

STORMWATER RETENTION CALCULATIONS

A. SITE INFORMATION

Total Property Area = 13,781 sq. ft.

Drainage Area Impervious Surface = 7,579 sq. ft.

Drainage Area Pervious Surface = 6,202 sq. ft.*

* Min. required by zoning code without a variance

B. ESTIMATED STORMWATER RETENTION VOLUME

The retention volume is estimated using the Rational Method ($Q=CiA$)

where:

$C = 1.0$ (impervious surface)

$C = 0.2$ (pervious surface)

$i = 2$ in/hr

Impervious Surface Runoff Volume:

$1.0 \times 2 \text{ in/hr} \times 7,579 \text{ sq. ft.} \times 1 \text{ ft./12 in.} = 1,264 \text{ cu. ft.}$

Pervious Runoff Volume:

$0.2 \times 2 \text{ in/hr} \times 6,202 \text{ sq. ft.} \times 1 \text{ ft./12 in.} = 207 \text{ cu. ft.}$

Total Volume to be Retained = 1,471 cu. ft.

C. PROPOSED EXFILTRATION TRENCH SIZING

Exfiltration Trench #1

L = Total Length of Trench Provided = 40 ft
W = Trench Width = 16 ft
K = Hydraulic Conductivity = 0.00005 cfs/sq. ft./ft. of head
H2 = Depth to Water Table = 1.83 ft
DU = Un-Saturated Trench Depth = 1.00 ft
DS = Saturated Trench Depth = 1.00 ft

V = Volume Treated = 581 cu. ft.

Exfiltration Trench #2

L = Total Length of Trench Provided = 20 ft
W = Trench Width = 20 ft
K = Hydraulic Conductivity = 0.00005 cfs/sq. ft./ft. of head
H2 = Depth to Water Table = 1.83 ft
DU = Un-Saturated Trench Depth = 1.00 ft
DS = Saturated Trench Depth = 1.00 ft

V = Volume Treated = 357 cu. ft.

Exfiltration Trench #3

L = Total Length of Trench Provided = 30 ft
W = Trench Width = 14 ft
K = Hydraulic Conductivity = 0.00005 cfs/sq. ft./ft. of head
H2 = Depth to Water Table = 1.83 ft
DU = Un-Saturated Trench Depth = 1.00 ft
DS = Saturated Trench Depth = 1.00 ft

V = Volume Treated = 385 cu. ft.

