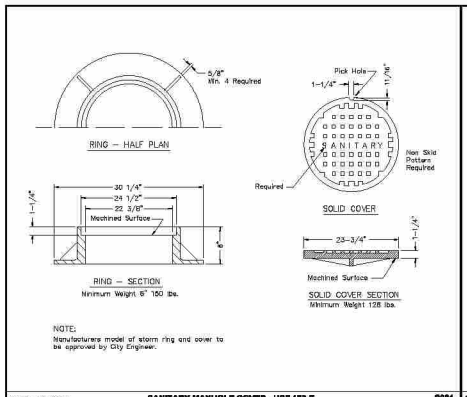
ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD., STE. C
ORMOND BEACH, FL 32174
WWW.ZEVCOHEN.COM

PROJECT NO: ZC 19194
DESIGNED BY: HK/ML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 10-12_19194-PP_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:51-05'00'

RANDY M. HUDAK, P.E., NO.[illegible]
HALUK KILIC, P.E., NO.[illegible]
NOT VALID WITHOUT SEAL

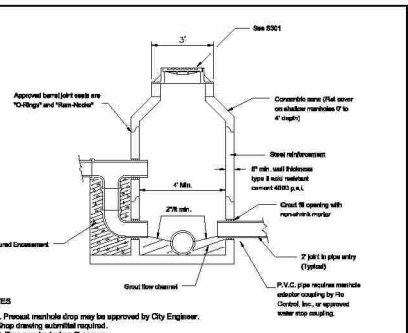
SHEET: C12 OF 19



NOTE:
Manufacturers model of storm ring and cover to be approved by City Engineer.

DATE: 10/28/2020 | SANITARY MANHOLE COVER - USF 179-E | S301

City of DeLand - Standard Details



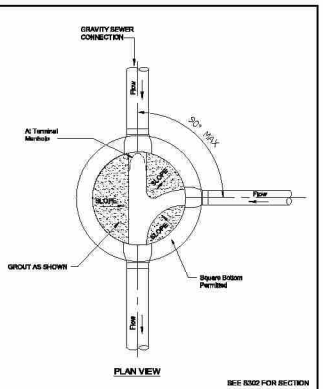
NOTES

1. Precast manhole drop may be approved by City Engineer. Shop drawing submittal required.
2. Drop required when 2' or over.
3. Manholes shall have an interior and exterior coating of at least 15 mils dry thickness PROLO EP214-351 Epoxi-Mastic or Koppers bitumastic black solution 300M.

SEE S303 FOR PLAN VIEW

DATE: 10/28/2020 | SANITARY MANHOLE | S302

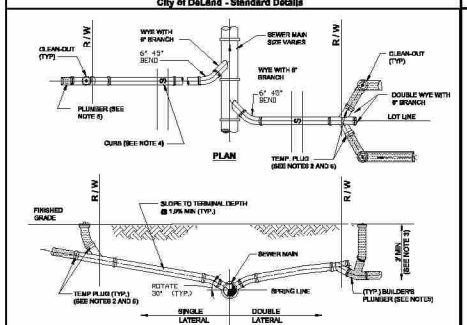
City of DeLand - Standard Details



SEE S302 FOR SECTION

DATE: 10/28/2020 | SANITARY MANHOLE | S303

City of DeLand - Standard Details

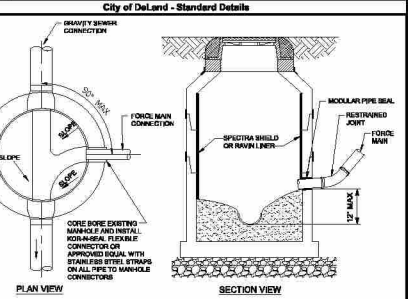


NOTES:

1. INVERT OF SERVICE LATERAL MUST BE ABOVE SPRING LINE.
2. SERVICE LATERAL SHALL BE CAPPED BY THE CONTRACTOR.
3. WYE SHALL BE NO SHALLOWER THAN 3-FEET AND NO DEEPER THAN 6-FEET.
4. CUT OR CAST "S" IN CONCRETE CURB AT SEWER LATERAL LOCATION AND PAINT GREEN.
5. PLUMBER SHALL REMOVE PLUG, INSTALL CLEAN-OUT, AND CONNECT SERVICE LATERAL TO HOUSE.

DATE: 10/28/2020 | SANITARY SERVICE LATERALS | S306

City of DeLand - Standard Details

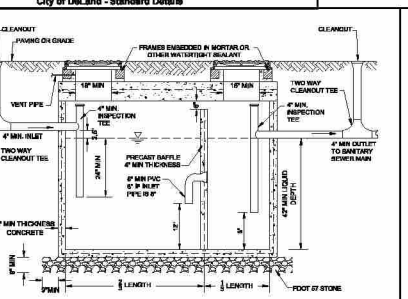


NOTES:

1. FORCE MAIN ORIENTED TO FACILITATE FLOW AND SHALL ENTER MANHOLE WITHIN 1' ABOVE INVERT OF THE EFFLUENT PIPE.
2. BENCH AS REQUIRED FOR NEW FORCE MAIN.
3. MANHOLE RECEIVING FORCE MAIN AND NEXT MANHOLE SHALL BE LINED. EXISTING MANHOLES RECEIVING FORCE MAIN SHALL BE LINED WITH SPECTRA SHIELD OR RAVIN.
4. CONTRACTOR TO COORDINATE THE PRESENCE OF UTILITIES INSPECTOR DURING CORING AND CONNECTIONS TO EXISTING MANHOLES.

DATE: 10/28/2020 | FORCE MAIN TO GRAVITY SEWER CONNECTION | S306

City of DeLand - Standard Details

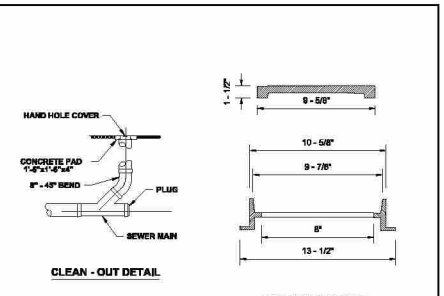


NOTES:

1. SPECIFIC DESIGN DETAILS MUST IN ALL ASPECTS MEET APPLICABLE FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
2. SIZE GREASE INTERCEPTOR - MINIMUM SIZE 750 GAL MAXIMUM SIZE 1500 GAL.
3. INTERCEPTORS SHALL BE WATER AND GAS TIGHT.
4. ALL FIXTURES LOCATED IN FOOD AND BEVERAGE PREPARATION AREAS SHALL BE ROUTED THROUGH GREASE INTERCEPTOR. RESTROOM WASTE SHALL NOT BE ROUTED THROUGH INTERCEPTOR.
5. BAFFLE RECEPTOR: ALTERNATIVE DESIGNS ARE ACCEPTABLE THAT MEET FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
6. LOADS/COVER TO MEET H-20 TRUCK WHEELS WITH 30% IMPACT PER AASHTO. TRAFFIC BEARING FRAME AND COVER TO MEET FDOT STANDARDS AND SHALL BE IMPRINTED WITH THE WORDS "GREASE TRAP".

DATE: 10/28/2020 | GREASE TRAP | S307

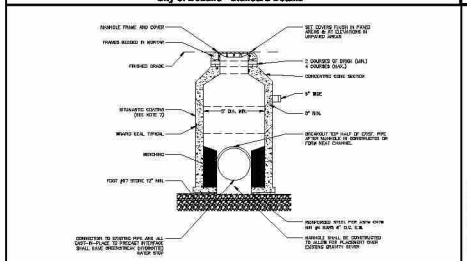
City of DeLand - Standard Details



NOTE: HAND HOLE COVER TO BE U.S. FOUNDRY 7621 OR EQUAL

DATE: 10/28/2020 | CLEAN - OUT | S308

City of DeLand - Standard Details

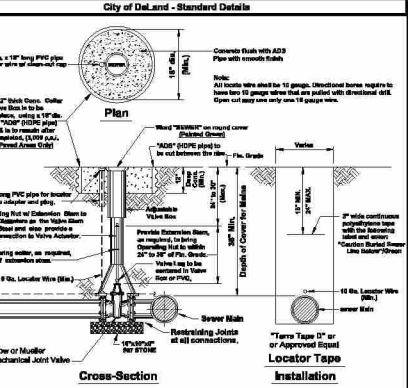


NOTES:

1. DOGHOUSE OPENING MAY ONLY BE USED WHEN PLACING A NEW MANHOLE OVER AN EXISTING LINE OTHERWISE, THE OPENING MUST BE CAST. SIZE, LOCATION AND ANGLE OF ENTRY SHOULD BE AS REQUIRED BY THE PLANS.
2. OPENINGS IN PRE-CAST UNITS ARE TO BE 4" MINIMUM TO 8" MAXIMUM LARGER THAN THE OUTSIDE DIAMETER OF THE PROPOSED PIPE.
3. MANHOLE COVERS TYPICAL FOR ALL FRAME TYPES.
4. WRAPS SEAL MUST BE USED ON ALL JOINTS, CASTINGS AND RISER RINGS ON ALL JOINTS ON ROUND AIR RELEASE AND ROUND MANHOLE STRUCTURES.
5. WRAPS SEAL MUST BE USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. MAX. MANHOLE DEPTH SHALL BE 15' TO LOWEST PIPE INVERT.
7. MANHOLES SHALL HAVE AN INTERIOR AND EXTERIOR COATING OF AT LEAST 15 MILS DRY THICKNESS PROLO EP214-351 EPOXI-MASTIC OR KOPPERS BITUMASTIC BLACK SOLUTION 300M.

DATE: 10/28/2020 | DOGHOUSE MANHOLE | S309

City of DeLand - Standard Details



DATE: 10/28/2020 | FORCE MAIN VALVE SETTING | S315

City of Deland - Standard Details

ZEV COHEN & ASSOCIATES, INC.
6500 S.W. 22 STREET
PLANTATION, FL 33314
954-587-6870 FAX: 954-587-5274
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	REVISIONS
1	06-15-21	HK	S. RAVID SUBMITTAL
2	06-21-21	JJ/KK	S. RAVID SUBMITTAL
3	08-31-21	JJ/KK	S. RAVID RESUBMITTAL-REVISED PER COMMENTS DATED 07-19-21
4	10-26-21	JJ/KK	CITY OF DELAND RE-SUBMITTAL PH1A & 1B
5	12-13-21	JJ/KK	REVISED PER CITY COMMENTS DATED 11-29-21
6	12-30-21	JJ/KK	REVISED PER CITY COMMENTS DATED 12-16-21

MANCHESTER NEIGHBORHOOD PHASE 1B FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

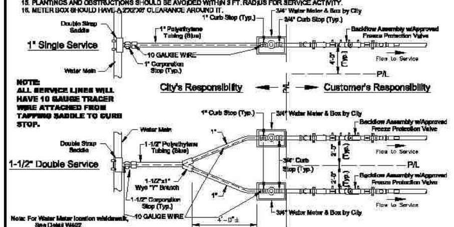
PROJECT NO: ZC 19194
DESIGNED BY: HKU/ML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 19-19-19194-DET_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:53-05'00'

RANDY M. HUDAK, P.E., NO.53009
HALUK KILIC, P.E., NO.56244
NOT VALID WITHOUT SEAL

SHEET: C13 OF 19

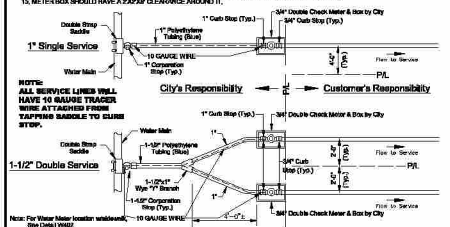
NOTES:
1. WATER MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE CHLORINATED and PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING and CHLORINATION, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. FREEZE PROTECTION VALVE, SHALL BE "CONBRACO" 40LF000FPV2F.
12. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
13. ALL BRASS FITTINGS SHALL BE LEAD FREE.
14. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS.
15. PLANTINGS AND OBSTRUCTIONS SHOULD BE AVOIDED WITHIN 3 FT. RADIUS FOR SERVICE ACTIVITY.
16. METER BOX SHOULD HAVE A 2'X2'X8' CLEARANCE AROUND IT.



DATE: 10/28/2020 **WATER MAIN SERVICE CONNECTION (BACKFLOW)** W401

City of DeLand - Standard Details

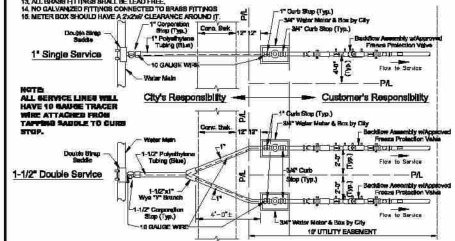
NOTES:
1. WATER MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE CHLORINATED and PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING and CHLORINATION, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. FREEZE PROTECTION VALVE, SHALL BE "CONBRACO" 40LF000FPV2F.
12. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
13. ALL BRASS FITTINGS SHALL BE LEAD FREE.
14. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS.
15. PLANTINGS AND OBSTRUCTIONS SHOULD BE AVOIDED WITHIN 3 FT. RADIUS FOR SERVICE ACTIVITY.
16. METER BOX SHOULD HAVE A 2'X2'X8' CLEARANCE AROUND IT.



DATE: 10/28/2020 **WATER MAIN SERVICE CONNECTION (DOUBLE CHECK METER)** W401A

City of DeLand - Standard Details

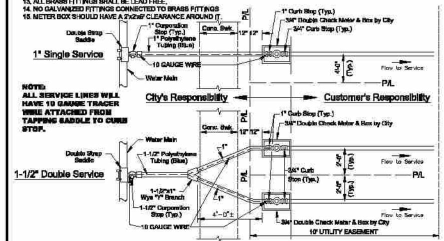
NOTES:
1. WATER MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE CHLORINATED and PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING and CHLORINATION, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. FREEZE PROTECTION VALVE, SHALL BE "CONBRACO" 40LF000FPV2F.
12. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
13. ALL BRASS FITTINGS SHALL BE LEAD FREE.
14. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS
15. METER BOX SHOULD HAVE A 2'x2'x6' CLEARANCE AROUND IT.



DATE: 10/28/2020 **WATER MAIN SERVICE CONNECTION WITH SIDEWALK (BACKFLOW)** W402

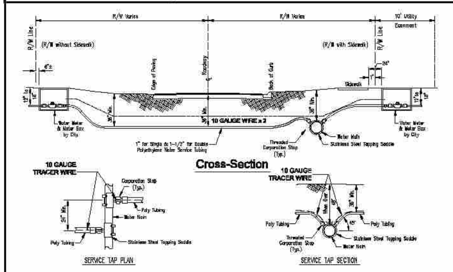
City of DeLand - Standard Details

NOTES:
1. WATER MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE CHLORINATED and PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING and CHLORINATION, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. FREEZE PROTECTION VALVE, SHALL BE "CONBRACO" 40LF000FPV2F.
12. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
13. ALL BRASS FITTINGS SHALL BE LEAD FREE.
14. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS
15. METER BOX SHOULD HAVE A 2'x2'x6' CLEARANCE AROUND IT.



DATE: 10/28/2020 **WATER MAIN SERVICE CONN. WITH SIDEWALK (DBL. CHECK METER)** W402A

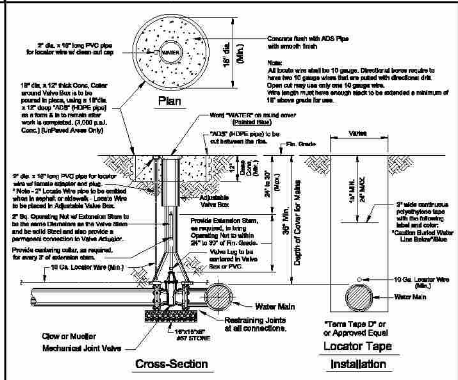
City of DeLand - Standard Details



NOTES:
1. SINGLE WATER SERVICE SHALL BE, 1" POLYETHYLENE TUBING (BLUE).
2. DOUBLE WATER SERVICE SHALL BE, 1-1/2" POLYETHYLENE TUBING (BLUE).
3. WATER MAINS TO BE MIN. 36" BELOW GRADE and APPROX. 4' BACK OF CURB.
4. CURB STOP TO BE LOCATED APPROX. 2 FOOT BACK OF RIGHT-OF-WAY AND MUST HAVE LOCK WING.
5. SERVICE LINE TO BE MIN. 36" BELOW GRADE IN RIGHT-OF-WAY.
6. ALL 3/4", 1", 1-1/2" & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (BLUE) POLYETHYLENE TUBING.
7. ALL LOCATE WIRE SHALL BE 10 GAUGE. DIRECTIONAL BORES REQUIRE TO HAVE TWO 10 GAUGE WIRES THAT ARE PULLED WITH DIRECTIONAL DRILL. OPEN CUT MAY USE ONLY ONE 10 GAUGE WIRE.
8. ALL SERVICE TAPS TO MEET AWWA STANDARD 45° FROM HORIZONTAL UNLESS PRIOR AUTHORIZATION RECEIVED FROM CITY.
9. ALL LOCATE WIRE SHALL BE 10 GAUGE. DIRECTIONAL BORES REQUIRE TO HAVE TWO 10 GAUGE WIRES THAT ARE PULLED WITH DIRECTIONAL DRILL. OPEN CUT MAY USE ONLY ONE 10 GAUGE WIRE.
10. ALL SERVICE LINES WILL HAVE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

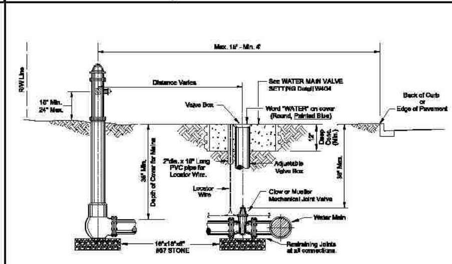
DATE: 10/28/2020 **WATER MAIN SERVICE LINES** W403

City of DeLand - Standard Details



DATE: 10/28/2020 **WATER MAIN VALVE SETTING** W404

City of Deland - Standard Details



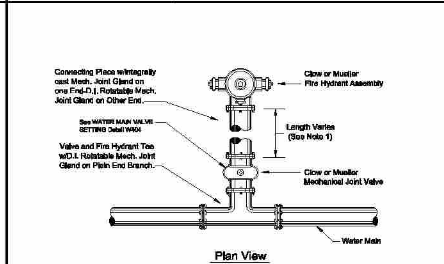
NOTES:
1. Steamer Connection to Face Street.
2. All Fire Hydrants to have 5 1/4" Valve Seat.
3. Fire Hydrants Shall be Placed at Street Corners or in the R.O.W. Adjacent to Side Lot Lines Wherever Possible.
4. See Detail W406 for Typical Connections & Fittings.
5. Fire Hydrants Shall be Painted City Safety Yellow w/Richards Paint No. 1000, Rust Shield Polyurethane.
6. Remove Chains from Cap.
7. Min. 3 ft. Clearance Should be Maintained Around Fire Hydrant for Emergency Operation Purposes.
8. All locate wire shall be 10 gauge. Directional bores require to have two 10 gauge wires that are pulled with directional drill. Open cut may use only one 10 gauge wire.

ONLY APPROVED CITY FIRE HYDRANTS
- Mueller Super Centurion 200
- Clow Medallion

See W406 for Plan View

DATE: 10/28/2020 **FIRE HYDRANT SETTING SECTION** W405

City of DeLand -Standard Details



NOTES:
1. On Fire Hydrants Requiring Runout Last Two Joints Must Be Restrained Per Detail W409.
2. Fire Hydrants Should Have a 2'x2'x6' Clearance Around It.

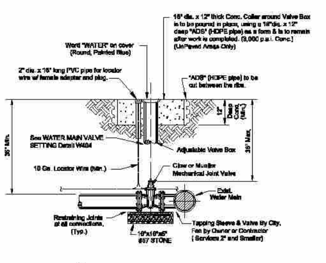
ONLY APPROVED CITY FIRE HYDRANTS
- Mueller Super Centurion 200
- Clow Medallion

See W405 for Cross Section

DATE: 10/26/2020 **FIRE HYDRANT SETTING PLAN** W406

City of DeLand - Standard Details

Notes:
1. All locate wire shall be 10 gauge. Directional bores require to have two 10 gauge wires that are pulled with directional drill. Open cut may use only one 10 gauge wire.

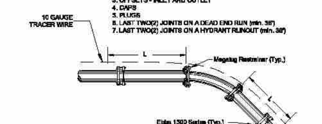


Note:
For Wet Taps larger than 2", Sleeves & Valves will be furnished and installed by the contractor in the presence of the city inspector. Tapping sleeve shall be Ford, Romac, or JCM stainless steel only.

DATE: 10/26/2020 **TAPPING SLEEVE & VALVE** W407

City of DeLand - Standard Details

THE FOLLOWING JOINTS MUST BE RESTRAINED IN ALL APPLICATIONS:
1. BEND - INLET AND OUTLET
2. TEE - OUTLET BRANCH
3. OFFSETS - INLET AND OUTLET
4. CAPS
5. PLUGS
6. LAST TWO(2) JOINTS ON A DEAD END RUN (min. 36')
7. LAST TWO(2) JOINTS ON A HYDRANT RUNOUT (min. 36')



L = MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTING (ft.)

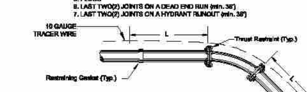
NOM. PIPE SIZE	ELBOWS (deg.)				VALVE TEES
	11.25	22.50	45	90	
4	3	5	8	12	8
6	4	6	10	15	11
8	4	7	13	20	14
10	5	9	15	26	18
12	5	10	17	29	21
14	6	13	26	61	30
16	7	14	26	67	49
18	6	15	31	73	65
20	8	16	33	80	85

NOTE: THRUST RESTRAINT AT FITTINGS AND VALVES SHALL BE BY USE OF EBBA IRON MEGALUG RESTRAINERS. THRUST RESTRAINT BETWEEN PIPE JOINTS SHALL BE BY EBBA IRON SERIES 1500 RESTRAINERS.

DATE: 10/28/2020 **THRUST RESTRAINING DETAIL FOR PVC PIPE** W408

City of DeLand - Standard Details

THE FOLLOWING JOINTS MUST BE RESTRAINED IN ALL APPLICATIONS:
1. BEND - INLET AND OUTLET
2. TEE - OUTLET BRANCH
3. OFFSETS - INLET AND OUTLET
4. CAPS
5. PLUGS
6. LAST TWO(2) JOINTS ON A DEAD END RUN (min. 36')
7. LAST TWO(2) JOINTS ON A HYDRANT RUNOUT (min. 36')



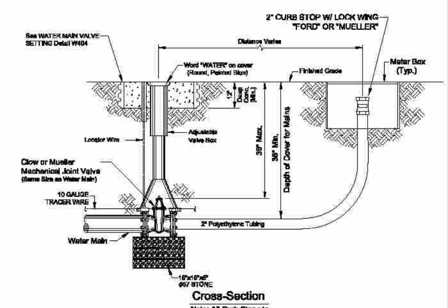
L = MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTING (ft.)

NOM. PIPE SIZE	ELBOWS (deg.)				VALVE TEES
	11.25	22.50	45	90	
4	3	5	6	12	8
6	4	8	10	15	11
8	4	7	13	20	14
10	5	8	15	25	18
12	6	10	17	29	21
16	8	16	26	63	70
18	9	17	38	88	88
20	10	18	38	94	108
24	11	22	45	109	145

NOTE: THRUST RESTRAINT ON SLIPJOINT DUCTILE IRON PIPE SHALL BE U.S. PIPE FIELD LOCK GASKETS FOR TYTON JOINT PIPE or AMERICAN FAST-GRIP GASKETS FOR AMERICAN FASTITE PIPE. THRUST RESTRAINT ON DUCTILE IRON FITTINGS SHALL BE PROVIDED BY THE USE OF MEGALUG RETAINERS AND MECHANICAL JOINT FITTINGS.

DATE: 10/28/2020 **THRUST RESTRAINING DETAIL FOR DUCTILE IRON PIPE** W409

City of DeLand - Standard Details



Notes:
1. All locate wire shall be 10 gauge. Directional bores require to have two 10 gauge wires that are pulled with directional drill. Open cut may use only one 10 gauge wire.

DATE: 10/28/2020 **WATER MAIN BLOWOFF DETAIL** W410

City of DeLand - Standard Details

ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD., STE. C
ORMOND BEACH, FL 32174
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS / REVISIONS
1	06-18-21	HK	SJRWMD SUBMITTAL
2	07-02-21	HK	CITY OF DELAND SUBMITTAL
3	09-21-21	JL/HK	SJRWMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-22-21	JL/HK	CITY OF DELAND RE-SUBMITTAL PH1A & PH1B
5	11-29-21	JL/HK	REVISED PER CITY COMMENTS DATED 11-22-21
6	12-28-21	JL/HK	REVISED PER CITY COMMENTS DATED 12-08-21

MANCHESTER NEIGHBORHOOD PHASE 1B
FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND VOLUSIA COUNTY, FLORIDA

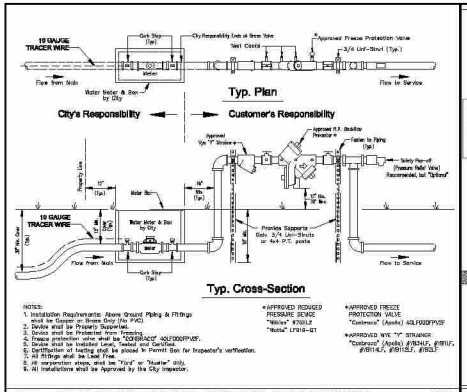
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 13-19-19194-DET_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:30:55-05'00'

RANDY M. HUDAK, P.E., NO.56053
HALUK KILIC, P.E., NO.84244
NOT VALID WITHOUT SEAL

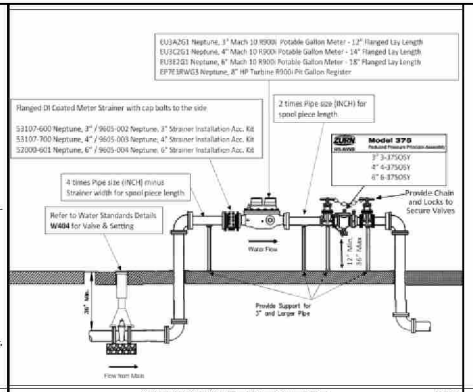
SHEET: C14 OF 19

R:\19194 MANCHESTER SENIOR HOUSING\FINAL ENGINEERING PLANS\CADDWGS\19194 PHASE 1B\13-19-19194-DET_PH1B.DWG -- PRINTED 12/29/2021 2:08 PM



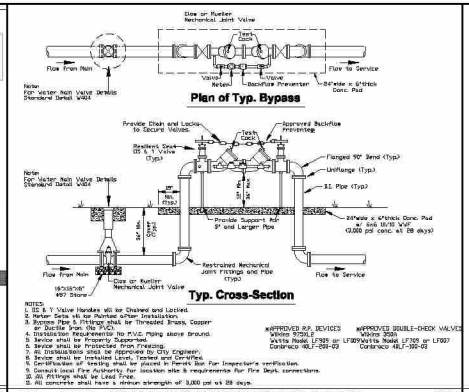
DATE: 10/26/2020 **WATER METER & BACKFLOW ASSEMBLY - 1" THRU 2-1/2" MODELS** W411

City of DeLand - Standard Details



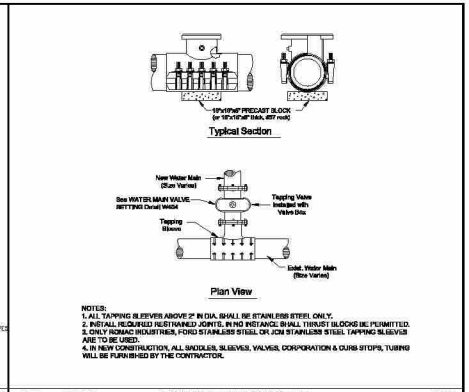
DATE: 10/26/2020 **3" AND ABOVE POTABLE WATER METER SET** W412

City of DeLand - Standard Details



DATE: 10/26/2020 **DOUBLE DETECTOR CHECK VALVE ASSEMBLY - 4" THRU 12"** W413

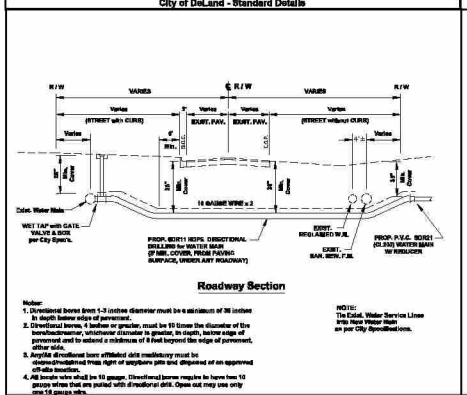
City of DeLand - Standard Details



NOTES:
1. ALL TAPPING SLEEVES ABOVE 2" IN DIA. SHALL BE STAINLESS STEEL ONLY.
2. INSTALL REQUIRED RESTRAINED JOINTS. IN NO INSTANCE SHALL THRUST BLOCKS BE PERMITTED.
3. ONLY ROMAC INDUSTRIES, FORD STAINLESS STEEL OR JCM STAINLESS STEEL TAPPING SLEEVES ARE TO BE USED.
4. IN NEW CONSTRUCTION, ALL SADDLES, SLEEVES, VALVES, CORPORATION & CURB STOPS, TUBING WILL BE FURNISHED BY THE CONTRACTOR.

DATE: 10/26/2020 **STAINLESS STEEL TAPPING SLEEVE** W414

City of DeLand - Standard Details

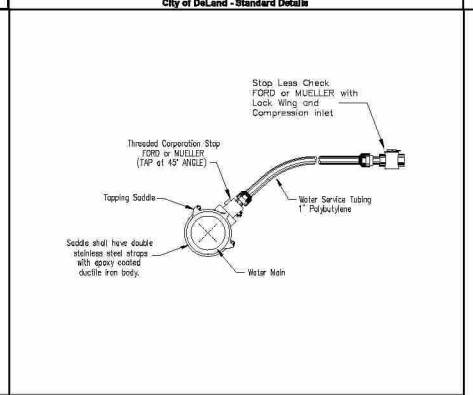


Notes:
1. Directional bores from 1-3 inches diameter must be a minimum of 36 inches in depth below edge of pavement.
2. Directional bores, 4 inches or greater, must be 10 times the diameter of the bore/casing, whichever diameter is greater, in depth, below edge of pavement and to extend a minimum of 5 feet beyond the edge of pavement, either side.
3. Angle directional bore affidavit data inaccuracy must be signed/sealed from right of surveyors pits and dispersed at an approved off-site location.
4. All bends when shall be 10 gauge. Directional bores require to have two 10 gauge wires that are paired with directional drill. Open cut may use only one 10 gauge wire.

NOTE:
The Exist. Water Service Lines into New Water Main as per City Specifications.

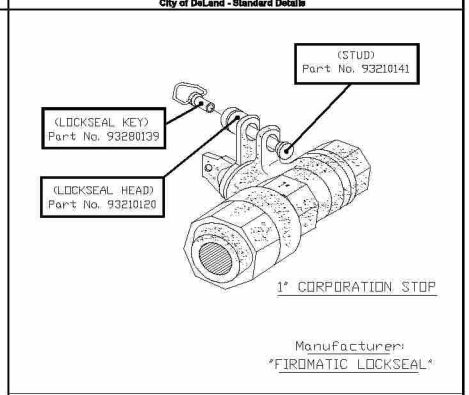
DATE: 10/26/2020 **DIRECTIONAL BORE** W415

City of DeLand - Standard Details



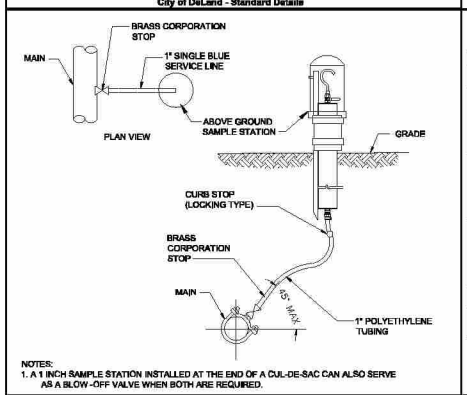
DATE: 10/26/2020 **CHLORINATION TAP** W416

City of DeLand - Standard Details



DATE: 10/26/2020 **WATER METER LOCKSEAL ASSEMBLY** W418

City of DeLand - Standard Details



NOTES:
1. A 1 INCH SAMPLE STATION INSTALLED AT THE END OF A CUL-DE-SAC CAN ALSO SERVE AS A BLOW-OFF VALVE WHEN BOTH ARE REQUIRED.

DATE: 10/26/2020 **WATER SAMPLE STATION** W419

City of DeLand - Standard Details

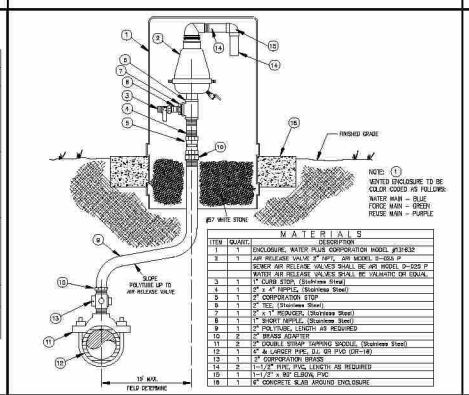
LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossing (Full Joint Centered)
Storm Sewer Stormwater Force Main, Reclaimed Water (2)	WATER MAIN 3 ft. minimum	WATER MAIN 12 inches is the minimum except for storm sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 3' ft. minimum WATER MAIN
Vacuum Sanitary Sewer	WATER MAIN 10 ft. preferred 3 ft. minimum	WATER MAIN 12 inches preferred 6 inches minimum	Alternate 3' ft. minimum WATER MAIN
Gravity Sewer Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water (4)	WATER MAIN 10 ft. preferred 6 ft. minimum (3)	WATER MAIN 12 inches is the minimum except for gravity sewer,then 6 inches is the minimum and 12 inches is preferred	Alternate 6' ft. minimum WATER MAIN
On-Site Sewage Treatment & Disposal System(4)	10 ft minimum	—	—

(1) Water Main Should Cross Above other pipe. When Water Main Must Be Below Other Pipe,the Minimum Separation is 18" inches.
(2) Reclaimed Water regulated under Part II of Chapter 62-610, F.A.C.
(3) 3 ft. for Gravity Sanitary sewer where the Bottom of the Water Main is 18 in. or level 6 inches above the top of gravity sanitary sewer.
(4) Reclaimed water not regulated under Part II of Chapter 62-610. F.A.C.

DATE: 10/26/2020 **WATER PIPE SEPERATION REQUIREMENTS** W420

City of DeLand - Standard Details



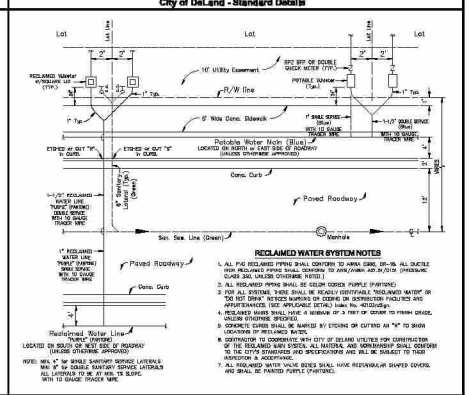
NOTE: (1) VENTED ENCLOSURE TO BE COLOR CODED AS FOLLOWS:
WATER MAIN - BLUE
FORCE MAIN - GREEN
REUSE MAIN - PURPLE

MATERIALS

ITEM	QUANT.	DESCRIPTION
1	1	ENCLOSURE, WATER PLUS CORPORATION MODEL #13-832
2	1	AIR RELEASE VALVE 2" NPT, APV MODEL S-050 P SEWER AIR RELEASE VALVES SHALL BE APV MODEL D-025 P WATER AIR RELEASE VALVES SHALL BE VALMATIC OR EQUAL
3	1	1" CURB STOP, (Stainless Steel)
4	1	2" x 4" NIPPLE, (Stainless Steel)
5	1	2" CORPORATION STOP
6	1	2" TEE, (Stainless Steel)
7	1	2" x 1" REDUCER, (Stainless Steel)
8	1	1" SHORT NIPPLE, (Stainless Steel)
9	1	2" POLYTUBE, LENGTH AS REQUIRED
10	2	2" BRASS ADAPTER
11	2	2" DOUBLE STRAP TAPPING SADDLE, (Stainless Steel)
12	1	4" & LARGER PVC, ELL OR PVC (DR-18)
13	1	2" CORPORATION BRASS
14	2	1-1/2" PVC, PVC LENGTH AS REQUIRED
15	1	1-1/2" x 90° ELBOW, PVC
16	1	6" CONCRETE SLAB AROUND ENCLOSURE

DATE: 10/26/2020 **OFFSET AIR RELEASE VALVE** W421

City of DeLand - Standard Details



RECLAIMED WATER SYSTEM NOTES
1. ALL PVC RECLAIMED PIPING SHALL CONFORM TO AWWA C900, DR-18. ALL DUCTILE IRON RECLAIMED PIPE SHALL CONFORM TO ANSI/AWWA A21.51/C151 (PRESSURE CLASS 350, UNLESS OTHERWISE NOTED)
2. ALL RECLAIMED PIPING SHALL BE COLOR CODED PURPLE (PANTONE)
3. FOR ALL SYSTEMS, THERE SHALL BE READILY IDENTIFIABLE "RECLAIMED WATER" OR "DO NOT DRINK" NOTICES NUMBERS ON CODING ON DISTRIBUTION FACILITIES AND APPURTENANCES. (SEE APPLICABLE DETAILS Index No. 4010 through)
4. RECLAIMED MAINS SHALL HAVE A MINIMUM OF 3 FEET OF COVER TO FINISH GRADE, UNLESS OTHERWISE APPROVED.
5. OTHER FACILITIES SHALL BE MARKED BY STICKING OR CUTTING AN "R" TO SHOW LOCATIONS OF RECLAIMED WATER.
6. COORDINATION TO COMMENCE WITH CITY OF DELAND UTILITIES FOR CONSTRUCTION OF THE RECLAIMED SANI SYSTEM. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE CITY'S STANDARDS AND SPECIFICATIONS AND WILL BE SUBJECT TO THEIR INSPECTION & ACCEPTANCE.
7. ALL RECLAIMED WATER VALVE BOXES SHALL HAVE RECTANGULAR SHAPED COVERS AND SHALL BE PAINTED PURPLE (PANTONE).

