W. James Rivera, P.E._

P.O. Box 593 Kitty Hawk, NC 27949 757-287-7441

Email: seahawk1@earthlink.net

March 6, 2024

Mr. George Gardner 4513 Beacham Lane Kitty Hawk, NC 27949

Re:

Building Plans Review 149 Greyson Loop Powells Point, NC Project # 23030

Dear George:

As requested, I have reviewed the construction plans for your proposed metal building at the above site. My comments are as follows:

ORIGINAL PLANS:

Enclosed Metal Building Design Pre-Built Structures, LLC P.O. Box 350 Mount Airy, NC 27030 By Gunderson Engineering PLLC 4161 Tamiami Trail, Unit 101 Port Charlotte, FL 33952 Craig E. Gunderson, PE (NC 048404) Dated June 16, 2023

These plans show many generic variations of the proposed work and was extremely confusing as to what the manufacturer was going to furnish. We discussed that issue, and the manufacturer supplied a second set of drawings with the specific methods highlighted with a red marker.

Further, on sheet 1 under "Design Loads", the wind exposure V ultimate was to be 110 mph exposure C. The location of the project is Currituck County at a location where Vult equals 130 mph and is exposure B. When asked to amend that note, the vendor replied that "Installation Notes and Specifications" #10 (sheet 1) and additional notes on Sheet 6 covered the higher wind speed.

As you know I did not agree, especially since the plans had so many variations.

MARKED UP PLANS:

On November 15, 2023, you forwarded to me a marked up copy of the plans in file "George Gardner-Marked Plans,pdf". This new submittal highlighted the various details to be employed on this project. These plans also indicated that the framing would be to four foot spacing, good for 140 mph.



Subsequently, you forwarded to me a copy of the Contract from Pre-Built Structures which indicated "Wind-Snow Rating" to be "155mph Wind Certified"

ENGINEERING REVIEW:

At that point I proceeded to do an independent review of the plans to check for suitability for the Greyson Loop site. Several items were noted.

First, the original subdivision plans for the Currituck Industrial Park indicated that the finished floor for any building on this site be +11.50 MSL NAVD88. Since the ground adjacent to the building is only about +10 feet, the turndown on the foundation slab needs to be taller. See details on Sheet 2 of my drawing set.

I also checked the wind load factors to assure that the building would withstand the prescribed loads. Wall deflection, building sliding forces, and wind uplift were acceptable as designed. However, the design failed when overturning was considered. The wedge anchors shown were not deep enough when subject to tension loads in overturning and the closeness to edge distances. Sheet 2 shows longer wedge anchors which easily resist the tension loads.

I also checked the various SDS screw connections and found them acceptable based upon the specifications of Simpson Strong-Drive Self-Drilling X Metal Screws in the sizes shown on the drawings. Other screws "or- equal" can be used.

Floor plans indicating plumbing, mechanical, and electrical details are on separate drawings.

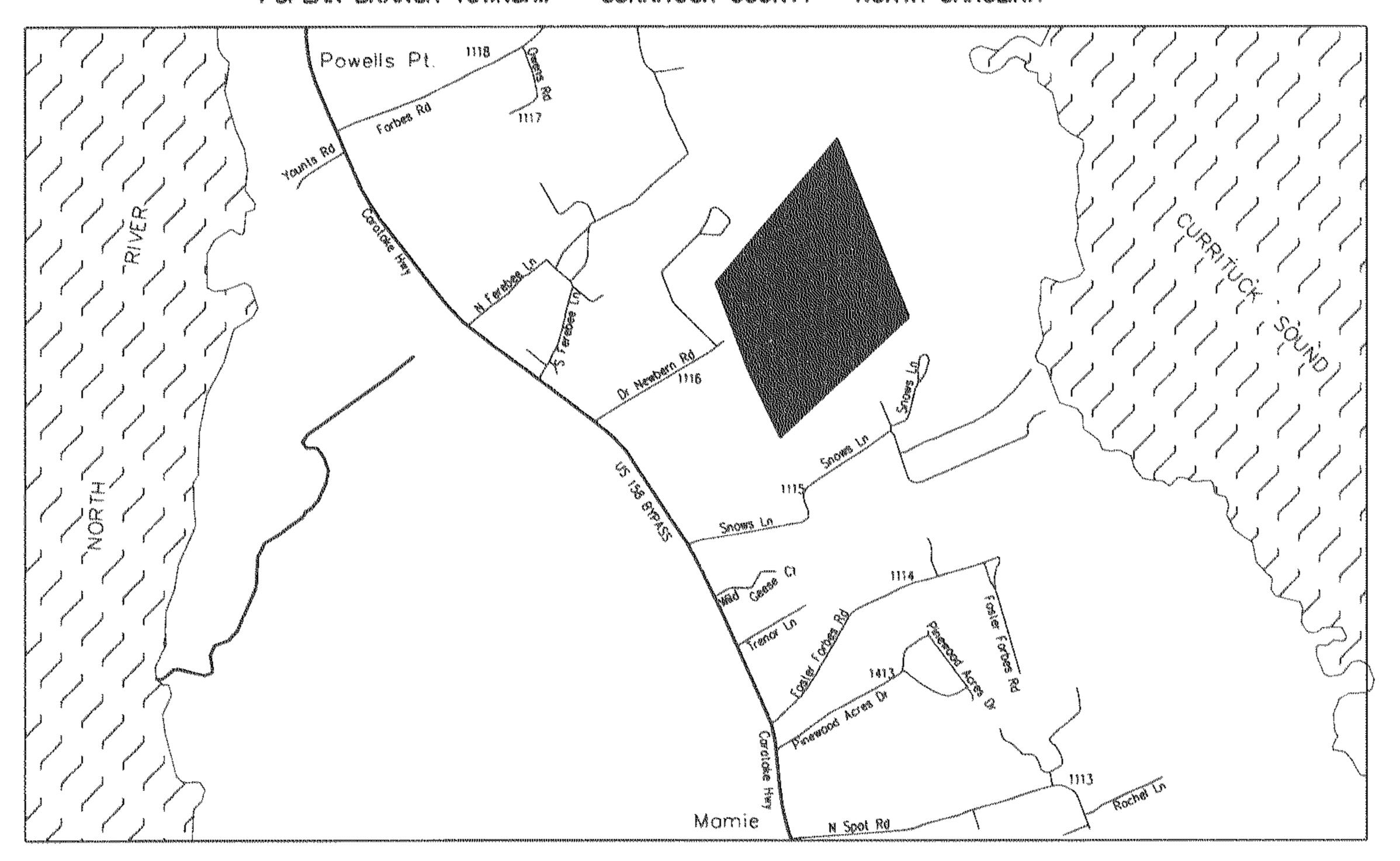
Based upon this information, it is my opinion that the building will perform as required by the 2018 NC Building Code.

Respectfully submitted.

W. James Rivera, PE (NC, VA, NV (retired))

FINAL SUBDIVISION PLAT

A PARCEL OF LAND NEAR HARBINGER POPLAR BRANCH TOWNSHIP - CURRITUCK COUNTY - NORTH CAROLINA



VICINITY MAP

ACTIVE FARMLANDS STATEMENT

AS OF THE RECORDED DATE OF THIS PLAT, SOME PORTIONS OF THIS DEVELOPMENT NOT BE LIMITED TO ACTIVITES SUCH AS DUST GENERATION, SPRAYING OF CHEMICALS, ETC., THEREFORE, FURTHER INVESTIGATION MAY BE DESIRED BY PROSPECTIVE PURCHASERS.

B.) DEED REFERENCE:

DIVISION OF HIGHWAY DISTRICT ENGINEER CERTIFICATE FOR PUBLIC STREETS I HEREBY CERTIFY THAT THE PUBLIC STREET SHOWN ON THIS PLAT ARE INTENDED FOR DEDICATION AND HAVE BEEN COMPLETED IN ACCORDANCE WITH AT LEAST THE MINIMUM SPECIFICATION AND STANDARDS OF THE NC DEPARTMENT OF TRANSPORTATION FOR ACCEPTANCE OF SUBDIVISION STREETS ON THE NC HIGHWAY SYSTEM FOR MAINTENANCE.

CERTIFICATE OF STORMWATER IMPROVEMENTS IN THE SUBDIVISION ENTITLED CURRITUCK INDUSTRIAL PARK

DRAINAGE IMPROVEMENTS AND THEIR EFFECTS

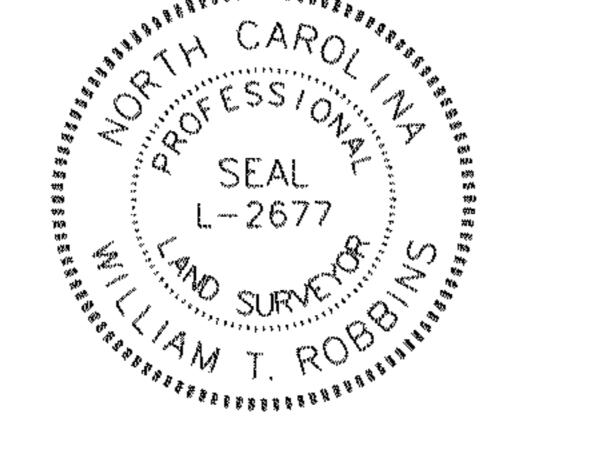
I, WILLIAM T. ROBBINS, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION SHOWN HEREON), THAT ANY LINES NOT SURVEYED ARE SHOWN AS BROKEN LINES, THAT THE RATIO OF PRECISION AS CALCULATED IS 1:10,000 (D.M.D.), AND THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED.

THIS SURVEY CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY THAT HAS AND ORDINANCE THAT REGULATES PARCELS OF LAND

WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS THE 19TH DAY OF AUGUST, 2004.

WILLIAM T. ROBBINS

TM 123, PARCEL 32



2. ALL PROPERTY SHOWN IS WITHIN A LM ZONING DISTRICT (LIGHT MANUFACTURING).

3. THERE ARE NO ACOE 404 JURISDICTIONAL WETLANDS ON THIS PROPERTY. 4. TOTAL AREA OF LAND TO BE DIVIDED: 3,154,979 SF. (72.43 AC.)

5. TOTAL NUMBER OF LOTS: 50

TOTAL AREA OF STORM WATER RETENTION: 301,912 SF. (6.93 AC.)

