

February 11, 2025

South Florida Water Management District  
3301 Gun Club Road, MSC 3210  
West Palm Beach, FL 33406

**RE: ERP Minor Modification**  
**Chase – Ft Pierce**  
**Master ERP # 56-00402-S**  
**City of Fort Pierce, Florida – S15/T35S/R40E**

To whom it may concern,

Please find enclosed our submittal for an ERP Minor Modification. This project proposes the development of a 3,432 SF Chase bank on a 0.60 acre outparcel (E) within the approved master development plans for the Gateway Plaza. The site is located at 2007 South Us Hwy 1, Fort Pierce, Florida, 34950.

The subject parcel is associated with an overall master plan, which provides the required stormwater management facilities for the entire master development. This project will tie into the existing dry retention system which has previously been approved under ERP# 56-00402-S, through an existing storm inlet located onsite.

The existing Burger King development established in the previously approved permit has an impervious surface ratio of 78.3% and an open space ratio of 21.7%. The proposed Chase Bank development will have an impervious surface ratio of 66.7% and a pervious ratio of 33.3%; therefore, the post development impervious ratio is lower than what was previously approved, reducing the runoff generated by the site. In addition, an exfiltration trench system will be installed for water quality treatment

Please find enclosed the following documents in order to process this permit modification:

- Civil Plans
- Ownership Information
- Letter of Authorization
- Stormwater Calculations

Should there be any questions or should additional information required, please feel free to contact us at (321) 234-2880 or via email: [rhileman@bohlereng.com](mailto:rhileman@bohlereng.com)

Sincerely,



Ryan Hileman, P.E. PMP  
Sr. Project Manager, Land Development



LEGEND	
GRADING PLAN	
PROPERTY LINE	---
PROP ASPHALT PAVEMENT	[Pattern]
PROP CONCRETE SIDEWALK	[Pattern]
PROP CONCRETE PAVEMENT	[Pattern]
PROP SPOT ELEVATION	○
EX STORM SEWER	[Symbol]
PROP STORM SEWER	[Symbol]
PROP GRATE INLET	[Symbol]
PROP STORM CLEANOUT	[Symbol]
PROP STORM MANHOLE	[Symbol]
RIDGE LINE	---
SWALE LINE	---

**BOHLER**  
 SITE CIVIL AND CONSULTING ENGINEERING  
 PROGRAM MANAGEMENT  
 LANDSCAPE ARCHITECTURE  
 SUSTAINABLE DESIGN  
 PERMITTING SERVICES  
 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

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 ALWAYS CALL 811  
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**ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL**

PROJECT No.:	FLD24044-00-0A
DRAWN BY:	AJ
CHECKED BY:	RH
DATE:	12/06/2024
CAD ID:	P-CIVL-GRDR

**PROP. SITE PLAN DOCUMENTS**  
 FOR  
**CHASE**

**PROPOSED DEVELOPMENT**  
 2007 SOUTH US HWY 1  
 FT PIERCE, FL 34950  
 S 15 - T 35 S - R 40 E

**BOHLER**  
 135 WEST CENTRAL BOULEVARD,  
 SUITE 600  
 ORLANDO, FLORIDA 32801  
 Phone: (321) 234-2880  
 FLORIDA BUSINESS CERT. OF AUTH. No. 30760

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY RYAN KEITH FLEMAN, PE, ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

**PAVING/ GRADING/ DRAINAGE PLAN**  
 SHEET NUMBER:  
**C-401**  
 ORG. DATE - 2/11/2025

**GENERAL NOTES:**

- CONTRACTOR WILL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CASTING STRUCTURES.
- COORDINATE ALL UTILITY LEADS AND BUILDING CONNECTIONS WITH THE ARCHITECTURAL PLANS.
- STANDARD INDEXES REFER TO THE LATEST EDITION OF F.D.O.T. "ROADWAY AND TRAFFIC DESIGN STANDARDS."
- ALL DISTURBED AREAS WITHIN RIGHT-OF-WAY WILL NEED TO BE SODED.