DATE: 10/26/2020 **RESIDENTIAL UTILITY LAYOUT** W422

City of DeLand - Standard Details

ZEV COHEN & ASSOCIATES, INC.
1000 SOUTH MAIN, STREET
STANFORD MAIN, N. 32114
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS/ REVISIONS
1	06-18-21	HK	SUBMITTAL
2	06-25-21	JJK	SUBMITTAL
3	08-11-21	JJK	SUBMITTAL-REVISED PER COMMENTS DATED 7-19-21
4	10-25-21	JJK	CITY OF DELAND RE-SUBMITTAL PER 4-19-19
5	12-13-21	JJK	REVISED PER CITY COMMENTS DATED 11-22-21
6	12-30-21	JJK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1B FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

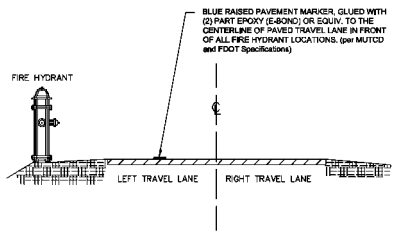
CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKUML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 19-19-19194-DET_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXLDWG

Digitally signed by Hakuk Kilic
Date: 2022.01.03 09:30:57-05'00'

RANDY M. HOLMAN, P.E., N.D.E.S.D.
FLORIDA REG. P.E. NO.50046
NOT VALID WITHOUT SEAL

SHEET: C15 OF 19

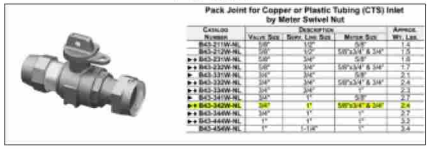


DATE: 10/26/2020 **REFLECTIVE PAVEMENT MARKER FOR FIRE HYDRANT LOCATION** W423

City of DeLand - Standard Details

Approved Ford Valve for Service Lines

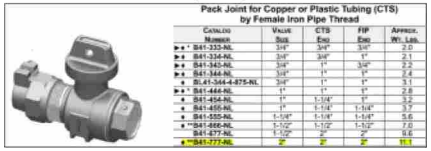
1" SERVICE



Pack Joint for Copper or Plastic Tubing (CTS) Inlet by Meter Swivel Nut

Catalog Number	Valve Size	Description: Size, Line Size	Description: Meter Size	Approx. Wt. Lbs.
B43-211W-NL	5/8"	1/2"	5/8"	1.5
B43-212W-NL	5/8"	3/4"	5/8"x3/4" & 3/4"	1.5
►► B43-231W-NL	5/8"	3/4"	5/8"	1.6
► B43-232W-NL	5/8"	3/4"	5/8"x3/4" & 3/4"	1.7
► B43-331W-NL	3/4"	3/4"	5/8"	2.1
► B43-332W-NL	3/4"	3/4"	5/8"x3/4" & 3/4"	2.4
► B43-334W-NL	3/4"	3/4"	3/4"	2.3
► B43-341W-NL	3/4"	1"	1"	2.3
►► B43-342W-NL	3/4"	1"	5/8"x3/4" & 3/4"	2.4
►► B43-344W-NL	3/4"	1"	1"	2.7
►► B43-444W-NL	1"	1"	1"	3.3
B43-454W-NL	1"	1-1/4"	1"	3.4

2" SERVICE



Pack Joint for Copper or Plastic Tubing (CTS) by Female Iron Pipe Thread

Catalog Number	Valve Size	CTS End	FIP End	Approx. Wt. Lbs.
►► * B41-333-NL	3/4"	3/4"	3/4"	2.0
►► B41-334-NL	3/4"	3/4"	1"	2.1
►► B41-343-NL	3/4"	1"	3/4"	2.2
►► B41-344-NL	3/4"	1"	1"	2.4
► BL41-344-4-875-NL	3/4"	1"	1"	3.1
►► * B41-444-NL	1"	1"	1"	2.8
► B41-454-NL	1"	1-1/4"	1"	3.2
► B41-455-NL	1"	1-1/4"	1-1/4"	3.7
► B41-555-NL	1-1/4"	1-1/4"	1-1/4"	5.6
► *B41-666-NL	1-1/2"	1-1/2"	1-1/2"	7.0
B41-677-NL	1-1/2"	2"	2"	9.6
► *B41-777-NL	2"	2"	2"	11.1

DATE: 10/26/2020 **VALVE FOR WATER AND RECLAIM SERVICE LINE** W424

City of DeLand - Standard Details

Approved Muller Valve for Service Lines

1" SERVICE

P-24350N

Mueller 300 Ball Straight Meter Valve
Mueller Pack Joint Connection for CTS O.D.* tubing x meter swivel nut**.
Quarter turn check - lock wing. 360° turn option available by adding -3 suffix to catalog number
Example: P-24350-3

Catalog size	3/4"x5/8"R †	3/4" R †	3/4"	5/8"x3/4"x1"	1"R †	1"
Meter size	5/8"	5/8"x3/4", 3/4"	5/8"x3/4", 3/4"	5/8"x3/4", 3/4"	1"	1"
Tubing size	3/4"	3/4"	3/4"	1"	1"	1"

2" SERVICE

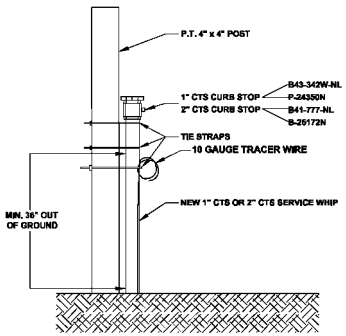
P-25172N

Mueller 300 Ball Curb Valve
Inlet: Mueller Pack Joint Connection for CTS O.D.* tubing
Outlet: F.I.P. thread
Quarter turn check-this valve may be ordered with 360° turn option by adding -3 to end of catalog number (P-25172-3)

3/4"R	3/4"	1"R	1"	1-1/2"	2"

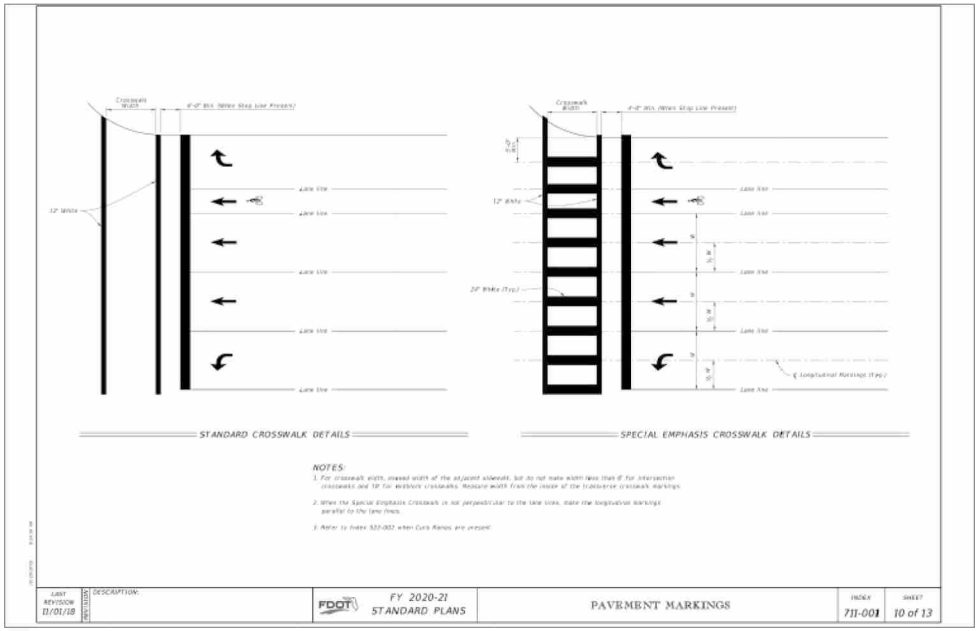
DATE: 10/26/2020 **VALVE FOR WATER AND RECLAIM SERVICE LINE** W425

City of DeLand - Standard Details



DATE: 10/26/2020 **NEW POTABLE AND REUSE SERVICE WHIP** W426

City of DeLand - Standard Details



ZEV COHEN & ASSOCIATES, INC.
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS REVISIONS
1	06-15-21	HK	S.RVIND SUBMITTAL
2	08-05-21	HK	CITY OF DELAND RESUBMITTAL
3	09-21-21	JLK	S.RVIND RESUBMITTAL-REVISED PER COMMENTS DATED 27-10-21
4	10-25-21	JLK	CITY OF DELAND RE-SUBMITTAL PHA.E-PHIB
5	11-08-21	JLK	REVISED PER CITY COMMENTS DATED 11-08-21
6	12-30-21	JLK	REVISED PER CITY COMMENTS DATED 12-30-21

MANCHESTER NEIGHBORHOOD PHASE 1B FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

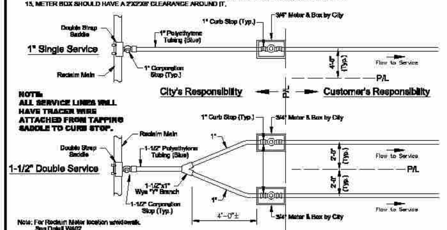
PROJECT NO: ZC 19194

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:31:00-05'00'

HALUK KILIC P.E., FL# 66284
NOT VALID WITHOUT SEAL

SHEET: C16 OF 19

NOTES:
1. RECLAIM MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (PURPLE) POLYETHYLENE TUBING.
12. ALL BRASS FITTINGS SHALL BE LEAD FREE.
13. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS.
14. PLANTINGS AND OBSTRUCTIONS SHOULD BE AVOIDED WITHIN 3 FT. RADIUS FOR SERVICE ACTIVITY.
15. METER BOX SHOULD HAVE A 2'X2'X8' CLEARANCE AROUND IT.

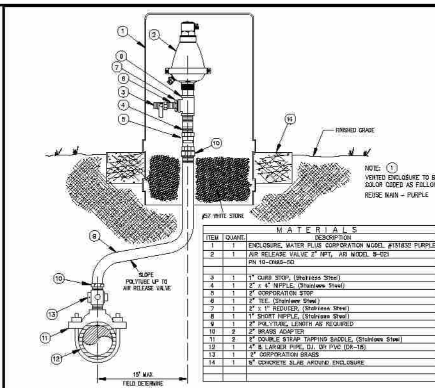


NOTE: ALL SERVICE LINES WILL HAVE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

Note: For Reclaim Meter location w/sidewalk, See Detail W402

DATE: APRIL 07, 2020 — **RECLAIM MAIN SERVICE CONNECTION** — R401A

City of DeLand - Standard Details

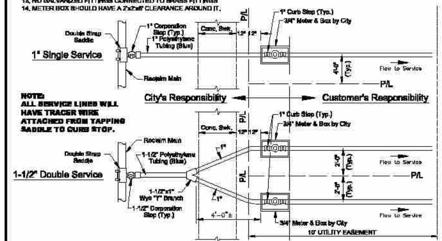


MATERIALS		
ITEM	QUANT.	DESCRIPTION
1	1	ENCLOSURE, WATER PLUS CORPORATION MODEL #131632 PURPLE
2	1	AIR RELEASE VALVE 2" NPT, ARI MODEL S-021 PN 10-DN25-50
3	1	1" CURB STOP, (Stainless Steel)
4	1	2" x 4" NIPPLE, (Stainless Steel)
5	1	2" CORPORATION STOP
6	1	2" TEE, (Stainless Steel)
7	1	2" x 1" REDUCER, (Stainless Steel)
8	1	1" SHORT NIPPLE, (Stainless Steel)
9	1	2" POLYTUBE, LENGTH AS REQUIRED
10	2	2" BRASS ADAPTER
11	2	2" DOUBLE STRAP TAPPING SADDLE, (Stainless Steel)
12	1	4" & LARGER PIPE, D.I. OR PVC (DR-18)
13	1	2" CORPORATION BRASS
14	1	6" CONCRETE SLAB AROUND ENCLOSURE

DATE: April 08, 2020 — **OFFSET AIR RELEASE VALVE** — R421

City of DeLand - Standard Details

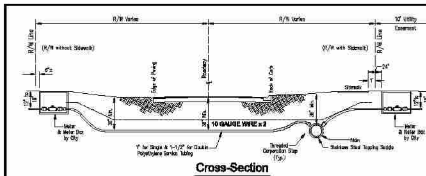
NOTES:
1. RECLAIM MAINS TO BE ON NORTH or EAST SIDE OF R.O.W., APPROX. 4 FT. BACK OF CURB UNLESS OTHERWISE AUTHORIZED BY CITY ENGINEER.
2. SERVICE CONNECTIONS TO BE 4 FT. FROM SIDE LOT LINE ON EITHER SIDE OF LOT. THESE SERVICES TO BE CONSISTENT WITHIN THE SUBDIVISION. DRIVEWAYS SHALL NOT BE BUILT OVER METERS.
3. ALL LINES SHALL BE PRESSURE TESTED (TEST FOR TWO HOURS @ 150 P.S.I.) UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT. AFTER SUCCESSFUL COMPLETION OF THE TESTING, THE PRESSURE SHALL REMAIN ON THE SYSTEM AT ALL TIMES.
4. TEN FT. SEPARATION REQUIRED BETWEEN PARALLEL WATER & SANITARY SEWER LINES.
5. SADDLE IS REQUIRED FOR ALL SERVICE CONNECTIONS TO 4" PVC MAINS. SADDLE IS REQUIRED FOR 2" SERVICE CONNECTIONS TO 6" and LARGER PVC MAINS. LARGEST SERVICE CONNECTION TO A 4" MAIN IS MIN. 1-1/2" and LARGEST TO ANY MAIN IS 2".
6. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
7. SINGLE SERVICE TAP SHALL BE 1".
8. DOUBLE SERVICE TAP SHALL BE 1-1/2".
9. ALL FITTINGS SHALL BE BRASS ONLY.
10. ALL CORPORATION STOPS, SHALL BE "FORD" OR "MUELLER" ONLY.
11. ALL 3/4", 1", 1-1/2", & 2" W.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (PURPLE) POLYETHYLENE TUBING.
12. ALL BRASS FITTINGS SHALL BE LEAD FREE.
13. NO GALVANIZED FITTINGS CONNECTED TO BRASS FITTINGS.
14. METER BOX SHOULD HAVE A 2'x2'x8' CLEARANCE AROUND IT.



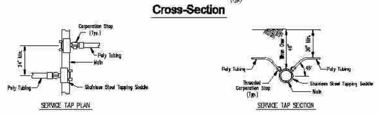
NOTE: ALL SERVICE LINES WILL HAVE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

DATE: APRIL 07, 2020 — **RECLAIM MAIN SERVICE CONN. WITH SIDEWALK** — R402A

City of DeLand - Standard Details



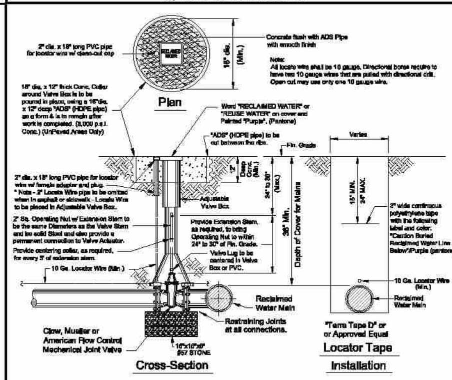
Cross-Section



NOTES:
1. SINGLE RECLAIM SERVICE SHALL BE, 1" POLYETHYLENE TUBING (PURPLE).
2. DOUBLE RECLAIM SERVICE SHALL BE, 1-1/2" POLYETHYLENE TUBING (PURPLE).
3. RECLAIM MAINS TO BE MIN. 36" BELOW GRADE and APPROX. 4' BACK OF CURB.
4. CURB STOP TO BE LOCATED APPROX. 2 FOOT BACK OF RIGHT-OF-WAY AND MUST HAVE LOCK WING.
5. SERVICE LINE TO BE MIN. 36" BELOW GRADE IN RIGHT-OF-WAY.
6. ALL 3/4", 1", 1-1/2" & 2" R.M., SHALL BE SDR 9, 200 psi, ASTMD 2737, (PURPLE) POLYETHYLENE TUBING.
7. ALL LOCATE WIRE SHALL BE (PURPLE) 10 GAUGE. DIRECTIONAL BORES REQUIRE TO HAVE TWO 10 GAUGE WIRES THAT ARE PULLED WITH DIRECTIONAL DRILL. OPEN CUT MAY USE ONLY ONE 10 GAUGE WIRE.
8. ALL SERVICE TAPS TO MEET AWWA STANDARD 45° FROM HORIZONTAL UNLESS PRIOR AUTHORIZATION RECEIVED FROM CITY.
9. ALL LOCATE WIRE SHALL BE 10 GAGE. DIRECTIONAL BORES REQUIRE TO HAVE TWO 10 GAGE WIRES THAT ARE PULLED WITH DIRECTIONAL DRILL. OPEN CUT MAY USE ONLY ONE 10 GAGE WIRE.
10. ALL SERVICE LINES WILL HAVE TRACER WIRE ATTACHED FROM TAPPING SADDLE TO CURB STOP.

DATE: APRIL 07, 2020 — **RECLAIM MAIN SERVICE LINES** — R403

City of DeLand - Standard Details



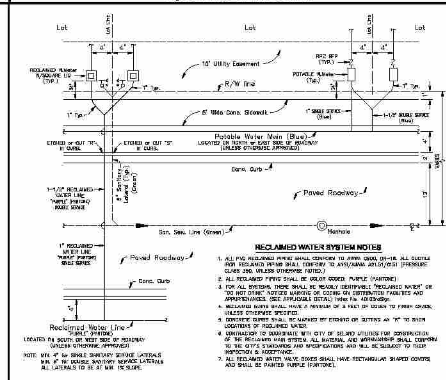
DATE: MARCH 06, 2020 — **RECLAIMED WATER VALVE SETTING** — R450

City of Deland - Standard Details

NOTES:
1. Sign background shall be white, letters shall be black (Helvetica, Swiss 721, corel, or acceptable equal) and border shall be Pantone Purple 522C.
2. Height of sign will depend on location and surrounding landscape plant types. In all cases, the sign shall visable to the public.
3. Engineering grade refective materials shall be used for sign.
4. Sign materials shall be of 0.040 gauge metal.
5. Sign post shall be 2-3/8" OD steel pipe, hot dip galvanized per ASTM A-123, post to be provided by customer.
6. Mounting hardware shall be stainless steel.
7. Signs shall be place by the contractor in accordance with the City approved plans and/ or as approved by the City. (e.g.) Sign should be posted by entrance to subdivision, storage ponds, irrigation pumps, gate entrances to school facility or game fields, and first and ninth Tees at Golf courses.
8. Public notification should occur in HOA document and City Reclaimed Water Brochure with meter application.

DATE: MARCH 06, 2020 — **RECLAIMED WATER SIGNAGE** — R451

City of DeLand - Standard Details



LOCATED ON SOUTH OR WEST SIDE OF ROADWAY (UNLESS OTHERWISE APPROVED)

NOTE: MIN. 4" for SINGLE SANITARY SERVICE LATERALS MIN. 6" for DOUBLE SANITARY SERVICE LATERALS ALL LATERALS TO BE AT MIN. 1% SLOPE.

RECLAIMED WATER SYSTEM NOTES
1. ALL PVC RECLAIMED PIPING SHALL CONFORM TO AWWA C900, DR-18. ALL DUCTILE IRON RECLAIMED PIPING SHALL CONFORM TO ANSI/AWWA A21.51/C151 (PRESSURE CLASS 350, UNLESS OTHERWISE NOTED.)
2. ALL RECLAIMED PIPING SHALL BE COLOR CODED: PURPLE (PANTONE)
3. FOR ALL SYSTEMS, THERE SHALL BE READILY IDENTIFIABLE "RECLAIMED WATER" OR "DO NOT DRINK" NOTICES MARKING OR CODING ON DISTRIBUTION FACILITIES AND APPURTENANCES. (SEE APPLICABLE DETAIL) Index No. 40103reSign.
4. RECLAIMED MAINS SHALL HAVE A MINIMUM OF 3 FEET OF COVER TO FINISH GRADE, UNLESS OTHERWISE SPECIFIED.
5. CONCRETE CURBS SHALL BE MARKED BY ETCHING OR CUTTING AN "R" TO SHOW LOCATIONS OF RECLAIMED WATER.
6. CONTRACTOR TO COORDINATE WITH CITY OF DELAND UTILITIES FOR CONSTRUCTION OF THE RECLAIMED MAIN SYSTEM. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE CITY'S STANDARDS AND SPECIFICATIONS AND WILL BE SUBJECT TO THEIR INSPECTION & ACCEPTANCE.
7. ALL RECLAIMED WATER VALVE BOXES SHALL HAVE RECTANGULAR SHAPED COVERS, AND SHALL BE PAINTED PURPLE (PANTONE).

DATE: MARCH 06, 2020 — **RECLAIMED WATER SYSTEM LAYOUT** — R452

City of DeLand - Standard Details

1. THE CITY OF DeLand's UTILITIES DEPARTMENT (386-626-7250) SHALL BE GIVEN A MINIMUM OF 48 HOURS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS OR WEEKENDS) PRIOR TO the BEGINNING OF ANY RECLAIMED WATER SYSTEM CONSTRUCTION.
2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW PROPSED RECLAIMED WATER MAIN.
3. ALL RECLAIMED WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
4. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 95% IN UNPAVED AREAS AND 98% IN PAVED AREAS IN ACCORDANCE WITH AASHTO T-180.
5. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS ARE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET
6. 3" METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED BETWEEN 15" AND 24" BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE PROVIDED ON ALL DIPS AS WELL.
7. ALL SINGLE RESIDENTIAL RECLAIMED WATER SERVICES SHALL BE 1" AND DOUBLE RESIDENTIAL SERVICES SHALL BE 1-1/2". SERVICES SHALL BE CTS 3408 HIGH DENSITY POLYETHYLENE TUBING RATED FOR A MINIMUM OF 200 PSI WITH SDR 9 (CTS). THE TUBING SHALL HAVE A VIRGIN HIGH DENSITY POLYETHYLENE CENTER FOR WHICH THE MANUFACTURER SHALL FURNISH A CERTIFICATE OF PURITY. THE TUBING SHALL BE "PURPLE" (PANTONE) IN COLOR AND SHALL HAVE THE WORDS "RECLAIMED WATER" PERMANENTLY PRINTED ON THE OUTSIDE. THE TUBING SHALL HAVE U.V. PROTECTION AND SHALL NOT BE AFFECTED BY DIRECT SUNLIGHT. THE TUBING SHALL COMPLY WITH OR EXCEED THE APPLICABLE STANDARDS OF A.S.D.M. D1248, D3350, D2239, D2737, N.S.F.-14 AND A.W.W.A. C901 AND SHALL COME WITH A LIFETIME WARRANTY. APPROVED SIZES: 1", 1-1/2" AND 2" DIAMETERS. ACCEPTABLE MANUFACTURERS: ENDOT ENDOCORE RWT OR APPROVED EQUAL
8. ALL RECLAIMED WATER SERVICE ENDINGS SHALL BE MARKED WITH A 2" x 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 12" MAXIMUM ABOVE THE GROUND AND ANY "U" BRANCHES FOR DOUBLE SERVICES SHALL BE AT GROUND LEVEL. ALL SERVICES SHALL BE LOCKED.
9. RECLAIMED WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 1,000 FEET.
10. AT ALL RECLAIMED WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
11. APPROVED WATER VALVE TYPES MUELLER OR CLOW:
    A. STANDARD GATE VALVES EQUAL TO OR LESS THAN 24" DIAMETER (AWWA C-500) OR RESILIENT SEAT GATE VALVES (AWWA C-509)
    B. TAPPING VALVES WITH MECHANICAL OR STAINLESS STEEL TAPPING SLEEVE.
12. ALL RECLAIMED WATER VALVES SHALL BE ADJUSTED TO FINISH GRADE AND THE CAPS SHALL BE PAINTED PURPLE (PANTONE) TO MAKE THEM PLAINLY DISTINGUISHABLE.
13. AS STANDARD PRACTICE RECLAIMED WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF THE CURB ON THE OPPOSITE SIDE OF THE POTABLE WATER LINES OR AS APPROVED BY THE CITY.

DATE: MARCH 06, 2020 — **RECLAIMED WATER NOTES - 1 OF 3** — R460

City of DeLand - Standard Details

14. ALL RECLAIMED WATER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON PRESSURE CLASS 350 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY.
15. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED INSPECTOR PRIOR TO ATTEMPTING TO CLEAR ANY RECLAIMED WATER MAIN FOR USE. THE INSPECTOR SHALL COORDINATE WITH CITY PERSONNEL AT THE RECLAIMED WATER PLANT 48 HOURS PRIOR TO BEGINNING OF ANY FULL-DIAMETER FLUSH OF MAINS. THE CONTRACTOR WILL CONDUCT A STANDARD WATER PRESSURE TEST. 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA POTABLE WATER STANDARDS. THE RECLAIMED LINES WILL THEN BE DISINFECTED WITH CHLORINE, FLUSHED CLEAR AGAIN.
16. THE CONTRACTOR SHALL BE REQUIRED TO PIG ALL RECLAIMED MAINS IN EXCESS OF 4" IN DIAMETER AND PRIMARY DISTRIBUTION MAINS LOCATED ON COLLECTOR AND ARTERIAL ROADWAYS. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR. ALL PIGGING OPERATIONS SHALL BE WITNESSED BY A PUBLIC UTILITIES REPRESENTATIVE OR CITY UTILITY INSPECTOR.
17. RECLAIMED WATER MAINS SHALL BE PVC AWWA CLASS C-900 OR C-905, CL 150 (COLOR: "PURPLE" PANTONE) OR DIP PRESSURE CLASS 350, STANDARD CEMENT LINED UNLESS APPROVED OTHERWISE BY THE CITY.
18. ALL RECLAIMED WATER MAINS SHALL USE A THRUST RESTRAINED JOINT METHOD IN COMPLIANCE WITH THE DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA) GUIDELINES. IN THE EVENT THAT PVC FITTINGS ARE SPECIFIED, THE RESTRAINED JOINT SHALL BE MODIFIED IN ACCORDANCE WITH THE RECOMMENDED ADDITIONAL RESTRAINED LENGTH REQUIRED FOR PIPE WRAPPED WITH POLYETHYLENE. IN NO INSTANCE SHALL THRUST BLOCKS BE PERMITTED.
19. MEGALUGS, BOLTLESS RESTRAINED JOINTS, OR GRIPPER GASKETS SHALL BE USED ON ALL RESTRAINED JOINT INSTALLATIONS. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES. SEE DETAILS W408 AND W409.
20. GRIPPER RING GASKETS BY ROMAC MAY BE USED AS APPROPRIATE FOR RESTRAINING PRESSURE PIPE TO FITTINGS, VALVES, ETC.
21. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO INSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE CITY OF DeLand UTILITIES AND "AS-BUILTS" ARE PROVIDED TO THE CITY, PRIOR TO ANY USE OF THIS SYSTEM.
22. ALL RECLAIMED WATER MAINS AND SERVICE LINES SHALL BE READILY DISTINGUISHABLE BY THEIR "PURPLE" (PANTONE) COLOR OR TAPE MARKINGS. DUCTILE IRON PIPE SHALL BE WRAPPED WITH PURPLE POLYETHYLENE.
23. ALL RECLAIMED WATER SERVICES SHALL BE MARKED ALONG THE OUTSIDE EDGE OF CURB WITH AN "R". VALVES AND BLOW-OFFS FOR RECLAIMED WATER MAINS SHALL BE MARKED BY AN "X" SET INTO THE CURB.
24. RECLAIM WATER SERVICES SHALL BE NORMALLY DOUBLE 1-1/2" SERVICES LOCATED AT SIDE LOT LINES ALTERNATING WITH POTABLE WATER SERVICE LOCATIONS. IN INSTANCES WHERE RECLAIMED WATER SERVICES NEED TO BE OFFSET, DUE TO SEWER LATERAL CONNECTION. 1" SINGLE SERVICES SHALL BE SPECIFIED. THESE SERVICES MAY BE OFFSET FROM THE LOT LINE A MAXIMUM DISTANCE OF 4.0'.

DATE: MARCH 06, 2020 — **RECLAIMED WATER NOTES - 2 OF 3** — R461

City of DeLand - Standard Details

25. MAXIMUM OBTAINABLE SEPARATION OF PUBLIC RECLAIMED WATER MAINS, STORMWATER MAINS, AND SANITARY SEWER MAINS SHALL BE MAINTAINED. A MINIMUM HORIZONTAL SEPARATION OF THREE (3) FEET (OUTSIDE TO OUTSIDE), TEN (10) FEET PREFERRED. A MINIMUM VERTICAL SEPARATION OF SIX (6) INCHES, IF WATER MAIN IS ABOVE STORM, SAN. SEW. & RECLAIMED MAINS. A MINIMUM VERTICAL SEPARATION OF EIGHTEEN (18) INCHES, IF WATER MAIN IS BELOW STORM, SAN. SEW. & RECLAIMED MAINS. (Ref Detail W420)
26. NO RECLAIMED WATER HOSE BIBBS ARE PERMITTED.
27. A 75-FOOT SETBACK DISTANCE SHALL BE PROVIDED FROM PUBLIC ACCESS REUSE WETTED AREAS TO ANY PUBLIC AND ANY PRIVATE POTABLE WATER SUPPLY WELLS.
28. LOW TRAJECTORY NOZZLES ARE REQUIRED WITHIN 100 FEET OF PUBLIC EATING, DRINKING OR BATHING FACILITIES.
29. ALL TAPPING OF MAINS SHALL BE PERFORMED BY THE CONTRACTOR AND WITNESSED BY THE CITY INSPECTOR. SCHEDULING OF THESE CONNECTIONS SHALL REQUIRED A MINIMUM 48 HOUR NOTIFICATION (MEASURED ON NORMAL WORK DAYS) DIRECTED TO THE CITY'S DESIGNATED SITE INSPECTOR WHO SHALL COORDINATE THE WORK DIRECTLY WITH THE CITY'S UTILITIES DEPARTMENT. SUBSEQUENTLY, THE CONNECTION SHALL BE SCHEDULED TO COMMENCE BETWEEN 7:00 A.M. AND NOON ON THE APPROPRIATE DAY, UNLESS ALTERNATE TIMES HAVE BEEN APPROVED BY THE CITY.
30. WITH RESPECT TO TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNECTIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS.
31. ALL WORK PERFORMED UPON RECLAIMED WATER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY, SHALL BE CONSTRUCTED BY AN UNDERGROUND UTILITY OR GENERAL CONTRACTOR LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.
32. FOR CONSTRUCTION PURPOSES, THE PLANS SHALL PROVIDE DIMENSION OF THE PROPOSED LOCATIONS OF ALL RECLAIMED WATER MAINS MEASURED FROM THE BACK OF CURB (OR EDGE OF PAVEMENT IF NO CURB EXISTS).
33. ALL HDPE PIPE RECLAIMED WATER MAINS SHALL BE SDR 11 UNLESS SPECIFICALLY NOTED OTHERWISE. THE HDPE PIPE SHALL BE SIZED TO MATCH THE EXTERNAL DIAMETER OF THE PVC OR DIP TO WHICH IT IS ATTACHED.
34. ALL P.V.C. PIPE SHALL BE STORED IN SUCH A WAY AS TO PREVENT WARPING, DEFLECTION, OR ANY DEFORMATION.
35. RECLAIMED WATER HYDRANTS ARE NOT ALLOWED BY THE CITY.
36. NO USED, RE-USED, RUSTED, SECOND HAND, OR ANY MATERIAL THAT IS NOT "NEW" SHALL BE USED IN ANY UTILITY IMPROVEMENT PROJECTS WITHIN THE CITIES SERVICE AREA.
37. LARGE RECLAIMED WATER METERS GREATER THAN 2" TAKES A MINIMUM OF 6 WEEKS FOR DELIVERY. IN ADDITION, ALL METERS AND VAULTS GREATER THAN 2" SHALL BE INSTALLED BY THE OWNER/ DEVELOPER OR CONTRACTOR. THE FEE COLLECTED BY THE CITY IS FOR MATERIALS ONLY. ALL METERS, 2" AND LESS, SHALL BE INSTALLED BY THE CITY, AFTER ALL FEES HAVE BEEN PAID.
38. TYPICALLY, THE CITY PREFERS DOUBLE SERVICE INSTALLATIONS WHEREVER FEASIBLE. WHEN DESIGN CONFLICTS EXIST, SINGLE SERVICES MAY BE ALLOWED. THIS MAY APPLY AT STORMWATER INLETS, FIRE HYDRANTS, FPL TRANSFORMERS, ETC. AND OTHER LOCATIONS DEEMED APPROPRIATE BY THE CITY.
39. ALL RECLAIMED WATER VALVE BOXES SHALL HAVE RECTANGULAR SHAPED COVERS, AND SHALL BE PAINTED "PURPLE" (PANTONE) AND LABELED REUSE OR RECLAIM.

NOTE: DIP = DUCTILE IRON PIPE

DATE: MARCH 06, 2020 — **RECLAIMED WATER NOTES - 3 OF 3** — R462

City of DeLand - Standard Details

ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD., STE. C
ORMOND BEACH, FL 32174
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS / REVISIONS
1	06-18-21	HK	SJRWMD SUBMITTAL
2	07-02-21	HK	CITY OF DELAND SUBMITTAL
3	09-21-21	JJ/HK	SJRWMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-22-21	JJ/HK	CITY OF DELAND RE-SUBMITTAL PH1A & PH1B
5	11-29-21	JJ/HK	REVISED PER CITY COMMENTS DATED 11-22-21
6	12-28-21	JJ/HK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1B
FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

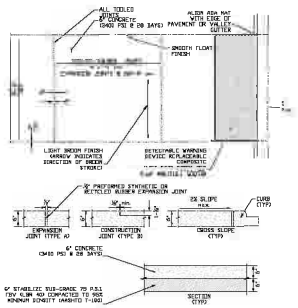
PROJECT NO: ZC 19194
DESIGNED BY: HK/JML
DRAFTED BY: JML
CHECKED BY: RMH
DRAWING FILE: 13-19-19194-DET_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXX.DWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:31:02-05'00'

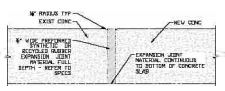
RANDY M. HUDAK, P.E., NO.
HALUK KILIC, P.E., NO.84244
NOT VALID WITHOUT SEAL

SHEET: C17 OF 19

R:\19194 MANCHESTER SENIOR HOUSING\FINAL ENGINEERING PLANS\CADDWGS\19194 PHASE 1B\13-19-19194-DET_PH1B.DWG -- PRINTED 12/29/2021 3:08 PM

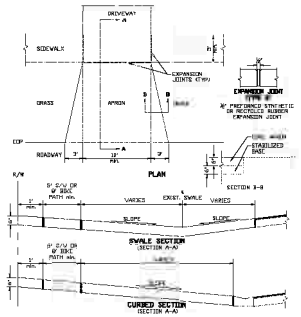


SIDEWALK CONSTRUCTION DETAIL



NOTES:
1. EXPANSION JOINTS ARE TO BE ½" PREFORMED SYNTHETIC OR RECYCLED RUBBER.
2. ALL EXPANSION JOINTS ARE REQUIRED TO BE INSTALLED THROUGH TO THE FULL DEPTH AND WIDTH OF THE CONCRETE AREA.
3. EXPANSION JOINTS SHALL BE SPACED AT INTERVALS OF EIGHTY FEET (80'0") FOR CURBING, THIRTY FEET (30') FOR 8FWC TRAILS AND ONE HUNDRED FEET (100') FOR SIDEWALKS.
4. EXPANSION JOINTS SHALL BE PLACED AT STREET INTERSECTIONS, RADIUS POINTS, STRUCTURES, AND ALONG CURVES AT SIXTY FEET (60') INTERVALS.
5. FOR LINEAR SECTIONS OF CURBS, EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING OF FIVE-HUNDRED FEET (500') AND SHALL BE ½" IN WIDTH.

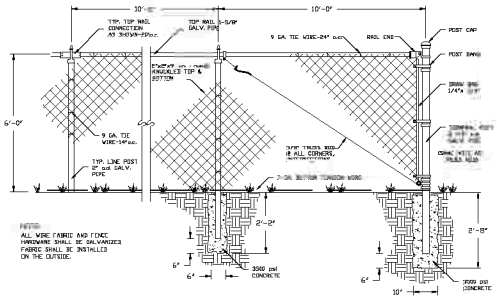
EXPANSION JOINT (TYPE A) DETAIL



NOTES:
1. DRIVEWAY APRON SHALL BE CONSTRUCTED OF PLAIN PORTLAND CEMENT CONCRETE WITH A MAXIMUM SLUMP OF 5". A MINIMUM DEVELOPMENT COMPRESSIVE STRENGTH OF 3000 P.S.I. @ 28 DAYS.
2. CONCRETE DRIVEWAY APRON WITHIN CITY RIGHT OF WAY SHALL BE MINIMUM UNIFORM THICKNESS OF 6".
3. DRIVEWAY APRON BASE SHALL BE COMPACTED AND TESTED TO 98% DENSITY WITH MINIMUM LBR 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
4. NO APRON SHALL TO BE USED WITHIN CITY RIGHT OF WAY.
5. CONCRETE APRON TO HAVE LIGHT BROOM FINISH.

CONCRETE DRIVEWAY APRON DETAIL

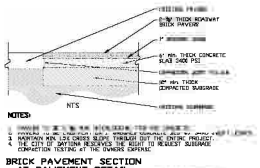
STEEL PIPE BOLLARD CONCRETE FILLED DETAIL



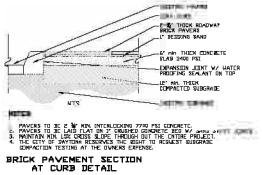
TYPICAL LINE POST FOOTING

TYPICAL CORNER POST FOOTING

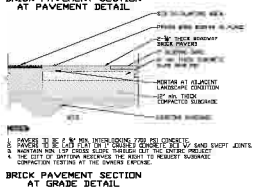
CHAIN LINK FENCE



BRICK PAVEMENT SECTION AT PAVEMENT DETAIL

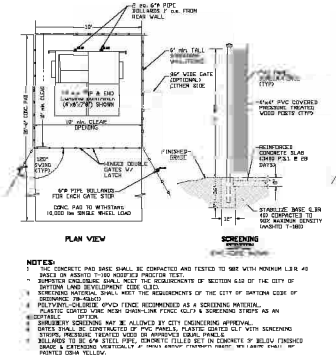


BRICK PAVEMENT SECTION AT CURB DETAIL

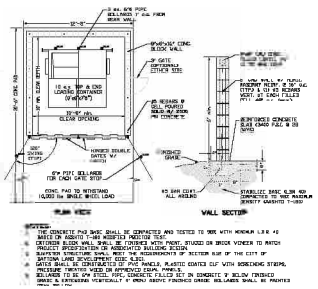


BRICK PAVEMENT SECTION AT GRADE DETAIL

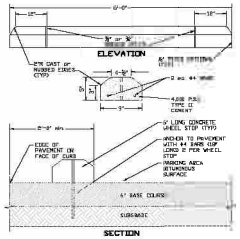
BRICK PAVEMENT PARKING AND APRON DETAIL



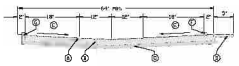
STANDARD DUMPSTER ENCLOSURE DETAIL



CMU DUMPSTER ENCLOSURE DETAIL



PARKING SPACE WHEEL STOP DETAIL



TYPICAL PARKING LOT SECTION DETAIL

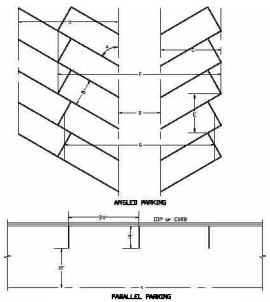
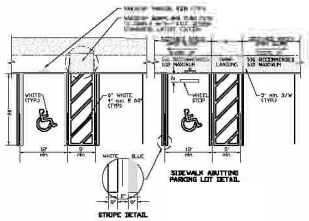
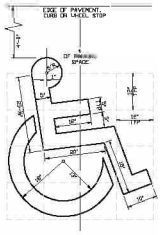


TABLE FOR ANGLED PARKING DIMENSIONS						
A	B	C	D	E	F	G
30°	9'	15'-0"	18'	18'	1'-0"	36' 60-90°
45°	9'	19'-0"	18'	18'-0"	1'-6"	41' 60-90°
60°	9'	20'-0"	18'	18'-0"	2'-0"	36' 90°
70°	9'	20'	18'	17'-6"	2'-6"	42' 90-90°
90°	9'	18'	18'	18'	4'0"	60' 90°

PARKING SPACE LAYOUT & STRIPING DETAIL



HANDICAP PARKING SPACE STRIPING DETAIL



HANDICAP PARKING PAVEMENT SYMBOL DETAIL

ZEV COHEN & ASSOCIATES, INC.
5100 BEACH BLVD., STE. 101
JACKSONVILLE, FL 32207
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	ISSUE/REVISION
1	08-13-19	RK	ISSUED FOR PERMITTING
2	09-13-19	RK	CITY COMMENTS - REVISED PER CITY COMMENTS DATED 09-06-19
3	09-24-19	RK	SUBMITTED FOR CITY REVIEW
4	10-18-19	RK	CITY COMMENTS - SUBMITTAL #2
5	12-13-19	RK	CITY COMMENTS - SUBMITTAL #3
6	12-20-19	RK	ISSUED FOR CITY COMMENTS

MANCHESTER NEIGHBORHOOD PHASE 1B
FINAL ENGINEERING PLANS
CONSTRUCTION DETAILS

CITY OF ELANDO

PROJECT NO: ZC 19194

DESIGNED BY: HKUML

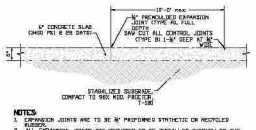
DRAWN BY: JM

CHECKED BY: RMM

DRAWING FILE: 19-19-19194-DET_PH1B

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:31:04-05'00'

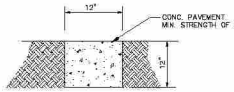
SHEET: C18 OF 19



CONCRETE HANDICAP PARKING SECTION DETAIL

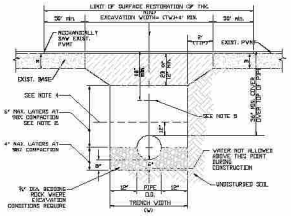
NTS

NOTES:
1. EXPANSION JOINTS ARE TO BE 3/4" PREFORMED SYNTHETIC OR RECYCLED RUBBER.
2. ALL EXPANSION JOINTS ARE REQUIRED TO BE INSTALLED THROUGH THE THE FULL DEPTH AND WIDTH OF THE CONCRETE AREA.
3. EXPANSION JOINTS SHALL BE SPACED AT INTERVALS OF SIXTY FEET (60') FOR CURBING, THIRTY FEET (30') FOR SIDE TRAILS AND ONE HUNDRED FEET (100') FOR SIDEWALKS.
4. EXPANSION JOINTS SHALL BE PLACED AT STREET INTERSECTIONS, RADIUS POINTS, STRUCTURES, AND ALONG CURVES AT SIXTY FEET (60') INTERVALS.
5. FOR LOCAL SECTIONS OF CURBS, EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING OF FIVE-HUNDRED FEET (500') AND SHALL BE 3/4" IN WIDTH CONTROL JOINTS SHALL BE HAND TOOLED INTO FRESH CONCRETE OR SAW CUT WITHIN 24 HOURS.
6. SAW CUT CONTROL JOINTS IN CONCRETE CURBING, SIDEWALKS, PAVEMENT AND SIMILAR CONCRETE AREAS SHALL BE DONE WITHIN 4 TO 18 HOURS OF CONCRETE PLACEMENT.
7. ALL CONTROL JOINTS SHALL BE 3/4" IN WIDTH TO A DEPTH OF 25% OF THE TOTAL DEPTH OF CONCRETE OR 1-1/4", WHICHEVER IS LESS.
8. CONTROL JOINTS SHALL BE SPACED AT INTERVALS OF TEN FEET (10') FOR CURBING, TEN FEET (10') FOR SIDE TRAILS & FIVE FEET (5') FOR SIDEWALKS.



