923 E. LARUA STREET
TINY HOUSE

STORMWATER MANAGEMENT SYSTEM

NARRATIVE, CALCULATIONS & EXHIBITS

PREPARED FOR:
AMR at Pensacola, Inc.
730 Bayfront Pkwy
Suite 4B
Pensacola, FL 32502
850.530.4226

SUBMITTED TO:
City of Pensacola
222 West Main Street
Pensacola, Florida 32502

PREPARED BY:
Kenneth Horne & Associates, Inc.
7201 N. 9th Avenue, Suite 6
Pensacola, Florida 32504
Phone: (850) 471-9005

KH&A Project Number: 2020-99

Date: Sept 4, 2020

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ROBERT C. KRASNOSKY LICENSE No. 49949 STATE OF FLORIDA PROFESSIONAL ENGINEER

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC DOCUMENTS.

Digitally signed by Robert C Krasnosky Jr
DN: c=US, o=KENNETH HORNE AND ASSOCIATES INC, ou=A01410D0000016EA379D6FC000029FF, cn=Robert C Krasnosky Jr
Date: 2020.09.04 10:13:41 -05'00'

Calculations Performed By:
Robert C. Krasnosky, P.E.
FL Reg. No. 49949

STORMWATER MANAGEMENT SYSTEM

NARRATIVE, CALCULATIONS & EXHIBITS

TABLE OF CONTENTS

I. INTRODUCTION

The proposed project is located at 923 E. LaRua Street, Pensacola FL. The proposed project involves adding a tiny house with associated driveway, parking pad and sidewalk.

The City of Pensacola Land Development Code requires 1" of treatment volume and 100 year attenuation for the stormwater attributed by the project area. A new stormwater pond will be constructed to provide the treatment and attenuation required.

II. PERMITTING INFORMATION

Site Location:	923 E. LaRua St., Pensacola FL	
Property Owner:	AMR at Pensacola, Inc. 730 Bayfront Pkwy, Suite 4B Pensacola, FL 32502	Ph: : 850.530.4226 Contact: Kevin Hagen
Applicant:	Same as Owner	
Engineer:	Kenneth Horne & Associates, Inc. 7201 N. 9th Avenue, Suite 6 Pensacola, FL 32504	Ph: 850-471-9005 Fx: 850-471-0093
Property:	7,559 SF (0.17 Ac.)	Drainage Area: 1,912 SF (0.044 Ac.)
Existing Wetlands:	There are no environmentally sensitive areas on or immediately adjacent to the project.	
Proposed SWMS:	Attenuation and Treatment; Design will conform to City of Pensacola Land Development Code.	
Maintenance Entity:	AMR at Pensacola, Inc.	

III. EXISTING SITE

EXISTING TOPOGRAPHY: The site slopes from north to south for an upper elevation of 47 feet to a lower elevation of 40 feet.

SOILS: Soils data was obtained from the Web Soil Survey from the USDA Natural Resources Conservation Service. (See Exhibit D) The soils are Lakeland Sands which are well draining and belong to soil type A. The saturated hydraulic conductivity is 26 ft/day and confining layer and water table depth are greater than 6' deep. These soils are suitable for on-site disposal of stormwater runoff via a conventional shallow pond.

EXISTING DRAINAGE: The existing drainage patterns will be generally maintained with outfalls to the adjacent street right-of-ways.

IV. PROPOSED SITE

PROPOSED DRAINAGE: A new pond will be constructed south of the Tiny House for treatment and attenuation for the drainage basin shown in Exhibit C.

STORMWATER QUALITY: Runoff quality treatment is provided for the first one-inch of runoff from the drainage basin shown in Exhibit C. The pond has been designed such that the entire treatment volume is fully recovered within 72 hours.

STORMWATER QUANTITY: Attenuation is provided for the site discharge by an earthen weir in the pond. The post-development site maximum rate of discharge is attenuated to not exceed the pre-development maximum rate of runoff.