7. TOTAL AREA CREATED RIGHT'S-OF WAY: 315,603 SF. (7.25 AC.)

8. UTILITY AND DRAINAGE EASEMENTS:

FRONT - 15' SIDE - 10' REAR - 10'). TOTAL LINEAR FEET OF CREATED RIGHT'S-OF WAY: +- 6,804

10. SMALLEST LOT AREA: 38,149 SF.

OT 21 131 GREYSON LOOP

OT 22 133 GREYSON LOOP

LARGEST LOT AREA: 77,346 SF. TOTAL AREA OF LOTS: 2,537,464 SF. (58.25 AC.)

IN ACCORDANCE WITH THE ORDINANCE SHALL NOT BE DEDICATED TO THE PUBLIC EXCEPT AND CONTROL OF THE DEVELOPER (OR HIS SUCCESSOR) OR A HOMEOWNERS ASSOCIATION OR SIMILAR ORGANIZATION THAT SATISFIES THE CRITERIA ESTABLISHED IN CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE.

HOMEOWNERS ASSOCIATION ASSUMES RESPONSIBLE FOR MAINTAINING ALL COMMON AREAS (STORMWATETR PONDS) 13. LOT COVERAGE NOT TO EXCEED 65% OF IMPERVIOUS SURFACE

LOT ADDRESS							
LOT 1 2	O1 DR. NEWBERN ROAD	ſ	LOT 26	147 GREYSON LOOP			
LOT 2 2	OO FOX KNOLL DRIVE	ļ	LOT 27	149 GREYSON LOOP			
LOT 3 10	03 GREYSON LOOP		LOT 28	151 GREYSON LOOP			
LOT 4 10	05 GREYSON LOOP	ļ	LOT 29	153 GREYSON LOOP			
LOT 5 10	07 GREYSON LOOP	į	1.07 30	101 GREER CT. or 155 GREYSON LOOP			
LOT 6 10	09 GREYSON LOOP		LOT 31	103 GREER LANE			
LOT 7 1	11 GREYSON LOOP	1	LOT 32	100 GREER LANE OR 157 GREYSON LOOP			
LOT 8 1	13 GREYSON LOOP		LOT 33	159 GREYSON LOOP			
LO7 9 20	07 FOX KNOLL DR. or 115 GREYSON LOOP	ĺ	LOT 34	158 GREYSON LOOP			
LOT 10 20	OB FOX KNOLL DR. or 117 GREYSON LOOP	- 1	LOT 35	100 GREYSON LOOP			
LOT 11 1	19 GREYSON LOOP	-	LOT 36	106 GREYSON LOOP			
LOT 12 1:	21 GREYSON LOOP		LOT 37	108 GREYSON LOOP			
LOT 13 1	23 GREYSON LOOP	-	LOT 38	110 GREYSON LOOP			
LOT 14 10	01 AYLA CT. or 120 GREYSON LOOP		LOT 39	112 GREYSON LOOP or 200 BECKNER DR.			
LOT 15 16	03 AYLA COURT	ĺ	LOT 40	114 GREYSON LOOP or 201 BECKNER DR.			
LOT 16 1	05 AYLA COURT	-	LOT 41	124 GREYSON LOOP			
LOT 17 10	07 AYLA COURT		LOT 42	132 GREYSON LOOP or 205 BECKNER DR.			
LOT 18 16	06 AYLA COURT	Į	LOT 43	203 BECKNER DR.			
LOT 19 10	00 AYLA CT. or 127 GREYSON LOOP		LOT 44	136 GREYSON LOOP or 204 BECKNER DR.			
LOT 20 1:	29 GREYSON LOOP	[LOT 45	142 GREYSON LOOP			
		- 1					

STATE OF NORTH CAROLINA

CERTIFICATE OF APPROVAL

OF COMMISSIONERS, SUBJECT TO ITS BEING RECORDED IN THE CURRITUCK COUNTY REGISTER OF DEEDS WITHIN NINETY (90) DAYS OF THE DATE BELOW.

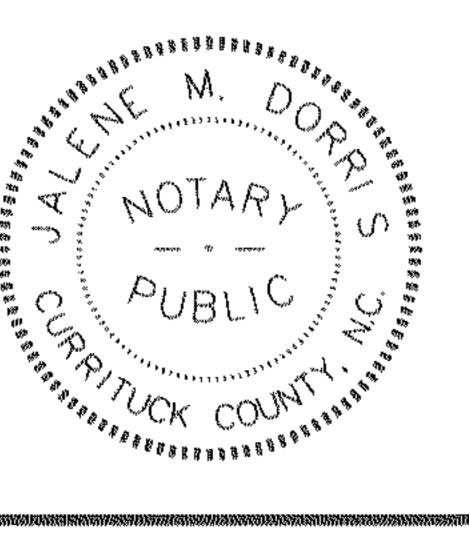
CERTIFICATE OF OWNERSHIP, DEDICATION, AND DRAINAGE

I HEREBY CERTIFY THAT WE ARE THE OWNERS OF THE PROPERTY DESCRIBED HEREON, WHICH PROPERTY IS LOCATED WITHIN THE SUBDIVISION REGULATION JURSIDICTION OF CURRITUCK COUNTY, THAT WE HEREBY ON THIS PLAT AS EASEMENTS, EXCEPT THOSE SPECIFICALLY INDICATED AS PRIVATE AND THAT WE WILL MAINTAIN ALL SUCH AREAS UNTIL THE OFFER OF DEDICATION IS ACCEPTED BY AN APPROPRIATE PUBLIC AUTHORITY. OR A PRIVATE ROAD MAINTENANCE AGREEMENT IS EXECUTED BY ALL PROPERTY OWNERS IN THIS MINOR SUBDIVISION. ALL PROPERTY SHOWN ON THIS PLAT AS DEDICATED FOR PUBLIC USE SHALL BE DEEMED TO BE DEDICATED FOR ANY OTHER PUBLIC USE AUTHORIZED BY LAW WHEN SUCH USE IS APPROVED BY THE APPROPRIATE PUBLIC AUTHORITY IN THE PUBLIC INTEREST.

NOTARY CERTIFICATE

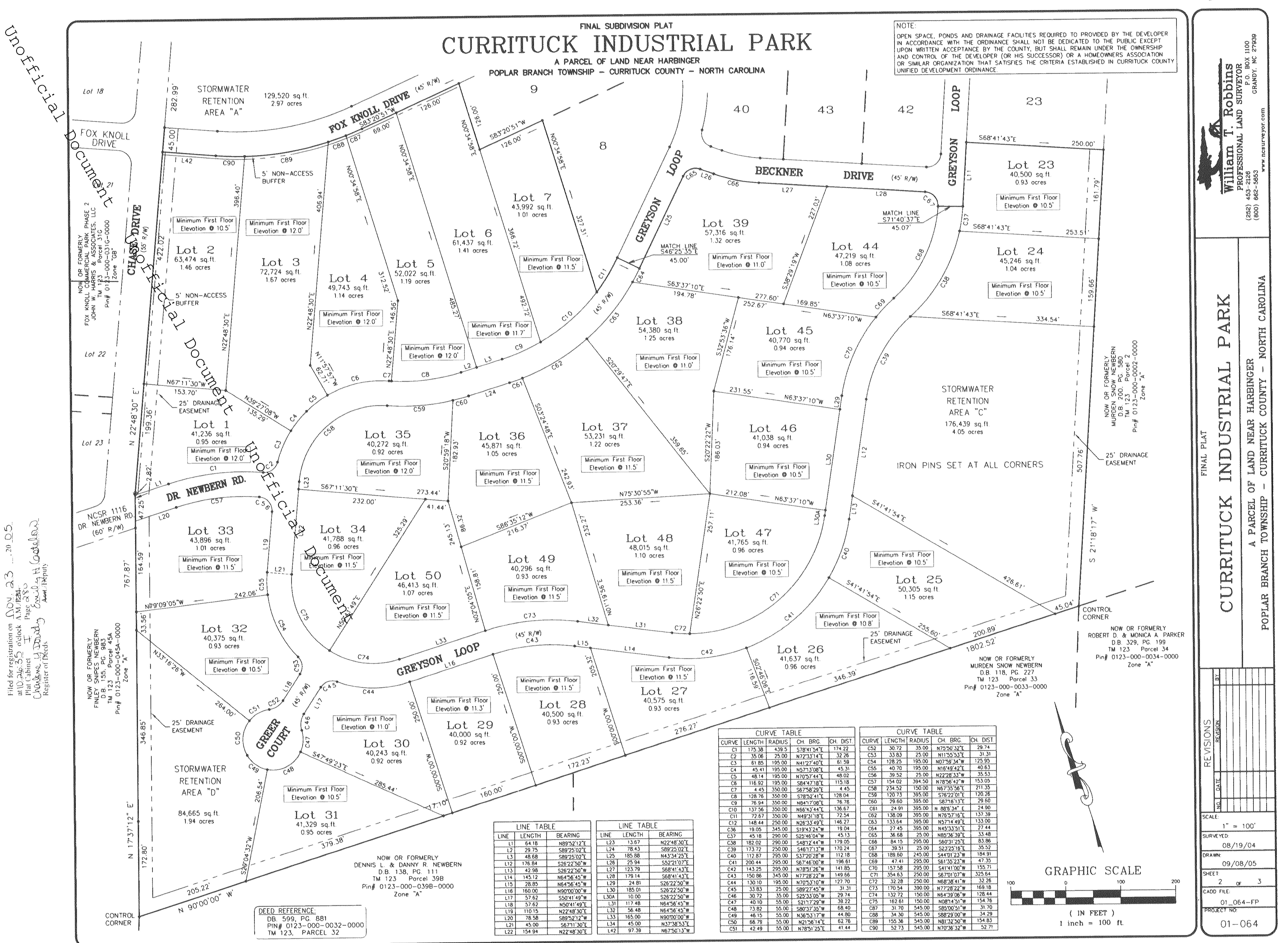
NORTH CAROLINA, CURRITUCK COUNTY STEVEN M. FARR - FARR DEVELOPMENT LLC

I, A NOTARY PUBLIC OF THE STATE AND COUNTY AFORESAID, CERTIFY THAT



PROJECT NO:

SURVEYED:



DEED REFERENCE:

(IN FEET)

1 inch = 100 ft.