RIBBON CURB DETAIL

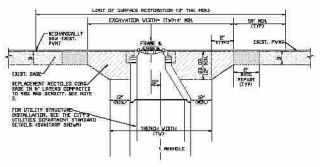
N.T.S.



NOTES:
1. ALL MATERIALS ARE TO BE APPROVED BY THE CITY ENGINEER AND THE PROJECT'S LICENSED SOILS ENGINEER PRIOR TO PLACEMENT.
2. COMPACTION, STABILITY & DENSITY TESTING ARE TO BE DONE IN ACCORDANCE WITH FDOT STANDARD PLANS FOR ROADWAY & BRIDGE CONSTRUCTION, LATEST EDITION.
3. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
4. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
5. FOR PVC PIPE, INSTALL METALLIC TAPE AND USE 12 AWG INSULATED SINGLE STRAND COPPER WIRE OVER FULL LENGTH OF PIPE.
6. SHEETING WILL BE REQUIRED AS DETERMINED BY FIELD CONDITIONS.
7. NEW SUBGRADE MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAYERS & FEATHERED JOINTS AS NEW TO OLD.
8. CONTRACTOR MAY USE FLOWABLE FILL IN LIEU OF RECYCLED CONC. UNDER THE APPROVAL FROM THE CITY ENGINEER OR DESIGNER.
9. TRENCH WIDTH (TWH) PER FDO (CENTERLINE+DIP DIAGRAM).
10. <DB> EXISTING BASE DEPTH.
11. TEMPORARY PATCH MAY BE RECYCLED ASPHALT, FDOT APPROVED COLD PATCH OR APPROVED EQUAL.
12. FINAL PATCH BE 24" MIN. BY 5'.
13. PATCH SHALL BE TOTAL ROADWAY WIDTH.

PAVEMENT CUT & PATCH OVER PIPE TRENCH DETAIL

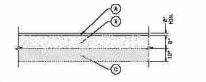
NTS



NOTES:
1. SEE DETAIL PERTAINS TO ALL UTILITY SANITARY AND STORM STRUCTURES WITHIN THE CITY OF DAYTONA BEACH RIGHTS-OF-WAY.
2. ALL MATERIALS ARE TO BE APPROVED BY THE CITY ENGINEER AND THE PROJECT'S LICENSED SOILS ENGINEER PRIOR TO PLACEMENT.
3. COMPACTION, STABILITY & DENSITY TESTING ARE TO BE DONE IN ACCORDANCE WITH FDOT STANDARD PLANS FOR ROADWAY & BRIDGE CONSTRUCTION, LATEST EDITION.
4. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
5. SHEETING WILL BE REQUIRED AS DETERMINED BY FIELD CONDITIONS.
6. NEW SUBGRADE MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAYERS & FEATHERED JOINTS AS NEW TO OLD.
7. CONTRACTOR MAY USE FLOWABLE FILL IN LIEU OF RECYCLED CONC. UNDER THE APPROVAL FROM THE CITY ENGINEER OR DESIGNER.
8. TRENCH WIDTH (TWH) PER FDO (CENTERLINE+DIP DIAGRAM).
9. <DB> EXISTING BASE DEPTH.
10. TEMPORARY PATCH MAY BE RECYCLED ASPHALT, FDOT APPROVED COLD PATCH OR APPROVED EQUAL.
11. FINAL PATCH BE 24" MIN. BY 5'.
12. PATCH SHALL BE TOTAL ROADWAY WIDTH UNLESS DIRECTED BY CITY ENGINEER.

PAVEMENT CUT & PATCH OVER UTILITY STRUCTURE DETAIL

NTS



(A) ASPHALT PAVEMENT:
2" MIN ASPHALT BITUMINOUS CONCRETE TYPE SP-9.5 SEE NOTE 2

(B) BASE:
9" RECYCLED CONCRETE BASE CLBR 1300. SEE NOTE 2

ALTERNATE 1:
6" ASPHALT BASE MINIMUM BEARING CLBR 1000. SEE NOTE 2

ALTERNATE 2:
8" LIMEROCK BASE CLBR 1300. SEE NOTE 2
6" ASPHALT BASE MINIMUM BEARING CLBR 1000 AND LAYER IS 84" ABOVE MEAN GROUND WITH MAXIMUM ELEVATION AND UPON APPROVAL OF THE CITY ENGINEER.

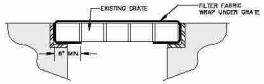
(C) SUB-GRADE:
12" STABILIZED SUB-BASE CLBR 40, COMPACTED TO 98% MAXIMUM DENSITY. SEE NOTE 2 BELOW.

NOTES:
1. ALL MATERIALS ARE TO BE APPROVED BY THE CITY ENGINEER AND THE PROJECT'S LICENSED SOILS ENGINEER PRIOR TO PLACEMENT.
2. ASPHALT PAVEMENT TESTING IS TO BE DONE IN ACCORDANCE WITH FDOT STANDARD PLANS FOR ROAD & BRIDGE CONSTRUCTION, LATEST EDITION.
3. GRADED AGGREGATE BASE

GRADED AGGREGATE BASE	
SIEVE SIZE	PERCENT BY WEIGHT PASSING
2" (50mm)	100
1-1/2" (37.5mm)	95 to 100
3/4" (19mm)	55 to 85
3/8" (9.5mm)	40 to 75
No.4 (4.75mm)	33 to 65
No.10 (2mm)	25 to 45
No.40 (425um)	8 to 20
No.200 (75um)	5 to 12

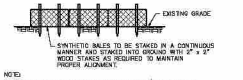
TYPICAL ASPHALT PAVEMENT SECTION DETAIL

NTS



CATCH BASIN SEDIMENT PROTECTION DETAIL

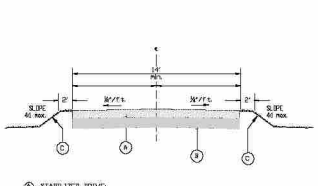
N.T.S.



NOTES:
CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (SYNTHETIC BALES OR SILTATION CURTAIN) TO PREVENT SILTATION OF ADJACENT PROPERTY, STREETS, STORM SEWERS AND WATERWAYS. IN ADDITION, CONTRACTOR SHALL PLACE STRAW MULCH OR OTHER SUITABLE MATERIAL ON GROUND IN AREAS WHERE CONSTRUCTION RELATED TRAFFIC IS TO ENTER AND EXIT SITE. IF, IN THE OPINION OF THE ENGINEER AND/OR LOCAL AUTHORITIES, SUCESSIVE ACTIONS OF THE ABOVE MEASURES FAIL TO PREVENT SILTATION OF ADJACENT PROPERTIES BY VEHICULAR TRAFFIC, THE CONTRACTOR IS TO REMOVE AND CLEAN SAID EARTH TO THE SATISFACTION OF THE ENGINEER AND/OR LOCAL AUTHORITIES.

SEDIMENT BARRIER

N.T.S.



(A) STABILIZED DRIVE:
8" MIN RECYCLED CONCRETE BASE CLBR 1300 COMPACTED TO 98% DENSITY BASED ONASHTO T-180 MODIFIED PROCTOR TEST.

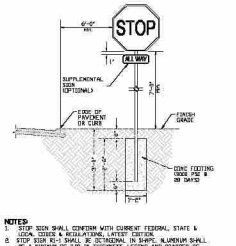
(B) SUB-BASE:
6" MIN COMPACTED SUB-BASE CLBR 40 COMPACTED TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.

(C) SOD OR SEED AND MULCH PER FDOT DESIGN STANDARDS, CURRENT EDITION, WHERE APPLICABLE. MAINTAIN POSITIVE DRAINAGE FROM EDGE OF ROAD.

NOTES:
1. ALL MATERIALS ARE TO BE APPROVED BY THE CITY ENGINEER AND THE PROJECT'S LICENSED SOILS ENGINEER PRIOR TO PLACEMENT.
2. TURN AROUND REQUIRED ON DEAD END ACCESS ROAD SUITABLE FOR FIRE TRUCKS AND EMERGENCY EQUIPMENT UTILIZED BY THE CITY OF DAYTONA BEACH FIRE DEPARTMENT.

EMERGENCY EQUIPMENT ACCESS ROAD SECTION DETAIL

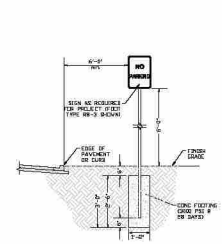
NTS



NOTES:
1. STOP SIGN SHALL CONFORM WITH CURRENT FEDERAL, STATE & LOCAL CODES & REGULATIONS, LATEST EDITION.
2. STOP SIGN (R1-1) SHALL BE OCTAGONAL IN SHAPE, ALUMINUM SHALL BE A MINIMUM OF 0.080 INC THICKNESS, LEGEND AND BORDER SHALL BE GREEN IN COLOR, REFLECTIVE MATERIAL (METEROLOGICITIES) TABLE 2B-1 OF THE MUTCD SHALL BE USED TO DETERMINE THE APPROPRIATE SIZE OF THE SIGN FOR THE APPLICATION.
3. LEGEND AND BORDER SIZES SHALL BE IN ACCORDANCE WITH THE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL, LATEST EDITION, FOR THE SIZE SIGN FOR THE APPLICATION.
4. ALUMINUM SIGN POSTS TO BE GALVANIZED U-HICH. ALL BOLTS, NUTS, WASHERS AND SCREWS MUST BE 304 STAINLESS STEEL.
5. CONCRETE FOOTING SHALL BE OF PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I.
6. SIGN POST SHALL BE MINIMUM 6'-0" CLEAR FROM BACK OF CURB OR EDGE OF PAVEMENT.
7. SIGN POST SHALL BE DESIGNED TO WITHSTAND 100 M.P.H. WIND LOAD.
8. SIGN INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUAL OF UNIFORM MUTCD SPECIFICATIONS AT INTERSECTIONS WHERE ALL APPROACHES ARE CONTROLLED BY STOP SIGNS.

STOP SIGN INSTALLATION DETAIL (FDOT TYPE R1-1)

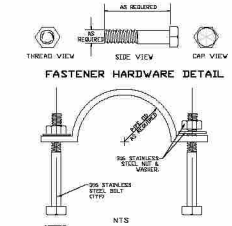
NTS



NOTES:
1. NO PARKING SIGN SHALL CONFORM WITH CURRENT FEDERAL, STATE & LOCAL CODES & REGULATIONS, LATEST EDITION.
2. SIGNS WILL BE FABRICATED BY USING A REFLECTING COATING IN THE TEXT & BORDER APPLIED TO A SHEET ALUMINUM BACKING (0.080" IN THICKNESS).
3. LEGEND AND BORDER SIZES SHALL BE IN ACCORDANCE WITH THE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL, LATEST EDITION FOR THE SIZE SIGN FOR THE APPLICATION. (R8-3 SHOWN)
4. METAL SIGN POSTS TO BE GALVANIZED U-HICH. ALL BOLTS, NUTS, WASHERS AND SCREWS MUST BE 304 STAINLESS STEEL.
5. CONCRETE FOOTING SHALL BE OF PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I.
6. SIGN POST SHALL BE MINIMUM 6'-0" CLEAR FROM BACK OF CURB OR EDGE OF PAVEMENT.
7. SIGN POST SHALL BE DESIGNED TO WITHSTAND 100 M.P.H. WIND LOAD.

STANDARD SIGN INSTALLATION DETAIL (FDOT TYPE R11-1)

NTS



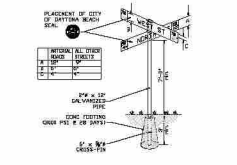
FASTENER HARDWARE DETAIL

NTS

NOTES:
1. 316 STAINLESS STEEL BOLT HEX HEAD BOLT SHOWN. EITHER HEX HEAD OR SQUARE HEAD BOLT MAY BE USED. ONLY HEX HEAD NUT TO BE USED.
2. USE FLAT WASHER WITH CHAMFERED FACE SOWN.
3. APPLY ANTI-SEIZE TO BOLT THREAD PRIOR TO TIGHTENING.

316 STAINLESS STEEL SIGN MOUNTING HARDWARE DETAIL

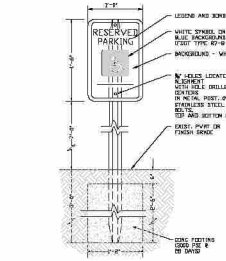
NTS



NOTES:
1. ALUMINUM SIGN PLATES 3004 H14 THICKNESS, SIZE CUT ALCOA ALLOY 6061-T6, OR EQUAL. WHITE REFLECTIVE LETTERS WITH GREEN REFLECTIVE BACKGROUND TO MEET STANDARDS OF SECTION 630.8 (F-79 FOR TYPE IM SHEET REFLECTIVE MATERIAL CITY SEAL TO BE PURCHASED FROM THE CITY.
2. CONCRETE FOOTING SHALL BE OF PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I.
3. 6"Ø CONCRETE FOOTING 8' TOP AND FLUSH WITH GRADE, 6" x 36"Ø, CROSS-PIN THROUGH PIPE @ MID-POINT IN CONCRETE FOOTING. 5"Ø CONCRETE FOOTING 3'-0" BELOW GRADE.
4. SIGN PLATES SHALL BE MOUNTED USING TWO RIVETS ON SIGN POST AND ONE AT EACH END OF SIGN PLATES.

CITY STREET NAME SIGN INSTALLATION DETAIL

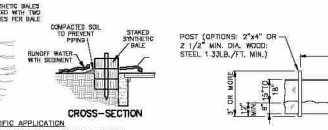
NTS



NOTES:
1. HANDICAP PARKING SIGN SHALL CONFORM WITH CURRENT FEDERAL, STATE LOCAL & ADA CODES & REGULATIONS, LATEST EDITION.
2. SIGNS WILL BE FABRICATED BY USING A REFLECTING COATING IN THE SYMBOL, MESSAGE AND BORDER APPLIED TO A SHEET ALUMINUM BACKING (0.080"IN WIDE).
3. LEGEND, SYMBOL AND BORDER SIZES SHALL BE IN ACCORDANCE WITH THE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL, LATEST EDITION.
4. THE SYMBOL IS COMPOSED OF TWO ELEMENTS; A WHITE WHEEL-CHAIR FIGURE (WHICH SHOULD ALWAYS FACE RIGHT) IN A SQUARE BACKGROUND INTERNATIONAL BLUE IN COLOR (FS 15102 OR EQUAL COLOR) MOUNTED ON A 6" x 9" WHITE BACKGROUND. ALL BOLTS, NUTS, WASHERS AND SCREWS MUST BE 304 STAINLESS STEEL.
5. CONCRETE FOOTING SHALL BE OF PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I.
6. SIGN POST SHALL BE MINIMUM 6'-0" CLEAR FROM BACK OF CURB OR WHEEL STOP.
7. SIGN POST SHALL BE DESIGNED TO WITHSTAND 100 M.P.H. WIND LOAD.

HANDICAP PARKING SIGN DETAIL (FDOT TYPE R7-8)

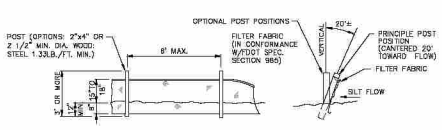
NTS



SPECIFIC APPLICATION
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5 PERCENT) WHERE SHEET OR OVERLAND FLOWS ARE TYPICAL.

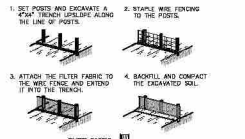
SYNTHETIC BALE DROP INLET SEDIMENT FILTER

N.T.S.



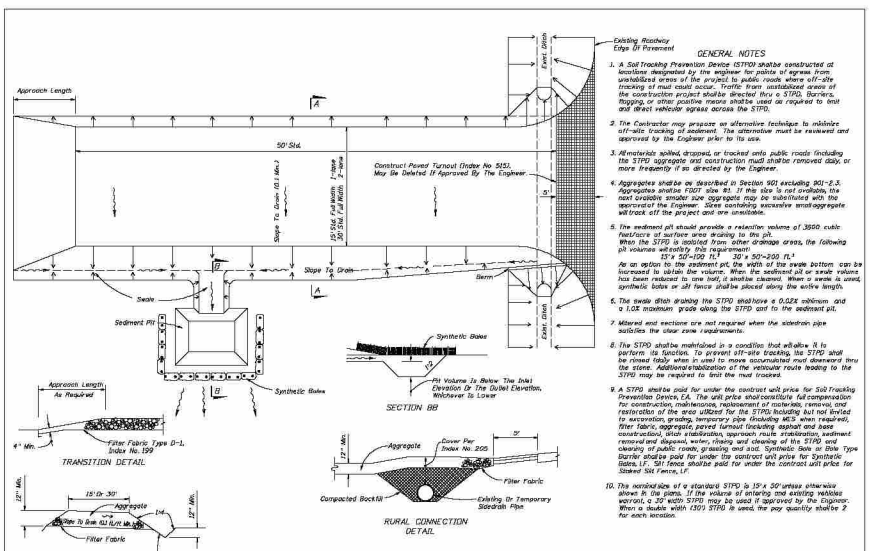
TYPE III SILT FENCE DETAIL

N.T.S.



SILT FENCE CONSTRUCTION

N.T.S.



GENERAL NOTES

1. A Soil Tracking Prevention Device (STPD) shall be constructed at locations designated by the engineer for points of egress from unstabilized areas of the project onto public roads where off-site tracking of mud could occur. Traffic from unstabilized areas of the construction project shall be directed thru a STPD. Barriers, flagging, or other positive means shall be used as required to limit all direct vehicular egress across the STPD.
2. The Contractor may propose an alternative technique to minimize off-site tracking of sediment. The alternative must be reviewed and approved by the Engineer prior to its use.
3. All materials spilled, dropped, or tracked onto public roads (including the STPD aggregate and construction mud) shall be removed daily, or more frequently if as directed by the Engineer.
4. Aggregates shall be as described in Section 901 Excluding 901-2.3. Aggregates shall be FDOT size #1. If this size is not available, the next available smaller size aggregate may be substituted with the approval of the Engineer. Stone containing excessive sand/aggregate will track off the project and are unsuitable.
5. The sediment pit should provide a retention volume of 3600 cubic feet/acre of surface area draining to the pit. When the STPD is isolated from other drainage areas, the following pit volumes will satisfy this requirement:
   15' x 50'=100 ft.³ 30' x 50'=200 ft.³
   As an option to the sediment pit, the width of the swale bottom can be increased to obtain the volume. When the sediment pit or swale volume has been reduced to one half, it shall be cleaned. When a swale is used, synthetic bales or silt fence shall be placed along the entire length.
6. The swale ditch draining the STPD shall have a 0.02% minimum and a 1.0% maximum grade along the STPD and to the sediment pit.
7. Mitered end sections are not required when the sidedrain pipe satisfies the clear zone requirements.
8. The STPD shall be maintained in a condition that will allow it to perform its function. To prevent off-site tracking, the STPD shall be raised fully when in use) to move accumulated mud downward thru the stone. Additional stabilization of the vehicular route leading to the STPD may be required to limit the mud tracked.
9. A STPD shall be paid for under the contract unit price for Soil Tracking Prevention Device, EA. The unit price shall constitute full compensation for construction, maintenance, replacement of materials, removal, and restoration of the area utilized for the STPD, including but not limited to excavation, grading, temporary pipe (including MES when required), filter fabric, aggregate, paved turnout (including asphalt and base construction), drain stabilization, approach route stabilization, sediment removal and disposal, water, rinsing and cleaning of the STPD and cleaning of public roads, grassing and sod. Synthetic Bale or Bale Type Barrier shall be paid for under the contract unit price for Synthetic Bales, LF. Silt Fence shall be paid for under the contract unit price for Staked Silt Fence, LF.
10. The nominal size of a standard STPD is 15'x 50' unless otherwise shown in the plans. If the volume of entering and existing vehicles warrant, a 30' wide STPD may be used if approved by the Engineer. When a double width (30') STPD is used, the pay quantity shall be 2 for each location.

2010 FDOT Design Standards	Last Revised 07/01/07	Sheet No. 1 of 1
SOIL TRACKING PREVENTION DEVICE TYPE A		Index No. 106

ZEV COHEN & ASSOCIATES, INC.
CIVIL ENGINEERS
STORMWATER MGMT. & NPDES
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	REVISIONS
1	06-03-21	RK	SUBMITTAL/1 REVISIONS
2	07-16-21	RK	SUBMITTAL/2 REVISIONS
3	09-21-21	JJ/KK	& RWMD RESUBMITTAL-REVISED PER COMMENTS DATED 07-16-21
4	10-25-21	JJ/KK	CITY OF DELAND RESUBMITTAL-PH A & 1B-1
5	12-13-21	JJ/KK	REVISED PER CITY COMMENTS DATED 10-25-21
6	12-30-21	JJ/KK	REVISED PER CITY COMMENTS DATED 12-06-21

MANCHESTER NEIGHBORHOOD PHASE 1B FINAL ENGINEERING PLANS CONSTRUCTION DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: HKUML
DRAFTED BY: JNL
CHECKED BY: RMH
DRAWING FILE: 19-19-19194-DET_PH1B
XREFS: 19194_BASE.DWG
XREFS: XXXXXLDWG

Digitally signed by Haluk Kilic
Date: 2022.01.03 09:31:06-05'00'

HARLEY M. HUGHES, P.E., NO.59303
HALUK KILIC, P.E., NO.50244
NOT VALID WITHOUT SEAL

SHEET: C19 OF 19

G:\19194 MANCHESTER SENIOR HOUSING\FINAL ENGINEERING PLANS\CONSTRUCTION\19194 PH1B DET.DWG - PLOTTED BY ZEV PHILLIPS - PLOTTED 12/29/2021 9:08 AM

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING SPECIMEN TREE TO REMAIN
- EXISTING SPECIMEN TREE TO BE REMOVED
- EXISTING HISTORIC TREE TO REMAIN
- DENOTES TREE PROTECTION AREA / CONSERVATION AREA TO REMAIN
- DENOTES ROOT ZONE PROTECTION AREA REQUIRED TREE PROTECTION PER TREE BARRICADE DETAIL THIS SHEET.

TREE LEGEND

QL	LAUREL OAK
QV & OK	LIVE OAK
PC	PRUNUS CAROLINIANA
PS	PRUNUS SEROTINA
SP	SABAL PALM

MINIMUM ON SITE TREES

TOTAL SITE ACREAGE	7.32 AC.
MINIMUM TREES REQUIRED ON SITE	768 D.B.H.
NUMBER OF TREES PROVIDED ON LANDSCAPE PLAN	1,141 D.B.H.

15% TREE PROTECTION AREA

TOTAL SITE ACREAGE	7.32 AC.
TOTAL PROTECTION AREA REQUIRED (CALCULATION: 7.32 AC. x 15% = XX AC.	1.1 AC.
UNDISTURBED TREE PROTECTION AREA	2 AC.
TOTAL TREE PROTECTION AREA PROVIDED	2 AC.

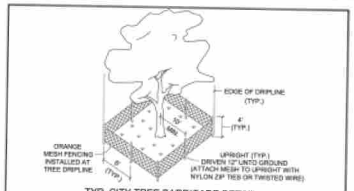
REMAINED OF TREE PROTECTION AREA TO BE PROVIDED IN SOUTHERN PORTION PER PLANNED DEVELOPMENT AGREEMENT.

SPECIMEN TREE REQUIREMENTS

TOTAL SITE ACREAGE	7.32
SPECIMEN TREES ON SITE	15
SPECIMEN TREES PER ACRE	2.04
SPECIMEN TREES REQUIRED TO BE PRESERVED (CALCULATION: 15 TREES x 100% = 15 TREES)	15
SPECIMEN TREES PRESERVED IN PHASE 1B	1

NOTE: REMAINING SPECIMEN TREES ARE TO BE PRESERVED IN SOUTHERN PD AREA.

MITIGATION AND MAINTENANCE PLAN TO BE PROVIDED BY A BOARD CERTIFIED MASTER ARBORIST FOR ALL SPECIMEN AND HISTORIC TREES IMPACTED BY SITE IMPROVEMENTS TO THE CITY OF DELAND.



TYP. CITY TREE BARRICADE DETAIL

N.T.S.

TREE BARRICADES ARE REQUIRED AROUND ALL TREES WHICH HAVE BEEN DESIGNATED ON THE SITE PLAN TO BE RETAINED AND PROTECTED PRIOR TO ANY CLEARING OR CONSTRUCTION ACTIVITY OCCURING ON THE SITE. TREE BARRICADES SHALL BE CONSTRUCTED BY THE CONTRACTOR AND APPROVED BY BY THE CITY. TREE BARRICADES SHALL BE PLACED AT THE EDGE OF THE DRIPLINE OR A MINIMUM OF 10' FROM THE TRUNK OF THE TREE, WHICH EVER IS GREATER.

FOR THE BARRIER THE CITY RECOMMENDS SAFETY BARRICADE FENCING

NOTE: EXISTING TREES IN LANDSCAPE BUFFER SHALL ALSO BE PROTECTED.

DATE: May 22, 2010 | TREE BARRICADE DETAIL | M112

City of DeLand - Standard Details

SCALE : 1" = 40'

ZEV COHEN & ASSOCIATES, INC.
250 NORTH WELLS ST.
DELAND, FL 32720
386-736-1234
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO.	DATE	BY	SUBMITTALS / REVISIONS

FOR REVIEW ONLY NOT FOR CONSTRUCTION

MANCHESTER NEIGHBORHOOD PHASE 1B
FINAL ENGINEERING PLANS TREE PROTECTION PLAN & DETAILS

VOLUSIA COUNTY, FLORIDA
CITY OF DELAND

PROJECT NO: ZC 19154
DESIGNED BY: JES
DRAFTED BY: JES
CHECKED BY: BMG
DRAWING FILE: 19154-TP_1B
XREFS: SHE_DWG
XREFS: SURVEYWS

LICENSED PROFESSIONAL ENGINEER
LARRY E. STOHL, P.E., L.A.
NOT VALID WITHOUT SEAL

SHEET: TP1 OF 2

MANCHESTER 1B CALCULATIONS

CITY OF DELAND, VOLUSIA COUNTY, FLORIDA

PROTECTED TREE REPLACEMENT CALCULATIONS

DESIGNATED BREAST HEIGHT (D.B.H)

Required Live Oak replacement:

D.B.H	#TREES	TOTAL D.B.H	
6	5	30.00	
7	1	7.00	
8	2	16.00	
9	4	36.00	
	TOTAL D.B.H REMOVED	89.00	D.B.H.
	Total required replacement: (104)/3 =	29.67	D.B.H.
10	4	40.00	
11	3	33.00	
12	2	24.00	
13	0	0.00	
14	1	14.00	
15	4	60.00	
16	3	48.00	
17	0	0.00	
18	1	18.00	
19	0	0.00	
20	2	40.00	
21	0	0.00	
	TOTAL D.B.H REMOVED	277.00	D.B.H.
	Total required replacement: (460) *.5 =	138.50	D.B.H.

Required Laurel Oak replacement:

D.B.H	#TREES	TOTAL D.B.H	
6	5	30.00	
7	6	42.00	
8	3	24.00	
9	1	9.00	
10	1	10.00	
11	2	22.00	
12	0	0.00	
14	0	0.00	
15	2	30.00	
16	2	32.00	
17	1	17.00	
18	0	0.00	
	TOTAL D.B.H REMOVED	216.00	D.B.H.
	Total required replacement: (257.00) / 3 =	72.00	D.B.H.
19	0	0.00	
20	0	0.00	
21	1	21.00	
	TOTAL TREES REMOVED	1.00	D.B.H.
	Total required replacement: (1) *2 D.B.H. =	2.00	D.B.H.

Required Sabal Palm replacement:

D.B.H	#TREES	TOTAL D.B.H	
10	0	0.00	
11	0	0.00	
12	0	0.00	
13	0	0.00	
14	8	112.00	
18	1	18.00	
20	1	20.00	
22	1	22.00	
	TOTAL D.B.H REMOVED	232.00	D.B.H.
	Total required replacement: (232.00) / 3 =	77.33	D.B.H.

Required Cherry replacement:

D.B.H	#TREES	TOTAL D.B.H	
6	2	12.00	
7	1	7.00	
8	0	0.00	
9	0	0.00	
10	1	10.00	
12	0	0.00	
	TOTAL D.B.H REMOVED	29.00	D.B.H.
	Total required replacement: (29.00) / 3 =	9.67	D.B.H.

Required Cherry Laurel replacement:

D.B.H	#TREES	TOTAL D.B.H	
6	5	30.00	
7	2	14.00	
8	2	16.00	
9	1	9.00	
10	1	10.00	
11	1	11.00	
	TOTAL D.B.H REMOVED	90.00	D.B.H.
	Total required replacement: (90.00) / 3 =	30.00	D.B.H.

REPLACEMENT REQUIRED IN TOTAL: 244.17

TREES PLANTED FOR PROTECTED TREE REPLACEMENT

(See plant schedule on Landscape Plans)

Magnolia

D.B.H	#TREES	TOTAL D.B.H	
2.5	23	57.50	
	TOTAL D.B.H PROVIDED	57.50	D.B.H.

Live Oak

D.B.H	#TREES	TOTAL D.B.H	
3.5	81	283.50	
	TOTAL D.B.H PROVIDED	283.50	D.B.H.

Sabal Palm

D.B.H	#TREES	TOTAL D.B.H	
6	110	660.00	
	TOTAL D.B.H PROVIDED	660.00	D.B.H.

Japanese Blueberry

D.B.H	#TREES	TOTAL D.B.H	
2	17	34.00	
	TOTAL D.B.H PROVIDED	34.00	D.B.H.

Weeping Yaupon Holly

D.B.H	#TREES	TOTAL D.B.H	
2	0	0.00	
	TOTAL D.B.H PROVIDED	0.00	D.B.H.

Crape Myrtle

D.B.H	#TREES	TOTAL D.B.H	
2	53	106.00	
	TOTAL D.B.H PROVIDED	106.00	D.B.H.

TOTAL D.B.H REPLACEMENT REQUIRED:	244.17
TOTAL D.B.H REPLACEMENT PROVIDED:	1,141.00
EXCESS D.B.H. PROVIDED:	896.83

NOTE: PROPOSED BUFFER PLANTINGS HAVE BEEN REMOVED FROM PH-1B CALCULATIONS AS THEY WILL BE INSTALLED WITH PHASE PH-1A.

TREES THAT WERE REMOVED FROM PH-1B CALCULATIONS AND ADDED TO PH-1A ARE:
- 10 MAGNOLIA
- 24 LIVE OAK
- 4 WEEPING YAUPON HOLLY
- 10 GRAPE MYRTLE

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CIVIL ENGINEERING
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NO.	DATE	BY	SUBMITTALS/REVISIONS

FOR REVIEW ONLY NOT FOR CONSTRUCTION

MANCHESTER NEIGHBORHOOD PHASE 1B FINAL ENGINEERING PLANS TREE PROTECTION PLAN & DETAILS

CITY OF DELAND — VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: JES
DRAFTED BY: JES
CHECKED BY: EMD

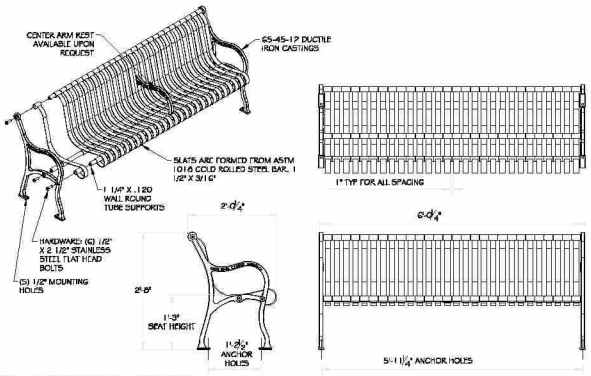
SHEET: TP2 OF 2

HARDSCAPE NOTES

1. DIMENSIONS: ALL LAYOUT DIMENSIONS ARE TO EDGE OF PAVEMENTS UNLESS OTHERWISE NOTED.
2. LAYOUT: ALL LAYOUT DIMENSIONS SHOWN ON DETAILS ARE APPROXIMATE.
3. CONCRETE: REFER TO CIVIL DRAWINGS FOR CONCRETE DESIGN SPECIFICATIONS AS WELL AS GRADING AND DRAINAGE INFORMATION.
4. ACCESSIBILITY: ALL CONSTRUCTION SHALL CONFORM WITH THE REQUIREMENTS FOR HANDICAP ACCESSIBILITY AS OUTLINED UNDER THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG).
5. STAKING AND LAYOUT: THE CONTRACTOR SHALL STAKE AND LAYOUT ALL IMPROVEMENTS USING THE GEOMETRIC DATA PROVIDED. IT IS THE CONTRACTORS RESPONSIBILITY TO COMPLETELY STAKE AND VERIFY THE ALIGNMENT, BOTH VERTICAL AND HORIZONTAL, AND TO INSURE PROPER POSITIONING, PRIOR TO THE MANUFACTURING AND INSTALLATION OF ANY IMPROVEMENT. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY, IN WRITING, IF ANY DISCREPANCIES ARE FOUND, AND SHALL NOT PROCEED WITH THE WORK UNTIL DIRECTED.
6. CONTROL JOINTS: UNLESS OTHERWISE EXPRESSLY APPROVED, IN WRITING, BY THE OWNER ALL CONTROL JOINTS SHALL BE COORDINATED WITH CIVIL PLANS FOR ADDITIONAL SPECIFICATIONS. ALL CONTROL JOINT SHALL BE TOOLED, SAW CUTTING WILL NOT BE ACCEPTABLE.
7. EXISTING IMPROVEMENTS: THE CONTRACTOR SHALL REPAIR OR REPLACE, TO AN EQUAL TO OR BETTER CONDITION, ANY EXISTING IMPROVEMENTS, LOCATED OUTSIDE OF THE SCOPE OF WORK, THAT ARE DAMAGED BY THE CONTRACTORS CONSTRUCTION ACTIVITIES, AT NO ADDITIONAL COST TO THE OWNER.
8. EXISTING UTILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES.
9. CONSTRUCTION JOINTS: CAULK ALL JOINTS BEFORE PAINTING.
10. PAINT: COLOR FOR PAINTED SURFACES SHALL BE AS INDICATED ON THESE PLANS OR SELECTED BY OWNER OR OWNERS REPRESENTATIVE. FINAL PAINT COLOR, SELECTED BY OWNER OR OWNERS REPRESENTATIVE, SHALL BE APPLIED AND APPROVED BY SAME PRIOR TO THE INSTALLATION OF SIGNAGE LETTERS.
11. TRASH: ALL CUTOFFS AND SCRAPS ARE TO BE REMOVED FROM SITE DAILY.
12. INTENT: THESE DRAWINGS ARE FOR DESIGN INTENT ONLY. FINAL DESIGN + BUILDING CODE COMPLIANCE AND PERMITTING IS BY OTHERS.
13. SHOP DRAWINGS: THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS, INDICATING REQUIRED STRUCTURAL DESIGN SPECIFICATIONS OR ANY CUSTOMIZATION SPECIFIC TO THE PLAN SET, TO THE OWNER, THAT ARE SIGNED AND SEALED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
14. SEALANT: ALL PAVERS MUST BE CLEANED WITH PAVER CLEANER AND ALLOWED TO DRY FOR A MINIMUM OF 24 HOURS. SEALER SHOULD SET FOR 24 HOURS BEFORE USE OF SURFACE.

REFERENCE NOTES SCHEDULE

SYMBOL	SITE FURNISHINGS DESCRIPTION	QTY	DETAIL
S-101	KINGS RIVER CASTING IVBC-72 6' BENCH WITH BACK. KINGS RIVER CASTING - MODEL IVBC-72. POWDER COATED DUCTILE CAST IRON LEGS AND POWDER COATED STEEL SLATS.	5	1/HA2



KINGS RIVER CASTING
Sanger, CA
www.kingsrivercasting.com

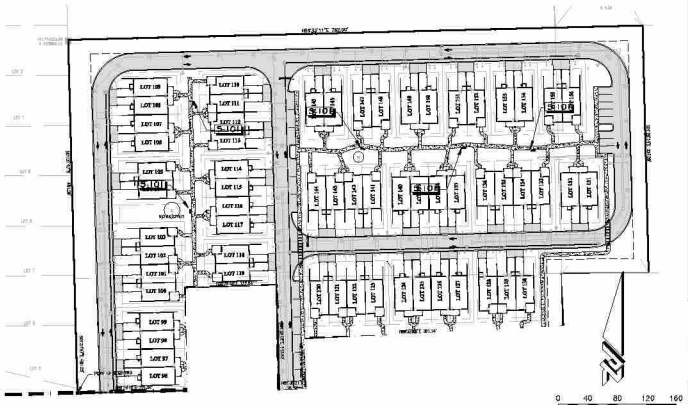
NOTES:
1. ALL METAL FABRICATED PARTS ARE ETCHED, PHOSPHATIZED, PREHEATED, PRIMER POWDER COATED, AND FINAL COAT ELECTROSTATICALLY POWDER COATED.
2. COLORS INCLUDE: BLACK, EVERGREEN, DARK GREEN WHITE, TAN, DARK BROWN, AND BLUE. SPECIAL ORDER COLORS AVAILABLE.
3. THIS PRODUCT CAN SHIP EITHER KNOCKED DOWN OR ASSEMBLED.
4. IT IS NOT RECOMMENDED TO LOCATE ANCHOR BOLTS UNTIL THE BENCH IS IN PLACE. ANCHOR BOLTS NOT INCLUDED.

ADDRESS:
1850 NORTH AVE. SANGER, CALIFORNIA 93657
PHONE: (559) 875-8250
FAX: (559) 875-1491
kingsrivercasting@verizon.net

WEIGHT: 210 LBS
MODEL NO.: IVBC-72
SIZE: 6

1 6' IRON VALLEY BENCH
NTS

PK-SF-KRC-BNCH-26



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MANCHESTER NEIGHBORHOOD PHASE 1B
FINAL ENGINEERING PLANS
HARDSCAPE PLAN & DETAIL

CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: JES
DRAFTED BY: JES
CHECKED BY: BMG
DRAWING FILE: 19194-HA_1B
XREFS: BAR_DWG
XREFS: SURVDWG

LICENSED PROFESSIONAL ENGINEER
JAMES E. STEVENS, P.L.A., ASLA, ISA
NOT VALID WITHOUT SEAL

SHEET: HA1 OF 1

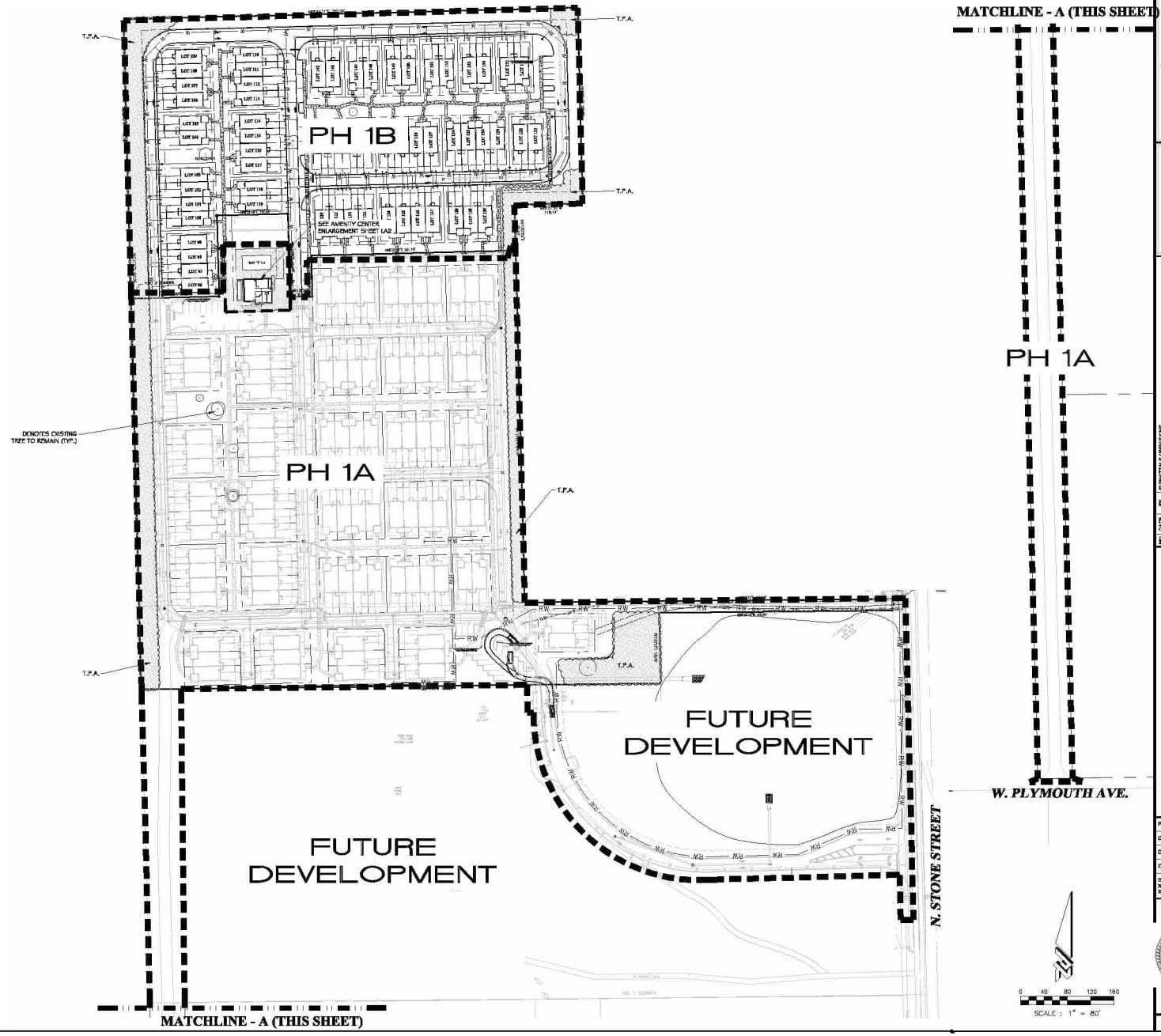
MINIMUM ON SITE TREES

TOTAL SITE ACREAGE	7.32 AC.
MINIMUM TREES REQUIRED ON SITE	125
CALCULATION: 1 / 2500 S.F. = 126	
EXISTING TREES TO BE PRESERVED	63
NUMBER OF TREES PROVIDED ON LANDSCAPE PLAN	174
TOTAL NUMBER OF TREES EXISTING PLUS PROVIDED	237

LANDSCAPE BUFFER REQUIREMENTS

		REQUIRED	PROVIDED
NORTH	TYPE A BUFFER (784 L.F.)		
	MINIMUM WIDTH	20'	20'
	4 CANOPY TREES PER 100 L.F.	31	54
	1.2 UNDERSTORY TREES PER 100 L.F.	9	9
	12 SHRUBS PER 100 L.F.	96	77*
EAST	TYPE A BUFFER (528.6 L.F.)		
	MINIMUM WIDTH	20'	20'
	2.4 CANOPY TREES PER 100 L.F.	13	34
	1.2 UNDERSTORY TREES PER 100 L.F.	6	6
	12 SHRUBS PER 100 L.F.	63	38*
WEST	TYPE C BUFFER (471.19 L.F.)		
	MINIMUM WIDTH	30'	30'
	5.6 CANOPY TREES PER 100 L.F.	26	66*
	2 UNDERSTORY TREES PER 100 L.F.	11	23*
	20 SHRUBS [redacted]	94	94*

*DENOTES REQUIREMENTS BEING PROVIDED BY PRESERVATION OF EXISTING VEGETATION.



