



## LINCOLN COUNTY PLANNING & INSPECTIONS DEPARTMENT

115 W. MAIN ST., LINCOLNTON, NORTH CAROLINA 28092  
704-736-8440 OFFICE 704-736-8434 INSPECTION REQUEST LINE 704-732-9010 FAX

To: Board of Commissioners  
Planning Board

From: Randy Hawkins, Zoning Administrator

Date: July 8, 2020

Re: Watershed Conditional Use Permit #23  
Scott O'Neil, applicant  
Parcel ID# 34692

*The following information is for use by the Lincoln County Board of Commissioners and Planning Board at their joint meeting/public hearing on August 3, 2020.*

### REQUEST

The applicant is requesting a conditional use permit to allow the use of the high-density option in the WS-IV Protected Area of the Catawba River/Lake Norman Watershed. The applicant is planning to develop a 4.1-acre site for a self-storage facility. A preliminary plan for the facility was approved in January in a rezoning of the property to a conditional zoning district. The high-density option would allow the development to have a built-upon surface area covering up to 70 percent of the site, with the use of engineered stormwater controls. Otherwise, in this watershed district, non-residential developments that require an erosion control plan are limited to a built-upon area of 36 percent. In this case, a built-upon area of approximately 63 percent is proposed.

### SITE AREA AND DESCRIPTION

The subject property is located on the east side of N.C. 16 Business south of Balsom Ridge Road. It is zoned CZ I-G (Conditional Zoning General Industrial) and is adjoined by property zoned I-G, B-N (Neighborhood Business) and R-SF (Residential-Single Family). (The property zoned R-SF is part of a parcel that contains a stormwater pond that serves the Balsom Ridge Business Park.) Land uses in this area include industrial, business and residential. The subject property is part of an area designated by the Lincoln County Land Use Plan as an Industrial Center, a classification that includes storage as a primary land use.

## HIGH-DENSITY OPTION REQUIREMENTS

Under the water-supply watershed regulations of the Lincoln County Unified Development Ordinance, the Catawba River/Lake Norman watershed is designated for the use of the high-density option. The option requires the use of stormwater control structures to control and treat the runoff from the first one-inch of rain. The structures must be designed to meet the Best Management Practices (BMP) standards of the N.C. Department of Environment Quality. In this case, the plans call for a stormwater pond.

The regulations require the developer to post a bond or other financial security in an amount not less than 1.25 times the cost of constructing the necessary stormwater control structure. In addition, a binding agreement must be signed, requiring the owner to maintain, repair and, if necessary, reconstruct the structure in accordance with an approved operations and maintenance plan. Once the stormwater control structure have been constructed and inspected, and prior to the release of the financial security, the applicant is required to deposit with the county either cash or a similar approved instrument in an amount equal to 15 percent of the total construction cost or 100 percent of the cost of maintaining the structure over a 20-year period, whichever is greater.



# County Of Lincoln, North Carolina

## Planning Board

Application No. **WSCUP #23**

Applicant **Scott O'Neil**

Property Location **N.C. 16 Business**

Parcel ID No. **34692**

Proposed Conditional Use **high-density option for self-storage facility**

### **FINDINGS OF FACT**

1. The use will not materially endanger the public health or safety if located where proposed and developed according to plan. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. The use meets all required conditions and specifications. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. The location and character of use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will be in general conformity with the Land Use Plan for the area in question. YES \_\_\_\_\_ NO \_\_\_\_\_

FACTUAL REASONS CITED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

After having held a Public Hearing on \_\_\_\_\_ and in light of the Findings of Facts listed herein, the following action was taken by the Lincoln County Planning Board:

\_\_\_\_\_  
\_\_\_\_\_

In recommending such Conditional Use, the following conditions were recommended by the Lincoln County Planning Board:

\_\_\_\_\_  
\_\_\_\_\_



## **Watershed Conditional Use Permit**

### **Application**

Lincoln County Planning and Inspections Department  
Zoning Administrator  
115 W. Main St., Lincolnton, NC 28092

### **PART I**

Applicant Name Scott O'Neil

Applicant Address 6971 Golden Bay Court, Sherrills Ford, NC 28673

Applicant Phone Number 704-737-2122

Property Owner Name Scott O'Neil & Carmen O'Neil

Property Owner Address 6971 Golden Bay Court, Sherrills Ford, NC 28673

Property Owner Phone Number 704-737-2122

### **PART II**

Property Location N NC 16 Business Hwy, North of Mundy Road and South of Balsom Ridge Rd

Property ID (10 digits) 3695189420 Property size 4.11 acres

Parcel # (5 digits) 34692 Deed Book(s) 2879 Page(s) 843

### **PART III**

Watershed District WS-IV

Briefly describe how the property is being used and any existing structures.

The property is currently mainly wooded with no structures

Briefly describe the proposed project and the why it would require a Watershed Conditional Use Permit.

The proposed project is for a covered boat storage facility. The facility will be 63.29% impervious. Runoff will be controlled for the first one inch of rainfall per the high density option for projects between 24 and 70 percent impervious.

**\$1,000.00 APPLICATION FEE MUST BE RECEIVED BEFORE PROCESSING.**

*I hereby certify that all knowledge of the information provided for this application and attachments is true and correct to the best of my knowledge.*

Applicant's Signature

Date

5/7/2020

**APPLICANT'S PROPOSED FINDINGS OF FACT**  
**FOR A CONDITIONAL USE PERMIT**

Application No. **WSCUP #23**

Applicant **Scott O'Neil**

Property Location **N.C. 16 Business**

Parcel ID No. **34692**

Proposed Conditional Use **high-density option for self-storage facility**

**PROPOSED FINDINGS**

1. The use will not materially endanger the public health or safety if located where proposed and developed according to plan.

**A driveway permit will be obtained from NCDOT. The self-storage structures will be built to code. Stormwater controls will be provided.**

2. The use meets all required conditions and specifications.

**The stormwater plans have been prepared by a professional engineer and have been reviewed by a certified stormwater plans reviewer and by county staff and found to comply with all requirements.**

3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity.

**This property is adjoined by property zoned industrial and is located in an area that includes business and industrial uses.**

4. The location and character of use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will be in general conformity with the Land Use Plan for the area in question.