PONDS 3.2 ROUTING MODEL: The stormwater runoff from the project site has been modeled with Ponds 3.2 Routing Software for the 100 year storm of critical duration. Both pre-development and post development scenarios were modeled. Finally, a "slug load" scenario was modeled to simulate the filling of the pond under a short period of time as a method of determining if the required treatment volume is fully recovered within 72 hours. This slug load scenario was modeled for the entire treatment volume.

EROSION AND SEDIMENT CONTROLS: Best management practices will be utilized during construction to minimize the potential for erosion and sedimentation. Silt fences will be installed at the project limits. Hay bales will be installed as necessary to reinforce the silt fencing. These erosion control measures will be installed prior to the start of construction and shall be maintained until final certification of the project by the engineer.

PROJECT INFORMATION REQUIRED FOR STORMWATER ROUTING MODEL

WIN TR-55 Information (see attached Exhibit A)

Project Area: Project Area Basin = 1,912 ft^2 or 0.044 Ac. Pre
=1,912 ft2 or 0.044 Ac. Post

Hydrologic Soil Group: A

Runoff Curve Number (CN): 68-pre, 77-post

Time of Concentration (T_c): .10 hr (6 min)-pre, .10 hr (6 min)-post

PONDS 3.2 Information (see attached Exhibit B):

Directly Connected Impervious Area (DCIA): 0% (pre) and 0% (post)

Treatment Volume Required: 1" of Runoff

$$V = 1{,}912 ft^2 \times \frac{1\ inch}{12\ inches/ft} = 159 ft^3$$

Required treatment volume is obtained at pond elevation 39.5'. Top of pond is elevation 40' thus providing the required 6" of freeboard.

Treatment Volume Provided: 290 ft^3 (Volume at Control Overflow Elev. 39.8')
Base of Aquifer Elevation: 34.0
Water Table Elevation: 34.1
Horizontal Saturated Conductivity: 19.5 ft/day (includes Factor of Safety of 2)
Unsaturated Vertical Infiltration Rate: 8.67 ft/day (includes Factor of Safety of 2)
Max Area for Unsaturated Infiltration: 524 sf
Fillable Porosity: 30%
Post-Development Weir 6"' wide at El. 39.8'

Proposed Pond Stage-Area Volume Data:

Elevation (ft)	Area (ft2)	Area (ac)	Storage (ft3)	Storage (ac-ft)
39	188	0.004	0	0.000
40	536	0.012	362	0.008

RESULTS

Following is a summary of the results produced by modeling the stormwater runoff with the PONDS 3.2 software:

	100 Yr -8 Hr
Peak Stage (Elev.)	39.937
Pre-development Runoff Rate (cfs)	0.1364
Post-development Runoff Rate (cfs)	0.0724

SCENARIO: The post-development maximum discharge and stage was determined for the 100 Yr. – 8 Hr. storm event. As required, the post-development runoff rate for this storm does not exceed the pre-development runoff rate.

POND RECOVERY ANALYSIS: Modeling of the “slug load” scenario (PONDS 3.2: Scenario #1) demonstrates that the required treatment volume of 159 cf is recovered in less than 2.4 hours which is within the required 72 hours (Factory of Safety of 30).

WinTR-55 Current Data Description

--- Identification Data ---

User: Charlie
Project: 923 E. LaRura
SubTitle:
State: Florida
County: Escambia
Filename: S:\2020 Projects\2020-99 923 E. LaRua\STORMWATER\923 E LaRua.w55

Date: 9/3/2020
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Pre			0.04	68	0.1
Post			0.04	77	0.1

Total area: .08 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
6.0	.0	.0	.0	.0	.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Florida Type II
Dimensionless Unit Hydrograph: <standard>

EXHIBIT A

WinTR-55 Current Data Description

--- Identification Data ---

User: Charlie
Project: 923 E. LaRura
SubTitle:
State: Florida
County: Escambia
Filename: S:\2020 Projects\2020-99 923 E. LaRua\STORMWATER\923 E LaRua.w55

