Site Plan Review Application submitted by Marc Liverman, P.E., Atlantic Coast Consulting, Inc., on behalf of Drayton-Parker Companies, LLC., for PIN # 70035 01010 (Highway 21) for a Specific Development Site Plan to allow a Truck & Chassis Yard (Port Wentworth Truck and Chassis Storage Yard) in a P-I-1 (Planned Industrial) Zoning District

Issue/Item: Site Plan Review Application submitted by Marc Liverman, P.E., Atlantic Coast Consulting, Inc., on behalf of Drayton-Parker Companies, LLC., for PIN # 70035 01010 (Highway 21) for a Specific Development Site Plan to allow a Truck & Chassis Yard (Port Wentworth Truck and Chassis Storage Yard) in a P-I-1 (Planned Industrial) Zoning District

Background: The subject property is currently vacant woodland. There are no buildings or structures on the subject property. This property was rezoned during the October 28, 2021 regular City Council meeting.

Facts and Findings: The developer is proposing to develop a gravel truck / chassis storage yard. The proposed plan includes truck / chassis parking spaces, car parking spaces, a 2,000 square foot administration building and landscape screening along Highway 21. The project will also include associated drainage, and water and sewer utilities. This project is currently under review by City engineers T.R. Long Engineering.

Funding: N/A

Recommendation: The Planning Commission will hear this application on Monday, July 11, 2022 at 6:30 PM. **/ UPDATE: THE PLANNING COMMISSION VOTED UNANIMOUSLY TO APPROVE THIS APPLICATION WITH THE CONDITION THAT THERE BE NO CONTAINER STACKING.**

ATTACHMENTS:

- Truck and Chassis Yard 7-0035-01-010 Hwy 21 S-Site Plan JULY 2022 - Application (PDF)
- Truck and Chassis Yard 7-0035-01-010 Hwy 21 S-Site Plan JULY 2022 - Timeline (DOCX)

220275

RECEIVED
MAY 24 2022
BY:

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

Site Plan Review Application

Site Plan Application is required for all new construction in a "P" or "MPO" zone as defined in the Zoning Ordinance of the City of Port Wentworth.

Site Plan Type (*Check One*): ☐ General / Concept ☑ Specific Development

Site Plan Address: 0 Highway 21

PIN #(s): 7-0035-01-010

Zoning: P-I-1 Estimated Cost of Construction: $

Type of Construction: Truck/Chassis Yard

Applicant's Name: Marc Liverman, P.E.

Mailing Address: 7 E. Congress St., Suite 801, Savannah, GA 31401

Phone #: 912-236-3471 Email: marc.liverman@atlcc.net

Owner's Name (If Different form Applicant): Drayton-Parker Companies, LLC

Mailing Address: 17 W. McDonough Street, Savnnah, GA 31401

Phone #: 912-581-2544 Email: gparker@parkersav.com

I hereby acknowledge that the above information is true and correct.

Applicant's Signature — Date: 5/13/2022

Owner's Signature (If Different form Applicant) — Date: 5/16/22

Please see page 2 for required submittal checklist

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

Site Plan Review Application Submittal Checklist

Documentation below is required for a complete submittal.

- ☑ Signed and Completed Application
- ☑ 3 Full size sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☑ 15 half size (11" X 17") sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☑ 2 copies of hydrology reports (if applicable)
- ☑ Names, mailing address, and PIN number of all property owners within 250 feet of all property lines
- ☑ 1 8 ½" X 11" of site plan civil drawings or concept plan (depending on type of site plan)
- ☑ PDF of entire submittal (either flash drive or CD)
- ☐ Other Engineering details or reports may be required once submittal has been received
- ☑ Site plan review fee check
    - No Land Disturbance- $206.00 Site Plan Fee + $50.00 Admin Fee = Total $256.00
    - With Land Disturbance - $836.00 Site Plan Fee + $50.00 Admin Fee = Total $886.00

Additional Fee Statement: If engineer review cost to the City exceeds the site plan review fee that is paid at the time of initial application submittal, you may be required to pay additional review cost.

I have read and agree to the above additional fee statement

Applicant's Signature

5/13/2022
Date

Port Wentworth Truckyard
Property Owners within 250'

Name	PIN #	Property Address	Mailing Address
DRAYTON-PARKER COMPANIES, LLC	70035 01011	0 Highway 21 Port Wentworth, GA 31407	17 W. McDonough Street Savannah, GA 31401
ARTICLE VIII CREDIT SHELTER TRUST ETAL* ATTN RICHARD E LEE	70035 01003	0 Highway 21 Port Wentworth, GA 31407	6232 Highway 21 Port Wentworth, GA 31407
CRESCENT INVESTMENTS INC.	70035 01002	6232 Highway 21 RD Port Wentworth, GA 31407	6232 GA Hwy 21 Port Wentworth, GA 31407
CROSSGATE INDUSTRIAL INVESTORS, LLC, A GEORGIA LIMITED LIABILITY COMPANY	70035 01008	1500 Crossgate Rd Port Wentworth, GA 31407	1776 Peachtree St NW Suite 100 Atlanta, GA 30309
MAYOR & ALDERMEN OF SAVANNAH	20912 01001	6183 Highway 21 Savannah, GA 31407	PO Box 1027 Savannah, GA 31412

CITY OF PORT WENTWORTH
(912) 964-4379

REC#: 00357313 6/09/2022 2:48 PM
OPER: ME TERM: 011
REF#: CK 12237

TRAN: 112.0000 BLDG PERMIT
220275 886.00CR
DRAYTON-PARKER COMPANIES, LLC
7-0035-01-010
DEV-SPR 886.00CR

TENDERED: 886.00 CHECK
APPLIED: 886.00-

CHANGE: 0.00

WWW.CITYOFPORTWENTWORTH.COM

Project Timeline

Project Number: 220275

Project Name: Pt Wentworth Truck & Chassis Storage Yard

Applicant / Engineer: Marc Liverman, Atlantic Coast Consulting

Owner: Drayton-Parker Companies, LLC

City Review Engineer: Trent Long, TR Long

- 5/24/2022 – Application received; Complete
- 5/24/2022 – sent email to Marc Liverman, to contact us for a Pre-Application meeting prior to us processing the application.
- 6/8/2022 – sent documents to TR Long for review.
- 7/5/2022 – sent email to TR Long for review update.
- 7/11/2022 – Planning Commission voted unanimously to approve the application with the condition that there be no container stacking.
- 7/20/2022 – sent email to TR Long for review update.

P: \Industrial\1061-1883 Logistics\101- Drayton-Parker PW Truck Yard\3-Design Data\2-DWGs\1061_101-Exhibits1to3.dwg 6/7/22 ARTINE AZIMI

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GA
Knoxville, TN

PORT WENTWORTH TRUCK AND CHASSIS YARD

EXHIBIT 1
(VIEW FROM HWY 21 LOOKING SOUTH)

PROJECT :	1061-102
DATE:	06/07/22
BY:	AA

P: \Industrial\1061-1883 Logistics\101- Drayton-Parker PW Truck Yard\3-Design Data\2-DWGs\1061_101-Exhibits1to3.dwg 6/7/22 ARTINE AZIMI

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Knoxville, TN

PORT WENTWORTH TRUCK AND CHASSIS YARD

EXHIBIT 2
(VIEW FROM HWY 21 LOOKING SOUTH - NO LANDSCAPING)

PROJECT :	1061-102
DATE:	06/07/22
BY:	AA

P:\Industrial\1061-1883 Logistics\101- Drayton-Parker PW Truck Yard\3-Design Data\2-DWGs\1061_101-Exhibits1to3.dwg 6/7/22 ARTINE AZIMI

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Roswell, GA
Savannah, GA
Knoxville, TN

PORT WENTWORTH TRUCK AND CHASSIS YARD

EXHIBIT 3
(VIEW FROM HWY 21 LOOKING NORTH)

PROJECT : I061-102
DATE: 06/07/22
BY: AA

PORT WENTWORTH TRUCK AND CHASSIS YARD
SPECIFIC DEVELOPMENT PLAN

DRAYTON-PARKER COMPANIES, LLC

CHATHAM COUNTY, GA
MAY 2022

Project Description:

Development of a truck and chassis storage yard.

ACRES TOTAL: 4.26
ACRES DISTURBED: 3.94

ENGINEER:
ATLANTIC COAST CONSULTING, INC.
MARC LIVERMAN, P.E.
770-594-5998
www.atlcc.net

Property Owner:

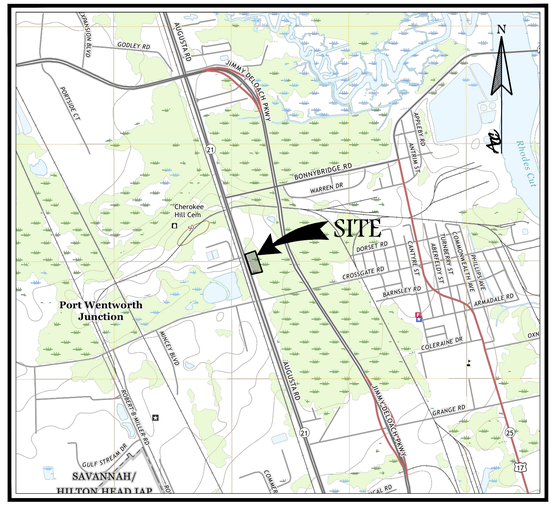
DRAYTON-PARKER COMPANIES, LLC

RESPONSIBLE OFFICIAL:
GREG PARKER
(912) 581-2544

FACILITY LOCATION:
LAT: 32.149740
LONG: -81.178586

Index of Drawings:

	COVER
C-001	GENERAL NOTES AND LEGEND
C-101	EXISTING CONDITIONS AND DEMOLITION PLAN
C-201	PAVING, GRADING, AND DRAINAGE PLAN
C-301	SITE AND UTILITY PLAN
C-501	EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN-PHASE I
C-502	EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN-PHASE II
C-503	EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN-PHASE III
C-601	EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES
C-602	EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES & DETAILS
C-603	EROSION, SEDIMENTATION AND POLLUTION CONTROL DETAILS
C-604	NPDES NOTES
C-605	NPDES SAMPLING & INSPECTION NOTES
C-701	CONSTRUCTION DETAILS
C-702	CONSTRUCTION DETAILS
C-703	CONSTRUCTION DETAILS
C-704	CONSTRUCTION DETAILS
LS-101	LANDSCAPE PLAN
LS-201	LANDSCAPE DETAILS
S1.0	STRUCTURAL NOTES
S1.1	WALL FOUNDATION PLAN



Vicinity Map
Scale: 1"=2000'
Source:
United States Geological Survey
Quad: PORT WENTWORTH, GA
Dated: 2020

Plan Preparer's Certification Statement

I, _____ (MARC LIVERMAN) AM A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF GEORGIA. I CERTIFY THAT THE DESIGN OF THE STORMWATER MANAGEMENT SYSTEM MEETS THE REQUIREMENTS OF THE CITY OF PORT WENTWORTH STORMWATER MANAGEMENT ORDINANCE, THE GEORGIA STORMWATER MANAGEMENT MANUAL, AND THE COASTAL STORMWATER SUPPLEMENT.

Owner's Certification Statement

I, Greg Parker (GREG PARKER) CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION, LAND DEVELOPMENT AND DRAINAGE WILL BE DONE ACCORDING TO THE APPROVED STORMWATER MANAGEMENT PLAN.

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 036030 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/19/22

06930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS
0. Issued for Permitting 05/14/2022

Drawn by:	Checked by:	QC by:

PROJECT NUMBER:
I061-102
MAY 2022

COVER

P:\Industrial\061-1883 Logistics\01- Drayton-Parker PW Truck Yard\3-Design Data\2-DWGs\061_102_COVER.dwg 5/20/22 MARC LIVERMAN

GENERAL NOTES:

A. PROPERTY ADDRESS:
0 HIGHWY 21. LOCATED IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF GA-21 (AUGUSTA ROAD) AND CROSSGATE ROAD, NORTH OF PARKER'S KITCHEN
B. ZONING DISTRICT: P-I-1
C. F.I.R.M. PANEL NO.: 13051C0045G
D. P.I.N.: 7-0035-01-0-10
E. PARKING SPACE REQUIREMENTS:
PER CITY OF PORT WENTWORTH CODE OF ORDINANCES APPENDIX B, ARTICLE IV, SECTION 4.10 (12) c:
- 1 SPACE FOR EACH 400 SQUARE FEET OF LEASABLE AREA OF ENCLOSED SALES, SHOP, OR GARAGE AREA, PLUS 1 SPACE FOR EACH EMPLOYEE ON THE MAXIMUM WORK SHIFT. 2,000 SF ACCESSORY BUILDING = 5 SPACES

PER SECTION 4.10.1:
- 1-400 PARKING SPACES ARE REQUIRED TO PROVIDE 1 DESIGNATED HANDICAP AND DISABLED (ACCESSIBLE) SPACES OR 2% OF THE TOTAL SPACES PROVIDED, WHICHEVER IS GREATER.

LOADING SPACE REQUIREMENTS:
PER CITY OF PORT WENTWORTH CODE OF ORDINANCES APPENDIX B ARTICLE IV SECTION 4.11 TABLE INSET (1):
- INDUSTRIAL AND WHOLESALE OPERATIONS WITH GROSS FLOOR AREA LESS THAN 10,000 SF DO NOT REQUIRE OFF-STREET LOADING SPACES

F. SETBACK REQUIREMENTS:
PER CITY OF PORT WENTWORTH CODE OF ORDINANCES APPENDIX B SECTION 5.2:
- SETBACK FROM STATE HIGHWAY – 30' REQUIRED

PROJECT CLOSE-OUT:

A. THE CITY ADMINISTRATOR OR APPROVED REPRESENTATIVE WILL ONLY GIVE SERVICE AUTHORIZATION AFTER VERIFICATION OF RECORD DRAWING STANDARDS. ALL ELECTRONIC FILES WILL BE REVIEWED FOR ADHERENCE TO POLICIES BEFORE SERVICE AUTHORIZATION WILL BE GIVEN.
B. A PRELIMINARY PROJECT CLOSEOUT SUBMITTAL SHALL INCLUDE THE FOLLOWING DELIVERABLES:
- ONE (1) COPY OF BOND DRAWINGS PRINTED ON 36"X24" SHEETS, CLEARLY AND LEGIBLY DRAWN TO A SCALE NO GREATER THAN 1"=10'-0 AND NO LESS THAN 1"=50'-0".
- ONE (1) DIGITAL AUTOCAD (RELEASE 14 OR HIGHER) FILE IN *.DWG OR *.DXF FORMAT ON CD. THIS FILE MAY BE COMPRESSED USING THE *.ZIP FORMAT. THIS ELECTRONIC DRAWING FILE MUST MATCH THE HARD COPIES SUBMITTED AS RECORD DRAWING.

C. A FINAL PROJECT CLOSEOUT SUBMITTAL SHALL BE SUBMITTED AFTER A COMPLETED AND APPROVED PRELIMINARY CONSTRUCTION INSPECTION AND SHOULD INCLUDE THE FOLLOWING DELIVERABLES:
- ONE (1) SET OF 4 MIL. (MINIMUM) MYLAR DRAWINGS (DARK UNCLEAR MYLAR WILL NOT BE ACCEPTED) PRINTED ON 36"X24" SHEETS, CLEARLY AND LEGIBLY DRAWN TO A SCALE NO GREATER HAN 1"=10'-0" AND NO LESS THAN 1"=50'0".
- ONE (1) DIGITAL AUTOCAD (RELEASE 14 OR HIGHER) FILE IN *.DWG OR *.DXF FORMAT ON CD. THIS FILE MAY BE COMPRESSED USING THE *.ZIP FORMAT. THIS ELECTRONIC DRAWING FILE MUST MATCH THE HARD COPIES SUBMITTED AS RECORD DRAWINGS.

D. ALL PROJECT CLOSEOUT SUBMITTAL PACKAGES SHALL BE DELIVERED TO THE CITY ADMINISTRATOR. MAIL DELIVERABLES TO 305 SOUTH COASTAL HIGHWAY, PORT WENTWORTH, GA 31407.
E. IN ADDITION TO THE DESIGN PACKAGE REQUIREMENTS THE FOLLOWING REQUIREMENTS (IF APPLICABLE) SHALL BE INCLUDED ON ALL RECORD DRAWINGS:
- PROJECT NAME, INCLUDING REFERENCE TO ANY AND ALL PREVIOUS NAMES OF THE PROJECT SUBMITTED TO THE CITY AND APPROPRIATE PHASE NUMBER SHALL BE INCLUDED ON ALL SHEETS AND ELECTRONIC SUBMITTAL.
- THE "RECORD DATE" SHALL BE INCLUDED ON ALL SHEETS, BOTH HARD COPY AND ELECTRONIC.
- ALL ELECTRONIC AS-BUILT DRAWINGS BEING SUBMITTED SHALL REFERENCE THE GEORGIA STATE PLANE COORDINATE SYSTEM (GSPCS), EAST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD 83). FEATURES IN DRAWING FILES THAT ARE STORED IN DRAWING UNITS MUST BE TRANSLATED TO REPRESENT REAL WORLD LOCATIONS AS REFERENCED BY THE GSPCS. **REQUIRED ARE SPOT ELEVATIONS ON FORCE MAIN MANHOLE STRUCTURE INCLUDING VALVES, WATERLINE MANHOLE STRUCTURES INCLUDING VALVES, SANITARY SEWER ELEVATIONS OF MANHOLE TOPS AND INVERTS, PUMP STATION TOP AND INVERT AND ALL STORM STRUCTURE INVERTS BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).** ALL MEASUREMENTS AND COORDINATES SHOWN SHALL USE THE U.S. SURVEY FOOT DEFINITION. AS-BUILT SURVEYS SHALL BE COLLECTED BY MEANS OF A CONVENTIONAL SURVEY OR GPS TECHNOLOGY. A TEXT FILE TITLED "METADATA.TXT" SHALL BE INCLUDED WITH THE ELECTRONIC FILE SUBMISSION STATING THE METHODS EMPLOYED TO GAIN GEODETIC CONTROL.
- ONSITE TEMPORARY BENCHMARKS (TBM SET WHEN CONTROL IS BROUGHT IN TO PROJECT AND USED TO CONTROL THE AS-BUILT SURVEY OF THE PROJECT), VERTICAL AND HORIZONTAL, SHALL BE SHOWN.
- CITY ASSIGNED PROJECT NUMBER DENOTED ON PAPER AND DIGITAL SUBMISSION.
- STREET NAMES AND PARCEL IDENTIFICATION NUMBERS SHALL BE INCLUDED ON ALL SHEETS.
- CENTERLINE AND EDGE OF PAVEMENT OF ROADS AND STREETS, INTERNAL AND CONTIGUOUS TO PROJECT INCLUDING CONNECTIONS TO NEARBY MAJOR THOROUGHFARES.
- PAVED AND CONCRETE AREAS IN VICINITY OF THE PUBLIC UTILITIES BEING DEDICATED TO THE CITY.
- RETENTION\DETENTION PONDS.
- PHASED PROJECTS SHALL INCLUDE AS-BUILT INFORMATION ON ALL PRIOR PHASES. PREVIOUS PHASES SHALL BE IDENTIFIED AND DISPLAYED GRAPHICALLY TO DISTINGUISH THE EXISTING FEATURES FROM THE PROPOSED PHASE. LOT NUMBERS THROUGHOUT ALL PHASES TO RUN CONSECUTIVELY AND NOT REPEATED ON LATER PHASES. NAMING CONVENTION SHALL REMAIN CONSISTENT THROUGHOUT PHASES.
- INDICATE ALL PUBLIC UTILITY PIPELINE CROSSINGS WITH OTHER UTILITIES. INCLUDE VERTICAL AND HORIZONTAL SEPARATION DISTANCES, DEPTH OF COVER, AND PIPE MATERIALS.
- ADJACENT DRY UTILITIES (ELECTRIC, GAS, TELEPHONE, ETC. IF AVAILABLE).
- PROVIDE VERTICAL ELEVATION ON TOP OF FORCE MAIN CONNECTION TO MANHOLE OR FORCE MAIN MANIFOLD.
- COMPLETE PLAN VIEW OF THE PUMP STATION SHALL BE SHOWN IN DETAIL AND DRAWN TO SCALE, WITH THE LAYOUT REPRESENTING THE ACTUAL AS-BUILT CONDITION OF ALL ENTITIES. PROVIDE ELEVATIONS FOR THE FOLLOWING POINTS: INFLUENT LINE INVERT, BOTTOM OF WET WELL, TOP OF SLAB, PUMP OFF LEVEL, PUMP ON LEVEL, LEAD/LAG LEVELS, BOTH PUMPS ON LEVEL, AND HIGH WATER ALARM LEVEL. THE PUMP STATION DETAIL SHALL INCLUDE ALL CONDUIT LAYOUTS.
- ALL EXISTING AND NEW PUMP STATIONS SHALL BE LABELED ON ALL SHEETS.
- ALL PUBLIC UTILITIES BEING DEDICATED SHALL BE REFERENCED TO PERMANENT VISIBLE STRUCTURES, INCLUDING ROAD CENTERLINES, EDGES OF PAVEMENT, BUILDINGS, MANHOLES, CATCH BASINS, AND POWER POLES. RIGHTS-OF-WAY/PROPERTY LINE BOUNDARIES MAY BE USED IN THE ABSENCE OF THE OTHER REFERENCES NOTED. TIE DOWN LOCATIONS OF ALL VALVES, FIRE HYDRANTS, MANHOLES TO BUILDINGS, RIGHT-OF-WAY MARKERS, OR OTHER PERMANENT STRUCTURES ARE REQUIRED.
- A "BLOW-UP" IS REQUIRED OF ALL VALVE CLUSTERS AND OTHER AREAS OF CONGESTION IF NOT CLEARLY SHOWN OTHERWISE.
- TIE-DOWN LOCATIONS OF PUBLIC UTILITY SERVICE TERMINATION POINTS TO PERMANENT STRUCTURES SUCH AS BUILDINGS, MANHOLES, FIRE HYDRANTS, AND EDGE OF PAVEMENT. PROPERTY CORNERS MAY BE USED IN THE ABSENCE OF OTHER REFERENCE POINTS WHEN VISIBLE PERMANENT STRUCTURES ARE NOT NEARBY. TWO REFERENCES PER SERVICE ARE REQUIRED.
- THE PROPOSED UTILITY PIPING SHALL BE LABELED WITH THE SIZE, TYPE, LINEAR FOOT AND CLASS OF PIPE. ALL UTILITIES BEING DEDICATED SHALL BE STATIONED. THE GRAVITY SEWER PIPE SHALL BE LABELED WITH DISTANCES GIVEN FROM MANHOLE TO MANHOLE. WATER MAINS AND REUSE WATER MAINS SHALL BE LABELED WITH DISTANCES FROM VALVE OR TEE TO VALVE OR TEE.
- UTILITY PROFILE SHEETS SHALL INDICATE INLET/OUTLET INVERT ELEVATIONS, MANHOLE CASTING ELEVATION, GRADE, LENGTH, AND TYPE OF PIPE. VERTICAL ELEVATIONS OF AREAS WHERE MAJOR SYSTEM APPURTENANCES (I.E. PUMP STATIONS, MANHOLES, MAIN VALVE CLUSTERS, ETC.) ARE PROPOSED SHALL BE INDICATED.
- ELECTRONIC SUBMISSIONS CONTAINING MULTIPLE SHEETS FOR ONE LINEAR PROJECT SHALL HAVE THE ENTIRE CURRENT PHASE OF THE PROJECT DRAWN IN ONE MODEL VIEW, NOT BROKEN INTO SEPARATE DRAWINGS FOR EACH SHEET.
- ALL DIMENSIONS SHALL BE TO THE NEAREST ONE HUNDREDTH (0.01) OF A FOOT IN THE VERTICAL PLANE AND THE NEAREST TWO TENTHS (0.2) OF A FOOT IN THE HORIZONTAL PLANE, WITH ANGLES TO THE NEAREST MINUTE. DIMENSIONS TO BE DRAWN ON APPROPRIATELY NAMED LAYERS

EASEMENTS, DEEDS AND PLATS
- REFERENCE THE CITY'S SUBDIVISION REGULATIONS FOR ADDITIONAL REQUIREMENTS.
- SHOW ALL EASEMENTS TO BE CONVEYED AND SURVEYED BOUNDARIES OF ANY PROPERTY TO BE DEEDED TO THE CITY.
- THE LOCATION OF PUBLIC UTILITIES SHOULD BE SHOWN WITHIN PRIVATE PROPERTY THROUGH WHICH AN EASEMENT WILL BE GRANTED. A SURVEYOR WILL ESTABLISH METES AND BOUNDS OF SUCH EASEMENTS.
- PUBLIC UTILITIES LOCATED WITHIN PUBLIC RIGHTS-OR-WAY SHALL BE REFERENCED TO PERMANENT VISIBLE STRUCTURES SUCH AS CENTERLINE OR EDGE OF PAVEMENT, MANHOLES, CATCH BASINS, AND POWER POLES.
- A LIGHTING PLAN SHALL BE PROVIDED BY DEVELOPER/ENGINEER AS APPROVED BY GA POWER PER THE CITY'S SUBDIVISION REGULATIONS.
- A COPY OF APPROVED PERMITS FROM THE FOLLOWING ORGANIZATIONS IF APPLICABLE: (THE CITY WILL NOT APPROVE RECORD DRAWINGS UNTIL NOTIFICATION OF THESE APPROVALS.)
  - GA EPD
  - SEPCO/GA POWER REFERENCE THE CITY'S SUBDIVISION REGULATIONS
  - ATLANTA GAS
  - ANY FIBER OPTIC/COMMUNICATIONS
  - WETLAND OR CREEK CROSSING
  - RAILROAD
  - NRCS

F. SURVEYOR'S CERTIFICATION: (TO BE INCLUDED ON THE RECORD DRAWINGS)
I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN GEORGIA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS A SURVEY AS SPECIFIED HEREIN; ALSO THERE ARE NO VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN. I ALSO STATE THAT THE SURVEY SHOWN IS BASED IN GEORGIA STATE PLANE COORDINATE SYSTEM (GSPCS), EAST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD 83). INTERNATIONAL FEET, COORDINATE SYSTEM AND ELEVATIONS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

SURVEYOR'S NAME (PRINTED) _____
SURVEYOR'S SIGNATURE _____
GA RLS NUMBER _____
DATE _____
SEAL:

G. ENGINEER'S CERTIFICATION: (TO BE INCLUDED ON THE RECORD DRAWINGS)
THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED UPON INFORMATION PROVIDED BY OUR PERIODIC OBSERVATIONS. THE HORIZONTAL POSITION OF ALL OBJECTS IS CORRECTLY LOCATED BASED ON GEORGIA STATE PLANE COORDINATE SYSTEM (GSPCS), EAST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD 83). INTERNATIONAL FEET, COORDINATE SYSTEM AND ELEVATIONS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AS VERIFIED BY THE AS-BUILT SURVEY. ATLANTIC COAST CONSULTING HAS REVIEWED THIS INFORMATION AND TO THE BEST OF OUR INFORMATION, KNOWLEDGE AND BELIEF, THESE RECORD DRAWINGS REPRESENT THE APPROVED SITE DEVELOPMENT PLANS

ENGINEER'S NAME (PRINTED) _____
ENGINEER'S SIGNATURE _____
GA PE NUMBER _____
DATE _____
SEAL:

TRAFFIC NOTES:

A. LOADING, UNLOADING AND STAGING OF CONSTRUCTION EQUIPMENT AND MATERIAL SHALL NOT BE ALLOWED IN THE CITY OF PORT WENTWORTH OR GEORGIA DOT RIGHT-OF-WAY.

CONSTRUCTION NOTES:

A. FOR CITY WATER AND SANITARY SEWER LINE LOCATIONS, CONTACT THE UTILITIES PROTECTION CENTER (1-800-282-7411) A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO DIGGING.
B. ALL CONSTRUCTION SHALL COMPLY WITH APPLICABLE CITY OF PORT WENTWORTH AND CHATHAM COUNTY CODES AND ORDINANCES AS WELL AS STATE AND FEDERAL REQUIREMENTS.
C. DIMENSIONS AND RADII ARE MEASURED FROM FACE OF CURB UNLESS NOTED OTHERWISE.
D. CONTRACTOR SHALL MATCH EXISTING PAVEMENT SLAB AND CURB ELEVATIONS AT EDGE OF NEW CONSTRUCTION.
E. CONTRACTOR SHALL INSTALL EROSION CONTROL DEVICES AS SHOWN ON SHEET C-501 PRIOR TO LAND DISTURBING ACTIVITIES.
F. THE DRAWINGS INDICATE UTILITIES OR OBSTRUCTIONS THAT ARE KNOWN TO EXIST ACCORDING TO THE BEST INFORMATION OF THE OWNER. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE UTILITIES PROTECTION CENTER (800-282-7411) OR (811) AS REQUIRED BY GEORGIA LAW AND ALL UTILITIES, AGENCIES OR DEPARTMENTS THAT OWN/OR OPERATE UTILITIES IN THE VICINITY OF THE CONSTRUCTION WORK SITE, AT LEAST 72 HOURS (THREE BUSINESS DAYS) PRIOR TO CONSTRUCTION, TO VERIFY THE LOCATIONS OF EXISTING UTILITIES.
G. CONTRACTOR SHALL FIELD VERIFY LOCATION OF FENCES, CURB INLETS, STREET LIGHTS, BUILDINGS, AND UNDERGROUND UTILITIES AND ALL OTHER INFORMATION SHOWN PRIOR TO CONSTRUCTION.

SURVEY NOTES:

A. BOUNDARY AND TOPOGRAPHIC SURVEY OF SITE PROVIDED BY EMC ENGINEERING SERVICES SURVEY DATED: MAY 5, 2020.
B. NORTHING AND EASTING COORDINATE INFORMATION SHOWN ON ALL SHEETS ARE BASED UPON STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83. VERTICAL DATUM BASED ON NAVD 88.

LEGEND

EXISTING	NEW	DESCRIPTION
		PROPERTY LINE
		BUILDING SETBACK
		LIMITS OF CONSTRUCTION/DISTURBANCE
		TREE LINE
10	10	PROMINENT CONTOUR
2	2	INTERMEDIATE CONTOUR
SD	SD	STORM DRAIN
W	W	WATER LINE
SS	SS	SANITARY SEWER
E	E	UNDERGROUND POWER
G	G	UNDERGROUND GAS LINE
TV	TV	UNDERGROUND TELEPHONE LINE
OHP	OHP	OVERHEAD POWER LINE
x	x	FENCE LINE
		UTILITY EASEMENT
		GRAVEL PAVEMENT
		AGL EASEMENT
		BENCHMARK
		FIRE HYDRANT
		POWER POLE
		LIGHT POLE
WM		WATER METER
	SJ/CJ	SAW JOINT/CONSTRUCTION JOINT
		CROSS SECTION
		STREAM/ EDGE OF POND
		DEMOLITION
+ 419.2	+ 419.2	SPOT ELEVATION
	XX	SILT FENCE
		SOIL SERIES DELINEATION
Oj		SOIL SERIES

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GEORGIA REGISTERED No. 06930 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/14/22

06930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

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GENERAL NOTES AND LEGEND

C-001

P:\Valuation\061-1883 Logistics\01- Drayton-Parker PW Truck Yard\3-Design Data\3-DWGs\061_102_C-001.dwg 5/14/22 MARC LIVERMAN

N/F
CROSSGATE INDUSTRIAL INVESTORS, LLC, A G
PIN: 7-0035-01-008
ZONING: E-D-Z
EXISTING AMAZON DISTRIBUTION CENTER PARKING LOT

ASPHALT SURFACE

LIMITS OF CONSTRUCTION/DISTURBANCE

N/F
CRESCENT INVESTMENTS INC.
PIN: 7-0035-01-002
ZONING: P-C-3

8' CHAIN LINK FENCE

S 18°40'59" E - 976.06'

N/F
ARTICLE VII CREDIT SHELTER TRUST, ET AL
PIN: 7-0035-10-003
ZONING: P-C-3

60' EASEMENT
PB 14-P, PG 20
PB 15-S, PG 3

WETLANDS (0.82 AC)
(SEE NOTE 11)

N/F
DRAYTON-PARKER COMPANIES, LLC
PIN: 7-0035-01-010
ZONING P-I-1

N 71°30'49" E - 306.74'

30' BUILDING SETBACK (P-I-1)

20' LANDSCAPE BUFFER

N 18°29'11" W - 690.70'

LIMITS OF CONSTRUCTION / DISTURBANCE

EXISTING UTILITIES (TYP)
(LOCATE AND PROTECT)

GEORGIA HIGHWAY 21
PUBLIC RIGHT-OF-WAY (VARIES)
(ASPHALT SURFACE)
SPEED LIMIT= 50 MPH

EXISTING CITY OF SAVANNAH 48" WATER LINE. CONTRACTOR SHALL NOT ALLOW CONSTRUCTION TRAFFIC TO CROSS OVER WATER LINE. NO FILL, MATERIAL, OR EQUIPMENT SHALL BE PLACED WITHIN EIGHT (8) FEET OF WATER LINE. EXISTING AND/OR NEWLY INSTALLED SILT FENCE (SEE SHEETS C-501 TO C-503) SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL NOT BE CROSSED. CONTRACTOR SHALL PROVIDE ORANGE FABRIC FENCING TO SUPPLEMENT SILT FENCE AS NEEDED.

EXISTING WOODED AREA
(TO REMAIN)

S 17°41'05" W - 310.38'

100' EASEMENT
(GA POWER)
PB 14-P, PG 20
PB 15-S, PG 3

EX. 15' UTILITY EASEMENT

RELOCATE EXISTING HYDRANT
(SEE SHEET C-301)

EXISTING 100' GA POWER EASEMENT

EX. DETENTION POND

GA POWER POLE #64

GA POWER POLE #65

N/F
DRAYTON-PARKER COMPANIES, LLC.
PIN: 7-0035-01-011
ZONING: P-C-3
PARKER'S KITCHEN EXPANSION

T.B.M. 2
BENCH TIE IN POWER POLE
N: 782710.66
E: 962062.41
ELEV: 40.92 (NAVD88)

NOTES:

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2. TOPOGRAPHIC AND UTILITY INFORMATION SHOWN FOR THE ADJACENT PARKERS KITCHEN EXPANSION DERIVED FOR DESIGN DRAWINGS BY BUCKLEY DESIGN GROUP, LLC. OF DULUTH, GA DATED JUNE 02, 2021.
3. ALL EXISTING UTILITIES TO REMAIN SHALL BE LOCATED AND PROTECTED. ANY DAMAGE TO EXISTING UTILITIES TO REMAIN SHALL BE REPAIRED BY CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND PROPER DISPOSAL OF ALL MISCELLANEOUS ITEMS WITHIN THE LIMITS OF CONSTRUCTION THAT MAY INTERFERE WITH NEW CONSTRUCTION. CONTRACTOR SHALL COORDINATE WORK WITH OWNER. THESE INCLUDE, BUT ARE NOT LIMITED TO, SHRUBBERY, TREES, BURIED DEBRIS AND MISCELLANEOUS UTILITIES.
5. PROJECT SITE MAY CONTAIN UTILITIES THAT WERE UNKNOWN OR UNIDENTIFIABLE DURING THE FIELD SURVEY. THE CONTRACTOR SHALL EMPLOY THE FOLLOWING METHODS WHEN UNKNOWN OR UNIDENTIFIED UTILITIES ARE DISCOVERED:
   - 5.1. IDENTIFY UTILITY OWNER AND ESTABLISH IF UTILITY PROVIDES SERVICE TO ADJACENT PROPERTY OWNERS.
   - 5.2. PROTECT ALL UTILITIES THAT PROVIDE SERVICE TO ADJACENT PROPERTY OWNERS.
   - 5.3. ALL UTILITIES AND ASSOCIATED APPURTENANCES THAT ARE NO LONGER IN SERVICE SHALL BE REMOVED TO THE EXTENT POSSIBLE EXCEPT FOR THOSE LOCATED WITHIN THE CRITICAL ROOT ZONE(S) OF EXISTING TREES TO REMAIN. THE UTILITIES THAT CANNOT BE REMOVED WITHOUT DAMAGE TO EXISTING TREE TO REMAIN SHALL BE FILLED WITH FLOWABLE FILL, CAPPED, AND ABANDONED IN-PLACE.
6. CONTRACTOR SHALL FIELD LOCATE AND PROTECT EXISTING UTILITIES USING GROUND PENETRATING RADAR (E.G., WATERMAINS, SANITARY SEWER, FIBER OPTIC CABLES, ELECTRIC SERVICE, TELECOM, CABLES AND GAS MAINS). CONTRACTOR SHALL EXERCISE CARE NOT TO DAMAGE OR DISRUPT EXISTING UTILITIES DURING CONSTRUCTION. ANY DAMAGE TO THE EXISTING UTILITIES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
7. CONTRACTOR SHALL FIELD LOCATE DEPTH OF EXISTING UTILITIES BY POTHOLING AND/OR PROBING.
8. UTILITY LOCATIONS ARE APPROXIMATE AND BASED ON FIELD DATA PROVIDED BY EMC ENGINEERING SERVICES, INC DATED 05/05/2020.
9. CONTRACTOR SHALL TAKE CARE WHEN REMOVING ROOT SYSTEMS THAT MAY INTERFERE WITH EXISTING UTILITIES TO REMAIN. CONTRACTOR SHALL REPAIR DAMAGE TO EXISTING UTILITIES AT NO ADDITIONAL COST TO THE OWNER.
10. CONTRACTOR SHALL COORDINATE DEMOLITION SCHEDULE WITH OWNER PRIOR TO BEGINNING WORK.
11. WETLAND SHOWN ARE NON-JURISDICTIONAL AND WILL BE IMPACTED IN ACCORDANCE WITH USACOE PERMIT SAS-2020-00353 ISSUED ON AUGUST 4, 2020.

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GEORGIA REGISTERED No. 036078 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/19/22

06930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

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1061-102
MAY 2022

EXISTING CONDITIONS AND DEMOLITION PLAN

C-101

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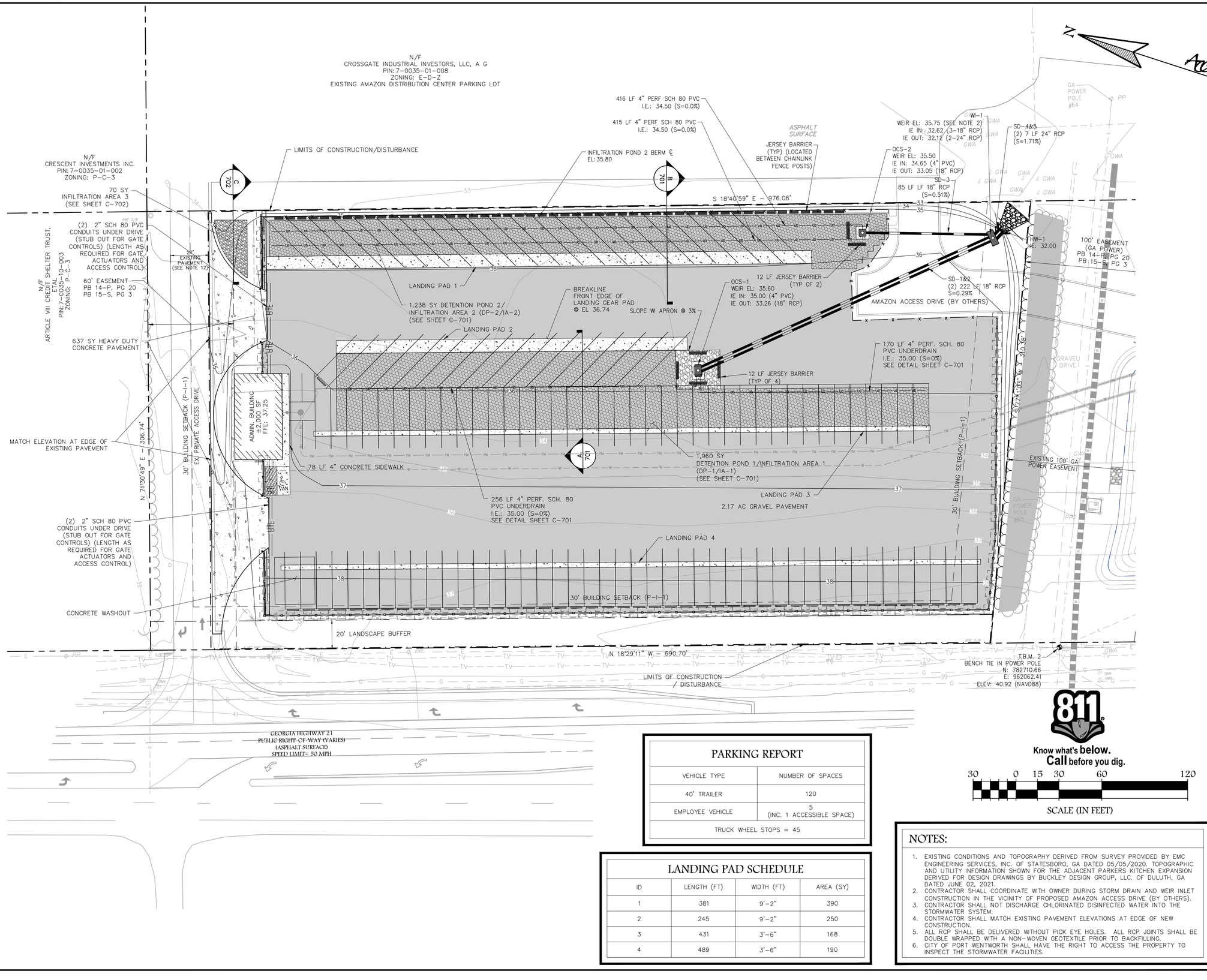

PARKING REPORT

VEHICLE TYPE	NUMBER OF SPACES
40' TRAILER	120
EMPLOYEE VEHICLE	5 (INC. 1 ACCESSIBLE SPACE)
TRUCK WHEEL STOPS = 45	

LANDING PAD SCHEDULE

ID	LENGTH (FT)	WIDTH (FT)	AREA (SY)
1	381	9'-2"	390
2	245	9'-2"	250
3	431	3'-6"	168
4	489	3'-6"	190

NOTES:

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2. CONTRACTOR SHALL COORDINATE WITH OWNER DURING STORM DRAIN AND WEIR INLET CONSTRUCTION IN THE VICINITY OF PROPOSED AMAZON ACCESS DRIVE (BY OTHERS).
3. CONTRACTOR SHALL NOT DISCHARGE CHLORINATED DISINFECTED WATER INTO THE STORMWATER SYSTEM.
4. CONTRACTOR SHALL MATCH EXISTING PAVEMENT ELEVATIONS AT EDGE OF NEW CONSTRUCTION.
5. ALL RCP SHALL BE DELIVERED WITHOUT PICK EYE HOLES. ALL RCP JOINTS SHALL BE DOUBLE WRAPPED WITH A NON-WOVEN GEOTEXTILE PRIOR TO BACKFILLING.
6. CITY OF PORT WENTWORTH SHALL HAVE THE RIGHT TO ACCESS THE PROPERTY TO INSPECT THE STORMWATER FACILITIES.

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PAVING, GRADING, AND DRAINAGE PLAN

C-201

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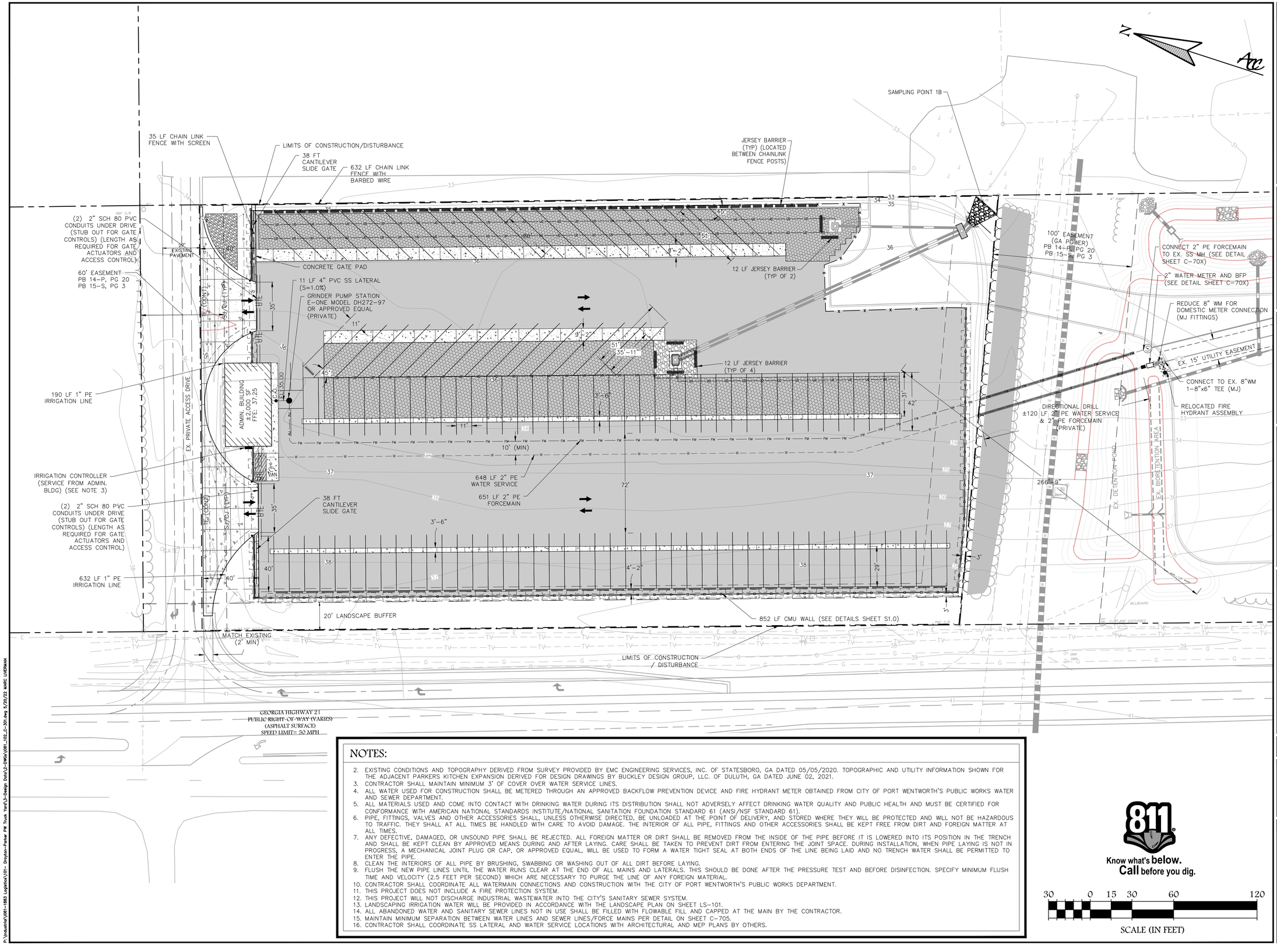

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3. CONTRACTOR SHALL MAINTAIN MINIMUM 3' OF COVER OVER WATER SERVICE LINES.
4. ALL WATER USED FOR CONSTRUCTION SHALL BE METERED THROUGH AN APPROVED BACKFLOW PREVENTION DEVICE AND FIRE HYDRANT METER OBTAINED FROM CITY OF PORT WENTWORTH'S PUBLIC WORKS WATER AND SEWER DEPARTMENT.
5. ALL MATERIALS USED AND COME INTO CONTACT WITH DRINKING WATER DURING ITS DISTRIBUTION SHALL NOT ADVERSELY AFFECT DRINKING WATER QUALITY AND PUBLIC HEALTH AND MUST BE CERTIFIED FOR CONFORMANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION STANDARD 61 (ANSI/NSF STANDARD 61).
6. PIPE, FITTINGS, VALVES AND OTHER ACCESSORIES SHALL, UNLESS OTHERWISE DIRECTED, BE UNLOADED AT THE POINT OF DELIVERY, AND STORED WHERE THEY WILL BE PROTECTED AND WILL NOT BE HAZARDOUS TO TRAFFIC. THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. THE INTERIOR OF ALL PIPE, FITTINGS AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM DIRT AND FOREIGN MATTER AT ALL TIMES.
7. ANY DEFECTIVE, DAMAGED, OR UNSOUND PIPE SHALL BE REJECTED. ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH AND SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING. CARE SHALL BE TAKEN TO PREVENT DIRT FROM ENTERING THE JOINT SPACE. DURING INSTALLATION, WHEN PIPE LAYING IS NOT IN PROGRESS, A MECHANICAL JOINT PLUG OR CAP, OR APPROVED EQUAL, WILL BE USED TO FORM A WATER TIGHT SEAL AT BOTH ENDS OF THE LINE BEING LAID AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE.
8. CLEAN THE INTERIORS OF ALL PIPE BY BRUSHING, SWABBING OR WASHING OUT OF ALL DIRT BEFORE LAYING.
9. FLUSH THE NEW PIPE LINES UNTIL THE WATER RUNS CLEAR AT THE END OF ALL MAINS AND LATERALS. THIS SHOULD BE DONE AFTER THE PRESSURE TEST AND BEFORE DISINFECTION. SPECIFY MINIMUM FLUSH TIME AND VELOCITY (2.5 FEET PER SECOND) WHICH ARE NECESSARY TO PURGE THE LINE OF ANY FOREIGN MATERIAL.
10. CONTRACTOR SHALL COORDINATE ALL WATERMAIN CONNECTIONS AND CONSTRUCTION WITH THE CITY OF PORT WENTWORTH'S PUBLIC WORKS DEPARTMENT.
11. THIS PROJECT DOES NOT INCLUDE A FIRE PROTECTION SYSTEM.
12. THIS PROJECT WILL NOT DISCHARGE INDUSTRIAL WASTEWATER INTO THE CITY'S SANITARY SEWER SYSTEM.
13. LANDSCAPING IRRIGATION WATER WILL BE PROVIDED IN ACCORDANCE WITH THE LANDSCAPE PLAN ON SHEET LS-101.
14. ALL ABANDONED WATER AND SANITARY SEWER LINES NOT IN USE SHALL BE FILLED WITH FLOWABLE FILL AND CAPPED AT THE MAIN BY THE CONTRACTOR.
15. MAINTAIN MINIMUM SEPARATION BETWEEN WATER LINES AND SEWER LINES/FORCE MAINS PER DETAIL ON SHEET C-705.
16. CONTRACTOR SHALL COORDINATE SS LATERAL AND WATER SERVICE LOCATIONS WITH ARCHITECTURAL AND MEP PLANS BY OTHERS.

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GEORGIA REGISTERED No. 036930 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/19/22

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LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD
PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC
17 WEST MCDONOUGH STREET
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SITE AND UTILITY PLAN

C-301

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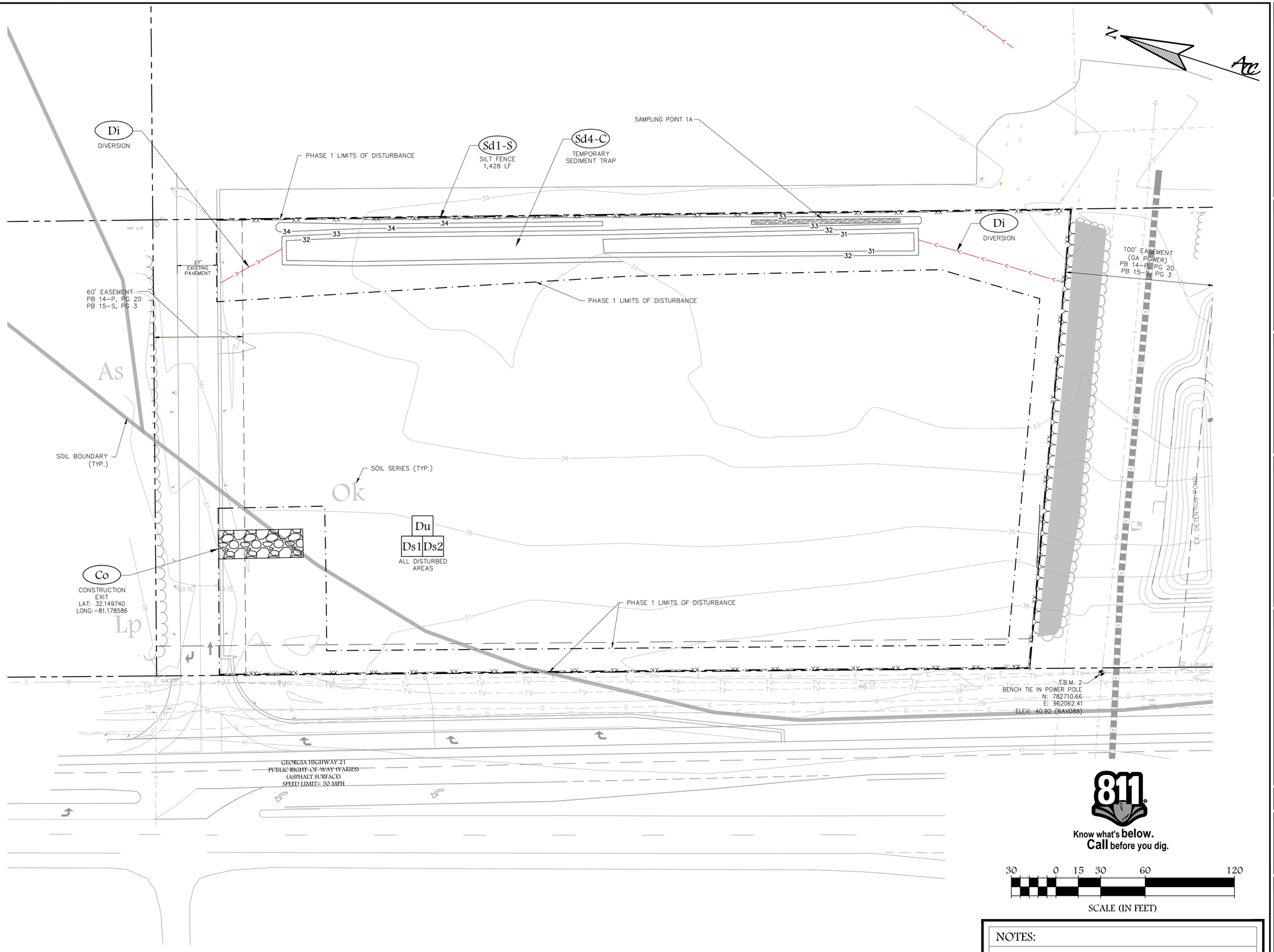

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NOTES:

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PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

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EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN - PHASE I

C-501

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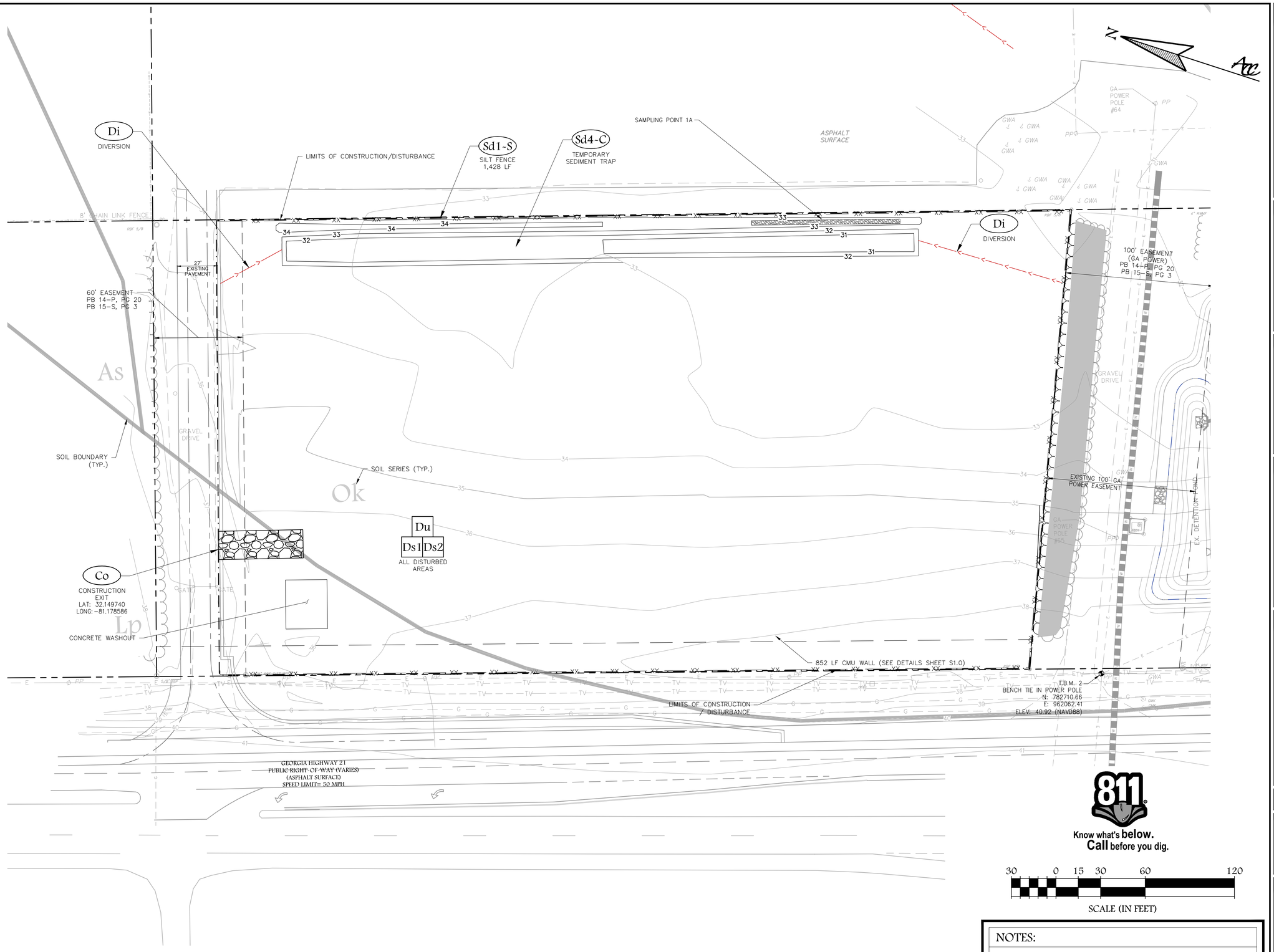

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PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

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EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN - PHASE II

C-502

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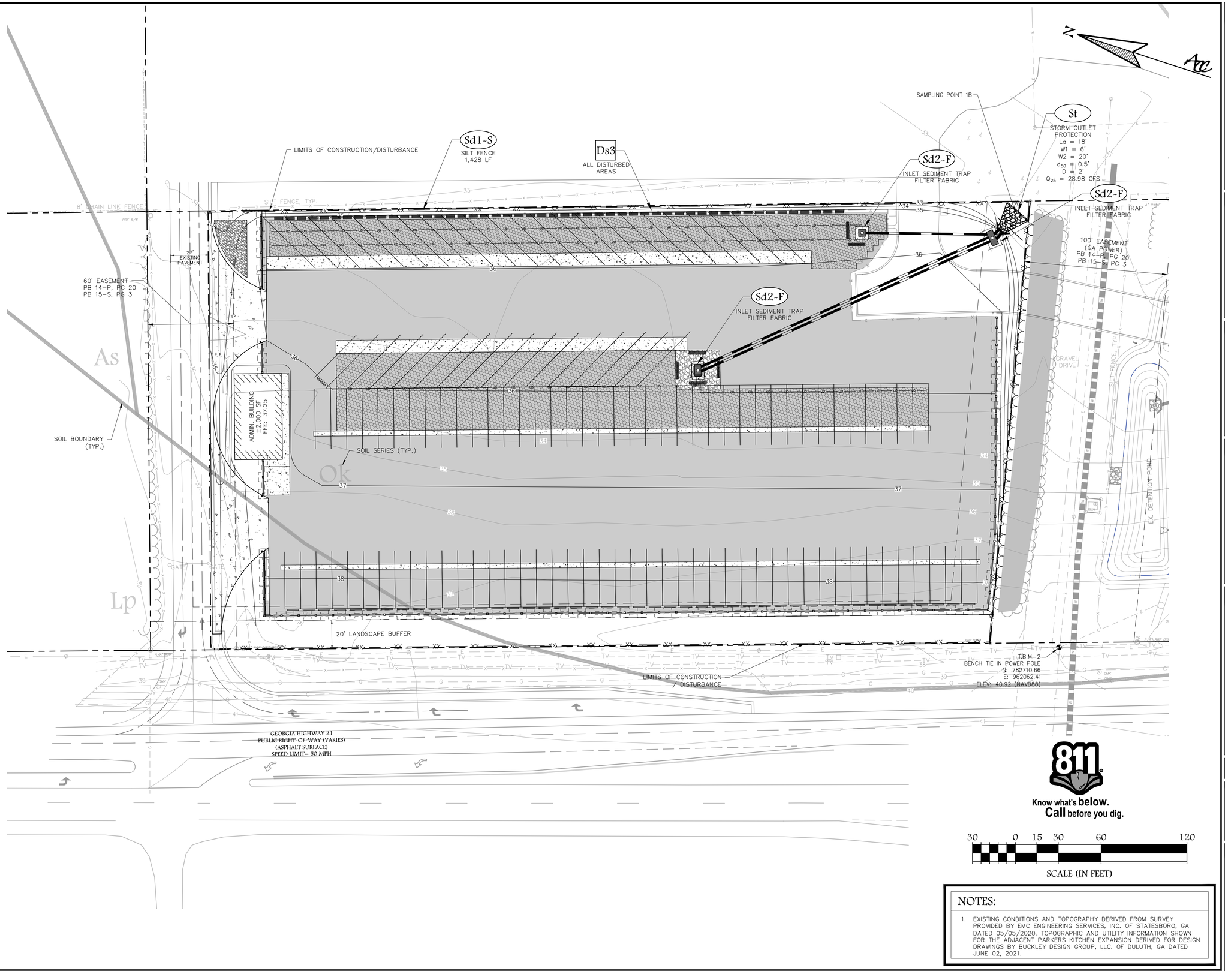

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PORT WENTWORTH
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EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN - PHASE III

C-503

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CLEARING - PHASE I - EROSION CONTROL NOTES

1. PRIOR TO THE LAND DISTURBING CONSTRUCTION, THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE AREA EROSION CONTROL INSPECTOR.
2. THE CONTRACTOR SHALL OBSERVE THE PROJECT SEQUENCE SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO INSURE THAT LAND STRIPPED OF ITS NATURAL COVER IS EXPOSED ONLY IN SMALL QUANTITIES.
3. THE OWNER AGREES TO PROVIDE AND MAINTAIN OFF-STREET PARKING ON THE SUBJECT PROPERTY DURING THE ENTIRE CONSTRUCTION PERIOD.
4. NO STAGING AREAS, MATERIAL STORAGE OR CONCRETE WASH OUT AREAS SHALL BE LOCATED WITHIN 50 FEET OF DESIGNATED TREE PROTECTION AREAS WITHOUT PRIOR WRITTEN AUTHORIZATION OF THE ENGINEER.
5. A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE AT ALL TIMES.
6. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND-DISTURBING ACTIVITIES.
7. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE ACTIVITY SHALL BE DEMARCATED FOR THE DURATION OF THE CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.
8. PRIOR TO ANY OTHER CONSTRUCTION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY TO, OR EXIT FROM, THE SITE OR ONTO ANY PUBLIC ROADWAY.
9. THE FOLLOWING INITIAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY.
   A. THE CONSTRUCTION EXIT, CONSISTING OF A MINIMUM PAD SIZE OF 20 FEET BY 50 FEET WITH A MINIMUM OF 6" THICK STONE, SHALL BE PLACED AS SHOWN ON THE PLAN. THE STONE SIZE SHOULD CONSIST OF COURSE AGGREGATE BETWEEN 1-1/2" AND 3-1/2" IN DIAMETER AND OVERLAID ON A GEOTEXTILE UNDERLINER. THE GEOTEXTILE UNDERLINER SHALL MEET THE REQUIREMENTS OF AASHTO M288-06, SECTION 7.3 SEPARATION REQUIREMENTS.
   B. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCE/EXITS, ALL PERIMETER EROSION CONTROL AND STORM WATER MANAGEMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE CLEARING-PHASE I-EROSION CONTROL PLAN.
   C. TYPE "NS" SILT FENCE SHOULD BE INSTALLED AT THE PERIMETER OF THE DISTURBED AREA AS SHOWN ON THE PLAN. THE SILT FENCE SHOULD MEET THE REQUIREMENTS OF SECTION 171-TYPE NS TEMPORARY SILT FENCE OF THE GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, 1993 EDITION AND BE PLACED IN ACCORDANCE WITH THE MANUAL FOR EROSION CONTROL IN GEORGIA, TABLE 6-27.1. THE SILT FENCE SHOULD BE KEPT ERECT AT ALL TIMES AND REPAIRED WHEN REQUESTED BY THE SITE INSPECTOR OR THE PROJECT DESIGN PROFESSIONAL OF RECORD. SILT SHOULD BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF HEIGHT OF THE BARRIER. THE PERIMETER SILT FENCE SHOULD BE INSPECTED DAILY FOR ANY FAILURES. ANY FAILURES OF SAID FENCING SHOULD BE REPAIRED IMMEDIATELY.
   D. INLET SEDIMENT PROTECTION MEASURES SHALL BE INSTALLED ON ALL EXISTING STORM STRUCTURES AS SHOWN ON THE PLAN. SEE SEPARATE DETAILS FOR SPECIFICS ON TYPE OF INLET PROTECTION SPECIFIED.
   E. HAY BALE CHECK DAMS SHALL BE INSTALLED IN AREAS OF CONCENTRATED FLOWS AS SHOWN ON THE PLAN.
   F. TREE PROTECTION FENCING SHOULD BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBANCE ACTIVITY AND MAINTAINED UNTIL FINAL LANDSCAPE IS INSTALLED. THE TREE PROTECTION FENCING SHOULD BE INSPECTED DAILY. ANY FAILURES OF SAID FENCING SHOULD BE REPAIRED IMMEDIATELY.
10. AFTER INSTALLATION OF INITIAL EROSION CONTROL MEASURES, THE SITE CONTRACTOR SHALL SCHEDULE AN INSPECTION BY THE PROJECT DESIGN PROFESSIONAL TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER ROAD BMP'S. IF UNFORSEEN CONDITIONS EXIST IN THE FIELD THAT WARRANT ADDITIONAL EROSION CONTROL MEASURES, THE CONTRACTOR MUST CONSTRUCT ANY ADDITIONAL EROSION CONTROL DEVICES DEEMED NECESSARY BY THE PROJECT PROFESSIONAL DURING THE SITE INSPECTION. AFTER INSPECTION OF INITIAL EROSION CONTROL INSTALLATION AND IMPLEMENTATION OF ANY NOTED ISSUES THE CONTRACTOR MAY PROCEED WITH CLEARING AND GRUBBING ACTIVITIES.
11. AFTER APPROVAL OF THE INITIAL EROSION CONTROL INSTALLATION, THE CONTRACTOR MAY PROCEED WITH CLEARING AND GRUBBING ACTIVITIES. AS CLEARING PERMITS, THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SEDIMENT PONDS AND DIVERSION DIKES AS SHOWN ON THE CLEARING PHASE PLAN TO CONTROL EROSION AND STORM WATER RUN-OFF.
12. THE CONTRACTOR CAN UTILIZE CLEARED TREES AS BARRIER BRUSH SEDIMENT CONTROL WHERE INITIAL GRADING ACTIVITIES WILL NOT OCCUR.
13. NO BURN OR BURY PITS SHALL BE PERMITTED ON THE CONSTRUCTION SITE.
14. ADDITIONAL SILT BARRIERS MUST BE PLACED AS SHOWN ON THE PLAN AS ACCESS IS OBTAINED DURING CLEARING. NO GRADING SHALL TAKE PLACE UNTIL SILT BARRIER INSTALLATION AND SEDIMENT PONDS ARE CONSTRUCTED AS SHOWN ON THE CLEARING PHASE EROSION CONTROL PLAN.
15. ALL SILT FENCE MUST MEET THE REQUIREMENTS OF SECTION 171-TEMPORARY SILT FENCE FOR THE DEPARTMENT OF TRANSPORTATION, STATE OF GEORGIA, STANDARD SPECIFICATIONS, 2013 EDITION.
16. ALL ITEMS IN THIS SECTION OF THE SPECIFICATIONS SHALL MEET THE REQUIREMENTS AS SET FORTH IN SECTION 161, 162, 163, AND 164 OF THE GEORGIA D.O.T. STANDARD SPECIFICATIONS, FOR ROADS AND BRIDGES.
17. MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF LAND DISTURBANCE.
18. ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION.
19. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE-HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.
20. THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1-3" OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY.
21. WHEN ANY CONSTRUCTION BORDERS A DRAINAGE COURSE, THE CONTRACTOR SHALL NOT DEPOSIT ANY BUILDING OR OTHER EXCAVATION SPOIL DIRT, CONSTRUCTION TRASH OR DEBRIS, ETC. IN THE DRAINAGE COURSE OR ASSOCIATED FLOOD PLAIN.
22. GRADING EQUIPMENT MUST CROSS FLOWING STREAMS BY THE MEANS OF BRIDGING OR CULVERTS, EXCEPT WHEN SUCH METHODS ARE NOT FEASIBLE; ALL STREAM CROSSINGS WILL BE PERFORMED IN ACCORDANCE WITH THE LATEST VERSION OF THE "MANUAL FOR EROSION AND SEDIMENTATION CONTROL IN GEORGIA."
23. DISPOSE OF WASTE SOILS AND CLEARED AND GRUBBED MATERIALS OFF-SITE AT A LOCATION SECURED BY THE CONTRACTOR, AND IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
24. CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
25. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE AS DIRECTED BY THE ON SITE INSPECTOR OR THE DESIGN PROFESSIONAL.
26. FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS.
27. IF FINES OR PENALTIES ARE LEVIED AGAINST THE PROPERTY OR THE PROPERTY OWNER BECAUSE OF A LACK OF EROSION OR SEDIMENTATION CONTROL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF SUCH FINES OR PENALTIES, OR THE COST OF SUCH FINES OR PENALTIES SHALL BE DEDUCTED FROM THE CONTRACT AMOUNT.
28. AMENDMENTS/REVISIONS TO THE ES & PC PLAN WHICH HAVE SIGNIFICANT EFFECT ON BMP'S WITH HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

GRADING - PHASE II - EROSION CONTROL NOTES

1. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO ENSURE THAT LAND STRIPPED OF ITS NATURAL GROUND COVER IS EXPOSED ONLY IN SMALL QUANTITIES AND THEREFORE LIMITED DURATIONS, BEFORE PERMANENT EROSION PROTECTION IS ESTABLISHED. NOTE SUB-PHASES SHOWN ON PLANS.
2. EARTHWORK OPERATIONS IN THE VICINITY OF STREAM BUFFERS SHALL BE CAREFULLY CONTROLLED TO AVOID DUMPING OR SLOUGHING INTO THE BUFFER AREAS.
3. THE FOLLOWING EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE PRELIMINARY GRADING PHASE OF CONSTRUCTION:
   A. SEDIMENT SHALL NOT BE WASHED INTO INLETS. IT SHALL BE REMOVED FROM THE SEDIMENT TRAPS AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLETS AGAIN.
   B. EROSION CONTROL DEVICES SHALL BE INSTALLED IMMEDIATELY AFTER GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE DESIGN PROFESSIONAL IMMEDIATELY.
   C. TYPE "S" SILT FENCE SHOULD BE INSTALLED AT THE TOE OF ALL FILL SLOPES 10 FEET OR GREATER IN HEIGHT. THE SILT FENCE SHOULD BE PLACED IN ACCORDANCE WITH THE MANUAL FOR EROSION CONTROL IN GEORGIA, TABLE 6-27.2. THE SILT FENCE SHALL BE MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED ON THE SLOPE. SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF HEIGHT OF THE BARRIER. ADDITIONALLY, DIVERSION DIKES SHALL BE CONSTRUCTED ALONG THE TOP OF ALL SAID FILL SLOPES WITH THE USE OF TEMPORARY DOWN DRAINS TO CONTROL STORM WATER RUN OFF AS SHOWN ON THE PLANS. SEE SEPARATE DETAILS FOR ADDITIONAL INFORMATION.
   D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING BARRIERS AT THE TOE OF SLOPES UNDER CONSTRUCTION. THESE BARRIERS MAY BE RELOCATED AND REUSED AFTER PERMANENT SLOPE STABILIZATION BECOMES FULLY ESTABLISHED. AS THEY ARE RELOCATED, ANY DEFECTIVE MATERIALS IN THE BARRIER SHALL BE REPLACED. IN ADDITION, ALL DEBRIS AND SILT AT THE PREVIOUS LOCATION SHALL BE REMOVED.
   E. CUT AND FILL SLOPES ARE NOT TO EXCEED 2H:1V.
   F. ALL SLOPES STEEPER THAN 2.5:1 AND WITH A HEIGHT OF TEN FEET OR GREATER, AND CUTS AND FILLS WITHIN STREAM BUFFERS, SHALL BE STABILIZED WITH APPROPRIATE EROSION CONTROL MATTING OR BLANKETS. SEE SEPARATE DETAILS FOR ADDITIONAL INFORMATION.
   G. TYPE "S" SILT FENCE SHALL BE PLACED AT THE TOE OF ALL DIRT STOCK PILE AREAS. SEE SEPARATE DETAILS FOR ADDITIONAL INFORMATION.
   H. INLET SEDIMENT PROTECTION MEASURES SHALL BE INSTALLED ON ALL STORM STRUCTURES AS THEY ARE CONSTRUCTED. SEE PLAN VIEW FOR SPECIFIC TYPE AND SEPARATE DETAILS FOR ADDITIONAL INFORMATION ON TYPE OF INLET PROTECTION SPECIFIED.
   I. STORM DRAIN OUTLET PROTECTION SHALL BE PLACED AT ALL OUTLET HEADWALLS AS SOON AS THE HEADWALL IS CONSTRUCTED. SEE SEPARATE DETAILS FOR ADDITIONAL INFORMATION.
   J. ALL DRAINAGE SWALES SHALL BE APPLIED WITH VEGETATIVE COVER AS SOON AS FINAL GRADE IS ACHIEVED.
   K. MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF LAND DISTURBANCE.
   L. ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY GRASSING.
   M. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.
   N. THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1-3" OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY.
   O. WHEN ANY CONSTRUCTION BORDERS A DRAINAGE COURSE, THE CONTRACTOR SHALL NOT DEPOSIT ANY BUILDING OR OTHER EXCAVATION SPILL DIRT, CONSTRUCTION TRASH OR DEBRIS, ETC. IN THE DRAINAGE COURSE OR ASSOCIATED FLOOD PLAIN.
   P. GRADING EQUIPMENT MUST CROSS FLOWING STREAMS BY THE MEANS OF BRIDGING OR CULVERTS, EXCEPT WHEN SUCH METHODS ARE NOT FEASIBLE; ALL STREAM CROSSINGS WILL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION OF THE "MANUAL FOR EROSION AND SEDIMENTATION CONTROL IN GEORGIA."
   Q. DISCHARGE OF STORMWATER RUN-OFF FROM DISTURBED AREAS TO A STREAM SHALL BE CONTROLLED TO THE EXTENT THAT TURBIDITY OF THE STREAM DOWNSTREAM FROM THE DISCHARGE SHALL NOT EXCEED 25 NEPHELOMETRIC TURBIDITY UNITS HIGHER THAN THE TURBIDITY LEVEL OF THE RECEIVING STREAM IMMEDIATELY UPSTREAM FROM THE STORMWATER RUN-OFF DISCHARGE AT THE TIME OF SUCH DISCHARGE.
   R. DISPOSE OF WASTE SOILS AND CLEARED AND GRUBBED MATERIALS OFF-SITE AT A LOCATION SECURED BY THE CONTRACTOR, AND IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
   S. CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
   T. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE AS DIRECTED BY THE ONSIDE INSPECTOR OR THE DESIGN PROFESSIONAL.
   U. FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS.
   V. AFTER CURBING, GRADED AGGREGATE BASE, AND PAVEMENT HAS BEEN INSTALLED, ALL INLET SEDIMENT TRAPS ON SINGLE AND DOUBLE WING CATCH BASINS ALONG WITH ANY CURB INLETS SHALL BE REMOVED AND REPLACED WITH CURB FILTER INLET PROTECTION. SEE SEPARATE DETAIL FOR ADDITIONAL INFORMATION.

FINAL - PHASE III - EROSION CONTROL NOTES

THE FOLLOWING EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE FINAL EROSION CONTROL PHASE OF CONSTRUCTION:

1. SEDIMENT SHALL NOT BE WASHED INTO INLETS. IT SHALL BE REMOVED FROM THE SEDIMENT TRAPS AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLETS AGAIN.
2. MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF LAND DISTURBANCE.
3. ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH PERMANENT GRASSING.
4. THE CONTRACTOR SHALL MAINTAIN ALL SEDIMENT PONDS AND EROSION CONTROL MEASURES UNTIL PERMANENT GROUND COVER IS ESTABLISHED. SEDIMENT SHALL BE CLEANED OUT OF THE PONDS WHEN IT REACHES THE HALF-WAY POINT ON THE RISER.
5. ALL ROADWAY AND PARKING SHOULDERS SHOULD BE APPLIED WITH VEGETATIVE COVER AS SOON AS FINAL GRADE IS ACHIEVED BEHIND CURBS.
6. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE-HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.
7. THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1-3" OF STONE, AS CONDITIONS DEMAND, ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY.
8. CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
9. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE AS DIRECTED BY THE ONSITE INSPECTOR OR THE DESIGN PROFESSIONAL.
10. FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS.
11. UPON COMPLETION OF THE PROJECT AND RECEIPT OF CERTIFICATE OF OCCUPANCY, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND DISPOSE OF THEM UNLESS NOTED ON PLANS.

WETLANDS:

THE SITE DOES CONTAIN WETLANDS. WETLANDS SHALL BE IMPACTED IN ACCORDANCE WITH USACOE PERMIT SAS-2020-00353

SLOPES AFTER GRADING:

AVERAGE POST CONSTRUCTION SLOPE OF THE DISTURBED AREA IS APPROXIMATELY 1% OR LESS AND WITH SIDE SLOPES AT 2.5:1 OR LESS.

SITE DESCRIPTION:

TOTAL SITE AREA - 4.26 AC.
TOTAL AREA OF DISTURBANCE - 4.27 AC.

SEDIMENT STORAGE

A MINIMUM OF 67 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED IS REQUIRED.
SEDIMENT STORAGE VOLUME MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED.
SEDIMENT STORAGE REQUIRED FOR THIS SITE:

SEDIMENT STORAGE REQUIRED: 4.27 AC X 67 CY = 287 CY

SEDIMENT STORAGE PROVIDED BY DESIGN: 1,002 CY TEMPORARY SEDIMENT TRAP

DEVELOPMENT REFERENCE:

OPERATOR:	DRAYTON-PARKER COMPAINES, LLC
OWNER NAME:	GREG PARKER
OWNER ADDRESS:	17 W. MCDONOUGH ST.
CITY, STATE:	SAVANNAH, GA 31401
OWNER PHONE NO.:	(912) 581-2544
EMERGENCY 24-HOUR CONTACT:	GREG PARKER
PHONE NUMBER:	(912) 581-2544

PROJECT DESCRIPTION:
1. THE SITE IS CURRENTLY AN UNDEVELOPED PARCEL.
2. THIS SITE **DOES NOT** CONTAIN STATE WATERS.

RECEIVING WATERS:

STORM WATER RUNOFF FROM THE PROJECT SITE IS CONVEYED VIA OVERLAND FLOW TO ON-SITE INFILTRATION AREAS AND THEN IS DISCHARGED TO AN EXISTING DRAINAGE DITCH TO THE EAST OF THE PROPERTY.
BASED UPON THE LATEST VERSION OF GEORGIA'S 305(b)/303(d) LIST THIS SITE DOES DISCHARGE INTO THE SAME WATERSHED, BUT NOT WITHIN ONE (1) LINEAR MILE OF ANY PORTION OF A BIOTA IMPAIRED STREAM SEGMENT.

PURPOSE OF LAND DISTURBANCE:

THE PURPOSE OF LAND DISTURBANCE IS FOR THE DEVELOPMENT OF A TRUCK AND CHASSIS STORAGE YARD.

CONSTRUCTION NOTES:

1. ANTICIPATED CONSTRUCTION START AND COMPLETION DATES - AUGUST 2022 THROUGH NOVEMBER 2022.
2. CONSTRUCTION STAGING AREAS, SITE ACCESS AND LIMITS OF CONSTRUCTION SHALL BE COORDINATED WITH ANY SECONDARY OR TERTIARY PERMITTEES.

RUNOFF CURVE NUMBERS:

DISTURBED AREA PRE CONSTRUCTION - CN = 82
DISTURBED AREA POST CONSTRUCTION - CN = 95

DRAINAGE DESCRIPTION:

THE SITE DRAINAGE CONSISTS OF OVERLAND FLOW CONVEYED TO ON-SITE INFILTRATION AREAS.

ENGINEER

CIVIL ENGINEER:

ATLANTIC COAST CONSULTING, INC.
7 EAST CONGRESS ST.
SAVANNAH, GA 31401
(912) 236-3471

OPERATOR

CONTRACTOR

TBD

GENERAL NOTES

1. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
3. ANY DISTURBED AREA LEFT IDLE FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH TEMPORARY SEEDING; DISTURBED AREAS IDLE 30 DAYS SHALL BE STABILIZED WITH PERMANENT VEGETATION.
4. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED BY THE CONTRACTOR AT LEAST WEEKLY, AFTER EACH RAIN, AND REPAIRED AS NECESSARY.
5. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DETERMINED NECESSARY BY ON-SITE INSPECTION.
6. SILT FENCE SHALL MEET THE REQUIREMENTS OF SECTION 171 - TYPE "S" AND "NS" TEMPORARY SILT FENCE, OF THE GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (QUALIFIED PRODUCTS LIST #36).

SOIL TYPES:

As - ALBANY FINE SAND - THE ALBANY SERIES CONSISTS OF VERY DEEP, SOMEWHAT POORLY DRAINED, MODERATELY PERMEABLE SOIL THAT FORMED IN MARINE DEPOSITS. THE SOILS ARE ON FLATS GENERALLY 20 TO 450 FEET ELEVATION. SLOPES ARE 0 TO 2 PERCENT.

Lp - LAKELAND SAND - THE LAKELAND SERIES CONSISTS OF VERY DEEP, EXCESSIVELY DRAINED, HIGHLY PERMEABLE SOIL THAT FORMED IN MARINE DEPOSITS. THE SOILS ARE ON RISES GENERALLY 40 TO 300 FEET ELEVATION. SLOPES ARE 0 TO 5 PERCENT.

Ok - OGEECHEE LOAMY FINE SAND - THE OGEECHEE SERIES CONSISTS OF VERY DEEP, POORLY DRAINED, MODERATELY PERMEABLE SOIL THAT FORMED IN THICK BEDS OF LOAMY FLUVIAL AND MARINE SEDIMENTS. THE SOILS ARE ON NEARLY LEVEL BROAD FLATS, DRAINAGEWAYS, AND SLIGHT DEPRESSIONS ON THE LOWER COASTAL PLAIN GENERALLY BELOW 50 FEET ELEVATION. SLOPES ARE 0 TO 2 PERCENT.

SURVEY NOTES:

THIS SITE IS LOCATED IN PORT WENTWORTH, GA IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF AUGUSTA ROAD AND CROSSGATE ROAD. THE SITE IS LOCATED SIX MILES NORTHWEST OF THE INTERSECTION OF I-16 AND I-516 AND THREE MILES SOUTHEAST OF THE INTERSECTION OF I-95 AND SR-21.
EXISTING INFORMATION SHOWN ON THESE DRAWINGS IS TAKEN FROM THE FOLLOWING SOURCES:
1. FIELD SURVEY BY EMC ENGINEERING SERVICES, INC. DATED 05/05/2020.
2. SOILS DELINEATION INFORMATION FROM NRCS SOIL DATA MART FOR CHATHAM COUNTY. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY DISCREPANCIES ARE FOUND BETWEEN SURVEY DATA AND ACTUAL FIELD CONDITIONS.

EROSION CONTROL CERTIFICATION

"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORMWATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR100001."

"I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION."

DESIGN PROFESSIONAL: MARC LIVERMAN, P.E. 06930 LEVEL II CERTIFICATION NUMBER

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT CERTIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

OWNER: GREG PARKER
GPARKER@PARKERSAV.COM

THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WITHIN 7 DAYS AFTER INSTALLATION.

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 030027 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/19/22

06930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

0. Issued for Permitting	05/14/2022

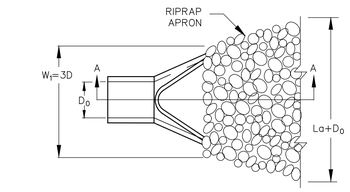
Drawn by:	Checked by:	QC by:

PROJECT NUMBER:
1061-102
MAY 2022

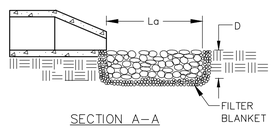
EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES

C-601

P:\Industrial\061-1883 Logistics\101- Drayton-Parker PW Truck Yard\3-Design Data\2-CIVIL\061_102_C-601.dwg 5/20/22 MARC LIVERMAN



PLAN

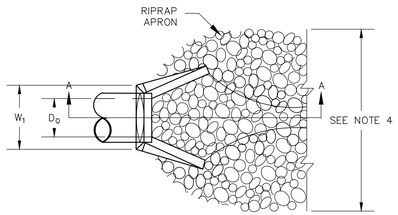


SECTION A–A

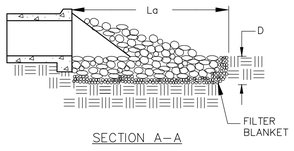
PIPE OUTLET TO FLAT AREA
NO DEFINED CHANNEL

NOTES FOR INSTALLING OUTLET PROTECTION IN A FLAT AREA WITH NO DEFINED CHANNEL:

1. La IS THE LENGTH OF THE RIP–RAP APRON (SHOWN ON PLANS AT EACH St)
2. STONE DEPTH D=1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6"
3. d50 IS THE AVERAGE STONE DIAMETER.
4. W_1 IS THE WIDTH AT THE HEADWALL (THREE TIMES THE DIAMETER OF THE OUTLET PIPE)
5. W_2 IS THE DOWNSTREAM WIDTH (OUTLET PIPE DIAMETER + La)
6. A FILTER BLANKET OR FILTER FABRIC SHALL BE INSTALLED BETWEEN THE RIP–RAP AND SOIL FOUNDATION.



PLAN



SECTION A–A

PIPE OUTLET TO WELL
DEFINED CHANNEL

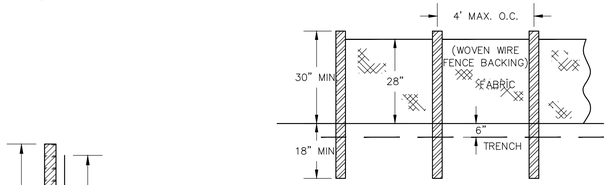
NOTES FOR INSTALLING OUTLET PROTECTION IN A WELL DEFINED CHANNEL:

1. La IS THE LENGTH OF THE RIP–RAP APRON (SHOWN ON PLANS AT EACH St)
2. STONE DEPTH D=1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6"
3. d50 IS THE AVERAGE STONE DIAMETER.
4. THE APRON SHALL EXTEND ACROSS THE CHANNEL BOTTOM AND UP THE CHANNEL BANKS TO AN ELEVATION ONE FOOT ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS)
5. W_2 IS THE DOWNSTREAM WIDTH (DEFINED ON THE PLANS @ EACH St)
6. A FILTER BLANKET OR FILTER FABRIC SHALL BE INSTALLED BETWEEN THE RIP–RAP AND SOIL FOUNDATION.

OUTLET PROTECTION

St1

N.T.S.



FRONT VIEW

SIDE VIEW

NOTE:
USE 36" D.O.T. APPROVED FABRIC.
USE STEEL POSTS.–ONLY (1.3 LB/FT. MIN.)

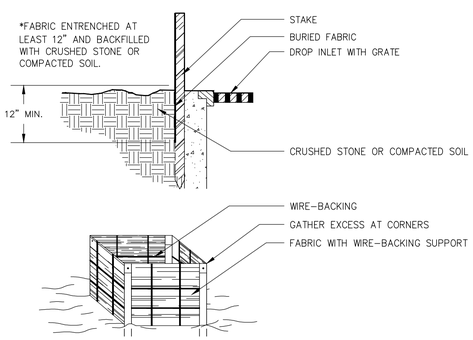
MAINTENANCE NOTES:

1. SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE BARRIER
2. FILTER FABRIC SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE FABRIC IS REDUCED.
3. TEMPORARY SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
4. ALL SEDIMENT ACCUMULATED AT THE BARRIER SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE BARRIER IS REMOVED.
5. JOINTS OF SILT FENCE SECTIONS SHALL A MINIMUM OF 18 INCHES OVERLAP
6. WHEN TWO ROWS OF SILT FENCE ARE REQUIRED, THEY SHALL BE INSTALLED A MINIMUM OF 36" APART.

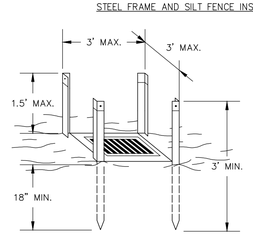
TYPE "S" SILT FENCE DETAIL

Sd1-S

N.T.S.



STEEL FRAME AND SILT FENCE INSTALLATION



NOTES:

1. DESIGN IS FOR SLOPES NO GREATER THAN 5% (NOT DESIGNED FOR CONCENTRATED FLOWS).
2. THE STEEL POSTS SUPPORTING THE SILT FENCE MATERIAL SHOULD BE SPACED EVENLY AROUND THE PERIMETER OF THE INLET (MAXIMUM OF 3' APART).
3. THE STEEL POSTS SHOULD BE SECURELY DRIVEN AT LEAST 18" DEEP.
4. THE FABRIC SHOULD BE ENTRENCHED AT LEAST 12" AND THEN BACKFILLED WITH CRUSHED STONE OR COMPACTED SOIL.

INLET SEDIMENT TRAP ~ FABRIC FRAME

Sd2-F

N.T.S.

SCHEDULE OF MAJOR ACTIVITIES

DESCRIPTION	(MONTHS AFTER BEGINNING CONSTRUCTION) MONTH 1			MONTH 2				MONTH 3			
	1	2	3	4	5	6	7	8	9	10	11	12
INSTALL & MAINTAIN SEDIMENT CONTROL STRUCTURES	■	■	■	■	■	■	■	■	■	■	■	
CLEARING AND GRUBBING		■	■									
GRADING AND STORM DRAIN INSTALLATION				■	■	■	■	■	■	■		
TEMPORARY MULCHING/SEEDING AS NECESSARY TO STABILIZE		■	■	■	■	■	■	■	■	■		
FINAL STABILIZATION/ PERMANENT VEGETATION										■	■	
REMOVE SEDIMENT CONTROL STRUCTURES												■

THE INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO OR CONCURRENT WITH LAND DISTURBING ACTIVITY.

NOTES:

1. ANTICIPATED CONSTRUCTION START DATE – AUGUST 2022 CONSTRUCTION STAGING AREAS, SITE ACCESS AND LIMITS OF CONSTRUCTION SHALL BE COORDINATED WITH ANY SECONDARY OR TERTIARY PERMITTEES.

MAJOR SOIL DISTURBANCE ACTIVITY

CONSTRUCTION ACTIVITY	SOIL DISTURBANCE	BMP
CLEARING AND GRUBBING DEMOLITION	TOPSOIL & STUMP REMOVAL, STOCKPILING DEBRIS	FILTER FABRIC RIP–RAP CHECK DAM TREE PROTECTION FENCING
RCP INSTALLATION	EARTHWORK CUT AND FILL ACTIVITY	MAINTAIN AND MONITOR EROSION CONTROL TEMPORARY MULCHING OR GRASSING AS REQUIRED
GRADING	EXCAVATION, STOCKPILING AND FINISH GRADING	MAINTAIN AND MONITOR EROSION CONTROL TEMPORARY MULCHING OR GRASSING AS REQUIRED
STABILIZATION		PERMANENT GRASSING REMOVAL OF TEMPORARY SEDIMENT CONTROL & TREE PROTECTION

SITE PREPARATION:

1. GRADE TO PERMIT THE USE OF EQUIPMENT FOR APPLYING AND ANCHORING MULCH.
2. INSTALL NEEDED EROSION CONTROL MEASURES AS REQUIRED SUCH AS DIKES, DIVERSIONS, BERMS, TERRACES AND SEDIMENT BARRIERS.
3. LOOSEN COMPACT SOIL TO A MINIMUM DEPTH OF 3 INCHES.

MATERIALS:

1. DRY STRAW/HAY – 2 TO 4 INCHES DEEP, PROVIDING COMPLETE SOIL COVERAGE
2. WOOD WASTE (CHIPS/SAWDUST/BARK) – 2 TO 3 INCHES DEEP
3. CUTBACK ASPHALT – 1200 GALLONS PER ACRE (1/4 GALLON PER SQUARE YARD)
4. POLYETHYLENE FILM – SECURED OVER BANKS OR STOCKPILED SOIL MATERIAL FOR TEMPORARY PROTECTION.

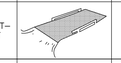
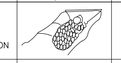
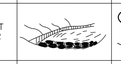
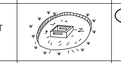
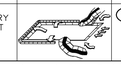
MULCHING

Ds1

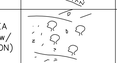
CRITICAL WORK ZONE - EROSION CONTROL NOTES

SHADED AREAS SHOWN ON GRADING PHASE EROSION CONTROL PLANS REPRESENT CRITICAL WORK ZONES. AT THE END OF EACH WORK DAY, ALL SLOPES 2:1 OR STEEPER AND HIGHER THAN 5 FEET SHALL RECEIVE SURFACE ROUGHENING, POLYMERS, AND EROSION CONTROL MATTING. ADDITIONALLY, ALL FILL SLOPES SHALL RECEIVE A DIVERSION DIKE AND TEMPORARY DOWN DRAINS ALONG THE TOP OF THE SLOPE PREVENTING DRAINAGE SPILLING OVER THE EDGE AND DOWN THE FACE OF THE SLOPE. THE TEMPORARY DOWN DRAINS SHALL BE CONSTRUCTED WITH PERFORATED STAND PIPES AT THE TOP OF THE SLOPE AND RECONSTRUCTED EACH DAY AS THE SLOPE INCREASES IN HEIGHT.

STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Co	CONSTRUCTION EXIT		(LABEL)	A CRUSHED STONE PAD LOCATED AT THE CONSTRUCTION SITE EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES, THEREBY PROTECTING PUBLIC STREETS.
St1	STORM DRAIN OUTLET PROTECTION		(LABEL)	A PAVED OR SHORT SECTION OF RIP RAP CHANNEL AT THE OUTLET OF A STORM DRAIN SYSTEM PREVENTING EROSION FROM THE CONCENTRATED RUNOFF.
Sd1	SEDIMENT BARRIER		(INTACATE TYPE)	A BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT MAY BE SANDBAGS, BALES OF STRAW OR HAY, BRUSH, LOGS AND POLES, GRAVEL, OR A SILT FENCE.
Sd2	INLET SEDIMENT TRAP			AN IMPOUNDING AREA CREATED BY EXCAVATING AROUND A STORM DRAIN DROP INLET. THE EXCAVATED AREA WILL BE FILLED AND STABILIZED ON COMPLETION OF CONSTRUCTION ACTIVITIES.
Sd4	TEMPORARY SEDIMENT TRAP			A SMALL TEMPORARY POND THAT DRAINS A DISTURBED AREA SO THAT SEDIMENT CAN SETTLE OUT. THE PRINCIPLE FEATURE DISTINGUISHING A TEMPORARY SEDIMENT TRAP FROM A TEMPORARY SEDIMENT BASIN IS THE LACK OF A PIPE OR RISER.

VEGETATIVE PRACTICES

Ds1	DISTURBED AREA STABILIZATION (w/ MULCHING ONLY)		Ds1 ESTABLISHING TEMPORARY PROTECTION FOR DISTURBED AREAS WHERE SEEDING MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AN EROSION RETARDING COVER.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMP. SEEDING)		Ds2 ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDING ON DISTURBED AREAS.
Ds3	DISTURBED AREA STABILIZATION (w/ PERM. VEGETATION)		Ds3 ESTABLISHING PERMANENT VEGETATIVE COVER SUCH AS TREES, SHRUBS, VINES, GRASSES, SOD, OF LEGUMES ON DISTURBED AREAS.
Du	DUST CONTROL ON DISTURBED AREAS		DU CONTROLLING SURFACE & AIR MOVEMENT OF DUST ON CONSTRUCTION SITES, ROADWAYS, & SIMILAR SITES. TEMPORARY METHODS: –MULCHES –TEMPORARY VEGETATIVE COVER –SPRAY ON ADHESIVES –TILLAGE –IRRIGATION –BARRIERS –CALCIUM CHLORIDE PERMANENT METHODS: –PERMANENT VEGETATION –TOPSOILING –STONE COVER

CHEMICAL CONTROL

ADHESIVE	WATER DELUTION	TYPE OF NOZZLE	APPLICATION RATE (GAL/AC)
ANIONIC ASPHALT EMULSION	7:1	SPRAY	1200
LATEX EMULSION	12 1/2:1	FINE SPRAY	235
RESIN–IN–WATER EMULSION	4:1	FINE SPRAY	300

VEGETATIVE PRACTICES

PERMANENT SEED	PLANTING DATES	RATE/1,000 SQFT	RATE/ACRE	RATES/1,000 SQFT. FERTILIZER	RATES/1,000 SQFT. LIME STONE
RYE	9/1 – 3/1	3.9 lbs.	3 bu.	12 lb(10–10–10)	45 lb
RYEGRASS	8/15 – 4/1	0.9 lbs.	40 lbs.	12 lb(10–10–10)	45 lb
ANNUAL LESPEDEZA	1/15 – 3/15	0.9 lbs.	40 lbs.	35 lb(6–12–12)	45 lb
WEEPING LOVEGRASS	2/15 – 6/15	0.1 lbs.	4 lbs.	12 lb(10–10–10)	45 lb
SUDANGRASS	3/1 – 8/1	1.4 lbs.	60 lbs.	35 lb(6–12–12)	45 lb
BROWNTOP MILLET	4/1 – 7/15	0.9 lbs.	40 lbs.	10 lb(10–10–10)	45 lb
WHEAT	9/15 – 2/1	4.1 lbs.	3 bu.	10 lb(10–10–10)	45 lb

TEMPORARY GRASSING

Ds2

PERMANENT SEED	PLANTING DATES	RATE/1,000 SQFT	RATE/ACRE	RATES/1,000 SQFT. FERTILIZER	LIME STONE	MAINTENANCE
BAHIA	1/1 – 12/31	1.4 lbs.	60 lbs.	35 lb(6–12–12)	45 lb	10 lb(10–10–10)
BERMUDA	2/15 – 7/1	0.2 lbs.	10 lbs.	12 lb(10–10–10)	45 lb	10 lb(10–10–10)
CENTIPEDE	4/1 – 7/1	BLOCK SOD ONLY	BLOCK SOD ONLY			
LESPEDEZA	1/1 – 12/31	1.7 lbs.	75 lbs.	35 lb(10–10–10)	45 lb	10 lb(10–10–10)
WEEPING LOVE GRASS	2/1 – 6/15	0.1 lbs.	4 lbs.	12 lb(10–10–10)	45 lb	10 lb(10–10–10)
SWITCH GRASS	3/15 – 6/1	0.9 lbs.	40 lbs.			

PERMANENT GRASSING

Ds3

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 030078 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/14/22

06930
LEVEL II CERTIFICATION

PROJECT:

PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

0. Issued for Permitting	05/14/2022

Drawn by: | Checked by: | QC by:

PROJECT NUMBER:

1061-102

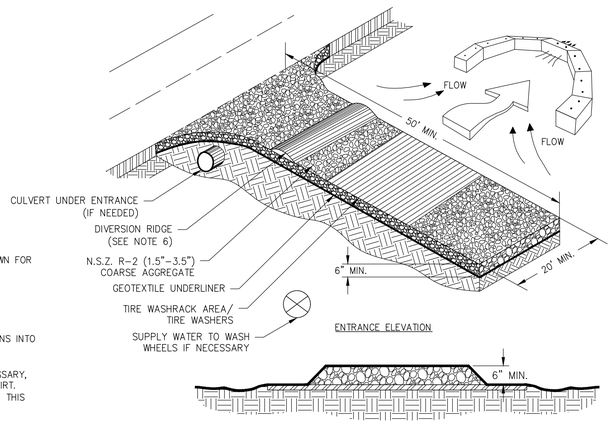
MAY 2022

EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES & DETAILS

C-602

P:\Industrial\1061-1083 Logistics\101- Drayton-Parker PW Truck Yard\3-Design Data\2-CIVIL\1061_102_C-602.dwg 5/14/22 MARC LIVERMAN

NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

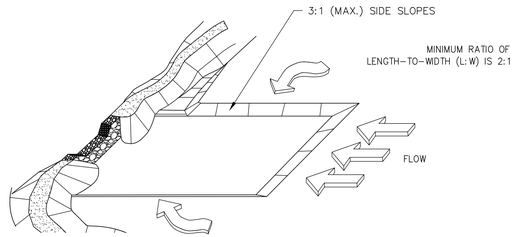


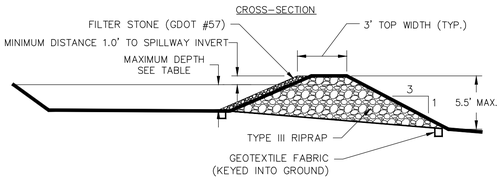
CONSTRUCTION EXIT
N.T.S.

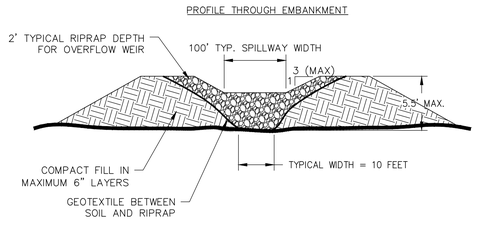
Co

MAXIMUM DEPTH (FT)	BOTTOM EL.	EMERGENCY SPILLWAY EL.	EMERGENCY SPILLWAY DEPTH (FT)	CREST ELEVATION	SEDIMENT STORAGE PROVIDED (CY)*	CLEANOUT EL.**
2.0	31.0	32.00	1.00	33.00	497	

*STORAGE VOLUME PROVIDES MINIMUM 67 CY PER ACRE DRAINED TO SEDIMENT TRAP
**CLEANOUT ELEVATION CORRESPONDS TO VOLUME ONE-THIRD OF THE TOTAL STORAGE VOLUME

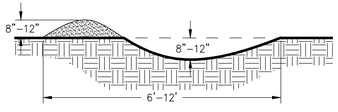






TEMPORARY SEDIMENT TRAP - ROCK OUTLET
N.T.S.

Sd4-C



CROSS SECTION

DIVERSION BERM DETAIL
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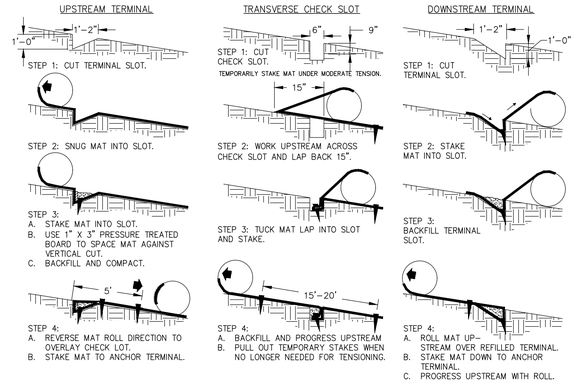
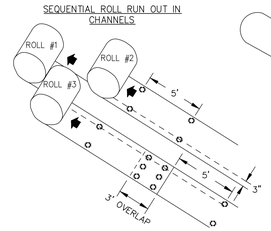
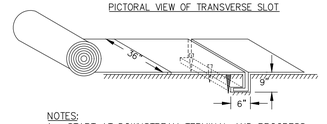


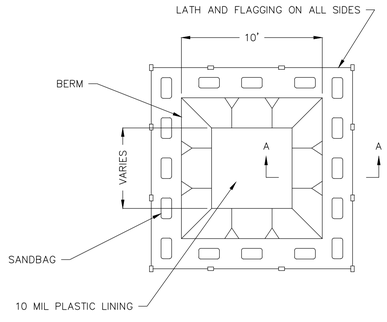


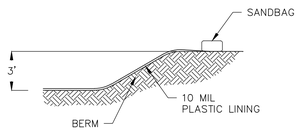


NOTES:
1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID-CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND THE FIRST ROLL. USE THE CENTER ROLL FOR ALIGNMENT TO THE CHANNEL CENTER.
4. WORK OUTWARDS FROM THE CHANNEL CENTER TO THE EDGE.
5. USE 3" OVERLAPS AND STAKE AT 5' INTERVALS ALONG THE SEAMS.
6. USE 3' OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT THE LINING AT THE ROLL ENDS.

BLANKET AND MATTING CROSS-SECTIONS
N.T.S.

Ss





SECTION A-A

REMOVAL OF TEMPORARY CONCRETE WASHOUT FACILITIES
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE AND DISPOSED OF.
2. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACK FILLED AND REPAIRED.

INSPECTION AND MAINTENANCE
1. INSPECT AND VERIFY THAT ACTIVITY-BASED BMPS ARE IN PLACE PRIOR TO THE COMMENCEMENT OF ASSOCIATED ACTIVITIES. WHEN ACTIVITIES ASSOCIATED WITH THE BMP ARE UNDER WAY, INSPECT WEEKLY DURING THE RAINY SEASON AND AT TWO WEEK INTERVALS IN THE NON-RAINY SEASON TO VERIFY CONTINUED BMP IMPLEMENTATION.
2. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREEBOARD OF 4 IN. FOR ABOVE GRADE FACILITIES AND 12 IN. FOR BELOW GRADE FACILITIES. MAINTAINING TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD INCLUDE REMOVING AND DISPOSING OF HARDENED CONCRETE AND RETURNING THE FACILITIES TO A FUNCTIONAL CONDITION. HARDENED CONCRETE MATERIALS SHOULD BE REMOVED AND DISPOSED OF.
3. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WA SHOUT IS 75% FULL.

ONSITE TEMPORARY CONCRETE WASHOUT FACILITY, TRANSIT TRUCK WASHOUT PROCEDURES
1. TEMPORARY CONCRETE WA SHOUT FACILITIES SHOULD BE LOCATED A MINIMUM OF 50 FT. FROM STORM DRAIN INLETS, OPEN DRAIN AGE FACILITIES, AND WATERCOURSES. EACH FACILITY SHOULD BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OR ACCESS AREAS TO PREVENT DISTURBANCE OR TRACKING.
2. A SIGN SHOULD BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.
3. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE CONSTRUCTED ABOVE GRADE OR BELOW GRADE AT THE OPTION OF THE CONTRACTOR. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
4. TEMPORARY WASHOUT FACILITIES SHOULD HAVE A TEMPORARY PIT OR BERMED AREAS OF SUFFICIENT VOLUME TO COMPLETELY CONTAIN ALL LIQUID AND WASTE CONCRETE MATERIALS GENERATED DURING WASHOUT PROCEDURES.
5. WASHOUT OF CONCRETE TRUCKS SHOULD BE PERFORMED IN DESIGNATED AREAS ONLY.
6. ONLY CONCRETE FROM MIXER TRUCK CHUTES SHOULD BE WASHED INTO CONCRETE WASH OUT.
7. CONCRETE WASHOUT FROM CONCRETE PUMPER BINS CAN BE WASHED INTO CONCRETE PUMPER TRUCKS AND DISCHARGED INTO DESIGNATED W SHOUT AREA OR PROPERLY DISPOSED OF OFFSITE.
8. ONCE CONCRETE WASTES ARE WASHED INTO THE DESIGNATED AREA AND ALLOWED TO HARDEN, THE CONCRETE SHOULD BE BROKEN UP, REMOVED, AND DISPOSED OF OFFSITE IN A LEGAL MANNER. DISPOSE OF HARDENED CONCRETE ON A REGULAR BASIS.
9. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

TEMPORARY CONCRETE WASHOUT
N.T.S.

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 31027 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/14/22

06930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

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PROJECT NUMBER:
I061-102
MAY 2022

EROSION, SEDIMENTATION AND POLLUTION CONTROL DETAILS

C-603

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NON-EXEMPT ACTIVITIES

1. FOR BUFFERS REQUIRED PURSUANT TO THE GENERAL PERMIT, NO CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A BUFFER AND A BUFFER SHALL REMAIN IN ITS NATURAL, UNDISTURBED, STATE OF VEGETATION UNTIL ALL LAND-DISTURBING ACTIVITIES ON THE CONSTRUCTION SITE ARE COMPLETED. DURING COVERAGE UNDER THIS PERMIT, A BUFFER CANNOT BE THINNED OR TRIMMED OF VEGETATION AND A PROTECTIVE VEGETATIVE COVER MUST REMAIN TO PROTECT WATER QUALITY AND AQUATIC HABITAT AND A NATURAL CANOPY MUST BE LEFT IN SUFFICIENT QUANTITY TO KEEP SHADE ON THE STREAM BED.
2. NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
3. THE CONTRACTOR IS REQUIRED TO FAMILIARIZE HIMSELF/HERSELF WITH THE REFERENCED GENERAL PERMIT NO. GAR100001 AND THE REQUIREMENTS SET FORTH FOR PRIMARY, SECONDARY AND TERTIARY PERMITTEES PERTAINING TO THIS PROJECT AND THE IMPLEMENTATIONS OF THIS PROPOSED PROJECT AS TO COMPLYING WITH THE PERMIT.
4. NRCS REVIEW AND DISTRICT APPROVAL OF THIS ES&PC PLAN DOES NOT EXEMPT THE PERMITTEE FROM OTHER PERMITS REQUIRED. ALSO, THIS TECHNICAL REVIEW DOES NOT INCLUDE THE PROVISIONS FOUND IN THE STATE GENERAL PERMIT NOR DOES IT ABSOLVE THE OWNER FROM THE REQUIREMENTS AND RESPONSIBILITIES OUTLINED IN THE PERMIT.

PRODUCT SPECIFIC PRACTICES:

PETROLEUM PRODUCTS:

CONTAINERS PRODUCTS SUCH AS FUELS, LUBRICANTS AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM SATE WATER, NATURAL DRAINS AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.

PAINTS/FINISHES/SOLVENTS:

ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURE'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCKS:

NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONSITE.

FERTILIZERS/HERBICIDES:

THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURE'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS.

BUILDING MATERIALS:

NO BUILDING OR CONSTRUCTIONS MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

BEST MANAGEMENT PRACTICES:

1. STRIPPING OF VEGETATION, REGRADING, AND OTHER DEVELOPMENT ACTIVITIES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO MINIMIZE EROSION.
2. CUT AND FILL OPERATIONS SHALL BE KEPT TO A MINIMUM, AND WILL NOT ENDANGER ADJACENT PROPERTIES.
3. DEVELOPMENT PLANS WILL CONFORM TO TOPOGRAPHY AND SOIL TYPE, SO AS TO CREATE THE LOWEST PRACTICABLE EROSION POTENTIAL;
4. WHENEVER FEASIBLE, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED, AND SUPPLEMENTED;
5. THE DISTURBED AREA AND THE DURATION OF EXPOSURE TO EROSIVE ELEMENTS SHALL BE KEPT TO A PRACTICABLE MINIMUM;
6. DISTURBED SOIL SHALL BE STABILIZED AS QUICKLY AS PRACTICABLE;
7. TEMPORARY VEGETATION OR MULCHING SHALL BE EMPLOYED TO PROTECT EXPOSED CRITICAL AREAS DURING DEVELOPMENT;
8. PERMANENT VEGETATION AND STRUCTURAL EROSION CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICABLE;
9. TO THE EXTENT NECESSARY, SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED BY THE USE OF DEBRIS BASINS, SILT TRAPS, OR SIMILAR MEASURES UNTIL THE DISTURBED AREA IS STABILIZED; SILT FENCING WILL BE DOT TYPE "S" (SENSITIVE) WHERE NOTED.
10. ADEQUATE PROVISIONS SHALL BE PROVIDED TO MINIMIZE DAMAGE FROM SURFACE WATER TO THE CUT FACE OF EXCAVATIONS OR THE SLOPING SURFACES OF FILLS; ALL FILL SLOPES SHALL HAVE SILT FENCING AT THE TOE;
11. GRADING EQUIPMENT SHALL CROSS FLOWING STREAMS BY THE MEANS OF BRIDGES OR CULVERTS, EXCEPT WHEN SUCH METHODS ARE NOT FEASIBLE, PROVIDED IN ANY CASE THAT SUCH CROSSINGS SHALL BE KEPT TO A MINIMUM;
12. FILLS SHALL NOT ENCROACH UPON NATURAL WATER COURSES OR CONSTRUCTED CHANNELS IN A MANNER SO AS TO ADVERSELY AFFECT OTHER PROPERTY OWNERS;
13. PROVISIONS SHALL BE PROVIDED FOR TREATMENT OR CONTROL OF ANY SOURCE OF SEDIMENTS AND ADEQUATE SEDIMENTATION CONTROL FACILITIES TO RETAIN SEDIMENTS ON SITE OR PRECLUDE SEDIMENTATION OF ADJACENT WATERS BEYOND THE LEVELS SPECIFIED IN THIS PERMIT;
14. NO CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A 25-FOOT BUFFER ALONG THE BANKS OF ALL STATE WATERS. EXCEPTIONS INCLUDE AN APPROVED VARIANCE OR WHERE A DRAINAGE STRUCTURE OR A ROADWAY DRAINAGE STRUCTURE MUST BE CONSTRUCTED, PROVIDED THAT ADEQUATE EROSION CONTROL MEASURES ARE INCORPORATED IN THE PROJECT PLANS AND SPECIFICATIONS AND ARE IMPLEMENTED;
15. NO CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A BUFFER (EXCEPT AS APPROVED BY A VARIANCE) AND A BUFFER SHALL REMAIN IN ITS NATURAL, UNDISTURBED, STATE OF VEGETATION UNTIL ALL LAND-DISTURBING ACTIVITIES ON THE CONSTRUCTION SITE ARE COMPLETED;
16. VELOCITY DISSIPATION DEVICES SHALL BE PLACED AT DISCHARGE LOCATIONS AND ALONG THE LENGTH OF ANY OUTFALL CHANNEL FOR THE PURPOSE OF PROVIDING A NON-EROSIVE VELOCITY FLOW FROM THE STRUCTURE TO A WATER COURSE SO THAT THE NATURAL PHYSICAL AND BIOLOGICAL CHARACTERISTICS AND FUNCTIONS ARE MAINTAINED AND PROTECTED (E.G., NO SIGNIFICANT CHANGES IN THE HYDROLOGICAL REGIME OF THE RECEIVING WATER(S).
19. WASTE DISPOSAL. NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT. NO WASTE WILL BE DISPOSED OF INTO STORM WATER INLETS OR WATERS OF THE STATE WASTE MATERIALS. ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL MEET ALL SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF ONCE PER WEEK OR MORE OFTEN IF NECESSARY AND TRASH WILL BE HAULED AS REQUIRED BY LOCAL REGULATIONS. NO CONSTRUCTION WASTE WILL BE BURIED ONSITE. ALL PERSONNEL WILL BE INSTRUCTED ON PROPER PROCEDURES FOR WASTE DISPOSAL. A NOTICE STATING THESE PRACTICES WILL BE POSTED AT THE JOBSITE AND THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.
20. A STABILIZED CONSTRUCTION EXIT HAS BEEN PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENT. SEE SHEET C-501 FOR CONSTRUCTION EXIT LOCATIONS. DETAILS ARE AS SHOWN ON SHEET C-603. THE PAVED STREET ADJACENT TO THE SITE EXIT WILL BE INSPECTED DAILY FOR TRACKING OF MUD, DIRT OR ROCK. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPAULIN. OFF-SITE VEHICLE TRACKING OF DIRT, SOILS, AND SEDIMENTS AND THE GENERATION OF DUST SHALL BE MINIMIZED OR ELIMINATED TO THE MAXIMUM EXTENT PRACTICAL. THE PLAN SHALL INCLUDE THE BEST MANAGEMENT PRACTICE TO BE IMPLEMENTED AT THE SITE OR COMMON DEVELOPMENT.
21. ALL PERMITTEE'S SHALL ENSURE AND DEMONSTRATE THAT THEIR PLAN IS IN COMPLIANCE WITH APPLICABLE STATE AND/OR LOCAL WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS.
22. CONTRACTOR SHALL PROVIDE COVER SUCH AS PLASTIC SHEETING OR TEMPORARY ROOFS FOR BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE TO MINIMIZE EXPOSURE TO PRECIPITATION AND TO STORMWATER.

POLLUTION CONTROL MEASURES:

POST CONSTRUCTION POLLUTANT CONTROL MEASURES

1. POST CONSTRUCTION MEASURES INCLUDE TWO INFILTRATION AREAS AND GRASSING.

WASTE MATERIALS DISCHARGE

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL MEET ALL SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF ONCE PER WEEK OR MORE OFTEN IF NECESSARY AND TRASH WILL BE HAULED AS REQUIRED BY LOCAL REGULATIONS. NO CONSTRUCTION WASTE WILL BE BURIED ONSITE.
ALL PERSONNEL WILL BE INSTRUCTED ON PROPER PROCEDURES FOR WASTE DISPOSAL. A NOTICE STATING THESE PRACTICES WILL BE POSTED AT THE JOBSITE AND THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED. NO WASTE MATERIALS SHALL BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

WASTE DISPOSAL, SANITARY SEWER/SEPTIC TANK REGULATIONS

HAZARDOUS PRODUCTS:

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL, STATE, AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. THE JOBSITE SUPERINTENDENT, WHO WILL ALSO BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED. WILL INSTRUCT SITE PERSONNEL IN THESE PRACTICES MATERIAL SAFETY DATA SHEETS (MSDS'S) FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE WILL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTE THAT MAY RESULT FROM THESE PRODUCTS. AN MSDS WILL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS WILL BE MAINTAINED IN THE ESPCP FILE AT THE JOBSITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE OF MSDS SHEETS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES.
THE CONTRACTOR WILL IMPLEMENT THE SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN FOUND WITHIN THIS ESPCP AND WILL TRAIN ALL PERSONNEL IN THE PROPER CLEANUP AND HANDLING OF SPILLED MATERIALS. NO SPILLED HAZARDOUS MATERIALS OR HAZARDOUS WASTES WILL BE ALLOWED TO COME IN CONTACT WITH STORMWATER DISCHARGES. IF SUCH CONTACT OCCURS, THE STORMWATER DISCHARGE WILL BE CONTAINED ON SITE APPROPRIATE MEASURES IN COMPLIANCE WITH STATE AND FEDERAL REGULATIONS ARE TAKEN TO DISPOSE OF SUCH CONTAMINATED STORMWATER. IT SHALL BE THE RESPONSIBILITY OF THE JOBSITE SUPERINTENDENT TO PROPERTY TRAIN PERSONNEL IN THE USE OF THE SPCC PLAN.

SANITARY WASTE:

A MINIMUM OF ONE PORTABLE SANITARY UNIT WILL BE PROVIDED FOR EVERY TEN (10) WORKERS ON THE SITE. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONE TIME PER WEEK BY A LICENSED PORTABLE FACILITY PROVIDER IN COMPLETE COMPLIANCE WITH LOCAL AND STATE REGULATIONS.
ALL SANITARY WASTE UNITS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORM WATER DISCHARGE IS NEGLIGIBLE. ADDITIONAL CONTAINMENT BMP'S MUST BE IMPLEMENTED, SUCH AS GRAVEL BAGS OR SPECIALLY DESIGNED PLASTIC SKID CONTAINERS AROUND THE BASE TO PREVENT WASTES FROM CONTRIBUTING TO STORM WATER DISCHARGES. THE LOCATION OF SANITARY WASTE UNITS MUST BE IDENTIFIED ON THE EROSION CONTROL PLAN GRADING PHASE, SHEET C-503 BY THE CONTRACTOR ONCE THE LOCATIONS HAVE BEEN DETERMINED.
SANITARY SEWER WILL BE PROVIDED BY SEPTIC SYSTEM AT THE COMPLETION OF THIS PROJECT.

SPILL PREVENTION PRACTICES

- LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL.
- MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST AND PROPERTY LABELED PLASTIC AND METAL WASTE CONTAINERS.
- SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.
- ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS WILL BE REPORTED AS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS.
- FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER). THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.
- FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL CENTER (NRC) WILL BE CONTACTED WITH 24 HOURS AT 1-800-424-8802.
- FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS. THE GEORGIA EPD WILL BE CONTACTED WITHIN 24 HOURS.
- FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.

THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ONSITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

CONSTRUCTION NOTES:

1. ALL WORK SHALL COMPLY WITH APPLICABLE STATE, FEDERAL, AND LOCAL CODES AND ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT HIS EXPENSE.
2. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT THE PRIOR CONSENT OF THE ENGINEER MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE TO THE ENGINEER.
3. THE CONTRACTOR WARRANTS THAT HIS EMPLOYEES, AGENTS AND SUBCONTRACTORS POSSESS THE EXPERIENCE, KNOWLEDGE AND CHARACTER NECESSARY TO QUALIFY THE INDIVIDUAL FOR THE PARTICULAR CONSTRUCTION TECHNIQUES THEY PERFORM IN CONNECTION WITH THE TASKS TO BE PERFORMED UNDER THIS CONTRACT. THE CONTRACTOR SHALL INSURE THAT ALL CONSTRUCTION IS PERFORMED IN STRICT COMPLIANCE WITH ALL OSHA, STATE AND LOCAL HEALTH AND SAFETY CODES.
4. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BEFORE CONSTRUCTION STARTS. EXISTING UTILITIES ARE SHOWN USING THE BEST AVAILABLE INFORMATION. CONTRACTOR IS EXPECTED TO COORDINATE ALL WORK WITH OWNER AND UTILITY COMPANIES TO MINIMIZE DISRUPTION AND DAMAGE TO PROPERTY.
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION, CALL "UTILITIES PROTECTION CENTER" @ 1-800-282-7411.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIREMENTS OF THE NPDES PERMIT.

INSPECTION AND MAINTENANCE PROCEDURES

DAILY	WEEKLY AND/OR WITHIN 24HRS OF 0.5" STORM EVENT OR GREATER	MONTHLY AND/OR UNTIL NOTICE OF TERMINATION
CONSTRUCTION EXIT STORAGE AREAS FOR POTENTIAL POLLUTANTS: PETROLEUM FERTILIZER PAINT CONCRETE DETERGENTS TAR CLEANING SOLVENTS WOOD/MASONARY ROOFING MATERIAL' METAL STUDS OTHER HAZARDOUS MATERIALS	ALL EROSION CONTROL MEASURES CONSTRUCTION EXIT SILT FENCE - SEDIMENT SHALL BE REMOVED FROM SILT FENCE WHEN IT REACHES 1/2 THE HEIGHT OF THE FENCE. INSPECT SILT FENCE FOR TEARS, SEE THAT FABRIC IS FIRMLY IN PLACE AND ALL POST SECURE. SEDIMENT BASIN - INSPECT FOR DEPTH OF SEDIMENT, REMOVE WHEN SEDIMENT REACHES 10% OF DESIGN CAPACITY. DIVERSION DIKES - INSPECT AND REPAIR ANY BREACHES ACCESSIBLE DISCHARGE POINTS - ENSURE THAT EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS. TEMPORARY AND PERMANENT SEEDING - INSPECT FOR BARE SPOTS, WASHOUTS AND HEALTHY GROWTH.	ALL AREAS WHICH HAVE UNDERGONE FINAL STABILIZATION ALL EROSION CONTROL MEASURES INSPECT FOR EVIDENCE OF, OR POTENTIAL FOR POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATERS ACCESSIBLE DISCHARGE POINTS - ENSURE THAT EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS

A MAINTENANCE REPORT WILL BE MADE AFTER EACH INSPECTION.

INSPECTIONS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE PRIMARY PERMITTEE BY "CERTIFIED PERSONNEL". CERTIFIED PERSONNEL MEANS A PERSON WHO HAS SUCCESSFULLY COMPLETED THE APPROPRIATE CERTIFICATION COURSE APPROVED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION.
RECORD KEEPING. A REPORT SHALL BE MADE AFTER EACH INSPECTION SUMMARIZING THE RESULTS. THE INSPECTOR MUST RECORD ANY DAMAGE OR DEFICIENCIES IN THE CONTROL MEASURES ON THE PROVIDED REPORT FORM. THE OPERATOR SHALL REPAIR ANY DAMAGE AS SOON AS PRACTICAL AND NO LATER THAN (7) SEVEN DAYS AFTER THE INSPECTION. THE PLANS MUST BE KEPT CURRENT. IT IS THE RESPONSIBILITY OF THE PRIMARY PERMITTEE TO REVISE THE ES&PC PLANS.

PRIMARY PERMITTEE

OWNER/DEVELOPER:

DRAYTON-PARKER COMPANIES, LLC
17 W. MCDONOUGH ST.
SAVANNAH, GA 31401

ATLANTIC COAST CONSULTING, INC.
770-594-5998
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PROJECT NUMBER:
1061-102
MAY 2022

NPDES NOTES

C-604

P:\Industrial\1061-1883 Logistics\101- Drayton-Parker PW Truck Yard\3-Design Data\3-DWGs\1061_102_C-604.dwg 5/14/22 MARC LIVERMAN

INSPECTIONS & SAMPLING FREQUENCY

A. PERMITTEE REQUIREMENTS.

1. EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT: (A) ALL AREAS AT THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT AND (B) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF–SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
2. MEASURE AND RECORD RAINFALL WITHIN DISTURBED AREAS OF THE SITE THAT HAVE NOT MET FINAL STABILIZATION ONCE EVERY 24 HOURS EXCEPT ANY NON–WORKING SATURDAY, NON–WORKING SUNDAY AND NON–WORKING FEDERAL HOLIDAY. THE DATA COLLECTED FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.
3. CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NON–WORKING SATURDAY, NON–WORKING SUNDAY OR ANY NON–WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, WHICHEVER OCCURS FIRST): (A) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE ; (B) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION ; AND (C) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.A.(4). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
4. CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E., UNTIL A NOTICE OF TERMINATION IS RECEIVED BY EPD) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY . WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S).
5. BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.
6. A REPORT OF EACH INSPECTION THAT INCLUDES THE NAME(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E., INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.A.(5). OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION PROJECT THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G .2. OF THIS PERMIT.

B. MAINTENANCE.

THE PLAN SHALL INCLUDE A DESCRIPTION OF PROCEDURES TO ENSURE THE TIMELY MAINTENANCE OF VEGETATION, EROSION AND SEDIMENT CONTROL MEASURES AND OTHER PROTECTIVE MEASURES IDENTIFIED IN THE SITE PLAN.

C. SAMPLING REQUIREMENTS.

THIS PERMIT REQUIRES THE MONITORING OF NEPHELOMETRIC TURBIDITY IN RECEIVING WATER(S) OR OUTFALLS IN ACCORDANCE WITH THIS PERMIT. THIS PARAGRAPH SHALL NOT APPLY TO ANY LAND DISTURBANCE ASSOCIATED WITH THE CONSTRUCTION OF SINGLE–FAMILY HOMES WHICH ARE NOT PART OF A SUBDIVISION OR PLANNED COMMON DEVELOPMENT UNLESS FIVE (5) ACRES OR MORE WILL BE DISTURBED. THE FOLLOWING PROCEDURES CONSTITUTE EPD'S GUIDELINES FOR SAMPLING TURBIDITY.

1. SAMPLING REQUIREMENTS SHALL INCLUDE THE FOLLOWING:
   a. A USGS TOPOGRAPHIC MAP, A TOPOGRAPHIC MAP OR A DRAWING (REFERRED TO AS A TOPOGRAPHIC MAP) THAT IS A SCALE EQUAL TO OR MORE DETAILED THAN A 1:24000 MAP SHOWING THE LOCATION OF THE SITE OR THE STAND ALONE CONSTRUCTION; (A) THE LOCATION OF ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES AS SHOWN ON A USGS TOPOGRAPHIC MAP, AND ALL OTHER PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES LOCATED DURING MANDATORY FIELD VERIFICATION, INTO WHICH THE STORM WATER IS DISCHARGED AND (B) THE RECEIVING WATER AND/OR OUTFALL SAMPLING LOCATIONS. WHEN THE PERMITTEE HAS CHOSEN TO USE A USGS TOPOGRAPHIC MAP AND THE RECEIVING WATER(S) IS NOT SHOWN ON THE USGS TOPOGRAPHIC MAP, THE LOCATION OF THE RECEIVING WATER(S) MUST BE HAND–DRAWN ON THE USGS TOPOGRAPHIC MAP FROM WHERE THE STORM WATER(S) ENTERS THE RECEIVING WATER(S) TO THE POINT WHERE THE RECEIVING WATER(S) COMBINES WITH THE FIRST BLUE LINE STREAM SHOWN ON THE USGS TOPOGRAPHIC MAP;
   b. A WRITTEN NARRATIVE OF SITE SPECIFIC ANALYTICAL METHODS USED TO COLLECT, HANDLE AND ANALYZE THE SAMPLES INCLUDING QUALITY CONTROL/QUALITY ASSURANCE PROCEDURES. THIS NARRATIVE MUST INCLUDE PRECISE SAMPLING METHODOLOGY FOR EACH SAMPLING LOCATION;
   c. WHEN THE PERMITTEE HAS DETERMINED THAT SOME OR ALL OUTFALLS WILL BE SAMPLED, A RATIONALE MUST BE INCLUDED ON THE PLAN FOR THE NTU LIMIT(S) SELECTED FROM APPENDIX B. THIS RATIONALE MUST INCLUDE THE SIZE OF THE CONSTRUCTION SITE, THE CALCULATION OF THE SIZE OF THE SURFACE WATER DRAINAGE AREA, AND THE TYPE OF RECEIVING WATER(S) (I.E., TROUT STREAM OR SUPPORTING WARM WATER FISHERIES) ; AND
   d. ANY ADDITIONAL INFORMATION EPD DETERMINES NECESSARY TO BE PART OF THE PLAN. EPD WILL PROVIDE WRITTEN NOTICE TO THE PERMITTEE OF THE INFORMATION NECESSARY AND THE TIME LINE FOR SUBMITTAL.
2. SAMPLE TYPE. ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED); THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833–B–92–001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.
   a. SAMPLE CONTIANERS SHOULD BE LABELED PRIOR TO COLLECTING SAMPLES.
   b. SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO SECONDARY CONTAINER.
   c. LARGE MOUTH, WELL CLEANED AND RINSED GLASS OR PLASTIC JARS SHOULD BE USED FOR COLLECTING SAMPLES. THE JARS SHOULD BE CLEANED THOROUGHLY TO AVOID CONTAMINATION.
   d. MANUAL, AUTOMATIC OR RISING STAGE SAMPLING MAY BE UTILIZED. SAMPLES REQUIRED BY THIS PERMIT SHOULD BE ANALYZED IMMEDIATELY, BUT IN NO CASE LATER THAN 48 HOURS AFTER COLLECTION. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION, UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. IF AUTOMATIC SAMPLING IS UTILIZED AND THE AUTOMATIC SAMPLER IS NOT ACTIVATED DURING THE QUALIFYING EVENT, THE PERMITTEE MUST UTILIZE MANUAL SAMPLING OR RISING STAGE SAMPLING DURING THE NEXT QUALIFYING EVENT. DILUTION OF SAMPLES IS NOT REQUIRED. SAMPLES MAY BE ANALYZED DIRECTLY WITH A PROPERLY CALIBRATED TURBIDIMETER. SAMPLES ARE NOT REQUIRED TO BE COOLED.
   e. SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED TO EPD AS SPECIFIED IN PART IV.E.

E. SAMPLING POINTS.

1. FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST SAMPLE ALL RECEIVING WATER(S), OR ALL OUTFALL(S), OR A COMBINATION OF RECEIVING WATER(S) AND OUTFALL(S). SAMPLES TAKEN FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING WATER(S) AND/OR THE STORM WATER OUTFALLS USING THE FOLLOWING MINIMUM GUIDELINES:
   a. THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.
   b. THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.
   c. IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORM WATER OUTFALL CHANNEL(S).
   d. CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORM WATER CHANNEL.
   e. THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.
   f. THE SAMPLES SHOULD BE KEPT FREE FROM FLOATING DEBRIS.
   g. PERMITTEES DO NOT HAVE TO SAMPLE SHEETFLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT. FOR PURPOSES OF THIS SECTION, STABILIZED SHALL MEAN, FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES AND AREAS LOCATED OUTSIDE THE WASTE DISPOSAL LIMITS OF A LANDFILL CELL THAT HAS BEEN CERTIFIED BY EPD FOR WASTE DISPOSAL, 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR LANDSCAPED ACCORDING TO THE PLAN (UNIFORMLY COVERED WITH LANDSCAPING MATERIALS IN PLANNED LANDSCAPED AREAS), OR EQUIVALENT PERMANENT STABILIZATION MEASURES AS DEFINED IN THE MANUAL (EXCLUDING A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET CROP PERENNIALS APPROPRIATE FOR THE REGION).
   h. ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORM WATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS 111.0.3. OR 111.0.4., WHICHEVER IS APPLICABLE.

F. SAMPLING FREQUENCY

1. THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORM WATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN IN FORTY–FIVE (45) MINUTES OR AS SOON AS POSSIBLE.
2. HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORM WATER DISCHARGE.
3. SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:
   a. FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION;
   b. IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOT, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST;
   c. AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPS IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS* UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST–STORM EVENT INSPECTIONS DETERMINE THAT BMPS ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED;
   d. WHERE SAMPLING PURSUANT TO (A) , (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.A.(6) , MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A) , (B) OR (C) ABOVE; AND
   e. EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.
   *NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.
4. NON–STORM WATER DISCHARGES. EXCEPT FOR FLOWS FROM FIRE FIGHTING ACTIVITIES, SOURCES OF NON–STORM WATER LISTED IN PART III.A.2. OF THIS PERMIT THAT ARE COMBINED WITH STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY MUST BE IDENTIFIED IN THE PLAN. THE PLAN SHALL IDENTIFY AND ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON–STORM WATER COMPONENT(S) OF THE DISCHARGE.

G. REPORTING

1. THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORMWATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD USING THE ELECTRONIC SUBMITTAL SERVICE PROVIDED BY EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.
2. ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:
   a. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
   b. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;
   c. THE DATE(S) ANALYSES WERE PERFORMED;
   d. THE TIME(S) ANALYSES WERE INITIATED;
   e. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;
   f. REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;
   g. THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC., USED TO DETERMINE THESE RESULTS;
   h. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU;" AND
   i. CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.
3. ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

C. RETENTION OF RECORDS.

1. THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI:
   a. A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD;
   b. A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT;
   c. THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT;
   d. A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;
   e. A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A. OF THIS PERMIT;
   f. A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF THIS PERMIT; AND
   g. DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(2). OF THIS PERMIT.
2. COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) OR OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI. OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATIVE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

SAMPLE ANALYSIS:

1. STORM WATER IS TO BE SAMPLED FOR NEPHELOMETRIC TURBIDITY UNITS (NTU) AT THE OUTFALL LOCATION. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED, AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN THE TURBIDITY OF THE DISCHARGE EXCEEDING 50. THE VALUE THAT WAS SELECTED FROM APPENDIX B IN PERMIT NO. GAR 100001. THE NTU IS BASED UPON THE DISTURBED ACREAGE OF 9.71 ACRES FOR THE PROJECT SITE, THE SURFACE WATER DRAINAGE AREA IS 1.50 SQUARE MILES, AND RECEIVING WATER WHICH SUPPORTS WARM WATER FISHERIES.
2. ALL SAMPLES TAKEN WILL BE "GRAB SAMPLES." THESE ARE DISCRETE SAMPLES COLLECTED AT A PARTICULAR TIME THAT REPRESENT CONDITIONS AT THAT MOMENT.
3. THE SAMPLES WILL BE WELL MIXED PRIOR TO ANY TRANSFER TO A SECONDARY CONTAINER (I.E. TURBIDITY TEST VIAL). SAMPLES WILL BE ANALYZED WITHIN 48 HOURS OF COLLECTION FOR TURBIDITY IN NTU IN ACCORDANCE WITH THE METHODOLOGY AND TEST PROCEDURES DESCRIBED IN 40 CFR PART 136: EPA METHOD 180.1, STD METHOD 2130 B, ASTM METHOD D1889–88(A), OR USGS METHOD I–3860–85. ACCORDING TO THESE PROCEDURES, SAMPLES OVER 40 NTU WILL BE DILUTED AND THEIR FINAL NTU VALUE TABULATED. OPERATION OF METERS FOR TURBIDITY ANALYSES WILL FOLLOW MANUFACTURER'S SPECIFICATIONS. SAMPLES FROM THE ACADEMIC FACILITY CONSTRUCTION SITE ARE ANTICIPATED TO BE TESTED WITH AN ON SITE METER BY QUALIFIED PERSONNEL. AS NECESSARY, SAMPLES WILL BE SUBMITTED TO AN ANALYTICAL LABORATORY FOR TESTING.
4. MONITORING RECORDS WILL BE MAINTAINED FOR ALL SAMPLING EVENTS. THESE RECORDS WILL INCLUDE AT A MINIMUM THE FACILITY NAME AND ADDRESS, NAME OF THE ANALYST, LOCATION OF SAMPLE, SAMPLE ID, DATE AND TIME OF MEASUREMENT, DATE AND TIME OF ANALYSIS, AND NAME/MODEL NUMBER OF THE ANALYZER INSTRUMENT. FOR ALL SAMPLES SENT TO A LABORATORY FOR ANALYSES, A CHAIN OF CUSTODY WILL BE IMPLEMENTED. IF SAMPLING EQUIPMENT MALFUNCTIONS OR IF VANDALISM, EQUIPMENT LOSS, OR OTHER UNFORESEEN CIRCUMSTANCES PREVENT THE COLLECTION OF A SAMPLE, THE SITUATION WILL BE REPORTED IN THE SAMPLING REPORT AND IN THE MONTHLY REPORT TO EPD.

SAMPLING

POINTS:

SAMPLING FOR THE PROJECT WILL TAKE PLACE AT THE TEMPORARY SEDIMENT TRAP RIP–RAP WEIR AND THE OUTFALL (HW–1) OF THE COMBINED POND DISCHARGES. SEE SAMPLING POINTS ON SHEETS C–501 THROUGH C–503.

NEPHELOMETRIC TURBIDITY UNIT (NTU) TABLES

WARM WATER (SUPPORTING WARM WATER FISHERIES)

SITE SIZE ACRES	SURFACE WATER DRAINAGE AREA, SQUARE MILES							
	0–4.99	5–9.99	10–24.99	25–49.99	50–99.99	100–249.99	250–499.99	500+
1.00–10	75	150	200	400	750	750	750	750
10.01–25	50	100	100	200	300	500	750	750
25.01–50	50	50	100	100	200	300	750	750
50.01–100	50	50	50	100	100	150	300	600
100.01+	50	50	50	50	50	100	200	100

EPD OFFICE

COASTAL DISTRICT – BRUNSWICK
400 COMMERCE CENTER DR.
BRUNSWICK, GEORGIA 31523
(912) 264–7284

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GT
Knoxville, TN

GEORGIA REGISTERED No. 06930 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/14/22

06930
LEVEL II CERTIFICATION

PROJECT:

PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

0. Issued for Permitting	05/14/2022

Drawn by:	Checked by:	QC by:

PROJECT NUMBER:

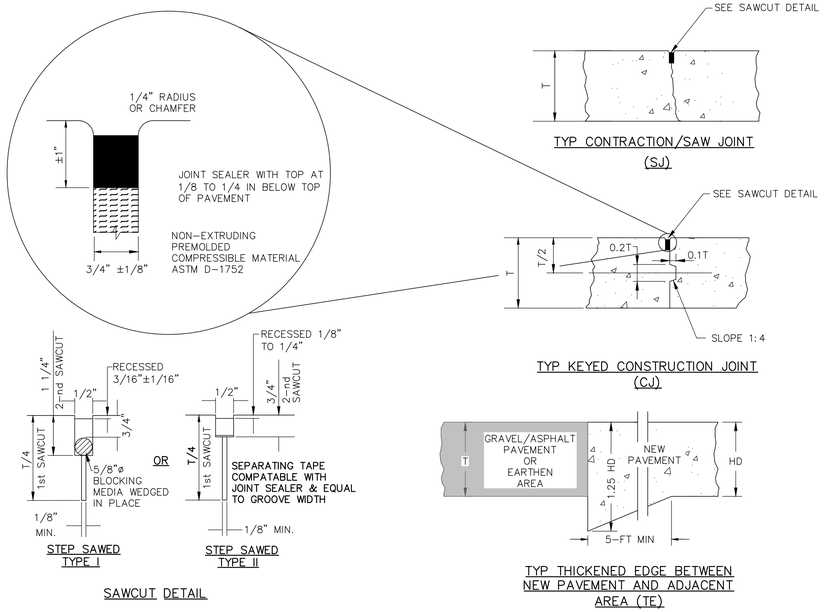
I061-102

MAY 2022

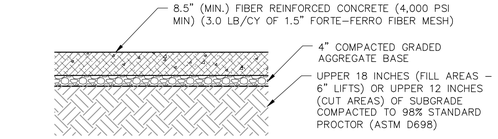
NPDES SAMPLING & INSPECTION NOTES

C-605

P:\Industrial\I061-1083 Logistics\I01- Drayton-Parker PW Truck Yard\3-Design Data\2-CIVIL\I061-102_C-605.dwg 5/14/22 MARC LIVERMAN



CONCRETE PAVEMENT DETAILS
N.T.S.



CONCRETE LANDING GEAR PAD DETAIL
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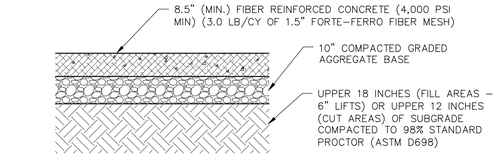

HEAVY DUTY CONCRETE PAVEMENT DETAIL
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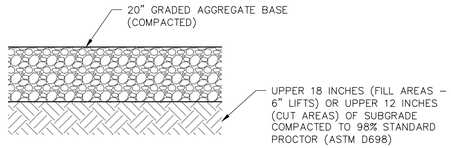

GRAVEL PAVEMENT DETAIL
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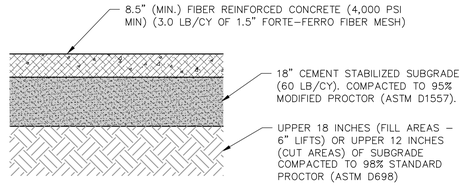
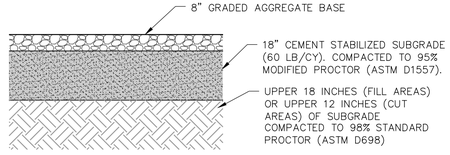
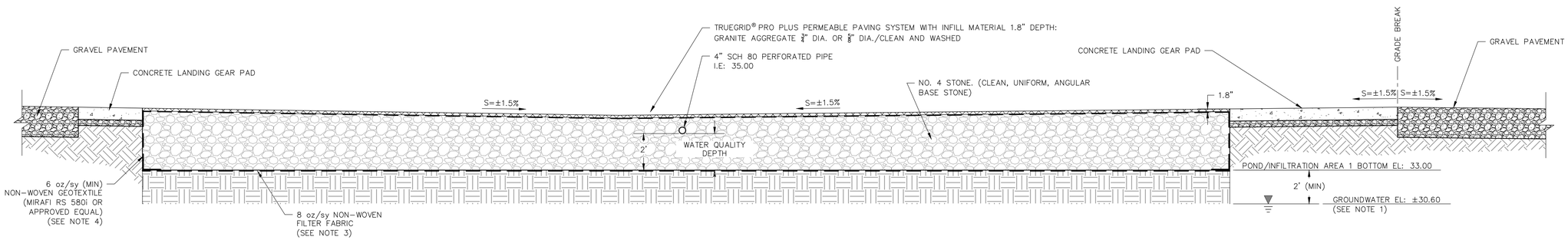


NOTE:
1. CONTRACTOR SHALL COORDINATE SOIL CEMENT DESIGN AND MIXING RATIO WITH OWNER'S TESTING AGENCY.

HEAVY DUTY CONCRETE PAVEMENT DETAIL - ALTERNATE
N.T.S.

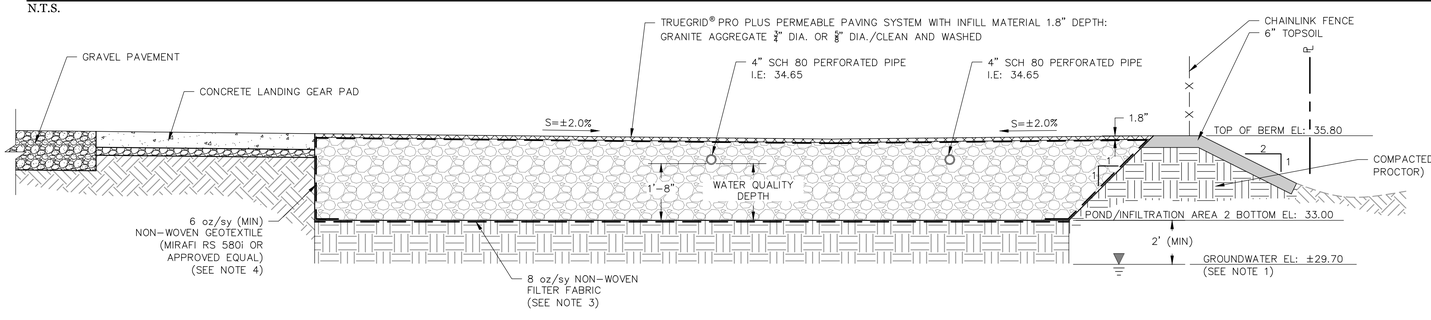


GRAVEL PAVEMENT DETAIL - ALTERNATE
N.T.S.



NOTE:
1. GROUNDWATER ELEVATION DATA DERIVED FROM GEOTECHNICAL ENGINEERING REPORT BY CONTOUR ENGINEERING DATED JANUARY 28, 2022.
2. CONTRACTOR SHALL VERIFY MINIMUM INFILTRATION RATE OF 0.75 IN/HR FOR SUBGRADE PRIOR TO PLACING FILTER FABRIC AND NO. 4 STONE. CONTRACTOR SHALL REMOVE AND REPLACE SOILS NOT MEETING THE MINIMUM INFILTRATION RATE WITH SOILS CAPABLE OF MEETING THE MINIMUM INFILTRATION RATE.
3. CONTRACTOR SHALL PLACE 8 oz/sy GEOTEXTILE BENEATH NO.4 STONE WITH 1 FT (MIN.) OVERLAP BETWEEN ROLLS/SHEETS. CONTRACTOR SHALL PROVIDE FILTER FABRIC WITH AN APPARENT OPENING (AOS) BASED ON OWNER'S TESTING AGENCIES RECOMMENDATION. A.O.S. SHALL BE BASED ON SUBSURFACE SOILS ENCOUNTERED IN LOCATION OF TRENCH.
4. CONTRACTOR SHALL PLACE 6oz/sy GEOTEXTILE ALONG SIDES AND BENEATH TRUEGRID PAVING SYSTEM WITH 1 FT (MIN.) OVERLAP BETWEEN SHEETS/ROLLS.

SECTION A-A: INFILTRATION/DETENTION POND 1
N.T.S.



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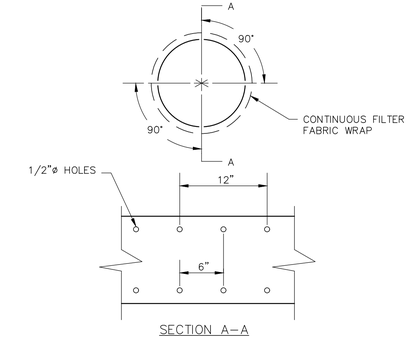
4. CONTRACTOR SHALL PLACE 6oz/sy GEOTEXTILE ALONG SIDES AND BENEATH TRUEGRID PAVING SYSTEM WITH 1 FT (MIN.) OVERLAP BETWEEN SHEETS/ROLLS.

SECTION B-B: INFILTRATION/DETENTION POND 2
N.T.S.



SECTION A-A

NOTE:
4"ø PERFORATED UNDERDRAIN PIPE SHALL BE SCH 80 PVC. HOLES SPACED AT 6" O.C. (8 HOLES PER LF).

UNDERDRAIN PIPE
N.T.S.

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 036027 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/19/22

036930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

0. Issued for Permitting	05/14/2022

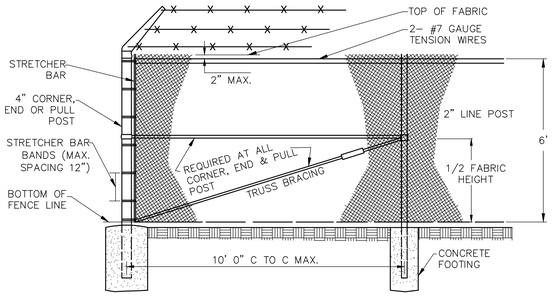
Drawn by:	Checked by:	QC by:

PROJECT NUMBER:
I061-102
MAY 2022

CONSTRUCTION DETAILS

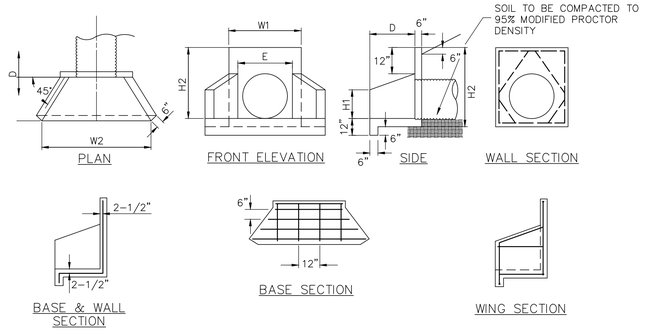
C-701

P:\Volumes\I061-1883 Logistics\01- Drayton-Parker PW Truck Yard\3-Design Data\3-CIVIL\I061_102_C-701.dwg 5/20/22 MARC LIVERMAN



ELEVATON OF CHAIN-LINK FENCE

N.T.S.