DB. 599, PG. 881 PIN# 0123-000-0032-0000 UPON WRITTEN ACCEPTANCE BY THE COUNTY, BUT SHALL REMAIN UNDER THE OWNERSHIP

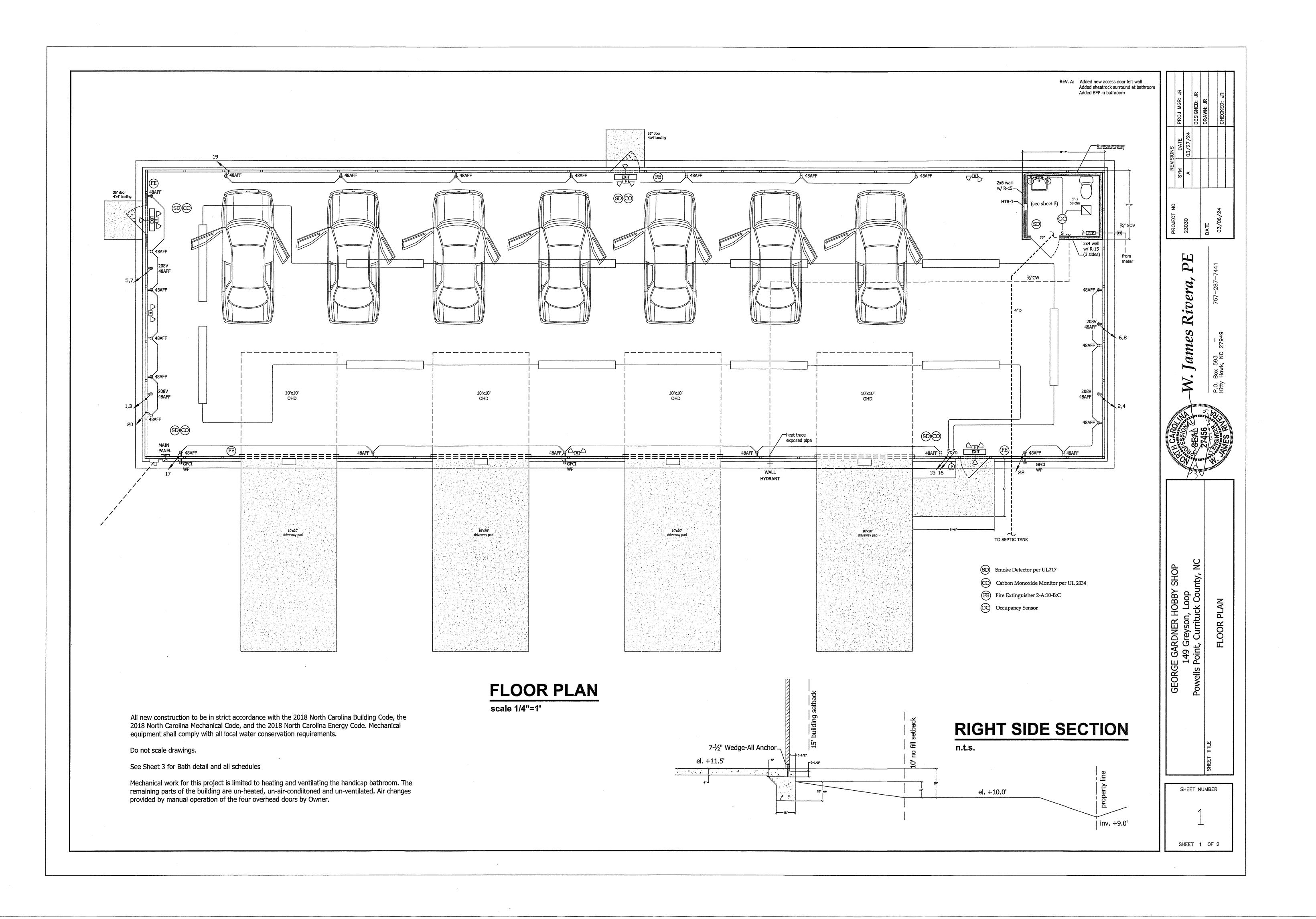
AND CONTROL OF THE DEVELOPER (OR HIS SUCCESSOR) OR A HOMEOWNERS ASSOCIATION

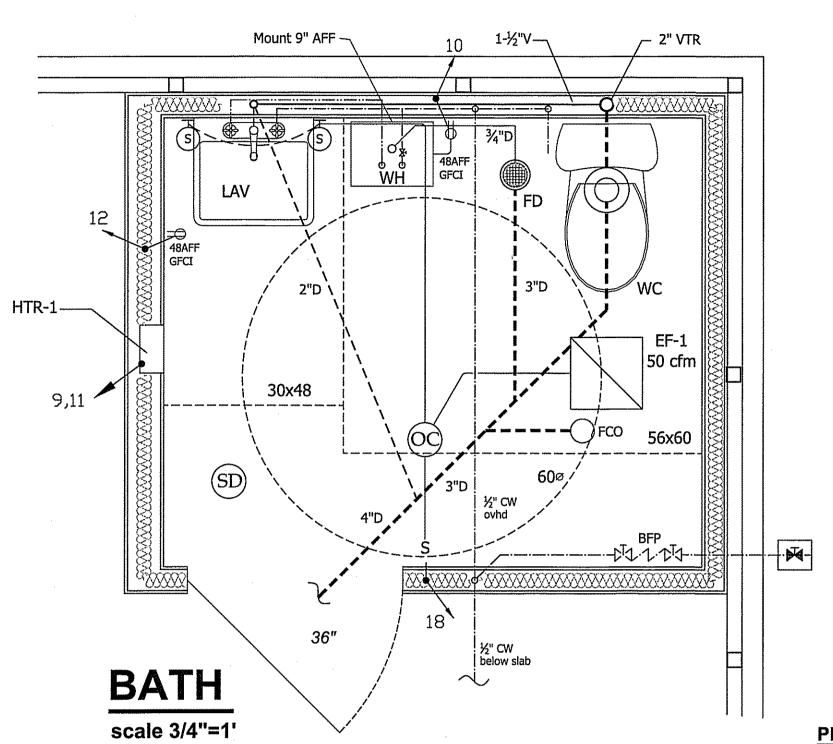
UNIFIED DEVELOPMENT ORDINANCE

OR SIMILAR ORGANIZATION THAT SATISFIES THE CRITERIA ESTABLISHED IN CURRITUCK COUNTY

01_064-FP

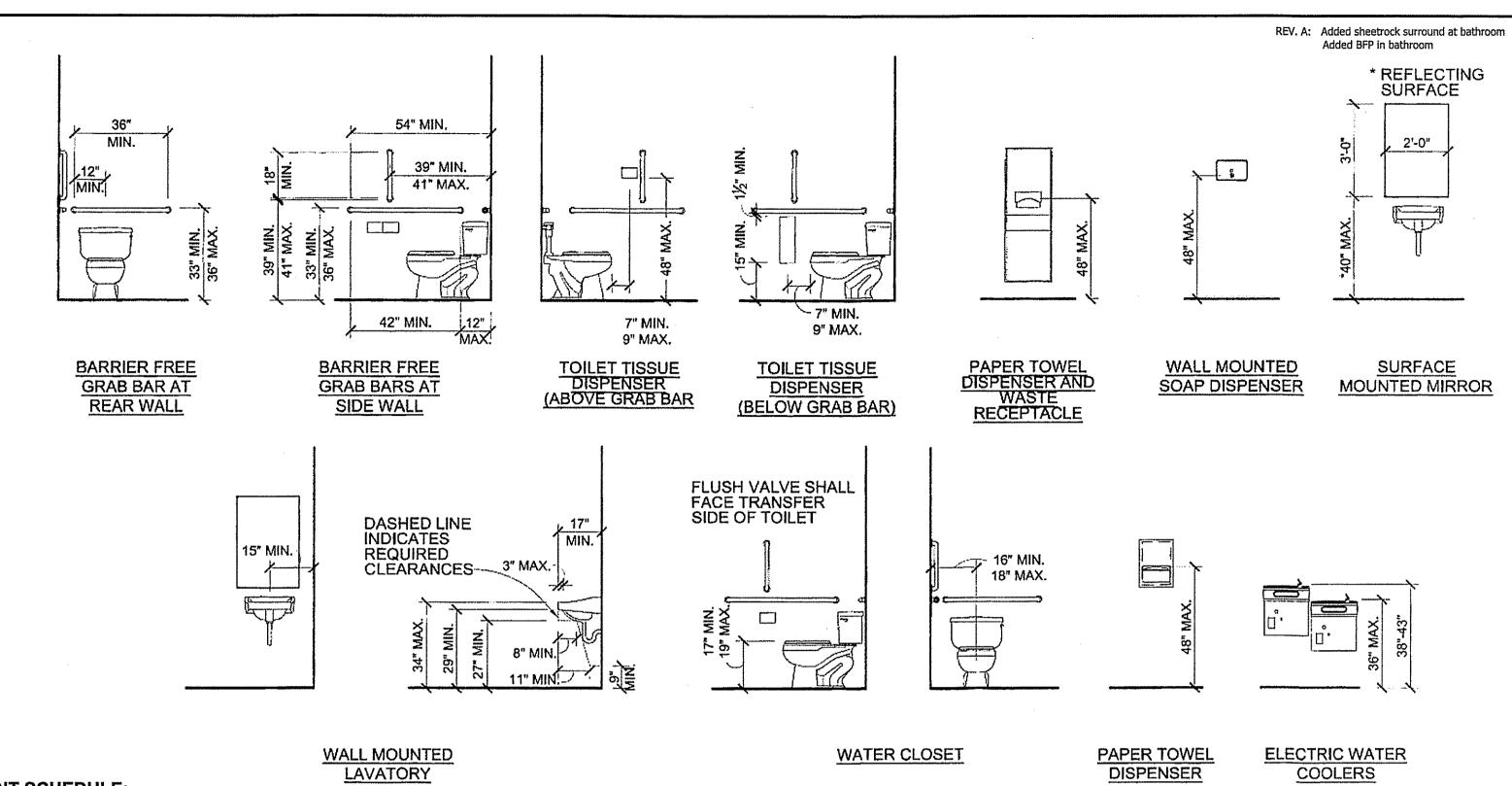
01 - 064





MAIN PANEL		200A M.C.B.						120/208 V. 1PH, 3W, SEP GND BUS, SURF MOUNT		
LOAD SERVED	WIRE SIZE	AMP LOAD	CKT BRKR TRIP	CKT NO.		CKT NO.	CKT BRKR TRIP	AMP LOAD	WIRE SIZE	LOAD SERVED
WELDER RECEPTACLE**	6	56	60	1 3		2 4	- 60	56	6	WELDER RECEPTACLE**
TOOL RECEPTACLE	12	18	20	5 7		6 8	20	18	12	TOOL RECEPTACLE
BATHROOM WALL HEATER	12	8.3	20	9 11		10 12	20 20	13 1.8	12 12	WATER HEATER RECEPTACLE BATH
SMOKE / CO ALARMS	12	5	20	13	$1 \land 1 \land 1 \land 1$	14	20	2.7	12	OUTSIDE LIGHTS
INSIDE FRONT LIGHTS	12	5.1	20	15	$1 \cap 1 \downarrow \cap$	16	20	6.1	12	INSIDE REAR LIGHTS
RECEPTACLES FRONT WALL	12	12.6	20	17	1 - 1 - 1	18	20	2.3	12	BATH LIGHTS / FAN
RECEPTACLES REAR WALL	12	12.6	20	19	-	20	20	10.8	12	RECEPTACLES LEFT WALL
EMERGENCY LIGHTS	12	5	20	21	-	22	20	10.8	12	RECEPTACLES RIGHT WALL
SPARE				23		24				SPARE
SPARE	****			25	$ \longrightarrow + \frown $	26	****	***	***	SPARE
SPARE				27	1 - 1 + -	28				SPARE
SPARE				29	$\vdash \frown \vdash \frown$	30				SPARE

