

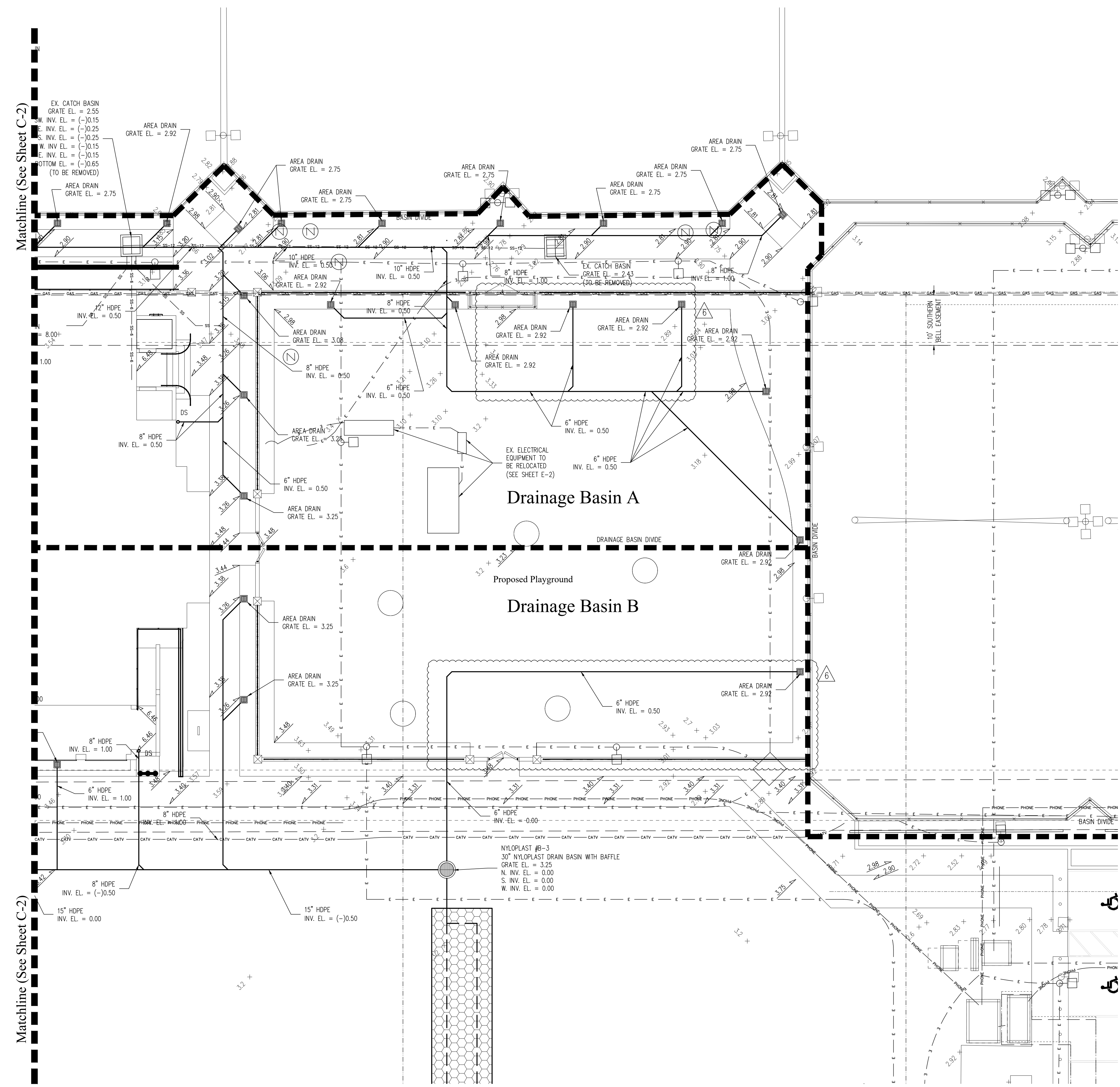
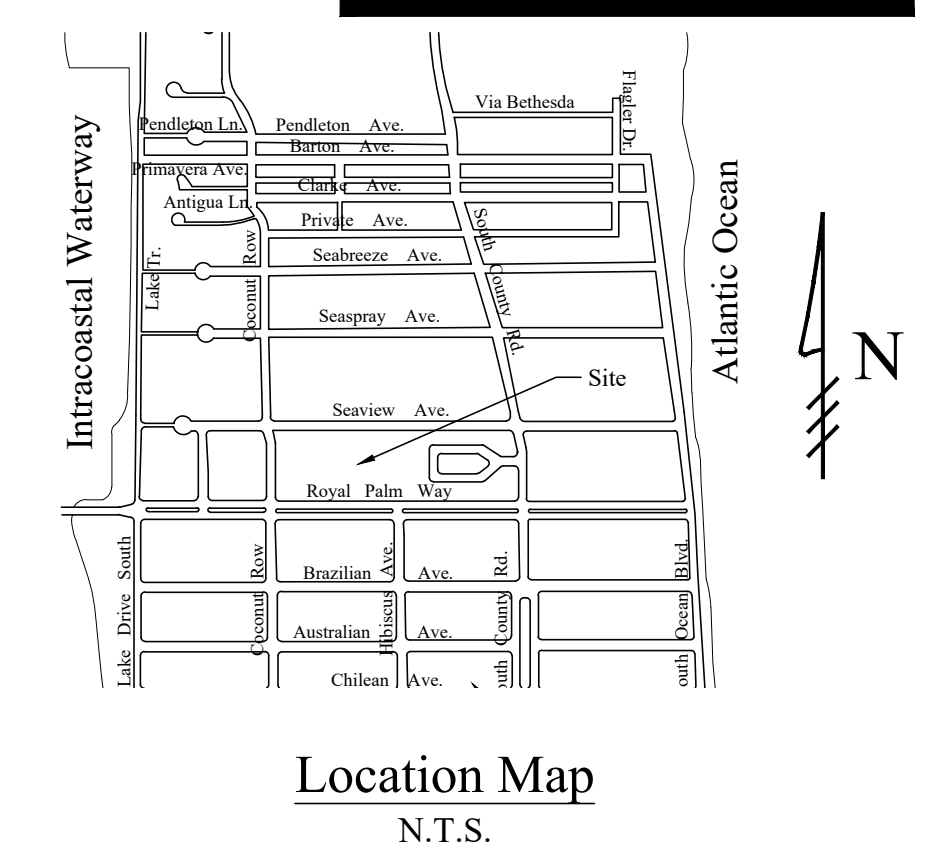
48 HOURS BEFORE DIGGING
CALL
1-800-432-4779
SUNSHINE STATE ONE CALL
OF FLORIDA, INC.
Contractor is responsible for obtaining
location of existing utilities prior to
commencement of construction activities.