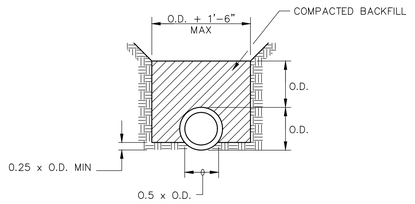


NOTES:
1. ALL CONCRETE SHALL BE 4000 PSI
2. REINFORCEMENT STEEL SHALL BE 1/2"ø.
3. CHAMFER ALL EXPOSED EDGES 3/4".
4. HEADWALLS DIMENSIONS AND STEEL REQUIREMENTS FOR CONCRETE END WALL WITH 45° WING WALLS PER. GDOT STANDARD 1001B MAY BE SUBSTITUTED AT THE CONTRACTOR'S OPTION.

HEADWALL DIMENSION (METAL PIPE)						
USE NEXT LARGEST SIZE FOR CONC. PIPE						
INSIDE DIA. PIPE	W1	W2	H1	H2	D	E
18"	3'-2"	4'-10"	1'-3"	3'-2"	1'-3"	1'-9"
24"	3'-8"	6'-1"	1'-9"	3'-8"	1'-6"	2'-3'

HEADWALL DETAIL

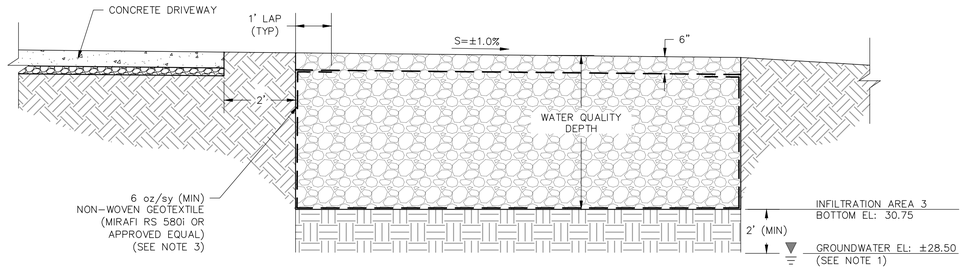
N.T.S.



NOTE:
1. CONTRACTOR SHALL USE 6" OF GRANULAR BEDDING AND GRANULAR BACKFILL FOR PIPES LAID BENEATH DRIVE ISLES, ROADWAYS OR CONCRETE PAVEMENT

TYPICAL STORM DRAIN BEDDING DETAIL

N.T.S.



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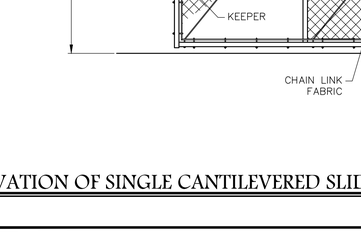
SECTION C-C: INFILTRATION AREA 3 DETAIL

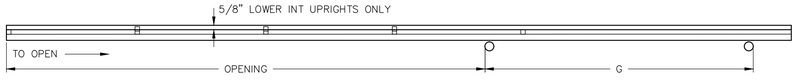
N.T.S.



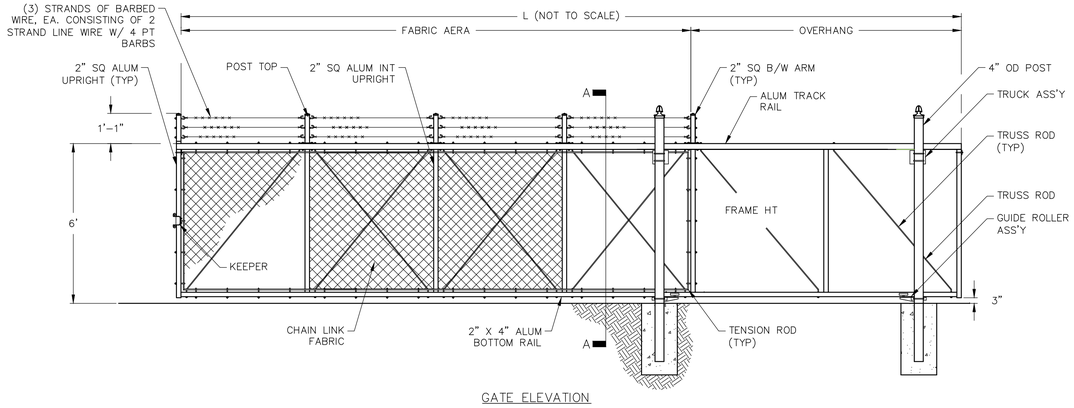
SECTION A

OPENING	LENGTH (L)	GATE POST (G)	BAYS	OVERHANG
I/S POST FACE TO I/S POST FACE	O/S DIM OF GATE LEAF	O/S POST FACE TO O/S POST FACE	NUMBER OF BAYS WITH CHAIN LINK	NUMBER OF BAYS W/O CHAIN LINK
23'-0"	35'-3"	12'-0"	3	2
24'-0"	36'-3"	12'-0"	3	2
25'-0"	37'-3"	12'-0"	4	2
26'-0"	38'-3"	12'-0"	4	2
27'-0"	39'-3"	12'-0"	4	2
28'-0"	40'-3"	12'-0"	4	2
29'-0"	41'-3"	12'-0"	4	2
30'-0"	42'-3"	12'-0"	4	2

NOTES:
1. FOOTING WIDTH TO BE (4)X POST WIDTH. MINIMUM DEPTH TO BE 36".
2. GATES MAY BE MANUALLY OR ELECTRICALLY OPERATED. HARDWARE WILL VARY FOR ELECTRICALL OPERATED GATES.



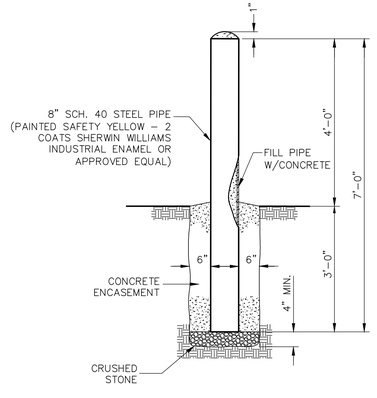
GATE PLAN



GATE ELEVATION

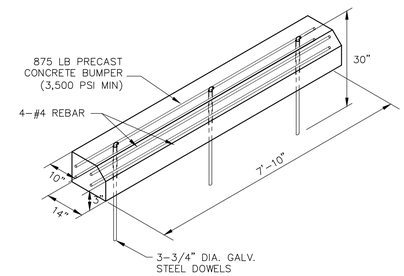
ELEVATION OF SINGLE CANTILEVERED SLIDING GATE

N.T.S.



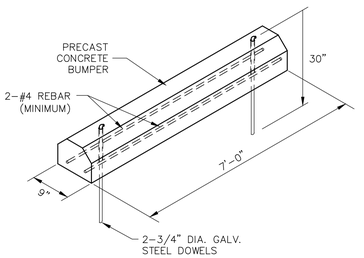
BOLLARD DETAIL

N.T.S.



TRUCK WHEEL STOP DETAIL

N.T.S.



AUTOMOTIVE WHEEL STOP DETAIL

N.T.S.

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 036027 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/19/22

06930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

0. Issued for Permitting	05/14/2022

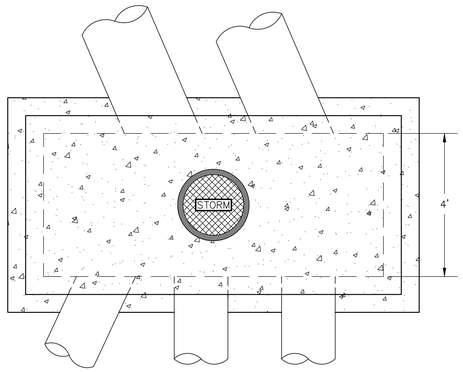
Drawn by:	Checked by:	QC by:

PROJECT NUMBER:
I061-102
MAY 2022

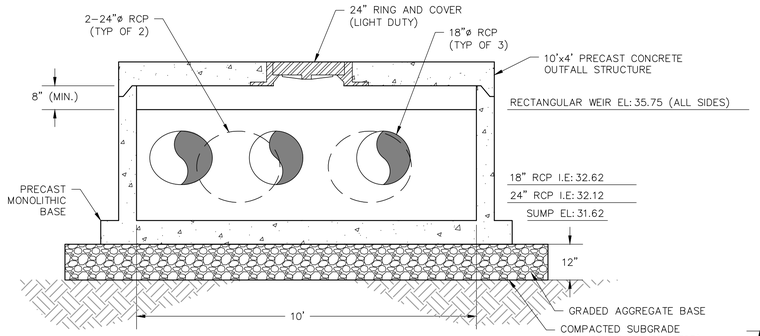
CONSTRUCTION DETAILS

C-702

P:\Industrial\I061-1853 Logistics\101- Drayton-Parker PW Truck Yard\3-Design Data\2-DWGs\I061_102_C-702.dwg 5/20/22 MARC LIVERMAN



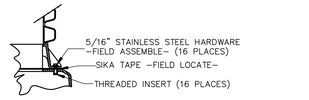
PLAN VIEW



ELEVATION VIEW

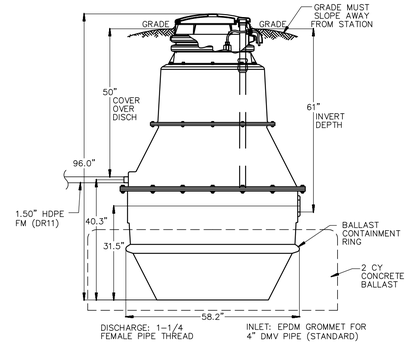
WEIR INLET 1 (WI-1)

N.T.S.



DETAIL, FIELD JOINT

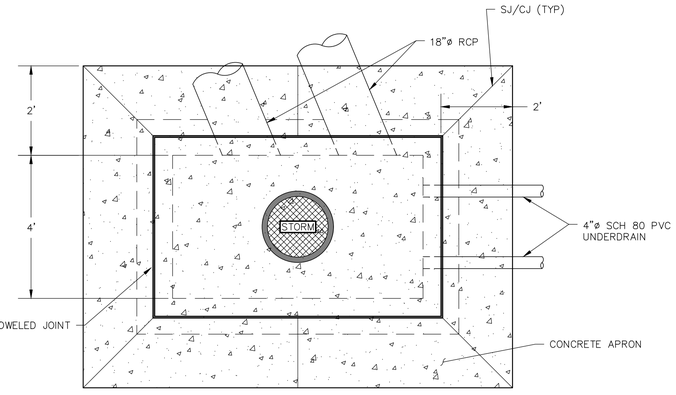
SEE MANUFACTURER'S
INSTALLATION INSTRUCTIONS FOR
FURTHER DETAILS



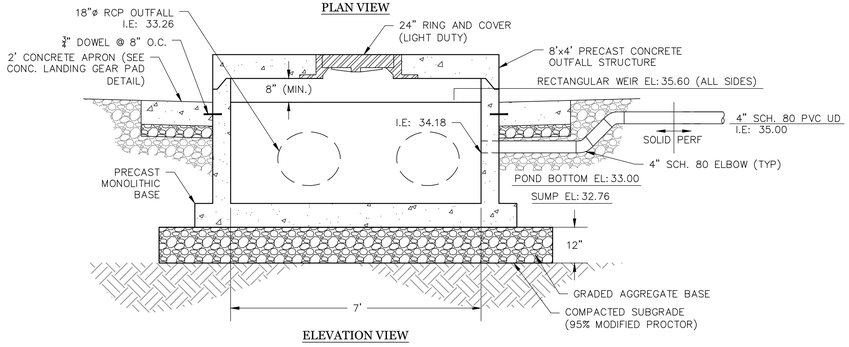
NOTE: DIMENSIONS ARE FOR REF ONLY

GRINDER PUMP STATION: DH272-97

N.T.S.



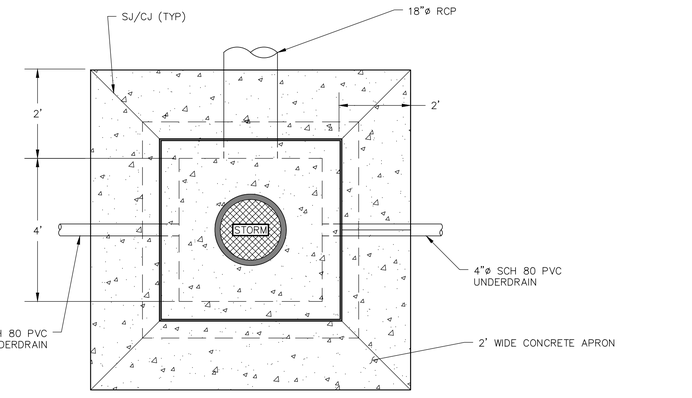
PLAN VIEW



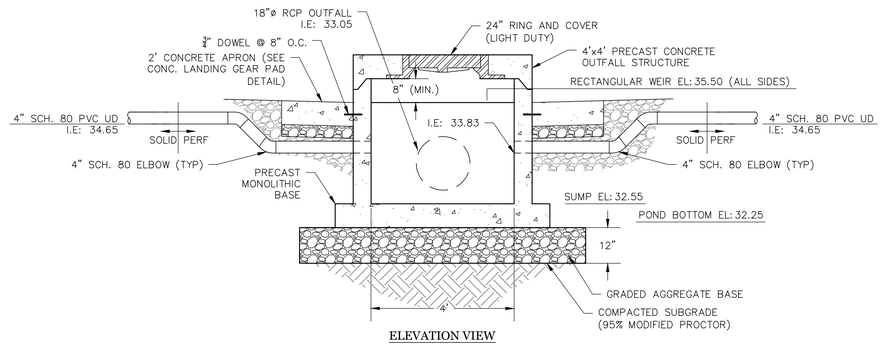
ELEVATION VIEW

OUTLET CONTROL STRUCTURE 1 (OCS -1)

N.T.S.



PLAN VIEW



ELEVATION VIEW

OUTLET CONTROL STRUCTURE 2 (OCS -2)

N.T.S.

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Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 030071 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/19/22

06930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

0. Issued for Permitting	05/14/2022

Drawn by:	Checked by:	QC by:

PROJECT NUMBER:
I061-102
MAY 2022

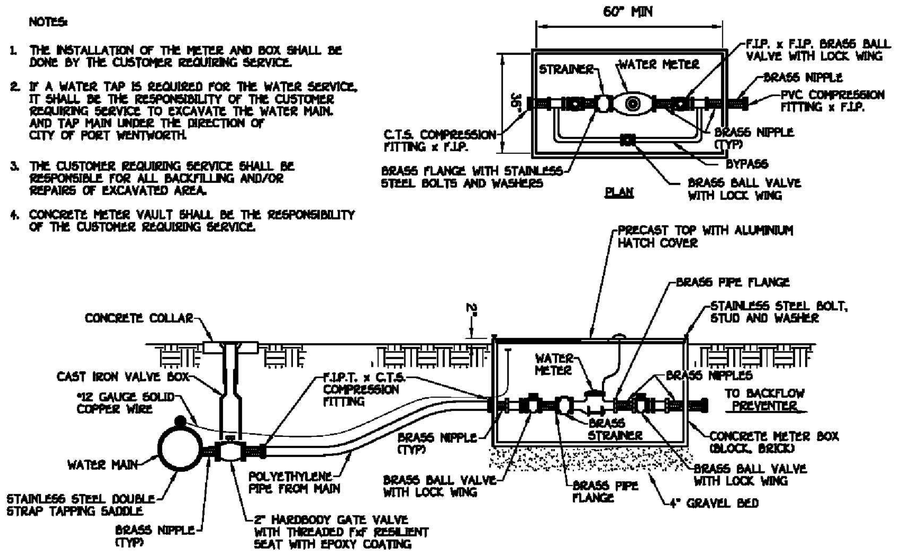
CONSTRUCTION DETAILS

C-703

P:\Industrial\I061-1083 Logistics\01- Drayton-Parker PW Truck Yard\3-Design Data\3-CIVIL\I061_102_C-703.dwg 5/20/22 MARC LIVERMAN

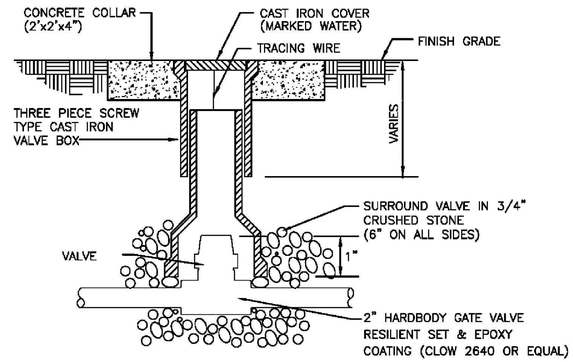
NOTES:

1. THE INSTALLATION OF THE METER AND BOX SHALL BE DONE BY THE CUSTOMER REQUIRING SERVICE.
2. IF A WATER TAP IS REQUIRED FOR THE WATER SERVICE, IT SHALL BE THE RESPONSIBILITY OF THE CUSTOMER REQUIRING SERVICE TO EXCAVATE THE WATER MAIN AND TAP MAIN UNDER THE DIRECTION OF CITY OF PORT WENTWORTH.
3. THE CUSTOMER REQUIRING SERVICE SHALL BE RESPONSIBLE FOR ALL BACKFILLING AND/OR REPAIRS OF EXCAVATED AREA.
4. CONCRETE METER VAULT SHALL BE THE RESPONSIBILITY OF THE CUSTOMER REQUIRING SERVICE.



2" WATER METER INSTALLATION DETAIL (W-19)

N.T.S.

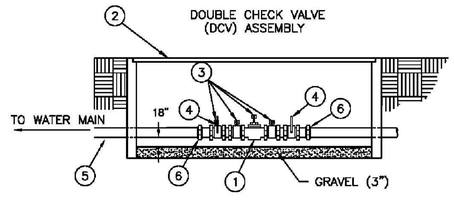


NOTE:

1. THIS DETAIL APPLIES TO VALVES.
2. IN UNPAVED AREAS, SET TOP OF CONC. COLLAR 1" ABOVE FINISHED GRADE. IN PAVED AREAS SET TOP OF BOX FLUSH W/ PAVEMENT. NO CONC. COLLAR REQUIRED.
3. VALVE BOX SHALL NOT REST ON THE VALVE

2" WATER VALVE DETAIL (W-18)

N.T.S.



MATERIALS		
ITEM	QUAN	DESCRIPTION
1	1	DOUBLE CHECK VALVE ASSEMBLY *
2	2	METER BOX (JUMBO METER BOX FOR 5/8", 3/4", 1" & 1 1/2" BFD ONLY)
3	4	TEST COCKS
4	2	FULL PORT BALL VALVES
5		POLYETHYLENE, COPPER OR BRASS CUT TO LENGTH
6	2	UNION

* DUAL CHECK VALVES ARE NOT ALLOWABLE

INSTALLATION INSTRUCTIONS:

THE ASSEMBLY SHALL NOT BE BURIED IN EARTH, BUT MAY BE INSTALLED IN A UTILITY BOX ADJACENT TO OR AS CLOSE AS PRACTICAL TO, THE OUTLET SIDE OF THE METER. UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR SYSTEM CONTAINMENT.

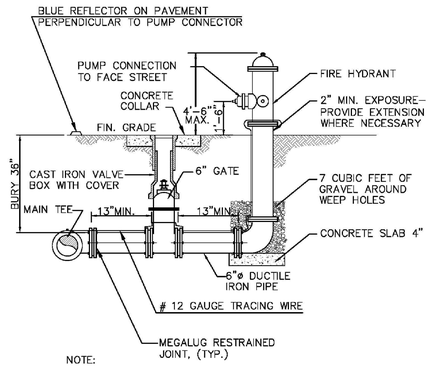
NOTES:

1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE. INSTALLER MUST PROVIDE FOR THERMAL EXPANSION DOWNSTREAM OF THE BACKFLOW PREVENTOR.
2. IF A PRESSURE MONITOR IS TO BE INSTALLED, ADD A TEE, VALVE, FITTINGS AND MOUNT ON SUPPLY SIDE PRIOR TO BACKFLOW PREVENTION DEVICE; UNDER NO CIRCUMSTANCE, SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION, OTHER THAN BACKFLOW DEVICE TESTING.

TYPICAL OUTSIDE INSTALLATION
(3/4", 1", 1 1/2", 2" & 2 1/2" SIZES)

2" DOMESTIC DOUBLE CHECK VALVE ASSEMBLY DETAIL (W-20)

N.T.S.



NOTE:

1. ALL JOINTS FROM MAIN TO HYDRANT SHALL BE RESTRAINED.
2. PROTECT BOLTS AND THREADS FROM CONCRETE.

FIRE HYDRANT DETAIL (W-9)

N.T.S.

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 036930 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/14/22

06930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

0. Issued for Permitting	05/14/2022

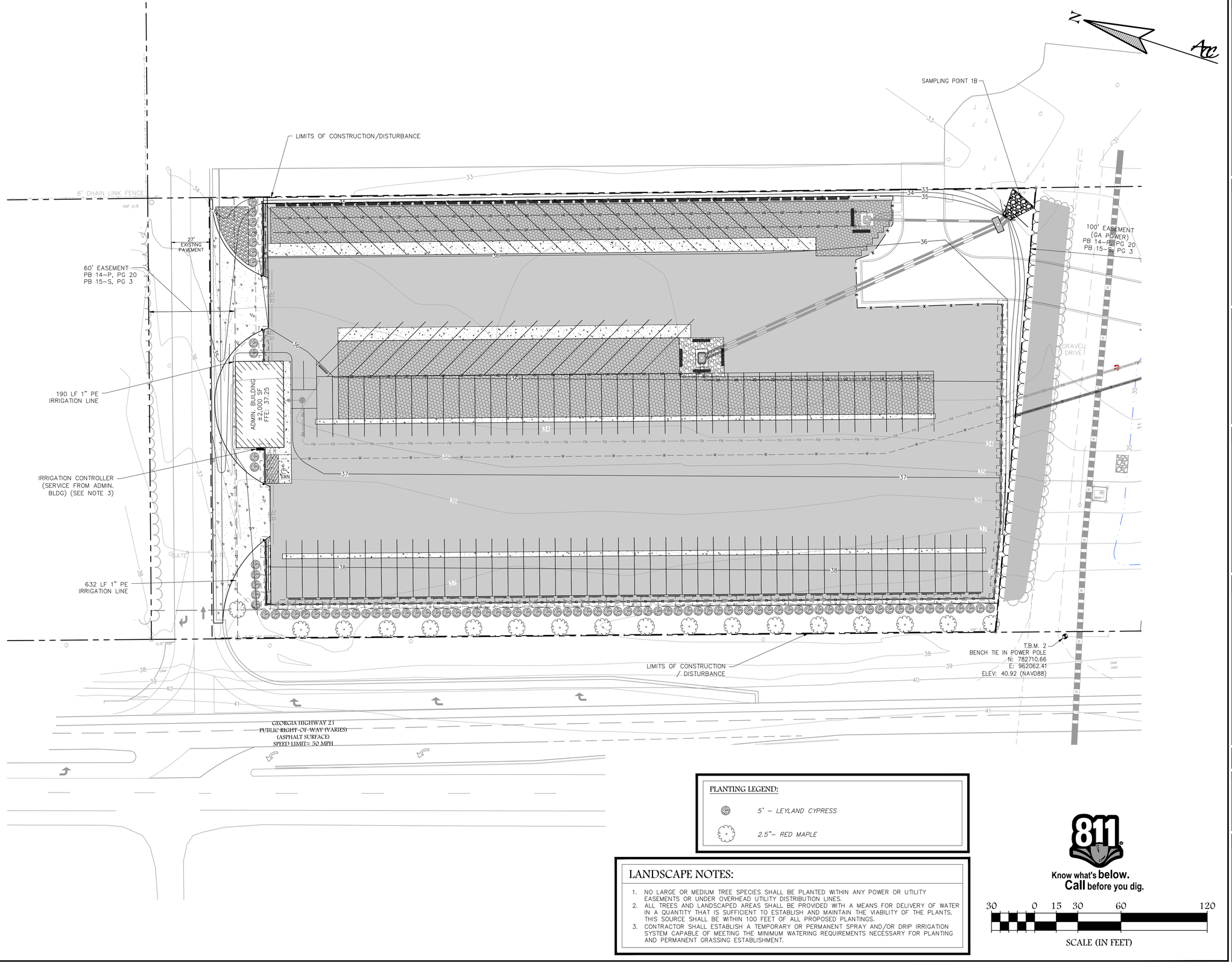
Drawn by:	Checked by:	QC by:

PROJECT NUMBER:
I061-102
MAY 2022

CONSTRUCTION DETAILS

C-704

P:\Industrial\I061-1083 Logistics\101- Drayton-Parker PW Truck Yard\3-Design Data\3-CIVIL\I061_102_C-704.dwg 5/14/22 MARC LIVERMAN



PLANTING LEGEND:

- 5' – LEYLAND CYPRESS
- 2.5"– RED MAPLE

LANDSCAPE NOTES:

1. NO LARGE OR MEDIUM TREE SPECIES SHALL BE PLANTED WITHIN ANY POWER OR UTILITY EASEMENTS OR UNDER OVERHEAD UTILITY DISTRIBUTION LINES.
2. ALL TREES AND LANDSCAPED AREAS SHALL BE PROVIDED WITH A MEANS FOR DELIVERY OF WATER IN A QUANTITY THAT IS SUFFICIENT TO ESTABLISH AND MAINTAIN THE VIABILITY OF THE PLANTS. THIS SOURCE SHALL BE WITHIN 100 FEET OF ALL PROPOSED PLANTINGS.
3. CONTRACTOR SHALL ESTABLISH A TEMPORARY OR PERMANENT SPRAY AND/OR DRIP IRRIGATION SYSTEM CAPABLE OF MEETING THE MINIMUM WATERING REQUIREMENTS NECESSARY FOR PLANTING AND PERMANENT GRASSING ESTABLISHMENT.

Know what's **below.** **Call** before you dig.

30 0 15 30 60 120

SCALE (IN FEET)

ATLANTIC COAST CONSULTING, INC.
770-594-5998
www.atlcc.net
Roswell, GA
Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 036078 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/19/22

06930
LEVEL II CERTIFICATION

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

0. Issued for Permitting	05/14/2022

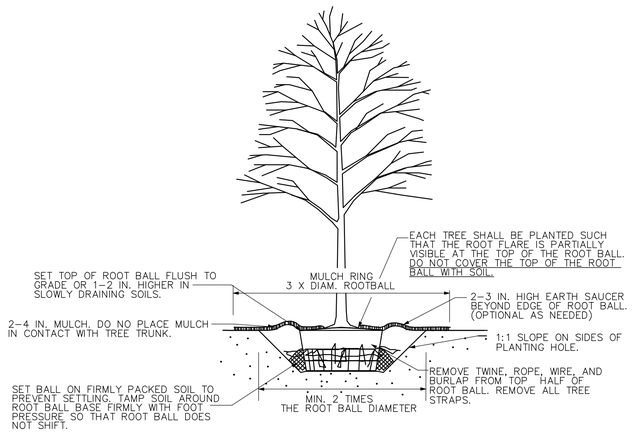
Drawn by:	Checked by:	QC by:

PROJECT NUMBER:
1061-102
MAY 2022

LANDSCAPE PLAN

LS-101

P:\Industrial\1061-1853 Logistics\101- Drayton-Parker PW Truck Yard\3-Design Data\2-DWGs\1061_102_LS-101.dwg 5/20/22 MARC LIVERMAN

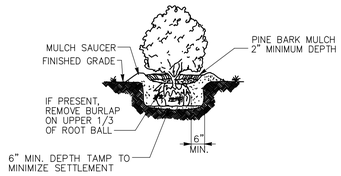


NOTES:

1. PRUNE ONLY CROSSOVER LIMBS, CO–DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN. ALL PRUNING SHALL CONFORM TO ANSI A300 STANDARDS. IMPROPERLY PRUNED TREES MAY BE REJECTED BY THE CITY.
2. STAKE TREES ONLY WHEN NECESSARY. SEE CITY TREE STAKING DETAILS.

TREE PLANTING DETAIL

N.T.S.

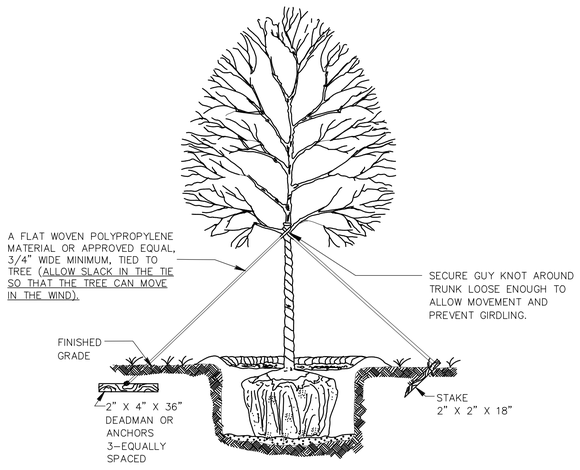


NOTES:

1. CLEANLY PRUNE ONLY DAMAGED, DISEASED AND OR WEAK BRANCHES IF NECESSARY.
2. FINISHED GRADE AROUND PLANT TO BE THE SAME AS ORIGINAL GRADE OF PLANT WHEN GROWN.

SHRUB PLANTING DETAIL

N.T.S.

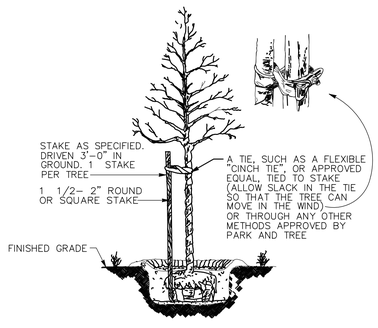


NOTES:

1. STAKE TREES ONLY WHEN NECESSARY. STAKES SHALL BE REMOVED 6 MOTHS AFTER PLANTING.
2. TREES LARGER THAN 2" CALIPER SHOULD BE STAKED BY THREE GUY STRAPS WHEN NECESSARY.
3. SELECT DEADMAN, ANCHORS, OR STAKES TO SECURE TREE.

TREE STAKING DETAIL

N.T.S.



NOTES:

1. STAKE TREES ONLY WHEN NECESSARY. STAKES SHALL BE REMOVED 6 MONTHS AFTER PLANTING.

ALTERNATE TREE STAKING DETAIL

N.T.S.

NOTES:

1. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY SPECIFIED, AN NURSERY–GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES.
2. ANY DEVIATION FROM THESE PLANS IN EITHER SPECIES OR LAYOUT MUST BE APPROVED BY A CERTIFIED ARBORIST FOR THE CITY OF PORT WENTWORTH OR DESIGNEE.
3. PLANTS SHALL CONFORM TO THE MEASUREMENTS SPECIFIED ON THE APPROVED PLANS.
4. CONTRACTORS ARE RESPONSIBLE FOR INSPECTION OF EXISTING CONDITIONS AND MUST PROMPTLY REPORT DISCREPANCIES.
5. NO LARGE OR MEDIUM TREE SPECIES SHALL BE PLANTED WITHIN 10' OF AN UNDERGROUND UTILITY LINE OR UNDERNEATH OVERHEAD POWER LINES, AND SMALL TREE SPECIES MUST MAINTAIN A MINIMUM 5–FOOT SEPARATION FROM UNDERGROUND UTILITY LINES.
6. ALL TREES SHALL BE HEALTHY, VIGOROUS, WITH NORMAL HABIT OF GROWTH, EVEN DISTRIBUTION OF BRANCHES, A STRAIGHT TRUNK WHICH EXHIBITS GOOD TRUNK PAPER, WITH LIMBS NOT LOWER THAN 4 FT ABOVE GROUND, DEPENDENT UPON THE SPECIES, AND SHALL BE FREE FROM DISEASE, INSECT INFESTATION, MECHANICAL INJURY, GIRDLING ROOTS, OR OTHER OBJECTIONABLE FEATURES THAT WOULD CAUSE THE TREE TO DECLINE OR BECOME STRUCTURALLY UNSOUND. TREES SHALL BE WELL–BRANCHED AND DENSELY FOLIATED WHEN IN LEAF.
7. TREE SHALL BE PLANTED AT PROPER DEPTH OR SHALL BE REJECTED AT TIME OF INSPECTION.
8. STAKE TREES ONLY WHEN NECESSARY. STAKING AND GUYING SHALL FOLLOW THE DETAILS ON THIS SHEET.

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Roswell, GA
Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 31027 PROFESSIONAL ENGINEER MARC A. LIVERMAN 5/19/22

06930
LEVEL II CERTIFICATION

PROJECT:

PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

0. Issued for Permitting	05/14/2022

Drawn by:	Checked by:	QC by:

PROJECT NUMBER:

I061-102

MAY 2022

LANDSCAPE DETAILS

LS-201

P:\Industrial\I061-1083 Logistics\I01- Drayton-Parker PW Truck Yard\3-Design Data\3c-DWGs\I061_102_LS-201.dwg 5/20/22 MARC LIVERMAN

STRUCTURAL NOTES

BASIS OF DESIGN:

A. WIND LOADS (REFERENCE: ASCE 7-16)

BASIC WIND SPEED (3 SECOND GUST), V =	134 MPH	(FIGURE 26.5-1B)
NOMINAL WIND SPEED, Vasd =	104 MPH	
RISK CATEGORY = II		(TABLE 1.5-1)
EXPOSURE CATEGORY = C		(SECTION 26.7)

B. SEISMIC LOADS (REFERENCE: ASCE 7-16)

RISK CATEGORY III		(TABLE 1.5-1)
0.2 SEC SPECTRAL RESPONSE ACCELERATION:	Ss = 0.313	
1.0 SEC SPECTRAL RESPONSE ACCELERATION:	S1 = 0.114	
SPECTRAL RESPONSE ACCELERATION:	Sds = 0.323	
SPECTRAL RESPONSE ACCELERATION:	Sd1 = 0.18	
SITE CLASSIFICATION = D (ASSUMED)		(SECTION 11.4)
SEISMIC DESIGN CATEGORY = C		(SECTION 11.6)
SEISMIC IMPORTANCE FACTOR = 1.00		(TABLE 1.5-2)

GENERAL:

1. DO NOT SCALE DRAWINGS. FOLLOW DIMENSIONS SHOWN ON PLAN OR OBTAIN ADDITIONAL INFORMATION.
2. WHERE DETAIL OR SECTION IS SHOWN FOR ONE CONDITION. IT SHALL APPLY TO ALL LIKE OR SIMILAR LOCATIONS.
3. CONTRACTORS SHALL VISIT THE SITE PRIOR TO BID TO ASCERTAIN CONDITIONS WHICH MAY ADVERSELY AFFECT THE WORK OR COST THEREOF AND SHALL NOTIFY THE ARCHITECT IN WRITING PRIOR TO SUBMITTING BIDS.
4. REFERENCE TO STANDARD SPECIFICATIONS OF ANY TECHNICAL SOCIETY, ORGANIZATION, OR ASSOCIATION OR TO CODES OF LOCAL OR STATE AUTHORITIES, SHALL MEAN THE LATEST STANDARD, CODE, SPECIFICATION, OR TENTATIVE SPECIFICATION ADOPTED AT THE DATE OF TAKING BIDS, UNLESS SPECIFICALLY STATED OTHERWISE.
5. NO CHANGE IN SIZE OR DIMENSION OF ANY STRUCTURAL MEMBER SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD. NO OPENING SHALL BE MADE IN ANY STRUCTURAL MEMBER WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD UNLESS SPECIFICALLY DETAILED ON THE CONTRACT DRAWINGS.
6. THE USE OF REPRODUCTIONS OF CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER, IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT AND OBLIGATES HIMSELF TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREON.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL SAFETY PRECAUTIONS AND REGULATIONS DURING THE WORK. THE ENGINEER WILL NOT ADVISE ON NOR ISSUE DIRECTION AS TO SAFETY PRECAUTIONS AND PROGRAMS.
8. CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR MEANS, METHODS, SAFETY, TECHNIQUES, SEQUENCES, AND PROCEDURES OF ALL CONSTRUCTION SHOWN HEREIN. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTIBILITY, ANALYSIS, AND ERECTION PROCEDURES, INCLUDING DESIGN AND ERECTION OF FALSE WORK, TEMPORARY BRACING, ETC. CONTRACTOR HAS THE SOLE RESPONSIBILITY TO COMPLY WITH ALL OSHA REGULATIONS.

FOUNDATIONS:

1. FOUNDATION DESIGN IS BASED ON A MAXIMUM ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD DIFFERENT FROM THOSE ASSUMED OR DESIGNED.
2. ALLOWABLE BEARING PRESSURE SHALL BE VERIFIED BY FIELD TESTING. A DYNAMIC CONE PENETROMETER TEST (ASTM STP-399) SHALL BE PROVIDED AT MAXIMUM 75' O.C. TO VERIFY AVAILABILITY OF THE DESIGN PRESSURE INDICATED.
3. ALL FOOTINGS AND SLABS SHALL BEAR ON SUBGRADE COMPACTED TO A MINIMUM 95% ASTM D-1557.
4. ALL WATER SOFTENED SOILS IN FOUNDATION EXCAVATIONS SHALL BE REMOVED PRIOR TO POURING CONCRETE. FILL OVER-EXCAVATED LIMITS WITH COMPACTED STRUCTURAL FILL OR ADDITIONAL CONCRETE.
5. ALL REINFORCING IN FOOTINGS SHALL BE SUPPORTED WITH WHOLE CONCRETE BRICKS OR PREFABRICATED ALL PLASTIC CHAIR SUPPORT AT MAXIMUM 48" O.C. BAR SUPPORTS SHALL BE POSITIONED TO MAINTAIN NO LESS THAN 3" CLEAR TO BOTTOM OF LOWEST REINFORCING BAR.
6. ALL REINFORCING SHALL BE TIED IN PLACE PRIOR TO POURING CONCRETE.
7. CONSTRUCTION JOINTS IN WALL FOOTINGS SHALL BE FORMED VERTICALLY WITH MINIMUM 2'-0" LAP HORIZONTAL REINFORCING.

CONCRETE:

1. UNLESS OTHERWISE SHOWN, THE CENTERLINES OF ALL PIERS AND COLUMN FOOTINGS SHALL BE LOCATED ON COLUMN CENTERLINES OVER.
2. UNLESS SPECIFIED OTHERWISE, CONCRETE COVER OVER REINFORCEMENT SHALL CONFORM TO THE FOLLOWING:
   - A. ALL FOOTINGS AND OTHER CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
   - B. FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
     - #5 BAR AND SMALLER: 1 1/2"
     - #6 BAR AND LARGER: 2"
   - C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
     1. SLABS, WALLS, JOISTS:
        - #11 BAR AND SMALLER: 3/4"
        - #14 AND #18 BARS: 1 1/2"
     2. BEAMS, COLUMNS:
        - PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS: 1 1/2"
3. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
4. PROVIDE DOWELS OF THE SAME SIZE AND NUMBER AS THE VERTICAL WALL AND COLUMN REINFORCING, UNLESS NOTED OTHERWISE.
5. REINFORCEMENT SHALL BE SPLICED ONLY AT LOCATIONS SHOWN OR NOTED ON THE STRUCTURAL DOCUMENTS, EXCEPT REINFORCING MARKED CONTINUOUS MAY BE SPLICED AT LOCATIONS DETERMINED BY THE CONTRACTOR. SPLICES AT OTHER LOCATIONS SHALL BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
6. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 AND CRSI STANDARDS.
7. NO REINFORCING SHALL BE CUT IN FIELD. ADDITIONAL REINFORCING AND THAT QUANTITY OF REINFORCING OCCURRING AT OPENINGS SHALL BE PLACED EQUALLY EACH SIDE OF OPENING AS DETAILED.
8. HOOKS IN REINFORCING ARE IN ADDITION TO LINKS SHOWN.
9. UNLESS NOTED OTHERWISE, DETAILING AND FABRICATION OF REINFORCING STEEL SHALL FOLLOW ACI MANUAL OF STANDARD PRACTICE FOR DETAILING OF REINFORCED CONCRETE STRUCTURES (ACI 315).

SPECIAL STRUCTURAL INSPECTIONS:

A. SPECIAL INSPECTIONS
   1. SPECIAL STRUCTURAL TESTS AND INSPECTIONS SHALL BE PERFORMED ON THIS PROJECT IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 17 OF THE IBC 2018 BUILDING CODE.
   2. SPECIAL STRUCTURAL TESTS AND INSPECTIONS SHALL BE PERFORMED BY AN AGENCY SELECTED BY THE OWNER WHICH MEETS ALL OF THE REQUIREMENTS FOR APPROVAL INDICATED IN IBC 2018 SECTION 1704. SPECIAL INSPECTORS SHALL BE QUALIFIED PERSONS WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
   3. THE CONTRACTOR SHALL COORDINATE THE INSPECTION SERVICES IN ACCORDANCE WITH THE PROGRESS OF THE WORK. THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE TO THE INSPECTOR TO ALLOW PROPER SCHEDULING OF PERSONNEL.
   4. THE COSTS OF THE SPECIAL INSPECTOR'S SERVICES SHALL BE PAID FOR BY THE OWNER.

B. REPORTS
   1. SPECIAL INSPECTORS SHALL KEEP A RECORD OF ALL INSPECTIONS PERFORMED. COPIES OF ALL INSPECTIONS SHALL BE FURNISHED TO THE BUILDING OFFICIAL AND THE EOR WITHIN 48 HOURS OF THE INSPECTION.
   2. REPORTS SHALL INDICATE THAT THE WORK WAS PERFORMED AND CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. WORK WHICH DOES NOT CONFORM TO THE CONTRACT DOCUMENTS SHALL BE IDENTIFIED IN THE REPORT AND SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR.
   3. A FINAL REPORT OF INSPECTIONS DOCUMENTING REQUIRED SPECIAL INSPECTIONS INCLUDING ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL AND THE EOR PRIOR TO COMPLETION OF THE STRUCTURAL SYSTEMS BUT AT A FREQUENCY NOT TO EXCEED 60 DAYS.

C. REQUIRED SPECIAL INSPECTIONS

IBC SECTION	DESCRIPTION OF WORK	SPECIAL INSPECTION YES	NO	REQUIRED REMARKS
1704.2.5	INSPECTION OF FABRICATORS		X	
1705.2	STEEL CONSTRUCTION		X	
1705.3	CONCRETE CONSTRUCTION	X		
1705.4	MASONRY CONSTRUCTION	X		2
1705.5	WOOD CONSTRUCTION		X	
1705.6	SOILS	X		3
1705.7	DRIVEN DEEP FOUNDATION		X	
1705.8	CAST-IN-PLACE DEEP FOUNDATIONS		X	
1705.9	HELICAL PILE FOUNDATIONS		X	
1705.10	WIND RESISTANCE		X	
1705.11	SEISMIC RESISTANCE		X	
1705.12	TESTING AND QUALIFICATIONS FOR SEISMIC RESISTANCE		X	
1705.13	SPRAYED FIRE-RESISTANT MATERIALS		X	
1705.14	MASTIC AND INTUMESCENT COATINGS		X	
1705.15	EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)		X	

REMARKS:
1. CONCRETE SPECIAL INSPECTION:
   CONTINUOUS AND PERIODIC INSPECTIONS, AS DEFINED BY SECTION 202 OF THE IBC 2018 BUILDING CODE, SHALL BE PERFORMED BY THE SPECIAL INSPECTION AGENCY IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1705.3 AND TABLE 1705.3.
2. MASONRY SPECIAL INSPECTION:
   CONTINUOUS AND PERIODIC INSPECTIONS, AS DEFINED BY SECTION 202 OF THE IBC 2018 BUILDING CODE, SHALL BE PERFORMED BY THE SPECIAL INSPECTION AGENCY IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1705.4 AND QUALITY ASSURANCE PROGRAM REQUIREMENTS OF ACI530/ASCE 5
3. SOILS SPECIAL INSPECTION:
   INSPECTION OF THE EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT AND LOAD BEARING REQUIREMENTS SHALL BE PERFORMED BY THE SPECIAL INSPECTION AGENCY IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1705.6 AND TABLE 1705.6.

MATERIAL SPECIFICATIONS:

CONCRETE

1. FOUNDATIONS:	3000 PSI 28 DAY COMPRESSIVE STRENGTH (NON-AIR ENTRAINED)
2. BLOCK FILL:	2500 PSI 28 DAY COMPRESSIVE STRENGTH
3. REINFORCING BARS:	ASTM A615, GRADE 60, DEFORMED

SAUSSY ENGINEERING
400 Johnny Mercer Boulevard • Suite E
P.O. Box 30597 • Savannah, Georgia 31410
Phone: (912) 898-8255 • Fax: (912) 898-1882

PROJECT # 22058: S1-0.dwg 5/13/22 3:45 pm

ACC
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Savannah, GA
Knoxville, TN

GEORGIA REGISTERED No. 000432 STRUCTURAL ENGINEER W. HUNTER SAUSSY, III
Not Valid Unless Signed

PROJECT:
PORT WENTWORTH TRUCK AND CHASSIS YARD
PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC
17 WEST MCDONOUGH STREET
SAVANNAH, GA 31401
(912) 220-5144

REVISIONS

1. Client Review	04/28/2022

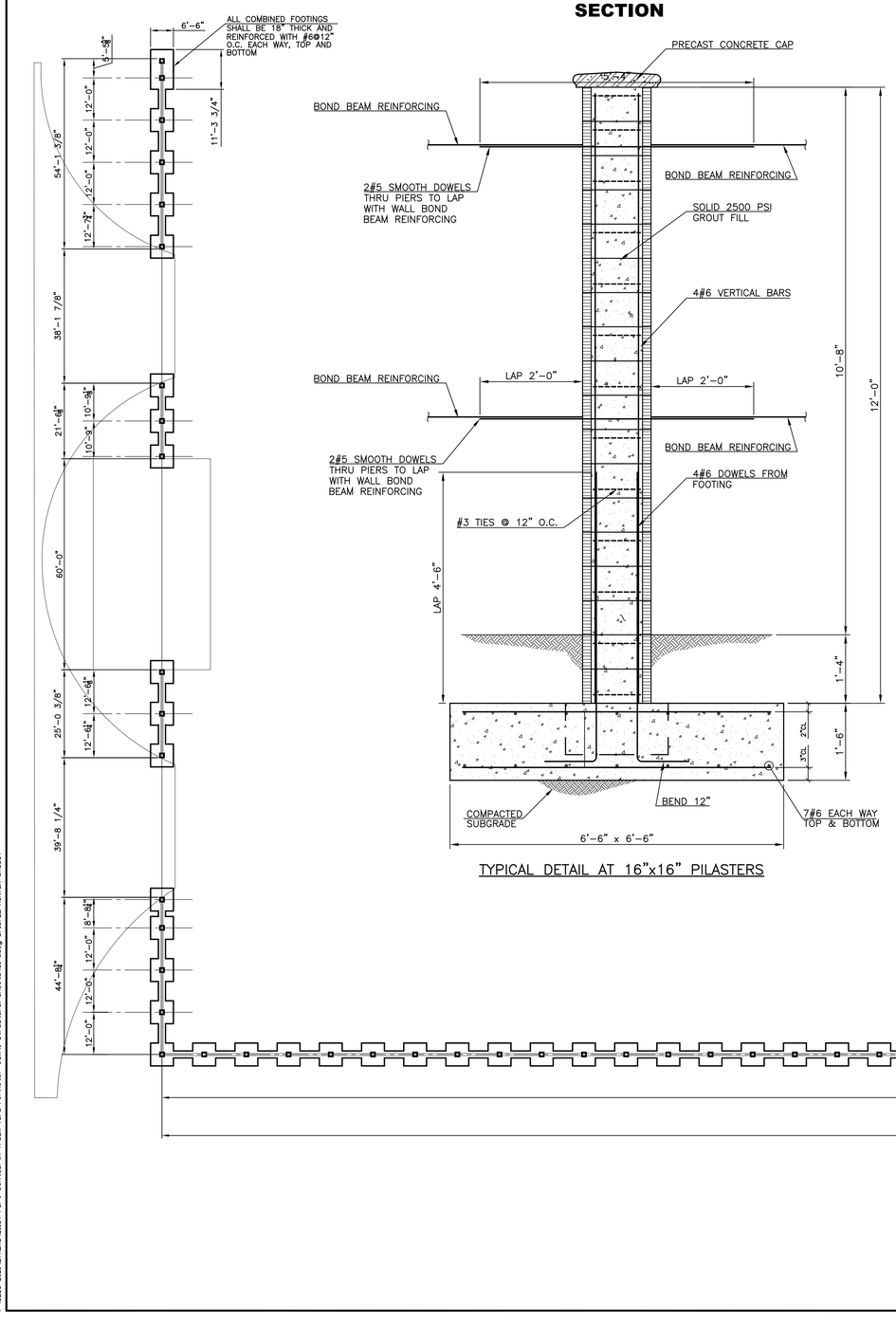
Drawn by: | Checked by: | QC by:

PROJECT NUMBER:
I061-102
APRIL 2022

STRUCTURAL NOTES

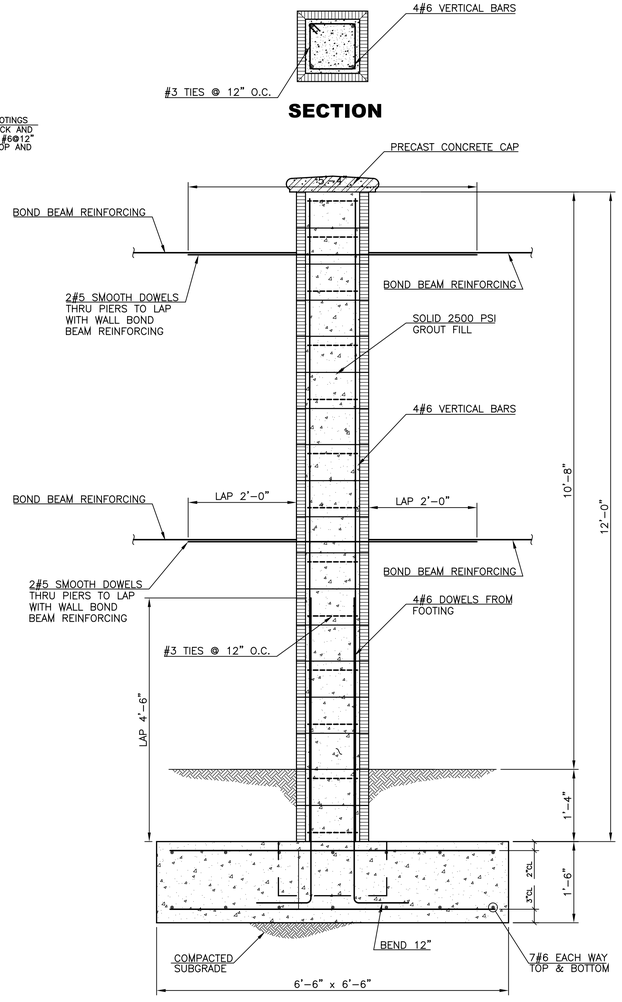
S1.0

F:\JOBS 2021\OTHERS\21154-Port Wentworth Truck Yard Perimeter Wall\0-Structural Sheets\S1-0.dwg 5/13/22 HUNTER SAUSSY

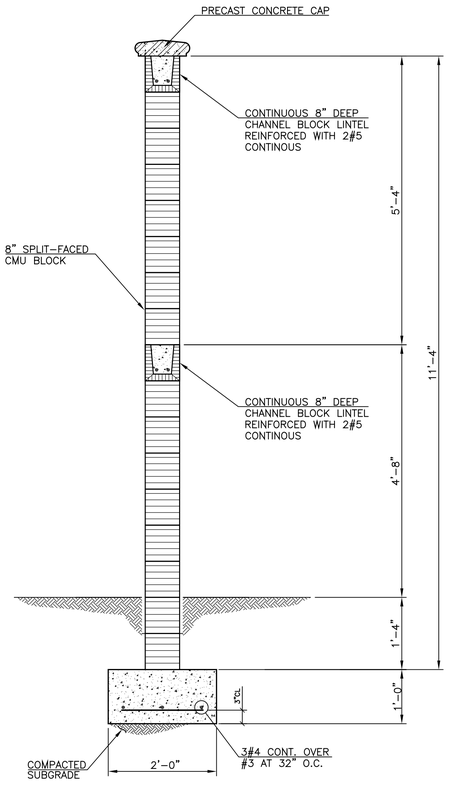


FOUNDATION PLAN

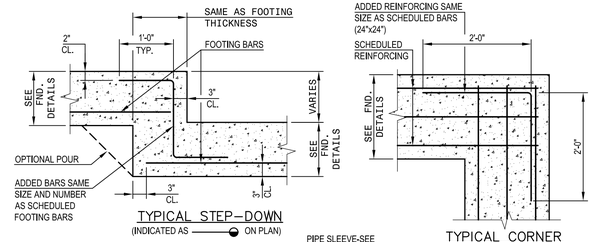
SCALE: 1/16"=1'-0"



TYPICAL DETAIL AT 16"x16" PILASTERS



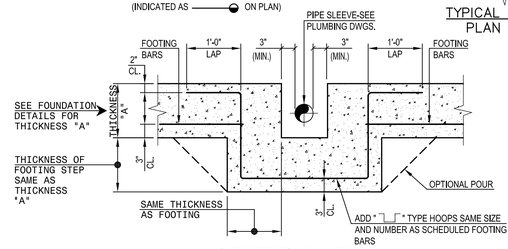
TYPICAL SECTION THRU 8' CMU WALLS



TYPICAL STEP-DOWN

(INDICATED AS ⊖ ON PLAN)

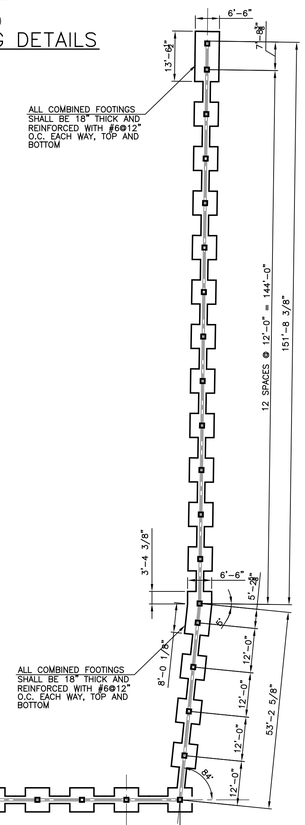
TYPICAL CORNER PLAN VIEW



INTERFERENCE OFFSET @ GRAVITY SEWER

(COORDINATE W/ PLUMBING DRAWINGS)

TYPICAL WALL FOOTING DETAILS



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GEORGIA REGISTERED No. 030432 STRUCTURAL ENGINEER W. HUNTER SAUSSY, III

Not Valid Unless Signed

PROJECT:

PORT WENTWORTH TRUCK AND CHASSIS YARD

PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER COMPANIES, LLC

17 WEST MCDONOUGH STREET
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(912) 220-5144

REVISIONS

1. Client Review	04/28/2022

Drawn by:	Checked by:	QC by:

PROJECT NUMBER:

I061-102

APRIL 2022

WALL FOUNDATION PLAN

S1.1

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PROJECT # 22058: S1-1.dwg 5/2/22 4:11 pm

F:\JOBS\ 2021\OTHERS\21154-Port Wentworth Truck Yard Perimeter Walls-Structural Sheets\S1-1.dwg 5/13/22 HUNTER SAUSSY

Drayton-Parker Companies, LLC
PORT WENTWORTH TRUCK AND CHASSIS STORAGE YARD

Stormwater Management Report

Prepared For:

Drayton-Parker Companies, LLC
17 West McDonough Street
Savannah, GA 31401

Prepared By:

ATLANTIC COAST CONSULTING, INC.
7 East Congress Street
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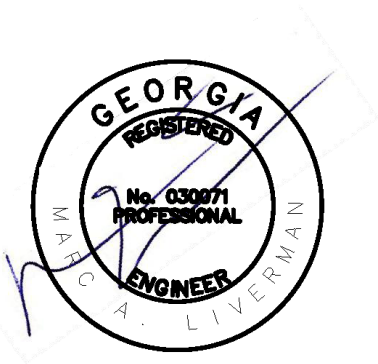
MAY 2022



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EXECUTIVE SUMMARY

The existing undeveloped lot is currently situated on a parcel in Port Wentworth, Georgia. The parcel totals 4.26 acres (P.I.N. #7-0035-01-010) and is located along the eastern right-of-way of Highway 21, north of the intersection of Highway 21 and Crossgate Road.

The proposed development is a gravel truck/chassis storage yard. The 3.94 acres of disturbed area consists of a gravel area, two infiltration/detention ponds, and an administrative building. The stormwater management for the development was designed in accordance with the Georgia Stormwater Management Manual (GSMM), Coastal Stormwater Supplement (CSS) to the GSMM, and the City of Port Wentworth development manual.

The City of Port Wentworth's Comprehensive Development Manual (CDM) requires that each development shall comply with storm water design standards to maintain pre-development peak discharge rates for the 2, 5, 10, 25 and 25-year, 24-hour storms. On site detention/retention shall be used with the developer required to provide storage for the 2, 5, 10, 25 and 50-year, 24-hour storms at their respective pre-developed rates. This requirement shall be true except for developments which have direct discharge to tidally influenced waters. Since this project does not discharge directly to tidally influenced waters, the pre/post development discharge rate requirements apply.

Additionally, the GSMM and CSS require that other Best Management Practices (BMP's) considerations be incorporated into a stormwater management system design to provide Runoff Reduction, Water Quality, Aquatic Resource Protection, Channel Protection, Overbank Flood Protection and Extreme Flood Protection.

METHODOLOGY

The SCS Runoff Curve Number Method for analyzing stormwater runoff was used to evaluate the 1, 2, 5, 10, 25, 50 and 100-year 24-hour storm events for the pre- and post-developed conditions utilized to evaluate the BMPs for the City of Port Wentworth's CDM, the GSMM and the CSS. The time of concentrations (T_c) for each basin were determined using TR-55 methods (See Appendix A for T_C worksheets). The 24-hour rainfall for Savannah, Georgia is shown in Table 2 below (see Appendix D for NOAA Atlas 14 table) and the Curve Numbers utilized are from Table 3.1.5-1 of the GSMM as included in Appendix E. The runoff generated from the existing site conditions was used to determine the stormwater detention and BMP requirements for the proposed site. Hydrograph reports for the pre-developed and post-developed drainage basins are presented in Appendix A.

Table 1:
The 24-hour Precipitation for Savannah, GA

24-hour Rainfall (inches)	
P_1	3.78
P_2	4.71
P_5	5.90
P_{10}	7.00
P_{25}	8.00

P_{50}	8.90
P_{100}	10.10

PRE-DEVELOPED CONDITIONS

The existing (i.e., pre-developed) site runoff is modeled as one basin that drains through wetlands on the eastern side of the property and to a discharge location in the southeast corner near an existing GA Power easement. The site location is shown on Figure 1 and the wetland boundary is shown on Figure 2. The wetlands will be impacted in accordance with USACOE permit SAS-2020-00353 issued on August 4, 2020. The existing drainage basin includes the undeveloped parcel along with previously constructed asphalt pavement. The undeveloped portion is wooded in fair condition and is underlain by hydrologic soil groups C and D (see Appendix E for detailed descriptions) and when taking the pavement into consideration, a composite Curve Number of 81 was calculated for the existing condition. The existing site conditions and drainage basin delineation are shown on Figure 2. A summary of the pre-development basin is shown in Table 2 and the peak flow rates of the pre-development basin can be found in Table 3.

Table 2:
Pre-Developed Drainage Basins:

Drainage Basin	Area (Acres)	Composite Curve Number (CN)	Time of Concentration (min.)
Pre-Basin 1	5.50	81	21.0

Table 3:
Peak Flow Rates for Pre-Developed Conditions:

Storm Freq. (yr)	Pre-Basin 1 (cfs)
1	7.88
2	11.14
5	15.44
10	19.45
25	23.12
50	26.41
100	30.80

POST-DEVELOPED CONDITIONS

The proposed development consists of a gravel parking area, two infiltration/detention ponds, an infiltration trench, and an administrative building. The stormwater management plan for the proposed development consists of the construction of two infiltration/detention ponds routed to one outfall on the southeast end of the property with a third infiltration trench treating runoff in the bypass basin. The ponds will control the on-site runoff and will act as sediment basins to enhance water quality. Runoff from Post-Basins 1 and 2 will flow to each of their respective infiltration ponds. Infiltration / Detention Pond 1 will discharge to

a proposed outlet control structure (OCS-1) which will then discharge via storm drain to a weir inlet (WI-1). Infiltration / Detention Pond 2 will discharge to second outlet control structure (OCS-2), which will also discharge via storm drain to WI-1. WI-1 will then discharge via storm drain to the outfall headwall (HW-1). The bypass portion of the site, which includes an existing ditch along the HWY 21 right-of-way, will be routed over new paved driveways and through an infiltration trench near the north end of the existing paved access drive.

A curve number of 98 was selected for all paved and gravel areas while 76 was selected as the curve numbers for grassed and landscaped areas in the bypass basin on the perimeter of the site. Post-developed site conditions and drainage basin delineations are shown on Figure 3.

The infiltration capacity of the native in-situ soils was verified via a double-ring infiltration test. The purpose of the test was to verify that the subsurface soils and groundwater elevations would permit reasonable rate of infiltration in the proposed areas. The results of this report, prepared by Contour Engineering, demonstrates that the subsurface is capable of an infiltration rate greater than 0.25 in/hr, as required by the CSS guidelines. The two areas tested exhibited infiltration rates of 3.6 in/hr and 3.3 in/hr. Appendix E contains excerpts of the Contour report that includes the boring logs, infiltration test data and boring location plan.

Table 4:
Post-Developed Drainage Basins:

Drainage Basin	Area (Acres)	Composite Curve Number (CN)	Time of Concentration (min.)
Post-Basin 1	2.10	89	7.6
Post-Basin 2	1.19	88	12.7
Post-Basin 3 (Bypass)	2.21	83	11.4

Table 5:
Peak Flow Rates for Post-Developed Conditions:

Storm Freq. (yr)	Post Basin 1[1] (cfs)	Post Basin 2[2] (cfs)	Post Bypass Basin 1 (cfs)
1	1.68	1.09	0.80
2	5.07	3.49	1.08
5	9.51	5.40	1.45
10	11.49	6.31	1.80
25	12.03	6.86	2.10
50	12.64	7.39	2.38
100	13.93	8.11	2.75

1. *Values represent peak flow of Post Basin 1 after being routed through Infiltration/Detention Pond 1.*
2. *Values represent peak flow of Post Basin 2 after being routed through Infiltration/Detention Pond 2.*

INFILTRATION/DETENTION POND DESIGN

The infiltration/detention ponds have been designed to detain the post-developed runoff and discharge the detained volume at a flowrate less than the pre-developed rate. The infiltration/detention ponds were designed to comply with the GSMM and CSS. The supporting Pond Report with the stage/storage/discharge relationship is included at the end of Appendix A.

Infiltration/Detention Pond Freeboard

Each of the two ponds contain the minimum 1-foot required freeboard above the 100-yr storm elevation. The elevations and resulting freeboard heights are provided in the hydrograph reports in Appendix A and summarized below.

Table 6:
Infiltration/Detention Pond Freeboard Summary:

Pond ID	Lowest Invert Elevation (ft MSL)	Pond Top (ft MSL)	Freeboard Provided (ft)
1	35.63	36.74	1.11
2	34.80	35.80	1.00

SUMMARY OF PEAK FLOWRATES

The following table compares the flowrates from the pre-developed basins for each storm event to the flowrates from the post-developed basins. As demonstrated by this table, the peak discharge from the post-developed drainage basins is less than the peak discharge from the pre-developed basins.

Table 7:
Summary of Peak Flowrates:

	Design storm	1	2	5	10	25	50	100
Pre-Basin 1	$Q_{Pre\text{-}Developed}$	7.88	11.14	15.44	19.45	23.12	26.41	30.80
Total Pre-Developed Discharge	$Q_{Pre\text{-}Developed}$	**7.88**	**11.14**	**15.44**	**19.45**	**23.12**	**26.41**	**30.80**
Post Basin 1	$Q_{Post\text{-}Developed}$	0.28	1.37	5.13	9.05	11.08	11.79	12.49
Post Basin 2	$Q_{Post\text{-}Developed}$	0.00	0.00	0.02	0.24	0.53	1.14	12.95
Post Basin 3 (Bypass)	$Q_{Post\text{-}Developed}$	4.30	5.94	8.08	10.06	11.86	13.48	15.63
Total Post-Developed Discharge	$Q_{Post\text{-}Developed}$	**4.30**	**7.58**	**10.34**	**17.54**	**22.83**	**25.12**	**27.73**

1. *Values represent peak flow of Post Basin 1 after being routed through Infiltration/Detention Pond 1.*
2. *Values represent peak flow of Post Basin 2 after being routed through Infiltration/Detention Pond 2.*

STORMWATER RUNOFF REDUCTION AND WATER QUALITY PROTECTION

Per the CSS, Stormwater Management Criteria #1 requires reducing the stormwater runoff volume by the 1.2-inch rainfall event on the post-developed site using low impact development practices. If this criterion cannot be met, the stormwater runoff must be intercepted and treated under Stormwater Management Criteria #2, which requires that post-development stormwater runoff be treated to provide at least an 80% reduction in TSS loads.

For this development, infiltration/detention ponds are the practices used to reduce the runoff volume. By providing pond storage and infiltration, the required water quality treatment volume is achieved. The CSS Site Planning and Design worksheet, provided in Appendix C, was used to determine the target reduction and treatment volumes. The site was divided into drainage areas based on the post-development drainage basins and stormwater routing through the proposed treatment areas on-site (i.e., the infiltration/detention ponds). The adjustment to the reduction and treatment volumes in each area is dependent upon the low impact development practices that are implemented. The drainage areas and their respective adjustments to reduction and treatment volumes are shown in Figure 4, as well as summarized in Table 8 below.

As shown in Table 8, 100% (1.20 inches) of the target runoff reduction and target treatment were achieved.

Table 8:
Stormwater Runoff Reduction and Treatment Summary:

Drainage Area ID	Drainage Area (Acres)	Impervious Area (%)	Adjustment to Runoff Reduction (CF)	Adjustment to Treatment Volume (CF)
D.A.A.	2.10	81	7,122.1	7,122.1
D.A.B.	1.19	79	3.944.4	3,944.4
D.A.C.	1.00	82	880	880
Total Provided			11,946	11,946
Total Required			11,990	11,990

AQUATIC RESOURCE PROTECTION

Stormwater Management Criteria #3 of the Coastal Stormwater Supplement (CSS) protects aquatic resources from negative impacts of land development. Additionally, Section 4.4.3 of CSS the recommends that 24 hours of extended detention be provided for the stormwater runoff volume generated by the 1-year, 24-hour storm event, which is known as the aquatic resource protection volume. The ratio of required storage volume to stormwater runoff volume was calculated using the following equation:

$$V_s/V_r = 0.683 - (1.43)(q_o/q_i) + (1.64)(q_o/q_i)^2 - (0.804)(q_o/q_i)^3$$

Where:

V_s = required storage volume (cubic feet)
V_r = stormwater runoff volume (cubic feet)

q_o = controlled peak discharge (cubic feet per second)
q_i = uncontrolled peak discharge (cubic feet per second)

The stormwater runoff volume (V_r) was calculated using the following equation:

$$Vr = (Q)(A)/12.$$

Where:
Q = stormwater runoff volume (inches)
A= drainage area (acres)

The 1-year, 24-hour storm peak inflow and outflow from the infiltration trenches hydrographs (See Appendix D) were used for uncontrolled peak discharge (q_i) and controlled peak discharge (q_o), respectively.

Finally, the required storage volume was determined using the equation:

$$V_s = (V_s/V_r)(V_r)$$

Table 9 in below summarizes the required storage volumes calculated for each drainage basin and also lists the storage available below the primary discharge in the corresponding infiltration. The results shown in the table verify that the proposed stormwater management system provides adequate storage for the aquatic protection volume.

Table 9:
Aquatic Resource Protection Extended Detention Summary:

Trench/Pond	Drainage Area (ac)	Stormwater Runoff Volume,Q (in)	Uncontrolled Peak Discharge,q_i (cfs)	Controlled Peak Discharge,q_o (cfs)	q_o/q_i	V_s/V_r	Stormwater Runoff Volume,V_r (cf)	Required Storage Volume,V_s (cf)	Available Storage Volume (cf)
Infil/Det Pond 1	2.10	2.45	5.01	0.28	0.06	0.61	18,676	11,365	14,341
Infil/Det Pond 2	1.19	2.36	2.75	0.00	0.00	0.68	10,194	6,963	10,227
Infil Trench 3	1.00	1.97	2.05	2.01	0.98	0.10	7,133	707	792

DOWNSTREAM CHANNEL PROTECTION

The GSMM requires that stream channel protection be provided in a site development's stormwater management design. The Channel Protection sizing criterion specifies that 24 hours of extended detention be provided for runoff generated by the 1-year, 24-hour rainfall event to protect downstream channels. The required volume needed for 1-year extended detention, denoted CPv, is roughly equivalent to the required volume needed for peak discharge control of the 5- to 10-year storm. However, this extended detention is not required for post development discharges less that 2.0 cfs at each individual discharge location. At each pond outlet, the peak discharge is below 2.0 cfs for the 1-yr, 24 hr. storm event, as shown in Table 9 below. Therefore, extended detention was not accounted for in the stormwater detention pond design.

Table 10:
Channel Protection Storm Summary:

Pond	Peak Discharge (1-yr, 24 hr. Storm, cfs)
Infiltration Pond 1	1.68
Infiltration Pond 2	1.09

OVERBANK FLOOD PROTECTION

Stormwater Management Criteria #4 of the Coastal Stormwater Supplement (CSS) requires that a stormwater management system prevent an increase in the duration, frequency, and magnitude of damaging overbank flooding by controlling (attenuating) the peak discharge generated by the 25-yr, 24-hour storm event under post-developed conditions. As demonstrated in Table 7 above and the hydrographs contained in Appendix A, the stormwater management system effectively attenuates the post-developed peak discharge rate of the 25-yr, 24-hr storm event to below pre-developed levels.

EXTREME FLOOD PROTECTION

Stormwater Management Criteria #5 of the Coastal Stormwater Supplement (CSS) requires that a stormwater management system prevent an increase in the duration, frequency, and magnitude of dangerous extreme flooding by controlling (attenuating) the peak discharge generated by the 100-yr, 24-hour storm event under post-developed conditions. As demonstrated in Table 7 above and the hydrographs contained in Appendix A, the stormwater management system effectively attenuates the post-developed peak discharge rate of the 100-yr, 24-hr storm event to below pre-developed levels.

CONCLUSION

The peak discharge stormwater runoff rates generated by the 2, 5, 10, 25 and 25-year, 24-hour storms are effectively attenuated to the pre-developed levels and the on-site detention facilities have been provided to allow storage for the 2, 5, 10, 25 and 50-year, 24-hour storms as required by the City of Port Wentworth's CDM. Additionally, the stormwater management system will provide extended detention required to protect downstream aquatic resources, provide channel protection, and provide overbank and extreme flood damage protection. Therefore, the proposed stormwater management system provides adequate detention, water quality provisions, pollutant removal and discharge attenuation for the proposed development as required by the local CDM and the State of Georgia's GSMM and CSS.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Pre-Developed Drainage Basin Delineation
Figure 3 – Post-Developed Drainage Basin Delineation
Figure 4 – Water Quality Exhibit

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PROJECT:
PORT WENTWORTH TRUCK YARD

8TH DISTRICT
PORT WENTWORTH
CHATHAM COUNTY, GA

DRAYTON-PARKER, LLC

528 E 45TH STREET
SAVANNAH, GA 31405
(912) 220-5144

REVISIONS

Drawn by:	Checked by:	QC by:
AA		

PROJECT NUMBER:
I061-102

FEBRUARY 2022

SITE LOCATION MAP

Figure 1

P:\Industrial\061--1853 Logistics\01- Drayton--Parker PW Truck Yard\3-Design Data\2-DWGs\I061_102_FIG1.dwg 4/27/22 CLARA HODGES

8' CHAIN LINK FENCE

60' EASEMENT
PB 14-P, PG 20
PB 15-S, PG 3

100' EASE
(GA POW
PB 14-P, P
PB 15-S, P

GRAVEL DRIVE

PRE-BASIN 1
TOTAL ACREAGE = 5.50
COMPOSITE CN = 81
Tc = 21.0 min

Tc PATH

50 0 25 50
SCALE (IN FEET)

P:\Industrial\I061--1853 Logistics\I01-- Drayton-Parker PW Truck Yard\3-Design Data\2-DWGs\I061_102_F02.dwg 5/19/22 MARC LIVERMAN

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PRE-DEVELOPMENT BASIN DELINEATION

Figure 2

POST BASIN 2
TOTAL ACREAGE = 1.19
CN = 88
Tc = 12.7 min

POST BASIN 1
TOTAL ACREAGE = 2.10
CN = 89
Tc = 7.6 min

POST BASIN 3 (BYPASS)
TOTAL ACREAGE = 2.21
COMPOSITE CN = 83
Tc = 11.4 min

Tc PATH

60' EASEMENT
PB 14-P, PG 20
PB 15-S, PG 3

CHAIN LINK FENCE

ADMIN. BUILDING
±2,000 SF
FFE= 37.25

VAN

GRAVEL DRIVE

100' EASEM
(GA POWE
PB 14-P, PG
PB 15-S, PG

GEORGIA HIGHWAY 21
PUBLIC RIGHT-OF-WAY (VARIES)
(ASPHALT SURFACE)
SPEED LIMIT= 50 MPH

50 0 25 50
SCALE (IN FEET)

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POST-DEVELOPMENT BASIN DELINEATION

Figure 3

P:\Industrial\061--1853 Logistics\101-- Drayton-Parker PW Truck Yard\3-Design Data\3-DWGs\061_102_FIG3.dwg 9/19/22 MARC LIVERMAN

8' CHAIN LINK FENCE

RBF 5/8

ADMIN. BUILDING
±2,000 SF
FFE 37.25

BASIN D.A.B.
INFILTRATION AREA #2
IMPERVIOUS: 0.94 AC
PERVIOUS: 0.25 AC

BASIN D.A.A.
INFILTRATION AREA #1
IMPERVIOUS: 1.70 AC
PERVIOUS: 0.40 AC

BASIN D.A.C.
AND INFILTRATION TRENCH #3
IMPERVIOUS: 0.18 AC
PERVIOUS: 0.82 AC

GRAVEL DRIVE

GEORGIA HIGHWAY 21
PUBLIC RIGHT-OF-WAY (VARIES)
(ASPHALT SURFACE)
SPEED LIMIT= 50 MPH

5/8" RBF DISTURBED

50 0 25 50

SCALE (IN FEET)

P:\Industrial\061--1853 Logistics\101- Drayton--Parker PW Truck Yard\3-Design Data\2-DWGs\I061_102_FIG4.dwg 5/19/22 MARC LIVERMAN

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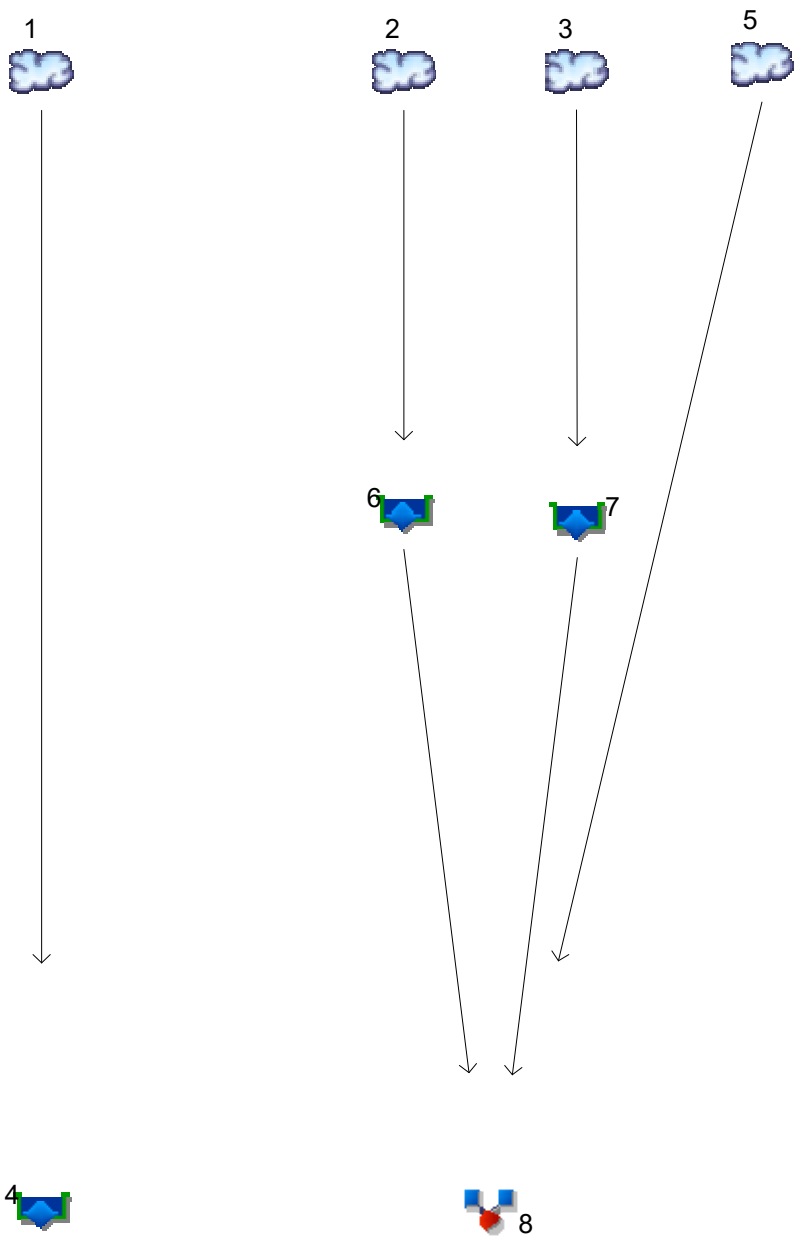
WATER QUALITY COMPONENT BASIN DELINEATION

Figure 4

APPENDIX A

Watershed Model Schematic
Hydrograph Summary Reports
1-Year through 100-Year/24-Hour Storm Hydrographs
TR-55 Time of Concentration Worksheets
Stage/Storage Pond Reports

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	PRE BASIN 1 - TOTAL PRE DISCHARGE
2	SCS Runoff	POST BASIN 1
3	SCS Runoff	POST BASIN 2
4	Reservoir	SD4 OUT
5	SCS Runoff	POST BASIN 3 (BYPASS)
6	Reservoir	INFIL / DET POND 1 OUT
7	Reservoir	INFIL / DET POND 2 OUT
8	Combine	TOTAL POST SITE DISCHARGE

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	7.876	3	735	37,723	------	------	------	PRE BASIN 1 - TOTAL PRE DISCHA
2	SCS Runoff	5.009	4	728	18,704	------	------	------	POST BASIN 1
3	SCS Runoff	2.753	4	728	10,227	------	------	------	POST BASIN 2
4	Reservoir	7.363	3	738	17,502	1	32.12	6,247	SD4 OUT
5	SCS Runoff	4.297	4	728	15,767	------	------	------	POST BASIN 3 (BYPASS)
6	Reservoir	0.278	4	892	4,732	2	35.03	14,341	INFIL / DET POND 1 OUT
7	Reservoir	0.000	4	n/a	0	3	33.92	10,227	INFIL / DET POND 2 OUT
8	Combine	4.297	4	728	20,499	5, 6, 7	------	------	TOTAL POST SITE DISCHARGE

Hydrograph Report

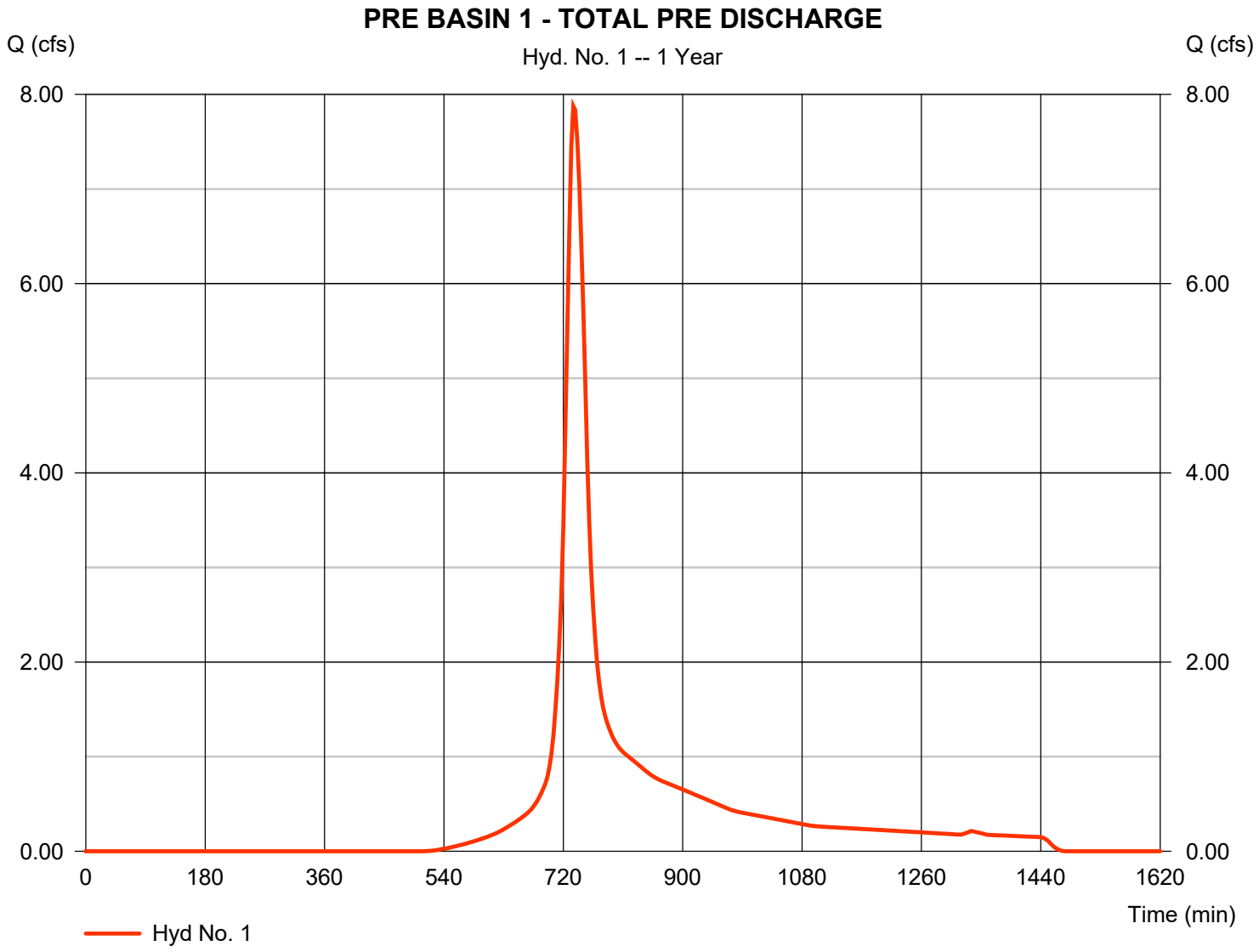
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Thursday, 05 / 19 / 2022

Hyd. No. 1

PRE BASIN 1 - TOTAL PRE DISCHARGE

Hydrograph type	= SCS Runoff	Peak discharge	= 7.876 cfs
Storm frequency	= 1 yrs	Time to peak	= 735 min
Time interval	= 3 min	Hyd. volume	= 37,723 cuft
Drainage area	= 5.500 ac	Curve number	= 81*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.00 min
Total precip.	= 3.78 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.740 x 98) + (4.760 x 78)] / 5.500



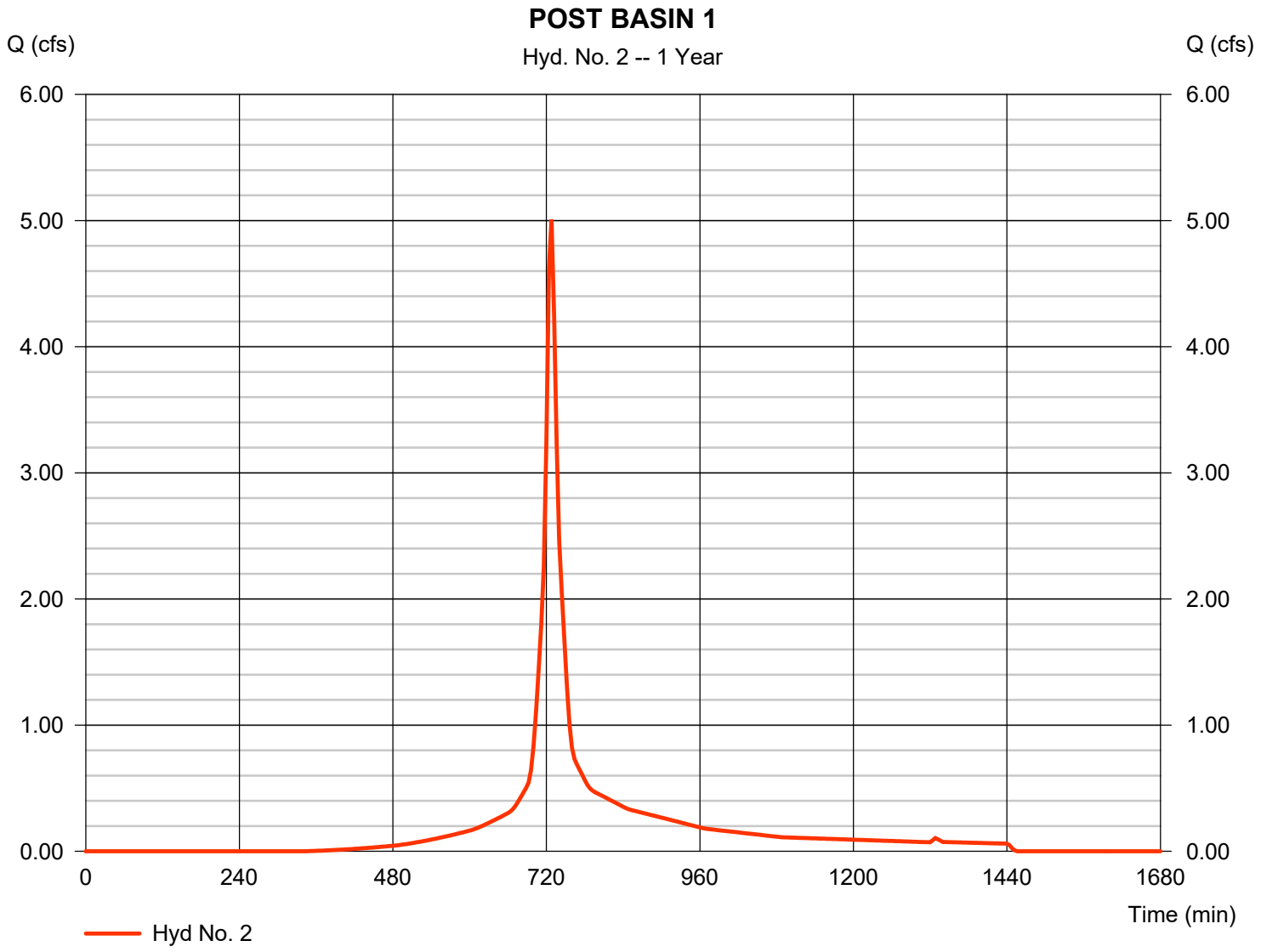
Hydrograph Report

Hyd. No. 2

POST BASIN 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.009 cfs
Storm frequency	=	1 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	18,704 cuft
Drainage area	=	2.100 ac	Curve number	=	89*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.60 min
Total precip.	=	3.78 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.700 x 98) + (0.400 x 50)] / 2.100



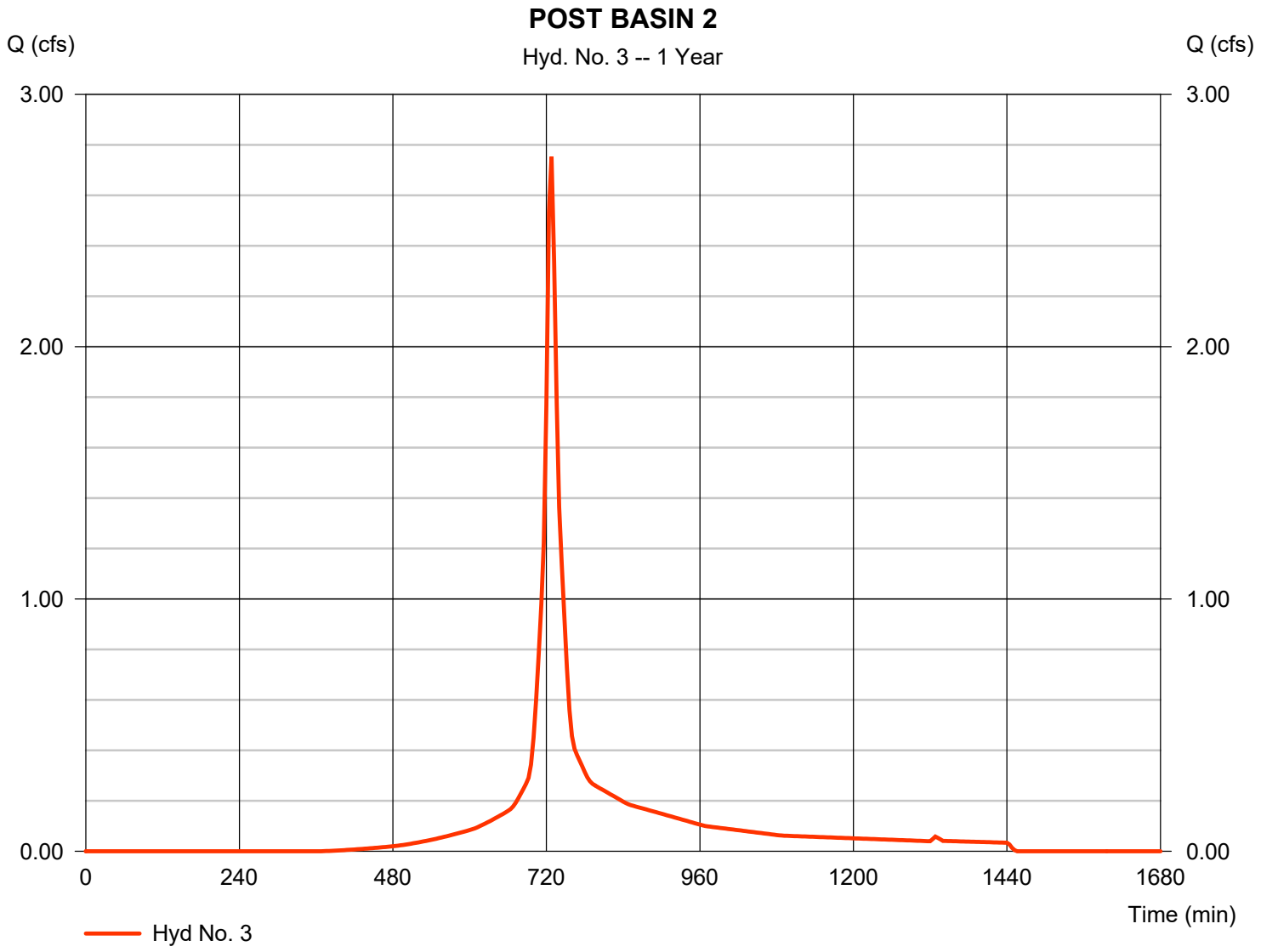
Hydrograph Report

Hyd. No. 3

POST BASIN 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.753 cfs
Storm frequency	=	1 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	10,227 cuft
Drainage area	=	1.190 ac	Curve number	=	88*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.70 min
Total precip.	=	3.78 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.250 x 50) + (0.940 x 98)] / 1.190



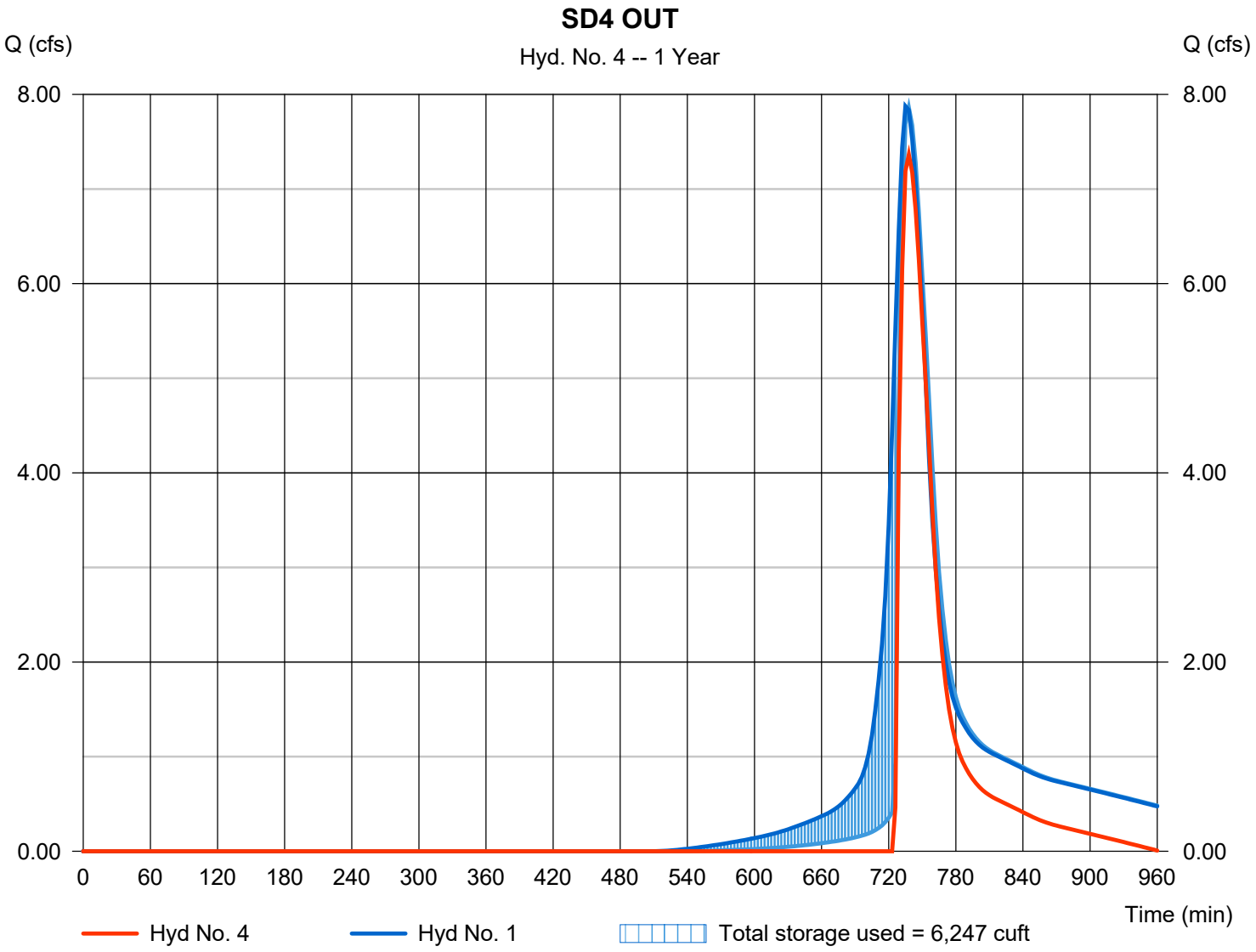
Hydrograph Report

Hyd. No. 4

SD4 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	7.363 cfs
Storm frequency	=	1 yrs	Time to peak	=	738 min
Time interval	=	3 min	Hyd. volume	=	17,502 cuft
Inflow hyd. No.	=	1 - PRE BASIN 1 - TOTAL PRE DISCHARGE	Max. Elevation	=	32.12 ft
Reservoir name	=	SD4	Max. Storage	=	6,247 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 3 - SD4

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 31.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	31.00	3,819	0	0
1.00	32.00	6,837	5,255	5,255
2.00	33.00	9,537	8,149	13,404

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	50.00	0.00	0.00
Crest El. (ft)	= 0.00	32.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Ciplti	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 3.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	31.00	---	---	---	---	---	0.00	---	---	0.000	---	0.000
1.00	5,255	32.00	---	---	---	---	---	0.00	---	---	0.475	---	0.475
2.00	13,404	33.00	---	---	---	---	---	166.50	---	---	0.662	---	167.16

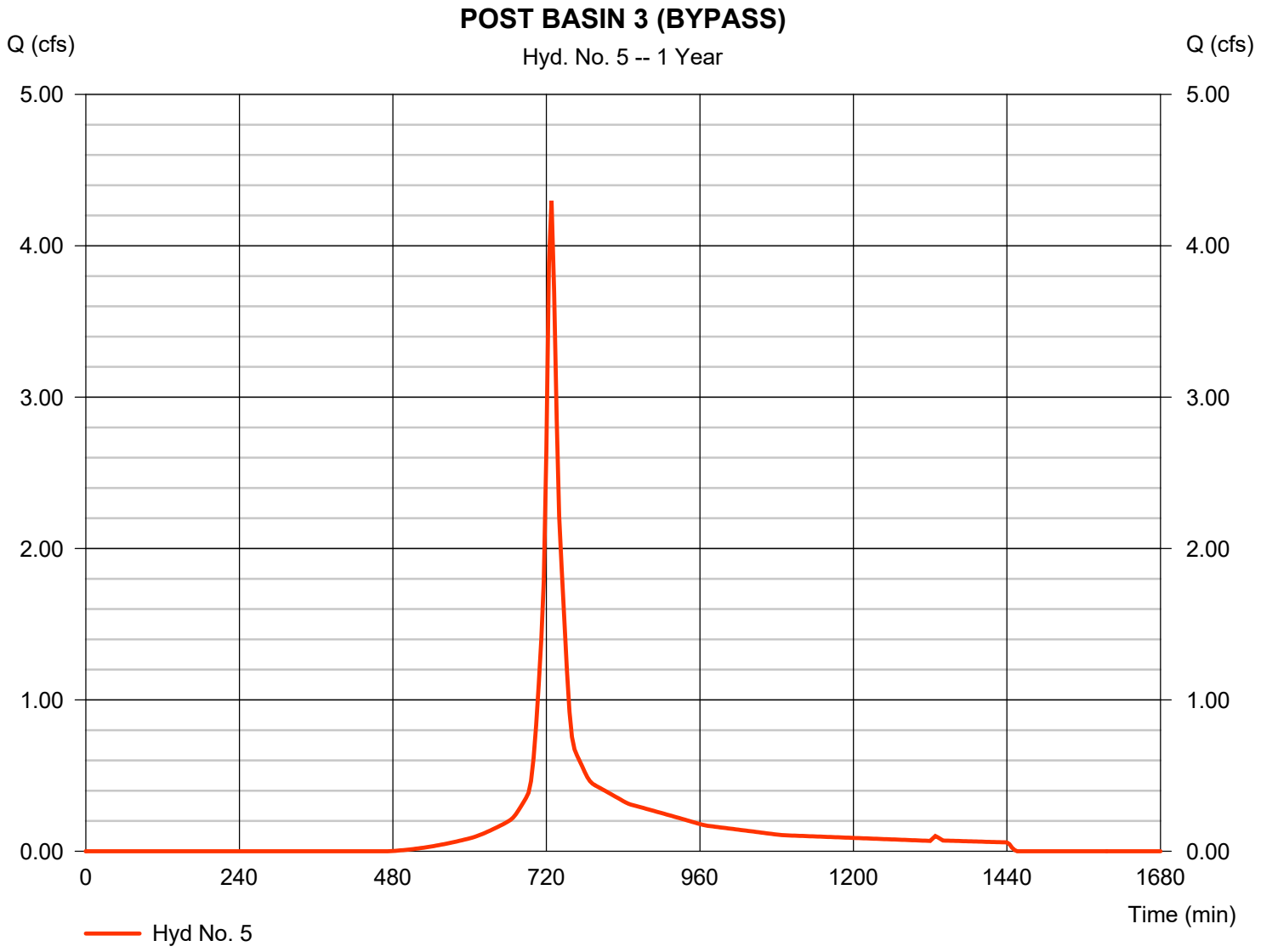
Hydrograph Report

Hyd. No. 5

POST BASIN 3 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.297 cfs
Storm frequency	=	1 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	15,767 cuft
Drainage area	=	2.210 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	3.78 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 98) + (1.470 x 76)] / 2.210



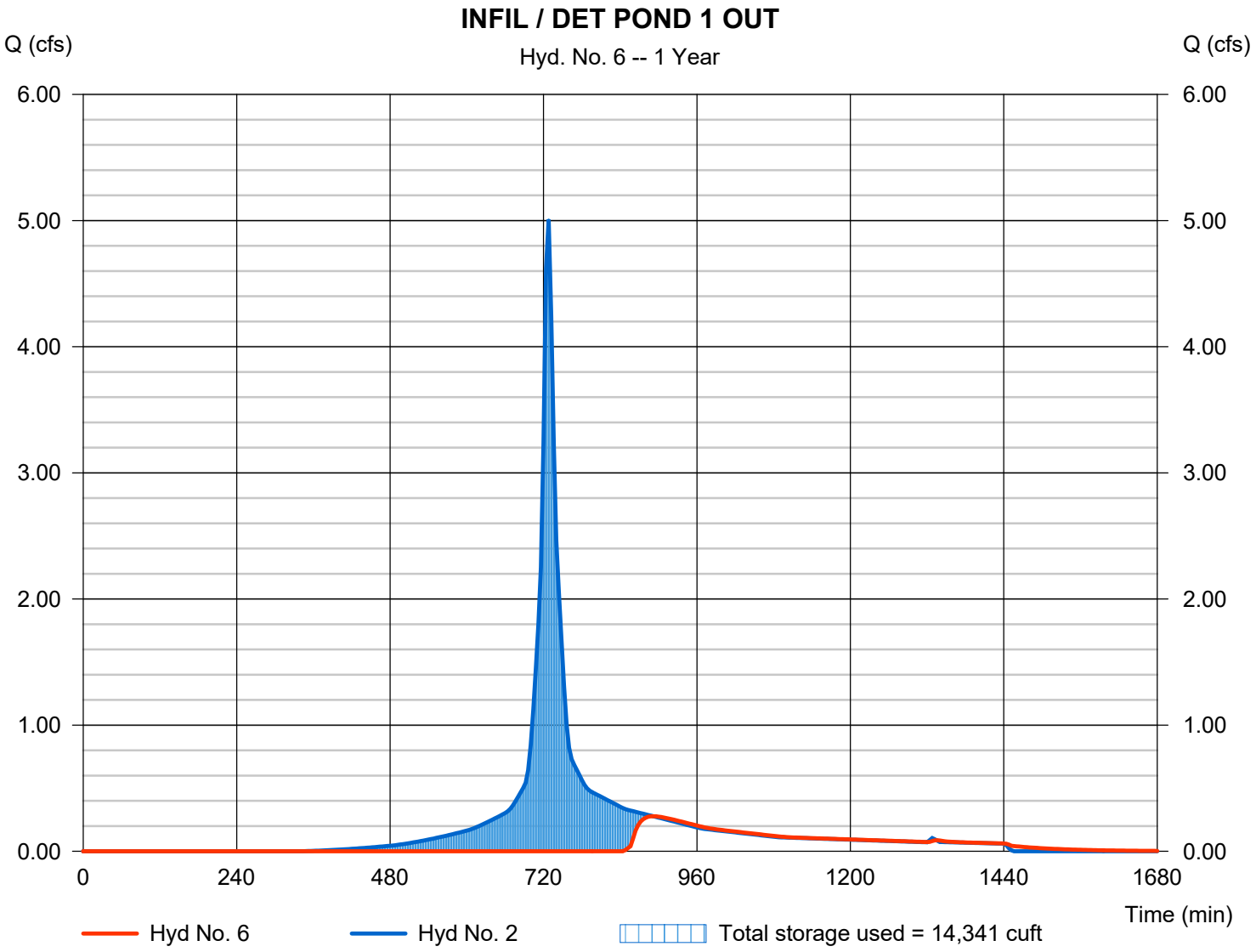
Hydrograph Report

Hyd. No. 6

INFIL / DET POND 1 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	0.278 cfs
Storm frequency	=	1 yrs	Time to peak	=	892 min
Time interval	=	4 min	Hyd. volume	=	4,732 cuft
Inflow hyd. No.	=	2 - POST BASIN 1	Max. Elevation	=	35.03 ft
Reservoir name	=	INFIL / DET POND 1	Max. Storage	=	14,341 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - INFIL / DET POND 1

Pond Data

Trapezoid -Bottom L x W = 413.0 x 42.7 ft, Side slope = 0.00:1, Bottom elev. = 33.00 ft, Depth = 3.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	33.00	17,635	0	0
0.30	33.30	17,635	2,116	2,116
0.60	33.60	17,635	2,116	4,232
0.90	33.90	17,635	2,116	6,349
1.20	34.20	17,635	2,116	8,465
1.50	34.50	17,635	2,116	10,581
1.80	34.80	17,635	2,116	12,697
2.10	35.10	17,635	2,116	14,813
2.40	35.40	17,635	2,116	16,930
2.70	35.70	17,635	2,116	19,046
3.00	36.00	17,635	2,116	21,162
3.01	36.01	00	-1,035	20,128

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.50
Span (in)	= 18.00	0.00	0.00	0.50
No. Barrels	= 2	0	0	3288
Invert El. (ft)	= 33.26	0.00	0.00	35.00
Length (ft)	= 221.00	0.00	0.00	0.33
Slope (%)	= 0.29	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	Yes

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 20.00	0.00	0.00	0.00
Crest El. (ft)	= 35.60	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	33.00	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.30	2,116	33.30	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.60	4,232	33.60	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.90	6,349	33.90	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.20	8,465	34.20	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.50	10,581	34.50	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.80	12,697	34.80	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
2.10	14,813	35.10	1.38 ic	---	---	1.38	0.00	---	---	---	---	---	1.379
2.40	16,930	35.40	11.03 oc	---	---	11.03	0.00	---	---	---	---	---	11.03
2.70	19,046	35.70	13.15 oc	---	---	11.04	2.11	---	---	---	---	---	13.15
3.00	21,162	36.00	15.89 oc	---	---	2.72	13.17 s	---	---	---	---	---	15.88
3.01	20,128	36.01	15.96 oc	---	---	2.57	13.38 s	---	---	---	---	---	15.95

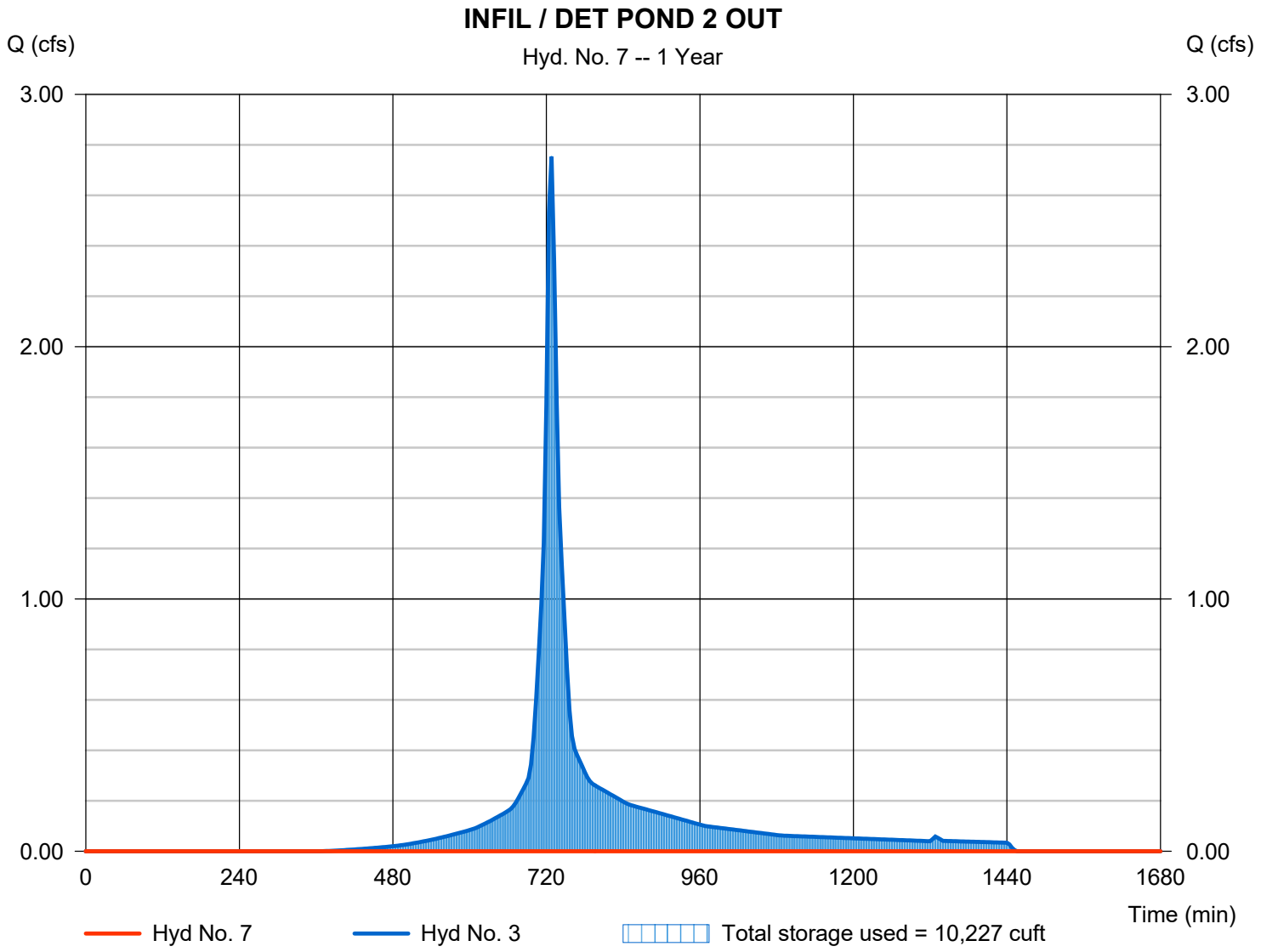
Hydrograph Report

Hyd. No. 7

INFIL / DET POND 2 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	1 yrs	Time to peak	=	n/a
Time interval	=	4 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	3 - POST BASIN 2	Max. Elevation	=	33.92 ft
Reservoir name	=	INFIL / DET POND 2	Max. Storage	=	10,227 cuft

Storage Indication method used.



Pond Report

Pond No. 2 - INFIL / DET POND 2

Pond Data

Trapezoid -Bottom L x W = 432.0 x 25.7 ft, Side slope = 0.00:1, Bottom elev. = 33.00 ft, Depth = 2.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	33.00	11,089	0	0
0.25	33.25	11,089	2,772	2,772
0.50	33.50	11,089	2,772	5,545
0.75	33.75	11,089	2,772	8,317
1.00	34.00	11,089	2,772	11,089
1.25	34.25	11,089	2,772	13,862
1.50	34.50	11,089	2,772	16,634
1.75	34.75	11,089	2,772	19,407
2.00	35.00	11,089	2,772	22,179
2.25	35.25	11,089	2,772	24,951
2.50	35.50	11,089	2,772	27,724

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.50
Span (in)	= 18.00	0.00	0.00	0.50
No. Barrels	= 1	0	0	3320
Invert El. (ft)	= 33.05	0.00	0.00	34.65
Length (ft)	= 85.00	0.00	0.00	0.33
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	Yes

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	0.00	0.00
Crest El. (ft)	= 35.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

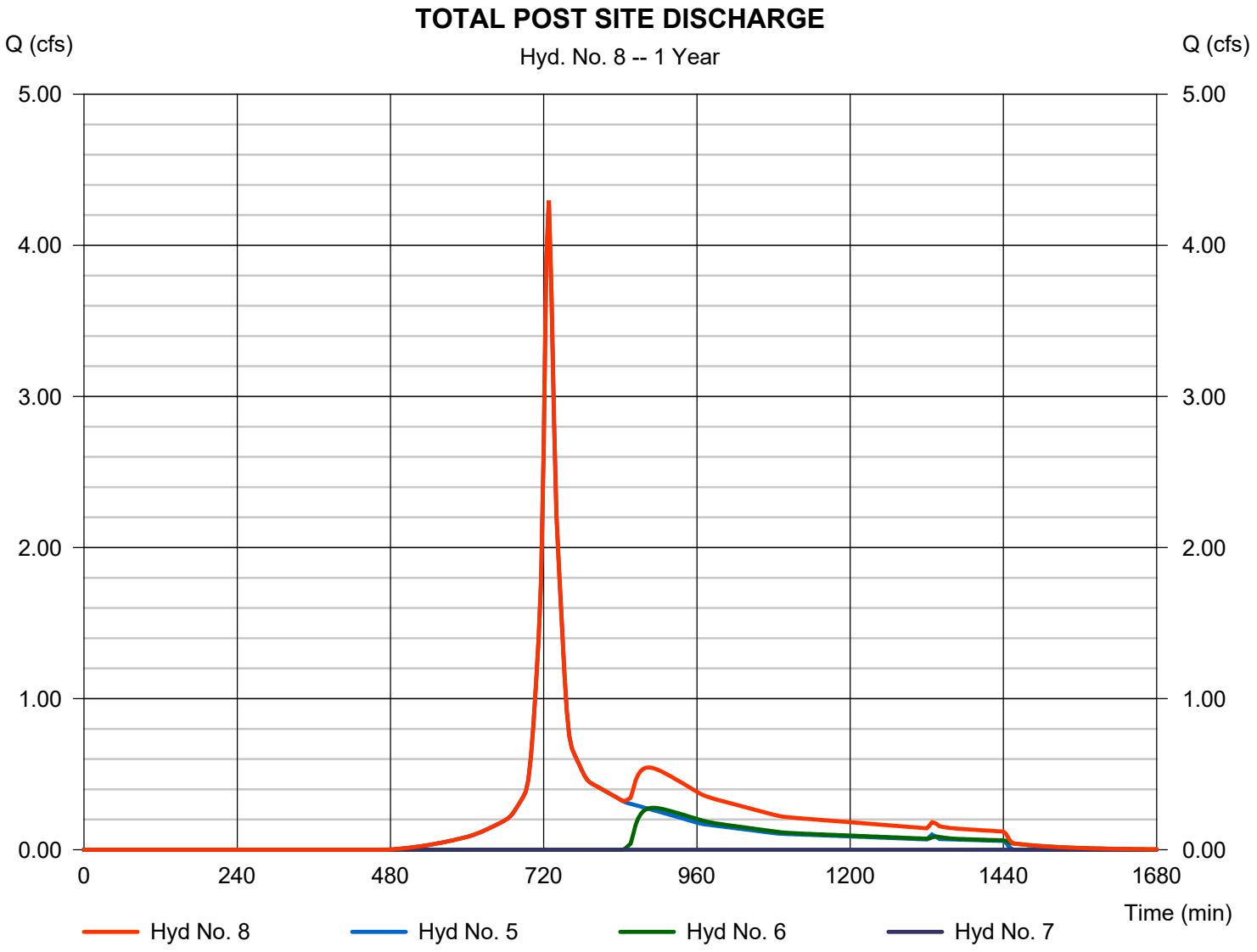
Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	33.00	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.25	2,772	33.25	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.50	5,545	33.50	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.75	8,317	33.75	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.00	11,089	34.00	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.25	13,862	34.25	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.50	16,634	34.50	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.75	19,407	34.75	1.42 ic	---	---	1.39	0.00	---	---	---	---	---	1.392
2.00	22,179	35.00	6.31 oc	---	---	6.31	0.00	---	---	---	---	---	6.308
2.25	24,951	35.25	7.37 oc	---	---	7.37	0.00	---	---	---	---	---	7.373
2.50	27,724	35.50	8.32 oc	---	---	8.32	0.00	---	---	---	---	---	8.321

Hydrograph Report

Hyd. No. 8

TOTAL POST SITE DISCHARGE

Hydrograph type	= Combine	Peak discharge	= 4.297 cfs
Storm frequency	= 1 yrs	Time to peak	= 728 min
Time interval	= 4 min	Hyd. volume	= 20,499 cuft
Inflow hyds.	= 5, 6, 7	Contrib. drain. area	= 2.210 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	11.14	3	735	53,153	------	------	------	PRE BASIN 1 - TOTAL PRE DISCHA
2	SCS Runoff	6.602	4	728	24,977	------	------	------	POST BASIN 1
3	SCS Runoff	3.656	4	728	13,746	------	------	------	POST BASIN 2
4	Reservoir	10.58	3	738	29,966	1	32.16	6,520	SD4 OUT
5	SCS Runoff	5.942	4	728	21,908	------	------	------	POST BASIN 3 (BYPASS)
6	Reservoir	1.370	4	756	11,005	2	35.10	14,810	INFIL / DET POND 1 OUT
7	Reservoir	0.000	4	n/a	0	3	34.24	13,746	INFIL / DET POND 2 OUT
8	Combine	5.942	4	728	32,913	5, 6, 7	------	------	TOTAL POST SITE DISCHARGE

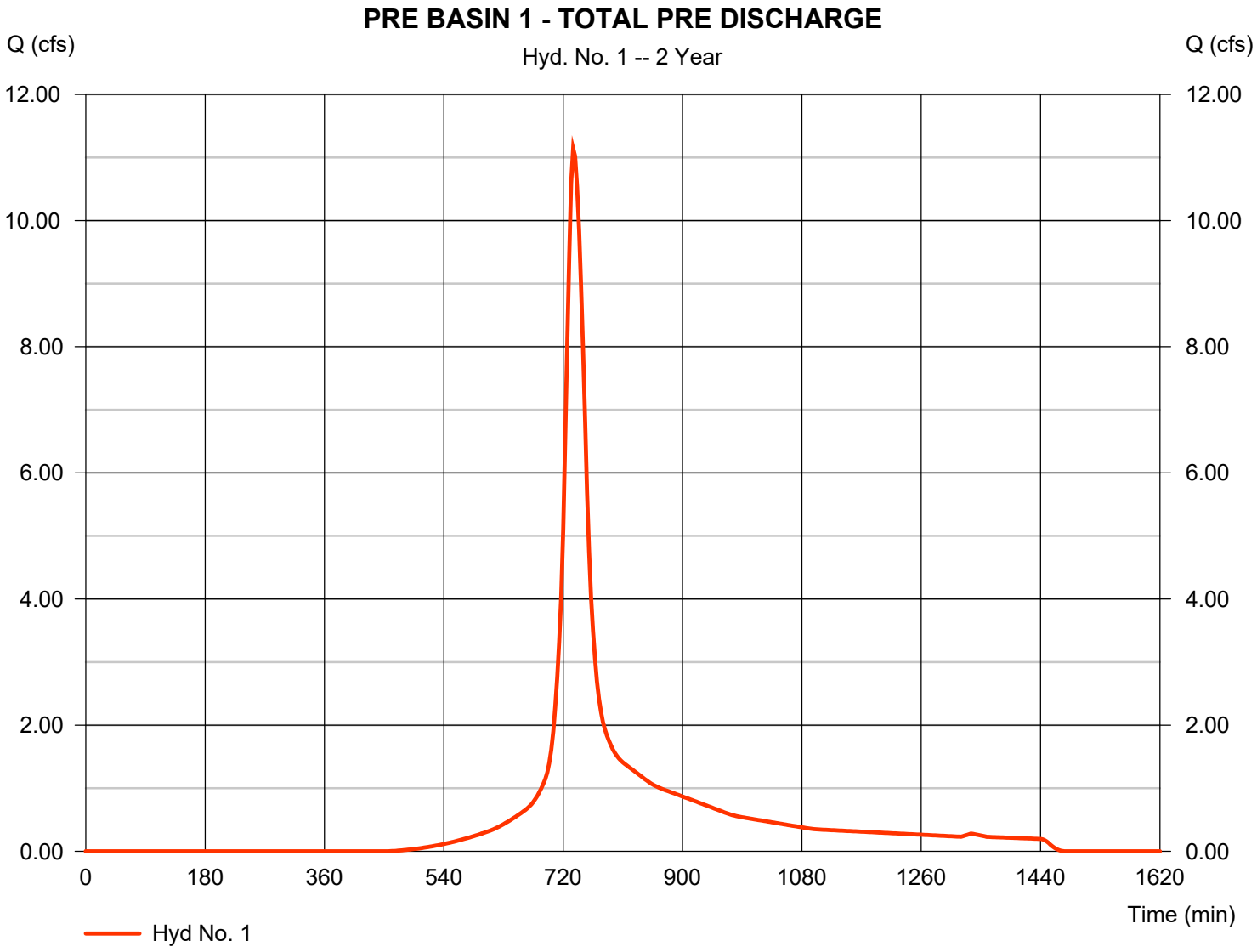
Hydrograph Report

Hyd. No. 1

PRE BASIN 1 - TOTAL PRE DISCHARGE

Hydrograph type	= SCS Runoff	Peak discharge	= 11.14 cfs
Storm frequency	= 2 yrs	Time to peak	= 735 min
Time interval	= 3 min	Hyd. volume	= 53,153 cuft
Drainage area	= 5.500 ac	Curve number	= 81*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.00 min
Total precip.	= 4.71 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.740 x 98) + (4.760 x 78)] / 5.500



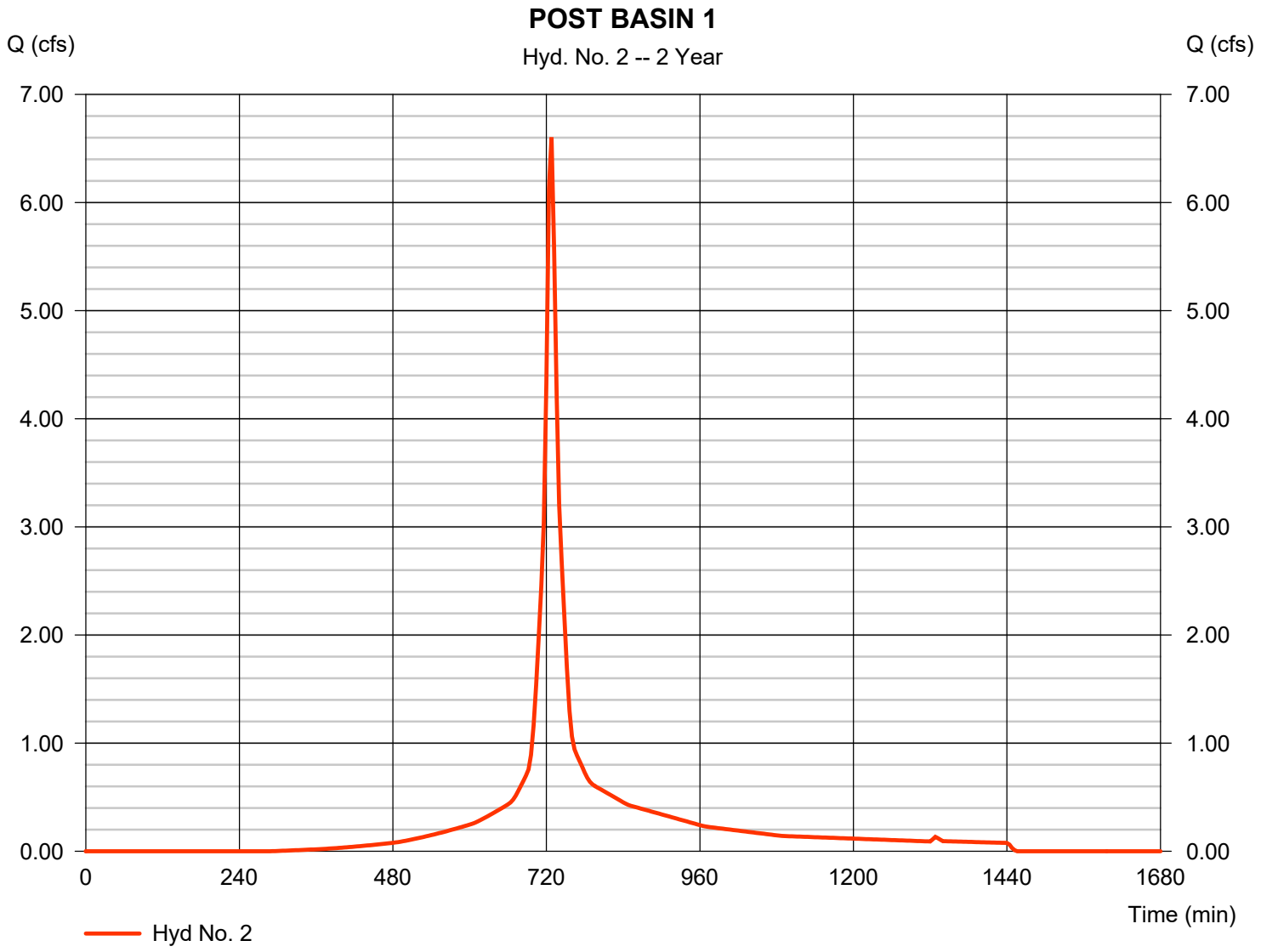
Hydrograph Report

Hyd. No. 2

POST BASIN 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.602 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	24,977 cuft
Drainage area	=	2.100 ac	Curve number	=	89*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.60 min
Total precip.	=	4.71 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.700 x 98) + (0.400 x 50)] / 2.100



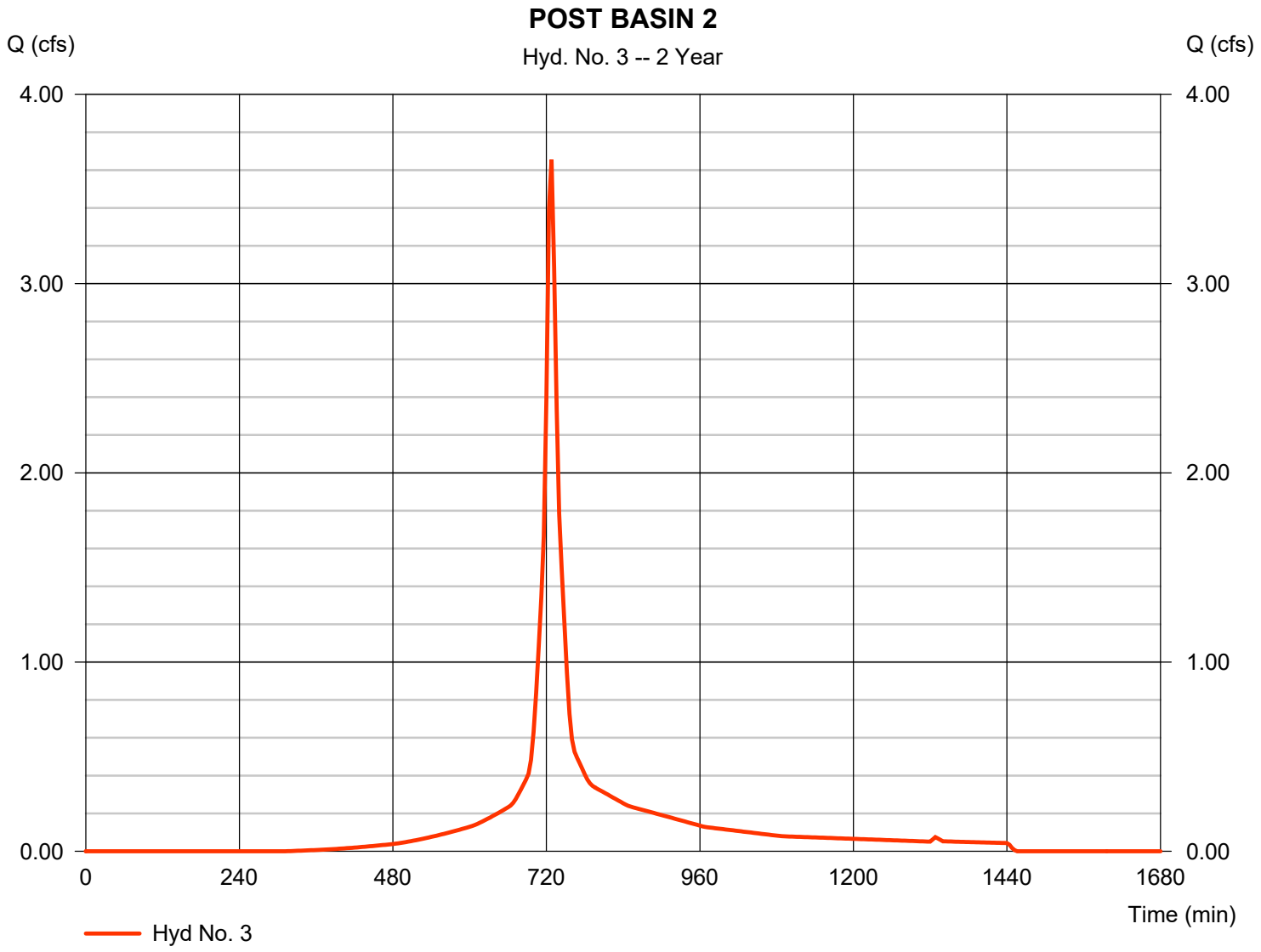
Hydrograph Report

Hyd. No. 3

POST BASIN 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.656 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	13,746 cuft
Drainage area	=	1.190 ac	Curve number	=	88*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.70 min
Total precip.	=	4.71 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.250 x 50) + (0.940 x 98)] / 1.190



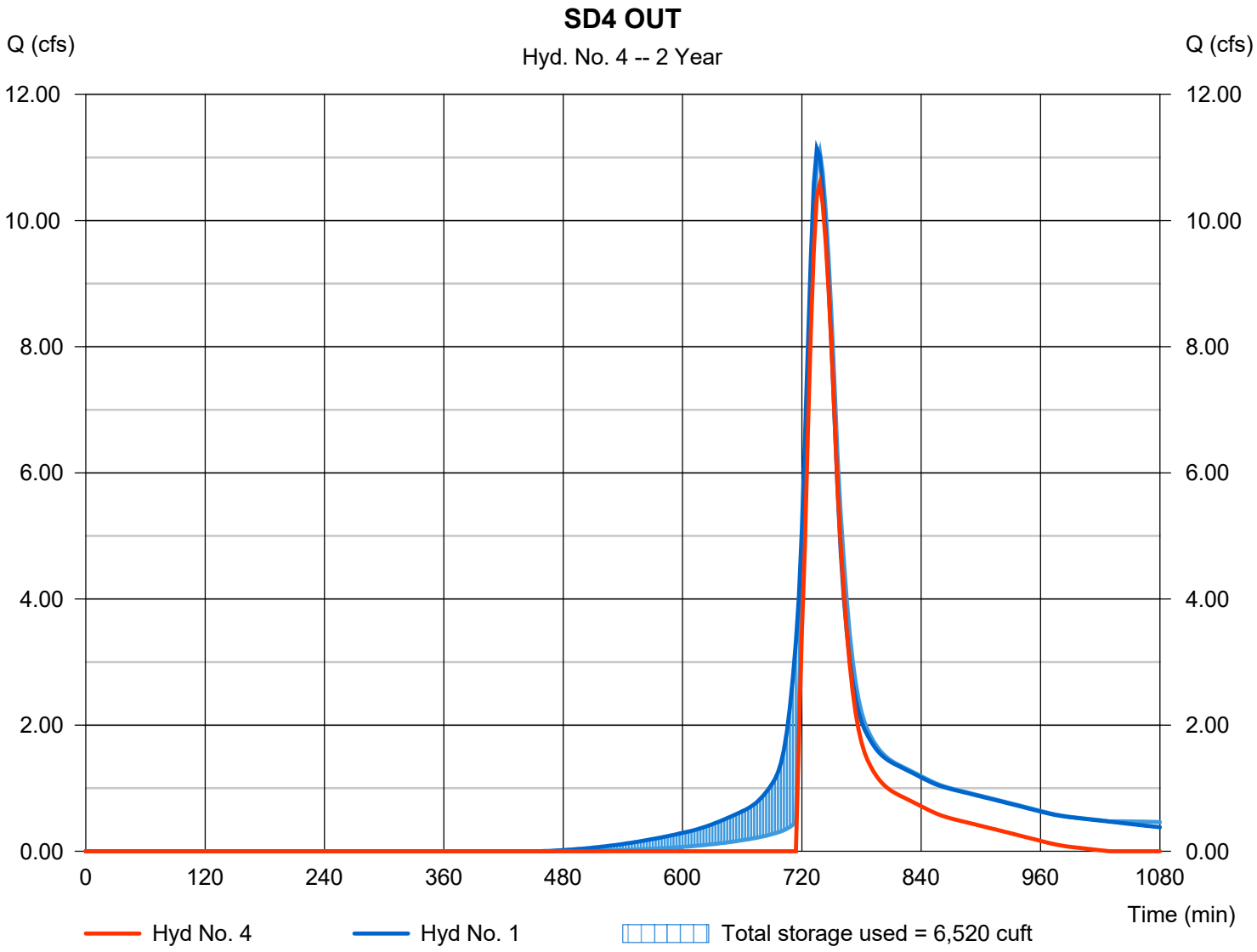
Hydrograph Report

Hyd. No. 4

SD4 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	10.58 cfs
Storm frequency	=	2 yrs	Time to peak	=	738 min
Time interval	=	3 min	Hyd. volume	=	29,966 cuft
Inflow hyd. No.	=	1 - PRE BASIN 1 - TOTAL PRE DISCHARGE	Max. Elevation	=	32.16 ft
Reservoir name	=	SD4	Max. Storage	=	6,520 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



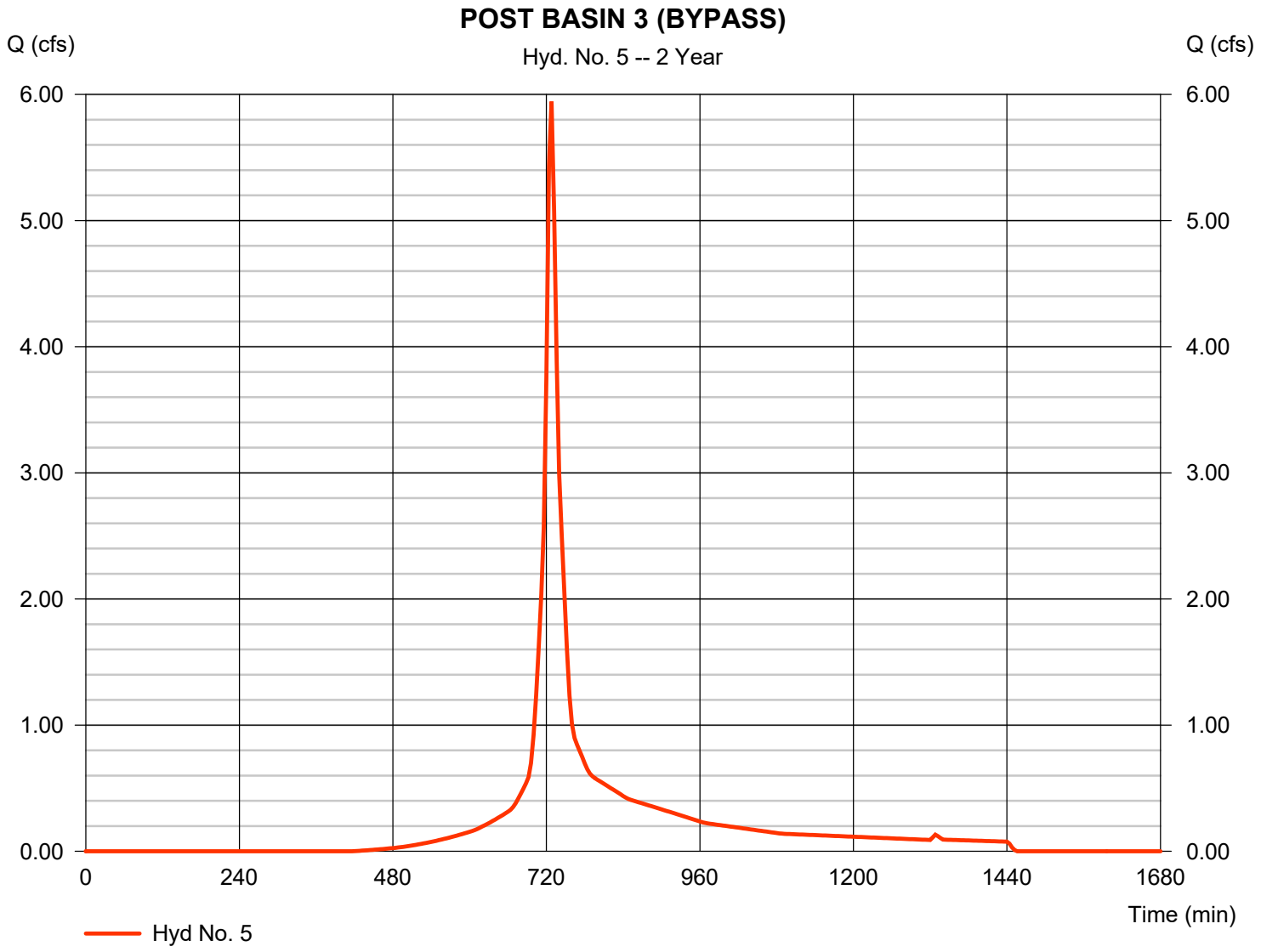
Hydrograph Report

Hyd. No. 5

POST BASIN 3 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.942 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	21,908 cuft
Drainage area	=	2.210 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	4.71 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 98) + (1.470 x 76)] / 2.210



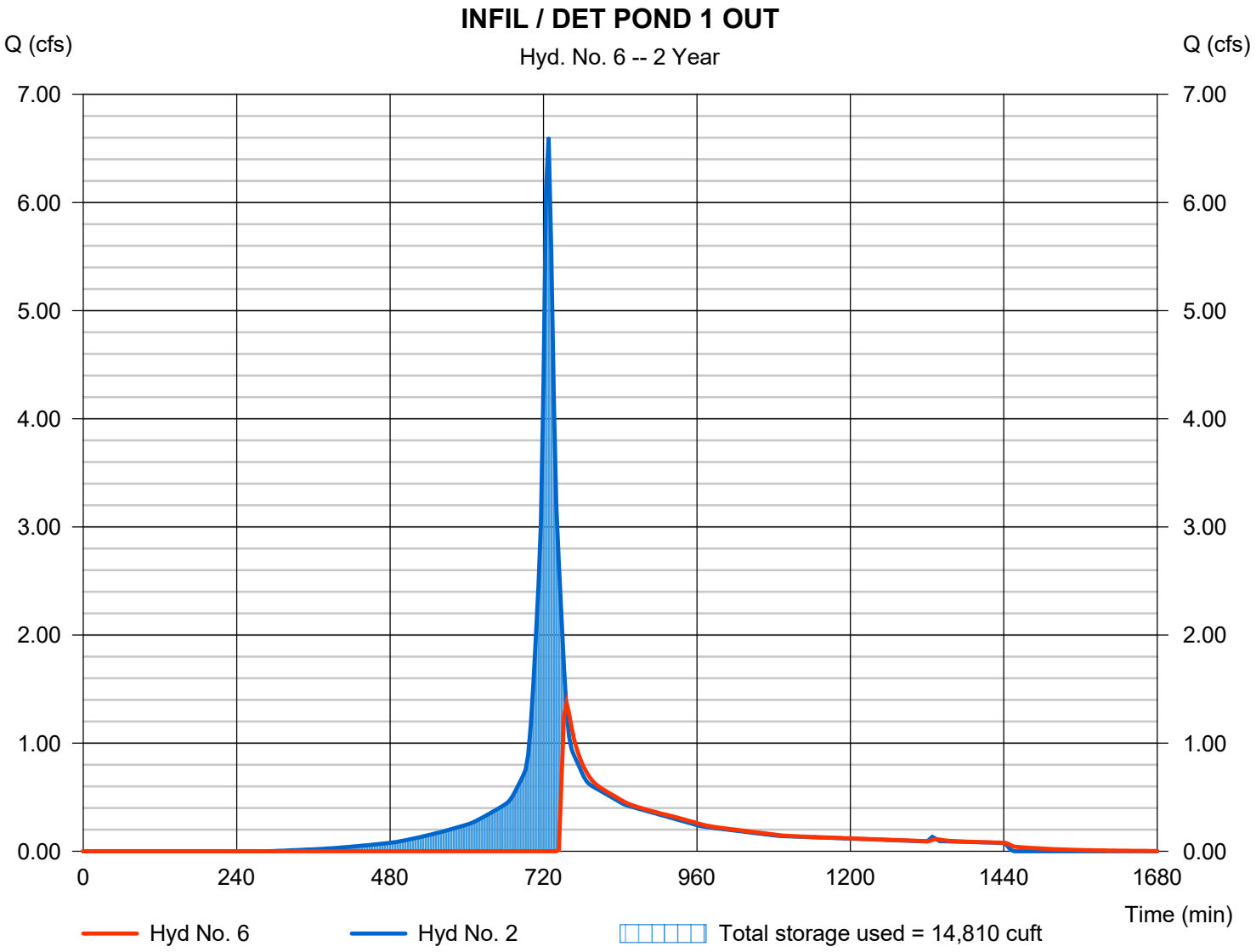
Hydrograph Report

Hyd. No. 6

INFIL / DET POND 1 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	1.370 cfs
Storm frequency	=	2 yrs	Time to peak	=	756 min
Time interval	=	4 min	Hyd. volume	=	11,005 cuft
Inflow hyd. No.	=	2 - POST BASIN 1	Max. Elevation	=	35.10 ft
Reservoir name	=	INFIL / DET POND 1	Max. Storage	=	14,810 cuft

Storage Indication method used.



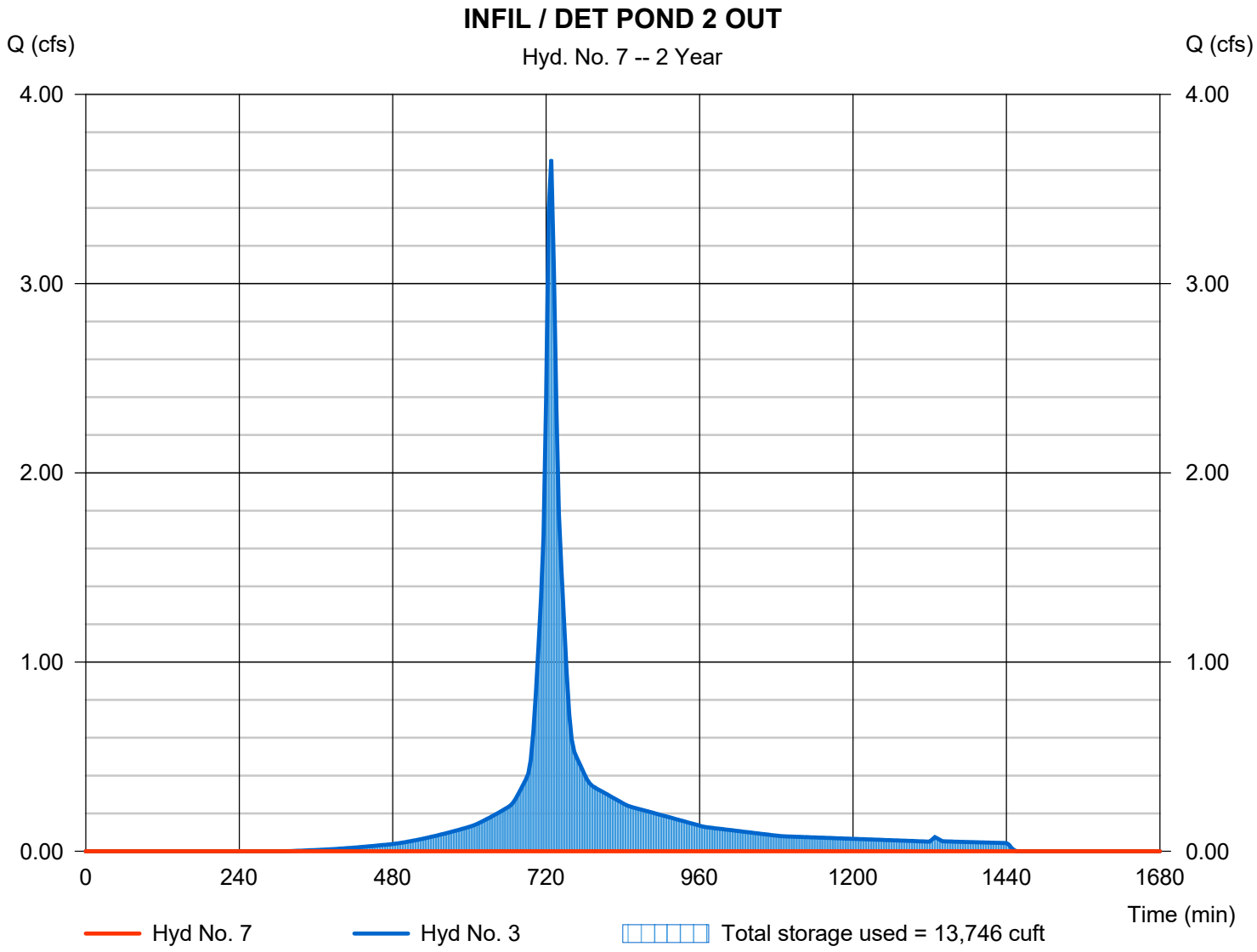
Hydrograph Report

Hyd. No. 7

INFIL / DET POND 2 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	4 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	3 - POST BASIN 2	Max. Elevation	=	34.24 ft
Reservoir name	=	INFIL / DET POND 2	Max. Storage	=	13,746 cuft

Storage Indication method used.