**PAVING AND GRADING NOTES:**

- A. GENERAL:**
- ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE SURVEYOR'S BENCHMARKS AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR PRIOR TO GROUND BREAK.
  - ALL GRADES SHOWN REFERENCE PROPOSED ELEVATIONS AT EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED. "TC" = TOP OF CURB ELEVATION; "G" = FINISHED GRADE; "MEG" = PROPOSED GRADE TO MATCH EXISTING GRADE; TW = TOP OF RETAINING WALL ELEVATION; BW = BOTTOM OF RETAINING WALL ELEVATION.
  - THE ALTA/ACSM LAND TITLE SURVEY SHALL BE CONSIDERED A PART OF THESE PLANS.
  - THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND IN CASE OF CONFLICT SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF ANY SUCH DISCREPANCY BETWEEN GEOTECHNICAL REPORT AND PLANS, ETC.
  - ALL UNDERGROUND UTILITIES SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF LIMEROCK BASE.
  - ALL EXISTING PAVEMENT, CUT OR DAMAGED BY CONSTRUCTION, SHALL BE PROPERLY RESTORED AT THE CONTRACTOR'S EXPENSE.
  - WHERE ANY PROPOSED PAVEMENT IS TO BE CONNECTED TO EXISTING PAVEMENT, THE EXISTING EDGE OF PAVEMENT SHALL BE SAWCUT TO ENSURE A PROPER JOINT.
  - PRIOR TO CONSTRUCTION OR INSTALLATION, SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER OF RECORD. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL OTHER AGENCY APPROVALS IF REQUIRED.
- B. MATERIALS:**
- BASE COURSE SHALL BE ABC-3 PER F.D.O.T. SPECIFICATIONS OR EQUIVALENT LIMEROCK THICKNESS W/ MINIMUM LBR-100 (MAX. 6" LIFTS).
  - ASPHALT SURFACES SHALL BE TYPE S-III ASPHALTIC CONCRETE, UNLESS OTHERWISE SPECIFIED ON THE PLANS, SHALL BE A MINIMUM OF 1-1/2" THICK, AND SHALL BE CONSTRUCTED IN TWO 3/4" LIFTS, WITH TACKCOAT BETWEEN LIFTS.
  - REINFORCED CONCRETE SLABS SHALL BE CONSTRUCTED OF CLASS I CONCRETE WITH A MINIMUM STRENGTH OF 3,000 PSI AND SHALL BE REINFORCED WITH A 6" x 6" NO. 6 GAUGE WIRE MESH.
- C. INSTALLATION:**
- SUBGRADE FOR ROADWAY SHALL BE COMPACTED TO A MINIMUM OF 98% OF THE MAXIMUM DENSITY (AASHTO T-180), SHALL BE A MINIMUM 12", AND SHALL HAVE A MINIMUM LBR-40.
  - BASE COURSE MATERIAL FOR PAVED AREAS SHALL BE A MINIMUM THICKNESS OF 6" PLACED IN ONE LIFT. ADDITIONALLY, BASE COURSE MATERIAL SHALL HAVE A MINIMUM MARSHALL STABILITY OF 1000, UNLESS OTHERWISE INDICATED (OR LBR-100).
  - BASE COURSE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
  - INSTALLATION OF THE WEARING SURFACE SHALL CONFORM TO THE REQUIREMENTS OF THE D.O.T. STANDARD SPECIFICATIONS FOR TYPE S-III ASPHALTIC CONCRETE OR THE LATEST REVISION.
- D. TESTING**
- THE FINISHED SURFACE OF THE BASE COURSE AND THAT OF THE WEARING SURFACE SHALL NOT VARY MORE THAN 1/4" FROM THE TEMPLATE, ANY IRREGULARITIES EXCEEDING THIS LIMIT SHALL BE CORRECTED.
  - DENSITY TESTS SHALL BE TAKEN BY AN INDEPENDENT TESTING LABORATORY CERTIFIED BY THE STATE OF FLORIDA, WHERE DIRECTED BY THE ENGINEER.
  - ALL TESTING COSTS (PAVING) SHALL BE PAID FOR BY THE CONTRACTOR.
  - DENSITY TESTS ON THE STABILIZED SUBGRADE SHALL BE SUPPLIED TO AND APPROVED BY THE ENGINEER OF RECORD AND GEOTECHNICAL ENGINEER BEFORE ANY BASE IS CONSTRUCTED.
  - DENSITY TESTS AND "AS-BUILTS" ON THE FINISHED BASE SHALL BE SUPPLIED TO AND APPROVED BY THE GEOTECHNICAL ENGINEER BEFORE ANY ASPHALT PAVEMENT IS CONSTRUCTED.