Gruber Consulting Engineers, Inc.
Certificate of Authorization No. 28199
2475 MIDRIVER AVE., SUITE 200
PALM BEACH, FL 33411
PHONE: 561.342.2841
FAX: 561.342.2841
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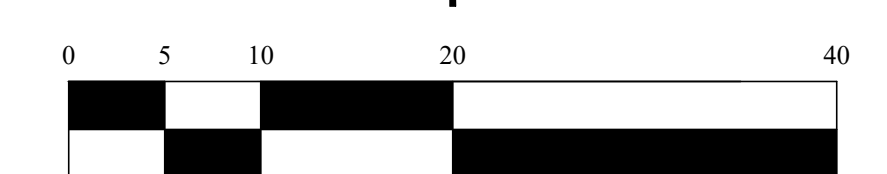
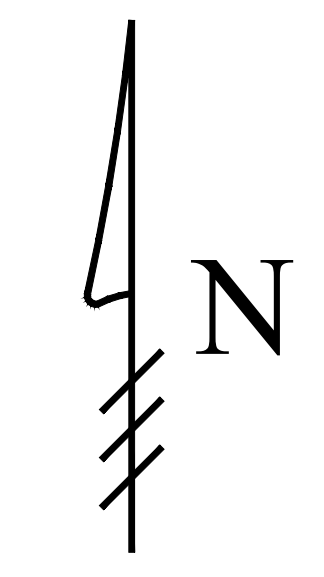
Project Information

Project No.	2016-0145
Issue Date	03/30/2017
Scale	1" = 10'
Drawn By	KM
Checked By	KM
CG	



Legend

- EXISTING ELEVATION PER BROWN & PHILLIPS (NAVD-88)
- PROPOSED ELEVATION (NAVD-88)
- PROPOSED ELEVATION CONTOUR (NAVD-88)
- FLOW DIRECTION
- INFILTRATION TRENCH
- AREA DRAIN
- NYLOPLAST DRAIN BASIN WITH BAFFLE
- CONCRETE CATCH BASIN