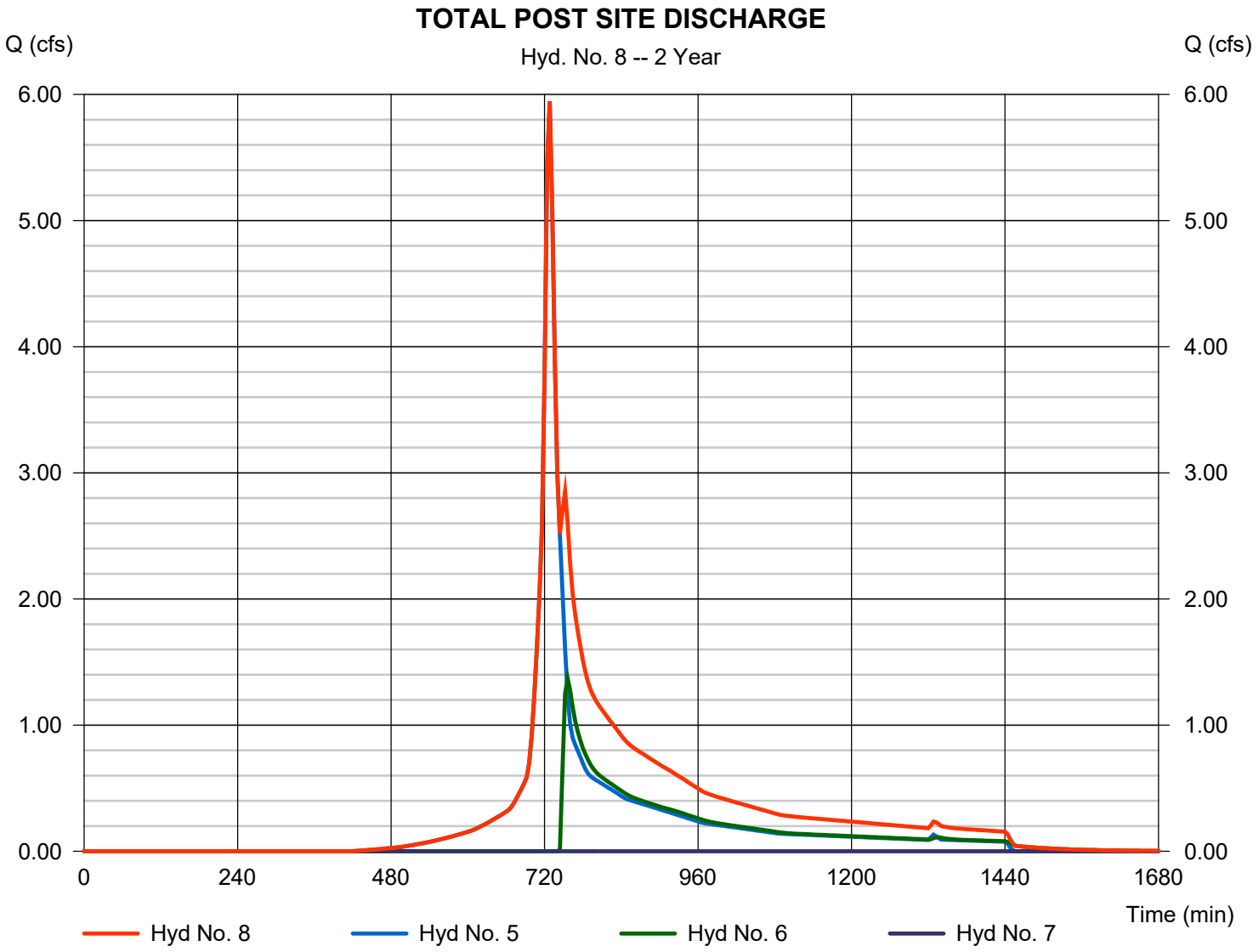


Hydrograph Report

Hyd. No. 8

TOTAL POST SITE DISCHARGE

Hydrograph type	= Combine	Peak discharge	= 5.942 cfs
Storm frequency	= 2 yrs	Time to peak	= 728 min
Time interval	= 4 min	Hyd. volume	= 32,913 cuft
Inflow hyds.	= 5, 6, 7	Contrib. drain. area	= 2.210 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	15.44	3	735	73,829	------	------	------	PRE BASIN 1 - TOTAL PRE DISCHA
2	SCS Runoff	8.631	4	728	33,150	------	------	------	POST BASIN 1
3	SCS Runoff	4.808	4	728	18,344	------	------	------	POST BASIN 2
4	Reservoir	14.81	3	738	47,373	1	32.20	6,878	SD4 OUT
5	SCS Runoff	8.079	4	728	30,073	------	------	------	POST BASIN 3 (BYPASS)
6	Reservoir	5.132	4	736	19,178	2	35.25	15,801	INFIL / DET POND 1 OUT
7	Reservoir	0.020	4	1448	44	3	34.65	18,329	INFIL / DET POND 2 OUT
8	Combine	10.34	4	736	49,296	5, 6, 7	------	------	TOTAL POST SITE DISCHARGE

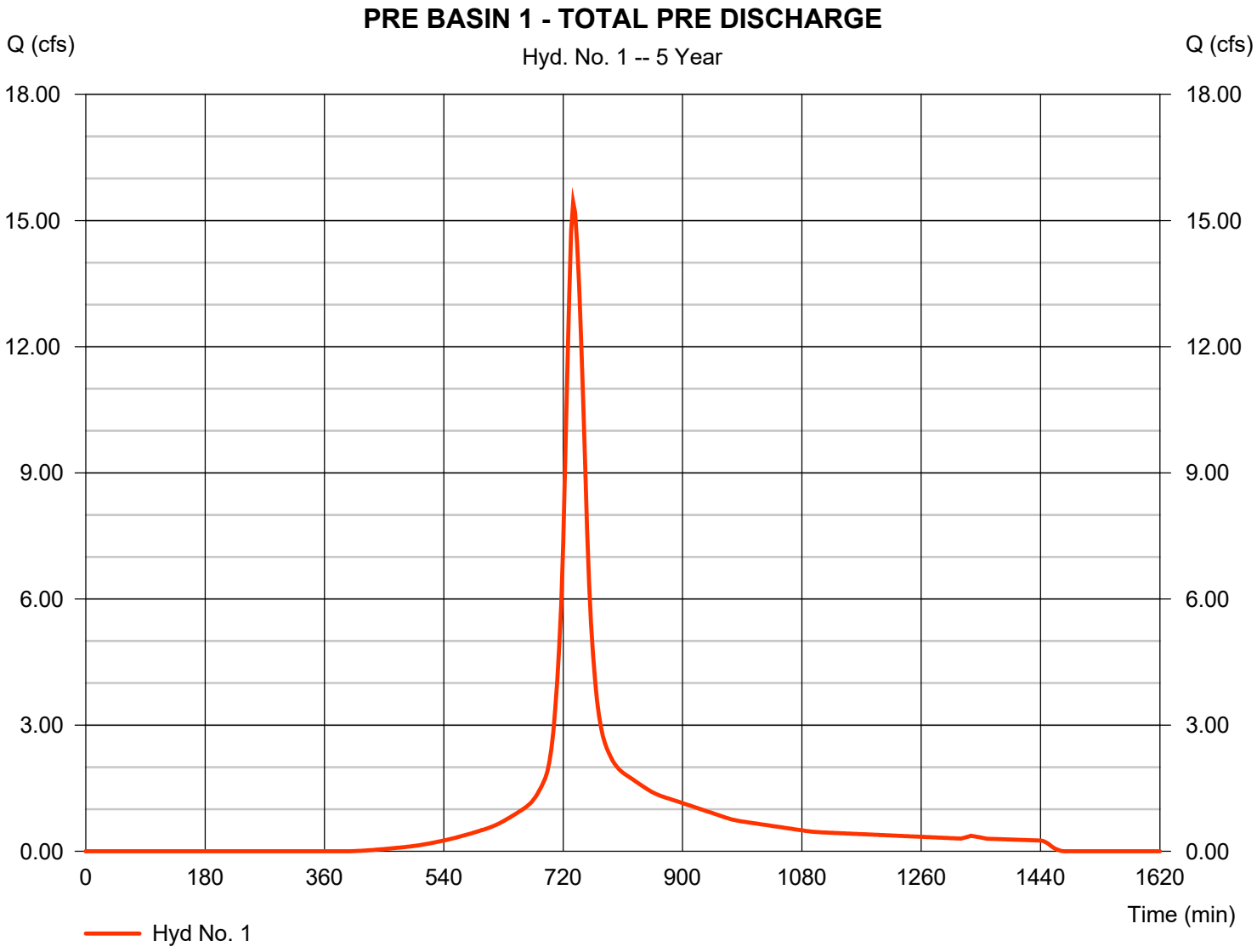
Hydrograph Report

Hyd. No. 1

PRE BASIN 1 - TOTAL PRE DISCHARGE

Hydrograph type	= SCS Runoff	Peak discharge	= 15.44 cfs
Storm frequency	= 5 yrs	Time to peak	= 735 min
Time interval	= 3 min	Hyd. volume	= 73,829 cuft
Drainage area	= 5.500 ac	Curve number	= 81*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.00 min
Total precip.	= 5.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.740 x 98) + (4.760 x 78)] / 5.500



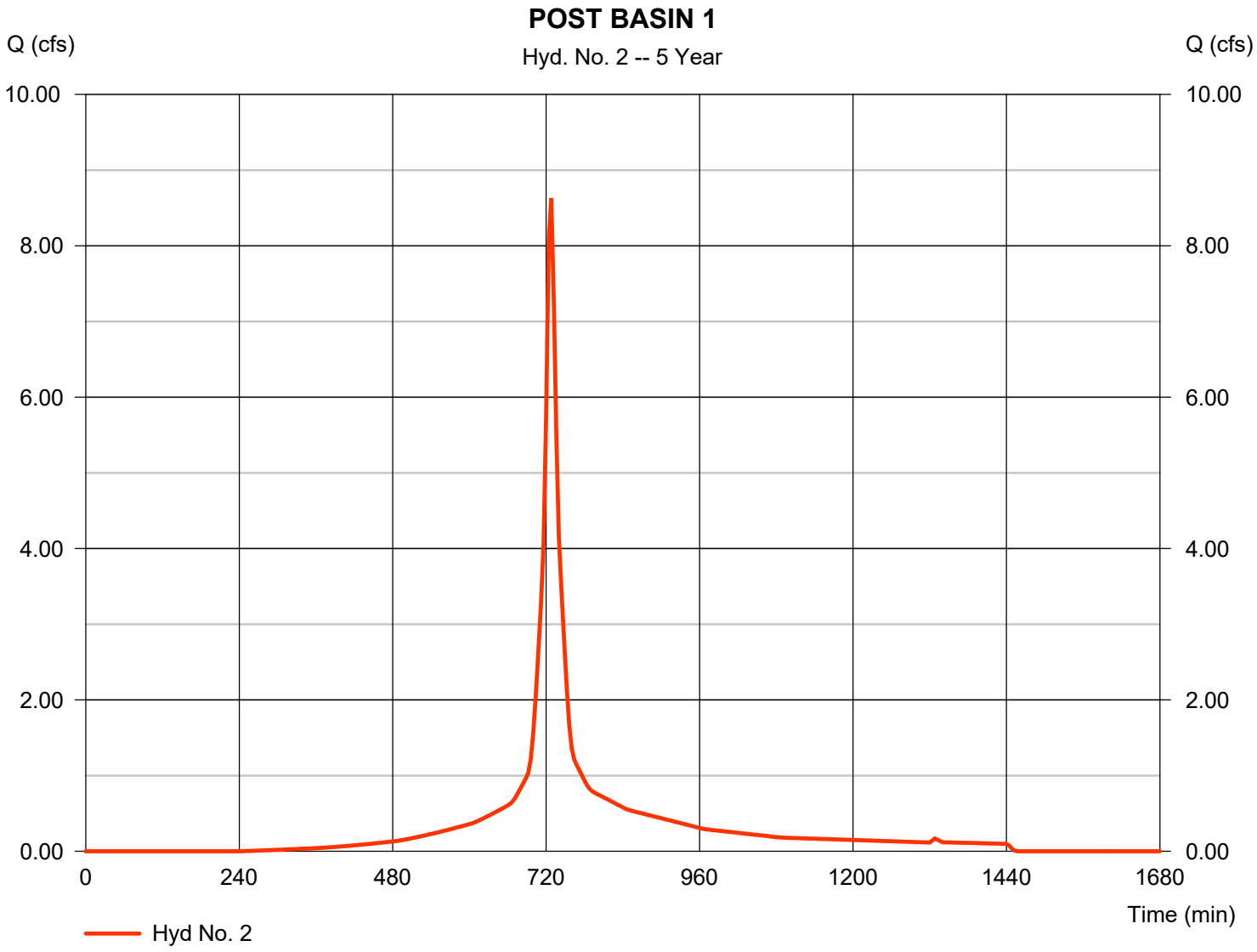
Hydrograph Report

Hyd. No. 2

POST BASIN 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.631 cfs
Storm frequency	=	5 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	33,150 cuft
Drainage area	=	2.100 ac	Curve number	=	89*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.60 min
Total precip.	=	5.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.700 x 98) + (0.400 x 50)] / 2.100



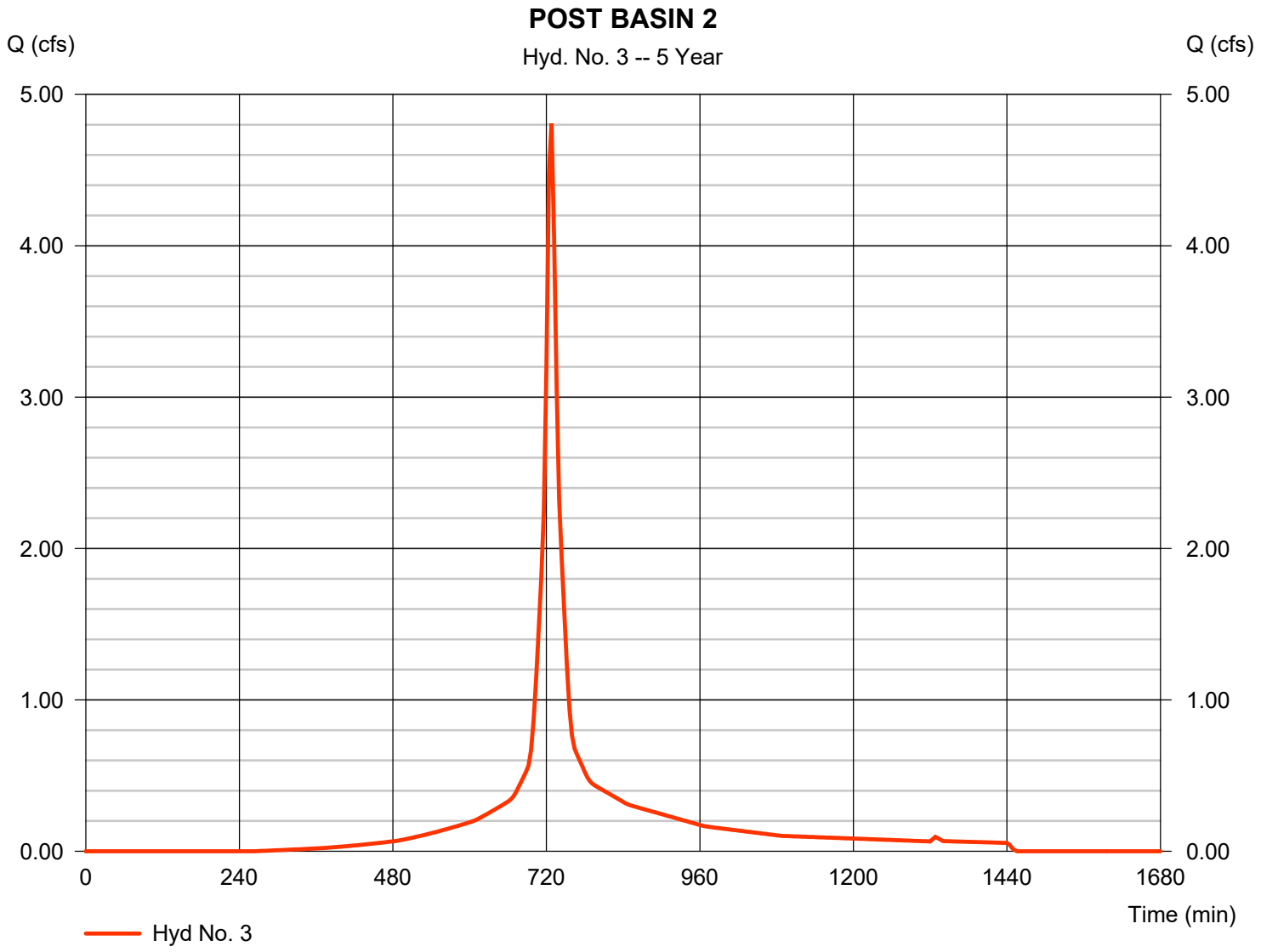
Hydrograph Report

Hyd. No. 3

POST BASIN 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.808 cfs
Storm frequency	=	5 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	18,344 cuft
Drainage area	=	1.190 ac	Curve number	=	88*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.70 min
Total precip.	=	5.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.250 x 50) + (0.940 x 98)] / 1.190



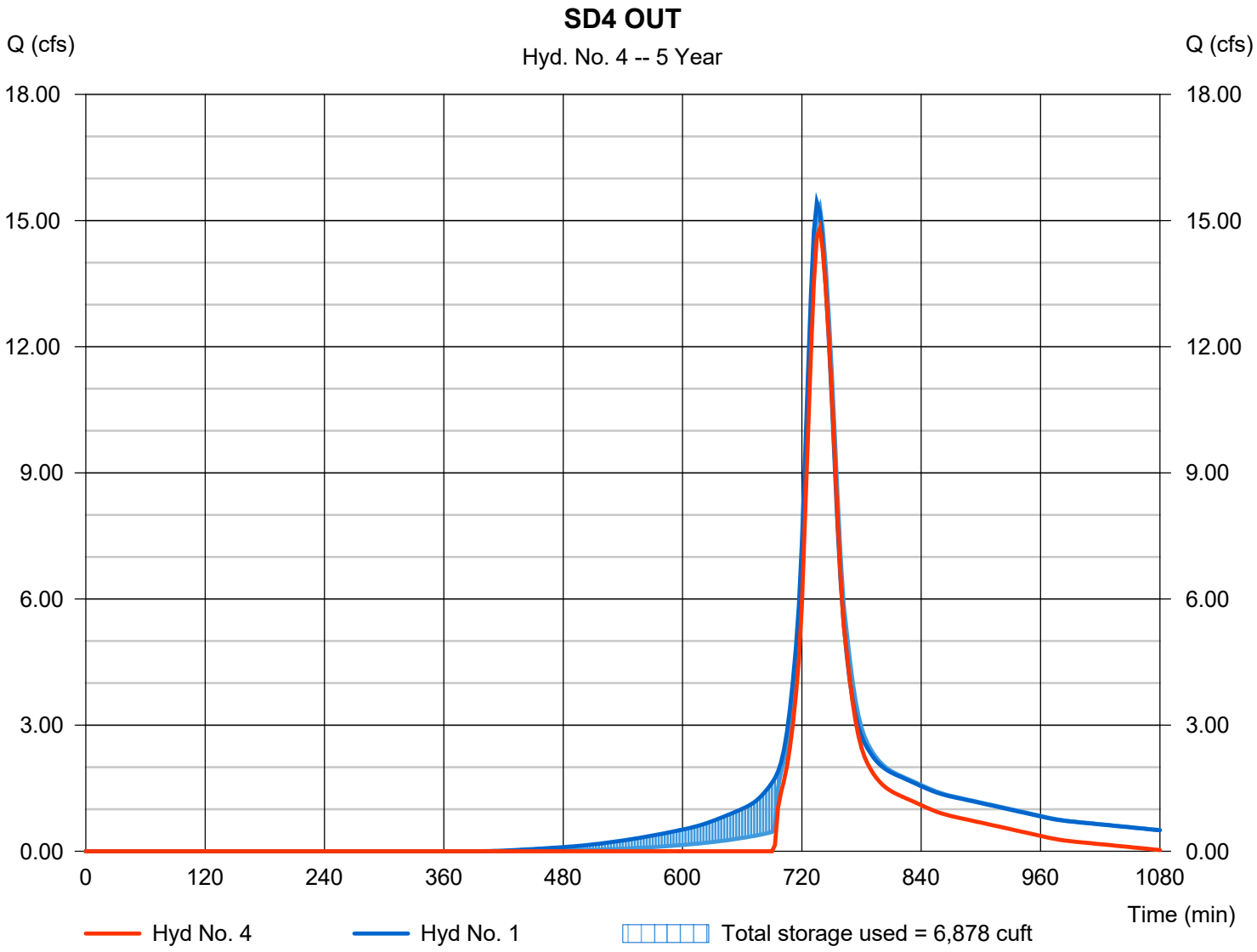
Hydrograph Report

Hyd. No. 4

SD4 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	14.81 cfs
Storm frequency	=	5 yrs	Time to peak	=	738 min
Time interval	=	3 min	Hyd. volume	=	47,373 cuft
Inflow hyd. No.	=	1 - PRE BASIN 1 - TOTAL PRE DISCHARGE	Max. Elevation	=	32.20 ft
Reservoir name	=	SD4	Max. Storage	=	6,878 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



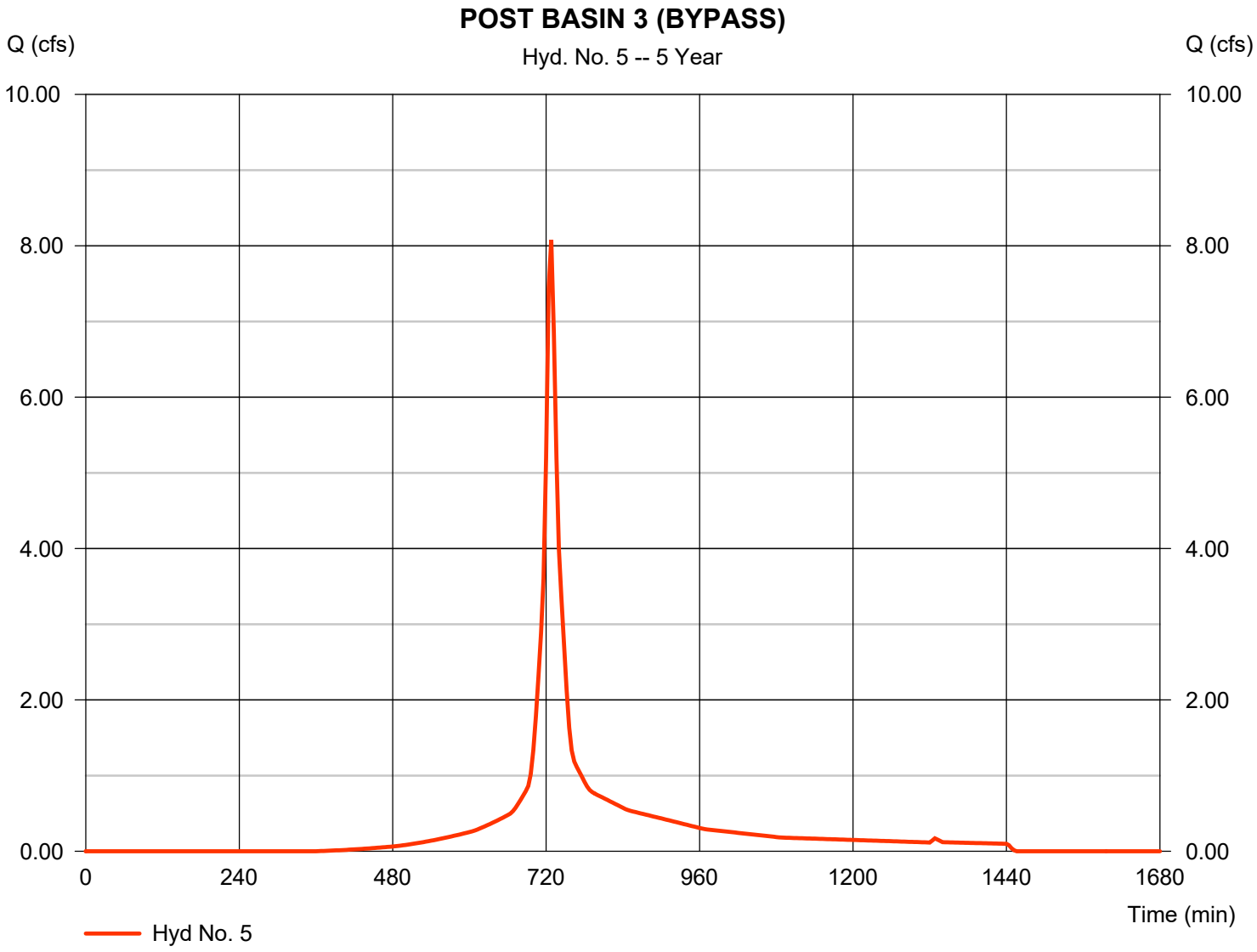
Hydrograph Report

Hyd. No. 5

POST BASIN 3 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.079 cfs
Storm frequency	=	5 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	30,073 cuft
Drainage area	=	2.210 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	5.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 98) + (1.470 x 76)] / 2.210



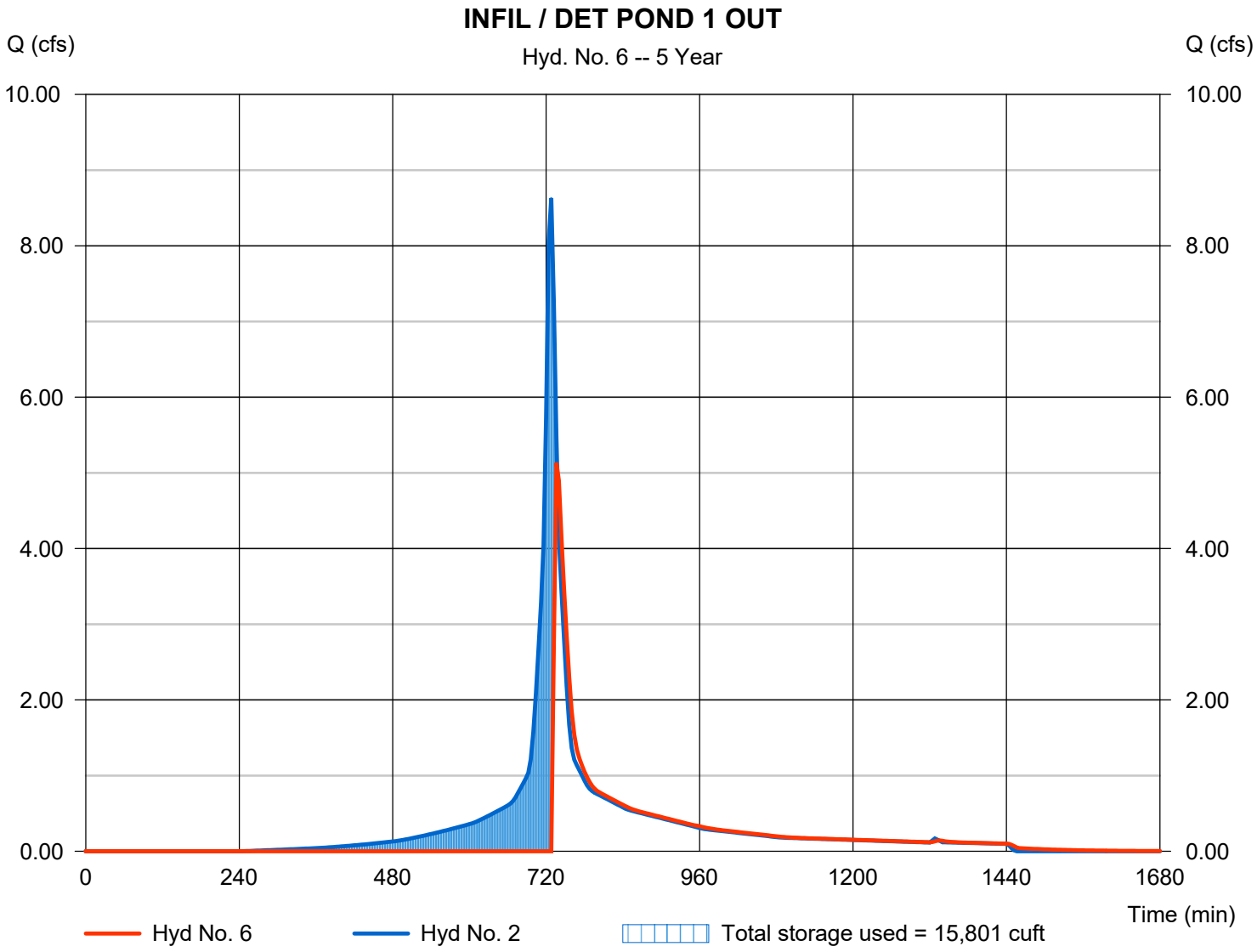
Hydrograph Report

Hyd. No. 6

INFIL / DET POND 1 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	5.132 cfs
Storm frequency	=	5 yrs	Time to peak	=	736 min
Time interval	=	4 min	Hyd. volume	=	19,178 cuft
Inflow hyd. No.	=	2 - POST BASIN 1	Max. Elevation	=	35.25 ft
Reservoir name	=	INFIL / DET POND 1	Max. Storage	=	15,801 cuft

Storage Indication method used.



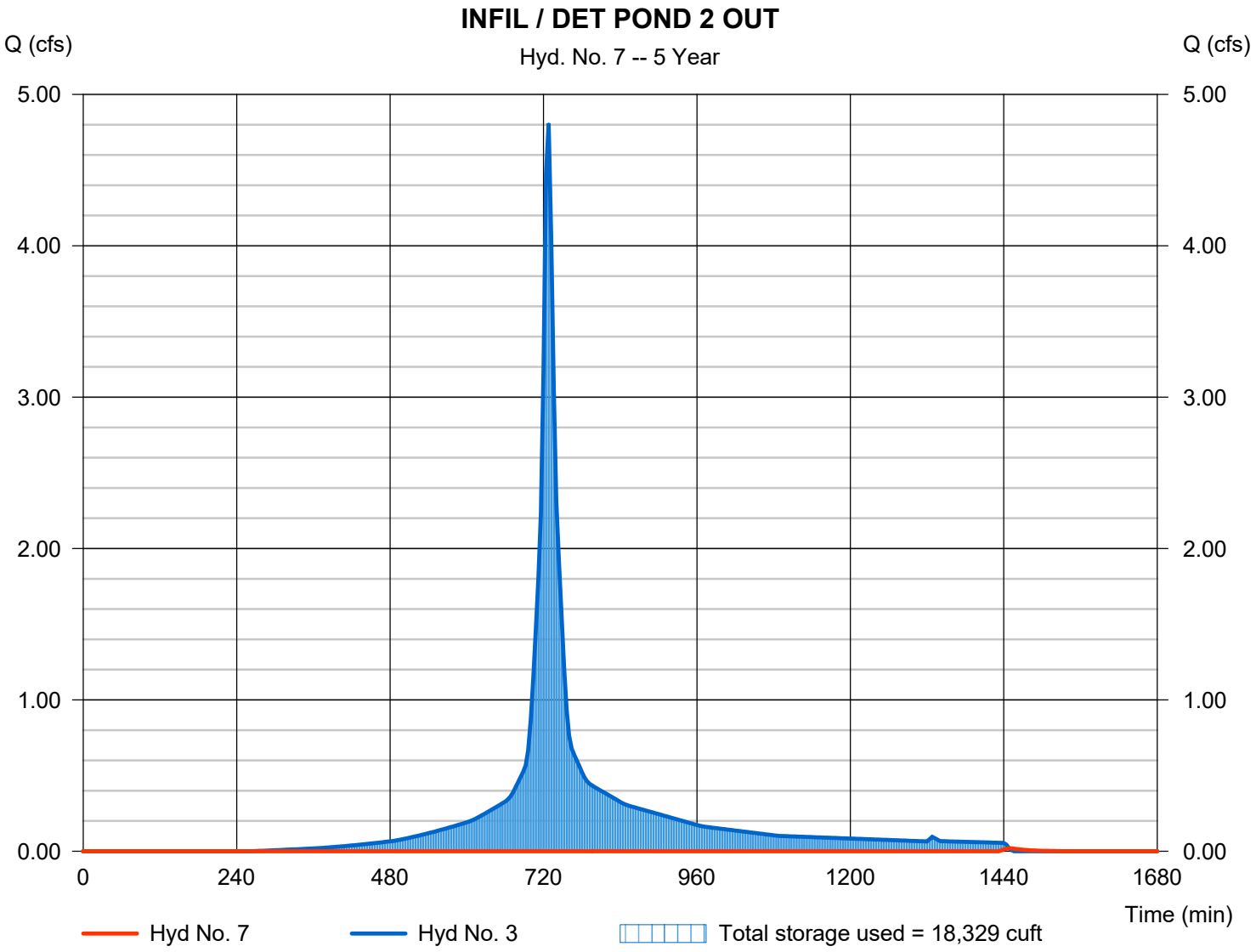
Hydrograph Report

Hyd. No. 7

INFIL / DET POND 2 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	0.020 cfs
Storm frequency	=	5 yrs	Time to peak	=	1448 min
Time interval	=	4 min	Hyd. volume	=	44 cuft
Inflow hyd. No.	=	3 - POST BASIN 2	Max. Elevation	=	34.65 ft
Reservoir name	=	INFIL / DET POND 2	Max. Storage	=	18,329 cuft

Storage Indication method used.

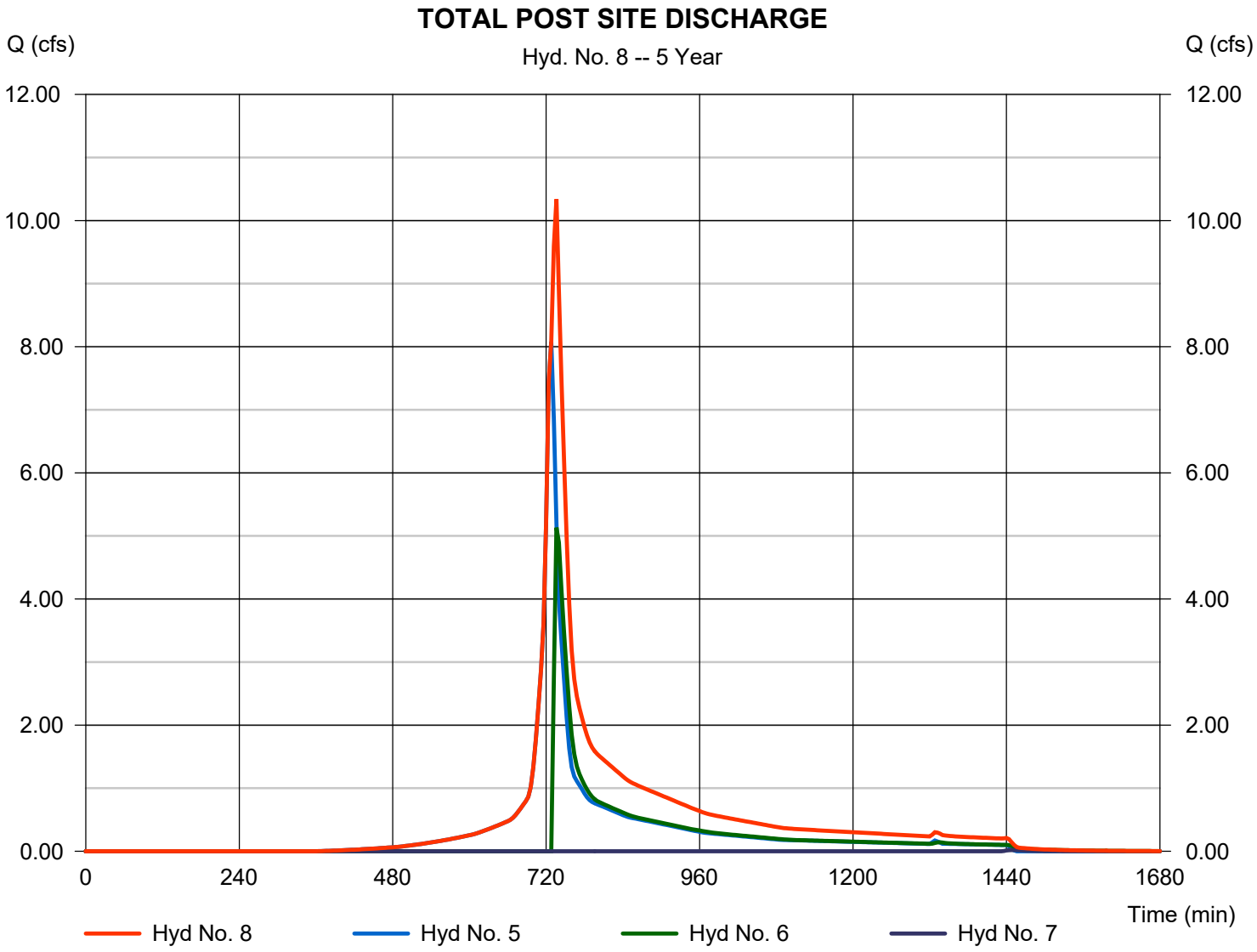


Hydrograph Report

Hyd. No. 8

TOTAL POST SITE DISCHARGE

Hydrograph type	= Combine	Peak discharge	= 10.34 cfs
Storm frequency	= 5 yrs	Time to peak	= 736 min
Time interval	= 4 min	Hyd. volume	= 49,296 cuft
Inflow hyds.	= 5, 6, 7	Contrib. drain. area	= 2.210 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	19.45	3	735	93,534	------	------	------	PRE BASIN 1 - TOTAL PRE DISCHA
2	SCS Runoff	10.49	4	728	40,793	------	------	------	POST BASIN 1
3	SCS Runoff	5.868	4	728	22,652	------	------	------	POST BASIN 2
4	Reservoir	18.77	3	738	64,598	1	32.23	7,138	SD4 OUT
5	SCS Runoff	10.06	4	728	37,814	------	------	------	POST BASIN 3 (BYPASS)
6	Reservoir	9.047	4	732	26,821	2	35.35	16,579	INFIL / DET POND 1 OUT
7	Reservoir	0.241	4	936	4,353	3	34.68	18,633	INFIL / DET POND 2 OUT
8	Combine	17.54	4	732	68,987	5, 6, 7	------	------	TOTAL POST SITE DISCHARGE

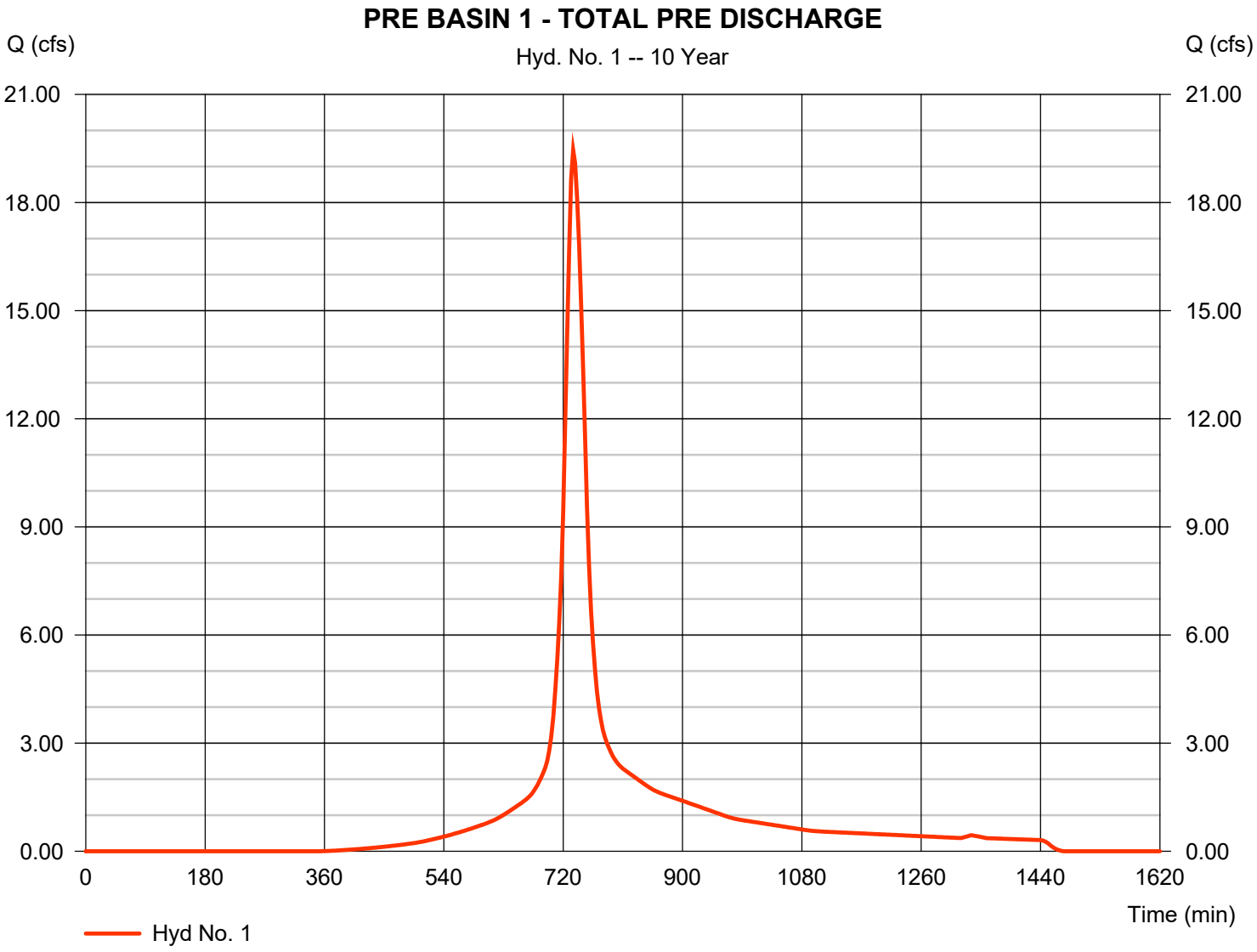
Hydrograph Report

Hyd. No. 1

PRE BASIN 1 - TOTAL PRE DISCHARGE

Hydrograph type	= SCS Runoff	Peak discharge	= 19.45 cfs
Storm frequency	= 10 yrs	Time to peak	= 735 min
Time interval	= 3 min	Hyd. volume	= 93,534 cuft
Drainage area	= 5.500 ac	Curve number	= 81*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.00 min
Total precip.	= 7.00 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.740 x 98) + (4.760 x 78)] / 5.500



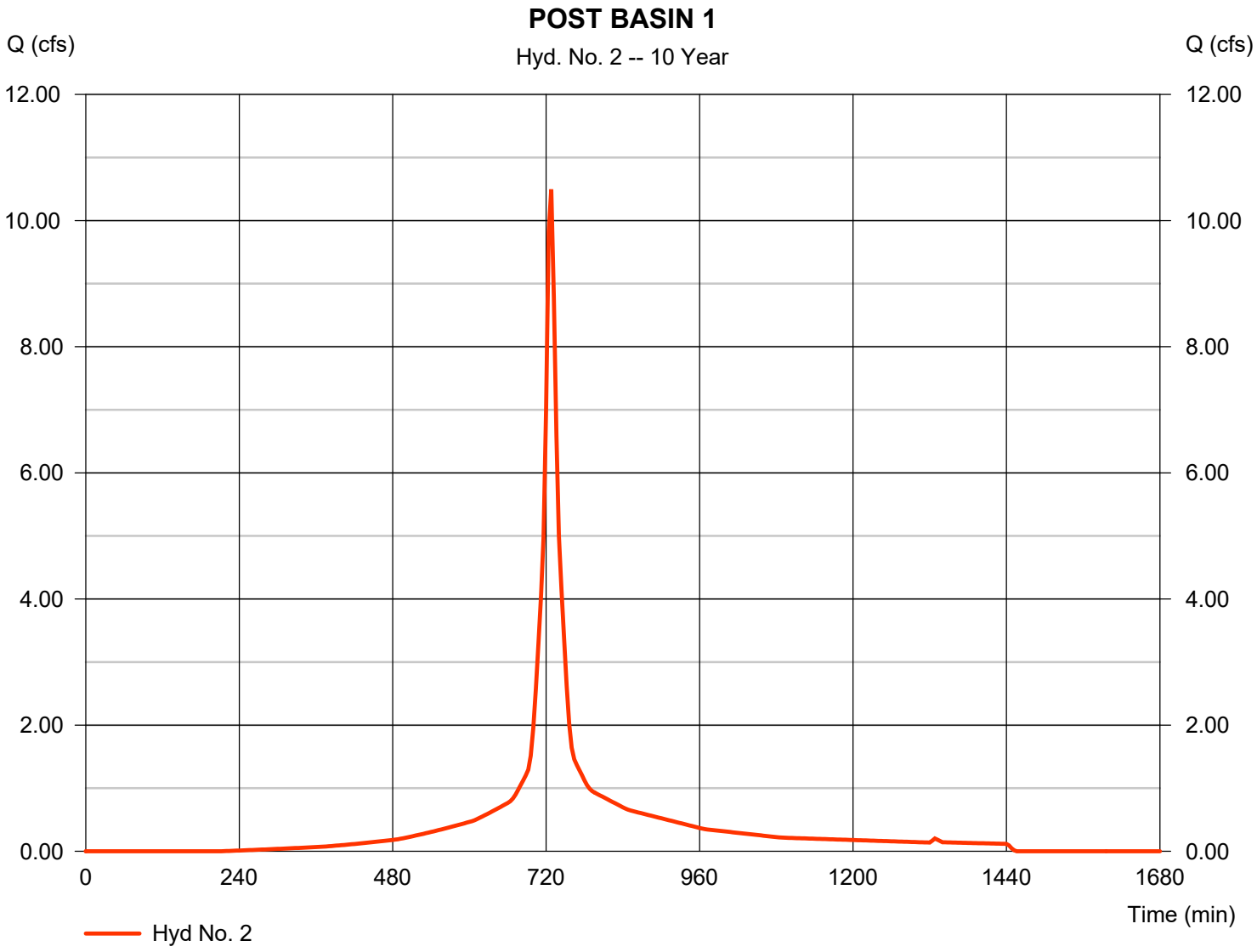
Hydrograph Report

Hyd. No. 2

POST BASIN 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.49 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	40,793 cuft
Drainage area	=	2.100 ac	Curve number	=	89*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.60 min
Total precip.	=	7.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.700 x 98) + (0.400 x 50)] / 2.100



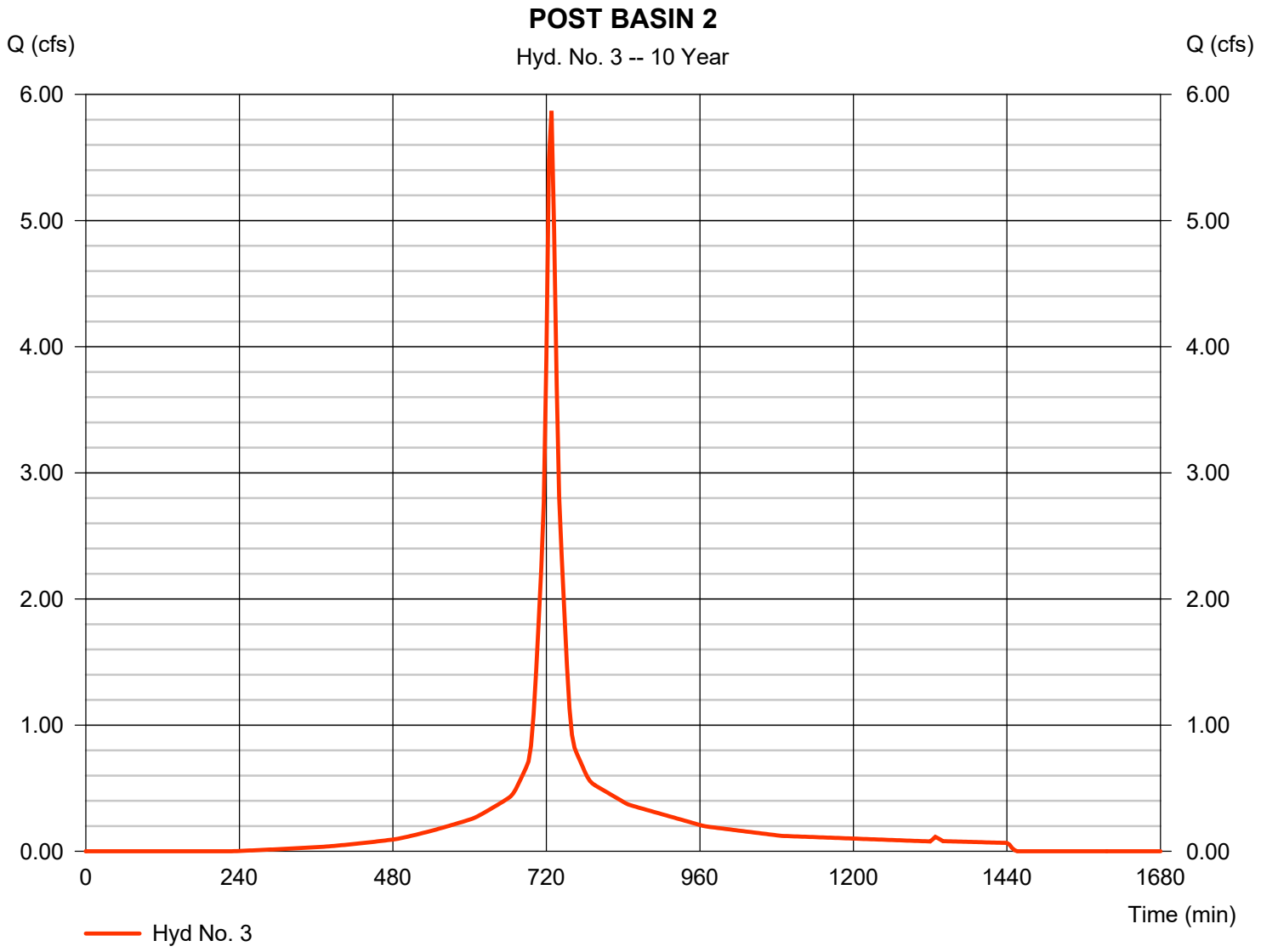
Hydrograph Report

Hyd. No. 3

POST BASIN 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.868 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	22,652 cuft
Drainage area	=	1.190 ac	Curve number	=	88*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.70 min
Total precip.	=	7.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.250 x 50) + (0.940 x 98)] / 1.190



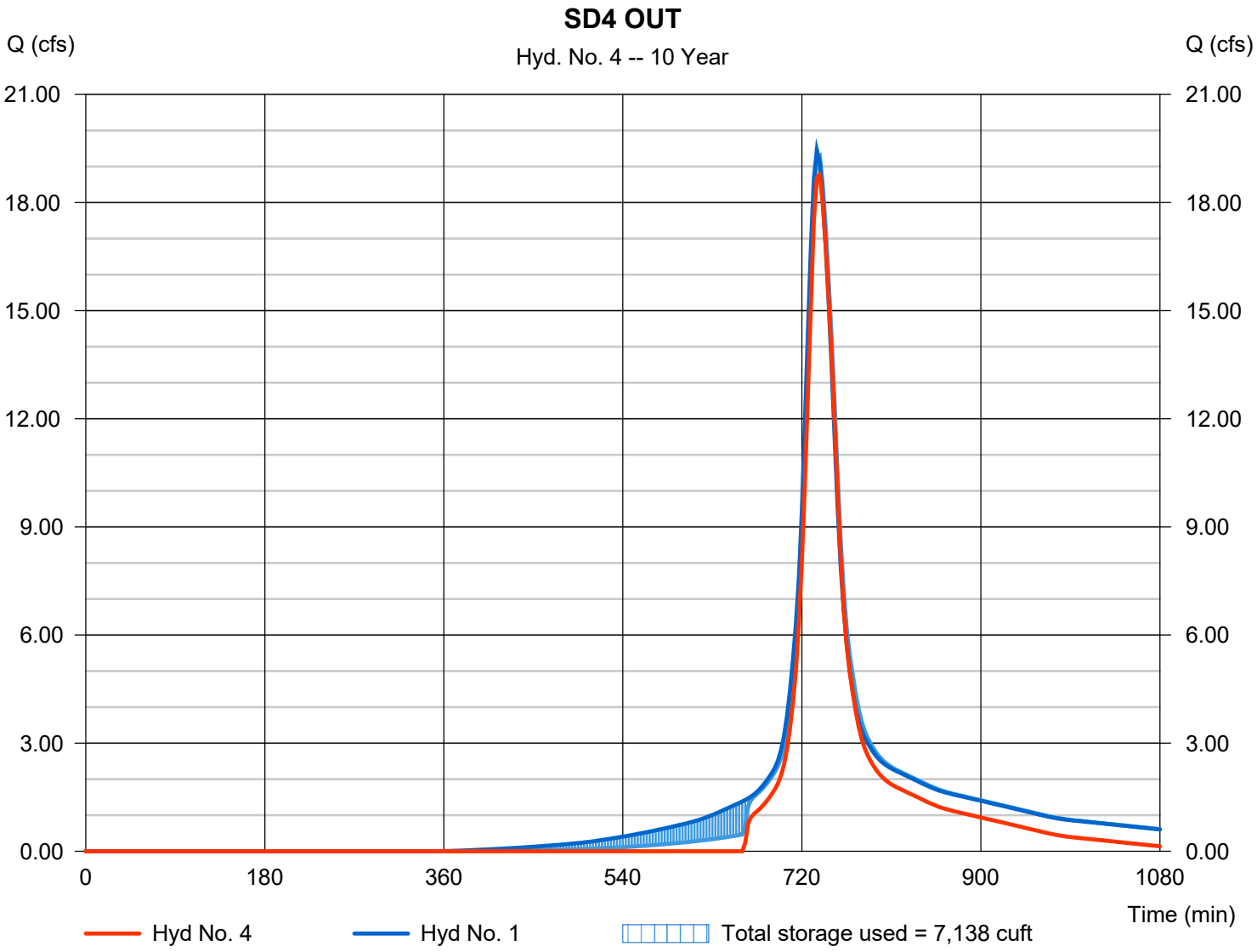
Hydrograph Report

Hyd. No. 4

SD4 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	18.77 cfs
Storm frequency	=	10 yrs	Time to peak	=	738 min
Time interval	=	3 min	Hyd. volume	=	64,598 cuft
Inflow hyd. No.	=	1 - PRE BASIN 1 - TOTAL PRE DISCHARGE	Max. Elevation	=	32.23 ft
Reservoir name	=	SD4	Max. Storage	=	7,138 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



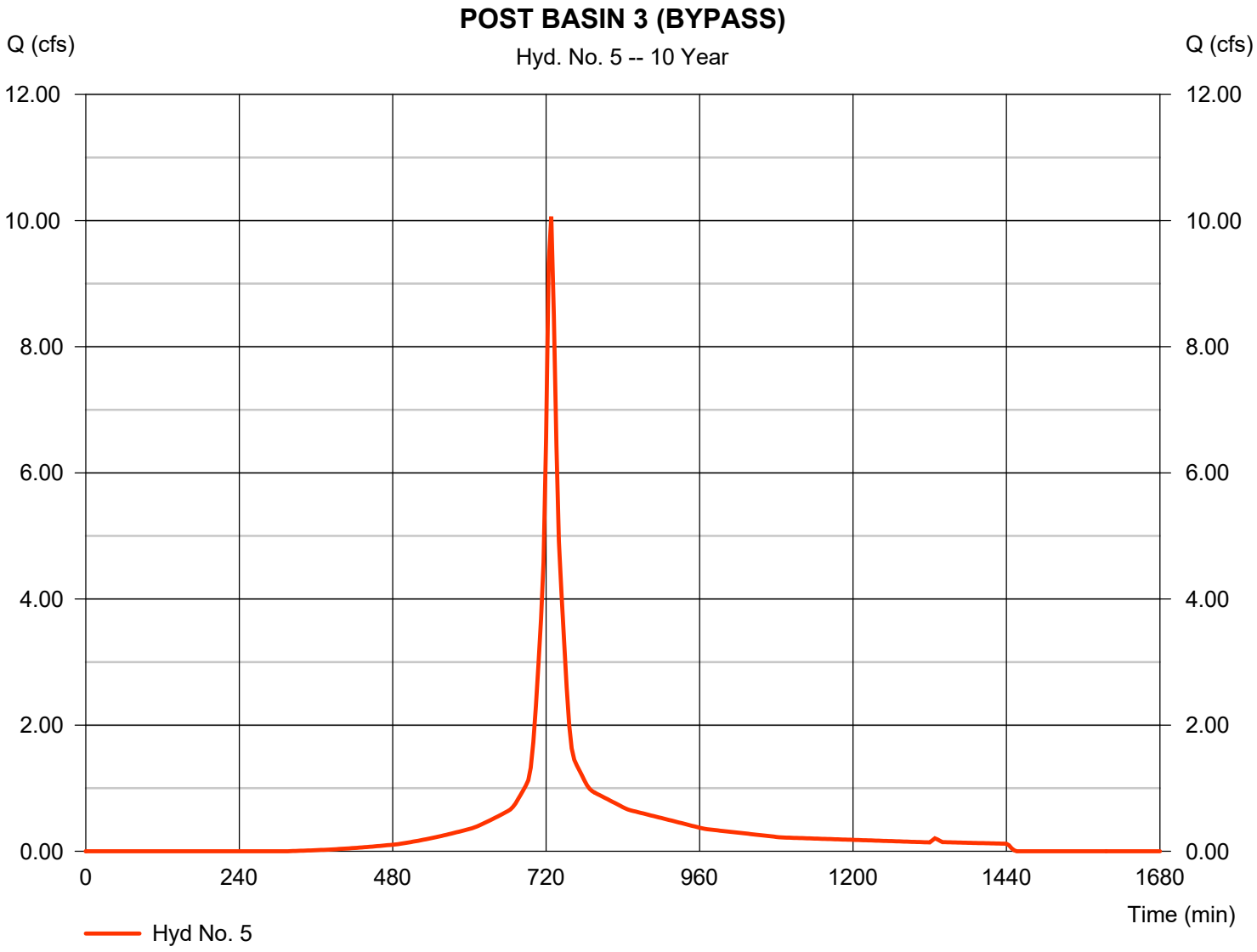
Hydrograph Report

Hyd. No. 5

POST BASIN 3 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.06 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	37,814 cuft
Drainage area	=	2.210 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	7.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 98) + (1.470 x 76)] / 2.210



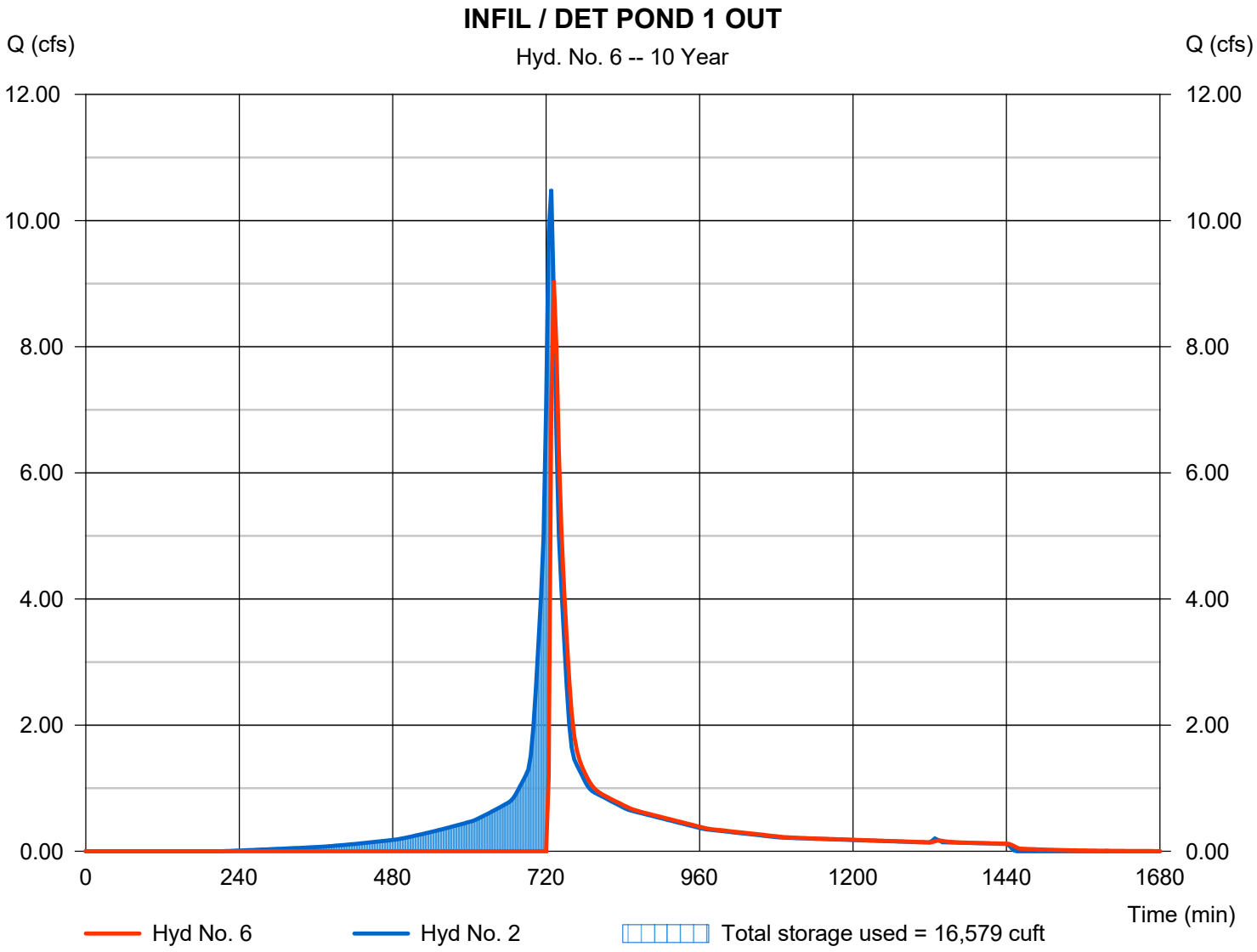
Hydrograph Report

Hyd. No. 6

INFIL / DET POND 1 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	9.047 cfs
Storm frequency	=	10 yrs	Time to peak	=	732 min
Time interval	=	4 min	Hyd. volume	=	26,821 cuft
Inflow hyd. No.	=	2 - POST BASIN 1	Max. Elevation	=	35.35 ft
Reservoir name	=	INFIL / DET POND 1	Max. Storage	=	16,579 cuft

Storage Indication method used.



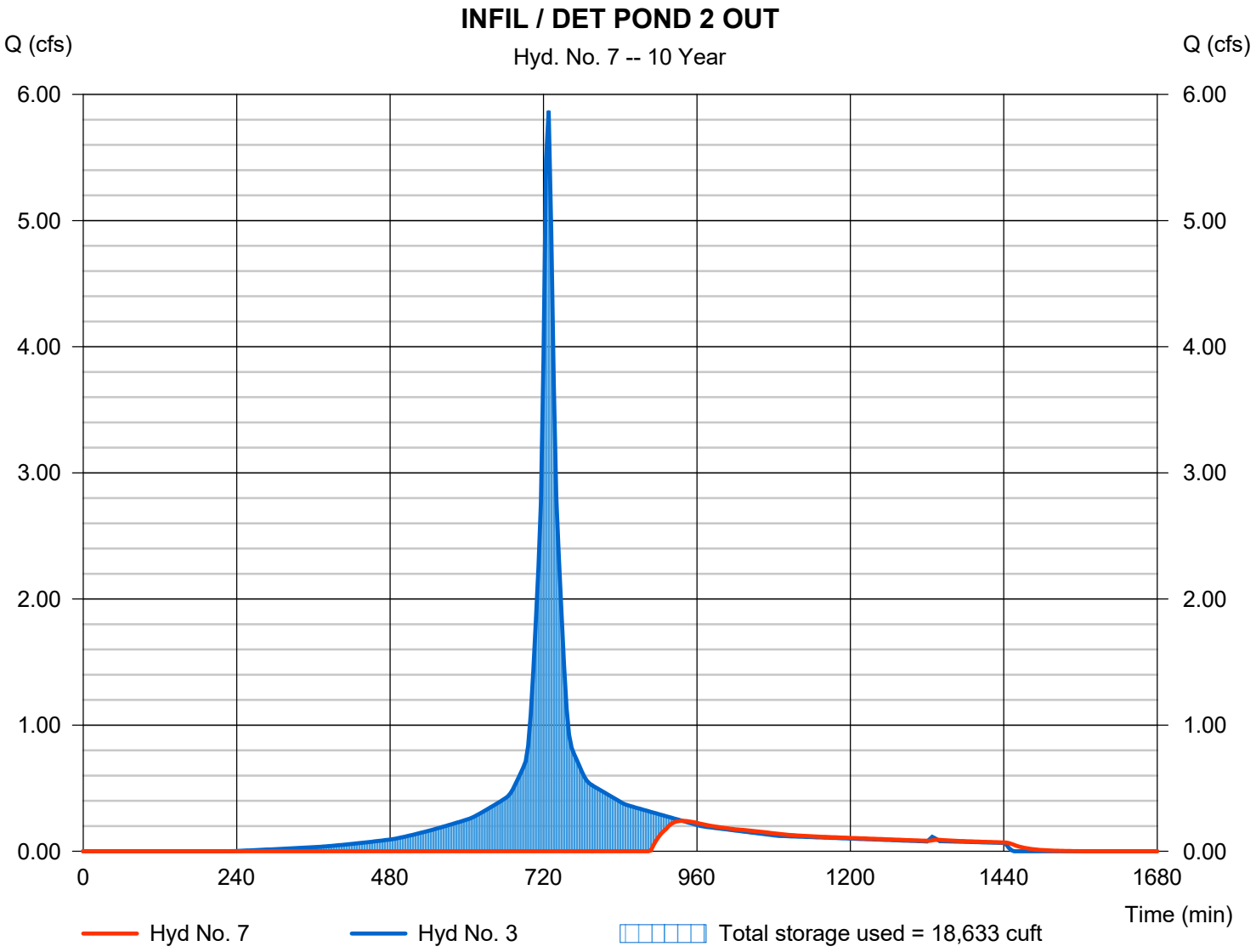
Hydrograph Report

Hyd. No. 7

INFIL / DET POND 2 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	0.241 cfs
Storm frequency	=	10 yrs	Time to peak	=	936 min
Time interval	=	4 min	Hyd. volume	=	4,353 cuft
Inflow hyd. No.	=	3 - POST BASIN 2	Max. Elevation	=	34.68 ft
Reservoir name	=	INFIL / DET POND 2	Max. Storage	=	18,633 cuft

Storage Indication method used.

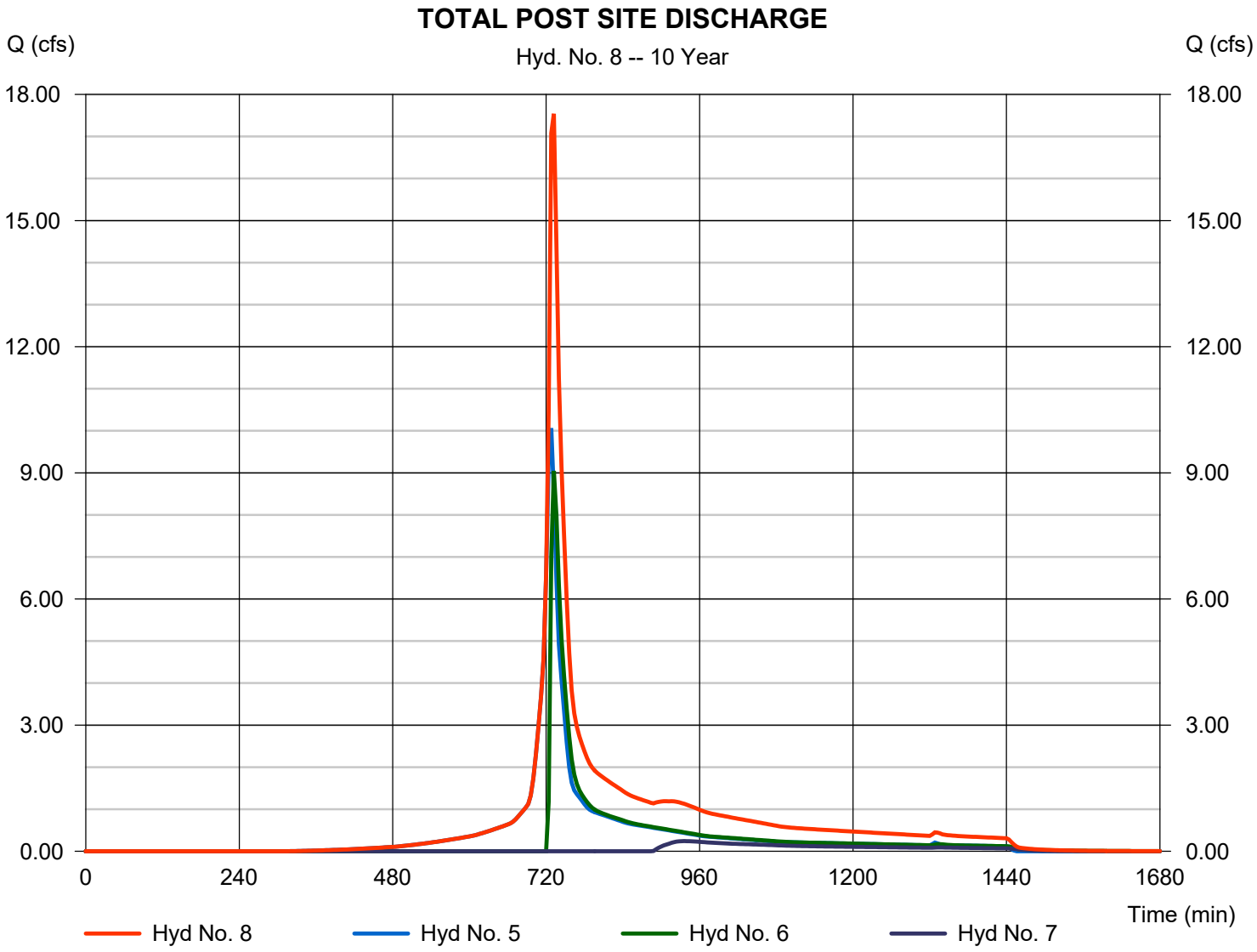


Hydrograph Report

Hyd. No. 8

TOTAL POST SITE DISCHARGE

Hydrograph type	=	Combine	Peak discharge	=	17.54 cfs
Storm frequency	=	10 yrs	Time to peak	=	732 min
Time interval	=	4 min	Hyd. volume	=	68,987 cuft
Inflow hyds.	=	5, 6, 7	Contrib. drain. area	=	2.210 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	23.12	3	735	111,779	------	------	------	PRE BASIN 1 - TOTAL PRE DISCHA
2	SCS Runoff	12.18	4	728	47,788	------	------	------	POST BASIN 1
3	SCS Runoff	6.826	4	728	26,599	------	------	------	POST BASIN 2
4	Reservoir	22.37	3	738	81,126	1	32.26	7,373	SD4 OUT
5	SCS Runoff	11.86	4	728	44,956	------	------	------	POST BASIN 3 (BYPASS)
6	Reservoir	11.08	4	732	33,816	2	35.42	16,955	INFIL / DET POND 1 OUT
7	Reservoir	0.532	4	816	8,300	3	34.70	18,879	INFIL / DET POND 2 OUT
8	Combine	22.83	4	728	87,071	5, 6, 7	------	------	TOTAL POST SITE DISCHARGE

Hydrograph Report

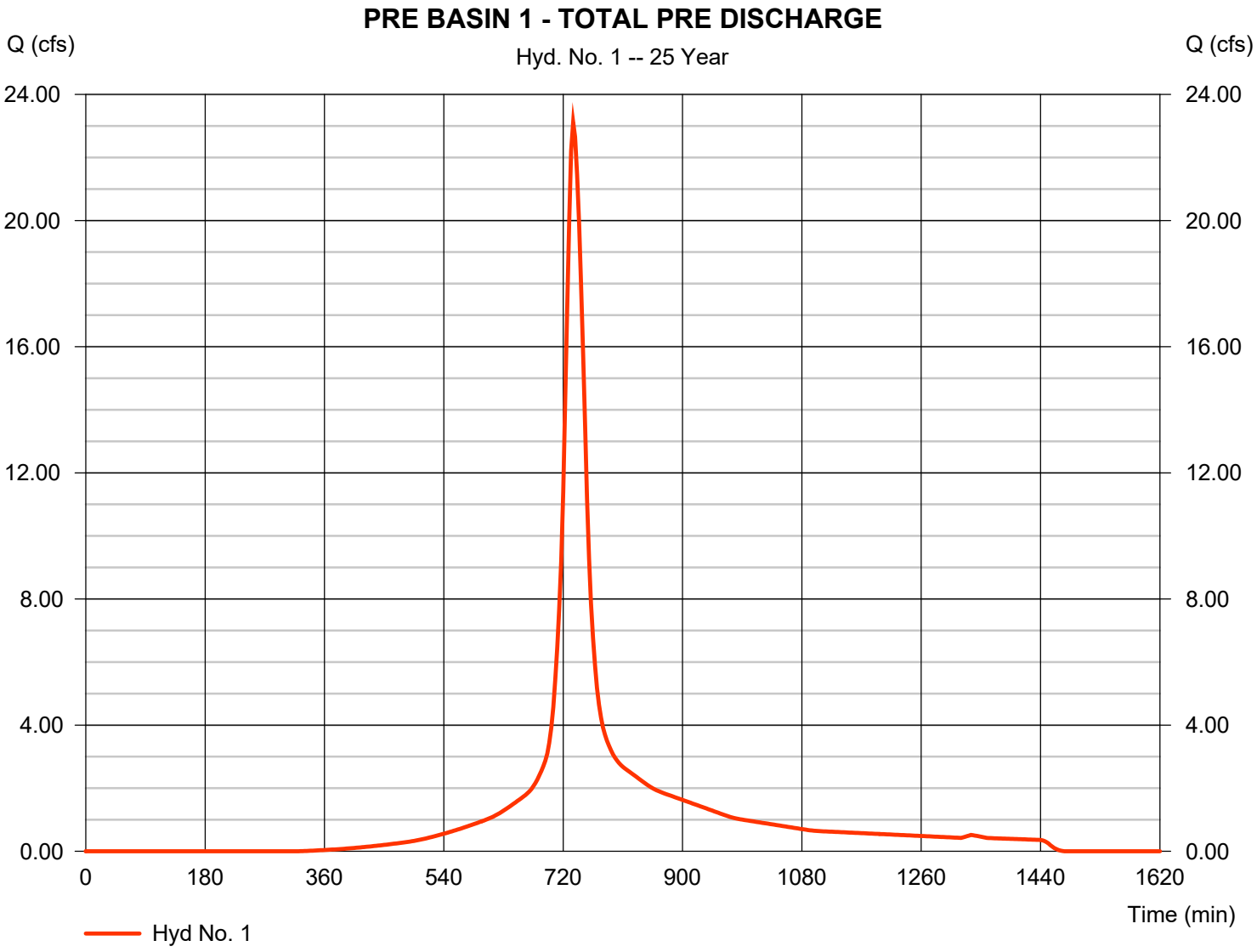
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Thursday, 05 / 19 / 2022

Hyd. No. 1

PRE BASIN 1 - TOTAL PRE DISCHARGE

Hydrograph type	= SCS Runoff	Peak discharge	= 23.12 cfs
Storm frequency	= 25 yrs	Time to peak	= 735 min
Time interval	= 3 min	Hyd. volume	= 111,779 cuft
Drainage area	= 5.500 ac	Curve number	= 81*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.00 min
Total precip.	= 8.00 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.740 x 98) + (4.760 x 78)] / 5.500



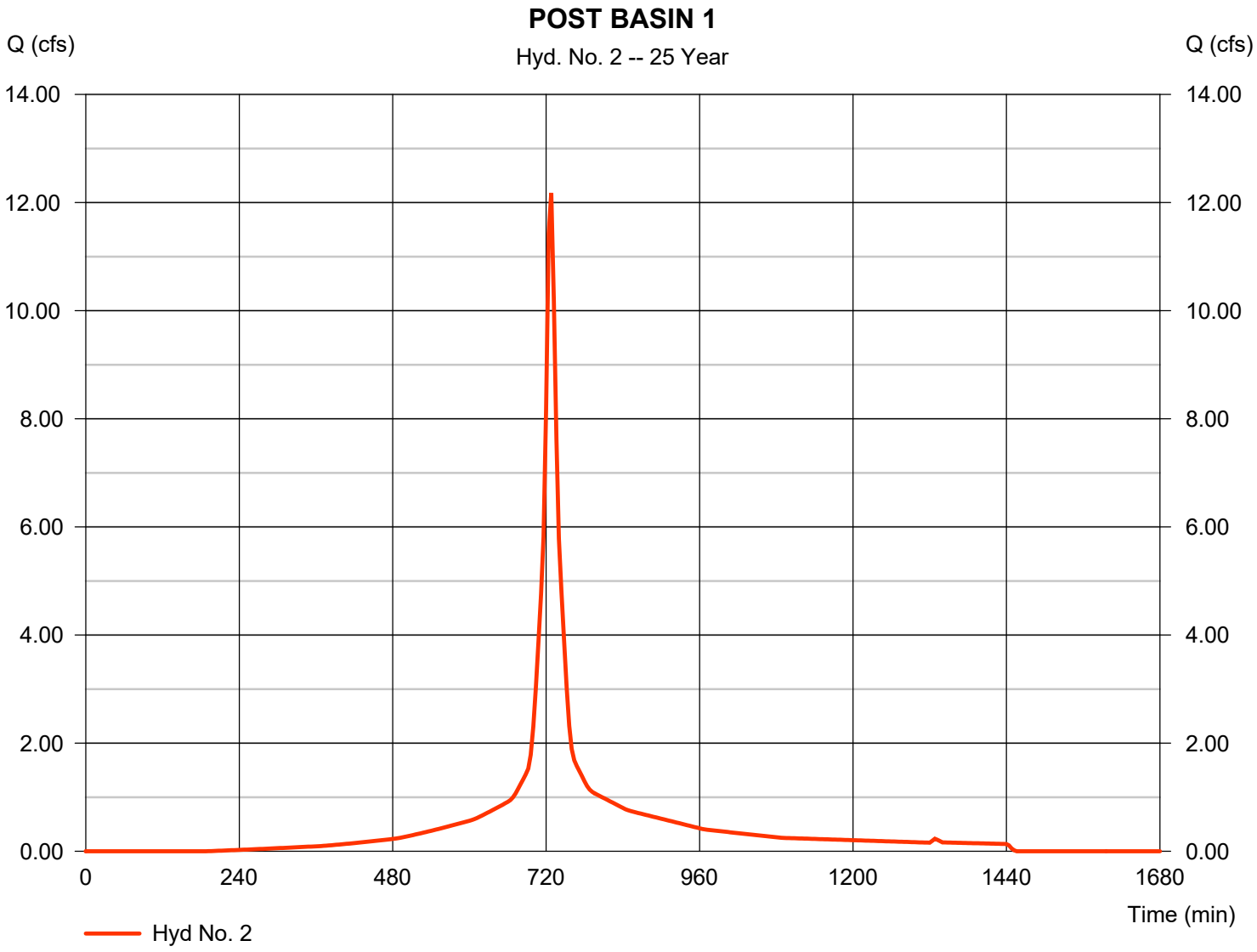
Hydrograph Report

Hyd. No. 2

POST BASIN 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.18 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	47,788 cuft
Drainage area	=	2.100 ac	Curve number	=	89*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.60 min
Total precip.	=	8.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.700 x 98) + (0.400 x 50)] / 2.100



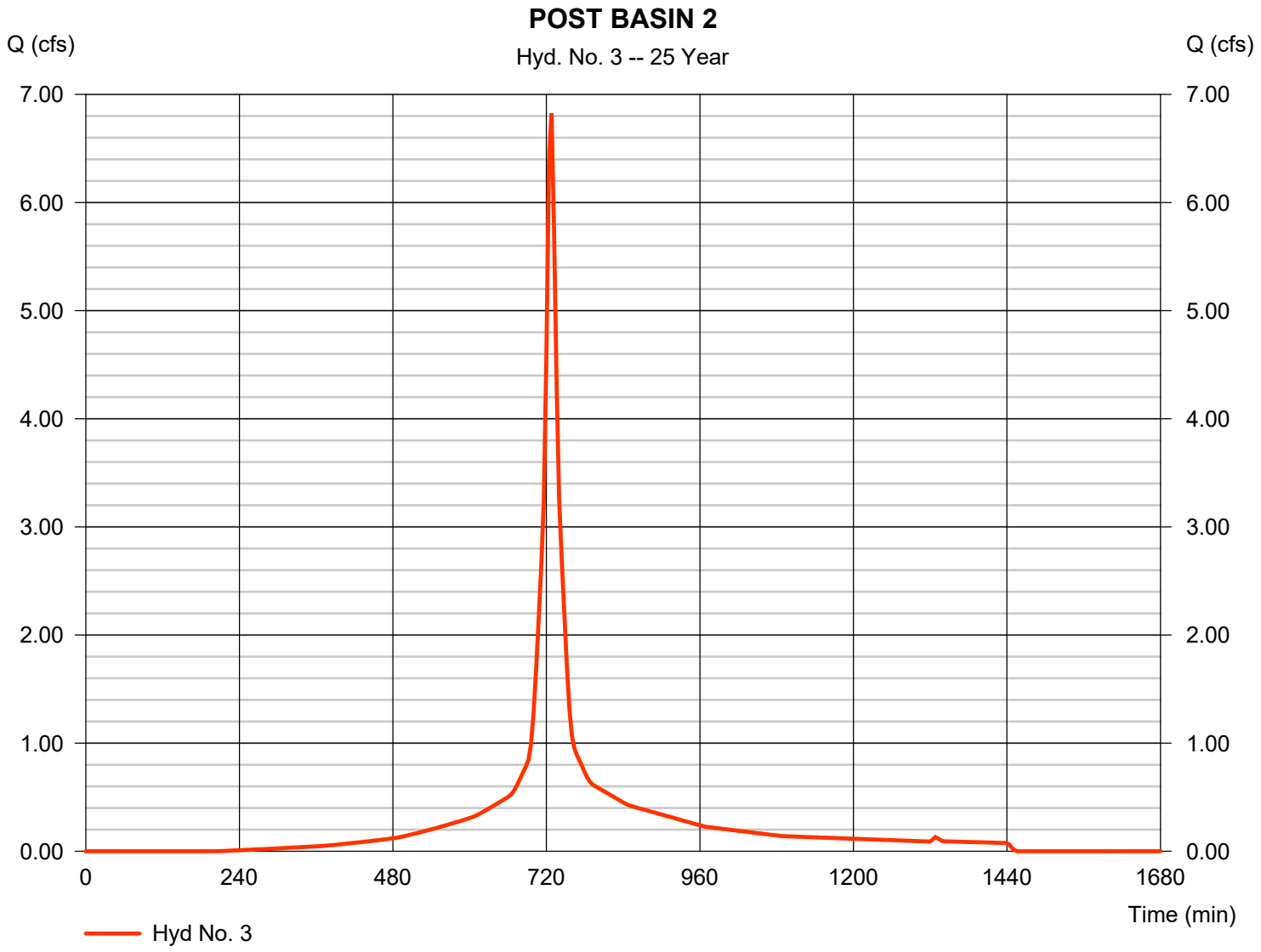
Hydrograph Report

Hyd. No. 3

POST BASIN 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.826 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	26,599 cuft
Drainage area	=	1.190 ac	Curve number	=	88*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.70 min
Total precip.	=	8.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.250 x 50) + (0.940 x 98)] / 1.190



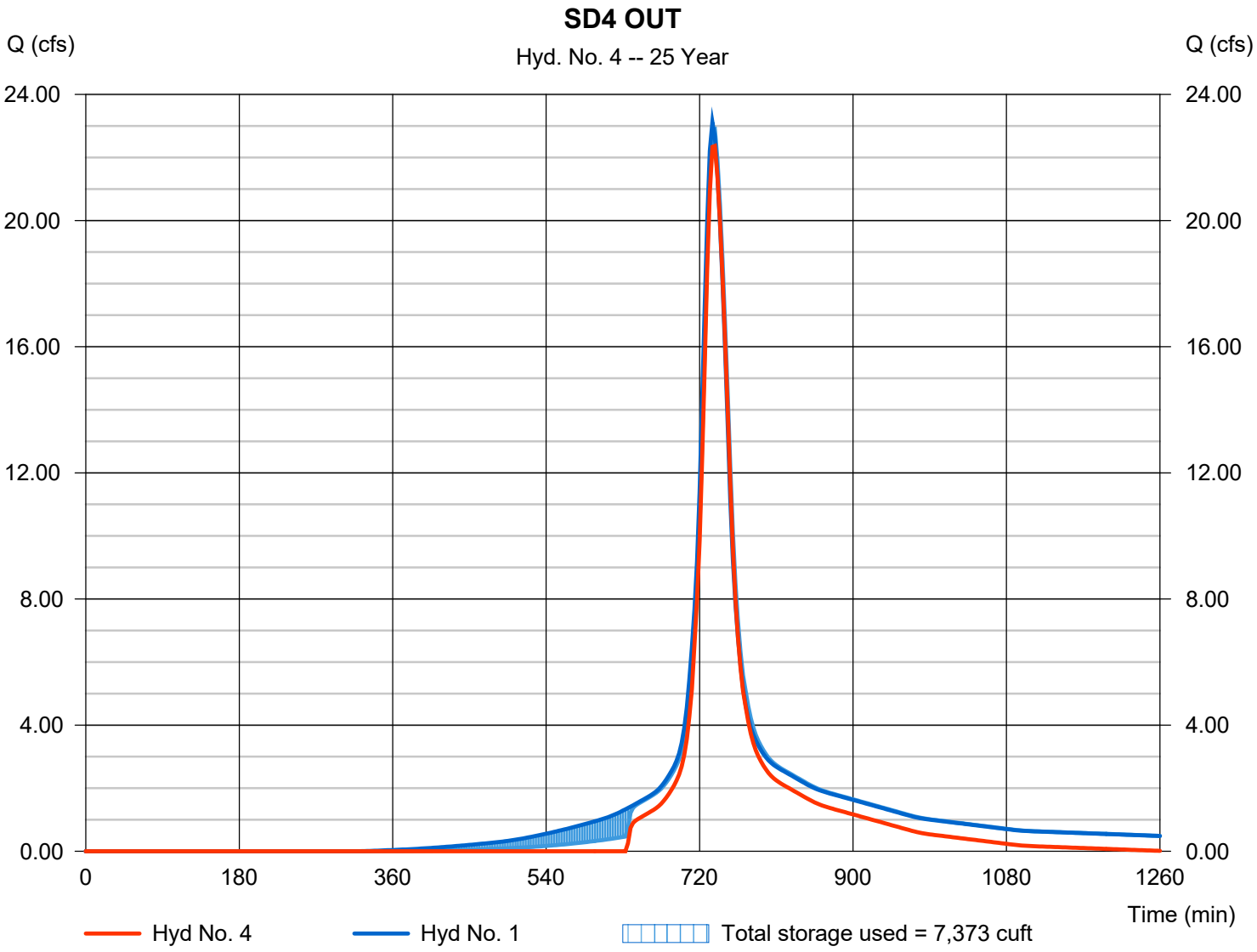
Hydrograph Report

Hyd. No. 4

SD4 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	22.37 cfs
Storm frequency	=	25 yrs	Time to peak	=	738 min
Time interval	=	3 min	Hyd. volume	=	81,126 cuft
Inflow hyd. No.	=	1 - PRE BASIN 1 - TOTAL PRE DISCHARGE	Max. Elevation	=	32.26 ft
Reservoir name	=	SD4	Max. Storage	=	7,373 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



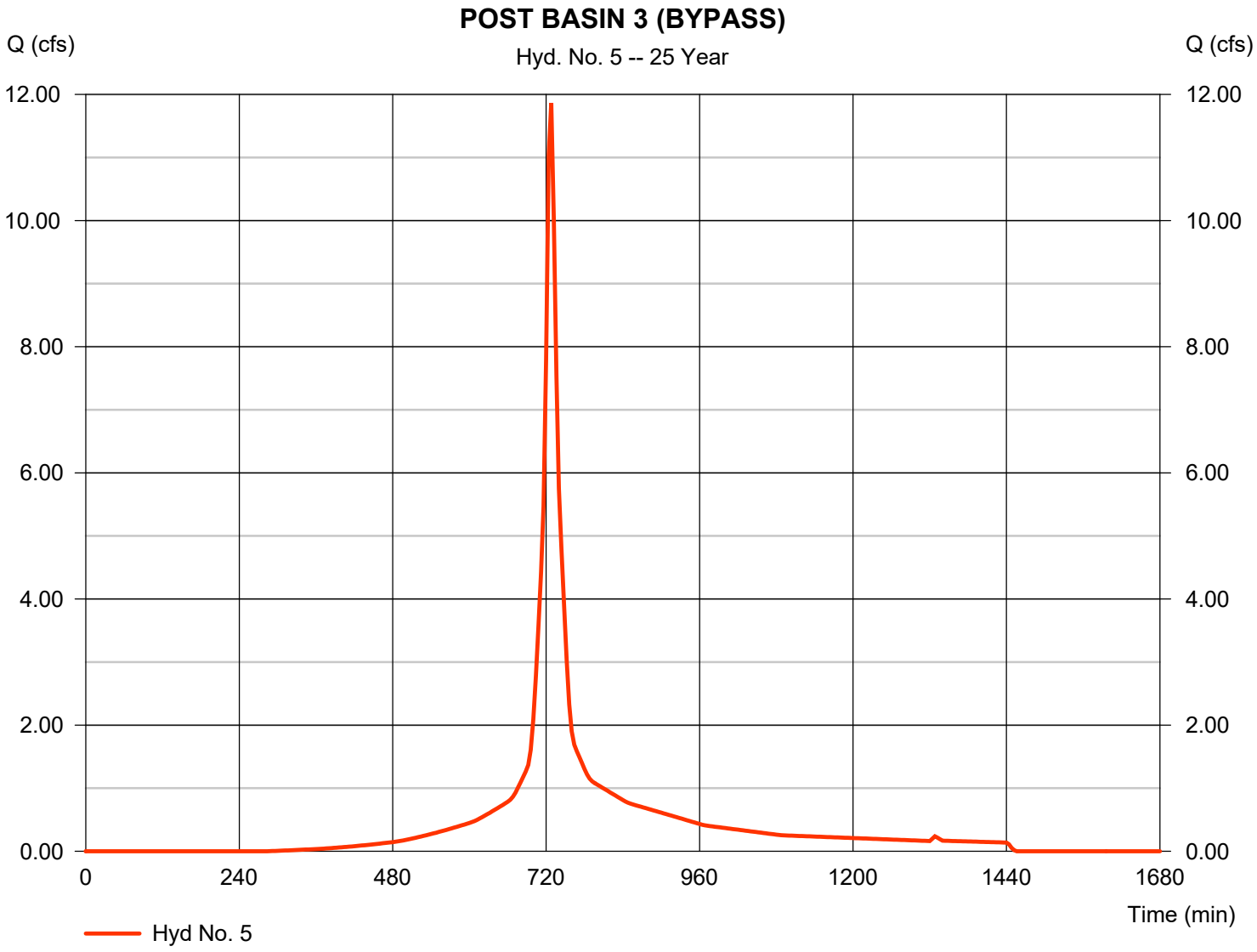
Hydrograph Report

Hyd. No. 5

POST BASIN 3 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.86 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	44,956 cuft
Drainage area	=	2.210 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	8.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 98) + (1.470 x 76)] / 2.210



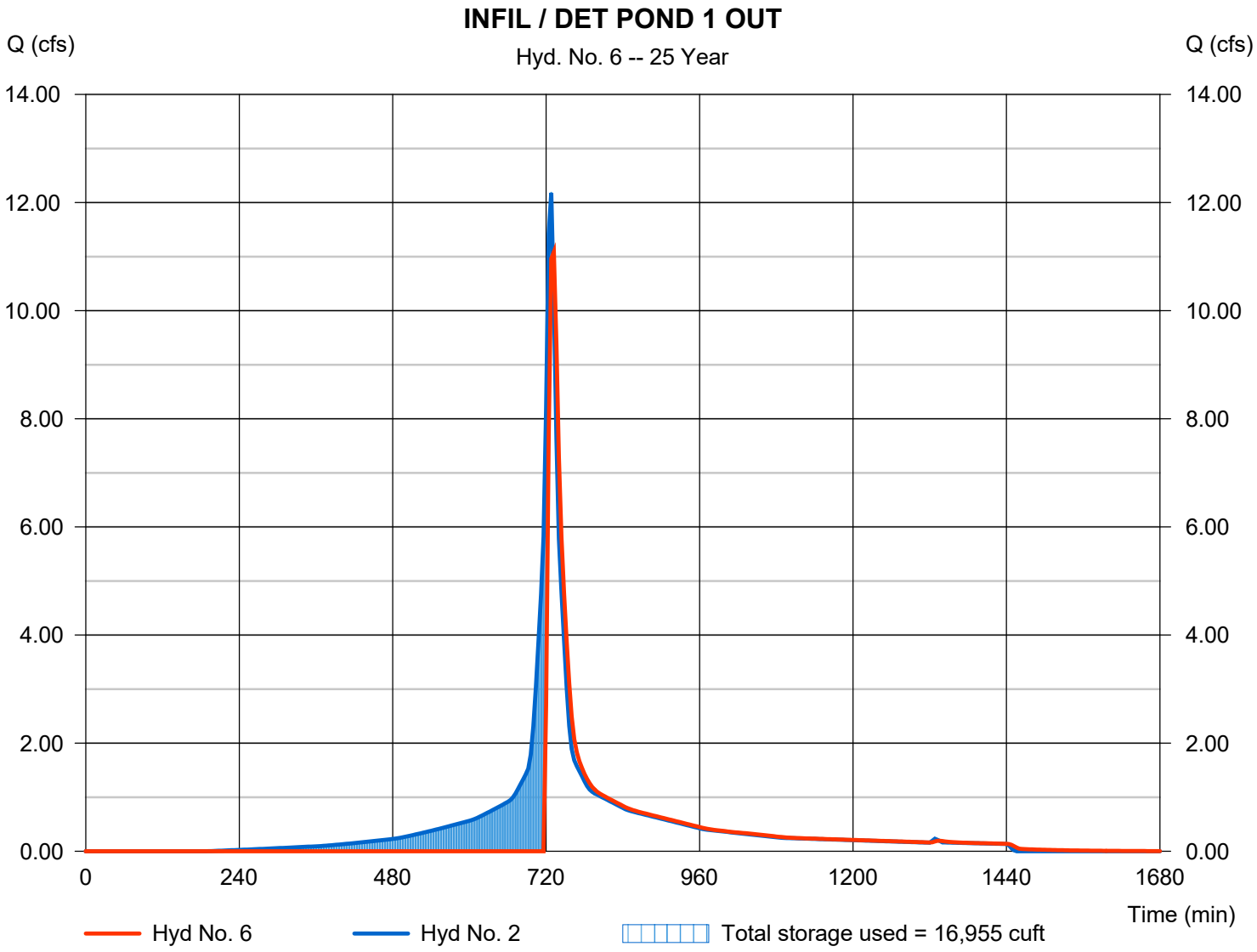
Hydrograph Report

Hyd. No. 6

INFIL / DET POND 1 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	11.08 cfs
Storm frequency	=	25 yrs	Time to peak	=	732 min
Time interval	=	4 min	Hyd. volume	=	33,816 cuft
Inflow hyd. No.	=	2 - POST BASIN 1	Max. Elevation	=	35.42 ft
Reservoir name	=	INFIL / DET POND 1	Max. Storage	=	16,955 cuft

Storage Indication method used.



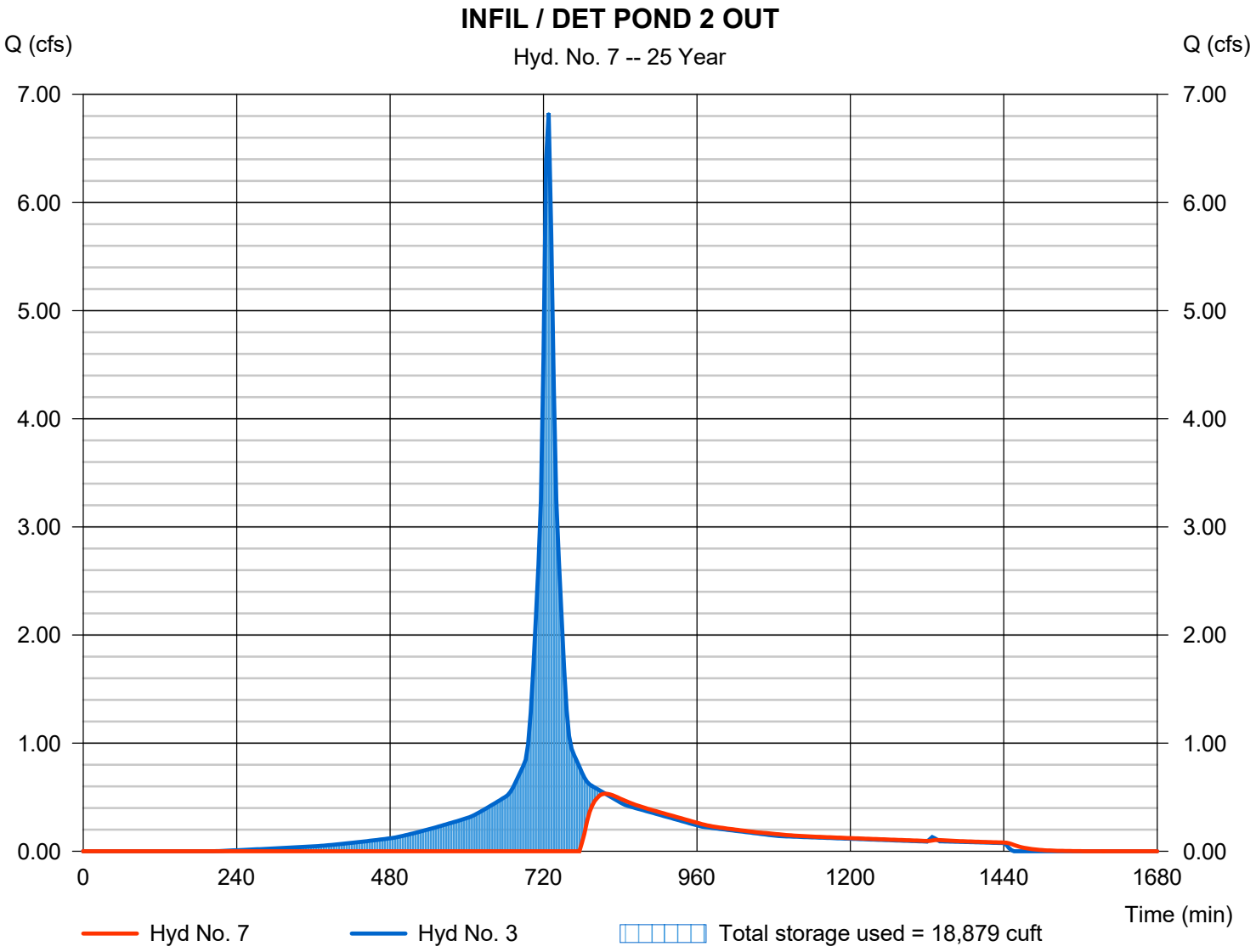
Hydrograph Report

Hyd. No. 7

INFIL / DET POND 2 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	0.532 cfs
Storm frequency	=	25 yrs	Time to peak	=	816 min
Time interval	=	4 min	Hyd. volume	=	8,300 cuft
Inflow hyd. No.	=	3 - POST BASIN 2	Max. Elevation	=	34.70 ft
Reservoir name	=	INFIL / DET POND 2	Max. Storage	=	18,879 cuft

Storage Indication method used.

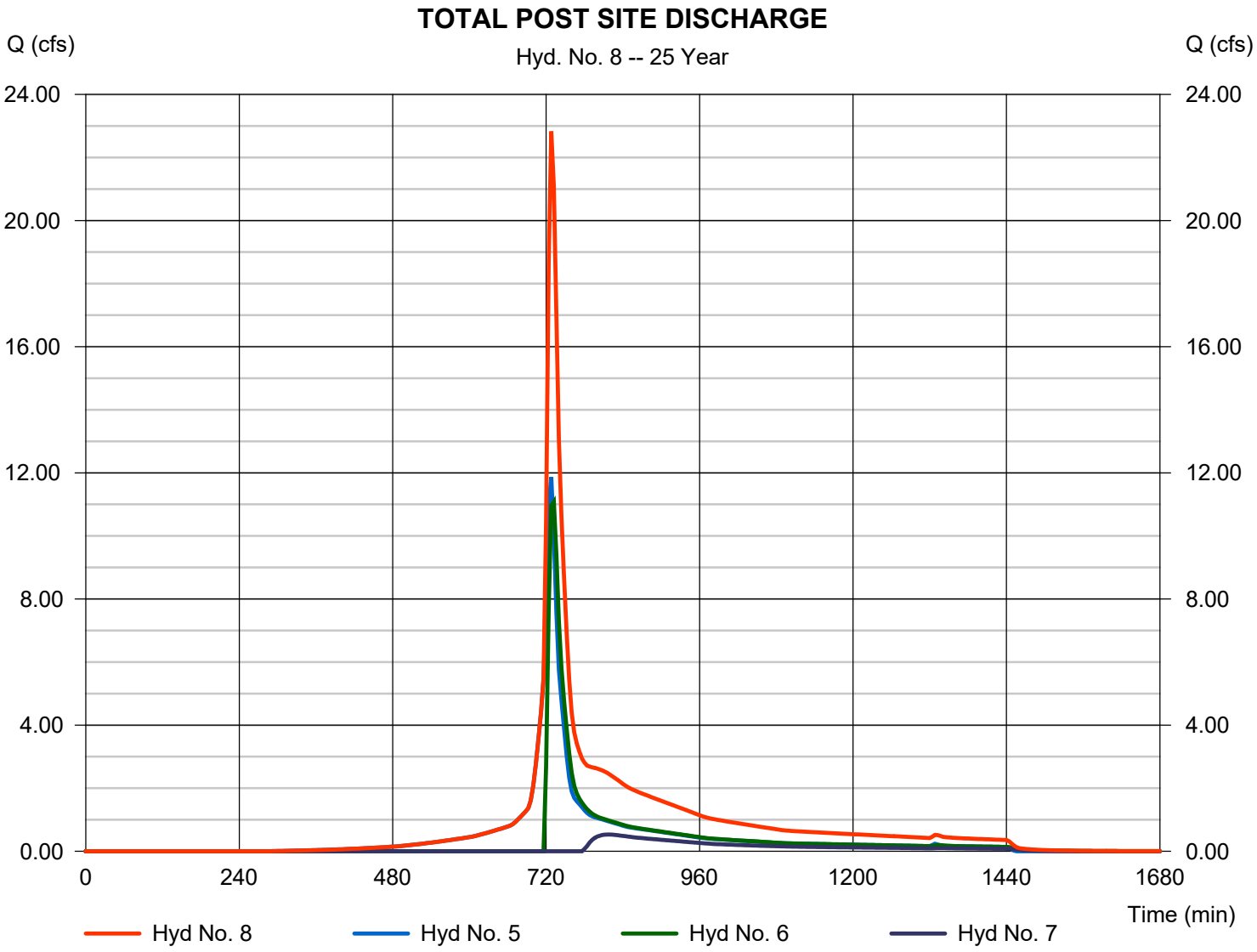


Hydrograph Report

Hyd. No. 8

TOTAL POST SITE DISCHARGE

Hydrograph type	=	Combine	Peak discharge	=	22.83 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	87,071 cuft
Inflow hyds.	=	5, 6, 7	Contrib. drain. area	=	2.210 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	26.41	3	735	128,392	------	------	------	PRE BASIN 1 - TOTAL PRE DISCHA
2	SCS Runoff	13.69	4	728	54,109	------	------	------	POST BASIN 1
3	SCS Runoff	7.685	4	728	30,169	------	------	------	POST BASIN 2
4	Reservoir	25.60	3	735	96,618	1	32.29	7,585	SD4 OUT
5	SCS Runoff	13.48	4	728	51,445	------	------	------	POST BASIN 3 (BYPASS)
6	Reservoir	11.79	4	732	40,137	2	35.49	17,546	INFIL / DET POND 1 OUT
7	Reservoir	1.135	4	760	11,870	3	34.74	19,260	INFIL / DET POND 2 OUT
8	Combine	25.12	4	728	103,452	5, 6, 7	------	------	TOTAL POST SITE DISCHARGE

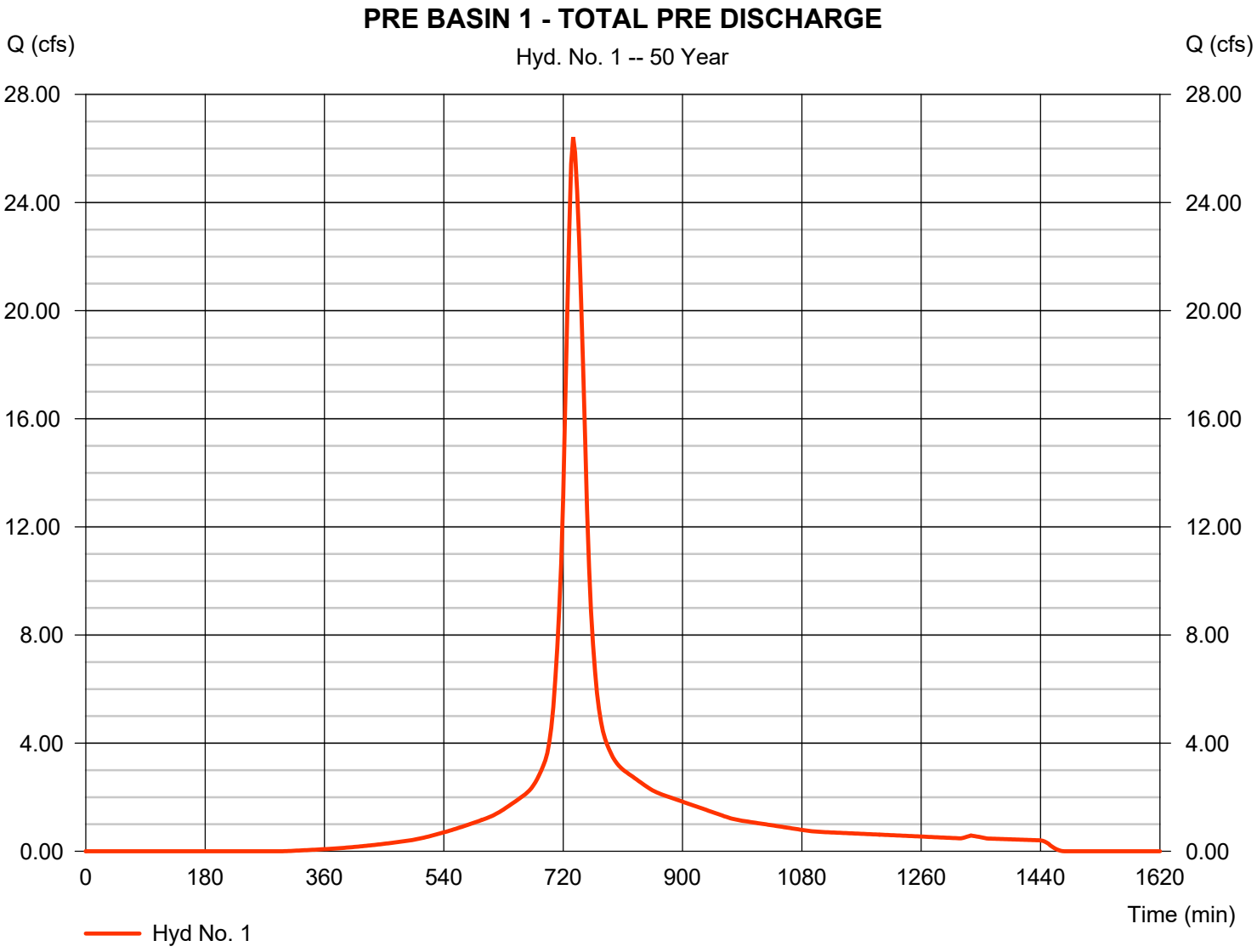
Hydrograph Report

Hyd. No. 1

PRE BASIN 1 - TOTAL PRE DISCHARGE

Hydrograph type	= SCS Runoff	Peak discharge	= 26.41 cfs
Storm frequency	= 50 yrs	Time to peak	= 735 min
Time interval	= 3 min	Hyd. volume	= 128,392 cuft
Drainage area	= 5.500 ac	Curve number	= 81*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.00 min
Total precip.	= 8.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.740 x 98) + (4.760 x 78)] / 5.500



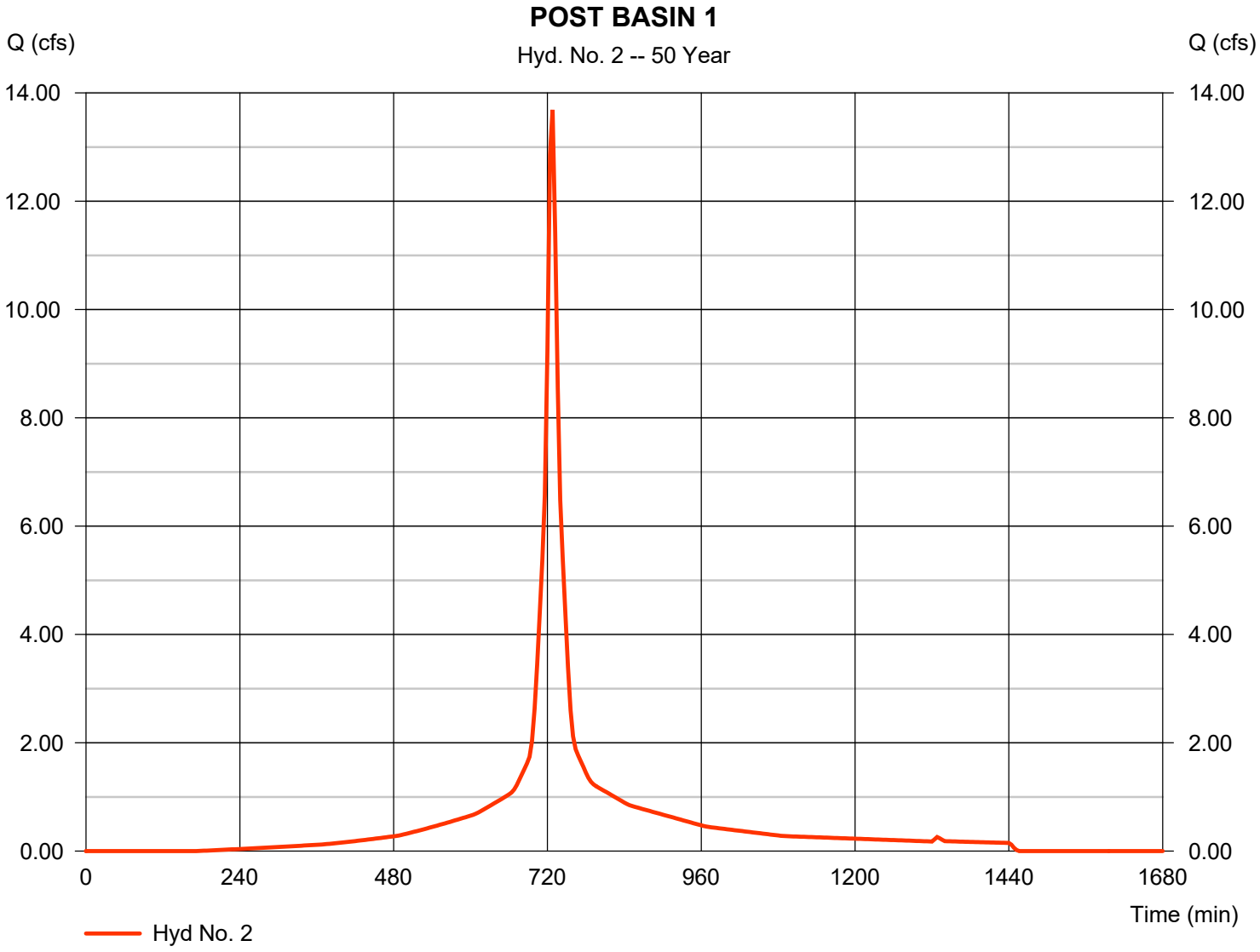
Hydrograph Report

Hyd. No. 2

POST BASIN 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.69 cfs
Storm frequency	=	50 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	54,109 cuft
Drainage area	=	2.100 ac	Curve number	=	89*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.60 min
Total precip.	=	8.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.700 x 98) + (0.400 x 50)] / 2.100



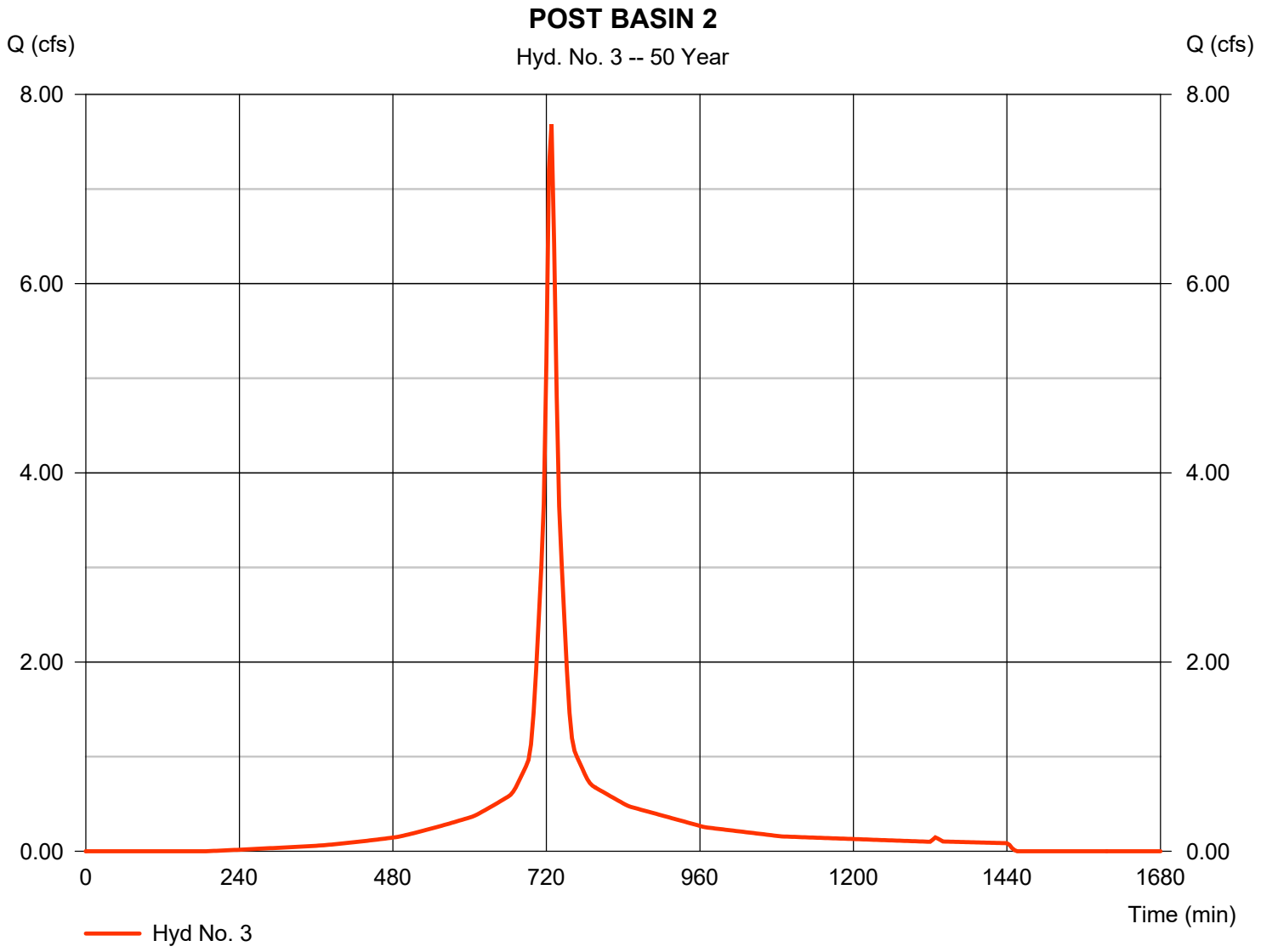
Hydrograph Report

Hyd. No. 3

POST BASIN 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.685 cfs
Storm frequency	=	50 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	30,169 cuft
Drainage area	=	1.190 ac	Curve number	=	88*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.70 min
Total precip.	=	8.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.250 x 50) + (0.940 x 98)] / 1.190



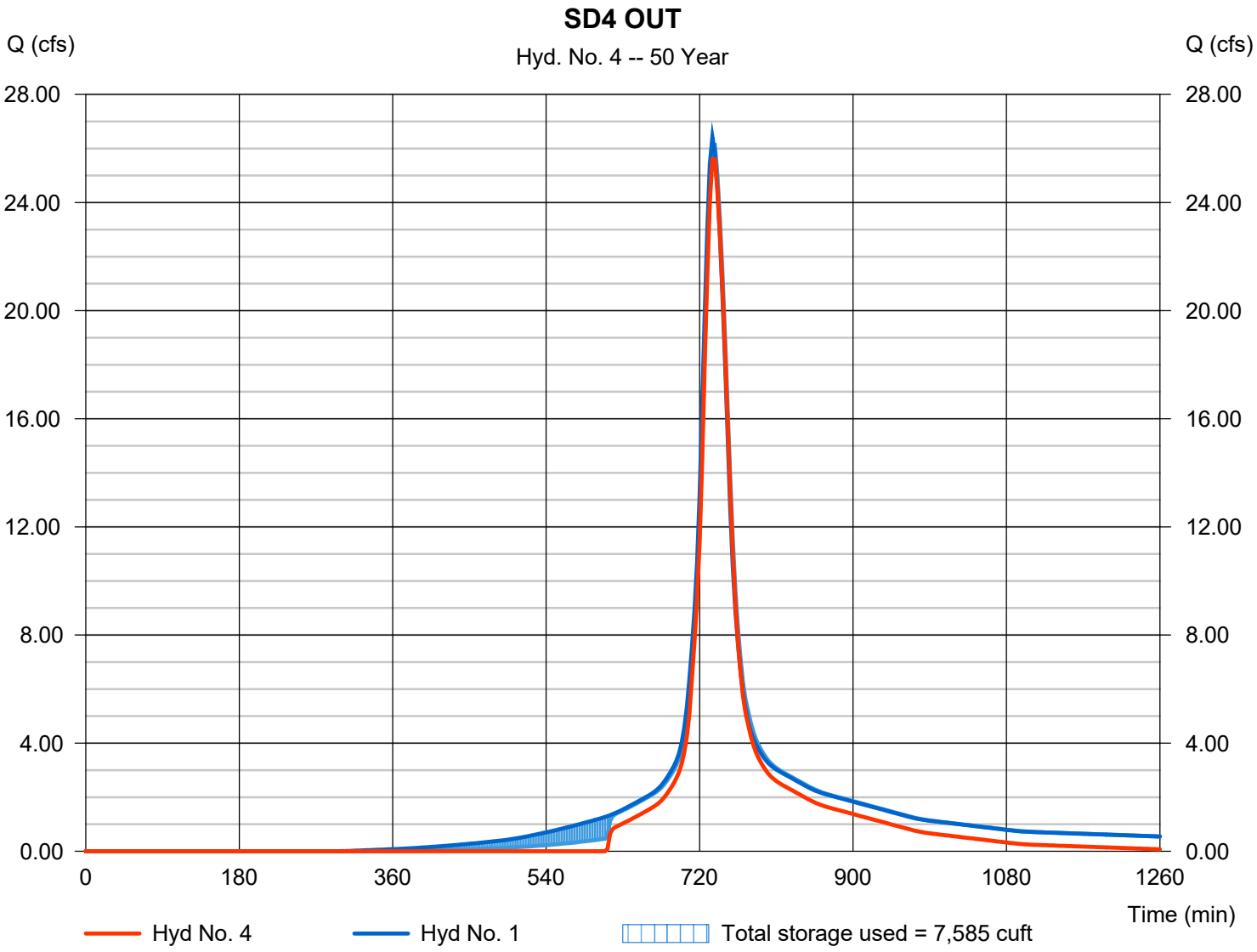
Hydrograph Report

Hyd. No. 4

SD4 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	25.60 cfs
Storm frequency	=	50 yrs	Time to peak	=	735 min
Time interval	=	3 min	Hyd. volume	=	96,618 cuft
Inflow hyd. No.	=	1 - PRE BASIN 1 - TOTAL PRE DISCHARGE	Max. Elevation	=	32.29 ft
Reservoir name	=	SD4	Max. Storage	=	7,585 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



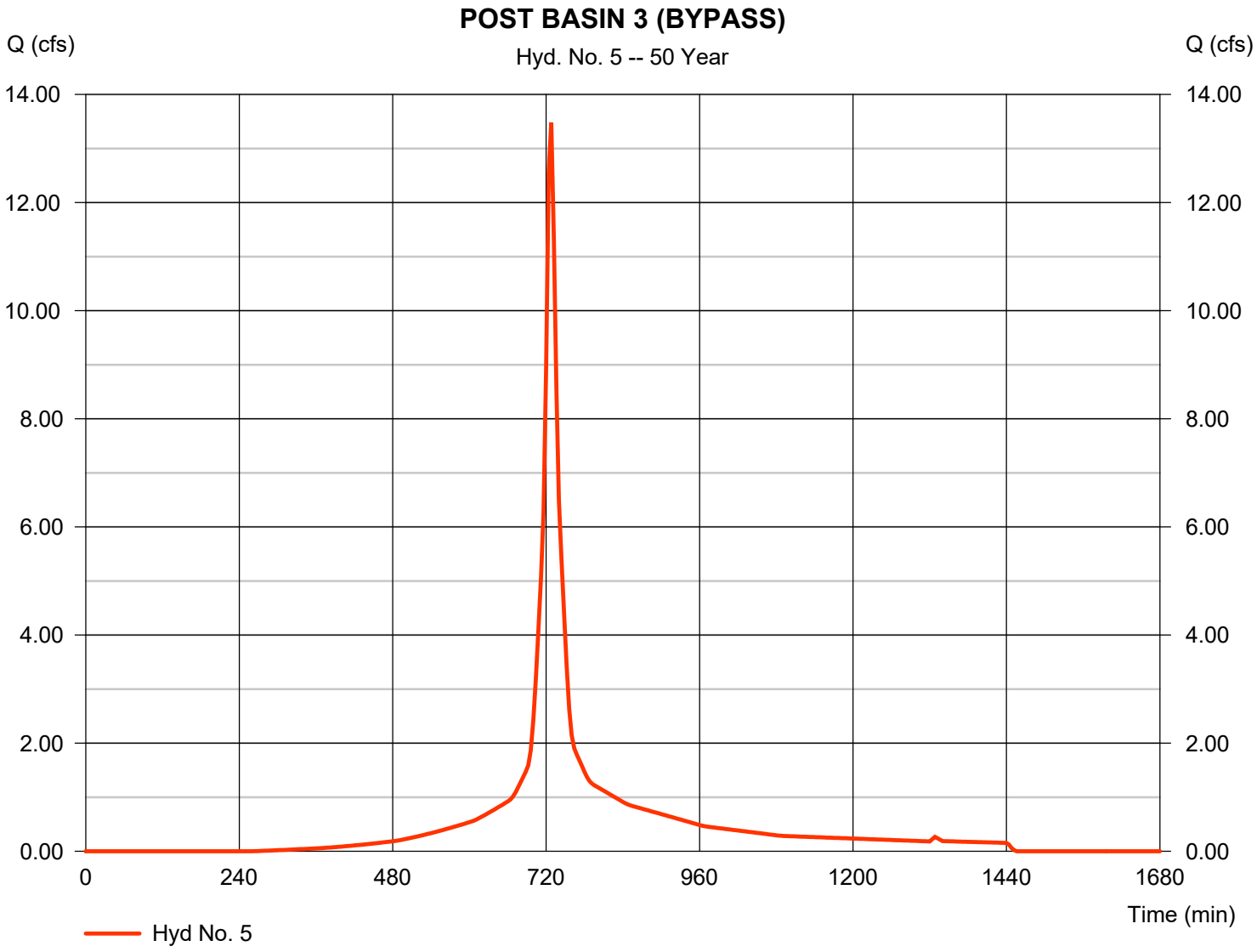
Hydrograph Report

Hyd. No. 5

POST BASIN 3 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.48 cfs
Storm frequency	=	50 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	51,445 cuft
Drainage area	=	2.210 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	8.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 98) + (1.470 x 76)] / 2.210



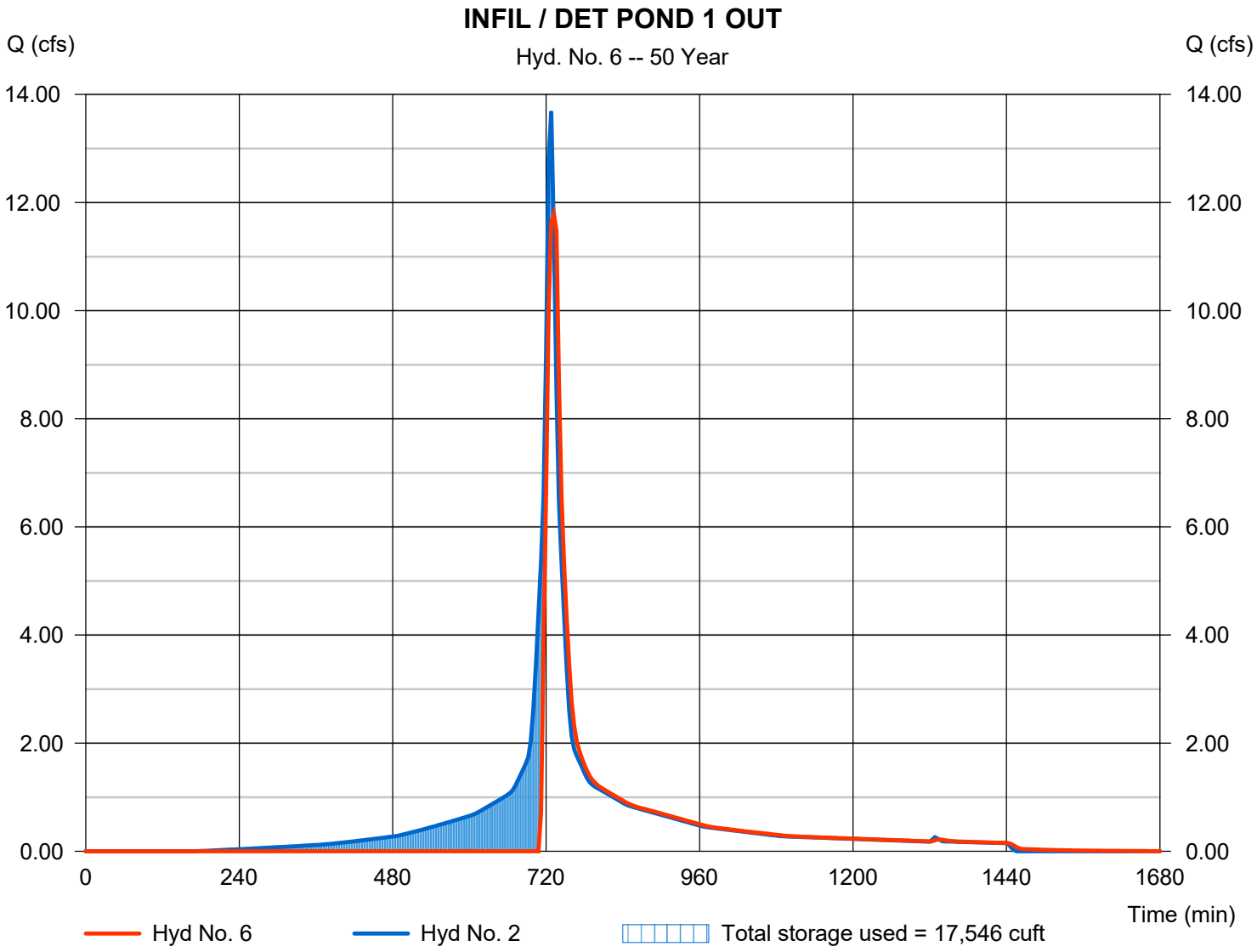
Hydrograph Report

Hyd. No. 6

INFIL / DET POND 1 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	11.79 cfs
Storm frequency	=	50 yrs	Time to peak	=	732 min
Time interval	=	4 min	Hyd. volume	=	40,137 cuft
Inflow hyd. No.	=	2 - POST BASIN 1	Max. Elevation	=	35.49 ft
Reservoir name	=	INFIL / DET POND 1	Max. Storage	=	17,546 cuft

Storage Indication method used.



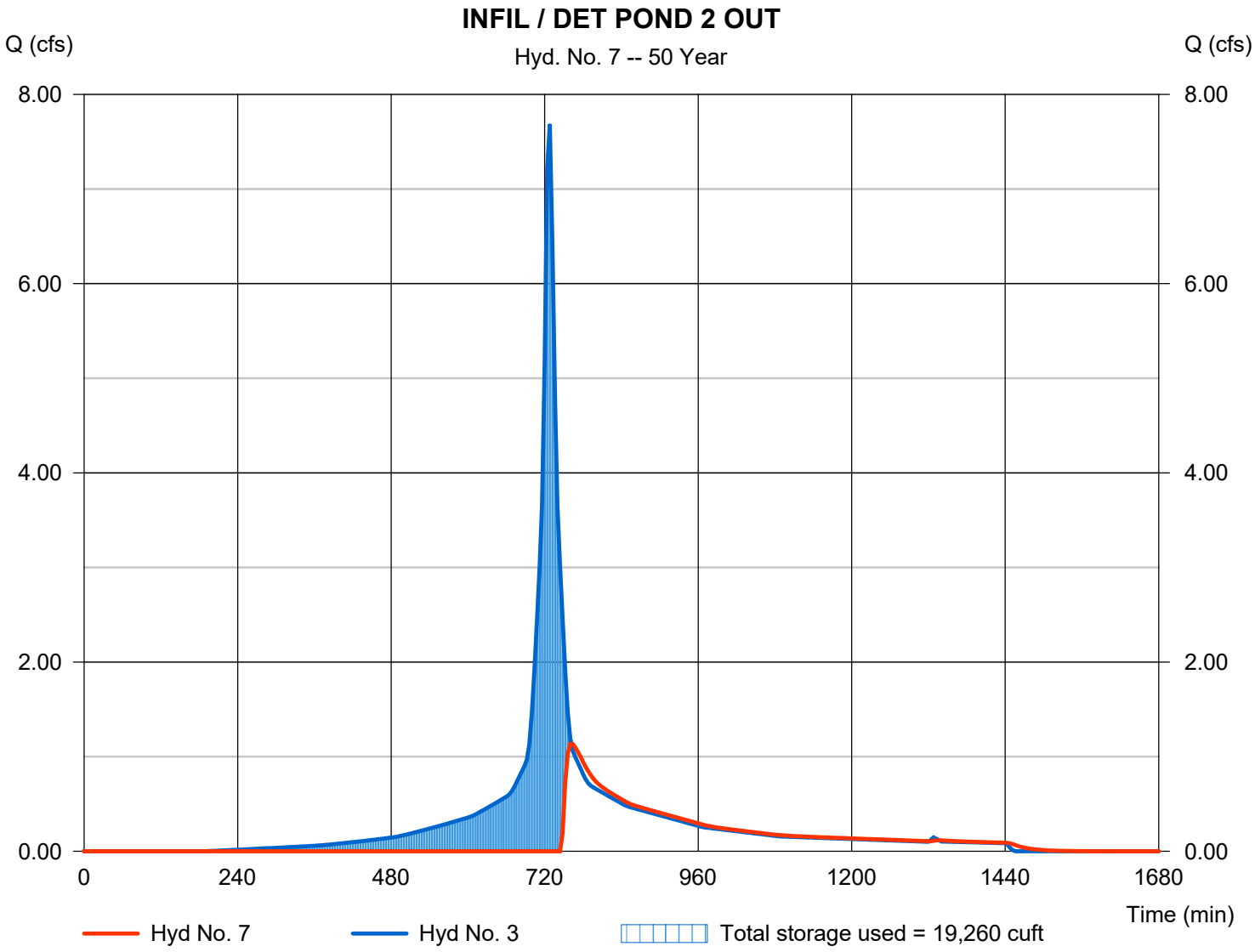
Hydrograph Report

Hyd. No. 7

INFIL / DET POND 2 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	1.135 cfs
Storm frequency	=	50 yrs	Time to peak	=	760 min
Time interval	=	4 min	Hyd. volume	=	11,870 cuft
Inflow hyd. No.	=	3 - POST BASIN 2	Max. Elevation	=	34.74 ft
Reservoir name	=	INFIL / DET POND 2	Max. Storage	=	19,260 cuft

Storage Indication method used.

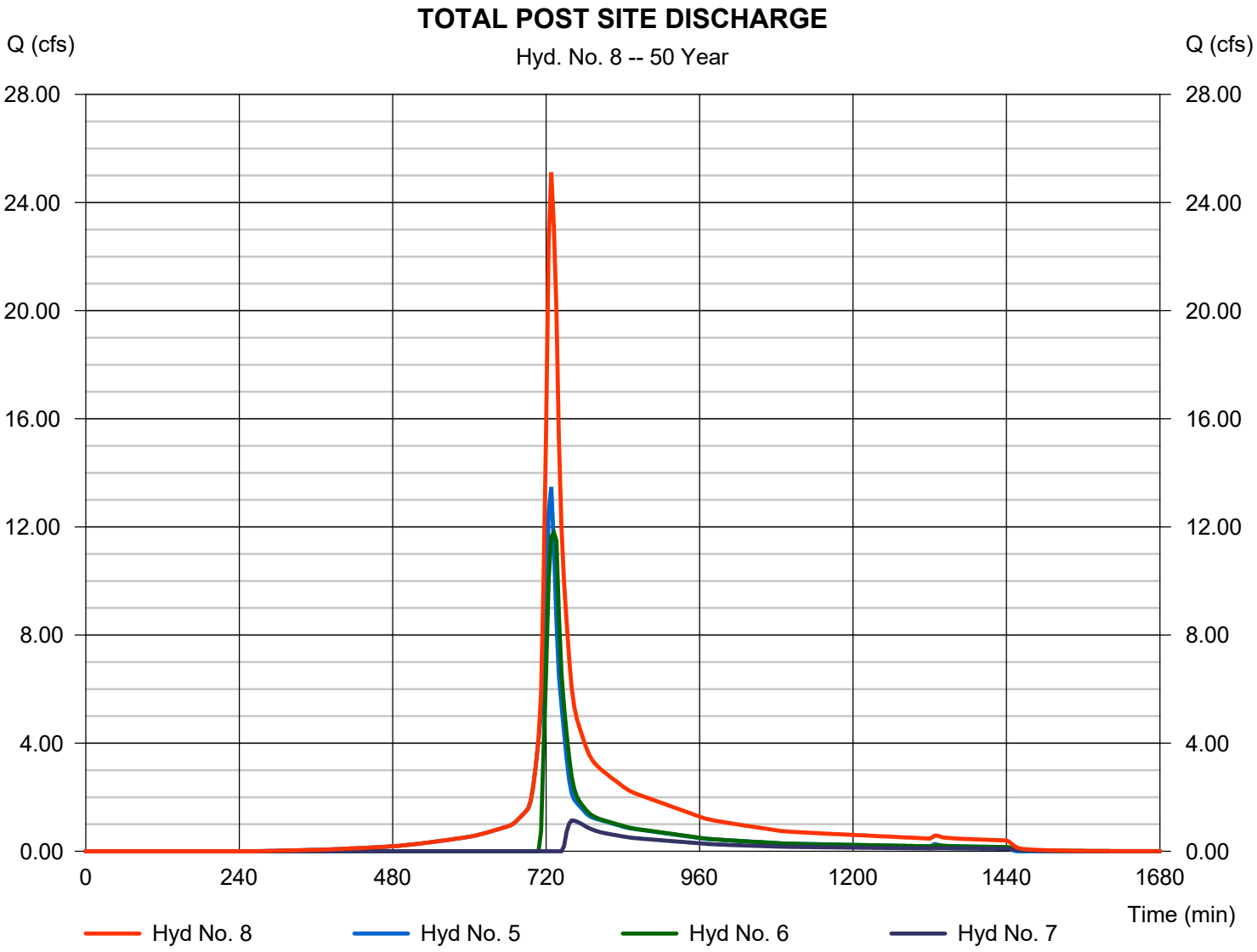


Hydrograph Report

Hyd. No. 8

TOTAL POST SITE DISCHARGE

Hydrograph type	= Combine	Peak discharge	= 25.12 cfs
Storm frequency	= 50 yrs	Time to peak	= 728 min
Time interval	= 4 min	Hyd. volume	= 103,452 cuft
Inflow hyds.	= 5, 6, 7	Contrib. drain. area	= 2.210 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	30.80	3	735	150,755	------	------	------	PRE BASIN 1 - TOTAL PRE DISCHA
2	SCS Runoff	15.69	4	728	62,565	------	------	------	POST BASIN 1
3	SCS Runoff	8.824	4	728	34,948	------	------	------	POST BASIN 2
4	Reservoir	30.07	3	735	117,829	1	32.32	7,849	SD4 OUT
5	SCS Runoff	15.63	4	728	60,164	------	------	------	POST BASIN 3 (BYPASS)
6	Reservoir	12.49	4	732	48,593	2	35.63	18,456	INFIL / DET POND 1 OUT
7	Reservoir	2.950	4	748	16,649	3	34.82	20,124	INFIL / DET POND 2 OUT
8	Combine	27.73	4	728	125,406	5, 6, 7	------	------	TOTAL POST SITE DISCHARGE

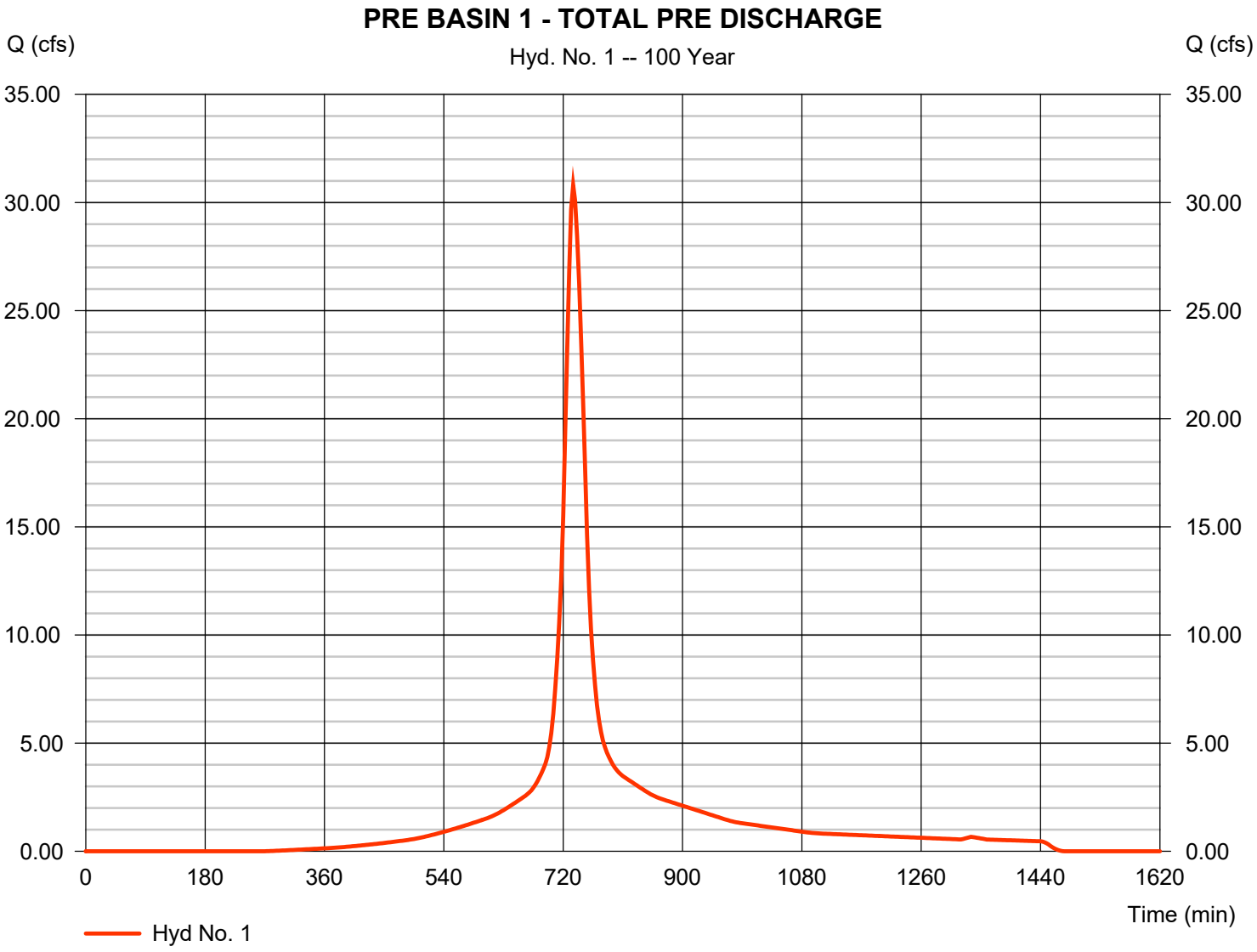
Hydrograph Report

Hyd. No. 1

PRE BASIN 1 - TOTAL PRE DISCHARGE

Hydrograph type	= SCS Runoff	Peak discharge	= 30.80 cfs
Storm frequency	= 100 yrs	Time to peak	= 735 min
Time interval	= 3 min	Hyd. volume	= 150,755 cuft
Drainage area	= 5.500 ac	Curve number	= 81*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.00 min
Total precip.	= 10.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.740 x 98) + (4.760 x 78)] / 5.500



Hydrograph Report

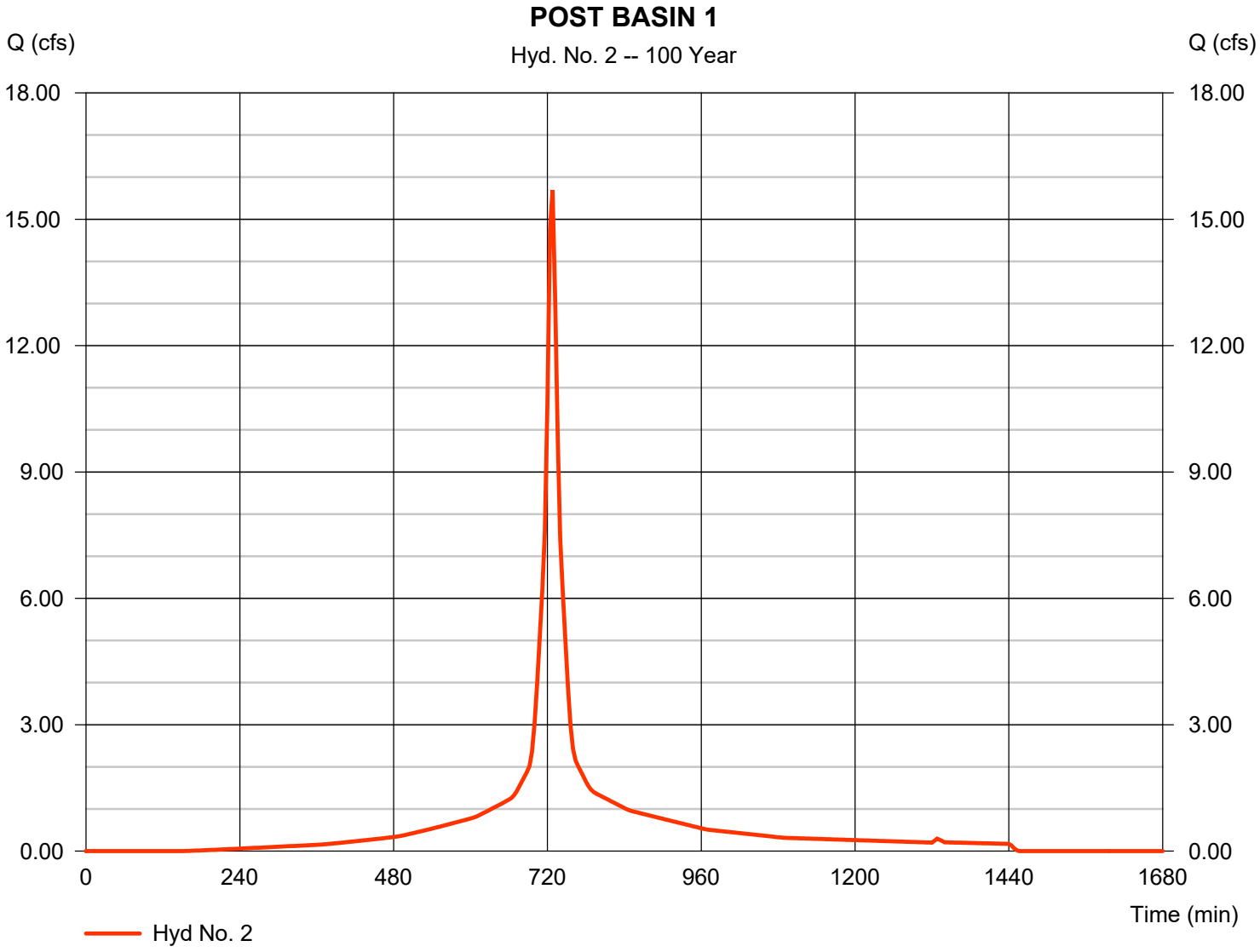
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Thursday, 05 / 19 / 2022

Hyd. No. 2

POST BASIN 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.69 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	62,565 cuft
Drainage area	=	2.100 ac	Curve number	=	89*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.60 min
Total precip.	=	10.10 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.700 x 98) + (0.400 x 50)] / 2.100



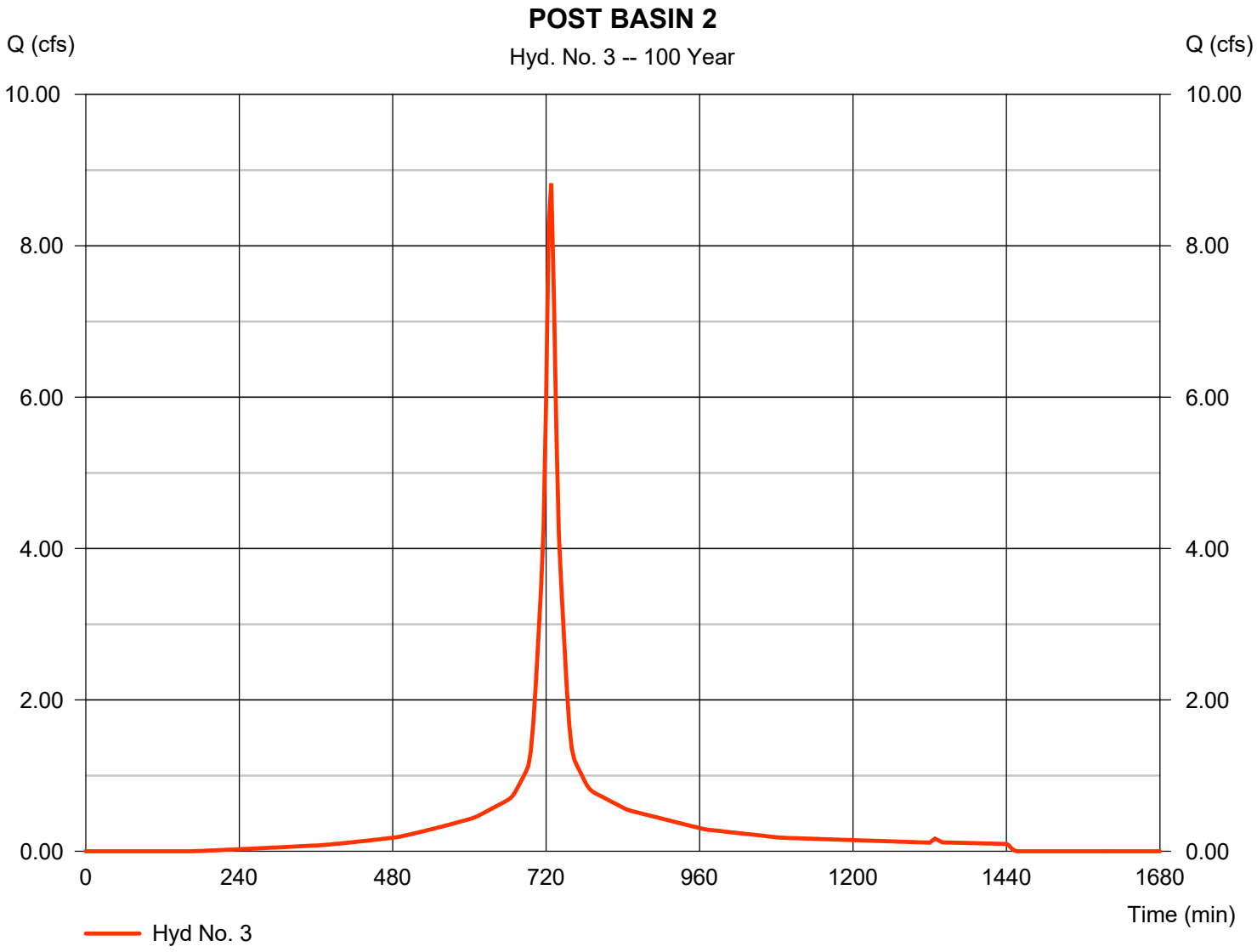
Hydrograph Report

Hyd. No. 3

POST BASIN 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.824 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	34,948 cuft
Drainage area	=	1.190 ac	Curve number	=	88*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.70 min
Total precip.	=	10.10 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.250 x 50) + (0.940 x 98)] / 1.190



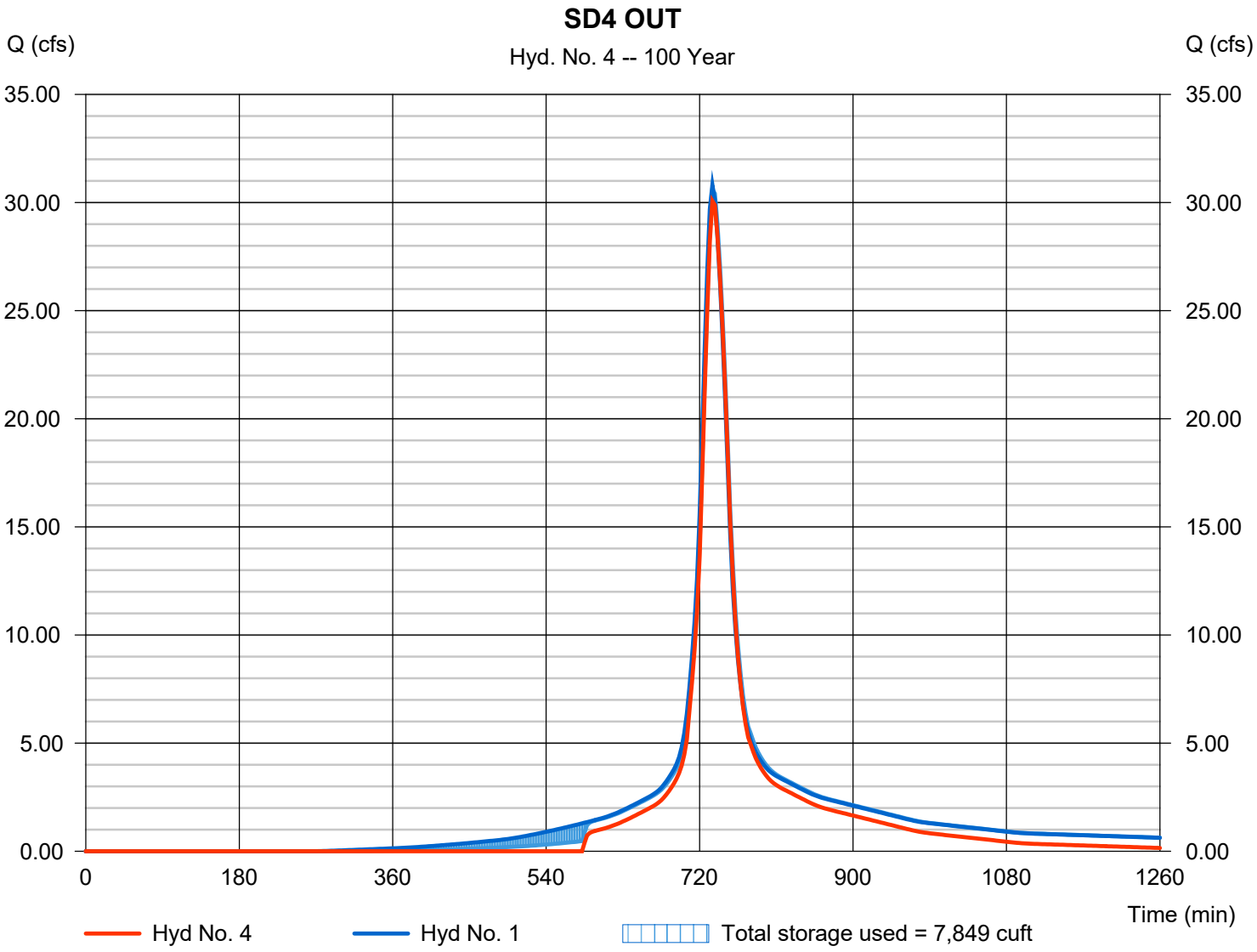
Hydrograph Report

Hyd. No. 4

SD4 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	30.07 cfs
Storm frequency	=	100 yrs	Time to peak	=	735 min
Time interval	=	3 min	Hyd. volume	=	117,829 cuft
Inflow hyd. No.	=	1 - PRE BASIN 1 - TOTAL PRE DISCHARGE	Max. Elevation	=	32.32 ft
Reservoir name	=	SD4	Max. Storage	=	7,849 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



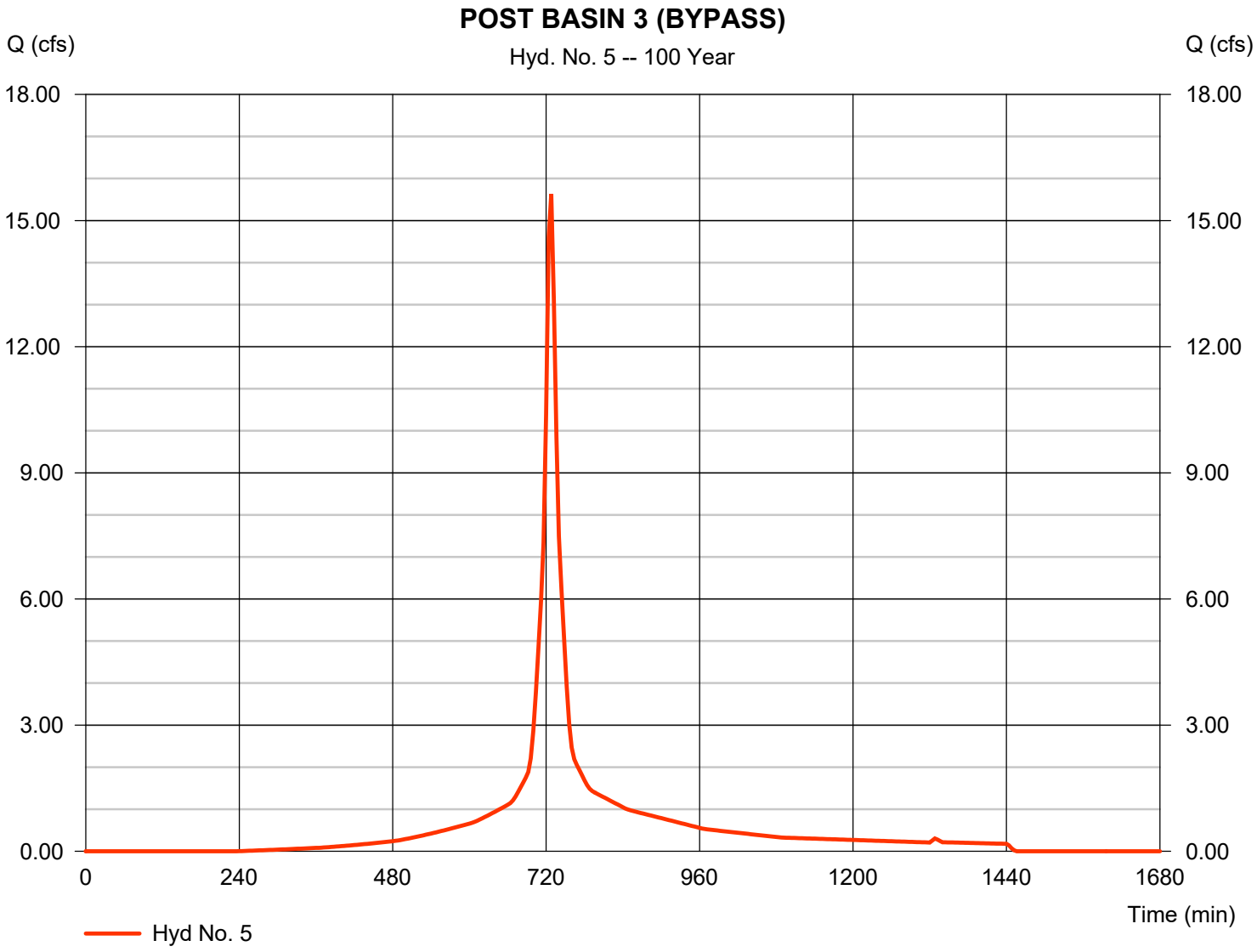
Hydrograph Report

Hyd. No. 5

POST BASIN 3 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.63 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	4 min	Hyd. volume	=	60,164 cuft
Drainage area	=	2.210 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	10.10 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.740 x 98) + (1.470 x 76)] / 2.210



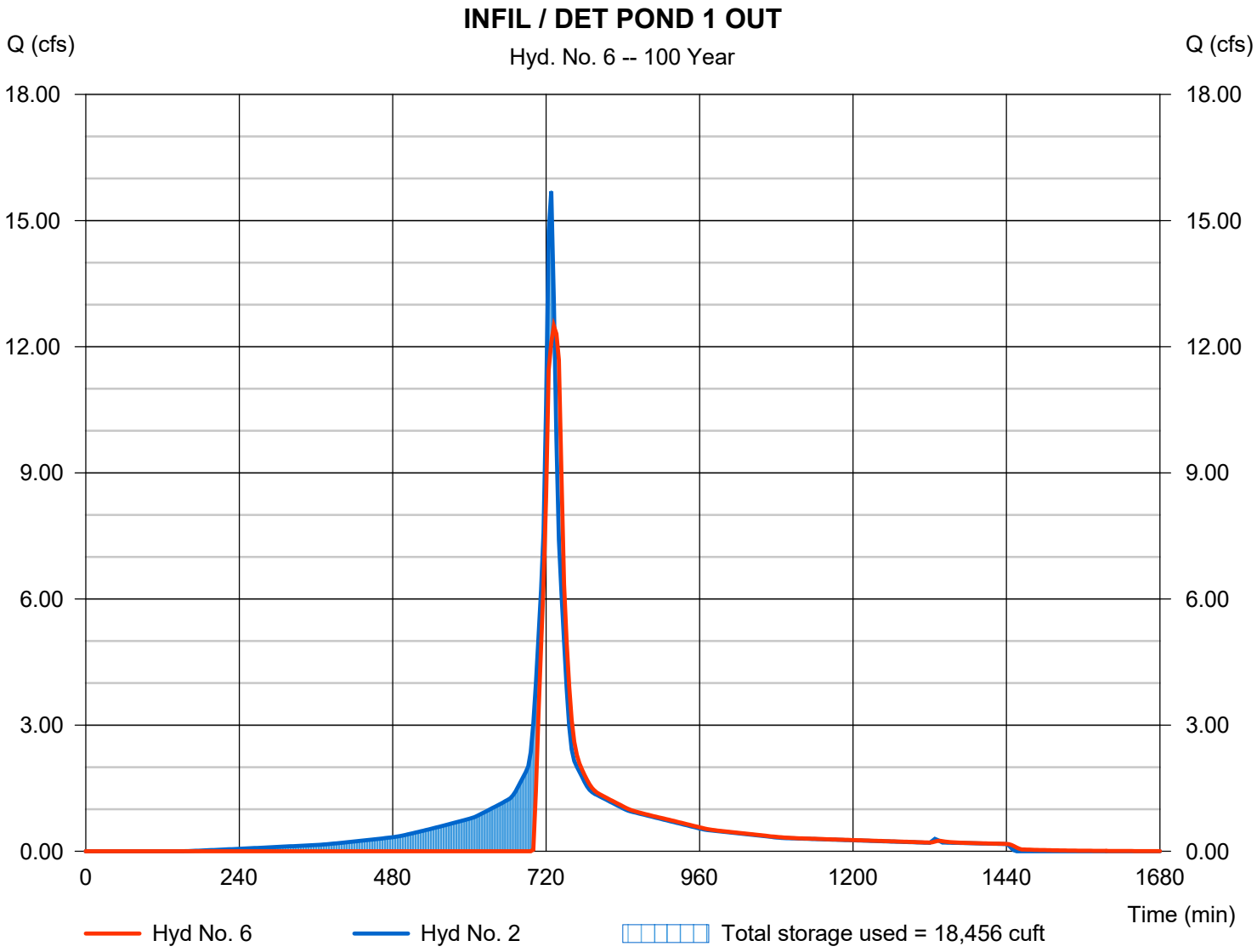
Hydrograph Report

Hyd. No. 6

INFIL / DET POND 1 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	12.49 cfs
Storm frequency	=	100 yrs	Time to peak	=	732 min
Time interval	=	4 min	Hyd. volume	=	48,593 cuft
Inflow hyd. No.	=	2 - POST BASIN 1	Max. Elevation	=	35.63 ft
Reservoir name	=	INFIL / DET POND 1	Max. Storage	=	18,456 cuft

Storage Indication method used.