ELECTRICAL	LEGEND
NEW WORK	
Ь	DUPLEX RECEPTACLE 20A, 125VAC MOUNT 18' AFF, UDN
∯ GFCI	DUPLEX RECEPTACLE WITH INTERNAL GROUND FAULT PROTECTION 20A, 125VAC, MOUNT 16' AFF, FLUSH IN WALL, UON **
S	SINGLE POLE SWITCH 20A, 120/277V, 48' AFF MAX., UDN
S _D	SINGLE POLE SWITCH 20A W/ DIMMER, 120/277V, 48' AFF MAX., UON
S ₃	SINGLE POLE SWITCH 20A W/ DIMMER, 120/277V, 48' AFF MAX., UON
0	JUNCTION BOX
⊘	MOTOR CONNECTION AS NOTED
2P 30 3R	DISCONNECT SWITCH 240V IN NEMA 1 ENCLOSURE UDN 2P=ND. OF POLES, 30=SWITCH RATING, 15=FUSE RATING (NF INDICATES NON-FUSIBLE AND 3R INDICATES ENCLOSURE TYPE IF REQUIRED)
	ELECTRICAL PANEL BOARD AS NOTED
#	BRANCH CIRCUIT NUMBER FOR AREA INDICATED
EXIT	EMERGENCY LIGHTS / EXIT SIGNS
/	WIRING RUN CONCEALED ABOVE CEILING OR IN WALL



PLUMBING EQUIPMENT SCHEDULE:

WATER CLOSET (WC): Pro-Flo, floor mounted, two-piece white vitreous china toilet, with elongated bowl with flush lever on transfer side of toilet (left side) and 16-½" bowl height, elongated toilet seat, brass floor flange, Brasscraft chrome angle ¼ turn supply stop, Brasscraft SpeediPlumb Plus SS braided toilet connector. Shall meet all ADA requirements.

LAVATORY (LAV): Pro-Flo white vitreous china 20" x 18" wall hung sink (with mounting bracket) with 4" center faucet holes. Faucet to be polished chrome without drain and pop-up hole; with 0.5 GPM vandal resistant aerator. Provide compatible sink drain, chrome plated P-trap, Brasscraft G2 angle chrome \(\frac{1}{4} \) turn supply stops and Brasscraft SpeediPlumb Plus SS braided faucet connectors. Provide Truebro Lav-Guard 2 (or equal) ADA installation kit. Shall meet all ADA requirements.

WATER HEATER (WH): Provide point of use water heater, BOSCH-TRONIC 3000T ES-2.5 or equal, 120v, 1440 watt, ½" MPT conns, ¾" T&P.

BACKFLOW PREVENTER (BFP): Watts Model LF007M3QT 3/4"

HOSE BIBB (HB): Provide frostproof wall hydrant/hose bibb with vacuum breaker on north wall in courtyard.

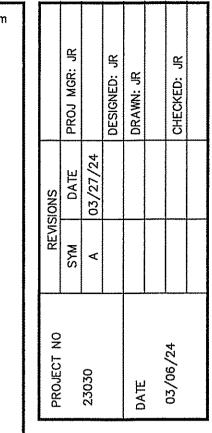
FLOOR CLEANOUT (FCO): Zurn CO2450 PV3 for 3 PVC pipe connection.

FLOOR DRAIN (FD): Zurn FD-2202-PVC 3" General Purpose Floor Drain

INSULATE all above slab piping.

EXHAUST FAN SCHEDULE (EF)							
EQUIPMENT	CFM	DRIVE TYPE	AMPS	VOLTS/PI	HASE M	ODEL	
EF-1	50	DIRECT	0.3	120/:	1 BROA	N AE50110	DDCL QR EQUAL W/ LED LIGHT
			HE	EATE	ER		•
	LOCATION	OUTSIDE	HEATING		ECTRICAL	ELEC.	MANUFACTURER & MODEL
EQUIPMENT NO.	LOCATION	OUTSIDE AIR (CFM)				ELEC. HEAT (KW)	

YMBOL			EXIT			P	Š
	LOW BAY	OUTDOOR WALL PACK	INDOOR	OUTDOOR	INDOOR	PORCH LIGHT	BATH SCONCE
STYLE	14 FT AFF	W/ MOTION SENSOR	WALL MOUNT	WALL MOUNT	WALL MOUNT	OUTDOOR WALL MOUNT	WALL MOUNT
LAMP	LED	LED	LED	LED	LED	LED	LED
WATTS	119.5	36	2.1	1.0	1.5W X 2 HEADS		
LAMP MFGR	LITHONIA	LITHONIA	E-CONOLIGHT	E-CONOLIGHT	E-CONOLIGHT	BY OWNER	BY OWNER
CRI	80	80				,	WI WILLIAM TO THE TOTAL THE TOTAL TO THE TOTAL THE TOTAL TO THE TOTAL THE TOTAL TO THE TOTAL TOT
COLOR TEMPERATURE	4000	4000	· · · · · · · · · · · · · · · · · · ·				
INTENSITY	28 fc	1 fc 32'w x22'd area	90 lumens	45 lumens	154 lumens		
FIXTURE MFGR	LITHONIA	LITHONIA	E-CONOLIGHT	E-CONOLIGHT	E-CONOLIGHT		
FIXTURE FEATURES	UFIT-L96-16000LM-SEF- MVOLT-DZ10-40K	TWR1-LED-ALO-SWW2- UVOLT-PE-DDBTXD	C-EE-A-EX-2LDF- RED-BB	C-EE-A-EMG- L-REM-WET-GR	C-EE-B-EMG- 2L-BB-WHITE		<u>, , , , , , , , , , , , , , , , , , , </u>
MOUNTING	CHAIN HUNG	WALL	WALL JBOX	WALL JBOX	WALL JBOX		
LENS	DIFFUSER	OUTDOOR	6" LETTERS	OUTDOOR	INDOOR		
TRIM FINISH	WHITE	WHITE	WHITE	WHITE	WHITE		****
LOCATIONS:	WAREHOUSE INTERIOR	FRONT OUTSIDE WALL WITH PHOTOCELL	EXIT DOORS	EXIT DOORS	WAREHOUSE INTERIOR		