Scale: 1" = 10'

- 03/12/18 PLAN REVISIONS PER TOWN OF PALM BEACH COMMENTS; SEE COMMENT RESPONSE MEMO
- 08/29/18 UPDATE PLAN BACKGROUND; REVISE STORM DRAINAGE IN VICINITY OF PLAYGROUND AREA

Plan Background from Site Plan by
Stephen Boruff, AIA Received 8/6/18
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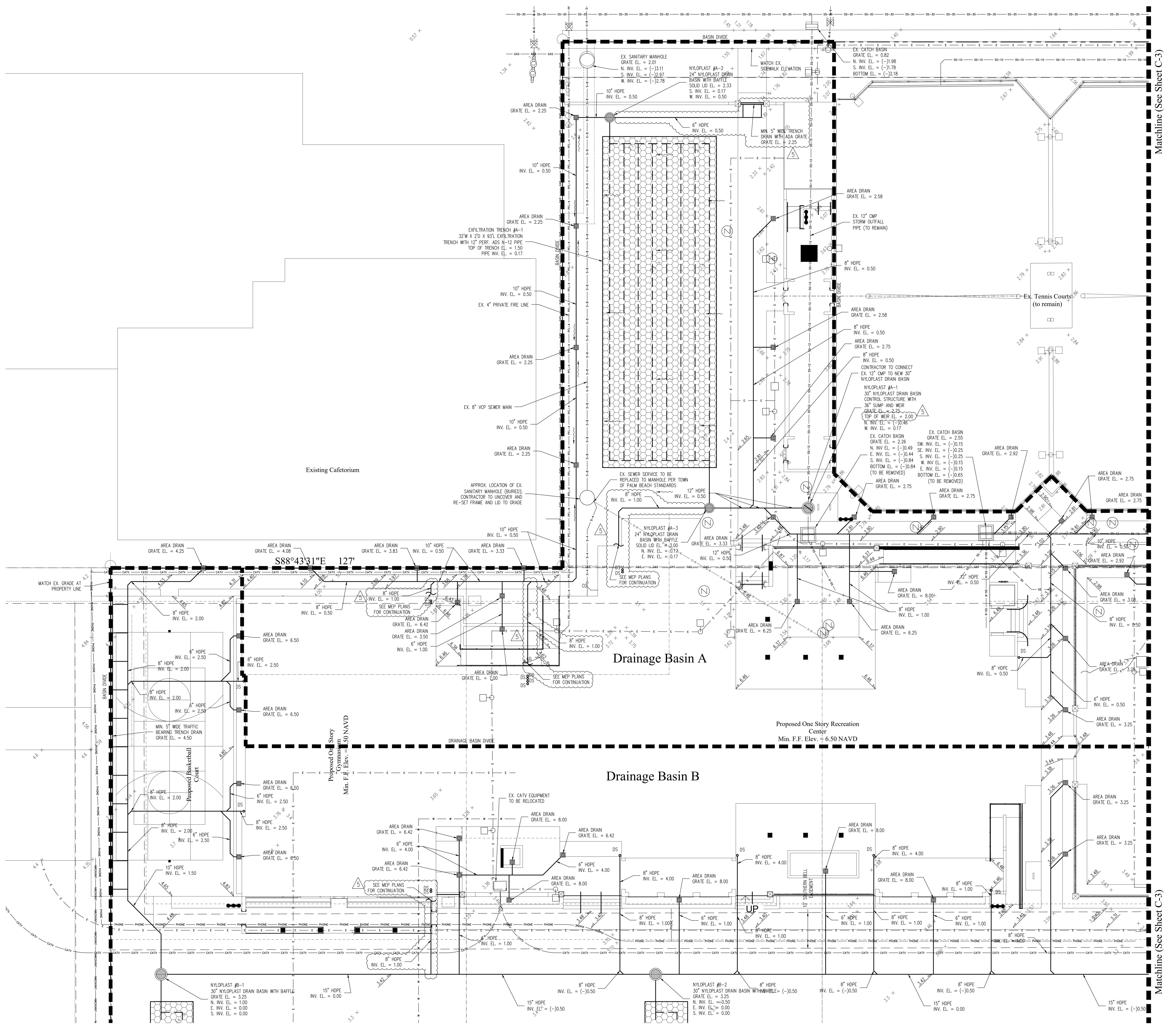
Building Area Grading & Drainage Plan Enlargement For:
Morton & Barbara Mandel Recreation Center
340 Seaview Avenue
Palm Beach, Florida