**DEWATERING NOTE:**

CONTRACTOR SHALL SUBMIT DEWATERING PLAN TO THE DISTRICT 14 DAYS PRIOR TO COMMENCEMENT. SUBJECT PLANS SHALL BE REVISED AS NECESSARY.

**STORM DRAINAGE NOTES:**

- A. GENERAL:**
- DISTANCES AND LENGTHS OF PIPE SHOWN ON PLANS ARE REFERENCED TO THE CENTER OF STRUCTURES.
- B. MATERIALS:**
- REINFORCED CONCRETE PIPE (RCP) SHALL MEET THE REQUIREMENTS OF ASTM C-76, CLASS III, WALL THICKNESS "B", LATEST REVISION. RUBBER GASKETS OR OTHER MANUFACTURER SUPPLIED JOINT SEALER SHALL BE USED.
  - ALL PVC DRAINAGE PIPE AND FITTINGS SHALL BE NON-PRESSURE POLY(VINYL CHLORIDE) (PVC) PIPE CONFORMING TO ASTM D 3034, SDR 35, WITH PUSH-ON RUBBER GASKET JOINTS.
  - ALL HIGH DENSITY POLYETHYLENE PIPE AND FITTINGS SHALL MEET THE REQUIREMENTS OF AASHTO M-294 LATEST REVISIONS. ALL PIPING TO BE NON-PERFORATED TUBING.
- C. INSTALLATION:**
- PIPE SHALL BE PLACED ON A MINIMUM OF 8" STABLE GRANULAR MATERIAL FREE OF ROCK FORMATION AND OTHER FOREIGN FORMATIONS, AND CONSTRUCTED TO A UNIFORM GRADE AND LINE.
  - BACKFILL MATERIAL SHALL BE WELL GRADED GRANULAR MATERIAL, WELL TAMPED IN LAYERS NOT TO EXCEED 6" TO A HEIGHT OF 12" ABOVE PIPE AS SHOWN ON THE PLANS.
  - PROVIDE A MINIMUM PROTECTIVE COVER OF 18" OVER STORM SEWER AND AVOID UNNECESSARY CROSSING BY HEAVY CONSTRUCTION VEHICLES DURING CONSTRUCTION.
- D. CONNECTIONS TO EXISTING STORM STRUCTURES:**
- THE HOLE INTO THE EXISTING STRUCTURE SHALL BE SAW CUT OR CORE DRILLED.
  - USE NON-SHRINKING GROUT TO FILL ALL GAPS AROUND THE JOINT.
  - AFTER PIPE IS CONNECTED WITH THE INLET, THE END OF THE PIPE MUST BE CUT FLUSH WITH THE INSIDE SURFACE OF THE INLET.
  - REFER TO F.D.O.T. STANDARD PLAN INDEX 425-001 FOR FILTER FABRIC WRAP ON GROUTED PIPE TO STRUCTURE JOINT DETAIL.

ROOF DRAIN PIPE SCHEDULE							
FROM	FROM INV	TO	TO INV	PIPE LENGTH	SLOPE (%)	SIZE (IN)	MATERIAL TYPE
RCO-01	16.40'	RCO-02	16.09'	31 LF	1.00%	4"	HDPE
RCO-02	16.09'	RCO-03	15.65'	44 LF	1.00%	4"	HDPE
RCO-03	15.65'	EXISTING INLET	15.31'	34 LF	1.00%	4"	HDPE
RCO-01	16.40'	RCO-04	16.34'	3 LF	2.14%	4"	HDPE
RCO-04	16.34'	RCO-05	15.95'	18 LF	2.14%	4"	HDPE
RCO-05	15.95'	RCO-06	15.65'	14 LF	2.14%	4"	HDPE
RCO-06	15.65'	RCO-08	14.82'	39 LF	2.14%	8"	HDPE
RCO-01	16.40'	RCD-07	16.04'	9 LF	3.95%	4"	HDPE
RCD-07	16.04'	RCD-08	14.82'	31 LF	3.95%	8"	HDPE
RCD-08	14.82'	A-30	14.56'	12 LF	2.14%	8"	HDPE

