

TOTAL PROJECT AREA: 48.35 AC
 CITIZEN PARKWAY AREA: 8.02 AC
 POST-DEVELOPMENT SITE AREA: 40.33 AC
 TOTAL POST DEVELOPMENT BASIN AREA: 48.35 AC

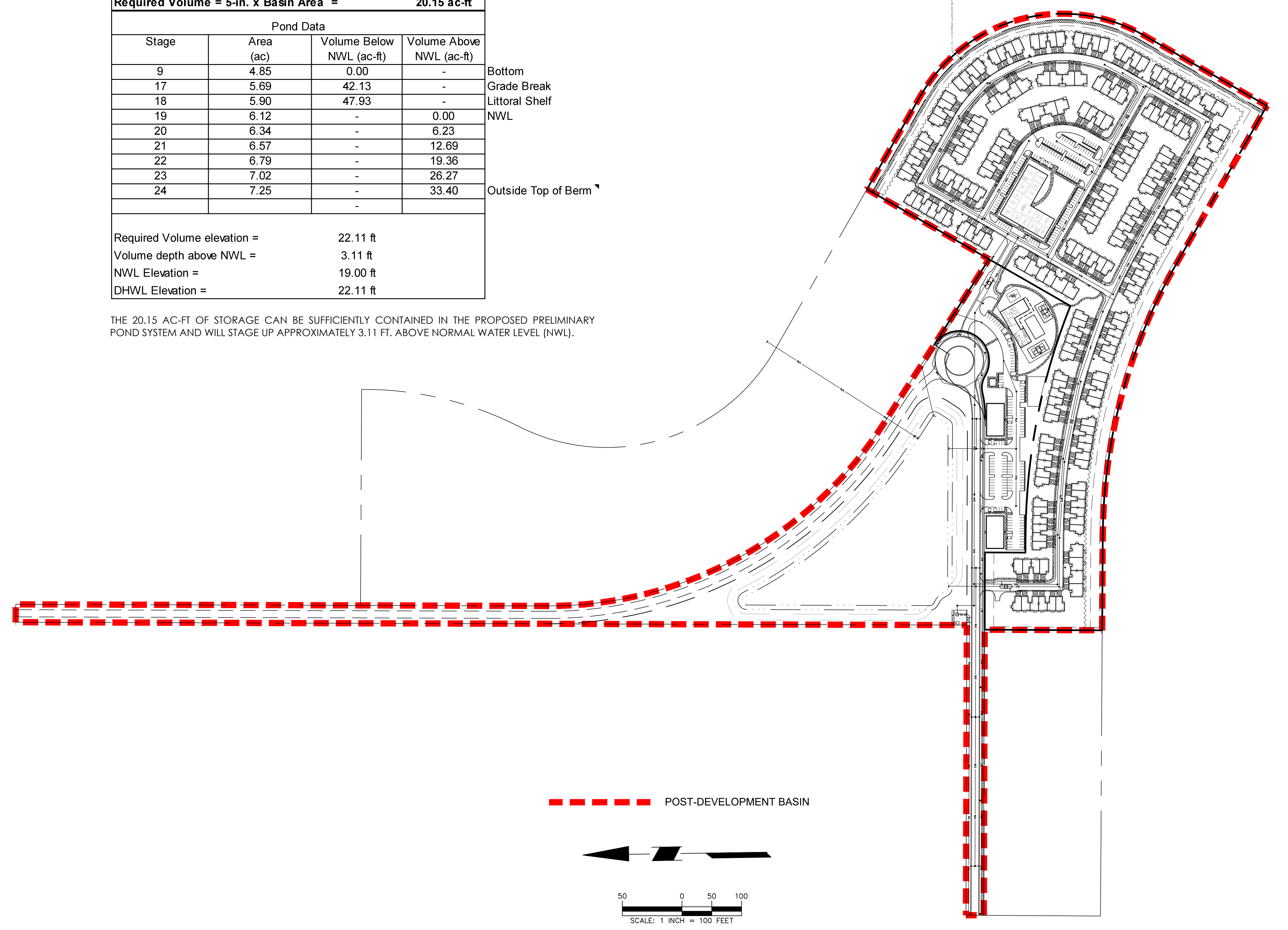
FROM EXPERIENCE ACROSS MANATEE-SARASOTA COUNTY AREA, PEAK POND DESIGN HIGH WATER LEVELS WILL REFLECT A MOMENTARY STORAGE OF 4.5 INCHES OF RUNOFF FROM THE CONTRIBUTING AREA (CALCULATIONS BELOW USE 5 INCHES AS A FACTOR OF SAFETY) WHEN SATISFYING BOTH 25 AND 100 YEAR DISCHARGE RATE REQUIREMENTS.

5" OVER THE DEVELOPMENT AREA: 20.15 AC-FT OF STORAGE NEEDED IN PONDS.