Revisions

1	
2	
3	
4	03/12/2018
5	
6	08/29/2018
7	
8	
9	
10	

Chad M. Gruber
FL P.E. No. 57466

Sheet No.
C-3



48 HOURS BEFORE DIGGING
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Gruber Consulting Engineers, Inc.
Certificate of Authorization No. 28196
 2075 HERBERT AVE., SUITE 200
 PALM BEACH, FLORIDA 33411
 PHONE: 561.322.2841
 FAX: 561.322.2841
 www.gruber-engineers.com

Project Information

Project No.	2016-0145
Issue Date	05/30/2017
Scale	1" = 10'
Drawn by	KM
Checked by	CG

Location Map
 N.T.S.

Legend

- 5.7' + EXISTING ELEVATION PER BROWN & PHILLIPS (NAVD-88)
- 5.8' + PROPOSED ELEVATION (NAVD-88)
- 7.00- PROPOSED ELEVATION CONTOUR (NAVD-88)
- ~ FLOW DIRECTION
- EXFILTRATION TRENCH
- AREA DRAIN
- NYLOPLAST DRAIN BASIN WITH BAFFLE
- CONCRETE CATCH BASIN

Scale: 1" = 10'

Building Area Grading & Drainage Plan Enlargement For:
Morton & Barbara Mandel Recreation Center
 340 Seaview Avenue
 Palm Beach, Florida

Revisions

1	
2	
3	
4	03/12/2018
5	04/23/2018
6	08/29/2018
7	
8	
9	
10	

Chad M. Gruber
 F.L.P.E. No. 57466

Sheet No.
C-2

- 4 03/12/18 PLAN REVISIONS PER TOWN OF PALM BEACH COMMENTS; SEE COMMENT RESPONSE MEMO
- 5 04/23/18 PLAN REVISIONS PER TOWN OF PALM BEACH COMMENTS; ADD ADDITIONAL DOWNSPOUT CONNECTIONS
- 6 08/29/18 UPDATE PLAN BACKGROUND

Plan Background from Site Plan by
 Stephen Boruff, AIA Received 8/3/17
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commencement of construction activities.



Gruber Consulting Engineers, Inc.
Certificate of Authorization No. 28196
2475 HERBERT AVE., SUITE 200
PALM BEACH, FL 33480
PHONE: 561.312.2841
FAX: 561.312.2842
www.gruber-engineers.com

Project Information

Project No.	20160145
Issue Date	03/30/2017
Scale	1" = 30'
Drawn By	KM
Checked By	CG

Palm Beach, Florida

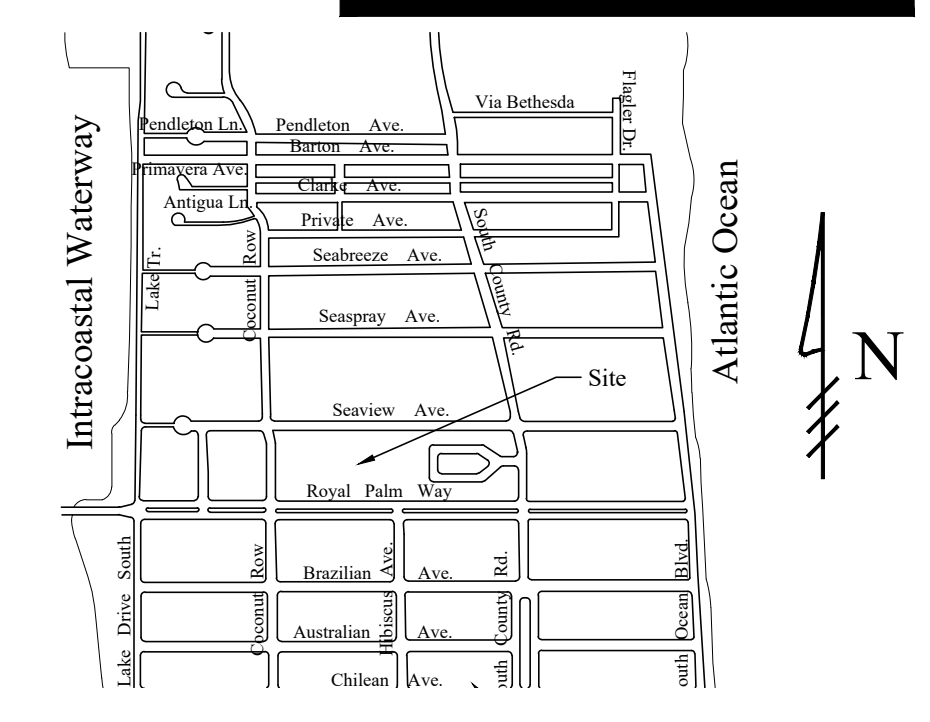
Overall Site Grading & Drainage Plan For:
Morton & Barbara Mandel Recreation Center
340 Seaview Avenue