STORM CLEANOUT SCHEDULE			
RCO-01:	RCO-02:	RCO-03:	RCO-04:
BUILDING DOWNSPOUT & CLEANOUT RIM: AT GRADE INV: 16.40'	CLEANOUT RIM: AT GRADE INV: 16.09'	CLEANOUT RIM: AT GRADE INV: 15.65'	CLEANOUT RIM: AT GRADE INV: 16.34'
RCO-05:	RCO-06:	RCO-07:	RCO-08:
CLEANOUT RIM: AT GRADE INV: 15.95'	CLEANOUT RIM: AT GRADE INV: 15.65'	CLEANOUT RIM: AT GRADE INV: 16.04'	CLEANOUT RIM: AT GRADE INV: 14.82'

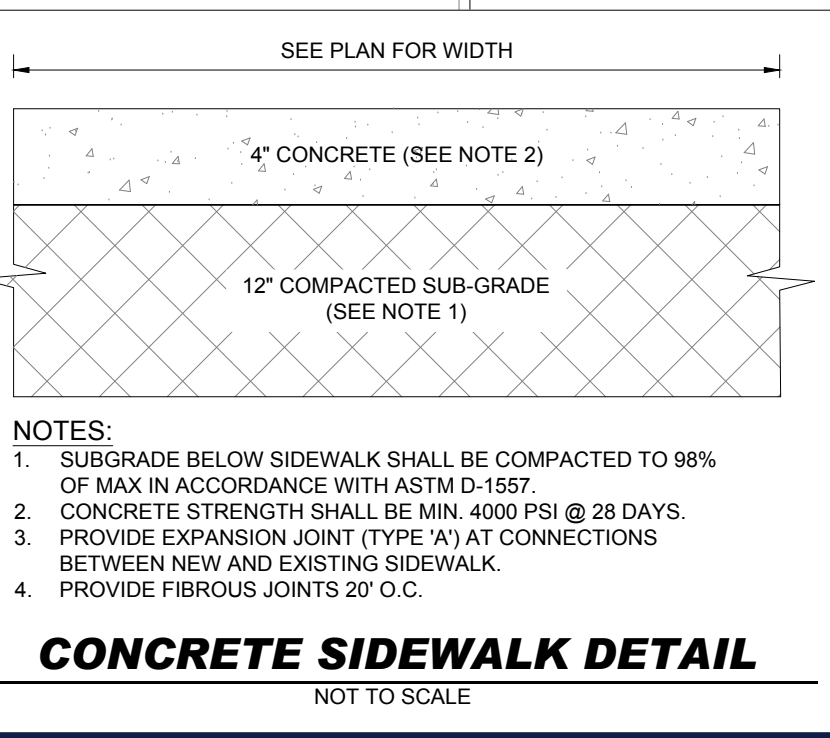
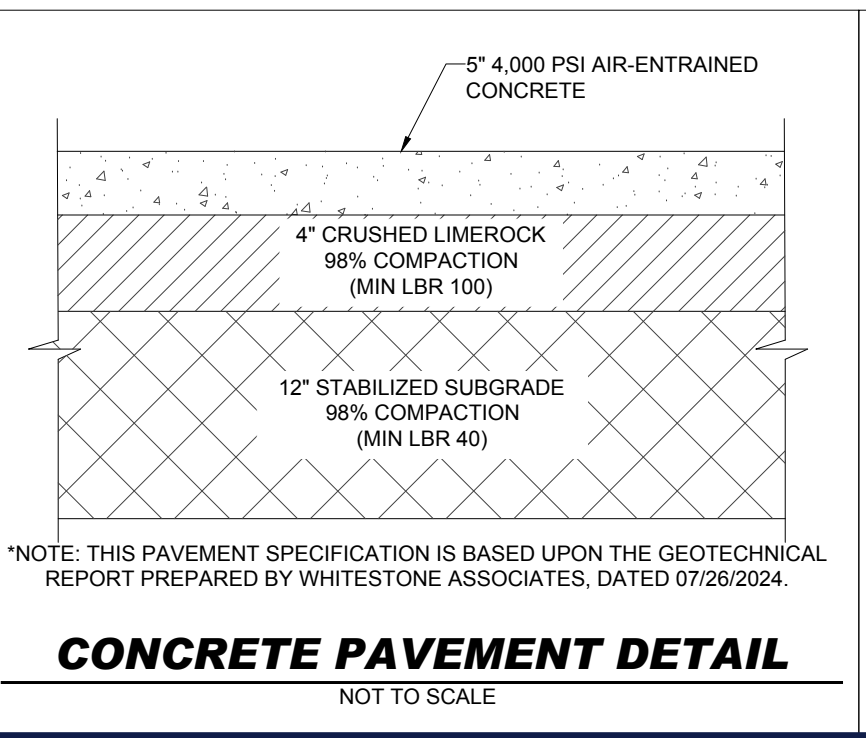
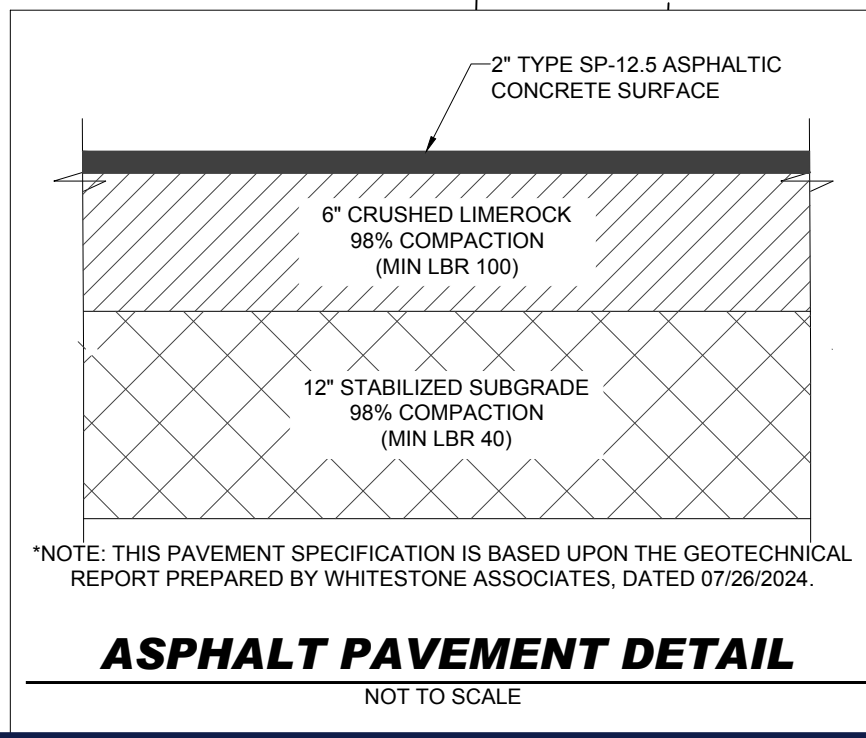
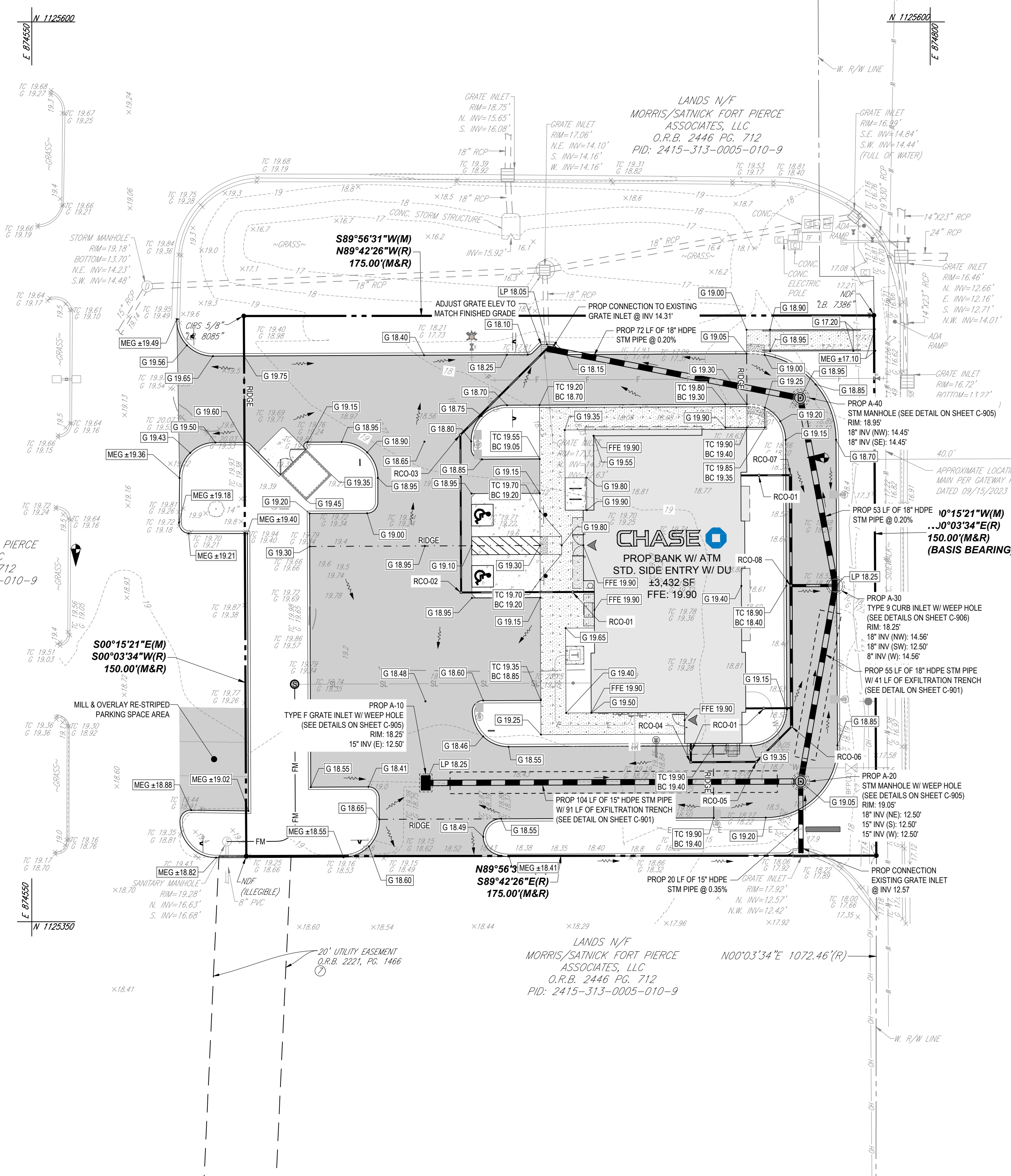
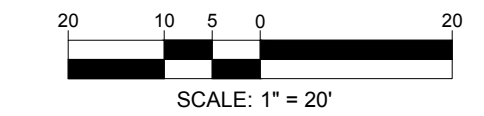
**DATUM NOTE:**