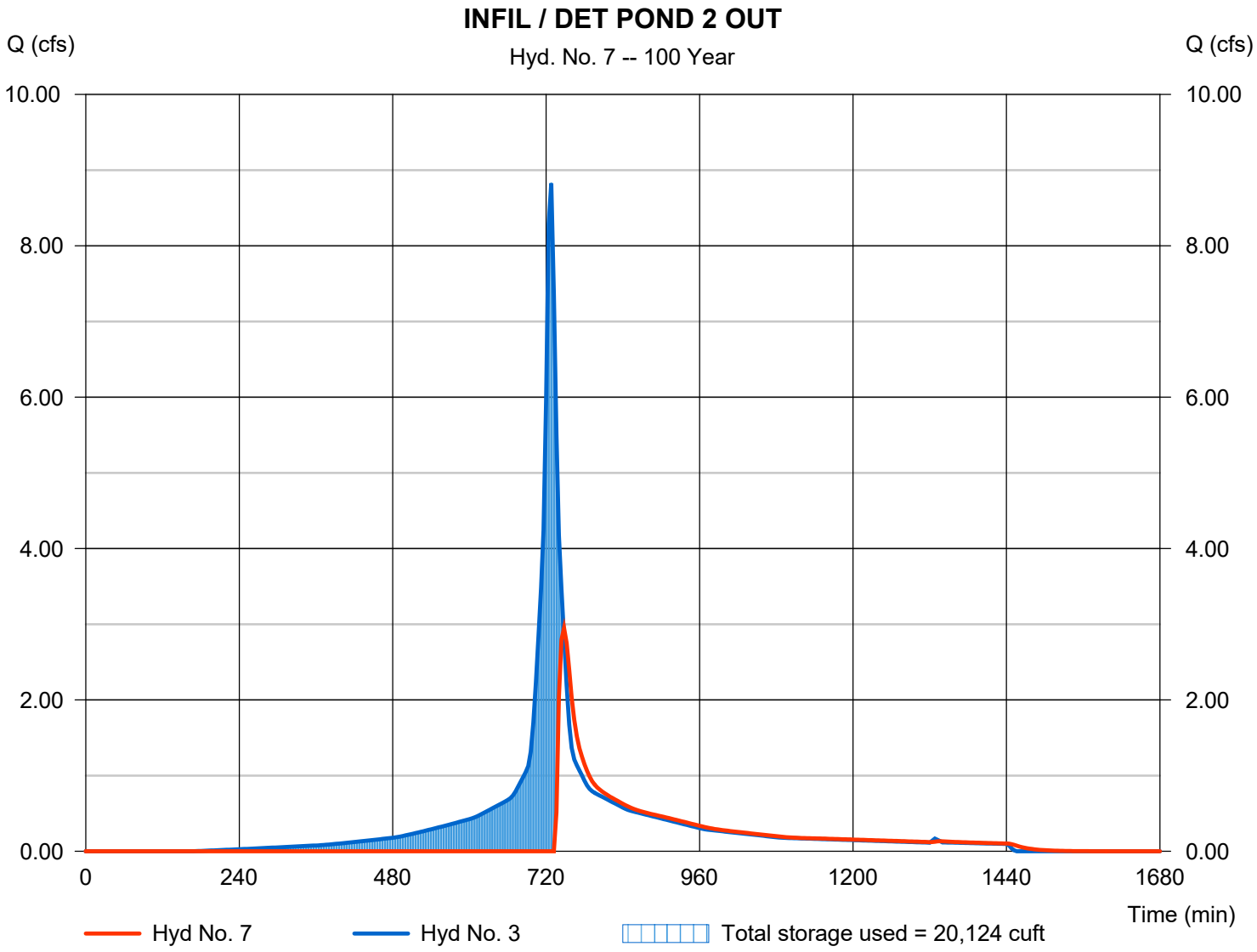
Hydrograph Report

Hyd. No. 7

INFIL / DET POND 2 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	2.950 cfs
Storm frequency	=	100 yrs	Time to peak	=	748 min
Time interval	=	4 min	Hyd. volume	=	16,649 cuft
Inflow hyd. No.	=	3 - POST BASIN 2	Max. Elevation	=	34.82 ft
Reservoir name	=	INFIL / DET POND 2	Max. Storage	=	20,124 cuft

Storage Indication method used.

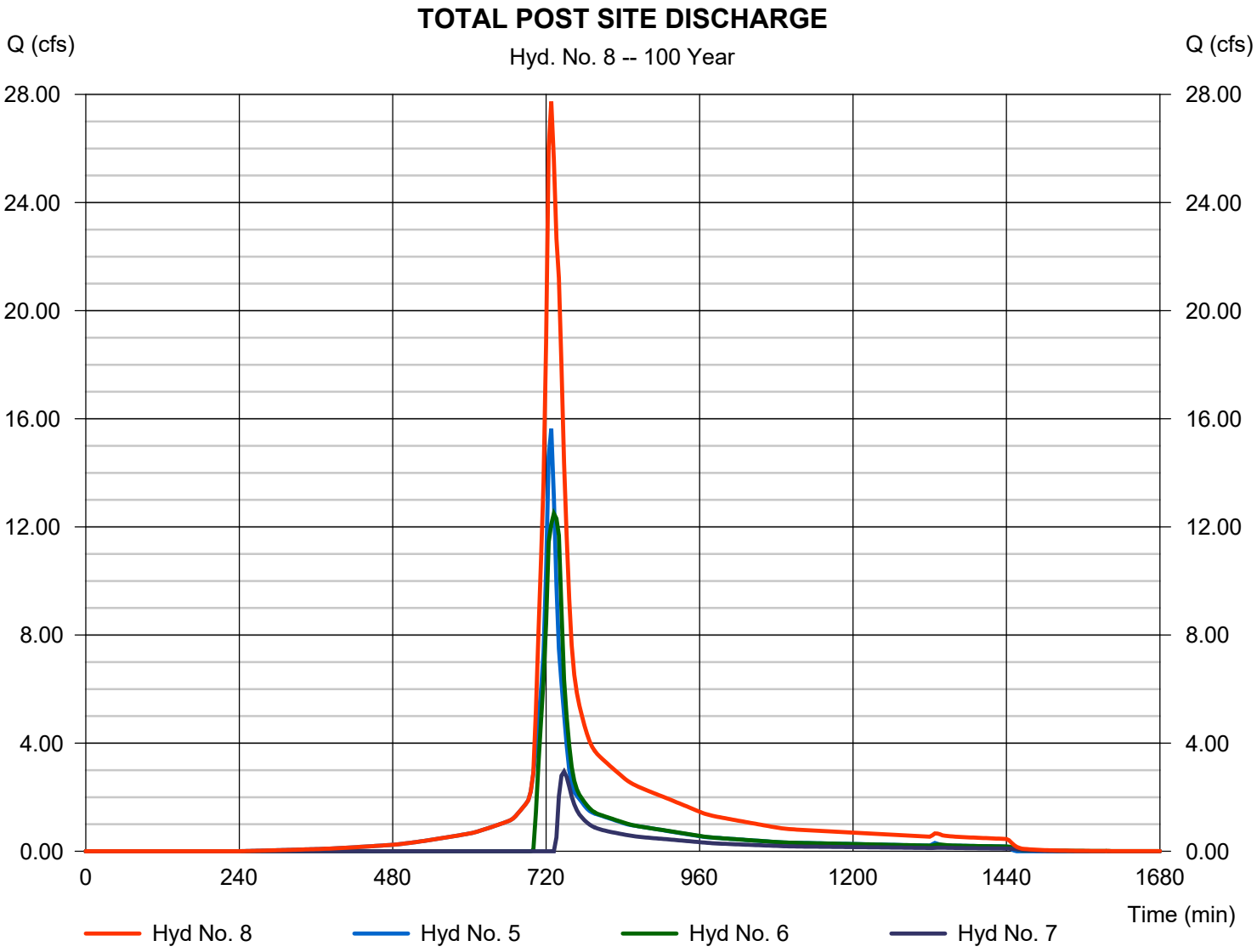


Hydrograph Report

Hyd. No. 8

TOTAL POST SITE DISCHARGE

Hydrograph type	= Combine	Peak discharge	= 27.73 cfs
Storm frequency	= 100 yrs	Time to peak	= 728 min
Time interval	= 4 min	Hyd. volume	= 125,406 cuft
Inflow hyds.	= 5, 6, 7	Contrib. drain. area	= 2.210 ac

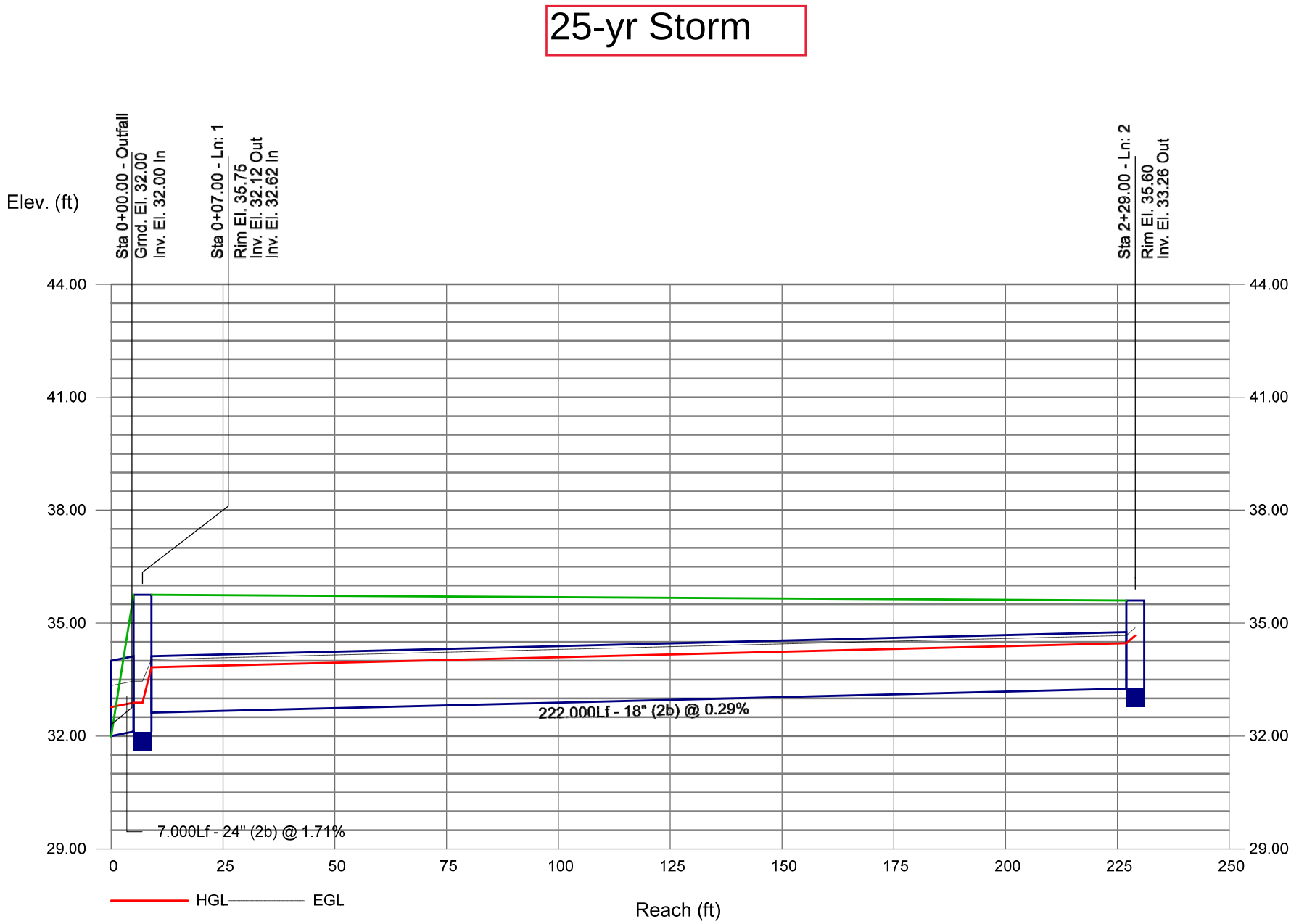


APPENDIX B

25-Yr through 100-yr/24-Hour Storm Sewer Profile

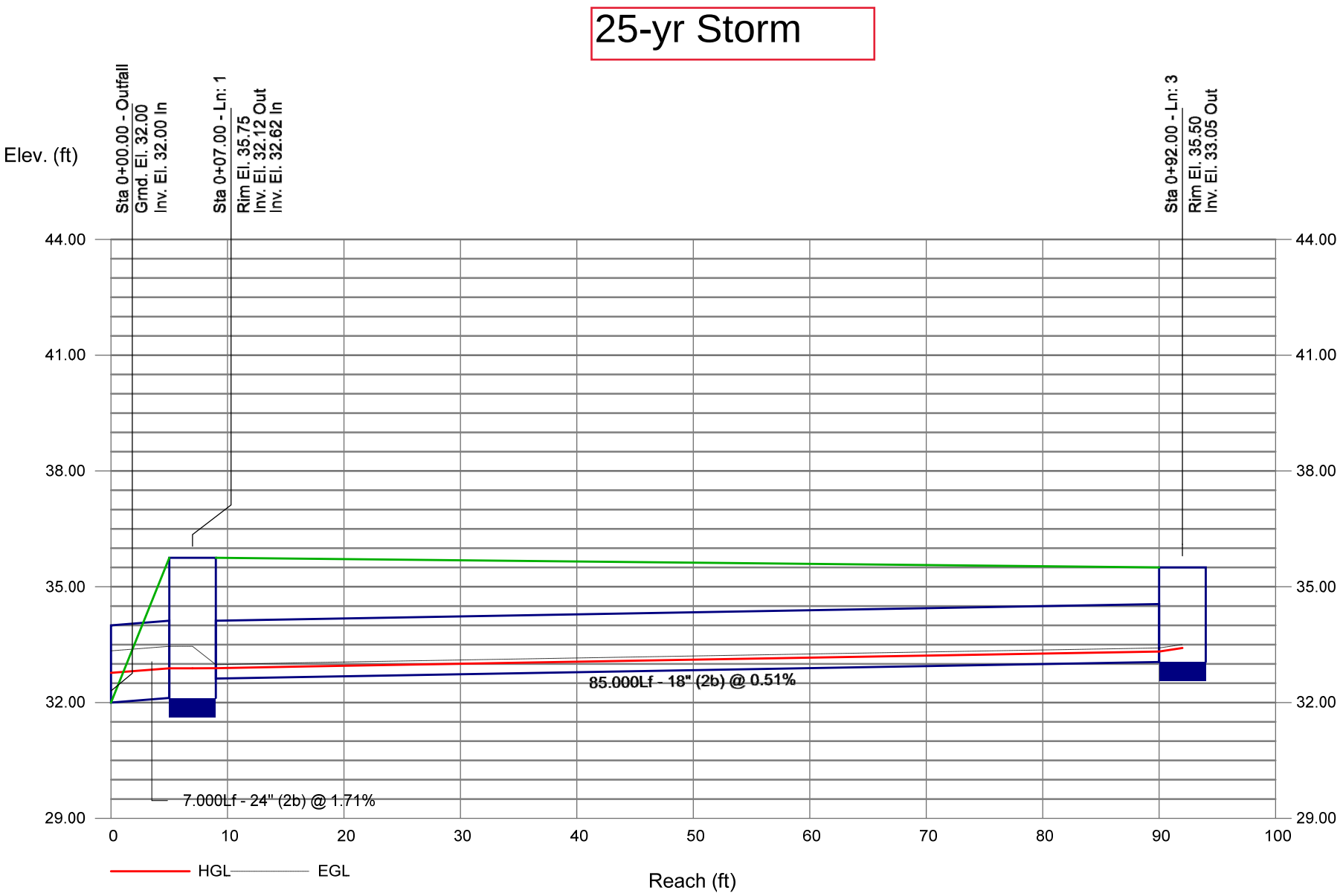
Storm Sewer Profile

Proj. file: PW Truck Yrd.stm



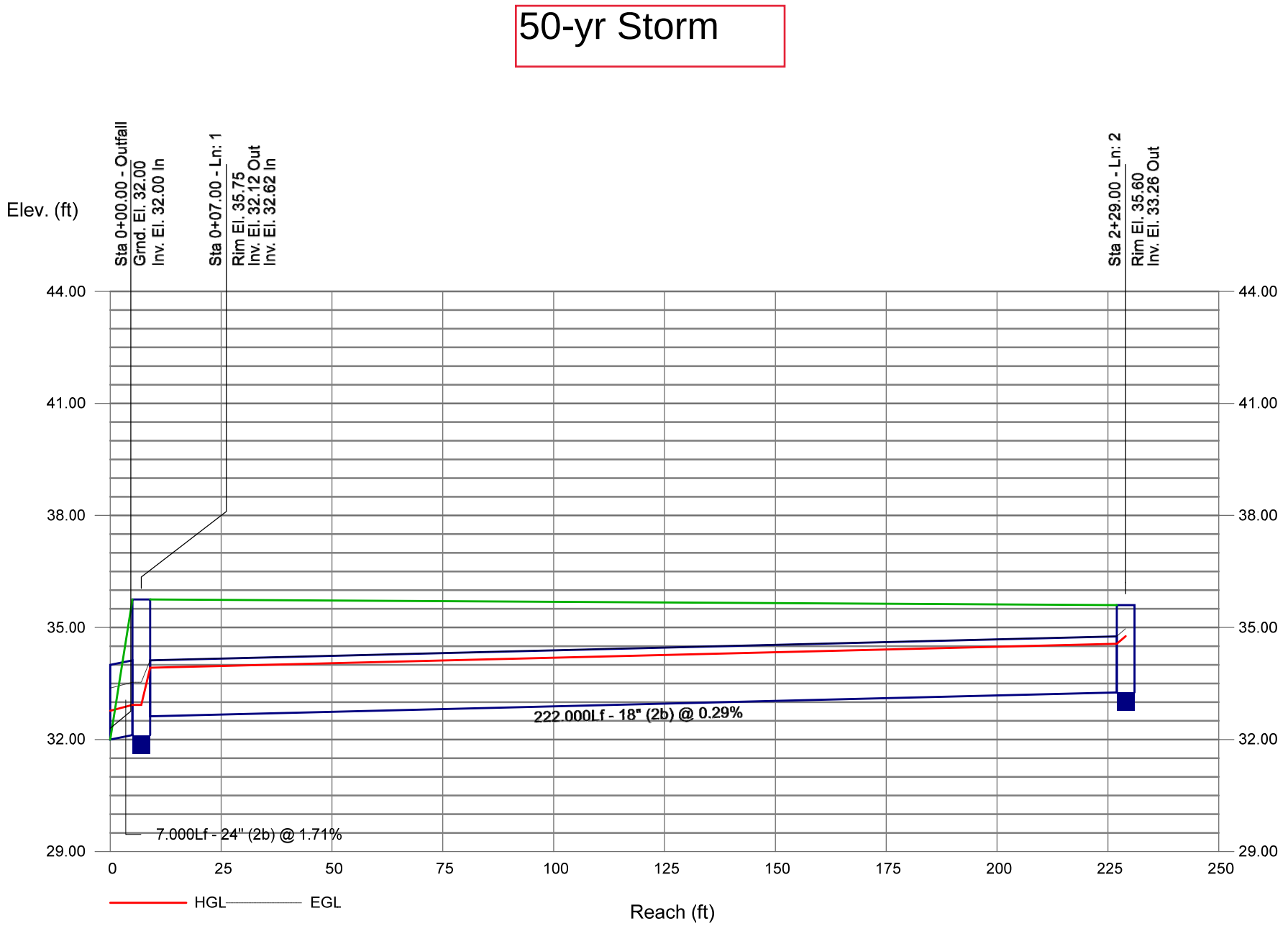
Storm Sewer Profile

Proj. file: PW Truck Yrd.stm



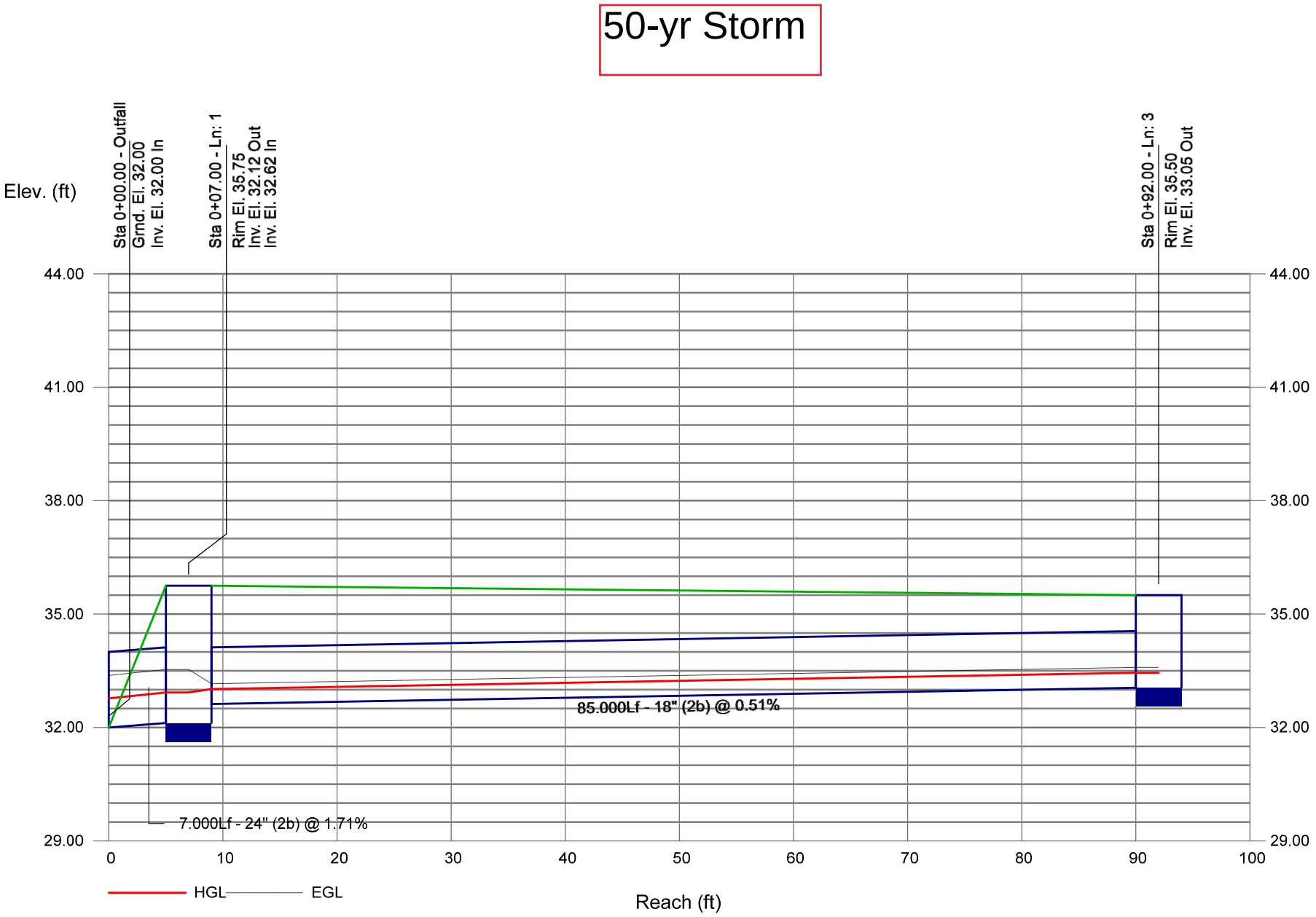
Storm Sewer Profile

Proj. file: 50-yr PW Truck Yrd.stm

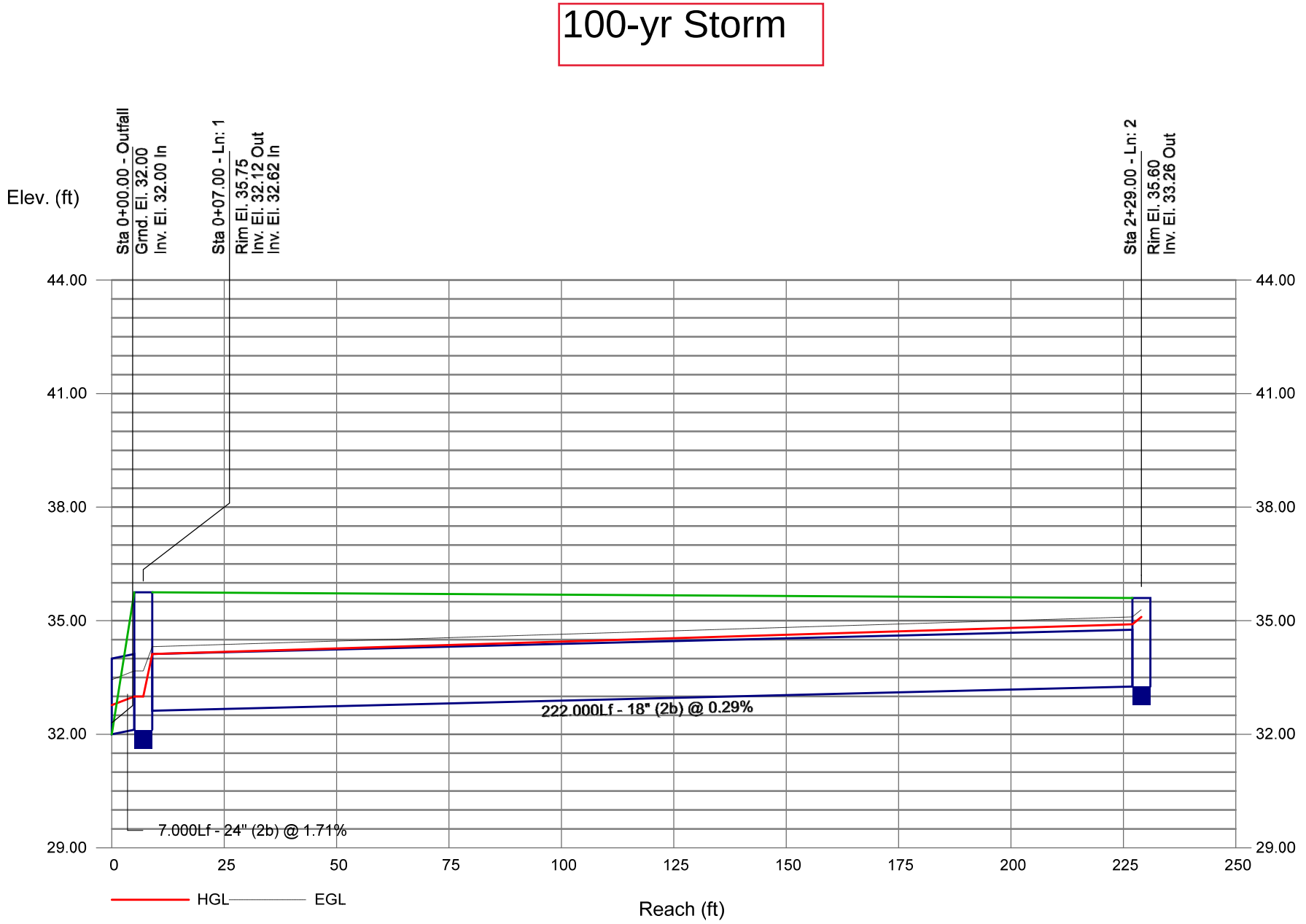


Storm Sewer Profile

Proj. file: 50-yr PW Truck Yrd.stm

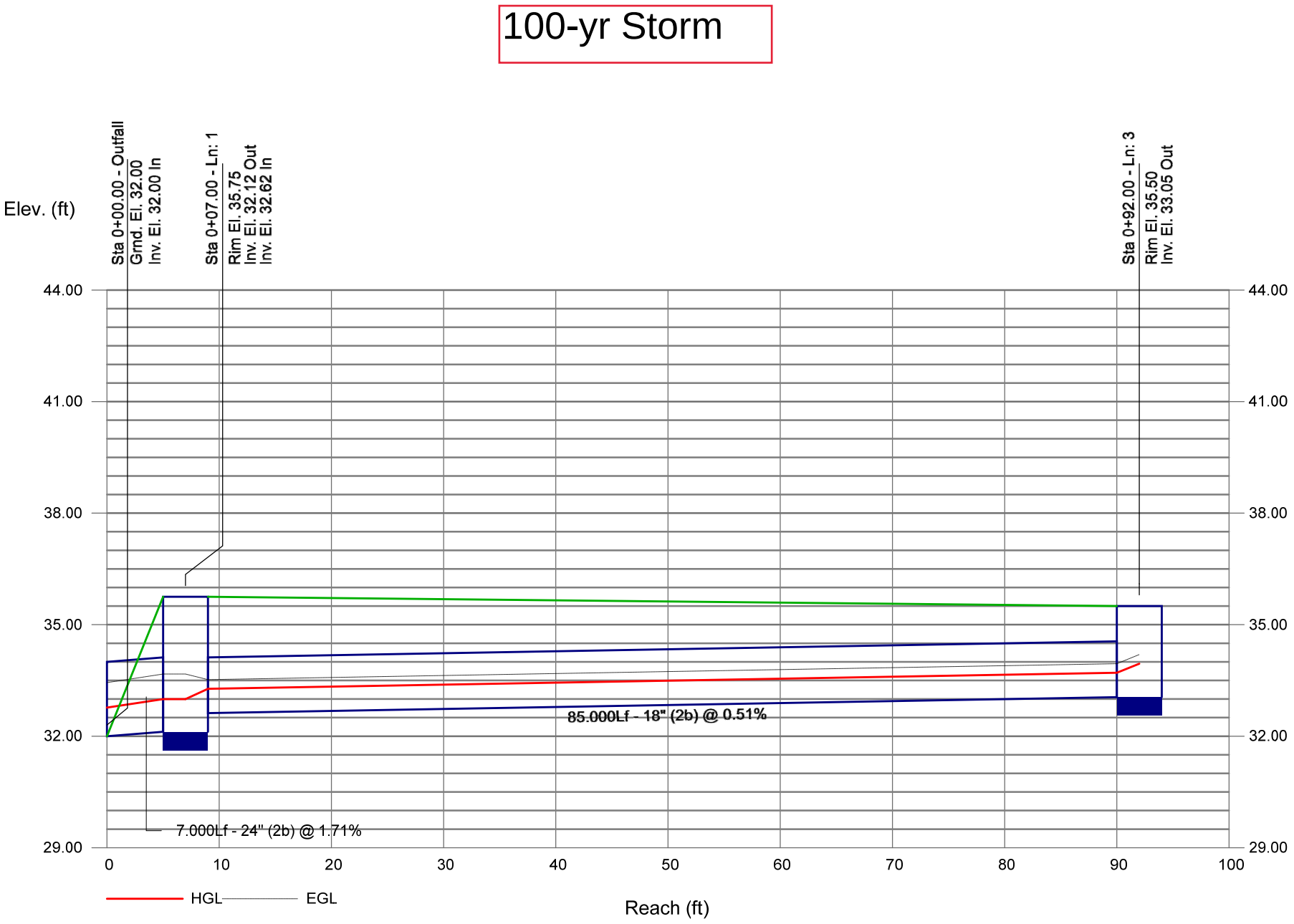


Storm Sewer Profile



Storm Sewer Profile

Proj. file: 100-yr PW Truck Yrd.stm



APPENDIX C

Site Data Sheet
Drainage Area A
Drainage Area B
Runoff Reduction Summary

Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Site Data

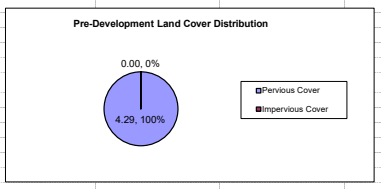
Site Name: **Port Wentworth Truck and Chassis Storage Yard**

	data input cells
	calculation cells
	constant values

Step 1: Enter Site Information

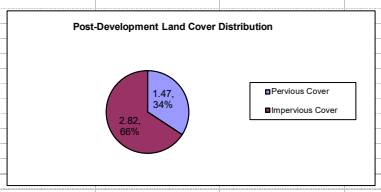
Pre-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	4.29	4.29
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	4.29

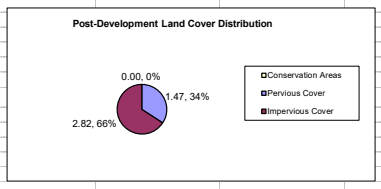


Post-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.47	1.47
Impervious Cover	0.00	0.00	0.00	2.82	2.82
				Total	4.29



Runoff Reduction Rainfall Event (inches)	1.2
Post-Development Site Imperviousness (%)	66%
Post-Development Site Runoff Coefficient, Rv	0.64
Target Runoff Reduction Volume, RRv (acre-feet)	0.28
Target Runoff Reduction Volume, RRv (cubic feet)	11,990

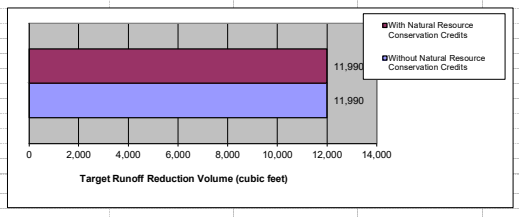


Step 2: Apply Better Site Planning Techniques

Natural Resource Conservation Credits	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Primary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Secondary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Total (acres)					0.00

Target Runoff Reduction Volume with Natural Resource Conservation Credits, RRv

Target Runoff Reduction Volume, RRv (acre-feet)	0.28
Target Runoff Reduction Volume, RRv (cubic feet)	11,990



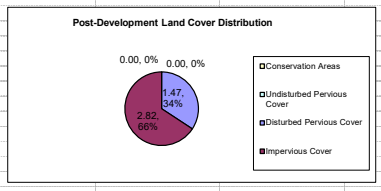
Step 3: Apply Better Site Design Techniques

Reduced Clearing and Grading Credits

	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Undisturbed Pervious Cover (Acres)	0.0	0.0	0.0	0.0	0.00

Revised Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	1.47	1.47
Impervious Cover	0.00	0.00	0.00	2.82	2.82
				Total	4.29



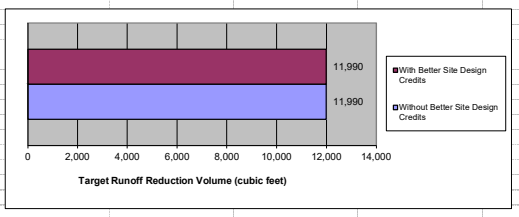
Restoration of Disturbed Pervious Surfaces

Soil Restoration (Acres)	0.0
Site Reforestation/Vegetation (Acres)	0.0
Soil Restoration w/ Site Reforestation/Revegetation (Acres)	0.0

Target Runoff Reduction Volume After Application of Better Site Design Credits, RRv

Target Runoff Reduction Volume, RRv (acre-feet)	0.28
Target Runoff Reduction Volume, RRv (cubic feet)	11,990

Note: Remainder of Better Site Design Techniques are considered to be "self-crediting."



Coastal Stormwater Supplement Site Planning & Design Worksheet

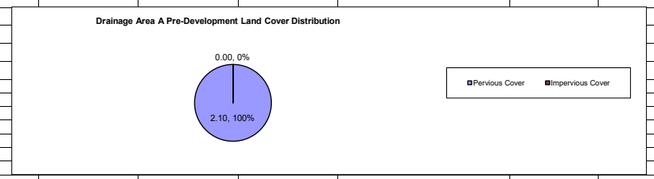
Revised July 2014

Drainage Area A

Drainage Area Information

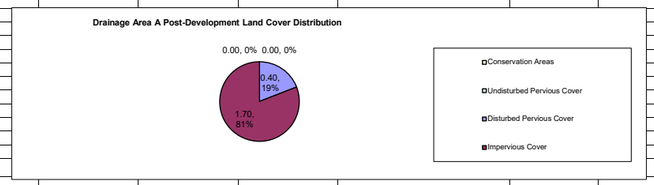
Drainage Area A Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	2.10	2.10
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	2.10



Drainage Area A Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	0.40	0.40
Impervious Cover	0.00	0.00	0.00	1.70	1.70
				Total	2.10



Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

"Receiving" Low Impact Development Practices

Infiltration Trench 1	2.10	1.70	7122.1	100% of storage volume	0.0	7122.1	0.0	7122.1	Surface Area x Depth x Void Ratio (0.32)	14108.0	7122.1	0.0	7122.1	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

Treatment Only Practices

None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**2.10**	**1.70**									**7122.1**		**7122.1**		

Coastal Stormwater Supplement Site Planning & Design Worksheet

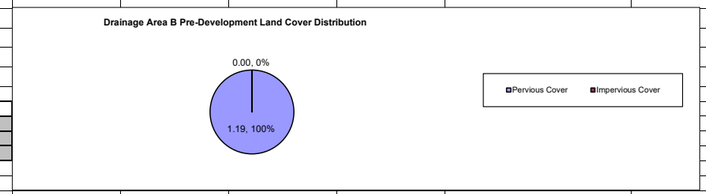
Revised July 2014

Drainage Area B

Drainage Area Information

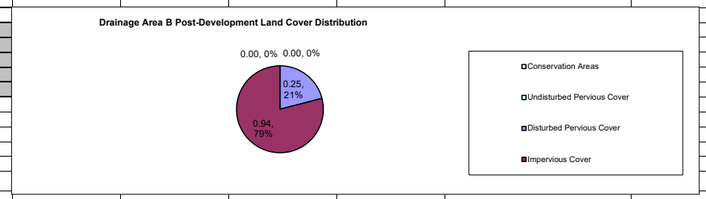
Drainage Area B Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.19	1.19
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	1.19



Drainage Area B Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	0.25	0.25
Impervious Cover	0.00	0.00	0.00	0.94	0.94
				Total	1.19



Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
"Receiving" Low Impact Development Practices															
Infiltration Trench 2	1.19	0.94	3944.4	100% of storage volume	0.0	3944.4	0.0	3944.4	Surface Area x Depth x Void Ratio (0.32)	7318.0	3944.4	0.0	3944.4	0.0	No Downstream Practice
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Treatment Only Practices															
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**1.19**	**0.94**									**3944.4**		**3944.4**		

Coastal Stormwater Supplement Site Planning & Design Worksheet

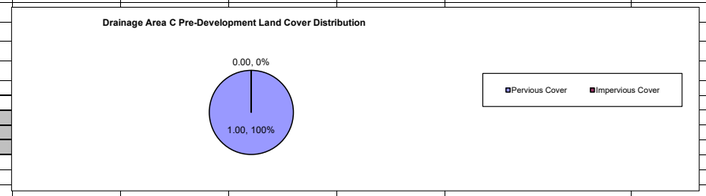
Revised July 2014

Drainage Area C

Drainage Area Information

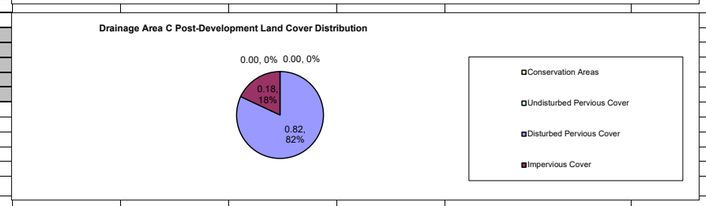
Drainage Area C Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.00	1.00
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	1.00



Drainage Area C Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	0.82	0.82
Impervious Cover	0.00	0.00	0.00	0.18	0.18
				Total	1.00



Low Impact Development Practices

Alternatives to Impervious Surfaces

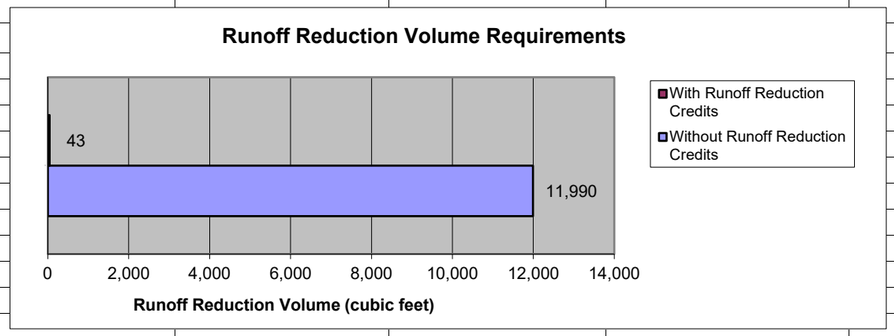
Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
"Receiving" Low Impact Development Practices															
Infiltration Trench 3	1.00	0.18	923.5	100% of storage volume	0.0	923.5	0.0	923.5	Surface Area x Depth x Void Ratio (0.32)	880.0	880.0	43.5	880.0	43.5	No Downstream Practice
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	0.0	0.0	0.0	0.0	0.0	No Downstream Practice
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Treatment Only Practices															
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**1.00**	**0.18**									**880.0**		**880.0**		

Coastal Stormwater Supplement Site Planning & Design Worksheet

Revised July 2014

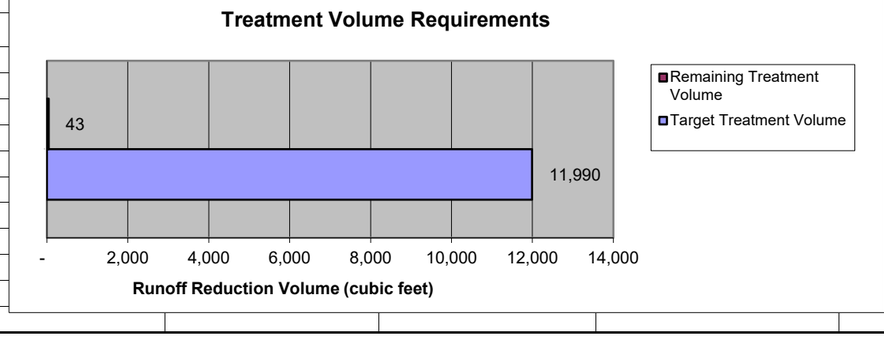
Stormwater Runoff Reduction Summary

Target Runoff Reduction and Treatment Volume, RRv (cubic feet)	11,990
Total Adjustment to Runoff Reduction Volume, RRv (cubic feet)	11,946
Percentage of Target Runoff Reduction Volume Achieved	100%
Runoff Reduction Volume Achieved (in)	1.20
Runoff Reduction Volume Remaining (cubic feet)	43



Note: If any of the target runoff reduction volume cannot be reduced on the development site, due to site characteristics or constraints, it should be intercepted and treated in one or more stormwater management practices that: (1) provide for at least an 80 percent reduction in TSS loads; and (2) reduce nitrogen and bacteria loads to the maximum extent practical.

Treatment Volume Achieved (cubic feet)	11,946
Treatment Volume Remaining (cubic feet)	43



APPENDIX D

1-yr 24-Hour Strom Hydrographs for Aquatic Resource Protection

Hydrograph Report

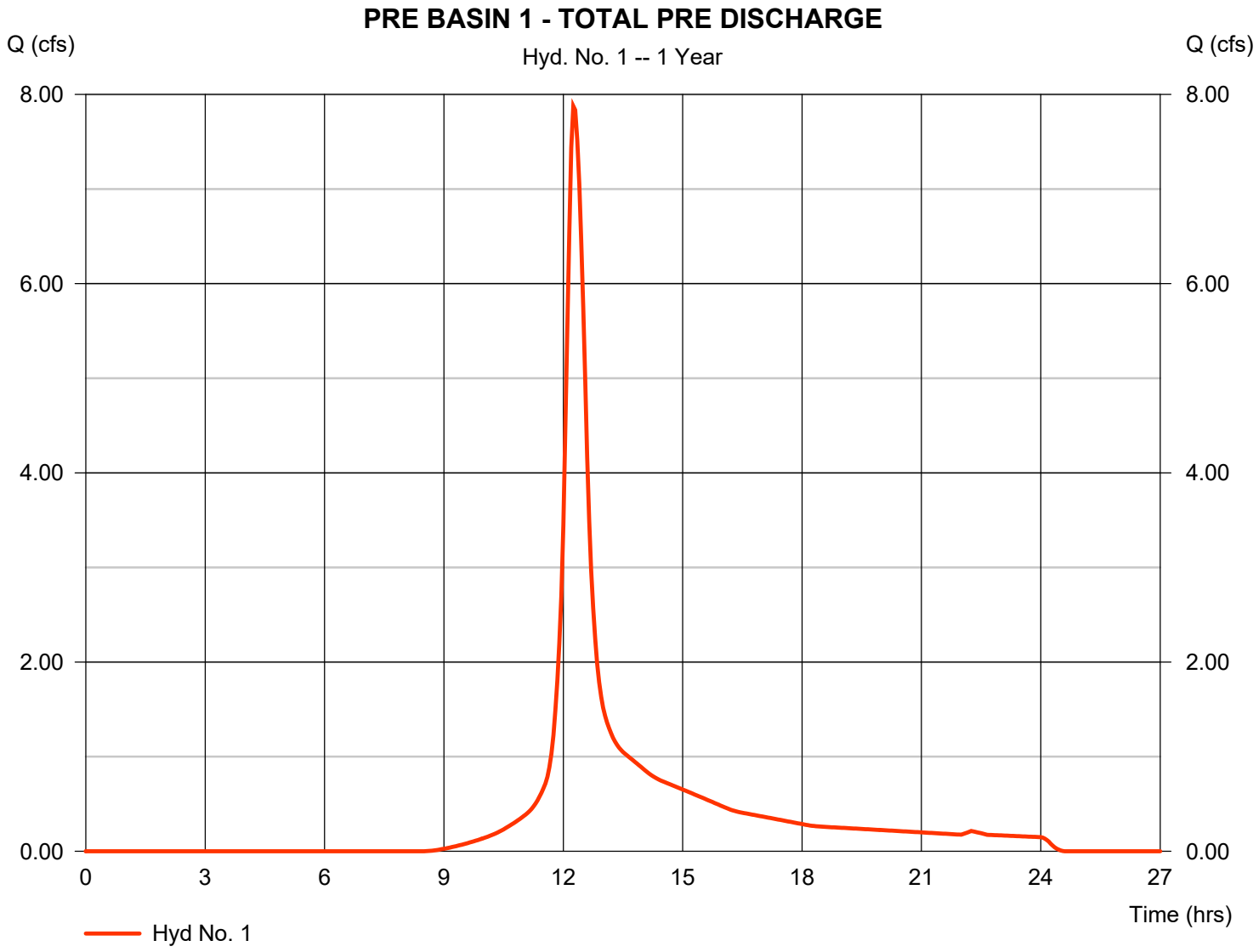
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 05 / 20 / 2022

Hyd. No. 1

PRE BASIN 1 - TOTAL PRE DISCHARGE

Hydrograph type	= SCS Runoff	Peak discharge	= 7.876 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.25 hrs
Time interval	= 3 min	Hyd. volume	= 37,723 cuft
Drainage area	= 5.500 ac	Curve number	= 81*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.00 min
Total precip.	= 3.78 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.740 x 98) + (4.760 x 78)] / 5.500



TR55 Tc Worksheet

Hyd. No. 1

PRE BASIN 1 - TOTAL PRE DISCHARGE

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.017		0.011		0.011		
Flow length (ft)	= 60.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 4.71		0.00		0.00		
Land slope (%)	= 5.00		0.00		0.00		
Travel Time (min)	**= 0.65**	**+**	**0.00**	**+**	**0.00**	**=**	**0.65**
Shallow Concentrated Flow							
Flow length (ft)	= 1319.00		0.00		0.00		
Watercourse slope (%)	= 0.45		0.00		0.00		
Surface description	= Unpaved		Paved		Unpaved		
Average velocity (ft/s)	=1.08		0.00		0.00		
Travel Time (min)	**= 20.31**	**+**	**0.00**	**+**	**0.00**	**=**	**20.31**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 21.00 min

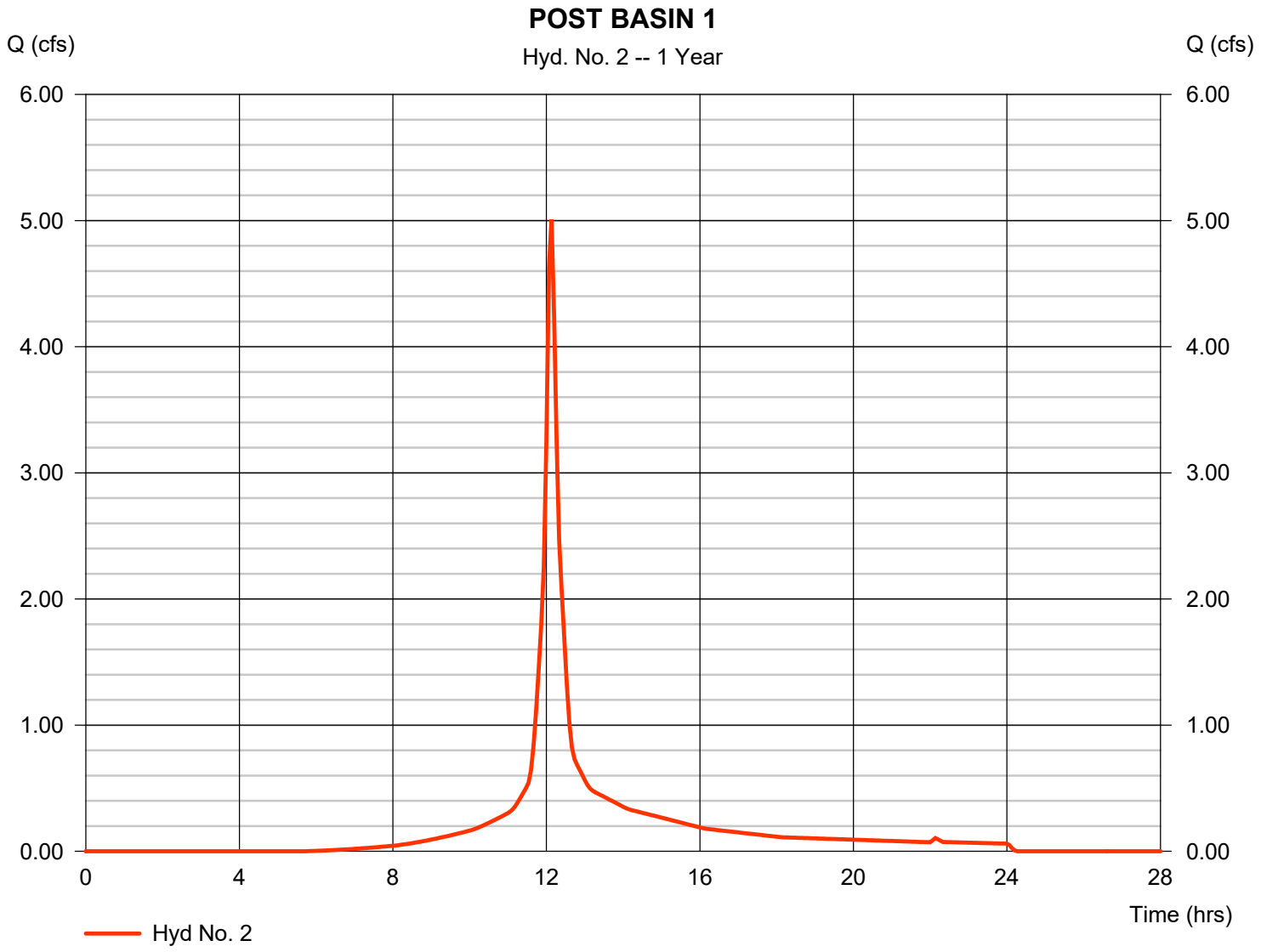
Hydrograph Report

Hyd. No. 2

POST BASIN 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.009 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.13 hrs
Time interval	=	4 min	Hyd. volume	=	18,704 cuft
Drainage area	=	2.100 ac	Curve number	=	89*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.60 min
Total precip.	=	3.78 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.700 x 98) + (0.400 x 50)] / 2.100



TR55 Tc Worksheet

Hyd. No. 2

POST BASIN 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 199.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 4.71		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.29**	**+**	**0.00**	**+**	**0.00**	**=**	**2.29**
Shallow Concentrated Flow							
Flow length (ft)	= 200.00		0.00		0.00		
Watercourse slope (%)	= 0.15		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=0.62		0.00		0.00		
Travel Time (min)	**= 5.33**	**+**	**0.00**	**+**	**0.00**	**=**	**5.33**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 7.60 min

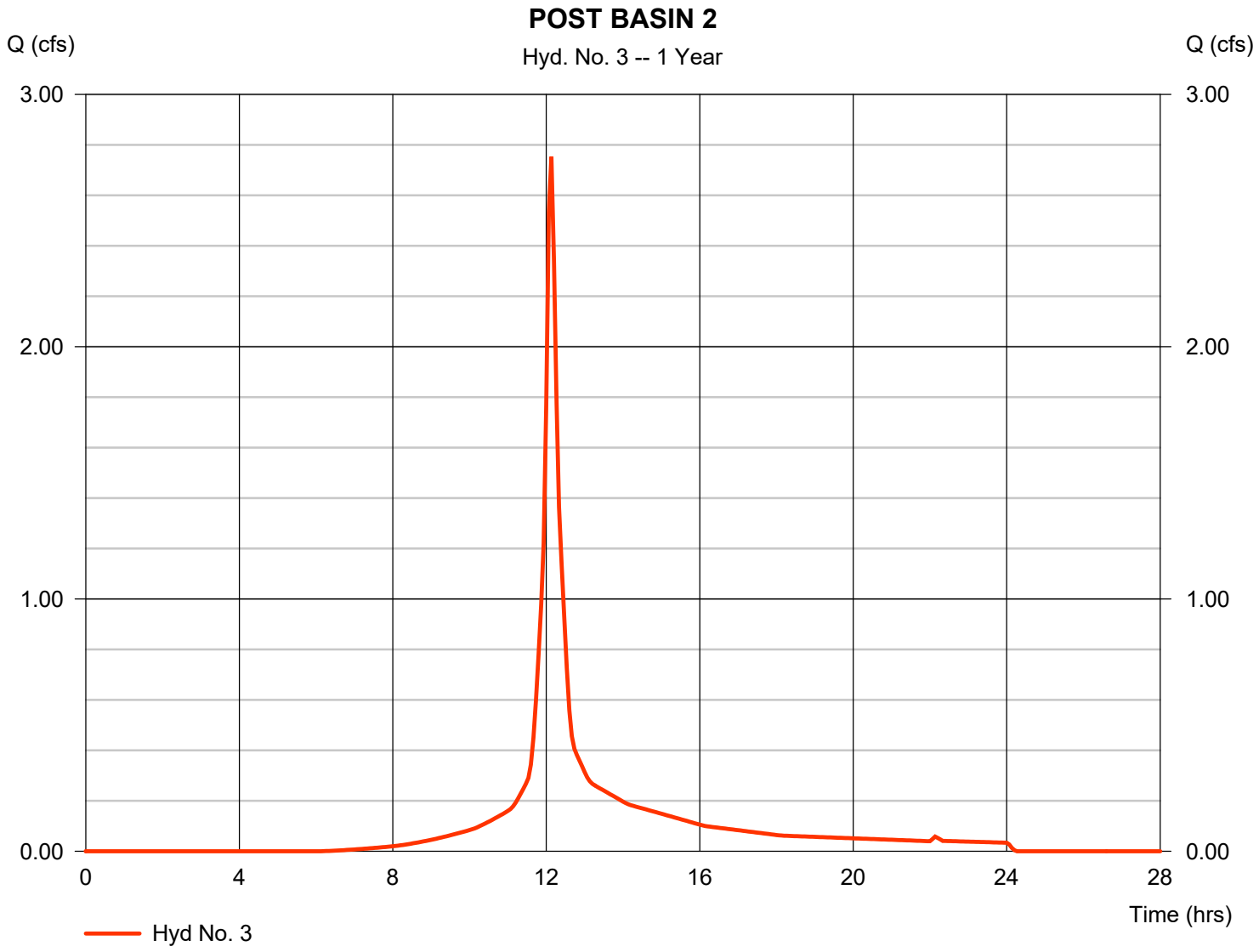
Hydrograph Report

Hyd. No. 3

POST BASIN 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.753 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.13 hrs
Time interval	=	4 min	Hyd. volume	=	10,227 cuft
Drainage area	=	1.190 ac	Curve number	=	88*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.70 min
Total precip.	=	3.78 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.250 x 50) + (0.940 x 98)] / 1.190



TR55 Tc Worksheet

Hyd. No. 3

POST BASIN 2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 118.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 4.71		0.00		0.00		
Land slope (%)	= 1.20		0.00		0.00		
Travel Time (min)	**= 1.40**	**+**	**0.00**	**+**	**0.00**	**=**	**1.40**
Shallow Concentrated Flow							
Flow length (ft)	= 422.00		0.00		0.00		
Watercourse slope (%)	= 0.15		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=0.62		0.00		0.00		
Travel Time (min)	**= 11.26**	**+**	**0.00**	**+**	**0.00**	**=**	**11.26**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 12.70 min

Hydrograph Report

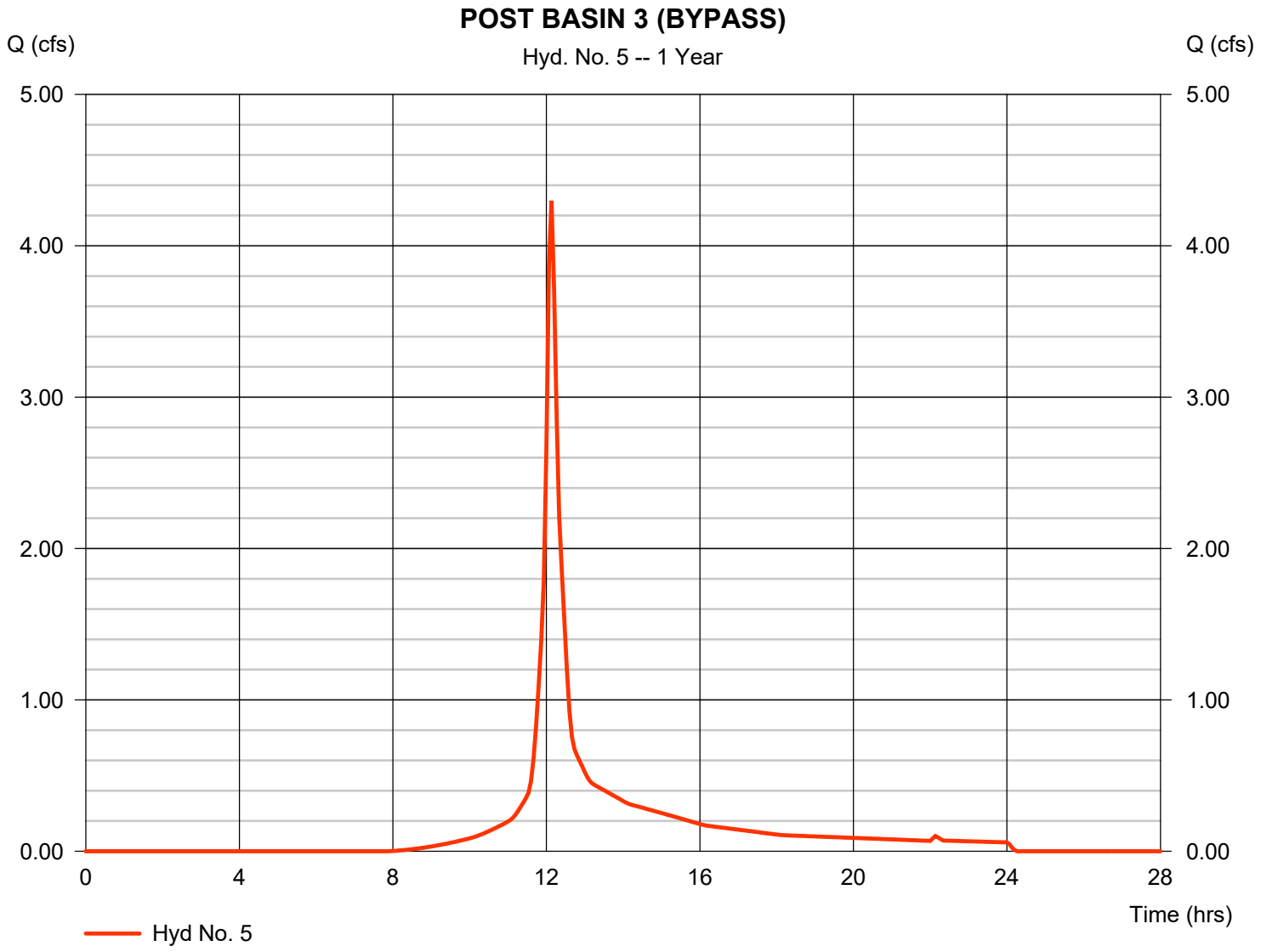
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 05 / 20 / 2022

Hyd. No. 5

POST BASIN 3 (BYPASS)

Hydrograph type	= SCS Runoff	Peak discharge	= 4.297 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 4 min	Hyd. volume	= 15,767 cuft
Drainage area	= 2.210 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 11.40 min
Total precip.	= 3.78 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.740 x 98) + (1.470 x 76)] / 2.210



TR55 Tc Worksheet

Hyd. No. 5

POST BASIN 3 (BYPASS)

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.017		0.011		0.011		
Flow length (ft)	= 60.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 4.71		0.00		0.00		
Land slope (%)	= 2.50		0.00		0.00		
Travel Time (min)	**= 0.86**	**+**	**0.00**	**+**	**0.00**	**=**	**0.86**
Shallow Concentrated Flow							
Flow length (ft)	= 595.00		237.00		33.00		
Watercourse slope (%)	= 0.55		1.00		1.00		
Surface description	= Unpaved		Paved		Unpaved		
Average velocity (ft/s)	=1.20		2.03		1.61		
Travel Time (min)	**= 8.29**	**+**	**1.94**	**+**	**0.34**	**=**	**10.57**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 11.40 min

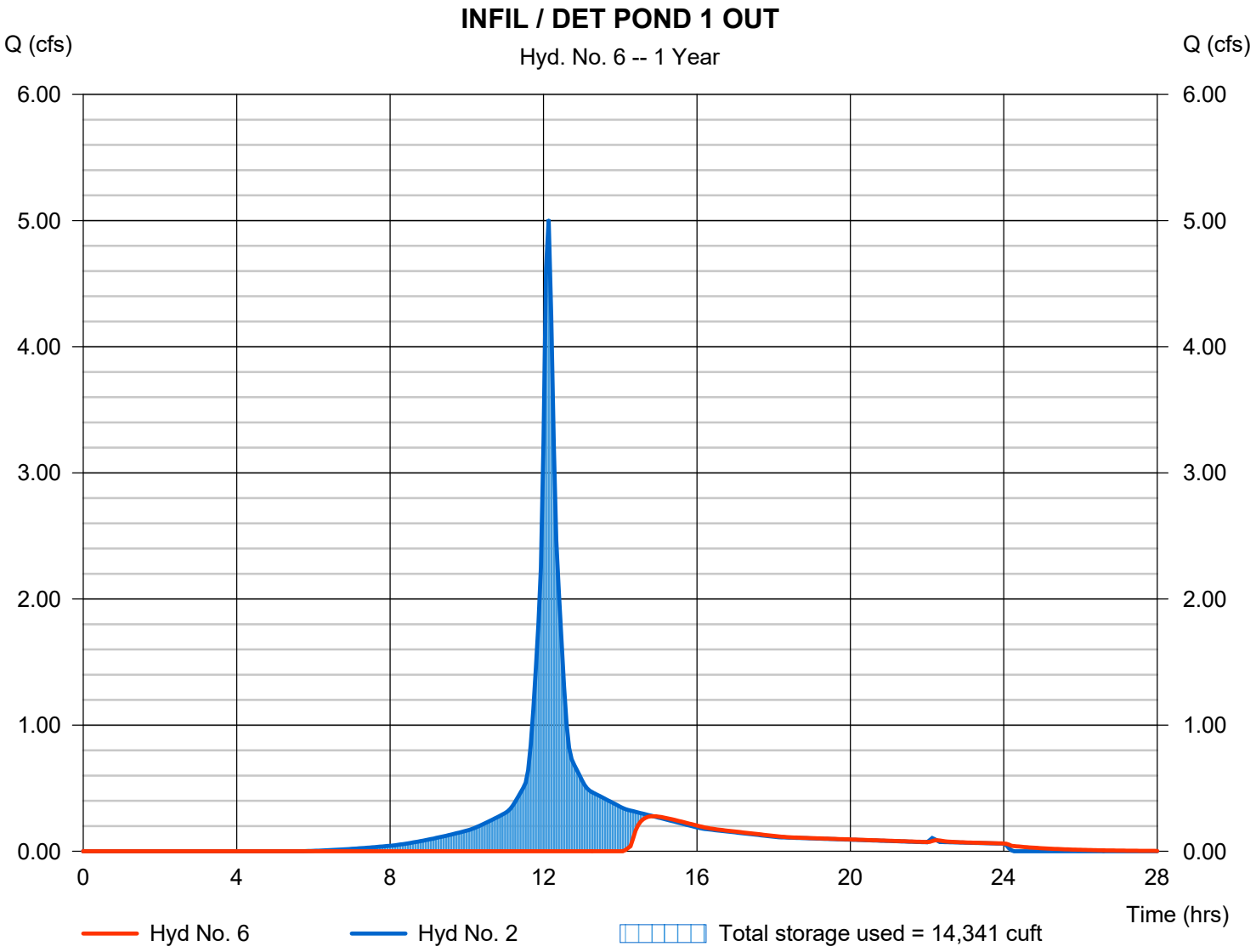
Hydrograph Report

Hyd. No. 6

INFIL / DET POND 1 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	0.278 cfs
Storm frequency	=	1 yrs	Time to peak	=	14.87 hrs
Time interval	=	4 min	Hyd. volume	=	4,732 cuft
Inflow hyd. No.	=	2 - POST BASIN 1	Max. Elevation	=	35.03 ft
Reservoir name	=	INFIL / DET POND 1	Max. Storage	=	14,341 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - INFIL / DET POND 1

Pond Data

Trapezoid -Bottom L x W = 413.0 x 42.7 ft, Side slope = 0.00:1, Bottom elev. = 33.00 ft, Depth = 3.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	33.00	17,635	0	0
0.30	33.30	17,635	2,116	2,116
0.60	33.60	17,635	2,116	4,232
0.90	33.90	17,635	2,116	6,349
1.20	34.20	17,635	2,116	8,465
1.50	34.50	17,635	2,116	10,581
1.80	34.80	17,635	2,116	12,697
2.10	35.10	17,635	2,116	14,813
2.40	35.40	17,635	2,116	16,930
2.70	35.70	17,635	2,116	19,046
3.00	36.00	17,635	2,116	21,162
3.01	36.01	00	-1,035	20,128

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.50
Span (in)	= 18.00	0.00	0.00	0.50
No. Barrels	= 2	0	0	3288
Invert El. (ft)	= 33.26	0.00	0.00	35.00
Length (ft)	= 221.00	0.00	0.00	0.33
Slope (%)	= 0.29	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	Yes

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 20.00	0.00	0.00	0.00
Crest El. (ft)	= 35.60	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	33.00	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.30	2,116	33.30	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.60	4,232	33.60	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.90	6,349	33.90	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.20	8,465	34.20	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.50	10,581	34.50	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.80	12,697	34.80	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
2.10	14,813	35.10	1.38 ic	---	---	1.38	0.00	---	---	---	---	---	1.379
2.40	16,930	35.40	11.03 oc	---	---	11.03	0.00	---	---	---	---	---	11.03
2.70	19,046	35.70	13.15 oc	---	---	11.04	2.11	---	---	---	---	---	13.15
3.00	21,162	36.00	15.89 oc	---	---	2.72	13.17 s	---	---	---	---	---	15.88
3.01	20,128	36.01	15.96 oc	---	---	2.57	13.38 s	---	---	---	---	---	15.95

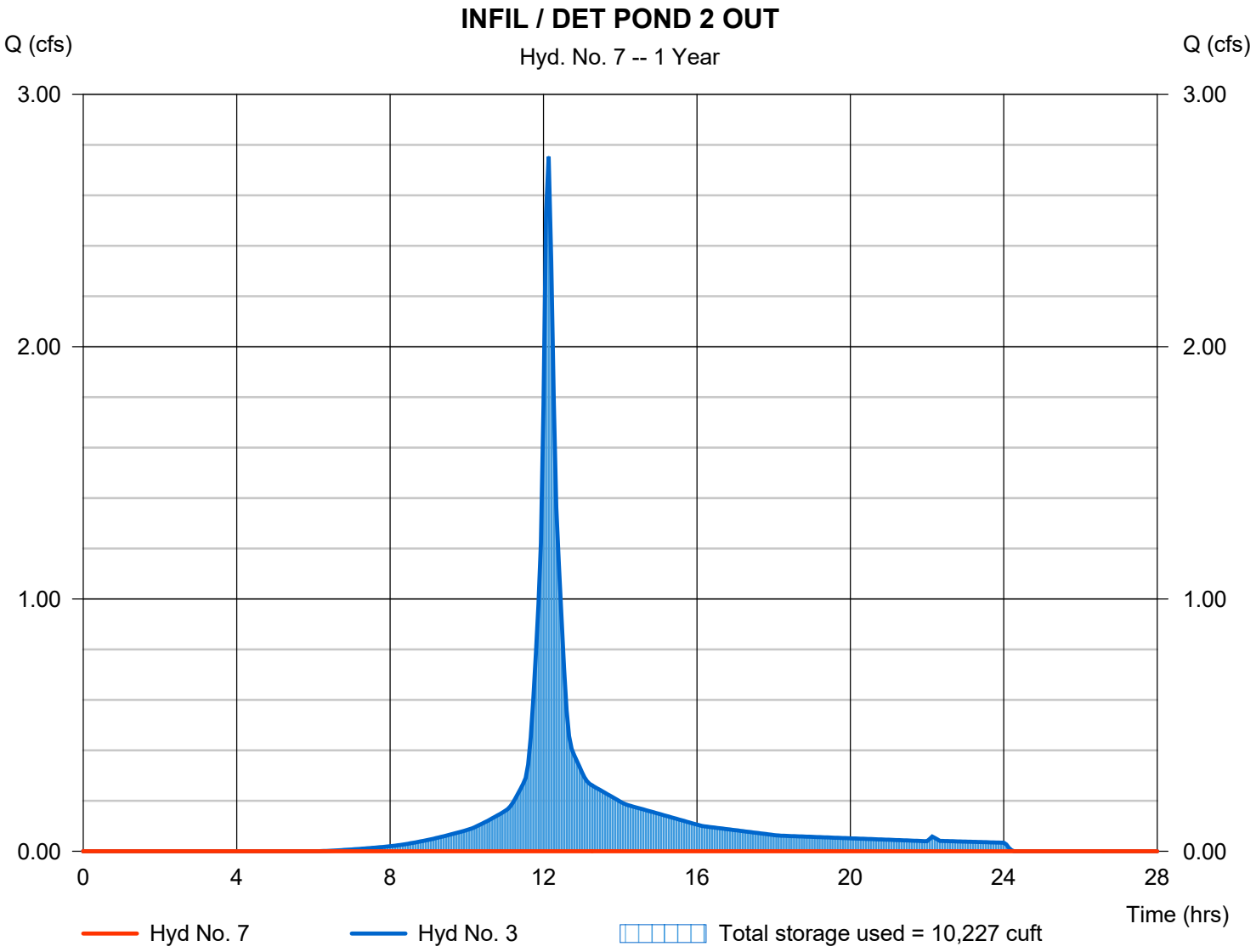
Hydrograph Report

Hyd. No. 7

INFIL / DET POND 2 OUT

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	1 yrs	Time to peak	=	n/a
Time interval	=	4 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	3 - POST BASIN 2	Max. Elevation	=	33.92 ft
Reservoir name	=	INFIL / DET POND 2	Max. Storage	=	10,227 cuft

Storage Indication method used.



Pond Report

Pond No. 2 - INFIL / DET POND 2

Pond Data

Trapezoid -Bottom L x W = 432.0 x 25.7 ft, Side slope = 0.00:1, Bottom elev. = 33.00 ft, Depth = 2.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	33.00	11,089	0	0
0.25	33.25	11,089	2,772	2,772
0.50	33.50	11,089	2,772	5,545
0.75	33.75	11,089	2,772	8,317
1.00	34.00	11,089	2,772	11,089
1.25	34.25	11,089	2,772	13,862
1.50	34.50	11,089	2,772	16,634
1.75	34.75	11,089	2,772	19,407
2.00	35.00	11,089	2,772	22,179
2.25	35.25	11,089	2,772	24,951
2.50	35.50	11,089	2,772	27,724

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.50
Span (in)	= 18.00	0.00	0.00	0.50
No. Barrels	= 1	0	0	3320
Invert El. (ft)	= 33.05	0.00	0.00	34.65
Length (ft)	= 85.00	0.00	0.00	0.33
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	Yes

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	0.00	0.00
Crest El. (ft)	= 35.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

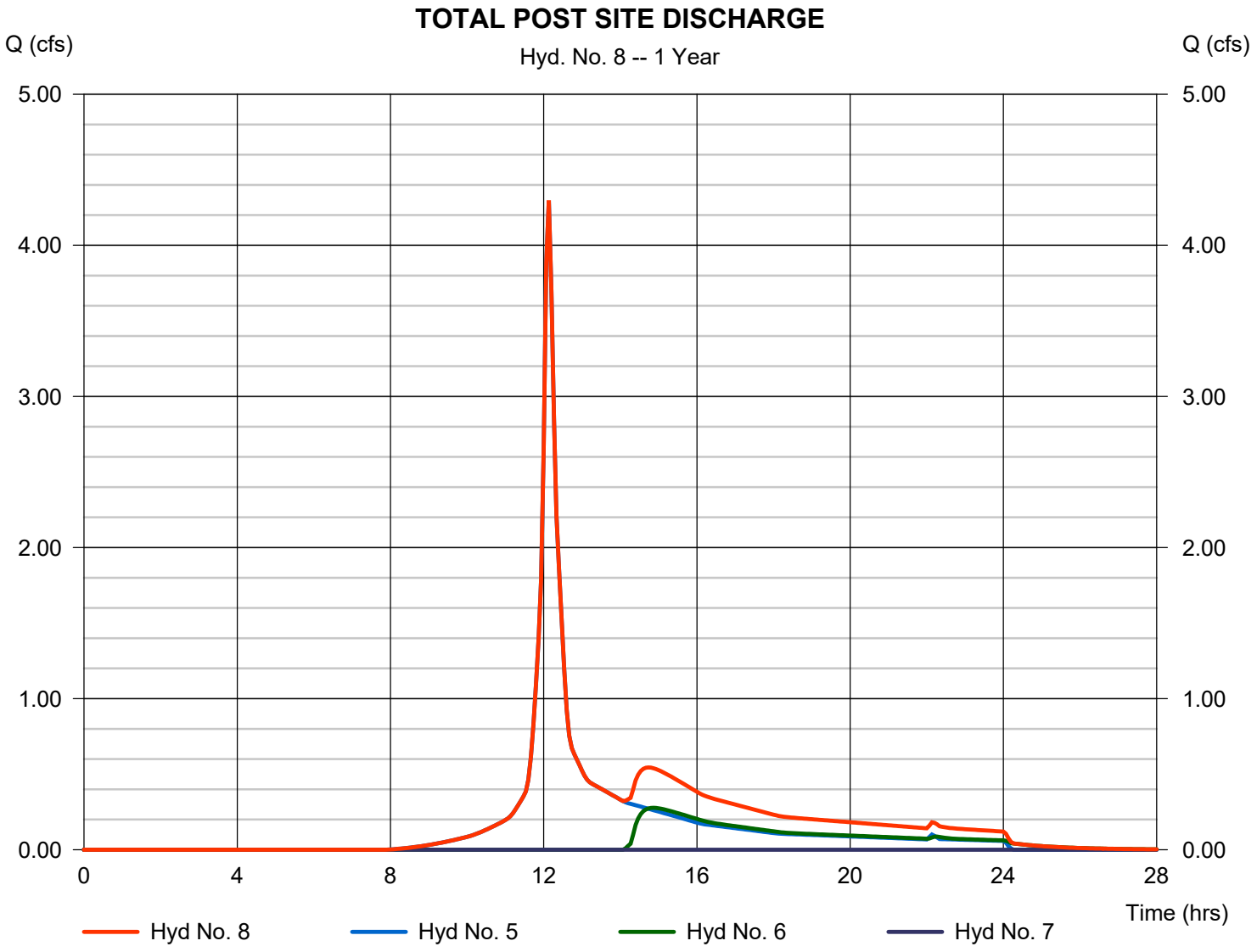
Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	33.00	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.25	2,772	33.25	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.50	5,545	33.50	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
0.75	8,317	33.75	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.00	11,089	34.00	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.25	13,862	34.25	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.50	16,634	34.50	0.00	---	---	0.00	0.00	---	---	---	---	---	0.000
1.75	19,407	34.75	1.42 ic	---	---	1.39	0.00	---	---	---	---	---	1.392
2.00	22,179	35.00	6.31 oc	---	---	6.31	0.00	---	---	---	---	---	6.308
2.25	24,951	35.25	7.37 oc	---	---	7.37	0.00	---	---	---	---	---	7.373
2.50	27,724	35.50	8.32 oc	---	---	8.32	0.00	---	---	---	---	---	8.321

Hydrograph Report

Hyd. No. 8

TOTAL POST SITE DISCHARGE

Hydrograph type	= Combine	Peak discharge	= 4.297 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 4 min	Hyd. volume	= 20,499 cuft
Inflow hyds.	= 5, 6, 7	Contrib. drain. area	= 2.210 ac

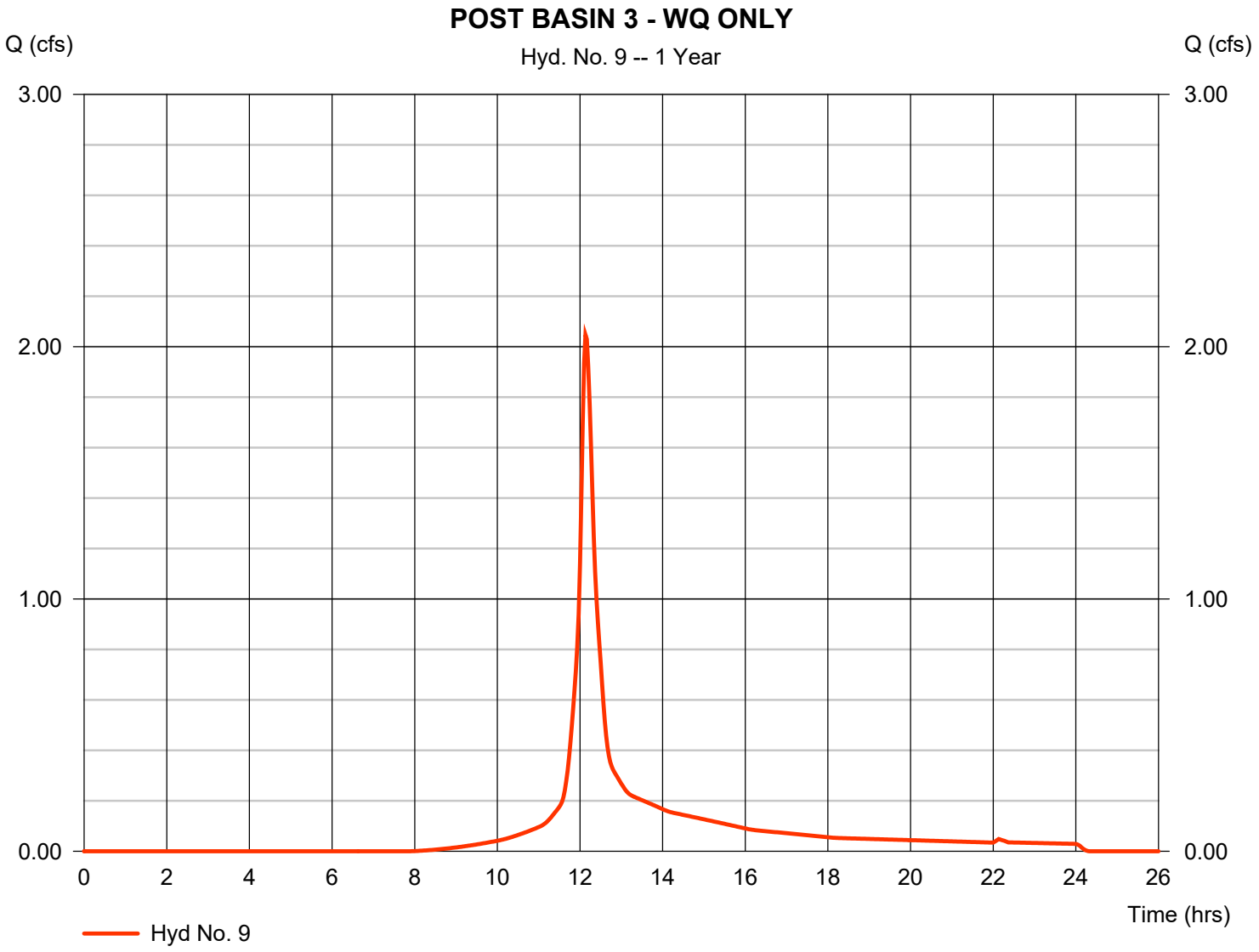


Hydrograph Report

Hyd. No. 9

POST BASIN 3 - WQ ONLY

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.047 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	7,848 cuft
Drainage area	=	1.000 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.40 min
Total precip.	=	3.78 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

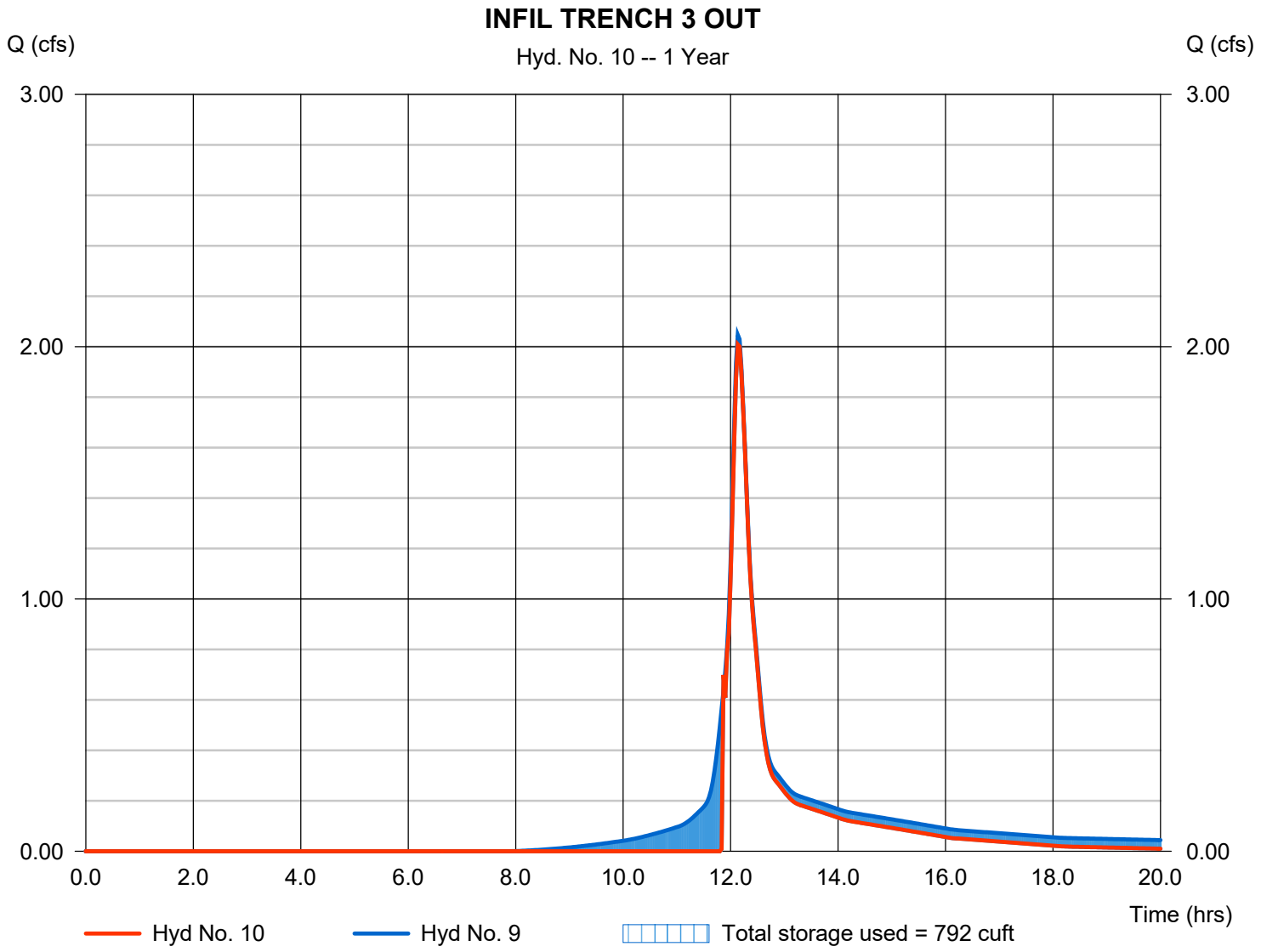
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 05 / 20 / 2022

Hyd. No. 10

INFIL TRENCH 3 OUT

Hydrograph type	= Reservoir	Peak discharge	= 2.009 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 5,381 cuft
Inflow hyd. No.	= 9 - POST BASIN 3 - WQ ONLY	Max. Elevation	= 34.39 ft
Reservoir name	= INFIL TRENCH 3	Max. Storage	= 792 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 4 - INFIL TRENCH 3

Pond Data

Trapezoid -Bottom L x W = 36.0 x 19.0 ft, Side slope = 0.00:1, Bottom elev. = 31.50 ft, Depth = 4.25 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	31.50	684	0	0
0.43	31.92	684	116	116
0.85	32.35	684	116	233
1.27	32.78	684	116	349
1.70	33.20	684	116	465
2.13	33.63	684	116	581
2.55	34.05	684	116	698
2.97	34.47	684	116	814
3.40	34.90	684	116	930
3.83	35.33	684	116	1,047
4.25	35.75	684	116	1,163

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 31.25	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 11.00	0.00	0.00	0.00
Crest El. (ft)	= 34.25	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Ciplti	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 1.500 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	31.50	---	---	---	---	0.00	---	---	---	0.000	---	0.000
0.43	116	31.92	---	---	---	---	0.00	---	---	---	0.025	---	0.025
0.85	233	32.35	---	---	---	---	0.00	---	---	---	0.027	---	0.027
1.27	349	32.78	---	---	---	---	0.00	---	---	---	0.029	---	0.029
1.70	465	33.20	---	---	---	---	0.00	---	---	---	0.030	---	0.030
2.13	581	33.63	---	---	---	---	0.00	---	---	---	0.032	---	0.032
2.55	698	34.05	---	---	---	---	0.00	---	---	---	0.033	---	0.033
2.97	814	34.47	---	---	---	---	3.91	---	---	---	0.035	---	3.944
3.40	930	34.90	---	---	---	---	19.20	---	---	---	0.037	---	19.23
3.83	1,047	35.33	---	---	---	---	40.83	---	---	---	0.038	---	40.87
4.25	1,163	35.75	---	---	---	---	67.29	---	---	---	0.040	---	67.33

APPENDIX E

24-Hour Rainfall for Savannah, GA
Soils Map Delineation
Runoff Curve Numbers
Boring Logs and Infiltration Testing

NOAA Atlas 14, Volume 9, Version 2 SAVANNAH INTL AP
Station ID: 09-7847
Location name: Savannah, Georgia, USA*
Latitude: 32.13°, Longitude: -81.21°
Elevation:
Elevation (station metadata): 46 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.549** (0.479-0.642)	**0.619** (0.538-0.723)	**0.733** (0.635-0.859)	**0.828** (0.712-0.974)	**0.958** (0.787-1.16)	**1.06** (0.844-1.30)	**1.16** (0.883-1.46)	**1.26** (0.909-1.63)	**1.40** (0.957-1.86)	**1.50** (0.993-2.03)
10-min	**0.804** (0.701-0.939)	**0.906** (0.788-1.06)	**1.07** (0.930-1.26)	**1.21** (1.04-1.43)	**1.40** (1.15-1.70)	**1.55** (1.24-1.91)	**1.70** (1.29-2.14)	**1.85** (1.33-2.39)	**2.05** (1.40-2.73)	**2.20** (1.46-2.98)
15-min	**0.981** (0.855-1.15)	**1.11** (0.961-1.29)	**1.31** (1.13-1.53)	**1.48** (1.27-1.74)	**1.71** (1.41-2.07)	**1.89** (1.51-2.33)	**2.07** (1.58-2.61)	**2.26** (1.62-2.92)	**2.50** (1.71-3.32)	**2.69** (1.77-3.63)
30-min	**1.39** (1.21-1.62)	**1.58** (1.37-1.85)	**1.89** (1.63-2.21)	**2.14** (1.84-2.52)	**2.49** (2.04-3.01)	**2.75** (2.19-3.38)	**3.02** (2.30-3.80)	**3.29** (2.36-4.25)	**3.64** (2.48-4.83)	**3.90** (2.58-5.27)
60-min	**1.79** (1.56-2.09)	**2.03** (1.77-2.38)	**2.44** (2.11-2.86)	**2.78** (2.39-3.27)	**3.27** (2.69-3.98)	**3.66** (2.92-4.52)	**4.06** (3.10-5.13)	**4.48** (3.23-5.82)	**5.05** (3.46-6.73)	**5.50** (3.63-7.43)
2-hr	**2.19** (1.92-2.55)	**2.49** (2.17-2.89)	**2.99** (2.60-3.48)	**3.42** (2.96-4.00)	**4.06** (3.36-4.92)	**4.57** (3.67-5.62)	**5.11** (3.92-6.43)	**5.68** (4.12-7.34)	**6.47** (4.46-8.58)	**7.09** (4.71-9.52)
3-hr	**2.43** (2.13-2.81)	**2.75** (2.41-3.18)	**3.31** (2.89-3.84)	**3.82** (3.31-4.45)	**4.58** (3.82-5.56)	**5.21** (4.21-6.40)	**5.88** (4.53-7.40)	**6.61** (4.82-8.53)	**7.62** (5.28-10.1)	**8.44** (5.63-11.3)
6-hr	**2.82** (2.49-3.24)	**3.22** (2.84-3.70)	**3.95** (3.47-4.56)	**4.62** (4.03-5.35)	**5.64** (4.74-6.84)	**6.51** (5.29-7.97)	**7.43** (5.77-9.32)	**8.44** (6.20-10.9)	**9.88** (6.90-13.0)	**11.1** (7.43-14.7)
12-hr	**3.22** (2.86-3.68)	**3.76** (3.33-4.29)	**4.71** (4.16-5.40)	**5.59** (4.89-6.43)	**6.92** (5.85-8.34)	**8.04** (6.57-9.78)	**9.24** (7.21-11.5)	**10.5** (7.79-13.5)	**12.4** (8.71-16.3)	**13.9** (9.40-18.4)
24-hr	**3.71** (3.31-4.20)	**4.34** (3.86-4.92)	**5.47** (4.85-6.22)	**6.51** (5.73-7.44)	**8.10** (6.88-9.71)	**9.44** (7.76-11.4)	**10.9** (8.55-13.5)	**12.5** (9.26-15.8)	**14.7** (10.4-19.2)	**16.5** (11.2-21.7)
2-day	**4.32** (3.87-4.86)	**4.97** (4.45-5.60)	**6.18** (5.50-6.98)	**7.30** (6.46-8.29)	**9.05** (7.75-10.8)	**10.5** (8.72-12.7)	**12.2** (9.62-15.0)	**13.9** (10.4-17.6)	**16.5** (11.8-21.4)	**18.6** (12.7-24.2)
3-day	**4.70** (4.23-5.27)	**5.42** (4.86-6.08)	**6.72** (6.00-7.56)	**7.93** (7.03-8.96)	**9.78** (8.39-11.6)	**11.3** (9.41-13.6)	**13.0** (10.3-16.0)	**14.9** (11.2-18.7)	**17.6** (12.6-22.7)	**19.7** (13.6-25.6)
4-day	**5.04** (4.53-5.63)	**5.80** (5.21-6.49)	**7.17** (6.42-8.05)	**8.44** (7.50-9.50)	**10.4** (8.89-12.2)	**12.0** (9.95-14.3)	**13.7** (10.9-16.7)	**15.6** (11.7-19.5)	**18.3** (13.1-23.5)	**20.5** (14.1-26.5)
7-day	**5.95** (5.38-6.61)	**6.78** (6.12-7.54)	**8.25** (7.42-9.20)	**9.58** (8.55-10.7)	**11.6** (9.97-13.5)	**13.2** (11.0-15.7)	**15.0** (12.0-18.2)	**16.9** (12.8-21.1)	**19.7** (14.1-25.1)	**21.8** (15.2-28.1)
10-day	**6.78** (6.15-7.51)	**7.66** (6.93-8.49)	**9.21** (8.30-10.2)	**10.6** (9.48-11.8)	**12.7** (10.9-14.7)	**14.4** (12.0-16.9)	**16.2** (12.9-19.5)	**18.1** (13.7-22.4)	**20.9** (15.0-26.5)	**23.0** (16.0-29.6)
20-day	**9.16** (8.35-10.1)	**10.3** (9.33-11.3)	**12.1** (11.0-13.4)	**13.7** (12.4-15.2)	**16.1** (13.9-18.5)	**18.0** (15.1-20.9)	**19.9** (16.0-23.8)	**22.0** (16.8-26.9)	**24.9** (18.0-31.3)	**27.1** (19.0-34.5)
30-day	**11.2** (10.2-12.3)	**12.5** (11.4-13.7)	**14.7** (13.4-16.2)	**16.5** (14.9-18.3)	**19.2** (16.6-21.8)	**21.2** (17.8-24.5)	**23.3** (18.8-27.6)	**25.5** (19.5-31.0)	**28.4** (20.7-35.5)	**30.7** (21.6-38.9)
45-day	**13.8** (12.6-15.0)	**15.4** (14.1-16.8)	**18.1** (16.5-19.8)	**20.2** (18.3-22.3)	**23.2** (20.1-26.2)	**25.5** (21.5-29.2)	**27.7** (22.4-32.6)	**30.0** (22.9-36.2)	**32.9** (24.0-40.9)	**35.1** (24.8-44.4)
60-day	**16.0** (14.7-17.4)	**17.9** (16.5-19.5)	**21.0** (19.2-22.9)	**23.5** (21.3-25.7)	**26.7** (23.2-30.0)	**29.2** (24.6-33.3)	**31.5** (25.5-36.9)	**33.9** (25.9-40.7)	**36.8** (26.9-45.4)	**38.9** (27.6-49.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

Map Scale: 1:20,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 16, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 4, 2021—Jan 18, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AB	Angelina and Bibb soils, frequently flooded	0.6	0.0%
As	Albany fine sand	75.5	3.7%
BP	Borrow pits	145.0	7.0%
Cc	Cape Fear soils	186.2	9.0%
Cm	Chipley fine sand	50.4	2.4%
Cuc	Chipley-Urban land complex	39.1	1.9%
Cx	Craven loamy fine sand	12.2	0.6%
El	Ellabelle loamy sand	190.2	9.2%
Lp	Lakeland sand	271.3	13.2%
Lr	Leon fine sand, 0 to 2 percent slopes	65.4	3.2%
Mae	Made land	0.2	0.0%
Mn	Mascotte sand, 0 to 2 percent slopes	0.0	0.0%
MW	Miscellaneous water, treatment facility	1.0	0.0%
Oj	Ocilla complex	15.6	0.8%
Ojc	Ocilla-Urban land complex	100.9	4.9%
Ok	Ogeechee loamy fine sand	274.5	13.3%
Okc	Ogeechee-Urban land complex	207.1	10.0%
Ol	Olustee fine sand	108.2	5.2%
Pl	Pelham loamy sand, 0 to 2 percent slopes, frequently flooded	139.6	6.8%
Pn	Pooler fine sandy loam	86.5	4.2%
Tmh	Tidal marsh, fresh	3.9	0.2%
W	Water	29.4	1.4%
Wac	Wahee-Urban land complex	42.5	2.1%
Waf	Wahee sandy loam	16.8	0.8%
Totals for Area of Interest		**2,062.2**	**100.0%**

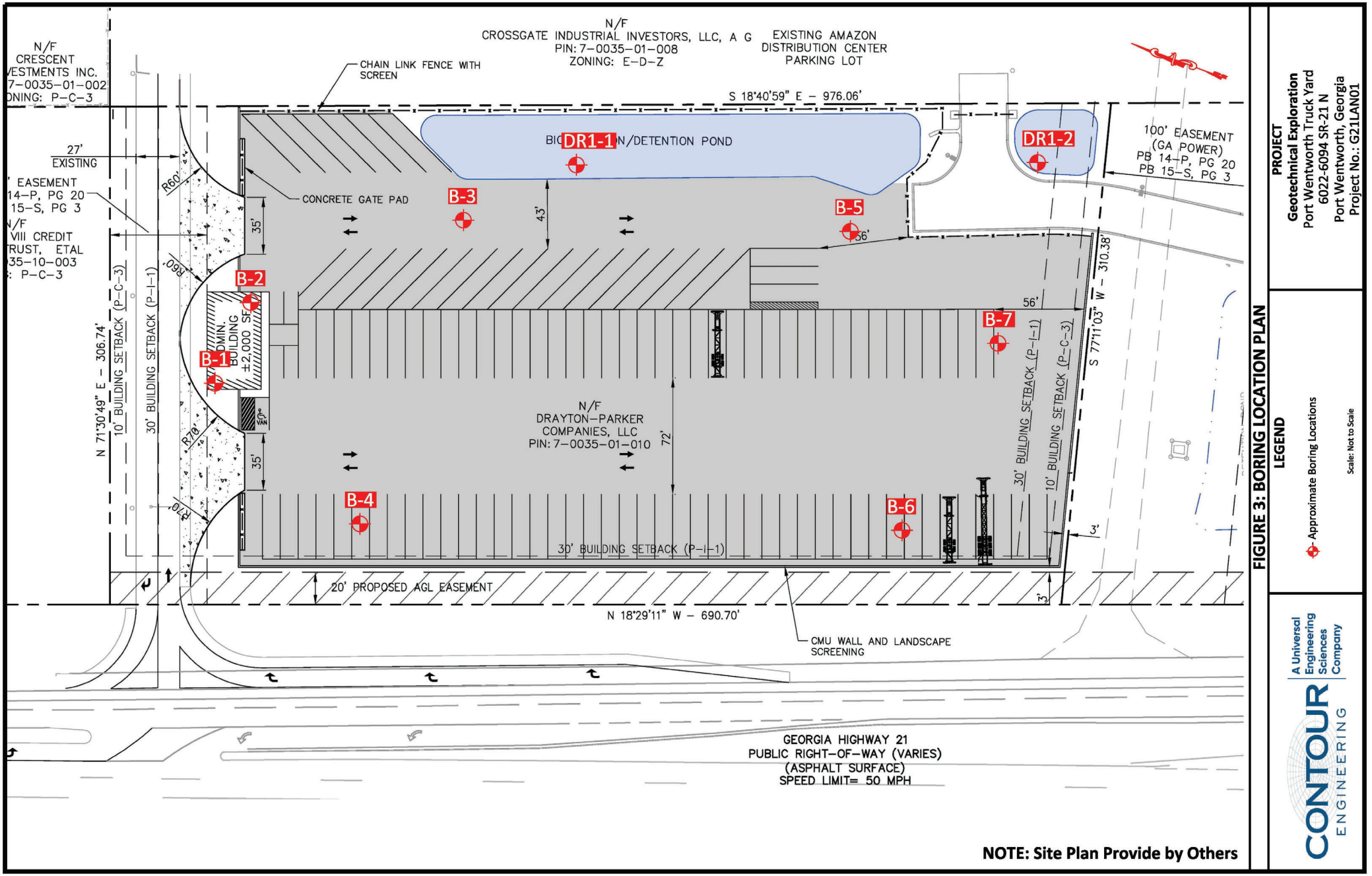
Table 3.1.5-1 Runoff Curve Numbers[1]

Cover description			Curve numbers for hydrological soil groups			
Cover type and hydrologic condition		*Average percent impervious area*[2]	A	B	C	D
Cultivated land:	without conservation treatment		72	81	88	91
	with conservation treatment		62	71	78	81
Pasture or range land:	poor condition		68	79	86	89
	good condition		39	61	74	80
Meadow:	good		30	58	71	78
Wood or forest land:	thin stand, poor cover		45	66	77	83
	good cover		25	55	70	77
Open space (laws, parks, golf courses, cemeteries, etc)[3]:	Poor condition (grass cover <50%)		68	79	86	89
	Fair condition (grass cover 50% to 75%)		49	69	79	84
	Good condition (grass cover >75%)		39	61	74	80
Impervious areas:	Paved parking lots, roofs, driveways, etc (excluding right-of-way)		98	98	98	98
Streets and roads:	Paved; curbs and storm drains (excluding right-of-way)		98	98	98	98
	Paved; open ditches (including right-of-way)		83	89	92	93
	Gravel (including right-of-way)		76	85	89	91
	Dirt (including right-of-way)		72	82	87	89
Urban Districts:	Commercial and business	85%	89	92	94	95
	Industrial	72%	81	88	91	93
Residential districts by average lot size:	1/8 acre or less (townhouses)	65%	77	85	90	92
	1/4 acre	38%	61	75	83	87
	1/3 acre	30%	57	72	81	86
	1/2 acre	25%	54	70	80	85
	1 acre	20%	51	68	79	84
	2 acres	12%	46	65	77	82
Developing urban areas and newly graded areas (pervious areas only, no vegetation)			77	86	91	94

[1]Average runoff condition, and $I_a = 0.2S$

[2]The average percent impervious area shown was used to develop the composite CNs. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. If the impervious area is not connected, the NRCS TR-55 method has an adjustment to reduce the effect.

[3]CNs shown are equivalent to those of pasture. Composite CNs may be computed for other combinations of open space cover type.



NOTE: Site Plan Provide by Others

FIGURE 3: BORING LOCATION PLAN

LEGEND

- Approximate Boring Locations

Scale: Not to Scale

PROJECT
Geotechnical Exploration
Port Wentworth Truck Yard
6022-6094 SR-21 N
Port Wentworth, Georgia
Project No.: G21LAN01

CONTOUR ENGINEERING
A Universal Engineering Sciences Company

Summary of DRI Testing		
Test Location	**Test Depth (feet BEG)**	**Infiltration Rate (inches/hour)**
DRI-1	1.0	3.6
DRI-2	1.0	3.3

Per Sections 8.7.3 and 8.7.4 of ASTM D 3385, *"for average soils, record the volume of liquid that is added to maintain a constant head in the inner ring and annular space at intervals of 15 minutes for the first hour, 30 minutes for the second hour, and 60 minutes during the remainder of a period of at least 6 hours, or until a relatively constant rate is obtained. The appropriate schedule of readings may be determined only through experience. For high-permeability materials, readings may be more frequent, while for low-permeability materials, the reading interval may be 24 hours, or more. In any event, the volume of liquid*

CONTOUR ENGINEERING — A Universal Engineering Sciences Company

BORING LOG

PROJECT NO.: G21LAN01

REPORT NO.:

PROJECT: PORT WENTWORTH TRUCK YARD
6022-6094 SR-21 N
PORT WENTWORTH, GEORGIA

BORING DESIGNATION: **B-1** SHEET: **1 of 1**

SECTION: TOWNSHIP: RANGE:

CLIENT: COAST CONSULTING, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):

WATER TABLE (ft): 3.5

DATE OF READING:

DATE STARTED:

DATE FINISHED:

DRILLED BY:

TYPE OF SAMPLING:

DEPTH (FT.)	SAMPLE	DCP BLOWS PER 1.75" INCREMENT	EQUIV. SPT (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	POCKET PEN. (tsf)
0						Dark gray silty SAND [SM]						
		4/4	4			Gray, brown silty SAND [SM]						
		4/3	3			Tan, gray silty SAND [SM]						
		6/8	6			Light gray silty SAND [SM]						
		9/12	7	▼		Brown silty SAND [SM]						
5		15/18	11									
		20/20	12									
		20/20	12									
		20/20	12			Boring terminated at 8.0 ft.						

BORING_LOG-UES/CONTOUR LOGO_PORT WENTWORTH TRUCK YARD.GPJ 20141005_UES.GDT 1/11/22

CONTOUR ENGINEERING — A Universal Engineering Sciences Company

BORING LOG

PROJECT NO.: G21LAN01

REPORT NO.:

PROJECT: PORT WENTWORTH TRUCK YARD
6022-6094 SR-21 N
PORT WENTWORTH, GEORGIA

BORING DESIGNATION: **B-2** SHEET: **1 of 1**

SECTION: TOWNSHIP: RANGE:

CLIENT: COAST CONSULTING, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):

WATER TABLE (ft): 3

DATE OF READING:

DATE STARTED:

DATE FINISHED:

DRILLED BY:

TYPE OF SAMPLING:

DEPTH (FT.)	SAMPLE	DCP BLOWS PER 1.75" INCREMENT	EQUIV. SPT (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	POCKET PEN. (tsf)
0						Gray silty SAND [SM]						
		3/5	5			Gray, brown silty SAND [SM]						
		5/5	5			Tan silty SAND [SM]						
		7/9	6	▼		Gray SAND [SP]						
		10/10	6			Brown silty SAND [SM]						
5		13/12	7									
		15/20	12			Gray, brown silty SAND [SM]						
		20/20	12			Brown silty SAND [SM]						
		20/20	12			Boring terminated at 8.0 ft.						

CONTOUR ENGINEERING — A Universal Engineering Sciences Company

BORING LOG

PROJECT NO.: G21LAN01

REPORT NO.:

PROJECT: PORT WENTWORTH TRUCK YARD
6022-6094 SR-21 N
PORT WENTWORTH, GEORGIA

BORING DESIGNATION: **B-3** SHEET: **1 of 1**

SECTION: TOWNSHIP: RANGE:

CLIENT: COAST CONSULTING, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):

WATER TABLE (ft): 3

DATE OF READING:

DATE STARTED:

DATE FINISHED:

DRILLED BY:

TYPE OF SAMPLING:

DEPTH (FT.)	SAMPLE	DCP BLOWS PER 1.75" INCREMENT	EQUIV. SPT (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	POCKET PEN. (tsf)
0						2" Thatch						
						Dark gray silty SAND [SM]						
		6/8	6									
		8/8	6									
		6/6	6	▼								
		13/17	11									
5		15/18	11			Boring terminated at 5.0 ft.						

CONTOUR ENGINEERING — A Universal Engineering Sciences Company

BORING LOG

PROJECT NO.: G21LAN01

REPORT NO.:

PROJECT: PORT WENTWORTH TRUCK YARD
6022-6094 SR-21 N
PORT WENTWORTH, GEORGIA

BORING DESIGNATION: **B-4** SHEET: **1 of 1**

SECTION: TOWNSHIP: RANGE:

CLIENT: COAST CONSULTING, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):

WATER TABLE (ft): 3

DATE OF READING:

DATE STARTED:

DATE FINISHED:

DRILLED BY:

TYPE OF SAMPLING:

DEPTH (FT.)	SAMPLE	DCP BLOWS PER 1.75" INCREMENT	EQUIV. SPT (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	POCKET PEN. (tsf)
0						5" Thatch						
		7/7	6			Dark gray silty SAND [SM]						
		6/6	5			Gray, tan silty SAND [SM]						
		5/5	5	▼								
		7/16	10									
5						Boring terminated at 5.0 ft.						

BORING_LOG-UES/CONTOUR LOGO_PORT WENTWORTH TRUCK YARD.GPJ 20141005_UES.GDT 1/11/22

CONTOUR ENGINEERING — A Universal Engineering Sciences Company

BORING LOG

PROJECT NO.: G21LAN01

REPORT NO.:

PROJECT: PORT WENTWORTH TRUCK YARD
6022-6094 SR-21 N
PORT WENTWORTH, GEORGIA

BORING DESIGNATION: **B-5** SHEET: **1 of 1**

SECTION: TOWNSHIP: RANGE:

CLIENT: COAST CONSULTING, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):

WATER TABLE (ft): 3.5

DATE OF READING:

DATE STARTED:

DATE FINISHED:

DRILLED BY:

TYPE OF SAMPLING:

DEPTH (FT.)	SAMPLE	DCP BLOWS PER 1.75" INCREMENT	EQUIV. SPT (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	POCKET PEN. (tsf)
0						2.5" Thatch						
						Dark gray silty SAND [SM]						
		7/8	6									
		9/12	7									
		7/7	6	▼								
		12/16	10									
5						Boring terminated at 5.0 ft.						

BORING_LOG-UES/CONTOUR LOGO_PORT WENTWORTH TRUCK YARD.GPJ 20141005_UES.GDT 1/11/22

CONTOUR ENGINEERING — A Universal Engineering Sciences Company

BORING LOG

PROJECT NO.: G21LAN01

REPORT NO.:

PROJECT: PORT WENTWORTH TRUCK YARD
6022-6094 SR-21 N
PORT WENTWORTH, GEORGIA

BORING DESIGNATION: **B-6** SHEET: **1 of 1**

SECTION: TOWNSHIP: RANGE:

CLIENT: COAST CONSULTING, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):

WATER TABLE (ft): 3.5

DATE OF READING:

DATE STARTED:

DATE FINISHED:

DRILLED BY:

TYPE OF SAMPLING:

DEPTH (FT.)	SAMPLE	DCP BLOWS PER 1.75" INCREMENT	EQUIV. SPT (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	POCKET PEN. (tsf)
0						5" Thatch						
		7/12	7			Dark gray silty SAND [SM]						
		5/6	5			Gray, tan silty SAND [SM]						
		5/6	5	▼								
		8/15	9									
5		18/20	12									
						Boring terminated at 6.0 ft.						

BORING_LOG-UES/CONTOUR LOGO_PORT WENTWORTH TRUCK YARD.GPJ 20141005_UES.GDT 1/11/22

CONTOUR ENGINEERING — A Universal Engineering Sciences Company

BORING LOG

PROJECT NO.: G21LAN01

REPORT NO.:

PROJECT: PORT WENTWORTH TRUCK YARD
6022-6094 SR-21 N
PORT WENTWORTH, GEORGIA

BORING DESIGNATION: **B-7** SHEET: **1 of 1**

SECTION: TOWNSHIP: RANGE:

CLIENT: COAST CONSULTING, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):

WATER TABLE (ft): 3.5

DATE OF READING:

DATE STARTED:

DATE FINISHED:

DRILLED BY:

TYPE OF SAMPLING:

DEPTH (FT.)	SAMPLE	DCP BLOWS PER 12" INCREMENT	EQUIV. SPT (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	POCKET PEN. (tsf)
0						1.5" Thatch						
						Dark gray silty SAND [SM]						
		5/5	5									
		3/4	4									
		4/5	5	▼								
		9/18	11									
5		20/20	12									
						Boring terminated at 6.0 ft.						

BORING_LOG-UES/CONTOUR LOGO_PORT WENTWORTH TRUCK YARD.GPJ 20141005_UES.GDT 1/11/22

Site Plan Review Application submitted by Felipe Toledo, P.E., Thomas & Hutton of behalf of LRE Crossgate North, LLC., for PIN # 7-0035-01-007 (Northeast corner of Crossgate Rd & Jimmy Deloach Parkway) for a Specific Development Site Plan to allow a warehouse development (NFI Crossgate Industrial Park) in a P-I-1 (Planned Industrial) Zoning District

Issue/Item: Site Plan Review Application submitted by Felipe Toledo, P.E., Thomas & Hutton of behalf of LRE Crossgate North, LLC., for PIN # 7-0035-01-007 (Northeast corner of Crossgate Rd & Jimmy Deloach Parkway) for a Specific Development Site Plan to allow a warehouse development (NFI Crossgate Industrial Park) in a P-I-1 (Planned Industrial) Zoning District

Background: The subject property is currently vacant woodland. There are no buildings or structures on the subject property. The general development site plan for this project was approved during the March 8, 2022 City Council Meeting.

Facts and Findings: The proposed project consist of a 332,450 s.f. warehouse and a 96,250 s.f. warehouse with associated parking, utilities, drainage and infrastructure improvements. The entrance will be located off of Crossgate Road. The applicant provided a Traffic Impact Analysis with the general development plan. The site plan has been reviewed by City Engineer's T. R. Long Engineering and a concurrence letter issued. This project complies with the 2021-2041 City of Port Wentworth Comprehensive Plan.

Funding: N/A

Recommendation: The Planning Commission will hear this application on Monday, July 11, 2022 at 6:30 PM. **/ UPDATE: THE PLANNING COMMISSION VOTED 3-1 TO APPROVE THE PROJECT WITH THE CONDITION THAT ADDITIONAL EVERGREEN PLANTINGS BE ADDED TO SHIELD NEIGHBORS.**

ATTACHMENTS:

- NFI CROSSGATE 7-0035-01-007 S-SITE PLAN MAY 2022 - Application (PDF)
- NFI CROSSGATE 7-0035-01-007 S-SITE PLAN MAY 2022 - Timeline (DOCX)
- NFI CROSSGATE 7-0035-01-007 S-SITE PLAN MAY 2022 - Concurrence Letter TR Long 7.8.22 (PDF)

220175

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

RECEIVED
MAR 16 2022
BY: KS

Site Plan Review Application

Site Plan Application is required for all new construction in a "P" or "MPO" zone as defined in the Zoning Ordinance of the City of Port Wentworth.

Site Plan Type (*Check One*): ☐ General / Concept ☒ Specific Development

Site Plan Address: CROSSGATE RD, PORT WENTWORTH, GA 31407

PIN #(s): 7003501007

Zoning: ~~E-D-Z~~ P-I-2 Estimated Cost of Construction: $

Type of Construction: Two Warehouses (Building A ±106,250 - Building B ±332,450)

Project Name: NFI Crossgate Industrial Park

Applicant's Name: Felipe Toledo, P.E

Mailing Address: 50 Park of Commerce Way, Savannah, GA 31405

Phone #: 912-721-4090 Email: toledo.f@tandh.com

Owner's Name (If Different form Applicant): LRE Crossgate North LLC (c/o Brian Werrell)

Mailing Address: Triad1828 Centre, 2 Copper Street, Camden, NJ, 08102

Phone #: Brian Werrell Email: Brian.werrell@nfiindustries.com

---

I hereby acknowledge that the above information is true and correct.

Felipe Toledo — 3/14/2022

Applicant's Signature — Date

Brian Werrell, Development Manager — 3/11/2022

Owner's Signature (If Different form Applicant) — Date

Please see page 2 for required submittal checklist

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

Site Plan Review Application Submittal Checklist

Documentation below is required for a complete submittal.

- ☒ Signed and Completed Application
- ☒ 3 Full size sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☒ 15 half size (11" X 17") sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☒ 2 copies of hydrology reports (if applicable)
- ☒ Names, mailing address, and PIN number of all property owners within 250 feet of all property lines
- ☒ 1 8 ½" X 11" of site plan civil drawings or concept plan (depending on type of site plan)
- ☒ PDF of entire submittal on a flash drive or download link ONLY (NO CD'S)
- ☐ Other Engineering details or reports may be required once submittal has been received
- ☒ Site plan review fee check
    - No Land Disturbance- $206.00 Site Plan Fee + $50.00 Admin Fee = Total $256.00
    - With Land Disturbance - $836.00 Site Plan Fee + $50.00 Admin Fee = Total $886.00

Additional Fee Statement: If engineer review cost to the City exceeds the site plan review fee that is paid at the time of initial application submittal, you may be required to pay additional review cost.

I have read and agree to the above additional fee statement

Felipe Toledo — Applicant's Signature

3/14/2022 — Date

Updated 10/19/2021

CITY OF PORT WENTWORTH
(912) 964-4379

REC#: 00349071 3/28/2022 2:12 PM
OPER: ME TERM: 011
REF#: CK 113563

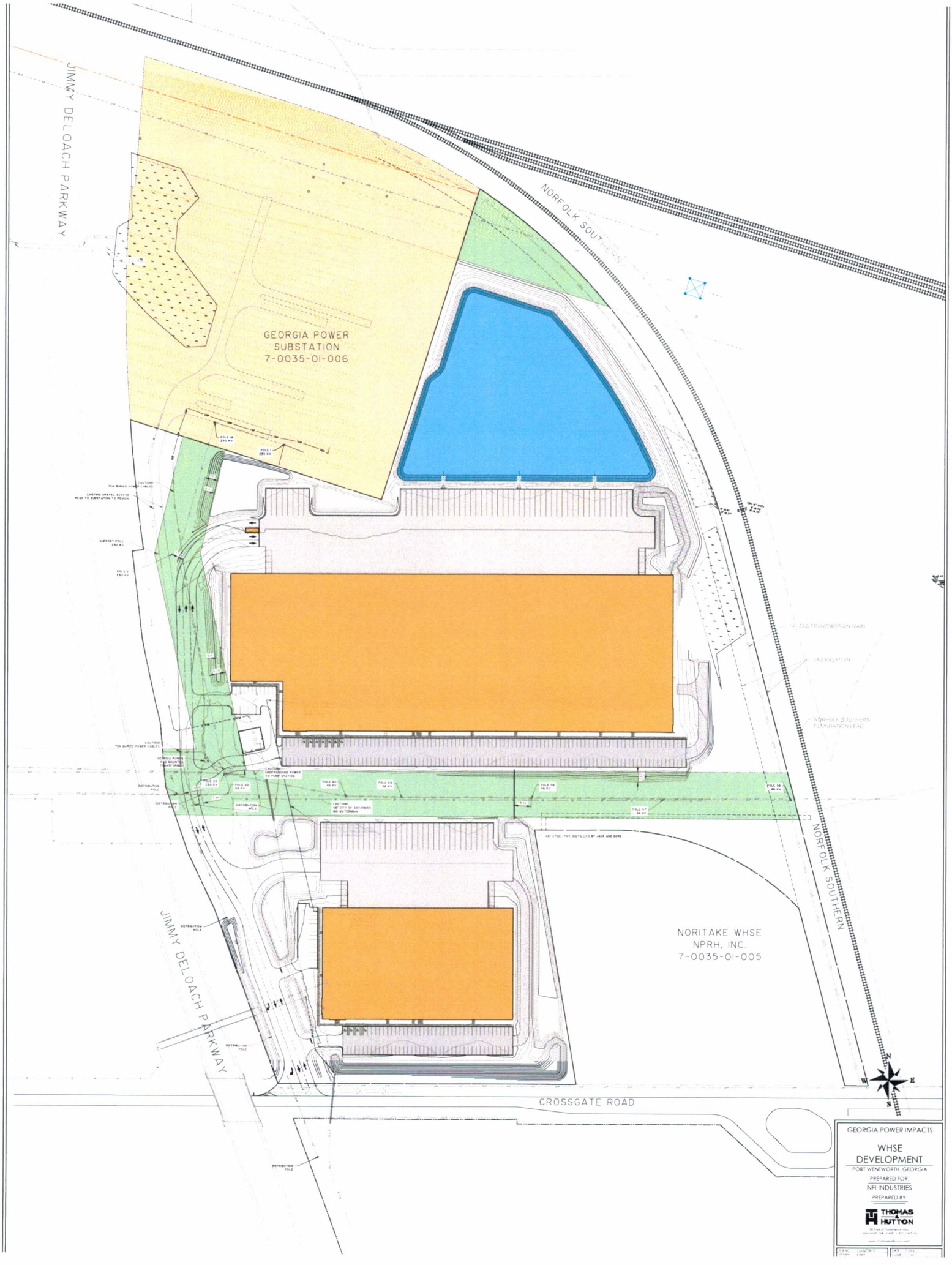
TRAN: 112.0000 BLDG PERMIT
220175 886.00CR
LRE CROSSGATE NORTH, LLC
7-0035-01-007
DEV-SPR 886.00CR

TENDERED: 886.00 CHECK
APPLIED: 886.00-

CHANGE: 0.00

WWW.CITYOFPORTWENTWORTH.COM

Owner Name	Parcel Number	Property Address	Owner Address	County	State
LRE CROSSGATE SOUTH LLC	7003301004	CROSSGATE RD, PORT WENTWORTH, GA 31407	CROSSGATE RD, PORT WENTWORTH, GA 31407	Chatham	GA
GEORGIA POWER COMPANY	7003501006	HIGHWAY 21, PORT WENTWORTH, GA 31407	241 RALPH MCGILL BLVD NE, ATLANTA, GA 30308-3374	Chatham	GA
MCCASKLE, JULIA & HARRIS, SARAH	7001018008	101 GORDON ST, PORT WENTWORTH, GA 31407	101 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
PORT WENTWORTH CITY OF	7000803039	WARREN DR, PORT WENTWORTH, GA 31407	PO BOX 4086, SAVANNAH, GA 31407-4086	Chatham	GA
CRESCENT INVESTMENTS INC	7003501002	6232 HIGHWAY 21 RD, PORT WENTWORTH, GA 31407	6232 GA HIGHWAY 21, PORT WENTWORTH, GA 31407-9796	Chatham	GA
MCINTOSH, OWEN E & MCINTOSH, ERMA J	7001018001	115 GORDON ST, PORT WENTWORTH, GA 31407	115 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
CROSSGATE INDL INVTRS LLC	7003501008	1500 CROSSGATE RD, PORT WENTWORTH, GA 31407	CROSSGATE RD, PORT WENTWORTH, GA 31407	Chatham	GA
BROWNFIELD, PAMELA	7001018002	113 GORDON ST, PORT WENTWORTH, GA 31407	113 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
WATSON, JACQUELINE & WATSON, MARCUS	7001018003	111 GORDON ST, PORT WENTWORTH, GA 31407	111 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
SAVANNAH ECONOMIC DEV AUTHORIT	7003301005	1501 CROSSGATE RD, PORT WENTWORTH, GA 31407	131 HUTCHINSON ISLAND RD, SAVANNAH, GA 31421-7006	Chatham	GA
GUNN, KELLY LAPERAL	7000803037	60 WARREN DR, PORT WENTWORTH, GA 31407	117 WREN CT, SAVANNAH, GA 31419-8340	Chatham	GA
SAVANNAH ECONOMIC DEVELOPMENT AUTHORITY	7000902002	1 BIRKENHEAD ST, PORT WENTWORTH, GA 31407	131 HUTCHINSON ISLAND RD, SAVANNAH, GA 31421-7006	Chatham	GA
LRE CROSSGATE NORTH LLC	7003501007	CROSSGATE RD, PORT WENTWORTH, GA 31407	CROSSGATE RD, PORT WENTWORTH, GA 31407	Chatham	GA
PARTAIN, KAREN D EDITH F	7001018005	107 GORDON RD, PORT WENTWORTH, GA 31407	107 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
NORTON, GARY WILSON & NORTON, DONNA	7001018006	105 GORDON ST, PORT WENTWORTH, GA 31407	105 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
SOUTHERN REGION INDUSTRIAL REALTY INC	7001001001	DORSET RD, PORT WENTWORTH, GA 31407	3 COMMERCIAL PL Unit 209, NORFOLK, VA 23510-2108	Chatham	GA
NRPH INC	7003501005	1000 CROSSGATE RD, PORT WENTWORTH, GA 31407	15 FAIR LAWN AVE Unit 2A, FAIR LAWN, NJ 07410-2322	Chatham	GA
L-A SAVANNAH-CROSSGATE LLC	7000501004	BONNYBRIDGE RD, PORT WENTWORTH, GA 31407	1960 SATELLITE BLVD Unit 3000, DULUTH, GA 30097-4129	Chatham	GA
PERRY, JULIE STALLINGS	7001018004	109 GORDON ST, PORT WENTWORTH, GA 31407	109 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
NORFOLK SOUTHERN COPR TAXATION DEPT BOX 209	7000901001	BIRKENHEAD ST, PORT WENTWORTH, GA 31407	3 COMMERCIAL PL, NORFOLK, VA 23510-2108	Chatham	GA
HENDRICK, ROBERT EWING	7001018007	103 GORDON ST, PORT WENTWORTH, GA 31407	103 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA


JIMMY DELOACH PARKWAY
NORFOLK SOUTHERN
GEORGIA POWER
SUBSTATION
7-0035-01-006
NORITAKE WHSE
NPRH, INC.
7-0035-01-005
NORFOLK SOUTHERN
JIMMY DELOACH PARKWAY
CROSSGATE ROAD
GEORGIA POWER IMPACTS
WHSE
DEVELOPMENT
PORT WENTWORTH, GEORGIA
PREPARED FOR:
NFI INDUSTRIES
PREPARED BY:
THOMAS & HUTTON

Project Timeline

Project Number: 220175

Project Name: NFI Crossgate Industrial Park Specific Site Plan 7-0035-01-007

Applicant / Engineer: Felipe Toledo, Thomas & Hutton

Owner: LRE Crossgate North LLC

City Review Engineer: TR Long

- 3/16/2022 – application received; complete
- 3/25/2022 – sent files to TR Long for review.
- 4/20/2022 – received 1st comment letter from TR Long. Forwarded letter to T&H.
- 5/7/2022 – received 1st resubmittal from T&H. TR Long copied on resubmission.
- 5/9/2022 – Planning Commission voted to recommend tabling this item.
- 5/26/2022 – Stan Fischer sent email asking to withdraw the item from the Council agenda.
- 6/1/2022 – Resubmittal received from T&H. TR Long copied on email.
- 6/6/2022 – received 2nd comment letter from TR Long.
- 6/7/2022 – forwarded comment letter to T&H.
- 6/13/2022 – Email received from Stan Fischer asking to be placed on the July 11, 2022 Planning Commission meeting.
- 6/14/2022 – send email to Stan stating I will need 15 half size copies of the updated site plan by the end of the week to be placed back on the schedule.
- 6/15/2022 – received 15 half size copies.
- 7/8/2022 – Received concurrence letter from TR Long.
- 7/11/2022 – forwarded concurrence letter to T&H
- 7/11/2022 – Planning Commission voted 3-1 to approve the project with the condition that additional evergreen plantings be added to shield neighbors.

114 North Commerce Street
Hinesville, Georgia 31313
Office: (912) 368-5664
Fax: (912) 368-7206

T R LONG ENGINEERING, P.C.

308 Commercial Drive
Savannah, Georgia 31406
Office: (912) 335-1046
Fax: (912) 355-1642

April 19, 2022

Mr. Brian Harvey
City of Port Wentworth
7224 Georgia Highway 21
Port Wentworth, Georgia 31407

Re: NFI Industries Buildings A & B – Crossgate Industrial Park
Port Wentworth, Georgia

Dear Mr. Harvey,

T. R. Long Engineering, P.C. has reviewed the "NFI Industries Buildings A & B – Crossgate Industrial Park" prepared by Thomas and Hutton Engineering Company dated February 14, 2022. T. R. Long Engineering, P.C. offers the following comments with regards to this submittal:

1. The plans do not include any benchmark or control point references. Additionally, the north arrow does not indicate whether project is magnetic or state plane.
2. Please revise car parking to show standard parking stalls. The city standard parking stall is 9' x 20' with a 24' travel isle.
3. Please provide documentation that the local fire department is acceptable with a gravel fire lane (gravel access road).
4. Please provide documentation that the local fire department is acceptable with gravel fire lane with a dead end shown at building B.
5. The new driveway connecting to Crossgate Road is not shown intersecting at 90 degrees. Please revise driveway to connect at 90 degrees.
6. The plans show a new onsite driveway that replaces and/or relocates the access easement road for the Georgia Power substation. Please provide documentation that Georgia Power agrees with the new driveway location.
7. On the grading and Drainage sheets several of the proposed contours do not tie to existing grades. Please revise the proposed contours or add existing contours to the grading and drainage sheets so the grading is shown properly.
8. Please provide sanitary manhole #1 & #2 information along Building B on sheet C2.1.
9. Please provide a master water meter and backflow on water system. Coordinate location of master meter and backflow with the City of Port Wentworth Water and Sewer Department.
10. Please remove random dimensions on plan sheet C1.4.
11. Please note vertical separations between water and sewer on sanitary sewer profiles.

Should you have any questions, comments, or need additional information please contact us.

Sincerely,

Trent R. Long, P.E.

ESTD 1946
75H
THOMAS & HUTTON

50 PARK OF COMMERCE WAY
SAVANNAH, GA 31405 | 912.234.5300
THOMASANDHUTTON.COM

May 2, 2022

Mr. Brian Harvey
City of Port Wentworth
7224 Georgia Highway 21
Port Wentworth, Georgia 31407

Re: NFI Industries Building A and B
Crossgate Industrial Park
Port Wentworth, Georgia
J-26327.0010
Response to Comments

Dear Mr. Harvey:

On behalf of our client, NFI Industries, regarding comments for Crossgate Industrial Park Buildings A and B that were issued on February 14, 2022, we offer the following responses (in bold italics):

1. **Comment:** The plans do not include any benchmark or control point references. Additionally, the north arrow does not indicate whether project is magnetic or state plane.
   Response: Survey Control sheet has been added to the plan set.
2. **Comment:** Please revise car parking to show standard parking stalls. The city standard parking stall is 9' x 20' with a 24' travel isle.
   Response: In our opinion we are meeting PW requirements. The width of car parking is 62' which equates to a travel lane and two 19' long spaces measured to the edge of pavement. The 18" curb and gutter provides an additional 12" of length to each space and therefore each space is providing the 20' length required by the city.
3. **Comment:** Please provide documentation that the local fire department is acceptable with a gravel fire lane (gravel access road).
   Response: Email from the reviewing authority will be provided.
4. **Comment:** Please provide documentation that the local fire department is acceptable with gravel fire lane with a dead end shown at building B.
   Response: Email from the reviewing authority will be provided.
5. **Comment:** The new driveway connecting to Crossgate Road is not shown intersecting at 90 degrees. Please revise driveway to connect at 90 degrees.
   Response: Please note that entrance drive has been planned to connect to a future roadway that will serve the property to the SW which will provide access in a northerly direction from the Jimmy Deloach Parkway. As it is the intention to not allow truck traffic to head in an easterly direction down Crossgate Road we would ask that connection to Crossgate be allowed at the angle shown. Please note that previous submittal incorrectly showed an exit lane in line with this future roadway.

The plans have been revised to remove the straight though move and will only allow for vehicles to move in a westerly direction towards Hwy 21.

6. **Comment:** The plans show a new onsite driveway that replaces and/or relocates the access easement road for the Georgia Power substation. Please provide documentation that Georgia Power agrees with the new driveway location.
Response: Access was coordinated with Georgia Power during conceptual design. An email stating that they are OK with road access will be forwarded to Port Wentworth.

7. **Comment:** On the Grading and Drainage sheets several of the proposed contours do not tie to existing grades. Please revise the proposed contours or add existing contours to the grading and drainage sheets so the grading is shown properly.
Response: Corrections have been made.

8. **Comment:** Please provide sanitary manhole #1 & #2 information along Building B on sheet C2.1.
Response: Information has been added to manholes.

9. **Comment:** Please provide a master water meter and backflow on water system. Coordinate location of master meter and backflow with the City of Port Wentworth Water and Sewer Department.
Response: We request that a teams meeting be held. We would request that a 16" gate valve be installed to demarcate the separation between the public and private system. The installation of a backflow preventor and meter on the fire protection line would add significant pressure loss to the system and would be redundant as each buildings fire system will be provided with a backflow preventor.

10. **Comment:** Please remove random dimensions on plan sheet C1.4.
Response: Corrections have been made.

11. **Comment:** Please note vertical separations between water and sewer on sanitary sewer profiles.
Response: Vertical separation has been added.

We thank you for your attention to this project and look forward to receiving your approval. Please feel free to contact our office with any questions.

Sincerely,

THOMAS & HUTTON

Felipe I. Toledo, P.E.

FIT/dc

114 North Commerce Street
Hinesville, Georgia 31313
(912) 368-5664 Office
(912) 368-7206 Fax

T.R. LONG ENGINEERING, P.C.

1000 Towne Center Blvd.
Suite 304
Pooler, Georgia 31322
(912) 355-1046

June 6, 2022

Mr. Brian Harvey
City of Port Wentworth
7224 Georgia Highway 21
Port Wentworth, Georgia 31407

Re: NFI Industries Buildings A & B – Crossgate Industrial Park
Port Wentworth, Georgia

Dear Mr. Harvey,

T. R. Long Engineering, P.C. has reviewed the "NFI Industries Buildings A & B – Crossgate Industrial Park" prepared by Thomas and Hutton Engineering Company dated February 14, 2022, Permit Set. T. R. Long Engineering, P.C. offers the following comments with regards to this submittal:

1. Please provide documentation that the local fire department is acceptable with a gravel fire lane (gravel access road). The response indicated that an email would be provided to Port Wentworth regarding this issue. This will remain a comment until the city accepts the plan for a gravel road.
2. Please provide documentation that the local fire department is acceptable with gravel fire lane with a dead end shown at building B. The response indicated that an email would be provided to Port Wentworth regarding this issue. This will remain a comment until the city accepts the dead-end road.
3. The new driveway connecting to Crossgate Road is not shown intersecting at 90 degrees. The review letter request that the city consider accepting the roadway at this angel since it is intended to tie to an opposing road. The opposing road appears not to intersect at a 90-degree angle either. We recommend that the city require modifications so that the currently planned roadway intersect as close to 90 degrees as possible but no more than 5 degrees deflection. The opposing road should also be redesigned to intersect at a near 90-degree angle.
4. The plans show a new onsite driveway that replaces and/or relocates the access easement road for the Georgia Power substation. Please provide documentation that Georgia Power agrees with the new driveway location. The response indicated that an email would be provided to Port Wentworth regarding this issue. This will remain a comment until the city is satisfied that Georgia Power concurs.
5. On the grading and drainage sheets, several of the proposed contours do not tie to existing grades. The response indicates that this issue has been corrected. However, there are several contours near Crossgate Blvd that do not tie correctly. It is difficult tell how well the project ties to Crossgate Blvd and the existing drainage in this area. Spot elevations and labels of the existing grades along Crossgate are recommended.
6. Please provide sufficient details to completely layout and grade the site especially near Crossgate Blvd. The plans are lacking sufficient layout information and spot elevations. While the computer-generated surface will be provided to the contractor for construction,

the published plan is the binding document. This information also protects the design firm. The city inspectors and regulators need this information to verify site compliance.

7. Please provide a master water meter and backflow on water system. The response letter recommends that a meeting be held to discuss this issue. We concur that a meeting should be held to discuss this issue.

Should you have any questions, comments, or need additional information please contact us.

Sincerely,

Trent R. Long, P.E.

114 North Commerce Street
Hinesville, Georgia 31313
Office: (912) 368-5664
Fax: (912) 368-7206

T R LONG ENGINEERING, P.C.

308 Commercial Drive
Savannah, Georgia 31406
Office: (912) 335-1046
Fax: (912) 355-1642

July 8, 2022

Mr. Brian Harvey
City of Port Wentworth
7224 Georgia Highway 21
Port Wentworth, Georgia 31407

Re: NFI Industries Building A and B
Crossgate Industrial Park
Port Wentworth, Georgia

Dear Mr. Harvey,

T. R. Long Engineering, P.C. has reviewed the entitled "Site Development for Buildings A & B at Crossgate Industrial Park" prepared by Thomas and Hutton dated February 14, 2022, and revised July 8, 2022. The specific development plan generally meets the intent of the development requirements in Port Wentworth. T. R. Long Engineering, P.C. concurs with the plans as presented with the exception of an off-site water main installation.

There is a water main that needs to be installed to comply with the "Water, Sewer and Re-use Water Service Agreement" between the City of Port Wentworth and L-A Savannah Crossgate, LLC. IN order to meet the intent of this agreement a water main should be installed between Crossgate Boulevard and existing water main near Bonnybridge Road. T. R. Long Engineering recommends that the city and the developer enter into an agreement to design and install this water meter.

Concurrence with the traffic impact analysis by T. R. Long Engineering, P.C. and Port Wentworth does not relieve the owner/developer, designer, engineer and contractor nor their representatives from their individual or collective responsibilities to comply with provisions of Local, State, and Federal regulations and/or ordinances. T. R. Long Engineering, P.C. and Port Wentworth review the submitted documents for completeness and general compliance with codes, ordinances and/or standards. No design liability can be assumed or assigned to T. R. Long Engineering, P.C., or Port Wentworth. All design liability remains with the professional engineer who signed and sealed those documents. Additionally, concurrence with the submitted documents and their intent is not to be construed as a check of every item submitted and does not prevent Port Wentworth from requiring corrections and/or addressing of omissions in the submitted documents and/or construction.

Should you have any questions, comments or need additional information please contact us.

Sincerely,

Trent R. Long, P.E.

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SITE DEVELOPMENT FOR BUILDINGS A & B
AT
CROSSGATE INDUSTRIAL PARK
PORT WENTWORTH, GEORGIA

PREPARED FOR:

NFI INDUSTRIES

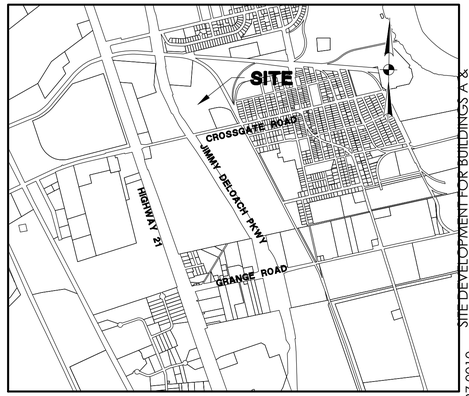
TRIAD 1828 CENTER
2 COOPER STREET
CAMDEN, NJ 08102

FEBRUARY 14, 2022

J-26327.0010

PREPARED BY:

THOMAS & HUTTON



VICINITY MAP
SCALE: 1" = 2000'

J-26327.0010
2/14/22
SITE DEVELOPMENT FOR BUILDINGS A & B

PERMIT SET - FOR REVIEW PURPOSES ONLY

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L2.1	LANDSCAPE DETAILS
L2.2	LANDSCAPE SPECIFICATIONS

GEORGIA REGISTERED No. 027456 PROFESSIONAL ENGINEER JOSEPH L. MERCER

SUBMITTAL HISTORY

----	----
SUBMITTED TO	DATE

REVISION HISTORY

----		----	----
REV. NO.	REVISION	BY	DATE

Know what's below. Call before you dig.

THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405
p.912.234.5300
www.thomasandhutton.com

Z:\26327\126327.000\ENGINEERING\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\GENERAL NOTES.DWG - May 3, 2022 - 10:41 AM

WATER LEGEND

DESCRIPTION	EXISTING	PROPOSED
WATER MAIN	10"W	10"W
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
VALVE AND BOX		
FIRE HYDRANT W/VALVE & BOX		
POST HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
CAP		

ABBREVIATIONS

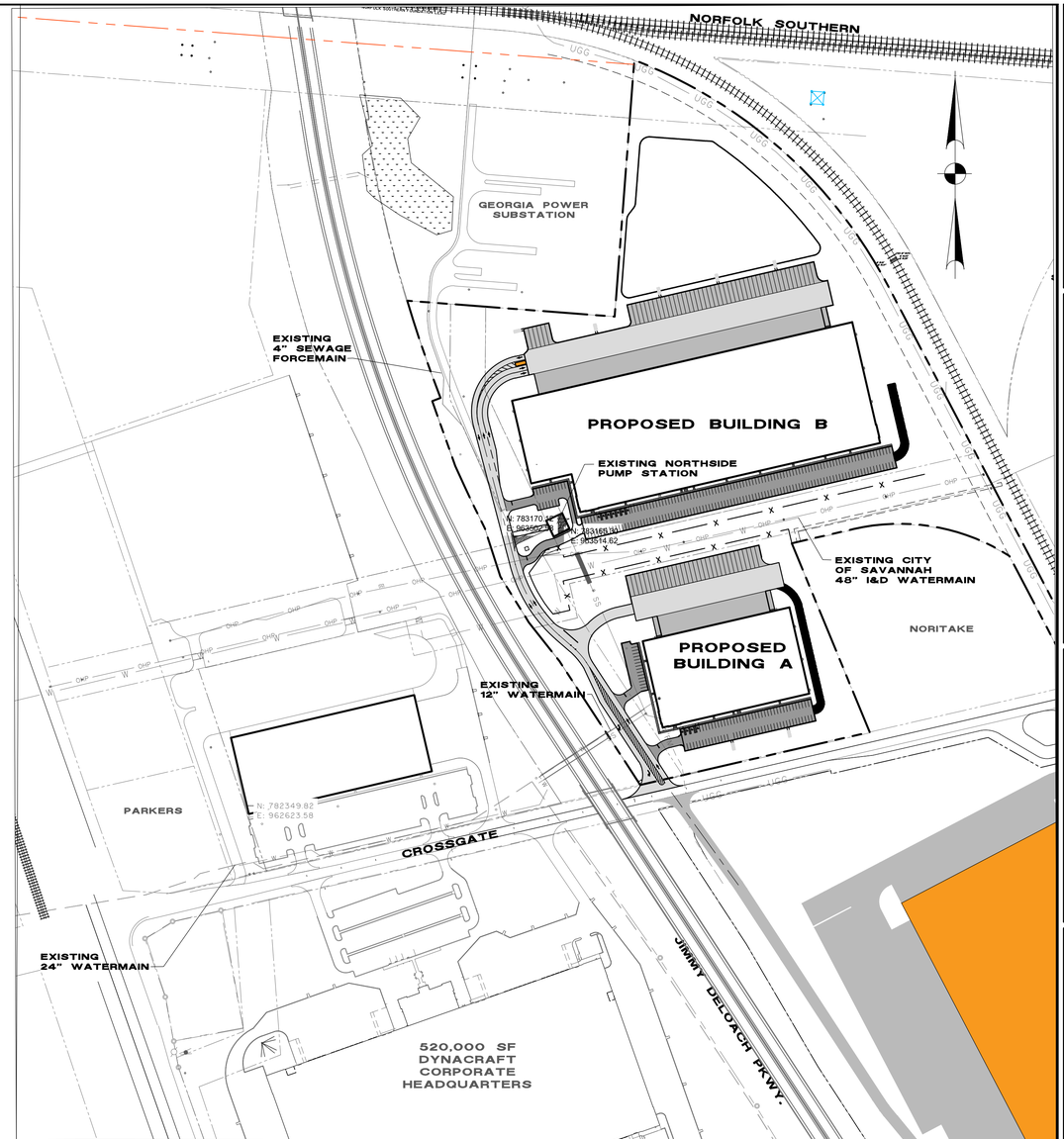
HDPE	HIGH DENSITY POLYETHELENE		JB	JUNCTION BOX		SDMH	STORM DRAINAGE MANHOLE
BOT	BOTTOM		LF	LINEAR FEET		SF	SQUARE FEET
CI	CURB INLET		MAX	MAXIMUM		SS	SANITARY SEWER
CPP	CORRUGATED PLASTIC PIPE		MIN	MINIMUM		TC	TOP OF CURB
DIP	DUCTILE IRON PIPE		MH	MANHOLE		TG	TOP OF GUTTER
EL	ELEVATION		OC	ON CENTER		TP	TOP OF PAVEMENT
FG	FINISH GRADE		PC	POINT OF CURVE		TW	TOP OF WALK
FH	FIRE HYDRANT		PH	POST HYDRANT		TYP	TYPICAL
FM	FORCE MAIN (SANITARY SEWER)		PT	POINT OF TANGENT		W	WATER
FP	FINISH PAD		PVC	POLYVINYL CHLORIDE		W/	WITH
FR	FRAME		RCP	REINFORCED CONCRETE PIPE		WV	WATER VALVE
GI	GRATE INLET		RJP	RESTRAINED JOINT PIPE		YI	YARD INLET
GV	GATE VALVE		R/W	RIGHT-OF-WAY			
INV	INVERT ELEVATION		SD	STORM DRAINAGE			

SEWER LEGEND

DESCRIPTION	EXISTING	PROPOSED
GRAVITY PIPE	SS	
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
MANHOLE		
CLEANOUT		
FORCEMAIN	10"FM 10"FM	10"FM 10"FM
VALVE AND BOX		
FLUSH HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
PLUG		

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE TIE-IN OF NEW WATER AND SEWER FACILITIES TO CITY OF PORT WENTWORTH SYSTEM. ALL WORK ON THIS PROJECT SHALL BE IN STRICT ACCORDANCE WITH CITY OF PORT WENTWORTH SPECIFICATIONS AND DETAILS.
2. EXISTING NORTHSIDE PUMP STATION AS WELL AS FORCEMAIN, GRAVITY SEWER AND WATER MAINS EXIST ON THE PROJECT SITE THAT ARE OWNED AND MAINTAINED BY THE CITY OF PORT WENTWORTH. CONSTRUCTION OF IMPROVEMENTS WILL REQUIRE MODIFICATIONS, RELOCATIONS AND CONNECTION TO PORT WENTWORTH UTILITIES AND ALL OUTAGES MUST BE SCHEDULED WITH CITY PERSONNEL (OMAR SENATI-MARTINEZ 912-999-2084)
3. SITEWORK FOR THE DISTRIBUTION CENTER PROJECT WILL BE CONSTRUCTED IN CLOSE PROXIMITY TO EXISTING GA POWER TRANSMISSION LINE POLES. PRIOR TO THE START OF CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR STAKING THE LOCATION OF ORANGE SAFETY BARRIER AROUND THE POLES AND GUY WIRES AND MEETING WITH REPRESENTATIVE FROM GA POWER (STEVE KENARD - 912- 547-1494) PRIOR TO INSTALLATION. ALL WORK SHALL BE PERFORMED SO AS TO CAUSE NO DAMAGE TO EXTING POLES, GUYS OR POWERLINES. THERE IS AN EXISTING GRAVEL DRIVEWAY THAT PROVIDES ACCESS FOR GEORGIA POWER FROM CROSSGATE ROAD TO THE SUBSTATION. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 12' WIDE ACCESS TO THE SUBSTAION AT ALL TIMES.
4. A CITY OF SAVANNAH 48" DIAMETER INDUSTRIAL AND DOMESTIC WATER LINE BISECTS THE PROPERTY THAT IS BEING DEVELOPED. PRIOR TO START OF ANY WORK AT THE PROJECT SITE, THE CONTRACTOR SHALL INSTALL ORANGE SAFETY BARRIER AS SHOWN ON DRAWING C1 AND C2 AND NO EQUIPMENT , MATERIAL OR PERSONNEL SHALL BE ALLOWED IN FENCED OFF AREA.
5. CONTRACTOR SHALL MAINTAIN MINIMUM COVER OVER THE WATER MAIN PIPE BARREL OF 3'-0" UNLESS OTHERWISE INDICATED. TOP OF PIPE ELEVATIONS ARE SHOWN FOR CASES WHERE FUTURE STORM SEWERS ARE TO BE INSTALLED. IN NO CASE SHALL THE WATER MAIN BE INSTALLED AT A LOWER ELEVATION THAN THAT SHOWN.
6. SHOULD PIPE, FITTINGS, AND OTHER MATERIALS BE NEEDED IN ADDITION TO THAT SHOWN ON THE DRAWINGS BECAUSE PIPELINE WAS NOT INSTALLED TO THE ALIGNMENT AND PROFILE SHOWN, THEN THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THOSE NECESSARY MATERIALS AND PROVIDING THE EQUIPMENT AND LABOR TO INSTALL THEM TO MEET THE DESIGN INTENT OF THE WATERMAIN AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER 48 HOURS IN ADVANCE OF ALL REQUIRED TESTS AND INSPECTIONS.
8. THE CONTRACTOR WILL NOTIFY THE ENGINEER IF UNSUITABLE MATERIAL IS DISCOVERED PRIOR TO BEGINNING ANY REMOVAL OPERATION.
9. ALL WATERMAINS SHALL BE POLYVINYL CHLORIDE (PVC C900) UNLESS OTHERWISE INDICATED.
10. ALL GRAVITY SEWER MAIN SHALL BE POLYVINYL CHLORIDE (PVC SDR26) UNLESS OTHERWISE INDICATED.
11. SURVEYING AND BOUNDARY INFORMATION BY THOMAS AND HUTTON
12. ALL ELEVATIONS SHOWN ARE BASED ON NAVD88.
13. TOPOGRAPHIC SURVEY BY THOMAS AND HUTTON.
14. CONTRACTOR SHALL VERIFY ACCURACY OF ANY TEMPORARY BENCHMARKS SHOWN PRIOR TO UTILIZING THEM FOR CONSTRUCTION.
15. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION / DEPTH OF ALL UTILITIES THAT MAY BE IMPACTED BY HIS CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND TAKE STEPS TO PROTECT THE LINE(S) AND ENSURE CONTINUED SERVICE. DAMAGE CAUSED TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR. ADDITIONALLY, THE CONTRACTOR SHALL CONFIRM THE CONNECTION POINTS OF NEW UTILITIES TO EXISTING UTILITIES PRIOR TO BEGINNING NEW CONSTRUCTION.
16. IF WORK IS SUSPENDED OR DELAYED FOR 14 DAYS, THE CONTRACTOR SHALL TEMPORARILY STABILIZE THE DISTURBED AREA AT NO ADDITIONAL COST TO THE OWNER.
17. THE CONTRACTOR SHALL INSTALL ANY BARRICADES PRIOR TO BEGINNING CONSTRUCTION
18. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL AND PREVENTION STRUCTURES SHOWN ON THE PLANS. BOTH MUST BE APPROVED BY CITY OF PORT WENTWORTH PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES.
19. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH THE DISTURBANCE OF THE LAND AND SHALL REMAIN FUNCTIONAL UNTIL THE CONTRIBUTING DISTURBED AREAS ARE STABILIZED. SILT BARRIERS WILL BE INSTALLED AS NECESSARY TO PREVENT EXCESSIVE SEDIMENTATION OF DOWNSTREAM AREAS. CONTRACTOR SHALL GRADE AREAS TO DRAIN FOR POSITIVE FLOW PRIOR TO FINAL APPROVAL.
20. ALL DRAINAGE WILL BE MADE FUNCTIONAL DAILY AS WORK PROGRESSES.



PROJECT MAP

SCALE: 1" = 200'

GENERAL INFORMATION

GENERAL CONTRACTOR

COUNTY CHATHAM
CITY PORT WENTWORTH
ZONING P-I-I

OWNER OF PROPERTY
NFI INDUSTRIES
TRIAD 1828 CENTER, 2 COOPER STREET
CAMDEN, NJ 08102
856-470-2078

ENGINEER:
THOMAS & HUTTON
50 PARK OF COMMERCE WAY
SAVANNAH, GA 31402
(912) 234-5300

PREPARED FOR:
NFI INDUSTRIES
TRIAD 1828 CENTER, 2 COOPER STREET
CAMDEN, NJ 08102
856-470-2078

SURVEYOR: THOMAS & HUTTON
50 PARK OF COMMERCE WAY
SAVANNAH, GA 31402
(912) 234-5300

UTILITY: CITY OF PORT WENTWORTH
ATTN: BRIAN HARVEY
DIRECTOR OF DEVELOPMENT SERVICES
305 SOUTH COASTAL HIGHWAY
PORT WENTWORTH, GA 31407
912-964-4379 EXT 108

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 027641 CIVIL

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

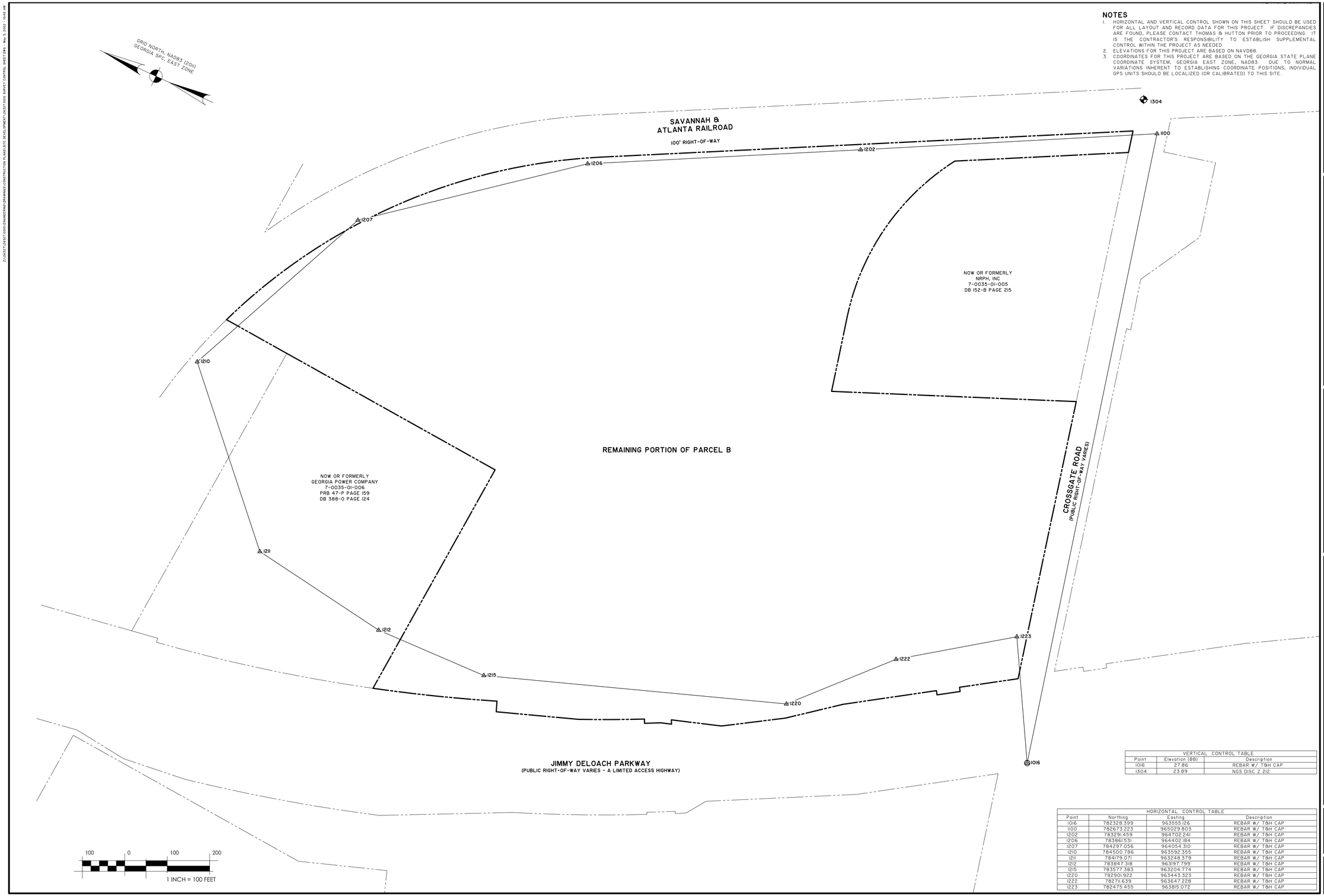
GENERAL NOTES

JOB NO:	J-26327.000
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	AS LISTED

GN

NOTES

1. HORIZONTAL AND VERTICAL CONTROL SHOWN ON THIS SHEET SHOULD BE USED FOR ALL LAYOUT AND RECORD DATA FOR THIS PROJECT. IF DISCREPANCIES ARE FOUND, PLEASE CONTACT THOMAS & HUTTON PRIOR TO PROCEEDING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH SUPPLEMENTAL CONTROL WITHIN THE PROJECT AS NEEDED.
2. ELEVATIONS FOR THIS PROJECT ARE BASED ON NAVD88.
3. COORDINATES FOR THIS PROJECT ARE BASED ON THE GEORGIA STATE PLANE COORDINATE SYSTEM, GEORGIA EAST ZONE, NAD83. DUE TO NORMAL VARIATIONS INHERENT TO ESTABLISHING COORDINATE POSITIONS, INDIVIDUAL GPS UNITS SHOULD BE LOCALIZED (OR CALIBRATED) TO THIS SITE.



VERTICAL CONTROL TABLE		
Point	Elevation (88)	Description
1016	27.86	REBAR W/ T&H CAP
1304	23.89	NGS DISC Z 212

HORIZONTAL CONTROL TABLE			
Point	Northing	Easting	Description
1016	782328.399	963555.126	REBAR W/ T&H CAP
1100	782673.223	965029.803	REBAR W/ T&H CAP
1202	783291.459	964702.241	REBAR W/ T&H CAP
1206	783861.531	964402.184	REBAR W/ T&H CAP
1207	784297.056	964054.310	REBAR W/ T&H CAP
1210	784500.786	963592.355	REBAR W/ T&H CAP
1211	784179.071	963248.379	REBAR W/ T&H CAP
1212	783847.318	963197.799	REBAR W/ T&H CAP
1215	783577.383	963204.774	REBAR W/ T&H CAP
1220	782901.922	963443.323	REBAR W/ T&H CAP
1222	782711.639	963647.228	REBAR W/ T&H CAP
1223	782475.455	963815.072	REBAR W/ T&H CAP

NO.	REVISIONS	BY	DATE
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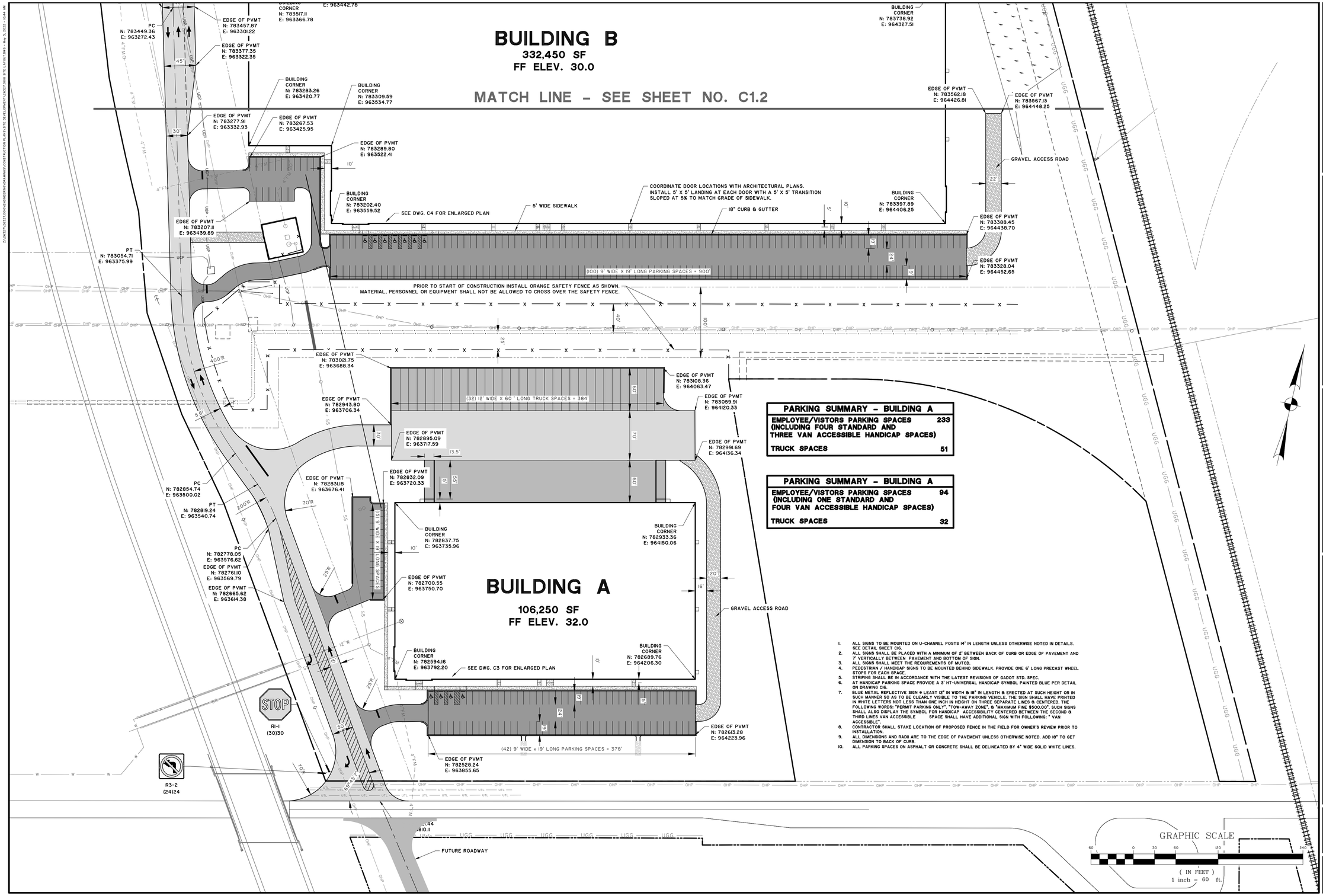
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

SURVEY CONTROL SHEET

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 100'

SC1



PARKING SUMMARY - BUILDING A

EMPLOYEE/VISTORS PARKING SPACES (INCLUDING FOUR STANDARD AND THREE VAN ACCESSIBLE HANDICAP SPACES)	233
TRUCK SPACES	51

PARKING SUMMARY - BUILDING A

EMPLOYEE/VISTORS PARKING SPACES (INCLUDING ONE STANDARD AND FOUR VAN ACCESSIBLE HANDICAP SPACES)	94
TRUCK SPACES	32

1. ALL SIGNS TO BE MOUNTED ON U-CHANNEL POSTS 14' IN LENGTH UNLESS OTHERWISE NOTED IN DETAILS. SEE DETAIL SHEET C16.
2. ALL SIGNS SHALL BE PLACED WITH A MINIMUM OF 2' BETWEEN BACK OF CURB OR EDGE OF PAVEMENT AND 7' VERTICALLY BETWEEN PAVEMENT AND BOTTOM OF SIGN.
3. ALL SIGNS SHALL MEET THE REQUIREMENTS OF MUTCD.
4. PEDESTRIAN / HANDICAP SIGNS TO BE MOUNTED BEHIND SIDEWALK. PROVIDE ONE 6' LONG PRECAST WHEEL STOPS FOR EACH SPACE.
5. STRIPING SHALL BE IN ACCORDANCE WITH THE LATEST REVISIONS OF GADOT STD. SPEC.
6. AT HANDICAP PARKING SPACE PROVIDE A 3' HT-UNIVERSAL HANDICAP SYMBOL PAINTED BLUE PER DETAIL ON DRAWING C16.
7. BLUE METAL REFLECTIVE SIGN @ LEAST 12" IN WIDTH & 18" IN LENGTH & ERECTED AT SUCH HEIGHT OR IN SUCH MANNER SO AS TO BE CLEARLY VISIBLE TO THE PARKING VEHICLE. THE SIGN SHALL HAVE PRINTED IN WHITE LETTERS NOT LESS THAN ONE INCH IN HEIGHT ON THREE SEPARATE LINES & CENTERED. THE FOLLOWING WORDS: "PERMIT PARKING ONLY". "TOW-AWAY ZONE". & "MAXIMUM FINE $500.00". SUCH SIGNS SHALL ALSO DISPLAY THE SYMBOL FOR HANDICAP ACCESSIBILITY CENTERED BETWEEN THE SECOND & THIRD LINES VAN ACCESSIBLE SPACE SHALL HAVE ADDITIONAL SIGN WITH FOLLOWING: " VAN ACCESSIBLE".
8. CONTRACTOR SHALL STAKE LOCATION OF PROPOSED FENCE IN THE FIELD FOR OWNER'S REVIEW PRIOR TO INSTALLATION.
9. ALL DIMENSIONS AND RADII ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED. ADD 18" TO GET DIMENSION TO BACK OF CURB.
10. ALL PARKING SPACES ON ASPHALT OR CONCRETE SHALL BE DELINEATED BY 4" WIDE SOLID WHITE LINES.

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 026166 JOSEPH L. MERSER

NO.	REVISIONS	BY	DATE
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---	---	---	---

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Savannah, GA 31405 • 912.234.5300
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

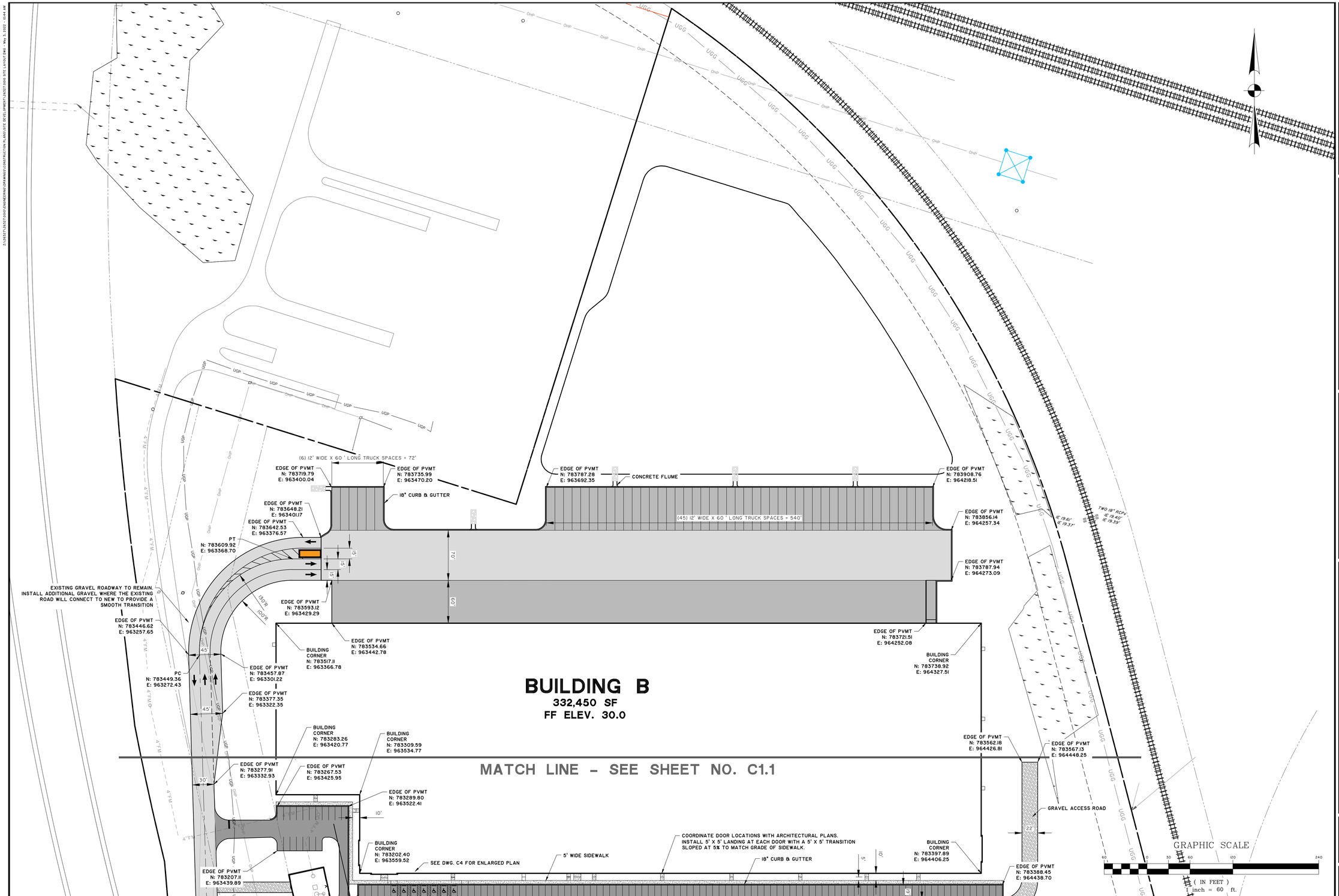
SITE DEVELOPMENT FOR BUILDINGS A & B

SITE LAYOUT - SHEET 1

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C1.1

Z:\26327\26327.0010\ENGINEERING\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0010 SITE LAYOUT.DWG - May 5, 2022 - 10:44 AM



GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 027656 JOSEPH L. MERCER

NO.	REVISIONS	BY	DATE
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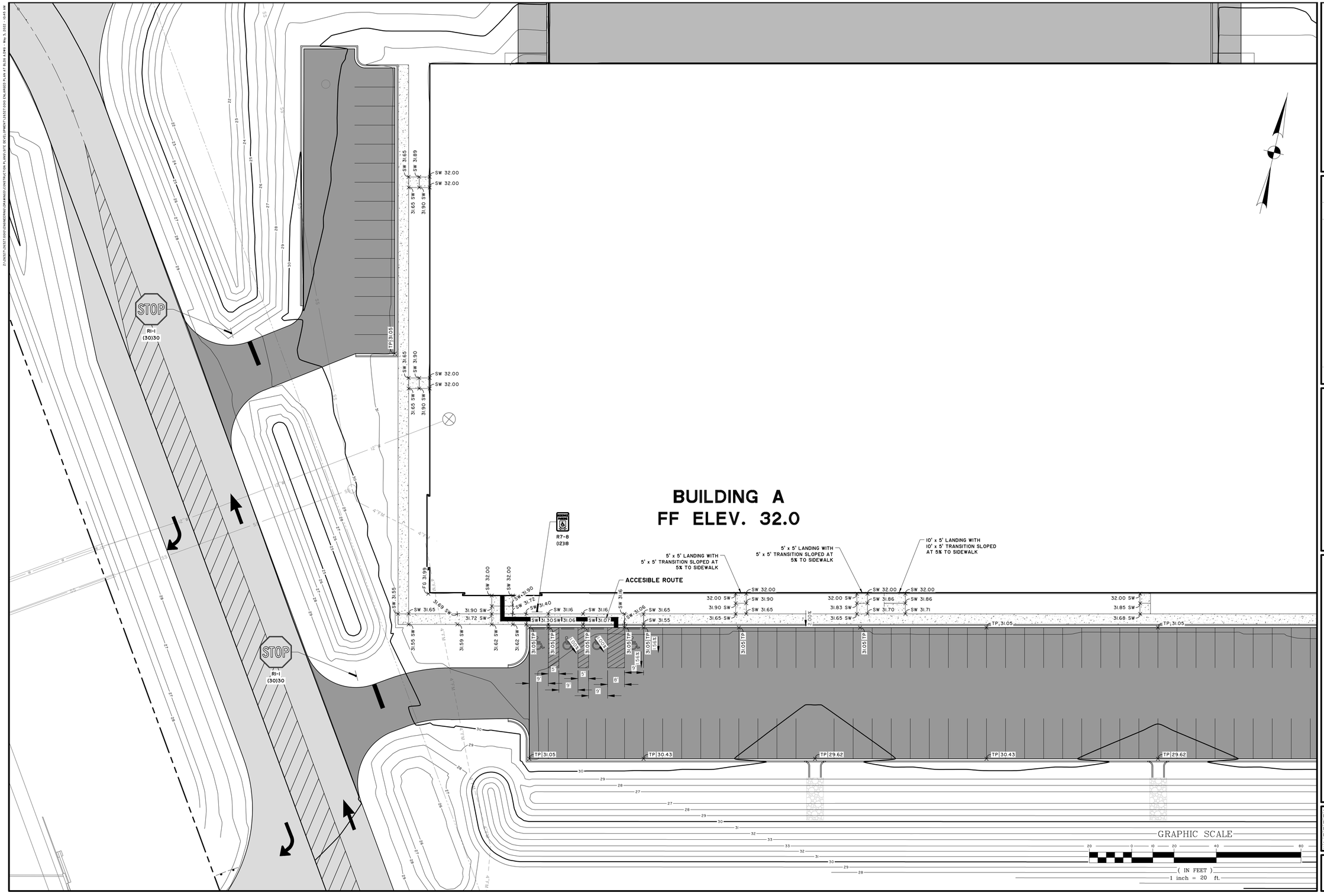
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

SITE LAYOUT - SHEET 2

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C1.2



GEORGIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH L. MERCER

NO.	REVISIONS	BY	DATE
---	---	---	---

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

ENLARGED PLAN AT BUILDING A

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 20'

C1.3

Z:\26327\26327.0010\ENGINEERING\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327-0010 ENLARGED PLAN AT BLDG B.DWG - May 3, 2022 - 10:48 AM

BUILDING B
FF ELEV. 30.0

5' x 5' LANDING WITH
5' x 5' TRANSITION AT 5%
SLOPE TO MATCH SIDEWALK

5' x 5' LANDING WITH
5' x 5' TRANSITION AT 5%
SLOPE TO MATCH SIDEWALK

N: 783214.50
E: 963334.06

N: 783230.11
E: 963401.77

5' WIDE SIDEWALK
AND 18" CURB & GUTTER

ACCESIBLE ROUTE

5' x 5'
LANDING WITH
ONE 6" HIGH STEP

5' x 5' LANDING WITH
5' x 5' TRANSITION AT 5%
SLOPE TO MATCH SIDEWALK

EXIST GA. POWER
TRANSFORMER

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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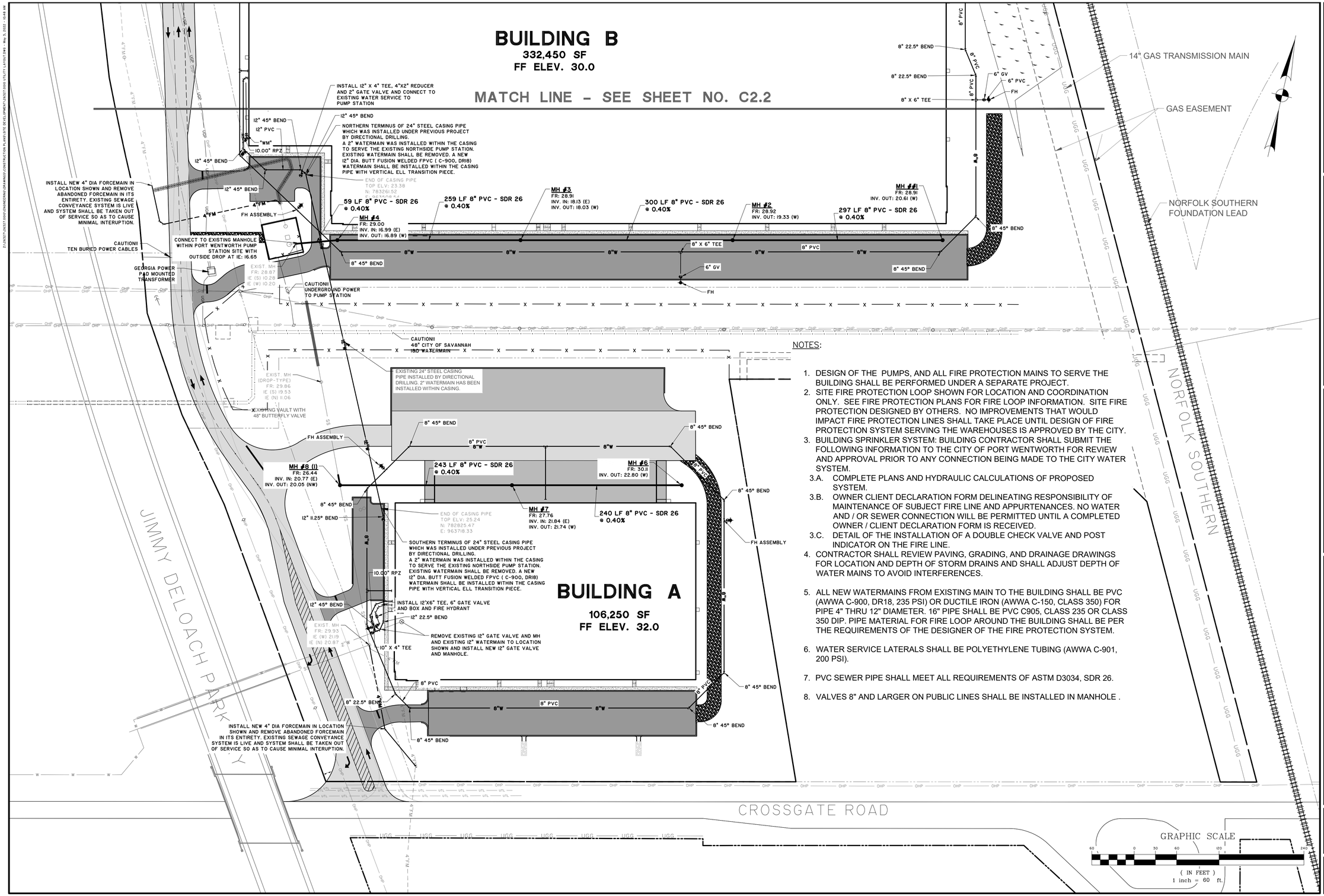
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

ENLARGED PLAN AT BUILDING B

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 20'

C1.4



NOTES:

1. DESIGN OF THE PUMPS, AND ALL FIRE PROTECTION MAINS TO SERVE THE BUILDING SHALL BE PERFORMED UNDER A SEPARATE PROJECT.
2. SITE FIRE PROTECTION LOOP SHOWN FOR LOCATION AND COORDINATION ONLY. SEE FIRE PROTECTION PLANS FOR FIRE LOOP INFORMATION. SITE FIRE PROTECTION DESIGNED BY OTHERS. NO IMPROVEMENTS THAT WOULD IMPACT FIRE PROTECTION LINES SHALL TAKE PLACE UNTIL DESIGN OF FIRE PROTECTION SYSTEM SERVING THE WAREHOUSES IS APPROVED BY THE CITY.
3. BUILDING SPRINKLER SYSTEM: BUILDING CONTRACTOR SHALL SUBMIT THE FOLLOWING INFORMATION TO THE CITY OF PORT WENTWORTH FOR REVIEW AND APPROVAL PRIOR TO ANY CONNECTION BEING MADE TO THE CITY WATER SYSTEM.
   - 3.A. COMPLETE PLANS AND HYDRAULIC CALCULATIONS OF PROPOSED SYSTEM.
   - 3.B. OWNER CLIENT DECLARATION FORM DELINEATING RESPONSIBILITY OF MAINTENANCE OF SUBJECT FIRE LINE AND APPURTENANCES. NO WATER AND / OR SEWER CONNECTION WILL BE PERMITTED UNTIL A COMPLETED OWNER / CLIENT DECLARATION FORM IS RECEIVED.
   - 3.C. DETAIL OF THE INSTALLATION OF A DOUBLE CHECK VALVE AND POST INDICATOR ON THE FIRE LINE.
4. CONTRACTOR SHALL REVIEW PAVING, GRADING, AND DRAINAGE DRAWINGS FOR LOCATION AND DEPTH OF STORM DRAINS AND SHALL ADJUST DEPTH OF WATER MAINS TO AVOID INTERFERENCES.
5. ALL NEW WATERMAINS FROM EXISTING MAIN TO THE BUILDING SHALL BE PVC (AWWA C-900, DR18, 235 PSI) OR DUCTILE IRON (AWWA C-150, CLASS 350) FOR PIPE 4" THRU 12" DIAMETER. 16" PIPE SHALL BE PVC C905, CLASS 235 OR CLASS 350 DIP. PIPE MATERIAL FOR FIRE LOOP AROUND THE BUILDING SHALL BE PER THE REQUIREMENTS OF THE DESIGNER OF THE FIRE PROTECTION SYSTEM.
6. WATER SERVICE LATERALS SHALL BE POLYETHYLENE TUBING (AWWA C-901, 200 PSI).
7. PVC SEWER PIPE SHALL MEET ALL REQUIREMENTS OF ASTM D3034, SDR 26.
8. VALVES 8" AND LARGER ON PUBLIC LINES SHALL BE INSTALLED IN MANHOLE .

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 027662 JOSEPH L. MASON

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

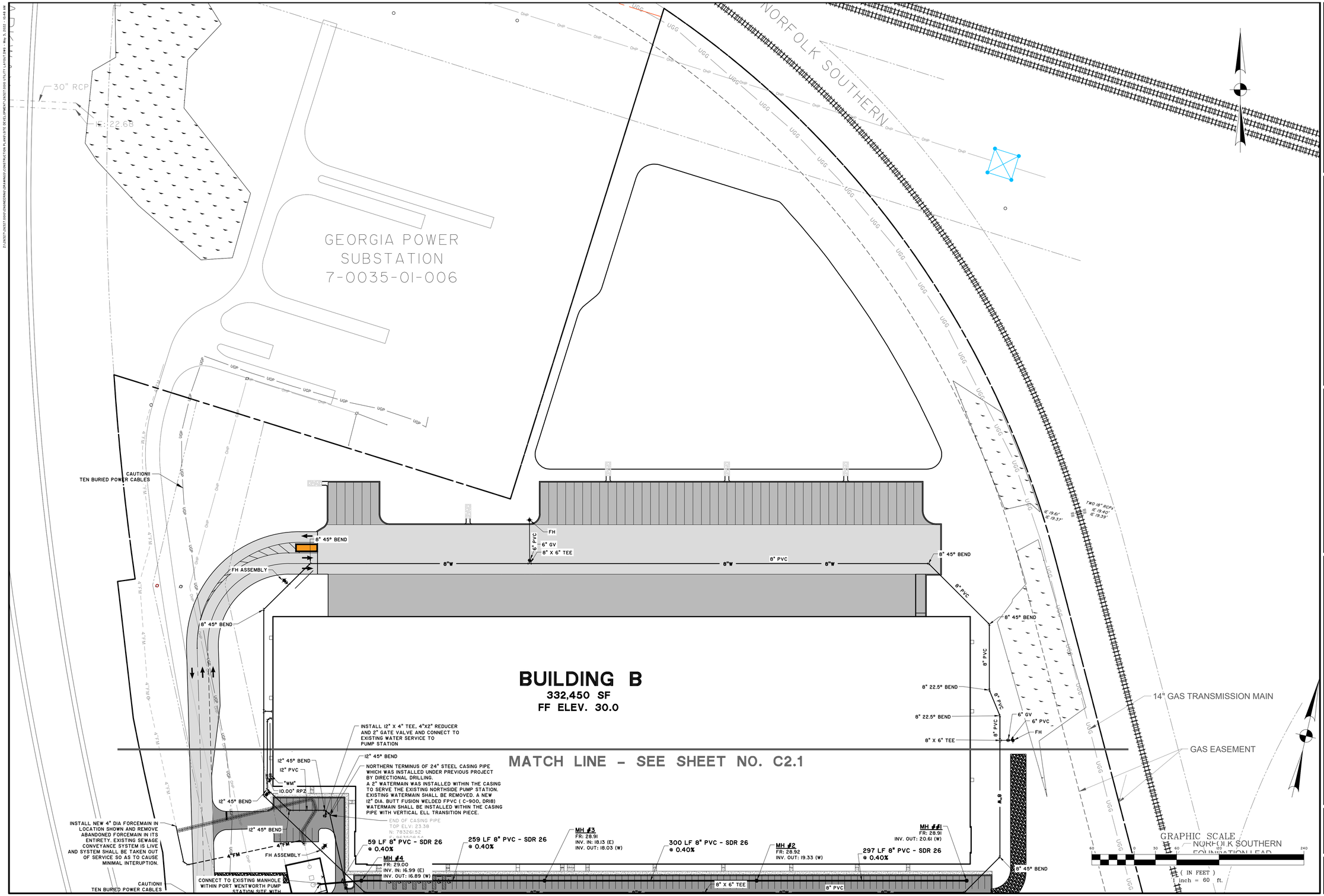
SITE DEVELOPMENT FOR BUILDINGS A & B

WATER & SEWER PLAN - SHEET I

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C2.1

F:\26327\26327.0010\ENGINEERING\29-WATER\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0010-UTILITY LAYOUT.DWG - May 3, 2022 - 10:48 AM



GEORGIA REGISTERED PROFESSIONAL ENGINEER JOSEPH L. MERCER

NO.	REVISIONS	BY	DATE

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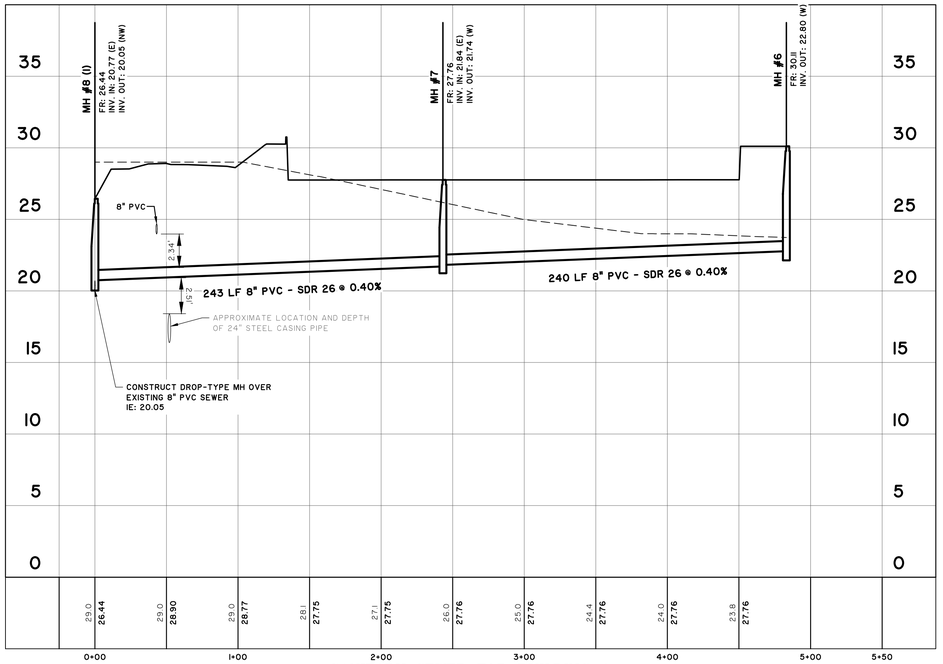
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

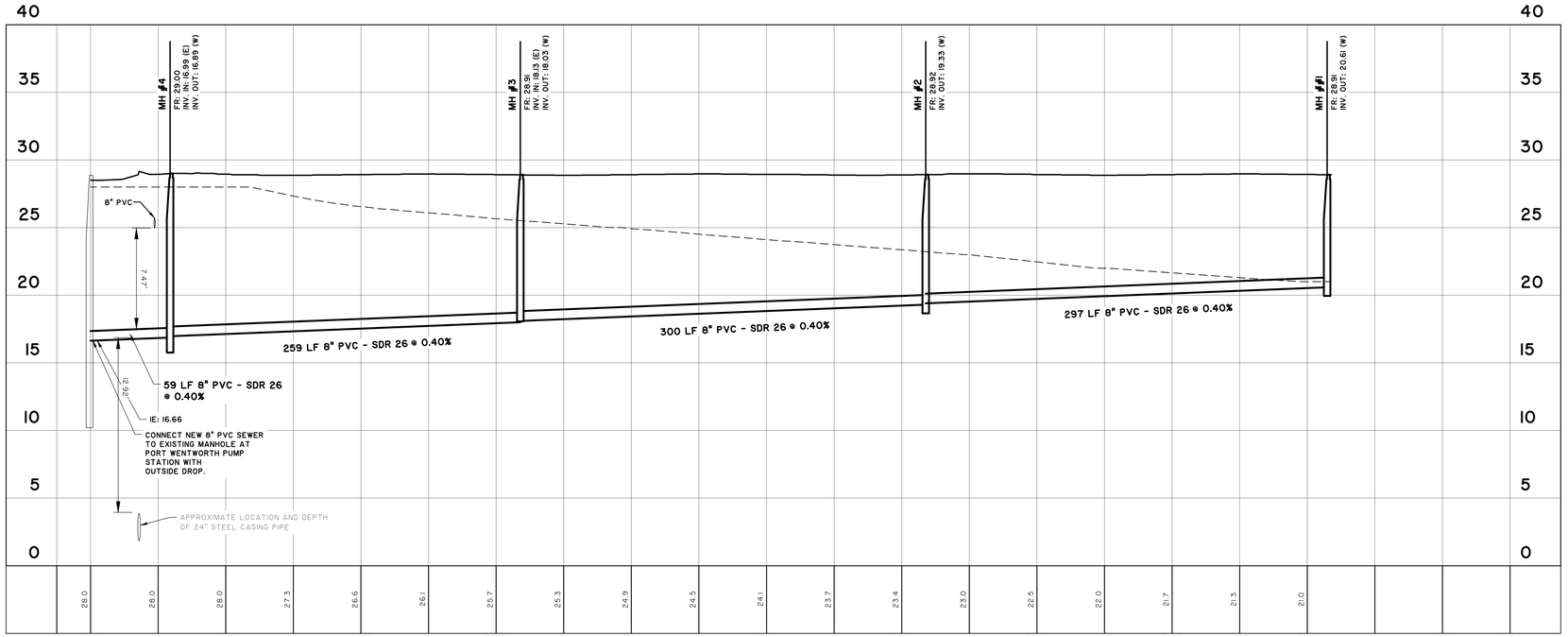
WATER & SEWER PLAN- SHEET 2

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C2.2



SANITARY SEWER FOR BUILDING A
STATIONS: -0+25 - 5+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



SANITARY SEWER FOR BUILDING B
STATIONS: -0+25 - 10+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

GEORGIA REGISTERED PROFESSIONAL ENGINEER JOSEPH L. MERCER

NO.	REVISIONS	BY	DATE
---	---	---	---

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NFI INDUSTRIES
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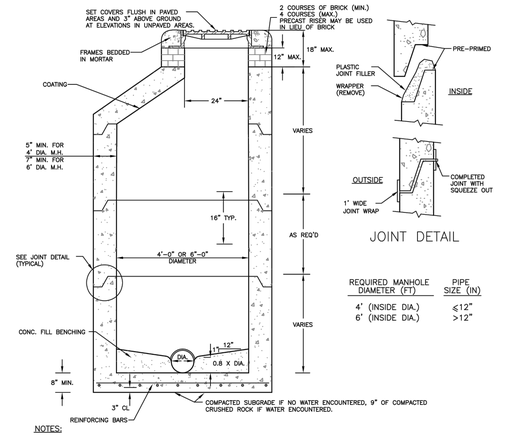
SITE DEVELOPMENT FOR BUILDINGS A & B

SANITARY SEWER PROFILES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	AS NOTED

C2.3



REQUIRED MANHOLE DIAMETER (FT)	PIPE SIZE (IN)
4' (INSIDE DIA.)	≤12"
6' (INSIDE DIA.)	>12"

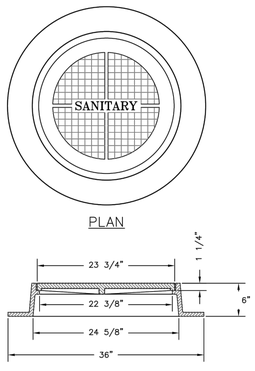
NOTES:

1. PRECAST REINFORCED CONCRETE TOPS, RISERS, BASES AND REBARS SHALL CONFORM TO LATEST ASTM C-478 STD. SPECIFICATIONS.
2. INTERIOR OF MANHOLE SHALL BE COATED IN ACCORDANCE WITH CITY OF PORT WENTWORTH STD. SPECIFICATIONS. THE EXTERIOR OF MANHOLE SHALL BE COATED WITH CONSEAL CS-55 DAMP-PROOF COATING OR EQUAL
3. MANUFACTURER CERTIFICATION THAT MANHOLE MEETS ASTM SPECIFICATION SHALL BE SUBMITTED TO CITY OF PORT WENTWORTH.
4. SEE DETAIL SHEET FOR MANHOLE COVER & FRAME.
6. BUOYANCY MAY NEED TO BE CHECKED IF NECESSARY
7. ALL PIPE PENETRATIONS SHALL HAVE A BOOT CONNECTION. SEE DETAIL S-6.

PRECAST CONCRETE MANHOLE

City of Port Wentworth
TECHNICAL DETAILS
S-1

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:

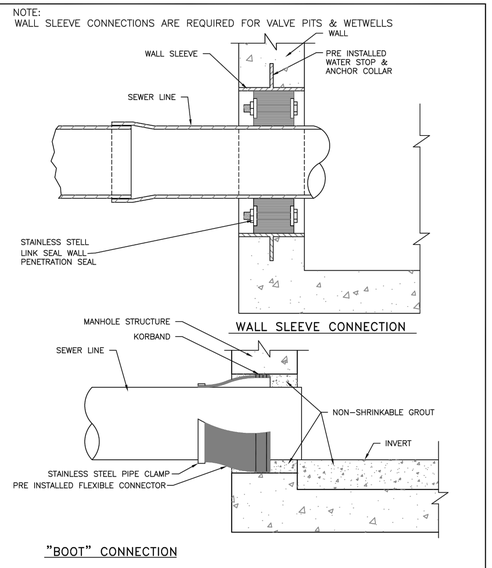
MANHOLE RING & COVER SHALL BE HEAVY DUTY RATED EQUAL TO U. S. FOUNDRY CO. USF 195-ORS. TOTAL WEIGHT 325# TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED 2 1/2" -3" LETTER HEIGHT "SANITARY" (NON VENTED). MANHOLE RING SHALL INCLUDE A WATERTIGHT GASKET. STACKING CLEATS ON THE BOTTOM OF THE COVER SHALL NOT BE ALLOWED.

MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS
S-2

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

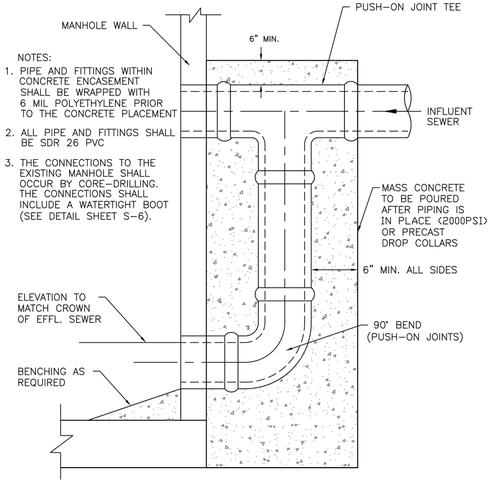
NOTE:
WALL SLEEVE CONNECTIONS ARE REQUIRED FOR VALVE PITS & WETWELLS



PRECAST STRUCTURE PIPE CONNECTION

City of Port Wentworth
TECHNICAL DETAILS
S-6

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



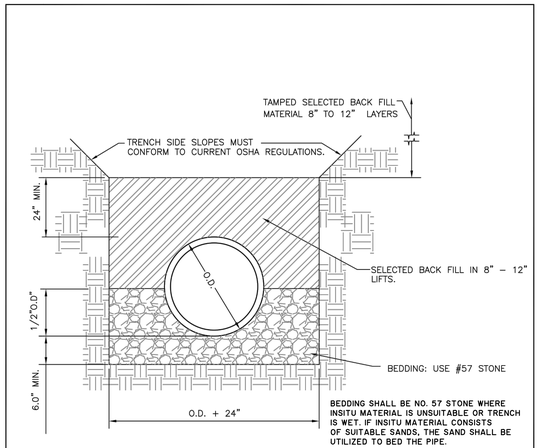
NOTES:

1. PIPE AND FITTINGS WITHIN CONCRETE ENCASEMENT SHALL BE WRAPPED WITH 6 MIL POLYETHYLENE PRIOR TO THE CONCRETE PLACEMENT
2. ALL PIPE AND FITTINGS SHALL BE SDR 26 PVC
3. THE CONNECTIONS TO THE EXISTING MANHOLE SHALL OCCUR BY CORE-DRILLING. THE CONNECTIONS SHALL INCLUDE A WATERTIGHT BOOT (SEE DETAIL SHEET S-6).

DROP MANHOLE CONNECTION

City of Port Wentworth
TECHNICAL DETAILS
S-7

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

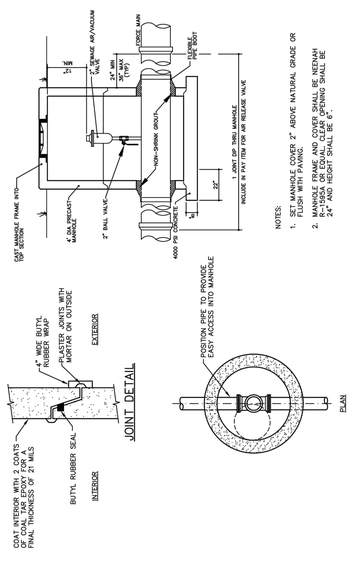


BEDDING SHALL BE NO. 57 STONE WHERE INSITU MATERIAL IS UNSUITABLE OR TRENCH IS WET. IF INSITU MATERIAL CONSISTS OF SUITABLE SANDS, THE SAND SHALL BE UTILIZED TO BED THE PIPE.

PIPE BEDDING

City of Port Wentworth
TECHNICAL DETAILS
S-8

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



COMBINATION AIR VALVE & MANHOLE

City of Port Wentworth
TECHNICAL DETAILS
S-9

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 32766 JOSEPH L. NEMECEK

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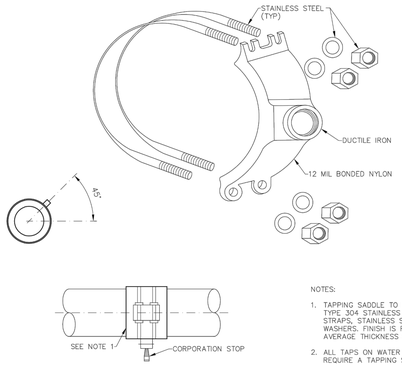
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

SANITARY SEWER DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1.109'

C2.4



NOTES:

1. TAPPING SADDLE TO BE DUCTILE IRON WITH TYPE 304 STAINLESS STEEL FORGED DOUBLE STRAPS, STAINLESS STEEL BOLTS, NUTS AND WASHERS. FINISH IS FUSION-BONDED NYLON TO AVERAGE THICKNESS OF 12 MILS.
2. ALL TAPS ON WATER MAIN WILL REQUIRE A TAPPING SADDLE.

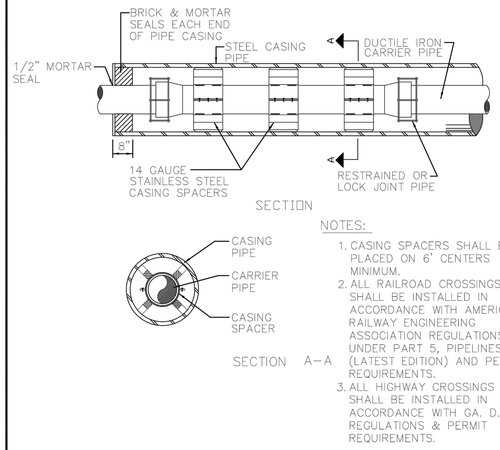
1" AND 2" TAPPING SADDLE

City of Port Wentworth
TECHNICAL DETAILS

W-2

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:

1. CASING SPACERS SHALL BE PLACED ON 6' CENTERS MINIMUM.
2. ALL RAILROAD CROSSINGS SHALL BE INSTALLED IN ACCORDANCE WITH AMERICAN RAILWAY ENGINEERING ASSOCIATION REGULATIONS, UNDER PART 5, PIPELINES (LATEST EDITION) AND PERMIT REQUIREMENTS.
3. ALL HIGHWAY CROSSINGS SHALL BE INSTALLED IN ACCORDANCE WITH GA. D.O.T. REGULATIONS & PERMIT REQUIREMENTS.

CARRIER PIPE INSTALLATION

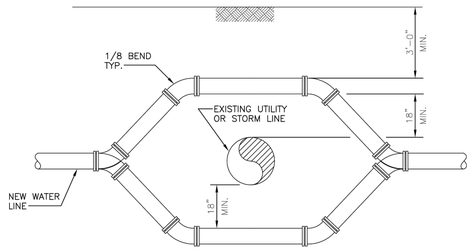
CARRIER PIPE INSTALLATION

City of Port Wentworth
TECHNICAL DETAILS

W-3

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: NFEBRUARY 2007



NOTES:

1. WATER LINE SHALL BE INSTALLED ABOVE SANITARY OR STORM LINE IF POSSIBLE.
2. STRAIGHT RUN OF WATER LINE DIRECTLY ABOVE OR BELOW EXISTING UTILITY LINE MUST BE 10' MINIMUM WITH NO JOINT.
3. IF WATER LINE IS INSTALLED BELOW SANITARY LINE WATER LINE SHALL BE DUCTILE IRON PIPE.
4. JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH CITY OF PORT WENTWORTH STANDARD DETAILS.

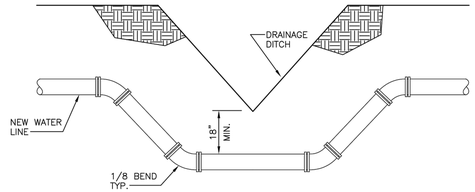
STANDARD UTILITY CROSSING

City of Port Wentworth
TECHNICAL DETAILS

W-6

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:

1. WATER LINE SHALL BE DUCTILE IRON BELOW STORM DRAINAGE DITCH.
2. STRAIGHT RUN OF WATER LINE DIRECTLY BELOW NEW OR EXISTING DRAINAGE DITCH MUST BE 10' MINIMUM WITH NO JOINT.
3. JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH CITY OF PORT WENTWORTH STANDARD DETAILS.

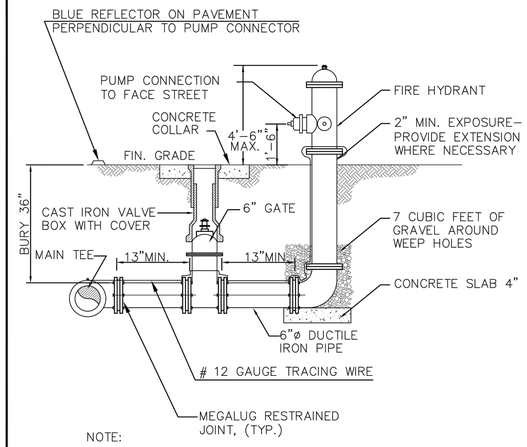
UTILITY CROSSING DRAINAGE DITCH

City of Port Wentworth
TECHNICAL DETAILS

W-7

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:

1. ALL JOINTS FROM MAIN TO HYDRANT SHALL BE RESTRAINED.
2. PROTECT BOLTS AND THREADS FROM CONCRETE.

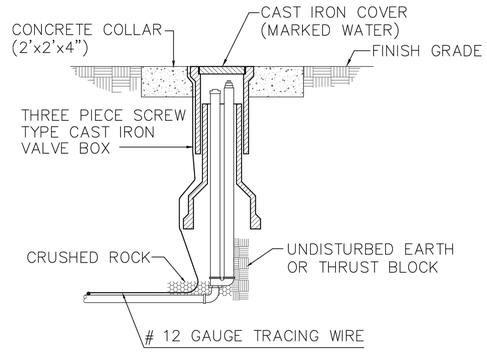
STANDARD FIRE HYDRANT

City of Port Wentworth
TECHNICAL DETAILS

W-9

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:

1. MAINGUARD #79 BLOW-OFF HYDRANT BY THE KUPFERLE FOUNDRY COMPANY. SEE MANUFACTURER'S SPECIFICATION FOR FURTHER DETAIL.

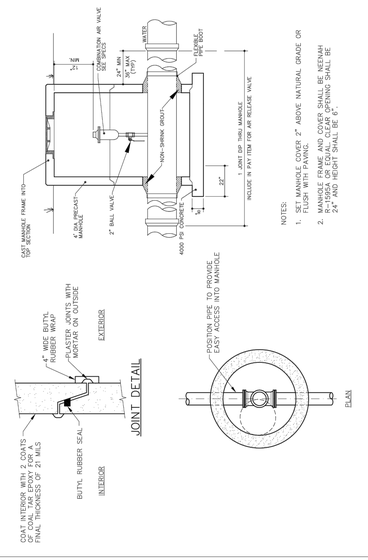
BLOW-OFF HYDRANT

City of Port Wentworth
TECHNICAL DETAILS

W-10

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



COMBINATION AIR VALVE & MANHOLE

City of Port Wentworth
TECHNICAL DETAILS

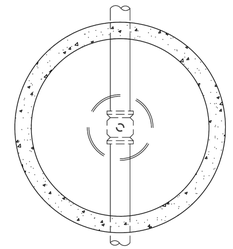
W-13

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

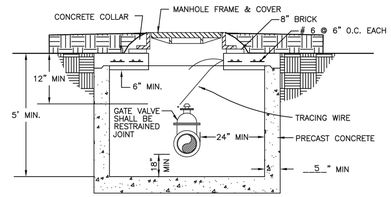
SCALE: N.T.S.
DATED: FEBRUARY 2007

NOTES:

1. MANHOLE FRAME AND COVER SHALL BE NEENAH FOUNDRY CO. CATALOG NO. R-1668, TYPE C, LABELED "WATER".
2. THE BOTTOM OF THE MANHOLE FRAME SHALL NOT BE MORE THAN 12" ABOVE THE TOP OF THE MANHOLE STRUCTURE.
3. PRECAST CONCENTRIC CONE RISERS MAY BE USED WHERE REQUIRED FOR DEPTH.
4. THE MANHOLE FRAME AND COVER MUST BE CENTERED OVER THE VALVE.



PLAN



VALVE MANHOLE FOR 8" & GREATER GATE VALVE

City of Port Wentworth
TECHNICAL DETAILS

W-14

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA REGISTERED PROFESSIONAL ENGINEER JOSEPH L. HESSER No. 32766

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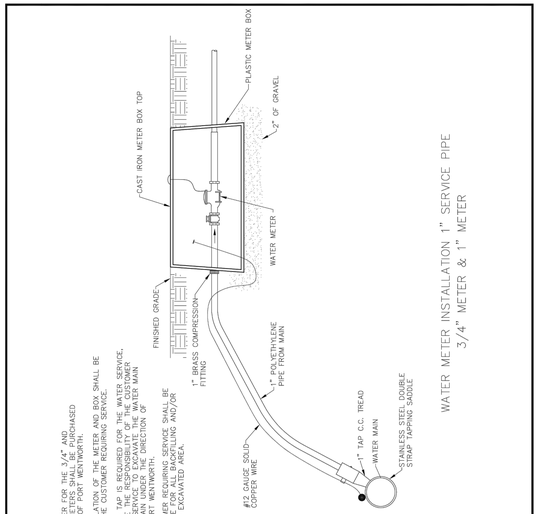
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

WATER SYSTEM DETAILS

JOB NO:	J-26327.000
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1'-10"

C2.5



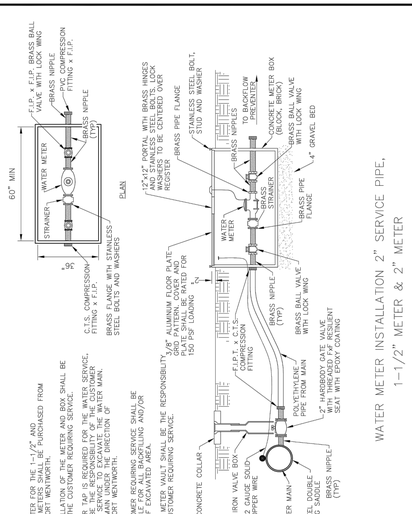
NOTES:
1. WATER METER FOR THE 1-1/4" AND 1-1/2" METER SHALL BE PURCHASED FROM CITY OF PORT WENTWORTH.
2. THE INSTALLATION OF THE METER AND BOX SHALL BE DONE BY THE CUSTOMER REQUIRING SERVICE.
3. IT SHALL BE THE RESPONSIBILITY OF THE CUSTOMER REQUIRING SERVICE TO EXCAVATE THE WATER MAIN AND TAP MAIN UNDER THE DIRECTION OF CITY OF PORT WENTWORTH.
4. THE CUSTOMER REQUIRING SERVICE SHALL BE RESPONSIBLE FOR BACKFILLING AND/OR REPAIRS OF EXCAVATED AREA.

WATER METER INSTALLATION 1" SERVICE PIPE
3/4" METER & 1" METER

RESIDENTIAL WATER METER W/BACKFLOW PREVENTER

City of Port Wentworth
TECHNICAL DETAILS
W-17

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



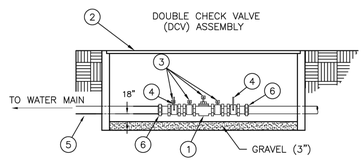
NOTES:
1. WATER METER FOR THE 1-1/2" AND 2" WATER METERS SHALL BE PURCHASED FROM CITY OF PORT WENTWORTH.
2. THE INSTALLATION OF THE METER AND BOX SHALL BE DONE BY THE CUSTOMER REQUIRING SERVICE.
3. IF A WATER TAP IS REQUIRED FOR THE WATER SERVICE, IT SHALL BE THE RESPONSIBILITY OF THE CUSTOMER REQUIRING SERVICE TO EXCAVATE THE WATER MAIN AND TAP MAIN UNDER THE DIRECTION OF CITY OF PORT WENTWORTH.
4. THE CUSTOMER REQUIRING SERVICE SHALL BE RESPONSIBLE FOR BACKFILLING AND/OR REPAIRS OF EXCAVATED AREA.
5. CONCRETE METER VAULT SHALL BE THE RESPONSIBILITY OF THE CUSTOMER REQUIRING SERVICE.

WATER METER INSTALLATION 2" SERVICE PIPE,
1-1/2" METER & 2" METER

WATER METER INSTALLATION 2" SERVICE PIPE

City of Port Wentworth
TECHNICAL DETAILS
W-19

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



MATERIALS		
ITEM	QUAN	DESCRIPTION
1	1	DOUBLE CHECK VALVE ASSEMBLY *
2	2	METER BOX (JUMBO METER BOX FOR 5/8", 3/4", 1" & 1 1/2" BFD ONLY)
3	4	TEST COCKS
4	2	FULL PORT BALL VALVES
5		POLYETHYLENE, COPPER OR BRASS CUT TO LENGTH
6	2	UNION

* DUAL CHECK VALVES ARE NOT ALLOWABLE

INSTALLATION INSTRUCTIONS:

THE ASSEMBLY SHALL NOT BE BURIED IN EARTH, BUT MAY BE INSTALLED IN A UTILITY BOX ADJACENT TO OR AS CLOSE AS PRACTICAL TO, THE OUTLET SIDE OF THE METER. UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR SYSTEM CONTAINMENT.

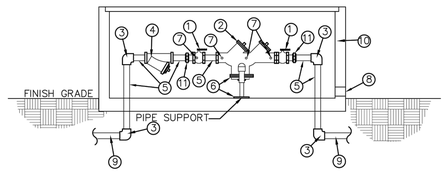
NOTES:
1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE. INSTALLER MUST PROVIDE FOR THERMAL EXPANSION DOWNSTREAM OF THE BACKFLOW PREVENTOR.
2. IF A PRESSURE MONITOR IS TO BE INSTALLED, ADD A TEE, VALVE, FITTINGS AND MOUNT ON SUPPLY SIDE PRIOR TO BACKFLOW PREVENTION DEVICE; UNDER NO CIRCUMSTANCE, SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION, OTHER THAN BACKFLOW DEVICE TESTING.

TYPICAL OUTSIDE INSTALLATION
(3/4", 1", 1 1/2", 2" & 2 1/2" SIZES)

DOMESTIC DOUBLE CHECK VALVE ASSEMBLY (A)

City of Port Wentworth
TECHNICAL DETAILS
W-20

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



MATERIALS		
ITEM	QUAN	DESCRIPTION
1	2	FULL PORT BALL VALVE
2	1	REDUCED PRESSURE ZONE DEVICE
3	4	BRASS ELLS THREADED OR FLANGED
4	1	STRAINER W/ RPZ DEVICE (OPTIONAL) SEE NOTE 3
5	6	BRASS OR COPPER ONLY. NIPPLES CUT TO LENGTH
6		PIPE STAND MIN.12"
7	4	BRASS PLUGS INSERTED IN TEST COCKS
8		2" X 2" DRAIN
9		POLYETHYLENE OR COPPER
10		PREFABRICATED ENCLOSURE BY HOT BOX OR EQUAL
11	2	UNION SEE NOTE 3

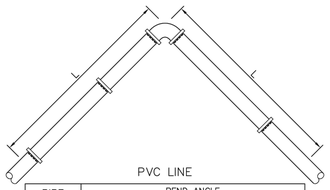
NOTES:
1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER. BACKFLOW PREVENTER SHALL ALWAYS BE INSTALLED IMMEDIATELY DOWNSTREAM OF METER.
2. UNDER NO CIRCUMSTANCE SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR ANY USE OTHER THAN BACKFLOW DEVICE TESTING.
3. ITEMS 4 AND 11 (THE STRAINER AND THE UNIONS) MAY BE INSTALLED ON THE VERTICAL RISERS TO REDUCE THE OVERALL LAYING LENGTH.

TYPICAL OUTSIDE INSTALLATION
REDUCED PRESSURE
TYPE BACKFLOW PREVENTION DEVICE
(3/4", 1", 1 1/2", 2", & 2 1/2" SIZES)

BACKFLOW PREVENTION DEVICE

City of Port Wentworth
TECHNICAL DETAILS
W-25

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PVC LINE

PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	3	6	12	29
6	4	8	17	41
8	5	11	22	53
10	6	13	26	64
12	7	15	31	75

DUCTILE IRON LINE

PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	2	4	8	20
6	3	6	12	28
8	4	7	15	36
10	4	9	18	43
12	5	10	21	51
16	6	13	27	65
20	8	16	33	79
24	9	18	38	92

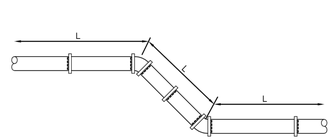
MINIMUM RESTRAINED LENGTH (L)

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.

STANDARD HORIZONTAL BEND RESTRAINT

City of Port Wentworth
TECHNICAL DETAILS
W-27

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PVC LINE

PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	5	10	22	52
6	7	15	30	74
8	9	19	40	96
10	11	23	48	115
12	13	27	56	136

DUCTILE IRON LINE

PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	3	6	12	28
6	4	8	17	40
8	4	10	22	52
10	5	12	26	62
12	6	15	30	73
16	7	19	39	94
20	11	23	47	114
24	13	26	55	132

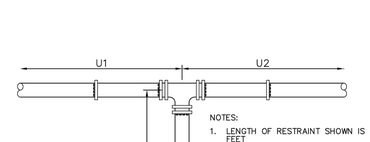
MINIMUM RESTRAINED LENGTH (L)

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.

STANDARD VERTICAL BEND RESTRAINT

City of Port Wentworth
TECHNICAL DETAILS
W-28

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. U1 AND U2 = UNINTERRUPTED STRAIGHT RUNS OF PIPE IN EACH DIRECTION.
4. Ur = THE SMALLER OF U1 OR U2.
5. L = MINIMUM RESTRAINED LENGTH ALONG THE BRANCH
6. WHERE Ur IS LESS THAN 5', RESTRAIN TEE AS A 90° HORIZONTAL BEND.

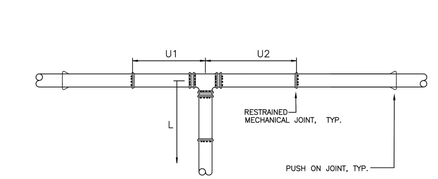
Ur	5'-10"	11'-20"	21'-35"	> 35'
4x4	43	28	4	*
6x4	38	17	*	*
6x6	64	49	25	*
8x4	34	6	*	*
8x6	61	42	10	*
8x8	87	72	48	12
10x4	29	*	*	*
10x6	58	34	*	*
10x8	84	66	35	*
10x10	106	91	67	31
12x4	24	*	*	*
12x6	54	26	*	*
12x8	82	60	23	*
12x10	104	86	57	13
12x12	126	112	87	51

MINIMUM RESTRAINED LENGTH (L)
* RESTRAIN AT TEE ONLY

STANDARD TEE RESTRAINT (PVC LINE)

City of Port Wentworth
TECHNICAL DETAILS
W-29

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. U1 AND U2 = UNINTERRUPTED STRAIGHT RUNS OF RESTRAINED JOINT PIPE IN EACH DIRECTION.
4. Ur = THE SMALLER OF U1 OR U2 (E.G., U1, IN THE ABOVE DIAGRAM)
5. L = MINIMUM RESTRAINED LENGTH ALONG THE BRANCH.
6. WHERE Ur IS LESS THAN 5', RESTRAIN TEE AS A 90° HORIZONTAL BEND.

DUCTILE IRON LINE

Ur / U2	5'-10"	11'-20"	21'-35"	36'-50"	50'-75"	75'-100"
4X4	23	15	2	*	*	*
6X4	21	9	*	*	*	*
6X6	35	27	14	*	*	*
8X4	18	3	*	*	*	*
8X6	33	23	5	*	*	*
8X8	47	39	26	6	*	*
10X4	16	*	*	*	*	*
10X6	31	18	*	*	*	*
10X8	46	36	19	*	*	*
10X10	57	49	36	17	*	*
12X4	13	*	*	*	*	*
12X6	30	14	*	*	*	*
12X8	44	32	13	*	*	*
12X10	56	47	31	7	*	*
12X12	68	60	47	28	*	*
16X6	28	4	*	*	*	*
16X8	41	25	*	*	*	*

DUCTILE IRON LINE

Ur / U2	5'-10'	11'-20'	21'-35'	36'-50'	50'-75'	75'-100'
16X10	54	41	20	*	*	*
16X12	66	56	38	*	*	*
16X16	89	81	38	*	*	*
20X6	22	*	*	*	*	*
20X8	38	18	*	*	*	*
20X10	51	35	8	*	*	*
20X12	64	51	28	*	*	*
20X16	87	77	60	35	10	*
20X20	108	100	87	67	48	*
24X6	18	*	*	*	*	*
24X8	35	10	*	*	*	*
24X10	49	29	*	*	*	*
24X12	62	45	17	*	*	*
24X16	86	73	53	22	*	*
24X20	107	97	81	57	33	*
24X24	127	119	106	86	66	33

MINIMUM RESTRAINED LENGTH (L)
*RESTRAIN AT TEE ONLY.

STANDARD TEE RESTRAINT (DUCTILE IRON PIPE)

City of Port Wentworth
TECHNICAL DETAILS
W-30

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 28362 JOSEPH L. MEYER

NO.	REVISIONS	BY	DATE
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PERMIT SET - FOR REVIEW PURPOSES ONLY

THOMAS & HUTTON
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50 Park of Commerce Way • PO Box 2727
Savannah, GA 31402-2727 • 912.234.5300
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

WATER SYSTEM DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1.1108'

C2.6

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DUCTILE IRON LINE

PIPE DIA.	L
4	28
6	40
8	52
10	62
12	73
16	94
20	114
24	132

PVC LINE

PIPE DIA.	L
4	52
6	74
8	96
10	115
12	136

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. FOR LINE STUBS (SEE DETAIL W39). THE LENGTH OF RESTRAINT (L) SHALL BE FROM THE VALVE AND NOT THE CAP.

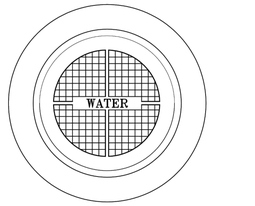
STANDARD DEAD END RESTRAINT

City of Port Wentworth
TECHNICAL DETAILS

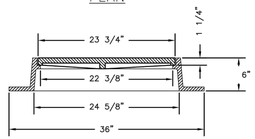
W-31

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



PLAN



SECTION

NOTE:

MANHOLE RING & COVER SHALL BE HEAVY DUTY RATED EQUAL TO U. S. FOUNDRY CO. USF 195-ORS. TOTAL WEIGHT 325# TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED 2 1/2" -3" LETTER HEIGHT "WATER" (NON VENTED). MANHOLE RING SHALL INCLUDE A WATERTIGHT GASKET. STACKING CLEATS ON THE BOTTOM OF THE COVER SHALL NOT BE ALLOWED.

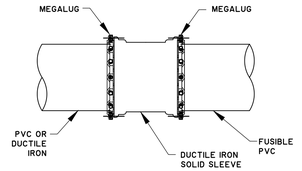
MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS

W-34

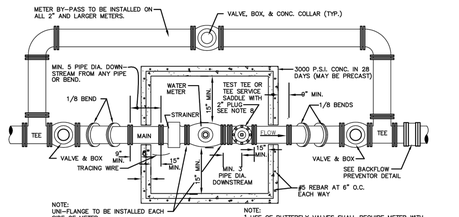
PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



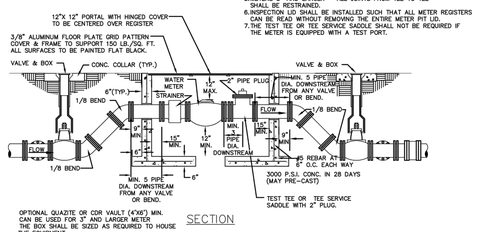
FPVC CONNECTION DETAIL

SCALE: NONE



PLAN

NOTE:
1. USE OF BUTTERFLY VALVES SHALL REQUIRE METER WITH DOUBLE STRAINER.
2. TURBINE METERS (CLASS II) SHALL HAVE U.L. APPROVED STRAINERS
3. COMPLETE BY-PASS ASSEMBLY IS REQUIRED ON ALL METERS.
4. VALVES: GREATER THAN 2" SHALL BE MECHANICAL JOINT GATE VALVES.
5. METERS 3" AND LARGER – ALL JOINTS FROM TEE TO TEE SHALL BE RESTRAINED.
6. INSPECTION LID SHALL BE INSTALLED SUCH THAT ALL METER REGISTERS CAN BE READ WITHOUT REMOVING THE ENTIRE METER PIT LID.
7. THE TEST TEE OR TEE SERVICE SADDLE SHALL NOT BE REQUIRED IF THE METER IS EQUIPPED WITH A TEST PORT.



SECTION

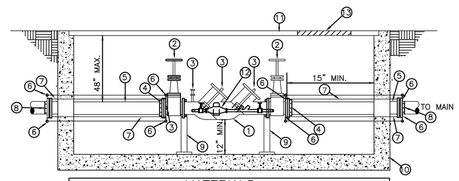
WATER METER INST. 3" AND LARGER

City of Port Wentworth
TECHNICAL DETAILS

W-15

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



MATERIALS		
ITEM	QUAN.	DESCRIPTION
1	1	DOUBLE DETECTOR CHECK VALVE ASSEMBLY
2	2	OS&Y RESILIENT SEAT GATE VALVES
3	4	TEST COCKS
4	2	COMPANION FLANGE (UNION SHALL BE USED FOR 2")
5		DUCTILE IRON PIPE, CUT TO FIT
6	8	CARBON STEEL EYE BOLTS
7		3/4 GALV. ALL THREAD ROD
8		MEGA LUG OR EQUIVALENT FOR DUCTILE PIPE
9	2	2" SCH. 40 GALV. PIPE STAND & BASE BOLTED TO FLANGE
10		PIT-CEMENT BLOCK, POURED CONCRETE, OR PREFABRICATED BOX PER CITY SPECS.
11		3/8 ALUMINUM FLOOR PLATE / HATCH COVER
12	1	3/4 CUBIC FT. BYPASS METER
13		2" X 2" MIN. HATCH

NOTES:
1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE (IF APPLICABLE). UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR THE SYSTEM CONTAINMENT. BACKFLOW PREVENTER SHALL ALWAYS BE INSTALLED DOWNSTREAM OF METER.
2. IF A PRESSURE MONITOR IS TO BE INSTALLED, ADD A TEE, VALVE, FITTINGS, AND MOUNT ON SUPPLY SIDE PRIOR TO BACKFLOW PREVENTER; UNDER NO CIRCUMSTANCE SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION, OTHER THAN BACKFLOW DEVICE TESTING.
3. IF ADDITIONAL SIAMESE CONNECTION IS REQUIRED FOR FIRE SERVICE, SEE DETAIL SHEET STD. FIRE SERVICE SYSTEM FOR BUILDINGS.

TYPICAL BELOW GRADE INSTALLATION
(2", 3", 4", 6", 8", & 10" SIZES)

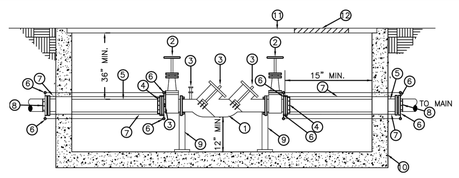
FIRE SYTEM DOUBLE DETECTOR CHECK VALVE

City of Port Wentworth
TECHNICAL DETAILS

W-22

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



MATERIALS		
ITEM	QUAN.	DESCRIPTION
1	1	DOUBLE CHECK VALVE ASSEMBLY
2	2	NON-RISING RESILIENT SEAT GATE VALVES
3	4	TEST COCKS
4	2	COMPANION FLANGE
5		DUCTILE IRON PIPE, CUT TO FIT
6	8	CARBON STEEL EYE BOLTS
7		3/4 GALV. ALL THREAD ROD
8		MEGA LUG OR EQUIVALENT FOR DUCTILE PIPE
9	2	2" SCH. 40 GALV. PIPE STAND & BASE BOLTED TO FLANGE
10		PIT-CEMENT BLOCK, POURED CONCRETE, OR PREFABRICATED BOX PER CITY SPECS.
11		3/8 ALUM. FLOOR PLATE / HATCH COVER W/FLUSH HANDLE
12		2" X 2" MIN. HATCH

NOTE:
1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE (IF APPLICABLE), UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR SYSTEM CONTAINMENT. BACKFLOW PREVENTER SHALL ALWAYS BE INSTALLED DOWNSTREAM OF METER.
2. IF A PRESSURE MONITOR IS TO BE INSTALLED, ADD A TEE, VALVE, FITTINGS, AND MOUNT ON SUPPLY SIDE PRIOR TO BACKFLOW PREVENTION DEVICE; UNDER NO CIRCUMSTANCE, SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION, OTHER THAN BACKFLOW DEVICE TESTING.

TYPICAL BELOW GRADE INSTALLATION
(3", 4", 6", 8", & 10" SIZES)

DOMESTIC DOUBLE CHECK VALVE ASSEMBLY (B)

City of Port Wentworth
TECHNICAL DETAILS

W-21

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA
REGISTERED
No. 029561
PROFESSIONAL
ENGINEER
JOSEPH L. MERCER

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

WATER SYSTEM DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1.1108'

C2.7

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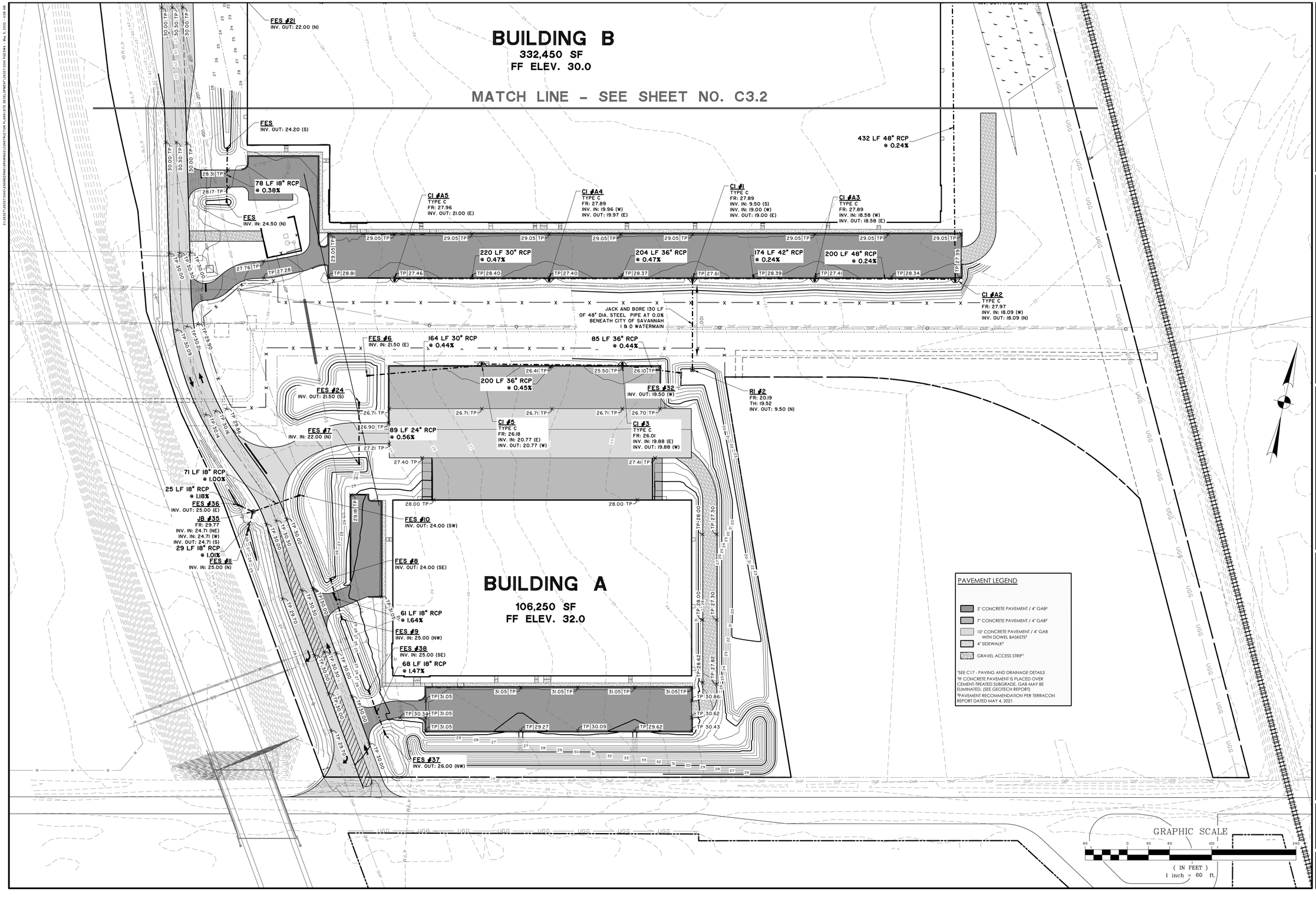

GEORGIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH L. MERCER

NO.	REVISIONS	BY	DATE
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Savannah, GA 31405 • 912.234.5300
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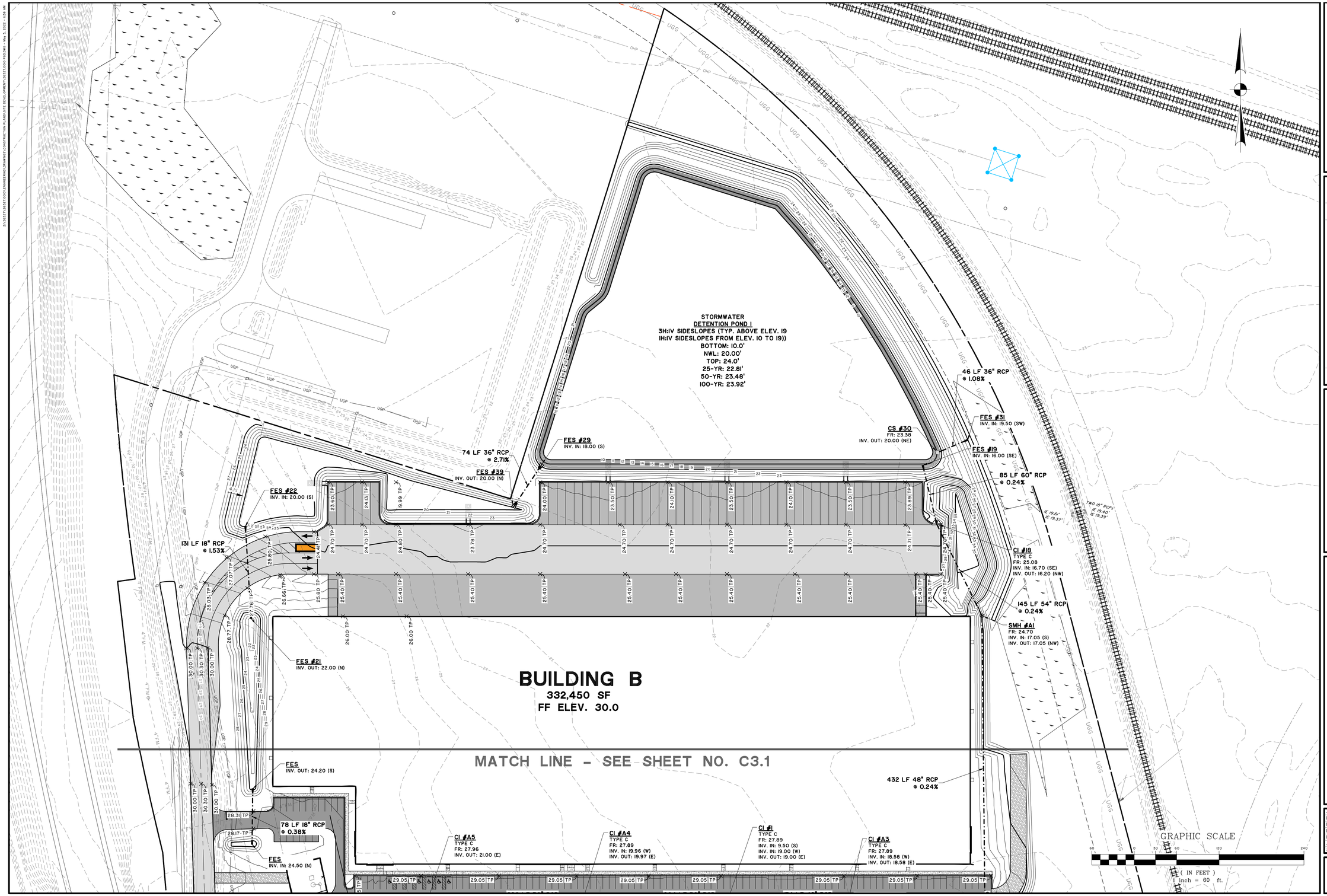
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

PAVING GRADING & DRAINAGE - SHEET I

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C3.1



GEORGIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH L. MERCER

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

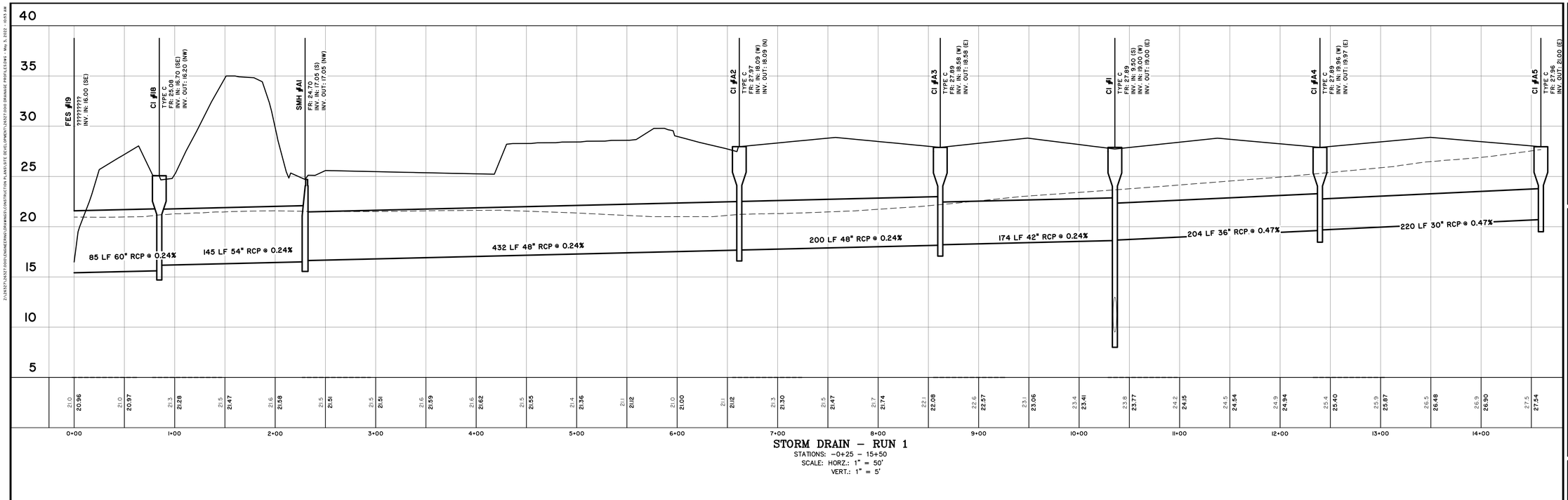
SITE DEVELOPMENT FOR BUILDINGS A & B

PAVING GRADING & DRAINAGE - SHEET 2

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

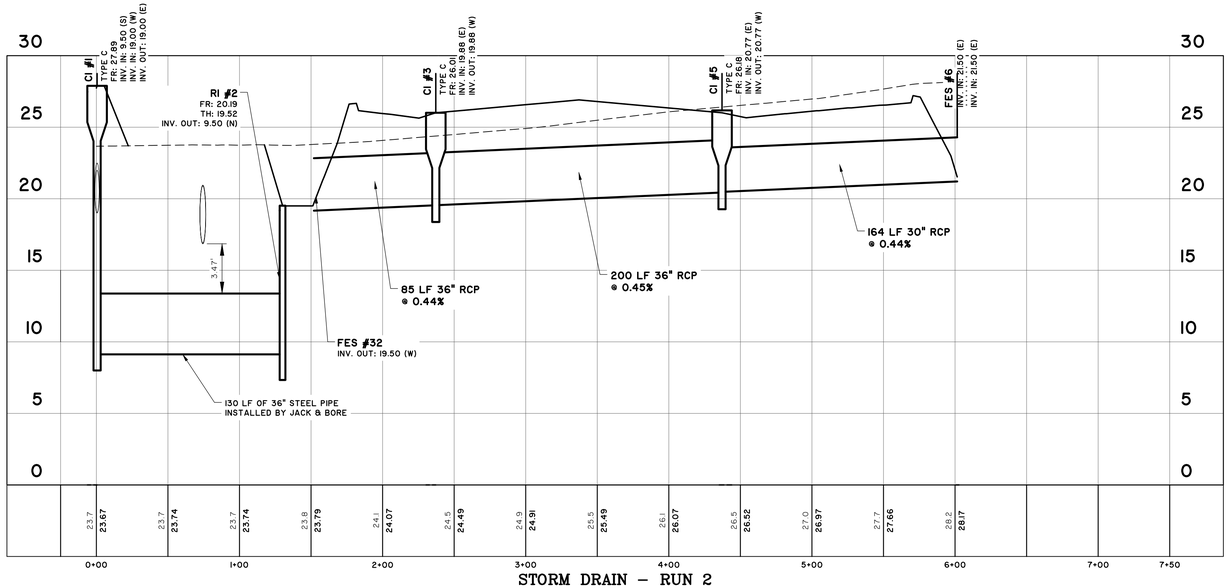
C3.2

21\26327\26327.000\ENGINEERING\DRAWINGS\CONSTRUCTION PLANS\SITE CIVIL\PRINTS\26327.000 DRAINAGE PROFILES.DWG May 5, 2022 - 10:53 AM



STORM DRAIN – RUN 1

STATIONS: –0+25 – 15+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



STORM DRAIN – RUN 2

STATIONS: –0+25 – 7+50
SCALE: HORZ.: 1" = 50'

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

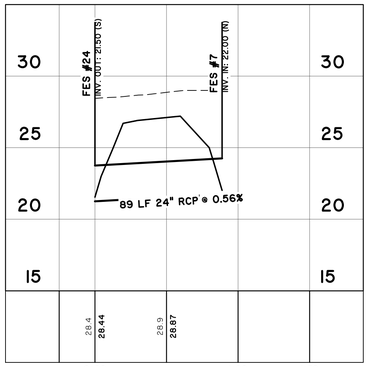
SITE DEVELOPMENT FOR BUILDINGS A & B

DRAINAGE PROFILES

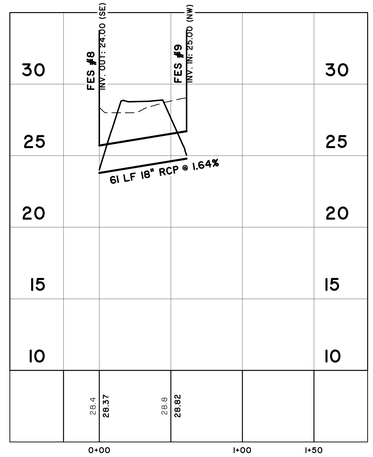
JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	AS NOTED

C3.3

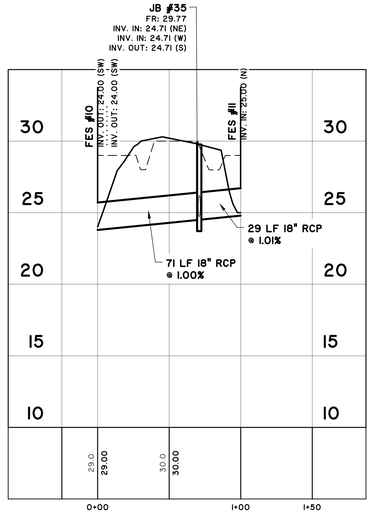
21\26327\26327-000\ENGR\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327-000 DRAINAGE PROFILES.DWG May 5, 2022 - 10:53 AM



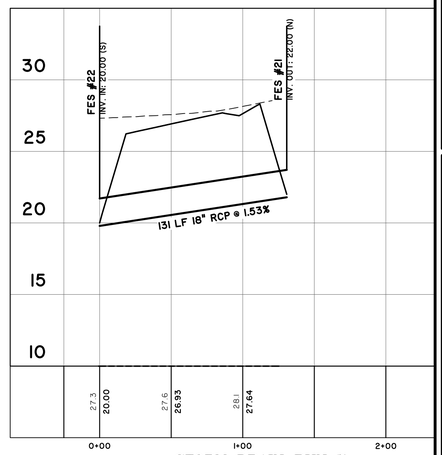
STORM DRAIN RUN 3
STATIONS: −0+25 – 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



STORM DRAIN RUN 4
STATIONS: −0+25 – 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



STORM DRAIN RUN 5
STATIONS: −0+25 – 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



STORM DRAIN RUN 7
STATIONS: −0+25 – 2+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

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NFI INDUSTRIES
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DRAINAGE PROFILES

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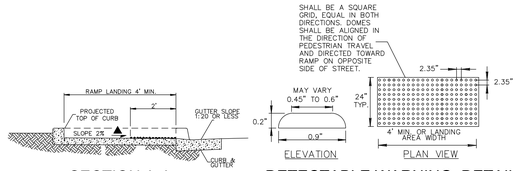
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	AS NOTED

C3.4

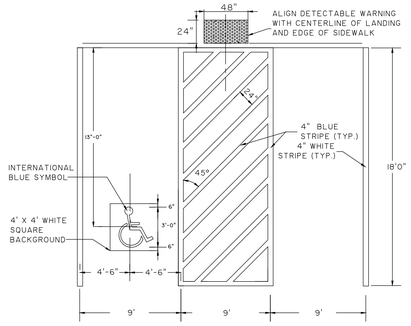


SECTION A-A

DETECTABLE WARNING DETAIL

NOTES:

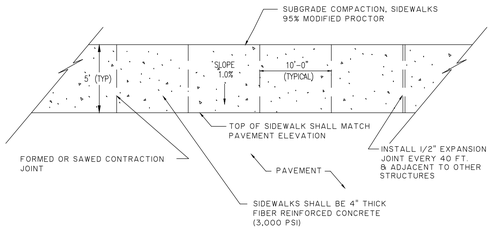
1. HANDICAP RAMP CONSTRUCTION SHALL CONFORM TO ALL FEDERAL, STATE AND GARDEN CITY CODES AND SPECIFICATIONS.
2. SURFACES SHALL MEET THE GUIDELINES OF THE ADA STANDARDS FOR ACCESSIBILITY, APPENDIX A, PART 36.
3. THE SLOPE OF THE GUTTER MUST NOT EXCEED 1:20 ADJACENT TO THE RAMP.
4. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCHES, A HEIGHT OF NOMINAL 0.2 INCHES AND A CENTER TO CENTER SPACING OF NOMINAL 2.35 INCHES AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES. IF THE SIDEWALK AND RAMP ARE CONSTRUCTED OF CONCRETE, THE WARNING AREA SHALL BE RED BRICK IN COLOR. IF THE SIDEWALK AND RAMP ARE CONSTRUCTED OF RED BRICK, THE WARNING AREA SHALL BE GREY IN COLOR. THE COLOR USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.



NOTE:
STRIPING AND CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND SPECIFICATIONS

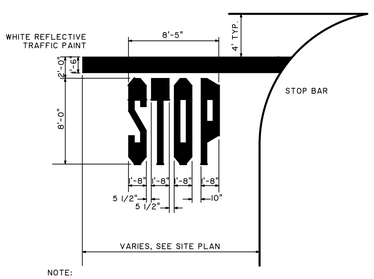
HANDICAP PARKING

NOT TO SCALE



SIDEWALK AND WALKWAY DETAILS

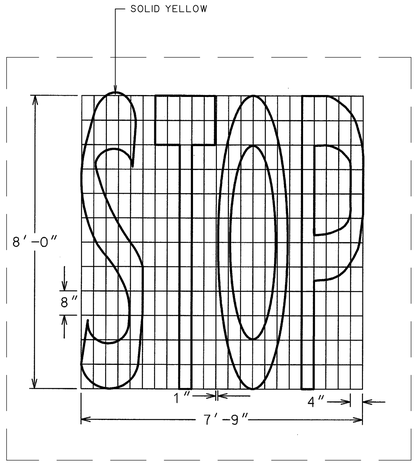
NOT TO SCALE

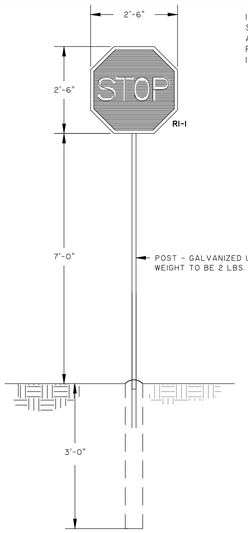


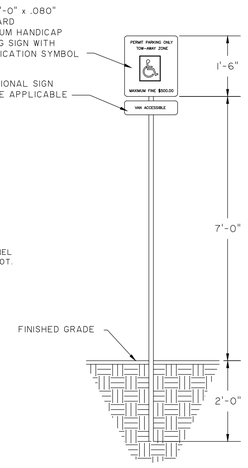
NOTE:
ALL TRAFFIC MARKINGS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE

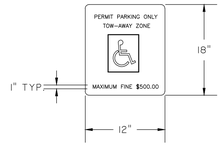
TYPICAL PAVEMENT MARKINGS

NOT TO SCALE







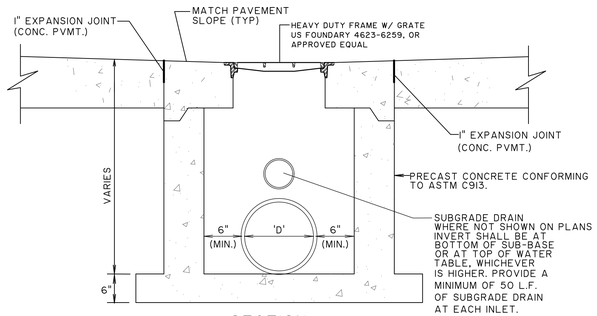


R1-1
(30)30

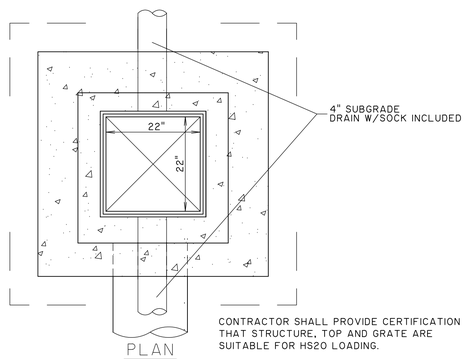
NOTE:

SIGNAGE SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND SPECIFICATIONS

NOT TO SCALE



SECTION

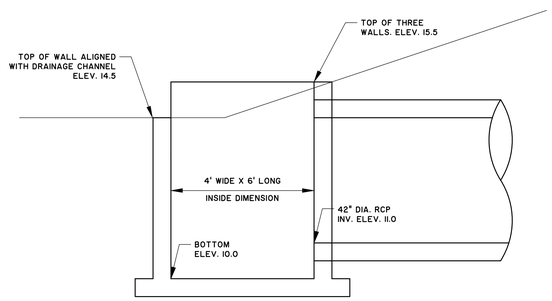


PLAN

CONTRACTOR SHALL PROVIDE CERTIFICATION THAT STRUCTURE, TOP AND GRATE ARE SUITABLE FOR HS20 LOADING.

GRATE INLET

NOT TO SCALE



CONTRACTOR SHALL PROVIDE CERTIFICATION THAT STRUCTURE IS SUITABLE FOR HS20 LOADING APPLIED IMMEDIATELY ADJACENT TO WALL.

JUNCTION BOX A AND B

NOT TO SCALE

REGISTERED GEORGIA ENGINEER No. 024660 PROFESSIONAL JOSEPH L. MUSSER

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

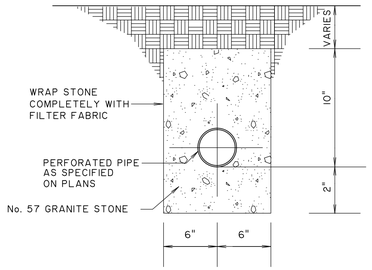
SITE DEVELOPMENT FOR BUILDINGS A & B

DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1'

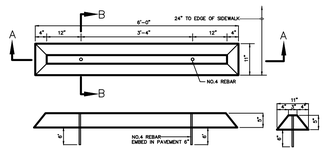
C3.5

Z:\26327\26327.0000\Engineering\Drawings\Construction Plans\26327.0000 BUILDING A SITE DEVELOPMENT\26327.0000 DETAIL SHEET.dwg - Jan 5, 2022 - 10:32 PM



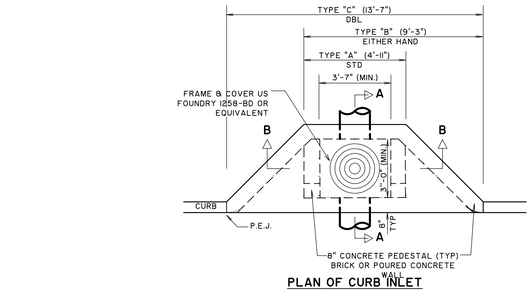
SUBGRADE DRAIN DETAIL AT NW TRUCK COURT

NOT TO SCALE

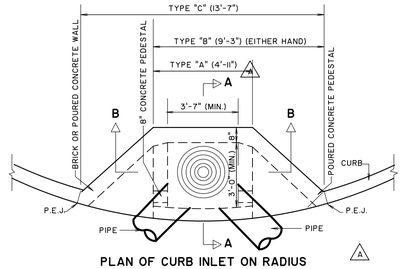


CONCRETE WHEEL STOP DETAIL

NOT TO SCALE

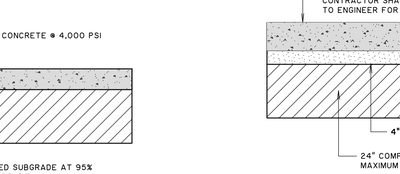


PLAN OF CURB INLET



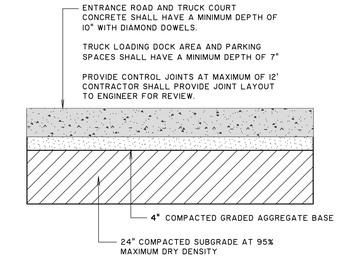
PLAN OF CURB INLET ON RADIUS

A



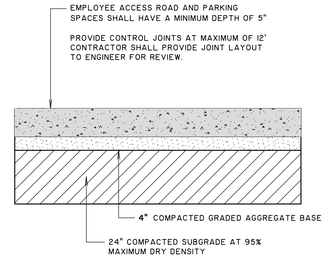
CONCRETE SIDEWALK SECTION

NOT TO SCALE - PAVEMENT RECOMMENDATION



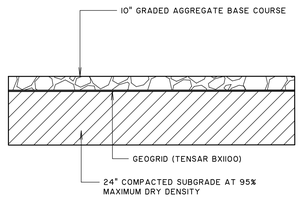
CONCRETE PAVEMENT SECTION

USE: ENTRANCE ROAD, TRUCK COURT AND DOCKING AREA
NOT TO SCALE - PAVEMENT RECOMMENDATION
PROVIDED BY TERRACON CONSULTANTS, INC.
MAY 4, 2021



CONCRETE PAVEMENT SECTION

USE: EMPLOYEE ACCESS ROAD AND PARKING AREA
NOT TO SCALE - PAVEMENT RECOMMENDATION
PROVIDED BY TERRACON CONSULTANTS, INC.
MAY 4, 2021



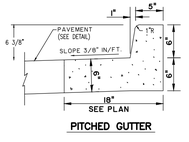
GRAVEL PAVEMENT SECTION

USE: FIRE ACCESS ROAD
NOT TO SCALE - PAVEMENT RECOMMENDATION

NOTE:
CEMENT-TREATED SUBGRADE MAY REPLACE SUITABLE FILL UNDERNEATH GAB FOR ASPHALT PAVEMENT (SEE GEOTECH REPORT)

NOTE:
IF CONCRETE PAVEMENT IS PLACED OVER CEMENT-TREATED SUBGRADE, GAB MAY BE ELIMINATED (SEE GEOTECH REPORT)

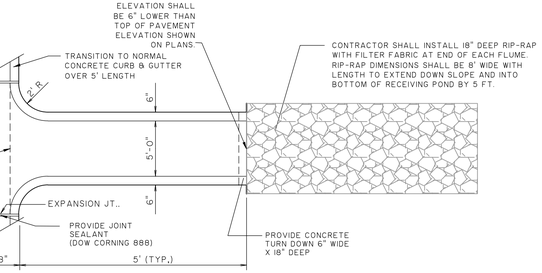
NORMAL GUTTER



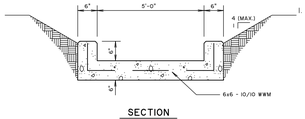
PITCHED GUTTER

CURB AND GUTTER DETAILS

NOT TO SCALE



PLAN



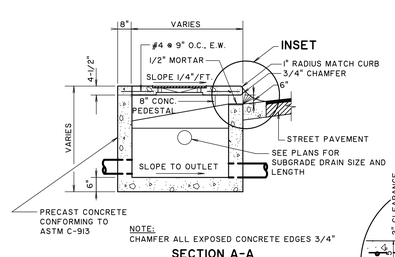
SECTION

NOTES:

1. CONTRACTOR SHALL TAKE CARE TO COMPACT AREA BELOW AND WITHIN 5' OF FLUME AND CURB AND GUTTER TO 98% MAXIMUM DENSITY (MODIFIED PROCTOR). AREA WITHIN 5' OF FLUME AND CURB AND GUTTER SHALL BE BROUGHT TO FINAL GRADE AND GRASSED IMMEDIATELY AFTER INSTALLATION OF CONCRETE. AREA SHALL BE PROTECTED FROM EROSION UNTIL FULL COVERAGE OF GRASS HAS BEEN ESTABLISHED.

5' WIDE CONCRETE FLUME

NOT TO SCALE

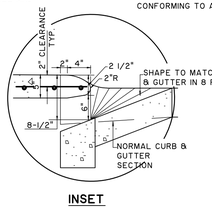


NOTE:
CHAMFER ALL EXPOSED CONCRETE EDGES 3/4"

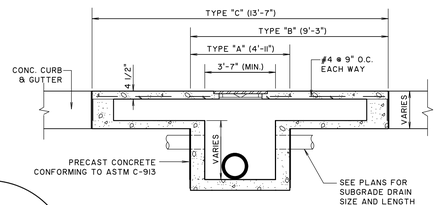
SECTION A-A

CURB INLET DETAIL

NOT TO SCALE

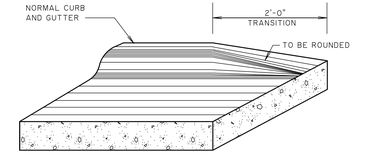


INSET



NOTE:
MATCH TOP OF PIPE ELEVATIONS WHERE DIFFERENT SIZE PIPES ARE CONSTRUCTED IN CURB INLET.

SECTION B-B



FEATHERING OF CURB AND GUTTER DETAIL

NOT TO SCALE

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 040161 PROFESSIONAL ENGINEER

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

DETAILS

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APPROVED:	FIT
SCALE:	1" = 1'

C3.6

Z:\26327\26270000\Engineering\Drawings\Construction Plans\26270000-C3 DETAIL SHEET (rev) - Sep 6, 2016 - 2:05:39 PM

EROSION,SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST - STAND ALONE CONSTRUCTION PROJECTS

SWCD: COASTAL
PROJECT NAME: NFI BUILDINGS A & B SITE DEVELOPMENT
CITY/COUNTY: PORT WENTWORTH/CHATHAM

ADDRESS: CROSSGATE ROAD
DATE ON PLANS: 08/13/21
REVISED DATE:

ATTACHED | YES

1. THE APPLICABLE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN CHECKLIST ESTABLISHED BY THE COMMISSION AS OF JANUARY 1 OF THE YEAR IN THE LAND-DISTURBING ACTIVITY WAS PERMITTED. (THE COMPLETED CHECKLIST MUST BE SUBMITTED WITH THE ES&PC PLAN OR THE PLAN WILL NOT BE REVIEWED) (PERMIT IV.D.1 PG 26)

PLEASE FIND THE CURRENT STAND ALONE EROSION, SEDIMENTATION AND POLLUTION CONTROL CHECKLIST ATTACHED WITH THIS PLAN

ALL | YES

2. LEVEL II CERTIFICATION NUMBER ISSUED BY THE COMMISSION, SIGNATURE AND SEAL OF THE CERTIFIED DESIGN PROFESSIONAL. (SIGNATURE, SEAL AND LEVEL II NUMBER MUST BE ON EACH SHEET PERTAINING TO ES&PC PLAN OR THE PLAN WILL NOT BE REVIEWED)

PLEASE FIND ON EACH SHEET OF THIS PLAN THE GSWCC LEVEL II CERTIFICATION NUMBER, SIGNATURE AND SEAL FOR MR. JASON CHAMBLESS, PE.

ECOJ | YES

3. LIMIT OF DISTURBANCE SHALL BE NO GREATER THAN 50 ACRES AT ANY ONE TIME WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE EPD DISTRICT OFFICE. IF EPD APPROVES THE REQUEST TO DISTURB 50 ACRES OR MORE AT ANY ONE TIME, THE PLAN MUST INCLUDE AT LEAST 4 OF THE BMPs LISTED IN APPENDIX 1 OF THIS CHECK LIST. (A COPY OF THE THE WRITTEN APPROVAL BY EPD MUST BE ATTACHED TO THE PLAN FOR THE PLAN TO BE REVIEWED. (PERMIT IV.D3 PG 27)

AREA OF DISTURBANCE DOES NOT EXCEED 50 ACRES.

ECOJ | YES

4. THE NAME AND PHONE NUMBER OF 24-HOUR LOCAL CONTACT RESPONSIBLE FOR EROSION, SEDIMENTATION AND POLLUTION CONTROLS. (PERMIT II.B.1.c PG 12)

BRIAN WERRELL, PE
302-540-8025

ECOJ | YES

5. PROVIDE NAME, ADDRESS, EMAIL ADDRESS AND PHONE NUMBER OF PRIMARY PERMITTEE. (PERMIT II.B.1 b PG 12)

NFI INDUSTRIES
TRIAD 1828 CENTER, 2 COOPER STREET
CAMDEN, NJ 08102
BRIAN WERREL: (302)-540-8025 ; BRIAN.WERRELL@NFI INDUSTRIES.COM

ECOJ | YES

6. NOTE TOTAL AND DISTURBED ACREAGE OF THE PROJECT OR PHASE UNDER CONSTRUCTION. (PERMIT IV.D.2 c PG 27)

TOTAL PARCEL ACREAGE IS 72.81 ACRES. DISTURBANCE FOR THIS PROJECT IS 35.5 ACRES.

ECOJ | YES

7. PROVIDE THE GPS LOCATION OF THE CONSTRUCTION EXIT FOR THE SITE. GIVE THE LATITUDE AND LONGITUDE IN DECIMAL DEGREES. PERMIT II.B.1 a PG 12

CONSTRUCTION EXIT IS LOCATED AT:
LAT: N 32.14722 ; LONG: W 81.17250

ALL | YES

8. INITIAL DATE OF THE PLAN AND THE DATES OF ANY REVISIONS MADE TO THE PLAN INCLUDING THE ENTITY WHO REQUESTED THE REVISIONS.

PLEASE FIND THE INITIAL DATE OF THE PLAN AND ALL REVISIONS ON THE COVER SHEET AS WELL AS EACH INDIVIDUAL SHEET OF THE PLAN.

ECOJ | YES

9. DESCRIPTION OF THE NATURE OF CONSTRUCTION ACTIVITY. (PERMIT IV.D.2 a PG 27)

THE CONSTRUCTION ACTIVITY AT THE SITE WILL INVOLVE THE CONSTRUCTION OF A 332,500 SF AND 106,250 SF WAREHOUSE INCLUDING ASSOCIATED TRUCK COURTS AND EMPLOYEE PARKING, AND UTILITY INFRASTRUCTURE. EROSION CONTROL MEASURES, DRAINAGE INFRASTRUCTURE, AND PONDS WILL BE IMPLEMENTED TO FACILITATE DRAINAGE AND MINIMIZE EROSION. PRE-DEVELOPED SITE CONDITIONS CONSIST OF WOODED UPLANDS AND WETLANDS.

COVER | YES

10. PROVIDE VICINITY MAP SHOWING SITE'S RELATION TO SURROUNDING AREAS. INCLUDE DESIGNATION OF SPECIFIC PHASE, IF NECESSARY. (PERMIT IV.D.2 e PG 27)

PLEASE FIND THE VICINITY MAP LOCATED ON THE COVER SHEET OF THE PLANS

ECOJ,0.3 | YES

11. IDENTIFY THE PROJECT RECEIVING WATERS AND DESCRIBE ALL SENSITIVE ADJACENT AREAS INCLUDING STREAMS, LAKES, RESIDENTIAL AREAS, WETLANDS, MARSHLANDS, ETC. WHICH MAY BE AFFECTED. (PERMIT IV.D.2.f PG 27)

THE RECEIVING WATERS FOR THE PROJECT ARE PIPES AND DITCHES THAT ARE TRIBUTARY TO WETLANDS ALONG ST. AUGUSTINE CREEK WHICH ULTIMATELY OUTFALLS TO THE SAVANNAH RIVER.

ECOJ | YES

12. DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE SITE WAS VISITED PRIOR TO DEVELOPMENT OF THE ES&PC PLAN AS STATED ON PART IV PAGE 19 OF THE PERMIT.

I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR AUTHORIZED AGENT UNDER MY SUPERVISION.

JASON CHAMBLESS, PE
GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #0000055539
EXPIRATION DATE: 9/12/2023

ECOJ | YES

13. DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE PERMITTEE'S ES&PC PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BMP'S AND SAMPLING TO MEET PERMIT REQUIREMENTS AS STATED ON PART IV PAGE 19 OF THE PERMIT.

I CERTIFY THAT THE PERMITEE'S EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100001.

JASON CHAMBLESS, PE
GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #0000055539
EXPIRATION DATE: 9/12/2023

ECOJ | YES

14. CLEARLY NOTE THE STATEMENT THAT "THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S WITHIN 7 DAYS AFTER INSTALLATION, IN ACCORDANCE WITH PART IV.A.5 PAGE 25 OF THE PERMIT.

THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S WITHIN 7 DAYS AFTER INSTALLATION.

DESIGN PROFESSIONAL 7-DAY VISIT CERTIFICATION

DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN 7 DAYS AFTER INSTALLATION.

DATE OF INSPECTION: _____

I CERTIFY THE SITE WAS _____ WITH THE ES&PC PLAN ON THE DATE OF INSPECTION.

_____ _____
GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #

INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ES&PC PLAN

_____
_____
_____
_____

THESE DEFICIENCIES MUST BE ADDRESSED IMMEDIATELY AND A RE-INSPECTION SCHEDULED. WORK SHALL NOT PROCEED ON THE SITE UNTIL DESIGN PROFESSIONAL CERTIFICATION IS OBTAINED.

ECOJ | YES

15. CLEARLY NOTE THE STATEMENT THAT "NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS." (PART IV.(i)-(iv) PG 19-24 OF THE PERMIT).

NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50 FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

N/A |

16. PROVIDE A DESCRIPTION OF ANY BUFFER ENCROACHMENTS AND INDICATE WHETHER A BUFFER VARIANCE IS REQUIRED.

THERE WILL BE NO BUFFER ENCROACHMENTS AS PART OF THE PROJECT THUS A BUFFER VARIANCE IS NOT REQUIRED.

ECOJ | YES

17. CLEARLY NOTE THE STATEMENT THAT "AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.", (PART IV.C PG 26 OF PERMIT).

AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

ECOJ | YES

18. CLEARLY NOTE THE STATEMENT THAT "WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT. (PERMIT IV.D.3.c(1) PG 30).

WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

ECOJ | YES

19. CLEARLY NOTE THE STATEMENT THAT "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES."

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.

ECOJ | YES

20. CLEARLY NOTE THE STATEMENT THAT "EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE."

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

ECOJ | YES

21. CLEARLY NOTE THE STATEMENT "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING." (PERMIT IV.D.3.a.(1) PG 28).

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

N/A |

22. ANY CONSTRUCTION ACTIVITY WHICH DISCHARGES STORM WATER INTO AN IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS, ANY PORTION OF AN BIOTA IMPAIRED STREAM SEGMENT MUST COMPLY WITH PART III.C. OF THE PERMIT. INCLUDE THE COMPLETED APPENDIX 1 LISTING ALL THE BMP'S THAT WILL BE USED FOR THOSE AREAS OF THE SITE WHICH DISCHARGE TO THE IMPAIRED STREAM SEGMENT. (PART III.C.2.A - V. PG 19-21)

THE SITE IS LOCATED MORE THAN 1 LINEAR MILE UPSTREAM OF THE NEAREST IMPAIRED STREAM SEGMENT.

N/A |

23. IF A TMDL IMPLEMENTATION PLAN FOR SEDIMENT HAS BEEN FINALIZED FOR THE IMPAIRED STREAM SEGMENT (IDENTIFIED IN ITEM 22 ABOVE) AT LEAST SIX MONTHS PRIOR TO SUBMITTAL OF NOI, THE ES&PC PLAN MUST ADDRESS ANY SITE-SPECIFIC CONDITIONS OR REQUIREMENTS INCLUDED IN THE TMDL IMPLEMENTATION PLAN. (PERMIT III.C.1 PG 15)

THE SITE IS LOCATED MORE THAN 1 LINEAR MILE UPSTREAM OF THE NEAREST IMPAIRED STREAM SEGMENT.

NA |

24. BMP'S FOR CONCRETE WASHDOWN OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS AND THE REAR OF THE VEHICLES. WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED, (PERMIT IV.D.3.c(6) PG 31).

CONCRETE WASHOUT AREA WILL NOT BE REQUIRED DURING THIS STAGE OF CONSTRUCTION

ECOJ | YES

25. PROVIDE BMP'S FOR THE REMEDIATION OF ALL PETROLEUM SPILLS AND LEAKS, (PERMIT IV.D.3.c.(5) PG 31).

PETROLEUM BASED PRODUCTS- CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE FOR SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS. HAVE EQUIPMENT TO CONTAIN AND CLEAN UP PETROLEUM SPILLS IN FUEL STORAGE AREAS OR ON MAINTENANCE AND FUELING VEHICLES. STORE IN COVERED AREAS PROTECTED WITH DIKES. REGULARLY INSPECT FOR CRACKS OR LEAKAGE IN CONTAINERS/TANKS.

SPILL CLEANUP AND CONTROL PRACTICES

- **LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL.**
- **MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST, AND PROPERLY LABELED PLASTIC AND MEAL WASTE CONTAINERS.**
- **SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.**
- **FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.**
- **FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS**
- **FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE GEORGIA EPD WILL BE CONTACTED WITHIN 24 HOURS.**
- **FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.**

THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ONSITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

ECOJ | YES

26. DESCRIPTION OF THE MEASURES THAT WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED. (PERMIT IV.D.3.b PG 29).

THE MAIN PERMANENT EROSION CONTROL PRACTICE AT THE POND DISCHARGES IS RIP-RAP. THE PONDS INCLUDE DISCHARGE POINTS TO HELP SPREAD THE FLOW OVER A LARGE AREA AND TO DECREASE VELOCITIES. PERMANENT GRASSING AND LANDSCAPING WILL BE INSTALLED TO PROTECT EARTHEN AREAS FROM EROSION ONCE CONSTRUCTION IS COMPLETE.

ECOJ | YES

27. DESCRIPTION OF PRACTICES TO PROVIDE COVER FOR BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE, (PERMIT IV.D.3.c.(2) PG 30).

THE CONTRACTOR IS TO PROVIDE COVER FOR: BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTES, TRASH, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS THAT ARE STORED ON SITE BY USING PLASTIC SHEETING AS COVER AND PROTECTION FROM PRECIPITATION. THE ABOVE PRODUCTS WILL BE STORED IN A LOCATION THAT WOULD MINIMIZE EXPOSURE TO PRECIPITATION AND TO STORMWATER.

ECOJ | YES

28. DESCRIPTION OF THE PRACTICES THAT WILL BE USED TO REDUCE THE POLLUTANTS IN STORM WATER DISCHARGES. (PERMIT IV PG 24)

POLLUTANT PREVENTION

THE FOLLOWING MATERIALS ARE EXPECTED ONSITE DURING CONSTRUCTION: PETROLEUM BASED FUELS AND LUBRICANTS FOR EQUIPMENT, ADDITIVES FOR SOIL STABILIZATION, PESTICIDES, FERTILIZERS, HERBICIDES, CRUSHED STONE, CONCRETE PRODUCTS, ASPHALT, TAR, LUMBER, PAINTS/STAINS/FINISHING TREATMENTS, PAINT SOLVENTS, CLEANING SOLVENTS, PLASTICS AND METAL PIPES.

PRACTICES SUCH AS GOOD HOUSEKEEPING, PROPER HANDLING OF HAZARDOUS PRODUCTS AND PROPER SPILL CONTROL PRACTICES WILL BE FOLLOWED TO REDUCE THE RISK OF SPILLS FROM DISCHARGING INTO STORM WATER RUNOFF.

GOOD HOUSEKEEPING

- **QUANTITIES ONSITE WILL BE LIMITED TO THE AMOUNT NEEDED FOR THE JOB.**
- **PRODUCTS AND MATERIALS WILL BE STORED IN A NEAT, ORDERLY MANNER IN APPROPRIATE CONTAINERS PROTECTED FROM RAINFALL, WHERE POSSIBLE.**
- **PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH MANUFACTURER'S LABELS LEGIBLE AND VISIBLE.**
- **PRODUCT MIXING, DISPOSAL, AND DISPOSAL OF PRODUCT CONTAINERS WILL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.**
- **THE CONTRACTOR WILL INSPECT SUCH MATERIALS TO ENSURE PROPER USE, STORAGE AND DISPOSAL.**

PRODUCT SPECIFIC PRACTICES

FERTILIZER/HERBICIDES/PESTICIDES/DETERGENTS- THESE WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENTATION CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS. DO NOT DISCHARGE WASH WATER INTO STORM WATER SYSTEM. INSTALL CURBS OR DIKES AROUND STORAGE AREA TO PROTECT AGAINST SPILLS. LIMIT USE OF DETERGENTS ON-SITE.

PAINTS/FINISHES/SOLVENTS- ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING- CONCRETE WASHOUT SHALL OCCUR ONLY IN THE WASH PAD VICINITY DELINEATED IN THE PLANS.

BUILDING MATERIALS- NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #
0000002465
EXPIRES : 7/1/2024

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 29264 JOSEPH L. MCGEE

NO.	REVISIONS	BY	DATE
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PERMIT SET - FOR REVIEW PURPOSES ONLY

THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL NOTES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	N.T.S.

EC0.1

Z:\2020\J26327.0010\Engineering\Drawings\Construction Plans\26327.0010 Erosion Control Notes.rvt - Mar 25, 2022 - 3:38:06 PM

EROSION,SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST - STAND ALONE CONSTRUCTION PROJECTS

SWCD: COASTAL
PROJECT NAME: NFI BUILDINGS A & B SITE DEVELOPMENT
CITY/COUNTY: PORT WENTWORTH/CHATHAM

ADDRESS: CROSSGATE ROAD
DATE ON PLANS: 08/13/21
REVISED DATE:

ECO.2 | YES

29. DESCRIPTION AND CHART OR TIMELINE OF THE INTENDED SEQUENCE OF MAJOR ACTIVITIES WHICH DISTURB SOILS FOR THE MAJOR PORTIONS OF THE SITE (I.E., INITIAL PERIMETER AND SEDIMENT STORAGE BMP'S, CLEARING AND GRUBBING ACTIVITIES, EXCAVATION ACTIVITIES, UTILITY ACTIVITIES, TEMPORARY AND FINAL STABILIZATION). (PERMIT IV.D.2b PG 27)

A SPECIFIED WORK SCHEDULE IS NEEDED TO COORDINATE THE TIMING OF LAND DISTURBING ACTIVITIES WITH THE INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES.

THE PURPOSE OF THE SCHEDULE IS TO REDUCE ON-SITE EROSION AND OFF-SITE SEDIMENTATION BY PERFORMING LAND DISTURBING ACTIVITIES AND INSTALLING EROSION AND SEDIMENTATION CONTROL PRACTICES IN ACCORDANCE WITH A PLANNED SCHEDULE.

IN PLANNING CONSTRUCTION WORK, IT MAY BE HELPFUL TO OUTLINE ALL LAND DISTURBING ACTIVITIES NECESSARY TO COMPLETE THE PROPOSED PROJECT. THEN LIST ALL PRACTICES NEEDED TO CONTROL EROSION AND SEDIMENTATION ON THE SITE. THESE TWO LISTS CAN THEN BE COMBINED IN LOGICAL ORDER TO PROVIDE A PRACTICAL AND EFFECTIVE CONSTRUCTION SEQUENCE SCHEDULE THAT BECOMES PART OF THE EROSION AND SEDIMENTATION CONTROL PLAN.

CONSTRUCTION ACTIVITY	SCHEDULE CONSIDERATION
I. OBTAIN ALL PLAN APPROVALS AND OTHER APPLICABLE PERMITS.	
2. FLAG THE WORK LIMITS AND MARK THE TREES AND BUFFER AREAS FOR PROTECTION.	
3. HOLD PRE CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.	
4. CONSTRUCTION ACCESS - CONSTRUCTION ENTRANCE, CONSTRUCTION ROUTES, EQUIPMENT PARKING AREAS.	FIRST LAND DISTURBING ACTIVITY - STABILIZE BARE AREAS IMMEDIATELY WITH GRAVEL AND TEMPORARY VEGETATION AS CONSTRUCTION TAKES PLACE.
5. SEDIMENT TRAPS AND BARRIERS - BASIN TRAPS, SEDIMENT FENCES, AND OUTLET PROTECTION.	INSTALL PRINCIPAL BASINS AFTER CONSTRUCTION SITE IS ACCESSED. INSTALL ADDITIONAL TRAPS AND BARRIERS AS NEEDED DURING GRADING.
6. RUNOFF CONTROL - DIVERSIONS, PERIMETER DIKES, WATER BARS, AND OUTLET PROTECTION.	INSTALL KEY PRACTICES AFTER PRINCIPAL SEDIMENT TRAPS AND BEFORE LAND GRADING. INSTALL ADDITIONAL RUNOFF-CONTROL MEASURES DURING GRADING.
7. RUNOFF CONVEYANCE SYSTEM- STABILIZE STREAM BANKS, STORM DRAINS, CHANNELS, INLET AND OUTLET PROTECTION, SLOPE DRAINS.	WHERE NECESSARY, STABILIZE STREAM BANKS AS EARLY AS POSSIBLE. INSTALL PRINCIPAL RUNOFF CONVEYANCE SYSTEM WITH RUNOFF-CONTROL MEASURES. INSTALL REMAINDER OF SYSTEM AFTER GRADING.
8. LAND CLEARING AND GRADING - SITE PREPARATION CUTTING, FILLING AND GRADING, SEDIMENTATION TRAPS, BARRIERS, DIVERSIONS, DRAINS,SURFACE ROUGHENING.	BEGIN MAJOR CLEARING AND GRADING AFTER PRINCIPAL SEDIMENT AND KEY RUNOFF - CONTROL MEASURES ARE INSTALLED. INSTALL ADDITIONAL CONTROL MEASURES AS GRADING PROGRESSES. MARK TREES AND BUFFER AREAS FOR PRESERVATION.
9. SURFACE STABILIZATION - TEMPORARY AND PERMANENT SEEDING, MULCHING, SODDING, RIPRAP.	APPLY TEMPORARY OR PERMANENT STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS WHERE WORK IS DELAYED OR COMPLETE.
IO. BUILDING CONSTRUCTION- BUILDINGS UTILITIES, PAVING.	INSTALL NECESSARY EROSION AND SEDIMENTATION CONTROL PRACTICES AS WORK TAKES PLACE.
II. LANDSCAPING AND FINAL STABILIZATION - TOPSOILING, TREES AND SHRUBS, PERMANENT SEEDING, MULCHING, SODDING RIPRAP.	LAST CONSTRUCTION PHASE--STABILIZE ALL OPEN AREAS, INCLUDING BORROW AND SPOIL AREAS. REMOVE AND STABILIZE ALL TEMPORARY CONTROL MEASURES.

CONSTRUCTION SCHEDULE

ACTIVITY	MONTH 1					MONTH 12
PERIMETER BMPS						
TEMPORARY SEDIMENT CONTROL BMPS						
SITE CLEARING						
SITE GRADING						
TEMPORARY GRASSING						
PERMANENT GRASSING						
FINAL STABILIZATION/ BMP REMOVAL						
BMP MAINTENANCE						

ECO.2 | YES

30. PROVIDE COMPLETE REQUIREMENTS OF INSPECTIONS AND RECORD KEEPING BY THE PRIMARY PERMITEE, (PERMIT IV.D.4.a PG 31-33).

INSPECTIONS AND RECORD KEEPING

A. PRIMARY PERMITTEE:

I. EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT: (a) ALL AREAS OF THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT. (b) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

2. MEASURE AND RECORD RAINFALL WITHIN DISTURBED AREAS OF THE SITE THAT HAVE MET FINAL STABILIZATION ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY. THE DATA COLLECTED FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.

3. CERTIFIED PERSONAL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, WHICHEVER OCCURS FIRST): (a) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE. (b) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION. AND (c) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.a.(4). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

4. CERTIFIED PERSONNEL (PROVIDED BY PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (i.e. UNTIL A NOTICE OF TERMINATION HAS BEEN SUBMITTED) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S).

5. BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.

6. A REPORT OF EACH INSPECTION THAT INCLUDES THE NAME(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E., INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.a.(5). OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION PROJECT THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2 OF THIS PERMIT.

AN "EROSION & SEDIMENTATION INSPECTION AND MAINTENANCE REPORT" SHEET IS ATTACHED. SHOULD THE INSPECTION REVEAL ANY DEFICIENCIES, A COPY SHALL BE SENT TO:

JASON CHAMBLESS
THOMAS & HUTTON
50 PARK OF COMMERCE WAY
SAVANNAH, GA 31405
912.721.4170

ECO.2 | YES

3I. PROVIDE COMPLETE REQUIREMENTS OF SAMPLING FREQUENCY AND REPORTING OF SAMPLING RESULTS. (PART IV.D.6.d PG 35-37 & PART IV.E PG 37)

RT IV.D.6.d PG 35-37 & PART IV.E PG 37)

SAMPLING REQUIREMENTS. THIS PERMIT REQUIRES THE MONITORING OF NEPHELOMETRIC TURBIDITY IN RECEIVING WATER(S) OR OUTFALLS IN ACCORDANCE WITH THIS PERMIT. THIS PARAGRAPH SHALL NOT APPLY TO ANY LAND DISTURBANCE ASSOCIATED WITH THE CONSTRUCTION OF SINGLE-FAMILY HOMES WHICH ARE NOT PART OF A SUBDIVISION OR PLANNED COMMON DEVELOPMENT UNLESS FIVE (5) ACRES OR MORE WILL BE DISTURBED. THE FOLLOWING PROCEDURES CONSTITUTE EPD'S GUIDELINES FOR SAMPLING TURBIDITY.

a. SAMPLING REQUIREMENTS SHALL INCLUDE THE FOLLOWING:

(I) A USGS TOPOGRAPHIC MAP, A TOPOGRAPHIC MAP OR A DRAWING (REFERRED TO AS A TOPOGRAPHIC MAP) THAT IS A SCALE EQUAL TO OR MORE DETAILED THAN A 1:24000 MAP SHOWING THE LOCATION OF THE SITE OR THE STAND ALONE CONSTRUCTION; (a) THE LOCATION OF ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES LOCATED DURING MANDATORY FIELD VERIFICATION, INTO WHICH THE STORM WATER IS DISCHARGED AND (b) THE RECEIVING WATER AND/OR OUTFALL SAMPLING LOCATIONS. WHEN THE PERMITTEE HAS CHOSEN TO USE A USGS TOPOGRAPHIC MAP AND THE RECEIVING WATER(S) IS NOT SHOWN ON THE USGS TOPOGRAPHIC MAP, THE LOCATION FOR THE RECEIVING WATER(S) MUST BE HAND-DRAWN ON THE USGS TOPOGRAPHIC MAP FROM WHERE THE STORM WATER(S) ENTERS THE RECEIVING WATER(S) TO THE POINT WHERE THE RECEIVING WATER(S) COMBINES WITH THE FIRST BLUE LINE STREAM SHOWN ON THE USGS TOPOGRAPHIC MAP;

(2) A WRITTEN NARRATIVE OF SITE SPECIFIC ANALYTICAL METHODS USED TO COLLECT, HANDLE AND ANALYZE THE SAMPLES INCLUDING QUALITY CONTROL/QUALITY ASSURANCE PROCEDURES. THIS NARRATIVE MUST INCLUDE PRECISE SAMPLING METHODOLOGY FOR EACH SAMPLING LOCATION;

(3) WHEN THE PERMITTEE HAS DETERMINED THAT SOME OR ALL OUTFALLS WILL BE SAMPLED, A RATIONALE MUST BE INCLUDED ON THE PLAN FOR THE NTU LIMIT(S) SELECTED FROM APPENDIX b. THIS RATIONALE MUST INCLUDE THE SIZE OF THE CONSTRUCTION SITE, THE CALCULATION OF THE SIZE OF THE SURFACE WATER DRAINAGE AREA, AND THE TYPE OF RECEIVING WATER(S) (I.E., TROUT STREAM OR SUPPORTING WARM WATER FISHERIES); AND

(4) ANY ADDITIONAL INFORMATION EPD DETERMINES NECESSARY TO BE PART OF THE PLAN. EPD WILL PROVIDE WRITTEN NOTICE TO THE PERMITTEE OF THE INFORMATION NECESSARY AND THE TIME LINE FOR SUBMITTAL.

b. SAMPLE TYPE, ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED); THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-B-92-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.

I. SAMPLE CONTAINERS SHOULD BE LABELED PRIOR TO COLLECTING THE SAMPLES.

2. SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER.

3. LARGE MOUTH, WELL CLEANED AND RINSED GLASS OR PLASTIC JARS SHOULD BE USED FOR COLLECTING SAMPLES. THE JARS SHOULD BE CLEANED THOROUGHLY TO AVOID CONTAMINATION.

4. MANUAL, AUTOMATIC OR RISING STAGE SAMPLING MAY BE UTILIZED. SAMPLES REQUIRED BY THIS PERMIT SHOULD BE ANALYZED IMMEDIATELY, BUT IN NO CASE LATER THAN 48 HOURS AFTER COLLECTION. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION, UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. IF AUTOMATIC SAMPLING IS UTILIZED AND THE AUTOMATIC SAMPLER IS NOT ACTIVATED DURING THE QUALIFYING EVENT, THE PERMITTEE MUST UTILIZE MANUAL SAMPLING OR RISING STAGE SAMPLING DURING THE NEXT QUALIFYING EVENT. DILUTION OF SAMPLES IS NOT REQUIRED. SAMPLES MAY BE ANALYZED DIRECTLY WITH A PROPERLY CALIBRATED TURBIDIMETER. SAMPLES ARE NOT REQUIRED TO BE COOLED.

5. SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND THE MINIMUM FREQUENCY STATED IN THE PERMIT MUST BE REPORTED TO EPD AS SPECIFIED IN PART IV.E. OF THE PERMIT.

c. SAMPLING POINTS: THERE WILL BE 2 STORM WATER SAMPLING LOCATIONS. THE SAMPLING LOCATION WILL BE THE DOWNSTREAM POINTS, PER NPDES PERMIT GAR IOOOOI, FOR CONSTRUCTION ACTIVITIES, THE PRIMARY PERMITTEE MUST COMPLETE ALL SAMPLING.

I. FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST SAMPLE ALL RECEIVING WATER(S) OR ALL OUTFALL(S), OR A COMBINATION OF RECEIVING WATER(S) AND OUTFALL(S). SAMPLES TAKEN FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING WATER(S) AND/OR THE STORM WATER OUTFALL(S) USING THE FOLLOWING MINIMUM GUIDELINES:

A. THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY, WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.

B. THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.

C. IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORM WATER OUTFALL CHANNELS(S).

D. CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORM WATER CHANNEL.

E. THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.

F. THE SAMPLES SHOULD BE KEPT FREE FROM FLOATING DEBRIS.

G. PERMITTEES DO NOT HAVE TO SAMPLE SHEETFLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT. FOR PURPOSES OF THIS SECTION, STABILIZED SHALL MEAN, FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES AND AREAS LOCATED OUTSIDE THE WASTE DISPOSAL LIMITS OF A LANDFILL CELL THAT HAS BEEN CERTIFIED BY EPD FOR WASTE DISPOSAL, IOO% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR LANDSCAPED ACCORDING TO THE PLAN (UNIFORMLY COVERED WITH LANDSCAPING MATERIALS IN PLANNED LANDSCAPED AREAS), OR EQUIVALENT PERMANENT STABILIZATION MEASURES AS DEFINED IN THE MANUAL (EXCLUDING A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET CROP PERENNIALS APPROPRIATE FOR THE REGION).

A. ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORM WATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS II.D.3. OR II.D.4., WHICHEVER IS APPLICABLE.

d. SAMPLING FREQUENCY

I. THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORM WATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN FORTY-FIVE (45) MINUTES OR AS SOON AS POSSIBLE.

2. HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (I2) HOURS AFTER THE BEGINNING OF THE STORM WATER DISCHARGE.

3. SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:

A. FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION;

B. IN ADDITION TO (A.) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THE PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOT, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATIONS, WHICHEVER COMES FIRST;

C. AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPS IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS* UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPS ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED;

D. WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.a.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B) OR (C) ABOVE; AND

E. EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.

*NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.

REPORTING

I. THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORM WATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD USING THE ELECTRONIC SUBMITTAL SERVICE PROVIDED BY EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

2. ALL SAMPLING REPORT SHALL INCLUDE THE FOLLOWING INFORMATION:

a. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;

b. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;

c. THE DATE(S) ANALYSES WERE PERFORMED;

d. THE TIME(S) ANALYSES WERE INITIATED;

e. THE NAMES(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;

f. REFERENCES AND WRITTEN PROCEDURES , WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;

g. THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC., USED TO DETERMINE THESE RESULTS;

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #
0000002465
EXPIRES: 7/1/2024

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 29241 JOSEPH L. MOSER

NO.	REVISIONS	BY	DATE
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PERMIT SET - FOR REVIEW PURPOSES ONLY

THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL NOTES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	N.T.S.

EC0.2

Z:\2020\26327.0010\Engineering\Drawings\Construction Plans\26327.0010 Erosion Control Notes.dwg - Mar 25, 2022 - 3:38:06 PM

EROSION,SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST - STAND ALONE CONSTRUCTION PROJECTS

SWCD: COASTAL
PROJECT NAME: NFI BUILDINGS A & B SITE DEVELOPMENT
CITY/COUNTY: PORT WENTWORTH/CHATHAM

ADDRESS: CROSSGATE ROAD
DATE ON PLANS: 08/13/21
REVISED DATE:

h. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU;" AND

i. CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.

3. ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

EPD OFFICE:
COASTAL DISTRICT - BRUNSWICK OFFICE
GEORGIA ENVIRONMENTAL PROTECTION DIVISION
400 COMMERCE CENTER DRIVE
BRUNSWICK, GA 31523-8687
912-264-7284

ECO.3 | YES — 32. PROVIDE COMPLETE DETAILS FOR RETENTION OF RECORDS AS PER PART IV.F. PG 38 OF THE PERMIT.

RETENTION OF RECORDS

I. THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOTICE OF TERMINATION IS SUBMITTED IN ACCORDANCE WITH PART VI.

- COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD.
- A COPY OF THE ES&PC PLAN REQUIRED IN PERMIT No. GAR 100001.
- THE DESIGN PROFESSIONALS REPORT OF THE THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5 IN PERMIT No. GAR 100001.
- A COPY OF ALL SAMPLING INFORMATION , RESULTS, AND REPORTS REQUIRED BY IN PERMIT No. GAR 100001.
- A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.a OF PERMIT No. GAR 100001.
- A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2 IN PERMIT No. GAR 100001.
- DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.a.(2). IN PERMIT No. GAR 100001.

2. COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) OR OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOTICE OF TERMINATION IS SUBMITTED IN ACCORDANCE WITH PART VI OF THE GAR100001. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATIVE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

ECO.3 | YES — 33. DESCRIPTION OF ANALYTICAL METHODS TO BE USED TO COLLECT AND ANALYZE THE SAMPLES FROM EACH LOCATION. (PERMIT IV.D.6.a.(3) PG 33-35)

STORM WATER SAMPLES ARE TO BE ANALYZED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 AND THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT EPA 833-B-92-001.

ECO.3 | YES — 34. APPENDIX B RATIONALE FOR NTU VALUES AT ALL OUTFALL SAMPLING POINTS WHERE APPLICABLE. (PERMIT IV.D.6.a.(3) PG 33)

STORM WATER IS TO BE SAMPLED FOR NEPHELOMETRIC TURBIDITY UNITS (NTU) AT THE OUTFALL LOCATIONS. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED, AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN THE TURBIDITY OF THE DISCHARGE EXCEEDING 50, THE VALUE THAT WAS SELECTED FROM APPENDIX B IN PERMIT No. GAR 100001. THE NTU IS BASED UPON THE DISTURBED ACREAGE OF 35.5 ACRES FOR THE PROJECT SITE, THE SURFACE WATER DRAINAGE AREA OF LESS THAN 4.99 SQUARE MILES AND RECEIVING WATER WHICH SUPPORTS WARM WATER FISHERIES. APPENDIX B WAS USED TO DETERMINE THE NTU ALLOWABLE AND DOWNSTREAM SAMPLING WILL BE PERFORMED FOR THIS PROJECT.

Appendix B
Nephelometric Turbidity Unit (NTU) Table
Warm Water (Supporting Warm Water Fisheries)

Surface Water Drainage Area, square miles

	0-4.99	5-9.99	10-24.99	25-49.99	50-99.99	100-249.99	250-499.99	500+
1.00-10	75	150	200	400	750	750	750	750
10.01-25	50	100	100	200	300	500	750	750
25.01-50	(50)	50	100	100	200	300	750	750
50.01-100	50	50	50	100	100	150	300	600
100.01+	50	50	50	50	50	100	200	100

ECLI - L3 | YES — 35. DELINEATE ALL SAMPLING LOCATIONS, PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED. (PERMIT IV.D.6.a.(3) PG 33)

PLEASE SEE PLAN SHEETS FOR DELINEATION OF SAMPLING LOCATIONS, PERENNIAL, INTERMITTENT STREAMS AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED.

ECO.3 | YES — 36. A DESCRIPTION OF APPROPRIATE CONTROLS AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE INCLUDING (1) INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S, (2) INTERMEDIATE GRADING AND DRAINAGE BMP'S, AND (3) FINAL BMP'S. FOR CONSTRUCTION SITES WHERE THERE WILL BE NO MASS GRADING AND THE INITIAL PERIMETER CONTROL BMP'S, INTERMEDIATE GRADING AND DRAINAGE BMP'S, AND FINAL BMP'S ARE THE SAME, THE PLAN MAY COMBINE ALL OF THE BMP'S INTO A SINGLE PHASE. (PERMIT IV.D.3 PG 27)

INITIAL PHASE - THE INITIAL PHASE OF THE ES&PC PLAN WILL INCLUDE THE INSTALLATION OF THE CONSTRUCTION EXIT AND SILT FENCE. TYPE NS & S SILT FENCE WILL BE USED. STORM PONDS AND DITCHES WILL BE CONSTRUCTED AND MAINTAINED DURING SITE CLEARING. STORM DRAIN OUTLET PROTECTION WILL BE INSTALLED AND MAINTAINED AT DISCHARGE LOCATIONS. DUST CONTROL AND MULCHING WILL BE IMPLEMENTED AS NECESSARY TO PROVIDE INITIAL SEDIMENT STORAGE.
INTERMEDIATE PHASE - THE INTERMEDIATE GRADING AND DRAINAGE BMP'S WILL INCLUDE THE MAINTENANCE OF ALL SILT FENCE. STORM DRAIN OUTLET PROTECTION WILL BE INSTALLED AND MAINTAINED AT DISCHARGE LOCATIONS. DUST CONTROL, MULCHING, AND TEMPORARY SEEDING WILL BE IMPLEMENTED AS NECESSARY.

FINAL PHASE - THE FINAL GRADING AND DRAINAGE BMP'S WILL INCLUDE THE MAINTENANCE OF ALL SILT FENCE. STORM DRAIN OUTLET PROTECTION WILL BE MAINTAINED AT DISCHARGE LOCATIONS. PERMANENT SEEDING WILL BE IMPLEMENTED FOR SITE STABILIZATION. ONCE THE SITE IS STABILIZED, ALL TEMPORARY BMPS ARE TO BE REMOVED.

ALL | YES — 37. GRAPHIC SCALE AND NORTH ARROW.

GRAPHIC SCALE AND NORTH ARROW ARE LOCATED ON EACH PLAN SHEET.

ECLI-L3 | YES — 38. EXISTING AND PROPOSED CONTOUR LINES WITH CONTOUR LINES DRAWN AT AN INTERVAL IN ACCORDANCE WITH THE FOLLOWING:

EXISTING AND PROPOSED CONTOUR LINES DRAWN AT AN INTERVAL OF 1' ARE SHOWN ON EACH PLAN SHEET.

N/A | — 39. USE OF ALTERNATIVE BMP'S WHOSE PERFORMANCE HAS BEEN DOCUMENTED TO BE EQUIVALENT TO OR SUPERIOR TO CONVENTIONAL BMP'S AS CERTIFIED BY A DESIGN PROFESSIONAL (UNLESS DISAPPROVED BY EPD OR THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION). PLEASE REFER TO THE ALTERNATIVE BMP GUIDANCE DOCUMENT FOUND AT www.gaswcc.org. (PERMIT IV.D.3.a(4) PG 29)

NOT APPLICABLE FOR THIS PROJECT.