Revisions

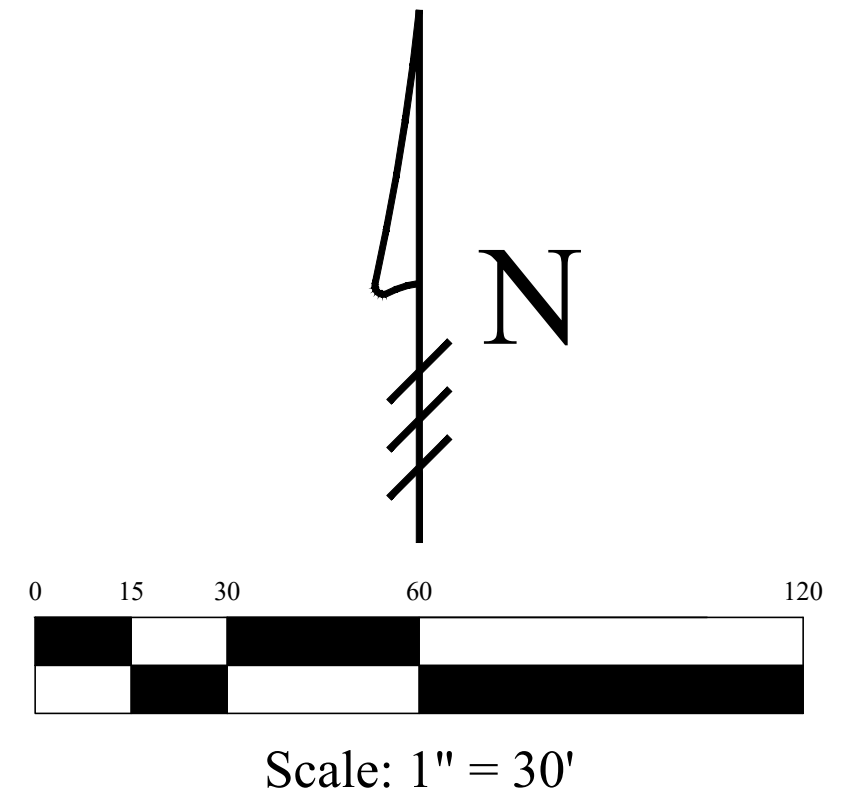
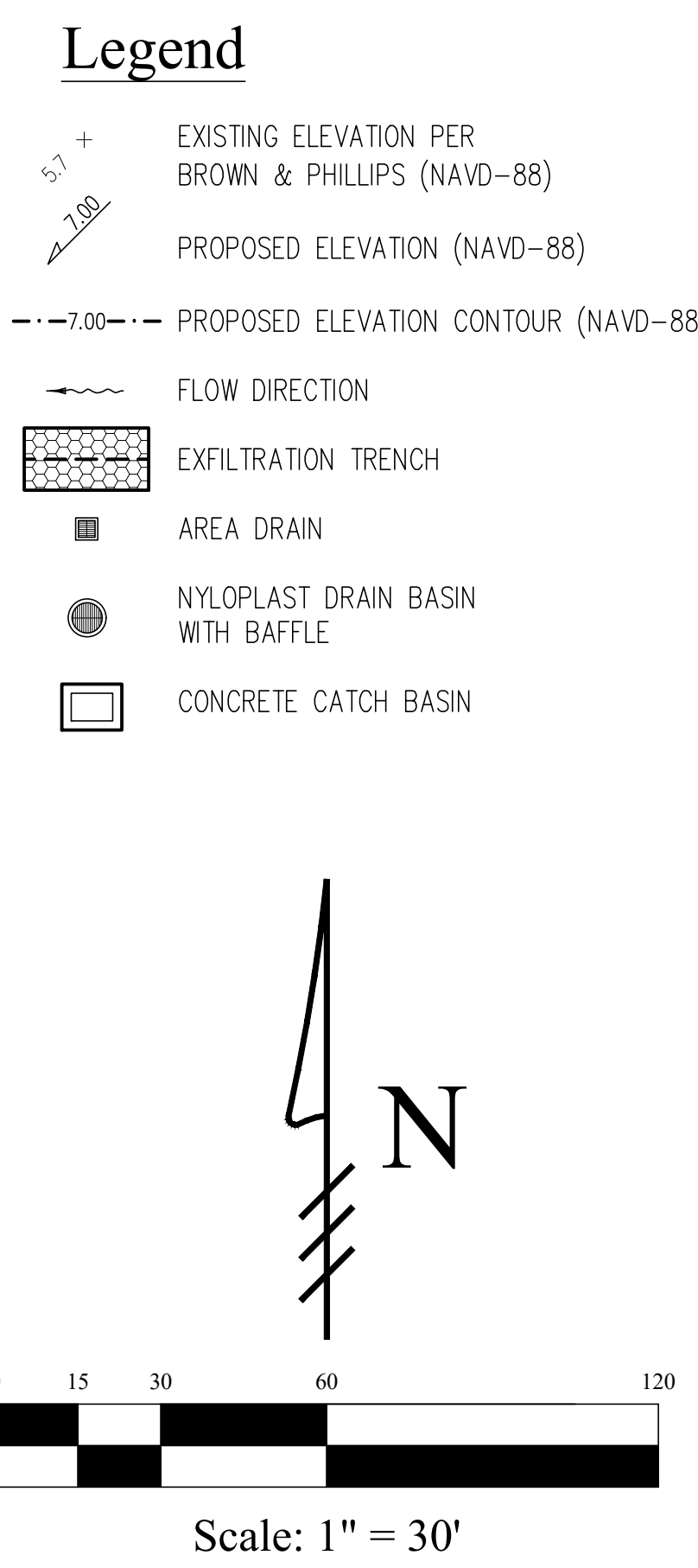
1	11/22/2016	
2	02/07/2017	
3	09/29/2017	
4	03/12/2018	
5	04/23/2018	
6	08/29/2018	
7		
8		
9		
10		