ELEVATIONS ARE BASED ON NAVD83 DATUM DETERMINED BY GPS OBSERVATIONS AND TIED IN TO THE NGS BENCHMARK NO. AF7505 WITH A PUBLISHED ELEVATION OF 11.96 FEET.

**FEMA NOTE:**

THE PROPERTY IS LOCATED IN OTHER AREAS ZONE X (AREAS OF MINIMAL FLOOD HAZARD), PER MAP ENTITLED "FIRM NATIONAL FLOOD INSURANCE RATE MAP, ST. LUCIE COUNTY, FLORIDA AND INCORPORATED AREAS, PANEL 187 OF 420, MAP NUMBER 1211C10187K, WITH A MAP EFFECTIVE DATE OF FEBRUARY 19, 2020.

**THIS PLAN TO BE UTILIZED FOR GRADING, DRAINAGE AND UTILITIES PURPOSES ONLY**





Date: 2/11/2025  
 Project: Chase Ft. pierce  
 Project No.: FLD240044.00

Calculated By: Alexis Jerez  
 Checked By:

**Chase Ft. pierce - Stormwater Management**

<b>SITE DATA</b>		
Total Site Area (A <sub>T</sub> )=	0.60 Acres	100.0%
Total Building (A <sub>B</sub> )=	0.08 Acres	13.3%
Total Canopy (A <sub>C</sub> )=	0.00 Acres	0.0%
Total Pavement/Sidewalk (A <sub>I</sub> )=	0.20 Acres	33.3%
Total Green (A <sub>P</sub> )=	0.32 Acres	53.3%
Total Lakes Normal Water Level (A <sub>L</sub> )=	0.00 Acres	0.0%
<b>SOIL STORAGE CALCULATIONS</b>		
Average Pervious Elevation =	18.4 Ft. +/- NAVD	
Seasonal High Water Table	14.46 Ft. NAVD	
Depth to water table=	3.89 Ft.	
Soil Storage Type	Coastal	
From SFWMD Manual for to W.T. (Comp S) =	4.95 In.	
Compute overall soil storage for site.=	2.64 In.	
	$S = (\text{Comp S}) \times [A_P / A_T];$	
Compute CN value for site=	79	
	$CN = 1000 / (S + 10)$	
<b>COMPUTE 100-Year, 72-Hour Runoff Volume for Proposed Site</b>		
Rainfall (P <sub>100-72</sub> ),	12.23 In.	
$Q_{100-72} = (P_{100-72} - 0.2S^2) / (P_{100-72} + 0.8S) =$	9.55 In.	
Compute volume generated by storm		
	$V = (P_{100-72} / 12) \times A_T =$	
	0.48 Ac.-Ft.	
<b>COMPUTE 25-Year, 72-Hour Runoff Volume for Proposed Site</b>		
Rainfall (P <sub>25-72</sub> ),	9.51 In.	
$Q_{25-72} = (P_{25-72} - 0.2S^2) / (P_{25-72} + 0.8S) =$	6.94 In.	
Compute volume generated by storm		
	$V = (P_{25-72} / 12) \times A_T =$	
	0.35 Ac.-Ft.	
<b>COMPUTE 10-Year, 24-hour Runoff Volume for Proposed Site</b>		
Rainfall (P <sub>5-1</sub> ),	3.25 In.	
$Q_{5-1} = (P_{5-1} - 0.2S^2) / (P_{5-1} + 0.8S) =$	1.38 In.	
Compute volume generated by storm		
	$V = (P_{5-24} / 12) \times A_T =$	
	0.07 Ac.-Ft.	



Date: 2/11/2025

Project: Chase Ft. pierce

Project No.: FLD240044.00

Calculated By: Alexis Jerez

Checked By:

## Chase Ft. pierce - Water Quality

### SITE DATA

Total Site Area ( $A_T$ )=	0.60 Acres	(100.0%)
Total Building/Canopy ( $A_B$ )=	0.08 Acres	(13.3%)
Total Pavement/Sidewalk ( $A_I$ )=	0.20 Acres	(33.3%)
Total Green ( $A_P$ )=	0.32 Acres	(53.3%)
Total Pond/Lake ( $A_L$ )	0.00 Acres	(0.0%)

### Compute Water Quality Requirements

-Compute first inch of runoff over entire site

$$\begin{aligned}WQ_1 &= 1 \text{ Inch} \times A_T \times (1 \text{ Ft./}12 \text{ In.}) \\ &= 1/12 \times 0.6 \text{ Acres} \\ &= 0.05 \text{ Ac.-Ft.} \quad \text{or} = 0.6 \text{ Ac.-In.}\end{aligned}$$