N/A | — 40. USE OF ALTERNATIVE BMP FOR APPLICATION TO THE EQUIVALENT BMP LIST. PLEASE REFER TO APPENDIX A-2 OF THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA 2016 EDITION.

NOT APPLICABLE FOR THIS PROJECT.

N/A | — 41. DELINEATION OF THE APPLICABLE 25-FOOT OR 50-FOOT UNDISTURBED BUFFERS ADJACENT TO STATE WATERS AND ANY ADDITIONAL BUFFERS REQUIRED BY THE LOCAL ISSUING AUTHORITY. CLEARLY NOTE AND DELINEATE ALL AREAS OF IMPACT. (PERMIT IV.D.2.e PG 27)

THERE ARE NO BUFFERS ASSOCIATED WITH THIS PROJECT.

ECO.3 | YES — 42. DELINEATION OF ON-SITE WETLANDS AND ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE.

THE WETLANDS ARE DELINEATED ON THE PLANS.

ALL | YES — 43. DELINEATION AND ACREAGE OF CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE. (PERMIT IV.D.2.e PG 27)

ALL CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE ARE CLEARLY DELINEATED IN AN EXHIBIT AS PART OF THE ATTACHED STORM WATER REPORT.

ATTACHED | YES — 44. PROVIDE HYDROLOGY STUDY AND MAPS OF DRAINAGE BASINS FOR BOTH PRE- AND POST-DEVELOPMENT CONDITIONS.

PLEASE SEE ATTACHED REPORT WITH DETAILS FOR PRE AND POST DEVELOPMENT HYDROLOGY..

ECO.3 | YES — 45. AN ESTIMATE OF THE RUNOFF COEFFICIENT OR PEAK DISCHARGE FLOW OF THE SITE PRIOR TO AND AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED. (PERMIT IV.D.2.d PG 27)

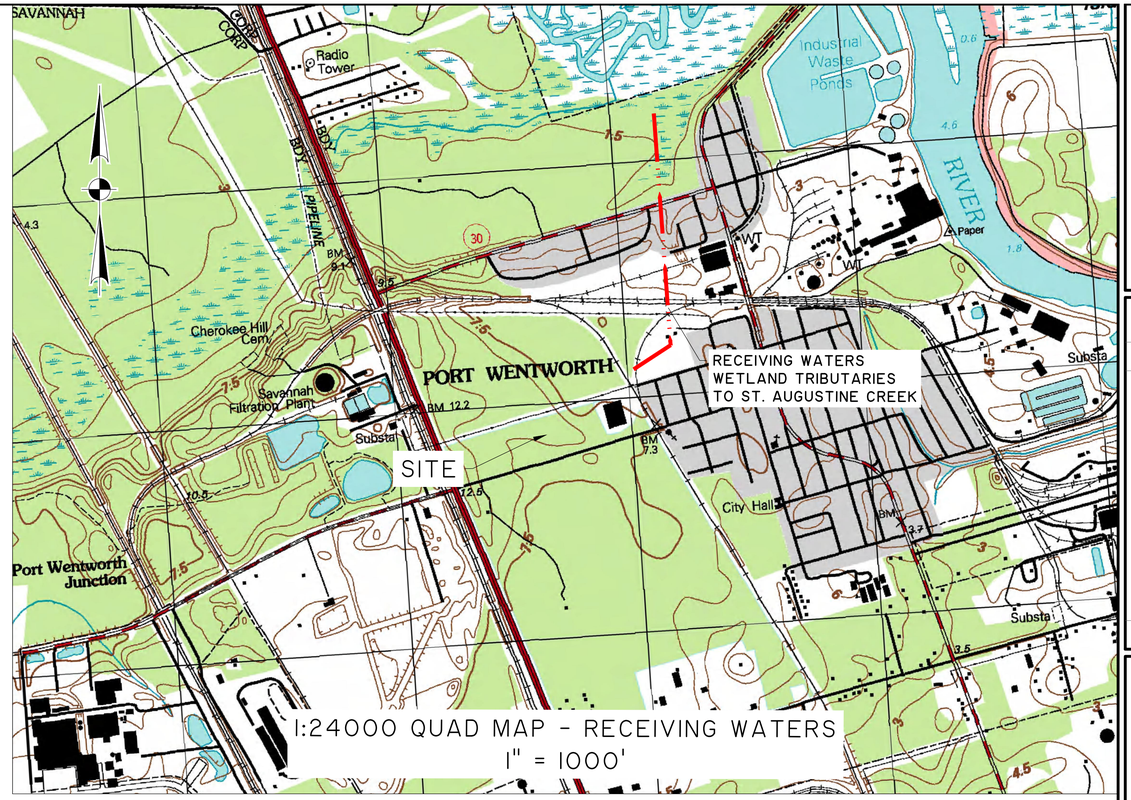
RUNOFF COEFFICIENT: PRE-CONSTRUCTION CN = 80
POST-CONSTRUCTION CN = 86

ECLI-L3 | YES — 46. STORM-DRAIN PIPE AND WEIR VELOCITIES WITH APPROPRIATE OUTLET PROTECTION TO ACCOMMODATE DISCHARGES WITHOUT EROSION. IDENTIFY/DELINEATE ALL STORM WATER DISCHARGE POINTS.

THE RIP-RAP CHARTS CONTAIN THE STORMWATER VELOCITIES. THE STORMWATER DISCHARGE POINTS ARE INDICATED ON THE PLANS.

ECO.3 | YES — 47. SOIL SERIES FOR THE PROJECT SITE AND THEIR DELINEATION.

SOILS ARE DELINEATED ON THE EROSION CONTROL SHEETS. THE SOILS FOR THE SITE ARE Lp - Lakeland sand (A), Ok - OGEECHEE LOAMY FINE SAND (B/D), Okc Ogeechee-Urban land complex (B/D), Pn - Pooler fine sandy loam (C/D), As - Albany fine sand (A/D).



1:24000 QUAD MAP - RECEIVING WATERS
1" = 1000'

ECLI-L3 | YES — 48. THE LIMITS OF DISTURBANCE FOR EACH PHASE OF CONSTRUCTION.

PLEASE SEE THE PLAN FOR THE DELINEATION OF THE LIMITS OF DISTURBANCE. THEY ARE THE SAME FOR ALL PHASES OF CONSTRUCTION.

ECO.3 | YES — 49. PROVIDE A MINIMUM OF 67 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED USING A TEMPORARY SEDIMENT BASIN, RETROFITTED DETENTION POND, AND/OR EXCAVATED INLET SEDIMENT TRAPS FOR EACH COMMON DRAINAGE LOCATION. SEDIMENT STORAGE VOLUME MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED. A WRITTEN JUSTIFICATION EXPLAINING THE DECISION TO USE EQUIVALENT CONTROLS WHEN A SEDIMENT BASIN IS NOT ATTAINABLE MUST BE INCLUDED IN THE PLAN FOR EACH COMMON DRAINAGE LOCATION IN WHICH A SEDIMENT BASIN IS NOT PROVIDED. A WRITTEN JUSTIFICATION AS TO WHY 67 CUBIC YARDS OF STORAGE IS NOT ATTAINABLE MUST ALSO BE GIVEN. WORKSHEETS FROM THE MANUAL MUST BE INCLUDED FOR STRUCTURAL BMPs AND ALL CALCULATIONS USED BY THE STORAGE DESIGN PROFESSIONAL TO OBTAIN THE REQUIRED SEDIMENT WHEN USING EQUIVALENT CONTROLS. WHEN DISCHARGING FROM SEDIMENT BASINS AND IMPOUNDMENTS, PERMITEES ARE REQUIRED TO UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE, UNLESS INFEASIBLE. IF OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE ARE NOT FEASIBLE, A WRITTEN JUSTIFICATION EXPLAINING THIS DECISION MUST BE INCLUDED IN THE PLAN. (PERMIT IV.D.3.a.(3) PG 28)

AN RT-B WAS SELECTED AS THE DEWATERING STRUCTURE FOR THIS PROJECT. WHILE WE DO AGREE THAT AN RT-B DOES NOT ONLY DEWATER FROM THE TOP BUT IN THIS INSTANCE, WE BELIEVE IT IS THE BEST OPTION TO KEEP SEDIMENT FROM ESCAPING THE POND. THE USE OF SKIMMER MORE OFTEN THAN NOT RESULTS IN CLOGGING OR SEDIMENT LEAVING THE SITE THROUGH THE SPILLWAY. THE RT-B ALLOWS FOR A MORE SUSTAINED DEWATERING.

SEDIMENT STORAGE - THE PERMIT REQUIRES A MINIMUM OF 67 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED.

THE SEDIMENT STORAGE REQUIREMENT WILL BE ACHIEVED BY UTILIZING THE NEW STORM POND.
SEDIMENT STORAGE REQUIRED
ACREAGE = 35.5
REQUIRED ON SITE SEDIMENT STORAGE = 35.5 AC X 67 CY/AC = 2,378 CY
POND #1:
TOTAL AREA: 145,992 SF (AT BOTTOM - ELEV. 10.0), 162,052 SF (9' ABOVE BOTTOM - ELEV. 19.0)
(½(145,992 + 162,052) * 0.5 FT)/27 = 51,340 CY

51,340 CY EXCEEDS THE REQUIRED 2,378 CY

ECLI-L3 | YES — 50. LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH AND NO LESS STRINGENT THAN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. USE UNIFORM CODING SYMBOLS FROM THE MANUAL,CHAPTER 6, WITH LEGEND.

PLEASE SEE THE PLAN SHEETS FOR THE LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH AND NO LESS STRINGENT THAN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA USING THE UNIFORM CODING SYMBOLS FROM THE MANUAL, CHAPTER 6 WITH ACCOMPANYING LEGEND.

EC2.I-2.3 | YES — 51. PROVIDE DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES. SPECIFICATIONS MUST, AT A MINIMUM, MEET THE GUIDELINES SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.

PLEASE SEE THE DETAIL SHEET FOR DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES WITH SPECIFICATIONS MEETING THE GUIDELINES SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.

EC2.I-2.3 | YES — 52. PROVIDE VEGETATIVE PLAN, NOTING ALL TEMPORARY AND PERMANENT VEGETATIVE PRACTICES, INCLUDE SPECIES, PLANTING DATES AND SEEDING, FERTILIZER, LIME AND MULCHING RATES. VEGETATIVE PLAN SHALL BE SITE SPECIFIC FOR APPROPRIATE TIME OF YEAR THAT SEEDING WILL TAKE PLACE AND FOR APPROPRIATE GEOGRAPHIC REGION OF GEORGIA.

PLEASE SEE THE PLAN AND DETAIL SHEETS FOR THE VEGETATIVE PLAN NOTING ALL TEMPORARY AND PERMANENT VEGETATIVE PRACTICES INCLUDING SPECIES, PLANTING DATES AND SEEDING, FERTILIZER, LIME AND MULCHING RATES. THIS PLAN IS SPECIFIC TO THE SITE AND APPROPRIATE FOR TIME OF YEAR THAT SEEDING WILL TAKE PLACE AND FOR THE APPROPRIATE GEOGRAPHIC REGION OF GEORGIA.

EFFECTIVE JANUARY 1, 2021

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #
0000012465
EXPIRES : 7/1/2024

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 34761 JOSEPH L. MOSER

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE

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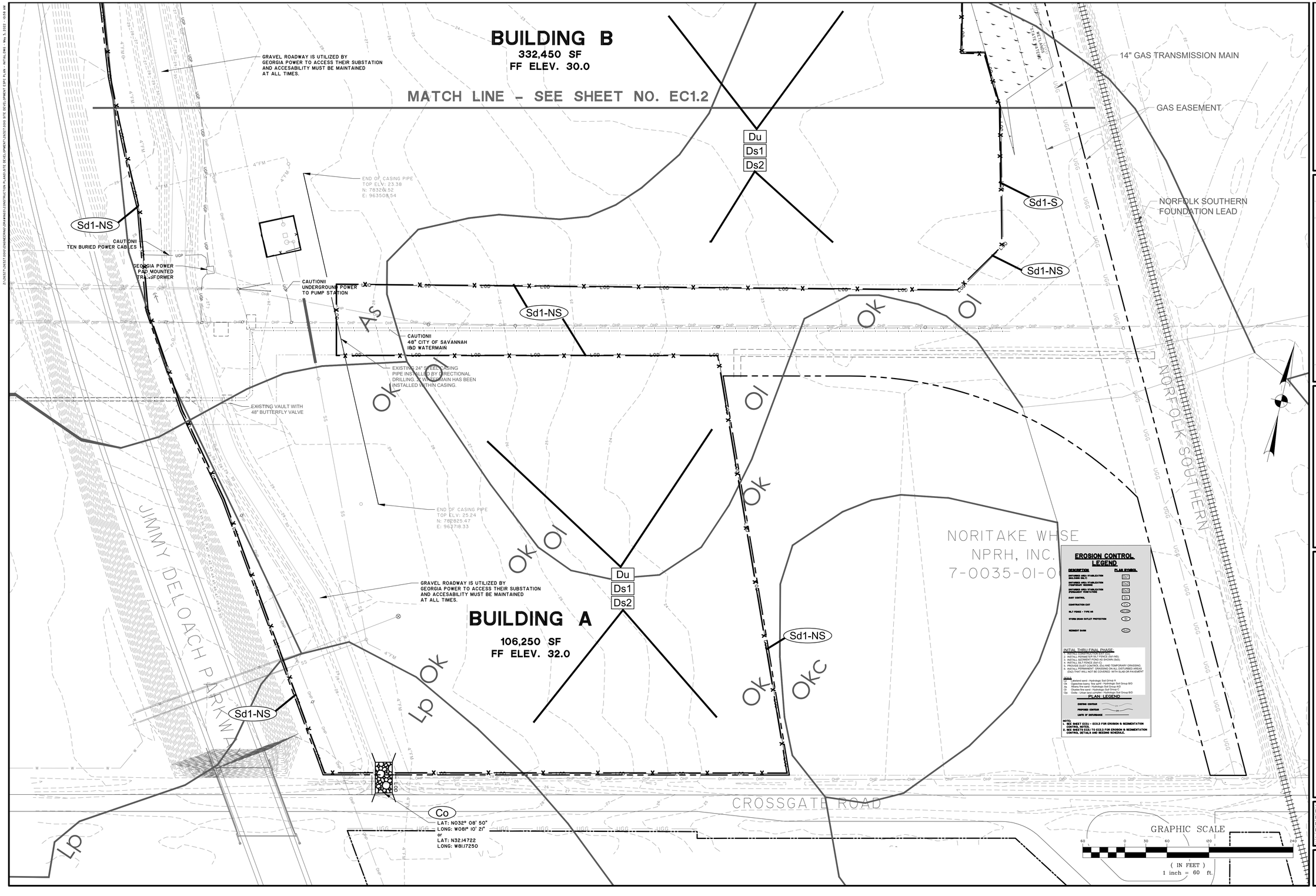
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA
SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL NOTES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	N.T.S.

EC0.3

Z:\26\0\26327.0010\Engineering\Drawings\Construction Plans\26327.0010 Erosion Control Notes.dwg - Mar 25, 2022 - 3:38:06 PM



GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 029565 JOSEPH L. MERCER

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000012465 EXPIRES : 7/1/2024

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

INITIAL ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.1

Z:\26327\26327.0010\ENGR\ENGR\CIVIL\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0010 SITE DEVELOPMENT ESPC PLAN - INITIAL.DWG - May 3, 2022 - 10:53 AM

GEORGIA POWER SUBSTATION
7-0035-01-006

NORFOLK SOUTHERN

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

Sd1-NS

Du
Ds1
Ds2

As
Ok
Oj
Oc

CAUTION!!
TEN BURIED POWER CABLES

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. EC1.2

END OF CASING PIPE
TOP ELEV: 23.38
N: 783201.52
E: 963508.54

"TWO 18" RCPs"
E 19.62'
E 19.37'
E 19.62'
E 19.39'

WETLANDS
"STATE WATERS"

Sd1-S

14" GAS TRANSMISSION MAIN

GAS EASEMENT

NORFOLK SOUTHERN
FOUNDATION LEAD

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
DISTURBED AREA STABILIZATION (BLANKET/MULCH)	DS1
DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	DS2
DISTURBED AREA STABILIZATION (PERMANENT VEGETATION)	DS3
DUST CONTROL	DU
CONSTRUCTION EXIT	CE
SILT FENCE - TYPE NS	SFNS
STORM DRAIN OUTLET PROTECTION	SP
SEDIMENT BARN	SB

INITIAL THRU FINAL PHASE:
1. INSTALL CONSTRUCTION EXIT
2. INSTALL PERIMETER SILT FENCE (Sd1-NS).
3. INSTALL SEDIMENT POND AS SHOWN (SW).
4. INSTALL SILT FENCE (Sd1-S).
5. INSTALL DUST CONTROL (DU) AND TEMPORARY GRASSING.
6. INSTALL PERMANENT GRASSING ON ALL DISTURBED AREAS (Ds3) THAT WILL NOT BE COVERED WITH SLAB OR PAVEMENT

SOILS:
Ua - Urbanland sand - Hydrologic Soil Group A
Ch - Chipley fine sand - Hydrologic Soil Group B/D
As - Albany fine sand - Hydrologic Soil Group A/D
Ok - Ocilla - Urban land complex - Hydrologic Soil Group B/D
Oj - Ocilla - Urban land complex - Hydrologic Soil Group B/D

PLAN LEGEND
EXISTING CONTOUR
PROPOSED CONTOUR
LIMITS OF DISTURBANCE

NOTES:
1. SEE SHEET EC0.2 - EC0.3 FOR EROSION & SEDIMENTATION CONTROL NOTES.
2. SEE SHEETS EC0.2 TO EC0.3 FOR EROSION & SEDIMENTATION CONTROL DETAILS AND SEEDING SCHEDULE.

GEWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #
0000012465
EXPIRES: 7/1/2024

GEORGIA REGISTERED No. 27621 PROFESSIONAL ENGINEER JOSEPH L. MCGEE

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

INITIAL ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.2

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. EC1.4

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

14" GAS TRANSMISSION MAIN

GAS EASEMENT

NORFOLK SOUTHERN FOUNDATION LEAD

END OF CASING PIPE
TOP ELV: 23.38
N: 783261.52
E: 963508.54

CAUTION!! TEN BURIED POWER CABLES

GEORGIA POWER PAD MOUNTED TRANSFORMER

CAUTION!! UNDERGROUND POWER TO PUMP STATION

CAUTION!! 48" CITY OF SAVANNAH I&D WATERMAIN

EXISTING 24" STEEL CASING PIPE INSTALLED BY DIRECTIONAL DRILLING. 2" WATERMAIN HAS BEEN INSTALLED WITHIN CASING.

EXISTING VAULT WITH 48" BUTTERFLY VALVE

END OF CASING PIPE
TOP ELV: 25.24
N: 782825.47
E: 963718.33

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

BUILDING A
106,250 SF
FF ELEV. 32.0

Sd1-S
DOUBLE ROW

Sd1-NS

Du
Ds1
Ds2

JIMMY DELOACH PARKWAY

NORITAKE WHSE
NPRH, INC.
7-0035-01-0

CROSSGATE ROAD

Co
LAT: N032° 08' 50"
LONG: W081° 10' 21"
or
LAT: N32.14722
LONG: W81.17250

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
DISTURBED AREA STABILIZATION (PERMANENT SEEDING)	DS1
DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	DS2
DISTURBED AREA STABILIZATION (PERMANENT VEGETATION)	DS3
SILT CONTROL	SC
CONSTRUCTION EXIT	CE
SILT FENCE - TYPE SS	SSF
STORM DRAIN OUTLET PROTECTION	SP
SEDIMENT BASIN	SB

INITIAL THRU FINAL PHASE:
1. INSTALL PERIMETER SILT FENCE (SILT-SS).
2. INSTALL SEDIMENT POND AS SHOWN (SeD).
3. INSTALL SILT FENCE (SILT-SS).
4. INSTALL TEMPORARY SEEDING, COIL AND TEMPORARY GRASSING.
5. INSTALL PERMANENT GRASSING ON ALL DISTURBED AREAS (DsD) THAT WILL NOT BE COVERED WITH SLAB OR PAVEMENT

SOILS
Ap Udorthents sand - Hydrologic Soil Group A
Ok Ogeechee loamy fine sand - Hydrologic Soil Group B/D
Ol Olustee fine sand - Hydrologic Soil Group B/D
Or Otualco fine sand - Hydrologic Soil Group C
Opc Ocilla - Urban land complex - Hydrologic Soil Group B/D

PLAN LEGEND
EXISTING CONTOUR
PROPOSED CONTOUR
LIMITS OF DISTURBANCE

NOTE:
1. SEE SHEET EC2.1 - EC2.3 FOR EROSION & SEDIMENTATION CONTROL NOTES.
2. SEE SHEETS EC2.1 - EC2.3 FOR EROSION & SEDIMENTATION CONTROL DETAILS AND SEEDING SCHEDULE.

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #
0000012465
EXPIRES : 7/1/2024

GEORGIA REGISTERED No. 32564 PROFESSIONAL ENGINEER JOSEPH L. MCGEE

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

INTERMEDIATE ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.3

P:\26327\0010\SAVANNAH\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327-0010 SITE DEVELOPMENT ESPC PLANS - INTERMEDIATE.DWG - May 3, 2022 - 9:09 AM

GEORGIA POWER SUBSTATION
7-0035-01-006

POND I

BUILDING B
332,450 SF
FF ELEV. 30.0

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

MATCH LINE - SEE SHEET NO. EC1.3

NORFOLK SOUTHERN

14" GAS TRANSMISSION MAIN

GAS EASEMENT

SAMPLING LOCATION

CAUTION!! TEN BURIED POWER CABLES

END OF CASING PIPE
TOP ELEV: 23.38
N: 783201.52
E: 963508.54

"TWO 18" RCPs" E 19.62' E 19.37'

"TWO 18" RCPs" E 19.43' E 19.39'

WETLANDS "JURISDICTIONAL WATERS"

Sd1-NS

Sd1-S
DOUBLE ROW

Du
Ds1
Ds2

St

Rt-B

OUTLET PROTECTION DESIGN CRITERIA (St)

OUTLET OPENING:	6in
FLOW RATE (CFS):	30.0 CFS
VELOCITY (FPS):	4.1 FPS
TAILWATER CONDITION: (MIN, or MAX.)	MIN
d_{50} RIPRAP SIZE:	0.5'
d_{100} RIPRAP SIZE:	0.75'
MIN. RIPRAP THICKNESS(D):	1.125'
W:	12'
Wmin	4'
Wdown	4'

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
DISTURBED AREA STABILIZATION (BUILDING BELT)	Du
DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	Ds1
DISTURBED AREA STABILIZATION (PERMANENT VEGETATION)	Ds2
DUST CONTROL	Du
CONSTRUCTION EXIT	CE
SILT FENCE - TYPE SE	SF
STORM DRAIN OUTLET PROTECTION	SP
SEDIMENT BARN	SB

INITIAL THRU FINAL PHASE:
1. INSTALL PERIMETER SILT FENCE (Sd1-NS).
2. INSTALL SEDIMENT POND AS SHOWN (SD).
3. INSTALL SILT FENCE (Sd1-S).
4. INSTALL TEMPORARY SEEDING AND TEMPORARY GRASSING.
5. INSTALL PERMANENT GRASSING ON ALL DISTURBED AREAS (Ds2) THAT WILL NOT BE COVERED WITH SLAB OR PAVEMENT

SOILS:
Ld - Ludowici sand - Hydrologic Soil Group A
Oc - Ogeechee loamy fine sand - Hydrologic Soil Group B/D
As - Albany fine sand - Hydrologic Soil Group A/D
Ok - Okeetee clay - Hydrologic Soil Group C/D
Oj/Ja - Urban land complex - Hydrologic Soil Group B/D

PLAN LEGEND
EXISTING CONTOUR
PROPOSED CONTOUR
LIMITS OF DISTURBANCE

NOTES:
1. SEE SHEET EC0.J - EC0.3 FOR EROSION & SEDIMENTATION CONTROL NOTES.
2. SEE SHEETS EC2.1 TO EC2.3 FOR EROSION & SEDIMENTATION CONTROL DETAILS AND SEEDING SCHEDULE.

GRAPHIC SCALE
(IN FEET)
1 inch = 60 ft.

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #
0000012465
EXPIRES : 7/1/2024

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 32764 JOSEPH L. MCGEE

NO.	REVISIONS	BY	DATE
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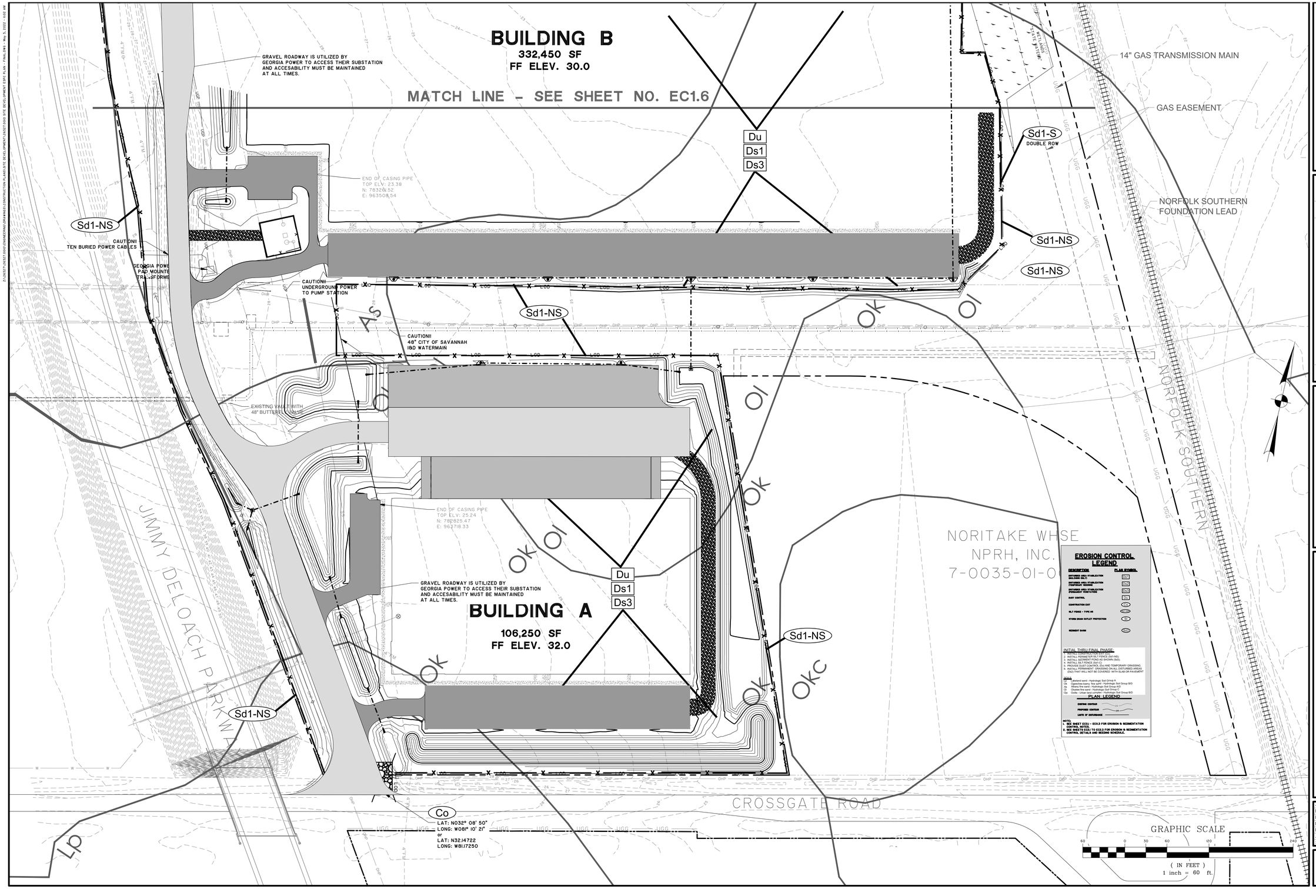
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

INTERMEDIATE ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.4



GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #
0000012465
EXPIRES : 7/1/2024

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 025655 JOSEPH L. MERCER

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

FINAL ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.5

Z:\26327.0010\LANDSCAPE ARCHITECTURE\CONSTRUCTION PLANS\26327.0010_L2.3.DWG - May 5, 2022 - 8:49 AM

GRASSING SPECIFICATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Seeding, planting grass, and fertilizing graded areas around buildings, structures, soccer fields and sidewalk shoulders and other disturbed areas.

B. Seed protection.

C. Maintaining grassed areas until final acceptance.

1.2 RELATED WORK

A. Civil and Landscape plans and specifications.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging, and location of packaging. Damaged packages are not acceptable. Store in cool, dry locations away from contaminants.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer. Damaged bags are not acceptable. Store in cool, dry locations away from contaminants.

C. Deliver sod on pallets.

D. All material shall be acceptable to Engineer prior to use.

1.4 PLANTING DATES

A. This specification provides for establishment of a permanent grass cover between the dates of March 1 and September 30. If finished earth grades are not completed in time to permit planting and establishment of permanent grass during the favorable season between dates specified above unless otherwise accepted, Contractor will be required to plant a temporary cover to protect new graded areas from erosion and to keep windborne dust to a minimum. The temporary cover shall be planted between October 1 and February 28 unless otherwise permitted.

1.5 MEASUREMENT AND PAYMENT

A. When the season or stage of project is such results of grassing work cannot be determined, conditional acceptance will be made on work completed. When conditional acceptance is made for items of work covered, Contractor shall be entitled to 50% of bid price for the actual work placed and shall receive remaining 50% of bid price when final acceptance is made. Conditional acceptance shall not apply to the remaining items of work, and full bid price payment shall be made when work is acceptably placed and completed in accordance with specifications.

B. Payment for grassing will be made at contract unit price for the item "Grassing" and such payment shall constitute full compensation for furnishing and placing seed and fertilizer or sod where directed and protecting and maintaining seed and sod in all graded and disturbed areas.

PART 2 - PRODUCTS

Contractor shall submit source and species certification documents to Engineer and Owner's Representative for review prior to installation. Supply complete information on all analysis / test methodologies and results; laboratory certifications, manufacturer's specifications, and agency approvals to the Landscape Architect prior to placement of soil mixtures. In addition, provide the Landscape Architect with thoroughly mixed sample of soil mixes for approval prior to placement. Landscape Contractor shall make modifications and improvements to soil mixes deemed necessary by the soil analysis to meet requirements specified here in before, and to ensure proper growing medium for plant material.

2.1 SEED

A. All seed shall conform to all State Laws and to all requirements and regulations of the State Department of Agriculture.

B. The varieties of seed, as specified in Section 2.2, shall be individually packaged or bagged, and tagged to show name of seed, net weight, origin, germination, lot number, and other information required by the State Department of Agriculture.

C. The Engineer reserves the right to test, reject, or accept all seed before seeding.

2.2 SEEDING SCHEDULE

A. SEED	RATE	PLANTING DATES
'Princess 77' Bermuda	75 lbs/ acre	March 1 - September 30
Annual Rye (Temp only)	75 lbs/acre	October 1 - February 28

2.3 FERTILIZER

A. Commercial fertilizer of approved type, conforming to state fertilizer laws at the rate as recommended by soils test.

2.4 LIME

A. Agricultural grade, ground limestone at the rate as recommended by soils test.

2.5 SPRIG

A. Healthy living stems, stolons, or rhizomes and attached roots of locally adapted grass without adhering soil, including two to three nodes and from 4 to 6 inches long. Obtain from heavy, dense certified sod. Provide sprigs which have been grown under climatic conditions similar to those in the locality of the project. Coordinate harvesting and planting operations to prevent exposure of sprigs to the sun for more than 30 minutes before covering and moistening. Sprigs showing signs of wilt, mold, containing weeds or other detrimental material or that are heat damaged will be rejected.

B. The varieties of sprig, as specified in section 2.6, shall be individually packaged or bagged, and tagged to show name of sprig, net weight, origin and other information required by the State Department of Agriculture.

C. Sprigs shall be pure to variety specified and shall be free of other grass species, weeds or foreign matter.

D. Sprigs shall be harvested by digging (not collected above soil level) shredding sod, by rototilling sod and raking, by vericutting or by a sprig harvester. Sprigs shall consist of mostly rhizomes and crowns with only a few green leaves.

2.6 SPRIGGING SCHEDULE

A. SPRIG	RATE	PLANTING DATES
'Tifway 419' Bermuda (or approved equal)	1,000 bushels / ac. (Coverage in 3 months)	April 1 - August 31
Stabilize site with temporary grass seed (See section 2.2)		September 1 - March 31

B. In areas where existing grass is to be matched, Contractor shall sprig at the rate and dates recommended by sprig distributor.

2.7 SOD

A. Sod shall be premium grade, densely rooted, good quality grass of the species and certified variety as shown on the plans, free from noxious weeds with no surface soil being visible. The sod shall be obtained from areas where the soil is reasonably fertile. Sod of specified species with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed. The sod shall be machine cut to a uniform soil thickness that shall contain practically all of the dense root system and not be less than 1-inch thick.

B. Before cutting, sod shall be mowed to a height of not less that 1-1/2" or more than 2". Sod shall be cut in uniform widths min. 12" and in lengths min. 24 inches.

C. Sod shall be delivered to site in a fresh, moist condition with healthy green foliage. It shall be unloaded from delivery trucks on pallets or rolls and placed in final position within 24 hours of delivery. Sod shall be protected from wind and sun and shall not be allowed to dry out before planting.

D. Sod shall be strong enough to support its own weight and retain its size and shape when suspended vertically from a firm grasp on the upper 10 percent of the section.

2.8 ACCESSORIES

A. Straw Mulch: Oat or wheat straw, reasonably free from weeds, foreign matter detrimental to plant life, and in dry condition.

B. Excelsior Mulch: Excelsior mulch shall consist of wood fibers cut from sound, green timber. The average length of fibers shall be 4 to 6 inches. Cut shall be made in such a manner as to provide maximum strength of fiber, but at a slight angle to natural grain of the wood to cause splintering of fibers when weathering in order to provide adherence to each other and to soil.

C. Wood cellulose fiber shall be made from wood chip particles manufactured particularly for discharging uniformly on the ground surface when dispersed by a hydraulic water sprayer. It shall remain in uniform suspension in water under agitation and blend with grass seed and fertilizer to form a homogenous slurry. Mulch fibers shall intertwine physically to form a strong moisture holding mat on the ground surface and allow rainfall to percolate into underlying soil. The mulch shall be heat processed to contain no germination or growth-inhibiting factors. It shall be dyed (non-toxic) an appropriate color to facilitate metering of material.

2.9 PRODUCT REVIEW

A. Contractor shall provide the Engineer with a complete description of all products before ordering. The Engineer will review all products before they are ordered.

PART 3 - EXECUTION

3.1 PREPARATION

A. Areas to be seeded or sprigged shall be made smooth and uniform and shall conform to the finished grade indicated on plans.

B. Remove foreign materials, plants, roots, stones, and debris from surfaces to be seeded.

C. Grassing areas, if not loose, shall be loosened to a minimum depth of 3 inches before fertilizer, seed, sprig or sod is applied.

D. Amendments to soils shall be incorporated into loosened 3 inch top soil layer as recommended by soils test.

E. No seeding shall occur until acceptance of the seed bed preparation has occurred. Contractor shall notify owner and landscape architect once seed bed is prepared for review and acceptance.

3.2 STAND OF GRASS

A. Before acceptance of seeding or sprigging is performed for the establishment of permanent vegetation, Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and winter weather and be capable of re-establishment in spring.

B. Before acceptance of seeding performed for the establishment of temporary vegetation, Contractor will be required to produce a stand of grass sufficient to control erosion for a given area and length of time before the next phase of construction or establishment of permanent vegetation is to commence.

3.3 SEEDING AND SPRIGGING DATES

A. Seeding and sprigging shall be performed during periods and at rates specified in their respective schedules. Seeding and sprigging work may, at discretion of Contractor, be performed throughout the year using schedule prescribed for given period. Seeding and sprigging work shall not be conducted when the ground is frozen or excessively wet. Contractor will be required to produce a satisfactory stand of grass regardless of the period of year work is performed.

3.4 APPLYING LIME AND FERTILIZER

A. Following advance preparation and placing selected material for shoulders and slopes, lime and fertilizer, if called for based on soil tests, shall be spread uniformly over the designated areas, and shall be thoroughly mixed with the soil to a depth of approximately 2 inches. Fertilizer and lime shall be applied at the rate at the rate recommended by required soils test. Unless otherwise provided, lime will not be applied for temporary seeding. In all cases where practicable, acceptable mechanical spreaders shall be used for spreading fertilizer. On steep slopes subject to slides and inaccessible to power equipment, the slopes shall be adequately scarified. Fertilizer may be applied on steep slopes by hydraulic methods as a mixture of fertilizer and seed. When fertilizer is applied with combination seed and fertilizer drills, no further incorporation will be necessary. The fertilizer and seed shall be applied together when Wood Cellulose Fiber Mulch is used. Any stones larger than 2 ½ inches in any dimension, larger clods, roots, or other debris brought to the surface shall be removed.

3.5 SEEDING

A. Seed shall be sown within 24 hours following application of fertilizer and lime and preparation of the seedbed as specified in Section 3.4. Seed shall be uniformly sown at rate specified by the use of acceptable mechanical seed drills. Rotary hand seeders, power sprayers or other satisfactory equipment may be used on steep slopes or on other areas inaccessible to seed drills.

B. Seeds shall be covered and lightly compacted by means of cultipacker or light roller if the drill does not perform this operation. On slopes inaccessible to compaction equipment, the seed shall be covered by dragging spiked chains, by light harrowing or by other satisfactory methods.

C. Apply water with fine spray immediately after each area has been sown.

D. Do not sow seed when ground is too dry, during windy periods or immediately following a rain.

E. If permitted by the special provisions, wood cellulose fiber mulch or excelsior fiber mulch may be used.

3.6 SEED PROTECTION (STRAW MULCH)

A. All seeded areas seeded with permanent grasses shall be uniformly mulched in a continuous blanket immediately following seeding and compacting operations, using at least 2 tons of straw per acre.

3.7 SEED PROTECTION (EXCELSIOR MULCH)

A. Seed shall be sown as specified in Section 3.5. Within 24 hours after covering of seed, excelsior mulch shall be uniformly applied at the rate of 2 tons per acre. The mulch may be applied hydraulically or by other acceptable methods. Should the mulch be placed in a dry condition, it shall be thoroughly wetted immediately after placing. Engineer may require light rolling of the mulch to form a fight mat.

3.8 SEED PROTECTION (WOOD CELLULOSE FIBER MULCH)

A. After the lime has been applied and ground prepared as specified in Section 3.4, wood cellulose fiber mulch shall be applied at a rate of 1,500 pounds per acre in a mixture of seed and fertilizer. Hydraulic equipment shall be used for application of fertilizer, seed, and slurry of the prepared wood pulp. This equipment shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry of the specified amount of fiber, fertilizer, seed, and water. The slurry distribution lines shall be large enough to prevent stoppage. The discharge line shall be equipped with a set of hydraulic spray nozzles which will provide an even distribution of slurry on various areas to be seeded. The slurry tank shall have a minimum capacity of 1,000 gallons.

Seed, fertilizer, wood pulp mulch, and water shall all be combined into the slurry tank for distribution of all ingredients in one operation by hydraulic seeding method specified herein. Materials shall be combined in a manner recommended by the manufacturer. The slurry mixture shall be regulated so amounts and rates of application shall result in a uniform application of all materials at rates not less than amount specified. Using the color of wood pulp as a guide, equipment operator shall spray prepared seedbed with a uniform visible coat. The slurry shall be applied in a sweeping motion, in an arched stream to fall like rain, allowing wood fibers to build upon each other until an even coat is achieved.

3.9 SPRIGGING

A. Sprigs shall be placed at the date and rates as shown in section 2.6. The sprigging method shall be by broadcast sprigging, hydroplanting or row planter. Sprigging procedure shall ensure even coverage.

B. Sprigs applied by broadcast over the site with a distributor or hydroseeder shall be planted at the rates listed in section 2.6. Cover broadcast sprigs with straw mulch immediately after broadcast and water in immediately (within 2 hours).

C. Sprigs installed by row planter creating a narrow furrow that covers 50 to 80% of the sprig with soil may use less sprig material. Rate shall be as recommended by sprig supplier to provide a solid stand of turf within the time required in Section 2.6. Water in immediately (within 1 hour).

3.10 SODDING

A. Sod shall be placed between March 1st and December 1st. However, if sod is to be placed during periods of temperatures over 90 degrees F., the contractor shall take extra care for quick placement of sod with adequate, consistent watering necessary to ensure sod thrives as planted.

B. Sod shall be placed within 24 hours of cutting.

C. Place top elevation of sod 1/2 inch below adjoining paving or curbs.

D. All areas to be sodded shall be brought to the proper line grade or cross section as was existing prior to construction. Sod shall be placed so that, upon completion, the edges of the sodded areas will be smooth and will conform to the proposed finished grade. Sod shall be laid smooth, edge to edge, with staggered joints. Sod shall be immediately pressed firmly into contact with the sod bed by tamping or rolling, to eliminate any air pockets. A true and even surface shall be provided, to insure knitting without displacement of the sod or deformation of the surfaces of the sodded areas. Do not stretch or overlap sod pieces. Following compaction, screened soil of good quality shall be used to fill all cracks, and excess soil shall be worked into the grass with rakes or other suitable equipment. On slopes steeper than 4 to1, the sod shall be fastened in place with suitable wood or metal pins to hold the sod in place. Any damage by erosion or other causes that may have occurred after completion of grading operations shall be repaired, before commencing with the sodding operations.

E. Immediately before sodding, moisten topsoil with a fine spray to a minimum 1" depth. Sod shall not be laid on soil that is dry and powdery.

F. Sod shall be moist when laid and placed on moist ground. The sod shall be carefully placed by hand, beginning at the toe of slopes and working upwards. The length of the strips shall be at right angles to the flow of surface water. All joints shall be tightly butted and end joints shall be staggered at least 12 inches. The sod shall be immediately pressed firmly into the ground by tamping or rolling. Fill all joints between strips with fine screened soil. Sod on slopes shall be pegged with sod pegs to prevent movement. The sod shall be watered, mowed, weeded, repaired, or otherwise maintained, to insure the establishment of a uniform healthy stand of grass until acceptance.

G. Within 2 hours after sod has been placed, thoroughly water to a minimum depth of 4". After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove depressions and irregularities. Roll sodded areas with a roller not exceeding 150 lbs. per foot of roller width. Top dress and roll again as necessary to create a smooth even surface.

PART 4 - MAINTENANCE, WARRANTY AND ACCEPTANCE

4.1 MAINTENANCE

A. Maintenance shall consist of providing protection against traffic, watering to ensure uniform seed germination and to keep surface of soil damp, and repairing any areas damaged as a result of construction operations or erosion. Maintenance shall also include, but is not limited to, watering, weeding, cultivating, removal of dead material, lawn mowing, fertilizing, and other necessary operations.

B. The Contractor shall maintain all proposed plantings until the date of final acceptance by the Owner.

4.2 WARRANTY

A. All grassed areas shall be guaranteed by the Contractor to be alive and healthy for a one year period from the date of substantial completion issued by the Owner. A final inspection with the Owner shall be conducted at the end of the warranty period to determine if any areas require replanting. At the end of the warranty period, the sod shall show evidence of rooting to the underlying soil and shall have no competitive weed growth from either the sod or from between the sod joints.

B. Any grassed area which is dead or not showing satisfactory growth shall be replaced at Contractor's expense at the end of warranty period. All replacements shall be of original quality and of a size equal to adjacent plants or trees of the same kind. Replacements required because of vandalism, excessive use or other causes beyond the control of the Contractor are not part of this contract.

4.3 ACCEPTANCE

A. Before acceptance of seeding performed for the establishment of permanent vegetation, Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and winter weather and be capable of reestablishment in spring.

B. A minimum coverage of 80% density over 100% of the disturbed area is required for seeded areas before project acceptance. Sprig and sod areas shall have 95 % coverage over 100% of the disturbed area prior project acceptance.

END OF SECTION

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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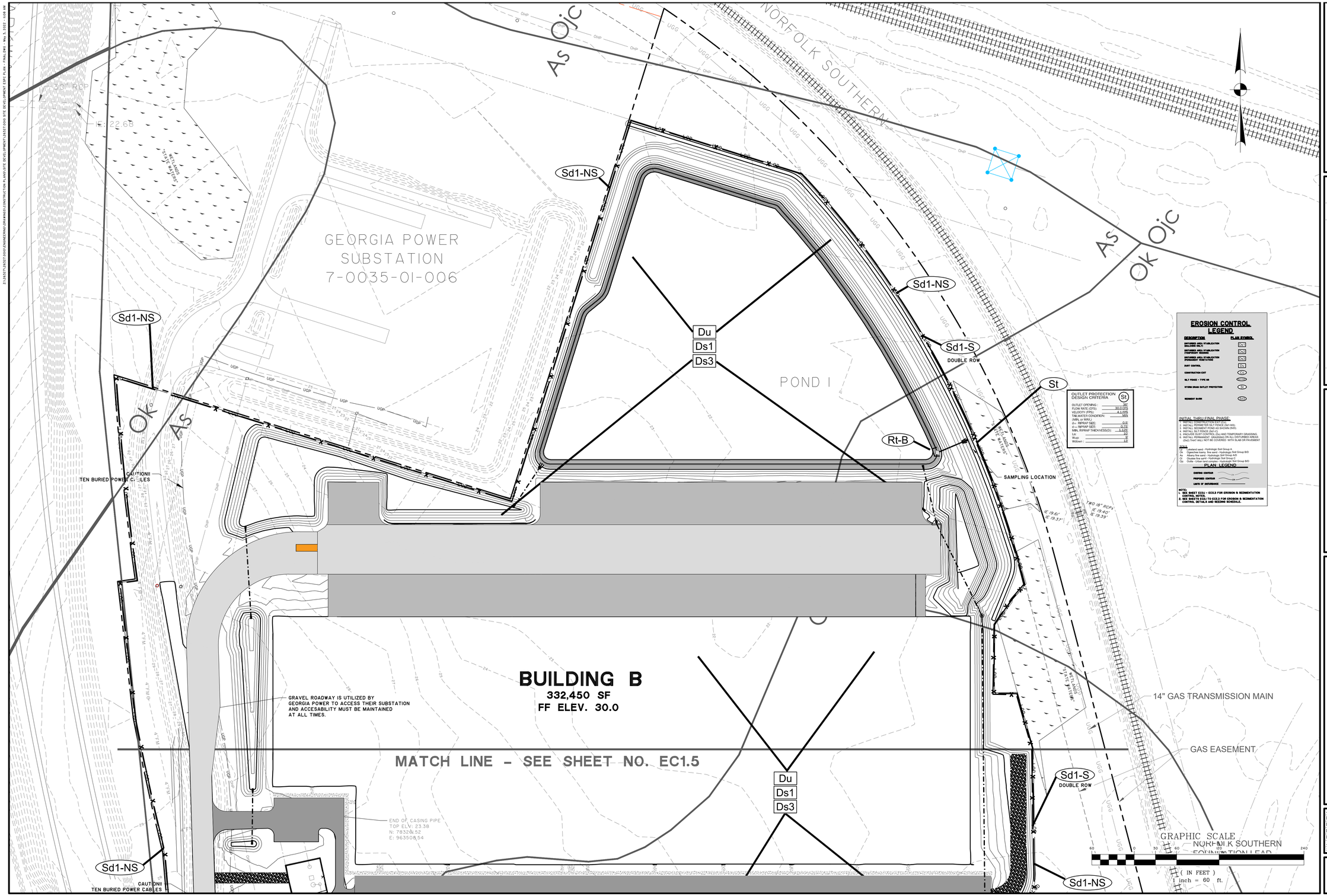
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

GRASSING SPECIFICATIONS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	NO SCALE

L2.3



PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

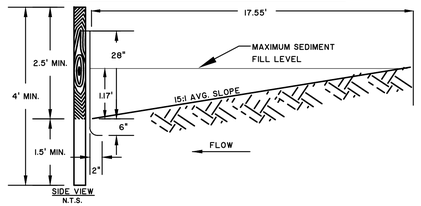
FINAL ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

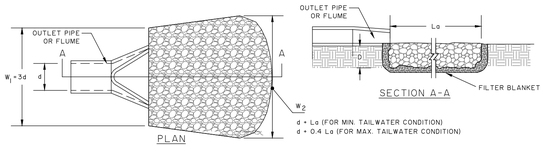
EC1.6

Z:\2020\26283000\Engineering\Drawings\Construction Plans\26283000 - Erosion Control Details.dwg - Mar 24, 2020 - 10:32:25 AM

STORAGE VOLUME PER LINEAR FOOT OF SILT FENCE



PIPE (OR FLUME) TO FLAT AREA - NO WELL-DEFINED CHANNEL



d = Lo (FOR MIN. TAILWATER CONDITION)
d = 0.4 Lo (FOR MAX. TAILWATER CONDITION)

NOTES:
1. L_o = LENGTH THE RIP-RAP APRON
2. d = OUTLET PIPE DIAMETER
3. d_{50} = AVERAGE RIP RAP STONE DIAMETER
5. d_{MAX} = MAXIMUM RIP RAP STONE DIAMETER = 1.5 TIMES d_{50}
6. D = RIP RAP APRON DEPTH = 1.5 TIMES d_{MAX} BUT NOT LESS THAN 6"
7. W_1 = UPSTREAM RIP RAP APRON WIDTH = 3d
8. W_2 = DOWNSTREAM RIP RAP APRON WIDTH, SEE DETAIL
7. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
8. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIP-RAP AND SOIL FOUNDATION.
9. INSPECT RIP RAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIP RAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

STORM DRAIN OUTLET PROTECTION FOR PIPE OR CONCRETE FLUME

NOT TO SCALE

St

Table 1. Mulching Application Requirements

Material	Rate	Depth
Straw or hay	-	2" to 4"
Wood waste, chips, sawdust, bark	-	2" to 3"
Polyethylene film	Secure with soil, anchors, weights	-
Geotextiles, jute matting, netting, etc.	See manufac-turer's recom-mentations	-

Ds1

SEEDING RATES FOR TEMPORARY & PERMANENT COVER

MONTH	TEMPORARY COVER	RATE PER ACRE: SEEDED ALONE	RATE PER ACRE: ADDED TO MIX	PERMANENT COVER	RATE PER ACRE: SEEDED ALONE	RATE PER ACRE: ADDED TO MIX
JANUARY	* LESPEDEZA, ANNUAL * RYE * RYEGRASS, ANNUAL * WHEAT	40 lbs. 3 bu. 40 lbs. 3 bu.	10 lbs. .5 bu. - .5 bu.	* BAHIA, PENSACOLA BERMUDA, UNHULLED CENTIPEDE, SOD LESPEDEZA, SERICEA 1	60 lbs. 10 lbs. - 75 lbs.	30 lbs. 6 lbs. - -
FEBUARY	LESPEDEZA, ANNUAL * LOVEGRASS, WEEPING * RYE * RYEGRASS, ANNUAL	40 lbs. 4 lbs. 3 bu. 40 lbs.	10 lbs. 2 lbs. .5 bu. -	* BAHIA, PENSACOLA CENTIPEDE, SOD LESPEDEZA, SEDICEA 1 * LESPEDEZA, SEDICEA 2 * LOVEGRASS, WEEPING	60 lbs. - 75 lbs. 75 lbs. 4 lbs.	30 lbs. - - - 2 lbs.
MARCH	* LESPEDEZA, ANNUAL LOVEGRASS, WEEPING * RYEGRASS, ANNUAL * SUDANGRASS	40 lbs. 4 lbs. 40 lbs. 60 lbs.	10 lbs. 2 lbs. - -	BAHIA, PENSACOLA BERMUDA, UNHULLED CENTIPEDE, SOD * LESPEDEZA, SEDICEA 1 LESPEDEZA, SEDICEA 2 LOVEGRASS, WEEPING	60 lbs. 10 lbs. - 75 lbs. 75 lbs. 4 lbs.	30 lbs. 6 lbs. - - - 2 lbs.
APRIL	LOVEGRASS, WEEPING MILLET, BROWNTOP * MILLET, PEARL SUDANGRASS	4 lbs. 40 lbs. 50 lbs. 60 lbs.	2 lbs. 10 lbs. - -	BAHIA, PENSACOLA BERMUDA, HULLED CENTIPEDE, SOD * LESPEDEZA, SEDICEA 1 LESPEDEZA, SEDICEA 2 LOVEGRASS, WEEPING	60 lbs. 10 lbs. - 75 lbs. 75 lbs. 4 lbs.	30 lbs. 6 lbs. - - - 2 lbs.
MAY	LOVEGRASS, WEEPING MILLET, BROWNTOP MILLET, PEARL SUDANGRASS	4 lbs. 40 lbs. 50 lbs. 60 lbs.	2 lbs. 10 lbs. - -	BAHIA, PENSACOLA BERMUDA, HULLED CENTIPEDE, SOD * LESPEDEZA, SEDICEA 1 LESPEDEZA, SEDICEA 2 LOVEGRASS, WEEPING	60 lbs. 10 lbs. - 75 lbs. 75 lbs. 4 lbs.	30 lbs. 6 lbs. - - - 2 lbs.
JUNE	* LOVEGRASS, WEEPING MILLET, BROWNTOP MILLET, PEARL SUDANGRASS	4 lbs. 40 lbs. 50 lbs. 60 lbs.	2 lbs. 10 lbs. - -	BAHIA, PENSACOLA * BERMUDA, UNHULLED * LESPEDEZA, SEDICEA 1 * LESPEDEZA, SEDICEA 2 * LOVEGRASS, WEEPING	60 lbs. 10 lbs. 75 lbs. 75 lbs. 4 lbs.	30 lbs. 6 lbs. - - 2 lbs.

SEEDING RATES FOR TEMPORARY & PERMANENT COVER

MONTH	TEMPORARY COVER	RATE PER ACRE: SEEDED ALONE	RATE PER ACRE: ADDED TO MIX	PERMANENT COVER	RATE PER ACRE: SEEDED ALONE	RATE PER ACRE: ADDED TO MIX
JULY	* MILLET, BROWNTOP MILLET, PEARL SUDANGRASS	40 lbs. 50 lbs. 60 lbs.	10 lbs. - -	* BAHIA, PENSACOLA * LESPEDEZA, SEDICEA 1	60 lbs. 75 lbs.	30 lbs. -
AUGUST	* MILLET, PEARL * RYEGRASS, ANNUAL	50 lbs. 40 lbs.	- -	* BAHIA, PENSACOLA * LESPEDEZA, SEDICEA 1	60 lbs. 75 lbs.	30 lbs. -
SEPTEMBER	* BARLEY * OATS * RYE RYEGRASS, ANNUAL * WHEAT	3 bu. 4 bu. 3 bu. 40 lbs. 3 bu.	.5 bu. 1 bu. .5 bu. - .5 bu.	* BAHIA, PENSACOLA LESPEDEZA, SEDICEA 1	60 lbs. 75 lbs.	30 lbs. -
OCTOBER	BARLEY OATS RYE RYEGRASS, ANNUAL WHEAT	3 bu. 4 bu. 3 bu. 40 lbs. 3 bu.	.5 bu. 1 bu. .5 bu. - .5 bu.	* BAHIA, PENSACOLA LESPEDEZA, SEDICEA 1	60 lbs. 75 lbs.	30 lbs. -
NOVEMBER	BARLEY OATS RYE RYEGRASS, ANNUAL WHEAT	3 bu. 4 bu. 3 bu. 40 lbs. 3 bu.	.5 bu. 1 bu. .5 bu. - .5 bu.	* BAHIA, PENSACOLA BERMUDA, UNHULLED CENTIPEDE, SOD LESPEDEZA, SEDICEA 1	60 lbs. 10 lbs. - 75 lbs.	30 lbs. 6 lbs. - -
DECEMBER	BARLEY OATS RYE RYEGRASS, ANNUAL WHEAT	3 bu. 4 bu. 3 bu. 40 lbs. 3 bu.	.5 bu. 1 bu. .5 bu. - .5 bu.	* BAHIA, PENSACOLA BERMUDA, UNHULLED CENTIPEDE, SOD LESPEDEZA, SEDICEA 1	60 lbs. 10 lbs. - 75 lbs.	30 lbs. 6 lbs. - -

NOTES
ALL PERMANENT GRASS PLANTINGS SHALL BE MULCHED
** INDICATES MARGINAL (BUT PERMISSIBLE) PLANTING DATE*
1. UNSCARIFIED
2. SCARIFIED
3. CENTIPEDE SOD CAN BE USED AS PERMANENT COVER ANYTIME EXCEPT JUNE THRU OCTOBER

Table 2. Fertilizer Requirements for Temporary Vegetation

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./acre)	N Top Dressing Rate (lbs./acre)
Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 1000 400	50-100 --- 30
Cool seasn grasses & legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	0-50 --- ---
Temporary cover crops seeded alone	First	10-10-10	500	30
Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30

- Apply agricultural lime at the rate determined by soil test pH.

Table 2. Fertilizer Requirements for Permanent Vegetation

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./ acre)	N Top Dressing Rate (lbs./acre)
Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 1000 400	50-100 --- 30
Cool grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	0-50 --- ---
Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30
Warm season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	50 --- ---

- Apply agricultural lime at a rate of 1-2 tons/ acre unless soil tests indicate otherwise.

DUST CONTROL

DEFINITION: CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON LAND-DISTURBING ACTIVITIES.

PURPOSE: PREVENT THE MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES AND PREVENT THE MOVEMENT OF AIRBORNE SUBSTANCES THAT MAY BE HARMFUL TO HEALTH.

TEMPORARY METHODS	PERMANENT METHODS
- MULCHES - TEMPORARY VEGETATIVE COVER - SPRAY ON ADHESIVES - TILLAGE - IRRIGATION - BARRIERS - CALCIUM CHLORIDE	- PERMANENT VEGETATION - TOPSOILING - STONE COVER

INSTALLATION:
APPLY ACCORDING TO APPROVED PLAN, IF SHOWN. MULCH DISTURBED AREAS AND TACKIFY WITH REDSINS SUCH AS ASPHALT, CURASOL OR TERRATACK ACCORDING TO MANUFACTURES RECOMMENDATIONS. STABILIZE DISTURBED AREAS WITH TEMPORARY OR PERMANENT VEGETATION. COVER SURFACES WITH CRUSHED STONE OR GRAVEL. APPLY CALCIUM CHLORIDE AT A RATE TO KEEP SURFACES MOIST. APPLY SPRAY-ON ADHESIVES TO MINERAL SOILS (NOT MUCK SOILS AS DESCRIBED IN TABLE I.

TABLE I. SPRAY-ON ADHESIVE APPLICATION REQUIREMENTS

ADHESIVE	WATER DILUTION	NOZZLE TYPE	APPLICATION (GAL / ACRE)
ANIONIC ASPHALT EMULSION	7:1 *	COARSE SPRAY	1,200
LATEX EMULSION	12.5:1 *	FINE SPRAY	235
RESIN-IN-WATER EMULSION	4:1 *	FINE SPRAY	300

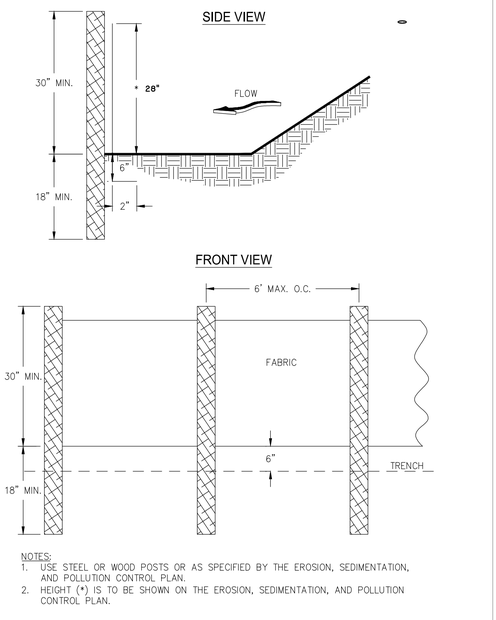
MAINTENANCE:
PROHIBIT TRAFFIC ON SURFACE AFTER SPRAYING.
SUPPLEMENT SURFACE COVERING AS NEEDED.

Du

DUST CONTROL

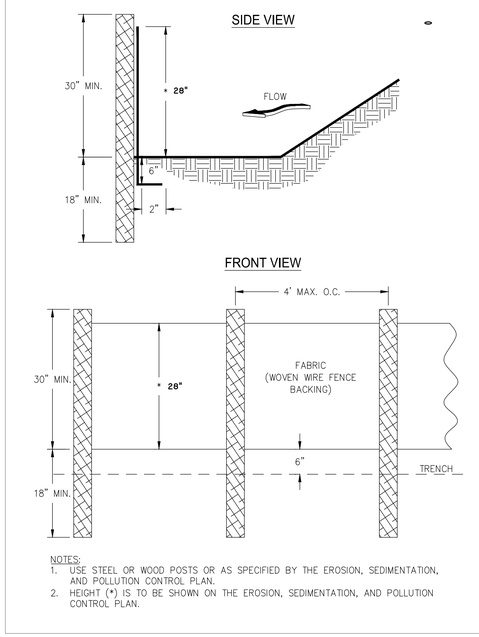
NOT TO SCALE

SILT FENCE - TYPE NON-SENSITIVE



NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

SILT FENCE - TYPE SENSITIVE



NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

GEORGIA REGISTERED No. 032372 PROFESSIONAL ENGINEER JASON CRME CHAMBLESS

JASON O. CHAMBLESS
GA PE LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #
0000055539
EXPIRES: 9/12/23

NO.	REVISIONS	BY	DATE
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PERMIT SET - FOR REVIEW PURPOSES ONLY

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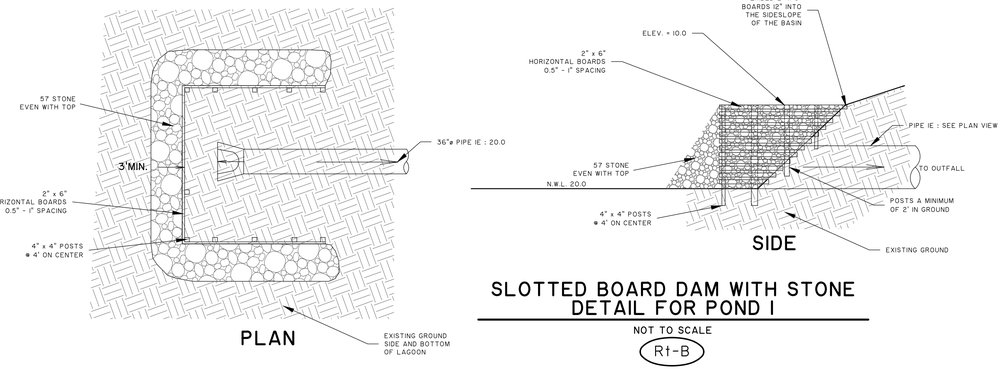
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL DETAILS

JOB NO:	J-26327.000
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	NOT TO SCALE

EC2.1



SLOTTED BOARD DAM WITH STONE DETAIL FOR POND 1

NOT TO SCALE

R1-B

SILT FENCE MAINTENANCE

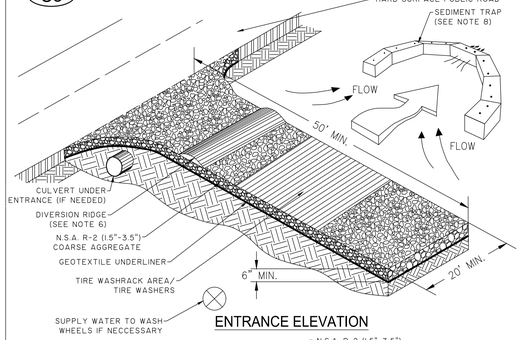
MAINTENANCE

- Remove the sediment once it has accumulated to one-half the original height of the barrier.
- Replace barrier whenever it has deteriorated to such an extent that the effectiveness of the product is reduced (~ 6 months) or the height of the product is not maintaining 80% of its properly installed height.
- Remove and dispose of all accumulated sediment at the barrier before it is removed.
- Leave in place until all disturbed areas are permanently stabilized.

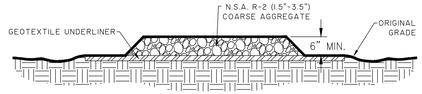
CRUSHED STONE CONSTRUCTION EXIT

Co

EXIT DIAGRAM



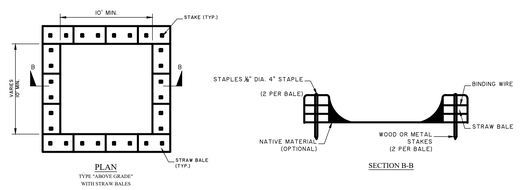
ENTRANCE ELEVATION



NOTES:

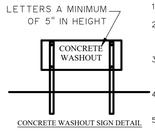
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

STRAW BALE BARRIER CONCRETE WASHOUT



NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. INSTALL CONCRETE WASHOUT SIGN (24"X24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.
4. CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.
5. THE KEY TO FUNCTIONAL CONCRETE WASHOUTS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR CLEAN OUT.
6. SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF CONCRETE WASHOUT AREA EXCEPT FOR THE SIDE UTILIZED FOR ACCESSING THE WASHOUT.
7. A ROCK CONSTRUCTION ENTRANCE MAY BE NECESSARY ALONG ONE SIDE OF THE WASHOUT TO PROVIDE VEHICLE ACCESS.



CONCRETE WASHOUT SIGN DETAIL

STORAGE CALCULATIONS PROPOSED POND

1. REQUIRED STORMWATER STORAGE = 2,379 CY (SEDIMENT STORAGE BELOW N.W.L.)
2. REQUIRED SEDIMENT STORAGE = 2,379 CY
   (67 CY/AC X 35.5 AC. DISTURBED AREA)
3. TOTAL REQUIRED STORAGE = 0 + 2,379 = 2,379 CY
4. AVAILABLE STORAGE = 51,340 CY
5. IS THE AVAILABLE STORAGE (4) GREATER THAN THE TOTAL REQUIRED STORAGE (3)
   X YES _____ NO
6. IF "NO", THE SEDIMENT STORAGE CAPACITY OF THE POND MUST BE INCREASED. CHOOSE THE METHOD TO BE USED:
   N/A RAISE THE INVERT OF THE OUTLET STRUCTURE ____ INCHES
   N/A UNDERCUT THE POND ____ FEET
   _____ OTHER
7. CLEAN-OUT ELEVATION = VARIES FEET (SEE IE)
   (ELEVATION CORRESPONDING TO 45 CY/AC * 35.5 AC OF DISTURBED AREA)
8. IS THE LENGTH-WIDTH RATIO 2:1 OR GREATER?
   X YES ____ NO
9. IF "NO", THE LENGTH OF FLOW MUST BE INCREASED. CHOOSE THE METHOD TO BE USED:
   N/A BAFFLES (TYPE OF BAFFLE: _____)
   N/A OTHER _____

NOTE THE CMP DIAMETER AND HEIGHT IF A HALF-ROUND CMP RETROFIT IS TO BE USED.
DIAMETER = N/A INCHES HEIGHT = N/A FEET

DEFINITION

Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

CONDITIONS

Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, anchored, and have a continuous 90% cover or greater of the soil surface. Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months. If an area will remain undisturbed for greater than six months, permanent vegetative techniques shall be employed.

SPECIFICATIONS

MULCHING WITHOUT SEEDING

This standard applies to grades or cleared areas where seedings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

Site Preparation

1. Grade to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. Loosen compact soil to a minimum depth of 3 inches.

Mulching Materials

Select one of the following materials and apply at the depth indicated:

1. Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
3. Cutback asphalt (slow curing) shall be applied at 1200 gallons per acre (or 1/4 gallon per sq.yd.).
4. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and reused.

Applying Mulch

When mulch is used without seeding, mulch shall be applied to provide full coverage of the exposed area.
1. Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanicalequipment.
2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
3. Cutback asphalt shall be applied uniformly. Care should be taken in areas of pedestrian traffic due to problems of 'tracking in" or damage to shoes, clothing, etc.
4. Apply polyethylene film on exposed areas.

Anchoring Mulch

1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately
after application. Straw or hay mulch spread with special blower-type equipment may be anchored with emulsified asphalt (Grade AE-5 or SS-1). The asphalt emulsion shall be sprayed onto the mulch as it is ejected from the machine. Use
100 gallons of emulsified asphalt and 100 gallons of water per ton of mulch. Tackifers and binders can be substituted for emulsified asphalt. Please refer to specification Tb -Tackifers and Binders. Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's specifications.
2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.
3. Polyethylene film shall be anchor trenched at the top as well as incrementally as necessary.

Ds1 DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)

GEORGIA REGISTERED LANDSCAPE ARCHITECT No. 003372 PROFESSIONAL Expires 08/31/2023 JASON CHANDLESS

JASON O. CHAMBLESS
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #
0000055539
EXPIRES: 9/12/23

NO.	REVISIONS	BY	DATE

PERMIT SET - FOR REVIEW PURPOSES ONLY

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Savannah, GA 31405 • 912.234.5300
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	NOT TO SCALE

EC2.2

Z:\2020\26327.0010\Engineering\Drawings\Construction Plans\26327.0010 - Erosion Control Details.dwg - Mar 24, 2020 - 10:26:25 AM

C:\R\237\2837500\ARGNE\Temp\2837500_ARGNE_CONSTRUCTION PLANS\SITE DEVELOPMENT\2837500_SITE DEVELOPMENT EROSION CONTROL DETAILS.DWG - May 5, 2022 - 9:09 AM

DEFINITION

The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

CONDITIONS

Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established.
eeded.

SEEDING RATES FOR TEMPORARY SEEDING

SPECIES	RATE Per 1,000 sq.ft.	RATE Per Acre *	PLANTING DATES **
Rye	3.9 pounds	3 bu.	9/1-3/1
Ryegrass	0.9 pound	40 lbs.	8/15-4/1
Annual Lespedeza	0.9 pound	40 lbs.	1/15-3/15
Weeping Lovegrass	0.4 pound	4 lbs.	2/15-6/15
Sudangrass	1.4 pounds	60 lbs.	**3/1-8/1**
Browntop Millet	0.9 pound	40 lbs.	**4/1-7/15**
Wheat	4.1 pounds	3 bu.	9/15-2/1

* Unusual site conditions may require heavier seeding rates
** Seeding dates may need to be altered to fit temperture variations and conditions.

Ds2 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

SPECIFICATIONS

Grading and Shaping

Excessive water run-off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others.

No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

Seedbed Preparation

When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or handseeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

Lime and Fertilizer

Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate of one ton per acre. Graded areas require lime application. Soils can be tested to determine if fertilizer is needed. On reasonably fertile soils or soil material, fertilizer is not required. For soils with very low fertility, 500 to 700 pounds of 10-10-10 fertilizer or the equivalent per acre (12-16 lbs./1,000 sq. ft.) shall be applied. Fertilizer should be applied before land preparation and incorporated with a disk, ripper or chisel.

Seeding

Select a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, cultipacker seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one-quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand.

Mulching

Temporary vegetation can, in most cases, be established without the use of mulch. Mulch without seeding should be considered for short term protection. Refer to Ds1 - Disturbed Area Stabilization (With Mulching Only).

Irrigation

During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

DEFINITION

The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization..

CONDITIONS

Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

SPECIFICATIONS

Grading and Shaping

Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

oncentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

Seedbed Preparation

Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used. When conventional seeding is to be used, seedbed preparation will be done as follows:

Broadcast plantings

1. Tillage at a minimum, shall adequately loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.
2. Tillage may be done with any suitable equipment.
3. Tillage should be done on the contour where feasible.

Ds3 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

4. On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate hand tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used.

Individual Plants

1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
3. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Planting

Hydraulic Seeding

Mix the seed (innoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

Conventional Seeding

Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a cultipacker seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cultipacker or other suitable equipment.

No-Till Seeding

No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

Individual Plants

Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots. Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface. Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, two inches of soil shall be added and the plant shall be set in the hole.

Mulching

Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% soil cover. Select the mulching material from the following and apply as indicated:

1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Drystraw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.
4. Sericea lespedeza hay containing mature seed shall be applied at a rate of three tons per acre.
5. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or block sod, mulch is not required.
7. Bituminous treated roving may be applied on planted areas on slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch

Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. Mulch shall be applied to cover 75% of the soil surface.

Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchoring Mulch

Anchor straw or hay mulch immediately after application by one of the following methods:
1. Emulsified asphalt can be (a) sprayed uniformly onto the mulch as it is ejected from the blower machine or (b) sprayed on the mulch immediately following mulch application when straw or hay is spread by methods other than special blower equipment.

The combination of asphalt emulsion and water shall consist of a homogeneous mixture satisfactory for spraying. The mixture shall consist of 100 gallons of grade SS-1h or CSS-1h emulsified asphalt and 100 gallons of water per ton of mulch.
Care shall be taken at all times to protect state waters, the public, adjacent property, pavements, curbs, sidewalks, and all other structures from asphalt discoloration.
2. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "packer disk" or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.
3. Synthetic tackifiers or binders approved by GDOT shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. Refer to Tb - Tackifiers and Binders.
4. Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of one-quarter to one half bushel per acre.
5. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Irrigation

Irrigation shall be applied at a rate that will not cause runoff.

SEEDING RATES FOR PERMANENT SEEDING

SPECIES	RATE Per 1,000 sq.ft.	RATE Per Acre *	PLANTING DATES **
BAHIA	1.4 POUNDS	60 LBS.	1/1-12/31
BERMUDA	0.2 POUND	10 LBS.	2/15-7/1
CENTIPEDE	BLOCK SOD ONLY	BLOCK SOD ONLY	4/1-7/1
LESPEDEZA	1.7 POUNDS	75 LBS.	1/1-12/31
WEEPING LOVE GRASS	0.4 POUND	4 LBS.	2/1-6/15
SWITCH GRASS	0.9 POUND	40 LBS.	3/15-6/1

* Unusual site conditions may require heavier seeding rates
** Seeding dates may need to be altered to fit temperature variations and conditions.

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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		---	---

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50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
5 Concourse Pkwy, Suite 2600
Atlanta, GA 30328 • 770.391.9100
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA
BUILDING #2
EROSION CONTROL DETAILS

JOB NO:	J-28219.0004
DATE:	04/30/21
DRAWN:	MLM
DESIGNED:	SSF
REVIEWED:	JOC
APPROVED:	JOC
SCALE:	NOT TO SCALE

EC2.3

MATCH LINE - SEE SHEET NO. L1.2

L1.4

L1.5

L1.2

L1.3

L1.1

BUILDING B
332,450 SF
FF ELEV. 30.0

BUILDING A
106,250 SF
FF ELEV. 32.0

STORMWATER
DETENTION POND 1
3H:1V SIDESLOPES (TYP. ABOVE ELEV. 15
1H:1V SIDESLOPES FROM ELEV. 10 TO 19))
BOTTOM 10.0'
NWL 10.00'
TOP 14.0'
25-YR 22.81'
50-YR 23.48'
100-YR 23.92'

JIMMY DELOACH PKWY

CROSSGATE RD.

GRAPHIC SCALE
100 0 50 100 200.000 400.000
(IN FEET)
1 inch = 100 ft.

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

OVERALL LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	1" = 100'

L1.0

MATCH LINE - SEE SHEET NO. L1.2

BUILDING A

106,250 SF

FF ELEV. 32.0

PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
6	LIM	Lagerstroemia indica 'Muskogee'	'Muskogee' Crape Myrtle	B & B OR CONT. ; 10 - 12' HT.	AS SHOWN	Specimen, multi-trunk, 3 trunk min
15	MGBB	Magnolia grandiflora 'Bracken's Brown Beauty'	'Bracken's Brown Beauty' Southern Magnolia	B & B OR CONT. ; 6 - 8' HT.	AS SHOWN	Specimen, Full to Ground
58	QP	Quercus phellos	Willow Oak	B & B OR CONT. ; 3" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen
94	TD	Taxodium distichum	Bald Cypress	B & B OR CONT. ; 2.5" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen

SHRUBS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
278	AZE	Azalea x 'Conlee' PP#10567	Encore Azalea Autumn Amethyst™	CONT. ; 18" X 18"	AS SHOWN	Full to Ground
102	CGD	Distylium 'Cinnamon Girl' PP #027631	Cinnamon Girl Distylium	CONT. ; 18" X 18"	AS SHOWN	Full
296	ICBN	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	5 GAL. ; 24" X 24"	AS SHOWN	Full to ground and well formed
416	ILVN	Ilex vomitoria 'Nana'	Dwarf Youpon Holly	CONT. ; 24" X 24"	AS SHOWN	Full & Vigorous
33	MYRC	Myrica cerifera	Wax Myrtle	CONT. ; 36" X 36"	AS SHOWN	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
794	LIBB	Liriope muscari 'Big Blue'	Big Blue Liriope	CONT. ; 6" X 10"	18"	Full and well formed
141	LOMD	Lomandra longifolia 'LM300' P.P. #15420	Dwarf Mat Rush	CONT. ; 6" X 10"	3'	Full
98	MUHC	Muhlenbergia capillaris	Pink Muhly Grass	CONT. ; 6" X 10"	3'	Full
443	PENA	Pennisetum alopecuroides 'Hameln'	Fountain Grass	CONT. ; 6" X 10"	3'	Full
1947	SPAR	Spartina bakeri	Cord Grass	CONT. ; 6" X 10"	5'	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
157,000 SF	SOD	Cynodon dactylon 'Tif-Tuff'	Tif-Tuff Bermudagrass	----------	12"	Dense roots, measure in sqaure feet

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

EXISTING VEGETATION TO REMAIN, TYP.

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

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OVERHEAD POWER LINE, TYP.

JIMMY DELOACH PKWY

CROSSGATE RD.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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THOMAS & HUTTON

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	1" = 30'

L1.1

MATCH LINE - SEE SHEET NO. L1.4

MATCH LINE - SEE SHEET NO. L1.3

BUILDING B

332,450 SF

FF ELEV. 30.0

PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
6	LIM	Lagerstroemia indica 'Muskogee'	'Muskogee' Crape Myrtle	B & B OR CONT. ; 10 - 12' HT.	AS SHOWN	Specimen, multi-trunk, 3 trunk min
15	MGBB	Magnolia grandiflora 'Bracken's Brown Beauty'	'Bracken's Brown Beauty' Southern Magnolia	B & B OR CONT. ; 6 - 8' HT.	AS SHOWN	Specimen, Full to Ground
58	QP	Quercus phellos	Willow Oak	B & B OR CONT. ; 3" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen
94	TD	Taxodium distichum	Bald Cypress	B & B OR CONT. ; 2.5" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen

SHRUBS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
278	AZE	Azalea x 'Conlee' PP#10567	Encore Azalea Autumn Amethyst™	CONT. ; 18" X 18"	AS SHOWN	Full to Ground
102	CGD	Distylium 'Cinnamon Girl' PP #027631	Cinnamon Girl Distylium	CONT. ; 18" X 18"	AS SHOWN	Full
296	ICBN	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	5 GAL. ; 24" X 24"	AS SHOWN	Full to ground and well formed
416	ILVN	Ilex vomitoria 'Nana'	Dwarf Youpon Holly	CONT. ; 24" X 24"	AS SHOWN	Full & Vigorous
33	MYRC	Myrica cerifera	Wax Myrtle	CONT. ; 36" X 36"	AS SHOWN	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
794	LIBB	Liriope muscari 'Big Blue'	Big Blue Liriope	CONT. ; 6" X 10"	18"	Full and well formed
141	LOMD	Lomandra longifolia 'LM300' P.P. #15420	Dwarf Mat Rush	CONT. ; 6" X 10"	3'	Full
98	MUHC	Muhlenbergia capillaris	Pink Muhly Grass	CONT. ; 6" X 10"	3'	Full
443	PENA	Pennisetum alopecuroides 'Hameln'	Fountain Grass	CONT. ; 6" X 10"	3'	Full
1947	SPAR	Spartina bakeri	Cord Grass	CONT. ; 6" X 10"	5'	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
157,000 SF	SOD	Cynodon dactylon 'Tif-Tuff'	Tif-Tuff Bermudagrass	----------	12"	Dense roots, measure in square feet

EXISTING VEGETATION TO REMAIN, TYP.

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

GRAPHIC SCALE

(IN FEET)

1 inch = 30 ft.

MATCH LINE - SEE SHEET NO. L1.1

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	1" = 30'

L1.2

J:\26327\DESIGN\LANDSCAPE ARCHITECTURE\DRAWINGS\CONSTRUCTION PLANS\26327-DOOLA-PLAN.DWG - May 5, 2022 - 7:11 AM

MATCH LINE – SEE SHEET NO. L1.2

MATCH LINE – SEE SHEET NO. L1.5

QP 1

RAMP 1

ILVN 15

ILVN 14

ILVN 14

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

ILVN 14 | ILVN 14 | ILVN 13 | ILVN 10 | ILVN 31

ICBN 10 / AZE 10 | ICBN 13 / AZE 10 | ICBN 10 / AZE 10 | ICBN 10 | AZE 10 | ICBN 10 | AZE 10 | ICBN 10 | AZE 10 | QP 1 / ICBN 13

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

ICBN 10 | AZE 8

EXISTING VEGETATION TO REMAIN, TYP.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET) 1 inch = 30 ft.

PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
6	LIM	Lagerstroemia indica 'Muskogee'	'Muskogee' Crape Myrtle	B & B OR CONT. ; 10 - 12' HT.	AS SHOWN	Specimen, multi-trunk, 3 trunk min
15	MGBB	Magnolia grandiflora 'Bracken's Brown Beauty'	'Bracken's Brown Beauty' Southern Magnolia	B & B OR CONT. ; 6 - 8' HT.	AS SHOWN	Specimen, Full to Ground
58	QP	Quercus phellos	Willow Oak	B & B OR CONT. ; 3" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen
94	TD	Taxodium distichum	Bald Cypress	B & B OR CONT. ; 2.5" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen

SHRUBS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
278	AZE	Azalea x 'Conlee' PP#10567	Encore Azalea Autumn Amethyst™	CONT. ; 18" X 18"	AS SHOWN	Full to Ground
102	CGD	Distylium 'Cinnamon Girl' PP #027631	Cinnamon Girl Distylium	CONT. ; 18" X 18"	AS SHOWN	Full
296	ICBN	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	5 GAL. ; 24" X 24"	AS SHOWN	Full to ground and well formed
416	ILVN	Ilex vomitoria 'Nana'	Dwarf Youpon Holly	CONT. ; 24" X 24"	AS SHOWN	Full & Vigorous
33	MYRC	Myrica cerifera	Wax Myrtle	CONT. ; 36" X 36"	AS SHOWN	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
794	LIBB	Liriope muscari 'Big Blue'	Big Blue Liriope	CONT. ; 6" X 10"	18"	Full and well formed
141	LOMD	Lomandra longifolia 'LM300' P.P. #15420	Dwarf Mat Rush	CONT. ; 6" X 10"	3'	Full
98	MUHC	Muhlenbergia capillaris	Pink Muhly Grass	CONT. ; 6" X 10"	3'	Full
443	PENA	Pennisetum alopecuroides 'Hameln'	Fountain Grass	CONT. ; 6" X 10"	3'	Full
1947	SPAR	Spartina bakeri	Cord Grass	CONT. ; 6" X 10"	5'	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
157,000 SF	SOD	Cynodon dactylon 'Tif-Turf'	Tif-Tuff Bermudagrass	----------	12"	Dense roots, measure in sqaure feet

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	1" = 30'

L1.3

PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
6	LIM	Lagerstroemia indica 'Muskogee'	'Muskogee' Crape Myrtle	B & B OR CONT. ; 10 - 12' HT.	AS SHOWN	Specimen, multi-trunk, 3 trunk min
15	MGBB	Magnolia gradiflora 'Bracken's Brown Beauty'	'Bracken's Brown Beauty' Southern Magnolia	B & B OR CONT. ; 6 - 8' HT.	AS SHOWN	Specimen, Full to Ground
58	QP	Quercus phellos	Willow Oak	B & B OR CONT. ; 3" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen
94	TD	Taxodium distichum	Bald Cypress	B & B OR CONT. ; 2.5" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen

SHRUBS

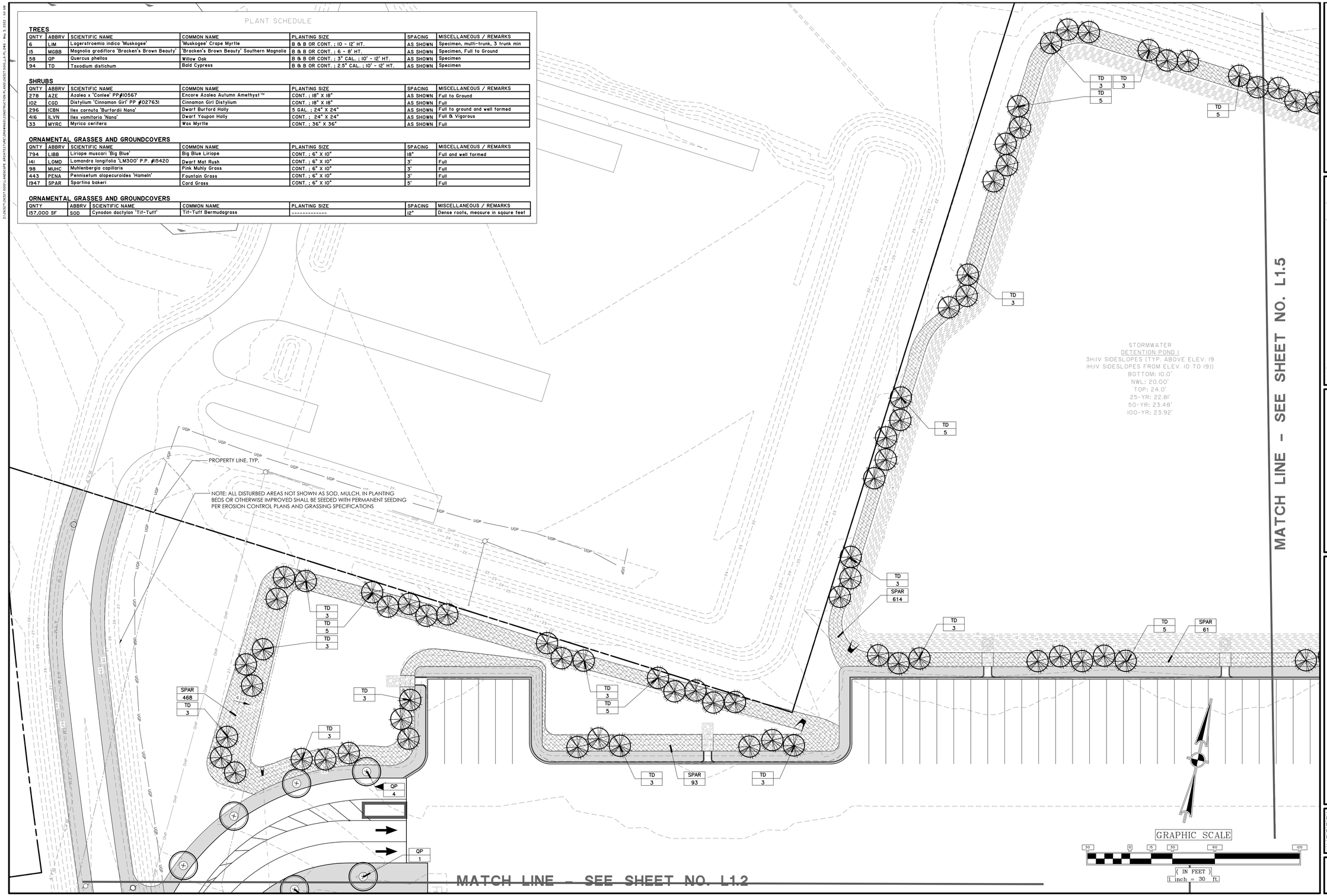
QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
278	AZE	Azalea x 'Conlee' PP#10567	Encore Azalea Autumn Amethyst™	CONT. ; 18" X 18"	AS SHOWN	Full to Ground
102	CGD	Distylium 'Cinnamon Girl' PP #027631	Cinnamon Girl Distylium	CONT. ; 18" X 18"	AS SHOWN	Full
296	ICBN	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	5 GAL. ; 24" X 24"	AS SHOWN	Full to ground and well formed
416	ILVN	Ilex vomitoria 'Nana'	Dwarf Yaupon Holly	CONT. ; 24" X 24"	AS SHOWN	Full & Vigorous
33	MYRC	Myrica cerifera	Wax Myrtle	CONT. ; 36" X 36"	AS SHOWN	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
794	LIBB	Liriope muscari 'Big Blue'	Big Blue Liriope	CONT. ; 6" X 10"	18"	Full and well formed
141	LOMD	Lomandra longifolia 'LM300' P.P. #15420	Dwarf Mat Rush	CONT. ; 6" X 10"	3'	Full
98	MUHC	Muhlenbergia capillaris	Pink Muhly Grass	CONT. ; 6" X 10"	3'	Full
443	PENA	Pennisetum alopecuroides 'Hameln'	Fountain Grass	CONT. ; 6" X 10"	3'	Full
1947	SPAR	Spartina bakeri	Cord Grass	CONT. ; 6" X 10"	5'	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
157,000 SF	SOD	Cynodon dactylon 'Tif-Tuff'	Tif-Tuff Bermudagrass	----------	12"	Dense roots, measure in sqaure feet



PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
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DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	1" = 30'

L1.4

J:\26327\003\LANDSCAPE ARCHITECTURAL\PLANS\CONSTRUCTION PLANS\26327-LOD2_LA-PLAN - May 5, 2022 - 8:11 AM

PROPERTY LINE, TYP.

STORMWATER
DETENTION POND 1
3H:1V SIDESLOPES (TYP. ABOVE ELEV. 19
1H:1V SIDESLOPES FROM ELEV. 10 TO 19))
BOTTOM: 10.0'
NWL: 20.00'
TOP: 24.0'
25-YR: 22.81'
50-YR: 23.48'
100-YR: 23.92'

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
6	LIM	Lagerstroemia indica 'Muskogee'	'Muskogee' Crape Myrtle	B & B OR CONT. ; 10 - 12' HT.	AS SHOWN	Specimen, multi-trunk, 3 trunk min
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58	QP	Quercus phellos	Willow Oak	B & B OR CONT. ; 3" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen
94	TD	Taxodium distichum	Bald Cypress	B & B OR CONT. ; 2.5" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen

SHRUBS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
278	AZE	Azalea x 'Conlee' PP#10567	Encore Azalea Autumn Amethyst™	CONT. ; 18" X 18"	AS SHOWN	Full to Ground
102	CGD	Distylium 'Cinnamon Girl' PP #027631	Cinnamon Girl Distylium	CONT. ; 18" X 18"	AS SHOWN	Full
296	ICBN	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	5 GAL. ; 24" X 24"	AS SHOWN	Full to ground and well formed
416	ILVN	Ilex vomitoria 'Nana'	Dwarf Youpon Holly	CONT. ; 24" X 24"	AS SHOWN	Full & Vigorous
33	MYRC	Myrica cerifera	Wax Myrtle	CONT. ; 36" X 36"	AS SHOWN	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
794	LIBB	Liriope muscari 'Big Blue'	Big Blue Liriope	CONT. ; 6" X 10"	18"	Full and well formed
141	LOMD	Lomandra longifolia 'LM300' P.P. #15420	Dwarf Mat Rush	CONT. ; 6" X 10"	3'	Full
98	MUHC	Muhlenbergia capillaris	Pink Muhly Grass	CONT. ; 6" X 10"	3'	Full
443	PENA	Pennisetum alopecuroides 'Hameln'	Fountain Grass	CONT. ; 6" X 10"	3'	Full
1947	SPAR	Spartina bakeri	Cord Grass	CONT. ; 6" X 10"	5'	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
157,000 SF	SOD	Cynodon dactylon 'Tif-Tuff'	Tif-Tuff Bermudagrass	----------	12"	Dense roots, measure in square feet

NO.	REVISIONS	BY	DATE
---	---	---	---

PERMIT SET - FOR REVIEW PURPOSES ONLY

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

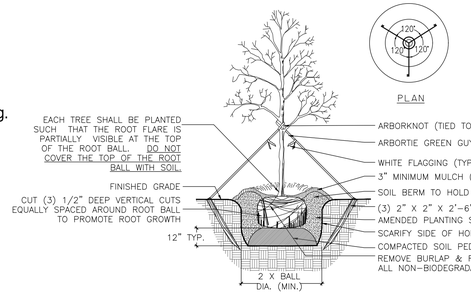
SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	1" = 30'

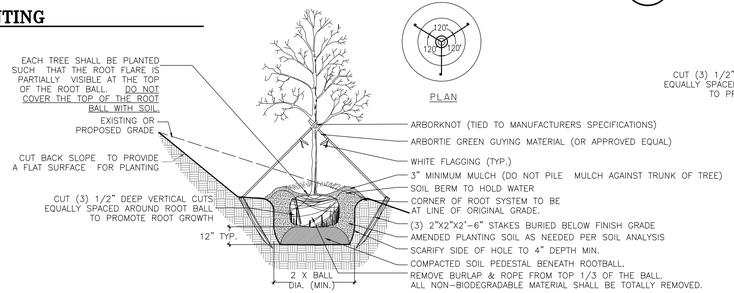
L1.5

Know what's below.
Call before you dig.



NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) ONLY GUY TREES WHEN SITE CONDITIONS REQUIRE IT.
3) PLANT ROOT BALL FLUSH WITH FINISHED GRADE UNLESS AREA HAS POOR DRAINAGE, IN WHICH CASE PLANT ROOTBALL 2" ABOVE GRADE.
4) REMOVE ALL BRANCHES THAT ARE DAMAGED, RUBBING, OR CROSSING OTHER BRANCHES.
5) NEVER CUT A CENTRAL LEADER.
6) FINAL TREE STAKING AND PLACEMENT TO BE APPROVED BY OWNER'S REP.
7) CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

TREE PLANTING
NOT TO SCALE



NOTES:
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4) REMOVE ALL BRANCHES THAT ARE DAMAGED, RUBBING, OR CROSSING OTHER BRANCHES.
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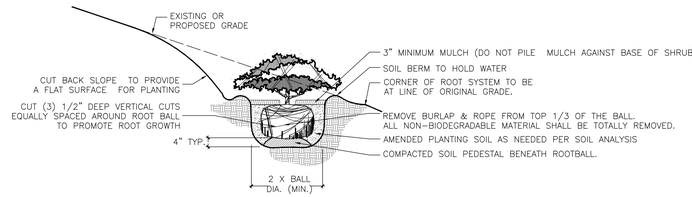
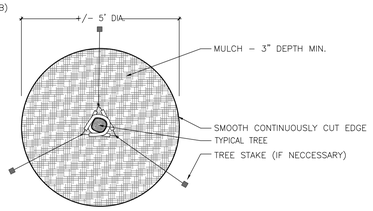
6) FINAL TREE STAKING AND PLACEMENT TO BE APPROVED BY OWNER'S REP.
7) CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

TREE PLANTING ON A SLOPE
NOT TO SCALE



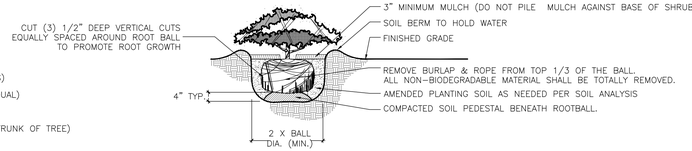
NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) WHEN GROUNDCOVER AND SHRUBS ARE USED IN MASSES, DO NOT FORM SOIL BERMS ON INDIVIDUAL PLANTS AND ENTIRE PLANTING BED SHALL BE EXCAVATED TO RECEIVE PLANTING SOIL AND PLANT MATERIAL.
3) PLANT ROOT BALL FLUSH WITH FINISHED GRADE UNLESS AREA HAS POOR DRAINAGE, IN WHICH CASE PLANT ROOTBALL 2" ABOVE GRADE. COORDINATE WITH OWNER'S REP. PRIOR TO SETTING ROOTBALL ELEVATIONS.
4) CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

SHRUB PLANTING ON A SLOPE
NOT TO SCALE



NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) APPLY MULCH IN A +/- 5' DIAMETER WHERE PROPOSED TREE PLANTINGS OCCUR IN SOD OR SEEDED AREA.

TREE RING
NOT TO SCALE



NOTES:
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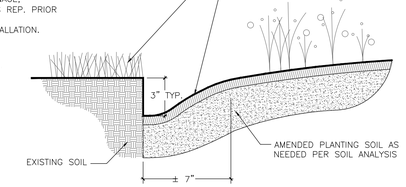
SHRUB PLANTING
NOT TO SCALE



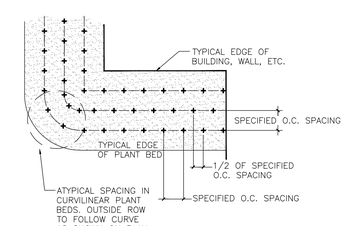
NOTES:
1) TRENCH EDGE TO BE LOCATED BETWEEN PLANTING BEDS AND ALL LAWN AREAS.

SOD TO PLANT BED EDGE
NOT TO SCALE

GENERAL PLANTING / IRRIGATION NOTES:

1. REQUIREMENTS FOR THE MEASUREMENTS, BRANCHING, GRADING, QUALITY, BALLING AND BURLAPPING OF PLANTS IN THE PLANT LIST SHOULD FOLLOW OR EXCEED THE STANDARDS CURRENTLY RECOMMENDED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. IN THE AMERICAN STANDARD FOR NURSERY STOCKS (ASNS). UNLESS OTHERWISE SPECIFIED, ANY SIZE SPECIFIED SHALL BE CONSIDERED MINIMUM. MINIMUMS FOR HEIGHT, SPREAD, CALIPER, ETC. SHALL TAKE PRECEDENT OVER A SPECIFIED CONTAINER SIZE. (I.E. - IF 7 GALLON IS REQUIRED, TO PROVIDE A SPECIFIED HEIGHT OR SPREAD THAT IS SPECIFIED AS A 3 GALLON, THEN THE 7 GALLON SHALL BE SHALL BE REQUIRED AND INCLUDED IN THE BASE BID AND SHALL NOT BE CONSIDERED A CHANGE ORDER.)
2. ALL PLANTS SHALL HAVE A WELL FORMED HEAD WITH MINIMUM CALIPER, HEIGHT AND SPREAD OF THE SIDE BRANCHES AS SHOWN ON THE PLANT LIST. TRUNKS SHALL BE UNDAMAGED AND SHAPE SHALL BE TYPICAL OF THE SPECIES.
3. MEASUREMENT OF CONIFER HEIGHT SHALL INCLUDE NOT MORE THAN FIFTY (50) PER CENT OF THIS YEARS' VERTICAL GROWTH (TOP CANDLE).
4. THE LANDSCAPE CONTRACTOR IS HEREBY NOTIFIED OF THE EXISTENCE OF UNDERGROUND UTILITIES WITHIN THE LIMITS OF THE PROJECT AREA. THE CONTRACTOR SHOULD VERIFY THE EXACT LOCATION OF ALL UTILITY LINES PRIOR TO COMMENCEMENT OF DIGGING OPERATIONS. CONTRACTOR RESPONSIBLE FOR LOCATING, PROTECTING, AND REPAIRING ALL DAMAGE TO BUILDINGS, UTILITIES, PAVEMENT, AND CURB & GUTTER. ANY REPAIRS SHALL BE DONE PROMPTLY AT CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR WILL BE RESPONSIBLE FOR STAKING AND LAYOUT OF PLANTINGS ON THIS PROJECT. THE LANDSCAPE ARCHITECT OR OWNER SHALL BE ADVISED WHEN STAKES ARE READY FOR INSPECTION ON VARIOUS PLANTING AREAS. ALL LAYOUT WORK SHALL BE INSPECTED AND APPROVED BY THE LANDSCAPE ARCHITECT AND OWNER PRIOR TO OPENING ANY PLANTING PITS.
6. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO VERIFY THAT EACH EXCAVATED TREE OR SHRUB PIT WILL PERCOLATE (DRAIN) PRIOR TO ADDING TOPSOIL AND INSTALLING TREES OR SHRUBS. THE CONTRACTOR SHALL FILL THE BOTTOM OF HOLES WITH SIX (6) INCHES OF WATER. THIS WATER SHOULD PERCOLATE WITHIN A TWENTY-FOUR (24) HOUR PERIOD. IF WATER DOESN'T PERC, CONTRACTOR SHALL NOTIFY THE OWNER'S REP PRIOR TO INSTALLING PLANTS.
7. SHOULD THE LANDSCAPE CONTRACTOR ENCOUNTER UNSATISFACTORY SURFACE OR SUBSURFACE DRAINAGE CONDITIONS, SOIL DEPTH, LATENT SOILS, HARD PANS, STEAM OR OTHER UTILITY LINES OR OTHER CONDITIONS THAT WILL JEOPARDIZE THE HEALTH AND VIGOR OF THE PLANTS, HE MUST ADVISE THE LANDSCAPE ARCHITECT IN WRITING OF THE CONDITIONS PRIOR TO INSTALLING THE PLANTS. OTHERWISE, THE LANDSCAPE CONTRACTOR WARRANTS THAT THE PLANTING AREAS ARE SUITABLE FOR PROPER GROWTH AND DEVELOPMENT OF THE PLANTS TO BE INSTALLED.
8. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING UP THE SITE AT THE COMPLETION OF THE PROJECT AND SHALL MAINTAIN THE SITE IN A REASONABLY NEAT AND CLEAN STATE THROUGHOUT THE INSTALLATION PROCESS. STREETS AND PAVED AREAS SHALL BE CLEANED REGULARLY TO REMOVE CONSTRUCTION MATERIALS AND OTHER DEBRIS RESULTING FROM WORK OF THE PROJECT.
9. REPLACEMENTS OF DEAD OR UNSATISFACTORY MATERIAL SHALL BE MADE AS SPECIFIED IN THE PLANT LIST. THE OWNER OR LANDSCAPE ARCHITECT SHALL INSPECT REPLACED PLANTS WHEN ALL REPLACEMENTS HAVE BEEN MADE. REPLACEMENTS ARE TO BE ALIVE AND IN A HEALTHY CONDITION WHEN THE REPLACEMENTS ARE COMPLETE. REPLACEMENTS ARE NOT SUBJECT TO AN ADDITIONAL GUARANTEE, BUT THE LANDSCAPE CONTRACTOR SHALL CONSULT WITH THE LANDSCAPE ARCHITECT ON REASON FOR PLANT DECLINE/DEATH AND HOW TO AVOID FUTURE INSTANCES.
10. SHOULD THE CONTRACTOR NOT MAKE REPLACEMENTS IN A SATISFACTORY AND TIMELY FASHION IN ACCORD WITH THE PLANTING NOTES, THE OWNER, AFTER PROPER NOTIFICATION TO THE CONTRACTOR MAY UTILIZE THE FUNDS OF THE RETAINAGE TO HAVE THE REPLACEMENTS MADE IN ACCORDANCE WITH THE SPECIFICATIONS BY ANOTHER CONTRACTOR.
11. NO EXCAVATION OR PLANTING PIT SHALL BE LEFT UNATTENDED OVERNIGHT.
12. PLANT MATERIAL QUANTITIES PROVIDED IN THE PLANT LIST ARE FOR REFERENCE ONLY AND THE CONTRACTOR IS RESPONSIBLE FOR THE ACTUAL PLANT MATERIAL COUNTS. DISCREPANCIES BETWEEN QUANTITIES SHOWN ON THE PLANTING PLAN AND THOSE IN THE PLANT LIST SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR CLARIFICATION. IF CLARIFICATION OF DISCREPANCIES FROM THE LANDSCAPE ARCHITECT IS NOT POSSIBLE, THEN QUANTITIES SHOWN ON THE PLANTING PLAN SHALL TAKE PRECEDENCE.
13. REMOVE BURLAP/STRAPPING AND WIRE BASKET FROM TOP 1/3 OF ROOT BALL ON TREES.
14. REMOVE PAPER, PLASTIC OR METAL AROUND ROOT BALLS OF SHRUBS.
15. DO NOT WRAP TREES.
16. WATER ALL PLANT MATERIAL IMMEDIATELY AFTER PLANTING.
17. TREE GUYING MATERIAL SHALL BE 'ARBOR-TIE' OR EQUIVALENT.
18. ALL PLANT BEDS TO BE MULCHED WITH 3" DEPTH OF PINE STRAW MULCH.
19. ALL AREAS OF PLANTING, INCLUDING AREAS OF GRASS SEEDING AND SOD, SHALL BE GRADED TO PROVIDE POSITIVE DRAINAGE AND SHALL BE PROVIDED APPROPRIATE SOIL FOR THE PROPOSED PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL ADJUST PH AND / OR SOIL FERTILITY BY UNIFORMLY INCORPORATING REQUIRED SOIL CONDITIONING MATERIALS AT THE RATE AND DEPTH DETERMINED BY THE ANALYSIS OF THE SOIL TEST (AS REQUIRED IN 3.02 AND 3.13 OF THE LANDSCAPING SPECIFICATIONS). EACH SOIL TEST SHALL BE SPECIFIC TO THE PROPOSED PLANT MATERIAL TO BE INSTALLED IN A GIVEN AREA.
20. ALL EXISTING VEGETATION WITHIN AREAS TO BE PLANTED / SODDED / SEEDED SHALL BE REMOVED PRIOR TO PLANTING / SODDING / SEEDING. ALL AREAS INDICATED TO BE GRASS SEED SHALL BE SEEDED PER GRASSING SPECIFICATIONS FOR PERMANENT STABILIZATION.
21. CONTRACTOR TO SUPPLY AUTOMATIC IRRIGATION SYSTEMS, COMPLETE AND INSTALLED. SYSTEM TO INCLUDE ALL VALVES, PIPES, HEADS, FITTINGS, RAIN SENSOR, AND CLOCK AND TO PROVIDE 100% COVERAGE OF ALL NEW SODDED AND IMPROVED EXISTING GRASS AREAS, TREES, SHRUBS AND PLANTING BEDS. COORDINATE IRRIGATION WITH OWNER'S REPRESENTATIVE. (CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF PROPOSED IRRIGATION SYSTEM FOR OWNER ACCEPTANCE)
22. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR AUTOMATIC IRRIGATION SYSTEMS. CONTRACTOR SHALL PROVIDE ELECTRIC METER AND SERVICE IN ACCORDANCE WITH STATE AND LOCAL CODES FOR IRRIGATION SYSTEM. LOCATION OF METERS AND CONTROL PANELS FOR IRRIGATION SHALL BE APPROVED BY OWNER'S REP. PRIOR TO INSTALLATION.
23. WHERE IRRIGATION SYSTEM WILL BE INSTALLED WITH ANY WATER SOURCE OTHER THAN DOMESTIC POTABLE WATER, LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR IRRIGATION WATER TESTING. IRRIGATION WATER SHALL BE TESTED FOR LEVELS OF pH, ALKALINITY AND SOLUBLE SALTS. SUBMIT TEST RESULTS TO OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO INSTALLATION OR ORDERING OF IRRIGATION EQUIPMENT, PUMPS OR WELL DIGGING.
24. ALL TREES SHALL BE INSTALLED PER THE REQUIREMENTS OF THE PORT WENTWORTH, GEORGIA APPLICABLE ORDINANCES.
25. ALL PLANT BEDS TO RECEIVE WEED INHIBITOR OF PREEN OR ACCEPTED ALTERNATE.
26. FOR SUMMERTIME PLANTINGS, CONTRACTOR TO USE EITHER CONTAINERIZED OR PRE-DUG B & B PLANT MATERIAL.
27. AS AN ADD ALTERNATE BID, THE CONTRACTOR SHALL PROVIDE "SOIL MOIST TRANSPLANT" (OR ACCEPTED EQUIVALENT) AT THE APPLICATION RATES SHOWN BELOW FOR ALL NEWLY INSTALLED PLANTINGS.

Container Size/Amount	Caliper Size/Amount
1 Gallon/.75 oz.	1"/3.0 oz.
2 Gallon/1.5 oz.	2"/6.0 oz.
3 Gallon/1.5 oz.	3"/9.0 oz.
5 Gallon/2.0 oz.	4"/12.0 oz.
7 Gallon/3.0 oz.	5"/15.0 oz
10 Gallon/3.0 oz.	6"/18.0 oz
15 Gallon/5.0 oz.	7"/21.0 oz
20 Gallon/7.0 oz.	8"/24.0 oz
Plant Height/Amount	**Box Size/Amount**
2'/1.5 oz.	16"/5.0 oz.
3'/2.0 oz.	20"/6.0 oz.
4'/3.0 oz.	24"/9.0 oz.
5'/4.0 oz.	30"/12.0 oz.
6'/5.0 oz.	36"/18.0 oz
7'/6.0 oz.	42"/27.0 oz
	60"/30.0 oz.



NOTES:
1) EXCAVATE ENTIRE BED SPECIFIED FOR GROUNDCOVER PLANTING TO A DEPTH OF 12".

PLANT SPACING DETAIL
NOT TO SCALE

NO.	REVISIONS	BY	DATE
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PERMIT SET - FOR REVIEW PURPOSES ONLY

THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	NTS

L2.1

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LANDSCAPING SPECIFICATION

LANDSCAPING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work covered in this section consists of soil preparation, fine grading, lawns, trees, shrubs and ground cover plantings, their protection and maintenance of planted areas until acceptance.

1.2 RELATED WORK

A. See Civil and Landscape plans and specifications.

1.3 QUALITY ASSURANCE

A. Qualifications of Workmen: Contractor shall provide at least one person present at all times during execution of work that is thoroughly familiar with the type of materials being installed and proper equipment and methods for their installation and who shall direct all work performed under this section.

B. Standards: All seed, sod, trees, shrubs, and ground covers shall meet or exceed the specifications of Federal, State, County and / or Municipality laws requiring inspection for disease and insect control.

1. Plants and planting methods shall conform to the latest edition of American Standard for Nursery Stock, American Nursery & Landscape Association, 1000 Vermont Avenue, NW, Suite 300, Washington, DC 20005

2. Plants shall be true and representative of their genus, species, cultivar, or variety. Nursery stock shipped in accordance with the required specifications shall be deemed to be acceptable within the terms of this section if it is typical in size and habit for the species in the region of the country in which it is grown unless the specifications include additional details.

3. **Prior to ordering any plant material, representative photos of each species shall be provided for review and acceptance.**

4. One of each bundle or lot shall be tagged with name and size of the plant in accordance with American Nursery & Landscape Association standards. In all cases, botanical names shall take precedence over common names. Landscape Architect should be consulted in the event questions arise about nomenclature of plants to be used and their availability.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging and location of packaging. Damaged packages are not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

C. Deliver sod on pallets.

D. Handling of plants shall be by lifting the root mass or container and not by lifting plant by trunk or branches. Handling of plants in an improper fashion shall be cause for rejection of plant materials. Care must be taken during all phases of the location and planting procedures not to damage root system, trunk or branches. All plant materials shall be planted as soon after arrival at the site as possible. Contractor is responsible for keeping plants safe from injury by the construction activity and watered to prevent drying out before planting. Balled and burlapped plants shall be "Healed-in" and protected with burlap or other accepted material if they cannot be planted upon delivery. Plants with broken major branches, badly bruised or damaged bark are not acceptable and will be rejected.

1.5 PLANTING DATES

A. The planting season for trees, shrubs and groundcovers is between October 1st and June 1st of the following year. Do not plant if temperature is below freezing or above 90 degrees. Planting at any other time other than the planting season is the Contractor's option and full responsibility and without additional compensation. Planting may, at the option of the Contractor, be postponed into the following planting season but without additional compensation provided the Owner and local governing jurisdiction have approved.

C. Planting dates for sod, sprigging or seeding shall be per the grassing specification.

1.6 MEASUREMENT AND PAYMENT

A. Measurement - The items listed in the proposal shall be considered as sufficient to complete the work in accordance with the plans and specifications. Any portion of the work not listed in bid form, but required to complete the work, shall be deemed to be a part of the item with which it is associated and shall be included in the cost of the unit shown on the bid form.

B. Payment - Payment for the unit shown on the bid form shall be considered to cover the cost of all labor, material, equipment, and performing all operations necessary to complete the work in place. No payment will be made for any material wasted, used for the convenience of the Contractor, unused or rejected.

1. Trees, Shrubs, and Groundcovers - Will be paid for at the contract unit price for planted/installed and accepted trees, shrubs, and groundcovers.

2. Payment for grassing will be made per the grassing specification.

3. Clearing - Will be paid for at the lump sum price for clearing.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Contractor shall, at time of delivery, furnish Owner and / or Landscape Architect with invoices of all materials received; in order the quality and source of materials may be reviewed.

2.2 TOPSOIL

A. TOPSOIL SHALL BE FERTILE, FRIABLE SOIL CONTAINING LESS THAN 5% TOTAL VOLUME OF THE COMBINATION OF SUBSOIL, REFUSE, ROOTS LARGER THAN 1 INCH DIAMETER, HEAVY, STICKY OR STIFF CLAY, STONES LARGER THAN 2 INCHES IN DIAMETER, NOXIOUS SEEDS, STICKS, BRUSH, LITTER, OR ANY SUBSTANCES DELETERIOUS TO PLANT GROWTH. THE PERCENT (%) OF THE ABOVE OBJECTS SHALL BE CONTROLLED BY SOURCE SELECTION NOT BY SCREENING THE SOIL. TOPSOIL SHALL BE SUITABLE FOR THE GERMINATION OF SEEDS AND THE SUPPORT OF VEGETATIVE GROWTH. IMPORTED TOPSOIL SHALL NOT CONTAIN WEED SEEDS IN QUANTITIES THAT CAUSE NOTICEABLE WEED INFESTATIONS IN THE FINAL PLANTING BEDS. IMPORTED TOPSOIL SHALL MEET THE FOLLOWING PHYSICAL AND CHEMICAL CRITERIA:

1. SOIL TEXTURE: USDA LOAM, SANDY CLAY LOAM OR SANDY LOAM WITH CLAY CONTENT BETWEEN 15 AND 25%. AND A COMBINED CLAY/SILT CONTENT OF NO MORE THAN 55%.
2. PH VALUE SHALL BE BETWEEN 5.5 AND 7.0.
3. PERCENT ORGANIC MATTER (OM): 2.0-5.0%, BY DRY WEIGHT.
4. SOLUBLE SALT LEVEL: LESS THAN 2 MMHO/CM.
5. SOIL CHEMISTRY SUITABLE FOR GROWING THE PLANTS SPECIFIED.

B. IMPORTED TOPSOIL SHALL BE A HARVESTED SOIL FROM FIELDS OR DEVELOPMENT SITES. THE ORGANIC CONTENT AND PARTICLE SIZE DISTRIBUTION SHALL BE THE RESULT OF NATURAL SOIL FORMATION. MANUFACTURED SOILS WHERE COARSE SAND, COMPOSTED ORGANIC MATERIAL OR CHEMICAL ADDITIVES HAS BEEN ADDED TO THE SOIL TO MEET THE REQUIREMENTS OF THIS SPECIFICATION SECTION SHALL NOT BE ACCEPTABLE. RETAINED SOIL PEDS SHALL BE THE SAME COLOR ON THE INSIDE AS IS VISIBLE ON THE OUTSIDE.

C. IMPORTED TOPSOIL FOR PLANTING SOIL SHALL NOT HAVE BEEN SCREENED AND SHALL RETAIN SOIL PEDS OR CLODS LARGER THAN 2 INCHES IN DIAMETER THROUGHOUT THE STOCKPILE AFTER HARVESTING.

D. STOCKPILED EXISTING TOPSOIL AT THE SITE MEETING THE ABOVE CRITERIA MAY BE ACCEPTABLE.

E. PROVIDE A ONE GALLON SAMPLE FROM EACH IMPORTED TOPSOIL SOURCE(S) WITH REQUIRED SOIL TESTING RESULTS OF ALL EXISTING TOPSOIL TO BE USED. THE SAMPLE SHALL BE A MIXTURE OF THE RANDOM SAMPLES TAKEN AROUND THE SOURCE STOCKPILE OR FIELD.

2.3 SEED

A. See grassing specification.

2.4 SPRIG

A. See grassing specification.

2.5 SOD

A. See grassing specification.

2.6 PLANT MATERIALS

A. Provide all plant materials as indicated on the plans. In the event of any discrepancies between quantities of plants indicated on the plant schedule and those indicated on the plan, plan quantities shall govern.

B. Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs or larvae, and shall have healthy, well developed root systems. Plants shall be from a nursery within 300 miles north or south of the project location and shall have been grown under climate conditions similar to those in the locality of project. Trees for planting in rows shall be uniform in size and shape.

B. Plants shall possess a normal balance between height and width. Plants shall be measured when branches are in their normal position. Height and spread dimensions specified refer to the main body of plant and not from branch tip to tip. Plants larger in size than specified may be used with no change in contract price.

C. Plants shall be dug with firm natural balls of earth, of diameter not less than recommended by American Standard for Nursery Stock and of sufficient depth to include fibrous and feeding roots. Plants will not be accepted if ball is cracked or broken before or during planting operations.

D. Trees specified for Street Tree Grade shall conform to standards of the A.N.L.A.:

1. Suitable for planting as street trees.

2. Free of branches to approximately 50% of height from ground.

3. Crown of tree shall be in good balance with the trunk.

2.7 FERTILIZER

A. Commercial fertilizer shall be slow release 5-10-10 or 6-12-12 (or as recommended by soil test), uniform in composition, free flowing, and suitable for application with appropriate equipment. Deliver to site unopened in manufacturer's standard containers showing weight, analysis and name of manufacturer. If stored on site, protect from the elements.

2.8 PEAT MOSS

A. Peat moss shall be finely shredded, 90% organic moss peat, brown in color and suitable for horticultural purposes. Peat shall be measured in air dry condition, containing not more than 35% moisture by weight. Ash content shall not exceed 10%.

2.9 MULCH FOR TREES, SHRUBS, AND GROUND COVERS

A. Mulch for non bio-retention areas shall be as shown on plans.

B. Mulch for bio-retention areas shall be shredded hardwood.

2.10 STAKING EQUIPMENT

A. Trees and palms shall be staked as shown in landscape plans.

2.11 WATER

A. Contractor shall provide water to the project via the installation of a new irrigation system for the area shown on the plans. For bidding purposes, the contractor shall assume drilling a new well with associated pumps and controls as needed for irrigation.

PART 3 - EXECUTION

3.1 FINE GRADING

A. All areas within limits of construction shall be fine graded to the desired grades. All areas within limits of construction are to be fine graded, free of roots, debris and/or other objectionable material, before planting or grassing commence. Any additional fill material needed to fill low or uneven areas shall be provided by the Contractor. Positive drainage away from structures shall be provided in all plant beds so standing water does not occur. Planting beds shall be raised above adjacent lawn areas to provide good drainage conditions.

B. Planting and grassed areas, if not loose, shall be loosened to a minimum depth of 3-inches before fertilizer, seed or sod is applied.

3.2 FERTILIZER AND SOIL AMENDMENTS

A. Contractor shall provide Topsoil Analysis Tests that has been performed by a State Agricultural Experiment Station, Soil and Water Conservation District, State University, or other qualified private testing laboratory, as approved by Landscape Architect.

B. Apply fertilizer and soil amendments after fine grading and mix thoroughly into upper 2 inches of soil.

C. Fertilizer and other necessary soil amendments shall be applied at the rate recommended by Topsoil Analysis Test.

3.3 SODDING

A. See grassing specification.

3.4 SPRIGGING

A. See grassing specification.

3.5 SEEDING

A. See grassing specification.

3.6 SEED PROTECTION

A. See grassing specification.

3.7 LAYOUT OF TREES, SHRUBS, AND GROUND COVERS

A. All plants shall be placed in the proper location as shown on construction plans, allowing Landscape Architect to review all plant locations prior to actual planting. Landscape Architect may make minor adjustments which shall not be cause for changes to the contract price.

3.8 OBSTRUCTIONS BELOW GROUND

A. Prior to excavating planting holes, Contractor shall determine the exact location of electrical, phone, or television cables or conduits, water, drainage or sewer lines, and any other subsurface structures and take precautions to protect them. Any damage to underground utilities shall be repaired immediately at the Contractor's expense.

B. In the event rock, underground construction work, or other obstructions are encountered in any plant hole excavation under this contract, alternate locations may be selected. Where locations cannot be changed, the obstructions shall be removed to a depth of not less than three (3) feet below grade and not less than six (6) inches below bottom of ball or roots when plant is properly set at the required grade. The Contractor shall be responsible for the removal of such rock or other underground obstructions encountered.

3.9 PLANTING HOLES

A. For trees, shrubs and ground covers the planting hole shall be as shown on planting details in the plans. Do not leave planting holes open overnight. In the event that plant holes are dug and not planted in a timely manner, install four (4) foot high orange safety fencing around all excavated areas.

3.10 PLANTING TREES AND SHRUBS

A. Shall be same as grown in the nursery and/or container soil level. Adjust bottom soil mix to insure proper planting level with the proposed surrounding grades. Check plants to insure proper vertical alignment.

B. Fill holes to proper height to receive plant, and thoroughly tamp before setting the plant. Set plant in upright position in the center of the hole, and compact the backfill mixture around the ball or roots. Add soil amendments as required to improve fertility of existing soil and plant growing conditions.

1. When balled or burlapped plants are set, compact topsoil around base of ball to fill all voids. All bindings shall be removed and the top half of burlap removed from around root ball. If burlap is made of natural fibers it can be laid back from the root mass or can be cut away. Remove all burlap if it is made of non-degradable material/fabric. All weeds growing on the root mass shall be removed prior to planting.

2. Containerized plants shall have the container removed prior to planting. Care shall be taken to protect root mass from injury and the root mass intact. If root mass shows evidence of being bound or matted, three vertical 1/2" deep cuts shall be made on alternate sides of the root mass and roots pulled away slightly. This is to untangle roots which have begun to "circle" the root mass and to encourage new root growth. All weeds growing in the root mass shall be removed prior to planting.

3. Roots of bare root plants shall be spread out and topsoil carefully worked in among them. Remove with a clean cut, any broken or frayed roots.

3.11 PLANTING GROUND COVERS

A. Planting beds shall be thoroughly worked to a depth of twelve (12) inches incorporating fertilizer and other soil improvements at the recommended rate suggest by the soils test. Rake prepared planting bed until level, smooth and free from all soil, lumps, rocks, sticks and other deleterious materials. Bed area should be neatly outlined. Space the plants evenly as indicated on the drawings. Plant only in soil that is moist and friable, and not wet or soggy. In the case of planting in the open on hot days, shorten the time between planting and watering.

3.12 WATERING

A. Thoroughly water each plant when the hole is 1/3 full, again at 2/3 full and then complete backfilling. Once backfilling is complete, water again, then tamp the soil in place until the surface of the backfill is level with the surrounding area and the plant bears the same relation of finished grade as it bore to existing grade before being dug.

B. Earth saucers shall be constructed around the perimeter of planting holes of all trees and all single planted shrubs. Earth saucers shall be minimum 3" high and compacted to retain water. Earth saucers shall not be installed in areas where the subsoil is very poorly drained or around mass shrub / groundcover plantings.

C. All trees and shrubs to be hand watered on a regular basis as necessary during the warranty period.

3.13 SOIL MIX

A. Shall be per existing soils on site with recommended amendments from soils test.

3.14 STAKING OF TALL PLANTS

A. Shall be done only if site / environment conditions make if required. If required, trees and palms shall be staked as indicated on the plans.

3.15 MULCHING

A. All plants shall be mulched with an evenly thick layer of clean mulch immediately after planting. Mass plant beds shall be completely mulched to the limits of the bed as shown on the plans. Limit of mulching for individual trees and shrubs shall be slightly beyond the saucer berm. The areas mulched shall be tidy and clean in appearance.

3.16 PRUNING

A. Remove dead, broken or bruised branches after planting using clean, sharp tools.

3.17 WEEDING

A. All planted areas shall be kept free from weeds and undesirable grasses until final acceptance by the Owner. See General notes on plans for additional information.

3.18 INSECT AND DISEASE CONTROL

A. All plant materials shall be disease or insect free upon arrival to the site, however, should any plants show signs of insect or disease infestations, Contractor shall identify nature of infestation and submit to Landscape Architect a proposed method of control. Contractor shall treat all infested plants at its expense. Should the infestation be wide spread and uncontrollable, plants affected shall be removed from site, fresh plants brought in and all other plants treated to prevent infestation of remaining plants at Contractor's expense.

3.19 CLEAN UP

A. Contractor is responsible for removing all trash, debris, rubbish and all other materials associated with the construction from site on a daily basis. All tags, flags, and labels will be removed from plants and trees. The site shall be left broom clean and tidy. Clean up of the site is a prerequisite to final acceptance by the Owner.

PART 4 - MAINTENANCE AND WARRANTY

4.1 MAINTENANCE

A. Protect all plantings (grass, plants and trees) until accepted by Owner. All damage, regardless of cause, shall be immediately repaired and plants replaced if necessary. Erect temporary fences, barricades, signs and other protection as needed to prevent trampling. Contractor is not responsible for replacement of damaged or missing plants and plant materials due to vandalism or other acts beyond the control of the Contractor if proper barriers or other safeguards have been maintained.

B. Maintenance shall include but is not limited to watering, weeding, cultivating, removal of dead material, mulch reapplication, resetting plants to proper grades or upright position, lawn mowing, fertilizing, and other necessary operations.

C. The Contractor shall repair immediately any areas damaged as a result of construction operations or erosion.

E. The Contractor shall maintain all proposed plantings until final acceptance is issued by the Owner.

F. At the end of the maintenance period, all plants shall be in a healthy growing condition. During the maintenance period, should the appearance of any plant indicate weakness and probability of dying, immediately replace without additional cost to the Owner. Replacements required because of vandalism or other causes beyond the control of the Contractor are not part of this contract.

4.2 WARRANTY

A. All shrubs, ground cover, and trees shall be guaranteed by the Contractor to be alive and healthy for a one year period after substantial completion is issued by the Owner. A final inspection with the Owner shall be conducted at the end of the warranty period to determine if any plants will be required to be replaced.

B. Any lawn, plant, or tree which is dead or not showing satisfactory growth shall be replaced at Contractor's expense at the end of warranty period. All replacements shall be of original quality and of a size equal to adjacent plants or trees of the same kind.

END OF SECTION

PERMIT SET - FOR REVIEW PURPOSES ONLY

NO.	REVISIONS	BY	DATE
---		---	---

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE SPECIFICATIONS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	NO SCALE

L2.2

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT FOR:

NFI BUILDINGS A & B

PORT WENTWORTH, GEORGIA

PREPARED FOR:
NFI INDUSTRIES

J – 26327.0004

AUGUST 2021

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The following can be found at the end of this report:

Pre–Development Drainage Exhibit

Post–Development Drainage Exhibit

Soils Map

Location Map

FEMA Flood Map

CSS Exhibit

SECTION 1 – SUMMARY OF RESULTS

TABLE 1
Summary of Results

Analysis Point	Peak Runoff (cfs)									
	2–yr		*10–yr*		*25–yr*		*50–yr*		*100-yr*	
	Pre	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*
Outfall 1	17.6	17.6	27.2	26.2	31.3	30.3	35.2	34.1	37.8	36.4

**All flows are reported in cfs.*

TABLE 2
Summary of Results – Peak Pond Stages

Pond	NWL (ft)	TOB (ft)*	Peak Pond Stage (ft)				
			2–yr	*10–yr*	*25–yr*	*50–yr*	*100–yr*
A1	20	24	21.5	22.3	22.9	23.4	23.8
A2	20	24	21.5	22.3	22.9	23.4	23.8
A3	22	28	22.0	22.3	22.9	23.4	23.8
B1	19.5	24	21.5	22.7	23.5	24.2	25.0
B2	21.5	26	22.5	22.7	23.6	24.3	25.0
B3	22	27	22.6	22.9	23.6	24.3	25.0
B4	25	29	25.7	25.9	26.1	26.2	26.3

*TOB – Top of Bank

SECTION 2 – PROJECT NARRATIVE

NFI Buildings A & B includes the clearing, grading, erosion control, and construction of approximately 106,250 (Building A) and 332,450 (Building B) million–square–foot industrial building and associated service utilities and parking. The development is located on approximately 41.52 acres of undeveloped land, south of Bonnybridge Road and east of Jimmy DeLoach Parkway in Port Wentworth, Georgia. The existing elevations on site range from 20 to 29 feet (NAVD 88).

Stormwater from the proposed site will be collected by a stormwater drainage system and a series of interconnected ponds and swales before discharging to two existing 18" RCP crossing pipes underneath the existing Norfolk Southern Railroad along the eastern boundary of the development. This drainage will then be conveyed through existing tributaries of St. Augustine Creek and ultimately outfall into the Savannah River.

SECTION 3 – PURPOSE

- To define the limits of the drainage basin(s) that contains this project.
- To document that major drainage infrastructure such as road crossings, drainage connectors, ponds, and outfalls are adequately sized for all existing and proposed development within the drainage basin.
- To document compliance with regulatory requirements of the City of Port Wentworth and the State of Georgia summarized as follows:

City of Port Wentworth

- Post–Development peak runoff rates shall not exceed the 2–, 5–, 10–, 25–, and 50–year, 24–hour storm pre–developed rates.
- Storm drainage culverts and pipe systems shall be sized to accommodate runoff from the 25–year, 24–hour storm.
- Aquatic Resource Protection shall be provided for each site through management and extended detention of the 1–year, 24–hour storm event released over a period of 24–hours.
- Reduce on–site the stormwater runoff volume generated by the 85th percentile storm event to the maximum extent practicable. This equates to reducing the storm water runoff volume generated by the 1.2–inch rainfall event and first 1.2 inches of all larger events.
- Intercept and treat any of the stormwater runoff generated by the 1.2–inch rainfall event (and the first 1.2 inches of all larger events) that is not reduced by runoff reduction in one or more storm water management practices that: (1) provide for at least an 80 percent reduction in TSS loads; and (2) reduce nitrogen and bacteria loads to the maximum extent practical.
- All stormwater management systems shall be designed to control and/or safely convey the post–development peak discharge generated by the 100–year, 24–hour storm event.

Georgia EPD

- Sediment shall be prevented from leaving the site during construction.

SECTION 4 – PRE–DEVELOPMENT CONDITIONS

The existing site is largely pervious and wooded. Pre–development site soils consist of Hydrologic Soil Group (HSG) B/D. Currently, runoff on–site sheet flows from the west towards the east and outfalls to two existing 18" RCP crossing pipes underneath the existing Norfolk Southern Railroad along the eastern boundary of the development. This drainage will then be conveyed through existing tributaries of St. Augustine Creek and ultimately outfall into the Savannah River.

SECTION 5 – POST–DEVELOPMENT CONDITIONS

The proposed site will be graded and developed, altering the land use from wooded areas to mostly impervious. Stormwater runoff from Buildings A & B will be intercepted by a stormwater drainage network and conveyed to interconnected on–site detention ponds shown in the Post–Development Drainage Exhibit and discharged into the existing stormwater system at the eastern outfall as outlined in the pre-development conditions.

SECTION 6 – STORMWATER RUNOFF REDUCTION METHODOLOGY

The Port Wentworth Ordinance mandates developments to meet the guidelines set for in the Coastal Stormwater Supplement Section 4.4.1. The criteria state the following:

> "Reduce the storm water runoff volume generated by the 85th percentile storm event (and the "first flush" of the storm water runoff volume generated by all larger storm events) on a development site through the use of appropriate green infrastructure practices. In coastal Georgia, this equates to reducing the storm water runoff volume generated by the 1.2–inch rainfall event (and the storm water runoff generated by the first 1.2 inches of all larger rainfall events)."

The following equation is used to determine the Runoff Reduction Volume:

$$RR_v = (P)\ (R_v)\ (A) \div (12)$$

Where:
RR_v = runoff reduction volume (acre–feet)
P = target runoff reduction rainfall (inches)
R_v = volumetric runoff coefficient
A = site area (acres)
12 = unit conversion factor (in./ft.)

$R_v = 0.05 + 0.009(I)$
Where:
I = site imperviousness (%)

The spreadsheet included with the Coastal Stormwater Supplement provides various techniques/devises that may be implemented within a development to meet the Runoff Reduction Volume. The proposed design dry swales, vegetated filter strips and stormwater detention ponds to reduce the runoff reduction volume to the maximum extent practicable. Any remaining volume to be treated shall be conveyed through stormwater wetlands in order to achieve the required 80

percent reduction in TSS loads and reduce nitrogen and bacteria loads to the maximum extent practical. The applicant is requesting a waiver from the City of Port Wentworth for the remaining runoff reduction volume. See Appendix D for the CSS spreadsheet calculations.

SECTION 7 – STORMWATER QUALITY TREATMENT METHODOLOGY

The Port Wentworth Ordinance mandates developments to meet the guidelines set for in the Coastal Stormwater Supplement Section 4.4.2. The criteria state the following:

> "Adequately treat post–construction storm water runoff before it is discharged from a *development site. In coastal Georgia, these criteria can be satisfied simply by satisfying the storm water runoff reduction criteria. However, if any of the storm water runoff generated by the 1.2–inch storm event (and the first 1.2 inches of all larger rainfall events), cannot be reduced on a development site, due to site characteristics or constraints, it should be intercepted and treated in one or more storm water management practices that: (1) provide for at least an 80 percent reduction in TSS loads; and (2) reduce nitrogen and bacteria loads to the maximum extent practical.*"

Stormwater Quality Treatment is calculated in the same manner as Runoff Reduction with the exception that the volume reduction made in Section 5 may be deducted from the "Water Quality Volume" in this section.

Stormwater Quality Treatment is essentially equivalent to the standard set forth in the Georgia Storm Water Management Manual for water quality. Per Section 1.2.2.2 "Minimum Standard #2– Storm Water Runoff Quality" of the Georgia Storm Water Management Manual, it is presumed that a storm water management system complies with the performance standard if:

- It is sized to capture and treat the prescribed water quality treatment volume, which is defined as the runoff volume resulting from the first 1.2 inches of rainfall from impervious areas; and
- Appropriate structural storm water controls are selected, designed, constructed and maintained according to the specific criteria in this Manual.

In order to meet stormwater quality treatment requirements from the first 1.2 inches of rainfall from impervious areas, stormwater wetlands are used. According to the Georgia Storm Water Management Manual Section 3.2.1 stormwater wetlands reduce TSS by 80%, total phosphorus by 50%, nitrogen by 30%, metals by 50%, and pathogens by 70%.

As illustrated in Appendix D, the proposed site meets the requirements set forth in the CSS.

SECTION 8 – STORMWATER QUANTITY METHODOLOGY

The existing and proposed conditions will be analyzed using the Advanced Interconnected Channel and Pond Routing (ICPR) computer program developed by Streamline Technologies. The program is used to model rainfall and stormwater runoff and to perform hydraulic routing through the storm drainage system. The ICPR program is a FEMA approved model that has the ability to analyze complex interconnected drainage systems dynamically over extended time periods.

The hydrologic input data consists of information for each drainage basin, or subwatershed, within the project. Input variables include runoff curve number, rainfall distribution pattern, hydrograph peaking factor, area of each drainage basin, and time of concentration (see below section

"Hydrology" for specifics on the values of these variables that were used in this model). The ICPR program generates runoff hydrographs for each subwatershed based on the user–specified variables. Hydrographs are generated by ICPR using the SCS Unit Hydrograph Method.

The model hydraulic input data consists of a system of nodes and links. Nodes represent locations where flows enter or exit the system, pipe or channel characteristics change, or where stage/storage/time relationships are provided. Links represent traditional types of hydraulic conveyance such as pipes, channels, drop structures, weirs, etc. The sizes, inverts, lengths, and Manning n values for all pipes connecting the lagoons are input into the model. In addition to pipe information, all lagoon and detention area stage–storage information and the respective outfall structure information is input into the model. The node and link conditions are analyzed within the model for a given storm, and flow conditions are determined.

The basic equation used by ICPR to route flows through the system is:

$$\Delta s = (Q_{in} - Q_{out})\ \Delta t$$

Where:
- Δs = Change in storage for time step
- Q_{in} = Flow into a node at time "t"
- Q_{out} = Flow out of a node at time "t"
- Δt = Length of time step; user defined range from 1.0 sec to 0.1 sec.

Hydrographs for each drainage area are merged within the ICPR program, and the hydrologic results are then combined with the hydraulic information to model the hydraulic interactions of the entire drainage system. The results include lagoon and detention area discharge rates and stage/storage information during the design storm.

For the design of the storm drainage system, a warning stage elevation is set for each lagoon and detention area and structure to assure no stormwater ponding. In addition, stages are compared to determine adequate pipe and control structure sizes. Knowing these two factors, the drainage system is designed by trial and error.

SECTION 9 – HYDROLOGY

- SCS Unit Hydrograph Method is used.
- Amount of rainfall for each storm frequency is determined based on NOAA, Atlas 14 The following 24–hour design storms are used in the model simulations:

TABLE 3
Rainfall Depths

Storm Event	Rainfall (inches)
2–year	4.4
10–year	6.5
25–year	8.1
50–year	9.5
100–year	10.9

- SCS Type III Statistical Rainfall Distribution is used. This distribution pattern is determined by the Soil Conservation Service comparing regional rain–gage data.

- A 323 Hydrograph Peaking Factor is used. The 323 Factor is based on statistical analysis of actual rainfall and runoff data from the Southeastern United States and is typical for coastal areas.

SECTION 10 – RUNOFF CALCULATIONS

Peak flow rates for each design storm are calculated by ICPR based on drainage area, hydrologic and hydraulic parameters, and the following runoff parameters:

10.1 Curve Numbers

Curve numbers are generated according to procedures set forth in SCS Technical Release 55 (TR–55). The composite curve numbers for each drainage basin are calculated using soils information from the SCS Soil Survey of Chatham County. Pre–Development Curve Numbers were weighted based on the type and amount of soil within the basin. WinTR–55 was used to calculate the weighted curve number. Curve number calculations from WinTR–55 can be found in Appendix A.

10.2 Time of Concentration

Times of concentration were calculated according to procedures set forth in SCS Hydrology Technical Note No. N4, as referenced in TR–55. The travel times (T_t) for overland flow, shallow concentrated flow, and channel flow are added together for the drainage basin to get the total time of concentration T_c. The total time of concentration path used for each basin is shown on the Pre–Development Drainage Basins Exhibit and the Post–Development Drainage Basins Exhibit.

- Overland Flow

  The equation for overland flow travel time is as follows:

  $$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} S^{0.4}}$$

  Where: n = Manning's friction factor
  L = slope length (ft)
  S = Slope (ft/ft)
  P_2 = 24–hour precipitation (inches)

  The travel time as calculated in the above equation in hours.

- Shallow Concentrated Flow

  The equation for shallow concentrated flow travel time is as follows:

  $$T_t = \frac{L}{60v} \text{ (min)}$$

  Where: L = length (ft)
  v = velocity (ft/sec)

- Channel and Pipe Flow

  The equation for channel flow travel time is as follows:

  $$T_t = \frac{L}{60v} \text{ (min)}$$

  Where: L = length of channel (ft)
  v = velocity (ft/sec)

The velocity is determined using Manning's equation:

$v = (1.49/n)r^{2/3}S^{1/2}$ Where: r = hydraulic radius (ft) = A/P
A_x = cross–sectional area (sf)
P = wetted perimeter (ft)
S = slope (ft/ft)

Channel flow was assumed to have a velocity of 2 fps.

SECTION 11 – AQUATIC RESOURCE PROTECTION

The Port Wentworth Ordinance mandates developments to meet the guidelines set forth in the Coastal Stormwater Supplement Section 4.4.3. The criteria states the following:

> *"24 hours of extended detention be provided for the stormwater runoff volume generated by the 1–year, 24–hour storm event before it is discharged from a development site. Providing the storage needed to provide 24 hours of extended detention for the stormwater runoff volume generated by the 1–year, 24–hour storm event, which is known as the aquatic resource protection volume (ARPv) (Section 5.3), will not only help control streambank erosion in coastal Georgia's freshwater rivers and streams (by reducing the frequency and duration of channel forming bankfull and near bankfull events), but will also help control the harmful salinity fluctuations that occur in the region's tidal creeks, coastal marshlands and other vital estuarine resources."*

The drawdown showing extended detention over 24 hours for the 1–year 24–hour storm event can be found in the 1–year simulation graph in Appendix F. The graph demonstrates that the ponds release runoff for 72 hours and are therefore in compliance with the CSS and Port Wentworth Ordinance.

SECTION 12 – CONCLUSIONS

In accordance with the City of Port Wentworth Ordinance, post–development peak runoff rates are less than pre–development rates for the 2– though 50–year rainfall events and are safely conveyed for the 100–year storm event. Stormwater runoff reduction, water quality treatment, and aquatic resource protection have been addressed on–site per the City of Port Wentworth's Stormwater Management Ordinance. The proposed development was analyzed using the methods identified in this report and were found to be compliant with the City of Port Wentworth's requirements and Georgia EPD regulations.