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FL.P.E. No. 57466

Sheet No.
C-1



Location Map
N.T.S.



STORMWATER RETENTION CALCULATIONS (Basin A)

A. SITE INFORMATION
Total Property Area = 198,957 sq.ft.
Proposed Drainage Area = 30,338 sq.ft.
Drainage Area Impervious Surface (proposed building, walkways, playground) = 17,086 sq.ft.
Drainage Area Pervious Surface = 13,252 sq.ft.

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 x 2 in/hr x 17,086 sq.ft. x 1 ft./12 in. = 2,848 cu.ft.
Pervious Runoff Volume: 0.2 x 2 in/hr x 13,252 sq.ft. x 1 ft./12 in. = 442 cu.ft.
Total Volume to be Retained = 3,290 cu.ft.

C. PROPOSED EXFILTRATION TRENCH SIZING
L = Total Length of Trench Provided = 93 ft
W = Trench Width = 32 ft
K = Hydraulic Conductivity = 0.0001 cfs/sq.ft./ft. of head
H2 = Depth to Water Table = 1.50 ft
DU = Un-Saturated Trench Depth = 1.00 ft
DS = Saturated Trench Depth = 1.00 ft
V = Volume Treated = 3,291 cu.ft.

STORMWATER RETENTION CALCULATIONS (Basin B)