**This is an existing business area. This property is part of an area designated by the Land Use Plan as an Industrial Center, a classification that includes storage as a primary land use.**



**Lincoln County, NC**  
**Office of the Tax Administrator, GIS Mapping Division**  
 Lincoln County and its mapping contractors assume no legal responsibility for the information contained on this map. This map is not to be used for land conveyance. The map is based on NC State Plane Coordinate System 1983 NAD.  
 Date: 7/2/2020 Scale: 1 Inch = 200 Feet

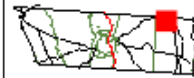


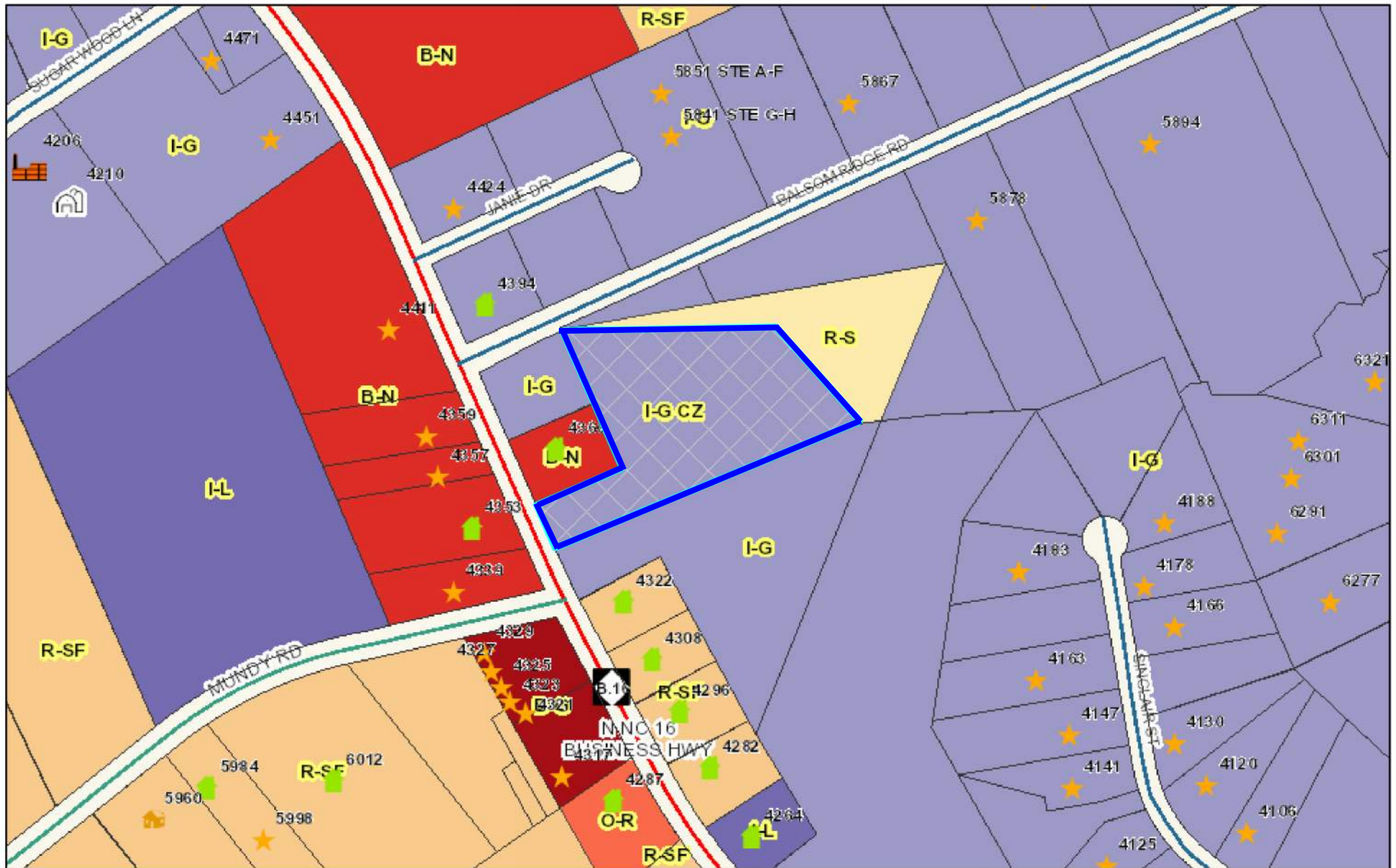
Photo Not  
Available

<b>Parcel ID</b>	34692	<b>Owner</b>	ONEIL SCOTT ONEIL CARMEN
<b>Map</b>	3695	<b>Mailing</b>	6971 GOLDEN BAY COURT
<b>Account</b>	0277020	<b>Address</b>	SHERRILLS FORD, NC 28673
<b>Deed</b>	2879 843	<b>Last Transaction Date</b>	02/03/2020
<b>Plat</b>		<b>Subdivision</b>	R O MUNDY EST
<b>Land Value</b>	\$62,143	<b>Improvement Value</b>	\$0
<b>Previous Parcel</b>		<b>Sale Price</b>	\$213,500
		<b>Lot</b>	41 & LTS 23-26
		<b>Total Value</b>	\$62,143
<b>-----All values for Tax Year 2020 -----</b>			
<b>Description</b>	41 <S 23-26 R O MUNDAY	<b>Deed Acres</b>	0
<b>Address</b>	N NC 16 BUSINESS HWY	<b>Tax Acres</b>	4.11
<b>Township</b>	CATAWBA SPRINGS	<b>Tax/Fire District</b>	DENVER
<b>Main Improvement</b>		<b>Value</b>	
<b>Main Sq Feet</b>		<b>Year Built</b>	
<b>Zoning District</b>	Calc Acres	<b>Voting Precinct</b>	Calc Acres
I-G	4.11	DN29	4.11
<b>Watershed</b>	4.11	<b>Sewer District</b>	4.11
<b>Census County</b>	109	<b>Tract</b>	071101
		<b>Block</b>	1005
			4.11
<b>Flood</b>	<b>Zone Description</b>	<b>Panel</b>	
X	NO FLOOD HAZARD	3710369500	4.11