Date: 9/3/2020
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Pre			0.04	68	0.1
Post			0.04	77	0.1

Total area: .08 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
6.0	.0	.0	.0	.0	.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Florida Type II
Dimensionless Unit Hydrograph: <standard>

Charlie 923 E. LaRura

Escambia County, Florida

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Pre	.04	0.100	68		
Post	.04	0.100	77		

Total Area: .08 (ac)

Charlie 923 E. LaRura

Escambia County, Florida

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Pre							
SHEET	100	0.0100	0.011				0.019
					Time of Concentration		0.1
Post							
SHEET	100	0.0100	0.011				0.019
					Time of Concentration		0.1

Charlie 923 E. LaRura

Escambia County, Florida

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Pre	Open space; grass cover < 50%	(poor)	A	.044	68
	Total Area / Weighted Curve Number			.04	68
Post	Open space; grass cover > 75%	(good)	A	.016	39
	Paved parking lots, roofs, driveways		A	.028	98
	Total Area / Weighted Curve Number			.04	77

PONDS Version 3.2.0274
Retention Pond Recovery - Refined Method
Copyright 2012
Devo Seereeram, Ph.D., P.E.

Project Data

Project Name:	923 E. LaRua
Simulation Description:	1" of Runoff 100 yr. Attenuation
Project Number:	2020-99
Engineer :	Robert Krasnosky
Supervising Engineer:	Robert Krasnosky
Date:	09-02-2020

Aquifer Data

Base Of Aquifer Elevation, [B] (ft datum):	34.00
Water Table Elevation, [WT] (ft datum):	34.10
Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day):	19.50
Fillable Porosity, [n] (%):	30.00
Unsaturated Vertical Infiltration Rate, [Iv] (ft/day):	8.67
Maximum Area For Unsaturated Infiltration, [Av] (ft^2):	524.0

Geometry Data

Equivalent Pond Length, [L] (ft):	23.0
Equivalent Pond Width, [W] (ft):	22.0

Ground water mound is expected to intersect the pond bottom

Stage vs Area Data

Stage (ft datum)	Area (ft^2)
39.00	188.0
40.00	536.0

EXHIBIT B

Discharge Structures

Discharge Structure #1 is active as weir

Structure Parameters

Description:

Weir elevation, (ft datum):	39.8
Weir coefficient:	2.861
Weir length, (ft):	.5
Weir exponent:	1.5

Tailwater - disabled, free discharge

Discharge Structure #2 is inactive

Discharge Structure #3 is inactive

Scenario Input Data

Scenario 1 :: 159ft³ slug load

Hydrograph Type: Slug Load
Modflow Routing: Routed with infiltration

Treatment Volume (ft³) 159

Initial ground water level (ft datum) 34.10 (default)

Time After Storm Event (days)	Time After Storm Event (days)
0.100	2.000
0.250	2.500
0.500	3.000
1.000	3.500
1.500	4.000

Scenario 4 :: Pre 100yr/ 8 hr

Hydrograph Type: Inline SCS
• **Modflow Routing: Not routed**
Repetitions: 1

Basin Area (acres)	0.044
Time Of Concentration (minutes)	6.0
DCIA (%)	0.0
Curve Number	68
Design Rainfall Depth (inches)	9.5
Design Rainfall Duration (hours)	8.0
Shape Factor	UHG 323
Rainfall Distribution	FDOT 8 Hour

Initial ground water level (ft datum) 34.10 (default)

No times after storm specified.

Scenario 5 :: FDOT 1 Hour -1 hr - 100yr

Hydrograph Type: Inline SCS
Modflow Routing: Routed with infiltration
Repetitions: 1

Basin Area (acres)	0.044
Time Of Concentration (minutes)	6.0
DCIA (%)	0.0
Curve Number	77
Design Rainfall Depth (inches)	4.5
Design Rainfall Duration (hours)	1.0
Shape Factor	UHG 323
Rainfall Distribution	FDOT 1 Hour

Initial ground water level (ft datum) 34.10 (default)

No times after storm specified.