NORMAL WATER LEVEL (NWL) IS ASSUMED AT THE EXISTING GRADE AT THE EDGE OF THE POTENTIAL WETLANDS/EXISTING DEPRESSIONAL AREAS ONSITE (WHICH CORRESPONDS TO ~0.3 FT. BELOW EXISTING GRADE.

Basin Area: 48.35 acres			
Attenuation Volume Calculations			
Required Volume = 5-in. x Basin Area =		20.15 ac-ft	
Pond Data			
Stage	Area (ac)	Volume Below NWL (ac-ft)	Volume Above NWL (ac-ft)
9	4.85	0.00	-
17	5.69	42.13	-
18	5.90	47.93	-
19	6.12	-	0.00
20	6.34	-	6.23
21	6.57	-	12.69
22	6.79	-	19.36
23	7.02	-	26.27
24	7.25	-	33.40
Required Volume elevation =		22.11 ft	
Volume depth above NWL =		3.11 ft	
NWL Elevation =		19.00 ft	
DHWL Elevation =		22.11 ft	

THE 20.15 AC-FT OF STORAGE CAN BE SUFFICIENTLY CONTAINED IN THE PROPOSED PRELIMINARY POND SYSTEM AND WILL STAGE UP APPROXIMATELY 3.11 FT. ABOVE NORMAL WATER LEVEL (NWL).



Date	Description	No.
2-1-2023	PER CITY COMMENTS	2
1-4-2023	PER CITY COMMENTS	1

Revisions

LANGAN
 Langan Engineering and Environmental Services, Inc.
 400 N. Ashley Drive, Suite 2175
 Tampa, FL 33602
 T: 813.439.6100 F: 813.439.6101 www.langan.com
 FL CERTIFICATE OF AUTHORIZATION NO. 00006601/LB8172/LB8198

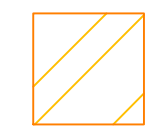
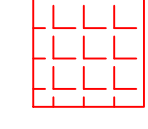
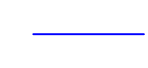
Project
STARK ENTERPRISES - NORTH PORT
 NORTH PORT
 FLORIDA

Drawing Title
STORMWATER MANAGEMENT PLAN

Project No. 350073601
 Date JUNE 2022
 Drawn By JM
 Checked By AE

Exhibit CS102
 Sheet 1 of 1

LEGEND

-  1% ANNUAL CHANCE FLOODPLAIN IMPACT AREAS
-  1% ANNUAL CHANCE OF FLOOD WITH AVERAGE DEPTHS OF LESS THAN ONE FOOT IMPACT AREAS
-  FEMA FLOOD HAZARD AREAS

FLOODPLAIN IMPACT CALCULATIONS

Site Floodplain Impacts				
Floodplain Impact ID	BFE (ft. NAVD88)	Volume (cu-yd)	Volume (ac-ft)	
FPI-01	22.7	2,781.43	1.72	
FPI-02	22.2	580.08	0.36	
FPI-03	21.8	15,556.24	9.64	
FPI-04	22.2	1,143.25	0.71	
FPI-05		380.87	0.24	
FPI-06		40.98	0.03	
FPI-07		0.50	0.00	
FPI-08		0.72	0.00	
FPI-09		8.25	0.01	
FPI-10		22.0	237.64	0.15
FPI-11		20.2	1,313.96	0.81
Total			22,043.92	13.67

Citizen Parkway Floodplain Impacts			
Floodplain Impact ID	BFE (ft. NAVD88)	Volume (cu-yd)	Volume (ac-ft)
FPI-CP-01	23.1	229.90	0.14
FPI-CP-02	22.7	0.00	0.00
FPI-CP-03		2,793.04	1.73
FPI-CP-04	22.2	63.58	0.04
FPI-CP-05		2,783.05	1.73
FPI-CP-06	21.8	183.23	0.11
FPI-CP-07	22.2	104.75	0.06
Total		6,157.55	3.82