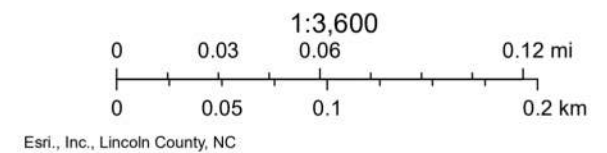


# WSCUP #23

subject property is outlined in blue



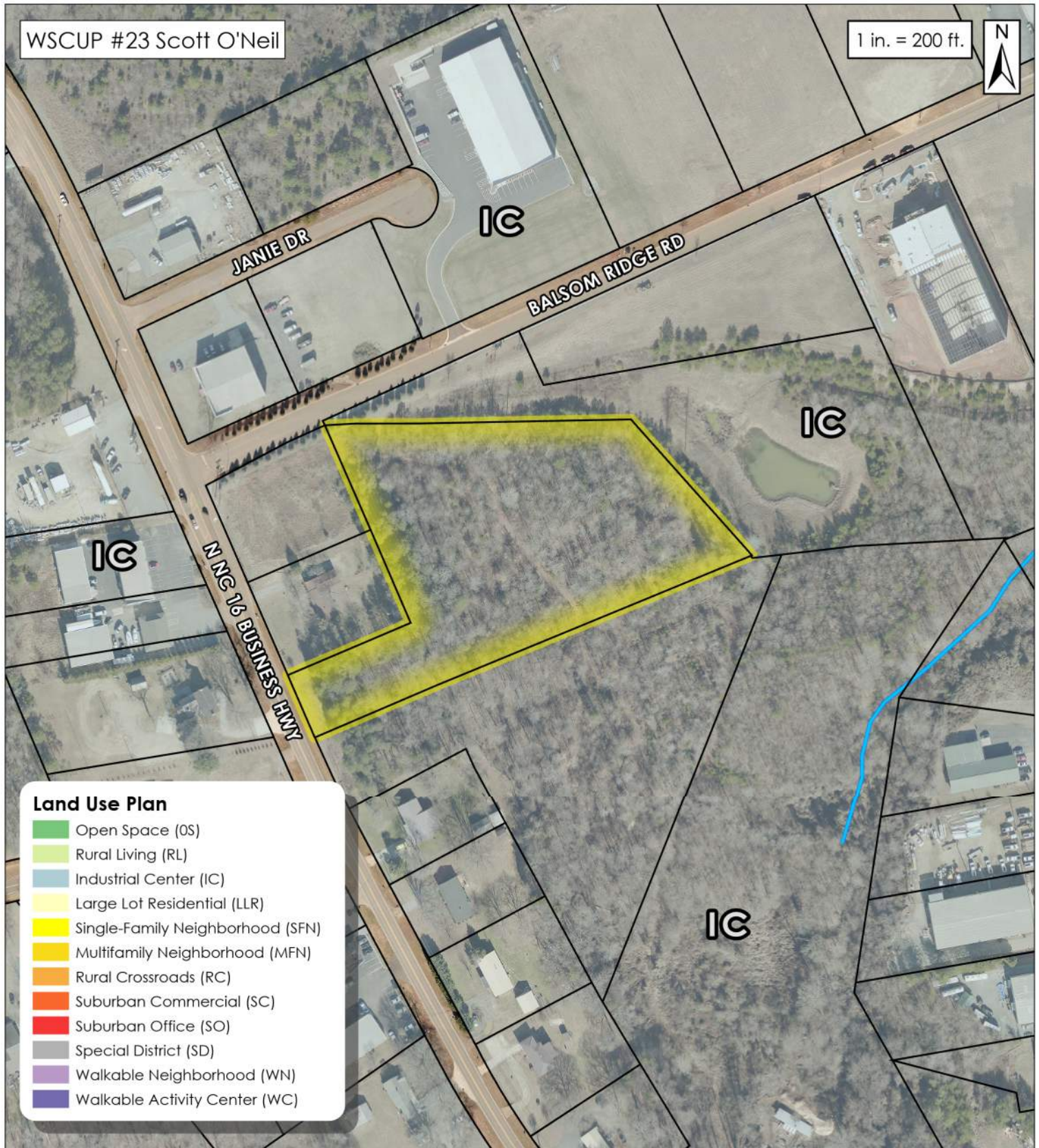
July 2, 2020





WSCUP #23 Scott O'Neil

1 in. = 200 ft.



#### Land Use Plan

-  Open Space (OS)
-  Rural Living (RL)
-  Industrial Center (IC)
-  Large Lot Residential (LLR)
-  Single-Family Neighborhood (SFN)
-  Multifamily Neighborhood (MFN)
-  Rural Crossroads (RC)
-  Suburban Commercial (SC)
-  Suburban Office (SO)
-  Special District (SD)
-  Walkable Neighborhood (WN)
-  Walkable Activity Center (WC)



Lincoln County  
Planning & Inspections  
115 W. Main St  
3rd Floor  
Lincolnton, NC 28092

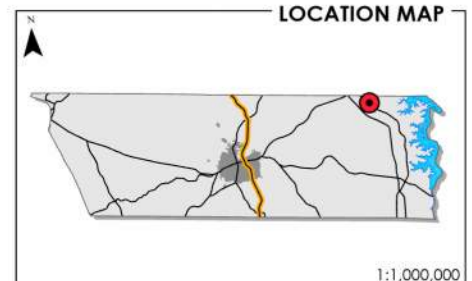
Parcel ID# 34692

 - Property Location(s)

See Attached Application for Parcel Information

Property Location(s) Outlined in Yellow.

LOCATION MAP



 Property Location(s)



# O'NEIL BOAT STORAGE

Lincoln County, NC

## STORMWATER ANALYSIS

### Boat Storage Facility

#### Narrative & Calculations

Prepared For:

O'Neil Boat Storage  
Store My Boat LLC  
6971 Golden Bay Court | Sherrills Ford, NC 28673



Prepared By:



Ardurra Group North Carolina  
3809 Peachtree Avenue | Suite 102 | Wilmington, NC 28403  
NC Firm License No. F-0113  
910-397-2929

May 4, 2020  
(Revised June 10, 2020)

## **NARRATIVE**

### **Existing Conditions**

The site for the proposed boat storage facility for Store My Boat, LLC is located on Business North Carolina Highway 16 near Denver, North Carolina in Lincoln County. The total size is 3.89 acres. The site is presently mostly wooded with no impervious areas. Drainage from the site enters an existing stormwater drainage pond that is northeast of the property and ultimately drains to a WS-IV Watershed, the Catawba River Basin via an unnamed tributary. The site currently has three drainage sub-basins. Approximately 1.33 offsite acres drain onto the property from the western side of the property. The stormwater currently flows overland through the property and discharges from the site in two separate “ravine” type areas along the northern property line. Adjacent to the northern property line just offsite is a swale that directs the stormwater towards the referenced offsite stormwater drainage pond. Approximately 3.07 offsite acres drains onto the property from the south and flows through the site overland and through a main discharge along the northeastern property line. The stormwater then flows to the referenced offsite stormwater drainage pond.

No portion of the site is within the 100-year flood plain.

The Lincoln County Soils Survey indicates that the majority of the undeveloped soils on the site in the project area are roughly split between Cecil Sandy Clay Loam (CeB2) and Pacolet Sandy Clay Loam (PeC2).

There are no wetlands located on the site.

### **Proposed Conditions**

The owner is planning to build covered boat storage areas along with some totally enclosed boat storage areas.

The offsite areas flowing onto the property from the west will be captured along with pervious areas of the proposed site and routed around the new impervious areas to discharge offsite without going through the new stormwater pond.

The offsite areas flowing onsite from the south will be captured in a stormwater piped system and routed along the southern property line and discharged offsite without going through the new stormwater pond. The runoff from a 1-inch rainfall will be collected and stored in the new stormwater pond and discharged over a 2 to 5-day period.

## **Pipe Sizing Calculation Methodologies**

The following calculations were done utilizing the Rational method and the computer program Hydraflow Express by Intelisolve was utilized. The rainfall data from NOAA for the Denver, NC area was entered into the program. The area information on the quantities of impervious surfaces, grassed or wooded areas was also entered into the program. Once the data was entered the program was utilized to provide the calculations.

## **Pond Sizing Calculations**

The pond was sized utilizing the NCDEQ Stormwater BMP Manual. The surface area was determined using Table 1: Piedmont and Mountain SA/DA Table. The storage volume for the runoff from a 1-inch rainfall was determined and an orifice was sized to allow the flow to discharge out over approximately 3.5 days. This meets the Lincoln County requirement of between 2 and 5 days. The pond system was checked for a 100-year storm and an overflow weir was sized in case discharge piping became clogged or failed in some manner. The pond discharges into a riprap area to dissipate the velocity prior to discharge from the site.

## **Summary**

The proposed facility will include a wet detention pond to temporarily store and treat the storm water. The pond facility will be utilized as a sediment basin during construction. Upon completion of construction and establishment of ground cover the sediment barriers will be removed.