Scenario Input Data (cont'd.)

Scenario 6 :: FDOT 2 Hour -2 hr - 100 yr

Hydrograph Type:	Inline SCS
Modflow Routing:	Routed with infiltration
Repetitions:	1

Basin Area (acres)	0.044
Time Of Concentration (minutes)	6.0
DCIA (%)	0.0
Curve Number	77
Design Rainfall Depth (inches)	6.0
Design Rainfall Duration (hours)	2.0
Shape Factor	UHG 323
Rainfall Distribution	FDOT 2 Hour

Initial ground water level (ft datum) 34.10 (default)

No times after storm specified.

Scenario 7 :: FDOT 4 Hour -4 hr - 100 yr

Hydrograph Type:	Inline SCS
Modflow Routing:	Routed with infiltration
Repetitions:	1

Basin Area (acres)	0.044
Time Of Concentration (minutes)	6.0
DCIA (%)	0.0
Curve Number	77
Design Rainfall Depth (inches)	7.4
Design Rainfall Duration (hours)	4.0
Shape Factor	UHG 323
Rainfall Distribution	FDOT 4 Hour

Initial ground water level (ft datum) 34.10 (default)

No times after storm specified.

Scenario 8 :: FDOT 8 Hour - 8 hr - 100 yr

Hydrograph Type:	Inline SCS
Modflow Routing:	Routed with infiltration
Repetitions:	1

Basin Area (acres)	0.044
Time Of Concentration (minutes)	6.0
DCIA (%)	0.0
Curve Number	77
Design Rainfall Depth (inches)	9.5
Design Rainfall Duration (hours)	8.0
Shape Factor	UHG 323
Rainfall Distribution	FDOT 8 Hour

Initial ground water level (ft datum) 34.10 (default)

No times after storm specified.

Scenario Input Data (cont'd.)

Scenario 9 :: FDOT 24 Hour - 24 hr - 100 yr

Hydrograph Type:	Inline SCS
Modflow Routing:	Routed with infiltration
Repetitions:	1

Basin Area (acres)	0.044
Time Of Concentration (minutes)	6.0
DCIA (%)	0.0
Curve Number	77
Design Rainfall Depth (inches)	13.5
Design Rainfall Duration (hours)	24.0
Shape Factor	UHG 323
Rainfall Distribution	FDOT 24 Hour

Initial ground water level (ft datum) 34.10 (default)

No times after storm specified.