-Compute 2.5" x % of Imperviousness

A) Calculate site area for W.Q. Imperviousness

$$\begin{aligned}A_S &= A_T - (A_B + A_L) \\ &= 0.6 - (0.08 + 0) \\ &= 0.52 \text{ Acres}\end{aligned}$$

B) Calculate Imperviousness Area for W.Q.

$$\begin{aligned}A_{IMP} &= A_S - A_P \\ &= 0.52 - 0.32 \\ &= 0.20 \text{ Acres}\end{aligned}$$

C) Calculate percent imperviousness

$$\begin{aligned}\%_{IMP} &= (A_{IMP} / A_S) \times 100 \\ &= (0.2 / 0.52) \times 100 \\ &= 38.5\%\end{aligned}$$

D) Calculate 2.5 inches times the percent imperviousness

$$\begin{aligned}V_{2.5} &= 2.5 \text{ in.} \times \%_{IMP} \\ &= 2.5 \text{ in.} \times 0.385 \\ &= 0.96 \text{ In.}\end{aligned}$$

E) Calculate W.Q. volume required

$$\begin{aligned}WQ_{2.5} &= V_{2.5} \times (A_T - A_L) \\ &= 0.96 \times (0.6 - 0) \\ &= 0.05 \text{ Ac.-Ft.} \quad \text{or} = 0.6 \text{ Ac.-In.}\end{aligned}$$

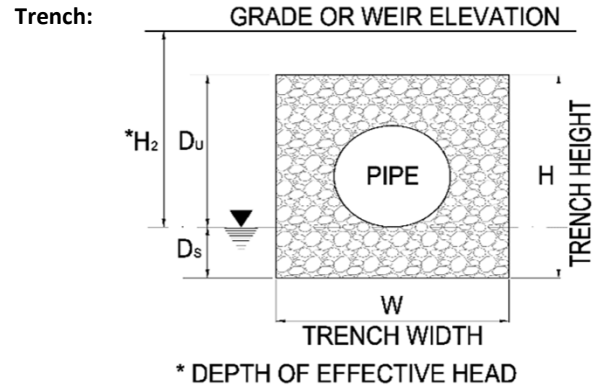
-Determine W.Q. required for site

$$WQ = 0.05 \text{ Ac.-Ft.} \quad \text{or} = 0.6 \text{ Ac.-In.}$$

Since the 0.6 ac-in is greater than the 0.6 ac-in computed for 2.5 Inches times percent imperviousness the volume of 0.6 ac-in controls.

## Chase Ft. pierce - Exfiltration Trench Calculations (Quality)

K-Values	
Test Hole #	(cfs/ft <sup>2</sup> /ft hd)
EXF-1	3.86E-04
EXF-2	5.83E-04
EXF-3	3.80E-04
EXF-4	6.75E-04
EXF-5	4.51E-04
K <sub>AVG</sub>	4.95E-04



Description of Elevations	Elevations (NAVD)
Grade	18.25
Weir	18.25
Top of Trench	15.50
Seasonal High Water Table	14.46
Bottom of Trench	11.50

### Design Parameters

Factor of Safety	2	
Water Quality Runoff (Q <sub>WQ</sub> )	1.00 Inches	
Water Quality Volume (V <sub>WQ</sub> )	0.60 Acre-Inches	
Addition Runoff (Q <sub>ADD</sub> )	2.28 Inches	(3.28 in - Q <sub>WQ</sub> )
Addition Volume (V <sub>ADD</sub> )	1.37 Acre-Inches	
% of WQ Required	100%	Wet Detention

Trench Properties	
H <sub>2</sub> =	3.79 Ft.
W =	6.00 Ft.
D <sub>u</sub> =	1.04 Ft.
D <sub>s</sub> =	2.96 Ft.
H = Du + Ds =	4.00 Ft.

$$L = \frac{F.S. [(\%WQ)(V_{WQ}) + V_{ADD}]}{K * [(2 * H * D_u) - D_u^2 + (2 * H * D_s)] + [1.39 * 10^{-4}] * (W * D_u)}$$

### Trench Length for Water Quality Requirements:

$$L_{WQ} = 122 \text{ Feet}$$