## Opinion of Probable Cost

O'Neil Boat Storage Wet Pond  
N NC Hwy 16 Business

May 5, 2020



Ardurra Group North Carolina

Item	Quantity	Unit	Unit Cost	Total Cost
Clearing & Grubbing	0.5	ac	\$10,000	\$5,000
Earthwork	4000	cy	\$20	\$80,000
Erosion Control	1	LS	\$5,000	\$5,000
Emergency Overflow Weir	1	LS	\$5,000	\$5,000
Riprap Discharge Area	1	LS	\$5,000	\$5,000
Intial Grassing	1	LS	\$2,500	\$2,500
Wetlands Plantings	1	LS	\$4,000	\$4,000

Total Construction	\$106,500
Construction Contingency	\$5,500
Surveying & Engineering	\$10,000
<b>Total Wet Pond Cost</b>	<b>\$122,000</b>

## Opinion of Probable 20-Year Maintenance Cost

### O'Neil Boat Storage Wet Pond

N NC Hwy 16 Business

June 18, 2020



Ardurra Group North Carolina

Item	Quantity	Unit	Unit Cost	Total Cost
Regular Maintenance (4/yr)	80	ea	\$250	\$20,000
Repair Maintenance (biannual)	10	ea	\$2,000	\$20,000
Excavate Pond Sediment	1	ea	\$10,000	\$10,000
Annual Inspection	20	ea	\$1,000	\$20,000

Total Maintenance Cost                      \$70,000





**O'NEIL  
STORAGE**

**OWNER / ADDRESS:**  
**Scott O'Neil**  
**STORE MY BOAT**  
**6971 GOLDEN Bay Court.**  
**Sherrils Ford**  
**North Carolina 28673**

[illegible]

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**O'NEIL BOAT STORAGE**

PROJECT ADDRESS:  
NORTH N.C. 16 BUSINESS HIGHWAY

## PROPOSED SITE PLAN

FOR PERMITTING



NOT FOR CONSTRUCTION

JOB NO:	2020-5133-00
DATE:	05.04.2020

## C2



April 23, 2019 P:\2020-5133-00 O'Neil Storage\dwg\O'Neil - ALL SHTS- 6-17-20 SUBMITTAL.dwg

RETAINING WALL ELEVATION TABLE				
WALL POINT	TOP GRADE	TOP WALL	BOTTOM GRADE	WALL HEIGHT
1	874.50	877.00	876.50	3.50
2	874.50	877.00	873.00	3.00
9	871.40	871.50	858.80	8.80
9	869.30	875.80	856.00	5.20
9	868.50/864.50	869.00/865.00	862.00	7.00/3.00
6	865.50	875.00	856.00	14.00
2	869.30	863.60	854.20	8.80
9	862.50	863.00	854.20	8.80
9	859.00	863.60	851.70	8.80
15	859.00	859.50	847.70	11.80
31	859.00	859.50	839.00	20.50
37	859.00	859.50	839.00	20.50
15	859.00	859.50	839.00	20.50
15	859.00	859.50	839.00	20.50
15	859.00	859.50	843.00	16.50
15	859.00/852.50	859.50/853.00	843.00	16.50/10.00
37	845.00	845.50	845.00	3.50
18	859.00	859.50	856.00	3.50
15	859.00	859.50	863.00	3.50
20	859.00	863.60	863.00	3.50
23	862.50	863.00	861.20	1.30
27	862.50	863.00	867.80	1.25
23	862.50/860.25	863.00	861.20	0.50/2.75
28	860.60	861.10	860.25	0.80
28	862.50	863.00	860.25	2.75
28	862.50	869.00/864.00	860.25	2.75/3.75
27	862.50	864.00	863.50/860.25	0.50/3.75
28	864.00	864.60	863.00	3.50
28	862.50	864.00	860.25	3.75
15	861.00	863.60	860.25	1.25
31	861.50	863.00	865.25	3.75
37	861.50	863.00	865.25	3.75
15	866.00	866.50	865.25	1.25
34	861.50	863.00	867.80	1.25
15	859.00	863.60	858.80	1.00
15	875.00	875.60	875.00	3.50
37	874.50	875.00	873.70	1.30
15	874.50	875.00	873.00	2.00
15	874.50	875.00	873.30/871.25	1.70/3.75
40	872.00	877.60	871.25	1.25
43	874.50	875.00	878.25	3.75
42	874.50	875.00	870.25	3.75
43	874.50	875.00	874.50	3.50
48	875.00	875.60	875.00	3.50
43	874.30	875.60	878.25	3.50
46	871.00	871.50	873.00	3.50
43	867.50	863.60	858.80	3.00
48	857.00	860.50	867.80	3.00
43	857.00	863.60	857.00	3.50

ALL WALLS EXCEEDING FIVE (5) FEET VERTICAL RELIEF IN HEIGHT MUST BE DESIGNED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER PER SECTION 1807.2 OF THE NORTH CAROLINA BUILDING CODE

DISTANCE FROM CENTERLINE OF PROPOSED DRIVEWAY TO CENTERLINE OF BALCONY RIDGE RD. = 402.7'±

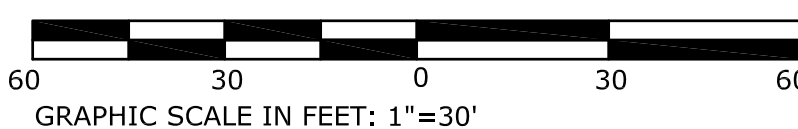
MATCH EXIST. GRADE ALONG ASPHALT EDGE

NEW ASPHALT DRIVE ENTRANCE

TEMPORARY CONSTRUCTION ENTRANCE (TYP)

## PROPOSED GRADING, EROSION CONTROL, & STORMWATER PLAN

SCALE: 1"=30'



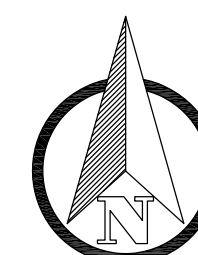
DISTURBED AREA : 169,546 SF (3.89 AC)

INLET TABLE					
INLET	TOP ELEV.	INVERT ELEVATIONS			
		NORTH	EAST	SOUTH	WEST
DI 1	876.50			872.00	
DI 3	872.00	871.40	871.23		
DI 3	876.40		865.00		869.70
DI 3	871.10		865.00		866.75
DI 3	865.00		859.90		859.90
DI 3	857.00		849.60		851.60
DI 3	849.60	841.22			843.00
DI 3	876.00	871.5			
DI 3	876.50	870.6		871	
JB 1	877		870.6	870.75	
DI 10	872.1		851.25		861.5
DI 11	860		863.25		859.5
DI 12	859.5		856.05		856.1
DI 13	875	873.5		870.1	
DI 14	876.6	870	860		
DI 15	860	867.36		864.5	
DI 18	871.5	864.25	864		860
DI 17	864	861.5		859.5	
DI 18	865.9	861.5	858.35		859.5
DI 18	860	864			855
DI 10	859.5	853.1		859.5	
DI 21	855	852.55		852.55	
SDMH 1	859.5		851.4	851.7	
SDMH 2	859.5		841		851.25
SDMH 1	844.5			839.8	839.8