Sort-By-Category Report

Scenarios Considered: 1, 4 to 9

Stage - Maximum

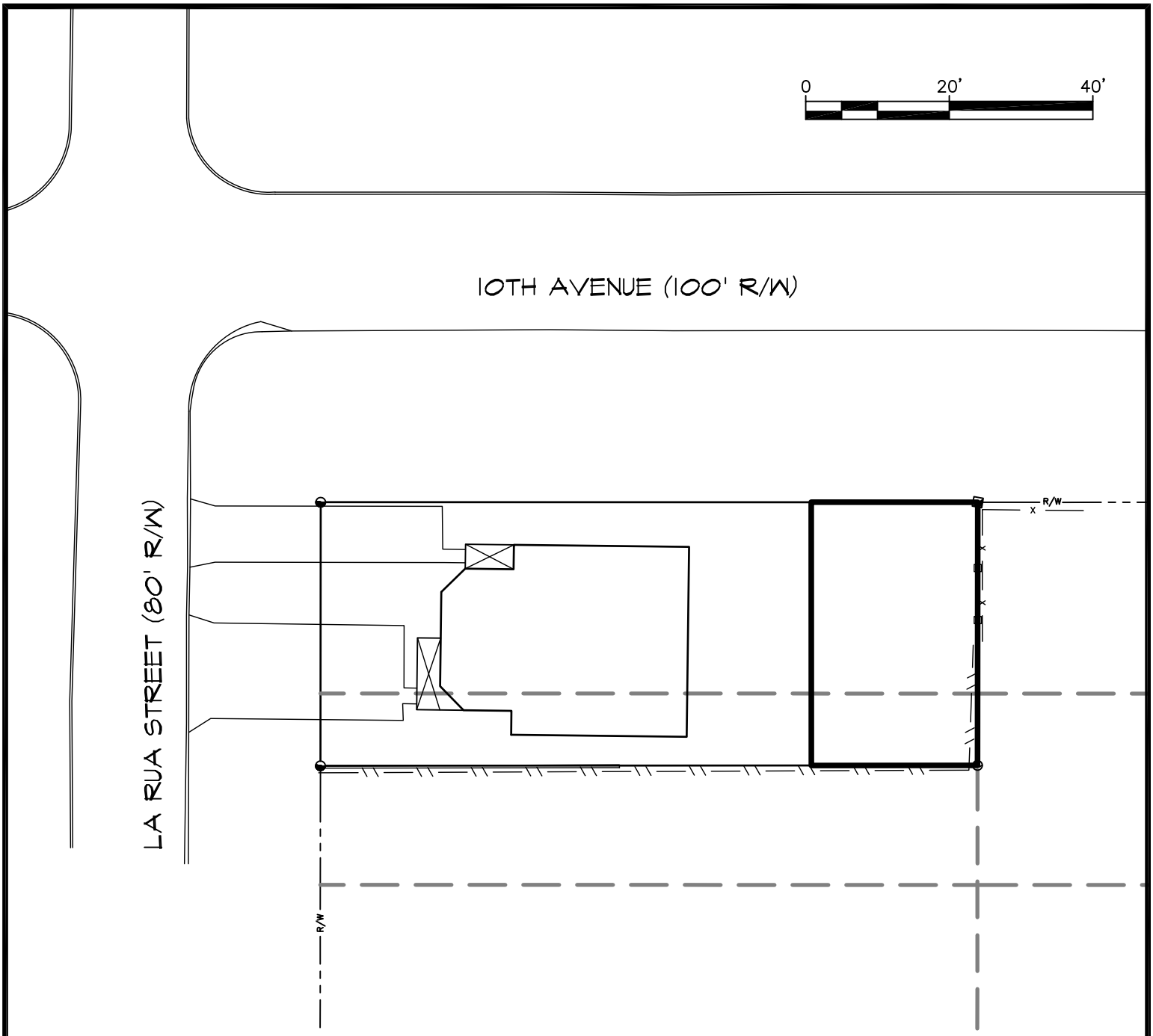
Rank	Scenario Number	Maximum Stage (ft datum)	Time (hours)	Description
1	8	39.937	4.067	FDOT 8 Hour - 8 hr - 100 yr
2	7	39.892	2.667	FDOT 4 Hour -4 hr - 100 yr
3	6	39.857	1.267	FDOT 2 Hour -2 hr - 100 yr
4	5	39.789	0.960	FDOT 1 Hour -1 hr - 100yr
5	1	39.557	0.002	159ft³ slug load
6	9	39.539	13.040	FDOT 24 Hour - 24 hr - 100 yr
7	4	Not Available	Not Available	Pre 100yr/ 8 hr

Discharge - Rate - Maximum Positive

Rank	Scenario Number	Maximum Positive Discharge Rate (ft³/s)	Time (hours)	Description
1	4	0.1364	4.000	Pre 100yr/ 8 hr
2	8	0.0724	4.067	FDOT 8 Hour - 8 hr - 100 yr
3	7	0.0401	2.667	FDOT 4 Hour -4 hr - 100 yr
4	6	0.0195	1.267	FDOT 2 Hour -2 hr - 100 yr
5	1	None	N.A.	159ft³ slug load
6	5	None	N.A.	FDOT 1 Hour -1 hr - 100yr
7	9	None	N.A.	FDOT 24 Hour - 24 hr - 100 yr