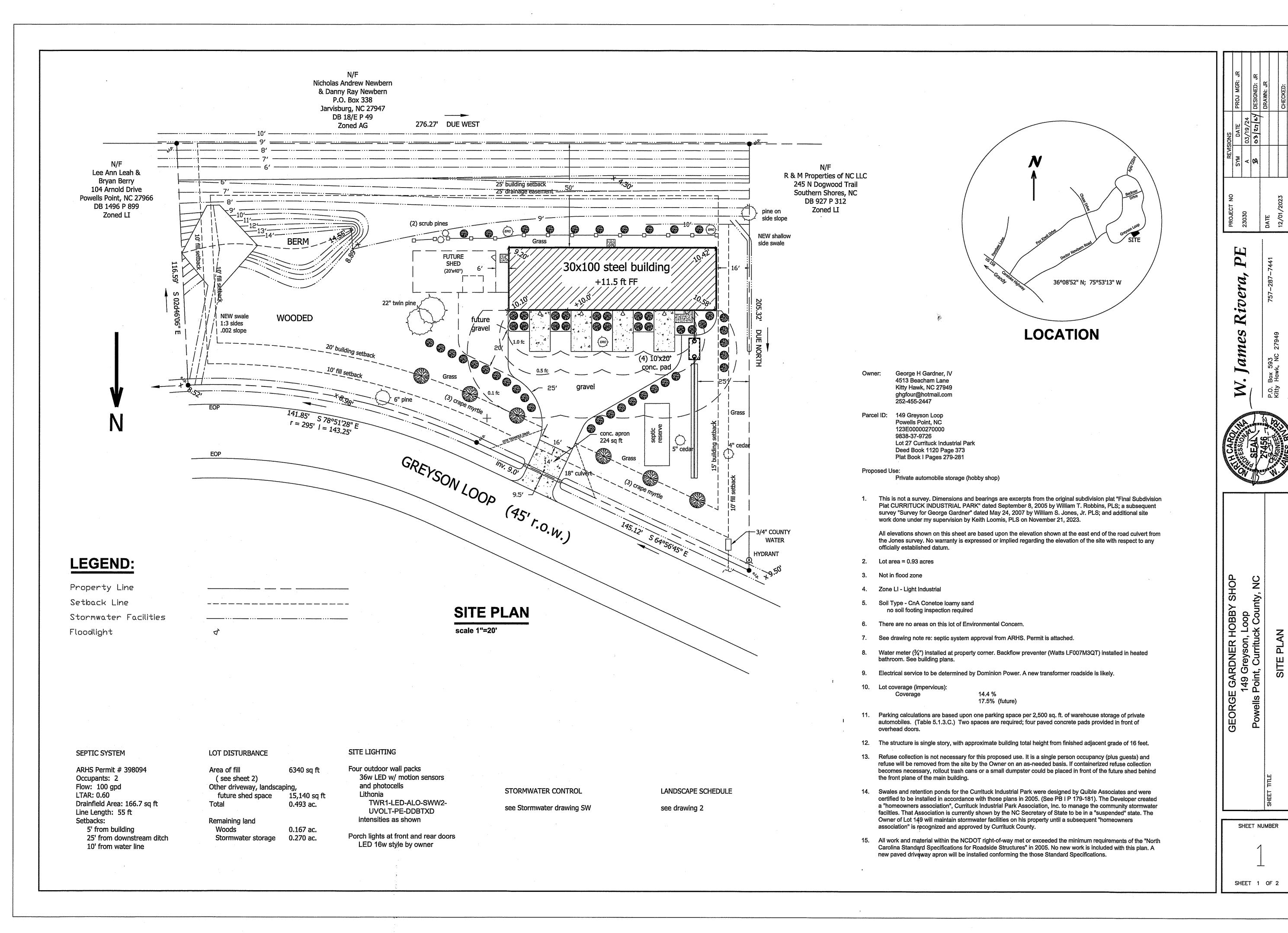
V. James Kivera, I

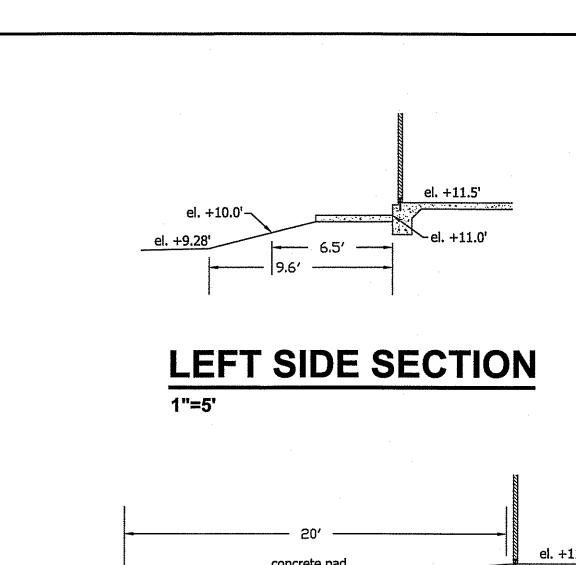
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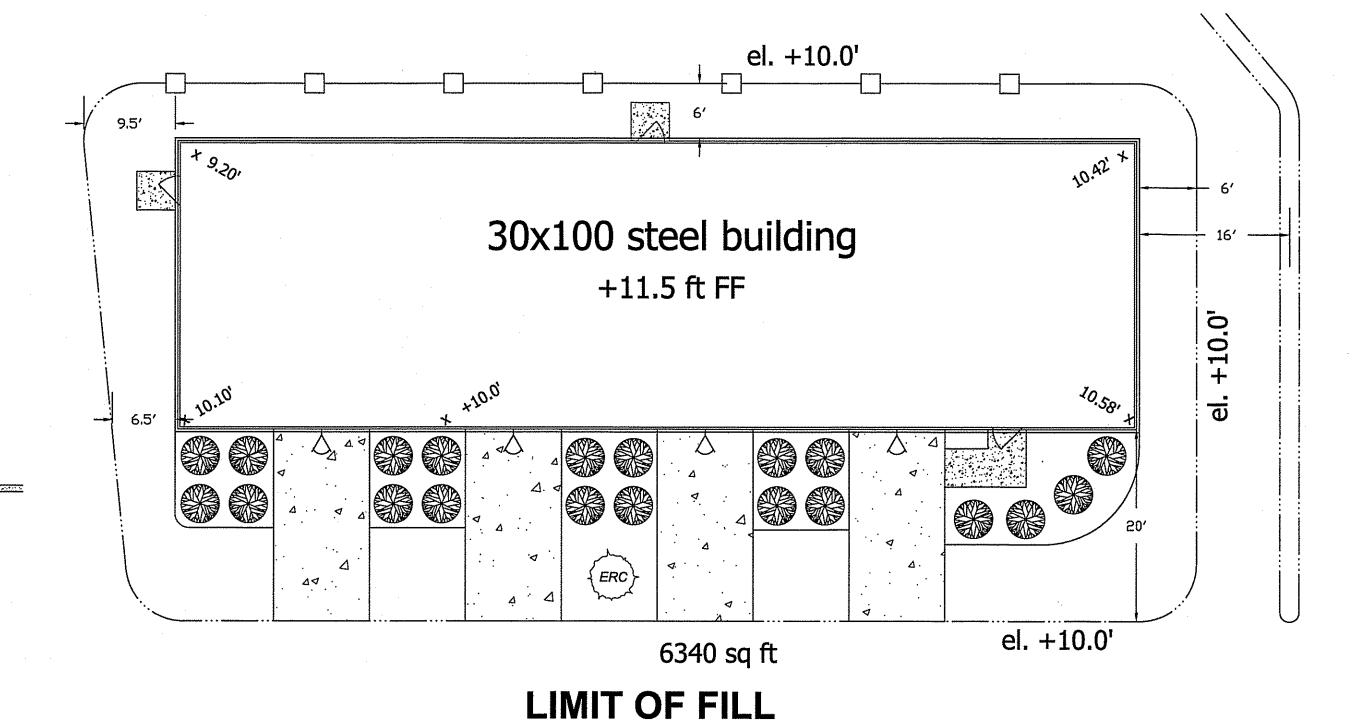
GEORGE GARDNER HOBBY SHOP 149 Greyson, Loop Powells Point, Currituck County, NC

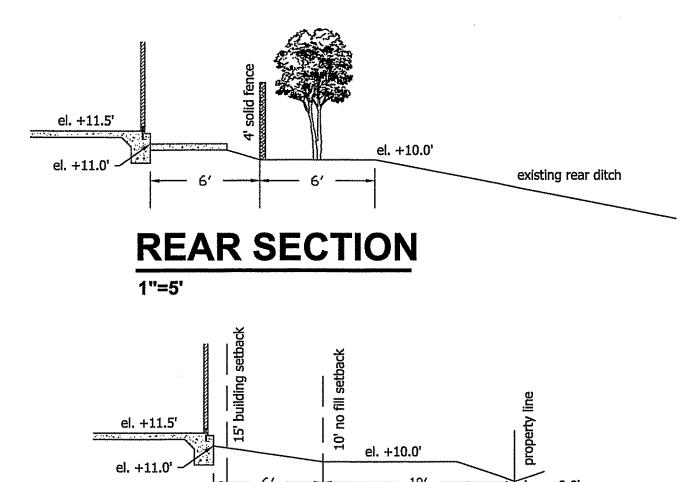
SHEET NUMBER

SHEET 2 OF 2









ISO	DETER	MINATION	OF	NEED	ED	FIRE	FLOW

DESIGN FORMULA

FRONT SECTION

 $NFF = (C_i)*(O_i)*[1.0+(X+P)_i]$

NFF = needed fire flow in gpm C_i = factor related to type of cor O_i = factor related to the type o X = factor related to the esposu P = factor related to the commu

TYPE OF CONSTRUCTION F

0.8 Class 3 Non-combust internal wood wal from outside wall v

3000 Square footage of fir

1000 rounded off to neare

EFFECTIVE AREA

TYPE OF CONSTRUCTION FACTOR

 $C_1 = 18*F*(A_1)^{0.5}$

TYPE OF OCCUPANCY

Combustible (C-3)

1.00

0.00

1000

EXPOSURE BUILDINGS

no other structures on adjoinin

COMMUNICATIONS BETWEEN BUILDINGS 0.00

ISO FIRE FLOW

NEAREST HYDRANT

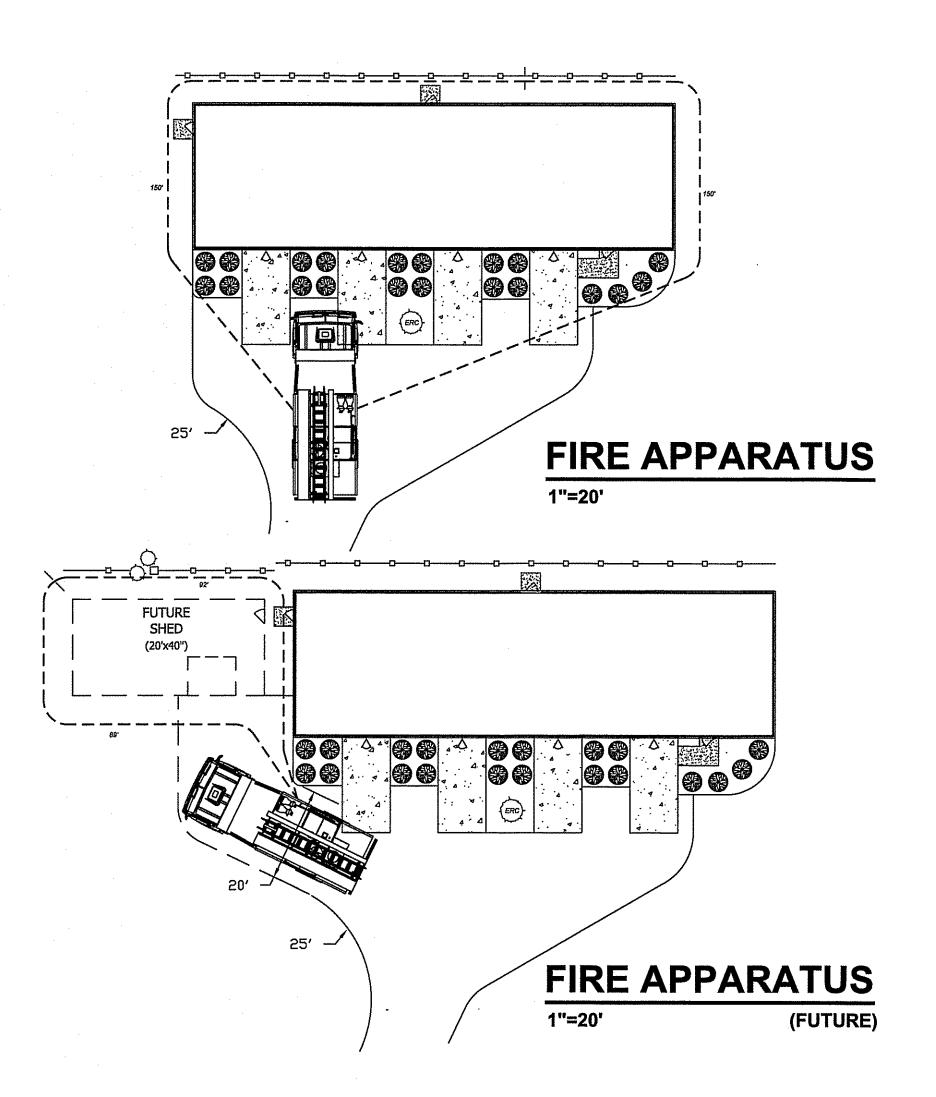
Northwest corner of property distance to building = 120' (+/-) Hydrant Ici09 1146 gpm flow at 20 |

SECOND HYDRANT

Northwest corner of lot 147 distance to building = 350' (+/-) Hydrant Ici08

THIRD HYDRANT

Corner of Greer Ct and Greyson distance to building = 650' (+/-) Hydrant lci11



LANDSCAPING

There are no existing heritage trees on this site.