Exfiltration Trench #4

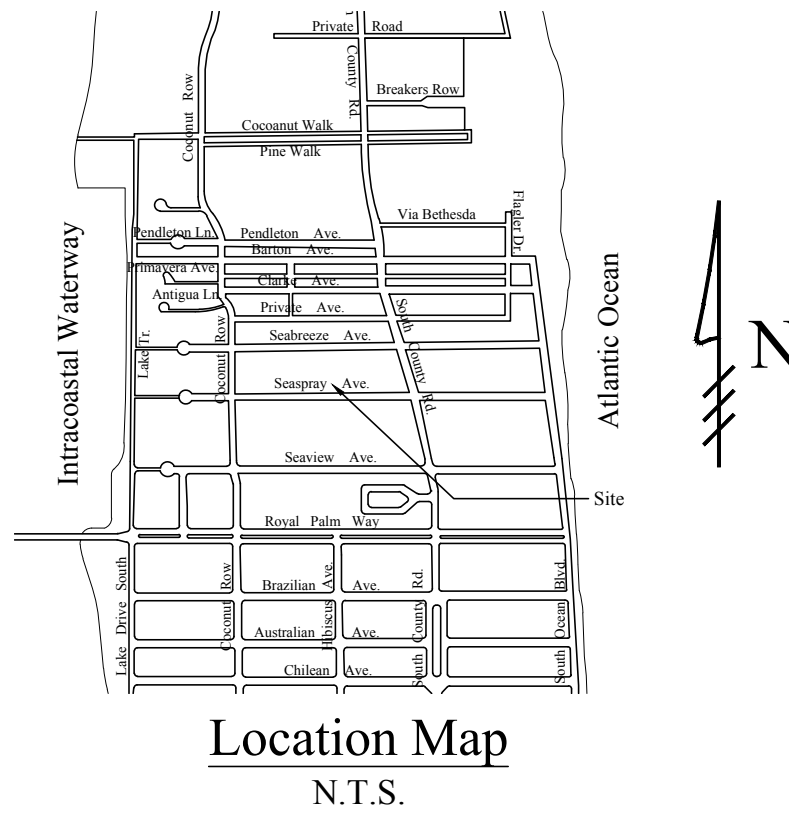
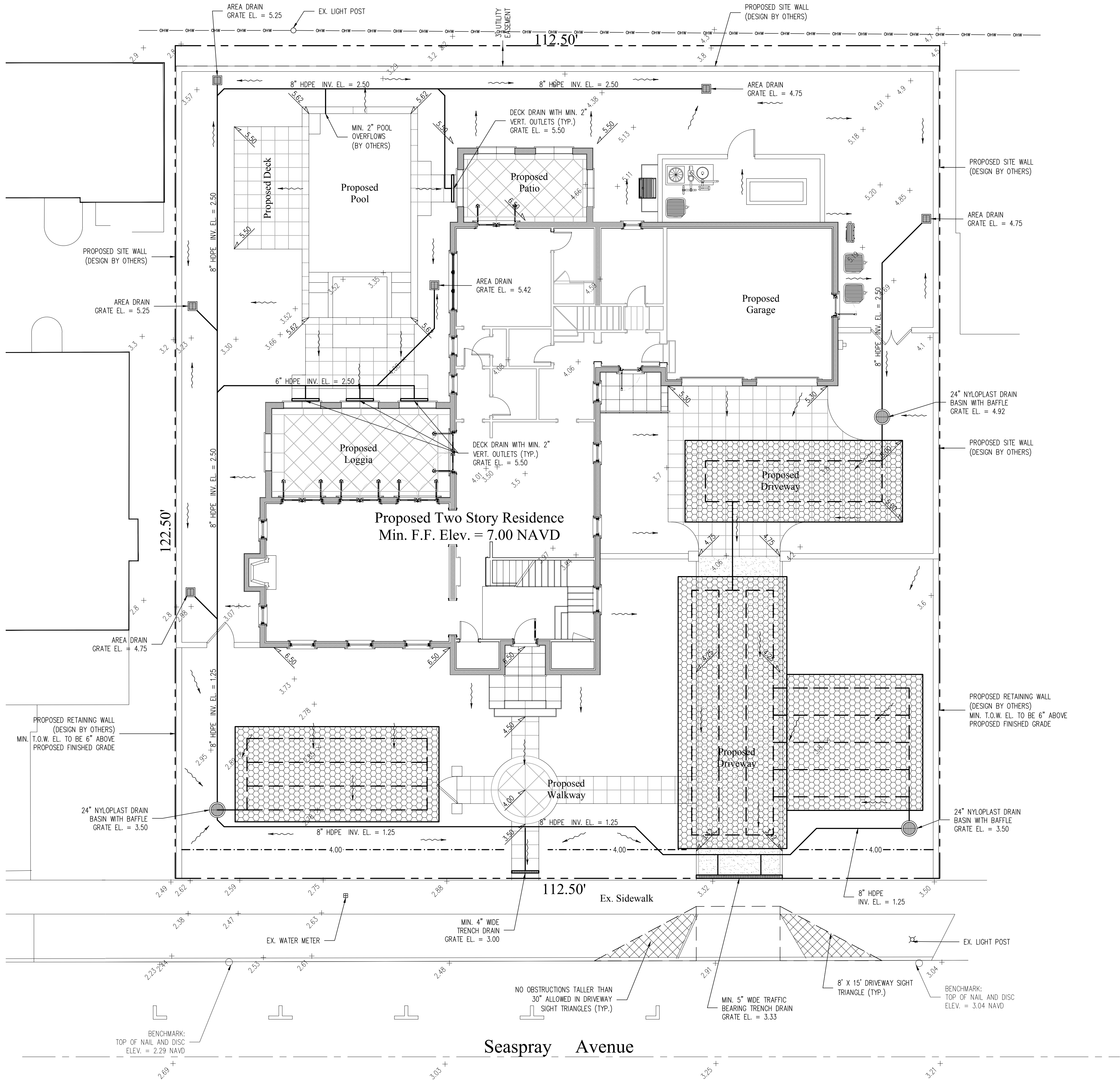
L = Total Length of Trench Provided = 32 ft
W = Trench Width = 12 ft
K = Hydraulic Conductivity = 0.00005 cfs/sq. ft./ft. of head
H2 = Depth to Water Table = 1.83 ft
DU = Un-Saturated Trench Depth = 1.50 ft
DS = Saturated Trench Depth = 1.50 ft

V = Volume Treated = 468 cu. ft.