PIPE TABLE			
PIPE	SIZE INCHES	LENGTH LF	MATERIAL
P1	18	172	RCP / CPP
P2	18	131	RCP / CPP
P8	18	97	RCP / CPP
P8	18	97	RCP / CPP
P8	18	43	RCP / CPP
P2	18	97	RCP / CPP
P8	18	172	RCP / CPP
P8	18	43	RCP / CPP
P10	18	53	RCP / CPP
P11	18	97	RCP / CPP
P12	18	71	RCP / CPP
P10	18	12	RCP / CPP
P10	24	97	RCP / CPP
P10	24	35	RCP / CPP
P10	24	43	RCP / CPP
P12	24	43	RCP / CPP
P17A	24	131	RCP / CPP
P17B	24	55	RCP / CPP
P10	18	97	RCP / CPP
P10	15	26	RCP / CPP
P20	15	180	CMP SLOTTED
P21	18	97	RCP / CPP
P22	18	97	RCP / CPP
P23	18	271	CMP SLOTTED
P20	15	105	RCP / CPP
P20	15	43	RCP / CPP
P20	15	258	CMP SLOTTED
P27	12	46	RCP
P28	15	74	CL4 RCP

IMPERVIOUS CALCULATIONS	
IMPERVIOUS AREAS:	
BUILDINGS	52,711 SF
ASPHALT PAVEMENT	54,356 SF
CONCRETE SIDEWALK	110 SF
TOTAL	107,175 SF
TOTAL SITE AREA	169,335 SF
IMPERVIOUS % ALLOWED (70%)	118,534.5 SF
IMPERVIOUS AREA ACTUAL	107,175 SF
PERVIOUS AREA ACTUAL	62,160 SF
TOTAL PERVIOUS PERCENTAGE	36.71%
TOTAL IMPERVIOUS PERCENTAGE	63.29%
PERCENT IMPERVIOUS ALLOWED	70%

LEGEND	
---	EXIST. CONTOURS
---	PROPOSED CONTOURS
---	EXIST. SPOT ELEVATION
---	PROPOSED SPOT ELEVATION
---	(FE-FINISHED ELEVATION, UNLESS NOTED OTHERWISE)
---	TOC
---	EOP
---	FE
---	HP
---	INV
---	SLOPE GRADE DIRECTION
---	ROOF SLOPE DIRECTION
---	LIMIT OF DISTURBANCE
---	TEMPORARY SILT FENCE
---	STORM DRAIN
---	DROP INLET
---	INLET PROTECTION
---	BUILDING
---	ASPHALT PAVEMENT
---	LANDSCAPING
---	CONCRETE
---	WALL POINT (SEE RETAINING WALL ELEVATION TABLE, THIS SHEET)



**ARDURRA**  
ARDURRA GROUP NORTH CAROLINA  
3809 Peachtree Avenue, Suite 102  
Wilmington, North Carolina 28403  
Phone: (910) 397-2929  
www.Ardurra.com  
NC FIRM LICENSE NUMBER F-0113

**O'NEIL STORAGE**  
OWNER / ADDRESS:  
Scott O'Neil  
STORE MY BOAT  
6971 GOLDEN Bay Court.  
Sherrills Ford  
North Carolina 28673

REVISION		BY
1	6/22/20	REVIEW COMMENTS
		DATE
		NO.

**O'NEIL BOAT STORAGE**  
PROJECT ADDRESS:  
NORTH N.C. 16 BUSINESS HIGHWAY  
**PROPOSED GRADING, EROSION CONTROL, & STORMWATER PLAN**

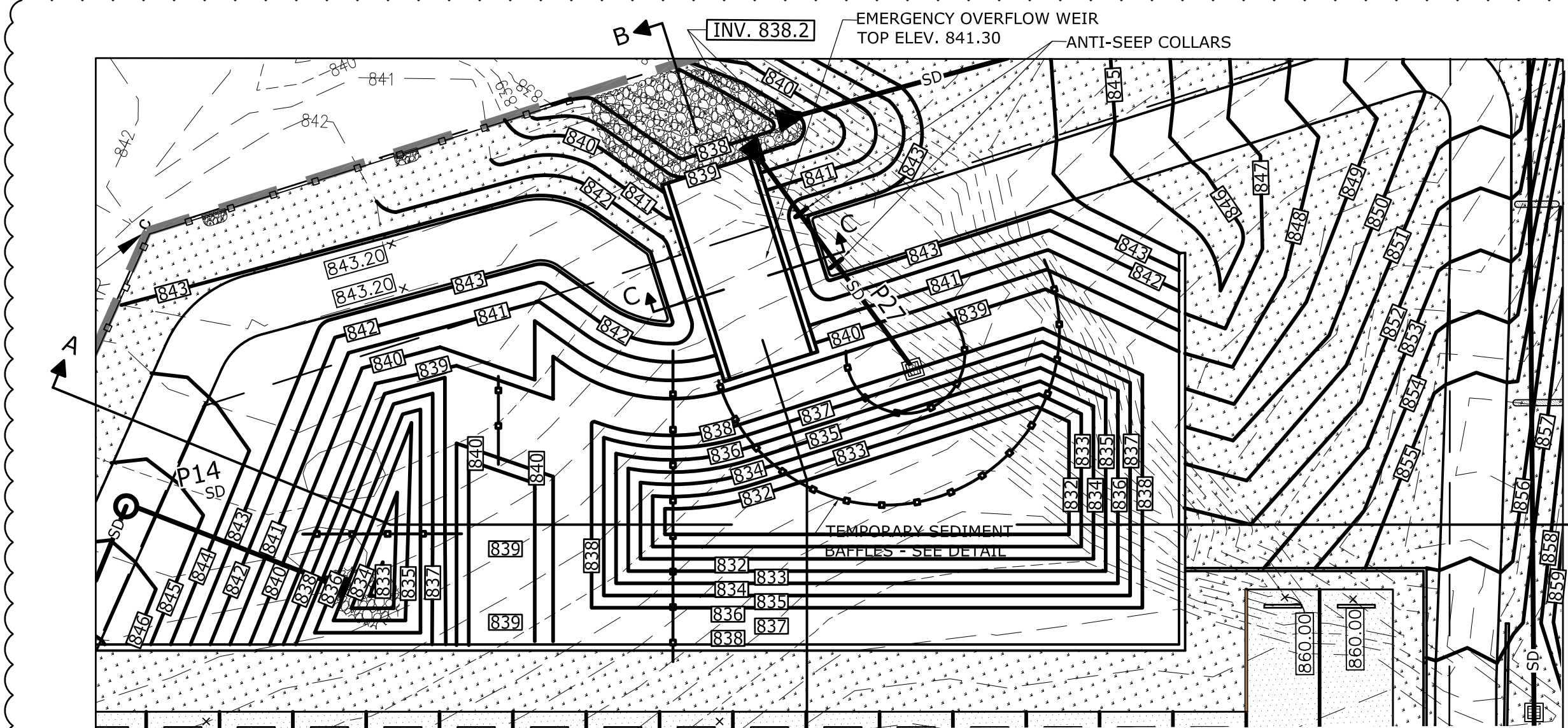
FOR PERMITTING  
NORTH CAROLINA  
11/27/2020  
DAVID E. CRIST  
NOT FOR CONSTRUCTION