RIGHT SIDE SECTION

STREET SCREENING:

Existing Canopy Trees 5CI Eastern Red Cedar 4CI Eastern Red Cedar 22CI Twin Pine Three smaller Pines along top of rear ditch

One additional canopy tree (Eastern Red cedar) to be added to center planter between concrete pads to meet 60 foot diameter requirement.

Understory:

(6) Crape Myrtle along road frontage

Shrubs:

Parking Lot Screening: 25 required (12) waxleaf privet

(13) Japanese pittosporum

BUILDING SCREENING:

20 required Planters between garage doors (2) Japanese holly (rear) (2) waxleaf privet (front)

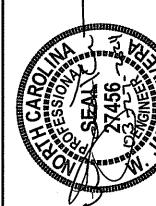
Planter adjacent to front door (4) Japanese holly

REAR TYPE C BUFFER

4 foot solid fence

(2) 1CI eastern red cedar

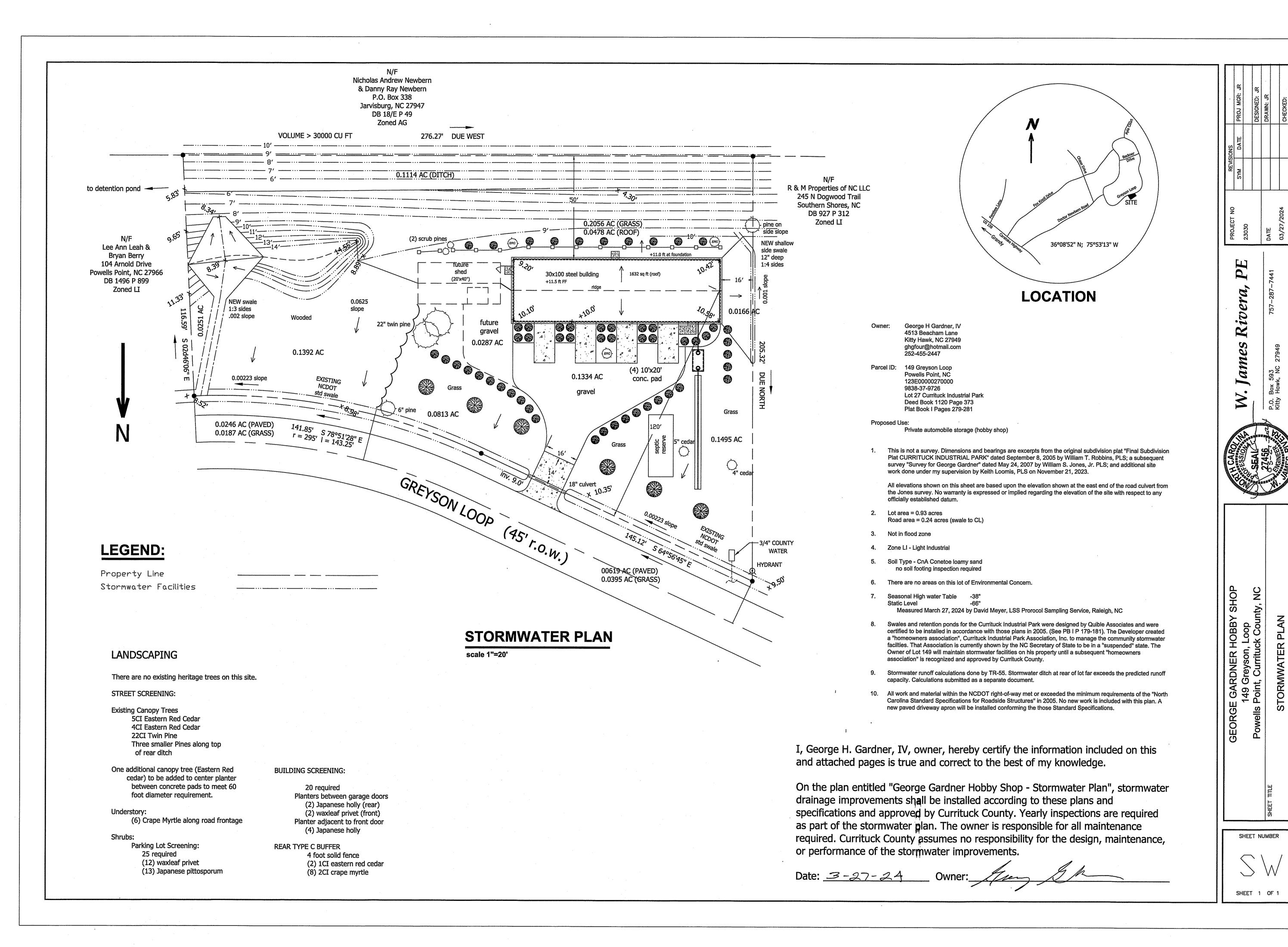
(8) 2CI crape myrtle



GEORGE GARDNER HOBBY SHOP 149 Greyson, Loop Powells Point, Currituck County, NC SITE

SHEET NUMBER

SHEET 2 OF 2



APPLICABLE STANDARDS

- 1. ASCE 7-16: MINIMUM DESIGN LOADS ON BUILDINGS AND OTHER STRUCTURES
- 2. AISC STEEL CONSTRUCTION MANUAL (15TH EDITION)
- 3. ACI 318-14: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- 4. TMS 402-16: BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES
- 5. AWS D1.1: STRUCTURAL WELDING

DESIGN LOADS

- 1. DEAD LOAD = 15 PSF
- 2. ROOF LIVE LOAD = 12 PSF
- 3. FLOOR LIVE LOAD = 100 PSE
- 4. GROUND SNOW LOAD = 15 PSF
- 4. WIND LOAD
- A. RISK CATEGORY = I
- B. WIND EXPOSURE CATEGORY = C
- C. ULTIMATE WIND SPEED = 110 MPH NOMINAL WIND SPEED = 85 MPH

INSTALLATION NOTES AND SPECIFICATIONS

- 1. THESE PLANS BELONG EXCLUSIVELY TO THE STRUCTURE, INCLUDING MAIN WIND FORCE RESISTING SYSTEM (MWFRS), COMPONENTS AND CLADDING (C&C), AND BASE RAIL ANCHORAGE. OTHER DESIGN ISSUES, INCLUDING BUT NOT LIMITED TO PROPERTY SET-BACKS, ELECTRICAL, PLUMBING, INGRESS/EGRESS, FINISH FLOOR SLOPES AND ELEVATIONS, OR OTHER LOCAL ZONING REQUIREMENTS ARE THE LIABILITY OF OTHERS.
- 2. THESE STRUCTURES ARE ENGINEERED AS CAPABLE OF SUPPORTING DEAD LOAD OF THE STRUCTURE AND LIVE AND WIND LOADS. UPGRADES NOT SPECIFICALLY ADDRESSED HEREIN, SUCH AS WINDOWS, DOORS, OR ANOTHER COMPONENT NOT LISTED IN THE INTERNATIONAL BUILDING CODE APROVED PRODUCT LIST, AND NOT PROVIDED AND INSTALLED BY THE CONTRACTOR, WHICH CAUSE ADDITIONAL LOADS ON THE STRUCTURE SHALL BE AT THE OWNER'S RISK. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR FAILURE OR STRUCTURAL DAMAGE DUE TO THE EXTRA LOAD.
- 3. ALL STEEL TUBING SHALL BE 50 KSI GALVANIZED STEEL WITH MINIMUM YIELD STRENGTH OF 54 KSI, ALL FASTENERS SHALL BE ZINC COATED HARDWARE.
- 4. END WALL COLUMNS (POST) AND SIDE WALL COLUMNS ARE EQUIVALENT IN SIZE AND SPACING U.N.O.
- 5. SPECIFICATIONS APPLICABLE TO 29 GA METAL PANELS FASTENED DIRECTLY TO 2.5"X2.5"X14 GA TUBE STEEL (TS) FRAMING MEMBERS FOR VERTICAL PANELS. 29 GA METAL PANELS SHALL BE FASTENED DIRECTLY TO 18 GA HAT CHANNELS U.N.O.
- 6. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, AND POSTS, INTERIOR = 9" AND FND = 6" MAX.
- 7. FASTENERS CONSIST OF #12-14X3/4" SELF-DRILLING SCREWS (SDS), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20'-0" OR LESS, AND ROOF SLOPES OF 26.6° (6:12 PITCH) OR LESS, SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.
- 8. ANCHORS SHALL BE INSTALLED THROUGH THE BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES AND ENDS
- 9. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBARS WITH WELDED NUT X 30" LONG AND MAY BE USED IN SUITABLE SOILS, OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED. SOIL NAILS MAY BE USED FOR WIND SPEEDS LESS THAN OR EQUAL TO 145 MPH.
- 10. RAFTER SPACING IS 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 140 MPH AND 4'-0" FOR WIND SPEEDS BETWEEN 140 MPH AND 160 MPH.
- 11. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE: SOIL SITE CLASS = D

RISK CATEGORY I/II/II

R = 3.25le = 1.0 Sds = 0.087 g V = CsW Sdi = 0.084 g

DRAWING INDEX

	DIAWING INDEX
PAGE NO.	DESCRIPTION
1	TITLE PAGE WITH INDEX
2	ELEVATION VIEWS
3	TRUSS DESIGN FOR RAFTER SPAN
4	CONNECTION DETAILS (1-2)
5	BASE RAIL AND FOUNDATION ANCHORAGE
6	RAFTER END WALL, SIDE WALL AND OPENING FRAMING
7	CONNECTION DETAILS (4-15)
8	BOX EAVE RAFTER LEAN-TO OPTIONS
9	CONNECTION DETAILS (17-19)
10	BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION
11	OPTIONAL HELICAL ANCHORING DETAIL



Digitally signed by Craig E Gunderson Date: 2023.06.16 14:26:52 -04'00'

GUNDERSON ENGINEERING PLLC 4161 TAMIAMI TRAIL, UNIT 101 PORT CHARLOTTE, FLORIDA 33952 (941) 391-5980 www.GundersonEngineering.com

2316363

PROJECT NO.