Detailed Results :: *Scenario 1 :: 159ft³ slug load*

Elapsed Time	Instantaneous Inflow Rate	Outside Recharge	Stage Elevation	Infiltration Rate	Combined Instantaneous Discharge	Cumulative Inflow	Cumulative Infiltration	Combined Cumulative	
0.000	26.5000	0.00000	34.10000	0.00000	0	0.000	0.00000	0	N.A.
0.002	26.5000	0.00000	39.55719	0.03832	0	159.000	0.23006	0	U/P
2.400	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry
6.000	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry
12.000	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry
24.000	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry
36.000	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry
48.000	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry
60.000	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry
72.000	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry
84.000	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry
96.000	0.0000	0.00000	----	----	----	159.000	159.00000	0	dry



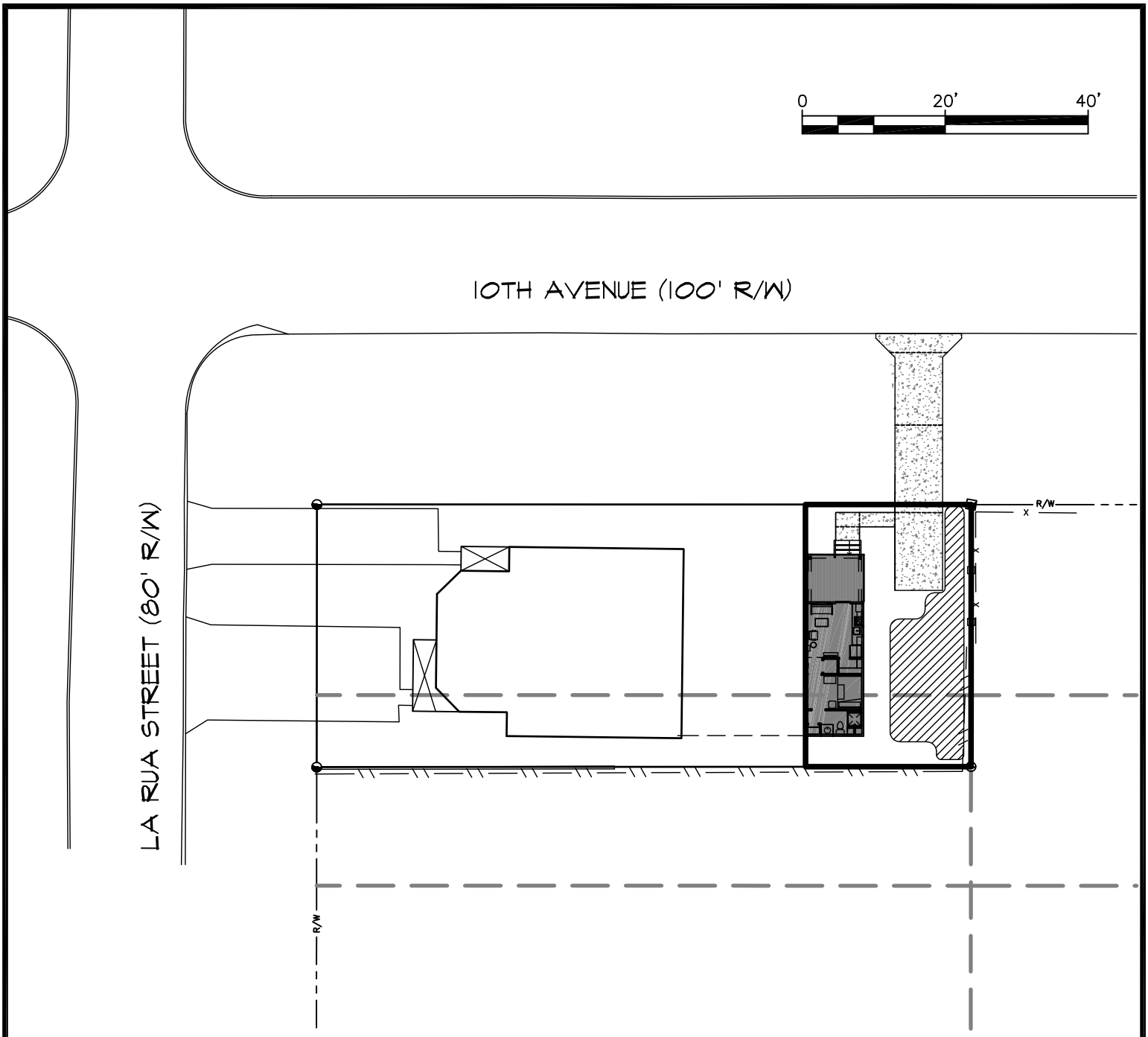
PRE-DEVELOPMENT DRAINAGE AREA

1912 SF / 0.044 AC

EXHIBIT 'C'

Kenneth Horne & Associates, Inc.
CIVIL ENGINEERS
PO BOX 10669, PENSACOLA, FLORIDA 32524
7201 NORTH 9TH AVENUE, SUITE 6, PENSACOLA, FLORIDA 32504
(850) 471-9005 INFO@KH-A.COM FAX (850) 471-0093