Total Volume Retained in Exfiltration Trenches = 1,791 cu. ft.

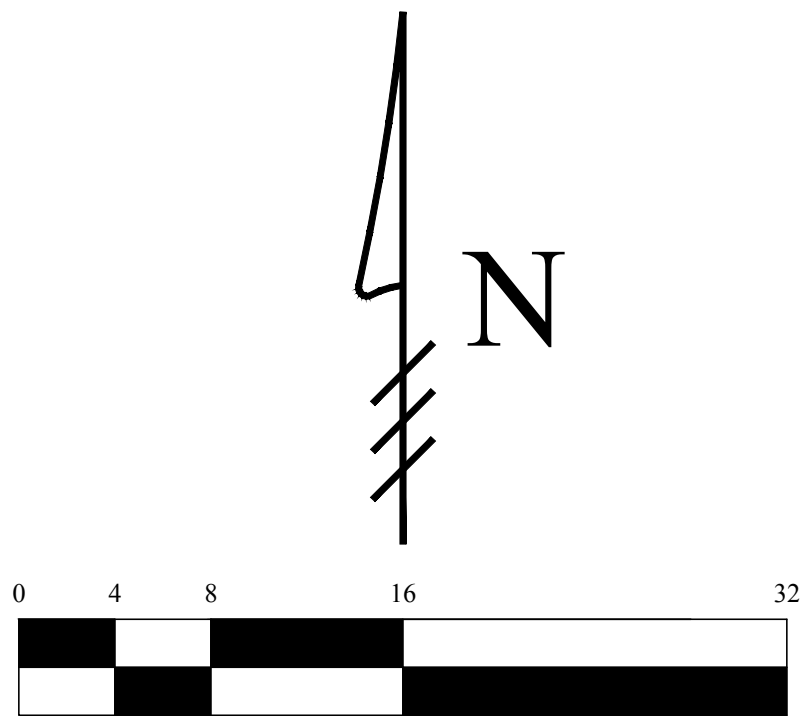
Notes:

- Exfiltration trenches and storm piping to be protected from roots with a root barrier.
- Roof drain downspouts are to be connected to the proposed drainage system. Contractor to provide engineer with downspout locations prior to installation of drainage system.
- Exfiltration trench design uses an assumed value of hydraulic conductivity. Client may obtain a site specific test for hydraulic conductivity prior to exfiltration trench installation.
- Contractor shall mill and overlay all roadway cuts a minimum of 50 ft. on either side of the excavation the entire width of each affected lane.
- Contractor is responsible for installing and maintaining erosion control measures during construction.
- Video inspection of storm drainage system required prior to installation of sod.



Legend

- EXISTING ELEVATION PER WALLACE SURVEYING CORP. (NAVD-88)
- PROPOSED ELEVATION (NAVD-88)
- PROPOSED ELEVATION CONTOUR (NAVD-88)
- FLOW DIRECTION
- EXFILTRATION TRENCH
- AREA DRAIN
- 24" NYLOPLAST DRAIN BASIN WITH BAFFLE



Scale: 1/8" = 1'-0"

48 HOURS BEFORE DIGGING
CALL
1-800-432-4770
SUNSHINE STATE ONE CALL
OF FLORIDA, INC.
Contractor is responsible for obtaining
location of existing utilities prior to
commencement of construction activities.



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Project Information				
Project No.	2022-0053	Issue Date	07/09/2023	Scale
Drawn By	RM	Checked By	CG	

Conceptual Site Grading & Drainage Plan For:
Proposed Residence
2433 Seaspray Avenue
Palm Beach, Florida

Revisions	
1	
2	
3	
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Chad M. Gruber
FL P.E. No. 57466

Sheet No.
C-1

This item has been electronically signed and sealed by Chad M. Gruber on the date adjacent to the seal using a SHA authentication code. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

Plan Background from Site Plan by
Environment Design Group Received 7/6/23

ARC-23-036

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