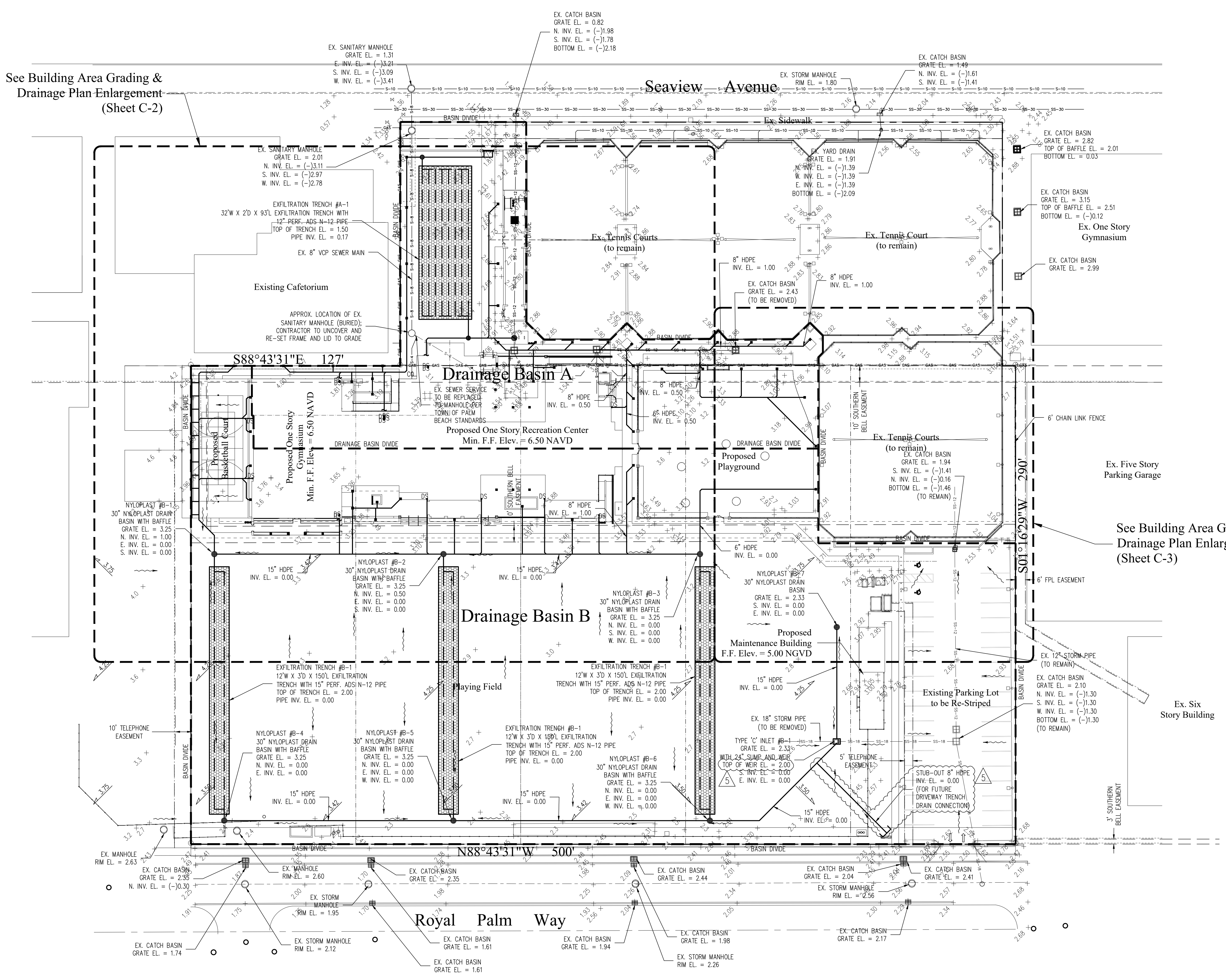
A. SITE INFORMATION
Total Property Area = 198,957 sq.ft.
Proposed Drainage Area = 116,210 sq.ft.
Drainage Area Impervious Surface (proposed building, walkways, basketball court) = 28,062 sq.ft.
Drainage Area Pervious Surface = 88,148 sq.ft.

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 x 2 in/hr x 28,062 sq.ft. x 1 ft./12 in. = 4,677 cu.ft.
Pervious Runoff Volume: 0.2 x 2 in/hr x 88,148 sq.ft. x 1 ft./12 in. = 2,938 cu.ft.
Total Volume to be Retained = 7,615 cu.ft.