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MANCHESTER NEIGHBORHOOD
PHASE 1B
FINAL ENGINEERING PLANS
LANDSCAPE PLAN & DETAILS

CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19194
DESIGNED BY: JES
DRAFTED BY: JES
CHECKED BY: SMG
DRAWING FILE: 191044-LA_1B
XREFS: BAR_1.DWG
XREFS: BURW.DWG

JAMES E. STOHR, R.L.A., RCL#3878
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SHEET: LA1 OF 4

PLANT SCHEDULE PHASE 1B

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
ED	7	ELAEOCARPUS DECIPIENS TM	JAPANESE BLUEBERRY TREE	3" CAL.	45 GAL.	3' CLEAR TRUNK
IP	4	ILEX VOMITORIA "PENDULA"	WEEPING YAUPON HOLLY	3" CAL.	45 GAL.	
LN	32	LAGERSTROEMIA INDICA "NATCHEZ"	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.	
LN2	10	LAGERSTROEMIA INDICA "NATCHEZ"	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.	
MG	10	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	3.5" CAL.	65 GAL.	
ML	5	MAGNOLIA GRANDIFLORA "LITTLE GEM"	DWARF SOUTHERN MAGNOLIA	3.5" CAL.	65 GAL.	
QV2	9	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.	
QV	40	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.	

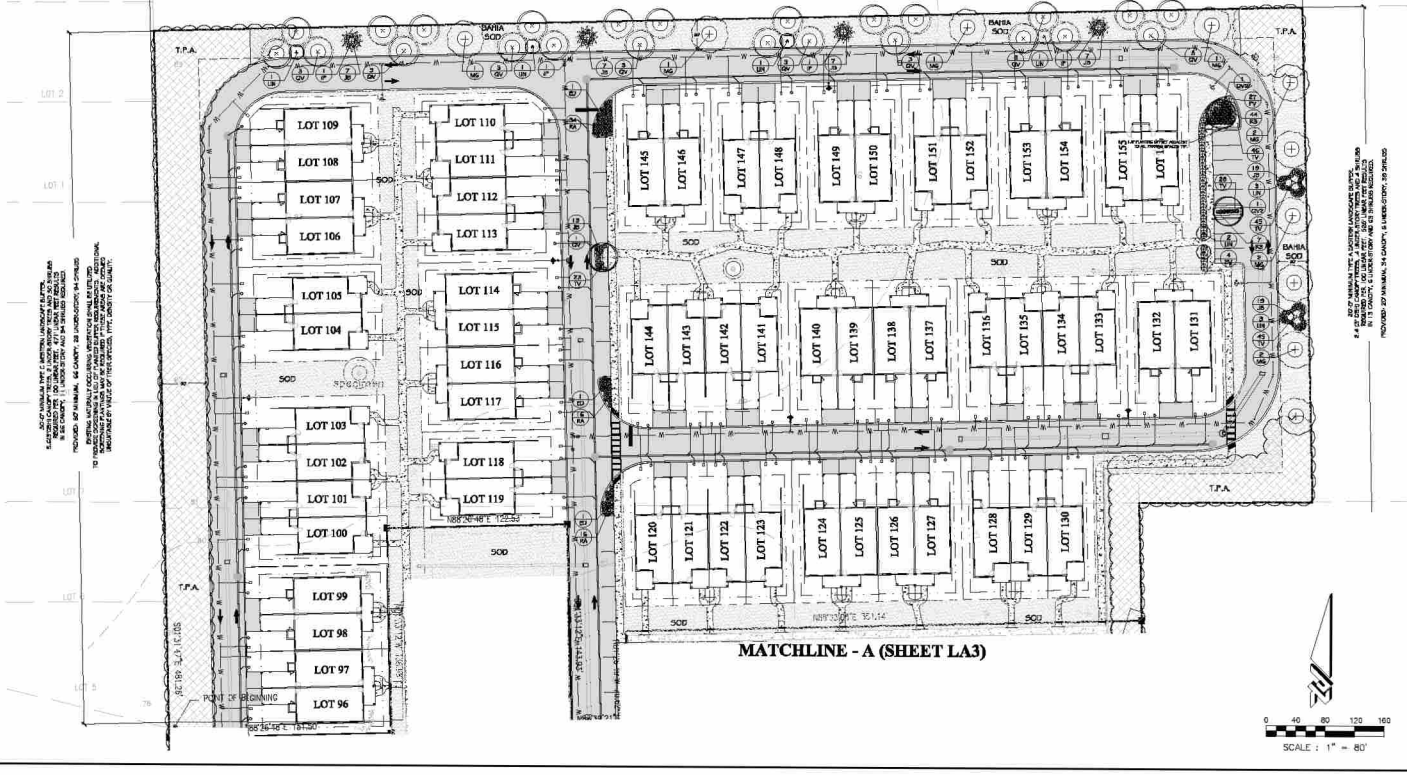
PALM TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
LN	34	LIVISTONA NITIDA	CARNARVON GORGE PALM	SEE PLAN FOR C.T.'S		
SS	6	SABAL PALMETTO	CABBAGE PALM	VARY C.T. HT. 8'-16'		

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
GF	15	GARDENIA JASMINOIDES "FROSTPROOF"	FROSTPROOF GARDENIA	24" HT. X 24" SP.	3 GAL.	36" o.c.	
JB	250	JUNIPERUS CONFERTA "BLUE PACIFIC"	BLUE PACIFIC JUNIPER	4" HT. X 17" SP.	3 GAL.	36" o.c.	
LT2	56	LORIOPETALUM CHINENSE "FENCK" PP11644	PURPLE PIKE LORIOPETALUM	10" HT. X 12" SP.	3 GAL.	36" o.c.	
PV	47	PITTOSPORUM TOBIRA "VARIEGATA"	VARIEGATED PITTOSPORUM	18" HT. X 18" SP.	3 GAL.	48" o.c.	
PW	70	PITTOSPORUM TOBIRA "WHEELER'S DWARF"	DWARF PITTOSPORUM	18" HT. X 18" SP.	3 GAL.	36" o.c.	
PM	135	PODOCARPUS MACROPHYLLUS	YEW PODOCARPUS	36" HT. X 18" SP.	3 GAL.	24" o.c.	
RA	177	RHAPHIOLEPIS INDICA "ALBA"	WHITE INDIAN HAWTHORN	15" HT. X 15" SP.	3 GAL.	36" o.c.	
R3	219	ROSA X "MISSALINO"	RED DRIFT ROSE	18" HT. X 24-36" SP.	3 GAL.	30" o.c.	
R9	236	ROSA X "RADRAZZ"	KNOCK OUT SHRUB ROSE	15" HT. X 15" SP.	3 GAL.	30" o.c.	
STZ	106	SCHEFFLERA ARBORICOLA "TRINETTE"	VARIEGATED SCHEFFLERA	18" HT. X 15" SP.	3 GAL.	36" o.c.	
SR2	16	STRELITZIA REGINAE	DWARF BIRD OF PARADISE	3' HT.	7 GAL.	60" o.c.	FULL 5-7 LEAVES
VM	168	VIBURNUM ODOVATUM "MRS SCHILLERS DELIGHT"	DWARF WALTER'S VIBURNUM	24" HT. X 24" SP.	3 GAL.	36" o.c.	
VS	78	VIBURNUM SUSPENSUM	SANDANKWA VIBURNUM	24" HT. X 18" SP.	3 GAL.	48" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
AO	56	ANNUALS -	SEASONAL ANNUALS	—	4" POT	12" o.c.	
DV2	37	DIETES VEGETA	AFRICAN IRIS	18-24" HT.	1 GAL.	24" o.c.	3-4 ???
EG	258	EVOLVULUS GLOMERATUS	BLUE DAZE	6" HT. X 6" SP.	1 GAL.	24" o.c.	
OJ	192	OPHIOPOGON JAPONICUS	MONDO GRASS	6" HT. X 6" SP.	1 GAL.	18" o.c.	FULL
TS	95	TRACHELOSPERMUM ASIATICUM "SUMMER SUNSET"	SUMMER SUNSET ASIATIC JASMINE	12" SP.	1 GAL.	18" o.c.	
TV	845	TULBAGHIA VIOLACEA	SOCIETY GARLIC	12" SP.	1 GAL.	18" o.c.	

SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
PA	6,830 SF	PASPALUM NOTATUM "ARGENTINE"	BAHIA GRASS	—			
SSF	119,307 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			

20' 6" MINIMUM TYP. S NORTH LANDSCAPE BUFFER.
469 DRC CANOPY TREES, 15 UNDER-STORY TREES AND 12 SHRUBS
REQUIRED FOR 100 LINEAR FEET. 794 LINEAR FEET REPEATED
IN 31 CANOPY, 19 UNDER-STORY AND 97 SHRUBS REQUIRED.
PROVIDED: 207 MINIMUM, 54 CANOPY, 9 UNDER-STORY, 77 SHRUBS



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MANCHESTER NEIGHBORHOOD PHASE 1B
FINAL ENGINEERING PLANS LANDSCAPE PLAN & DETAILS

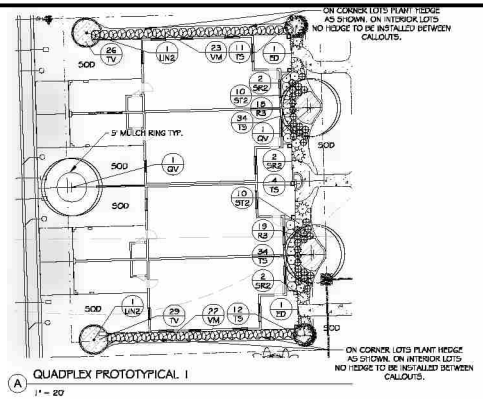
CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

PROJECT NO: ZC 19154
DESIGNED BY: JES
DRAFTED BY: JES
CHECKED BY: BMG
DRAWING FILE: 19154-LA_1B
XREFS: BAR_DWG
XREFS: BURV.DWG

LICENSED PROFESSIONAL ENGINEER
LA0667482
STATE OF FLORIDA

JAMES E. STEVENS, R.L.A. 667482
NOT VALID WITHOUT SEAL

SHEET: LA2 OF 4

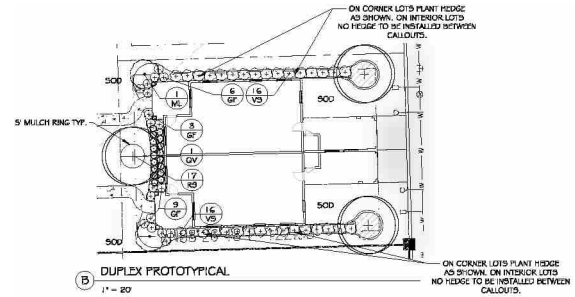


(A) QUADPLEX PROTOTYPICAL 1

1" = 20'

PLANT SCHEDULE QUADPLEX 1 (5 UNITS)

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER		REMARKS
CD	2	DIAZOCARPUS DICIPIONS TM	JAPANESE DUTCHMAN'S PIPE	3" CAL.	45 GAL.		3' CLEAR TRUNK
LIN2	2	LAGERSTROEMIA INDICA "NATCHEZ"	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.		
QV	3	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.		
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
RS	37	ROSA X "MEIGALPIO"	RED DRIFT ROSE	18" HT. X 24-36" SP.	3 GAL.	30" o.c.	
SLT	70	SCHETTLERA ARBORICOLA "TRINETTE"	VARIEGATED SCHETTLERA	18" HT. X 15" SP.	3 GAL.	36" o.c.	
SR2	6	STRELITZIA REGINAE	DWARF BIRD OF PARADISE	3' HT.	7 GAL.	60" o.c.	FULL 5-7 LEAVES
VM	45	VIBURNUM ODOVATUM "MRS SCHILLERS DELIGHT"	DWARF WALTERS VIBURNUM	24" HT. X 24" SP.	3 GAL.	36" o.c.	
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
TS	55	TRACHELOSPERMUM ASIATICUM "SUMMER SUNSET"	SUMMER SUNSET ASIATIC JASMINE	12" SP.	1 GAL.	18" o.c.	
TV	55	TULBAGHIA VIOLACEA	SOCIETY GARLIC	12" SP.	1 GAL.	18" o.c.	
SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SSF	2,944 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			

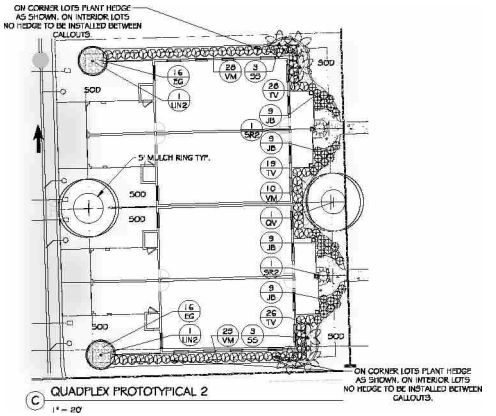


(B) DUPLEX PROTOTYPICAL

1" = 20'

PLANT SCHEDULE DUPLEX (3 UNITS)

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER		REMARKS
ML	2	MAGNOLIA GRANDIFLORA "LITTLE GEM"	DWARF SOUTHERN MAGNOLIA	3.5" CAL.	65 GAL.		
QV	3	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.		
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
GF	15	GARDENIA JASMINOIDES "FROSTPROOF"	FROSTPROOF GARDENIA	24" HT. X 24" SP.	3 GAL.	30" o.c.	
RS	17	ROSA X "RADRAZZ"	KNOCK OUT SHRUB ROSE	15" HT. X 15" SP.	3 GAL.	30" o.c.	
VS	32	VIBURNUM SUSPENSUM	SANDANKWA VIBURNUM	24" HT. X 18" SP.	3 GAL.	48" o.c.	
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
DV2	35	DIETES VEGETA	AFRICAN IRIS	18-24" HT.	1 GAL.	24" o.c.	3-4 FTF
SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SSF	2,151 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			

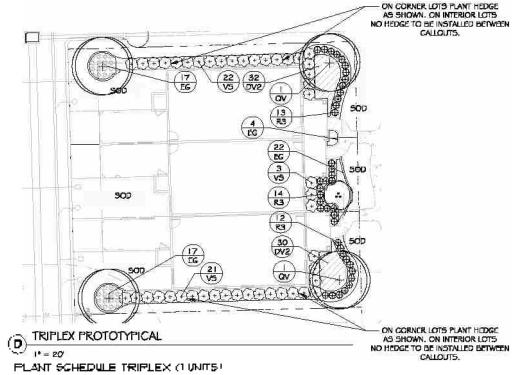


(C) QUADPLEX PROTOTYPICAL 2

1" = 20'

PLANT SCHEDULE QUADPLEX 2 (5 UNITS)

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER		REMARKS
LIN2	2	LAGERSTROEMIA INDICA "NATCHEZ"	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.		
QV	2	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.		
PALM TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER		REMARKS
SS	6	SABAL PALMETTO	CABBAGE PALM	VARY C.T. HT. 8'-16'			
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
JB	36	JUNIPERUS CONFERTA "BLUE PACIFIC"	BLUE PACIFIC JUNIPER	4" HT. X 12" SP.	3 GAL.	36" o.c.	
SR2	2	STRELITZIA REGINAE	DWARF BIRD OF PARADISE	3' HT.	7 GAL.	60" o.c.	FULL 5-7 LEAVES
VM	67	VIBURNUM ODOVATUM "MRS SCHILLERS DELIGHT"	DWARF WALTERS VIBURNUM	24" HT. X 24" SP.	3 GAL.	36" o.c.	
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SS	32	EVOLVULUS GLOMERATUS	BLUE DAZE	8" HT. X 8" SP.	1 GAL.	24" o.c.	
TV	73	TULBAGHIA VIOLACEA	SOCIETY GARLIC	12" SP.	1 GAL.	18" o.c.	
SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SSF	9,371 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			



(D) TRIPLEX PROTOTYPICAL

1" = 20'

PLANT SCHEDULE TRIPLEX (1 UNITS)

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER		REMARKS
LIN	1	LAGERSTROEMIA INDICA "NATCHEZ"	NATCHEZ CRAPE MYRTLE	3" CAL.	45 GAL.		
QV	4	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	4.5" CAL.	100 GAL.		
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
RS	37	ROSA X "MEIGALPIO"	RED DRIFT ROSE	18" HT. X 24-36" SP.	3 GAL.	30" o.c.	
VS	46	VIBURNUM SUSPENSUM	SANDANKWA VIBURNUM	24" HT. X 18" SP.	3 GAL.	48" o.c.	
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
DV2	62	DIETES VEGETA	AFRICAN IRIS	18-24" HT.	1 GAL.	24" o.c.	
SS	60	EVOLVULUS GLOMERATUS	BLUE DAZE	8" HT. X 8" SP.	1 GAL.	24" o.c.	
SOD	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
SSF	2,047 SF	STENOTAPHRUM SECUNDATUM "FLORITAM"	ST. AUGUSTINE GRASS	—			

ZEV COHEN & ASSOCIATES, INC.
7900 TRADEWINDS BLVD., STE. C
SARASOTA BEACH, FL 34241
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TRANSPORTATION

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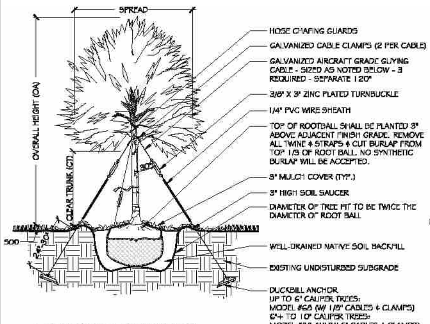
MANCHESTER NEIGHBORHOOD
PHASE 1B
FINAL ENGINEERING PLANS
LANDSCAPE PLAN & DETAILS

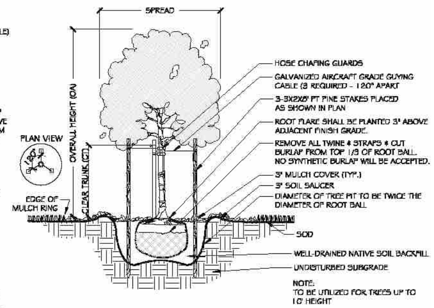
CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

DESIGNED BY: JES
DRAFTED BY: JES
CHECKED BY: SMG

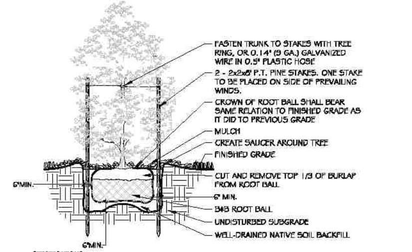
SHEET: LA3 OF 4



1 LARGE TREE PLANTING DETAIL
N.T.S. P-LA-TRE1-01

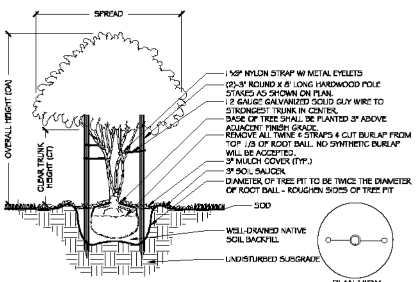


2 SMALL TREE PLANTING DETAIL
N.T.S. P-LA-TRE1-03

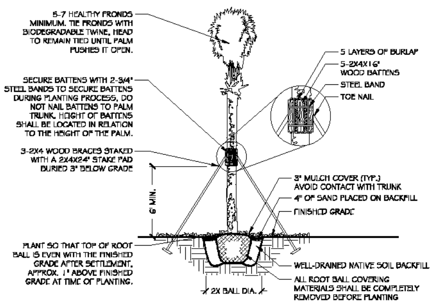


SPECIFICATIONS:
1. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKE.
2. WATER THOROUGHLY AFTER INSTALLATION.
3. REMOVE TREE RINGS AND STAKES UPON TREE ESTABLISHMENT (MAX. ONE YEAR AFTER INSTALLATION)
4. PROVIDED DRAINAGE FOR PLANTING PIT IN IMPERMEABLE SOIL.

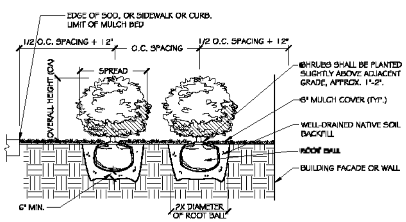
3 FULL TO GROUND TREE PLANTING DETAIL
N.T.S P-LA-TRE1-02



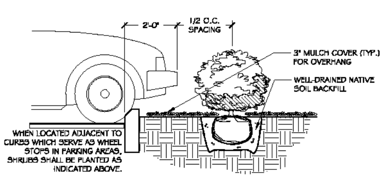
4 SMALL MULTI-TRUNK TREE PLANTING DETAIL
N.T.S. P-LA-TRE1-04



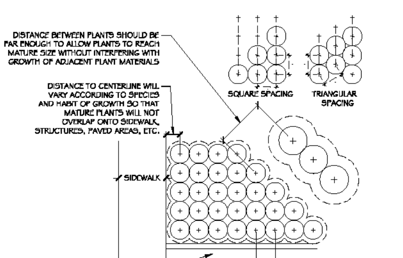
5 PALM PLANTING DETAIL
N.T.S. P-LA-PAL-PALM-01



6 SHRUB PLANTING DETAIL
N.T.S. P-LA-SHR-SHRU-02

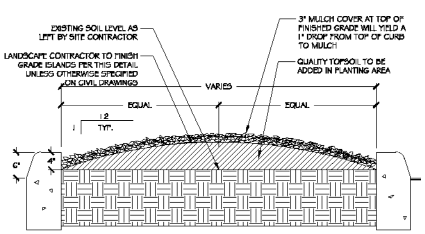


7 HEDGE PLANTING ADJACENT TO PARKING
N.T.S. P-LA-SHR-HEDG-01



NOTE: IN MOST CASES, TRIANGULAR SPACING IS PREFERRED. USE SQUARE SPACING ONLY IN SMALL RECTILINEAR AREAS.

8 PLANT SPACING DETAIL
N.T.S P-LA-SHR-PLAN-01



9 INTERIOR CURB ISLAND GRADING DETAIL
N.T.S. P-LA-SHR-INTE-01

LANDSCAPE SPECIFICATIONS

1. FLORIDA #1: ALL PLANT MATERIAL SHALL BE GRADE FLORIDA NO. 1 OR BETTER IN QUALITY AS DESIGNATED IN THE MOST RECENT PUBLICATION OF "GRADES AND STANDARDS FOR NURSERY PLANTS", PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES.

2. EXISTING PLANTS: IF EXISTING LANDSCAPING INTERFERES WITH PROPOSED PLANTINGS SHOWN ON PLAN, THE EXISTING LANDSCAPING IS TO BE REMOVED IN FAVOR OF THE NEW PLANTINGS, UNLESS OTHERWISE INDICATED. IF THE EXISTING VEGETATION IS INTENDED TO REMAIN, THE PROPOSED LANDSCAPING SHALL BE LOCATED AS CLOSE AS POSSIBLE TO ITS INTENDED LOCATION.

3. MULCH: ALL PLANTING BEDS SHALL BE TOP DRESSED WITH 3" PINE BARK MULCH, GRADE "B" OR APPROVED EQUAL. ALL TREES NOT IN BEDS SHALL HAVE A 5' DIAMETER MULCH RING. ALL PALMS NOT IN BEDS SHALL HAVE A 3' DIAMETER MULCH RING UNLESS OTHERWISE NOTED ON PLANS.

4. SOD. SOD SHALL BE FLORATAM ST. AUGUSTINE SOD UNLESS OTHERWISE SPECIFIED ON THE PLANS AS ARGENTINE BAHIA SOD. ALL SOD SHALL BE ROLLED UPON INSTALLATION. CONTRACTOR TO SOD ALL AREAS THAT ARE DISTURBED BY CONSTRUCTION RELATED ACTIVITIES. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THE SOD IS FREE OF WEEDS & INSECTS UPON INSTALLATION AND FOR THE DURATION OF THE 90 DAY MAINTENANCE PERIOD. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE NO GAPS BETWEEN SOD. SOD QUANTITY TAKEOFFS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

5. QUANTITIES: IN THE EVENT OF A VARIATION BETWEEN THE QUANTITIES SHOWN ON THE PLANT LIST AND THE QUANTITIES OF PLANTS SHOWN ON THE PLAN, THE PLAN SHALL CONTROL.

6. UNFORESEEN CONFLICTS: CONTRACTOR SHALL NOT WILLFULLY INSTALL ANY PORTION OF THE LANDSCAPE PLAN AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNFORESEEN OBSTRUCTIONS, GRADE DIFFERENCES, STANDING WATER, SOIL CONDITIONS OR OTHER CONFLICTS EXIST. SUCH UNFORESEEN CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS REPRESENTATIVE AND THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

7. SUBSTITUTIONS: NO SUBSTITUTIONS OR VARIATIONS OF ANY PLANT MATERIAL OR ITS INSTALLED LOCATION SHALL BE PERMITTED WITHOUT THE PRIOR CONSENT OF THE LANDSCAPE ARCHITECT.

8. CONTAINERS. IF GALLONAGE FOR PLANTS OR TREES IS SHOWN THEY SHALL BE CONTAINER GROWN AND THE SIZE SHOWN SHALL REPRESENT THE MINIMUM ALLOWABLE GALLONAGE. IN ALL CASES THE PLANT SPECIFIED SIZE SHALL GOVERN OVER THE GALLONAGE INDICATED.

9. PLANTING SOIL: CONTRACTOR SHALL VERIFY THAT SOIL CONDITIONS ARE SUITABLE TO THE PLANT SPECIES SPECIFIED. IF SOIL CONDITIONS ARE DEEMED UNSUITABLE FOR PROPER PLANT HEALTH, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT AND PROPER SUBSTITUTIONS SHALL BE SPECIFIED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. THE CONTRACTOR SHALL REMOVE LIME ROCK, CONCRETE AND OTHER DELETERIOUS DEBRIS FROM PLANTING BEDS. IF DEBRIS IS INTEGRATED IN THE SOIL, THE SOIL MUST BE EXCAVATED AND REPLACED WITH ACCEPTABLE SOIL. ALL FILL TO BE PLACED IN LANDSCAPE AREAS MUST HAVE A pH RANGE BETWEEN 5.8 AND 7.5, BE ORGANIC IN NATURE, AND BE FREE OF ROCKS AND DEBRIS.

10. TOPSOIL: TOPSOIL MATER AL SHALL BE FREE FROM ALL HARD CLODS, WEEDS, STONES OVER 1" IN DIAMETER, CLAY, HARD PAN, NOXIOUS OR OTHER UNDESIRABLE PLANTS, SOD, INSECTS, SEEDS, OR MATERIAL WHICH MAY BE HARMFUL FOR GROWTH.

11. WEEDS: IF PRESENT, THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE ANY WEEDS FROM PLANTING AND SOD AREAS PRIOR TO THE INSTALLATION OF PROPOSED PLANT MATERIAL AND MULCH COVER. CONTRACTOR SHALL BE RESPONSIBLE TO KEEP BEDS AND SOD FREE OF WEEDS FOR THE DURATION OF THE 90 DAY MAINTENANCE PERIOD.

12. GRADING: UNLESS OTHERWISE STATED ON THESE PLANS, THE LANDSCAPE CONTRACTOR SHALL FINE GRADE ALL AREAS TO BE PLANTED AND SODDED IN ORDER TO ELIMINATE BUMPS AND DEPRESSIONS. FINE GRADING SHALL BE DEFINED AS THE FINAL 2" OF GRADE TO BE ACHIEVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND RE-GRADING WASHOUT AREAS CAUSED BY EROSION UNTIL FINAL ACCEPTANCE OF THE PROJECT.

13. STAKING: ALL TREES AND PALMS ARE TO BE STAKED ACCORDING TO THE DETAILS IN THESE PLANS. IF THE CONTRACTOR PREFERS TO USE OTHER STAKING METHODS THAN SHOWN IN THE DETAILS, HE OR SHE MUST SUBMIT PROPOSED STAKING DETAILS TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN, REPAIR, AND/OR REPLACE ANY PLANTS DAMAGED BY FAILURE TO PROPERLY STAKE OR GUY ANY TREES & PALMS ON SITE, AT THEIR OWN EXPENSE.

14. BED LINES: CONTRACTOR TO ENSURE CURVILINEAR LANDSCAPE BEDS ARE TO BE EDGED WITH SMOOTH FLOWING CURVES. STRAIGHT-LINE LANDSCAPE BEDS ARE TO BE EDGED IN A STRAIGHT LINE PARALLEL TO ADJACENT STRUCTURES UNLESS DESIGNED OTHERWISE.

15. FERTILIZER: OSMOCOTE SLOW RELEASE FERTILIZER OR EQUIVALENT SHALL BE APPLIED TO ALL TREE, SHRUB, AND GROUNDCOVER PLANTING AREAS AT THE RATE OF THREE (3) TABLESPOONS PER 2 S.F. OF PLANTING AREA.

16. DRAINAGE: THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT THIS WORK DOES NOT INTERRUPT EXISTING OR PROPOSED DRAINAGE PATTERNS AND SHALL NOTIFY THE OWNERS REPRESENTATIVE IMMEDIATELY SHALL A CONFLICT ARISE. CONTRACTOR IS RESPONSIBLE FOR ALL LANDSCAPE/SOD AREAS TO PROPERLY DRAIN AWAY FROM BUILDINGS/STRUCTURES.

17. SPECIFICATIONS: THE LANDSCAPE ARCHITECT SHALL BE PERMITTED THE RIGHT DURING INSTALLATION, TO REJECT ANY AND ALL PLANT MATERIAL AND WORKMANSHIP WHICH IN HIS OR HER OPINION DOES NOT MEET THE REQUIREMENTS OF THESE SPECIFICATIONS.

18. NATURAL AREAS: NATURALLY PRESERVED VEGETATED AREAS SHALL BE CLEANED UP, INCLUDING BUT NOT LIMITED TO THE REMOVAL OF ANY DEBRIS OR WEEDS AND INVASIVE PLANTS AND PRUNING OF DEAD OR YELLOW BRANCHES AND PALM FRONDS. MULCH [illegible]

19. CLEARANCE PRUNING: ANY TREE PRUNING OF LOWER LIMBS AND CANOPY OF CONSERVED AND PROTECTED TREES THAT ARE GROWING OVER SIDEWALK, ROADWAY AND/OR ON-SITE CONSTRUCTION ACTIVITIES SHALL BE OVERSEEN AND/OR CONDUCTED BY AN I.S.A CERTIFIED ARBORIST TO ENSURE PROPER REDUCTION CUTS AND PRUNING IS CONDUCTED TO MAINTAIN THE STRUCTURAL INTEGRITY AND HEALTH OF THE TREE. TREES SHALL BE PRUNED TO ADHERE TO A MINIMUM OF EIGHT FEET (8') CLEARANCE OVER SIDEWALKS (PEDESTRIAN ACTIVITIES) AND SIXTEEN FEET (16') CLEARANCE OVER PARKING AREAS/ROADWAYS.

20. WILDLIFE NOTIFICATION: THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT WHO SHALL PROPOSE PLANT SUBSTITUTIONS UPON WRITTEN NOTIFICATION OF NUISANCE ANIMAL EXISTENCE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE ANY/ALL INSTALLED PLANT MATERIAL DESTROYED/DAMAGED BY WILDLIFE WITHIN THE MAINTENANCE PERIOD..

21. TURNOVER: CONTRACTOR SHALL CONTACT OWNERS REPRESENTATIVE FOR A TURNOVER DATE TO INCLUDE A WALK-THROUGH AND ACCEPTANCE OF WORK BY THE LANDSCAPE ARCHITECT OR OWNER. ANY WORK DEEMED UNACCEPTABLE SHALL BE CORRECTED IMMEDIATELY AND RE-INSPECTED AS SCHEDULED.

22. MAINTENANCE: CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE TO BEGIN AFTER EACH PLANT HAS BEEN INSTALLED AND SHALL CONTINUE 90 DAYS AFTER FINAL WRITTEN ACCEPTANCE BY THE OWNER. MAINTENANCE SHALL INCLUDE WATERING, PRUNING, WEEDING, MULCHING, MOWING, REPLACEMENT OF SICK OR DEAD PLANTS, AND ANY OTHER CARE NECESSARY IN ORDER TO MAINTAIN PROPER PLANT HEALTH AND SOIL MOISTURE CONTENT.

23. GUARANTEE: CONTRACTOR SHALL GUARANTEE AND REPLACE ALL INSTALLED PLANT MATERIAL FOR ONE (1) CALENDAR YEAR STARTING FROM THE TURNOVER DATE FOR WORK FOUND ACCEPTABLE. ANY CORRECTED WORK SHALL HAVE A PROPORTIONAL EXTENSION OF WARRANTY ONCE APPROVED. ANY SICK OR DEAD MATERIAL SHALL BE REPLACED IMMEDIATELY. THE LANDSCAPE CONTRACTOR SHALL NOT BE RESPONSIBLE TO HONOR ANY WARRANTY FOR THE LOSS OF ANY PLANT MATERIAL CAUSED BY FLOODING, FIRE, ABNORMAL FREEZING TEMPERATURES, WINDS OVER 50 MPH, LIGHTNING, ANY OTHER NATURAL DISASTER, OR ANY LOSS/DAMAGE CAUSED BY VANDALISM OR NEGLIGENCE ON THE PART OF THE OWNER.

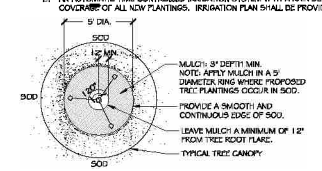
24. CALL BEFORE YOU DIG: CONTRACTOR SHALL NOTIFY SUNSHINE 811 AND HAVE UTILITIES LOCATED, PRIOR TO DIGGING, BY CALLING 811. CONTRACTOR SHALL NOT PLANT TREES WITHIN 3' OF AN UNDERGROUND UTILITY, EITHER AS LOCATED OR AS SHOWN ON THE PLAN, WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM OWNER'S REPRESENTATIVE.

25. RECORD DRAWINGS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT 'REDLINED' MARK-UPS OF THE LANDSCAPE AND IRRIGATION IMPROVEMENTS. THESE AS-BUILT 'REDLINES' SHALL BE REPRESENTED ON ZEV COHEN & ASSOCIATES, INC. PLAN SHEETS AND PROVIDED TO THE LANDSCAPE ARCHITECT.

IRRIGATION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING 'REDLINED' MARK-UPS OF THE IRRIGATION IMPROVEMENTS AND PROVIDE TO THE LANDSCAPE ARCHITECT.

2. AN AUTOMATIC TIME CONTROLLED IRRIGATION SYSTEM WITH A RAIN SENSOR SHALL BE INSTALLED TO PROVIDE 100% HEAD TO HEAD COVERAGE OF ALL NEW PLANTINGS. IRRIGATION PLAN SHALL BE PROVIDED UPON SUBSTANTIAL SITE PLAN APPROVAL.



10 TREE MULCHING DETAIL IN SOD AREAS
N.T.S P-LA-MUL-TREE-01

ZEV COHEN & ASSOCIATES, INC.
300 INTERCHANGE BLVD., STE. C
ORMOND BEACH, FL 32174
WWW.ZEVCOHEN.COM

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
PLANNING
TRANSPORTATION

NO	DATE	BY	SUBMITTALS / REVISIONS

FOR REVIEW ONLY NOT FOR CONSTRUCTION

MANCHESTER NEIGHBORHOOD PHASE 1B
FINAL ENGINEERING PLANS
LANDSCAPE PLAN & DETAILS

CITY OF DELAND
VOLUSIA COUNTY, FLORIDA

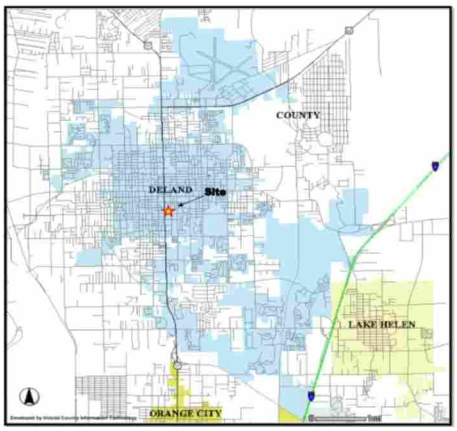
PROJECT NO: ZC 19194
DESIGNED BY: JES
DRAFTED BY: JES
CHECKED BY: SMG
DRAWING FILE: 19194-LA_1B
XREFS: BAS_.DWG
XREFS: SURV.DWG

JAKE E. STEHR, R.L.A., NO.LA6667482
NOT VALID WITHOUT SEAL

SHEET: LA4 OF 4

PLANNING DEPARTMENT STAFF REPORT
TO
THE CITY OF DELAND PLANNING BOARD

July 21, 2021



A. APPLICATION NO.: Z21-202 425 S. Woodland, LAM Development

APPLICANT: Lee Munizzi, LAM Development

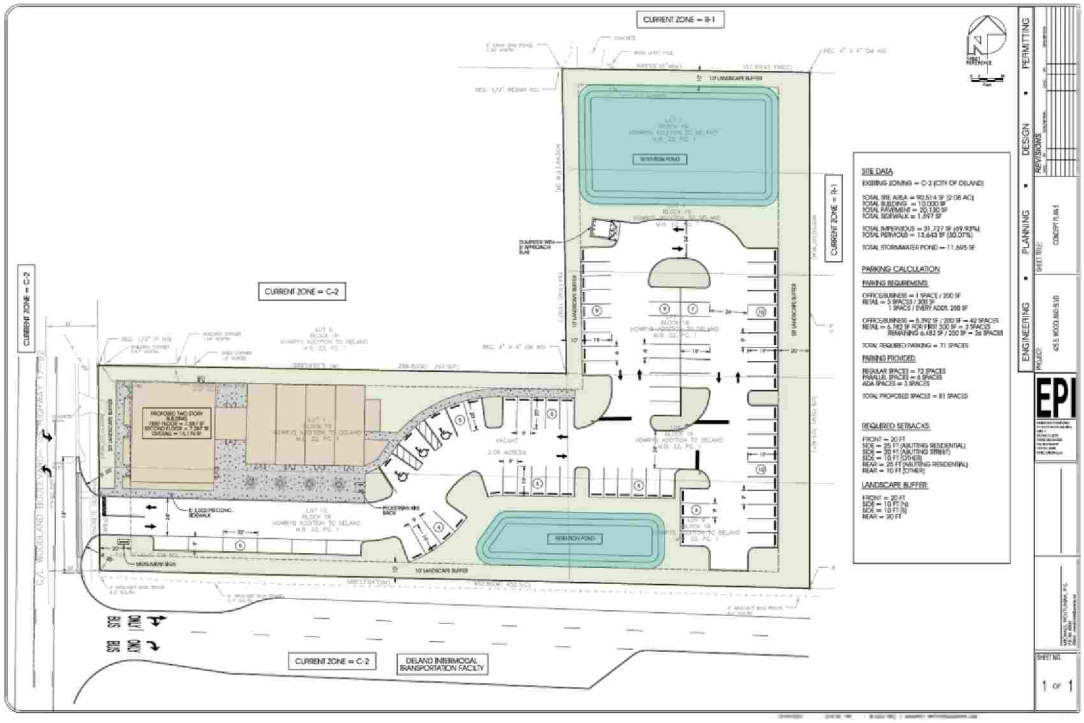
REQUEST: The applicant is requesting to amend the zoning
From: C-2 (General Commercial)
R-1 (Single Family Residential)
To: 425 South PD

APPLICABLE ORDINANCES:
Article XII ADMINISTRATION AND ENFORCEMENT
Sec. 33-135 – Procedure for text amendments and rezoning
Location: 425 S. Woodland Blvd. (parcel id. 701601190070)
Parcel Size: 2.09 ± acres
Existing Use: Vacant, undeveloped

B. ANALYSIS:
The site currently consists of a parcel that is situated such that it encompasses two different zoning designations, C-2 (General Commercial) and R-1 (Single family residential). The property has 2 different land use designations as well - Mixed Commercial and Medium Density Residential respectively. The request would provide a single zoning designation for the parcel. The PD zoning designation is permitted in all of the city's various land uses designations and this designation is requested in order to provide a consistent zoning category for the entire parcel.