PROJECT NAME:	923 E. LARUA ST
	TINY HOUSE
PROJECT NO.:	2020-99
BY: CK/AH	DATE: 9-4-2020
SHEET:	1 OF 2



POST-DEVELOPMENT DRAINAGE AREA

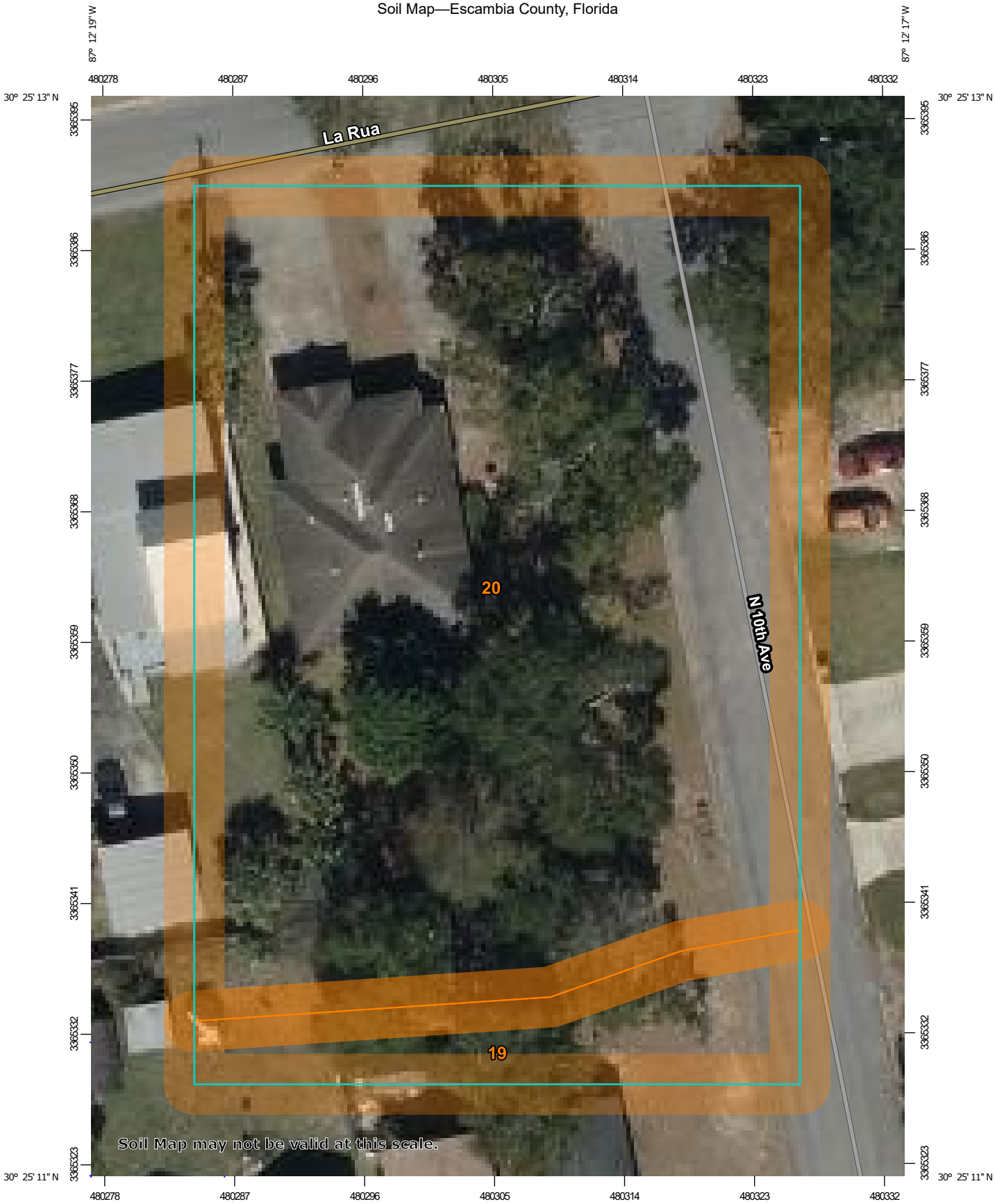
1912 SF / 0.044 AC

EXHIBIT 'C'

KH&A

Kenneth Horne & Associates, Inc.
CIVIL ENGINEERS
PO BOX 10669, PENSACOLA, FLORIDA 32524
7201 NORTH 9TH AVENUE, SUITE 6, PENSACOLA, FLORIDA 32504
(850) 471-9005 INFO@KH-A.COM FAX (850) 471-0093

PROJECT NAME:	923 E. LARUA ST
	TINY HOUSE
PROJECT NO.:	2020-99
BY: CK/AH	DATE: 9-4-2020
SHEET:	2 OF 2



Map Scale: 1:363 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 15 30 60 90

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

EXHIBIT D

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Escambia County, Florida
Survey Area Data: Version 20, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 3, 2020—Feb 28, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
19	Foxworth sand, 0 to 5 percent slopes	0.1	10.7%
20	Lakeland sand, 5 to 8 percent slopes	0.6	89.3%
Totals for Area of Interest		**0.6**	**100.0%**

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Escambia County, Florida (FL033)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
13	Lakeland sand, 0 to 5 percent slopes	A	5.1	100.0%
Totals for Area of Interest			**5.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Saturated Hydraulic Conductivity (Ksat)

Saturated Hydraulic Conductivity (Ksat)— Summary by Map Unit — Escambia County, Florida (FL033)				
Map unit symbol	**Map unit name**	**Rating (micrometers per second)**	**Acres in AOI**	**Percent of AOI**
13	Lakeland sand, 0 to 5 percent slopes	92.0000	7.2	100.0%
Totals for Area of Interest			**7.2**	**100.0%**

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: *None Specified*

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 6

Bottom Depth: 30

Units of Measure: Inches

Depth to Any Soil Restrictive Layer

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Escambia County, Florida (FL033)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
13	Lakeland sand, 0 to 5 percent slopes	>200	6.0	100.0%
Totals for Area of Interest			**6.0**	**100.0%**

Description

A "restrictive layer" is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers.

This theme presents the depth to any type of restrictive layer that is described for each map unit. If more than one type of restrictive layer is described for an individual soil type, the depth to the shallowest one is presented. If no restrictive layer is described in a map unit, it is represented by the "> 200" depth class.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

Interpret Nulls as Zero: No