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX A

CURVE NUMBER & TIME OF CONCENTRATION CALCULATIONS

26327.0010

WinTR-55 Current Data Description

--- Identification Data ---

User: EMD
Project: NFI Crossgate NE Quadrant
SubTitle: Pre Dev Basins
State: Georgia
County: Chatham
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\Basins\Pre\Pre CN TC.w55

Date: 7/20/2021
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
WS-101A			41.78	87	0.684
WS-101			3.6	90	0.247
WS-100			22.82	87	.684
NORITAKE			10.04	90	.247

Total area: 78.24 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

NFI Crossgate NE Quadrant
Pre Dev Basins
Chatham County, Georgia

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

EMD

NFI Crossgate NE Quadrant
Pre Dev Basins
Chatham County, Georgia

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
WS-101A	41.78	0.684	87		
WS-101	3.60	0.247	90		
WS-100	22.82	0.684	87		
NORITAKE	10.04	0.247	90		

Total Area: 78.24 (ac)

NFI Crossgate NE Quadrant
Pre Dev Basins
Chatham County, Georgia

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
WS-101A							
SHEET	100	0.0100	0.240				0.270
SHALLOW	1300	0.0050	0.050				0.317
CHANNEL	695					2.000	0.097
					Time of Concentration		0.684
WS-101							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		0.247
WS-100							
SHEET	100	0.0100	0.240				0.270
SHALLOW	1300	0.0050	0.050				0.317
CHANNEL	695					2.000	0.097
					Time of Concentration		.684
NORITAKE							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247

NFI Crossgate NE Quadrant
Pre Dev Basins
Chatham County, Georgia

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
WS-101A	Paved; curbs and storm sewers		D	5	98
	Woods - grass combination	(poor)	D	36.78	86
	Total Area / Weighted Curve Number			41.78	87
WS-101	Open space; grass cover > 75%	(good)	D	1.6	80
	Paved parking lots, roofs, driveways		D	2	98
	Total Area / Weighted Curve Number			3.6	90
WS-100	Paved; curbs and storm sewers		D	1.49	98
	Woods - grass combination	(poor)	D	21.33	86
	Total Area / Weighted Curve Number			22.82	87
NORITAKE	Open space; grass cover > 75%	(good)	D	3.54	80
	Paved parking lots, roofs, driveways		D	5.5	98
	Woods - grass combination	(poor)	D	1	86
	Total Area / Weighted Curve Number			10.04	90

WinTR-55 Current Data Description

--- Identification Data ---

User: EMD
Project: NFI Crossgate NE Quadrant
SubTitle: Post Dev Basins
State: Georgia
County: Chatham
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\Basins\Post\Post CN TC.w55

Date: 8/11/2021
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
WS-101A			23.02	87	0.684
WS-101			3.6	90	0.247
WS-100			6.27	87	.684
NORITAKE			9.37	91	0.247
WS-200			12.37	96	.247
WS-201			6.46	96	.247
WS-202			3.17	96	.247
WS-203			4.86	90	.247
WS-204			2.1	96	.247
WS-205			0.9	90	0.247

Total area: 72.12 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

EMD

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
WS-101A	23.02	0.684	87		
WS-101	3.60	0.247	90		
WS-100	6.27	0.684	87		
NORITAKE	9.37	0.247	91		
WS-200	12.37	0.247	96		
WS-201	6.46	0.247	96		
WS-202	3.17	0.247	96		
WS-203	4.86	0.247	90		
WS-204	2.10	0.247	96		
WS-205	.90	0.247	90		

Total Area: 72.12 (ac)

EMD

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
WS-101A							
SHEET	100	0.0100	0.240				0.270
SHALLOW	1300	0.0050	0.050				0.317
CHANNEL	695					2.000	0.097
					Time of Concentration		0.684
WS-101							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		0.247
WS-100							
SHEET	100	0.0100	0.240				0.270
SHALLOW	1300	0.0050	0.050				0.317
CHANNEL	695					2.000	0.097
					Time of Concentration		.684
NORITAKE							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		0.247
WS-200							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-201							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-202							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-203							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-204							
SHEET	100	0.0100	0.011				0.023
SHALLOW	1000	0.0025	0.050				0.424

Sub-Area Time of Concentration Details (continued)

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
					Time of Concentration		.247
WS-205							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		0.247

EMD

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
WS-101A	Paved; curbs and storm sewers		D	2.755	98
	Woods - grass combination	(poor)	D	20.26	86
	Total Area / Weighted Curve Number			23.02	87
WS-101	Open space; grass cover > 75%	(good)	D	1.6	80
	Paved parking lots, roofs, driveways		D	2	98
	Total Area / Weighted Curve Number			3.6	90
WS-100	Paved; curbs and storm sewers		D	.41	98
	Woods - grass combination	(poor)	D	5.86	86
	Total Area / Weighted Curve Number			6.27	87
NORITAKE	Open space; grass cover > 75%	(good)	D	3.67	80
	Paved parking lots, roofs, driveways		D	5.5	98
	Woods - grass combination	(poor)	D	.2	86
	Total Area / Weighted Curve Number			9.37	91
WS-200	Open space; grass cover > 75%	(good)	D	1.37	80
	Paved parking lots, roofs, driveways		D	11	98
	Total Area / Weighted Curve Number			12.37	96
WS-201	Open space; grass cover > 75%	(good)	D	.66	80
	Paved parking lots, roofs, driveways		D	5.8	98
	Total Area / Weighted Curve Number			6.46	96
WS-202	Open space; grass cover > 75%	(good)	D	.37	80
	Paved parking lots, roofs, driveways		D	2.8	98
	Total Area / Weighted Curve Number			3.17	96
WS-203	Open space; grass cover > 75%	(good)	D	2.26	80
	Paved parking lots, roofs, driveways		D	2.6	98
	Total Area / Weighted Curve Number			4.86	90
WS-204	Open space; grass cover > 75%	(good)	D	.2	80
	Paved parking lots, roofs, driveways		D	1.9	98
	Total Area / Weighted Curve Number			2.1	96
WS-205	Open space; grass cover > 75%	(good)	D	.4	80
	Paved parking lots, roofs, driveways		D	.5	98
	Total Area / Weighted Curve Number			.9	90

WinTR-55 Current Data Description

--- Identification Data ---

User: EMD
Project: NFI Crossgate NE Quadrant
SubTitle: Post Dev Basins
State: Georgia
County: Chatham
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\Basins\Post\Post1 CN TC.w5

Date: 8/11/2021
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
WS-206			0.24	98	.247
WS-207			0.58	98	.247
WS-208			1.72	96	.247

Total area: 2.54 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

EMD

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
WS-206	.24	0.247	98		
WS-207	.58	0.247	98		
WS-208	1.72	0.247	96		

Total Area: 2.54 (ac)

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
WS-206							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-207							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-208							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
WS-206	Paved parking lots, roofs, driveways	D	.24	98
	Total Area / Weighted Curve Number		.24	98
WS-207	Paved parking lots, roofs, driveways	D	.58	98
	Total Area / Weighted Curve Number		.58	98
WS-208	Open space; grass cover > 75% (good)	D	.22	80
	Paved parking lots, roofs, driveways	D	1.5	98
	Total Area / Weighted Curve Number		1.72	96

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX B

PRE–DEVELOPMENT ICPR INPUT AND OUTPUT

26327.0010

==========
==== Basins ====
==========

Name: Noritake Node: NORITAKE Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 15.00
Area(ac): 10.040 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-100 Node: RR-US Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 41.00
Area(ac): 22.820 Time Shift(hrs): 0.00
Curve Number: 87.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-101 Node: SUBSTATION Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 3.600 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-101A Node: D1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 41.00
Area(ac): 41.780 Time Shift(hrs): 0.00
Curve Number: 87.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

==========
==== Nodes ====
==========

Name: D1 Base Flow(cfs): 0.000 Init Stage(ft): 21.100
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.000	16.5000
22.000	25.6000
23.000	32.0000
24.000	41.7800

Name: NORITAKE Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
23.000	6.0000
24.000	10.0000

Name: Rail Outfall Base Flow(cfs): 0.000 Init Stage(ft): 19.390

Group: BASE Warn Stage(ft): 24.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	19.390
36.00	19.390

Name: RR-US Base Flow(cfs): 0.000 Init Stage(ft): 19.390
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
19.390	0.0050
20.000	0.0080
21.000	5.8300
22.000	12.7000
23.000	20.0000
24.000	22.8200

Name: SUBSTATION Base Flow(cfs): 0.000 Init Stage(ft): 21.300
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.300	0.0027
21.500	0.1211
22.000	0.3018
22.500	0.3596
23.000	0.4124
24.000	0.5190
25.000	3.6000

==========
==== Pipes ==========
==========

Name: Ex. Pipe 1 From Node: RR-US Length(ft): 22.00
Group: BASE To Node: Rail Outfall Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Automatic
Span(in):	18.00	18.00	Flow:	Both
Rise(in):	18.00	18.00	Entrance Loss Coef:	0.50
Invert(ft):	19.610	19.400	Exit Loss Coef:	0.50
Manning's N:	0.013000	0.013000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: Ex. Pipe 2 From Node: RR-US Length(ft): 22.00
Group: BASE To Node: Rail Outfall Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Automatic
Span(in):	18.00	18.00	Flow:	Both
Rise(in):	18.00	18.00	Entrance Loss Coef:	0.50
Invert(ft):	19.390	19.390	Exit Loss Coef:	0.50
Manning's N:	0.013000	0.013000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Channels

Name:	OFF-SITE D1	From Node:	D1	Length(ft):	950.00
Group:	BASE	To Node:	RR-US	Count:	1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	21.100	19.390	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.040000	0.040000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	50.000	50.000		
LtSdSlp(h/v):	0.33	0.33		
RtSdSlp(h/v):	0.33	0.33		

Name:	OFF-SITE D2	From Node:	NORITAKE	Length(ft):	1600.00
Group:	BASE	To Node:	RR-US	Count:	1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	23.000	19.390	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.040000	0.040000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	20.000	20.000		
LtSdSlp(h/v):	0.33	0.33		
RtSdSlp(h/v):	0.33	0.33		

Drop Structures

Name:	Control	From Node:	SUBSTATION	Length(ft):	32.00
Group:	BASE	To Node:	D1	Count:	1

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Friction Equation:	Automatic
Span(in):	18.00	18.00	Solution Algorithm:	Most Restrictive
Rise(in):	18.00	18.00	Flow:	Both
Invert(ft):	21.200	21.100	Entrance Loss Coef:	0.500
Manning's N:	0.013000	0.013000	Exit Loss Coef:	0.500
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure Control ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600

```
              Span(in): 6.00                      Invert(ft): 21.300
              Rise(in): 18.00                 Control Elev(ft): 21.300

*** Weir 2 of 3 for Drop Structure Control ***
                                                                      TABLE
                 Count: 1                     Bottom Clip(in): 0.000
                  Type: Horizontal               Top Clip(in): 0.000
                  Flow: Both                   Weir Disc Coef: 3.200
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 36.00                     Invert(ft): 24.500
              Rise(in): 36.00                 Control Elev(ft): 24.500

*** Weir 3 of 3 for Drop Structure Control ***
                                                                      TABLE
                 Count: 3                     Bottom Clip(in): 0.000
                  Type: Vertical: Mavis          Top Clip(in): 0.000
                  Flow: Both                   Weir Disc Coef: 3.200
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 36.00                     Invert(ft): 23.900
              Rise(in): 7.00                  Control Elev(ft): 23.900


================================================================================
==== Hydrology Simulations ====================================================
================================================================================

         Name: 002
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\002.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 4.40

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

--------------------------------------------------------------------------------------------------------
         Name: 010
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\010.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 6.50

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

--------------------------------------------------------------------------------------------------------
         Name: 025
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\025.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 8.11

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

--------------------------------------------------------------------------------------------------------
         Name: 050
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\050.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 9.50

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

--------------------------------------------------------------------------------------------------------
         Name: 100
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\100.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 10.90
```

Time(hrs)	Print Inc(min)
36.000	5.00

==========
==== Routing Simulations ==========
==========

Name: 002 Hydrology Sim: 002
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\002.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 002 Boundary Flows: Amazon 002

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Name: 010 Hydrology Sim: 010
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\010.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 010 Boundary Flows: Amazon 010

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Name: 025 Hydrology Sim: 025
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\025.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 025 Boundary Flows: Amazon 025

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Name: 050 Hydrology Sim: 050
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\050.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 050 Boundary Flows: Amazon 050

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Name: 100 Hydrology Sim: 100
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\100.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 100 Boundary Flows: Amazon 100

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Boundary Conditions

Name: 002 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	20.400
24.000	19.390
36.000	19.390

Name: 010 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	21.700
24.000	19.390
36.000	19.390

Name: 025 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	22.400
24.000	19.390
36.000	19.390

Name: 050 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	22.900
24.000	19.390
36.000	19.390

Name: 100 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	23.500
24.000	19.390
36.000	19.390

Name: Amazon 025 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
7.000	0.000
10.000	4.700
13.200	47.000
20.250	6.340
30.000	0.500
36.000	0.100

Name: Amazon 010 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
8.500	1.000
13.250	36.800
19.000	6.900
24.250	2.800
36.000	0.000

Name: Amazon 002 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
10.250	1.000
13.250	22.900
21.000	3.000
36.000	0.000

Name: Amazon 050 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
7.000	1.000
13.000	61.920
20.000	7.700
36.000	0.000

Name: Amazon 100 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
6.000	1.000
13.000	69.950
20.000	9.400
28.000	1.000
36.000	0.000

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
002	Noritake	BASE	12.30	22.38	3.301	120324
010	Noritake	BASE	12.27	35.20	5.336	194473
025	Noritake	BASE	12.27	44.94	6.917	252084
050	Noritake	BASE	12.27	53.30	8.289	302096
100	Noritake	BASE	12.27	61.68	9.676	352626
002	WS-100	BASE	12.50	29.30	3.003	248792
010	WS-100	BASE	12.50	48.08	4.993	413589
025	WS-100	BASE	12.50	62.43	6.551	542689
050	WS-100	BASE	12.50	74.75	7.909	655153
100	WS-100	BASE	12.50	87.11	9.284	769027
002	WS-101	BASE	12.24	8.98	3.301	43144
010	WS-101	BASE	12.24	14.07	5.336	69731
025	WS-101	BASE	12.24	17.93	6.917	90389
050	WS-101	BASE	12.24	21.24	8.289	108321
100	WS-101	BASE	12.24	24.57	9.676	126440
002	WS-101A	BASE	12.50	53.64	3.003	455500
010	WS-101A	BASE	12.50	88.02	4.993	757220
025	WS-101A	BASE	12.50	114.30	6.551	993581
050	WS-101A	BASE	12.50	136.86	7.909	1199488
100	WS-101A	BASE	12.50	159.48	9.284	1407973

Name	Simulation	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Inflow cfs	Max Outflow cfs
D1	002	21.68	24.00	0.0016	1012692	73.43	19.08
D1	010	22.20	24.00	0.0029	1195078	122.87	22.63
D1	025	22.58	24.00	0.0031	1302440	156.24	24.38
D1	050	23.02	24.00	0.0038	1428568	199.88	27.95
D1	100	23.36	24.00	0.0039	1570356	233.22	29.26
NORITAKE	002	23.23	24.00	0.0007	317513	22.11	3.36
NORITAKE	010	23.36	24.00	0.0009	339823	34.86	5.74
NORITAKE	025	23.44	24.00	0.0009	355140	44.52	7.81
NORITAKE	050	23.52	24.00	0.0011	368782	52.83	9.13
NORITAKE	100	23.60	24.00	0.0016	381917	61.13	10.48
Rail Outfall	002	20.40	24.00	0.0014	31	17.60	0.00
Rail Outfall	010	21.70	24.00	0.0032	2	27.19	0.00
Rail Outfall	025	22.40	24.00	0.0042	2	31.31	0.00
Rail Outfall	050	22.90	24.00	0.0049	2	35.19	0.00
Rail Outfall	100	23.50	24.00	-0.0057	2	37.81	0.00
RR-US	002	21.46	24.00	0.0045	432707	39.46	17.60
RR-US	010	22.16	24.00	0.0050	645237	56.04	27.19
RR-US	025	22.56	24.00	0.0050	773416	66.25	31.31
RR-US	050	23.01	24.00	0.0050	915036	87.69	35.19
RR-US	100	23.35	24.00	0.0050	956680	105.93	37.81
SUBSTATION	002	22.80	25.00	0.0050	17063	8.97	2.46
SUBSTATION	010	23.39	25.00	0.0050	19784	14.06	3.77
SUBSTATION	025	23.83	25.00	0.0050	21831	17.91	4.34
SUBSTATION	050	24.09	25.00	0.0050	35101	21.23	6.60
SUBSTATION	100	24.22	25.00	0.0050	52689	24.54	8.93

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX C

POST–DEVELOPMENT ICPR INPUT AND OUTPUT

26327.0010

==========
==== Basins ==========
==========

Name: Noritake Node: NORITAKE Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 15.00
Area(ac): 9.370 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-100 Node: RR-US Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 41.00
Area(ac): 6.270 Time Shift(hrs): 0.00
Curve Number: 87.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-101 Node: SUBSTATION Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 3.600 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-101A Node: D1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 41.00
Area(ac): 23.020 Time Shift(hrs): 0.00
Curve Number: 87.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-200 Node: POND A-1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 15.00
Area(ac): 12.370 Time Shift(hrs): 0.00
Curve Number: 96.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-201 Node: POND A-2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 15.00
Area(ac): 6.460 Time Shift(hrs): 0.00
Curve Number: 96.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-202 Node: POND B1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0

```
         Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 3.170                   Time Shift(hrs): 0.00
          Curve Number: 96.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-203                  Node: DITCH TO B1            Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 4.860                   Time Shift(hrs): 0.00
          Curve Number: 90.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-204                  Node: POND B2                Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 2.100                   Time Shift(hrs): 0.00
          Curve Number: 96.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-205                  Node: DITCH TO B3            Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 0.900                   Time Shift(hrs): 0.00
          Curve Number: 90.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-206                  Node: EP-3                   Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 10.00
              Area(ac): 0.240                   Time Shift(hrs): 0.00
          Curve Number: 98.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-207                  Node: EP-4                   Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 10.00
              Area(ac): 0.580                   Time Shift(hrs): 0.00
          Curve Number: 98.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-208                  Node: EP-5                   Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 1.720                   Time Shift(hrs): 0.00
          Curve Number: 96.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


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==== Nodes ==
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Name: D1 Base Flow(cfs): 0.000 Init Stage(ft): 21.100
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.000	16.5000
22.000	17.0000
23.000	23.0200

Name: DITCH TO B1 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 29.000
Type: Stage/Area

Stage(ft)	Area(ac)
23.000	0.0100
24.000	0.0120
25.000	0.0150
26.000	0.0200
27.000	0.1000
28.000	0.1800
29.000	0.2400

Name: DITCH TO B3 Base Flow(cfs): 0.000 Init Stage(ft): 26.000
Group: BASE Warn Stage(ft): 29.000
Type: Stage/Area

Stage(ft)	Area(ac)
26.000	0.0233
27.000	0.0780
28.000	0.1250
29.000	0.2180

Name: EP-1 Base Flow(cfs): 0.000 Init Stage(ft): 16.700
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: EP-2 Base Flow(cfs): 0.000 Init Stage(ft): 17.050
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: EP-3 Base Flow(cfs): 0.000 Init Stage(ft): 18.090
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: EP-4 Base Flow(cfs): 0.000 Init Stage(ft): 9.500
Group: BASE Warn Stage(ft): 28.900
Type: Stage/Area

Stage(ft)	Area(ac)
9.500	0.0100
28.900	0.0100

Name: EP-5 Base Flow(cfs): 0.000 Init Stage(ft): 21.000
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: NORITAKE Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
23.000	6.0000
24.000	10.0000

Name: POND A-1 Base Flow(cfs): 0.000 Init Stage(ft): 19.500
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
9.500	3.3000
19.500	3.7000
24.000	4.3400

Name: POND A-2 Base Flow(cfs): 0.000 Init Stage(ft): 20.000
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
20.000	0.3720
24.000	0.7000

Name: POND A-3 Base Flow(cfs): 0.000 Init Stage(ft): 22.000
Group: BASE Warn Stage(ft): 28.000
Type: Stage/Area

Stage(ft)	Area(ac)
22.000	0.0060
28.000	0.2400

Name: POND B-4 Base Flow(cfs): 0.000 Init Stage(ft): 25.000
Group: BASE Warn Stage(ft): 29.000
Type: Stage/Area

Stage(ft)	Area(ac)
25.000	0.0230
29.000	0.9200

Name: POND B1 Base Flow(cfs): 0.000 Init Stage(ft): 19.500
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)
19.500	0.2490
20.000	0.2510
25.000	0.6440

Name: POND B2 Base Flow(cfs): 0.000 Init Stage(ft): 21.500

Group: BASE Warn Stage(ft): 26.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.500	0.0600
26.000	0.2020

Name: POND B3 Base Flow(cfs): 0.000 Init Stage(ft): 22.000
Group: BASE Warn Stage(ft): 27.000
Type: Stage/Area

Stage(ft)	Area(ac)
22.000	0.0700
24.000	0.1540
27.000	0.2900

Name: Rail Outfall Base Flow(cfs): 0.000 Init Stage(ft): 19.390
Group: BASE Warn Stage(ft): 24.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	19.390
36.00	19.390

Name: RR-US Base Flow(cfs): 0.000 Init Stage(ft): 19.390
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
19.390	0.0050
20.000	0.0080
21.000	0.5000
22.000	1.5000
23.000	4.0000
24.000	6.2700

Name: SUBSTATION Base Flow(cfs): 0.000 Init Stage(ft): 21.300
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.300	0.0027
21.500	0.1211
22.000	0.3018
22.500	0.3596
23.000	0.4124
24.000	0.5190
25.000	3.6000

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==== Pipes ==========
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Name: 18"_B3_B4 From Node: POND B-4 Length(ft): 60.00
Group: BASE To Node: POND B3 Count: 1
Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.50
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	18.00	18.00
Rise(in):	18.00	18.00
Invert(ft):	25.000	24.000
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	18"_B3_D	From Node:	DITCH TO B3	Length(ft): 76.00
Group:	BASE	To Node:	POND B3	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	18.00	18.00		Entrance Loss Coef: 0.50
Rise(in):	18.00	18.00		Exit Loss Coef: 0.50
Invert(ft):	25.000	24.000		Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	18"_P-A-2_P-A-3	From Node:	POND A-3	Length(ft): 123.00
Group:	BASE	To Node:	POND A-2	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	18.00	18.00		Entrance Loss Coef: 0.50
Rise(in):	18.00	18.00		Exit Loss Coef: 0.50
Invert(ft):	22.000	20.000		Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	24"_B2_B3	From Node:	POND B3	Length(ft): 100.00
Group:	BASE	To Node:	POND B2	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	24.00	24.00		Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00		Exit Loss Coef: 0.50
Invert(ft):	22.000	21.500		Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	36"_B1_B2	From Node:	POND B2	Length(ft): 440.00
Group:	BASE	To Node:	POND B1	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	36.00	36.00		Entrance Loss Coef: 0.50
Rise(in):	36.00	36.00		Exit Loss Coef: 0.50
Invert(ft):	21.500	19.500		Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc

Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	36"_EP-4-EP-5	From Node: EP-5	Length(ft): 424.00
Group:	BASE	To Node: EP-4	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	42.00	42.00	Entrance Loss Coef: 0.50
Rise(in):	42.00	42.00	Exit Loss Coef: 0.50
Invert(ft):	21.000	19.000	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	36"_P-A-1_P-A-2	From Node: POND A-2	Length(ft): 74.00
Group:	BASE	To Node: Pond A-1	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.50
Rise(in):	36.00	36.00	Exit Loss Coef: 0.00
Invert(ft):	20.000	18.000	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	48"_EP-2_EP-3	From Node: EP-3	Length(ft): 432.00
Group:	BASE	To Node: EP-2	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	48.00	48.00	Entrance Loss Coef: 0.50
Rise(in):	48.00	48.00	Exit Loss Coef: 0.50
Invert(ft):	18.090	17.050	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	48"_EP-3_EP-4	From Node: EP-4	Length(ft): 374.00
Group:	BASE	To Node: EP-3	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both

Span(in):	48.00	48.00	Entrance Loss Coef:	0.50
Rise(in):	48.00	48.00	Exit Loss Coef:	0.50
Invert(ft):	19.000	18.090	Bend Loss Coef:	0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	54"_EP-1_EP-2	From Node: EP-2	Length(ft):	145.00
Group:	BASE	To Node: EP-1	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	54.00	54.00	Entrance Loss Coef:	0.50
Rise(in):	54.00	54.00	Exit Loss Coef:	0.50
Invert(ft):	17.050	16.700	Bend Loss Coef:	0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	60"_A-1_EP-1	From Node: EP-1	Length(ft):	85.00
Group:	BASE	To Node: POND A-1	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	60.00	60.00	Entrance Loss Coef:	0.50
Rise(in):	60.00	60.00	Exit Loss Coef:	0.50
Invert(ft):	16.700	16.500	Bend Loss Coef:	0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	Ex. Pipe 1	From Node: RR-US	Length(ft):	22.00
Group:	BASE	To Node: Rail Outfall	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	18.00	18.00	Entrance Loss Coef:	0.50
Rise(in):	18.00	18.00	Exit Loss Coef:	0.50
Invert(ft):	19.610	19.400	Bend Loss Coef:	0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```
        Name: Ex. Pipe 2          From Node: RR-US              Length(ft): 22.00
       Group: BASE                  To Node: Rail Outfall           Count: 1
                                                        Friction Equation: Automatic
              UPSTREAM       DOWNSTREAM                Solution Algorithm: Most Restrictive
    Geometry: Circular       Circular                        Flow: Both
    Span(in): 18.00          18.00                     Entrance Loss Coef: 0.50
    Rise(in): 18.00          18.00                         Exit Loss Coef: 0.50
   Invert(ft): 19.390        19.390                        Bend Loss Coef: 0.00
 Manning's N: 0.013000       0.013000                   Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000          0.000                     Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


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        Name: POND2>OUTFALL       From Node: Pond A-1           Length(ft): 46.00
       Group: BASE                  To Node: RR-US                  Count: 1
                                                        Friction Equation: Automatic
              UPSTREAM       DOWNSTREAM                Solution Algorithm: Most Restrictive
    Geometry: Circular       Circular                        Flow: Both
    Span(in): 36.00          36.00                     Entrance Loss Coef: 0.50
    Rise(in): 36.00          36.00                         Exit Loss Coef: 0.50
   Invert(ft): 20.000        19.500                        Bend Loss Coef: 0.00
 Manning's N: 0.013000       0.013000                   Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000          0.000                     Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


==================================================================================================
==== Channels ====================================================================================
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         Name: B1 DITCH            From Node: DITCH TO B1        Length(ft): 43.00
        Group: BASE                  To Node: POND B1                Count: 1

              UPSTREAM       DOWNSTREAM                Friction Equation: Automatic
    Geometry: Trapezoidal    Trapezoidal               Solution Algorithm: Automatic
   Invert(ft): 23.000        19.500                          Flow: Both
TClpInitZ(ft): 9999.000      9999.000                  Contraction Coef: 0.100
  Manning's N: 0.040000      0.040000                    Expansion Coef: 0.300
 Top Clip(ft): 0.000         0.000                     Entrance Loss Coef: 0.000
 Bot Clip(ft): 0.000         0.000                         Exit Loss Coef: 0.000
    Main XSec:                                         Outlet Ctrl Spec: Use dc or tw
 AuxElev1(ft):                                          Inlet Ctrl Spec: Use dc
    Aux XSec1:                                        Stabilizer Option: None
 AuxElev2(ft):
    Aux XSec2:
Top Width(ft):
    Depth(ft):
Bot Width(ft): 23.000        19.500
 LtSdSlp(h/v): 3.00          3.00
 RtSdSlp(h/v): 3.00          3.00


--------------------------------------------------------------------------------------------------
         Name: OFF-SITE D1         From Node: D1                 Length(ft): 950.00
        Group: BASE                  To Node: RR-US                  Count: 1

              UPSTREAM       DOWNSTREAM                Friction Equation: Automatic
    Geometry: Trapezoidal    Trapezoidal               Solution Algorithm: Automatic
   Invert(ft): 21.100        19.390                          Flow: Both
TClpInitZ(ft): 9999.000      9999.000                  Contraction Coef: 0.100
  Manning's N: 0.040000      0.040000                    Expansion Coef: 0.300
 Top Clip(ft): 0.000         0.000                     Entrance Loss Coef: 0.000
 Bot Clip(ft): 0.000         0.000                         Exit Loss Coef: 0.000
    Main XSec:                                         Outlet Ctrl Spec: Use dc or tw
 AuxElev1(ft):                                          Inlet Ctrl Spec: Use dc
    Aux XSec1:                                        Stabilizer Option: None
 AuxElev2(ft):
```

```
     Aux XSec2:
 Top Width(ft):
     Depth(ft):
 Bot Width(ft): 50.000         50.000
  LtSdSlp(h/v): 3.00           3.00
  RtSdSlp(h/v): 3.00           3.00


-------------------------------------------------------------------------------------------------
          Name: OFF-SITE D2         From Node: NORITAKE          Length(ft): 1600.00
         Group: BASE                  To Node: RR-US                  Count: 1

                UPSTREAM       DOWNSTREAM                 Friction Equation: Automatic
      Geometry: Trapezoidal    Trapezoidal               Solution Algorithm: Automatic
    Invert(ft): 23.000         19.390                                  Flow: Both
 TClpInitZ(ft): 9999.000       9999.000                    Contraction Coef: 0.100
   Manning's N: 0.040000       0.040000                      Expansion Coef: 0.300
  Top Clip(ft): 0.000          0.000                     Entrance Loss Coef: 0.000
  Bot Clip(ft): 0.000          0.000                         Exit Loss Coef: 0.000
     Main XSec:                                            Outlet Ctrl Spec: Use dc or tw
  AuxElev1(ft):                                             Inlet Ctrl Spec: Use dc
     Aux XSec1:                                           Stabilizer Option: None
  AuxElev2(ft):
     Aux XSec2:
 Top Width(ft):
     Depth(ft):
 Bot Width(ft): 20.000         20.000
  LtSdSlp(h/v): 3.00           3.00
  RtSdSlp(h/v): 3.00           3.00


=========================================================================================
==== Drop Structures ====================================================================
=========================================================================================

         Name: 42" - RI#1          From Node: POND B1           Length(ft): 130.00
        Group: BASE                  To Node: EP-4                   Count: 1

               UPSTREAM       DOWNSTREAM                 Friction Equation: Automatic
     Geometry: Circular       Circular                  Solution Algorithm: Most Restrictive
     Span(in): 42.00          42.00                                  Flow: Both
     Rise(in): 42.00          42.00                     Entrance Loss Coef: 0.500
   Invert(ft): 9.500          9.500                         Exit Loss Coef: 0.500
  Manning's N: 0.013000       0.013000                    Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                          Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


*** Weir 1 of 1 for Drop Structure 42" - RI#1 ***
                                                                                TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Vertical: Mavis           Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Rectangular           Orifice Disc Coef: 0.600

               Span(in): 240.00                      Invert(ft): 19.500
               Rise(in): 6.00                  Control Elev(ft): 19.500


-------------------------------------------------------------------------------------------------
         Name: Control             From Node: SUBSTATION        Length(ft): 32.00
        Group: BASE                  To Node: D1                     Count: 1

               UPSTREAM       DOWNSTREAM                 Friction Equation: Automatic
     Geometry: Circular       Circular                  Solution Algorithm: Most Restrictive
     Span(in): 18.00          18.00                                  Flow: Both
     Rise(in): 18.00          18.00                     Entrance Loss Coef: 0.500
   Invert(ft): 21.200         21.100                        Exit Loss Coef: 0.500
  Manning's N: 0.013000       0.013000                    Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                          Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall
```

```
*** Weir 1 of 3 for Drop Structure Control ***
                                                                                TABLE
                 Count: 1                      Bottom Clip(in): 0.000
                  Type: Vertical: Mavis           Top Clip(in): 0.000
                  Flow: Both                    Weir Disc Coef: 3.200
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 6.00                        Invert(ft): 21.300
              Rise(in): 18.00                 Control Elev(ft): 21.300

*** Weir 2 of 3 for Drop Structure Control ***
                                                                                TABLE
                 Count: 1                      Bottom Clip(in): 0.000
                  Type: Horizontal                Top Clip(in): 0.000
                  Flow: Both                    Weir Disc Coef: 3.200
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 36.00                       Invert(ft): 24.500
              Rise(in): 36.00                 Control Elev(ft): 24.500

*** Weir 3 of 3 for Drop Structure Control ***
                                                                                TABLE
                 Count: 3                      Bottom Clip(in): 0.000
                  Type: Vertical: Mavis           Top Clip(in): 0.000
                  Flow: Both                    Weir Disc Coef: 3.200
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 36.00                       Invert(ft): 23.900
              Rise(in): 7.00                  Control Elev(ft): 23.900


=========================================================================================
==== Weirs ==============================================================================
=========================================================================================

         Name: Weir - A1           From Node: POND A-1
        Group: BASE                  To Node: RR-US
         Flow: Both                    Count: 1
         Type: Vertical: Mavis      Geometry: Trapezoidal

            Bottom Width(ft): 20.00
        Left Side Slope(h/v): 3.00
       Right Side Slope(h/v): 3.00
                  Invert(ft): 23.000
       Control Elevation(ft): 23.000
      Struct Opening Dim(ft): 9999.00
                                             TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
         Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



=========================================================================================
==== Hydrology Simulations ==============================================================
=========================================================================================

         Name: 002
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\002.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 4.40

Time(hrs)       Print Inc(min)
--------------- ---------------
72.000          5.00

-------------------------------------------------------------------------------------------------
         Name: 010
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\010.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 6.50

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

-------------------------------------------------------------------------------------------------
         Name: 025
```

Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\025.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Scsiii
Rainfall Amount(in): 8.11

Time(hrs)	Print Inc(min)
36.000	5.00

Name: 050
Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\050.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Scsiii
Rainfall Amount(in): 9.50

Time(hrs)	Print Inc(min)
36.000	5.00

Name: 100
Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\100.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Scsiii
Rainfall Amount(in): 10.90

Time(hrs)	Print Inc(min)
36.000	5.00

==========

==== Routing Simulations ==========

==========

Name: 002 Hydrology Sim: 002
Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\002.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 72.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 002 Boundary Flows: Amazon 002

Time(hrs)	Print Inc(min)
72.000	15.000

Group	Run
BASE	Yes

Name: 010 Hydrology Sim: 010
Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\010.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 010 Boundary Flows: Amazon 010

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

```
-------------------------------------------------------------------------------------------------
         Name: 025                 Hydrology Sim: 025
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\025.I32

      Execute: No          Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 36.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages: 025                  Boundary Flows: Amazon 025


Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          15.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 050                 Hydrology Sim: 050
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\050.I32

      Execute: No          Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 36.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages: 050                  Boundary Flows: Amazon 050


Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          15.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 100                 Hydrology Sim: 100
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\100.I32

      Execute: No          Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 36.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages: 100                  Boundary Flows: Amazon 100


Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          15.000

Group           Run
--------------- -----
BASE            Yes


=================================================================================================
==== Boundary Conditions ========================================================================
=================================================================================================

      Name: 002                  Node: Rail Outfall          Type: Stage

      Time(hrs)       Stage(ft)
--------------- ---------------
          0.000          19.390
         12.000          20.400
         24.000          19.390
         36.000          19.390
         72.000          19.390
```

Name: 010 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	21.700
24.000	19.390
36.000	19.390

Name: 025 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	22.400
24.000	19.390
36.000	19.390

Name: 050 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	22.900
24.000	19.390
36.000	19.390

Name: 100 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	23.500
24.000	19.390
36.000	19.390

Name: Amazon 025 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
7.000	0.000
10.000	4.700
13.200	47.000
20.250	6.340
30.000	0.500
36.000	0.100

Name: Amazon 010 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
8.500	1.000
13.250	36.800
19.000	6.900
24.250	2.800
36.000	0.000

Name: Amazon 002 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
10.250	1.000
13.250	22.900
21.000	3.000
36.000	0.000
72.000	0.000

Name: Amazon 050 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
7.000	1.000
13.000	61.920
20.000	7.700
36.000	0.000

Name: Amazon 100 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
6.000	1.000
13.000	69.950
20.000	9.400
28.000	1.000
36.000	0.000

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
002	Noritake	BASE	12.30	20.89	3.301	112294
002	WS-100	BASE	12.50	8.05	3.003	68358
002	WS-101	BASE	12.24	8.98	3.301	43144
002	WS-101A	BASE	12.50	29.56	3.003	250972
002	WS-200	BASE	12.27	30.79	3.938	176845
002	WS-201	BASE	12.27	16.08	3.938	92354
002	WS-202	BASE	12.27	7.89	3.938	45319
002	WS-203	BASE	12.30	10.83	3.301	58244
002	WS-204	BASE	12.27	5.23	3.938	30022
002	WS-205	BASE	12.30	2.01	3.301	10786
002	WS-206	BASE	12.24	0.68	4.166	3629
002	WS-207	BASE	12.24	1.63	4.166	8771
002	WS-208	BASE	12.27	4.28	3.938	24590
010	Noritake	BASE	12.27	32.85	5.336	181495
010	WS-100	BASE	12.50	13.21	4.993	113637
010	WS-101	BASE	12.24	14.07	5.336	69731
010	WS-101A	BASE	12.50	48.50	4.993	417214
010	WS-200	BASE	12.27	46.14	6.028	270675
010	WS-201	BASE	12.27	24.09	6.028	141355
010	WS-202	BASE	12.27	11.82	6.028	69365
010	WS-203	BASE	12.27	17.04	5.336	94137
010	WS-204	BASE	12.27	7.83	6.028	45951
010	WS-205	BASE	12.27	3.16	5.336	17433
010	WS-206	BASE	12.24	1.00	6.264	5457
010	WS-207	BASE	12.24	2.42	6.264	13188
010	WS-208	BASE	12.27	6.42	6.028	37636
025	Noritake	BASE	12.27	41.95	6.917	235262
025	WS-100	BASE	12.50	17.15	6.551	149109
025	WS-101	BASE	12.24	17.93	6.917	90389
025	WS-101A	BASE	12.50	62.98	6.551	547445
025	WS-200	BASE	12.27	57.83	7.634	342782
025	WS-201	BASE	12.27	30.20	7.634	179012
025	WS-202	BASE	12.27	14.82	7.634	87843
025	WS-203	BASE	12.27	21.76	6.917	122025
025	WS-204	BASE	12.27	9.82	7.634	58193
025	WS-205	BASE	12.27	4.03	6.917	22597
025	WS-206	BASE	12.24	1.25	7.874	6859
025	WS-207	BASE	12.24	3.02	7.874	16577
025	WS-208	BASE	12.27	8.04	7.634	47663
050	Noritake	BASE	12.27	49.74	8.289	281936
050	WS-100	BASE	12.50	20.54	7.909	180009
050	WS-101	BASE	12.24	21.24	8.289	108321
050	WS-101A	BASE	12.50	75.41	7.909	660895
050	WS-200	BASE	12.27	67.91	9.022	405094
050	WS-201	BASE	12.27	35.46	9.022	211553
050	WS-202	BASE	12.27	17.40	9.022	103811
050	WS-203	BASE	12.27	25.80	8.289	146234
050	WS-204	BASE	12.27	11.53	9.022	68771
050	WS-205	BASE	12.27	4.78	8.289	27080
050	WS-206	BASE	12.24	1.47	9.263	8070
050	WS-207	BASE	12.24	3.55	9.263	19503
050	WS-208	BASE	12.27	9.44	9.022	56327
100	Noritake	BASE	12.27	57.56	9.676	329094
100	WS-100	BASE	12.50	23.93	9.284	211297
100	WS-101	BASE	12.24	24.57	9.676	126440
100	WS-101A	BASE	12.50	87.87	9.284	775767
100	WS-200	BASE	12.27	78.04	10.420	467886
100	WS-201	BASE	12.27	40.75	10.420	244345
100	WS-202	BASE	12.27	20.00	10.420	119903
100	WS-203	BASE	12.27	29.86	9.676	170694
100	WS-204	BASE	12.27	13.25	10.420	79431
100	WS-205	BASE	12.27	5.53	9.676	31610
100	WS-206	BASE	12.24	1.68	10.663	9290
100	WS-207	BASE	12.24	4.07	10.663	22451
100	WS-208	BASE	12.27	10.85	10.420	65058

Name	Simulation	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Inflow cfs	Max Outflow cfs
D1	002	21.65	24.00	0.0003	759317	49.45	15.27
D1	010	22.36	24.00	0.0002	863029	83.35	18.79
D1	025	22.88	24.00	0.0004	1000806	104.96	22.17
D1	050	23.44	24.00	0.0005	1149556	138.51	24.83
D1	100	23.81	24.00	0.0005	1248956	161.69	30.14
DITCH TO B1	002	23.19	29.00	-0.0004	951	10.70	10.69
DITCH TO B1	010	23.25	29.00	0.0003	965	16.88	16.86
DITCH TO B1	025	23.52	29.00	0.0041	1136	21.56	21.54
DITCH TO B1	050	24.24	29.00	-0.0062	1302	25.57	38.99
DITCH TO B1	100	24.91	29.00	-0.0397	1476	29.60	309.27
DITCH TO B3	002	26.00	29.00	-0.0101	1069	1.98	3.39
DITCH TO B3	010	26.00	29.00	-0.0101	1069	3.13	3.39
DITCH TO B3	025	26.09	29.00	-0.0101	1281	3.99	3.90
DITCH TO B3	050	26.21	29.00	-0.0101	1567	4.74	4.59
DITCH TO B3	100	26.33	29.00	-0.0101	1842	5.48	5.27
EP-1	002	21.44	25.00	0.0607	224	21.32	21.80
EP-1	010	22.31	25.00	0.0607	140	27.85	28.12
EP-1	025	22.92	25.00	0.0607	140	31.29	31.49
EP-1	050	23.49	25.00	0.0607	140	32.04	32.99
EP-1	100	23.86	25.00	0.0607	140	34.36	34.89
EP-2	002	21.47	25.00	0.0133	368	21.02	21.32
EP-2	010	22.38	25.00	0.0213	173	27.26	27.85
EP-2	025	22.87	25.00	0.0133	173	30.73	31.29
EP-2	050	23.44	25.00	0.0133	173	32.19	32.04
EP-2	100	23.81	25.00	-0.0156	173	34.44	34.36
EP-3	002	21.47	25.00	0.0034	1181	21.50	21.02
EP-3	010	22.37	25.00	0.0035	320	27.60	27.26
EP-3	025	22.91	25.00	-0.0053	240	30.77	30.73
EP-3	050	23.50	25.00	0.0055	194	32.20	32.19
EP-3	100	24.01	25.00	0.0055	194	34.53	34.44
EP-4	002	21.47	28.90	0.0024	1750	21.45	21.06
EP-4	010	22.38	28.90	0.0022	1238	27.68	26.92
EP-4	025	23.09	28.90	0.0022	683	30.26	29.84
EP-4	050	23.76	28.90	0.0026	652	31.49	31.22
EP-4	100	24.34	28.90	0.0026	577	33.66	33.41
EP-5	002	21.82	25.00	-0.0013	723	4.24	4.21
EP-5	010	22.38	25.00	0.0012	725	6.36	6.26
EP-5	025	23.10	25.00	0.0018	668	7.98	7.40
EP-5	050	23.76	25.00	0.0020	576	9.37	8.76
EP-5	100	24.35	25.00	0.0026	350	10.76	10.18
NORITAKE	002	23.21	24.00	0.0003	317490	20.64	3.03
NORITAKE	010	23.33	24.00	0.0002	339888	32.53	5.14
NORITAKE	025	23.42	24.00	0.0002	355178	41.56	6.87
NORITAKE	050	23.50	24.00	0.0003	370080	49.31	7.49
NORITAKE	100	23.81	24.00	0.0004	427503	57.06	8.00
POND A-1	002	21.46	24.00	0.0016	173478	58.96	4.74
POND A-1	010	22.34	24.00	0.0012	178869	84.05	20.19
POND A-1	025	22.88	24.00	0.0010	182134	108.60	29.06
POND A-1	050	23.44	24.00	0.0010	185601	118.34	33.97
POND A-1	100	23.82	24.00	0.0013	187932	131.84	53.63
POND A-2	002	21.46	24.00	0.0020	21536	15.94	9.39
POND A-2	010	22.34	24.00	0.0015	24664	23.90	19.83
POND A-2	025	22.88	24.00	0.0011	26538	29.93	22.90
POND A-2	050	23.44	24.00	0.0011	28512	34.36	19.92
POND A-2	100	23.82	24.00	0.0020	29849	39.16	21.57
POND A-3	002	22.00	28.00	0.0000	266	0.00	0.00
POND A-3	010	22.34	28.00	0.0001	902	0.00	0.01
POND A-3	025	22.88	28.00	0.0008	1819	0.00	0.03
POND A-3	050	23.44	28.00	0.0016	2737	0.00	0.05
POND A-3	100	23.82	28.00	0.0018	3353	0.00	0.09
POND B-4	002	25.00	29.00	0.0000	1004	0.00	0.00
POND B-4	010	25.00	29.00	0.0000	1004	0.00	0.00
POND B-4	025	25.00	29.00	0.0000	1004	0.00	0.00
POND B-4	050	25.00	29.00	0.0000	1004	0.00	0.00
POND B-4	100	25.00	29.00	0.0000	1004	0.00	0.00
POND B1	002	21.47	25.00	0.0031	17150	23.82	16.99
POND B1	010	22.68	25.00	0.0023	20768	36.63	21.43
POND B1	025	23.50	25.00	0.0023	23946	42.60	22.80
POND B1	050	24.24	25.00	0.0023	26491	55.21	24.41
POND B1	100	24.90	25.00	0.0030	28753	320.37	26.28

Name	Simulation	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Inflow cfs	Max Outflow cfs
POND B2	002	22.53	26.00	0.0015	4734	6.34	5.84
POND B2	010	22.81	26.00	0.0013	5006	9.64	8.96
POND B2	025	23.56	26.00	0.0015	5931	10.80	8.60
POND B2	050	24.29	26.00	0.0022	6714	9.23	6.74
POND B2	100	24.96	26.00	0.0030	7413	9.86	7.54
POND B3	002	22.59	27.00	0.0010	4277	3.39	1.61
POND B3	010	22.85	27.00	0.0009	4761	3.39	2.53
POND B3	025	23.57	27.00	0.0015	6031	3.90	2.26
POND B3	050	24.30	27.00	0.0022	7395	4.59	2.86
POND B3	100	24.98	27.00	0.0031	8735	5.27	3.26
Rail Outfall	002	20.40	24.00	-0.0001	31	17.60	0.00
Rail Outfall	010	21.70	24.00	0.0001	2	26.22	0.00
Rail Outfall	025	22.40	24.00	0.0001	2	30.34	0.00
Rail Outfall	050	22.90	24.00	-0.0002	2	34.14	0.00
Rail Outfall	100	23.50	24.00	-0.0002	2	36.43	0.00
RR-US	002	21.46	24.00	0.0009	94113	21.53	17.60
RR-US	010	22.34	24.00	0.0003	159924	27.45	26.22
RR-US	025	22.87	24.00	0.0004	221398	30.39	30.34
RR-US	050	23.43	24.00	0.0005	282445	37.17	34.14
RR-US	100	23.81	24.00	0.0005	322463	40.34	36.43
SUBSTATION	002	22.80	25.00	0.0021	17060	8.98	2.46
SUBSTATION	010	23.39	25.00	0.0015	19781	14.06	3.77
SUBSTATION	025	23.83	25.00	0.0014	21825	17.92	4.35
SUBSTATION	050	24.10	25.00	0.0016	35878	21.23	6.62
SUBSTATION	100	24.24	25.00	0.0022	54498	24.54	8.81

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX D

CSS SPREADSHEET

26327.0010

Coastal Stormwater Supplement Site Planning & Design Worksheet

Revised July 2014

Site Data

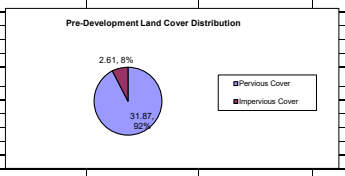
Site Name: NFI BUILDINGS A & B

	data input cells
	calculation cells
	constant values

Step 1: Enter Site Information

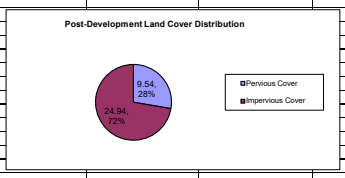
Pre-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	31.87	31.87
Impervious Cover	0.00	0.00	0.00	2.61	2.61
				Total	34.48

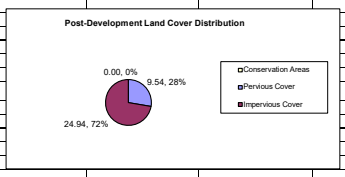


Post-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	9.54	9.54
Impervious Cover	0.00	0.00	0.00	24.94	24.94
				Total	34.48



Runoff Reduction Rainfall Event (inches)	1.2
Post-Development Site Imperviousness (%)	72%
Post-Development Site Runoff Coefficient, Rv	0.70
Target Runoff Reduction Volume, RRv (acre-feet)	2.42
Target Runoff Reduction Volume, RRv (cubic feet	105,285

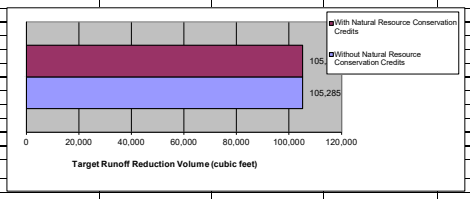


Step 2: Apply Better Site Planning Techniques

Natural Resource Conservation Credits	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Primary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Secondary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Total (acres)					0.00

Target Runoff Reduction Volume with Natural Resource Conservation Credits, RRv

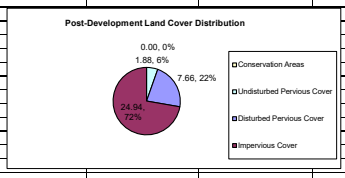
Target Runoff Reduction Volume, RRv (acre-feet)	2.42
Target Runoff Reduction Volume, RRv (cubic feet	105,285



Step 3: Apply Better Site Design Techniques

Reduced Clearing and Grading Credits

	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Undisturbed Pervious Cover (Acres)	0.0	0.0	0.0	1.9	1.88



Revised Post-Development Land Cover (acres)

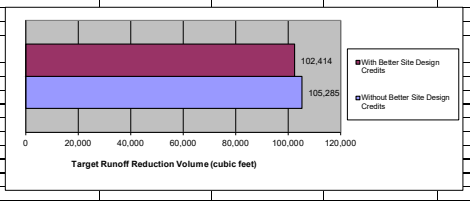
Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	1.88	1.88
Disturbed Pervious Cover	0.00	0.00	0.00	7.66	7.66
Impervious Cover	0.00	0.00	0.00	24.94	24.94
				Total	34.48

Restoration of Disturbed Pervious Surfaces

Soil Restoration (Acres)	0.0
Site Reforestation/Vegetation (Acres)	0.0
Soil Restoration w/ Site Reforestation/Revegetation (Acres)	0.0

Target Runoff Reduction Volume After Application of Better Site Design Credits, RRv

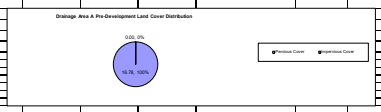
Target Runoff Reduction Volume, RRv (acre-feet)	2.35
Target Runoff Reduction Volume, RRv (cubic feet	102,414



Note: Remainder of Better Site Design Techniques are considered to be "self-crediting."

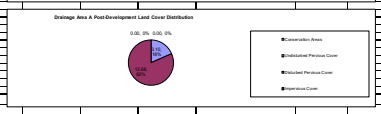
Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Drainage Area A
Drainage Area Information



Drainage Area A Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	16.78	16.78
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	16.78



Drainage Area A Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	3.10	3.10
Impervious Cover	0.00	0.00	0.00	13.68	13.68
				Total	16.78

Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

"Receiving" Low Impact Development Practices

Vegetated Filter Strip, C/D Soils 1	5.33	5.09	21115.7	30% of volume received by the practice	0.0	21115.7	0.0	21115.7	N/A	N/A	6334.7	14781.0	6334.7	14781.0	Stormwater Pond, Wetland, or Wet Swale 1
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

Treatment Only Practices

Stormwater Pond, Wetland, or Wet Swale 1	11.45	8.59	36170.0	None	14781.0	50951.0	14781.0	50951.0	Volume in Wet Pool and Extended Detention	600000.0	0.0	50951.0	50951.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**16.78**	**13.68**									**6334.7**		**57285.8**		

Practice	Method	Storage Volume	Reduction	Treatment?	Loss Calculation Meth	Downstream List
None	N/A	N/A	0%	N	N/A	No Downstream Practice
Green Roof 1	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 1
Green Roof 2	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 2
Green Roof 3	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 3
Green Roof 4	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 4
Green Roof 5	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 5
Permeable Pavement System, Underdrained 1	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 1
Permeable Pavement System, Underdrained 2	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 2
Permeable Pavement System, Underdrained 3	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 3
Permeable Pavement System, Underdrained 4	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 4
Permeable Pavement System, Underdrained 5	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 5
Permeable Pavement System, Non-Underdrained 1	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 1
Permeable Pavement System, Non-Underdrained 2	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 2
Permeable Pavement System, Non-Underdrained 3	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 3
Permeable Pavement System, Non-Underdrained 4	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 4
Permeable Pavement System, Non-Underdrained 5	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 5
None	N/A	N/A	0%	N	N/A	Grass Channel, C/D Soils 1
Vegetated Filter Strip, A/B or Amended Soils 1	60% of volume received by the practice	N/A	60%		N/A	Grass Channel, C/D Soils 2
Vegetated Filter Strip, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Grass Channel, C/D
Vegetated Filter Strip, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Grass Channel, C/D
Vegetated Filter Strip, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Grass Channel, C/D
Vegetated Filter Strip, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 1	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 2	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 3	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 4	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 5	30% of volume	N/A	30%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 1	25% of volume received by the	N/A	25%		N/A	Simple Downspout Disconnection, C/D
Grass Channel, A/B or Amended Soils 2	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 3	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 4	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 5	25% of volume	N/A	25%		N/A	Rain Garden 1
Grass Channel, C/D Soils 1	12.5% of volume	N/A	12.50%		N/A	Rain Garden 2
Grass Channel, C/D Soils 2	12.5% of volume	N/A	12.50%		N/A	Rain Garden 3
Grass Channel, C/D Soils 3	12.5% of volume	N/A	12.50%		N/A	Rain Garden 4
Grass Channel, C/D Soils 4	12.5% of volume	N/A	12.50%		N/A	Rain Garden 5
Grass Channel, C/D Soils 5	12.5% of volume	N/A	12.50%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 1	60% of volume	N/A	60%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Dry Well 1
Simple Downspout Disconnection, C/D Soils 1	30% of volume	N/A	30%		N/A	Dry Well 2
Simple Downspout Disconnection, C/D Soils 2	30% of volume	N/A	30%		N/A	Dry Well 3
Simple Downspout Disconnection, C/D Soils 3	30% of volume	N/A	30%		N/A	Dry Well 4
Simple Downspout Disconnection, C/D Soils 4	30% of volume	N/A	30%		N/A	Dry Well 5
Simple Downspout Disconnection, C/D Soils 5	30% of volume	N/A	30%		N/A	Rainwater
Rain Garden 1	100% of storage		100%	Y	Surface Area x (Ponde	Rainwater
Rain Garden 2	100% of storage		100%	Y	Surface Area x (Ponde	Rainwater
Rain Garden 3	100% of storage		100%	Y	Surface Area x (Ponde	Rainwater

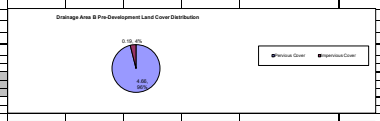
Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Drainage Area B

Drainage Area Information

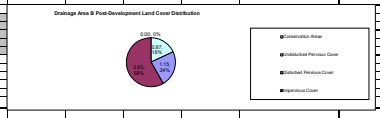
Drainage Area B Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	4.66	4.66
Impervious Cover	0.00	0.00	0.00	0.19	0.19
				Total	4.85



Drainage Area B Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.87	0.87
Disturbed Pervious Cover	0.00	0.00	0.00	1.15	1.15
Impervious Cover	0.00	0.00	0.00	2.83	2.83
				Total	4.85



Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

"Receiving" Low Impact Development Practices

Dry Swale, Non-Underdrained 1	4.85	2.83	12151.1	100% of storage volume	0.0	12151.1	0.0	12151.1	Surface Area x (Ponding Depth + Depth of Planting Bed x Void Ratio)	31948.0	12151.1	0.0	12151.1	0.0	Stormwater Pond, Wetland, or Wet Swale 1
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

Treatment Only Practices

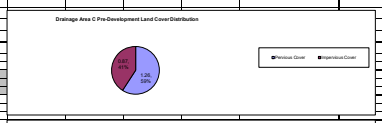
Stormwater Pond, Wetland, or Wet Swale 1	0.00	0.00	0.0	None	0.0	0.0	0.0	0.0	Volume in Wet Pool and Extended Detention	660000.0	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**4.85**	**2.83**									**12151.1**		**12151.1**		

Practice	Method	Storage Volume	Reduction	Treatment?	Storage Calculation Method	Downstream List
None	N/A	N/A	0%	N	N/A	No Downstream Practice
Green Roof 1	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 1
Green Roof 2	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 2
Green Roof 3	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 3
Green Roof 4	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 4
Green Roof 5	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 5
Permeable Pavement System, Underdrained 1	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 1
Permeable Pavement System, Underdrained 2	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 2
Permeable Pavement System, Underdrained 3	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 3
Permeable Pavement System, Underdrained 4	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 4
Permeable Pavement System, Underdrained 5	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 5
Permeable Pavement System, Non-Underdrained 1	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 1
Permeable Pavement System, Non-Underdrained 2	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 2
Permeable Pavement System, Non-Underdrained 3	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 3
Permeable Pavement System, Non-Underdrained 4	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 4
Permeable Pavement System, Non-Underdrained 5	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 5
None	N/A	N/A	0%	N	N/A	Grass Channel, C/D Soils 1
Vegetated Filter Strip, A/B or Amended Soils 1	60% of volume received by the practice	N/A	60%		N/A	Grass Channel, C/D Soils 2
Vegetated Filter Strip, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 1	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 2	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 3	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 4	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 5	30% of volume	N/A	30%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 1	25% of volume received by the	N/A	25%		N/A	Simple Downspout Disconnection, C/D
Grass Channel, A/B or Amended Soils 2	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 3	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 4	25% of volume	N/A	25%		N/A	Simple Downspout

Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

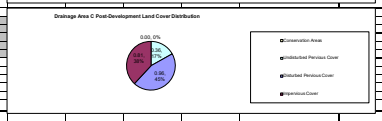
Drainage Area C

Drainage Area Information



Drainage Area C Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.26	1.26
Impervious Cover	0.00	0.00	0.00	0.87	0.87
				Total	2.13



Drainage Area C Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.36	0.36
Disturbed Pervious Cover	0.00	0.00	0.00	0.96	0.96
Impervious Cover	0.00	0.00	0.00	0.81	0.81
				Total	2.13

Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

"Receiving" Low Impact Development Practices

Dry Swale, Non-Underdrained 1	2.13	0.81	3639.4	100% of storage volume	0.0	3639.4	0.0	3639.4	Surface Area x (Ponding Depth + Depth of Planting Bed x Void Ratio)	3973.0	3639.4	0.0	3639.4	0.0	Stormwater Pond, Wetland, or Wet Swale 1
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

Treatment Only Practices

Stormwater Pond, Wetland, or Wet Swale 1	0.00	0.00	0.0	None	0.0	0.0	0.0	0.0	Volume in Wet Pool and Extended Detention	660000.0	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**2.13**	**0.81**									**3639.4**		**3639.4**		

Practice	Method	Storage Volume	Reduction	Treatment?	Storage Calculation Method	Downstream List
None	N/A	N/A	0%	N	N/A	No Downstream Practice
Green Roof 1	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 1
Green Roof 2	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 2
Green Roof 3	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 3
Green Roof 4	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 4
Green Roof 5	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 5
Permeable Pavement System, Underdrained 1	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 1
Permeable Pavement System, Underdrained 2	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 2
Permeable Pavement System, Underdrained 3	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 3
Permeable Pavement System, Underdrained 4	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 4
Permeable Pavement System, Underdrained 5	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 5
Permeable Pavement System, Non-Underdrained 1	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 1
Permeable Pavement System, Non-Underdrained 2	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 2
Permeable Pavement System, Non-Underdrained 3	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 3
Permeable Pavement System, Non-Underdrained 4	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 4
Permeable Pavement System, Non-Underdrained 5	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 5
None	N/A	N/A	0%	N	N/A	Grass Channel, C/D Soils 1
Vegetated Filter Strip, A/B or Amended Soils 1	60% of volume received by the practice	N/A	60%		N/A	Grass Channel, C/D Soils 2
Vegetated Filter Strip, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 1	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 2	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 3	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 4	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 5	30% of volume	N/A	30%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 1	25% of volume received by the	N/A	25%		N/A	Simple Downspout, Disconnection, C/D
Grass Channel, A/B or Amended Soils 2	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 3	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 4	25% of volume	N/A	25%		N/A	Simple Downspout

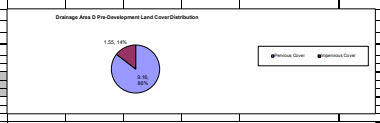
Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Drainage Area D

Drainage Area Information

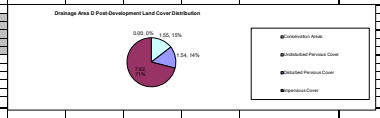
Drainage Area D Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	9.16	9.16
Impervious Cover	0.00	0.00	0.00	1.55	1.55
				Total	10.71



Drainage Area D Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	1.55	1.55
Disturbed Pervious Cover	0.00	0.00	0.00	1.54	1.54
Impervious Cover	0.00	0.00	0.00	7.62	7.62
				Total	10.71



Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
"Receiving" Low Impact Development Practices															
Dry Swale, Non-Underdrained 1	10.71	7.62	32206.1	100% of storage volume	0.0	32206.1	0.0	32206.1	Surface Area x (Ponding Depth + Depth of Planting Bed x Void Ratio)	46178.0	32206.1	0.0	32206.1	0.0	Stormwater Pond, Wetland, or Wet Swale 1
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Treatment Only Practices															
Stormwater Pond, Wetland, or Wet Swale 1	0.00	0.00	0.0	None	0.0	0.0	0.0	0.0	Volume in Wet Pool and Extended Detention	660000.0	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**10.71**	**7.62**									**32206.1**		**32206.1**		

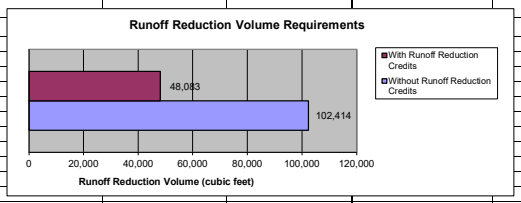
Practice	Method	Storage Volume	Reduction	Treatment?	Storage Calculation Method	Downstream List
None	N/A	N/A		0 N	N/A	No Downstream Practice
Green Roof 1	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 1
Green Roof 2	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 2
Green Roof 3	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 3
Green Roof 4	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or
Green Roof 5	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or
Permeable Pavement System, Underdrained 1	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 1
Permeable Pavement System, Underdrained 2	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 2
Permeable Pavement System, Underdrained 3	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 3
Permeable Pavement System, Underdrained 4	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 4
Permeable Pavement System, Underdrained 5	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 5
Permeable Pavement System, Non-Underdrained 1	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 1
Permeable Pavement System, Non-Underdrained 2	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 2
Permeable Pavement System, Non-Underdrained 3	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 3
Permeable Pavement System, Non-Underdrained 4	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 4
Permeable Pavement System, Non-Underdrained 5	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 5
None	N/A	N/A	0%	N	N/A	Grass Channel, C/D Soils 1
Vegetated Filter Strip, A/B or Amended Soils 1	60% of volume received by the practice	N/A	60%		N/A	Grass Channel, C/D Soils 2
Vegetated Filter Strip, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 1	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 2	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 3	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 4	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 5	30% of volume	N/A	30%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 1	25% of volume received by the	N/A	25%		N/A	Simple Downspout Disconnection, C/D
Grass Channel, A/B or Amended Soils 2	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 3	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 4	25% of volume	N/A	25%		N/A	Simple Downspout

Coastal Stormwater Supplement Site Planning & Design Worksheet

Revised July 2014

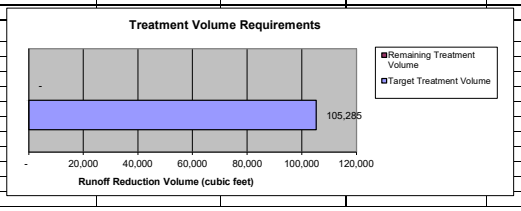
Stormwater Runoff Reduction Summary

Target Runoff Reduction and Treatment Volume, RRv (cubic feet)	105,285
Total Adjustment to Runoff Reduction Volume, RRv (cubic feet)	57,202
Percentage of Target Runoff Reduction Volume Achieved	54%
Runoff Reduction Volume Achieved (in)	0.65
Runoff Reduction Volume Remaining (cubic feet)	48,083



Note: If any of the target runoff reduction volume cannot be reduced on the development site, due to site characteristics or constraints, it should be intercepted and treated in one or more stormwater management practices that: (1) provide for at least an 80 percent reduction in TSS loads; and (2) reduce nitrogen and bacteria loads to the maximum extent practical.

Treatment Volume Achieved (cubic feet)	108,153
Treatment Volume Remaining (cubic feet)	-



THOMAS & HUTTON

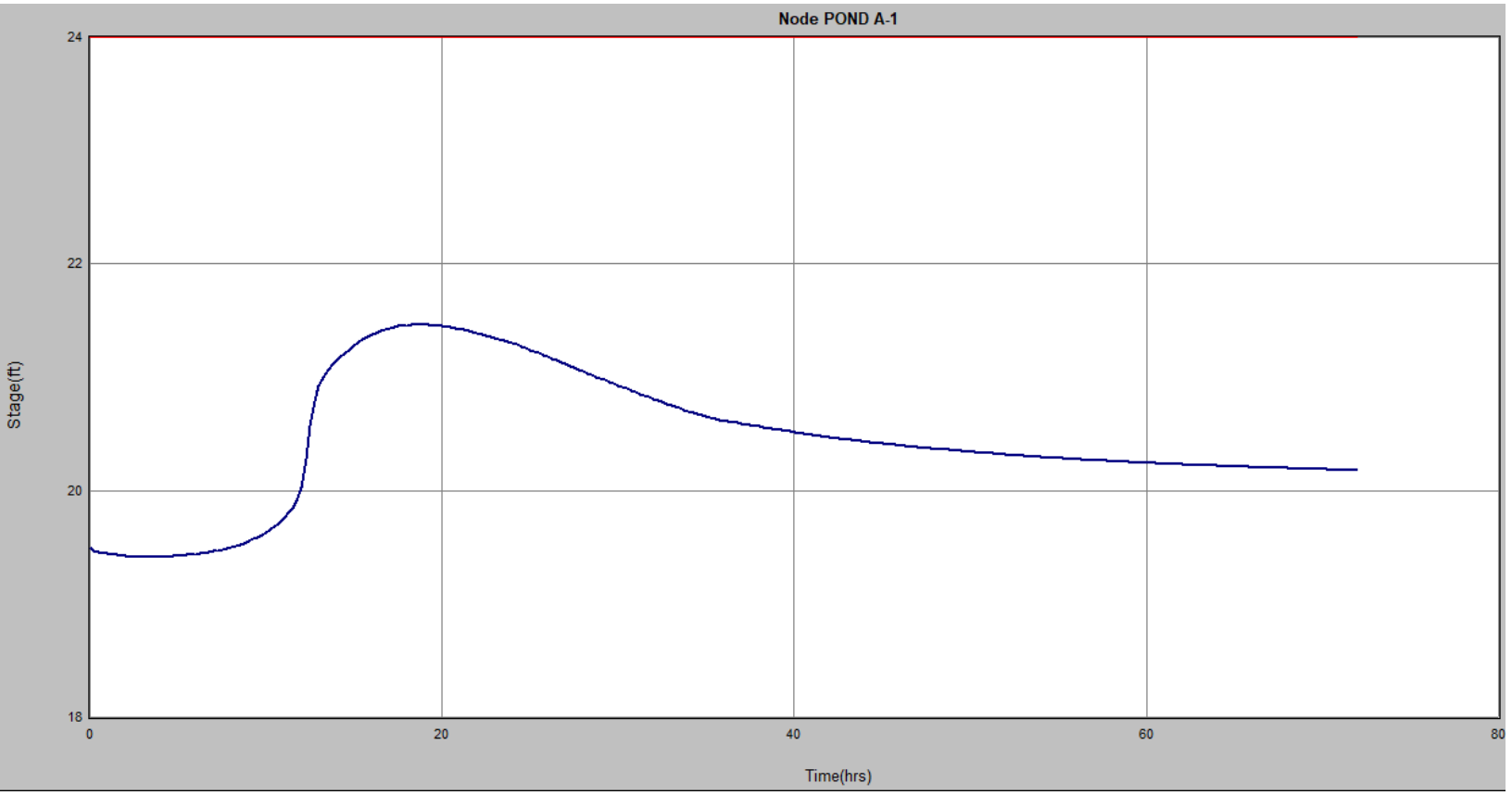
STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX E

AQUATIC RESOURCE PROTECTION CALCULATIONS

26327.0010


Node POND A-1
24
22
20
18
Stage(ft)
0
20
40
60
80
Time(hrs)

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

EXHIBITS

26327.0010

PRE-DEVELOPMENT BASINS

BLDGS A & B

CHATHAM COUNTY, GA

PREPARED FOR:

NFI

PREPARED BY:

THOMAS & HUTTON

50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300

www.thomasandhutton.com

JOB NO: J-26327.0010	DATE: 08/22/21
DRAWN: EMD	SCALE: 1" = 100'
REVIEWED: JOC	SHEET: PRE

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POST-DEVELOPMENT BASINS

BLDGS A & B

CHATHAM COUNTY, GA

PREPARED FOR:

NFI

PREPARED BY:

THOMAS & HUTTON

50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300

www.thomasandhutton.com

JOB NO:	J-26327.0010	DATE:	08/22/21
DRAWN:	EMD	SCALE:	1" = 100'
REVIEWED:	JOC	SHEET:	POST

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Soils Map

NFI Buildings A & B

08/11/2021

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not Classified

This map was created using geothinQ | www.geothinQ.com | Mapping Smart Land Decisions

THOMAS & HUTTON

Location Map

NFI Buildings A & B

08/11/2021

This map was created using geothinQ | www.geothinQ.com | Mapping Smart Land Decisions

THOMAS & HUTTON

FEMA Flood Map

NFI Buildings A & B

08/11/2021

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Area of Minimal Flood Hazard

This map was created using geothinQ | www.geothinQ.com | Mapping Smart Land Decisions

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Dixie St

Dorset Rd

Evora St

Falkirk St

Crossgate Rd

Gordon St

STORMWATER DETENTION POND

DA - A
16.78 ACRES

DA - B
4.85 ACRES

DA - C
2.13 ACRES

DA - D
10.71 ACRES

VEGETATED FILTER STRIP
CONTRIBUTING AREA: 5.33 AC.
(5.09 AC. IMPERVIOUS)

DRY SWALE
(NON-UNDERDRAINED)
CONTRIBUTING AREA: 4.85 AC.
(2.83 AC. IMPERVIOUS)

UNDISTURBED PERVIOUS COVER
0.87 AC.

DRY SWALE
(NON-UNDERDRAINED)
CONTRIBUTING AREA: 2.13 AC.
(0.81 AC. IMPERVIOUS)

UNDISTURBED PERVIOUS COVER
0.36 AC.

DRY SWALE
(NON-UNDERDRAINED)
CONTRIBUTING AREA: 10.71 AC.
(7.62 AC. IMPERVIOUS)

UNDISTURBED PERVIOUS COVER
0.65 AC.

Jimmy DeLoach Pkwy

CSS EXHIBIT

NFI BLDGS A & B

CHATHAM COUNTY, GA

PREPARED FOR:

NFI

PREPARED BY:

THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

JOB NO:	J-26327.0010
DRAWN:	EMD
REVIEWED:	JOC

DATE:	08/11/21
SCALE:	1" = 100'
SHEET:	CSS

Site Plan Review Application submitted by Toss Allen, P.E., Allen Engineering Services, LLC., on behalf of Peachtree Development and Investments, LLC., for PIN # 7-0037-02-008 (Magellan Blvd) for a Specific Development Site Plan to allow an Advanced Auto Parts Store in a P-C-3 (Planned General Business) Zoning District

Issue/Item: Site Plan Review Application submitted by Toss Allen, P.E., Allen Engineering Services, LLC., on behalf of Peachtree Development and Investments, LLC., for PIN # 7-0037-02-008 (Magellan Blvd) for a Specific Development Site Plan to allow an Advanced Auto Parts Store in a P-C-3 (Planned General Business) Zoning District

Background: The subject property is currently vacant woodland. There are no buildings or structures on the subject property. The general development plan for this project was approved during the April 28, 2022 regular City Council meeting.

Facts and Findings: The subject parcel is located on Magellan Blvd. The specific site plan consist of a 6,889 square foot building with associated parking, stormwater detention and drainage. Access is proposed to be on Magellan Blvd and through the Murphy's gas station parking lot. This application is currently under review by City Engineers TR Long Engineering.

Funding: N/A

Recommendation: The Planning Commission will hear this application on Monday, July 11, 2022 at 6:30 P.M. **/ UPDATE: THE PLANNING COMMISSION VOTED UNANIMOUSLY TO APPROVE THE APPLICATION.**

ATTACHMENTS:

- Advanced Auto Parts 7-0037-02-008 S-SITE PLAN JULY 2022 - Application (PDF)
- Advanced Auto Parts 7-0037-02-008 S-SITE PLAN JULY 2022 - Timeline (DOCX)

220276

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

RECEIVED
MAY 21 2022
BY:

Site Plan Review Application

Site Plan Application is required for all new construction in a "P" or "MPO" zone as defined in the Zoning Ordinance of the City of Port Wentworth.

Site Plan Type (*Check One*): ☐ General / Concept ☑ Specific Development

Site Plan Address: 0 Magellan Boulevard

PIN #(s): 70037 02008

Zoning: P-C-3 Estimated Cost of Construction: $ 750,000.00

Type of Construction: Commercial

Applicant's Name: Allen Engineering Services, LLC

Mailing Address: P.O. Box 1749

Rincon, GA 31326

Phone #: (912) 667-2667 Email: tallen@allenengineering.org

Owner's Name (If Different form Applicant): Peachtree Development and Investments, LLC

Mailing Address: 4477 Legendary Drive, Unit 101

Destin, FL 32541

Phone #: (404) 430-5177 Email: jbennett@peachtreedev.com

I hereby acknowledge that the above information is true and correct.

Applicant's Signature — Date: 05/23/2022

Owner's Signature (If Different form Applicant) — Date

Please see page 2 for required submittal checklist

Updated 4/28/2020

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

Site Plan Review Application Submittal Checklist

Documentation below is required for a complete submittal.

- ☑ Signed and Completed Application
- ☑ 3 Full size sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☑ 15 half size (11" X 17") sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☑ 2 copies of hydrology reports (if applicable)
- ☑ Names, mailing address, and PIN number of all property owners within 250 feet of all property lines
- ☑ 1 8 ½" X 11" of site plan civil drawings or concept plan (depending on type of site plan)
- ☑ PDF of entire submittal (either flash drive or CD)
- ☑ Other Engineering details or reports may be required once submittal has been received
- ☑ Site plan review fee check
  - ☐ No Land Disturbance- $206.00 Site Plan Fee + $50.00 Admin Fee = Total $256.00
  - ☑ With Land Disturbance - $836.00 Site Plan Fee + $50.00 Admin Fee = Total $886.00

Additional Fee Statement: If engineer review cost to the City exceeds the site plan review fee that is paid at the time of initial application submittal, you may be required to pay additional review cost.

I have read and agree to the above additional fee statement

Applicant's Signature

05/23/2022
Date

Property Owners Within 250' of Proposed Advanced Auto Parts Property Lines

PIN	Owner	Mailing_Address	City	State	Zip
70037 02006	DOUBLE REVERSE, LLC	250 N. ORANGE AVENUE SUITE 1500	ORLANDO	FL	32801
70037 02007	PORT CITY CAR WASH LLC	118 PIPEMAKERS CIRCLE, SUITE 100	POOLER	GA	31322
70037 02008	DOUBLE REVERSE, LLC	250 N. ORANGE AVENUE SUITE 1500	ORLANDO	FL	32801
70037 02009	MURPHY OIL USA INC	200 EAST PEACH ST	EL DORADO	AR	71730
70037 02010	BRADLEY CREEK PROPERTIES LLC	PO BOX 637	STATESBORO	GA	30459
70037 02016	WPB ESTATE MANAGEMENT LLC	4107 COLUMBIA ROAD	AUGUSTA	GA	30907

CITY OF PORT WENTWORTH
(912) 964-4379

REC#: 00357311 6/09/2022 2:44 PM
OPER: ME TERM: 011
REF#: CK 001307

TRAN: 112.0000 BLDG PERMIT
220276 886.00CR
PEACHTREE DEVELOPMENT & INVEST
7-0037-02-008
DEV-SPR 886.00CR

TENDERED: 886.00 CHECK
APPLIED: 886.00-

CHANGE: 0.00

WWW.CITYOFPORTWENTWORTH.COM

Project Timeline

Project Number: 220276

Project Name: Pt Wentworth Advanced Auto Parts

Applicant / Engineer: Allen Engineering Services, LLC

Owner: Peachtree Development and Investments, LLC

City Review Engineer: TR Long

- 5/27/2022 – Application received; Complete
- 6/9/2022 – sent documents to TR Long for review.
- 7/5/2022 – Sent update email to TR Long.
- 7/8/2022 – received 1st comment letter from TR Long. Forwarded to Allen Engineering.
- 7/11/2022 – Planning Commission voted unanimously to approve the project.
- 7/12/2022 – received 1st return submittal. Forwarded to TR Long.

114 North Commerce Street
Hinesville, Georgia 31313
Office: (912) 368-5664
Fax: (912) 368-7206

T R LONG ENGINEERING, P.C.

308 Commercial Drive
Savannah, Georgia 31406
Office: (912) 335-1046
Fax: (912) 355-1642

July 8, 2022

Mr. Brian Harvey
City of Port Wentworth
7224 Georgia Highway 21
Port Wentworth, Georgia 31407

Re: Advanced Auto Parts – Magellan Blvd.
Port Wentworth, Georgia

Dear Mr. Harvey,

T. R. Long Engineering, P.C. has reviewed the "Advanced Auto Parts – Magellan Blvd." prepared by Allen Engineering Company dated May 23, 2022. T. R. Long Engineering, P.C. offers the following comments with regards to this submittal:

1. The plans do not include any control point references. Additionally, the north arrow does not indicate whether project is magnetic or state plane.
2. On the Grading and Drainage sheet it appears water is being directed towards the adjacent lot (Port City Car Wash). Consider adding additional spots to direct the water to ditch Inlet S7.
3. Please add to the Hydrology report a note indicating that there is not an increase of runoff volume from the site and that the new development does not exceed the volume capacity allocated in the regional detention pond.
4. Please note between water and sewer locations on storm sewer profiles. Provide protection of water and sewer when the crossing is less than 18" inches.

Should you have any questions, comments, or need additional information please contact us.

Sincerely,

Trent R. Long, P.E.

allen
ENGINEERING SERVICES

July 12, 2022

Mr. Trent R. Long, P.E.
TR Long Engineering, P.C.
114 North Commerce Street
Hinesville, GA 31313

RE: **ADVANCED AUTO PARTS – MAGELLAN BLVD.**
PROJECT NO: 22-002

Dear Mr. Long:

The following resolutions are offered to your comments dated July 08, 2022 regarding the above referenced project:

1. *The plans do not include any control point references. Additionally, the north arrow does not indicate whether project is magnetic or state plane.*
   Control point references have been added to the plans. The north arrow now states that it is referenced to the Georgia Grid (NAD 83) State Plane System, East Zone (2011). See each plan sheet.

2. *On the Grading and Drainage sheet it appears water is being directed towards the adjacent lot (Port City Car Wash). Consider adding additional spots to direct the water to ditch inlet S7.*
   A swale directing water towards ditch inlet S7 has been added to the plans. See Sheet C4. Additionally, the plans for Port City Car Wash seem to indicate that the drive closest to this project is intended to be constructed in fill. Therefore, the finished grade at the property line will be higher than what is shown in the existing conditions plan. See attached Port City Car Wash grading plan.

3. *Please add to the Hydrology report a note that there is not an increase of runoff volume from the site and that the new development does not exceed the volume capacity allocated in the regional detention pond.*
   The requested note has been added to Section 4. Post-Development Conditions, of the Hydrology report. See attached Revised Hydrology Report.

173 Cubbedge Drive • Post Office Box 1749 • Rincon, Georgia 31326
Telephone: (912) 667-2667 • E-mail: tallen@allenengineering.org

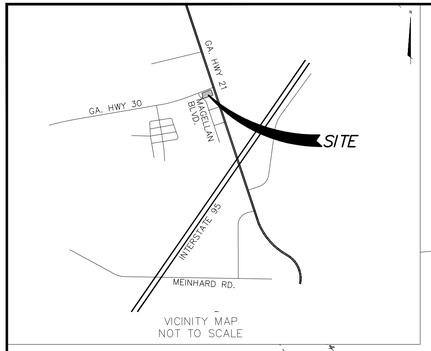
4. *Please note between water and sewer locations on storm sewer profiles. Provide protection of water and sewer when the crossing is less than 18" inches.*
   The storm sewer profiles have been revised to show existing and proposed water and sewer crossings. The separation distance is now labeled on the profiles. The crossings with less than 18" of vertical separation are now called out to encase 12 linear feet of the existing water main in concrete. See Sheet C5 and U1.

If you have any questions or require anything further, please call.

Sincerely,

Toss Allen

Toss Allen, P.E.
Civil Engineer



VICINITY MAP
NOT TO SCALE

GA. GRID NORTH

GA. HIGHWAY 30 R/W VARIES

GA. HEY 30 R/W VARIES

BENCHMARK
1/2" RB – CAPPED
ELEV.: 19.44 (NAVD88)
N: 800864.1900
E: 955807.7300

EX. ELECTRIC BOX

EX. FIBRE OPTIC CABLE BOX

EX. LIGHT POLE

EX. W POWER POLE

EX. TELEPHONE BOX

EX. FIBRE OPTIC CABLE BOX

EXISTING OVERHEAD POWER LINE

EXISTING POWER POLE

GEORGIA HIGHWAY NO. 21 (AUGUSTA RD) 300' R/W

MAGELLAN BOULEVARD

60' R/W

RIDGE LANE

P.I.N.: 7-0037-02-016
N/F
WPB ESTATE MANAGEMENT LLC

P.I.N.: 7-0037-02-008
PARCEL 2
N/F
LAND HOLDING, LLC

LOT 2

PARCEL 1
70037 02007
1.27 Acres

LOT
PARCEL
N/F
LAND HOLDING, LLC
70037 02006
0.22 Acres

4" UNDERDRAIN (TYP.), SEE DETAIL ON SHEET 17

F.F. EL.: 20.97

F.F. EL.: 21.30

20' DRAINAGE EASEMENT

15' UTILITY EASEMENT

BUILDING SETBACK

20' UTILITY EASEMENT

INLET 1
WATER QUALITY STRUCTURE
BY CONTECH (CS-5)
RIM: 20.00
I.E. IN: 15.87
I.E. OUT: 15.87

INLET 2
GRATE INLET
RIM: 19.65
I.E. IN: 16.39
I.E. OUT: 16.29

INLET 3
GRATE INLET
RIM: 19.65
I.E. IN: 16.55
I.E. OUT: 16.45

INLET 4
GRATE INLET
RIM: 20.25
I.E. OUT: 16.75

INLET 5
GRATE INLET
RIM: 20.05
I.E. IN: 16.17
I.E. OUT: 16.07

INLET 6
GRATE INLET
RIM: 19.95
I.E. OUT: 16.39

88 L.F. 15" RCP @ 0.25%

86 L.F. 15" RCP @ 3.35%

24 L.F. 15" RCP @ 0.25%

168 L.F. 15" RCP @ 1.72%

60 L.F. 15" RCP @ 0.25%

289.15'

344.29'

157.96'

940.71'

306.99'

52.93'

N 67°43'02"E

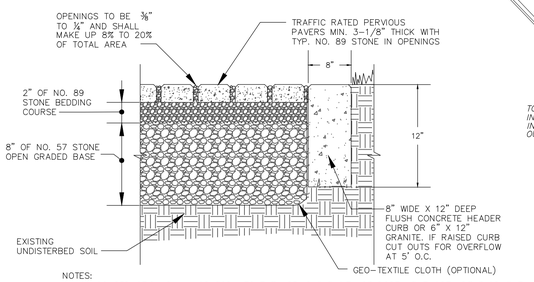
S 51°32'56"E

S 71°27'36"W

N 18°06'55"W

N 20°28'07"E

S 17°54'26"E



NOTES:
1. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE CITY OF PORT WENTWORTH DEVELOPMENT GUIDELINES, TECHNICAL SPECIFICATIONS AND STANDARD DETAILS.
2. CONCRETE IN THE ROADWAY TO BE 5000 PSI REINFORCED WITH FIBERMESH OR STEEL.
3. BASE COMPACTION UNDER CURB TO BE 98% (ASTM D698).
4. CONTRACTION JOINTS TO BE SAW CUT NO LATER THAN 24 HOURS AFTER THE POUR.

PERVIOUS PAVER DETAIL
NOT TO SCALE

Course	Bearing	Distance
L1	Rad: 230.00' Tan: 14.02' Chd: N 62°05'16" W	A: 28.00' CA: 6°58'31" 27.98'
L2	N 65°30'18" W	18.09'
L3	N 65°30'18" W	13.88'
L4	Rad: 170.00' Tan: 71.27' Chd: N 42°45'41" W	A: 134.97' CA: 45°29'18" 131.45'

RUNOFF REDUCTION CALCULATIONS
TOTAL IMPERVIOUS AREA = 0.87 AC. (30,492 S.F.)
VOLUME NEEDED FOR RUNOFF REDUCTION = 30,492 S.F. * 0.10 FT. OF RAINFALL
TOTAL VOLUME NEEDED = 3,049.2 C.F.

UTILIZING
THE FORMULA D=V/(A*N), WHERE
D = DEPTH OF STONE
V = VOLUME, CUBIC FEET
A = AREA, S.F.
N = VOIDS, 0.32
THE TOTAL AREA OF THE PAVERS IS 4,125 S.F.

THE VOLUME PROVIDED BY THE PAVERS
= 4,125 S.F. * 0.67" (STONE DEPTH) * 0.32 = 884.4 CF

30,492 S.F. * (1.2"/12"/FT) = 3,049.2 CUBIC FEET TOTAL VOLUME NEEDED. WITH 77% OF THE VOLUME NEEDED IS HANDLED BY THE WQ DEVICE, 701.32 C.F. IS NEEDED. USING THE FORMULA ABOVE, WE FIND THAT THE AVAILABLE VOLUME, V IS = 884.4 CUBIC FEET OF STORAGE WITHIN THE PAVERS, WHICH IS ADEQUATE AND SATISFIES THE RUNOFF REDUCTION CRITERIA FOR THIS PROJECT.

STORMWATER NOTE:
STORMWATER RELEASED FROM THIS PROJECT WILL NOT ADVERSELY EFFECT THE UPSTREAM AND/OR DOWNSTREAM STORM SYSTEM.

PAVEMENT SECTIONS:
- STANDARD PAVEMENT
- HEAVY-DUTY PAVEMENT

GRAPHIC SCALE: 1" = 20'

FRETUS ENGINEERING
P.O. BOX 13091
SAVANNAH, GA. 31416-0091
PH: (912) 228-2982
jfarmer8809@gmail.com

GEORGIA REGISTERED John W. Farmer No. 30399 PROFESSIONAL 08/04/21 ENGINEER JOHN W. FARMER

LEVEL II CERTIFIED DESIGN PROFESSIONAL #8750

GEORGIA811 KNOW WHAT'S BELOW CALL BEFORE YOU DIG DIAL 811 OR CALL 1-800-282-7411

No.	Revision/Issue	Date
1	VARIOUS CLIENT COMMENTS	3/8/21
2	VARIOUS CLIENT COMMENTS	3/12/21
3	REGULATORY REVIEW COMMENTS	4/8/21
4	REGULATORY REVIEW COMMENTS	4/19/21
5	REGULATORY REVIEW COMMENTS	5/17/21
6	REGULATORY REVIEW COMMENTS	6/28/21
7	REGULATORY REVIEW COMMENTS	7/9/21

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PROJECT TITLE:
PORT CITY CAR WASH PORT WENTWORTH

OWNER:
YASH DESAI

PREPARED FOR:
PANTHEON ADG
216 E. BAY STREET
SAVANNAH, GA 31401

PROJECT LOCATION:
PARCEL 1
SAVANNAH GATEWAY WEST

SHEET TITLE:
PAVING, GRADING, AND DRAINAGE PLAN

SCALE:	1" = 20'
PROJECT NO.:	012-052-20
DATE:	02/10/21
DRAWN BY:	JF
CHECKED BY:	JWF

SHEET 10 OF 19

SITE DEVELOPMENT PLANS

PORT WENTWORTH
ADVANCED AUTO PARTS

FOR

PEACHTREE DEVELOPMENT AND INVESTMENTS, LLC
4477 LEGENDARY DRIVE, UNIT 101
DESTIN, FLORIDA 32541
TELEPHONE NO. (404) 430-5177

REVISIONS		
REV. NO.	DATE	REQD. BY
1	7/7/2022	ADVANCED AUTO PARTS
2	7/11/2022	CITY OF PORT WENTWORTH

VICINITY MAP
NOT TO SCALE

allen
ENGINEERING SERVICES

JULY 2022

THIS SITE IS LOCATED AT
LAT 32.197004° LON -81.198301°

INDEX OF DRAWINGS	
SHT NO.	DESCRIPTION
	COVER
C1	GENERAL NOTES AND LEGEND
C2	TOPOGRAPHIC SURVEY AND DEMOLITION PLAN
C3	STAKING AND TRAFFIC CONTROL PLAN
C4	PAVING, GRADING AND DRAINAGE PLAN
C5	PROFILES
C6	CONSTRUCTION DETAILS
C7	CONSTRUCTION DETAILS
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C9	CONSTRUCTION DETAILS
U1	UTILITY PLAN
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ES1	EROSION AND SEDIMENT CONTROL NOTES
ES2	EROSION AND SEDIMENT CONTROL NOTES (CONTINUED)
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ES4	EROSION AND SEDIMENT CONTROL NOTES (CONTINUED)
ES5	INITIAL EROSION AND SEDIMENTATION CONTROL PLAN
ES5	INTERMEDIATE EROSION AND SEDIMENTATION CONTROL PLAN
ES7	FINAL EROSION AND SEDIMENTATION CONTROL PLAN
ES8	EROSION AND SEDIMENTATION CONTROL DETAILS
ES9	EROSION AND SEDIMENTATION CONTROL DETAILS
ES10	EROSION AND SEDIMENTATION CONTROL DETAILS

GEORGIA REGISTERED No. 32181 PROFESSIONAL ENGINEER ANTHONY TOSS ALLEN
7/12/2022

GENERAL NOTES:

1. CONTRACTOR WILL BE REQUIRED TO ATTEND A PRE-CONSTRUCTION CONFERENCE WITH THE GOVERNMENTAL AGENCY IN CHARGE OF THE PROJECT.

2. CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS AND INSPECTIONS AS REQUIRED FOR APPROVAL OF THE WORK WITH THE GOVERNMENTAL AGENCY WITH JURISDICTION.

3. CONTRACTOR WILL BE RESPONSIBLE FOR COST OF AND COORDINATION WITH LOCAL UTILITY COMPANIES OR AGENCIES FOR RELOCATION OF, OR CONNECTION TO, ALL EXISTING UTILITIES INCLUDING POWER AND TELEPHONE POLES AND WIRES.

4. ALL ELEVATIONS ARE BASED ON MEAN SEA LEVEL DATUM. (NAVD 88)

5. REMOVAL AND REPLACEMENT OF UNSUITABLE SUBGRADE MATERIAL WILL BE PAID FOR ON A CUBIC YARD BASIS IN PLACE MEASUREMENT, AT SUCH AUTHORIZED PRICE PER CUBIC YARD, AS AUTHORIZED BY THE ENGINEER.

6. SUBGRADE WILL BE COMPACTED FOR A DEPTH OF 24" EXTENDING 24" BEYOND PAVEMENT EDGES, TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY AS MEASURED BY A.A.S.H.T.O. METHOD T-99. 9.

7. ALL DIMENSIONS ARE TO EXTERIOR FACE OF BUILDING , EDGE OF SURFACE COURSE OR BACK OF CURBING.

8. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE NOTED.

9. THE CONTRACTOR SHALL KEEP ACCURATE RECORDS FOR "AS BUILTS" PURPOSES AND PROVIDE THIS INFORMATION TO THE ENGINEER AT THE COMPLETION OF THE PROJECT. IF THE CONTRACTOR FAILS TO FURNISH THIS INFORMATION, THE ENGINEER WILL OBTAIN THE NECESSARY INFORMATION AND CHARGE THE CONTRACTOR FOR THE SERVICES. THE ENGINEER WILL CHECK INFORMATION PROVIDED BY THE CONTRACTOR FOR ACCURACY. AS BUILT INFORMATION INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING: ALL UTILITIES INCLUDING INVERTS, TOP ELEVATIONS, PIPE LENGTHS AND TYPE OF CONSTRUCTION MATERIAL; SPOT ELEVATIONS ON FORCE MAINS AND WATER LINES. THE DISTANCE OF THE CENTERLINE OF UTILITIES FROM A PERMANENT STRUCTURE. ALL VALVE MANHOLES AND VALVE BOXES SHALL BE LOCATED WITH RESPECT TO A PERMANENT STRUCTURE. GRADES SHALL BE CONFIRMED IN ROADS AND PARKING AREAS AS WELL AS SWALES TO SHOW DIRECTION OF STORMWATER FLOW. THE FINISHED FLOOR ELEVATION SHALL BE SHOWN ON ALL BUILDINGS. IF THE LANDSCAPING IS CHANGED IN ANY WAY AN AS BUILT OF THE LANDSCAPE PLAN IS TO BE SUBMITTED TO THE ENGINEER; AND ANY OTHER REQUIREMENT MADE BY THE LOCAL JURISDICTION.

10. ALL NEW DISTURBED AREAS WILL BE GRASSED BY SEEDING OR SPRIGGING IN ACCORDANCE WITH GA. D.O.T. STANDARD SPECIFICATIONS, AND AS DIRECTED BY THE ENGINEER.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

12. CONTRACTOR SHALL PROVIDE DUST CONTROL OF ALL DISTURBED AREAS BY THE USE OF WATER AND FAST GROWING, TEMPORARY VEGETATION ON ALL STOCKPILED SOILS.

13. CONTRACTOR WILL PROVIDE A CONSTRUCTION SCHEDULE INCLUDING ALL EROSION AND SEDIMENT CONTROL MEASURES.

14. CONTRACTOR SHALL PROVIDE CRUSHED STONE 6" THICK, 50' MIN. LONG BY 20' MIN. WIDE AT ALL CONSTRUCTION EXITS TO MINIMIZE TRANSPORT OF SOIL FROM SITE BY VEHICLE WHEELS.

15. TESTING - PROVIDE ALL TESTING AS REQUIRED IN THE SPECIFICATIONS. PROVIDE ENGINEER WITH COPY DIRECT FROM TESTING LAB.

16. CONTRACTOR SHALL MAINTAIN SITE ON A DAILY BASIS TO PROVIDE FOR POSITIVE DRAINAGE. CONTRACTOR, AT HIS COST, SHALL GRADE SITE AND PROVIDE NECESSARY TEMPORARY DRAINAGE SWALES TO INSURE STORM WATER DOES NOT POND ON SITE.

17. THE DETENTION BASINS SHALL BE CONSTRUCTED IN CONJUNCTION WITH CLEARING AND GRADING TO HELP PREVENT THE LOSS OF SEDIMENT FROM THE SITE. THE CONTRACTOR SHOULD CLEAN OUT ANY SEDIMENT DEPOSITED IN THE BASINS DURING THE CONSTRUCTION PERIOD SO THAT THE SPECIFIED WATER DEPTH AT NORMAL POOL IS MAINTAINED; THE CONTRACTOR MAY OVER EXCAVATE THE BASINS TO ACCOMPLISH THIS, IF DESIRED, AT HIS OWN EXPENSE AND WITH THE CONCURRENCE OF THE ENGINEER.

18. ANY STUMP HOLES OR OTHER DEPRESSIONS SHOULD BE CLEARED OF LOOSE MATERIAL AND DEBRIS AND SHOULD THEN BE BACKFILLED WITH APPROVED FILL. THE BACKFILL SHOULD BE PLACED IN SIX INCH MAXIMUM LIFTS AND COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM-D-1557.

19. ANY UTILITIES THAT UNDERLIE THE SITE SHOULD BE RELOCATED AND THE TRENCHES BACKFILLED WITH APPROVED SOIL. THE BACKFILL SHOULD BE PLACED IN SIX INCH MAXIMUM LIFTS AND COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM-D-1557.

20. THE SUBGRADE SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK TO LOCATE UNSTABLE OR SOFT AREAS. THESE AREAS SHOULD THEN BE INVESTIGATED TO DETERMINE THE CAUSE OF THE INSTABILITY. IF DUE TO UNSUITABLE SOIL, SUCH AS HIGHLY ORGANIC SOILS OR SOFT CLAYS, THE AREA SHOULD BE UNDERCUT TO A FIRM SOIL AND REPLACED WITH APPROVED FILL COMPACTED IN SIX INCH LIFTS TO MINIMUM OF 95% OF THE SOILS MODIFIED PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM-D-1557. UNSUITABLE SOIL MATERIALS ARE DEFINED AS THOSE COMPLYING WITH ASTM D2487 SOIL CLASSIFICATION GROUPS ML, MH, CH, CL, OL AND PT. IF THE INSTABILITY IS DUE TO EXCESS MOISTURE IN OTHERWISE SUITABLE SOIL, THE AREA SHOULD BE DRAINED AND COMPACTED TO 95% OF THE SOILS MODIFIED PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM-D-1557. ANY FILL REQUIRED TO LEVEL OR RAISE THE SITE SHOULD THAN BE PLACED IN 6" THICK LOOSE LIFTS AND COMPACTED TO 95% OF THE SOILS MODIFIED PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM-D-1557. THE ENGINEER SHALL CERTIFY THE PROOF ROLLING PROCESS AND THE RESULTS OF THE PROOF ROLL.

21. ALL OF THE FILL FOR THIS PROJECT SHOULD CONSIST OF NON PLASTIC GRANULAR MATERIAL WITH A MAXIMUM OF 25% FINES PASSING THE NO. 200 SIEVE. THE FILL SHOULD BE FREE OF ORGANICS, ROOTS, OR OTHER DELETERIOUS MATERIALS. FILL CLASSIFIED AS SW, SP, SP-SM OR SM WITH A MAXIMUM OF 15% PASSING A NO. 200 SIEVE MAY BE ACCEPTABLE.

22. MOISTURE CONTENT SHALL BE AT OR BELOW OPTIMUM.

23. ALL SIGNING AND PAVEMENT MARKINGS SHALL BE PER GADOT, M.U.T.C.D. AND THE LOCAL JURISDICTIONS SPECIFICATIONS.

24. ALL STANDARD HIGHWAY SIGNS AND POSTS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE PLANS, THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, AND THE GEORGIA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS, SUPPLEMENTIAL SPECIFICATIONS, AND/OR SPECIAL PROVISIONS.

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

ANTHONY T. ALLEN

Level II Certified Design Professional

CERTIFICATION NUMBER 0000044936

ISSUED 08/21/2007 EXPIRES 08/21/2022

811 Know what's below. Call before you dig.

UTILITY NOTES:

1. IN ADDITION TO THE SEDIMENTATION AND EROSION CONTROL MEASURES AS INDICATED ON THE PLANS, THE CONTRACTOR SHALL TAKE WHATEVER ACTIONS AS ARE NECESSARY TO ENSURE THAT ALL SEDIMENTATION IS CONFINED TO THE SITE AND THAT NO OFFSITE EROSION IS CAUSED BY THE WORK EITHER DIRECTLY OR INDIRECTLY.

2. HIGHLY CHLORINATED WATER USED IN THE DISINFECTION PROCESS SHALL BE DILUTED AND DISCHARGED IN ACCORDANCE WITH AWWA C651-99 "DISINFECTING WATER MAINS" SEC.4.5-4.5.2.

3. PIPE, FITTINGS, VALVES AND OTHER ACCESSORIES SHALL, UNLESS OTHERWISE DIRECTED, BE LOADED AT THE POINT OF DELIVERY, AND STORED WHERE THEY WILL BE PROTECTED AND WILL NOT BE HAZARDOUS TO TRAFFIC. THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. THE INTERIOR OF ALL PIPE, FITTINGS AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM DIRT AND OTHER FOREIGN MATTER AT ALL TIMES.

4. ANY DEFECTIVE, DAMAGED OR UNSOUND PIPE SHALL BE REJECTED. ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH AND IT SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING. CARE SHALL BE TAKEN TO PREVENT DIRT FROM ENTERING THE JOINT SPACE. AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF THE PIPE SHALL BE CLOSED BY APPROVED MEANS AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE.

5. CLEAN THE INTERIORS OF ALL PIPE BY WASHING OUT ALL DIRT BEFORE LAYING.

6. FLUSH THE NEW PIPE LINES UNTIL WATER RUNS CLEAR AT THE END OF ALL MAINS AND LATERALS. THIS SHOULD BE DONE AFTER THE PRESSURE TEST AND BEFORE DISINFECTION.

7. DURING INSTALLATION, WHEN PIPE LAYING IS NOT IN PROGRESS, A MECHANICAL JOINT PLUG OR CAP, OR APPROVED EQUAL, WILL BE USED TO FORM A WATER TIGHT SEAL AT BOTH ENDS OF THE LINE BEING LAID.

8. MAINTAIN A MINIMUM OF EIGHTEEN (18") INCH VERTICAL CLEARANCE BETWEEN THE WATER LATERAL AND THE STORM DRAINAGE.

9. ALL CONNECTIONS TO EXISTING MANHOLES SHALL BE DONE BY THE CORE DRILL METHOD.

10. THE CONTRACTOR IS RESPONSIBLE TO BRING PROPOSED MANHOLE TOPS TO GRADE. SET ALL MH TOPS ±3" ABOVE FINISHED GRADE.

11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CERTIFICATIONS OF BACKFLOW DEVICES TO THE ENGINEER.

12. ALL KNOWN UTILITY FACILITIES ARE SHOWN SCHEMATICALLY ON THE PLANS AND ARE NOT NECESSARILY ACCURATE AS TO PLAN OR ELEVATION. UTILITY FACILITIES SUCH AS SERVICE LINES OR UNKNOWN FACILITIES NOT SHOWN ON THE PLANS WILL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES, EXCEPT AS NOTED BELOW. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR THE COST OF REPAIRS TO DAMAGED UTILITY FACILITIES OTHER THAN SERVICE LINES FROM STREET MAINS TO ABUTTING PROPERTY WHEN SUCH FACILITIES ARE NOT SHOWN ON THE PLANS AND THEIR EXISTENCE IS UNKNOWN TO THE CONTRACTOR PRIOR TO THE DAMAGES OCCURRING PROVIDING THE ENGINEER DETERMINES THE CONTRACTOR HAS OTHERWISE FULLY COMPLIED WITH THE SPECIFICATIONS. THE CONTRACTOR SHALL CALL "CALL BEFORE YOU DIG" AT 811 TO INSURE PROPER LOCATIONS OF EXISTING UTILITIES.

13. ALL WATER USED FOR CONSTRUCTION SHALL BE METERED THROUGH AND APPROVED BACKFLOW PREVENTION DEVICE AND FIRE HYDRANT METER.

14. ALL TAPS ON A MAIN FOR SERVICE LATERALS SHALL BE MADE WITH AN ALL STAINLESS STEEL DOUBLE STRAP EPOXY COATED TAPPING SADDLE. THE SIZE OF THE SADDLE SHALL BE WATER MAIN DIAMETER C-900 + (NPT) NATIONAL PIPE THREAD.

15. ANY AND ALL UTILITY CROSSINGS FOR WATER MAINS BETWEEN STORM OR SEWER PIPING SHOULD BE ACCOMPLISHED BY USING OF 45° BENDS BOTH DOWN AND UP.

16. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICT WITH EXISTING UTILITIES NOT SHOWN ON THESE PLANS PRIOR TO LAYING ANY PIPE.

17. FIRE HYDRANTS SHALL BE AT LEAST 18" ABOVE FINISHED GRADE (MEASURED FROM BOTTOM OF 4-1/2" DISCHARGE TO FINISHED GRADE).

18. SEE MEP PLANS FOR CONTINUATION OF ALL UTILITIES. CIVIL INFORMATION TERMINATES 5' FROM BUILDING ENVELOPE.

19. CONTRACTOR TO COORDINATE TYPE AND INSTALLATION OF DOMESTIC AND/OR IRRIGATION WATER METERS, BACKFLOW PREVENTERS AND DETECTOR CHECK VALVES WITH UTILITY COMPANY.

20. ALL RELOCATED SERVICES TO BE INSTALLED PRIOR TO CONNECTION TO EXISTING SERVICE TO MINIMIZE THE TIME THE EXISTING BUILDING IS TO BE WITHOUT SERVICE. NOTIFY AND COORDINATE WITH OWNER.

21. ALL SANITARY SEWER PIPES SHALL MEET THE REQUIREMENTS OF ASTM D-3034, SDR 26. AND HAVE A MINIMUM COVER OF 36" FROM FINISHED GRADE.

22. WATER MAINS SHALL HAVE A MINIMUM OF 36" OF COVER FROM FINISHED GRADE.

23. AIR RELIEF VALVES SHALL BE INSTALLED OF ALL HIGH POINTS IN WATER MAINS AND FORCE MAINS WHERE AIR MAY ACCUMULATE. THESE LOCATION SHALL BE FIELD DETERMINED BY THE CONTRACTOR.

24. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES OR PROCEDURES UTILIZED BY THE CONTRACTOR, NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

25. A CONTINUOUS RUN OF PLASTICIZED METALLIC TAPE SHALL BE INSTALLED ABOVE THE TOP OF PVC PIPE USED FOR GRAVITY SEWER AND FORCE MAINS AT APPROXIMATELY 30" BELOW FINISHED GRADE. THE TAPE SHALL BE SUITABLE FOR DETECTION WITH METAL PIPE LOCATION EQUIPMENT, COLOR CODED AND LABELED TO IDENTIFY CONTENTS OF THE PIPE AND BRIGHTLY COLORED TO CONTRAST WITH THE SOIL. IN ADDITION TO THE TAPE, A CONTINUOUS RUN OF TRACER WIRE SHALL BE ATTACHED TO THE PIPE AND CONNECTED TO MANHOLE RINGS. ON PIPE RUNS GREATER THAN 500', THE TRACER WIRE SHALL BE ATTACHED TO A 2" GALVANIZED PIPE WITH A 180 DEGREE BEND AT THE TOP, EXTENDING 36" ABOVE GRADE FOR CONNECTION TO LOCATOR EQUIPMENT. THE MAXIMUM DISTANCE BETWEEN 2" PIPE STUBS SHALL BE 500'.

26. ALL SANITARY SEWER LATERALS SHALL BE PROPERLY MARKED AT THE POINT WHERE LATERALS TERMINATE WITH PVC PIPE PAINTED GREEN. ADDITIONAL MARKINGS SHALL BE STAMPED IN THE CURB OR MARKED ON THE EDGE OF PAVING WITH AN APPROVED PERMANENT MARKER CAPABLE OF BEING LOCATED BY A MAGNETIC LOCATOR, SUCH AS A NAIL WITH CAP. IF NO CURB PRESENT, LATERALS SHALL BE MARKED WITH MARKING TAPE AND TRACER WIRE AS DESCRIBED ABOVE UNDER ITEM 25.

27. A CONTINUOUS RUN OF PLASTICIZED METALLIC TAPE SHALL BE INSTALLED ABOVE THE TOP OF PVC PIPE USED FOR WATER MAINS AT APPROXIMATELY 18" TO 24" BELOW FINISHED GRADE. THE TAPE SHALL BE SUITABLE FOR DETECTION WITH METAL PIPE LOCATION EQUIPMENT, COLOR CODED AND LABELED TO IDENTIFY CONTENTS OF THE PIPE AND BRIGHTLY COLORED TO CONTRAST WITH THE SOIL. IN ADDITION TO THE TAPE, A CONTINUOUS RUN OF TRACER WIRE SHALL BE ATTACHED TO THE PIPE AND CONNECTED TO CURB STOPS AND BROUGHT TO THE TOP OF THE VALVE. ON PIPE RUNS GREATER THAN 500', THE TRACER WIRE SHALL BE ATTACHED TO A 2" GALVANIZED PIPE WITH A 180 DEGREE BEND AT THE TOP, EXTENDING 36" ABOVE GRADE FOR CONNECTION TO LOCATOR EQUIPMENT. THE MAXIMUM DISTANCE BETWEEN 2" PIPE STUBS SHALL BE 500'.

28. ALL WATER SERVICES SHALL BE PROPERLY MARKED ABOVE GROUND WITH PVC PIPE PAINTED BLUE. ADDITIONAL MARKINGS SHALL BE STAMPED IN THE CURB OR MARKED ON THE EDGE OF PAVING WITH AN APPROVED PERMANENT MARKER CAPABLE OF BEING LOCATED BY A MAGNETIC LOCATOR, SUCH AS A NAIL WITH CAP, IF NO CURB PRESENT. LATERALS SHALL BE MARKED WITH MARKING TAPE AND TRACER WIRE AS DESCRIBED ABOVE UNDER ITEM 27.

29. SEWER SERVICE LATERALS SHALL BE INSTALLED AT RIGHT ANGLES.

30. THE TENNIS BALL TEST ON SANITARY LATERALS WILL NEED TO BE CONDUCTED TWICE. ONCE BEFORE THE INSTALLATION OF THE DRY UTILITIES AND ONCE AFTER ALL DRY UTILITIES HAVE BEEN INSTALLED. THE SANITARY SEWER LATERALS MUST PASS THE TENNIS BALL TEST BEFORE FINAL ACCEPTANCE WILL BE GRANTED.

31. ALL SANITARY SEWER SERVICE LATERALS WILL BE REQUIRED TO BE CAPPED.

LEGEND

	EXISTING	PROPOSED
CONTROL NAIL	NF	NS
IRON PIPE	IPF	IPS
IRON REBAR	IRF	
CONCRETE MONUMENT	CMF	
RIGHT-OF-WAY MARKER	RWMF	RWMS
BENCHMARK	BMF	BMS
RAILROAD CROSSING ARM		
PIPES		
DRAINAGE MANHOLE		
GRATE INLET		
FLARED END SECTION		
INVERT ELEVATION	*IE 12.00*	IE 12.00
CURB INLET TYPE A		
CURB INLET TYPE B		
CURB INLET TYPE C		
RIP RAP		RIP RAP
BACKFLOW PREVENTER	BFP	BFP
BLOW-OFF	BO	BO
FIRE HYDRANT		
HOSE BIBB (SPIGOT)	HB	HB
WELL		
WATER LINE MARKER	WMK	WMK
WATER METER	WM	WM
WATER MANHOLE	MH	MH
WATER VALVE	WV	WV
POWER POLE	PP	PP
GUY POLE	GP	GP
LIGHT POLE	LP	LP
GROUND LIGHT	GL	GL
ELECTRICAL LINE MARKER	EMK	EMK
ELECTRICAL MANHOLE	MH	MH
ELECTRICAL CONTROL BOX	ECB	ECB
ELECTRICAL OUTLET BOX	EOB	EOB
ELECTRICAL SERVICE METER	EM	EM
ELECTRICAL TRANSFORMER	TRANS	TRANS
GAS LINE MARKER	GMK	GMK
GAS METER	GM	GM
TELEPHONE PEDESTAL	TELE PED	TELE PED
TELEPHONE LINE MARKER	TMK	TMK
CLEANOUT		CO
CENTER SANITARY MANHOLE	MH	
GREASE TRAP	GT	GT

CHAIN LINK

BARBED WIRE

HOG WIRE

WROUGHT IRON

WOODEN

SILT FENCE (SINGLE)

SILT FENCE (DOUBLE)

CENTERLINE OF ROAD

EDGE OF ASPHALT

CURB & GUTTER

RAILROAD TRACK

WATERMAIN LINE (EXISTING) 12"W

WATERMAIN LINE (PROPOSED) 12"W

UNDERGROUND POWER CABLE UGP

OVERHEAD POWER CABLE OHP

GAS LINE G

UNDERGROUND TELEPHONE CABLE UGT

OVERHEAD TELEPHONE CABLE OHT

UNDERGROUND FIBER OPTIC CABLE UGF

OVERHEAD FIBER OPTIC CABLE OHF

UNDERGROUND CABLE TV

OVERHEAD CABLE TV

EXISTING SEWER LINE SS

PROPOSED SEWER LINE

FORCEMAIN LINE

ADA NOTES:

1. ACCESSIBLE ROUTE - EXTERIOR:
   MINIMUM CLEAR WIDTH IS 3'. IF ACCESSIBLE ROUTE HAS LESS THAN 5' CLEAR WIDTH, THEN PASSING SPACES AT LEAST 5' X 5' SHALL BE LOCATED EVERY 200' OR LESS (INTERSECTING SIDEWALKS MEET THIS REQUIREMENT). LONGITUDINAL (RUNNING) SLOPE MAY NOT EXCEED 5% UNLESS RAMP IS INSTALLED (RAMPS AMY NOT EXCEED 8.33%). CROSS SLOPE MAY NOT EXCEED 2%. GAPS IN ROUTE MAY NOT EXCEED ½" IN WIDTH.
2. FINISHED SURFACE HEIGHT DIFFERENCE REQUIREMENTS:
   A. 0" TO ¼" : NO REQUIREMENTS
   B. ¼" TO ½" : BEVEL WITH 1:2 SLOPE
   C. LARGER THAN ½" : CONFORM TO REQUIREMENTS FRO RAMP
3. RAMPS:
   - MAX RAMP SLOPE IS 8.33% (1:12)
   - RAMPS STEEPER THAN 8.33% ARE NOT ACCEPTABLE
   - THE MAXIMUM RISE FOR ANY RAMP RUN IS 30" (AT 8.33% SLOPE, THE MAXIMUM RUN OF THE RAMP IS 30')
   - THE MAXIMUM CROSS SLOPE OF A RAMP IS 2% (1:50)

   A. LANDINGS:
   - RAMPS SHALL HAVE LEVEL LANDINGS AT THE BOTTOM AND TOP OF EACH RAMP
   - THE LANDING SHALL BE AT LEAST AS WIDE AS THE RAMP LEADING TO IT
   - THE LANDING SHALL BE A MINIMUM OF 5' LONG
   - IF THE RAMP CHANGES DIRECTION AT THE LANDING, THE MINIMUM LANDING SIZE SHALL BE 5' X 5'
   - ALL LANDINGS ARE TO BE NO MORE THAN 2% SLOPE IN ANY DIRECTION

   B. HANDRAILS:
   - HANDRAILS ARE REQUIRED ON BOTH SIDES (MINIMUM 36" CLEAR BETWEEN HANDRAILS) WHEN RAMP RISE IS GREATER THAN 6"
   - PROVIDE HANDRAIL EXTENSIONS A MINIMUM OF 12" LONG AT BOTH TOP AND BOTTOM LANDINGS
   - PROVIDE MINIMUM 2" HIGH EDGE PROTECTION OR A RAIL WITH LESS THAN 4" CLEAR TO THE RAMP IF THE RAMP HAS DROP-OFFS
   - ROUTES BETWEEN BUILDINGS THAT ONLY CONTAIN DWELLING UNITS DO NOT HAVE TO HAVE HANDRAILS
   - STAIRS ARE NOT ALLOWED AS PART OF AN ACCESSIBLE ROUTE BUT IF THEY ARE LOCATED ADJACENT TO A ROUTE OR ARE A PART OF A TENANT SPACE THEY MUST MEET THE REQUIREMENTS FOR STAIR RAILS
4. CURB AND SIDEWALK RAMPS:
   - MAX SLOPE OF RAMP IS 8.33%
   - MAX SLOPE OF SIDE FLARES IS 10%
   - MAX SLOPE OF ADJOINING GUTTERS, ROAD SURFACE, OR ACCESSIBLE ROUTE IS 5%
   - MINIMUM WIDTH IS 36" (NOT INCLUDING SIDE FLARES)
   - DETECTABLE WARNING IS REQUIRED ON CURB RAMPS IN PUBLIC RIGHTS-OF-WAY, AND SHALL BE A MINIMUM OF 24" IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE. DETECTABLE WARNINGS SHALL BE LOCATED SO THE EDGE NEAREST THE CURB LINE IS 6" TO 8" FROM THE CURB LINE.
5. PARKING SPACES:
   - MINIMUM 8' WIDE ACCESSIBLE PARKING SPACE
   - MINIMUM 5' WIDE ACCESS AISLE AT STANDARD SPACES
   - MINIMUM 8' WIDE ACCESS AISLE AT VAN ACCESSIBLE SPACES
   - MAXIMUM 2% (1:50) SLOPE IN ANY DIRECTION
6. SIGNAGE:
   ACCESSIBLE PARKING SPACES SHALL BE DESIGNATED AS RESERVED BY A SIGN SHOWING THE SYMBOL OF ACCESSIBILITY. VAN ACCESSIBLE SPACES SHALL HAVE AN ADDITIONAL SIGN "VAN ACCESSIBLE" MOUNTED BELOW THE SYMBOL. SUCH SIGNS SHALL BE LOCATED SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE (60" ABOVE GRADE UNLESS OTHER HEIGHT REQUIRED BY LOCAL JURISDICTION)
7. ACCESSIBLE ROUTES:
   MUST COMPLY WITH ADA, THE FAIR HOUSING ACT AND ICC/ANSI A117.1-2003

GEORGIA
ANTHONY TOSS ALLEN
No. 32181
PROFESSIONAL ENGINEER
07/12/2022

P.O. BOX 1749
RINCON, GA 31326
PH:(912) 667-2667
E-MAIL: tallen@allenengineering.org

allen ENGINEERING SERVICES

REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	PT. WENT
2	7/11/22	-	-
-	-	-	-
-	-	-	-

DESIGNED	ATA
DRAWN	ATA
CHECKED	ATA
DATE	07/12/2022
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS

PREPARED FOR:

PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

CIVIL GENERAL NOTES AND LEGEND

SHEET NUMBER

C1

OF 21

CONTACT INFORMATION:

1. THE POINT OF CONTACT FOR CIVIL SITE WORK FOR THIS PROJECT IS:

ANTHONY TOSS ALLEN, P.E.
P.O. BOX 1749
RINCON, GEORGIA 31326
(912) 667-2667

2. DEVELOPER/OWNER:

PEACHTREE DEVELOPMENT AND INVESTMENTS, LLC
4477 LEGENDARY DRIVE, SUITE 101
DESTIN, FL 32541
(404) 430-5177

SURVEY NOTES:

1. PIN: 70037 02008

2. PROPERTY ADDRESS: 0 MAGELLAN BOULEVARD
SAVANNAH, GEORGIA 31405

3. ZONING: P-C-3

4. ACCORDING TO THE FLOOD INSURANCE RATE MAP, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THIS PROPERTY IS LOCATED IN ZONE "X", NOT A SPECIAL FLOOD HAZARD AREA. (COMMUNITY NUMBER 135162, MAP 13051C, PANEL 0030G. DATED: AUGUST 16, 2018

5. ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM.

6. HORIZONTAL COORDINATES ARE BASED ON GEORGIA STATE PLANE, EAST ZONE, US FOOT, NAD 83 DATUM.

7. THE BEARINGS SHOWN ARE REFERENCED TO NAD83 GA STATE PLANE COORDINATE SYSTEM. THE BEARINGS MAY DIFFER FROM PREVOUS SURVEYS EVEN THOUGH THE PARCEL LINES ARE THE SAME.

8. THE SURVEY WAS COMPLETED ON 03/21/2022

9. THERE ARE NO WETLANDS LOCATED ON OR WITHIN 200 FEET OF THE PROJECT LIMITS.

10. THERE ARE STATE WATERS LOCATED WITHIN 200 FEET OF THE PROJECT LIMITS.

11. ACCORDING TO THE WEB SOIL SURVEY, THE EXISTING SOIL TYPE LOCATED WITHIN THE PROJECT LIMITS IS:

Pn- Pooler fine sandy loam

DEMOLITION NOTES:

-- DEMOLITION TO CONSIST OF THE REMOVAL AND SUBSEQUENT OFFSITE DISPOSAL OF EXISTING BUILDINGS, EXISTING BUILDING FOUNDATIONS, ASPHALT PAVING, CONCRETE CURB AND GUTTER, SIDEWALKS, CANOPIES, TREES, SHRUBS, AND OTHER MISCELLANEOUS ITEMS AS INDICATED ON PLANS.

-- DEMOLITION OPERATIONS AND DEBRIS REMOVAL SHALL BE CONDUCTED IN A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES.

-- CONTRACTOR SHALL LOCATE, IDENTIFY, STUB-OFF, AND DISCONNECT UTILITY SERVICES THAT ARE NOT INDICATED TO REMAIN. ALL UNUSED WATER LATERALS SHALL BE TERMINATED AND PLUGGED AT THE MAIN.

-- COMPLETELY FILL BELOW-GRADE AREAS AND VOIDS RESULTING FROM DEMOLITION WORKS. PRIOR TO FILLING, SUBGRADE IS TO BE CLEARED TO DRY UNDISTURBED NATURAL GROUND OR EXISTING COMPACTED FILL. PROVIDE FILL CONSISTING OF APPROVED EARTH, GRAVEL OR SAND, FREE OF TRASH AND DEBRIS, STONES OVER 6" DIAMETER, ROOTS OR OTHER ORGANIC MATTER. CONTROLLED FILL SHALL BE REPLACED IN LAYERS NOT TO EXCEED 6" IN DEPTH AND COMPACTED TO 98% MAXIMUM DRY WEIGHT PER AASHTO D-698.

-- ALL KNOWN UTILITY FACILITIES ARE SHOWN SCHEMATICALLY ON THE PLANS AND ARE NOT NECESSARILY ACCURATE AS TO PLAN OR ELEVATION. UTILITY FACILITIES SUCH AS SERVICE LINES OR UNKNOWN FACILITIES NOT SHOWN ON THE PLANS WILL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES, EXCEPT AS NOTED BELOW. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR THE COST OF REPAIRS TO DAMAGED UTILITY FACILITIES OTHER THAN SERVICE LINES FROM STREET MAINS ABUTTING PROPERTY WHEN SUCH FACILITIES ARE NOT SHOWN ON THE PLANS AND THEIR EXISTENCE IS UNKNOWN TO THE CONTRACTOR PRIOR TO THE DAMAGES OCCURRING PROVIDING THE ENGINEER DETERMINES THE CONTRACTOR HAS OTHERWISE FULLY COMPLIED WITH THE SPECIFICATIONS.

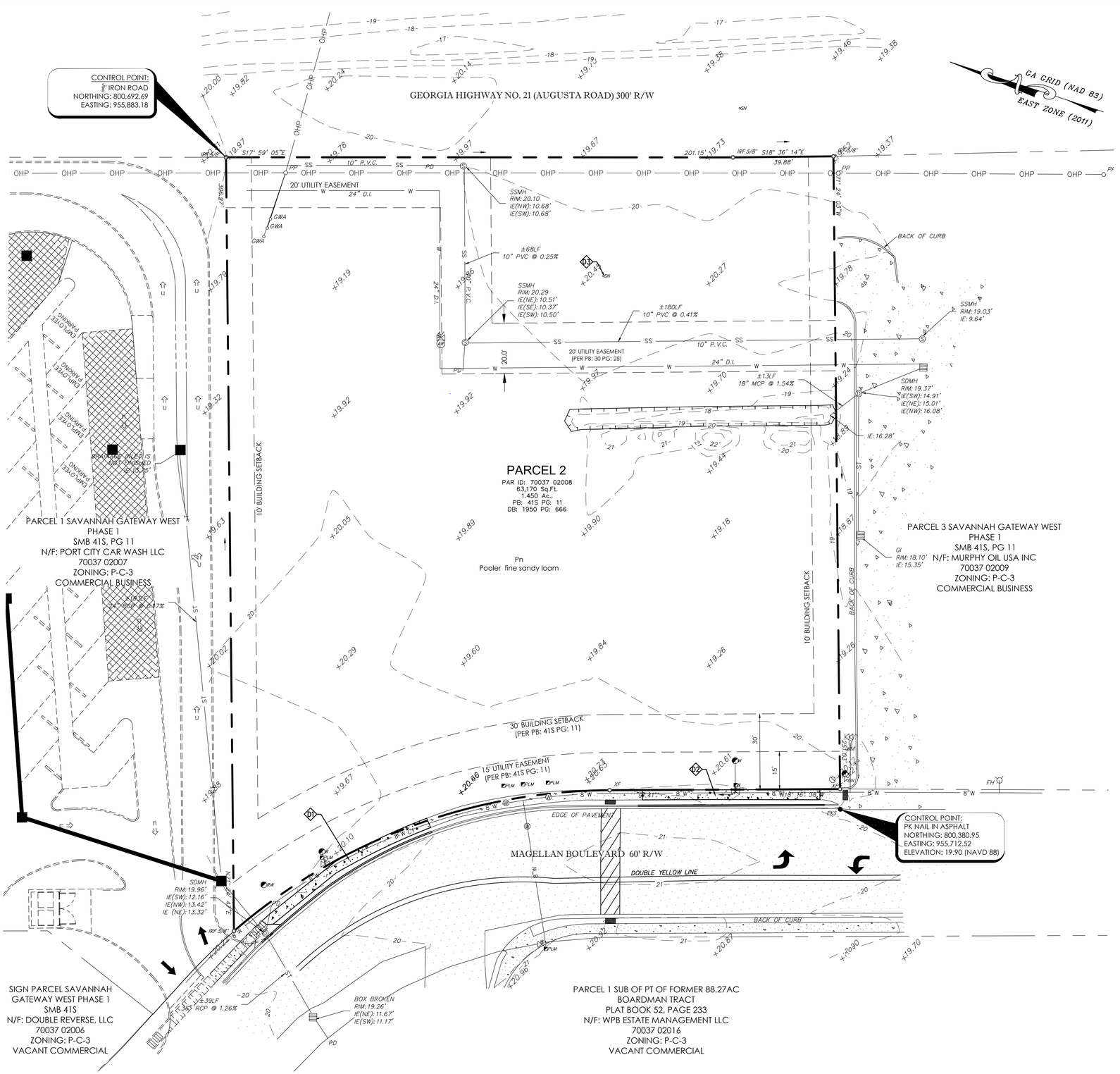
-- ALL EXISTING IMPROVEMENTS THAT EXIST ON THE SITE WITHIN THE LIMITS OF CONSTRUCTION AND INTERFERE WITH PROPOSED IMPROVEMENTS SHALL BE REMOVED BY THE CONTRACTOR WHETHER SHOWN ON CONSTRUCTION DOCUMENTS OR NOT.

DEMOLITION KEYED NOTES

D1 DEMOLISH AND REMOVE APPROXIMATELY 34 S.Y. OF CONCRETE SIDEWALK AND APPROXIMATELY 82 L.F. OF 18" CURB AND GUTTER.

D2 DEMOLISH AND REMOVE APPROXIMATELY 31 S.Y. OF CONCRETE SIDEWALK AND APPROXIMATELY 74 L.F. OF 18" CURB AND GUTTER.

D3 REMOVE AND DISPOSE OF SIGN.



GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

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JOB NO.	22-002
SCALE	1" = 20'

20' 10' 0' 20'
GRAPHIC SCALE: 1"=20'-0"

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

TOPOGRAPHIC SURVEY AND DEMOLITION PLAN

SHEET NUMBER
C2
OF 21

SITE DATA:

1. P.I.N.: 70037 02008

2. PROPERTY ADDRESS: 0 MAGELLAN BLVD
PORT WENTWORTH, GEORGIA 31407

3. ZONING: P-C-3

4. TOTAL LAND ACREAGE = 1.450 ACRES
DISTURBED = 0.?? ACRES

5. FRONT YARD SETBACK = 40' FROM CENTER OF STREET
SIDE YARD SETBACK (STREET) = 10'
REAR YARD SETBACK = --
MAXIMUM BUILDING HEIGHT = --
MAXIMUM % BUILDING COVERAGE = --

6. PROPOSED BUILDING SIZE:
6,889 S.F.

7. ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF BUILDING, UNLESS OTHERWISE LABELED.

8. ACCORDING TO FIRM FLOOD INSURANCE RATE MAP, COMMUNITY NO.135162, MAP 13051C, PANEL NO. 0030G, DATED AUGUST 16, 2018, THIS ENTIRE SITE IS LOCATED IN ZONE X.

9. ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM.

10. WATER TO BE PROVIDED BY THE CITY OF PORT WENTWORTH.
SEWER TO BE PROVIDED BY THE CITY OF PORT WENTWORTH.

11. PARKING CRITERIA
1 SPACE PER 400 S.F. PLUS 1 SPACE PER EMPLOYEE ON MAXIMUM SHIFT
(AUTOMOTIVE PARTS, EQUIPMENT AND ACCESSORY SALES)

PARKING CALCULATIONS
AAP BUILDING: 6,889 S.F. X (1 SPACE/400 S.F.) = 18 SPACES
MAXIMUM EMPLOYEES = 5

PARKING REQUIRED = 23 SPACES
22 STANDARD SPACES (9' X 20')
1 HANDICAPPED SPACE
(MINIMUM 1 VAN ACCESSIBLE SPACE, AS PER ADA REQUIREMENT)

PARKING PROVIDED = 37
15 STANDARD SPACES (10' X 20')
20 STANDARD SPACES (9' X 20')
2 HANDICAPED SPACES
(MINIMUM 1 VAN ACCESSIBLE SPACE, AS PER ADA REQUIREMENT)

CONTACT INFORMATION:

1. THE POINT OF CONTACT FOR CIVIL SITE WORK FOR THIS PROJECT IS:

ANTHONY TOSS ALLEN, P.E.
P.O. BOX 1749
RINCON, GEORGIA 31326
(912) 667-2667

2. DEVELOPER/OWNER:

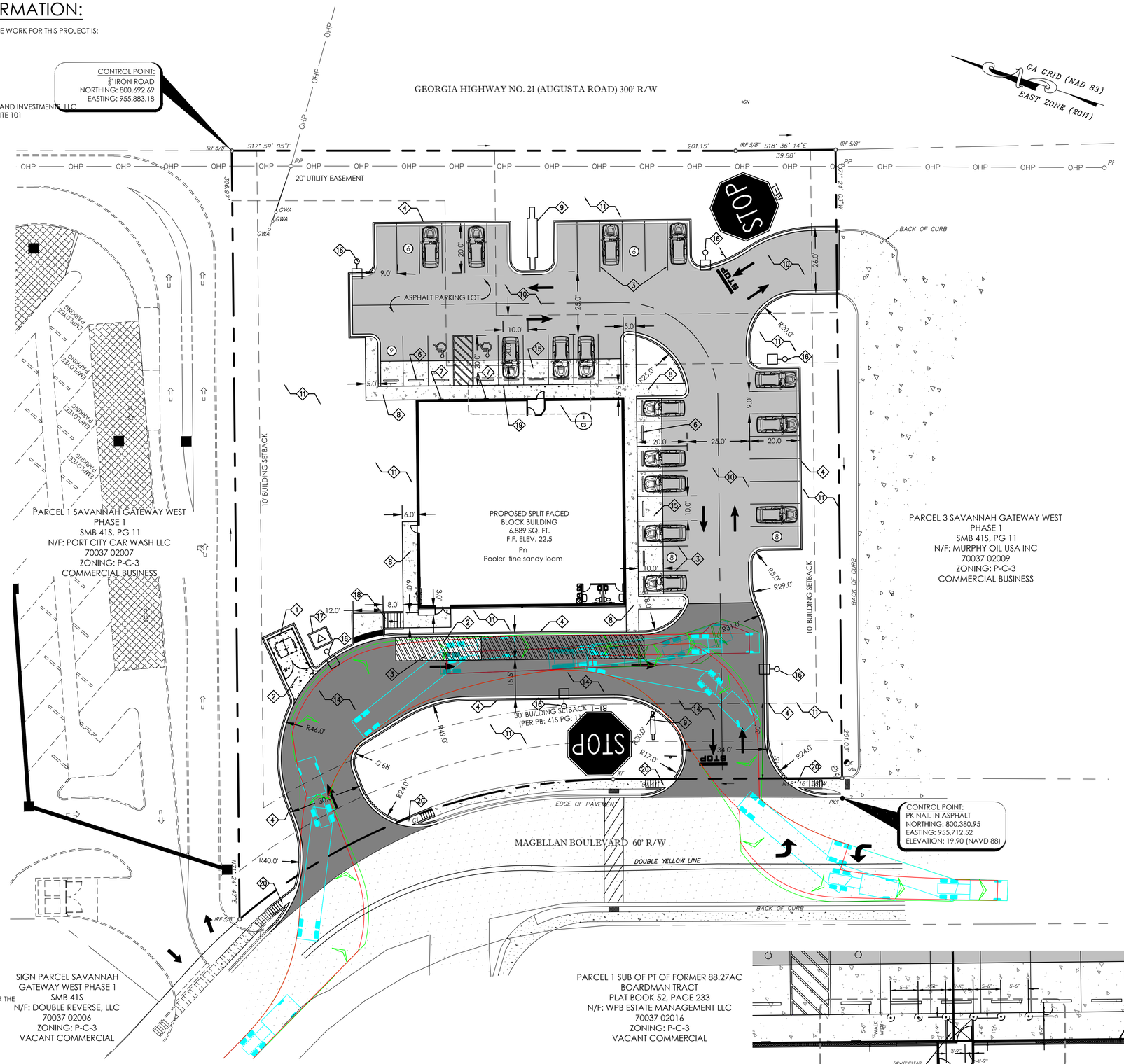
PEACHTREE DEVELOPMENT AND INVESTMENTS, LLC
4477 LEGENDARY DRIVE, SUITE 101
DESTIN, FL 32541
(404) 430-5177

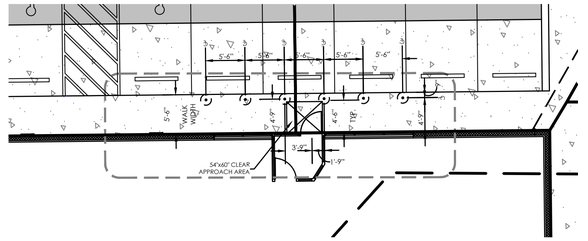
SITE ARCHITECTURAL KEY NOTES:

1. 6' HIGH TREATED WOOD DUMPSTER SCREEN. PAINT TO MATCH THE BUILDING. REFER TO DETAILS SHEET C7.
2. INSTALL NEW 6" THICK CONCRETE LOADING PAD OF 4000 PSI BROOM FINISHED CONCRETE WITH 6"x6"x 1/8" WWF STEEL REINFORCEMENT. SLOPE AWAY FROM BUILDING FOR POSITIVE DRAINAGE. REFER TO DETAIL 8/C7.
3. ASPHALT PAVEMENT PARKING LINES 4" WIDE PAINTED WHITE WITH TWO (2) COATS OF SHERWIN WILLIAMS "HOTLINE" FAST DRYING TRAFFIC MARKING PAINT. HANDICAP PARKING & HANDICAP SYMBOL TO BE PAINTED COLOR & SIZE AS REQUIRED BY THE GOVERNING ACCESSIBILITY CODE. CONCRETE PAVEMENT PARKING LINES FOR ACCESSIBLE SPACES SHALL BE THE SAME AS ABOVE EXCEPT USE BLUE OR YELLOW PAINT. REFER TO DETAILS 1/C8 AND 2/C8 FOR ADDITIONAL INFORMATION.
4. CONSTRUCT 6" HIGH CONC. CURB & GUTTER CONTINUOUS AROUND SITE. BACKFILL TO TOP OF CURB. REFER TO DETAIL 4/C6. PROVIDE CATCH & SPILL WHERE APPLICABLE.
5. ANCHOR DOWN CONCRETE WHEEL STOPS 42" FROM FACE OF BUILDING. REFER TO DETAIL 3/C6.
6. ANCHOR DOWN CONCRETE WHEEL STOPS 30" FROM FACE OF CONCRETE WALK/SIDEWALK. REFER TO DETAIL 3/C6.
7. WALL MOUNTED HANDICAP PARKING SIGN . REFER TO DETAIL 9/C7.
8. NEW BROOM FINISHED CONCRETE SIDEWALK SLOPED AWAY FROM BUILDING ¼"/FT. FOR POSITIVE DRAINAGE.
9. ROAD PYLON SIGN FURNISHED & INSTALLED BY ADVANCE AUTO PARTS- REFER TO SHEET SL1 FOR ELECTRICAL REQUIREMENTS. G.C. IS RESPONSIBLE TO PROVIDE ELECTRICAL. VERIFY LOCATION WITH AAP AND SIGN INSTALLER.
-IF MONUMENT SIGN IS REQUIRED, GC TO CONSULT WITH ADVANCE AUTO PARTS' SIGN COORDINATOR AND ARCHITECTURAL DESIGNER FOR DETAILS. GC IS TO PROVIDE AND INSTALL MONUMENT FOUNDATION DESIGNED FOR SITE SPECIFIC SOIL CONDITIONS AND RELATED ELECTRICAL BASED ON ENGINEERING PROVIDED BY SIGN PERMITTING VENDOR. RE: 9/A8
10. AREA OF LIGHT DUTY ASPHALT PAVEMENT. SEE DETAIL SHEET C8.
11. LANDSCAPING - AREA OF NEW SOD.
12. PROVIDE BOLLARDS AT ALL EXTERIOR MOUNTED METERING DEVICES. (GAS, WATER, ELECTRIC) MIN. (2) TWO AS REQUIRED - SEE DETAIL 1/C8.
13. SEEDED AREA
14. AREA OF HEAVY DUTY ASPHALT PAVEMENT. SEE DETAIL SHEET C8
15. 6" CONCRETE APRON WITH 6" X 6" X ¼" W.W.F. STEEL REINFORCEMENT. USE 4000 PSI CONCRETE MIX. DO NOT USE SLAG OR FLY ASH FOR CEMENTITIOUS MATERIAL.
16. LIGHT POLE AND BASE. RE: SHEET SL1 FOR SITE LIGHTING REQUIREMENTS AND DETAIL 7/S5 FOR STRUCTURAL POLE BASE INFORMATION.
17. POWER COMPANY PAD MOUNTED TRANSFORMER.
18. 6' WIDE (INSIDE OF CURB TO INSIDE OF CURB) RAMP. SCORE RAMP WITH HORIZONTAL LINES AT 3" O.C. WITH A HEAVY BROOM FINISH. CURBING EACH SIDE OF RAMP (TOP AND SIDES) SHALL BE PAINTED "CAUTION YELLOW".
19. STOREFRONT BOLLARD. REFER TO DETAIL 5/C6.
20. HANDICAP RAMP

SITE GENERAL NOTES:

1. THE CONTRACTOR IS TO STAKE THE LOCATION OF THE PYLON SIGN AND NOTIFY ADVANCE AUTO PARTS SIGN COMPANY FOR THE EARLIEST POSSIBLE INSTALLATION DATE.
2. PARKING LOT GRADING SHALL NOT EXCEED 5% MAX. CROSS SLOPE.
3. PARKING SPACES ARE TO BE 10' X 20' UNLESS OTHERWISE NOTED.
4. ALL ABANDONED ENTRANCES/EXITS ARE TO BE REMOVED.
5. THE DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR SETUP AND COSTS OF ALL TEMPORARY UTILITY SERVICES (INCLUDING TEMPORARY POWER) UNTIL THE PROJECT IS TURNED OVER TO AND ACCEPTED BY ADVANCE AUTO PARTS.
6. THE CONTRACTOR IS TO PRESSURE WASH ALL PAVED AREAS AND SIDEWALKS THE MORNING PRIOR TO STORE OPENING.
7. THE CONTRACTOR SHALL FURNISH AND INSTALL A MAILBOX ON SITE. THE MAILBOX TYPE, LOCATION, AND INSTALLATION SHALL COMPLY WITH THE LOCAL U.S. POST OFFICE REQUIREMENTS. VERIFY REQUIREMENTS PRIOR TO PURCHASE AND ROUGH-IN.
8. BASE OF PARKING LOT LIGHT POLES SHALL REMAIN UNPAINTED AND RUBBED SMOOTH.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SIGNED AND SEALED CERTIFICATION THAT PARKING LOT MEETS REQUIREMENTS SET FORTH IN THE CONSTRUCTION DOCUMENTS.





1/C3 ENLARGED PLAN
SCALE: 1" = 10'

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

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GEORGIA REGISTERED Anthony Allen 32181 PROFESSIONAL ENGINEER ANTHONY TOSS ALLEN 07/12/2022

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allen ENGINEERING SERVICES

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SCALE	1" = 20'

20' 10' 0' 20'
GRAPHIC SCALE: 1"=20'-0"

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

CIVIL STAKING AND TRAFFIC CONTROL PLAN

SHEET NUMBER
C3
OF 21

EXISTING ASPHALT PAVEMENT

HEAVY DUTY PAVEMENT

NORMAL DUTY PAVEMENT

CONCRETE PAVEMENT

LEGEND

TG - TOP OF GRAVEL
TC - TOP OF CONCRETE
TP - TOP OF PAVEMENT
FG - FINISHED GRADE

WATER QUALITY CALCULATIONS

TOTAL AREA = 1.45 ACRES
IMPERVIOUS AREA = 0.79 ACRES (34,413 SF)
PERCENT IMPERVIOUS = 54%

VOLUME NEEDED FOR RUNOFF REDUCTION = 34,413 SF * 0.1 FT RAINFALL = 3,413 CF

THE RUNOFF REDUCTION VOLUME WILL BE TREATED BY THE WATER QUALITY DEVICE.

CONTACT INFORMATION:

1. THE POINT OF CONTACT FOR CIVIL SITE WORK FOR THIS PROJECT IS:

ANTHONY TOSS ALLEN, P.E.
P.O. BOX 1749
RINCON, GEORGIA 31326
(912) 667-2667

2. DEVELOPER/OWNER:

PEACHTREE DEVELOPMENT AND INVESTMENTS, LLC
4477 LEGENDARY DRIVE, SUITE 101
DESTIN, FL 32541
(404) 430-5177

NOTES:

1. ALL WORK DONE SHALL BE IN ACCORDANCE WITH THE CITY OF CITY OF PORT WENTWORTH AND U.S. ARMY CORPS OF ENGINEERS SPECIFICATIONS.

2. CONTRACTOR SHALL COMPACT BASE MATERIAL IN ACCORDANCE WITH GDOT AND CITY OF PORT WENTWORTH COMPREHENSIVE DEVELOPMENT MANUAL.

3. ALL PROPOSED SPOT ELEVATIONS ARE TOP OF PAVEMENT ELEVATIONS UNLESS OTHERWISE NOTED.

4. HIGHLY CHLORINATED DISINFECTED WATER SHALL NOT BE DISCHARGED INTO THE STORMWATER SYSTEM. IT SHALL BE DISCHARGED INTO THE SANITARY SEWER SYSTEM AS PER THE ENGINEER DIRECTION AND THE CITY'S/COUNTY'S INSPECTION DEPARTMENT OBSERVATION.

5. . ACCORDING TO THE FLOOD INSURANCE RATE MAP, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THIS PROPERTY IS LOCATED IN ZONE "X", NOT A SPECIAL FLOOD HAZARD AREA. COMMUNITY NO.135162, MAP 13051C, PANEL NO. 0030G, DATED AUGUST 16, 2018

6. P.I.N. 70037 02008

7. A R.O.W. ENCROACHMENT PERMIT IS REQUIRED PRIOR TO PERFORMING CONSTRUCTION ACTIVITY IN THE CITY'S R.O.W.

8. THE ELEVATIONS OF THE SURVEY ARE BASED ON M.S.L. (1988 DATUM) THE BENCHMARK USED IS A 1/4" PK NAIL LOCATED ON THE SOUTH WEST SIDE OF THIS PROPERTY AT ELEVATION 19.90.

9. THE CITY ALWAYS HAS THE RIGHT TO ACCESS THE PROPERTY TO INSPECT STORMWATER FACILITIES.

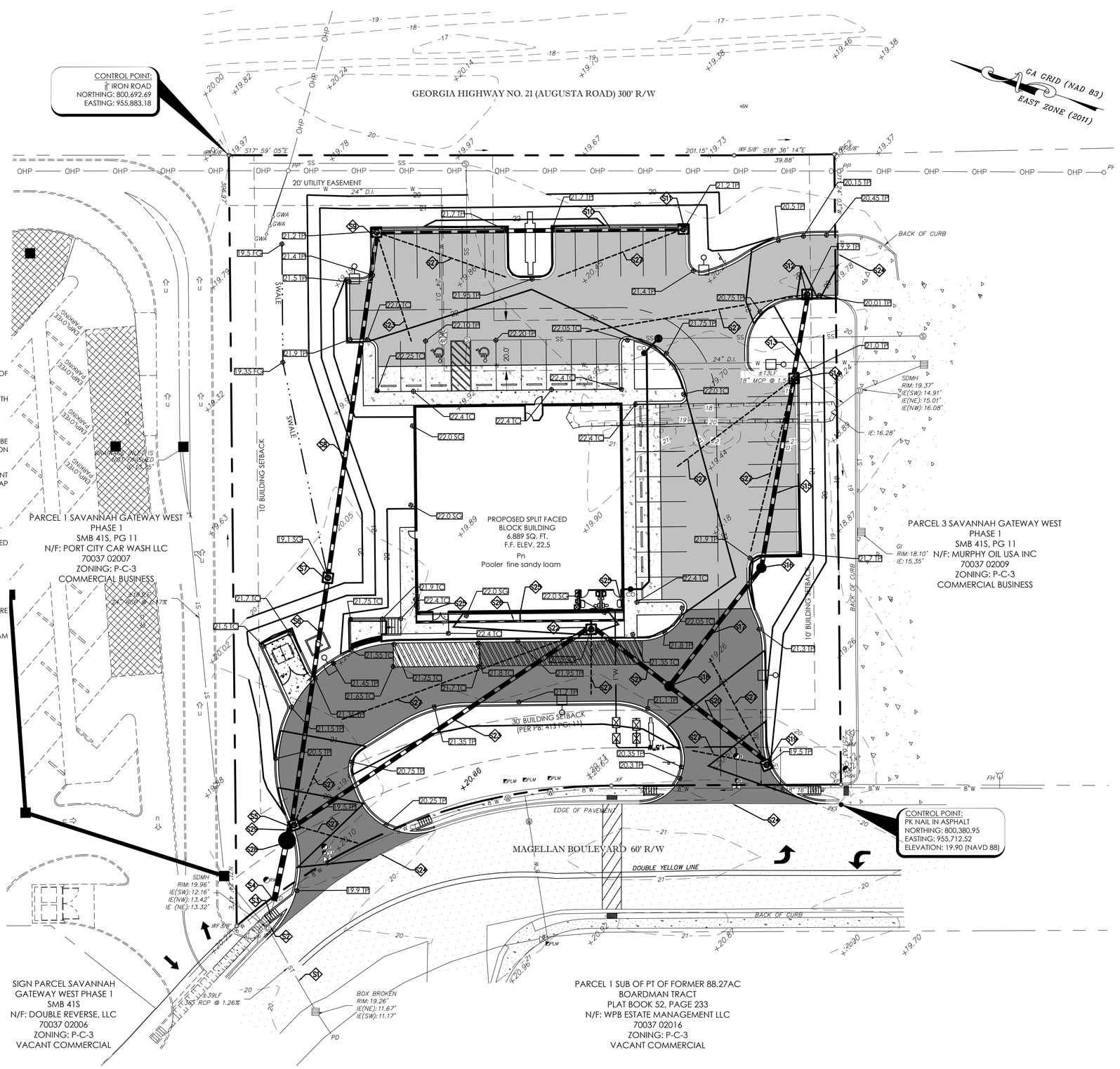
10. ACCORDING TO THE WEB SOIL SURVEY, THE EXISTING SOIL TYPE LOCATED WITHIN THE PROJECT LIMITS IS:
Pn- Pooler fine sandy loam

11. THE CONTRACTOR SHALL CALL "CALL BEFORE YOU DIG" AT 811 A MINIMUM OF 72 HOURS BEFORE DIGGNG TO INSURE PROPER LOCATIONS OF EXISTING UTILITIES.

12. STORMWATER RELEASED FROM THIS PROJECT WILL NOT ADVERSELY EFFECT THE UPSTREAM AND/OR DOWNSTREAM STORM SYSTEM.

STORM DRAINAGE KEYED NOTES

- S1 EXISTING STORM DRAINAGE IN PUBLIC RIGHT-OF-WAY TO REMAIN.
- S2 EXISTING STORM DRAINAGE INLET TO REMAIN.
- S3 EXISTING 24" R.C.P. PIPE STUBOUT TO REMAIN.
- S4 CONNECT TO EXISTING 24" R.C.P. W/ 25 LF 24" RCP (S = 0.5%); PIPE STUBOUT AT I.E. = 13.50'.
- S5 DROP INLET. TOP OF GRATE ELEV = 19.5; I.E. OUT = 13.65 I.E. IN (BOTH 18") = 14.15
- S6 100 LF 18" RCP (S = 0.5%)
- S7 DITCH INLET. BOTTOM OF DOME ELEV = 19.1; I.E. = 14.65
- S8 139 LF 18" RCP (S = 0.7%)
- S9 DROP INLET. TOP OF GRATE ELEV = 21.2; I.E. = 15.62 (OUT); I.E. = 17.23 (IN)
- S10 123 LF 18" RCP (S = 0.5%)
- S11 DROP INLET. TOP OF GRATE ELEV = 21.2; I.E. = 17.85
- S12 DROP INLET. TOP OF GRATE ELEV = 19.9; I.E. = 16.92
- S13 34 LF 12"X18" ERCP (S = 0.25%)
- S14 DROP INLET. TOP OF GRATE ELEV = 21.0; I.E. = 16.84
- S15 77 LF 18" RCP (S = 0.7%)
- S16 STORM MANHOLE TOP ELEV = 22.5; I.E. = 16.3
- S17 60 LF 18" RCP (S = 0.92%)
- S18 STORM MANHOLE TOP ELEV = 21.25; I.E. = 15.75
- S19 DROP INLET. TOP OF GRATE ELEV = 19.5; I.E. = 16.0
- S20 50 LF 18" RCP (S = 0.5%)
- S21 39 LF 18" RCP (S = 0.5%)
- S22 DITCH INLET. BOTTOM OF DOME ELEV = 21.5; I.E. = 15.55
- S23 142 LF 18" RCP (S = 0.99%)
- S24 MATCH TO EXISTING GRADE
- S25 CONNECT TO 4" X 6" METAL ROOF DRAIN
- S26 83 LF 6" PVC PIPE (S = 0.50%) STUBBED UP AT THE BUILDING FOUNDATION
- S27 6" UNDERDRAIN. SEE DETAIL SHEET C6
- S28 5' MANHOLE. WATER QUALITY DEVICE BY CONTECH (CS-5). TOP = 20.0; I.E. = 13.63
- S29 25 LF 24" RCP (S = 0.5%)



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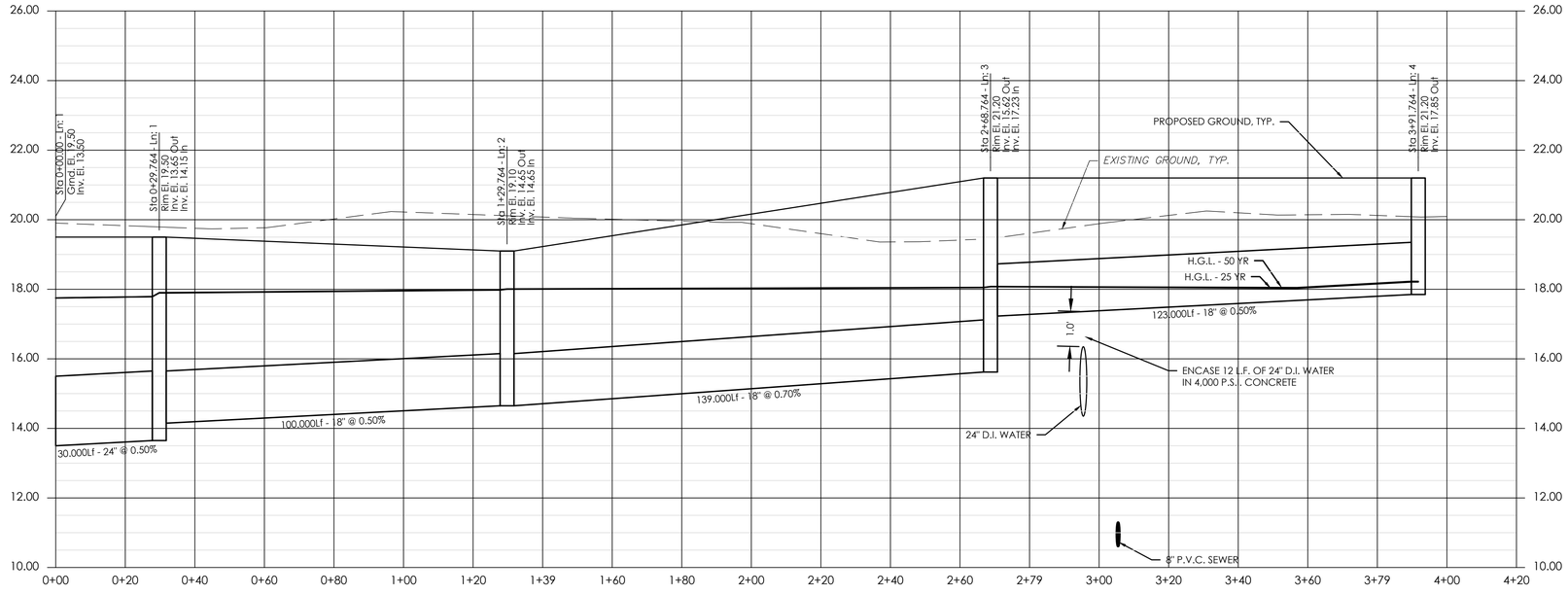
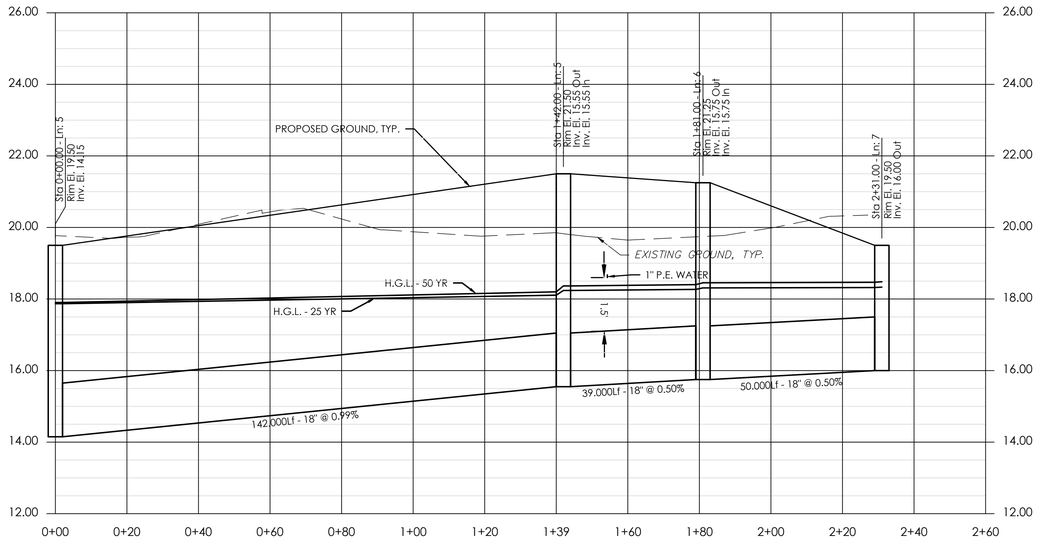
PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

CIVIL PAVING, GRADING AND DRAINAGE PLAN

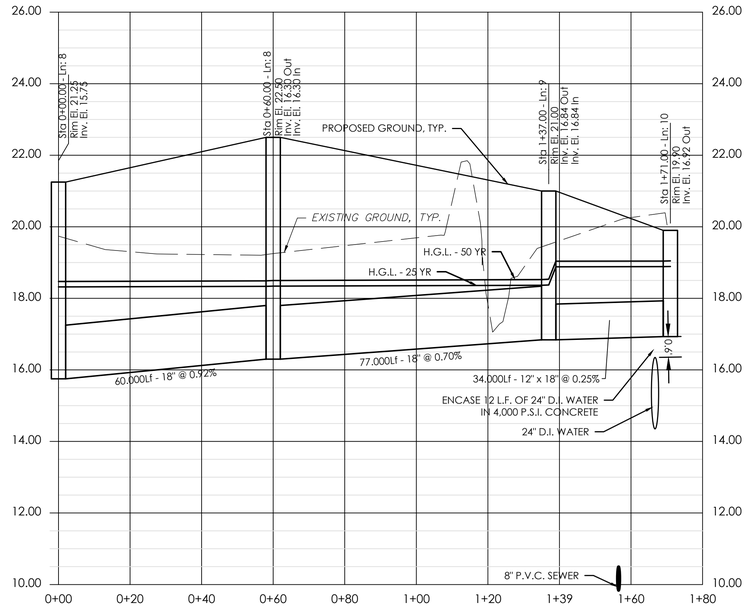
SHEET NUMBER
C4
OF 21



S4 TO S11 PROFILE
STATIONS 0+00.00 TO 4+20
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



S5 TO S19 PROFILE
STATIONS 0+00.00 TO 2+60
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



S18 TO S12 PROFILE
STATIONS 0+00.00 TO 1+80
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

ANTHONY TOSS ALLEN
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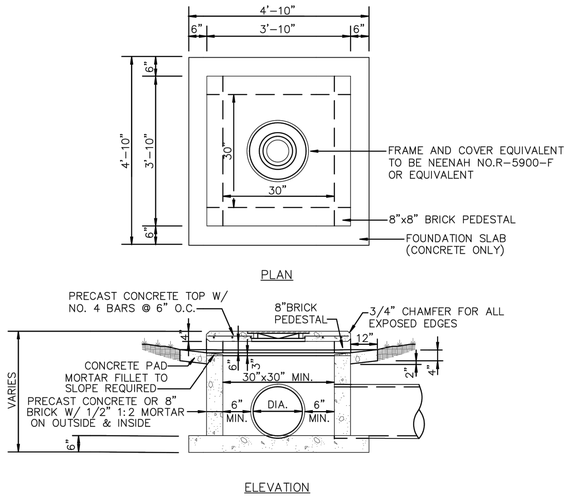
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

DRAINAGE PROFILES

SHEET NUMBER
C5
OF 21



ROOF INLET DETAIL

ROOF INLET DETAIL

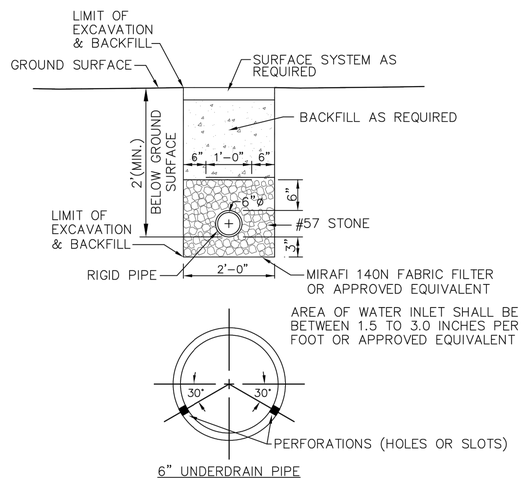
City of Port Wentworth

TECHNICAL DETAILS

SD-6

PREPARED BY SAUSSY ENGINEERING, LLC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



6" UNDERDRAIN PIPE

6" UNDERDRAIN PIPE

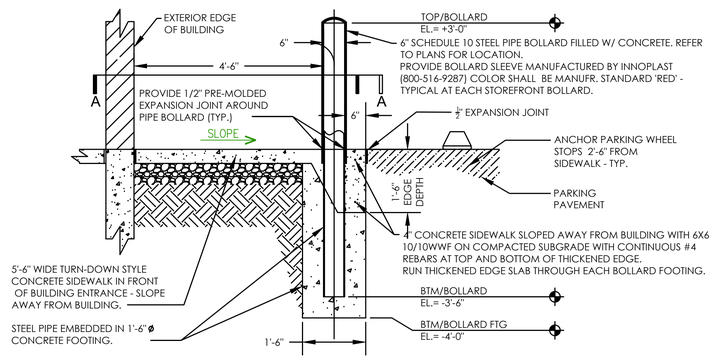
City of Port Wentworth

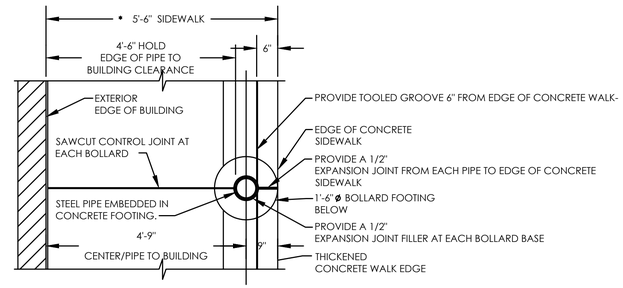
TECHNICAL DETAILS

SD-10

PREPARED BY SAUSSY ENGINEERING, LLC.