The applicant proposes to develop a 2-story office/business building and the associated parking, stormwater retention and open space on the property. The development will take place in a single phase of construction.

As outlined in the development agreement the permitted uses for this site are as follows:
1. Commercial building to include condominiums for retail, professional offices and related business uses;
2. Parking area for guest, employees and vendors;
3. Common area and sidewalks.


CURRENT ZONE = B-1
CURRENT ZONE = C-2
CURRENT ZONE = C-2
DELAND INTERMODAL TRANSPORTATION FACILITY
SITE DATA
PARKING CALCULATION
REQUIRED SETBACKS
LANDSCAPE BUFFER
PERMITTING
DESIGN
PLANNING
ENGINEERING
EPI
1 or 1

PRECAST CONCRETE CORNICE
BRICK VENEER - COLOR A
PRECAST CONCRETE ACCENTS
BRICK VENEER - COLOR B
PREFINISHED ALUMINUM CANOPIES
WALL SCONCES
INSULATED TINTED GLAZING
SOUTH ELEVATION

SOUTHWEST VIEW 3
SOUTHEAST VIEW 4

Section 33-135 provides the following criteria, which the City Commission shall utilize in reviewing a rezoning request:

1. **Is the proposed rezoning consistent with the Comprehensive Land Use Plan, the land use, zoning pattern and character of the surrounding area?**

The proposed PD zoning designation is consistent with and permitted within all the established Land use designations for the City of DeLand. Therefore, a land use amendment would not be necessary.

The existing zoning designations are described as follows:

C-2—General Commercial District.

(a) Statement of intent. The purpose of this zoning district is to provide for the general retail and service needs of the DeLand area. The uses that are permitted will draw from a wider area than the uses allowed in the neighborhood commercial zoning district.

R-1—Single-Family Dwelling District.

(a) Statement of intent. The purpose and intent of the R-1 Single-Family Residential District is to provide medium density residential neighborhoods in an urban setting along with other limited nonresidential uses.

The proposed zoning designation is generally described as follows:

425 South PD – Planned Development

33-17.22. *PD—Planned Development District.*

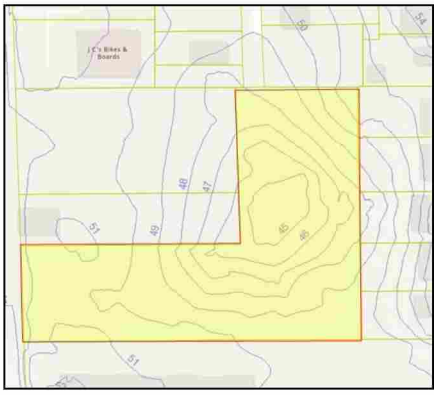
(a) Statement of intent. The Planned Development District is intended to provide a method for consideration and approval of unique zoning districts for individual Planned Developments (PD) which are not provided for or allowed in the zoning districts otherwise established by this chapter. See also: section 33-32, Planned Development District and section 33-133, Review of Planned Development Plans.

A development agreement has been prepared outlining the unique zoning requirements by which the property will be developed. For the sake of camparison, the chart below lists some of the lot and building requirements of the existing and proposed zoning categories:

	C-2	R-1	PD
Min. lot area	9,000 sf	6,500 sf	90,605 sf
Min. width	75 ft	60 ft.	130 (452)
Setbacks:			
Front	20 ft	n/a	20
Rear	25 ft (resid.) 10 ft (others)	25 ft	25 ft (resid.)
Side	25 ft (resid.) 10 ft (others)	7.5 ft	10 ft (resid.)
Side-St.	20 ft	15 ft*	n/a
Max. lot coverage	60% (Mxd use) 70% (Hwy Com'l)	40%	70%
Max. bldg. height	80 ft	35 ft*	35 ft

2. Will the proposed rezoning have an impact upon the environment or natural resources?

Rezoning of the property will only amend the permitted uses of the property and not impact the environment or natural resources. The property is currently mostly vegetated, however, there are no water bodies, wetlands or other environmental features located on the property. The development stage of the property is where impacts to the environmental features should be analyzed.



3. Will the proposed rezoning have an impact upon the economy of the affected area?

The property is currently vacant and contributes only marginally to the tax base. The rezoning action will permit the eventual development of the commercial use that will have an impact upon the economy once the building is in operation and generating revenue. As is the case throughout the city, undeveloped properties in this area of Woodland Blvd. are being developed which will eventually impact the overall economy of the area in ways relative to their use.

4. Will the proposed rezoning have an impact upon governmental services?

The rezoning action will not impact governmental services. The property is located within the urban area and such services are already provided. No new services are anticipated to be required because of the rezoning action itself.

5. Are there changes in the circumstances or conditions affecting the area since the original assignment of zoning that will support the proposed zoning?

This property has been in a vacant undeveloped state and does not appear to have previously been developed in recent years. Surrounding property includes residential and commercial use. Development of the ITF Facility, the use of the adjacent building as a restaurant and other growth in this section of Woodland Blvd. are indicative of progress and supportive of this rezoning.

6. Was there a mistake in the original classification?

It does not appear that the classification was the result of a mistake because it is consistent with other zoning designations in the surrounding area.

7. Will the proposed rezoning have any effect upon the use or value of the affected area?

The property's current zoning designation, C-1 (General Commercial), permits the uses proposed with the PD as well as a number of other uses including medical support, personal service, hospitality, food service and residential uses. The planned development permits a limited number of uses. This does not, however, impact the area in general.

8. Will the proposed rezoning have an impact upon public health, safety and welfare?

The rezoning request will not adversely impact health, safety or welfare. The property is located within the developed urban core and the property is positioned for commercial land uses. The proposed rezoning designation is consistent with the area and not anticipated to adversely impact the area in that regard.

C. CONCLUSION:

The concept/development plan shows a front landscape buffer that includes a sidewalk and a monument sign. Hardscape elements are typically not allowed in landscape buffers which are reserved for plant materials only. The agreement should be re-worded to include these elements. At the December 16, 2021 meeting of the TRC, the committee recommended approval of the request. This rezoning request aligns with the pattern of development in the surrounding area.

D. STAFF RECOMMENDATION:

Staff recommends that the Planning Board forward to the City Commission a recommendation of approval for the rezoning request. (*The City Commission will address the proposed rezoning for first reading at 7 p.m., February 21, 2022.)*

PD PLANNED DEVELOPMENT AGREEMENT

IN THE CITY COMMISSION OF THE

CITY OF DELAND, FLORIDA

IN RE: Case No. Z21-202, Application of

LAM Development, LLC

ORDINANCE # _____

ORDER AND RESOLUTION

GRANTING A REQUEST FOR CHANGE OF ZONING FROM C-2 AND R-1 TO COMMERCIAL PD (PLANNED DEVELOPMENT)

The application of LAM Development, LLC (hereinafter, "Applicant"), for rezoning was heard by and before the City Commission, DeLand Florida, on January 19, 2022. Based upon the verified Application and other supporting documents, maps, charts, overlays, other evidence and instruments; the advice, report, and recommendations of the Community Development, and other Departments and agencies of DeLand, Florida; and the testimony adduced and evidence received at the Public Hearing on this Application by the Planning Board on January 19, 2022, and otherwise being fully advised, the City Commission does hereby find and determine as follows:

GENERAL FINDINGS

A. That the application of LAM Development, LLC was duly and properly filed herein on **12/23/21** as required by law.

B. That all fees and costs which are by law, regulation, or Ordinance required to be borne and paid by the applicant have been paid.

C. That the applicant is the *Owner* of a **2.09**-acre (approx.) parcel of land which is situated in DeLand, Florida. This parcel of land is described more particularly in the survey and legal description, a true copy of which is attached hereto as Exhibit "A".

D. That the Applicant has complied with the concept plan provision as required by Land Development Regulations Ordinance # 2013-11, as amended.

E. That the Applicant has complied with the "Due Public Notice" requirements of the City Commission, Land Development Regulations Ordinance # 2013-11, as amended.

FINDINGS REGARDING REZONING

A. That the Applicant has applied for a change of zoning from the present zoning classification*(s)* of the parcel described in Exhibit "A" from **C-**2 and **R-1** to **PD** (Planned Development).

B. That the said rezoning to a PD is consistent with both the City of DeLand Comprehensive Plan Ordinance # 1990-04, as amended, and the intent and purpose of the City of DeLand Land Development Regulations Ordinance # 2013-11, as amended, and does promote the public health, safety, morals, general welfare and orderly growth of the area affected by the rezoning request.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED BY THE CITY OF DELAND, FLORIDA, IN OPEN MEETING DULY ASSEMBLED IN THE CITY COMMISSION CHAMBERS, 120 SOUTH FLORIDA AVENUE, DELAND, FLORIDA, THIS 19th DAY OF JANUARY, A.D., 2022, AS FOLLOWS:

A. That the Application of LAM Development, LLC for the rezoning of the subject parcel is hereby granted.

B. That the zoning classification of the subject parcel described in Exhibit "A" attached hereto is hereby amended from **C-2** and **R-1** to **PD** as described in Article VII of the City of DeLand, Land Development Regulations Ordinance # 2013-11, as amended.

C. That the Official Zoning Map of the City of DeLand, is hereby amended to show the rezoning of said parcel to the "**425 South**" PD.

D. That the City of DeLand Land Development Regulations Ordinance # 2013-11, as amended, is consistent with the provisions of the "Development Agreement" as hereinafter set forth in this Ordinance and with respect to any conflict between Land Development Regulations Ordinance # 2013-11, as amended, and the "Development Agreement", the provisions of the "Development Agreement" shall govern. Ordinance No. 02-09, as amended, shall govern with respect to any matter not covered by the "Development Agreement." The City of DeLand, will ensure overall compliance with this Ordinance.

E. Unless otherwise provided for herein the City of DeLand, Land Development Regulations Ordinance # 2013-11, as amended, shall apply to the PD in the same manner as proximate properties bearing a PD zoning classification which are used for substantially the same purposes as this PD.

F. Nothing in this Ordinance shall abridge the requirements of any City of DeLand Ordinance other than Ordinance 2013-11, as amended. Timing and review procedures contained in this Order and Resolution may be modified to comply with the City of DeLand Land Development Regulations, Ordinance No. 2013-11, as amended. Further, nothing in the Development Agreement is intended to abridge the requirements of Ordinance No. 2013-11, as amended, and any other City Ordinances.

1 DEVELOPMENT AGREEMENT

2

3 A. Development Concept The property shall be developed as a PD
4 substantially in accordance with the Planned Development Plan. The Planned
5 Development Plan shall govern the development of the property as a PD and shall
6 regulate the future land use of this parcel.

7 1. Planned Development Plan The Planned Development Plan shall
8 consist of the Development Plan Map prepared by Engineered Permits, Inc. ("EPI
9 Engineering") and dated October 18, 2021, and this development agreement. The
10 Planned Development Plan is hereby approved and incorporated in this Ordinance by
11 reference as Exhibit "B". The Planned Development Plan shall be filed and retained for
12 public inspection in the Planning Department and it shall constitute a supplement to the
13 Official Zoning Map of the City of DeLand.

14 2. Amendments. All amendments of the Planned Development Plan,
15 other than those deemed by the Planning Department to be minor amendments as set
16 out in Ordinance No. 2013-11, as amended, shall require the review and recommendation
17 of the Planning Board and action by the City Commission in the same manner as a
18 rezoning of the parcel.

19 3. Subdivision Approval. **[intentionally omitted]**.

20 4. Final Site Plan Approval. After the Planned Development Plan is
21 recorded, and prior to issuance of any permits for construction, including clearing and
22 landfill, a Final Site Plan shall be prepared and submitted for review and approval in the
23 manner required by Article 12 of the City of DeLand, Land Development Regulations
24 Ordinance # 2013-11, as amended.

B. Unified Ownership. The Applicant or his successors shall maintain unified ownership of the subject parcel until after issuance of the Final Site Plan Development Order.

C. Phases of Development. There shall be only one (1) phase of development for the subject project.

D. Land Uses Within the PD. The development of the parcel shall be consistent with the uses prescribed for each area within the proposed PD. The location and size of said land use areas are shown on the Development Plan Map, Exhibit "B". The following land uses shall be allowed as permitted principal uses and structures along with their customary accessory uses and structures:

(1) Commercial building to include condominiums for retail, professional offices, and related business uses;

(2) Parking area for guests, employees, and vendors; and

(3) Common Area and sidewalks as depicted in Exhibit "B";

E. Development Standards. The PD shall abide by and require compliance with the following minimum site design regulations:

1. Minimum lot area:	***2.08 Acres***
2. Minimum lot width and/or depth:	***130 ft. x 452 ft.***
3. Minimum yard size (building)	
a. Front yard:	***20 ft.***
b. Rear yard:	***25 ft. Abutting Residential***
c. Side yard:	***10 ft.***
d. Waterfront yard:	***N/A***
4. Minimum floor area:	***N/A***

5.	*Maximum lot coverage:*	***70%***
6.	*Maximum building height:*	***35 ft.***
7.	*Landscape buffer requirements*	
	a. Front:	***20 ft.***
	b. Side:	***10 ft.***
	c. Rear:	***20 ft.***
8.	*Perimeter building setbacks:*	***10 ft.***
9.	*Minimum building separation:*	***Per LDR***
10.	*Off-street parking requirements:*	***Per LDR***
11.	*Signage requirements:*	***Per LDR***

12. *Open Space and/or Common Area requirements meeting the* Land Development Regulations Ordinance # 2013-11.

F. Environmental Considerations. The PD shall abide by and require compliance with the requirements of the Land Development Regulations Ordinance # 2013-11, as amended.

G. Sewage Disposal and Potable Water. Provision for sewage disposal and potable water needs of the PD will be provided in accordance with the Comprehensive Plan, Ordinance No.1990-04, as amended, the Land Development Regulations Ordinance No. 2009-09, as amended, and State of Florida Administrative Code 64E-6.

H. Stormwater Drainage. Provision for stormwater retention shall be in accordance with the Land Development Regulations Ordinance # 2013-11, as amended.

I. Access and Transportation System Improvements. All access and transportation system improvements shall be provided in accordance with the Land

Development Regulations, Ord. 02-09, as amended. The parcel shall be developed in substantial accordance with the following access and transportation system improvements:

1. Access. A full access driveway onto South Woodland Boulevard shall service the subject site.

2. Transportation System Improvements. A full access driveway approved by the Florida Department of Transportation ("FDOT") shall service the subject site.

J. Internal Roadways. As depicted in Exhibit "B" - The general site plan demonstrates the minimum internal roadway and parking area that is privately maintained that will service the site.

K. Building or Property Owners Association. It is the intent of the Applicant to create a Condominium Association for the PD. The charter and by-laws of said Association and any other agreements, covenants, easements or restrictions shall be furnished to the City of DeLand at the time of creation. The applicant shall be responsible for recording said information in the Public Records of Volusia County, Florida. Also, the applicant shall bear and pay all costs for recording all of the aforementioned documents.

With respect to the enforcement of said agreements, covenants, easements or restrictions entered into between the applicant and the owners or occupiers of property within the **PD**, the City of DeLand shall only enforce the provisions of the "Development Agreement" and City of DeLand Land Development Regulations Ordinance # 2013-11, as amended, whichever is applicable, and not the private agreements entered into between the aforementioned parties.

M. Reverter Provision: The City Commission may rezone any portion of the project which has not secured a Final Development Order on or before 5 years from the effective date of this ordinance as may be necessary or appropriate to protect adjoining properties or the public health, safety and welfare, unless the City Commission, for good cause shown, shall extend the time period indicated in this paragraph.

N. Binding Effect of Plans; Recording; and Effective Date. The Planned Development Plan, including any and all amendments shall bind and inure to the benefit of the Applicant and his successor in title or interest. The PD zoning, provisions of the "Development Agreement," and all approved plans shall run with the land and shall be administered in a manner consistent with Article 12 of the City of DeLand Land Development Regulations Ordinance # 2013-11, as amended.

This Ordinance and all subsequent amendments shall be filed with the Clerk of the Court and recorded within forty-five (45) days following execution of the document by the City Commission, in the Official Records of Volusia County, Florida. One copy of the document, bearing the book and page number of the Official Record in which the document was recorded, shall be submitted to the Planning Department for placement in the public file. The date of recording of this document shall constitute the effective date of the PD or its subsequent amendments. The applicant shall pay all filing costs for recording documents.

DONE and ORDERED by the City Commission, City of DeLand, Florida, this ____ day of _____ (mo/yr).

ATTEST: City Commission of DeLand Florida

_____ _____

Michael Plues Robert Apgar
City Manager Mayor

STATE OF FLORIDA
CITY OF DELAND

The foregoing instrument was acknowledged before me this _____ day of _____ (mo/yr), by Michael Plues and Robert Apgar, as City Manager and Mayor, City of DeLand, respectively, on behalf of the City of DeLand, and who are personally known to me.

NOTARY PUBLIC, STATE OF FLORIDA
Type or Print Name:
_____
Commission No.:_____
My Commission Expires:_____

WITNESSES:

Lee Munizzi,
as Manager for LAM Development, LLC
Applicant's Name, Title & Corporation

LEE MUNIZZI, MGRM
Applicant's Name, Title & Corporation

Owner of Property (if other than applicant)

The foregoing instrument was acknowledged before me this 23 day of December 2021, by LEE MUNIZZI, who is personally known to me or who has produced Driver's License as identification.

LORRI WASMAN
Notary Public - State of Florida
Commission # HH 022660
My Comm. Expires Jul 22, 2024
Bonded through National Notary Assn.

NOTARY PUBLIC, STATE OF FLORIDA

Type or Print Name: LORRI WASMAN

Commission No.: HH022660

My Commission Expires: July 22, 2024

Revised December 22, 2021 u/p/zone/pd_doc

EXHIBIT "A"

DEPICTION OF PARCEL

BOUNDARY SURVEY
FOR
LAM DEVELOPMENT, LLC

SECTION 16, TOWNSHIP 17 SOUTH, RANGE 30 EAST
VOLUSIA COUNTY, FLORIDA

EXHIBIT "A"

REAL PROPERTY DESCRIPTION

ALL OF LOTS 7 AND 10, AND LOTS 1, 4, 5, 8, AND 9, EXCEPT THE EAST 150 FEET, BLOCK 19, HOWRYS ADDITION TO DELAND, ACCORDING TO THE MAP IN MAP BOOK 22, PAGE 1, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA, AND OR 5167, PG. 1583, AND OR 7455, PG. 2095.

SURVEYOR'S NOTES

1.) SURVEYOR HAS NOT ABSTRACTED LANDS SHOWN HEREON FOR EASEMENTS, RIGHTS-OF-WAY, OR ANY OTHER MATTER OF RECORD WHICH MIGHT AFFECT THE TITLE OR USE OF SAID LANDS.

2.) NO UNDERGROUND INSTALLATIONS OR VISIBLE IMPROVEMENTS LOCATED OTHER THAN SHOWN.

3.) BEARINGS ARE BASED ON THE EAST R/W LINE OF WOODLAND BLVD. ASSUMED AS N 89°39'30"W PER PLAT.

4.) THE PROPERTY DESCRIPTION WAS PROVIDED TO THE SURVEYOR BY THE CLIENT.

5.) THE NONMONUMENTED AND OCCUPIED PROPERTY LINES WERE HELD TO FOR THIS SURVEY.

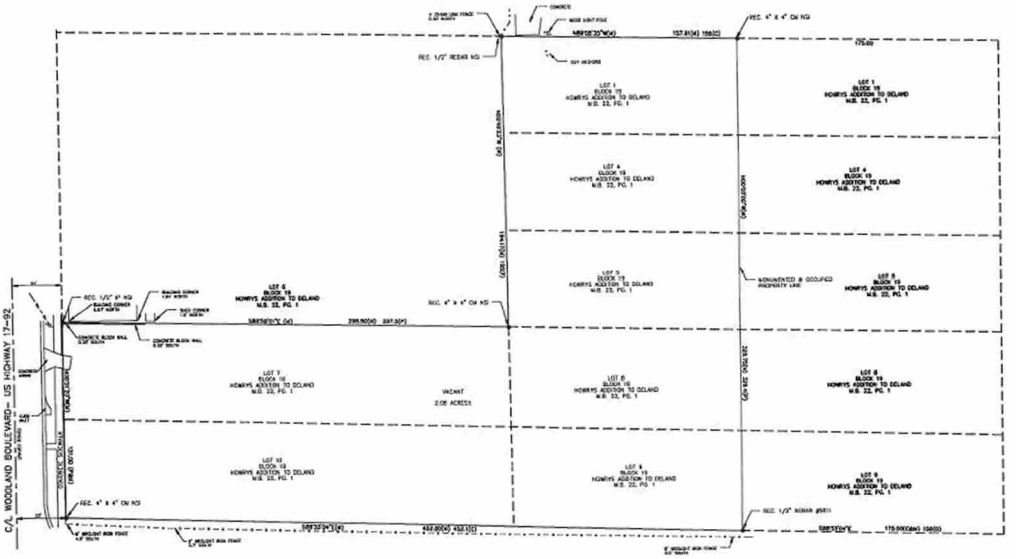
6.) THE SURVEYOR BELIEVES THAT IT SHOULD HAVE LESSED OUT THE EAST 150' NOT 150' DUE TO FIELD MEASUREMENTS.

7.) HAVING CONSULTED THE NATIONAL FLOOD INSURANCE PROGRAM FIRM, I HAVE DETERMINED THAT THE SUBJECT PROPERTY LIES IN ZONE "X", NOT A SPECIAL FLOOD AREA PER FIRM PANEL # 12127C0315 H, DATED 3/19/2014, VOLUSIA COUNTY, FLORIDA.

(SEE NOTE #3)

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.



ABBREVIATION LEGEND

N = NORTH
S = SOUTH
E = EAST
W = WEST
SEC = SECTION
FND = FOUND
CONC. = CONCRETE
MONUMENT
COR = CORNER
NO. = NUMBER
P.B. = PLAT BOOK
PG. = PAGE
PP = PAGES
REF. = REFERENCE
MEAS. = MEASURED
NTS = NOT TO SCALE
S.F. = SQUARE FEET
C/L = CENTER LINE
ELEV. = ELEVATION
CONC. = CONCRETE
INV. = INVERT
NO I.D. = NO IDENTIFICATION
MONUMENT
T = TOWNSHIP
R = RANGE
M.S.L. = MEAN SEA LEVEL
U.T. = UNDERGROUND TELEPHONE
W.L. = UNDERGROUND WATER LINE
R.L. = UNDERGROUND RECLAIMED WATER LINE
R.C.P. = REINFORCED CONCRETE PIPE
D.O.T. = DEPARTMENT OF TRANSPORTATION
(RAD.) = RADIAL
O.R. = OFFICIAL RECORD
D.B. = DEED BOOK
P.O.B. = POINT OF BEGINNING
P.O.C. = POINT OF COMMENCEMENT
R/W = WITH
P.L.S. = PROFESSIONAL LAND SURVEYOR REGISTRATION NUMBER 3144
TYP. = TYPICAL
PROP. = PROPERTY
R. = RADIUS
Δ = DELTA
L = ARC LENGTH
P.C. = POINT OF CURVATURE
P.R.C. = POINT OF REVERSE CURVATURE
P.T. = POINT OF TANGENCY
TAN. = TANGENT
C. = CHORD
C.B. = CHORD BEARING
R/W = RIGHT-OF-WAY
(T) = TOP OF CURB
(B) = BOTTOM OF CURB
(F) = FIELD
(P) = PLAT
(D) = DESCRIPTION
(C) = COMPUTED
CALC. = CALCULATED
C.I.P. = CERTIFIED CORNER RECORD
R.M. = BENCH MARK
O.H. = OVERHEAD UTILITY LINES
C.M.P. = CORRUGATED METAL PIPE
T.B.M. = TEMPORARY BENCH MARK
LB # = LICENCE BUSINESS NUMBER
(NR) = NON-RADIAL

CERTIFIED TO:

LAM DEVELOPMENT, LLC

RELIANT TITLE GROUP INC. dba VOLUSIA TITLE SERVICES

CHICAGO TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS SURVEY IS BASED ON THE MINIMUM TECHNICAL STANDARDS OF PRACTICE AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATUTES.

Scott Becker

SCOTT BECKER, P.S.M.
FLORIDA REGISTRATION NUMBER 3867
NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

DATE	REVISION	REVISION	CHECKED BY

SCOTT'S SURVEYING SERVICES, INC.
LB # 7442
8 S. HWY. 17-92, SUITE B-A
DEBARY, FLORIDA 32713
PH. (386) 668-7332 FAX 668-7337

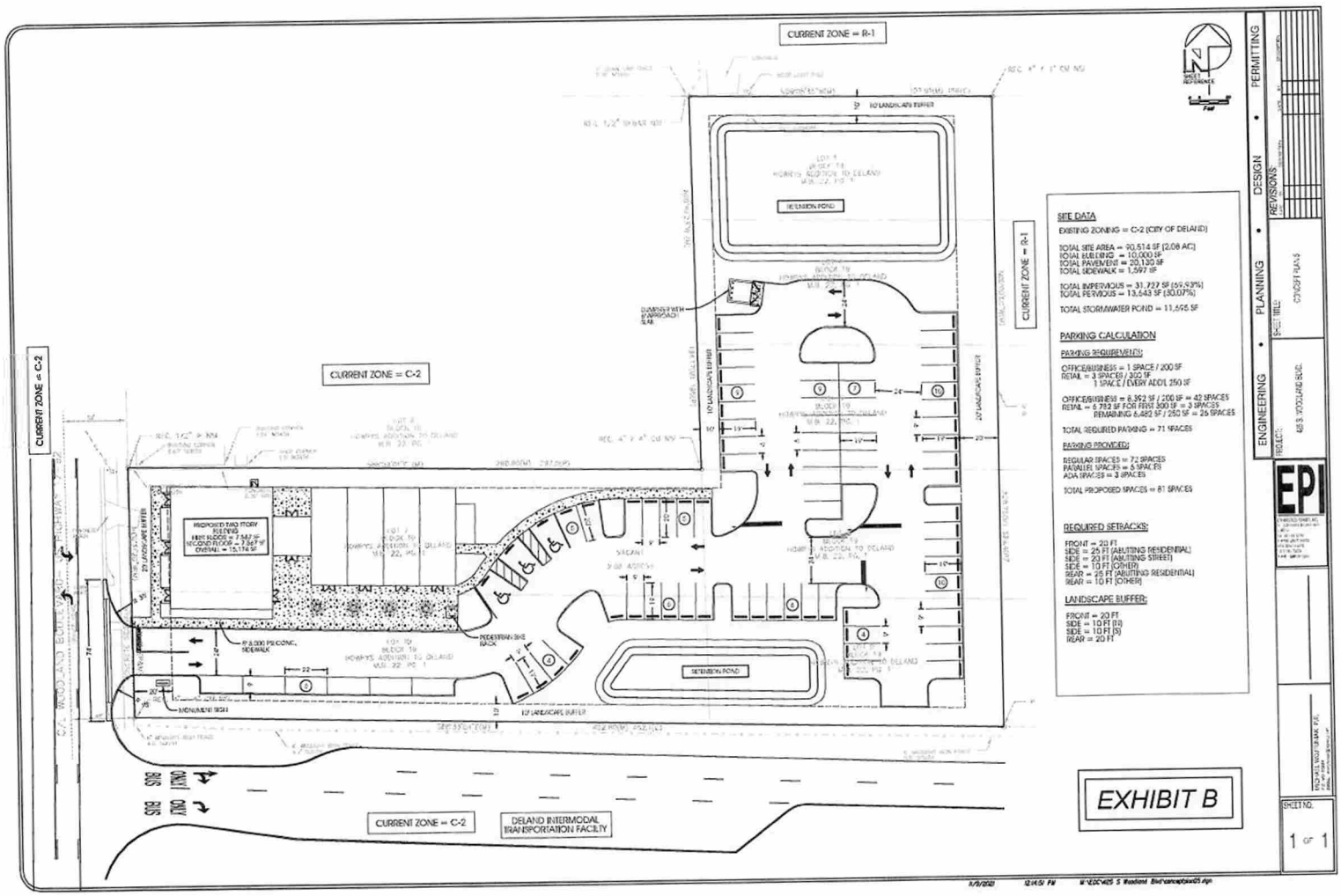
DRAWN BY	CHECKED BY	PROJECT MGR.	DATE
S.R.B.	S.R.B.	S.R.B.	4/24/18

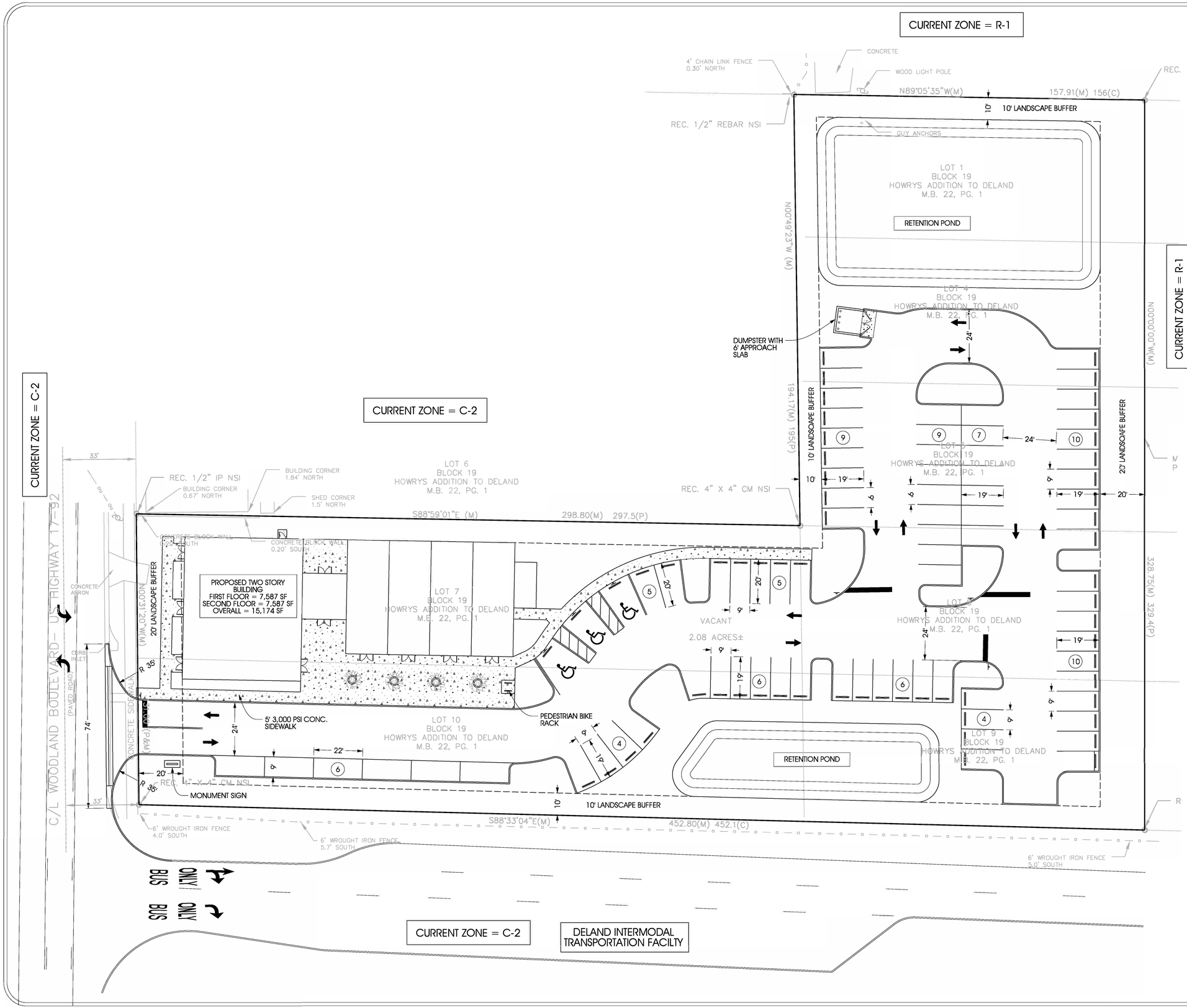
BOUNDARY SURVEY
FOR
LAM DEVELOPMENT, LLC
VOLUSIA COUNTY, FLORIDA

PROJECT NUMBER 18-65
DATE 4/26/18
SCALE 1" = 30'
SHEET 1 of 1

EXHIBIT "B"

PLANNED DEVELOPMENT PLAN


CURRENT ZONE = R-1
CURRENT ZONE = C-2
CURRENT ZONE = R-1
CURRENT ZONE = C-2
CURRENT ZONE = C-2
DELAND INTERMODAL TRANSPORTATION FACILITY
SITE DATA
EXISTING ZONING = C-2 (CITY OF DELAND)
TOTAL SITE AREA = 90,514 SF (2.08 AC)
TOTAL BUILDING = 10,000 SF
TOTAL PAVEMENT = 20,130 SF
TOTAL SIDEWALK = 1,597 SF
TOTAL IMPERVIOUS = 31,727 SF (35.03%)
TOTAL PERVIOUS = 13,543 SF (60.07%)
TOTAL STORMWATER POND = 11,695 SF
PARKING CALCULATION
PARKING REQUIREMENTS:
OFFICE/BUSINESS = 1 SPACE / 200 SF
RETAIL = 3 SPACES / 300 SF
1 SPACE / EVERY ADD'L 250 SF
OFFICE/BUSINESS = 8,352 SF / 200 SF = 42 SPACES
RETAIL = 6,792 SF FOR FIRST 300 SF = 3 SPACES
REMAINING 6,492 SF / 250 SF = 26 SPACES
TOTAL REQUIRED PARKING = 71 SPACES
PARKING PROVIDED:
REGULAR SPACES = 72 SPACES
PARALLEL SPACES = 5 SPACES
ADA SPACES = 3 SPACES
TOTAL PROPOSED SPACES = 81 SPACES
REQUIRED SETBACKS:
FRONT = 20 FT
SIDE = 25 FT (ABUTTING RESIDENTIAL)
SIDE = 20 FT (ABUTTING STREET)
SIDE = 10 FT (OTHER)
REAR = 25 FT (ABUTTING RESIDENTIAL)
REAR = 10 FT (OTHER)
LANDSCAPE BUFFER:
FRONT = 20 FT
SIDE = 10 FT (N)
SIDE = 10 FT (S)
REAR = 20 FT
EXHIBIT B
PERMITTING
DESIGN
PLANNING
ENGINEERING
REVISIONS:
SHEET TITLE:
CONCEPT PLAN
PROJECT:
EPI
SHEET NO.
1 OF 1



SITE DATA

EXISTING ZONING = C-2 (CITY OF DELAND)

TOTAL SITE AREA = 90,514 SF (2.08 AC)
TOTAL BUILDING = 10,000 SF
TOTAL PAVEMENT = 20,130 SF
TOTAL SIDEWALK = 1,597 SF

TOTAL IMPERVIOUS = 31,727 SF (69.93%)
TOTAL PERVIOUS = 13,643 SF (30.07%)

TOTAL STORMWATER POND = 11,695 SF

PARKING CALCULATION

PARKING REQUIREMENTS:

OFFICE/BUSINESS = 1 SPACE / 200 SF
RETAIL = 3 SPACES / 300 SF
1 SPACE / EVERY ADD'L 250 SF

OFFICE/BUSINESS = 8,392 SF / 200 SF = 42 SPACES
RETAIL = 6,782 SF FOR FIRST 300 SF = 3 SPACES
REMAINING 6,482 SF / 250 SF = 26 SPACES

TOTAL REQUIRED PARKING = 71 SPACES

PARKING PROVIDED:

REGULAR SPACES = 72 SPACES
PARALLEL SPACES = 6 SPACES
ADA SPACES = 3 SPACES

TOTAL PROPOSED SPACES = 81 SPACES

REQUIRED SETBACKS:

FRONT = 20 FT
SIDE = 25 FT (ABUTTING RESIDENTIAL)
SIDE = 20 FT (ABUTTING STREET)
SIDE = 10 FT (OTHER)
REAR = 25 FT (ABUTTING RESIDENTIAL)
REAR = 10 FT (OTHER)

LANDSCAPE BUFFER:

FRONT = 20 FT
SIDE = 10 FT (N)
SIDE = 10 FT (S)
REAR = 20 FT

ENGINEERING • PLANNING • DESIGN • PERMITTING

REVISIONS:

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

SHEET TITLE: CONCEPT PLAN 5

PROJECT: 425 S. WOODLAND BLVD.