JOB NO: 2020-5133-00  
DATE: 05.04.2020

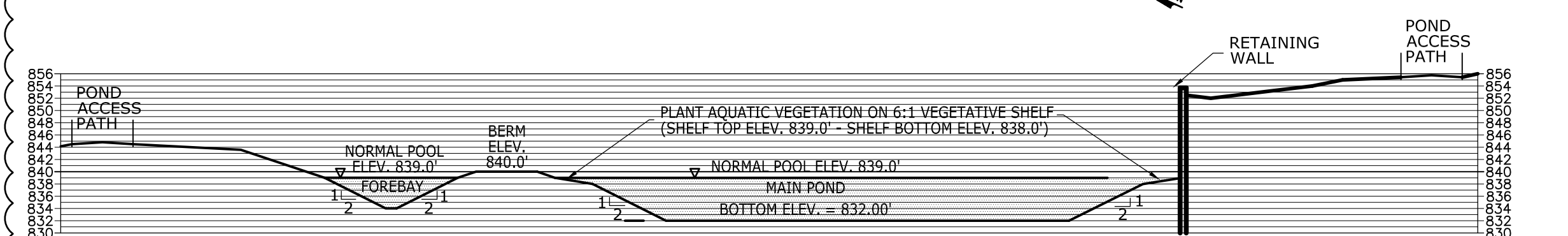
**C3**



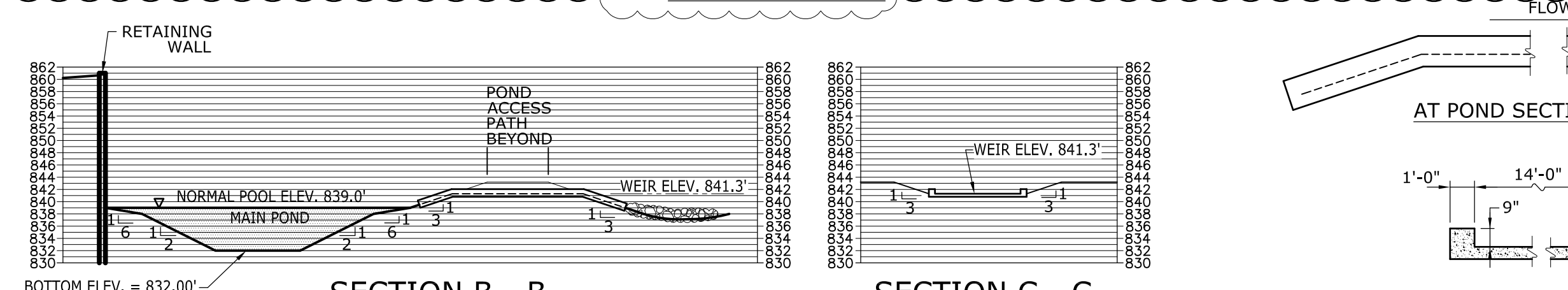
April 23, 2019 P:\2020-5133-00 O'Neil Storage\Chilong\O'Neil - ALL SHTS - 6-17-20 SUBMITTAL.dwg



STORMWATER POND PLAN  
SCALE: 1"=20'