CONTRACTOR:
PRE-BUILT STRUCTURES LLC
P.O. BOX. 350,
MOUNT AIRY, NC 27030 PRE-BUILT STRUCTURES 1796 W LEBANON ST. MOUNT AIRY, NC 27030

DESIGN DATE: 06/13/2023 REVISION 1: **REVISION 2:** DATE PAGE: DRAWN BY:

NTS

SCALE:

ENCLOSED METAL BUILDING DESIGN MAXIMUM 30'-0" WIDE X 100'-0" LONG X 20'-0" HIGH (EAVE) BOX EAVE FRAME / BOW EAVE FRAME

> (1) SET OF SIGNED AND SEALED GENERIC ENGINEERING IS VALID FOR (1) STRUCTURE ONLY.

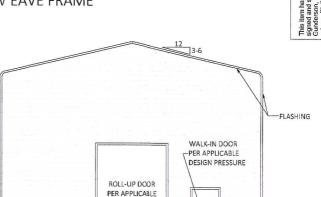
ENCLOSED METAL BUILDING DESIGN MAXIMUM 30'-0" WIDE X 100'-0" LONG X 20'-0" HIGH (EAVE) BOX EAVE FRAME / BOW EAVE FRAME

-FLASHING

WALK-IN DOOR

-PER APPLICABLE

DESIGN PRESSURE



-30'-0" MAXIMUM RAFTER SPAN-TYPICAL END ELEVATION - BOX EAVE

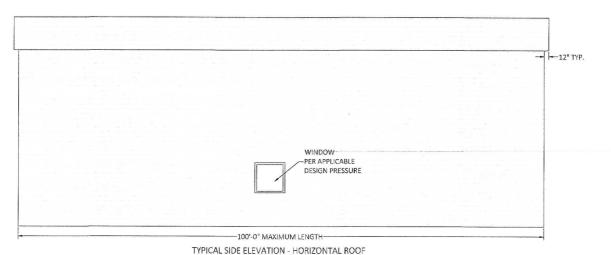
ROLL-UP DOOR

PER APPLICABLE

DESIGN PRESSURE

-30'-0" MAXIMUM RAFTER SPAN-TYPICAL END ELEVATION - BOW EAVE

DESIGN PRESSURE



ORTH CARO SEAL 048404 E GUNDE

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CONTRACTOR: PRE-BL P.O. BC MOUNT	PROJECT ADDR	PRE-BU 796 W I MOUNT
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OF 11

MEMBER LEGENDS 1. TS COLUMN = 2.5X2.5X14GA U.N.O. OR 2.25X2.25X12GA U.N.O. 2. TS DOUBLE COLUMN = (2)2.5X2.5X14GA OR (2) 2.25X2.25X12GA U.N.O. 3. TRUSS MEMBERS = 2.5X2.5X14GA U.N.O. 4. KNEC-BRACE = 2.5"X2"X18GA CHANNEL 5. PURLIN = 1.5"X18GA HAT CHANNEL 6. U-BRACE = 2.5"X1.625"X18GA CHANNEL

TRUSS LAYOUT- BOW EAVE

(DET)

(1)

(DE)

ATH CARO S GUNDE

TS COLUMN TYP.

IS BASE RAIL

TS DOUBLE COLUMN

TS LACED COLUMN

TS BASE RAIL

IS BASE RAIL

-20'-0" "OR SPAN 28'-0" ~ TO <= 30'-0" 18'-0 FOR SPAN 26'-0" ~ TO <= 28'-0" 16' D FOR SPAN 24' 0" < TO <= 25' 0"

-24'-1" TO 30'-0" BAFTER SPAN

-20' C" FOP 57AN 28' C" + TO ← 30' O 18'-0" FOR SPAN 26'-0" + TO ← 28'-C 10'-0" FOR SPAN 26'-0" + TO ← 28'-C

24"-1" TO 30"-0" RAFTER SPAN

SEAL 048404

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06/13/2023 DATE

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TRUSS LAYOUT- BOX EAVE

1-0" FOR SPAN 20-0" < TO == 27-0
1-0 FOR SPAN 8-0" < TO == 20-0
2 <0" FOR SPAN == 18-0"

5'-C" "OR SPAN 20'-Q" < TO <= 24'-Q" 3' O" FOR SPAN 18' O" < TO <= 20' 3' 2' C" FOR SPAN <=18' O"

-24'-0" MAXIMUM RAFTER SPAN

6'-0 FOR SPAN 20'-0' < TO <- 24'-0" 8'-0" FOR SPAN 18'-0" < TO <- 20'-0" 2' 0 FOR SPAN -#18' 0"

-24" O" MAXIMUM RAFTER SPAN

TSTACED COLUMN

TS BASE BAH

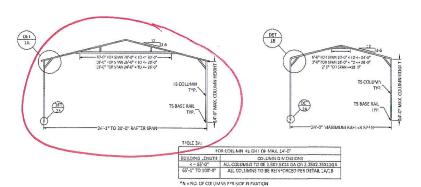
IS DOUBLE COLUMN

TS BASE RAIL

(3)

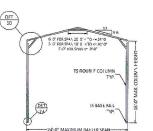
(DFT) 2B

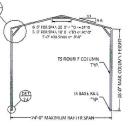
TS COLUMN

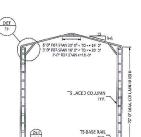


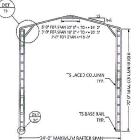
IS DOUBLE COLUMN

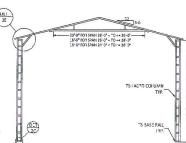
TS BASE RAIL



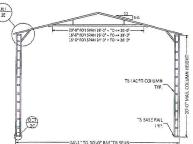




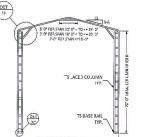


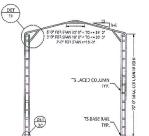


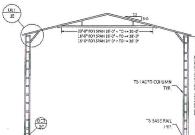
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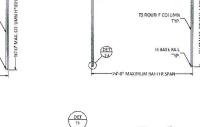


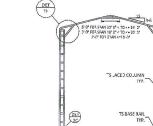
-24'-1" TO 30'-0" RAFT-R SPAN-

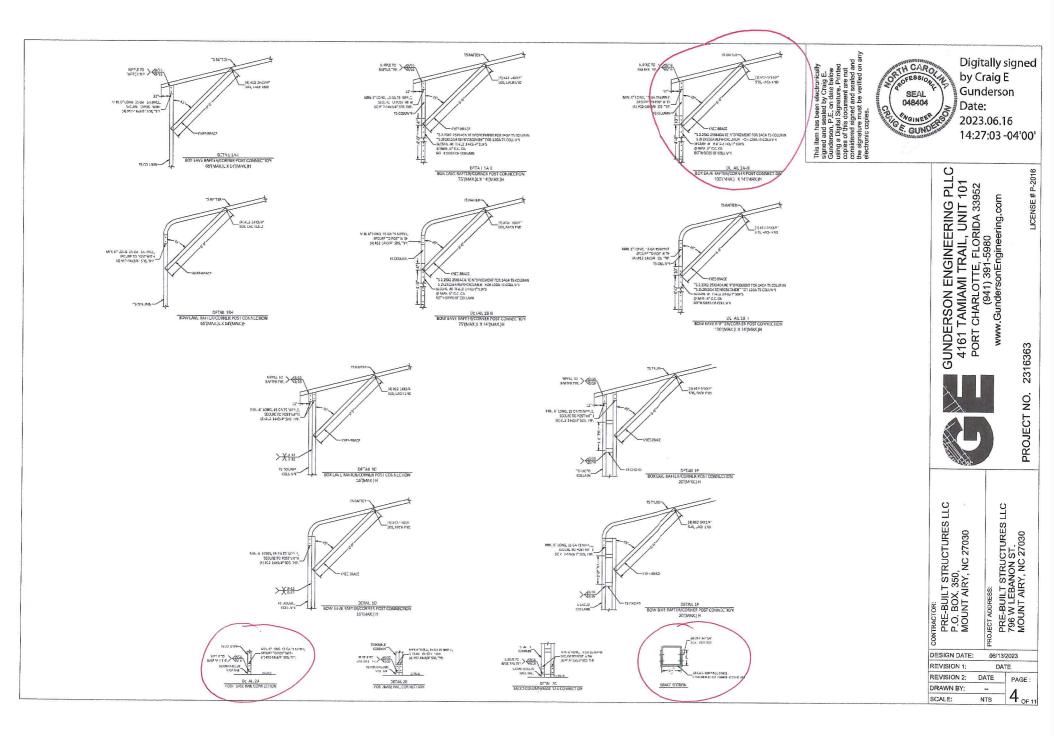












CONCRETE MONOLITHIC SLAB DESIGN IS BASED ON A MINIMUM SOIL BEARING CAPACITY OF 2500 PSI.

CONCRETE
MINIMUM 28-DAY SPECIFIED COMPRESSIVE STRENGTH = 3000 PSI

- REINFORCING STEEL

 1. TURNDOWN REINFORCING STEEL = ASTM A615 GRADE 60

 2. SLAB REINFORCEMENT = WELDED WIRE FABRIC PER ASTM A185 OR FIBERGLASS
- FIBER REINFORCEMENT

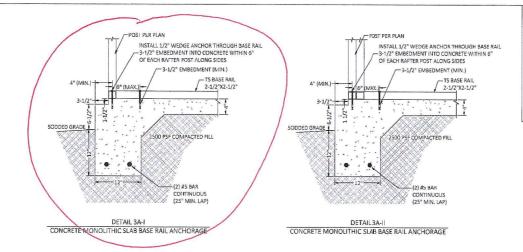
 3. REINFORCING STEEL COVER = 3" WHERE CASE AGAINST AND PERMENENTLY EXPOSED TO SOIL OR WATER, 1.5" EVERYWHERE ELSE.
- 4. REINFORCEMENT IS BENT COLD.
- 5. MINIMUM INSIDE DIAMETER OF BEND = (6) BAR DIAMETERS
 6. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD

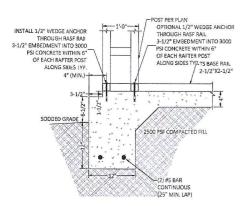
HELIX ANCHOR NOTES

1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, USE MINIMUM (2) 4" HELICCS WITH MINIMUM 30" EMBEDMENT EVERY 10'.