EPI
ENGINEERED PERMITS, INC.
311 SOUTH WOODLAND BLVD.
SUITE A
DELAND, FL 32720
PHONE: 386-734-0830
FAX: 386-734-8026
CERT NO. 26598
EMAIL: epi@epieng.net

MICHAEL WOJTUNIAK, P.E.
P.E. NO. 50624
EMAIL: conceptplan@epieng.net

SHEET NO.
1 OF 1

10/18/2021 3:04:52 PM M:\EDC\425 S Woodland Blvd\conceptplan05.dgn

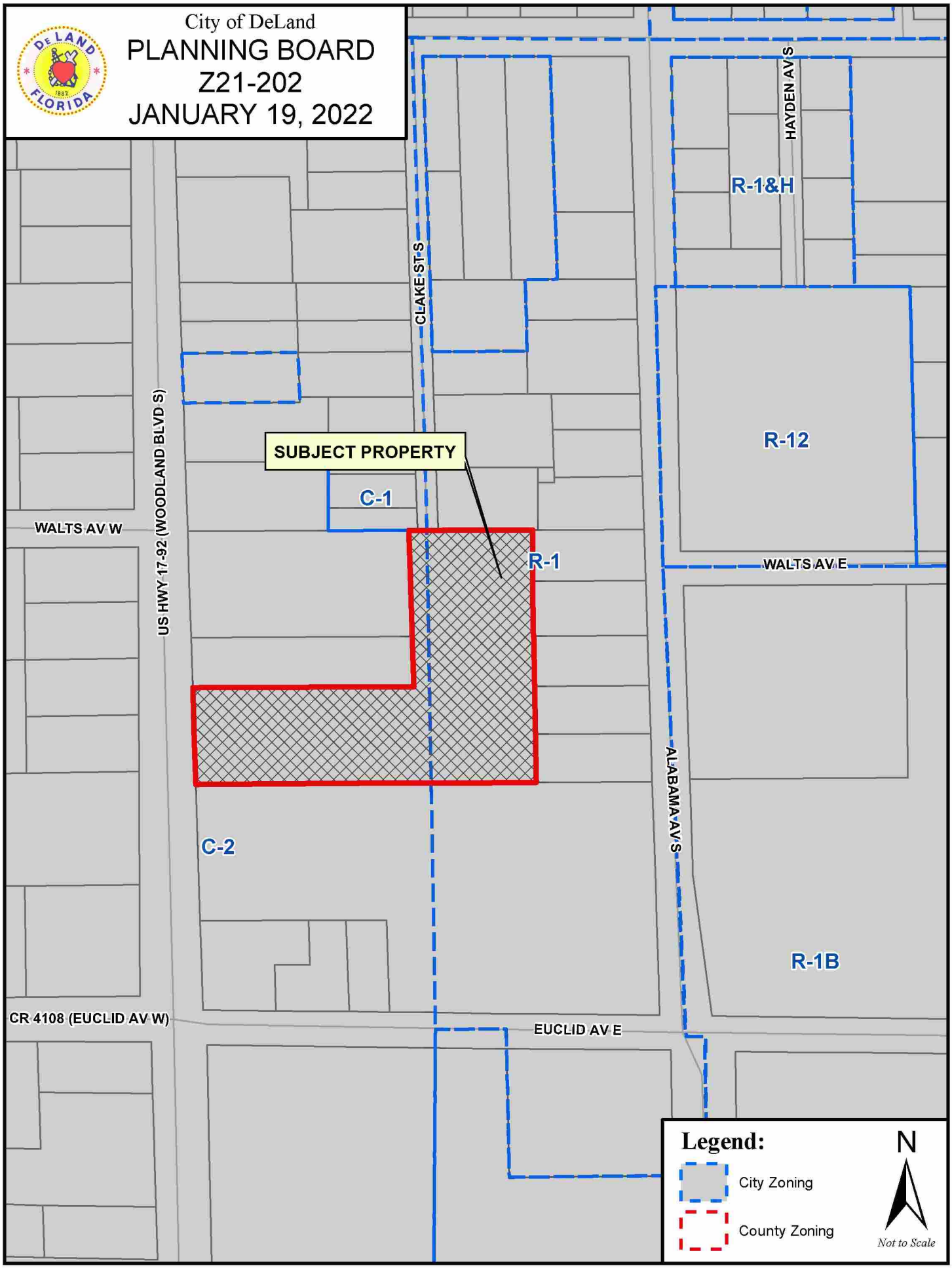
425 S. Woodland Boulevard

EXCELSIOR
GENERAL CONTRACTORS

4 Conceptual Elevation

Deland, FL

HOUSEMAN
ARCHITECTURE
20-005 02/24/20


City of DeLand
PLANNING BOARD
Z21-202
JANUARY 19, 2022
SUBJECT PROPERTY
C-1
R-1
C-2
R-1&H
R-12
R-1B
WALTS AV W
WALTS AV E
US HWY 17-92 (WOODLAND BLVD S)
CLAKE ST S
HAYDEN AV S
ALABAMA AV S
CR 4108 (EUCLID AV W)
EUCLID AV E
Legend:
City Zoning
County Zoning
N
Not to Scale

City of DeLand
PLANNING BOARD
Z21-202
JANUARY 19, 2022
C-2A&H
C-2&H
R-1&H
HAYDEN AV S
PD
CLAKE ST S
C-2&H
SUBJECT PROPERTY
C-1
R-12
WALTS AV W
R-1
WALTS AV E
US HWY 17-92 (WOODLAND BLVD S)
ALABAMA AV S
C-2
R-1B
CR 4108 (EUCLID AV W)
EUCLID AV E
Legend:
City Zoning
County Zoning
N
Not to Scale

Planning Department
Memorandum

TO: Planning Board **DATE**: January 19, 2022

FROM: Mike Holmes, Planning Director **FILE**: memo/2022/ldr housing

SUBJECT: Amendments to the Land Development Regulations to address nonconforming conditions and housing issues

==========

The City of DeLand, like other communities throughout Florida, have been experiencing increase demand for housing that is affordable to our residents. The City Commission, last year, held a working group that targeted these issues as a result of public input to the 2050 Vision update. Although there are many aspects that effect the housing situation, staff was directed to look at ways the City's Land Development Regulations could be revised to help address issues that may have been created by past regulations and development practices in an effort to increase the inventory of housing units in the community.

The attached ordinance proposes to update the LDR's by providing ways that some of the existing standards could be modified to incorporate flexibility into today's practices. The two broad areas that these proposed amendments are addressing: 1) lessening some requirements that may allow for the construction of more basic homes by developers and organizations to provide reasonably priced units and 2) to allow preexisting structures that currently don't comply with current regulations to be renovated or expanded by removing the stigma of properties or structures being labeled nonconforming. Owners may be hard pressed to obtain financing for properties if they are deemed nonconforming because of the potential inability to rebuild or to achieve a permit. Amending the City's hardship section may allow many of these structures to be upgraded without going through the variance process. However, if they cannot meet the standards, the properties could still go through the variance process for possible resolution to the situation.

Proposed Revisions

The following list describes the proposed changes:

1. Allowing accessory dwelling units (ADU) as a conditional use rather than a special exception in all single family zoning classifications. A conditional use allows the particular use out right subject to meeting the stated standards in the LDR's which are listed in Section 33-25. These standards are basically the same that were previously provided under the special exception process minus the building code requirements and the owner occupying one of the units.
2. Reduced minimum square footage for living area in all single family dwelling zoning districts to 900. Current range is between 1,000 sq. ft. to 1,800 sq. ft.; refer to individual single family districts for specific minimums. This will not change any standard contained in an approved PD agreement.

3. Eliminate minimum square footage requirement for multi-family units in the C-2A, Downtown Commercial district. The proposed change creates flexibility for downtown housing where one would expect smaller units. There are no proposed changes for other multi-family zoning categories. Section 33-17.17.
4. Allow single family dwellings in the C-2A, Downtown Commercial district that comply with the R-1 district standards. Use added to table 33-17.23. Currently all existing single family dwellings downtown are non-conforming. This allows the single family structures to be considered conforming until changed to another use by the owner.
5. Expanded when dwelling units can be on the first floor in the C-2A, Downtown Commercial district. This change will allow for them to be closer to either Woodland Blvd. or New York Av. but still emphasize the actual frontage for commercial and business uses. Sec. 33-19.13. The current code requires residential units to be at least 300 feet from either roadway. The proposed amendment reduces that distance to 50 feet.
6. Eliminate requirement for interior parking of 2 spaces in the Core Gateway overlay. This reduces the total number of spaces per single family unit from 4 spaces to 2, by requiring only the outside spaces. (Sec. 33-91 Parking Matrix) This eliminates the creation of nonconforming lots for many of the existing properties that only have two spaces.
7. Allow for a reduction in required parking for multi-family projects in the Core Gateway overlay. (Sec. 33-91 Parking Matrix) The reduction would be based on a parking study accepted by the City. The accepting body is dependent upon which body is approving the site plan application, staff, Planning Board, or City Commission.
8. Revised the entire Article IX, Hardship Relief. The revisions intended are to simplify when a variance is necessary and when the request can be approved administratively. Allows staff to approve existing situations such as existing setbacks or lot width but will not expand the current condition. Example, if the applicant needs to exceed the current setbacks, it then comes before the Planning Board as it does now; if the expansion can be accommodated by the current location of the building, staff can approve.

Comprehensive Plan Consistency

The Housing Element contains the following Objective and Policies that promote the need to review and amend the City's LDR's in order to provide appropriate housing for all in the community and in particular, the low to moderate income groups..

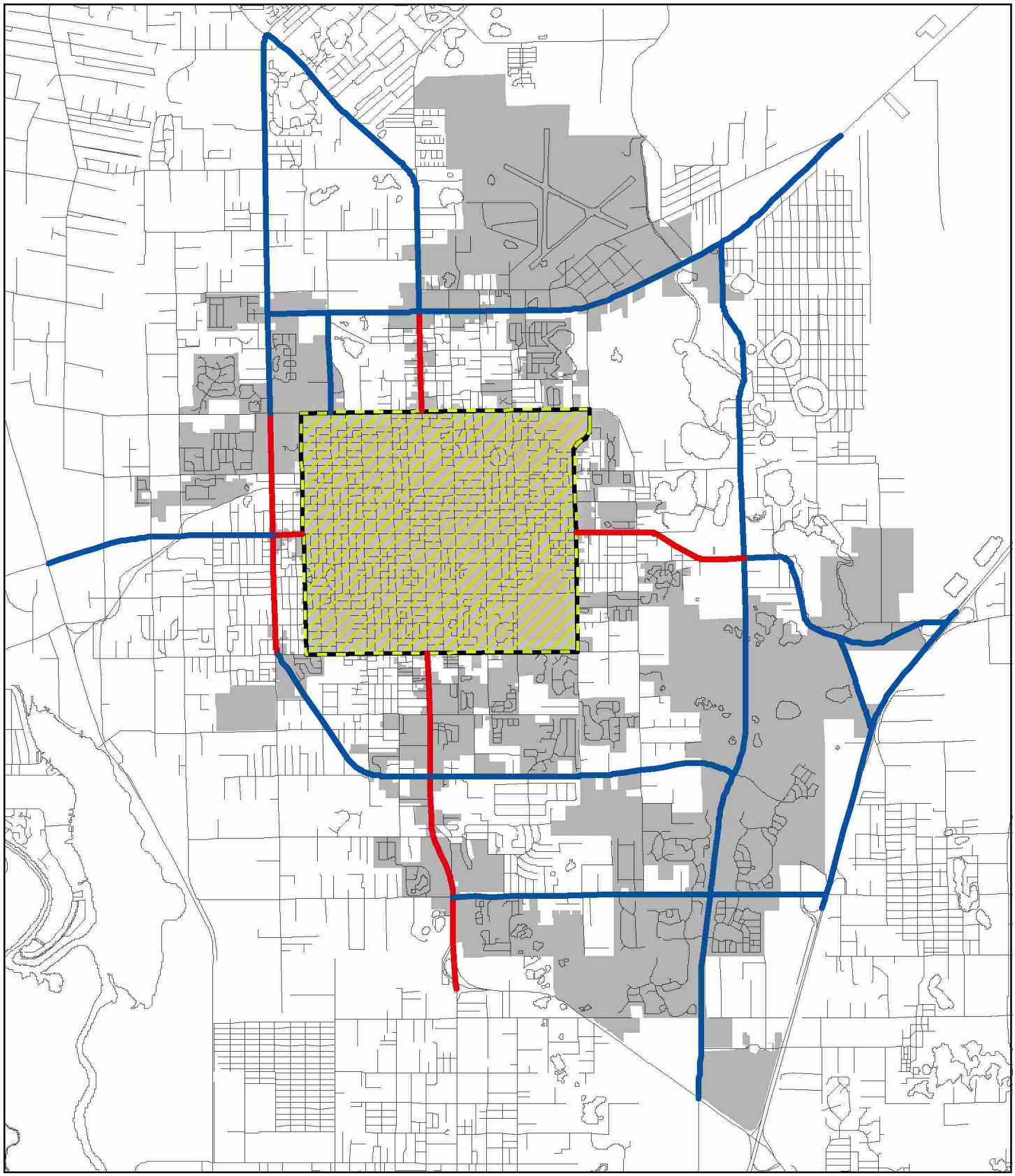
Objective h1.7: The City shall periodically review its regulations and continue to identify and implement measures which facilitate the provision of additional decent, safe, and sanitary affordable housing in the community to address the unmet housing needs of the lower-income segment of the population.

Policy h1.7.2: The City shall periodically review the regulatory and permitting process and will improve it as deemed necessary.

Policy h1.7.4: The City shall investigate and evaluate streamlining of permitting processes, unit/set asides, density bonuses and other such mechanisms for the provision of lower-income housing to determine which, if any, should be used by the City. The Land Development Regulations shall be revised to incorporate any such mechanisms determined to be appropriate and periodic reviews shall be performed to determine progress.

Recommendation: Staff recommends that the Planning Board review the attached ordinance and deem it is consistent with the Comprehensive Plan and forward it to the City Commission for their approval.

City of DeLand
Gateway Overlay Districts



Source: County of Volusia GIS
City of DeLand Planning Department

This map is a graphic representation and is not intended to be used for any engineering or surveying purposes. The City of DeLand is not liable for any decisions made on the basis of this map or on the information contained within the map.

Current as of February 1, 2010

Gateway Corridors

Corridor Name

- Redevelopment Gateway
- Emerging Gateway
- Core Gateway
- DeLand City Limits
- Streets

N

Not to Scale

01/06/2022 DRAFT
Affordable Housing
ORDINANCE NO. 2022-XXX

AN ORDINANCE OF THE CITY COMMISSION OF DELAND, FLORIDA, AMENDING VARIOUS SECTIONS WITHIN THE *CODE OF ORDINANCES OF THE CITY OF DELAND/LAND DEVELOPMENT REGULATIONS* (*LDRS*) RELATING TO AFFORDABLE HOUSING, NONCONFORMING BUILDINGS, STRUCTURES, LOTS AND USES, AND OTHER LAND DEVELOPMENT MATTERS TO INCLUDE, BUT NOT BE LIMITED TO, SECTIONS 33-12, 33-17.23, 33-17.17, 33-19/33-19.01,33-19.13, 33-25/33-25.01/33-25.02/33-25.03, 33-91.03 (SUBSECTION (F)), 33-101/33-101.01/33-101.02, 33-102./33-102.01/33-102.02/33-102.03/33-102.04 AND 33-103/33-103.01/33-103.02/33-103.03/33-103.04/33-103.05; CREATING NEW PROVISIONS OF THE *LDRS*; REPEALING SECTIONS 33-33.01.(E)(10) AND SECTION 33-145.04 WHILE ALSO ELIMINATING AND REVISING THE TEXT OF NUMEROUS PROVISIONS; PROVIDING FOR LEGISLATIVE FINDINGS AND INTENT; PROVIDING FOR WAIVER OR DEFERRAL OF IMPACT FEES FOR AFFORDABLE HOUSING AS AUTHORIZED BY SECTION 163.31801(11), *FLORIDA STATUTES*; PROVIDING FOR DIVERSE IMPLEMENTING ADMINISTRATIVE ACTIONS AND ENFORCEMENT; PROVIDING FOR CONFLICTS; PROVIDING FOR A SAVINGS PROVISION; PROVIDING FOR CODIFICATION ACTIONS OF A DIVERSE NATURE TO INCLUDE, BUT NOT BE LIMITED TO, MOVING SUBSECTION 33-102.04.(D) TO ARTICLE VI OF CHAPTER 33 WITH REGARD TO THE REGULATION OF SIGNS; PROVIDING FOR SEVERABILITY AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Policy f2.3.6 of the City of DeLand's *Comprehensive Plan* provides that the City shall "[e]xplore possible flexible development standards for affordable housing if mixed-use developments are located on areas served by transit"; and

WHEREAS, housing is generally considered Affordable when it is less than 30% of a family's gross income and if a family is paying more than 30% its income for housing, it is considered a cost burdened household; and

WHEREAS, over 11 million Americans are considered extremely cost burdened because they are paying more than 50% of their income on housing and, in Florida, the issue of affordability has been one which has been grappled with for a long while; and

WHEREAS, affordable housing is not a subsidized public housing or low-income housing and "affordable" simply means rents have been set at a rate to allow families, seniors, and individuals to live within 30% of their gross income for all housing expense and there is a maximum household income requirement that excludes those with higher income and Section 420.9071(2), *Florida Statutes*, defines the term "affordable" to mean:

> . . . that monthly rents or monthly mortgage payments including taxes and insurance do not exceed 30 percent of that amount which represents the percentage of the median annual gross income for the households as indicated in subsection (20), subsection (21), or subsection (30). However, it is not the intent to limit an individual household's ability to devote more than 30 percent of its income for housing, and housing for which a household devotes more than 30 percent of its income shall be deemed affordable if the first institutional mortgage lender is satisfied that the household can afford mortgage payments in excess of the 30 percent benchmark. The term also includes housing provided by a not-for-profit corporation that derives at least 75 percent of its annual revenues from contracts or services provided to a state or federal agency for low-income persons and low-income households; that provides supportive housing for persons who suffer from mental health issues, substance abuse, or domestic violence; and that provides on-premises social and community support services relating to job training, life skills training, alcohol and substance abuse disorders, child care, and client case management.

; and

WHEREAS, Section 166.04151, *Florida Statutes*, was enacted by the Florida Legislature relating to affordable housing and provides as follows:

> (1) Notwithstanding any other provision of law, a municipality may adopt and maintain in effect any law, ordinance, rule, or other measure that is adopted for the purpose of increasing the supply of affordable housing using land use mechanisms such as inclusionary housing or linkage fee ordinances.
>
> (2) An inclusionary housing ordinance may require a developer to provide a specified number or percentage of affordable housing units to be included in a development or allow a developer to contribute to a housing fund or other alternatives in lieu of building the affordable housing units.
>
> (3) An affordable housing linkage fee ordinance may require the payment of a flat or percentage-based fee, whether calculated on the basis of the number of approved dwelling units, the amount of approved square footage, or otherwise.
>
> (4) In exchange for a developer fulfilling the requirements of subsection (2) or, for residential or mixed-use residential development, the requirements of subsection (3), a municipality must provide incentives to fully offset all costs to the developer of its affordable housing contribution or linkage fee. Such incentives may include, but are not limited to:
>
> (a) Allowing the developer density or intensity bonus incentives or more floor space than allowed under the current or proposed future land use designation or zoning;
>
> (b) Reducing or waiving fees, such as impact fees or water and sewer charges; or
>
> (c) Granting other incentives.

(5) Subsection (2) does not apply in an area of critical state concern, as designated by s. 380.0552 or chapter 28-36, Florida Administrative Code.

(6) Notwithstanding any other law or local ordinance or regulation to the contrary, the governing body of a municipality may approve the development of housing that is affordable, as defined in s. 420.0004, on any parcel zoned for residential, commercial, or industrial use.

; and

WHEREAS, Section 163.31801(11), *Florida Statutes*, was enacted by the Florida Legislature pertaining to impact fees and provides as follows:

> A county, municipality, or special district may provide an exception or waiver for an impact fee for the development or construction of housing that is affordable, as defined in s. 420.9071. If a county, municipality, or special district provides such an exception or waiver, it is not required to use any revenues to offset the impact.

; and

WHEREAS, a sampling of residents which are in need of affordable housing includes entry level teachers, essential workers such as those in the medical field, restaurant, office, and retail personnel and many of persons employed in law enforcement; and

WHEREAS, a variety of strategies affecting affordable housing include linkage fees; accessory dwelling units (ADUs); the State Housing Initiative Partnership (SHIP) program; approval of affordable housing developments on land zoned as residential, commercial, or industrial; and mobile homes/manufactured housing; and

WHEREAS, many benefits of affordable housing derive to the City such as, but not limited to:

(1). Economic benefits to the community. Affordable housing provides direct economic advantages to the immediate community.

(2). Provides a diverse workforce. The best thing about affordable housing is the fact that it accommodates individuals with different skills that are beneficial to the community.

(3). Promotes social and economic integration. Affordable housing ensures that the cost of housing is not very high such that families can afford to meet their respective health and education ...

(4). Stronger labor force. Through affordable housing, the employees are going to be able to live near their respective employment centers and this leads to a stronger labor force.

; and

WHEREAS, Policy f1.2.7 of the City of DeLand's *Comprehensive Plan* provides, in pertinent part, that "[n]otwithstanding previous sections of this Element, College Arms Tower at 101 N. Amelia Ave., and Hugh Ash Manor at 740 N. Woodland Blvd., for purposes of density, shall be considered conforming uses."; and

WHEREAS, Policy f3.2.6 of the City of DeLand's *Comprehensive Plan* that '[t]he City may remove, at the owner's expense, non-conforming obstructions that have been abandoned or have deteriorated (as described in §333.07(1)(b) F.S.) or deny a permit to rehabilitate the structure beyond what is currently permitted under the airport protection zoning regulations."; and

WHEREAS, it is important for the City to establish reasonable regulations for the regulation and ultimate elimination of non-conforming uses; and

WHEREAS, Section 163.3202, *Florida Statutes*, provides that the City of DeLand shall adopt and enforce land development regulations for the purpose of implementing its *Comprehensive Plan* and protecting the public health, safety and general welfare; and

WHEREAS, the City of DeLand's Planning Board, as the City's local planning agency, held a public hearing to consider this Ordinance and recommended approval; and

WHEREAS, City staff has recommended approval of this Ordinance; and

WHEREAS, without limiting the generality of the foregoing in any respect, the City Commission has determined that this Ordinance is consistent with the *Comprehensive Plan* of the City of DeLand; and

WHEREAS, the City Commission of the City of DeLand has deemed approval of this Ordinance to be in the best interest of the residents and citizens of the City of DeLand and to further the public health, safety and welfare; and

WHEREAS, this Ordinance is enacted pursuant to the statutory and constitutional home rule powers of the City of DeLand as set forth at Article VIII, Section 2, of the *Constitution of the State of Florida*; and Chapter 166, *Florida Statutes*, and other applicable controlling law to include, but not be limited to, Chapter 163, *Florida Statutes*; and

WHEREAS, the City of DeLand has complied with all requirements and procedures of Florida law in processing and advertising this Ordinance; and

WHEREAS, for purposes of this Ordinance, <u>underlined</u> type shall constitute additions to the original text, *** shall constitute ellipses to the original text, ~~strikethrough~~ shall constitute deletions to the original text, and minor edits have been made without legislative coding.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COMMISSION OF DELAND, FLORIDA:

Section 1. Legislative Findings And Intent.

(a). The City Commission of the City of DeLand hereby adopts and incorporates into this Ordinance the City staff report relating to this Ordinance.

(b). A nonconforming use is generally defined as a land use or structure that was legal when established but does not conform to the standards of the current zoning ordinance or land development regulations. The term "nonconforming use" covers several situations, including nonconforming uses, lots, buildings and structures. Preexisting land uses that do not conform to current zoning are not favored. The ultimate goal of zoning is to achieve a complimentary mix of property uses within each zoning district/classification. At the same time, landowners have made investments in their businesses and buildings, and it would be unfair and, perhaps, illegal in some circumstances, to require immediate termination or removal. Rather than require the immediate elimination of these preexisting uses, it is a common and generally accepted land use planning practice and principal to outline a set of conditions for the continued existence of nonconforming uses. The general rule is, however, that the expansion, enlargement or intensification of a nonconforming use in almost all cases can be regulated or prohibited. Similarly, the resumption of a nonconforming use or structure after it has been destroyed may be prohibited in some circumstances, but land development regulations traditionally set specific thresholds, such as a percentage of assessed value, for defining what constitutes destruction, and courts generally defer to the stated thresholds. Again, the principle is to allow landowners to continue to reasonably benefit from investments made in their properties. If those investments have been destroyed, however, the community may or may not have an obligation to allow a landowner to reinvest in a use prohibited by current zoning. To prevent nonconforming uses from becoming blighted properties, land development regulations generally allow for routine maintenance and repair, so long as such activities do not constitute expansion or enlargement. When a nonconforming use has been abandoned, its resumption can be prohibited.

Section 2. Amendment to Section 33-12, *City Code/Land Development Regulations*, Definitions. Section 33-12 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

Sec. 33-12. - Definitions.

(a). As used in these *Land Development Regulations* ~~this chapter~~, the following words shall be defined as follows:

***

Nonconformities, building or ~~and~~ structure, means a building or structure, lawfully existing at the effective date of the enactment (effective date) of a provision or provisions of these *Land Development Regulations*, or any subsequent amendment thereto, which does not conform to one or more of the then enacted provision or provisions. Buildings or structures that are subject to a development order granting a variance shall not be considered nonconforming. ~~which does not meet the city's requirements as to:~~

~~Minimum building or structure setback;~~

~~Minimum building dimensions;~~

~~Minimum lot dimensions;~~

~~Minimum landscape buffer requirements;~~

~~Maximum lot coverage or impervious area;~~

~~Maximum height for structures; or~~

~~Other similar building or structural requirements or limitations.~~;

~~Nonconformities, parking, loading, landscaping, and other means improvements that do not meet with such City requirements as to:~~

~~Required number or size of parking spaces;~~

~~Required number or size of loading dock spaces;~~

~~Required dumpster location or screening;~~

~~Required stacking spaces for drive-in services;~~

~~Required access and maneuvering area in vehicular areas;~~

~~Required landscaping and screening;~~

~~Required sidewalk and pedestrian circulation;~~

~~Limitations on amount and area of signs; or~~

~~Other similar site improvement requirements or limitations.~~

***

Nonconforming Lot means a lot (meaning a tract of land however lawfully created) which is lawfully existing at the effective date of the enactment (effective date) of a provision or provisions of these *Land Development Regulations*, or any subsequent amendment thereto, which does not conform to one or more of the then enacted provision or provisions. Lots that are subject to a development order granting a variance shall not be considered nonconforming.

Nonconforming Use means a use of land lawfully existing at the effective date of the enactment (effective date) of a provision or provisions of these *Land Development Regulations*, or any subsequent amendment thereto, which does not conform to one or more of the then enacted provision or provisions.

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(b). In addition to the foregoing, the City may apply any definition set forth in the *Florida Statutes* that may be applicable to the development processes and procedures of the City as well as any definition that may be adopted in the *Florida Building Code* when applicable to such processes and procedures.

Section 3. Amendment to Section 37-17, *City Code/Land Development Regulations*, Allowed Uses In Residential, Commercial And Industrial Zoning Districts. Section 37-17 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

Sec. 33-17. Zoning districts.

The following table insert contains an overview of uses allowed in the residential and the educational zoning districts. Information specific to each zoning district follows in individual tables. Uses allowed in other than residential districts appear in Table 33-17.23.

Use-specific data presented in the tables are identified as follows:

1. Primary uses and structures allowed in the following districts are indicated by the letter "P."
2. Conditional uses may be allowed in a district where compliance with restrictions related to that use are met. Conditional uses are indicated by the letter "C." The restrictions for conditional uses are either stated or discussed in section 33-19, as indicated by an asterisk (*) or superscript number. Blank spaces indicate the use is not permitted in that district.
3. Certain uses may be allowed in certain district by special exception only. Further details regarding these exceptions appear in section 33-18. Uses allowed by special exception are indicated by the letter "E," and, where applicable, the restriction detail is identified by superscript number.

USES	R-	R-	R-	R-	R-	R-	R-	R-	R-	R-	R-	R-	E-
Single-family dwellings except mobile homes	P	P	P	P	P	P	P						P
Single-family dwellings compliant with R-1								P	C	C			
Two-family dwellings and duplexes								P					P
Two-family dwellings and duplexes, comply R-2									C	C			
Multiple-family dwellings									P	P	P		P
Accessory Dwelling Units	~~E~~C	~~E~~C	~~E~~C	~~E~~C	~~E~~C	~~E~~C	~~E~~C						
Dormitories													P
Mobile homes, tenant or lease residence												P	
Mobile home sales on site lots and housing units												P	
Recreation or laundry facilities												P	

Park management office buildings												P	
Bed and breakfast homestay, accessory	P	P	P	P	P	P	P	P					
Bed and breakfast inn, accessory									P	P	P		
Day care facilities													P
Family day care home	P	P	P	P	P	P	P	P	P	P	P		
Community residential homes, single-family*	C	C	C	C	C	C	C	P	C	C	C	C	C
Community residential homes, multifamily*									C	C			C
Nursing homes and adult congregate living									E	E	E		
Community and Market Gardens	E[1]	E[1]	E[1]	E[1]	E[1]	E[1]	E[1]	E[1]	E[1]	E[1]	E[1]	E[1]	E[1]
Mini and neighborhood parks	P	P	P	P	P	P	P	P	P	P	P	P	P
Community and regional parks	E	E	E	E	E	E	E	E	E	E	E	E	E
Private parks	E	E	E	E	E	E	E	E	E	E	E		
Golf courses and their related structures	E	E	E	E	E	E	E	E	E	E	E	E	E
Private clubs and lodges	E	E									P		
Churches with accessory education and recreation	E	E	E	E	E	E	E	E	E	E	E	E	P
Government or public buildings and land uses	E	E	E	E	E	E	E	E	E	E	E	E	P
Cemeteries	E[4]	E[4]	E[4]	E[4]	E[4]	E[4]	E[4]	E[4]	E[4]	E[4]	E[4]		
Veterinary clinics, groom and outdoor boarding	E												
Colleges and universities						P	P						P
Public, private and parochial schools												P	P
Printing and lithography, not to exceed 2,000 square feet													C
Private clubs and lodges													P
Shade structure less than 800 square feet (accessory)													P
Shade structure over 800 square feet													E
Microwave, radio, phone, TV facilities and towers													E
Communication towers	See section 33-23												
Other uses approved by the city commission[1]	P	P	P	P	P	P	P	P	P	P	P	P	P

[1] Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.

33-17.01. *R-R—Rural Residential.*

(a) *Statement of intent.* The purpose and intent of this R-R Rural Residential District is to provide a gradual transition between agricultural and urban and single-family development plans.

R-R RURAL RESIDENTIAL
ALLOWED USES
PRIMARY USES AND STRUCTURES
Bed and breakfast homestay, accessory use only (See also section 33-27.03.)
Family day care home.
Mini and neighborhood parks.
Single-family dwellings, except mobile homes.
Accessory dwelling units.
Colleges and universities—Colleges and universities, including class rooms, libraries, art centers, laboratories, offices, administration building and other university uses of a similar nature.
Other uses—Other uses must be approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted therein.
CONDITIONAL USES (See also Chapter 33, Section 33-19)
Community residential homes, single-family.
SPECIAL EXCEPTIONS (See also Chapter 33, Section 33-18)
~~Accessory dwelling units.~~
Cemeteries.
Churches, houses of worship—Churches, houses of worship and religious institutions with their customary accessory educational and recreational uses and buildings.
Community and regional parks.
Community gardens.
Golf courses—Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.
Government and public buildings and land uses.
Private clubs and lodges.
Private parks.
Veterinary clinics/hospitals and pet grooming—Veterinary clinics, animal hospitals and pet grooming with outdoor boarding facilities and runs.
Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.
MAXIMUM DENSITY ALLOWED

Dwelling units per gross acre.	1.09
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH	100 feet
MINIMUM SIZE	40,000 square feet
Lots fronting on a curve must have a minimum 50-foot width at the street line.	
Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots.	
Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.	
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface	30 percent
Front setback	40 feet
Rear setback	40 feet
Interior side setback	15 feet
Street side setback	40 feet
BUILDING DIMENSIONS	
Maximum height	35 feet
Minimum floor area under heat and air	900~~1,200~~ square feet
ADDITIONAL REQUIREMENTS	
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and ten feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two off-street parking spaces compliant with Figure 33-91.06(b) are required per unit.~~	
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved or improved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Areas paved with impervious material must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	
Application for and connection to municipal water and sewer is required within areas served by the city.	

MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1-acre per unit
Septic tank with public water supply	½-acre per unit
MINIMUM REQUIREMENTS FOR TREE COVERAGE	
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area.	
Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.	
LANDSCAPING	
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).	
AGRICULTURE	
Low intensity agriculture is permitted, provided the use is consistent with the Comprehensive Plan and the requirements of section 33-27.05.	
ACCESSORY STRUCTURES	
Permits are required for the placement and installation of accessory structures such as pools, storage sheds fences and similar structures. Additional information is contained within article III, section 33-28, accessory structures.	

33-17.02. *R-R1—Suburban Single-Family Residential District.*

(a) *Statement of intent.* The purpose of the R-R1 Suburban Single-Family Residential District is to provide a transitional area between rural residential and urban development patterns. The intent of the district is to allow and encourage future single-family development in these transitional areas and to preserve the character of existing suburban residential developments of a similar nature.

R-R1 SUBURBAN SINGLE-FAMILY RESIDENTIAL DISTRICT
ALLOWED USES
PRIMARY USES AND STRUCTURES
Bed and breakfast homestay, accessory use only (See also section 33-27.03.)
Family day care home.
Mini and neighborhood parks.
Single-family dwellings, except mobile homes.
Accessory dwelling units.
Other uses—Other uses must be approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted therein.
CONDITIONAL USES (See also chapter 33, section 33-19)
Community residential homes, single-family.
SPECIAL EXCEPTIONS (See also chapter 33, section 33-18)

~~Accessory dwelling units.~~	
Bed and Breakfast homestay, as allowed for in Section 33-27.03	
Cemeteries.	
Churches, houses of worship—Churches, houses of worship and religious institutions with their customary accessory educational and recreational uses and buildings.	
Community and regional parks.	
Community gardens.	
Golf courses—Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.	
Government and public buildings and land uses.	
Private clubs and lodges.	
Private parks.	
Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre.	2.18
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH	100 feet
MINIMUM SIZE	20,000 square feet
Lots fronting on a curve must have a minimum 50-foot width at the street line.	
Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots.	
Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.	
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface	35 percent
Front setback	30 feet
Rear setback	20 percent of lot depth, but not less than 20 feet. For residences, where 60% of neighboring residential structures within 500 feet have an existing lesser setback staff may approve a matching setback.
Interior side setback	12 feet
Street side setback	30 feet
BUILDING DIMENSIONS	
Maximum height	35 feet
Minimum floor area under heat and air	900~~1,200~~ square feet
ADDITIONAL REQUIREMENTS	
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and 10 feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.05(b) are required per unit.~~	
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved or improved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Areas paved with impervious material must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	

Application for and connection to municipal water and sewer is required within areas served by the city.	
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1-acre per unit
Septic tank with public water supply	½-acre per unit
MINIMUM REQUIREMENTS FOR TREE COVERAGE	
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area.	
Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.	
LANDSCAPING	
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).	
AGRICULTURE	
Low intensity agriculture is permitted, provided the use is consistent with the Comprehensive Plan and the requirements of section 33-27.05.	
ACCESSORY STRUCTURES	
Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article III, section 33-28, accessory structures.	

33-17.03. *R-1AA—Single-Family Dwelling District.*

(a) *Statement of intent.* The purpose and intent of the R-1AA Single-Family Residential District is to provide and encourage low-density residential neighborhoods in an urban setting for both existing and proposed developments.

R-1AA SINGLE-FAMILY DWELLING
ALLOWED USES
PRIMARY USES AND STRUCTURES
Bed and breakfast homestay, accessory use only. (See also section 33-27.03.)
Family day care home.
Mini and neighborhood parks.
Single-family dwellings, except mobile homes.
Accessory dwelling units.
Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.
CONDITIONAL USES (See also chapter 33, section 33-19)
Community residential homes, single-family.
Garden community (section 33-19.14).
SPECIAL EXCEPTIONS (See also chapter 33, section 33-18)
~~Accessory dwelling units.~~
Bed and Breakfast homestay, as allowed for in Section 33-27.03
Cemeteries.

Churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.	
Community and regional parks.	
Community gardens.	
Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.	
Governmental and public building and land uses.	
Private parks.	
Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre	4.36
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH	100 feet
MINIMUM SIZE	10,000 square feet
Lots fronting on a curve must have a minimum 50-foot width at the street line.	
Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots.	
Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.	
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface	40 percent
Front setback	30 feet
Rear setback	25 feet. For residences, where 60 percent of neighboring residential structures within 500 feet have an existing lesser setback staff may approve a matching setback.
Side setback	15 feet
Street side setback	20 feet, provided the corner lot faces the same as all other lots on the street.
BUILDING DIMENSIONS	
Maximum height	35 feet
Minimum floor area under heat and air	900~~1,400~~ square feet
	Two story: Ground floor: 600~~1,200~~ square feet
ADDITIONAL REQUIREMENTS	
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	

The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and ten feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.06(b) are required per unit.~~
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved or improved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Areas paved with impervious material must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.
MINIMUM REQUIREMENTS FOR WATER AND SEWER
Application for and connection to municipal water and sewer is required within areas served by the city.

MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1 acre per unit
Septic tank with public water supply	½ acre per unit

MINIMUM REQUIREMENTS FOR TREE COVERAGE
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.
LANDSCAPING
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).
AGRICULTURE
Low intensity agriculture is permitted only as an accessory to single-family dwellings, provided the use is consistent with the Comprehensive Plan and the requirements of section 33-27.05.
ACCESSORY STRUCTURES

Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article III, section 33-28, accessory structures.

33-17.031. *R-1A—Single-Family Dwelling District.*

(a) *Statement of intent.* The purpose and intent of the R-1A Single-Family Residential District is to provide low density residential neighborhoods in an urban setting with less stringent development standards than the R-1AA district.

R-1A SINGLE-FAMILY DWELLING	
ALLOWED USES	
PRIMARY USES AND STRUCTURES	
Bed and breakfast homestay, accessory use only. (See also section 33-27.03.)	
Family day care home.	
Mini and neighborhood parks.	
Single-family dwellings, except mobile homes.	
Accessory dwelling units.	
Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.	
CONDITIONAL USES (See also chapter 33, section 33-19)	
Community residential homes, single-family.	
Garden community (section 33-19.14).	
SPECIAL EXCEPTIONS (See also chapter 33, section 33-18)	
~~Accessory dwelling units.~~	
Bed and Breakfast homestay, as allowed for in Section 33-27.03	
Cemeteries.	
Churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.	
Community and regional parks.	
Community gardens.	
Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.	
Governmental and public building and land uses.	
Private parks.	
Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre	5.28
MINIMUM LOT DIMENSIONS	

MINIMUM WIDTH	75 feet corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots. Lots fronting on a curve must have a minimum 50-foot width at the street line.
MINIMUM SIZE	8,250 square feet
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface	40 percent
Front setback	30 feet
Rear setback	25 feet. For residences, where 60 percent of neighboring residential structures within 500 feet have an existing lesser setback staff may approve a matching setback.
Side setback	12.5 feet
Corner lot: Street side setback	20 feet, provided the corner lot faces the same as all other lots on the street.
BUILDING DIMENSIONS	
Maximum height	35 feet
Minimum floor area under heat and air	900~~1,400~~ square feet.
	Two story: Ground floor: ~~9~~600 square feet
ADDITIONAL REQUIREMENTS	
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and ten feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.06(b) are required per unit.~~	
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Paved areas must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	

Application for and connection to municipal water and sewer is required within areas served by the city.	
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1 acre per unit
Septic tank with public water supply	½ acre per unit
MINIMUM REQUIREMENTS FOR TREE COVERAGE	
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.	
LANDSCAPING	
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).	
AGRICULTURE	
Low intensity agriculture is permitted only as an accessory to single-family dwellings, provided the use is consistent with the Comprehensive Plan and the requirements of section 33-27.05.	
ACCESSORY STRUCTURES	
Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article III, section 33-28, accessory structures.	

33-17.04. *R-1B—Single-Family Dwelling District.*

(a) *Statement of intent.* The purpose and intent of the R-1B Single-Family Residential District is to provide affordable, low density residential neighborhoods in an urban setting with less stringent development standards and minimum floor area requirements than the R-1A district.

R-1B SINGLE-FAMILY DWELLING
ALLOWED USES
PRIMARY USES AND STRUCTURES
Bed and breakfast homestay, accessory use only. (See also section 33-27.03.)
Family day care home.
Mini and neighborhood parks.
Single-family dwellings, except mobile homes.
Accessory dwelling units.

Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.	
CONDITIONAL USES (See also chapter 33, section 33-19)	
Community residential homes, single-family.	
Garden community (section 33-19.14).	
SPECIAL EXCEPTIONS (See also chapter 33, section 33-18)	
~~Accessory dwelling units.~~	
Bed and Breakfast homestay, as allowed for in Section 33-27.03	
Cemeteries.	
Churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.	
Community and regional parks.	
Community gardens.	
Golf courses and appurtenant structures connected thereto, including, but not limited to, the clubhouse, storage rooms and locker rooms.	
Governmental and public building and land uses.	
Private parks.	
Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre	5.81
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH	75 feet. Lots fronting on a curve must have a minimum 50-foot width at the street line. Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots. Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.
MINIMUM SIZE	7,500 square feet
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface	45 percent
Front setback	30 feet
Rear setback	25 feet. For residences, where 60 percent of neighboring residential structures within 500 feet have an existing lesser

	setback staff may approve a matching setback.
Side setback	10 feet
Corner lot: Street side setback	20 feet, provided the corner lot faces the same as all other lots on street.
BUILDING DIMENSIONS	
Maximum height	35 feet
Minimum floor area under heat and air	900~~1,200~~ square feet
	Two story: Ground floor: ~~9~~600 square feet.
ADDITIONAL REQUIREMENTS	
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and ten feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.06(b) are required per unit.~~	
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved or improved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Areas paved with impervious material must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	
Application for and connection to municipal water and sewer is required within areas served by the city.	
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1 acre per unit
Septic tank with public water supply	½ acre per unit
MINIMUM REQUIREMENTS FOR TREE COVERAGE	
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as	

defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.
LANDSCAPING
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).
AGRICULTURE
Low intensity agriculture is permitted only as an accessory to single-family dwellings, provided the use is consistent with the Comprehensive Plan and the requirements of section 33-27.05.
ACCESSORY STRUCTURES
Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article III, Section 33-28, accessory structures.

33-17.05. *R-1—Single-Family Dwelling District.*

(a) *Statement of intent.* The purpose and intent of the R-1 Single-Family Residential District is to provide medium density residential neighborhoods in an urban setting along with other limited nonresidential uses.

R-1 SINGLE-FAMILY DWELLING
ALLOWED USES
PRIMARY USES AND STRUCTURES
Bed and breakfast homestay, accessory use only. (See also section 33-27.03.)
Colleges and universities, including classrooms, libraries, art centers, laboratories, offices, administrative buildings and other university uses of a similar nature.
Family day care home.
Mini and neighborhood parks.
Single-family dwellings, except mobile homes.
Accessory dwelling units.
Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.
CONDITIONAL USES (See also Chapter 33, Section 33-19)
Community residential homes, single-family.
Garden community (section 33-19.14).
SPECIAL EXCEPTIONS (See also Chapter 33, Section 33-18
~~Accessory dwelling units.~~
Bed and Breakfast homestay, as allowed for in Section 33-27.03
Cemeteries, churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.