SECTION A - A

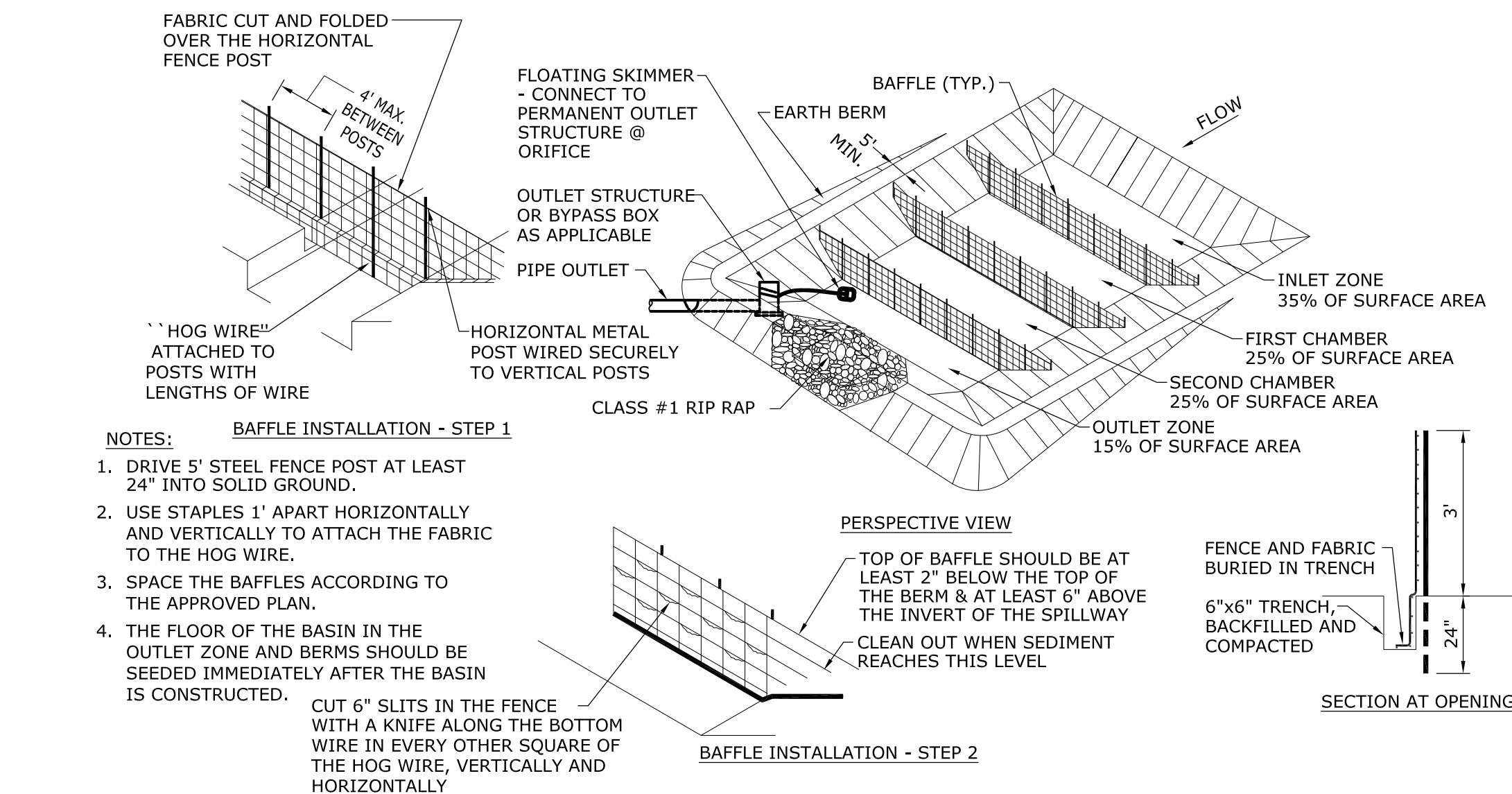


SECTION B - B

SECTION C - C

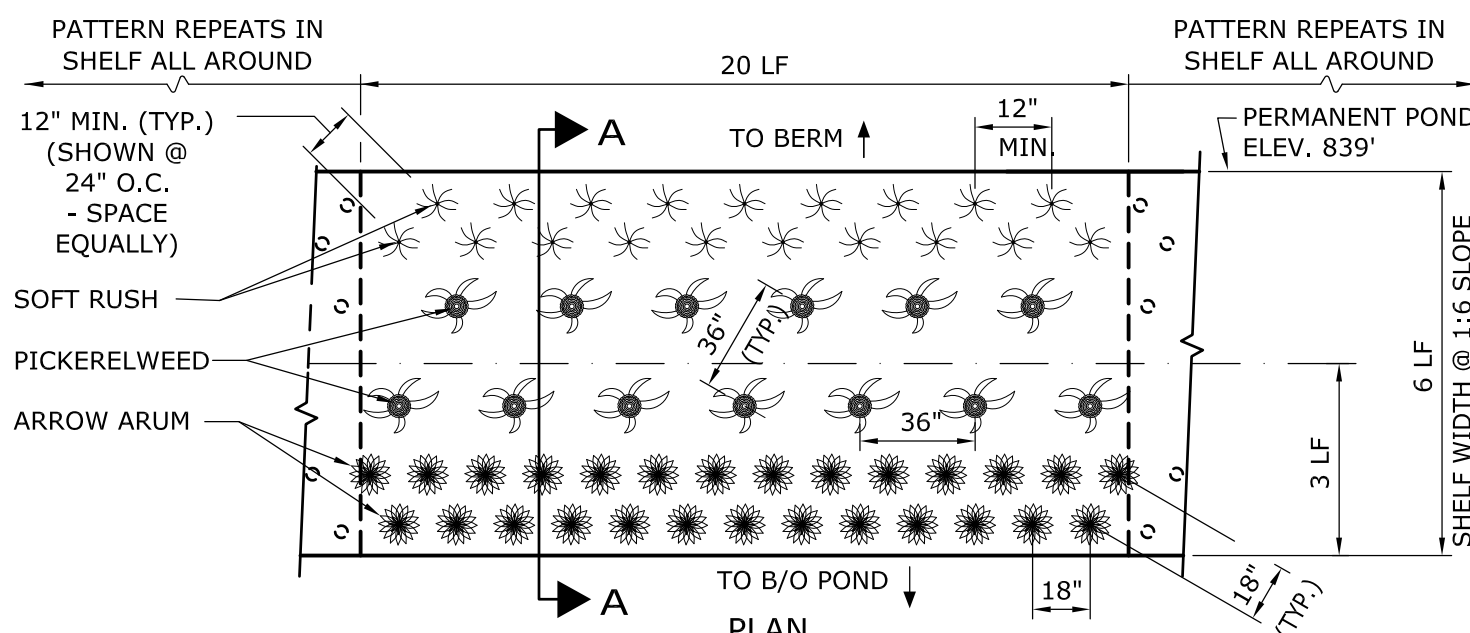
### STORMWATER POND SECTIONS

SCALE: 1"=20'



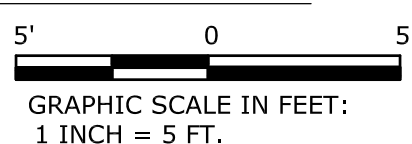
### SILT BAFFLED SEDIMENT BASIN

SCALE: N.T.S.

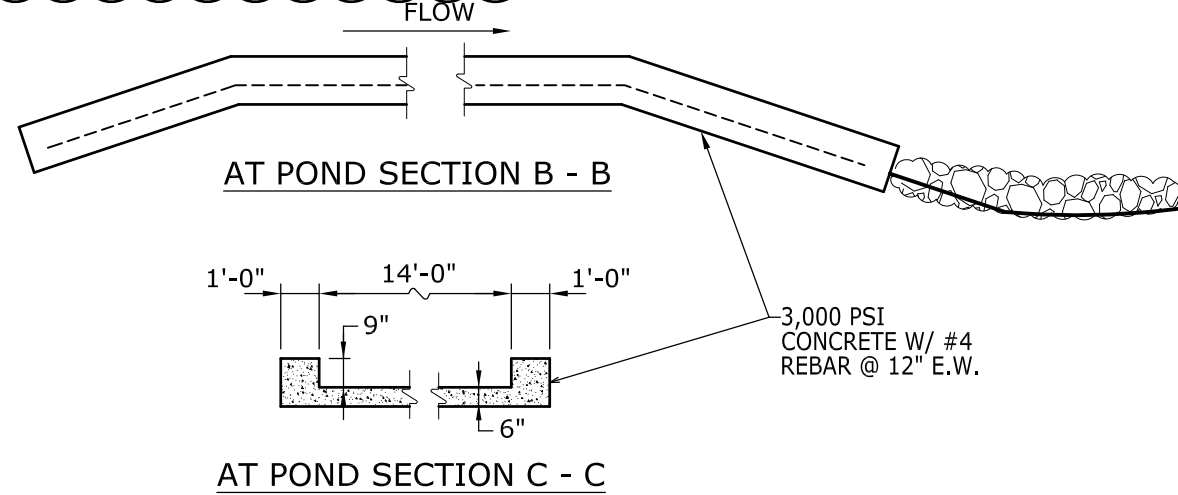


### VEGETATED SHELF DETAIL

SCALE 1" = 5'



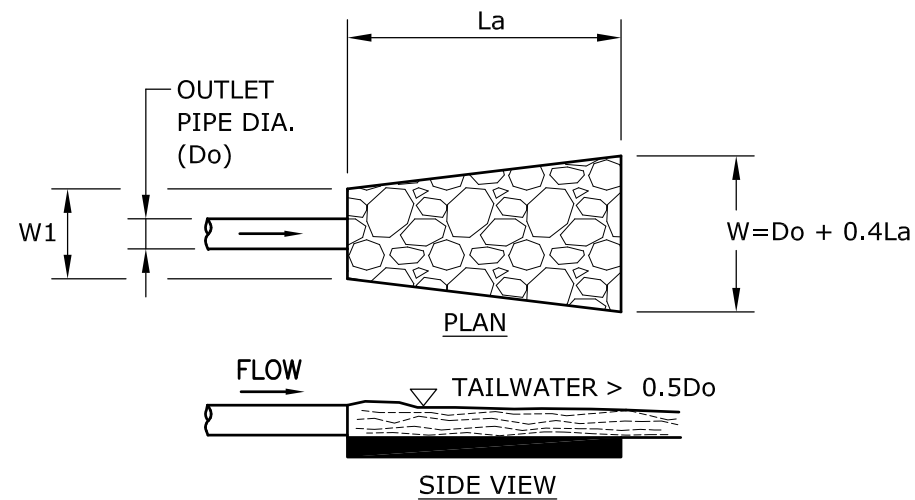
VEGETATED SHELF PLANTINGS (MIN. DENSITY OF 50 PLANTS PER 200 SF)			
SYMBOL	COMMON NAME	BOTANICAL NAME	MIN. SPACING
	SOFT RUSH	JUNCUS EFFUSUS	12" O.C.
	PICKERELWEED	PONTEDERIA CORDATA	36" O.C.
	ARROW ARUM	PELTANDRA VIRGINICA	18" O.C.