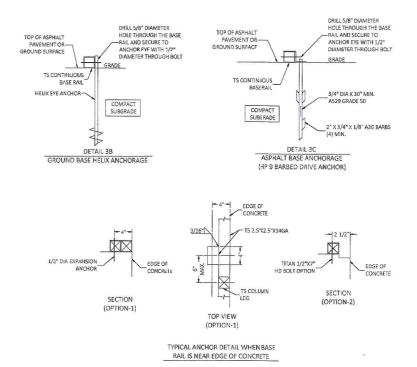
2. FOR MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 5' OR EVERY POST (LEG).

3. THE UPLIFT/BEARING CAPACITY OF EACH ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS.





DETAIL 3A-III CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE



BASE RAIL ANCHORAGE OPTION

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PROJECT

NITRACIOR:
PRE-BUILT STRUCTURES LLC
P.O. BOX. 350,
MOUNT AIRY, NC 27030 PRE-BUILT STRUCTURES LLC 796 W LEBANON ST. MOUNT AIRY, NC 27030

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*SEE PAGE 10 FOR

HEADER REQUIREMENT

SPACING = 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 140 MPH SPACING = 4'-0" FOR WIND SPEEDS BETWEEN 140 MPH AND 160 MPH

TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

 $\binom{\widehat{\mathsf{DET}}}{7}$ DET 12 DET 13 20'-0" MAXIMUM COLUMN HEIGHT (SEE PAGE 3 FOR TRUSS LAYOUT) DET 5 DET 8 (DET) -SPACING -100'-0" MAXIMUM LENGTH-

> SPACING = 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 140 MPH SPACING = 4'-0" FOR WIND SPEEDS BETWEEN 140 MPH AND 160 MPH

TYPICAL BOX EAVE RAFTER SIDE WALL FRAMING SECTION



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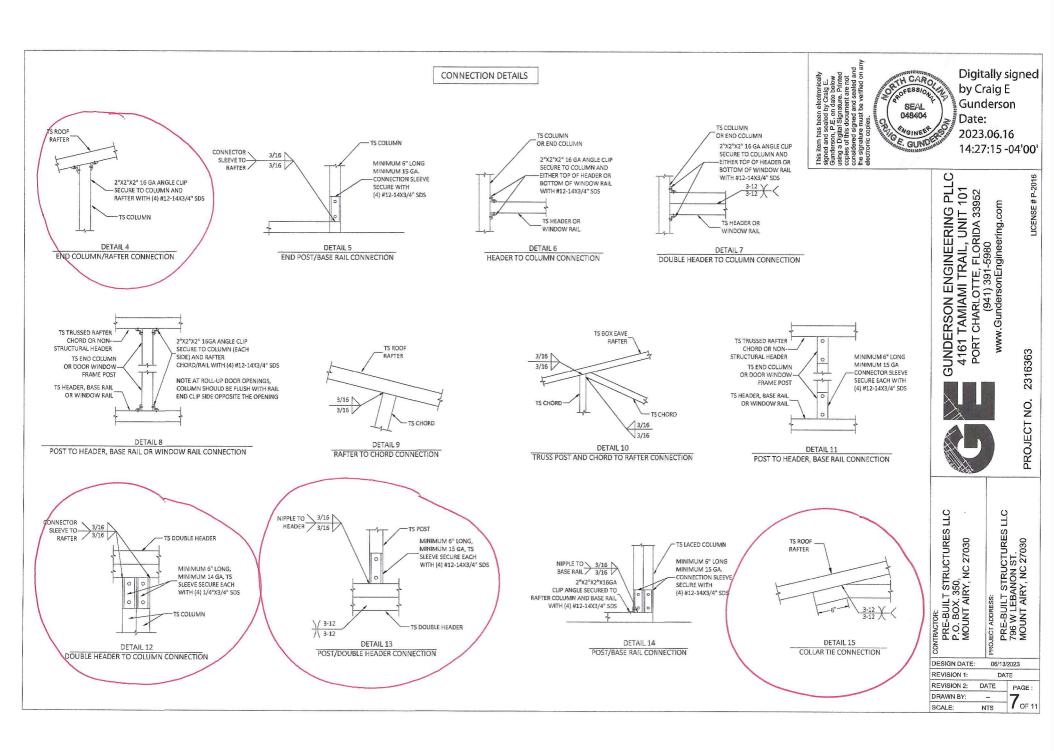
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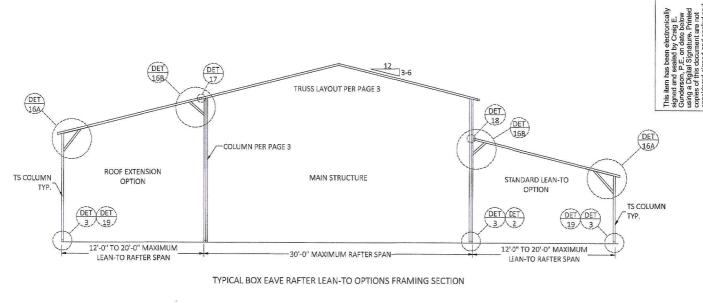
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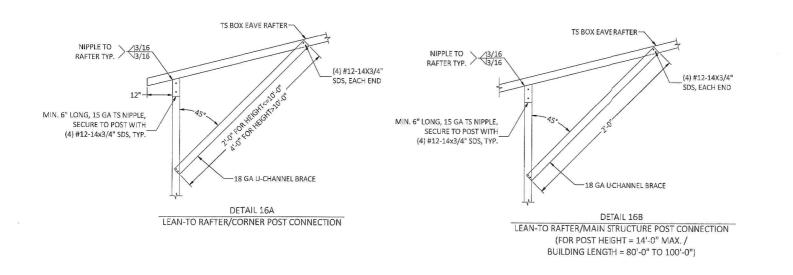


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SEAL Gunderson
Date:
2023.06.16
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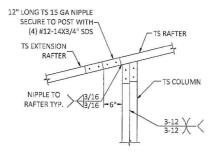
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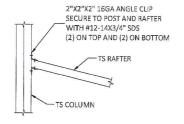
PRE-BUILT STRUCTURES LLC
P.O. BOX. 350,
MOUNT AIRY, NC 27030
LECT ADDRESS:
PRE-BUILT STRUCTURES LLC
796 W LEBANON ST.
MOUNT AIRY, NC 27030

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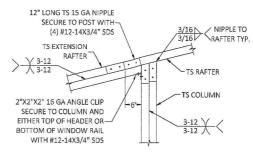
CONNECTION DETAILS



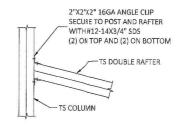
DETAIL 17A SIDE EXTENSION RAFTER/COLUMN CONNECTION FOR RAFTER SPANS <=12'-0"



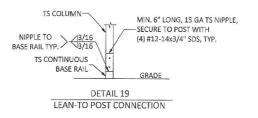
DETAIL 18A LEAN TO RAFTER/COLUMN CONNECTION FOR RAFTER SPANS <=12'-0"



DETAIL 17B SIDE EXTENSION RAFTER/COLUMN CONNECTION FOR RAFTER SPANS 12'-0" < TO <= 20'-0"



DETAIL 18B LEAN TO RAFTER/COLUMN CONNECTION FOR RAFTER SPANS 12'-0" < TO <= 20'-0"



048404 GE GUNDE

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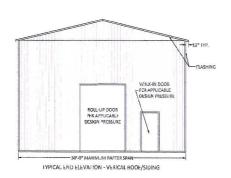
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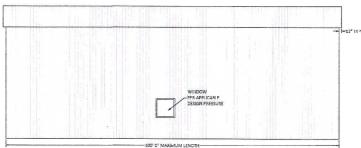
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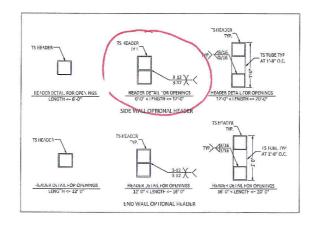
IYPICAL SIDE ELEVATION - VERTICAL ROOF/SIDING

BOX EAVE FRAME RAFTER ENCLOSED BUILDING



SPACING = 3'-0' FOR WIND SPEEDS BETWEEN 110 MPH AND 140 MPH SPACING = 4°-0" - O4 WIND SPEEDS BETWEEN 140 MPH AND 160 MPI 1 1/2" 18 GA HAT CHANNELS CAN BE USED IN LEU DITYS FOR GIRTS.

TYPICAL RAFTER/POST SIDE FRAME SECTION



OPTH CAROL SEAL 048404 GE GUNDER

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HELIX ANCHOR NOTES 1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT 2. FOR MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 5' OR EVERY POST (LEG). 3. THE UPLIFT/BEARING CAPACITY OF EACH ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS.

> GRADE HELICAL ANCHOR TYP (SEE NOTES)

OPTIONAL HELICAL ANCHORING DETAIL

This item has been electronically signed and seeled by Craig E. Gunderson, P.E. on date below using a brighel Signeture. Printed copies of this cournent are not considered signed and seeled and the signeture must be verified on any electronic copies.

SEAL

048404

GE GUNDES

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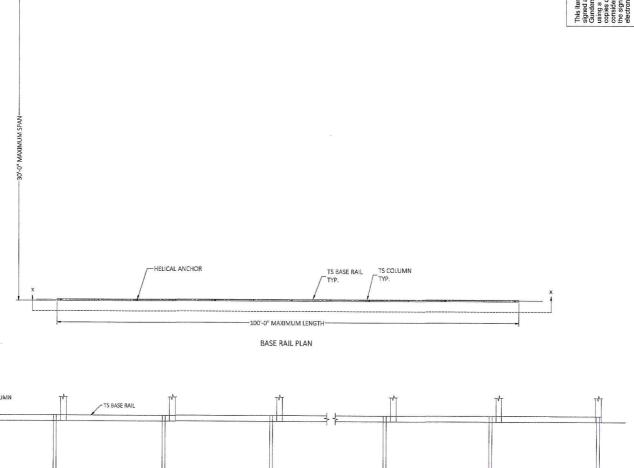
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SECTION X-X