Community and regional parks.	
Community gardens.	
Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.	
Governmental and public building and land uses.	
Private parks.	
Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre	6.7
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH	60 feet
MINIMUM SIZE	6,500 square feet. Lots fronting on a curve must have a minimum 50-foot width at the street line. Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots. Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface	50 percent
Front setback	30 feet
Rear setback	25 feet. For residences, where 60 percent of neighboring residential structures within 500 feet have an existing lesser setback staff may approve a matching setback.
Side setback	7.5 ~~10~~ feet
Corner lot: Street side setback	20 feet—Provided the corner lot faces the same as all other lots on street.
BUILDING DIMENSIONS	
Maximum height	35 feet
Minimum floor area under heat and air	~~1,~~900~~0~~ square feet
	Two story: Ground floor: ~~8~~600 square feet
ADDITIONAL REQUIREMENTS	

MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and ten feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.06(b) are required per unit.~~	
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved or improved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Areas paved with impervious material must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	
Application for and connection to municipal water and sewer is required within areas served by the city.	
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1 acre per unit
Septic tank with public water supply	½ acre per unit
MINIMUM REQUIREMENTS FOR TREE COVERAGE	
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.	
LANDSCAPING	
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).	
AGRICULTURE	

Low intensity agriculture is permitted only as an accessory to single-family dwellings, provided the use is consistent with the Comprehensive Plan and the requirements of section 33-27.05.
ACCESSORY STRUCTURES
Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article II, section 33-28, accessory structures.

33-17.06. *Reserved.*

Editor's note(s)—Ord. No. 2019-10, § 3, adopted May 6, 2019, deleted § 33-17.06 entitled "R-1C—Single-Family Dwelling District."

33-17.07. *R-2—Two-Family Dwelling District.*

(a) *Statement of intent.* The purpose and intent of the R-2 Two-Family Residential District is to provide medium density multifamily residential neighborhoods in an urban setting with a mixture of single-family, two-family, and limited nonresidential development.

R-2 TWO-FAMILY DWELLING
ALLOWED USES
PRIMARY USES AND STRUCTURES
Bed and breakfast homestay, accessory use only. (See also section 33-27.03.)
Family day care home.
Mini and neighborhood parks.
Two-family dwellings and duplexes.
Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.
CONDITIONAL USES (See also Chapter 33, Section 33-19)
Community residential homes, single-family. Single-family dwellings, development must comply with R-1 standards.
Garden community (section 33-19.14).
SPECIAL EXCEPTIONS (See also Chapter 33, Section 33-18)
Cemeteries, churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.
Community and regional parks.
Community gardens.
Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.
Governmental and public building and land uses.
Private parks.

Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre	11.62
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH Lots fronting on a curve must have a minimum 50-foot width at the street line. Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots. Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building setback line.	Single-family dwelling: 60 feet.
	Duplex: 75 feet. Where the duplex is subdivided for individual ownership; each unit in the duplex shall have a minimum lot width of 37.5 feet.
MINIMUM SIZE	Single-family dwelling: 6,500 square feet.
	Duplex: 7,500 square feet.
	Where the duplex is subdivided for individual ownership, each unit in the duplex shall have a minimum lot area of 3,750 square feet.
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface	50 percent
Front setback	30 feet
Rear setback	25 feet. For residences, where 60 percent of neighboring residential structures within 500 feet have an existing lesser setback staff may approve a matching setback.
Side setback	7.5 feet
	In instances where the duplex is being subdivided for individual ownership, the interior side setback shall be reduced to 0 feet.
Corner lot: Street side setback	15 feet, provided the corner lot faces the same as all other lots on street.
BUILDING DIMENSIONS	
Maximum height	35 feet

Minimum floor area under heat and air: single-family	~~1,0~~900 square feet
	Single-family—Ground floor: ~~8~~600 square feet
Minimum floor area under heat and air: Duplex	One story: 1,~~2~~000 square feet
	Ground floor: ~~9~~600 square feet
ADDITIONAL REQUIREMENTS	
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and ten feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.05(b) are required per unit.~~	
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Paved areas must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	
Application for and connection to municipal water and sewer is required within areas served by the city.	
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1 acre per unit
Septic tank with public water supply	½ acre per unit
MINIMUM REQUIREMENTS FOR TREE COVERAGE	
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.	
LANDSCAPING	
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).	

ACCESSORY STRUCTURES
Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article III, section 33-28, accessory structures.
COMMUNITY DESIGN STANDARDS
Site and building aesthetics need to comply with the Community Design Standards (article VIII, section 33-94).

33-17.08. *R-8—Multiple-Family Dwelling District.*

(a) *Statement of intent.* The purpose and intent of this district is to provide for a variety of multiple-family residential developments in an urban, medium density residential setting.

R-8 MULTIPLE-FAMILY DWELLING
ALLOWED USES
PRIMARY USES AND STRUCTURES
Bed and breakfast homestay, accessory use only. (See also section 33-27.03.)
Family day care home.
Mini and neighborhood parks.
Multiple-family dwellings and duplexes.
Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.
CONDITIONAL USES (See also CHAPTER 33, section 33-19)
Community residential homes, single-family.
Community residential homes, multifamily.
Single-family dwellings, development must comply with R-1 standards.
Two-family dwellings and duplexes, development must comply with R-2 standards.
SPECIAL EXCEPTIONS (See also Chapter 33, Section 33-18)
Cemeteries.
Churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.
Community and regional parks.
Community gardens.

Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.	
Governmental and public building and land uses.	
Nursing (convalescent) homes, adult congregate-living facilities.	
Private parks.	
Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre.	
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH Lots fronting on a curve must have a minimum 50-foot width at the street line. Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots. Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.	Single-family dwelling: 60 feet Duplex: 75 feet In instances where the duplex is being subdivided for individual ownership, each unit in the duplex shall have a minimum lot width of 37.5 feet.
MINIMUM SIZE	Single-family dwelling: 6,500 square feet Duplex: 7,500
	In instances where the duplex is being subdivided for individual ownership, each unit in the duplex shall have a minimum lot area of 3,750 square feet.
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface: Single-family/Duplex	50 percent
Maximum impervious surface: Multifamily	One-, two-, three-story: 50 percent.
	Four-story: 45 percent
	Five-story: 40 percent

	Six-story: 35 percent
SETBACKS: MULTIFAMILY	
Front	30 feet from project perimeter lot line.
Rear and side	20 feet from project perimeter lot line.
	40 feet from the project perimeter lot line when adjacent to single-family residential district. May be reduced to 20 feet if an eight-foot wall is used for visual screening.
Interior	All buildings shall be set back at least ten feet from all interior private roads and parking areas. An additional set back from private roads of one foot shall be required for every two feet of height for structures exceeding 35 feet.
Spacing between buildings	The following minimum spacing shall be maintained between buildings: 25 feet between sides of buildings; 25 feet between sides and rear of adjacent buildings and 50 feet between any combination of fronts or rears of adjacent buildings.
SETBACKS: SINGLE-FAMILY AND DUPLEX	
Front	30 feet
Rear	25 feet. For residences, where 60% of neighboring residential structures within 500 feet have an existing lesser setback staff may approve a matching setback
Side	7.5 feet. In instances where the duplex is being subdivided for individual ownership, the interior side setback shall be reduced to 0 feet.
Corner lot: Side street	15 feet, provided the corner lot faces the same as all other lots on the street.
BUILDING DIMENSIONS	
Maximum height	65 feet

Maximum length	150 feet
Minimum floor area under heat and air: Single-family	~~1,0~~900 square feet Ground floor: ~~8~~600 square feet
Minimum floor area under heat and air: Duplex	1,000 square feet Ground floor: ~~9~~600 square feet
Minimum floor area multifamily	Efficiency, no separate bedroom: 425 square feet
	One bedroom: 575 square feet
	Two + bedroom: 725 square feet plus 150 square feet per each additional bedroom
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and 10 feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.05(b) are required per unit.~~	
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved with concrete, asphalt, concrete or industry recognized porous paving approved by the city's engineer. Paved areas must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~	
Visitor parking shall be provided at 0.5 spaces per unit.	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	
Application for and connection to municipal water and sewer is required within areas served by the city.	
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1-acre per unit
Septic tank with public water supply	½-acre per unit

MINIMUM REQUIREMENTS FOR TREE COVERAGE
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.
LANDSCAPING
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).
TRAFFIC IMPACT ANALYSIS
Calculation and submittal of average annual daily trips is required for all developments. The developer of any development which will generate 1,000 or more average annual daily trip (AADT) ends per day, as determined by reference to the Institute of Traffic Engineers Trip Generation Manual or to locally derived trip generation rates accepted by the city as accurate, shall provide the city with a traffic impact analysis prepared by a qualified traffic engineer at the time application is made for approval of a site plan or preliminary plat. See also section [33-41.04(a)1.].
ACCESSORY STRUCTURES
Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article III, section 33-28, accessory structures.
COMMUNITY DESIGN STANDARDS
Site and building aesthetics need to comply with the Community Design Standards (article VIII, section 33-94).

33-17.09. *R-12—Multiple-Family Dwelling District.*

(a) *Statement of intent.* The purpose and intent of this district is to provide for a variety of multiple-family residential developments in an urban, medium density residential setting.

R-12 MULTIPLE-FAMILY DWELLING
ALLOWED USES
PRIMARY USES AND STRUCTURES
Bed and breakfast homestay, accessory use only. (See also section 33-27.03.)
Family day care home.

Mini and neighborhood parks.	
Multiple-family dwellings and duplexes.	
Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.	
CONDITIONAL USES (See also Chapter 33, Section 33-19)	
Community residential homes, single-family.	
Community residential homes, multifamily.	
Single-family dwellings, development must comply with R-1 standards.	
Two-family dwellings and duplexes, development must comply with R-2 standards.	
SPECIAL EXCEPTIONS (See also Chapter 33, Section 33-18)	
Cemeteries.	
Churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.	
Community and regional parks.	
Community gardens.	
Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.	
Governmental and public building and land uses.	
Nursing (convalescent) homes, adult congregate-living facilities.	
Private parks.	
Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre.	12
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH	
Lots fronting on a curve must have a minimum 50-foot width at the street line. Corner lots must be 15 percent greater in width and area	Single-family dwelling: 60 feet
	Duplex: 75 feet

than the minimum requirement for interior lots. Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.	In instances where the duplex is being subdivided for individual ownership; each unit in the duplex shall have a minimum lot width of 37.5 feet.
MINIMUM SIZE	Single-family dwelling: 6,500 square feet
	Duplex: 7,500
	In instances where the duplex is being subdivided for individual ownership; each unit in the duplex shall have a minimum lot area of 3,750 square feet.
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface: Single-family and duplex	50 percent
Maximum impervious surface: Multifamily	One-, two-, three-story: 50 percent
	Four-story: 45 percent
	Five-story: 40 percent
	Six-story: 35 percent
SETBACKS: MULTIFAMILY	
Front	30 feet from project perimeter lot line
Rear and side	20 feet from project perimeter lot line
	40 feet from the project perimeter lot line when adjacent to single-family residential district. May be reduced to 20 feet if an eight-foot wall is used for visual screening.
	In instances where the duplex is being subdivided for individual ownership, the interior side setback shall be reduced to 0 feet.
Interior	All buildings shall be set back at least ten feet from all interior private roads and parking areas. An additional set back from private roads of one foot shall be required for every

	two feet of height for structures exceeding 35 feet.
Spacing between buildings	The following minimum spacing shall be maintained between buildings: 25 feet between sides of buildings; 25 feet between sides and rear of adjacent buildings and 50 feet between any combination of fronts or rears of adjacent buildings.
SETBACKS: SINGLE-FAMILY AND DUPLEX	
Front	30 feet
Rear	25 feet. For residences, where 60% of neighboring residential structures within 500 feet have an existing lesser setback staff may approve a matching setback
Side	7.5 feet
Corner lot: Side street	15 feet, provided the corner lot faces the same as all other lots on street.
BUILDING DIMENSIONS	
Maximum height	65 feet
Maximum length	150 feet
Minimum floor area under heat and air: Single-family	~~1,0~~900 square feet Ground floor: ~~8~~600 square feet
Minimum floor area under heat and air: Duplex	1,000 square feet Ground floor: ~~9~~600 square feet
Minimum floor area under heat and air: Multifamily	Efficiency, no separate bedroom: 425 square feet One bedroom: 575 square feet Two + bedroom: 725 square feet plus 150 square feet per each additional bedroom
ADDITIONAL REQUIREMENTS	
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and 10 feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	

~~A minimum of two, off-street parking spaces compliant with Figure 33-91.05(b) are required per unit.~~
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Paved areas must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~
Visitor parking shall be provided at 0.5 spaces per unit.
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.
MINIMUM REQUIREMENTS FOR WATER AND SEWER Application for and connection to municipal water and sewer is required within areas served by the city.
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED

SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1-acre per unit
Septic tank with public water supply	½-acre per unit

MINIMUM REQUIREMENTS FOR TREE COVERAGE
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.
LANDSCAPING
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).
TRAFFIC IMPACT ANALYSIS
Calculation and submittal of average annual daily trips is required for all developments. The developer of any development which will generate 1,000 or more average annual daily trip (AADT) ends per day, as determined by reference to the Institute of Traffic Engineers Trip Generation Manual or to locally derived trip generation rates accepted by the city as accurate, shall provide the city with a traffic impact analysis by a qualified traffic engineer at the time

application is made for approval of a site plan or preliminary plat. See also section [33-41.04(a)1.].
ACCESSORY STRUCTURES
Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article III, section 33-28, accessory structures.
COMMUNITY DESIGN STANDARDS
Site and building aesthetics need to comply with the Community Design Standards (article VIII, section 33-94).

33-17.10. *R-16—Multiple-Family Dwelling District.*

(a) *Statement of intent.* The purpose and intent of this district is to provide for high-density multifamily residential living within the city in the older developed sections of DeLand, catering to the needs of those citizens desiring a spacious, well maintained and natural on-site environment near the city's downtown shopping area.

R-16 MULTIPLE-FAMILY DWELLING	
ALLOWED USES	
PRIMARY USES AND STRUCTURES	
Bed and breakfast homestay, accessory use only. (See also section 33-27.03.)	
Family day care home.	
Mini and neighborhood parks.	
Multiple-family dwellings.	
Private clubs and lodges.	
Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.	
CONDITIONAL USES (See also Chapter 33, Section 33-19)	
Community residential homes, single-family.	
Community residential homes, multifamily.	
SPECIAL EXCEPTIONS (See also Chapter 33, Section 33-18)	
Cemeteries.	
Churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.	
Community and regional parks.	
Community gardens.	
Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.	
Governmental and public building and land uses.	
Nursing (convalescent) homes, adult congregate-living facilities. Private parks.	
Home occupations are permitted in structures used as a residence without a development permit when conducted in accordance with section 33-27.01. Regulations governing other accessory uses appear in article III.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre.	16
MINIMUM LOT DIMENSIONS	

MINIMUM WIDTH	
Lots fronting on a curve must have a minimum 50-foot width at the street line. Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots. Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.	~~Single-family dwelling: 60 feet~~
	~~Duplex: 75 feet~~
	~~In instances where the duplex is being subdivided for individual ownership; each unit in the duplex shall have a minimum lot width of 37.5 feet.~~ 100 feet
MINIMUM SIZE	~~Single-family dwelling: 6,500 square feet~~
	~~Duplex: 7,500 square feet~~
	~~In instances where the duplex is being subdivided for individual ownership; each unit in the duplex shall have a minimum lot area of 3,750 square feet.~~ 2,722.5 square feet per dwelling unit
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
~~Maximum impervious surface: Single-family and duplex~~	~~50 percent~~
Maximum impervious surface: Multifamily	One-, two-, three-story: 50 percent
	Four-story: 45 percent
	Five-story: 40 percent
	Six-story: 35 percent
SETBACKS: MULTIFAMILY	
Front	30 feet from project perimeter lot line
Rear and side	20 feet from project perimeter lot line
	40 feet from the project perimeter lot line when adjacent to single-family residential district. May be reduced to 20 feet if an eight-foot wall is used for visual screening.
	In instances where the duplex is being subdivided for individual ownership, the interior side setback shall be reduced to 0 feet.
Interior	All buildings shall be set back at least ten feet from all interior private roads and parking areas. An additional set back from private roads of one foot shall be required for every two feet of height for structures exceeding 35 feet.
Spacing between buildings	The following minimum spacing shall be maintained between buildings: 25 feet between sides of buildings; 25 feet between sides and rear of adjacent buildings and 50 feet between any combination of fronts or rears of adjacent buildings.
~~SETBACKS: SINGLE-FAMILY AND DUPLEX~~	
~~Front~~	~~30 feet~~
~~Rear~~	~~25 feet. For residences, where 60% of neighboring residential structures within 500 feet have an existing lesser setback staff may approve a matching setback.~~
~~Side~~	~~7.5 feet~~
~~Corner lot: Side street~~	~~15 feet. If the corner lot faces the same as all other lots on street.~~
BUILDING DIMENSIONS	

Maximum height	65 feet
Maximum length	150 feet
~~Minimum floor area under heat and air: Single-family~~	~~1,000 square feet~~ ~~Ground floor: 800 square feet~~
~~Minimum floor area under heat and air: Duplex~~	~~1,000 square feet~~ ~~Ground floor: 900 square feet~~
Minimum floor area under heat and air: Multifamily	Efficiency, no separate bedroom: 425 square feet
	One bedroom: 575 square feet
	Two + bedroom: 725 square feet plus 150 square feet per each additional bedroom
ADDITIONAL REQUIREMENTS	
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and 10 feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.05(b) are required per unit.~~	
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Paved areas must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~	
Visitor parking shall be provided at 0.5 spaces per unit.	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	
Application for and connection to municipal water and sewer is required within areas served by the city.	
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1-acre per unit
Septic tank with public water supply	½-acre per unit
MINIMUM REQUIREMENTS FOR TREE COVERAGE Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.	
LANDSCAPING	
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).	
TRAFFIC IMPACT ANALYSIS	
Calculation and submittal of average annual daily trips is required for all developments. The developer of any development which will generate 1,000 or more average annual daily trip (AADT) ends per day, as determined by reference to the Institute of Traffic Engineers Trip Generation Manual or to locally derived trip generation rates accepted by the city as accurate, shall provide the city with a traffic impact analysis prepared by a qualified traffic engineer at the time application is made for approval of a site plan or preliminary plat. See also section [33-41.04(a)1.].	
ACCESSORY STRUCTURES	

Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article III, Section 33-28 Accessory Structures.
COMMUNITY DESIGN STANDARDS
Site and building aesthetics need to comply with the Community Design Standards (article VIII, section 33-94).

33-17.11. *R-M—Residential Mobile Home District.*

(a) *Statement of intent.* The mobile home is recognized as a specific form of housing for which accommodations should be provided. The R-M Mobile Home Park District is intended to apply to areas to be used for mobile home parks and provides appropriate standards as to density, spacing, and use. No building, structure or part thereof shall be erected, altered, used on land or water, or used in whole or in part for other than mobile home parks unless and until the requirements of this district are met.

R-M RESIDENTIAL MOBILE HOME DISTRICT	
ALLOWED USES	
PRIMARY USES AND STRUCTURES	
Mobile homes for tenant residence, lease or rental. Mobile home sales of on-site lots or units. Buildings containing recreation or laundry facilities. Park management office buildings.	
Mini and neighborhood parks.	
Public, private or parochial schools.	
Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.	
CONDITIONAL USES (See also Chapter 33, Section 33-19)	
Community residential homes, single-family.	
SPECIAL EXCEPTIONS (See also Chapter 33, Section 33-18)	
Cemeteries.	
Churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.	
Community and regional parks.	
Community gardens.	
Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.	
Governmental and public building and land uses.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre.	6
MINIMUM LOT DIMENSIONS FOR INDIVIDUAL LOTS, SUBDIVISIONS	
MINIMUM WIDTH	50 feet
MINIMUM DEPTH	75 feet
MINIMUM SIZE	5,000 square feet
IF IRREGULAR LOT SHAPE	A minimum width of 25 feet shall apply, provided a minimum building line width of 50 feet is met at the required front yard setback line. Lots fronting on a curve must have a minimum 50-foot width at the street line. Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots. Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.

MINIMUM SPACE DIMENSIONS FOR PARKS	
MINIMUM WIDTH	30 feet
MINIMUM DEPTH	80 feet
Separation between units	15 feet
Separation from accessory units	10 feet from mobile homes
SETBACKS FROM BOUNDARIES/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface:	50 percent
Perimeter setback	All mobile homes or accessory structures shall be located at least 40 feet from any project perimeter property line.
Other setbacks	All mobile homes shall be located at least 15 feet from any other property line.
Accessory structure setbacks	No mobile home accessory structure shall be closer than 7½ feet to any rear or side mobile home lot line, provided that when mobile homes are placed end to end and the opposing rear wall are staggered, there shall be a minimum clearance of ten feet.
Setbacks from internal streets	A minimum distance of ten feet. Permits are required for the placement and installation of accessory structures such as pools, storage sheds, fences and similar structures. Additional information is contained within article II, section 33-28, accessory structures.
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
Parking on grass and sidewalks is prohibited. The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and 10 feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.05(b) are required per unit.~~	
Vehicle use areas must be paved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Paved areas must be included in the site's impervious surface calculation.	
Visitor parking shall be provided at 0.5 spaces per unit.	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	
Application for and connection to municipal water and sewer is required within areas served by the city.	
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1-acre per unit
Septic tank with public water supply	½-acre per unit
MINIMUM REQUIREMENT FOR TREE COVERAGE	
Each lot must have at a minimum one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city.	
LANDSCAPING	
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).	
TRAFFIC IMPACT ANALYSIS	

Calculation and submittal of average annual daily trips is required for all developments. The developer of any development which will generate 1,000 or more average annual daily trip (AADT) ends per day, as determined by reference to the Institute of Traffic Engineers Trip Generation Manual or to locally derived trip generation rates accepted by the city as accurate, shall provide the city with a traffic impact analysis prepared by a qualified traffic engineer at the time application is made for approval of a site plan or preliminary plat. See also section [33-41.04(a)1.].
COMMUNITY DESIGN STANDARDS
Site and building aesthetics need to comply with the Community Design Standards (article VIII, section 33-94).

33-17.12. *E-1—Educational District.*

(a) *Statement of intent.* The purpose and intent of this district is to provide the varied land uses associated with public and private primary and secondary schools and institutions of higher learning.

E-1 EDUCATIONAL DISTRICT
ALLOWED USES
PRIMARY USES AND STRUCTURES
Dormitories.
Single-family dwelling, except mobile homes.
Two-family dwellings.
Accessory dwelling units to single or two-family dwelling.
Multifamily residential dwellings.
College and university land uses, including sorority and fraternity houses, recreational, athletic and other normal accessory uses of such colleges and universities.
Government facilities and land uses normally associated with the provision of government services, including city, county and state parks and recreation areas.
Public, private or parochial primary and secondary schools.
Day care facilities.
Private clubs and lodges.
Mini and neighborhood parks.
Communication towers per section 33-23.
Churches, houses of worship, and religious institutions, with their customary accessory educational and recreational uses and buildings.
Other uses approved by the city commission after review and recommendation by the planning board, which are unquestionably similar to those uses permitted herein.
CONDITIONAL USES (See also Chapter 33, Section 33-19)
Communication towers per section 32-24.
Community residential homes, single-family.
Community residential homes, multifamily.
Garden community (section 33-19.14).
Printing and lithography establishments, not to exceed 2,000 square feet of floor area.
SPECIAL EXCEPTIONS (See also Chapter 33, Section 33-18)
Communication towers per section 32-24.
Community and regional parks.
Community gardens.
Golf courses and appurtenant structures connected thereto, including but not limited to the clubhouse, storage rooms and locker rooms.
Microwave, radio, telephone and television facilities and transmission towers.
Regulations governing other accessory uses appear in article III.

Shade structures over 800 square feet.	
MAXIMUM DENSITY ALLOWED	
Dwelling units per gross acre.	Single-family development, 4.3 duplex developments, 4.8 triplexes, 5.4 multi-family dwellings, 8.0.
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH Lots fronting on a curve must have a minimum 50-foot width at the street line. Corner lots must be 15 percent greater in width and area than the minimum requirement for interior lots. Lots fronting on a cul-de-sac must have a minimum 25-foot lot width at the street line and must meet the minimum lot width at the building set back line.	Single-family dwelling: 75 feet Nonresidential: No standards
MINIMUM SIZE	Single-family dwelling: 7,500 square feet
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface: Educational	50 percent
Maximum impervious surface: Single-family	50 percent
SETBACKS: EDUCATIONAL	
Front yard (building)	30 feet
Front yard (parking, slabs, courts and wall or fence not in excess of 6 feet in height	20 feet
Side yard	0 feet
Side yard (abutting residentially zoned property)	15 feet
Rear yard	30 feet
SETBACKS: MULTIFAMILY	
Maximum impervious surface: Multifamily	One-, two-, three-story: 50 percent
	Four-story: 45 percent
	Five-story: 40 percent
	Six-story: 30 percent
Front	30 feet from project perimeter lot line
Rear and side	20 feet from project perimeter lot line
Interior	All buildings shall be set back at least ten feet from all interior private roads and parking areas. An additional set back from private roads of one foot shall be required for every two feet of height for structures exceeding 35 feet.
Spacing between buildings	The following minimum spacing shall be maintained between buildings: 25 feet between sides of buildings; 25 feet between sides and rear of adjacent buildings and 50 feet between any combination of fronts or rears of adjacent buildings.
SETBACKS: SINGLE-FAMILY	
Front	30 feet
Rear	25 feet. For residences, where 60 percent of neighboring residential structures within 500 feet have an existing lesser setback staff may approve a matching setback.
Side	15 feet

Corner lot: Side street	15 feet, provided the corner lot faces the same as all other lots on street.
BUILDING DIMENSIONS	
Maximum height	65 feet
Minimum floor area under heat and air: Single-family	One story: 1,200 square feet
	Two story: Ground floor: 900 square feet
	Second floor: 500 square feet
MINIMUM REQUIREMENTS FOR DRIVEWAYS AND PARKING	
The minimum separation required between vehicle use areas and the property line is one foot for one- and two-family residences and ten feet for all other uses. Staff may adjust in conjunction with redevelopment or change in use where the separation is less or absent.	
~~A minimum of two, off-street parking spaces compliant with Figure 33-91.05(b) are required per unit.~~	
Parking on grass and sidewalks is prohibited. Vehicle use areas must be paved with concrete, asphalt concrete or industry recognized porous paving approved by the city's engineer. Paved areas must be included in the site's impervious surface calculation. ~~Compacted gravel or milled asphalt may be proposed for single-family dwellings in accordance with section 33-91.06(d)3.f.~~	
Visitor parking shall be provided at 0.5 spaces per unit.	
MINIMUM REQUIREMENT FOR STORMWATER MANAGEMENT	
Stormwater generated by, during and after construction or improvement must be contained on-site or within a communal stormwater collection and management system permitted by the state.	
MINIMUM REQUIREMENTS FOR WATER AND SEWER	
Application for and connection to municipal water and sewer is required within areas served by the city.	
MINIMUM REQUIREMENTS FOR LOTS WHERE SEPTIC TANKS ARE USED	
SEWER/WATER SYSTEM	LOT AREA
Septic or aerobic tank with individual well	1 acre per unit
Septic tank with public water supply	½ acre per unit
MINIMUM REQUIREMENTS FOR TREE COVERAGE—RESIDENTIAL	
Each lot must have at a minimum one front yard tree and one tree for every 2,500 square feet of lot area. Historic trees and trees utilized to meet the minimum tree protection requirement or trees located inside a designated tree protection area, as defined in article VI of chapter 33, may not be removed without application and approval of a permit by the city. In a campus setting, the overall 15 percent tree preservation area must be maintained and may be used to meet this requirement.	
LANDSCAPING	
Landscaped buffers are required along street frontages where developments are proposed (article VIII of chapter 33). Additional buffer and sign requirements apply to developments within and/or along special overlay districts (article IV of chapter 33).	
OUTDOOR STORAGE AND DISPLAY PROHIBITED	
No outdoor storage or display of equipment, supplies, merchandise, or personal property is permitted regardless of the nature of the principal development. (See also section 33-27.04.)	
TRAFFIC IMPACT ANALYSIS	
Calculation and submittal of average annual daily trips is required for all non-private residence developments. The developer of any development which will generate 1,000 or more average annual daily trip (AADT) ends per day, as determined by reference to the Institute of Traffic Engineers Trip Generation Manual or to locally derived trip generation rates accepted by the city as accurate, shall provide the city with a traffic impact analysis prepared by a qualified traffic engineer at the time application is made for approval of a site plan or preliminary plat. See also section [33-41.04(a)1.].	
COMMUNITY DESIGN STANDARDS	
Site and building aesthetics need to comply with the Community Design Standards (article VIII, section 33-94).	

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33-17.23. Allowed uses in commercial and industrial zoning districts.

The following table insert contains an overview of uses allowed in the commercial and industrial zoning districts. Information specific to each zoning district follows in individual tables.

Use specific data presented in the tables are identified as follows:

1.Primary uses and structures allowed in the following districts are indicated by the letter "P."
2.Conditional uses may be allowed in a district where compliance with restrictions related to that use are met. Conditional uses are indicated by the letter "C." The restrictions for conditional uses are either stated in the table or discussed in Section 33-19, as identified by footnote.
3.Certain uses may be allowed in certain districts by special exception only. Further details regarding these exceptions appear in Section 33-20. Uses allowed by special exception only are indicated by the letter "E" and further described by footnote.
4.Uses with situational requirements which allow the use to fall into more than one use category are indicated by both categories, such as P/E. Development under this classification depends upon meeting the requirements of the category applicable to the site's specific conditions.

USES IN COMMERCIAL ZONING DISTRICTS

	P-1	BR	C-1	C-2	C-2A	C-2AC	C-3	C-4	M-1

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PROFESSIONAL									
General/Professional Offices	P	P	P	P	P	P	P / E[19]	P	P
Financial Institutions	P	P	P	P	C[20]	P			P
MEDICAL SUPPORT - See also Section 33-19.11									
Medical Office	P	P	P	P	P	P			
Apothecary shops	P		C[15]						
Drugstores and pharmacies	P	P		P	P	P			
Hospitals				P					
Laboratories, hospitals and clinics	E[15]		P	P	P	P			
Medical clinics over 5,000 square feet	E[15]	E[15]		P	P	P			

Nursing homes and adult congregate living facilities			P	P	P	P			
Veterinary clinics allowing inside overnight boarding for clinical care, no outside runs or kennels		C		C		C			
Veterinary clinics and pet grooming shops with overnight and/or outdoor boarding facilities and runs				E[30]	~~C~~				P

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RESIDENTIAL - See also Section 33-20									
Boarding houses				P					
Community residential homes Multiple-family Per Section 33-19.02	C*					C*			
Community residential homes—Single-family Per Section 33-19.02	C*								
Convalescent, rest and nursing homes; institutions and homes for children, the aged and the disabled	P	E[16]		P					
Garden communities			C						
Multiple-family dwellings compliant with R-16 standards				C		C			
Multiple-family dwellings and duplexes complaint with R-12 standards			C						
Residential dwelling units on the first floor Per Section 33-19.13					C*				
Residential dwelling units above the first floor or one residential unit on the first-floor accessory to an office or commercial use		~~C~~	~~C~~	~~C~~	P				
Single-family dwellings, except mobile homes	P				C[26]				
Single-family dwelling complaint with R-1 standards not located within the highway commercial land use areas			C		C[26]	C[26]			
Two-family dwelling and duplexes compliant with R-2 standards			C		C[26]	C[26]			

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Section 4. Amendment to Section 33-17.17, *City Code/Land Development Regulations*, Downtown Commercial District. Section 33-17.17 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

33-17.17. C-2A—Downtown Commercial District.

(a) *Statement of Intent.* The purpose of this zoning district is to provide for residential, retail, and service needs of the Central Business District (CBD). The list of permitted uses contains those land uses that are oriented to the downtown area.

C-2A DOWNTOWN COMMERCIAL DISTRICT	
ALLOWED USES: Uses allowed in this district appear in Table 33-17.21	
MAXIMUM DENSITY ALLOWED	
The maximum density allowed in this district is 20 dwelling units per gross acre.	
DIMENSIONAL REQUIREMENTS	
MINIMUM LOT DIMENSIONS	
MINIMUM WIDTH	None
MINIMUM SIZE	None
SETBACKS/BUILDING SEPARATION/IMPERVIOUS SURFACE LIMITATIONS	
Maximum impervious surface	None
Setbacks	None
BUILDING DIMENSIONS	
Maximum height	80 feet
MINIMUM FLOOR AREA UNDER HEAT AND AIR: RESIDENTIAL	
Efficiency (no separate bedroom)	No Minimum ~~425 square feet~~
One bedroom	No Minimum ~~525 square feet~~
Two + bedroom	No Minimum ~~725 square feet plus 150 square feet for each additional bedroom~~

***

Section 5. Amendment to Section 33-19, *City Code/Land Development Regulations*, Special Requirements Applicable To Conditional Uses. Section 33-19 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

Sec. 33-19. - Special requirements applicable to conditional uses.

33-19.01. Statement of Intent. Certain uses have unique characteristics that require the imposition of development standards in addition to those minimum standards contained in this chapter. These uses are listed under each specific zoning district as conditional uses identified with the letter "C". These uses are listed in this Section with the specific standards that apply to the development and use of land for the specified activity. Whenever this chapter allows these conditional uses, the following standards shall be met in addition to all other standards of the chapter, unless specifically exempted.

Conditional uses with minimal requirements have been assigned numbers in Section 33-17.21 Table insert Uses in Commercial Zoning Districts. The criteria for numbered conditions follow.

Conditional uses with extended criteria, as identified by an asterisk (*) are represented as sections following the numbered criteria.

(1) Daycare facilities in non-residential structures
(2) Accessory to a primary use and licensed by DCF; freestanding operations requires a Special Exception.
(3) Dry Cleaning and laundry pickup stations where no such work is done on the premises
(4) Wholesale operations permitted
(5) Not to exceed 100 rooms
(6) On airport land not located in the primary height zone
(7) No overnight storage or outside display
(8) Accessory use only
(9) Private clubs and lodges requiring a class C landscape buffer between itself and adjacent residential land uses
(10) Retail prohibited
(11) Outdoor storage prohibited
(12) Compliant with Section 33-27.04, all equip./goods within a roofed structure
(13) Excluding propane
(14) Light manufacturing involving the assembly of parts manufactured off-site, not objectionable due to excessive dust, dirt, gas, odors, fumes, noise or vibrations
(15) But not general drug store
(16) Bed and breakfast homestay only, accessory use only (See also Section 33-27.03)
(17) Not compatible with the intent of C-1, C-2, C-2A, C-2AC and C-3 zoning not exceeding 30 percent of the total acreage of the M-1 zoning, not including the retail and service uses already listed in the M-1 conditional uses.
(18) Paint/body shop, stored wrecked, dismantled or inoperable vehicles screened from public view
(19) Approved by the building official and fire marshal.
(20) Drive through access directly on Woodland Boulevard and New York Avenue is prohibited.
(21) No storage of vehicles.
(22) No other use located on property.
(23) All operations are contained within a building with no outside storage allowed. Low emission of dust, gas, odors, fumes, noise, or vibrations.
(24) includes personal storage facilities (mini-warehouse) with landscape buffers compliant with Section 33-92.02.b.3., General Commercial.
(25) Parking must be provided for employees and at least 2 spaces for delivery vehicles, including for existing structures.
(26) Inside Downtown Commercial District existing single-family may remain and be considered conforming until such time it is converted to a non-single-family conforming use.

Section 6. Amendment to Section 33-19.13, *City Code/Land Development Regulations*, Residential Dwelling Units On First Floor. Section 33-19.13 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

33-19.13. Residential Dwelling ~~Multiple-family dwellings~~ units on first floor.

(a) *Intent.* It is the intent of this Section to provide standards for the location and development for residential dwelling units, which included single-, two- and multiple-family units, on the first floor in the downtown commercial area either as a primary use to an accessory commercial use or as an accessory use to a primary commercial use.
(b) *Where allowed.* First floor residential dwelling units will not be permitted within ~~on properties abutting~~ 50 feet of Woodland Boulevard or New York Avenue ~~or within 300 feet of either roadway~~.
(c) *Development standards for new development.*
1. Street side of development shall include amenities that encourages pedestrian activities and will be of the same design as the rest of downtown.
2. Building should be located adjacent to street or slight setback (less than 20 feet) to allow for a small landscaped area.
3. For town home style units, parking should be located in the rear or inside the structure. If outside parking is utilized in the front of the building, it shall be screened by a three-foot wall. If individual garages are to be used the entry must be located at rear to prevent the garage door from being the focal point of the building.
4. Sidewalk width shall be the same as adjacent sidewalk up to a maximum of 12 feet, with a minimum of five feet.
5. Parking garages for multifamily structures will be permitted on the first floor with entrance preferably parallel to street. The garage will be designed to resemble a residential building or commercial store frontage in order to maintain the character of downtown.
(d) *Development standards for conversion of existing building.*
1. Conversion to residential uses on a first floor will not be permitted for a building if part of a row or line of existing buildings.
2. Exterior renovations must comply with Community Design Standards.

Section 7. Amendment to Section 33-25, *City Code/Land Development Regulations*, Definitions. Section 33-25 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

Sec. 33-25. - Standards for accessory dwelling units (ADU).

33-25.01 *Purpose and intent.*

(a) To provide property owners ~~homeowners~~ with a means of obtaining, through tenants in an ~~the~~ ADU and/or a ~~the~~ principal unit, rental income, companionship, security, and supportive services.
(b) Add affordable units to the City's existing housing stock.
(c) Develop housing units in single-family neighborhoods that are appropriate for extended family living as determined by applying sound and generally accepted land use practices and principles.
(d) Reduce the need to expand infrastructure by using an area's existing facilities in a sound and generally accepted manner based upon the sound application of land use and engineering practices and principles.

(e) Protect neighborhood stability, property values, and the single-family residential appearance of the neighborhood by ensuring that ADUs are installed under the conditions of these regulations.

33-25.02 ***General regulations and restrictions.***

(a) No ~~one shall establish or operate an~~ ADU is permittable except where ~~without~~ a principal single-family residential dwelling (hereafter principal unit) exists on the lot or will be constructed in conjunction with the ADU.

(b) ~~No ADU shall be permitted except where a principal single-family residential dwelling (hereafter principal unit) exists on the lot or will be constructed in conjunction with the ADU.~~

~~(c)~~ The floor area under heat and air for ADUs shall not exceed 500 square feet for lots ~~between 5,000 and~~ less than 7,500 square feet. If a lot is between ~~exceeds~~ 7,500 square feet and 10,000 square feet, an ADU may be up to 640 square feet and, for lots in excess of 10,000 square feet, an ADU may be up to 800 square feet. ~~In no case may any combination of buildings occupy more than 35 percent of the required rear yard for the zoning district in which it is located.~~

(c) Maximum impervious surface may be increased by 10% from the underlying zoning requirements.

~~(d) ADUs utilizing alternative green construction methods causing the exterior wall thickness to be greater than normal shall have the unit square footage size measured similar to the interior square footage of a traditional frame house.~~

~~(e) The design and size of the ADU shall conform to all applicable standards in the building, plumbing, electrical, mechanical, fire, health, stormwater and any other applicable codes.~~

~~(f) Certification by the City of DeLand Utilities Department, or the County of Volusia Health Department where city utilities are not available, confirming water supply and sewage disposal facilities are adequate for the projected number of overall residents must be provided at the time of application, and must be recertified annually for each year the unit is operational.~~

~~(g) The ADU shall incorporate water conservation features where possible, including in the design of types of landscaping and in the design of water-using fixtures. In addition, water restricting shower heads and faucets shall be used, as well as water-saving toilets utilizing less than three gallons per flush.~~

~~(h) Any additions to an existing building or separate construction or existing structure modification to create an ADU shall be conforming, and shall not exceed the lot impervious surface allocation or encroach into existing setbacks, buffers, tree preservation, conservation, stormwater management or other designated limited or restricted land use area.~~

~~(i)~~ (d) The ADU may be attached to, or detached from, the principal unit~~; however, the ADU~~. ADUs must be allocated or constructed in a manner which maintains the single-family appearance and architectural style of the primary structure and lot.

~~(j)~~ (e) Only one ADU shall be allowed per each parcel and shall remain within the parcel and accessory to the principal single-family residential structure ~~(not subdivided)~~.

(k) ~~The property owner, which shall include title holders and contract purchasers, must occupy either the principal unit or the ADU as their permanent residence, but not both, and at no time receive rent for the owner-occupied unit.~~

~~(l) An ADU may be developed in either an existing or a new residence.~~

~~(m) The ADU shall not result in excessive noise, traffic or parking congestion.~~

~~(n)~~ (f) One parking space shall be provided on-site for each studio and one-bedroom ADU. Two parking spaces shall be provided on site for each two-bedroom ADU. Parking for ~~the accessory unit must be~~ a detached ADU shall be located either adjacent to or under the ADU, ~~on the side or behind~~ and not in front of the principal ~~unit and be constructed in addition to the required parking for the principal unit~~.