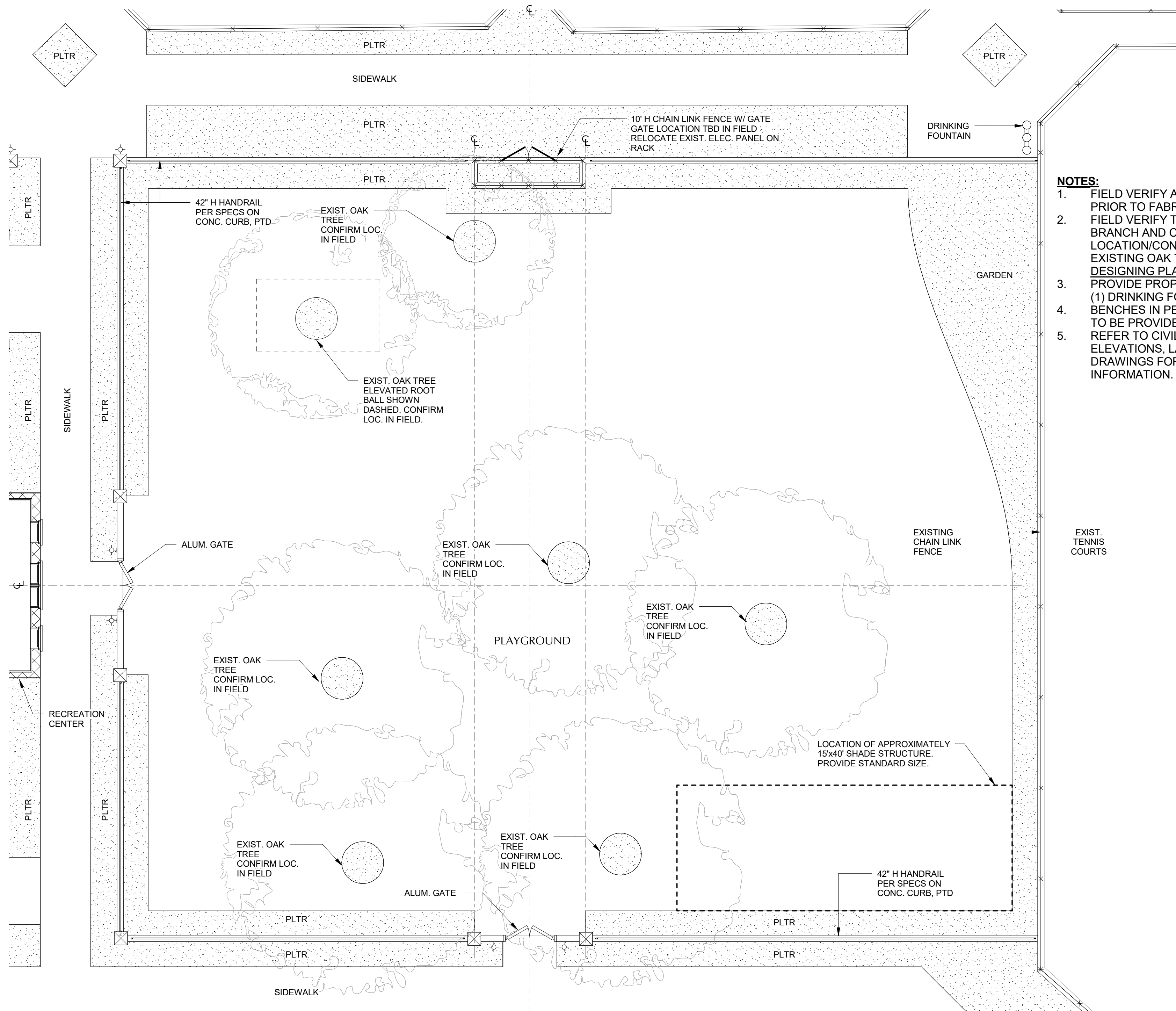
C. PROPOSED EXFILTRATION TRENCH SIZING
L = Total Length of Trench Provided = 450 ft
W = Trench Width = 12 ft
K = Hydraulic Conductivity = 0.0001 cfs/sq.ft./ft. of head
H2 = Depth to Water Table = 2.00 ft
DU = Un-Saturated Trench Depth = 1.50 ft
DS = Saturated Trench Depth = 1.50 ft
V = Volume Treated = 8,130 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.

See Building Area Grading & Drainage Plan Enlargement (Sheet C-2)



See Building Area Grading & Drainage Plan Enlargement (Sheet C-3)



- NOTES:**
1. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
 2. FIELD VERIFY TRUNK, ROOT BALL, BRANCH AND CANOPY LOCATION/CONDITION OF ALL EXISTING OAK TREES PRIOR TO DESIGNING PLAYGROUND. PROVIDE PROPOSED LOCATION FOR (1) DRINKING FOUNTAIN.
 3. BENCHES IN PERIMETER PLANTER TO BE PROVIDED BY OWNER. REFER TO CIVIL, EXTERIOR ELEVATIONS, LANDSCAPE DRAWINGS FOR MORE INFORMATION.

PLAYGROUND PLAN

Morton and Barbara Mandel Recreation Center

PROJECT 16.024

Stephen Boruff, AIA
Architects + Planners, Inc.

DSK 12

OCTOBER 02, 2018
SCALE: 1/8" = 1'-0"