### EMERGENCY OVERFLOW SPILLWAY

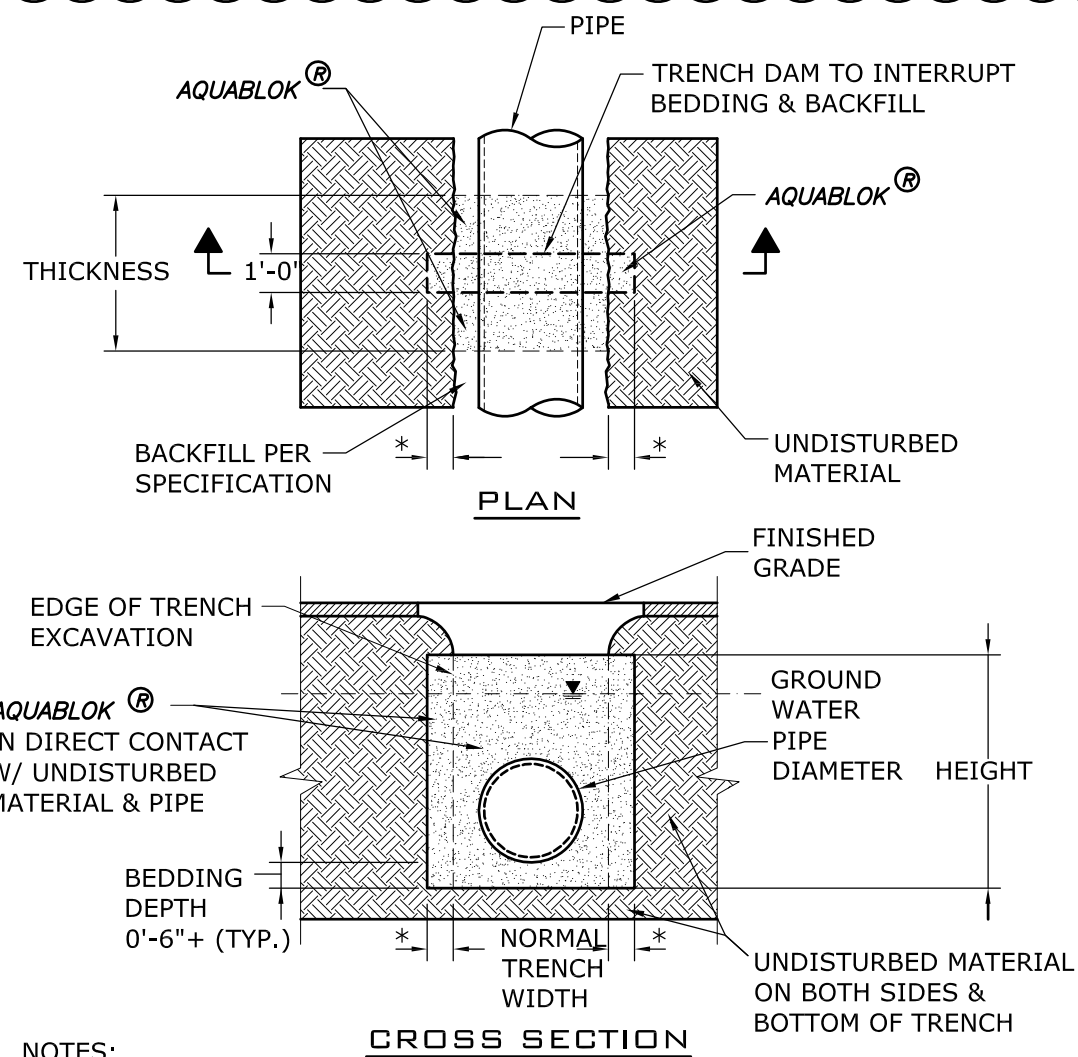
SCALE 1" = 5'

RIP RAP DIMENSIONS				
PIPE (ft)	Do (ft)	La (ft)	W (ft)	W1 (ft)
P1	1.5	12	6	5
P14	2	10	6	6
P27	1	10	5	5
P28	1.25	10	5	5



### RIP RAP APRON DETAIL

SCALE: N.T.S.



### BENTONITE CLAY TRENCH SEAL

SCALE: N.T.S.

TEMPORARY SEEDING						
GRASS TYPE	AMOUNT/ 1000 SF.	TIME OF SEEDING	INITIAL	FERTILIZATION / 1000 SF. MAINTENANCE		
GRASS TYPE	AMOUNT/ 1000 SF.	TIME OF SEEDING	INITIAL	FERTILIZATION / 1000 SF. MAINTENANCE		
RYE GRAIN	1-2 LBS.	NOV. THRU JAN.	25 LBS. 10-10-10	NA	NA	NA
BROWNTOP MILLET	1-2 LBS.	JUNE THRU AUG.	25 LBS. 10-10-10	NA	NA	NA
PERMANENT SEEDING						
GRASS TYPE	AMOUNT/ 1000 SF.	TIME OF SEEDING	INITIAL	FERTILIZATION / 1000 SF. MAINTENANCE		
BERMUDA, COMMON	1-2 LBS.	APR. THRU JUNE	25 LBS. 10-10-10	MARCH - APRIL 12 LBS. 10-10-10	EACH 4-8 WEEKS 1-2 LBS. N.	AUG. - SEPT. 12 LBS. 10-10-10
FESCUE, TALL (KENTUCKY 31)	5-7 LBS.	SEPT. THRU OCT. FEB. THRU OCT.	25 LBS. 10-10-10	FEB. - MARCH 12 LBS. 10-10-10	MAY & DEC. 1/2 TO 1 LB. N.	SEPT. - OCT. 12 LBS. 10-10-10
SERICEA LESPEDEZA (SLOPES)	1-2 LBS.	MARCH THRU APR.	25 LBS. 10-10-10	FEB. - MARCH	1/2 TO 1 LB. N.	NA

**ARDURRA**  
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3809 Peachtree Avenue, Suite 102  
Wilmington, North Carolina 28403  
Phone: (910) 397-2929  
www.Ardurra.com  
NC FIRM LICENSE NUMBER F-0113

**O'NEIL STORAGE**  
OWNER / ADDRESS:  
Scott O'Neil  
STORE MY BOAT  
6971 GOLDEN Bay Court.  
Sherrills Ford  
North Carolina 28673

NO.	DATE	REVISION	BY
1	6/22/20	REVIEW COMMENTS	

**O'NEIL BOAT STORAGE**  
PROJECT ADDRESS:  
NORTH N.C. 16 BUSINESS HIGHWAY  
CIVIL DETAILS

FOR PERMITTING  
NORTH CAROLINA  
DAVID E. CRISER  
NOT FOR CONSTRUCTION  
JOB NO: 2020-5133-00  
DATE: 05.04.2020  
**C5**