33.25.03 ***Design standards.***

(a) The exterior design of the ADU shall be compatible with the principal unit on the lot through architectural use of building forms, height, construction materials, similar exterior wall materials, window types, door and window trims, roofing materials and roof pitch colors, landscaping, and other methods that conform to acceptable construction practices.
(b) The exterior design of the ADU shall be in harmony with, and maintains the scale of, the neighborhood.
(c) ~~The site plan provides adequate open space and landscaping for both the ADU and the principal unit. Open space and landscaping provide for privacy and screening of adjacent properties.~~
~~(d)~~ The location and design of the ADU shall maintain a compatible relationship with adjacent properties and shall not significantly impact the privacy, light, air, solar access or parking of adjacent properties.
(d) If applicable, based upon sound and generally accepted planning practices and principles, detached ADUs shall: (1). limit access stairs, decks, entry doors and windows to the walls facing the principal unit, or to the alley or side-street on second floors; (2). minimize the installation of windows that impact the privacy of the neighboring side or rear yard; and (3) be designed such that the accessory unit relates to the design of the principal unit and does not visually dominate it or the surrounding properties with such determination being made consistent with controlling State law.
(e) A detached ADU shall not exceed 25 feet in height. If the design of the principal structure has special roof features that should be matched on a detached ADU, the maximum building height of the ADU may be exceeded by up to 5 feet to include such similar special roof features, subject to review and approval of the Planning Director by issuance of a development order consistent with the provisions of Section 166.033, *Florida Statutes*. An attached ADU may occupy a first or second story of the principal unit if it is designed as an integral part of the principal unit and it meets the setbacks required for the principal unit.
~~(e) The orientation and location of buildings, structures, open spaces and other features of the site plan shall maintain natural resources including historic and specimen trees and shrubs to the extent feasible and minimize alteration of natural land forms. The ACU building profiles, location and orientation shall relate to natural land forms.~~
~~(f) One and one-half to two-story structures shall limit major access stairs, decks, entry doors, and major windows to the walls facing the principal unit, or to the alley if applicable. Windows that impact the privacy of the neighboring side or rear yard shall be minimized. The design of the accessory unit shall relate to the design of the principal unit and shall not visually dominate it or the surrounding properties.~~
~~(g)The site plan shall be consistent with physical development policies of the City of DeLand Design Standards, zoning district overlay standards or any area plan or specific plan or other city policy for physical development.~~

~~(h)The site plan shall be situated to protect views along scenic areas and, where feasible shall restore and enhance the visual quality of visually degraded areas.~~
~~(i)Single-story ADUs shall not exceed 12 feet in height. One and one-half to two-story ADUs shall comply with the height restrictions of the underlying zoning. An attached ADU may occupy a first or second story of the principal unit if it is designed as an integral part of the principal unit and it meets the setbacks required for the principal unit. If the design of the principal unit has special roof features that should be matched on a detached ADU, the maximum building height of the ADU may be exceeded to include such similar special roof features subject to review and approval of the city.~~
~~(j)When an ADU is adjacent to an alley, every effort shall be made to orient the ADU toward the alley with the front access door and windows facing the alley. Parking provided off the alley shall maintain a 24-foot back out which includes the alley. Fences shall not exceed three feet, six inches along the alley; however, fencing up to six feet may be considered in unusual design circumstances, subject to review and approval of the city.~~

Section 8. Amendment to Subsection 33-91.03(f), *City Code/Land Development Regulations*, Number And Type Of Parking Spaces Required, "Matrix". Section 33-19.13 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

33-91.03 ***Number and type of parking spaces required***

***

(f) Matrix.

Residential Uses	**Minimum Off-Street Parking Requirement**	**Notes**
Conventional single-family detached and duplex	1, 2, 3 bedrooms: 2 spaces/unit~~, or~~ 4 or more bedrooms: 3 spaces/unit ~~1, 2, 3, and 4 bedrooms: 2 spaces/unit~~	Single-family or duplex residential parking spaces may be tandem. ~~Minimum 2 outdoor spaces to also be provided per lot. Interior parking spaces per unit requirement is waived within the Core Gateway District.~~ Parking is prohibited on front lawns. ~~If on-street parking is not permitted or is restricted on the unit's street frontage, then visitor parking at .25 space/unit shall be required.~~ ~~Single-family residential parking spaces may be tandem. Parking is prohibited on front lawns~~

Cluster/multifamily development	Resident parking: Studio: 1 space/unit, 1 bedroom: 1.5 spaces/unit, 2, 3, or more bedrooms: 2 spaces/unit, visitor parking: .5 space/unit	Reduction within the Core Gateway District may be proposed through submittal of a parking study. Resident parking spaces may be tandem. On-street parking provided in accordance with the dimensions required for parallel spaces may count toward visitor parking requirements. These spaces must be located within the minimum distance specified in Section 33-91.05. Parking is prohibited on front lawns.

*** Matrix ***

*** Text ***

Section 9. Amendment to Section 33-101, *City Code/Land Development Regulations*, General Intent. Section 33-101 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

Sec. 33-101. - General intent.

These *Land Development Regulations* establish ~~This *Land Development Code* establishes~~ separate zoning districts, each of which is an appropriate area for the location of a specific group of uses. Within each of the zoning districts established by these *Land Development Regulations* ~~this Code~~ or its later amendments, there exist lots, structures, and uses of land which were lawful before these *Land Development Regulations were* ~~this Code was~~ adopted, but which would be prohibited, restricted, or regulated under the terms of these *Land Development Regulations* ~~this Code~~.

Uses which are not permitted in a zoning district as outlined in these *Land Development Regulations* ~~this Code~~ shall be deemed "nonconforming uses." Such nonconforming uses are declared incompatible with the intent and purpose of the districts. It is consistent with these *Land Development Regulations* ~~this Code~~ that such nonconforming uses not be permitted to continue without restriction.

These *Land Development Regulations* ~~This Code~~ also establishes appropriate dimensional requirements, building setbacks, minimum lot dimensions, building dimensions, lot coverage, minimum landscape buffer requirements, and other requirements for each zoning district. Buildings which do not comply with these dimensional requirements are deemed "nonconforming structures." The distinction between nonconforming uses and nonconforming structures is that nonconforming uses may ~~shall~~ eventually be phased out or eliminated whereas nonconforming structures are regulated.

~~It is necessary that nonconformities not be perpetuated or increased.~~ The intent of this article is to provide for the regulation of nonconformities and to specify those circumstances under which nonconformities shall be permitted to continue (i.e., variances granted). It is also the intent of this Section to allow for a reduction in the nonconformity when the condition cannot be corrected or eliminated altogether. However, this reduction does not waive the City's desire to eventually have the property come into compliance.

33-101.01. ***Purpose and Interpretation.***

The purpose of this Article is to promote the public health, safety and general welfare of the City and its citizens, promote the re-use of land and structures that contribute to the character, diversity and sustainability of a neighborhood and to promote economic redevelopment and the re-use of developed land by regulating structures and uses that do not conform to one or more provisions of the *Land Development Regulations*, but were lawfully established and in compliance with all applicable ordinances, regulations, codes and laws at the time the structure was constructed and/or the use begun.

Nothing contained within these *Land Development Regulations* shall be construed, nor shall it be implied, so as to allow for the continuation or alteration of structures or uses that were not in compliance with all applicable ordinances, regulations, codes and laws at the time the structure was constructed or the use begun.

This Article is intended to regulate:

(a) The change of use of nonconforming land, a nonconforming building or nonconforming structure.

(b) The reconstruction of a nonconforming building or structure or to any alteration of a nonconforming building or structure when the alteration would increase the footprint, height or volume of the building or structure or any other exterior structural change (hereinafter to be known collectively as "alteration").

(c) The alteration of land, building or structure to provide for use for a purpose or in a manner different from the use to which it was put before the alteration or for its use for the same purpose to a greater extent (hereinafter to be known collectively as "change of use") of a lawfully established nonconforming use of land, a building or structure by establishing the standards by which the use, a building or structure may be altered or changed.

(d). The alteration of the use of land to ensure that a building or structure conducted under a lawfully issued land development permit shall conform to any subsequent amendment of the *Land Development Regulations* unless the structural or land alteration or use of the property is commenced within a period of not more than 180 days after the issuance of the land development permit and, in cases involving construction, unless such construction is continued to completion in a continuous and reasonably expeditious manner, which shall not exceed 2 years from the date of issuance of the land development order.

The provisions of Article VI of Chapter 33 of the *Land Development Regulations* shall regulate signs in every respect *[**Note:** Section 16(b) of this Ordinance provides that the provisions of Subsection 33-102.04.(d) shall be moved to Article VII.].*

~~The purpose of this chapter is to provide mechanisms for obtaining relief from the provisions of this section where hardship would otherwise occur. Three forms of hardship are addressed:~~

~~(a) Hardship that would be caused if nonconforming development were required to immediately come into compliance with this Code as addressed in section 33-102;~~

~~(b) Hardship caused in particular cases by the imposition of the development standards as addressed in section 33-103; and~~

~~(c) Hardship caused in particular cases by the City's resource protection standards.~~

It is not~~, however,~~ the purpose of this article to encourage or otherwise allow development to occur which does not meet the minimum standards or achieve the intent of the regulations set forth in these *Land Development Regulations* ~~this Code~~. Further, the City does not consider the cost of compliance with these regulations an unnecessary hardship since the regulations apply equally to all development within the City.

~~33-101.02. *Types of nonconformities*.~~

~~(a) *Building and structure nonconformities.* A building or structure nonconformity is hereby defined as a building which does not meet the City's requirements as to:~~

~~1. Minimum building or structure setback;~~
~~2. Minimum building dimensions;~~
~~3. Minimum lot dimensions;~~
~~4. Minimum landscape buffer requirements;~~
~~5. Maximum lot coverage or impervious area;~~
~~6. Maximum height for structures; or~~
~~7. Other similar building or structural requirements or limitations.~~

~~(b) *Nonconforming use*. Use nonconformities are hereby defined as the presence on a lot of a use not permitted on said lot by this Code. The presence on a lot of more dwelling units than this development code permits shall be deemed a nonconforming use.~~

~~(c) *Parking, loading, landscaping, and other nonconformities.* Parking, loading, and other site improvement nonconformities are hereby defined to be noncompliance with such City requirements as:~~

~~1. Required number or size of parking spaces;~~
~~2. Required number or size of loading dock spaces;~~
~~3. Required dumpster location or screening;~~
~~4. Required stacking spaces for drive-in services;~~

~~5. Required access and maneuvering area in vehicular areas;~~
~~6. Required landscaping and screening;~~
~~7. Required sidewalk and pedestrian circulation;~~
~~8. Limitations on amount and area of signs; or~~
~~9. Other similar site improvement requirements or limitations.~~

~~(d) *Structures.* Structures are hereby defined to be any building or other structure which is part of the ground, attached to the ground, or attached to another structure which has size or other characteristics which restrict mobility. Such structures shall include:~~

~~1. Earth;~~
~~2. Buildings;~~
~~3. Signs of all types except portable signs;~~
~~4. Fences;~~
~~5. Mechanical equipment;~~
~~6. Utility equipment; or~~
~~7. Paving.~~

Section 10. Amendment to Section 33-102, *City Code/Land Development Regulations*, Nonconforming Development. Section 33-102 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

Sec. 33-102. - Nonconforming development.

<u>Alteration and reconstruction of nonconforming single-family and two-family uses and structures.</u>

<u>(a). *Alteration or reconstruction by-right.* Alteration or reconstruction of a nonconforming single-family or two-family residential use or structure shall not be considered an increase in the nonconforming nature of the structure and shall be permitted by right, provided that all of the following standards are met:</u>

<u>(1). Alteration or reconstruction of a structure which is nonconforming due to setback requirements will not result in additional encroachment by the nonconforming setback(s); and</u>

<u>(2). Alteration or reconstruction of a structure which is nonconforming due to insufficient lot area will not result in the expansion of the structure into the minimum front, side and rear yard requirements; and</u>

<u>(3). Alteration or reconstruction of a structure which is nonconforming due to height requirements will not result in an increase in the height of the structure; and</u>

<u>(4). The proposed alteration or reconstruction will not result in any additional violation of any other zoning requirements; and</u>

(5). The proposed alteration or reconstruction will not result in more than a 20% increase in the gross floor area of the existing structure.

(b). *Alteration or reconstruction subject to Planning Board review and approval.* Alteration or reconstruction of a nonconforming single-family or two-family use or structure that does not comply with the provisions of Subsection (a) may be allowed only upon approval by the Planning Board with all of the following specific findings being made in a development order that such alteration or reconstruction:

(1). Will not create a new nonconformity or violation; and

(2). Will enhance the general character and quality of the neighborhood as determined by sound and generally accepted land use planning practices and principles; and

(3). Will be consistent with the architectural design and style of the abutting properties and surrounding neighborhood; and

(4). Will provide adequate off-street parking for the use of the property; and

(5). Will not be more detrimental to the neighborhood than the existing nonconforming use and/or structure as determined by sound and generally accepted land use planning practices and principles.

Alteration or change of nonconforming multifamily and nonresidential structures and uses.

(a). *Multifamily and nonresidential structures.* Alteration to a nonconforming multifamily or nonresidential structure may be allowed only upon approval of the Planning Board with all of the following specific findings being made in a development order that such alteration:

(1). Will not create a new nonconformity or violation; and

(2). Will enhance the general character and quality of the neighborhood as determined by sound and generally accepted land use planning practices and principles; and

(3). Will be consistent with the architectural design and style of the abutting properties and surrounding neighborhood; and

(4). Will provide adequate off-street parking for the use of the property; and

(b). *Multifamily and nonresidential uses.* Alteration or change in use to an existing nonconforming multifamily use or nonresidential use may be allowed only upon approval of the Planning Board with all of the following specific findings being made in a development order that such alteration:

(1). Will enhance the general character and quality of the neighborhood as determined by sound and generally accepted land use planning practices and principles; and

(2). Will provide adequate off-street parking for the use of the property; and

(3). Will not be more detrimental to the neighborhood than the existing nonconforming use and/or structure as determined by sound and generally accepted land use planning practices and principles.

Restoration and reconstruction of damaged nonconforming multifamily and nonresidential structures.

(a). *Restoration and reconstruction by-right.* Nothing in these *Land Development Regulations* prevent the reconstruction or substantial restoration and the continuance of use of a nonconforming multifamily or nonresidential structure which has been damaged or destroyed by fire, explosion, flood, riot, act of the public enemy or accident of any kind if the estimated replacement cost of such restorations does not exceed 50% of the most recent appraised building value of the structure in effect at the time of the damage that is on record with the Volusia County Property Appraiser; provided, however, that the structure, as restored, shall be constructed within the existing footprint and shall not be greater in volume, height or area than the original nonconforming structure and provided, further, however, that said restoration must commence within 12 months of the initial damage and be completed within 24 months of said damage. The estimated cost of such restoration shall be determined by the Building Official. If the property owner disputes the determination of the Building Official, the property owner may request that the Building Official base the determination upon receipt of an estimate from an independent contractor approved by the Building Official with all costs of obtaining said estimate being borne by the property owner with proof of payment being provided to the City at the time that the building permit application is filed. Said restoration costs shall also include the costs of all improvements or upgrades required by the *Florida Building Code*. The City shall not require the submission of any contract for the construction as a condition of issuing a building permit.

(b). *Restoration and reconstruction subject to Planning Board review and approval.* The reconstruction or substantial restoration of a damaged nonconforming multifamily or nonresidential structure where said restoration exceeds 50% of the most recent appraised building value of the structure in effect at the time of the damage that is on record with the Volusia County Property Appraiser may be allowed only upon approval of a development order by the Planning Board, if the application for review and approval for said reconstruction or substantial restoration is filed with the Community Development Department within 12 months of the damage to the structure, and with all of the following specific written findings being made in the development order:

(1). The structure as restored will be constructed within the existing footprint and not be greater in volume, height or area than the original nonconforming structure; and

(2). The structure as restored will enhance the general character and qualities of the neighborhood as determined by sound and generally accepted land use planning practices and principles; and

(3). The structure will be consistent with the architectural design and style of the abutting properties and surrounding neighborhood; and

(4). Adequate off-street parking is available for the use of the structure; and

(5). The nonconforming nature of the structure is lessened to the greatest extent reasonably practicable as determined by sound and generally accepted land use planning practices and principles; and

(6). The reconstruction or substantial restoration is completed within 24 months of the issuance of the building permit allowing for said reconstruction or substantial restoration; and

(7). The property owner is in full compliance with all orders issued by the City with respect to securing and maintaining the structure and the premises.

(c) The reconstruction or substantial restoration of a damaged nonconforming multifamily or nonresidential structure where said restoration exceeds 50% of the most recent appraised building value of the structure in effect at the time of the damage that is on record with the Volusia County Property Appraiser where said damage is the result of neglect shall be prohibited and any reconstruction or substantial restoration shall conform to the requirements of these Land Development Regulations.

Discontinuance and re-establishment of nonconforming uses.

(a). *Re-establishment of a nonconforming use.* It is prohibited and unlawful to re-establish a nonconforming use when there has been a change to the permitted uses allowed with regard to a building or structure or land under the zoning district which is applicable to the land which the building or structure is located.

(b). *Discontinuance of a nonconforming use.* If the nonconforming use of any building, structure or land has been discontinued for a period of 180 days, it shall not be re-established and all future uses thereof shall be in conformity with the then applicable provisions of these *Land Development Regulations.*

Development of established vacant nonconforming single-family residential lots.

A vacant preexisting nonconforming lot located in a single-family residential zoning district may be developed as a legal building lot for single-family use, subject to a finding by the Planning Director in a development order of all of the following development standards:

(1). The development of the property and the structures located thereon meet the building construction standards of the *Florida Building Code* and be generally consistent with the height, bulk and character of the surrounding structures and neighborhood; provided, however, the Director shall not require specific building design elements unless the dwelling is a historic property or a contributing property to a historic district, necessary to implement the National Flood Insurance Program, is located in a community redevelopment area or is located in a pre-existing planned unit development or master planned community.

(2). The development of the property will not, by reason of air, water, light, noise, obstruction of views, traffic safety or traffic congestion, negatively affect the character and quality of life of the neighborhood as determined by sound and generally accepted land use planning practices and principles; and

(3). The development of the property will provide adequate off-street parking for the use of the property; and

(4). If the vacant nonconforming lot is held in common ownership with an adjoining vacant lot, it shall be deemed "merged" with the adjoining lot to the extent necessary to reduce or eliminate the nonconformity.

(5). The lot will conform to the width and lot size standards of the neighborhood within which its located; and

(6). The front yard building setback requirement will conform to the average front setback of the surrounding properties.

(7). The side and rear yard building setback requirements will not be less than the average of that of the surrounding properties or a minimum side yard setback of 5' and rear yard setback of 20', whichever is greater.

~~*Defined.* Nonconforming development is development that does not comply to either the permitted use or development design standards outlined in this Code.~~

~~33-102.01. *Continuation of nonconforming development.*~~

~~(a) *Generally.* Subject to the provisions of this article, the lawful use of any building, structure, or land existing at the time of the adoption of this article may continue although such use does not conform to the provisions of this Code. However, the nonconformities, which would be prohibited, restricted, or regulated under the terms of this Code, shall not continue without limitation. Further, such nonconformities shall not be enlarged upon, extended, expanded, or reconstructed to continue the nonconformity after major damage, or used as grounds for adding other structures or uses prohibited by this Code. Any nonconforming building or structure may be altered to decrease its nonconformity.~~

~~(b) *Unsafe structures or buildings.* Any structure or building or portion thereof declared unsafe may be restored to a safe condition.~~

~~(c) *Construction approved prior to enactment of article chapter*. Nothing in this article shall require any change in any City-approved plans, construction details, or designated use of a building or structure for which a building permit has been issued and the construction of which has been diligently pursued within 1 year of the site plan approval date.~~

~~(d) *Alteration.* A building housing a nonconforming use may be maintained and repairs and alterations may be made, except that no building which is nonconforming as to use regulations, no structural alterations shall be made except those required by law, including eminent domain proceedings. Repairs such as plumbing or changing of partitions or other interior alterations are permitted.~~

~~(e) *Extension.* Buildings or structures or uses of land which are nonconforming shall not be extended or enlarged in a manner that extends, enlarges, or increases the degree of nonconformity.~~

~~For example, if the front yard setback required in the P-1 zoning district used to be 20' and someone built a structure 20' from the property line under those regulations, then it was a conforming structure. Ten years later, the City adopts new zoning laws, which require a larger 30-foot setback in the P-1 zoning district. After those laws are adopted, the building is a nonconforming structure. If the owner decides to build an addition, then the building addition must meet the new 30-foot front yard setback requirement or obtain a variance.~~

~~(f) *Abandonment.* A nonconforming use of land or of a building which has been vacated or abandoned for 365 days shall not thereafter be occupied by any nonconforming use.~~

~~(g) *Change to another use.* A nonconforming use now existing may not be changed to another nonconforming use.~~

~~(h) *Destruction by fire or other act.* Nothing in this article shall be taken to prevent the restoration of a building destroyed to the extent of not more than 50% of its assessed value by fire, explosion or other casualty, or act of God, or the public enemy, nor the continued occupancy of such building or part thereof which existed at the time of such partial destruction, provided that such restoration is made within 180 days for residentially zoned property and 365 days for commercially zoned property.~~

~~(i) *Nonconforming due to maximum building size.* Any building made nonconforming by the enactment of this chapter with respect to maximum building size restrictions may be reconstructed in the event of destruction or damage by fire, collapse, explosion, casualty, acts of God or the public enemy, regardless of cost or assessed valuation, provided that said building and the use of said building shall conform in all other respects with all current zoning and other *Land Development Regulations*.~~

~~(j) *Platted subdivision lots.* Where a lot was a subdivided lot of record and the lot was useable as a conforming single-family residential building site, the lot may be used and occupied by a single-family dwelling and its accessory buildings provided the minimum yard regulations of the district are complied with.~~

~~33-102.02. *Regulations pertaining to nonconforming uses.*~~

~~(a) *Alteration, maintenance, repair of structures housing nonconforming uses.* Any alterations which increase conformance with the parking, loading, landscaping, and other site improvement requirements that would apply to the use if it were located in a district where it would be a conforming use will be allowed but not encouraged by the City. In such cases, the owner would have to submit a letter to the Planning Division department acknowledging the following:~~

~~1. That the owner understands that it is the City's long-term goal to relocate the use to an appropriate zoning district;~~

~~2. That if the owner sells the property that after 365 days of vacancy the nonconforming use would no longer be permitted; and~~

~~3. That if the structure shall be destroyed or require repairs exceeding 50% of the assessed value of the structure, then the nonconforming use shall not be continued.~~

~~33-102.03. *Special provision[s] relating to the central business district.*~~

~~(a) *Applicability of requirements.* The provisions and requirement of Section 33-91 (parking regulations) and Section 33-92 (landscaping regulations) of these *Land Development Regulations* this chapter shall not apply to the C-2AH zoning district, and shall not apply, except as otherwise hereinafter provided, to those businesses and buildings that are in existence and situated, by March 31, 1993, within the C-2A zoning district.~~

~~(b) *Renovation.* A building in the C-2A zoning district may be remodeled, renovated, restored, should it be more than 50% destroyed by fire or other occurrence as set out in Section 33-102.01, provided:~~

~~1. That the use is a permitted use in the C-2A zoning district;~~

~~2. That there is no increase or extension of the usable square footage of floor area.~~

~~(c) *New development.* New development, which rebuilds and expansions must meet the provisions and requirement of Section 33-91 (parking regulations).~~

~~33-102.04. *Special provisions for specific nonconformities.*~~

~~(a) *Nonconformity with the stormwater management requirements of* these *Land Development Regulations this chapter*. In addition to the limitations in Section 33-102.01, an existing development that does not comply with the stormwater management requirements of these *Land Development Regulations* this chapter shall address the stormwater runoff created by the intensification of development.~~

~~(b) *Nonconformity with the parking and loading requirements of* these *Land Development Regulations this chapter*. Full compliance with the parking and loading requirements of these *Land Development Regulations* this chapter shall be required where the seating capacity or other factor controlling the number parking or loading spaces required by these *Land Development Regulations* this chapter is increased by 25% or more.~~

~~(c) *Nonconforming vehicle use areas.*~~

~~1. A vehicle use area is any portion of a development site used for circulation, parking, and/or display of motorized vehicles, except junk or automobile salvage yards.~~

~~2. When the square footage of a vehicle use area is increased, compliance with these *Land Development Regulations* this chapter is required as follows:~~

~~a. *Expansion by less than 25%.* When a vehicle use area expands less than 25 percent, only the expansion area must be brought into compliance with these *Land Development Regulations* this Code.~~

~~b. *Expansion by more than 25%.* When a vehicle use area expands 25% or more, the entire vehicle use area shall be brought into compliance with these *Land Development Regulations* this chapter.~~

~~c. *Repeated expansions.* Repeated expansions of paving of a vehicle use area over a 5-year period commencing with the effective date of these *Land Development Regulations* this Code shall be combined in determining whether the threshold has been reached.~~

~~3. Any vehicle use area in existence on the date of enactment of these *Land Development Regulations* this chapter which must be brought into conformity with these *Land Development Regulations* this chapter, and which has more than the number of parking spaces required by these *Land Development Regulations* this chapter, shall be treated as follows:~~

~~a. The area shall be reconfigured to comply with requirements in these *Land Development Regulations* this chapter.~~

~~b. If, after the reconfiguration, a paved area or areas that are not needed to comply with the requirements of these *Land Development Regulations* this chapter remain, the developer may do any one or combination of the following:~~

~~(1) Improve the area(s) to comply with these *Land Development Regulations* this chapter and continue to use them for parking; or~~

~~(2) Remove the paving and use as grassed overflow parking, as additional landscaped transitional zone, or for any other purpose consistent with the land use plan and approved by the City Commission.~~

~~(d)~~ *Nonconforming signs.* *[**Note:** Section 16(b) of this Ordinance provides that the provisions of Subsection 33-102.04.(d) shall be moved to Article VII.].*

1. Any sign made nonconforming by the enactment of this chapter, and which has a replacement cost of less than $300.00, and all signs prohibited by Section 33-73 (prohibited signs) of this chapter, shall be removed or made to conform within 90 days of the enactment of this chapter.

2. All nonconforming signs shall be made to conform with these *Land Development Regulations* ~~this Code~~ when structurally altered, new copy is added, or when said signs are destroyed or damaged by wind, fire or other means to the extent of 60% or more of the replacement value.

3. Maintenance to a nonconforming sign shall be allowed as long as no wording is changed on the sign copy. If the name of the business changes or the new language is added to the sign, a sign maintenance permit will be required. If a nonconforming sign is removed from the base or disassembled without a sign permit; the sign shall not be allowed to be replaced without complying with article VII, Signs.

4. If a building is vacant and/or a sign is not in use for a period of 365 days, then the sign shall be required to be removed or come into compliance. A sign cannot be considered in use if the building is vacant.

Section 11. Amendment to Section 33-103, *City Code/Land Development Regulations*, Variances and Appeals. Section 33-103 of the *Code of Ordinances of the City of DeLand/Land Development Regulations* is hereby amended to read as follows:

Sec. 33-103. - Variances and appeals.

33-103.01. *Generally.* Where there are hardships in the way of carrying out the strict letter of these *Land Development Regulations* ~~this chapter~~, appeals to the Planning Board may be taken by any person aggrieved or by any department of the ~~governing body of the~~ City, with approval of the City Manager, affected by any decision of the Planning Director ~~Administrative Official~~.

33-103.02. *Exceptions.* The Planning Board may grant a variance from the strict application of any provision of these *Land Development Regulations* ~~this chapter~~ except as follows:

(a) No variance shall be granted to the concurrency management provisions or other provisions such that the variance would be inconsistent with State law or the City's *Comprehensive Plan*.

(b) The Planning Board shall not vary the type or density of uses allowed in zoning districts. The authority to determine the types and densities of uses allowed in zoning districts is specifically reserved to the legislative action of the City Commission.

33-103.03. ***Review criteria.*** In considering all proposed variations to these *Land Development Regulations* ~~this chapter~~, the Board shall, before making any findings in a specific case, ~~will~~ consider the following criteria:

(a) Special conditions and circumstances exist which are peculiar to the land, structure or building involved, and which are not applicable to other lands, structures or buildings in the same zoning district;

(b) Will literal interpretation and enforcement of these *Land Development Regulations* ~~the development code regulations would~~ deprive the applicant of rights commonly enjoyed by other properties in the same zoning district under the terms of these *Land Development Regulations* ~~the development code~~, and ~~would~~ work unnecessary and undue hardship on the applicant such as natural site conditions, size or shape of lot or existing structure(s);

(c) Granting of the variance request will not confer on the applicant any special privilege that is denied by these *Land Development Regulations* ~~the development code~~ to other lands, buildings or structures in the same zoning district;

(d) The granting of the variance will be in harmony with the general intent and purpose of these *Land Development Regulations* ~~this Code~~ and the Comprehensive Plan, as amended, and will not be injurious to the surrounding properties or detrimental to the public welfare;

(e) The variance, if granted, is the minimum variance necessary to make possible the reasonable use of the land, building or structure; and

(f) The special conditions or circumstances are not the result of actions of the applicant or owner.

33-103.04. ***Procedure.***

(a) *Application.* All requests for variances shall be submitted in writing, using the form provided, to the Planning Division ~~department~~, together with all applicable fees as set by resolution of the City Commission. The Planning Division ~~department~~ shall have 5 working days to review the application to determine if the contents are complete. If the application is found to be lacking information requested by the Planning Division ~~department~~ or if the data and exhibits are inaccurate, the application will not be considered filed for the purpose of processing and shall not be placed on the Planning Board agenda. An application for a variance shall include the following:

1. A ~~Two~~ current surveys (no older than 2 years) of the subject property, signed and sealed by a Florida-licensed and registered surveyor.

2. A ~~Nine copies of a~~ scaled site plan clearly illustrating the requested variances.

3. Legal description of the property, if not contained on submitted survey.

4. Typed mailing labels addressed to all property owners within the described distance under as required by Subsection (d).

5. A written petition demonstrating compliance with the conditions listed under Section 33-103.03.

(b) *Report to Planning Board* . The Planning Division ~~department~~ shall submit a written report containing a description of the request and the facts of the case to the Planning Board. A copy of the report shall be made available to the applicant prior to the Planning Board meeting.

(c) *Hearing.* In considering all proposed variations to these *Land Development Regulations* ~~this chapter~~ the Planning Board shall, before making any finding in a specific case, or granting any variance, conduct a public hearing which will take place no sooner than seven days after the publishing of a notice of such proposed or requested variance. The notice shall be published one time in a newspaper of general circulation in the City. At the hearing, any party may appear in person or be represented by agent or attorney.

(d) *Notice.* The Planning Board shall not hold any hearing or grant any variance without having first notified, by certificate of mail, within at least 7 days prior to the date of the hearing, all parties to the hearing, all property owners within 300' on all sides of the subject property. Except, however, when a hearing under this Section concerns a single-story single-family dwelling or duplex, notification by certificate of mail need only be given to property owners within 100' on all sides of the subject property.

(e) *Contents of notice.* The notice shall contain the time and date of the hearing before the Planning Board, and the proposed variance to be considered. Service of the notice to said property owners shall be deemed complete upon the date of mailing.

(f) *Approval.*

1. In granting any variance, appropriate conditions and safeguards may be prescribed to ensure compliance with the requirements of these *Land Development Regulations* ~~this chapter and the Code in general~~. Such conditions may include time limits for the initiation of the variance, specific minimum or maximum limits to ~~regular code~~ requirements of these *Land Development Regulations*, or any other conditions reasonably related to the requirements and criteria of these *Land Development Regulations* ~~this chapter~~.

2. Variances run with the property and the use of a variance shall not be restricted to the applicant but also to subsequent parties for use on the same property.

(g) *Appeal from Planning Board* ~~*board of adjustment*~~. Any person or persons jointly or severally, aggrieved by any decision of the Planning Board ~~board of adjustment~~, or ~~any taxpayer, or any officer, department or~~ the City ~~Commission~~ may present to a court of competent jurisdiction a petition, duly verified, setting forth that such decision is illegal, in whole or in part, specifying the grounds of the illegality. Such petition shall be presented to the court within 30 days after the

filing of the decision in the Planning Division ~~to the office of the Board~~, otherwise the decision of the Board will be final.

(h) *Administrative variance.*

1. The Planning Division ~~department~~ may grant administrative variances from the height and setback requirements of these *Land Development Regulations* ~~this chapter~~ when found ~~deemed~~ appropriate by the Planning Director based upon sound and generally accepted land use planning practices and principles.

2. The review criteria for the variance request shall be the same as described in Section 33-103.03, but in no case shall an administrative variance be granted when such request exceeds 1' of the required dimension. In such case, the applicant shall be required to make an application in accordance with the variance procedure established in these *Land Development Regulations* ~~this chapter~~.

3. If a structure was built prior to 1960, lot size, rear or side building setback requirements may be reduced by 30%, if deemed appropriate by the Planning Director.

33-103.05. ***Special provisions where variance is sought from requirements of flood damage prevention regulations.***

(a) *Additional finding.* In addition to the findings required above, the Planning Board shall find that the requested variance will not result in an increase in the elevation of the Base Flood, additional threats to public safety, additional public expense, the creation of nuisances, fraud or victimization of the public, or conflicts with other local ordinances.

(b) *Considerations.* Before granting a variance, the Planning Board shall consider:

1. The danger that materials may be swept from the site onto other lands.

2. The danger to life and property from flooding erosion.

3. The potential of the proposed facility and its contents to cause flood damage and the effect of that damage on the owner and the public.

Section 12. Waiver or Deferral of Impact Fees for Affordable Housing.

(a). This Section is enacted to implement the provisions of Section 163.31801(11), *Florida Statutes*, which provides that the City may provide an exception or waiver for an impact fee for the development or construction of housing that is affordable, as defined in Section 420.9071, *Florida Statutes*, and which, further, provides that the City is not required to use any revenues to offset the impact.

(b). When the time arises for impact fees to be paid for a development which is eligible for an impact fee exception or waiver under Section 163.31801(11), *Florida Statutes*, the City

Manager, or designee, may grant a waiver of the impact fees required if the City Manager, or designee, finds, in a written order, that the proposed development will provide housing that is affordable, as defined in Section 420.9071, *Florida Statutes*. Pursuant to Section 163.31801(11), *Florida Statutes*, other revenues are not required to offset the impact for a waiver granted under this subsection.

(c). Any waiver granted under this Ordinance shall be only for that portion of the development that meets the definition of affordable as set forth in Section 420.9071, *Florida Statutes*. The City shall not increase the amount of the impact fees payable to replace any revenue utilized from another revenue source because of the waiver granted under this Section.

(d) Any such waiver shall be conditioned upon the applicant entering into a recapture agreement or covenant in favor of the City of Deland, in a form approved by the City Attorney, which shall provide for the recapture of the waived impact fees upon the sale or other transfer of the property to a person or entity who does not meet income and asset criterion establish by the City if the sale or other transfer is made within 7 years from the date the waiver was granted. Such recapture agreement or covenant shall be recorded in the public records of Volusia County and must have priority status as a lien holder subject only to the lien of a first mortgage. The City Manager, or designee, may consent to subordination of the recapture agreement or covenant in the case that the first mortgage is being refinanced, but only if the principal amount of the first mortgage is not increased.

Section 13. Implementing Administrative Actions; Enforcement.

(a). The City Manager, or designee, is hereby authorized and directed to implement the provisions of this Ordinance and to take any and all necessary administrative actions including, but not limited to, the adoption of administrative rules.

(b). The approvals and denials relating to applications, as set forth herein, shall be in a form approved City Attorney which shall be consistent with the provisions of Section 166.033, *Florida Statutes*.

(c). Enforcement of the City's *Land Development Regulations* shall be in accordance with the normative code enforcement processes and procedures of the City.

Section 14. Savings. The prior actions of the City of DeLand relating to non-conforming uses and affordable housing issues and land development matters, as those terms are used in their broadest sense to include, but not be limited to, the development and use of buildings, structures and lots, and the implementation of the provisions of the City's *Land Development Regulations* relating thereto, as well as any and all related matters, are hereby ratified and affirmed.

Section 15. Conflicts; No Effect on Section 2C-34, Section 33-23.02(k), Section 33-27.03.(f) and Section 33-94.06.(a)(5); Repeal of Section 33-33.01.(e)(10) and Section 33-145.04.

(a). All Ordinances or parts of Ordinances and other actions of the City Commission in conflict with this Ordinance are hereby repealed; provided, however, that this Ordinance shall not affect the provisions of Section 2C-34 of Chapter 2C[1] (relating to adult entertainment establishments), Section 33-23.02.(k)[2] (relating to communication towers), Section 33-27.03.(f)[3]

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[1] The cited provision reads as follows:

Sec. 2C-34. - Nonconforming uses.

(a) An adult entertainment establishment which, on May 16, 1994, the date the ordinance is first published, was located on a site which is prohibited by section 2C-32 of this Code, shall cease operations by October 1, 1994.

(b) When a nonconforming use of an adult entertainment establishment has been discontinued for 90 consecutive days or more, the nonconforming use shall be deemed abandoned and the future use of the premises or site shall revert to only those uses permitted on the site on which the establishment is located. See also, article 9, section 33-102.01(F) of the City of DeLand land development regulations.

[2] The cited provision reads as follows:

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(k) Nonconforming structures. An antenna mounted on a nonconforming communication tower or nonconforming alternative support structure shall not be deemed to increase its degree of nonconformity as determined by Article 9 of this chapter.

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[3] The cited provision reads as follows:

***

(relating to bed and breakfast homestays and inns), and Section 33-94.04.(a)(5)[4] (design criteria for Historic Design and Downtown Support District) of the *Code of Ordinances of the City of DeLand*. Similarly, the provisions of this Ordinance shall not affect the requirements of the City, howsoever imposed, relating to the utility systems of the City.

(b). Subsection 33-33.01.(e)(10)[5] (relating to DeLand Municipal Airport zoning) and Section 33-145.04 (relating to the protection for prior platted subdivision lots) of the *Code of Ordinances of the City of DeLand* is hereby specifically repealed.

Section 16. Severability. If any section, sentence, phrase, word or portion of this Ordinance is determined to be invalid, unlawful or unconstitutional, said determination shall not be held to invalidate or impair the validity, force or effect of any other section, sentence, phrase, word or portion of this Ordinance not otherwise determined to be invalid, unlawful or unconstitutional.

Section 17. Codification; Direction to Code Codifier and City Staff; Correction of Scrivener's Errors.

(a). The provisions Sections 1 through Section 12 of this Ordinance shall become and be made a part of the *Code of Ordinances of the City of DeLand*, with all other sections not being

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(f) Nonconforming uses. Property which does not meet the minimum required lot size or minimum setback requirements of the specific zoning district in which the structure is located may not be considered for review as a bed and breakfast homestay or bed and breakfast inn unless a variance is obtained per section 33-103.

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[4] The cited provision reads as follows:

33-94.06. Administration.

(a) *Application process.*

1. Design review shall be conducted by the City of DeLand for the purpose of determining compliance with this section.

2. A predesign conference with the City is recommended, prior to the beginning of design work on any project subject to regulation by this ordinance.

3. No building permits shall be issued without prior approval of the building design by the City.

4. Whichever is applicable, required submittals for design review shall be submitted at the time of an application for:

a. Final Development Plan review. Architectural designs shall be submitted with the site plan application for review by the TRC; or

b. Building permit. Architectural designs shall be submitted with building permit applications if a site plan is not required.

5. Applications shall be approved, approved with specific conditions or modifications, or denied, based upon their conformance or nonconformance with the requirements of this section as reviewed by the City. The review will include the oversight of an architect. Upon denial of an application, the City shall provide the applicant with specific objections to the design.

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[5] The cited provision reads as follows:

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10. *Nonconforming use* means any preexisting structure, object of natural growth or use of lands which is inconsistent with the provisions of this section, or amendments thereto.

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codified, and the sections of this Ordinance may be renumbered or re-lettered to accomplish such intention and the word "Ordinance", or similar words, may be changed to "Section," "Article", or other appropriate word; provided, however, that all other ss shall not be codified. Further, the words "*Land Development Regulations*" shall be substituted for the words "*Land Development Code*" (or similar words and phrases) by the Code Codifier.

(b). The provisions of Subsection 33-102.04.(d) shall be moved to Article VII of Chapter 33 of the *Land Development Regulations* with regard to the regulation of signs.

(c). The Code codifier shall instruct the Municipal Code Corporation to make all changes necessary in the *Code of Ordinances of the City of DeLand* to implement the provisions of this Ordinance and is granted liberal authority to codify the provisions of this Ordinance in such manner and in such places as deemed advisable.

(d). In accordance with the City's ongoing codification program; the City Clerk, in conjunction with the City Attorney, may make corrections to the provisions of this Ordinance relative to Scrivener's errors of whatever type or nature.

Section 18. Effective Date. This Ordinance shall become effective immediately upon adoption.

PASSED AND DULY ADOPTED this __ day of _____, 2022.

_____
Robert F. Apgar
Mayor - Commissioner

ATTEST:

_____
Julie A. Hennessy, MMC, City Clerk - Auditor

Passed on first reading: _____, 2022.
Adopted on second reading: _____, 2022.

APPROVED AS TO FORM AND LEGALITY:

_____
Darren J. Elkind, City Attorney