TOTAL IMPACTS	28,201.47	17.48
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FLOOD COMPENSATION CALCULATIONS

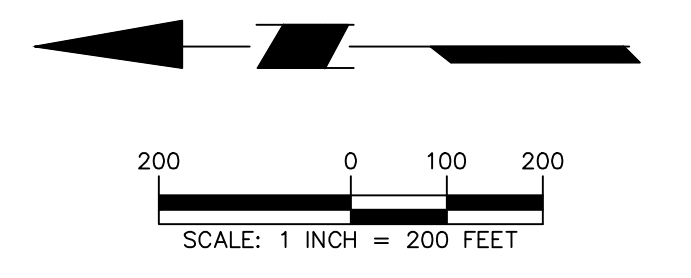
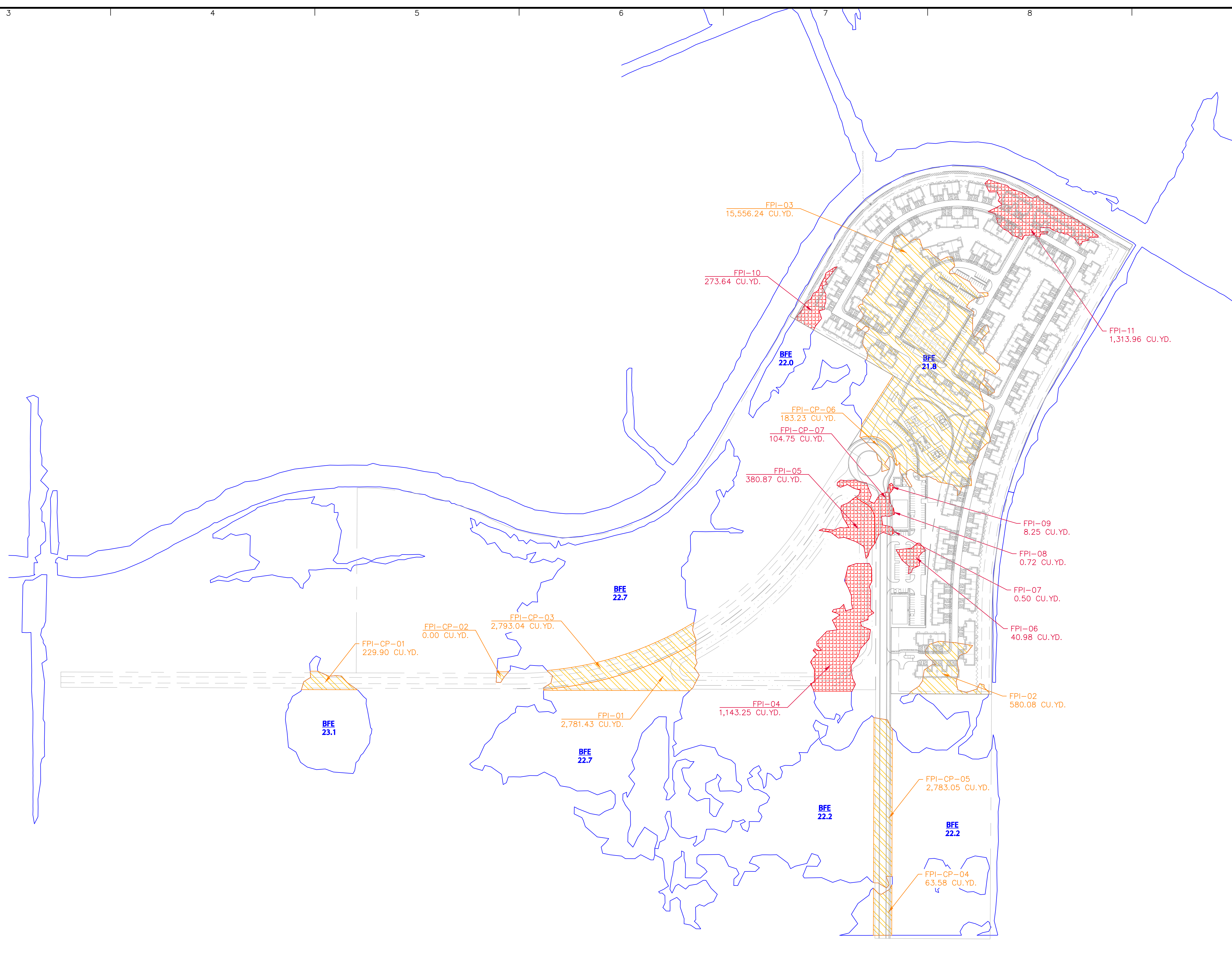
Flood Source FPI-04
BFE 22.7 ft, NAVD88

Pond Data		
Stage (ft. NAVD88)	Area (ac)	Storage Volume (ac-ft)
19	6.12	0.00
20	6.34	6.23
21	6.57	12.69
22	6.79	19.36
23	7.02	26.27
24	7.25	33.40

Top of Berm

Required Flood Compensation Volume: 17.48 ac-ft
Available storage volume @BFE = 22.7 ft: 24.34 ac-ft

Therefore, the design stormwater pond provides sufficient storage volume to compensate for the 100-yr storm events floodplains.



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 Langan Engineering and Environmental Services, Inc. 400 N. Ashley Drive, Suite 2175 Tampa, FL 33602 T: 813.439.6100 F: 813.439.6101 www.langan.com FL CERTIFICATE OF AUTHORIZATION NO. 00006601/LB8172/LB8198	Project STARK ENTERPRISES - NORTH PORT NORTH PORT FLORIDA	Drawing Title FLOODPLAIN IMPACT	Project No. 350073601	Drawing No. CS103
	Date 11/18/2022	Drawn By BML	Checked By AE	Sheet 1 of 1