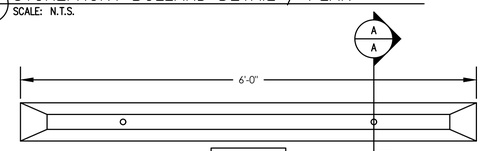
SCALE: N.T.S.
DATED: FEBRUARY 2007

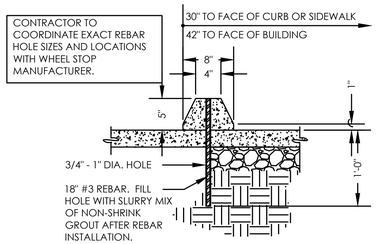




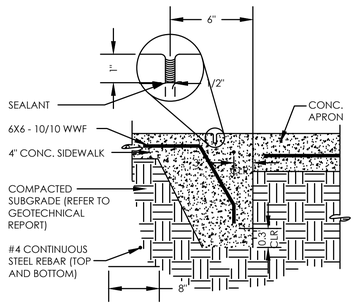
PLAN DETAIL A - A

5 / C6 STOREFRONT BOLLARD DETAIL / PLAN
SCALE: N.T.S.





3 / C6 WHEEL STOP
SCALE: N.T.S.



1 / C6 CURB EDGE CONCRETE SIDE WALK
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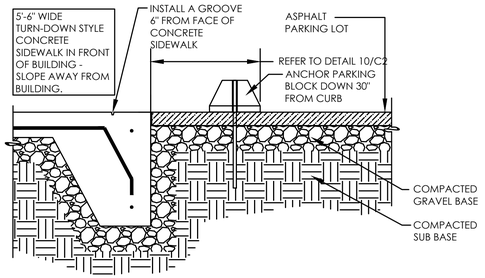

2 / C6 SIDEWALK DETAIL
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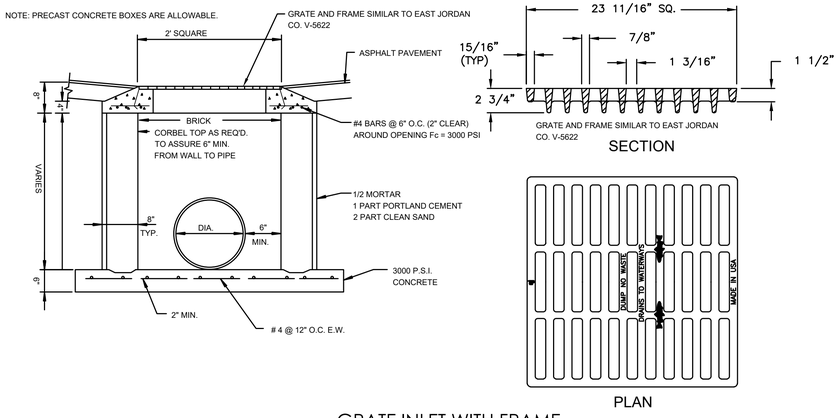
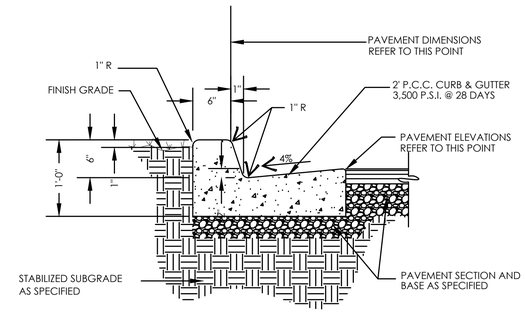




4 / C6 CONCRETE CURB AND GUTTER
SCALE: N.T.S.

GEORGE ANTHONY TOSS ALLEN
Reg. No. 32181
PROFESSIONAL ENGINEER
07/12/2022

P.O. BOX 1749
RINCON, GA 31326

PH:(912) 667-2667
E-MAIL: tallen@allenengineering.org

allen ENGINEERING SERVICES

REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	PT. WENT
2	7/11/22	-	-
-	-	-	-
-	-	-	-

DESIGNED	ATA
DRAWN	ATA
CHECKED	ATA
DATE	07/12/2022
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS

PREPARED FOR:

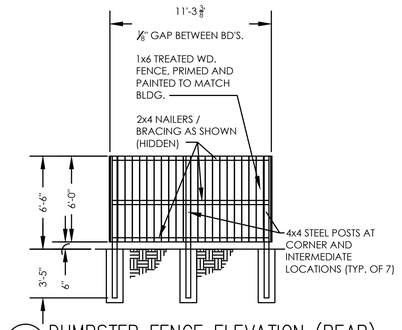
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

CONSTRUCTION DETAILS

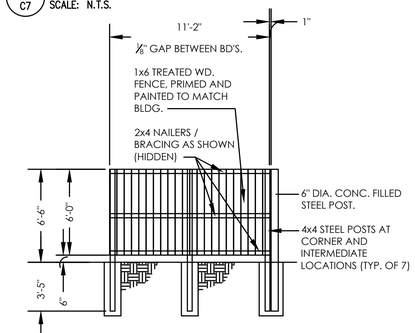
SHEET NUMBER

C6

OF 21



1 C7 DUMPSTER FENCE ELEVATION (REAR)
SCALE: N.T.S.



2 C7 DUMPSTER FENCE ELEVATION
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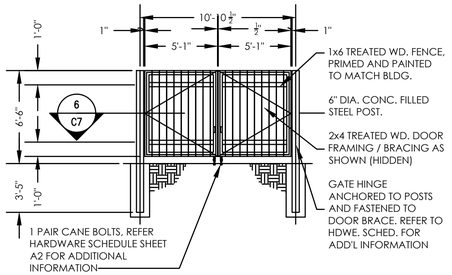
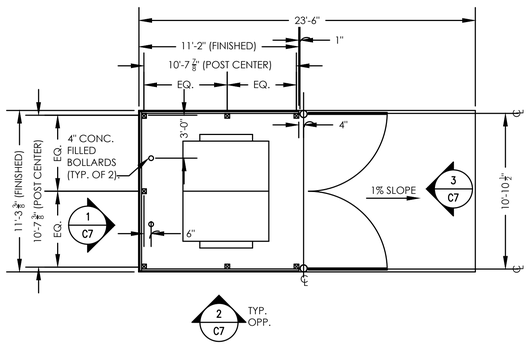
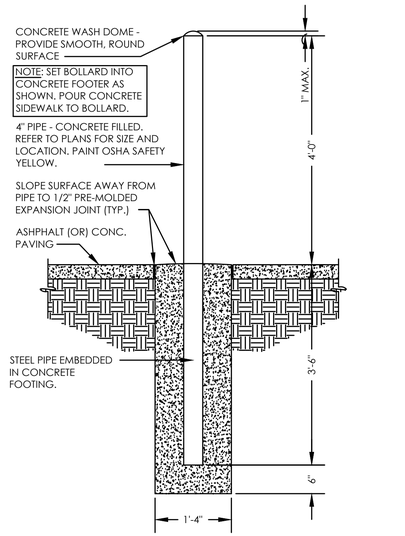


3 C7 DUMPSTER GATE ELEVATION
SCALE: N.T.S.



5 C7 TYPICAL PAD LAYOUT
SCALE: N.T.S.



4 C7 TYPICAL BOLLARD DETAIL
SCALE: N.T.S.

1. GUARDRAILS AND HANDRAILS SHALL BE THE PRODUCT OF A COMPANY NORMALLY ENGAGED IN THE MANUFACTURE OF PIPE RAILING. RAILING SHALL BE SHOP ASSEMBLED IN LENGTHS NOT TO EXCEED 24 FEET FOR FIELD ERECTION.

2. THE HANDRAIL SHALL BE MADE OF PIPES JOINED TOGETHER WITH COMPONENT FITTINGS. SAMPLES OF ALL COMPONENTS, BASES, TOEBOARD AND PIPE MUST BE SUBMITTED FOR APPROVAL AT THE REQUEST OF THE ENGINEER. COMPONENTS THAT ARE POP-RIVETED OR GLUED AT THE JOINTS WILL NOT BE ACCEPTABLE. ALL COMPONENTS MUST BE MECHANICALLY FASTENED WITH STAINLESS STEEL HARDWARE.

3. RAILINGS SHALL BE 1 1/2" SCHEDULE 40 ALUMINUM PIPE ALLOY 6105-T5, ASTM-B-429 OR ASTM-B-221. POST SHALL BE 1 1/2" SCHEDULE 40 ALUMINUM PIPE OF THE SAME ALLOY. POST SPACING SHALL BE A MAXIMUM OF 6'-0".

4. GUARDRAILS AND HANDRAILS SHALL BE DESIGNED TO WITHSTAND A 200LB CONCENTRATED LOAD APPLIED IN ANY DIRECTION AND AT ANY POINT ON THE TOP RAIL

5. INTERMEDIATE RAILINGS SHALL BE PROVIDED SUCH THAT A 4-INCH DIAMETER SPHERE CANNOT PASS THROUGH ANY OPENING.

7. THE MANUFACTURER SHALL SUBMIT CALCULATIONS FOR APPROVAL AT THE REQUEST OF THE ENGINEER. TESTING OF BASE CASTINGS OR BASE EXTRUSIONS BY AN INDEPENDENT LAB OR MANUFACTURER'S LAB (IF MANUFACTURER'S LAB MEETS THE REQUIREMENTS OF THE ALUMINUM ASSOCIATION) WILL BE AN ACCEPTABLE SUBSTITUTE FOR CALCULATIONS. CALCULATIONS WILL BE REQUIRED FOR APPROVAL OF ALL OTHER DESIGN ASPECTS.

8. POSTS SHALL NOT INTERRUPT THE CONTINUATION OF THE TOP RAIL AT ANY POINT ALONG THE RAILING, INCLUDING CORNERS AND END TERMINATIONS (OSHA 1910.23). THE TOP SURFACE OF THE TOP RAILING SHALL BE SMOOTH AND SHALL NOT BE INTERRUPTED BY PROJECTED FITTINGS.

9. THE MID-RAIL AT A CORNER RETURN SHALL BE ABLE TO WITHSTAND A 200LB LOAD WITHOUT LOOSENING. THE MANUFACTURER IS TO DETERMINE THIS DIMENSION FOR THEIR SYSTEM AND PROVIDE PHYSICAL TESTS FROM A LABORATORY TO CONFIRM COMPLIANCE.

10. CONCRETE ANCHORS SHALL BE STAINLESS STEEL TYPE 303 OR 304 WEDGE ANCHORS AND SHALL BE FURNISHED BY THE HANDRAIL MANUFACTURER. THE ANCHOR DESIGN SHALL INCLUDE THE APPROPRIATE REDUCTION FACTORS FOR SPACING AND EDGE DISTANCES IN ACCORDANCE WITH THE MANUFACTURERS PUBLISHED DATA.

11. TOE RAILINGS SHALL BE PROVIDED SUCH THAT A 2-INCH DIAMETER SPHERE CANNOT PASS THROUGH OPENING BETWEEN CURB & RAIL

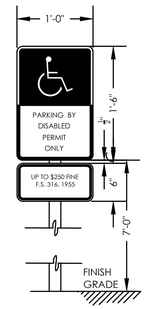
12. A SELF-CLOSING GATE SHALL GUARD OPENINGS IN THE RAILING (OSHA 1910.23). SAFETY CHAINS SHALL NOT BE USED UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS.

13. FINISH SHALL BE ALUMINUM ASSOCIATION M10-C22-A41 (215-R1). THE PIPE SHALL BE PLASTIC-WRAPPED. THE PLASTIC WRAP IS TO BE REMOVED AFTER ERECTION. THEN PAINT AS SCHEDULED

14. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS WILL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.

15. REFER TO TYPICAL ANSI/ADA DETAILS FOR LOCAL AUTHORITY HAVING JURISDICTION FOR EXTENSIONS & MOUNTING HIEGHTS OF HANDRAILS & COMPLY IN TOTAL.

15 C2 TYP RAILING SPECIFICATION
SCALE: NTS



NOTES:
1. ALL LETTERS ARE 1" SERIES 'C' PER 2003 MUTCD.

2. TOP PORTION OF SIGN SHALL HAVE A REFLECTORIZED (ENGINEERING GRADE) BLUE BACKGROUND WITH WHITE REFLECTORIZED LEGEND AND BORDER.

3. BOTTOM PORTION OF SIGN SHALL HAVE A REFLECTORIZED (ENGINEERING GRADE) WHITE BACKGROUND WITH BLACK OPAQUE LEGEND AND BORDER.

4. FINE NOTIFICATION SIGN SHALL HAVE A REFLECTORIZED (ENGINEERING GRADE) WHITE BACKGROUND WITH BLACK OPAQUE LEGEND AND BORDER.

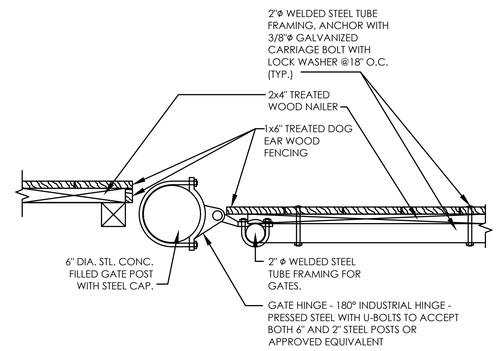
CONTRACTOR SHALL VERIFY FINE AMOUNT AND ORDINANCE NUMBER.

5. ONE (1) SIGN REQUIRED FOR EACH ACCESSIBLE PARKING SPACE.

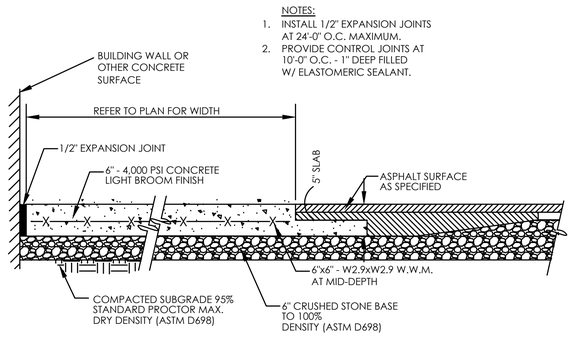
6. INSTALLED HEIGHT OF SIGN SHALL BE IN ACCORDANCE WITH SECTION 24-23 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. (MUTCD)

7. SIGN MAY BE MOUNTED ON BUILDING/WALL AT PROPER HEIGHT, IF ALIGNED WITHIN 12" OF CENTER OF PARKING SPACE.

9 C7 HANDICAP SIGNAGE
SCALE: N.T.S.



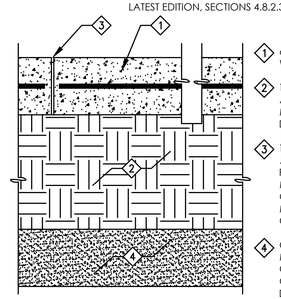
6 C7 SECTION AT GATE POST
SCALE: N.T.S.



7 C7 TYPICAL CONCRETE PAVING – SECTION
SCALE: N.T.S.

1. GENERAL CONCRETE NOTES:
RIGID PAVEMENT CONSISTS OF CONSTRUCTING A SPECIFIED PORTLAND CEMENT CONCRETE PAVING ON A PREPARED SUBGRADE. THE UTILITIES AND OTHER ITEMS IN AND BENEATH THE STREET MUST BE PROPERLY COORDINATED WITH THE CONSTRUCTION OF RIGID PAVEMENT TO AVOID CONFLICTS. THE WORK TO BE DONE SHALL INCLUDE THE FURNISHING OF ALL SUPERVISION, LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS NECESSARY FOR THE PROPOSED RIGID PAVEMENT CONSTRUCTION IN ACCORDANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS.

2. CONCRETE STRENGTH REQUIRED:
ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 (PCI) PSI AT 28 DAYS. CONFORMANCE TO STRENGTH REQUIREMENTS SHALL BE DETERMINED BY ACI STANDARD 318, LATEST EDITION, SECTIONS 4.8.2.3 AND 4.8.3.



1 6" - 4000 PSI CONCRETE W/6x6 W/2.1x2.1 WWF.

2 12" STABILIZED BASE COMPACTED TO A MINIMUM DENSITY OF 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557)

3 1/4" PREMOLDED ASPHALT EXPANSION JOINT STRIP. SET 1/2" BELOW PAVEMENT TOP @ 20'-0" O.C. MAXIMUM. PROVIDE A GEOTECHNICAL FABRIC SUCH AS MIRAFI 140N, OR EQUAL, BELOW ALL CONTROL JOINTS.

4 CLEAN FILL OR EXISTING SUBBASE MATERIAL FREE OF ORGANIC MATTER COMPACTED TO A MINIMUM DENSITY OF 95% OF THE MODIFIED PROCTOR DRY DENSITY.

8 C7 CONCRETE PAVEMENT SECTION
SCALE: N.T.S.

GEORGIA REGISTERED
Anthony Allen
No. 32181
PROFESSIONAL ENGINEER
07/12/2022
ANTHONY TOSS ALLEN

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E-MAIL: tallen@allenengineering.org

allen ENGINEERING SERVICES

REVISIONS			
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2	7/11/22	PT. WENT	-
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DESIGNED	ATA
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DATE	07/12/2022
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PORT WENTWORTH ADVANCE AUTO PARTS
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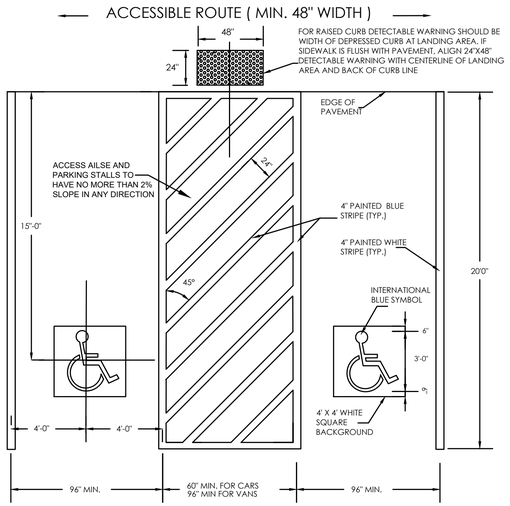
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

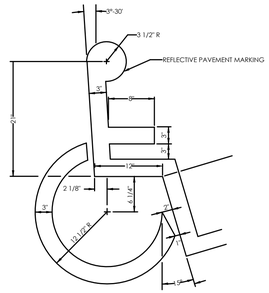
CONSTRUCTION DETAILS

SHEET NUMBER
C7
OF 21

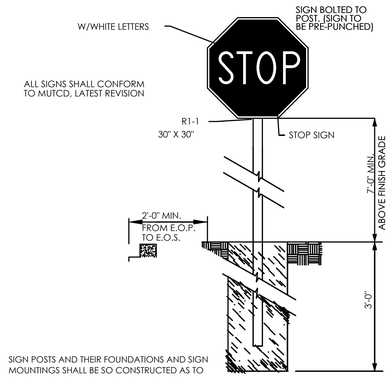


NOTE:
STRIPING AND CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND SPECIFICATIONS.

HANDICAP PARKING SPACE STRIPING
NOT TO SCALE

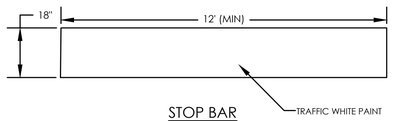


WHEELCHAIR SYMBOL
NOT TO SCALE



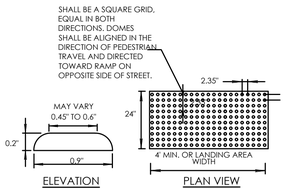
SIGN POSTS AND THEIR FOUNDATIONS AND SIGN MOUNTINGS SHALL BE SO CONSTRUCTED AS TO HOLD SIGNS IN A PROPER AND PERMANENT POSITION, TO RESIST SWAYING IN THE WIND OR

STOP SIGN
NOT TO SCALE



STOP BAR
NOT TO SCALE

NOTES:
1. HANDICAP RAMP CONSTRUCTION SHALL CONFORM TO ALL FEDERAL AND STATE SPECIFICATIONS.
2. SURFACES SHALL MEET THE GUIDELINES OF THE ADA STANDARDS FOR ACCESSIBILITY, SECTION 705 (DETECTIBLE WARNINGS).
3. THE SLOPE OF THE GUTTER MUST NOT EXCEED 1:20 ADJACENT TO THE RAMP.
4. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCHES, A HEIGHT OF NOMINAL 0.2 INCHES AND A CENTER TO CENTER SPACING OF NOMINAL 2.35 INCHES AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES. IF THE SIDEWALK AND RAMP ARE CONSTRUCTED OF CONCRETE, THE WARNING AREA SHALL BE RED BRICK IN COLOR. IF THE SIDEWALK AND RAMP ARE CONSTRUCTED OF RED BRICK, THE WARNING ARE SHALL BE GREY IN COLOR. THE COLOR USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
5. BRICK PAVERS SHALL BE SET IN A WET MORTAR BED. THE BED SHALL BE PLACED ON CONCRETE. THE CONCRETE SHALL BE A MINIMUM OF FOUR INCHES THICK.



DETECTABLE WARNING DETAIL
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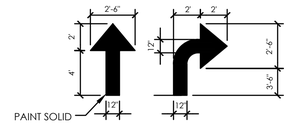
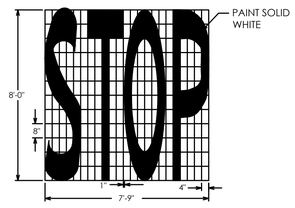
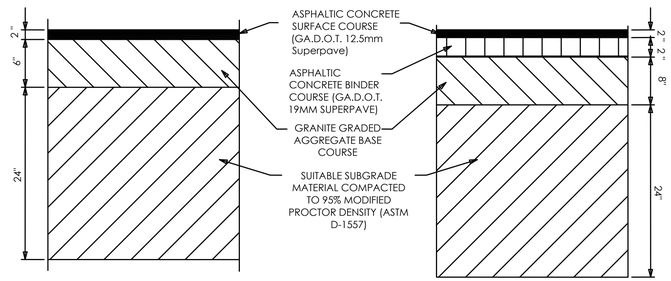




TYPICAL PAVEMENT MARKING
NOT TO SCALE

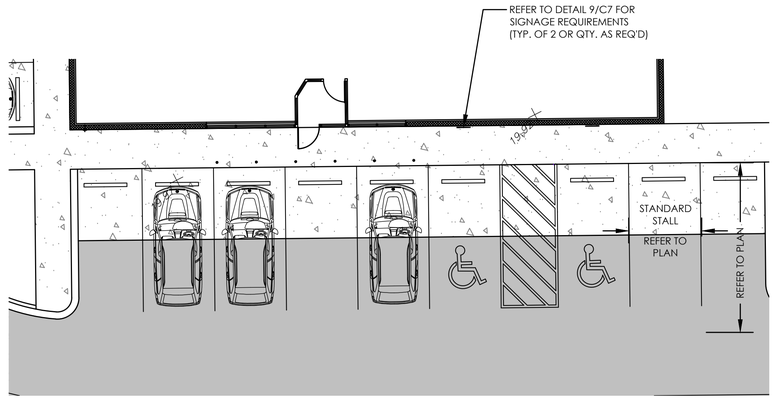


NOTE:
1. BITUMINOUS PRIME AND TACK COATS WILL BE APPLIED AS LISTED BELOW,
A. PRIME COAT SHALL BE APPLIED AT A RATE OF 0.25 GALLON PER SQUARE YARD TO THE SURFACE OF ALL GRANITE BASE COURSES.
B. TACK COAT SHALL BE APPLIED AT A RATE OF 0.10 GALLONS PER SQUARE YARD TO THE SURFACE OF THE BINDER COURSE BEFORE PLACEMENT OF SURFACE COURSE.

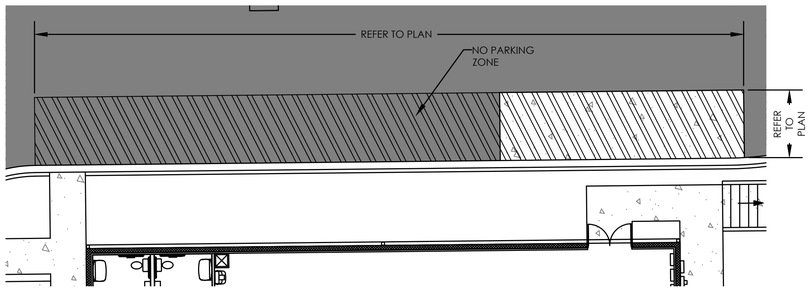
ASPHALT PAVEMENT
NOT TO SCALE

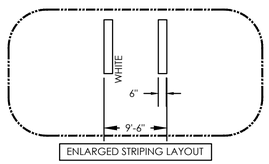
SITE ACCESSIBILITY DETAIL NOTES:

1. REFER TO SITE PLAN FOR EXACT LOCATION OF HANDICAP PARKING, WALKWAYS AND RAMPS.
2. ALL WALKWAYS, RAMPS, AND HANDICAP PARKING SIGNAGE, ETC. SHALL MEET APPROVED AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS AND LOCAL ACCESSIBILITY CODE.
3. ONE OUT OF EVERY EIGHT (8) ACCESSIBLE PARKING SPACES, BUT NOT LESS THAN ONE, IS REQUIRED TO BE VAN ACCESSIBLE.
4. FINISHED GRADES OF PAVEMENT IN HC PARKING AND ACCESSIBILITY AISLE SHALL NOT EXCEED 1:50 SLOPE IN ANY DIRECTION.



1/C8 HANDICAP STRIPING PLAN
SCALE: 1" = 10'





2/C8 NO PARKING AREA STRIPING PLAN
SCALE: 1" = 10'

GEORGIA
REGISTERED
ANTHONY TOSS ALLEN
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PROFESSIONAL ENGINEER
07/12/2022
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RINCON, GA 31326
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allen
ENGINEERING SERVICES

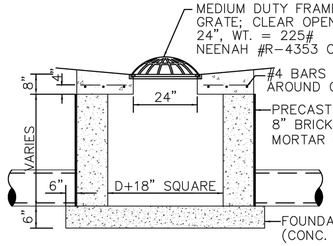
REVISIONS				
NO.	DATE	REQ. BY	-	-
1	7/07/22	AAP	-	-
2	7/11/22	PT. WENT	-	-

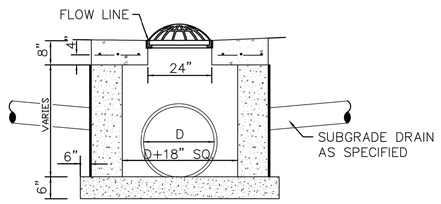
DESIGNED	ATA
DRAWN	ATA
CHECKED	ATA
DATE	07/12/2022
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

CONSTRUCTION DETAILS

SHEET NUMBER
C8
OF 21





DITCH INLET

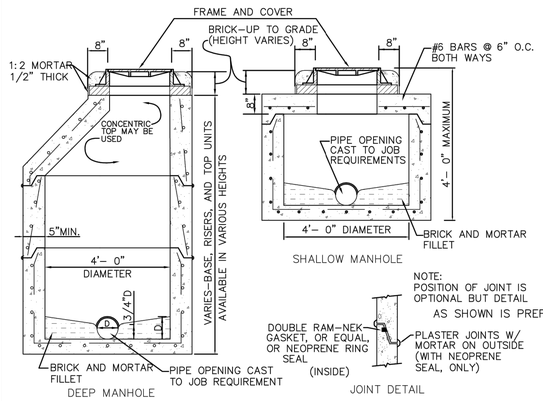
City of Port Wentworth

TECHNICAL DETAILS

SD-7

PREPARED BY SAUSSY ENGINEERING, LLC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



PRECAST STORM MANHOLE

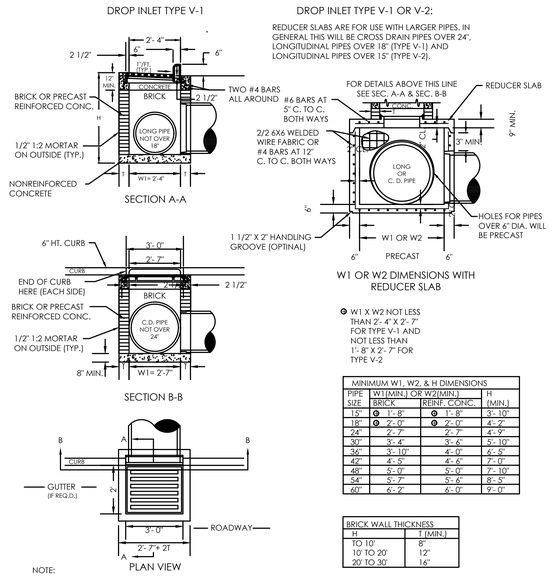
City of Port Wentworth

TECHNICAL DETAILS

SD-12

PREPARED BY SAUSSY ENGINEERING, LLC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



❶ W1 X W2 NOT LESS THAN 2'- 4" X 2'- 7" FOR TYPE V-1 AND NOT LESS THAN 1'- 8" X 2'- 7" FOR TYPE V-2

MINIMUM W1, W2, & H DIMENSIONS			
PIPE SIZE	W1 (MIN.) OR W2 (MIN.) BRICK	REINF. CONC.	H (MIN.)
15"	❶ 1'- 8"	❶ 1'- 8"	3'- 10"
18"	❶ 2'- 0"	❶ 2'- 0"	4'- 2"
24"	2'- 7"	2'- 7"	4'- 9"
30"	3'- 4"	3'- 6"	5'- 10"
36"	3'- 10"	4'- 0"	6'- 5"
42"	4'- 5"	4'- 6"	7'- 0"
48"	5'- 0"	5'- 0"	7'- 10"
54"	5'- 7"	5'- 6"	8'- 5"
60"	6'- 2"	6'- 0"	9'- 0"

BRICK WALL THICKNESS	
H	T (MIN.)
TO 10'	8"
10' TO 20'	12"
20' TO 30'	16"

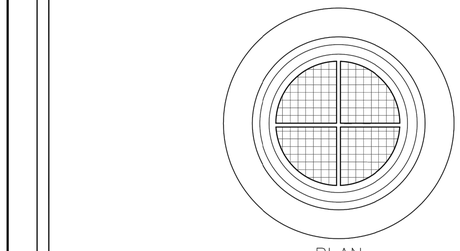
NOTE:
THE MINIMUM H DIMENSIONS SHOWN ARE BASED ON TYPICAL OUTSIDE DIAMETERS OF PIPES AND MAY BE MODIFIED WHERE THE CITY ENGINEER OR DESIGNER DETERMINES THAT CONDITIONS PERMIT.
IT IS NOT NECESSARY THAT THE BOX TYPE BASE BE SQUARE. W1 AND W2 DIMENSIONS WILL VARY ACCORDING TO PIPE SIZE.

DROP INLET
NOT TO SCALE

CONTECH ENGINEERED SOLUTIONS

Project Name: Advanced Auto Parts
Date: 5/23/2022 Flow-Based Sizing Per GSWMM
Structure: WQ
Designed By: PSC

SITE CHARACTERISTIC INPUT		
Design Storm, P (inches)	1.20	GSWMM Vol 2. Sec. 3.1.7.1
Total Area, A, (acres)	1.45	
Impervious Area, A, (acres)	0.69	
WQv & WQe CALCULATIONS		
Percent Impervious Cover, I	48%	
Volumetric Runoff Coefficient, Rv	0.48	GSWMM Vol 2. Sec. 3.1.7.1 - Equation 3.1.19
Water Quality Volume, Qwv (in)	0.574	
Water Quality Volume, Wqv (ac-ft)	0.07	GSWMM Vol 2. Sec. 3.1.7.1 - Equation 3.1.20
Water Quality Volume, Wqv (cf)	3,020.89	
Composite Curve Number, CN	92.3	CN = 1000/(10 + 5P +10WQv - 10(WQv^2 + 1.25WQvP)^1/2)
S = 1000/CN -10, (inches)	0.83	
Ia = 0.25, (inches)	0.17	
*Ia/P =	0.138	
*Time of Concentration, tc (min)	6	GSWMM Vol 2. Sec. 3.1.7.2
*Use these numbers to determine qu in GSM Fig. 2.1.5-6		
Unit Peak Discharge, qu (cfs/sqmi/in)	1000	
Water Quality Peak Discharge, WQe (cfs)	1.30	GSWMM Vol 2. Sec. 3.1.7.2 - $Q_{WQ} = q_u * A * Q_{WV}$



NOTE:

MANHOLE RIM & COVER SIMILAR TO NEENAH FOUNDRY CO. R-1412-A4. TOTAL WEIGHT 310#. TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED "STORM",

STORM MANHOLE RING & COVER

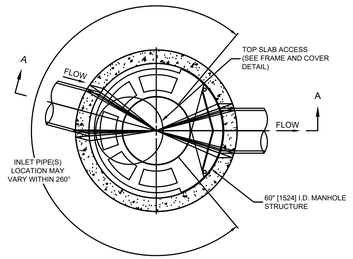
City of Port Wentworth

TECHNICAL DETAILS

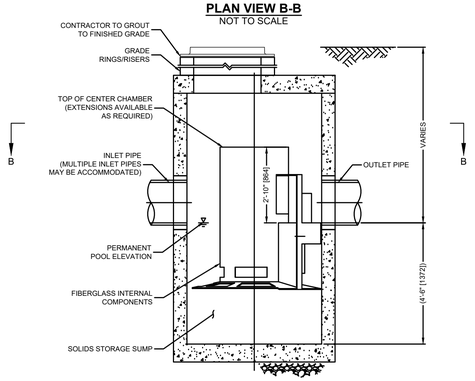
SD-14

PREPARED BY SAUSSY ENGINEERING, LLC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



PLAN VIEW B-B
NOT TO SCALE



ELEVATION A-A
NOT TO SCALE

CASCADE separator™

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD #### CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES

FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			1.3 CFS
PEAK FLOW RATE (cfs [L/s])			9.30 CFS
RETURN PERIOD OF PEAK FLOW (yrs)			25
RIM ELEVATION			20.0
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1	13.63	R.C.P.	24"
INLET PIPE 2			
OUTLET PIPE	13.63	R.C.P.	24"
NOTES / SPECIAL REQUIREMENTS:			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-5
CASCADE SEPARATOR
STANDARD DETAIL

GEORGE ANTHONY TOSS ALLEN
Reg. No. 32181
PROFESSIONAL ENGINEER
07/12/2022

P.O. BOX 1749
RINCON, GA 31326

PH:(912) 667-2667
E-MAIL: tallen@allenengineering.org

allen ENGINEERING SERVICES

REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	
2	7/11/22	PT. WENT	
-	-	-	-
-	-	-	-

DESIGNED	ATA
DRAWN	ATA
CHECKED	ATA
DATE	07/12/2022
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

CONSTRUCTION DETAILS

SHEET NUMBER
C9
OF 21

UTILITY NOTES:

1. WATER AND SEWER SERVICE TO BE PROVIDED BY THE CITY OF PORT WENTWORTH.

2. THERE IS AN IRRIGATION SYSTEM PROPOSED FOR THIS DEVELOPMENT.

3. A FIRE SYSTEM IS NOT PROPOSED FOR THIS DEVELOPMENT.

4. THE PROJECT WILL NOT DISCHARGE INDUSTRIAL WASTEWATER TO THE SANITARY SEWER SYSTEM.

5. DURING INSTALLATION, WHEN PIPE LAYING IS NOT IN PROGRESS, A MECHANICAL JOINT PLUG OR CAP, OR APPROVED EQUAL, WILL BE USED TO FORM A WATERTIGHT SEAL AT BOTH ENDS OF LINE BEING LAID.

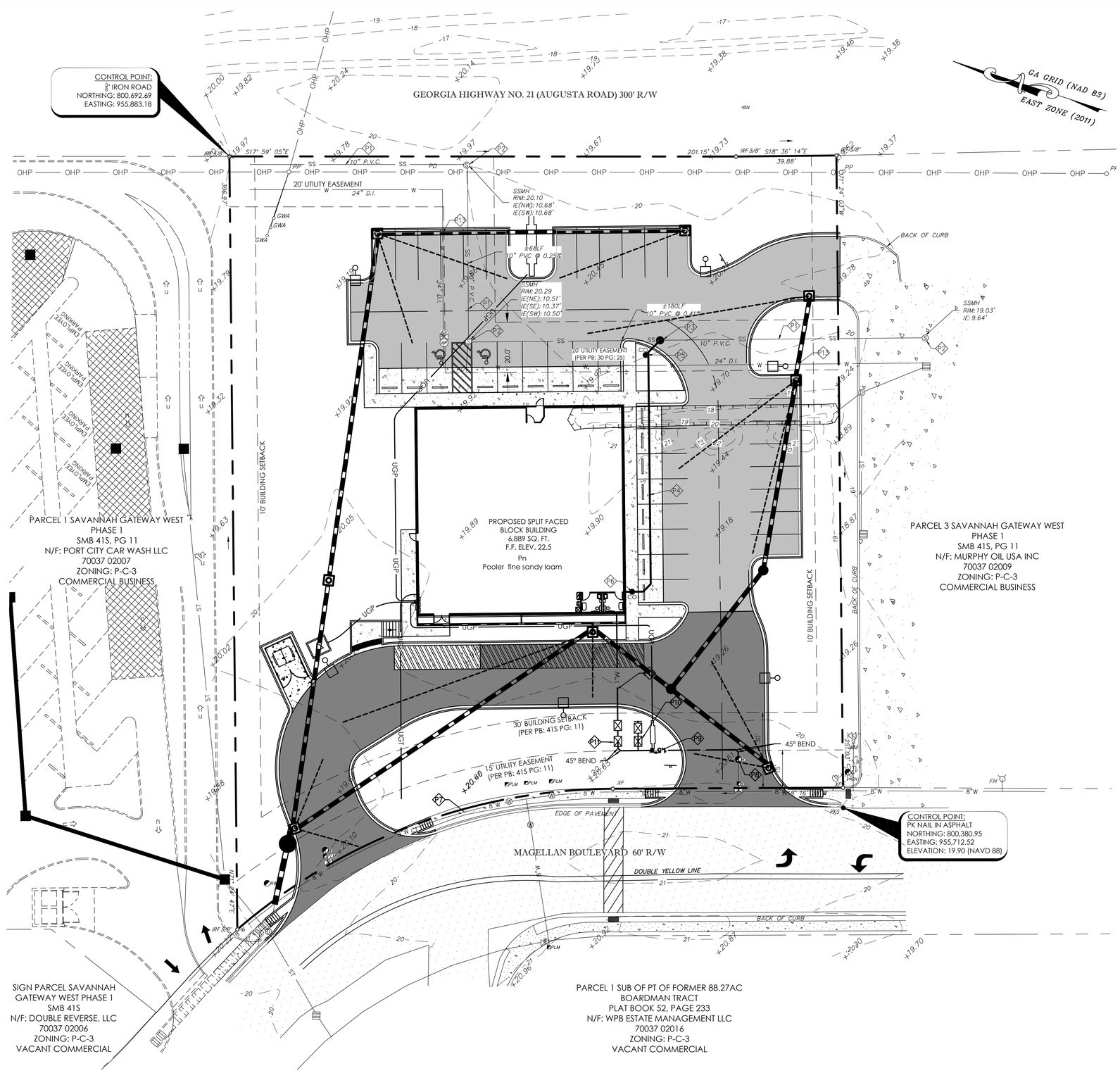
6. AN ACCEPTABLE METHOD OF FLUSHING PRIOR TO CONNECTION TO THE CITY WATER SYSTEM, SPECIFY MINIMUM FLUSH TIME AND VELOCITY THAT ARE NECESSARY TO PURGE THE LINE OF ANY FOREIGN MATERIAL.

7. CONTRACTOR SHALL TAKE PRECAUTION FOR THE PROPOSED ENCROACHMENTS OVER THE EXISTING 24" WATER MAIN DURING CONSTRUCTION. IN THE EVENT OF REPAIR FOR CITY UTILITIES WITHIN THE EASEMENT, THE CITY WILL REPAIR THE UTILITY AND THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR RESTORING THE SITE.

8. ALL MATERIALS USED AND COME IN CONTACT WITH DRINKING WATER DURING ITS DISTRIBUTION SHALL NOT ADVERSELY AFFECT DRINKING QUALITY AND PUBLIC HEALTH AND MUST BE CERTIFIED FOR CONFORMANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION STANDARD 61 (ANSI/NSF STANDARD 61).

PLUMBING KEYED NOTES

- P1 EXISTING SANITARY SEWER MAIN IN PUBLIC EASEMENT TO REMAIN.
- P2 EXISTING SAN. SEWER MANHOLE TO REMAIN. ADJUST TOP TO GRADE.
- P3 CONSTRCUT A DOGHOUSE MANHOLE OVER THE EXISTING 10" PVC SANITARY SEWER LINE. CONNECT THE NEW 4" SAN. SEWER SERVICE LATERAL AT I.E. = 13.00'.
- P4 110 L.F. 4" PVC SDR 26 SEWER LATERAL. SLOPE AT 2% MINIMUM. MINIMUM COVER SHALL BE 36".
- P5 PROVIDE SAN. SEWER CLEANOUT TO GRADE. SET TOP IN CONCRETE FLUSH WITH FINISHED GRADE. CLEANOUT SHALL BE SUITABLE FOR HEAVY TRAFFIC LOADING. REFER TO THE PLUMBING SPECIFICATIONS FOR CLARIFICATION.
- P6 PROVIDE A TWO-WAY SAN. SEWER CLEANOUT TO GRADE. SET TOP IN CONCRETE FLUSH WITH FIN. GRADE. LOCATE WITHIN 5'-0" OF BUILDING EXTERIOR WALL. REFER TO DRAWING P1. CLEANOUT SHALL BE SUITABLE FOR HEAVY TRAFFIC LOADING. REFER TO THE PLUMBING SPECIFICATIONS FOR CLARIFICATION.
- P7 EXISTING WATER MAIN IN PUBLIC RIGHT-OF-WAY TO REMAIN.
- P8 CONNECT THE NEW 1" POLYETHYLENE WATER LATERAL TO THE EXISTING 2" STUBOUT.
- P9 54 L.F. 1" POLYETHYLENE WATER LATERAL. PROVIDE 1" BRANCH TO SERVE SITE IRRIGATION SYSTEM BY OTHERS.
- P10 3/4" IRRIGATION WATER METER IN JUMBO METER BOX . 3/4" ABOVE GROUND REDUCED PRESSURE ZONE BACKFLOW PREVENTION DEVICE IN PREFABRICATED ENCLOSURE BY HOTBOX OR EQUAL. CAP AND MARK 1" POLYETHYLENE IRRIGATION LINE FOR FUTURE CONNECTION.
- P11 3/4" DOMESTIC WATER METER IN JUMBO METER BOX. 3/4" DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTION DEVICE IN JUMBO METER BOX.
- P12 51 L.F. 1" POLYETHYLENE DOMESTIC C.W. SERVICE LATERAL. MINIMUM COVER SHALL BE 36".
- P13 ENCASE 12 L.F. OF EXISTING 24" D.I. WATER MAIN IN 4,000 P.S.I. CONCRETE.



GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

811 Know what's below. Call before you dig.

GEORGIA REGISTERED
Anthony Allen
No. 32161
PROFESSIONAL ENGINEER
ANTHONY TOSS ALLEN
07/12/2022

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allen ENGINEERING SERVICES

REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	
2	7/11/22	PT. WENT	
-	-	-	
-	-	-	

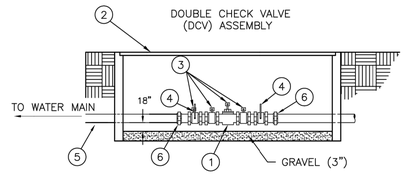
DESIGNED	ATA	
DRAWN	ATA	
CHECKED	ATA	
DATE	07/12/2022	
JOB NO.	22-002	
SCALE	1" = 20'	

20' 10' 0' 20'
GRAPHIC SCALE: 1"=20'-0"

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

CIVIL UTILITY PLAN

SHEET NUMBER
U1
OF 21



MATERIALS		
ITEM	QUAN.	DESCRIPTION
1	1	DOUBLE CHECK VALVE ASSEMBLY *
2	2	METER BOX (JUMBO METER BOX FOR 5/8", 3/4", 1" & 1 1/2" BFD ONLY)
3	4	TEST COCKS
4	2	FULL PORT BALL VALVES
5		POLYETHYLENE, COPPER OR BRASS
6	2	CUT TO LENGTH UNION

* DUAL CHECK VALVES ARE NOT ALLOWABLE

INSTALLATION INSTRUCTIONS:

THE ASSEMBLY SHALL NOT BE BURIED IN EARTH, BUT MAY BE INSTALLED IN A UTILITY BOX ADJACENT TO OR AS CLOSE AS PRACTICAL TO, THE OUTLET SIDE OF THE METER. UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR SYSTEM CONTAINMENT.

NOTES:

1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE. INSTALLER MUST PROVIDE FOR THERMAL EXPANSION DOWNSTREAM OF THE BACKFLOW PREVENTOR.
2. IF A PRESSURE MONITOR IS TO BE INSTALLED, ADD A TEE, VALVE, FITTINGS AND MOUNT ON SUPPLY SIDE PRIOR TO BACKFLOW PREVENTION DEVICE; UNDER NO CIRCUMSTANCE, SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION, OTHER THAN BACKFLOW DEVICE TESTING.

TYPICAL OUTSIDE INSTALLATION
(3/4", 1", 1 1/2", 2" & 2 1/2" SIZES)

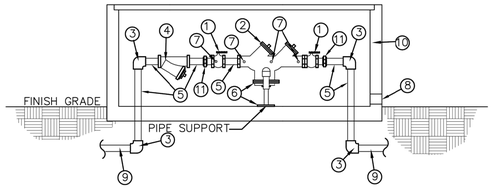
DOMESTIC DOUBLE CHECK VALVE ASSEMBLY (A)

City of Port Wentworth
TECHNICAL DETAILS

W–20

PREPARED BY SAUSSY ENGINEERING, LLC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



MATERIALS		
ITEM	QUAN	DESCRIPTION
1	2	FULL PORT BALL VALVE
2	1	REDUCED PRESSURE ZONE DEVICE
3	4	BRASS ELLS THREADED OR FLANGED
4	1	STRAINER W/ RPZ DEVICE (OPTIONAL) SEE NOTE 3
5	6	BRASS OR COPPER ONLY. NIPPLES CUT TO LENGTH
6		PIPE STAND MIN.12"
7	4	BRASS PLUGS INSERTED IN TEST COCKS
8		2" X 2" DRAIN
9		POLYETHYLENE OR COPPER
10		PREFABRICATED ENCLOSURE BY HOT BOX OR EQUAL
11	2	UNION SEE NOTE 3

NOTES:

1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER. BACKFLOW PREVENTER SHALL ALWAYS BE INSTALLED IMMEDIATELY DOWNSTREAM OF METER.
2. UNDER NO CIRCUMSTANCE SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR ANY USE OTHER THAN BACKFLOW DEVICE TESTING.
3. ITEMS 4 AND 11 (THE STRAINER AND THE UNIONS) MAY BE INSTALLED ON THE VERTICAL RISERS TO REDUCE THE OVERALL LAYING LENGTH.

TYPICAL OUTSIDE INSTALLATION
REDUCED PRESSURE
TYPE BACKFLOW PREVENTION DEVICE
(3/4", 1", 1 1/2", 2", & 2 1/2" SIZES)

BACKFLOW PREVENTION DEVICE

City of Port Wentworth
TECHNICAL DETAILS

W–25

PREPARED BY SAUSSY ENGINEERING, LLC.

SCALE: N.T.S.
DATED: FEBRUARY 2007

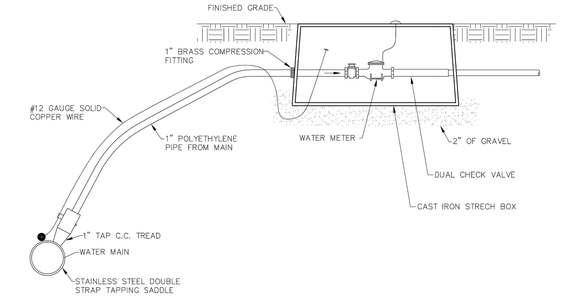
PREPARED BY SAUSSY ENGINEERING, LLC.

City of Port Wentworth
TECHNICAL DETAILS

WATER METER

W–17

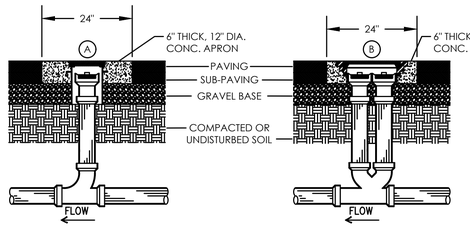
ADDENDUM 01
SCALE: N.T.S.
DATED: FEBRUARY 2007



WATER METER INSTALLATION 1" SERVICE PIPE
3/4" METER & 1" METER

NOTES:

1. WATER METER FOR THE ¾" AND 1" WATER METERS SHALL BE PURCHASED FROM THE CITY OF PORT WENTWORTH.
2. THE INSTALLATION OF THE METER AND BOX SHALL BE DONE BY THE CUSTOMER REQUIRING SERVICE.
3. IF A WATER TAP IS REQUIRED FOR THE WATER SERVICE, IT SHALL BE THE RESPONSIBILITY OF THE CUSTOMER REQUIRING SERVICE TO EXCAVATE THE WATER MAIN AND TAP MAIN UNDER THE DIRECTION OF THE CITY OF PORT WENTWORTH.
4. THE CUSTOMER REQUIRING SERVICE SHALL BE RESPONSIBLE FOR ALL BACKFILLING AND/OR REPAIRS OF EXCAVATED AREA.
5. FOR COMMERCIAL USE WATER METER, CITY WILL NOT PROVIDE DUAL CHECK VALVE. OWNER SHALL PROVIDE BACKFLOW PREVENTER.



PAVED AREAS

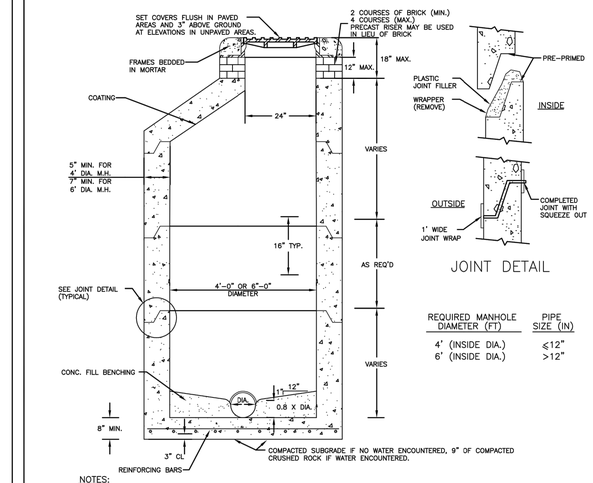
PAVED AREAS
(2-WAY CLEANOUT)

LANDSCAPED AREAS

EXTERIOR CLEANOUT DETIAL
NOT TO SCALE

(A) JOSAM SERIES 58860-22 ACCESS COVER AND CLEANOUT WITH TAPER THREAD BRONZE PLUG SERIES 58540-20 AND "SAN." ON COVER (OR APPROVED EQUIVALENT).

(B) NEENAH MODEL R-6660-DP LIGHT DUTY ACCESS COVER WITH TWO (2) JOSAM SERIES 58190-22 CLEANOUTS WITH TAPER THREAD BRONZE PLUG SERIES 58540-20 (OR APPROVED EQUIVALENT).



JOINT DETAIL

REQUIRED MANHOLE DIAMETER (FT)	PIPE SIZE (IN)
4' (INSIDE DIA.)	≤12"
6' (INSIDE DIA.)	>12"

NOTES:

1. PRECAST REINFORCED CONCRETE TOPS, RISERS, BASES AND REBARS SHALL CONFORM TO LATEST ASTM C–478 STD. SPECIFICATIONS.
2. INTERIOR OF MANHOLE SHALL BE COATED IN ACCORDANCE WITH CITY OF PORT WENTWORTH STD. SPECIFICATIONS. THE EXTERIOR OF MANHOLE SHALL BE COATED WITH CONSEAL CS–55 DAMP–PROOF COATING OR EQUAL.
3. MANUFACTURER CERTIFICATION THAT MANHOLE MEETS ASTM SPECIFICATION SHALL BE SUBMITTED TO CITY OF PORT WENTWORTH.
4. SEE DETAIL SHEET FOR MANHOLE COVER & FRAME.
6. BUOYANCY MAY NEED TO BE CHECKED IF NECESSARY
7. ALL PIPE PENETRATIONS SHALL HAVE A BOOT CONNECTION. SEE DETAIL S–6.

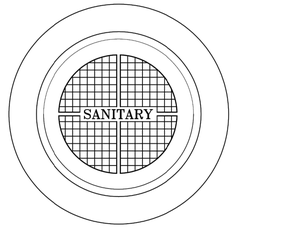
PRECAST CONCRETE MANHOLE

City of Port Wentworth
TECHNICAL DETAILS

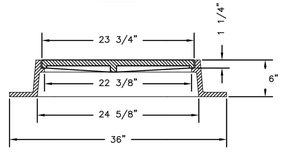
S–1

PREPARED BY SAUSSY ENGINEERING, LLC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



PLAN



SECTION

NOTE:

MANHOLE RING & COVER SHALL BE HEAVY DUTY RATED EQUAL TO U. S. FOUNDRY CO. USF 195–ORS. TOTAL WEIGHT 325# TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED 2 1/2" –3" LETTER HEIGHT "SANITARY" (NON VENTED). MANHOLE RING SHALL INCLUDE A WATERTIGHT GASKET. STACKING CLEATS ON THE BOTTOM OF THE COVER SHALL NOT BE ALLOWED.

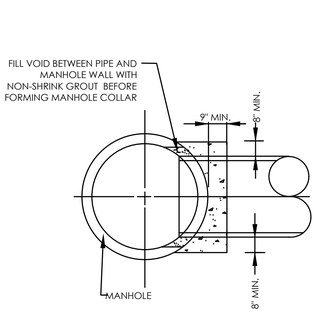
MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS

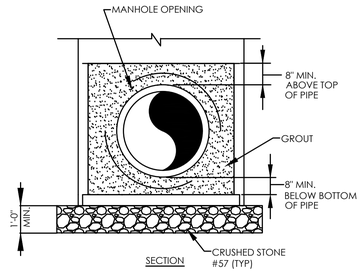
S–2

PREPARED BY SAUSSY ENGINEERING, LLC.

SCALE: N.T.S.
DATED: FEBRUARY 2007

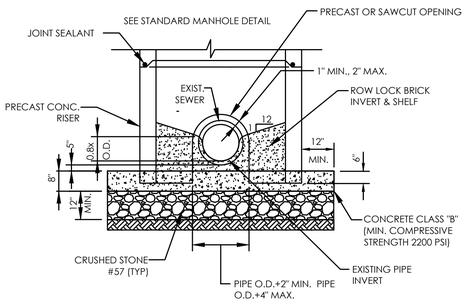


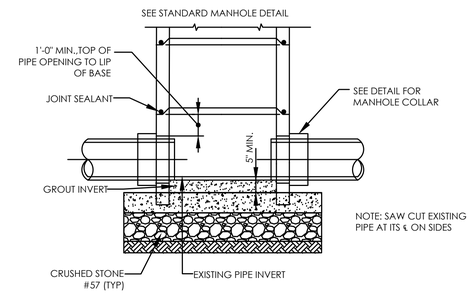
PLAN



SECTION

MANHOLE COLLAR
NOT TO SCALE





MANHOLE OVER EXISTING SEWER
NOT TO SCALE

GEORGIA REGISTERED ENGINEER Anthony Toss Allen No. 32181 PROFESSIONAL ENGINEER 07/12/2022

P.O. BOX 1749
RINCON, GA 31326

PH:(912) 447-2447
E-MAIL: tallen@allenengineering.org

allen ENGINEERING SERVICES

REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	PT. WENT
2	7/11/22	-	-
-	-	-	-
-	-	-	-

DESIGNED	ATA
DRAWN	ATA
CHECKED	ATA
DATE	07/12/2022
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

CIVIL UTILITY CONSTRUCTION DETAILS

SHEET NUMBER
U2
OF 21

EROSION CONTROL SEQUENCING NOTES:

CLEARING PHASE

PRIOR TO THE LAND DISTURBING CONSTRUCTION, THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE AREA SITE DEVELOPMENT INSPECTOR.

THE CONTRACTOR SHALL OBSERVE THE PROJECT SEQUENCE SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO INSURE THAT LAND STRIPPING OF ITS NATURAL COVER IS EXPOSED ONLY IN SMALL QUANTITIES.

THE OWNER AGREES TO PROVIDE AND MAINTAIN OFF-STREET PARKING ON THE SUBJECT PROPERTY DURING THE ENTIRE CONSTRUCTION PERIOD.

NO STAGING AREAS, MATERIAL STORAGE, CONCRETE WASH OUT AREAS, OR DEBRIS BURN AND BURIAL HOLES SHALL BE LOCATED WITHIN 500 FEET OF DESIGNATED TREE PROTECTION AREAS.

A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE AT ALL TIMES.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND-DISTURBING ACTIVITIES.

PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE AND ALL STREAM BUFFERS SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE ACTIVITY SHALL BE DEMARCATED FOR THE DURATION OF THE CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.

PRIOR TO ANY OTHER CONSTRUCTION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY TO OR EXIT FROM THE SITE OR ONTO ANY PUBLIC ROADWAY.

THE FOLLOWING INITIAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY:

1. THE CONSTRUCTION EXIT, CONSISTING OF A MINIMUM PAD SIZE OF 20 FEET BY 50 FEET WITH A MINIMUM 6" THICK STONE, SHALL BE PLACED AS SHOWN ON THE PLAN. THE STONE SIZE SHOULD CONSIST OF COURSE AGGREGATE BETWEEN 1-1/2" & 3-1/2" IN DIAMETER AND OVERLAID ON A GEOTEXTILE UNDERLINER. THE GEOTEXTILE UNDERLINER SHALL MEET THE REQUIREMENTS OF AASHTO M288-96, SECTION 7.3 SEPARATION REQUIREMENTS.

2. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCE/EXITS, ALL PERIMETER EROSION CONTROL AND STORM WATER MANAGEMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE CLEARING PHASE EROSION CONTROL PLAN.

3. TYPE 'NS' SILT FENCE SHOULD BE INSTALLED AT THE PERIMETER OF THE DISTURBED AREA AS SHOWN ON THE PLAN. THE SILT FENCE SHOULD BE PLACED IN ACCORDANCE WITH THE MANUAL FOR EROSION CONTROL IN GEORGIA, TABLE 6-20.2. THE SILT FENCE SHOULD BE KEPT ERECT AT ALL TIMES AND REPAIRED WHEN REQUESTED BY THE INSPECTOR OR THE PROJECT DESIGN PROFESSIONAL OF RECORD. SILT SHOULD BE REMOVED WHEN ACCUMULATION REACHED ½ THE HEIGHT OF THE BARRIER. THE PERIMETER SILT FENCE SHOULD BE INSPECTED DAILY FOR ANY FAILURES. ANY FAILURES OF SAID FENCING SHOULD BE REPAIRED IMMEDIATELY.

4. INLET SEDIMENT PROTECTION MEASURES SHALL BE INSTALLED ON ALL EXISTING STORM STRUCTURES AS SHOWN ON THE PLAN. SEE SEPARATE DETAILS FOR SPECIFICS ON TYPE OF INLET PROTECTION SPECIFIED.

5. STONE CHECK DAMS SHALL BE INSTALLED IN AREAS OF CONCENTRATED FLOWS AS SHOWN ON THE PLAN.

6. TREE PROTECTION FENCING SHOULD BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBANCE ACTIVITY AND MAINTAINED UNTIL FINAL LANDSCAPE IS INSTALLED. THE TREE PROTECTION FENCING SHOULD BE INSPECTED DAILY. ANY FAILURES OF SAID FENCING SHOULD BE REPAIRED IMMEDIATELY.

WITHIN SEVEN (7) DAYS AFTER INSTALLATION OF INITIAL EROSION CONTROL MEASURES, THE SITE CONTRACTOR SHALL SCHEDULE AN INSPECTION BY THE PROJECT DESIGN PROFESSIONAL. NO OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR UNTIL THE PROJECT PROFESSIONAL APPROVES THE INSTALLATION OF SAID EROSION CONTROL MEASURES. IF UNFORESEEN CONDITIONS EXIST IN THE FIELD THAT WARRANT ADDITIONAL EROSION CONTROL MEASURES, THE CONTRACTOR MUST CONSTRUCT ANY ADDITIONAL EROSION CONTROL DEVICES DEEMED NECESSARY BY THE PROJECT PROFESSIONAL DURING THE SITE INSPECTION.

AFTER APPROVAL OF INITIAL EROSION CONTROL INSTALLATION, THE CONTRACTOR MAY PROCEED WITH CLEARING AND GRUBBING ACTIVITIES. AS CLEARING PERMITS, THE CONTRACTOR SHALL CONSTRUCT SEDIMENT PONDS AS SHOWN ON PLANS.

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 7 DAYS OF LAND DISTURBANCE. ALL DISTURBED AREAS LEFT MULCHED MORE THAN 30 DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION.

FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE SITE UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED PLANS.

GRADING PHASE

THE FOLLOWING EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE PRELIMINARY GRADING PHASE OR CONSTRUCTION.

DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO ENSURE THAT LAND STRIPPING OF ITS NATURAL GROUND COVER IS EXPOSED ONLY IN SMALL QUANTITIES AND THEREFORE LIMITED DURATIONS, BEFORE PERMANENT EROSION PROTECTION IS ESTABLISHED. NOTE SUB PHASES SHOWN ON PLANS.

EARTHWORK OPERATIONS IN THE VICINITY OF STREAM BUFFERS SHALL BE CAREFULLY CONTROLLED TO AVOID DUMPING OR SLOUGHING INTO THE BUFFER AREAS.

SEDIMENT SHALL NOT BE WASHED INTO INLETS. IS SHALL BE REMOVED FROM THE SEDIMENT TRAPS AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLETS AGAIN.

EROSION CONTROL DEVICES SHALL BE INSTALLED IMMEDIATELY AFTER GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTORS RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE DESIGN PROFESSIONAL IMMEDIATELY.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN NECESSARY BARRICADES WHILE ROADWAY FRONTAGE IMPROVEMENTS ARE BEING MADE.

TYPE "NS" SILT FENCE SHOULD BE INSTALLED AT THE TOE OF ALL FILL SLOPES 10 FEET OR GREATER IN HEIGHT. THE SILT FENCE SHOULD BE PLACED IN ACCORDANCE WITH THE MANUAL FOR EROSION CONTROL IN GEORGIA, TABLE 6-20.2. THE SILT FENCE SHALL BE MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED ON THE SLOPE. SILT FENCE SHALL BE REMOVED WHEN ACCUMULATION REACHES ½ THE HEIGHT OF THE BARRIER. ADDITIONALLY, DIVERSION DIKES SHALL BE CONSTRUCTED ALONG THE TOP OF ALL SAID FILL SLOPES WITH THE USE OF TEMPORARY DOWN DRAINS TO CONTROL STORM WATER RUN OFF AS SHOWN ON THE PLANS. SEE SEPARATE DETAILS FOR ADDITIONAL INFORMATION.

THE CONTRACTOR SHALL MAINTAIN THE SEDIMENT POND UNTIL PERMANENT GROUNDCOVER IS ESTABLISHED. SEDIMENT SHALL BE CLEANED OUT OF THE POND WHEN IT REACHES ONE THIRD OF THE DEPTH OF THE BASIN.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING BARRIERS AT THE TOE OF SLOPES UNDER CONSTRUCTION. THESE BARRIERS SHALL BE AS SHOWN IN THE PLANS. THESE BARRIERS MAY BE RELOCATED AND REUSED AFTER PERMANENT SLOPE STABILIZATION BECOMES FULLY ESTABLISHED. AS THEY ARE RELOCATED, ANY DEFECTIVE MATERIALS IN THE BARRIERS SHALL BE REPLACED. IN ADDITION, ALL DEBRIS AND SILT AT THE PREVIOUS LOCATION SHALL BE REMOVED.

CUT AND FILL SLOPES ARE NOT TO EXCEED "3H:1V"

ADDITIONAL SILT BARRIERS MUST BE PLACED AS SHOWN ON THE PLAN AS ACCESS IS OBTAINED DURING CLEARING. NO GRADING SHALL TAKE PLACE UNTIL SILT BARRIER INSTALLATION AND INLET PROTECTION ARE CONSTRUCTED AS SHOWN ON THE CLEARING PHASE EROSION CONTROL PLAN.

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 7 DAYS OF LAND DISTURBANCE.

ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION.

SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.

THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1-3" OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY.

CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES, IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED SOURCE AS DIRECTED BY THE ON SITE INSPECTOR OR THE CIVIL ENGINEER.

FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS.

THE SITE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES INCLUDING REPLACING OR REPAIRING ANY DAMAGED DEVICES DUE TO ANY CONSTRUCTION ACTIVITY BY OTHERS.

TYPE "NS" SILT FENCE SHALL BE PLACED AT THE TOE OF ALL DIRT STOCK PILE AREAS. SEE SEPARATE DETAILS FOR ADDITIONAL INFORMATION.

INLET SEDIMENT PROTECTION MEASURES SHALL BE INSTALLED ON ALL STORM STRUCTURES AS THEY ARE CONSTRUCTED. SEE PLAN VIEW FOR SPECIFIC TYPE AND SEPARATE DETAILS FOR ADDITIONAL INFORMATION.

STONE CHECK DAMS SHALL BE INSTALLED IN AREAS OF CONCENTRATED FLOWS, AS SHOWN ON THE PLAN. SEE SEPARATE DETAIL FOR ADDITIONAL INFORMATION.

STORM DRAIN OUTLET PROTECTION SHALL BE PLACED AT ALL STORM DRAIN OUTLETS AS SOON AS THE OUTLET IS CONSTRUCTED.

ALL DRAINAGE SWALES SHALL BE APPLIED WITH VEGETATIVE COVER AS SOON AS FINAL GRADE IS ACHIEVED.

AFTER PRELIMINARY GRADING ACTIVITIES, THE CONTRACTOR SHALL CONSTRUCT INLET PROTECTIONS AS SHOWN ON PLAN. THE CONTRACTOR SHALL MAINTAIN THE INLET PROTECTIONS AS SHOWN UNTIL PERMANENT GRADING COVER IS ESTABLISHED.

FINAL PHASE

THE FOLLOWING EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE FINAL EROSION CONTROL PHASE OF CONSTRUCTION.

SEDIMENT SHALL NOT BE WASHED INTO INLETS. IT SHALL BE REMOVED FROM THE SEDIMENT TRAPS AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLETS AGAIN.

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 7 DAYS OF LAND DISTURBANCE.

ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY GRASSING.

THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PERMANENT GROUND COVER IS ESTABLISHED. SEDIMENT SHALL BE CLEANED OUT OF THE PONDS WHEN IT REACHES THE HALF WAY POINT ON THE RISER.

AFTER CURBING, GRADED AGGREGATE BASE, AND PAVEMENT HAS BEEN INSTALLED, ALL INLET SEDIMENT TRAPS ON SINGLE AND DOUBLE WING CATCH BASINS ALONG WITH ANY CURB INLETS SHALL BE REMOVED AND REPLACED WITH CURB FILTER PROTECTION. SEE SEPARATE DETAIL FOR ADDITIONAL INFORMATION.

ALL ROADWAY AND PARKING SHOULD BE APPLIED WITH VEGETATIVE COVER AS SOON AS FINAL GRADE IS ACHIEVED BEHIND CURBS.

SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OR THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.

THE CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1-3" OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY.

CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES, IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED SOURCE AS DIRECTED BY THE ON SITE INSPECTOR OR THE CIVIL ENGINEER.

FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS.

THE SITE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES INCLUDING REPLACING OR REPAIRING ANY DAMAGED DEVICES DUE TO ANY CONSTRUCTION ACTIVITY BY OTHERS.

UPON COMPLETION OF THE PROJECT AND RECEIPT OF CERTIFICATION OF OCCUPANCY, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND DISPOSE OF THEM UNLESS NOTED ON PLANS.

NOTE:
SILT FENCE, INLET SEDIMENT TRAPS AND RETROFITTING
SHALL BE REMOVED ONCE FINAL STABILIZATION IS ACHIEVED.

EROSION & SEDIMENT CONTROL PHASING SCHEDULE

CONTROL MEASURES		PHASE 1	PHASE 2	PHASE 3
CONSTRUCTION EXIT	(CxS)	X	X	X
SEDIMENT BARRIER	(SB1-NS)	X	X	X
INLET SEDIMENT TRAP	(SIP)		X	X
TEMPORARY SEDIMENT BASIN	(SAS)	X	X	X
FLOATING SURFACE SKIMMER	(SK)		X	X
DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)	(DVS)	X	X	
FILTER RING	(FF)		X	X
RETROFIT	(RH-P)		X	X
DUST CONTROL ON DISTURBED AREAS	(DU)	X	X	
CHECK DAM	(Cd-Hb)			
OUTLET PROTECTION	(ST)			X
DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)	(Ds3) (Ds4)			X

PHASE 1 - PERIMETER CONTROL - TO BE INSTALLED PRIOR TO ANY LAND DISTURBANCE
PHASE 2 - GRADING AND DRAINAGE CONTROL MEASURES
PHASE 3 - FINAL CONTROL MEASURES - TO BE INSTALLED AT COMPLETION OF LAND DISTURBANCE AND SHALL REMAIN IN PLACE AFTER CONSTRUCTION

SEE SHEET ES1 - ES4 AND ES 8 - ES10 FOR SOIL EROSION NOTES AND DETAILS

TENTATIVE ACTIVITY SCHEDULE

	MONTH 1	MONTH 2	MONTH 3	MONTH 4	MONTH 5	MONTH 6	MONTH 7	MONTH 8
INITIAL PERIMETER AND SEDIMENT STORAGE BMP'S	■							
CLEARING AND GRUBBING	■	■						
CONSTRUCTION EXIT	■	■	■	■	■	■	■	
SEDIMENT BARRIER	■	■	■	■	■	■	■	■
DISTURBED AREA STABILIZATION (WITH MULCHING)			■	■	■	■		
DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)				■	■	■		
DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)							■	■
DUST CONTROL	■	■	■	■	■	■		
GRADING			■	■	■	■		
BUILDING AND SITE PAVING			■	■	■	■		
REMOVE TEMPORARY EROSION CONTROL								■
MAINTENANCE OF ES&PC BMPs	■	■	■	■	■	■	■	■

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

GEORGIA ANTHONY TOSS ALLEN 32181 PROFESSIONAL ENGINEER 07/12/2022

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allen ENGINEERING SERVICES

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1	7/07/22	AAP	
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SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

EROSION AND SEDIMENTATION CONTROL NOTES

SHEET NUMBER
ES1
OF 21

ATTACHED | YES 1. THE APPLICABLE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN CHECKLIST ESTABLISHED BY THE COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED (THE COMPLETED CHECKLIST MUST BE SUBMITTED WITH THE ES&PC PLAN OR THE PLAN WILL NOT BE REVIEWED)

PLEASE FIND THE CURRENT STAND ALONE EROSION, SEDIMENTATION AND POLLUTION CONTROL CHECKLIST ATTACHED TO THIS PLAN

ALL | YES 2. THE LEVEL II CERTIFICATION NUMBER ISSUED BY THE COMMISSION, SIGNATURE AND SEAL OF THE CERTIFIED DESIGN PROFESSIONAL. (SIGNATURE, SEAL AND LEVEL II NUMBER MUST BE ON EACH SHEET PERTAINING TO ES&PC PLAN OR THE PLAN WILL NOT BE REVIEWED)

PLEASE FIND ON EACH SHEET OF THIS PLAN THE GSWCC LEVEL II CERTIFICATION NUMBER, SIGNATURE AND SEAL FOR MR. ANTHONY TOSS ALLEN, P.E.

- | N/A 3. LIMITS OF DISTURBANCE SHALL BE NO GREATER THAN 50 ACRES AT ANY ONE TIME WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE GAEPD DISTRICT OFFICE. IF GAEPD APPROVES THE REQUEST TO DISTURB 50 ACRES OR MORE AT ANY ONE TIME, THE PLAN MUST INCLUDE AT LEAST 4 OF THE BMPS LISTED IN APPENDIX 1 OF THIS CHECKLIST AND THE GAEPD APPROVAL LETTER. *
(A COPY OF THE WRITTEN APPROVAL BY GAEPD MUST BE ATTACHED TO THE PLAN FOR THE PLAN TO BE REVIEWED.)

AREA OF DISTURBANCE DOES NOT EXCEED 50 ACRES

ES2 | YES 4. THE NAME AND PHONE NUMBER OF THE 24-HOUR CONTACT RESPONSIBLE FOR EROSION, SEDIMENTATION AND POLLUTION CONTROLS

ANTHONY TOSS ALLEN, P.E.
P.O. BOX 1749
RINCON, GEORGIA 31326
(912) 667-2667

ES2 | YES 5. PROVIDE THE NAME, ADDRESS, EMAIL ADDRESS, AND PHONE NUMBER OF PRIMARY PERMITTEE

PEACHTREE DEVELOPMENT AND INVESTMENTS , LLC
4477 LEGENDARY DRIVE, UNIT 101
DESTIN, FLORIDA 32541
(404) 430-5177
JBENNETT@PEACHTREEDEV.COM

ES2 | YES 6. NOTE TOTAL AND DISTURBED ACREAGES OF THE PROJECT OR PHASE UNDER CONSTRUCTION

TOTAL ACREAGE - 1.450
DISTURBED ACREAGE -1.486

ES2 | YES 7. PROVIDE THE GPS LOCATION OF THE CONSTRUCTION EXIT FOR THE SITE. GIVE THE LATITUDE AND LONGITUDE IN DECIMAL DEGREES

THE CONSTRUCTION EXIT FOR THIS SITE IS LOCATED AT:
LAT 32.197004°; LONG -81.198301°

ALL | YES 8. INITIAL DATE OF THE PLAN AND THE DATES OF ANY REVISIONS MADE TO THE PLAN INCLUDING THE ENTITY WHO REQUESTED THE REVISIONS

PLEASE FIND THE INITIAL DATE OF THE PLAN AND ALL REVISIONS ON THE COVER SHEET AS WELL AS EACH INDIVIDUAL SHEET OF THE PLAN

ES2 | YES 9. DESCRIPTION OF THE NATURE OF CONSTRUCTION ACTIVITY AND EXISTING SITE CONDITIONS

THIS SITE IS LOCATED AT 0 MAGELLAN BOULEVARD (LOT 2 SAVANNAH GATEWAY WEST) IN THE CITY OF PORT WENTWORTH, CHATHAM COUNTY, GEORGIA. THE SITE IS APPROXIMATELY 1.450 ACRES AND IS CURRENTLY PARTIALLY WOODED AND VACANT. THE INTENTION OF THE OWNER IS TO DEVELOP AN ADVANCED AUTO PARTS STORE AND THE RELATED INFRASTRUCTURE TO SERVE IT. (PIN 70037 02008)

COVER | YES 10. PROVIDE VICINITY MAP SHOWING SITE'S RELATION TO SURROUNDING AREAS. INCLUDE DESIGNATION OF SPECIFIC PHASE, IF NECESSARY

PLEASE FIND THE VICINITY MAP LOCATED ON THE COVER SHEET OF THE PLANS

ES2 | YES 11. IDENTIFY THE PROJECT RECEIVING WATERS AND DESCRIBE ALL SENSITIVE ADJACENT AREAS INCLUDING STREAMS, LAKES, RESIDENTIAL AREAS, WETLANDS, MARSHLANDS, ETC. WHICH MAY BE AFFECTED

RUNOFF FROM THE SITE WILL ENTER INTO A MUNICIPAL STORM SEWER SYSTEM WHICH WILL BE BUILT BY THE CURRENT OWNERS OF THE PROPERTY. THIS SITE HAS BEEN PREVIOUSLY MASTER-PLANNED FOR THIS SITE'S RUNOFF. THE ULTIMATE RECEIVING WATER FOR THIS SITE IS THE SAVANNAH RIVER. SEE QUAD MAP ON SHEET ES4.

ES2 | YES 12. DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE SITE WAS VISITED PRIOR TO DEVELOPMENT OF THE ES&PC PLAN AS STATED ON PART IV PAGE 19 OF THE PERMIT

"I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION."

Anthy Allen

ANTHONY T. ALLEN, P.E.
GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #0000044936

ES2 | YES 13. DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE PERMITTEE'S ES&PC PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BMPS AND SAMPLING TO MEET PERMIT REQUIREMENTS AS STATED ON PART IV PAGE 19 OF THE PERMIT

"I CERTIFY THAT THE PERMITEE'S EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH LAND DISTURBING ACTIVITY WAS PERMITTED. THE PLAN PROVIDES FOR THE SAMPLING OF THE STORM WATER OUTFALLS. THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100001."

Anthy Allen

ANTHONY T. ALLEN, P.E.
GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #0000044936

ES2 | YES 14. CLEARLY NOTE THE STATEMENT THAT "THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WITHIN 7 DAYS AFTER INSTALLATION." IN ACCORDANCE WITH PART IV.A.5 PAGE 25 OF THE PERMIT *

THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S WITHIN 7 DAYS AFTER INSTALLATION.

DESIGN PROFESSIONAL 7-DAY VISIT CERTIFICATION:

DATE OF INSPECTION _____

I CERTIFY THE SITE WAS IN COMPLIANCE WITH THE ES&PC PLAN ON THE DATE OF INSPECTION.

_____ _____
GSWCC LEVEL II DESIGN PROFESSIONAL **CERTIFICATION #**

INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ES&PC PLAN

_____

_____

_____

THESE DISCREPANCIES MUST BE ADDRESSED IMMEDIATELY AND A RE-INSPECTION SCHEDULED. WORK SHALL NOT PROCEED ON SITE UNTIL DESIGN PROFESSIONAL CERTIFICATION IS OBTAINED

ES2 | YES 15. CLEARLY NOTE THE STATEMENT THAT "NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS"

NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50 FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION NOR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS

ES2 | YES 16. PROVIDE A DESCRIPTION OF ANY BUFFER ENCROACHMENTS AND INDICATE WHETHER A BUFFER VARIANCE IS REQUIRED

THERE ARE NO BUFFER ENCROACHMENTS PROPOSED WITH THE PROJECT AND A BUFFER VARIANCE IS NOT REQUIRED

ES2 | YES 17. CLEARLY NOTE THE STATEMENT THAT "AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL." *

AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON THE BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL

ES2 | YES 18. CLEARLY NOTE THE STATEMENT THAT "WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT"

WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT

ES2 | YES 19. CLEARLY NOTE STATEMENT THAT "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES"

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES

ES2 | YES 20. CLEARLY NOTE STATEMENT THAT "EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE"

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATIONS OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURE SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE

ES2 | YES 21. CLEARLY NOTE THE STATEMENT "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING"

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD OF GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING

- | N/A 22. ANY CONSTRUCTION ACTIVITY WHICH DISCHARGES STORM WATER INTO AN IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS, ANY PORTION OF A BIOTA IMPAIRED STREAM SEGMENT MUST COMPLY WITH PART III. C. OF THE PERMIT. INCLUDE THE COMPLETED APPENDIX 1 LISTING ALL THE BMPS THAT WILL BE USED FOR THOSE AREAS OF THE SITE WHICH DISCHARGE TO THE IMPAIRED STREAM SEGMENT

THERE ARE NO DISCHARGES INTO AN IMPAIRED STREAM SEGMENT OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS ANY PORTION OF A BIOTA IMPAIRED STREAM SEGMENT

- | N/A 23. IF A TMDL IMPLEMENTATION PLAN FOR SEDIMENT HAS BEEN FINALIZED FOR THE IMPAIRED STREAM SEGMENT (IDENTIFIED IN ITEM 22 ABOVE) AT LEAST SIX MONTHS PRIOR TO SUBMITTAL OF NOI, THE ES&PC PLAN MUST ADDRESS ANY SITE-SPECIFIC CONDITIONS OR REQUIREMENTS INCLUDED IN THE TMDL IMPLEMENTATION PLAN

THERE ARE NO DISCHARGES INTO AN IMPAIRED STREAM SEGMENT

ES2 | YES 24. BMPS FOR CONCRETE WASHDOWN OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS AND THE REAR OF THE VEHICLES. WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED *

WASHOUT OF THE DRUM OF CONCRETE TRUCKS AT THE CONSTRUCTION SITE IS PROHIBITED. THE WASHDOWN OF TOOLS, CHUTES, HOPPERS, AND THE REAR OF VEHICLES SHALL BE COLLECTED IN THE DESIGNATED CONCRETE WASHOUT AREA.

ES2 | YES 25. PROVIDE BMPS FOR THE REMEDIATION OF ALL PETROLEUM SPILLS AND LEAKS

PETROLEUM BASED PRODUCTS - CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS, AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORM DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS

SOIL CLEANUP AND CONTROL PRACTICES:

- **LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL.**
- **MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST AND PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS.**
- **ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS WILL BE REPORTED AS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS.**
- **FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER) THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.**
- **FOR SPILLS OF AN UNKNOWN AMOUNT, THE THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.**
- **FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE GEORGIA EPD WILL BE CONTACTED WITHIN 24 HOURS.**
- **FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE GEORGIA EPD WILL BE CONTACTED WITHIN 24 HOURS**
- **FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.**

THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ONSITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL

ES2 | YES 26. DESCRIPTION OF THE MEASURES THAT WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED

RIP-RAP IS INSTALLED ON ALL DISCHARGE ENDS OF STORM PIPE AND AT THE OUTFALL LOCATIONS. PERMANENT GRASSING AND LANDSCAPING WILL BE INSTALLED TO PROTECT EARTHEN AREAS FROM EROSION ONCE CONSTRUCTION IS COMPLETE OVERLAND FLOW TO THE DRAINAGE INLETS AND TO THE BASIN WILL OCCUR THROUGH GRASS AND VEGETATION WHICH WILL ACT AS A FILTER FOR POLLUTANTS AND SEDIMENT.

ES2 | YES 27. DESCRIPTION OF PRACTICES TO PROVIDE COVER FOR BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE

PAINTS/FINISHES/SOLVENTS - ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCTS, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS

FERTILIZER/HERBICIDES - THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATION OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES OR HERBICIDES ON SITE WILL BE UNDER ROOF IN SEALED CONTAINERS

BUILDING MATERIALS - ANY BUILDING MATERIALS OR BUILDING PRODUCTS STORED ON SITE WILL BE UNDER PLASTIC SHEETING OR A ROOF SO THAT SUFFICIENT TO PREVENT THEM FROM COMING INTO CONTACT WITH PRECIPITATION OR STORMWATER. NO BUILDING MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIALS WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES

ES2 | YES 28. DESCRIPTION OF THE PRACTICES THAT WILL BE USED TO REDUCE THE POLLUTANTS IN STORM WATER DISCHARGES

POLLUTANT PREVENTION

THE FOLLOWING MATERIAL ARE EXPECTED ONSITE DURING CONSTRUCTION: PETROLEUM BASED FUELS AND LUBRICANTS FOR EQUIPMENT, ADDITIVES FOR SOIL STABILIZATION, PESTICIDES, FERTILIZERS, HERBICIDES, CRUSHED STONE, CONCRETE PRODUCTS, ASPHALT, TAR, LUMBER, PAINTS/STAINS/FINISHING TREATMENTS, PAINT SOLVENTS, CLEANING SOLVENTS, PLASTICS AND METAL PIPES

PRACTICES SUCH AS GOOD HOUSEKEEPING, PROPER HANDLING OF HAZARDOUS PRODUCTS AND PROPER SPILL CONTROL PRACTICES WILL BE FOLLOWED TO REDUCE THE RISK OF SPILLS FROM DISCHARGING INTO THE STORM WATER RUNOFF

GOOD HOUSEKEEPING

- **QUANTITIES ONSITE WILL BE LIMITED TO THE AMOUNT NEEDED FOR THE JOB**
- **PRODUCTS AND MATERIAL WILL BE STORED IN A NEAT, ORDERLY MANNER IN APPROPRIATE CONTAINERS PROTECTED FROM RAINFALL, WHERE POSSIBLE**
- **PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH MANUFACTURER'S LABELS LEGIBLE AND VISIBLE.**
- **PRODUCT MIXING, DISPOSAL, AND DISPOSAL OF PRODUCT CONTAINERS WILL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.**
- **THE CONTRACTOR WILL INSPECT SUCH MATERIALS TO ENSURE PROPER USE, STORAGE AND DISPOSAL.**

PRODUCT SPECIFIC PRACTICES

FERTILIZER/HERBICIDES/PESTICIDES/DETERGENTS- THESE WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENTATION CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS. NO NOT DISCHARGE WASH WATER INTO STORM WATER SYSTEM. INSTALL CURBS OR DIKES AROUND STORAGE AREA TO PROTECT AGAINST SPILLS. LIMIT USE OF DETERGENTS ON-SITE

PAINTS/FINISHES/SOLVENTS- ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCTS, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS

CONCRETE TRUCK WASHING- WASHOUT OF THE DRUM OF CONCRETE TRUCKS AT THE CONSTRUCTION SITE IS PROHIBITED. THE WASHDOWN OF TOOLS, CHUTES, HOPPERS, AND THE REAR OF VEHICLES SHALL BE COLLECTED IN THE DESIGNATED CONCRETE WASHOUT AREA.

BUILDING MATERIALS- NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPERTY WASTE DISPOSAL PROCEDURES

NO WASTE WILL BY DISPOSED INTO STORM WATER INLETS OR WATERS OF THE STATE

WASTE MATERIALS

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL MEET ALL SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF ONCE PER WEEK OR MORE OFTEN IF NECESSARY AND TRASH WILL BE HAULED AS REQUIRED BY LOCAL REGULATIONS. NO CONSTRUCTION WASTE WILL BE BURIED ONSITE. ALL PERSONNEL WILL BE INSTRUCTED ON PROPER PROCEDURES FOR WASTE DISPOSAL. A NOTICE STATING THESE PRACTICES WILL BE POSTED AT THE JOB SITE AND THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED

HAZARDOUS WASTES:

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL, STATE AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. THE JOB SITE SUPERINTENDENT, WHO WILL ALSO BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED, WILL INSTRUCT SITE PERSONNEL IN THESE PRACTICES. MATERIAL SAFETY DATA SHEETS (MSDS'S) FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE WILL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. THE MSDS WILL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS WILL BE MAINTAINED IN THE ESPCP FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE OF MSDS SHEETS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING, PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES.

THE CONTRACTOR WILL IMPLEMENT THE SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN FOUND WITHIN THIS ESPCP AND WILL TRAIN ALL PERSONNEL IN THE PROPER CLEANUP AND HANDLING OF SPILLED MATERIALS. NO SPILLED HAZARDOUS MATERIALS OR HAZARDOUS WASTES WILL BE ALLOWED TO SOME IN CONTACT WITH STORMWATER DISCHARGES. IF SUCH CONTACT OCCURS, THE STORMWATER DISCHARGE WILL BE CONTAINED ON SITE UNTIL APPROPRIATE MEASURES IN COMPLIANCE WITH STATE AND FEDERAL REGULATIONS ARE TAKEN TO DISPOSE OF SUCH CONTAMINATED STORMWATER. IT SHALL BE THE RESPONSIBILITY OF THE JOB SITE SUPERINTENDENT TO PROPERLY TRAIN ALL PERSONNEL IN THE USE OF THE SPCC PLAN.

SANITARY WASTES

A MINIMUM OF ONE PORTABLE SANITARY UNIT WILL BE PROVIDED FOR EVERY TEN (10) WORKERS ON THE SITE. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONE TIME PER WEEK BY A LICENSED PORTABLE FACILITY PROVIDER IN COMPLETE COMPLIANCE WITH LOCAL AND STATE REGULATIONS.
ALL SANITARY WASTE UNITS WILL BE LOCATED IN ONE AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORM WATER DISCHARGE IS NEGLIGIBLE. ADDITIONAL CONTAINMENT BMPS MUST BE IMPLEMENTED SUCH AS GRAVEL BAGS OR SPECIALLY DESIGNED PLASTIC SKID CONTAINERS AROUND THE BASE TO PREVENT WASTES FROM CONTRIBUTING TO STORM WATER DISCHARGES. ALL SANITARY WASTE UNITS WILL BE COMPLETELY ENCLOSED SO AS TO PREVENT PRECIPITATION FROM COMING INTO CONTACT WITH THE SANITARY WASTE STORED IN THEM. THE LOCATION OF SANITARY WASTE UNITS MUST BE IDENTIFIED ON THE EROSION CONTROL PLAN GRADING PHASE SHEET ES7, BY THE CONTRACTOR ONCE THE LOCATION HAVE BEEN DETERMINED.
SANITARY SEWER WILL BE PROVIDED BY MUNICIPAL AUTHORITY/SEPTIC SYSTEM UPON THE COMPLETION OF THIS PROJECT.

ES1 | YES 29. DESCRIPTION AND CHART OR TIMELINE OF THE INTENDED SEQUENCE OF MAJOR ACTIVITIES WHICH DISTURB SOILS FOR THE MAJOR PORTIONS OF THE SITE (I.E., INITIAL PERIMETER AND SEDIMENT STORAGE BMPS, CLEARING AND GRUBBING ACTIVITIES, EXCAVATION ACTIVITIES, UTILITY ACTIVITIES, TEMPORARY AND FINAL STABILIZATION)

PLEASE FIND THE DESCRIPTION, CHART AND TIMELINE OF THE INTENDED SEQUENCE OF MAJOR ACTIVITIES WHICH DISTURB SOIL ON SHEET ES1 OF THE PLANS

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

GEORGIA — ANTHONY TOSS ALLEN — No. 32181 — PROFESSIONAL ENGINEER — 07/12/2022

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allen ENGINEERING SERVICES

REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	
2	7/11/22	PT. WENT	
-	-	-	-
-	-	-	-

DESIGNED	A.T.A.
DRAWN	A.T.A.
CHECKED	A.T.A.
DATE	07/12/2022
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

EROSION AND SEDIMENTATION CONTROL NOTES (CONTINUED)

SHEET NUMBER
ES2
OF 21

ES3 | YES 30. PROVIDE COMPLETE REQUIREMENTS OF INSPECTIONS AND RECORD KEEPING BY THE PRIMARY PERMITTEE

INSPECTIONS AND RECORD KEEPING

a. PERMITTEE REQUIREMENTS.

(1). EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT: (A) ALL AREAS AT THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT AND (B) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

(2). MEASURE AND RECORD RAINFALL WITHIN DISTURBED AREAS OF THE SITE THAT HAVE NOT MET FINAL STABILIZATION ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY. THE DATA COLLECTED FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.

(3). CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY NON-WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, WHICHEVER OCCURS FIRST); (A) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE; (B) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION; AND (C) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.A.(4). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

(4). CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E., UNTIL A NOTICE OF TERMINATION HAS BEEN SUBMITTED) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S).

(5). BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.

(6). A REPORT OF EACH INSPECTION THAT INCLUDES THE NAME(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E., INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.A.(5). OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION SITE THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION,

SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT.

ES3 | YES 31. PROVIDE COMPLETE REQUIREMENTS OF SAMPLING FREQUENCY AND REPORTING OF SAMPLING RESULTS

SAMPLING REQUIRMENTS:

THIS PERMIT REQUIRES THE MONITORING OF NEPHELOMETRIC TURBIDITY IN RECEIVING WATER(S) OR OUTFALLS IN ACCORDANCE WITH THIS PERMIT. THIS PARAGRAPH SHALL NOT APPLY TO ANY LAND DISTURBANCE ASSOCIATED WITH THE CONSTRUCTION OF SINGLE-FAMILY HOMES WHICH ARE NOT PART OF A SUBDIVISION OR PLANNED COMMON DEVELOPMENT UNLESS FIVE (5) ACRES OR MORE WILL BE DISTURBED. THE FOLLOWING PROCEDURES CONSTITUTE EPD'S GUIDELINES FOR SAMPLING TURBIDITY.

a. *SAMPLING REQUIREMENTS* SHALL INCLUDE THE FOLLOWING:

(1). A USGS TOPOGRAPHIC MAP, A TOPOGRAPHIC MAP OR A DRAWING (REFERRED TO AS A TOPOGRAPHIC MAP) THAT IS A SCALE EQUAL TO OR MORE DETAILED THAN A 1:24000 MAP SHOWING THE LOCATION OF THE SITE OR THE STAND ALONE CONSTRUCTION; (A) THE LOCATION OF ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES AS SHOWN ON A USGS TOPOGRAPHIC MAP, AND ALL OTHER PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES LOCATED DURING MANDATORY FIELD VERIFICATION, INTO WHICH THE STORMWATER IS DISCHARGED AND (B) THE RECEIVING WATER AND/OR OUTFALL SAMPLING LOCATIONS. WHEN THE PERMITTEE HAS CHOSEN TO USE A USGS TOPOGRAPHIC MAP AND THE RECEIVING WATER(S) IS NOT SHOWN ON THE USGS TOPOGRAPHIC MAP, THE LOCATION OF THE RECEIVING WATER(S) MUST BE HAND-DRAWN ON THE USGS TOPOGRAPHIC MAP FROM WHERE THE STORMWATER(S) ENTERS THE RECEIVING WATER(S) TO THE POINT WHERE THE RECEIVING WATER(S) COMBINES WITH THE FIRST BLUE LINE STREAM SHOWN ON THE USGS TOPOGRAPHIC MAP;

(2). A WRITTEN NARRATIVE OF SITE SPECIFIC ANALYTICAL METHODS USED TO COLLECT, HANDLE AND ANALYZE THE SAMPLES INCLUDING QUALITY CONTROL/QUALITY ASSURANCE PROCEDURES. THIS NARRATIVE MUST INCLUDE PRECISE SAMPLING METHODOLOGY FOR EACH SAMPLING LOCATION;

(3). WHEN THE PERMITTEE HAS DETERMINED THAT SOME OR ALL OUTFALLS WILL BE SAMPLED, A RATIONALE MUST BE INCLUDED ON THE PLAN FOR THE NTU LIMIT(S) SELECTED FROM APPENDIX B. THIS RATIONALE MUST INCLUDE THE SIZE OF THE CONSTRUCTION SITE, THE CALCULATION OF THE SIZE OF THE SURFACE WATER DRAINAGE AREA, AND THE TYPE OF RECEIVING WATER(S) (I.E., TROUT STREAM OR SUPPORTING WARM WATER FISHERIES); AND

(4). ANY ADDITIONAL INFORMATION EPD DETERMINES NECESSARY TO BE PART OF THE PLAN. EPD WILL PROVIDE WRITTEN NOTICE TO THE PERMITTEE OF THE INFORMATION NECESSARY AND THE TIME LINE FOR SUBMITTAL.

b. *SAMPLE TYPE.* ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED); THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-B-92-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.

(1). SAMPLE CONTAINERS SHOULD BE LABELED PRIOR TO COLLECTING THE SAMPLES.

(2). SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER.

(3). LARGE MOUTH, WELL CLEANED AND RINSED GLASS OR PLASTIC JARS SHOULD BE USED FOR COLLECTING SAMPLES. THE JARS SHOULD BE CLEANED THOROUGHLY TO AVOID CONTAMINATION.

(4). MANUAL, AUTOMATIC OR RISING STAGE SAMPLING MAY BE UTILIZED. SAMPLES REQUIRED BY THIS PERMIT SHOULD BE ANALYZED IMMEDIATELY, BUT IN NO CASE LATER THAN 48 HOURS AFTER COLLECTION. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION, UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. IF AUTOMATIC SAMPLING IS UTILIZED AND THE AUTOMATIC SAMPLER IS NOT ACTIVATED DURING THE QUALIFYING EVENT, THE PERMITTEE MUST UTILIZE MANUAL SAMPLING OR RISING STAGE SAMPLING DURING THE NEXT QUALIFYING EVENT. DILUTION OF SAMPLES IS NOT REQUIRED. SAMPLES MAY BE ANALYZED DIRECTLY WITH A PROPERLY CALIBRATED TURBIDIMETER. SAMPLES ARE NOT REQUIRED TO BE COOLED.

(5). SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED TO EPD AS SPECIFIED IN PART IV.E.

c. *SAMPLING POINTS.*

(1). FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST SAMPLE ALL RECEIVING WATER(S), OR ALL OUTFALL(S), OR A COMBINATION OF RECEIVING WATER(S) AND OUTFALL(S). SAMPLES TAKEN FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING WATER(S) AND/OR THE STORMWATER OUTFALLS USING THE FOLLOWING MINIMUM GUIDELINES:

(A). THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORMWATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORMWATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.

(B). THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORMWATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORMWATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.

(C). IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORMWATER OUTFALL CHANNEL(S).

(D). CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORMWATER CHANNEL.

(E). THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.

(F). THE SAMPLES SHOULD BE KEPT FREE FROM FLOATING DEBRIS.

(G). PERMITTEES DO NOT HAVE TO SAMPLE SHEET FLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT. FOR PURPOSES OF THIS SECTION, STABILIZED SHALL MEAN, FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES AND AREAS LOCATED OUTSIDE THE WASTE DISPOSAL LIMITS OF A LANDFILL CELL THAT HAS BEEN CERTIFIED BY EPD FOR WASTE DISPOSAL, 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR LANDSCAPED ACCORDING TO THE PLAN (UNIFORMLY COVERED WITH LANDSCAPING MATERIALS IN PLANNED LANDSCAPED AREAS), OR EQUIVALENT PERMANENT STABILIZATION MEASURES AS DEFINED IN THE MANUAL (EXCLUDING A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET CROP PERENNIALS APPROPRIATE FOR THE REGION).

(H). ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORMWATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS III.D.3 OR III.D.4., WHICHEVER IS APPLICABLE.

d. *SAMPLING FREQUENCY.*

(1). THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORMWATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN IN FORTY-FIVE (45) MINUTES OR AS SOON AS POSSIBLE.

(2). HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORMWATER DISCHARGE.

(3). SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:

(A). FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORMWATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION;

(B). IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORMWATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOT, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST;

(C). AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPS IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS* UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPS ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED;

(D). WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.A.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B) OR (C) ABOVE; AND

(E). EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.

***NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (a) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.**

REPORTING

1. THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORMWATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD USING THE ELECTRONIC SUBMITTAL SERVICE PROVIDED BY EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

2. ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:

a. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
e. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
c. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;
d. THE DATE(S) ANALYSES WERE PERFORMED;
e. THE TIME(S) ANALYSES WERE INITIATED;
f. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;
g. REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;
h. THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC., USED TO DETERMINE THESE RESULTS;
i. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU;" AND
j. CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.

3.ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

ES3 | YES 32. PROVIDE COMPLETE DETAILS FOR RETENTION OF RECORDS AS PER PART IV.F. OF THE PERMIT

RETENTION OF RECORDS:

F. RETENTION OF RECORDS.

1. THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI:

a. A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD;
b. A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT;
c. THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5 OF THIS PERMIT;
d. A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;
e. A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A OF THIS PERMIT;
f. A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2 OF THIS PERMIT; AND
g. DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(2) OF THIS PERMIT.

2. COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) AND OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS. RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATIVE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITEE.

ES3 | YES 33. DESCRIPTION OF ANALYTICAL METHODS TO BE USED TO COLLECT AND ANALYZE THE SAMPLES FROM EACH LOCATION *

ALL SAMPLING SHOULD BE COLLECTED BY "GRAB SAMPLES." SAMPLING PROCEDURES SHALL BE IN ACCORDANCE WITH THE GUIDANCE DOCUMENT ENTITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-B-92-001", NPDES PERMIT NO. GAR 100001, PART 6, AND ANY GUIDANCE DOCUMENTS DEVELOPED BY GEORGIA EPD. THE ANALYSIS OF THESE SAMPLES SHOULD BE CONDUCTED IN ACCORDANCE WITH THE METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136.

SAMPLE COLLECTION SHALL PROCEED AS FOLLOWS:

- **SAMPLE CONTAINERS SHALL BE LABELED PRIOR TO SAMPLE COLLECTION.**
- **SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER.**
- **LARGE MOUTH, WELL-CLEANED AND RINSED GLASS OR PLASTIC JARS SHOULD BE USED FOR SAMPLE COLLECTION.**
- **MANUAL, AUTOMATIC OR RISING STAGE SAMPLING MAY BE UTILIZED.**
- **SAMPLES SHOULD BE ANALYZED IMMEDIATELY, BUT NO LATER THAN 48 HOURS AFTER THE SAMPLE IS COLLECTED. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. IF AUTOMATIC SAMPLING IS UTILIZED AND THE AUTOMATIC SAMPLER IS NOT ACTIVATED DURING THE QUALIFYING EVENT, THE PERMITTEE MUST UTILIZE MANUAL SAMPLING OR RISING STAGE SAMPLING DURING THE NEXT QUALIFYING EVENT. SAMPLES ARE NOT REQUIRED TO BE COOLED.**
- **SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND THE MINIMUM FREQUENCY STATED MUST BE REPORTED TO EPD AS SPECIFIED BY NPDES GENERAL PERMIT NO. GAR 100001, PART IV.E.**
- **SEE SECTION IV.6.D OF THIS DOCUMENT FOR SAMPLING FREQUENCY.**

FOR COMPLIANCE WITH NPDES GENERAL PERMIT NO. GAR 100001, SAMPLES TAKEN SHOULD BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING WATER(S) AND/OR THE STORM WATER OUTFALLS.

THE FOLLOWING GUIDELINES SHALL BE ADHERED TO:

- **THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND AN ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.**
- **THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND AN ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.**
- **SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE WATER(S) OUTFALL OR THE STORMWATER CHANNEL(S).**
- **CARE SHOULD BE TAKEN TO AVOID STIRRING SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORM WATER CHANNEL.**
- **THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.**
- **THE SAMPLE SHOULD BE KEPT FREE FROM FLOATING DEBRIS.**
- **PERMITTEES DO NOT HAVE TO SAMPLE SHEETFLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT.**
- **ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORM WATER RUNOFF FROM FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS III.D.3. OR III.D.4., WHICHEVER IS APPLICABLE.**

ES3 | YES 34. APPENDIX B RATIONALE FOR NTU VALUES AT ALL OUTFALL SAMPLING POINTS WHERE APPLICABLE *

**STORM WATER IS TO BE SAMPLED FOR NEPHELOMETRIC TURBIDITY UNITS (NTU) AT THE OUTFALL LOCATIONS. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED , AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN THE TURBIDITY OF THE DISCHARGE EXCEEDING 75, THE VALUE THAT WAS SELECTED FROM APPENDIX B IN PERMIT NO. GAR 100001. THE NTU IS BASED UPON THE DIS

ES4 - ES7	YES	35.	DELINEATE ALL SAMPLING LOCATIONS, PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED *

PLEASE SEE PLAN SHEET FOR DELINEATION OF SAMPLING LOCATIONS, PERENNIAL, INTERMITTENT STREAMS AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED

STORM WATER OUTFALLS SHALL BE SAMPLED. THE SAMPLING LOCATIONS SHALL BE IN THE OUTFALL FROM THE DETENTION POND/SEDIMENT BASIN. SAMPLING LOCATIONS DESIGNATED WITH "GS" ARE GRAB SAMPLES TAKEN WITH A PINT MASON JAR. EACH JAR IS LABELED WITH LOCATION, PROJECT NAME, DATE AND TIME PRIOR TO TAKING THE SAMPLE. SAMPLING LOCATIONS DESIGNATED WITH "AS" ARE AUTOMATIC SAMPLES COLLECTED BY A SS101 STORM WATER SAMPLER BY GLOBAL WATER. THE STORM WATER OUTFALLS ARE DESIGNATED AS FOLLOWS:

GS 1. WITHIN THE OUTFALL FROM DETENTION POND/SEDIMENT BASIN

RECEIVING WATERS: MUNICIPAL STORM SEWER SYSTEM AND LITTLE HEARST BRANCH.

ES4	YES	36.	A DESCRIPTION OF APPROPRIATE CONTROLS AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE INCLUDING:(1) INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS, (2) INTERMEDIATE GRADING AND DRAINAGE BMPS, AND (3) FINAL BMPS. FOR CONSTRUCTION SITES WHERE THERE WILL BE NO MASS GRADING AND THE INITIAL PERIMETER CONTROL BMPS, INTERMEDIATE GRADING AND DRAINAGE BMPS, AND FINAL BMPS ARE THE SAME, THE PLAN MAY COMBINE ALL OF THE BMPS INTO A SINGLE PHASE *

INITIAL PHASE - THE INITIAL PHASE OF THE ES&PC PLAN WILL INCLUDE THE INSTALLATION OF THE CONSTRUCTION EXIT AND SILT FENCE. TEMPORARY MULCHING, SEEDING AND DUST CONTROL WILL BE IMPLEMENTED AS NECESSARY

INTERMEDIATE PHASE - THE INTERMEDIATE GRADING AND DRAINAGE BMP'S WILL INCLUDE THE MAINTENANCE OF CONSTRUCTION EXIT AND SILT FENCE. INLET PROTECTION WILL BE INSTALLED AT NEW STORM INLETS AND STORM DRAIN OUTLET PROTECTION WILL BE INSTALLED AT DISCHARGE LOCATIONS. DUST CONTROL, MULCHING AND TEMPORARY SEEDING WILL BE IMPLEMENTED AS NECESSARY

FINAL PHASE - FINAL BMP'S WILL INCLUDE THE MAINTENANCE OF ALL INITIAL AND INTERMEDIATE BMPS. DUST CONTROL, MULCHING AND TEMPORARY SEEDING WILL BE IMPLEMENTED AS NECESSARY. SODDING WILL BE IMPLEMENTED FOR FINAL STABILIZATION. ALL TEMPORARY BMPS WILL BE REMOVED UPON FINAL STABILIZATION AND ACCEPTANCE

ALL	YES	37.	GRAPHIC SCALE AND NORTH ARROW

GRAPHIC SCALE AND NORTH ARROW ARE LOCATED ON EACH PLAN SHEET

ES5 - ES7	YES	38.	EXISTING AND PROPOSED CONTOUR LINES WITH CONTOUR LINES DRAWN AT AN INTERVAL IN ACCORDANCE WITH THE FOLLOWING:

EXISTING AND PROPOSED CONTOUR LINES DRAWN AT AN INTERVAL OF 1' ARE SHOWN ON EACH PLAN SHEET

MAP SCALE	GROUND SLOPE	CONTOUR INTERVALS, FT.
1 INCH = 100FT OR LARGER SCALE	FLAT 0 - 2%	0.5 OR 1
	ROLLING 2 - 8%	1 OR 2
	STEEP 8% +	2,5 OR 10

-	N/A	39.	USE OF ALTERNATIVE BMPS WHOSE PERFORMANCE HAS BEEN DOCUMENTED TO BE EQUIVALENT TO OR SUPERIOR TO CONVENTIONAL BMPS AS CERTIFIED BY A DESIGN PROFESSIONAL (UNLESS DISAPPROVED BY GAEPD OR THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION). PLEASE REFER TO THE ALTERNATIVE BMP GUIDANCE DOCUMENT FOUND AT WWW.GASWCC.GEORGIA.GOV

ALTERNATIVE BMPS WILL NOT BE USED AS PART OF THIS PROJECT

-	N/A	40.	USE OF ALTERNATIVE BMP FOR APPLICATION TO THE EQUIVALENT BMP LIST. PLEASE REFER TO APPENDIX A-2 OF THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA 2016 EDITION

ALTERNATIVE BMPS WILL NOT BE USED AS PART OF THIS PROJECT

-	N/A	41.	DELINEATION OF THE APPLICABLE 25-FOOT OR 50-FOOT UNDISTURBED BUFFERS ADJACENT TO STATE WATERS AND ANY ADDITIONAL BUFFERS REQUIRED BY THE LOCAL ISSUING AUTHORITY. CLEARLY NOTE AND DELINEATE ALL AREAS OF IMPACT

THERE ARE NO STATE WATERS BUFFERS REQUIRED FOR THE EPHEMERAL DRAINAGE DITCH WITH NO POINT OF WRESTED VEGETATION THAT TRAVERSES THE SITE. NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25 FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS

ES5 - ES7	YES	42.	DELINEATION OF ON-SITE WETLANDS AND ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE

THERE ARE STATE WATERS ON OR WITHIN 200' OF THE PROJECT LIMITS. THERE ARE NOR WETLANDS WITHIN THE PROJECT LIMITS

ATTACHED	YES	43.	DELINEATION AND ACREAGE OF CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE

ALL CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE ARE CLEARLY DELINEATED IN AN EXHIBIT AS PART OF THE ATTACHED STORM WATER MANAGEMENT PLAN

ATTACHED	YES	44.	PROVIDE HYDROLOGY STUDY AND MAPS OF DRAINAGE BASINS FOR BOTH THE PRE- AND POST-DEVELOPED CONDITIONS

PLEASE FIND ATTACHED WITH THIS PLAN A HYDROLOGY STUDY AND MAPS OF DRAINAGE BASINS FOR BOTH PRE- AND POST-DEVELOPMENT CONDITIONS ENTITLED HYDROLOGY AND HYDRAULIC CALCULATIONS

ES4	YES	45.	AN ESTIMATE OF THE RUNOFF COEFFICIENT OR PEAK DISCHARGE FLOW OF THE SITE PRIOR TO AND AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED

RUN OFF COEFFICIENT: PRE-CONSTRUCTION CN = 80
POST-CONSTRUCTIONS CN = 88

25-YR PRE DEVELOPMENT STORMWATER RUNOFF: 8.239 CFS

25-YR POST DEVELOPMENT STORMWATER RUNOFF: 9.302 CFS

ES4	YES	46.	STORM-DRAIN PIPE AND WEIR VELOCITIES WITH APPROPRIATE OUTLET PROTECTION TO ACCOMMODATE DISCHARGES WITHOUT EROSION. IDENTIFY/DELINEATE ALL STORM WATER DISCHARGE POINTS

THE PROPOSED STORM DRAINAGE SYSTEM CONNECTS TO AN EXISTING UNDERGROUND STORM DRAINAGE SYSTEM. tHERE ARE NO FREE DISCHARGES OF STORMWATER AND THEREFORE THERE ISN'T ANY RIP RAP REQUIRED.

ES5 - ES7	YES	47.	SOIL SERIES FOR THE PROJECT SITE AND THEIR DELINEATION

SOILS ARE DELINEATED ON THE EROSION CONTROL SHEETS. THE SOILS FOR THE SITE ARE: Pn - POOLER FINE SANDY LOAM

ES5 - ES7	YES	48.	THE LIMITS OF DISTURBANCE FOR EACH PHASE OF CONSTRUCTION

PLEASE SEE THE PLAN FOR THE DELINEATION OF THE LIMITS OF DISTURBANCE. THEY ARE THE SAME FOR ALL PHASES OF CONSTRUCTION

ES4	YES	49.	PROVIDE A MINIMUM OF 67 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED USING A TEMPORARY SEDIMENT BASIN, RETROFITTED DETENTION POND, AND/OR EXCAVATED INLET SEDIMENT TRAPS FOR EACH COMMON DRAINAGE LOCATION. SEDIMENT STORAGE VOLUME MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED. A WRITTEN JUSTIFICATION EXPLAINING THE DECISION TO USE EQUIVALENT CONTROLS WHEN A SEDIMENT BASIN IS NOT ATTAINABLE MUST BE INCLUDED IN THE PLAN FOR EACH COMMON DRAINAGE LOCATION IN WHICH A SEDIMENT BASIN IS NOT PROVIDED. A WRITTEN JUSTIFICATION AS TO WHY 67 CUBIC YARDS OF STORAGE IS NOT ATTAINABLE MUST ALSO BE GIVEN. WORKSHEETS FROM THE MANUAL INCLUDED FOR STRUCTURAL BMPS AND ALL CALCULATIONS USED BY THE STORAGE DESIGN PROFESSIONAL TO OBTAIN THE REQUIRED SEDIMENT WHEN USING EQUIVALENT CONTROLS. WHEN DISCHARGING FROM SEDIMENT BASINS AND IMPOUNDMENTS, PERMITTEES ARE REQUIRED TO UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE, UNLESS INFEASIBLE. IF OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE ARE NOT FEASIBLE,A WRITTEN JUSTIFICATION EXPLAINING THIS DECISION MUST BE INCLUDED IN THE PLAN

THE SEDIMENT WILL BE CAPTURED BY THE PERIMETER SILT FENCE.

REQUIRED SEDIMENT STORAGE= 67 CY/ DISTURBED ACRE x 1.486 ACRES
REQUIRED SEDIMENT STORAGE= 100 CY

TOTAL PROVIDED STORAGE= 351 CY > 100 CY (REQ'D)

EXPLANATION OF SILT FENCE AS AN EQUIVALENT
STORAGE DEVICE TO EXCEED SEDIMENT STORAGE REQUIREMENT

TEMPORARY SEDIMENT BASINS, RETROFITTED DETENTION PONDS AND/OR EXCAVATED INLET SEDIMENT TRAPS FOR EACH COMMON DRAINAGE LOCATION ARE NOT PRACTICAL TO CONTROL THE RELEASE OF SEDIMENT FROM THIS PROJECT BASED UPON SITE SPECIFIC CONDITIONS. THE EXISTING SITE TOPOGRAPHY FOR THE PROPOSED DEVELOPMENT IS RELATIVELY FLAT, WHICH IS TYPICAL OF LOW COUNTRY AREAS. WE PROPOSE THE USE OF SILT FENCE AS AN EQUIVALENT CONTROL TO MEET THE SEDIMENT STORAGE REQUIREMENT OD 67 CY / DISTURBED ACRE. SILT FENCING MUST BE PLACED PRIOR TO AND DURING ALL LAND DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED.
67 CY SEDIMENTSTORAGE PER DISTURBED ACRE REQUIREMENT

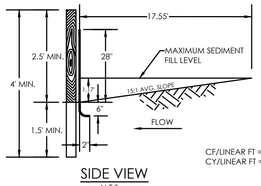
- TOTAL PROJECT ACREAGE = 1.450 AC
- TOTAL DISTURBED ACREAGE = 1.4869 AC
- TOTAL REQUIRED SEDIMENT STORAGE:
  1.486 AC X 67 CY/AC = 99.562 CY

THIS PROJECT UTILIZES SILT FENCING FOR SEDIMENT STORAGE.
SILT FENCE SEDIMENT STORAGE
922 LF SILT FENCE @ 0.38 CY/LF = 350.36 CY
350.36 CY EXCEEDS THE REQUIRED 99.562 CY OF SEDIMENT STORAGE

SEE DETAIL BELOW FOR SILT FENCE DESIGN CALCULATION EXPLANATION.

STORAGE VOLUME PER LINEAR FOOT OF TYPE A AND TYPE C SILT FENCE

NOTE:
67 CY SEDIMENT STORAGE PER ACRE IS REQUIRED



SIDE VIEW
N.T.S.

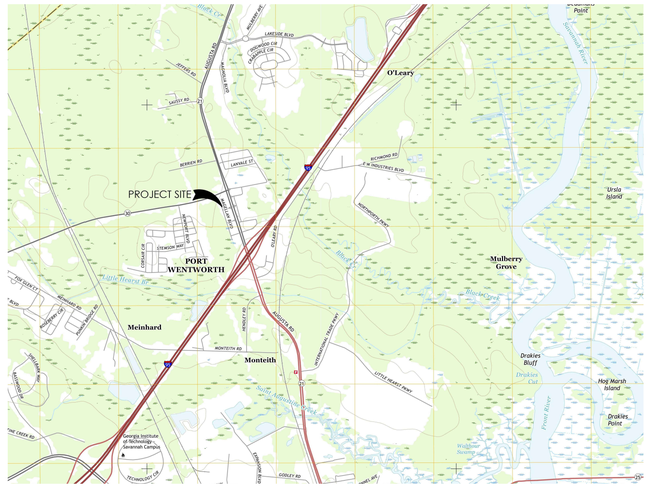
NOTE:
FLAT SITE - ASSUME 10:1 OR LESS SLOPE

CF/LINEAR FT = (17.55' X 1.17')/2X1' = 10.3 CF
CY/LINEAR FT = (17.55' X 1.17')/2X1' = (10.3 CF/27) = 0.38 CY/LIN FT

ES4 - ES7	YES	50.	LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH AND NO LESS STRINGENT THAN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. USE UNIFORM CODING SYMBOLS FROM THE MANUAL, CHAPTER 6, WITH LEGEND

PLEASE SEE THE PLAN SHEETS FOR THE LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH AND NO LESS STRINGENT THAN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA USING THE UNIFORM CODING SYMBOLS FROM THE MANUAL, CHAPTER 6 WITH ACCOMPANYING LEGEND

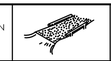
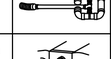
GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022



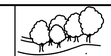
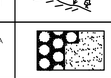
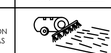
QUAD MAP
NOT TO SCALE

N

STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Co	CONSTRUCTION EXIT			A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets.
Fr	FILTER RING			A temporary stone barrier constructed at storm drain inlets and pond outlets.
Rt	RETRO FITTING			A device or structure placed in front of a permanent stormwater detention pond outlet structure to serve as a temporary sediment filter.
Sd1	SEDIMENT BARRIER			A barrier to prevent sediment from leaving the construction site. It may be sandbags, bales of straw or hay, brush, logs and poles, gravel, or a silt fence.
Sd2	INLET SEDIMENT TRAP			An impounding area created by excavating around a storm drain drop inlet. The excavated area will be filled and stabilized on completion of construction activities.
Sd3	TEMPORARY SEDIMENT BASIN			A basin created by excavation or a dam across a waterway. The surface water runoff is temporarily stored allowing the bulk of the sediment to drop out.
Sd4	TEMPORARY SEDIMENT TRAP			A small temporary pond that drains a disturbed area so that sediment can settle out. The principle feature distinguishing a temporary sediment trap from a temporary sediment basin is the lack of a pipe or riser.
Sk	FLOATING SURFACE SKIMMER			A buoyant device that releases/drains water from the surface of sediment ponds, traps, or basins at a controlled rate of flow.
St	STORMDRAIN OUTLET PROTECTION			A paved or short section of riprap channel at the outlet of a storm drain system preventing erosion from the concentrated runoff.
Tr	TREE PROTECTION			To protect desirable trees from injury during construction activity.

VEGETATIVE PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bf	BUFFER ZONE			Strip of undisturbed original vegetation, enhanced or restored existing vegetation or the reestablishment of vegetation surrounding an area of disturbance or bordering streams.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMP SEEDING)			Establishing a temporary vegetative cover with fast growing seedings on disturbed areas.
Ds3	DISTURBED AREA STABILIZATION (WITH PERM SEEDING)			Establishing a permanent vegetative cover such as trees, shrubs, vines, grasses, or legumes on disturbed areas.
Ds4	DISTURBED AREA STABILIZATION (SODDING)			A permanent vegetative cover using sods on highly erodable or critically eroded lands.
Du	DUST CONTROL ON DISTURBED AREAS			Controlling surface and air movement of dust on construction site, roadways and similar sites.

ES5 - ES10	YES	51.	PROVIDE DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES. SPECIFICATIONS MUST, AT A MINIMUM, MEET THE GUIDELINES SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA

PLEASE SEE THE PLAN AND DETAIL SHEETS FOR DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES WITH SPECIFICATIONS MEETING THE GUIDELINES SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA

ES4 - ES7	YES	52.	PROVIDE VEGETATIVE PLAN, NOTING ALL TEMPORARY AND PERMANENT VEGETATIVE PRACTICES. INCLUDE SPECIES, PLANTING DATES AND SEEDING, FERTILIZER, LIME AND MULCHING RATES. VEGETATIVE PLAN SHALL BE SITE SPECIFIC FOR APPROPRIATE TIME OF THE YEAR THAT SEEDING WILL TAKE PLACE AND FOR THE APPROPRIATE GEOGRAPHIC REGION OF GEORGIA

PLEASE SEE THE PLAN AND DETAIL SHEETS FOR THE VEGETATIVE PLAN NOTING ALL TEMPORARY AND PERMANENT VEGETATIVE PRACTICES INCLUDING SPECIES, PLANTING DATES AND SEEDING, FERTILIZER, LIME AND MULCHING RATES. THIS PLAN IS SPECIFIC TO THE SITE AND APPROPRIATE FOR TIME OF YEAR THAT SEEDING WILL TAKE PLACE AND FOR THE APPROPRIATE GEOGRAPHIC REGION OF GEORGIA

DS1 - 1. A WOOD MULCH SHALL BE PLACED AT A RATE OF 140 TONS PER ACRE AND APPLIED TO A DEPTH OF 2 TO 4 INCHES.

DS2 - 1. A TEMPORARY GRASSING OF RYEGRASS SHALL BE APPLIED AT A RATE OF 40 LBS PER ACRE DURING THE MONTHS OF OCTOBER THROUGH DECEMBER TO DISTURBED AREAS WITHIN 14 DAYS OF DISTURBANCE.

2. A 10-10-10 FERTILIZER SHALL BE USED ON THE DISTURBED AREA OF DS2 AND SHALL BE APPLIED AT A RATE OF 500 LBS. PER AC. FERTILIZER SHOULD BE APPLIED BEFORE LAND PREPARATION AND INCORPORATED WITH A DISK, RIPPER OR CHISEL.

3. AGRICULTURAL LIME SHALL BE APPLIED AT A RATE OF ONE TON PER ACRE.

DS4 - 1. A PERMANENT GRASSING OF CENTIPEDE SOD SHALL BE DURING THE MONTHS OF JANUARY THROUGH FEBRUARY. IF

2. A 10-10-10 FERTILIZER SHALL BE MIXED INTO THE SOIL AT A RATE A 1000 LBS. PER AC.

3. A 6-12-12 FERTILIZER SHALL BE USED ON THE DISTURBED AREA OF DS3 AND SHALL BE APPLIED AT RATE OF 1500 LBS. PER AC

4. AGRICULTURAL LIME IS REQUIRED AT THE RATE OF ONE TO TWO TONS PER ACRE UNLESS SOIL TESTS INDICATE OTHERWISE

*IF USING THIS CHECKLIST FOR A PROJECT THAT IS LESS THAN 1 ACRE AND NOT PART OF A COMMON DEVELOPMENT BUT WITHIN 200 FT OF A PERENNIAL STREAM, THE * CHECKLIST ITEMS WOULD BE N/A

EFFECTIVE JANUARY 1, 2022

GEORGIA REGISTERED
ANTHONY TOSS ALLEN
No. 32181
PROFESSIONAL ENGINEER
07/12/2022

P.O. BOX 1749
RINCON, GA 31326
PH:(912) 667-2667
E-MAIL: tallen@allenengineering.org

allen ENGINEERING SERVICES

REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	PT. WENT
2	7/11/22	-	-
-	-	-	-
-	-	-	-

DESIGNED	A.T.A.
DRAWN	A.T.A.
CHECKED	A.T.A.
DATE	07/12/2022
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

EROSION AND SEDIMENTATION CONTROL NOTES (CONTINUED)

SHEET NUMBER
ES4
OF 21

SPECIAL NOTES:

1. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL PREVENTED BY THE INSTALLATION OF EROSION CONTROL AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND-DISTURBING ACTIVITIES.

2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

3. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

4. THERE ARE STATE WATERS LOCATED WITHIN 200' OF THIS SITE.

5. THERE ARE NO WETLANDS LOCATED ON THIS SITE.

6. THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN 7 DAYS AFTER INSTALLATION.

7 WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

8. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL..

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED UPON MY INQUIRY OF THE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

OWNER/ PRIMARY PERMITEE

DESIGN PROFESSIONAL'S CERTIFICATION:

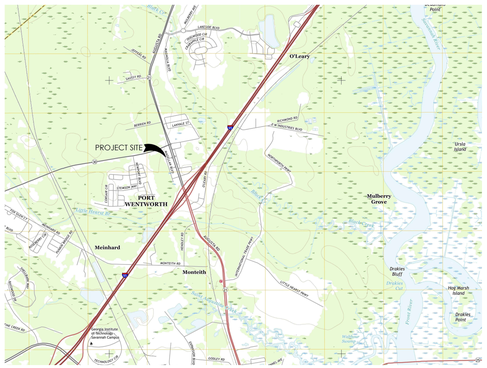
"I CERTIFY THAT THE PERMITEE'S EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF RECEIVING WATER(S) OR THE SAMPLING OF STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100001."

"I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION."

Anthony Allen

ANTHONY T. ALLEN, P.E.
GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #0000044936

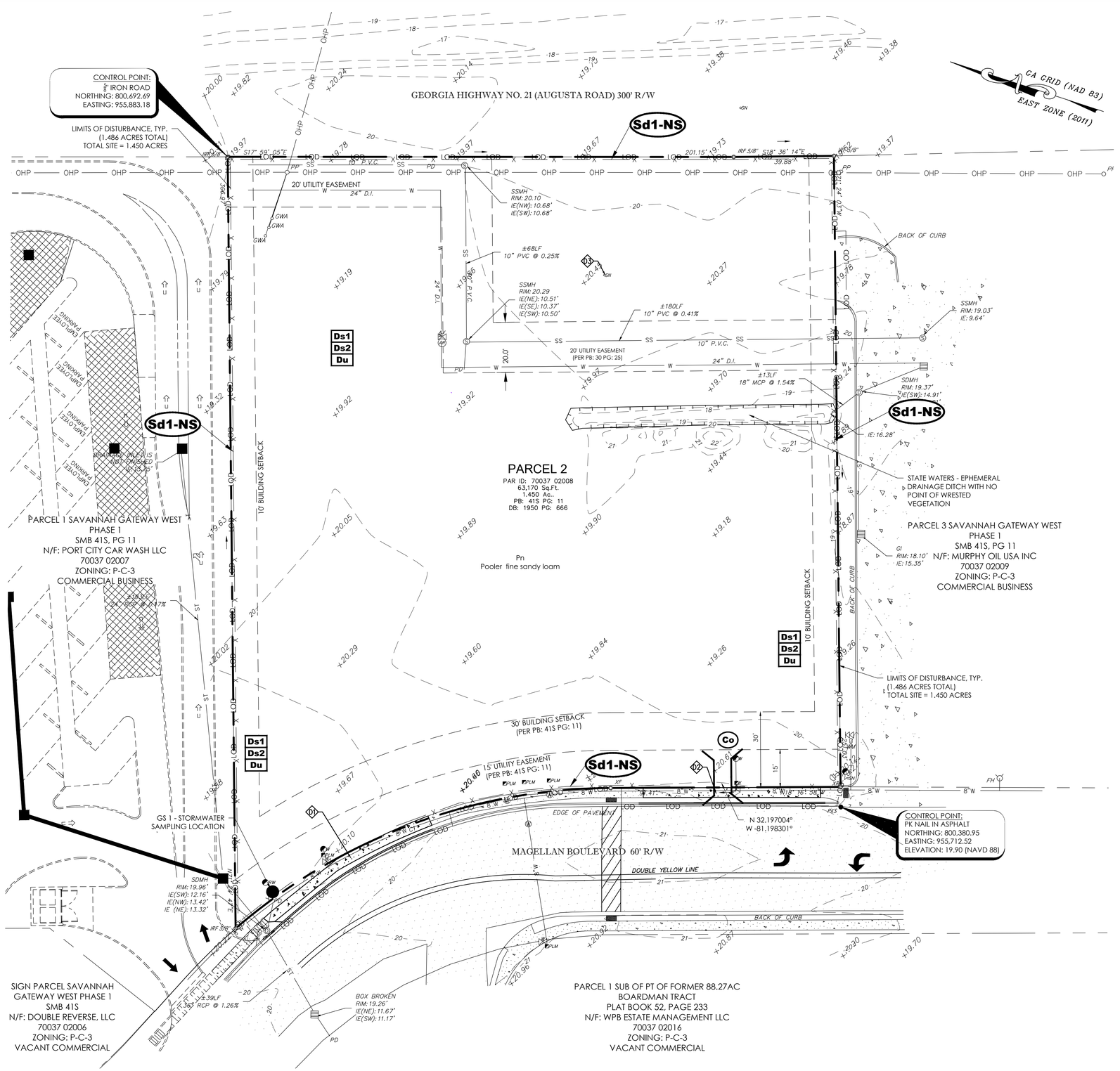
- ALL CLEARING SHALL CONFORM TO LOCAL CODES AND SPECIFICATIONS AND/OR SPECIFICATIONS PROVIDED WITH CONSTRUCTION DOCUMENTS.
- LIMITS OF DISTURBANCE SHALL BE AS SHOWN IN EACH PHASE.
- THERE ARE STATE WATERS ON OR WITHIN 200 FEET OF THE PROJECT SITE.
- THERE ARE NO TROUT STREAMS LOCATED ON OR WITHIN 200 FEET OF PROJECT SITE.
- THERE ARE NO WETLANDS ON THIS PROJECT SITE.
- THERE ARE NO NEIGHBORING AREAS THAT MIGHT BE AFFECTED FROM THIS PROPOSED PROJECT.
- SILT FENCE SHALL BE TYPE "NS" UNLESS OTHERWISE NOTED.
- SILT FENCE SHALL BE REMOVED ONCE PROJECT SITE HAS REACHED FINAL STABILIZATION.
- STABILIZED CONSTRUCTION EXITS, TIRE WASH AREAS, ETC. SHALL BE PROVIDED AS NEEDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENT. PAVED ROADWAYS SHALL BE INSPECTED DAILY FOR THE TRACKING OF MUD, DIRT, OR ROCK. TRUCKS HAULING MATERIAL FROM THE PROJECT SITE SHALL BE COVERED.



QUAD MAP

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

811 Know what's below. Call before you dig.



GEORGIA REGISTERED Anthony Allen No. 32161 PROFESSIONAL ENGINEER 07/12/2022 ANTHONY TOSS ALLEN

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allen ENGINEERING SERVICES

REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	
2	7/11/22	PT. WENT	
-	-	-	
-	-	-	

DESIGNED	ATA
DRAWN	ATA
CHECKED	ATA
DATE	07/12/2022
JOB NO.	22-002
SCALE	1" = 20'

20' 10' 0' 20'
GRAPHIC SCALE: 1"=20'-0"

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

INITIAL EROSION AND SEDIMENTATION CONTROL PLAN

SHEET NUMBER
ES5
OF 21

SPECIAL NOTES:

1. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL PREVENTED BY THE INSTALLATION OF EROSION CONTROL AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND-DISTURBING ACTIVITIES.

2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

3. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

4. THERE ARE STATE WATERS LOCATED WITHIN 200' OF THIS SITE.

5. THERE ARE NO WETLANDS LOCATED ON THIS SITE.

6. THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN 7 DAYS AFTER INSTALLATION.

7 WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

8. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL..

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED UPON MY INQUIRY OF THE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

_____
OWNER/ PRIMARY PERMITEE

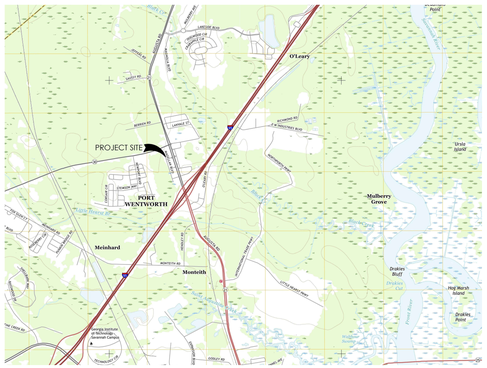
DESIGN PROFESSIONAL'S CERTIFICATION:

"I CERTIFY THAT THE PERMITEE'S EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF RECEIVING WATER(S) OR THE SAMPLING OF STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100001."

"I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION."

Anthony Allen
ANTHONY T. ALLEN, P.E.
GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #0000044936

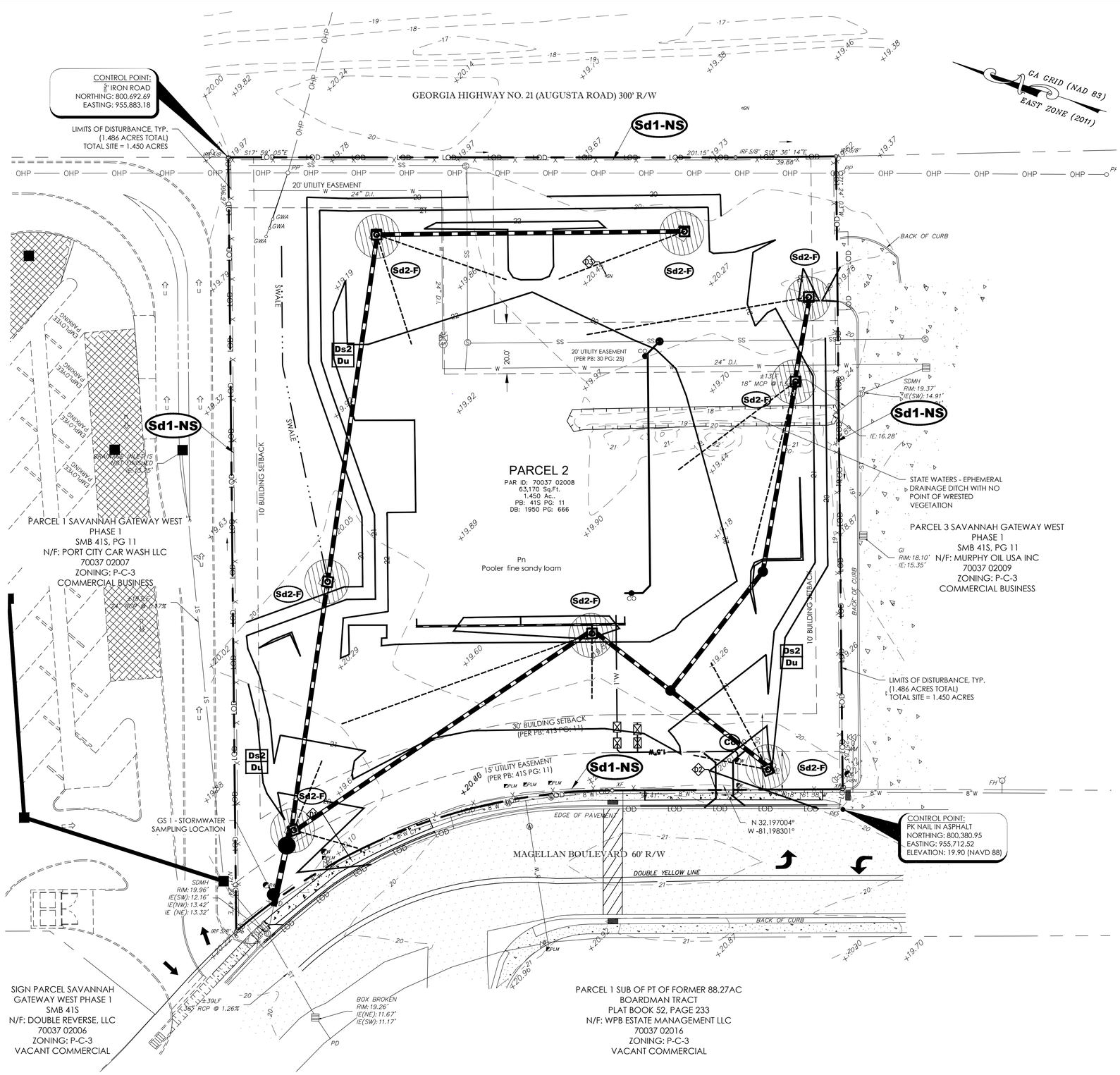
- ALL CLEARING SHALL CONFORM TO LOCAL CODES AND SPECIFICATIONS AND/OR SPECIFICATIONS PROVIDED WITH CONSTRUCTION DOCUMENTS.
- LIMITS OF DISTURBANCE SHALL BE AS SHOWN IN EACH PHASE.
- THERE ARE STATE WATERS ON OR WITHIN 200 FEET OF THE PROJECT SITE.
- THERE ARE NO TROUT STREAMS LOCATED ON OR WITHIN 200 FEET OF PROJECT SITE.
- THERE ARE NO WETLANDS ON THIS PROJECT SITE.
- THERE ARE NO NEIGHBORING AREAS THAT MIGHT BE AFFECTED FROM THIS PROPOSED PROJECT.
- SILT FENCE SHALL BE TYPE "NS" UNLESS OTHERWISE NOTED.
- SILT FENCE SHALL BE REMOVED ONCE PROJECT SITE HAS REACHED FINAL STABILIZATION.
- STABILIZED CONSTRUCTION EXITS, TIRE WASH AREAS, ETC. SHALL BE PROVIDED AS NEEDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENT. PAVED ROADWAYS SHALL BE INSPECTED DAILY FOR THE TRACKING OF MUD, DIRT, OR ROCK. TRUCKS HAULING MATERIAL FROM THE PROJECT SITE SHALL BE COVERED.



QUAD MAP

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

811 Know what's below. Call before you dig.



GRAPHIC SCALE: 1"=20'-0"

GEORGIA REGISTERED Anthony Allen No. 32161 PROFESSIONAL ENGINEER ANTHONY TOSS ALLEN 07/12/2022

P.O. BOX 1749
RINCON, GA 31326
PH:(912) 667-2667
E-MAIL: tallen@allenengineering.org

allen ENGINEERING SERVICES

REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	PT. WENT
2	7/11/22	PT. WENT	-
-	-	-	-
-	-	-	-

DESIGNED	ATA
DRAWN	ATA
CHECKED	ATA
DATE	07/12/2022
JOB NO.	22-002
SCALE	1" = 20'

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

INTERMEDIATE EROSION AND SEDIMENTATION CONTROL PLAN

SHEET NUMBER
ES6
OF 21

SPECIAL NOTES:

1. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL PREVENTED BY THE INSTALLATION OF EROSION CONTROL AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND-DISTURBING ACTIVITIES.

2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

3. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

4. THERE ARE STATE WATERS LOCATED WITHIN 200' OF THIS SITE.

5. THERE ARE NO WETLANDS LOCATED ON THIS SITE.

6. THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN 7 DAYS AFTER INSTALLATION.

7 WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

8. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL..

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED UPON MY INQUIRY OF THE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

_____
OWNER/ PRIMARY PERMITEE

DESIGN PROFESSIONAL'S CERTIFICATION:

"I CERTIFY THAT THE PERMITEE'S EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF RECEIVING WATER(S) OR THE SAMPLING OF STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100001."

"I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION."

Anthony Allen
ANTHONY T. ALLEN, P.E.
GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #0000044936

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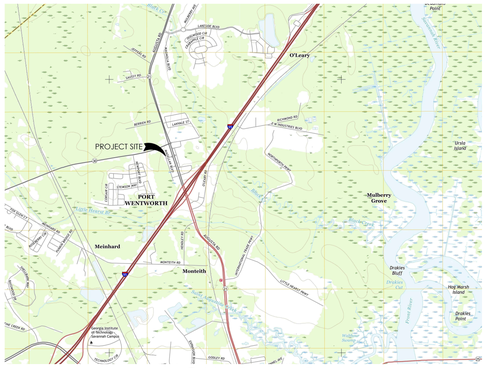

QUAD MAP

GSWCC — GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

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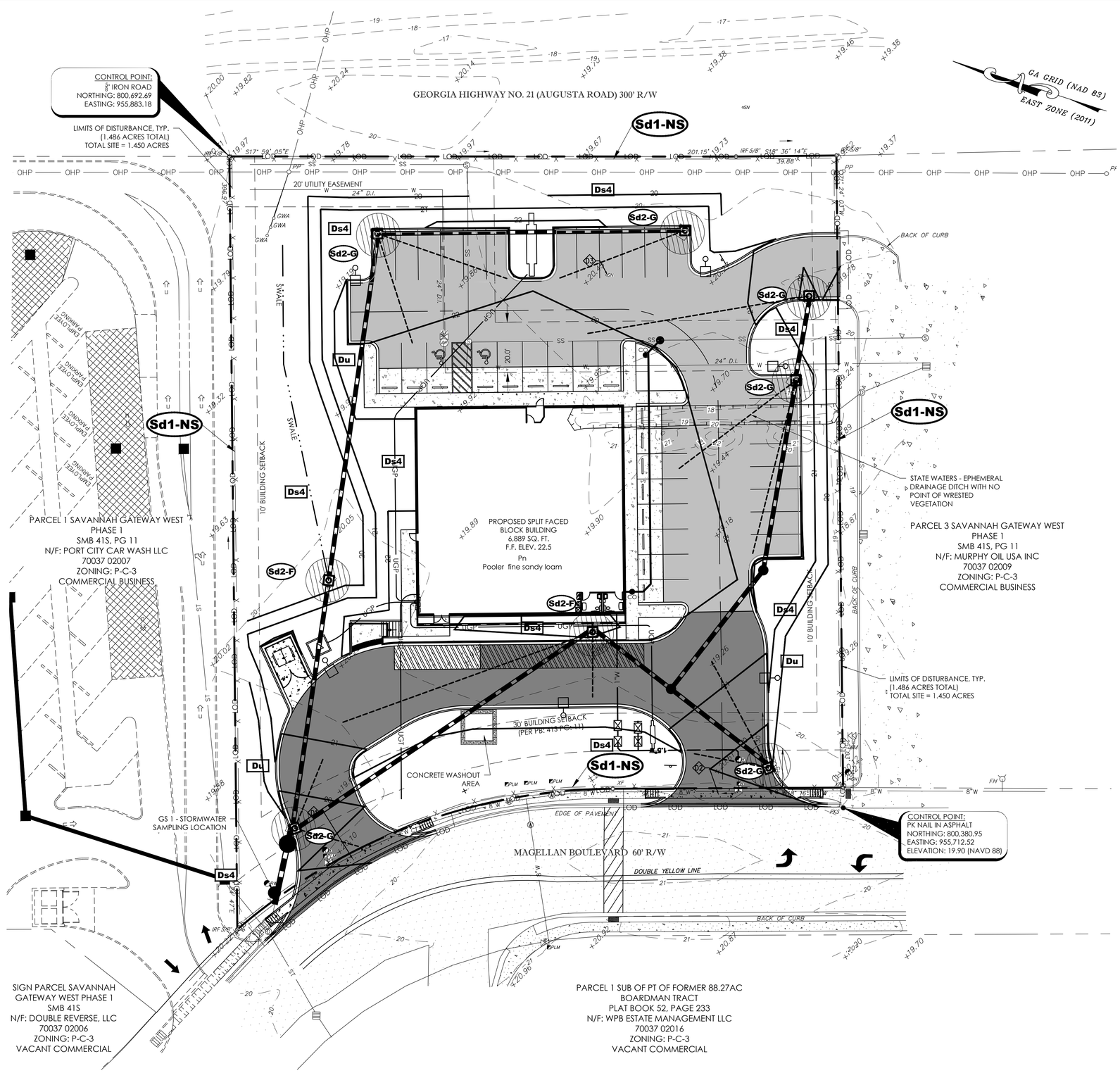

GEORGIA
Anthony Allen
No. 32161
PROFESSIONAL
07/12/2022
ENGINEER
ANTHONY TOSS ALLEN

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allen
ENGINEERING SERVICES

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-	-	-	-

DESIGNED	ATA		
DRAWN	ATA		
CHECKED	ATA		
DATE	07/12/2022		
JOB NO.	22-002		
SCALE	1" = 20'		

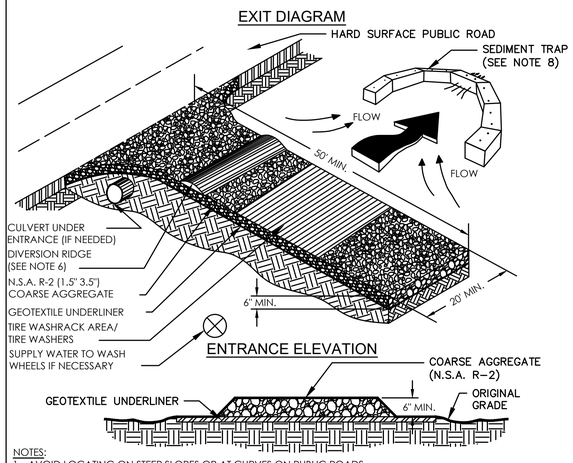
20' 10' 0' 20'
GRAPHIC SCALE: 1"=20'-0"

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

FINAL EROSION AND SEDIMENTATION CONTROL PLAN

SHEET NUMBER
ES7
OF 21

CRUSHED STONE CONSTRUCTION EXIT



NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%..
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

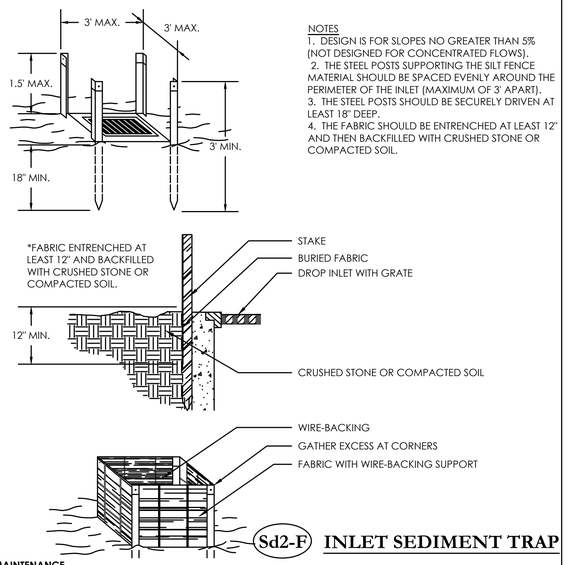
MAINTENANCE

THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1.5 - 3.5 INCH STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

Co **CONSTRUCTION EXIT**

FABRIC AND SUPPORTING FRAME FOR INLET PROTECTION

STEEL FRAME AND SILT FENCE INSTALLATION



NOTES
1. DESIGN IS FOR SLOPES NO GREATER THAN 5% (NOT DESIGNED FOR CONCENTRATED FLOWS).
2. THE STEEL POSTS SUPPORTING THE SILT FENCE MATERIAL SHOULD BE SPACED EVENLY AROUND THE PERIMETER OF THE INLET (MAXIMUM OF 3' APART).
3. THE STEEL POSTS SHOULD BE SECURELY DRIVEN AT LEAST 18" DEEP.
4. THE FABRIC SHOULD BE ENTRENCHED AT LEAST 12" AND THEN BACKFILLED WITH CRUSHED STONE OR COMPACTED SOIL.

MAINTENANCE
- THE TRAP SHALL BE INSPECTED DAILY AND AFTER EACH RAIN, AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE HEIGHT OF THE TRAP. SEDIMENT SHALL BE REMOVED FROM CURB INLET PROTECTION IMMEDIATELY. FOR EXCAVATED INLET SEDIMENT TRAPS, SEDIMENT SHALL BE REMOVED WHEN ONE-HALF OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST TO SEDIMENT ACCUMULATION. SOD INLET PROTECTION SHALL BE MAINTAINED AS SPECIFIED IN DS4- DISTURBED AREA STABILIZATION (WITH SODDING).
- SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP, DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLET AGAIN.
- WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED, AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT BACK TO PROPER GRADE, THEN SMOOTHED AND COMPACTED. APPROPRIATELY STABILIZE ALL DISTURBED AROUND THE INLET.

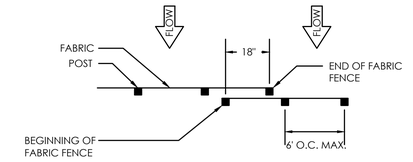
Sd2-F **INLET SEDIMENT TRAP**

FASTENERS FOR SILT FENCES

OVERLAP AT FABRIC ENDS

TABLE 6-27.2 POST SIZE			
TYPE	MIN. LENGTH	TYPE OF POST	SIZE OF POST
NS	4'	SOFT WOOD OAK STEEL	3" DIA OR 2X4 1.5" X 1.5" 1.15LB./FT. MIN.
S	4'	STEEL OAK	1.15-1.25 LB./FT. MIN. 2"X2"

TABLE 6-27.3 FASTENERS FOR WOOD POSTS				
	GAUGE	CROWN	LEGS	STAPLES / POST
WIRE STAPLES	17 MIN.	3/4" WIDE	1/2" LONG	5 MIN.
	GAUGE	LENGTH	BUTTON HEADS	NAIL/POST
NAILS	14 MIN.	1"	3/4"	4 MIN.
NOTE: FILTER FABRIC MAY ALSO BE ATTACHED TO THE POLE BY WIRE, CORD, AND POCKETS.				



TOP VEIW - NOT TO SCALE

FRONT VIEWS - NOT TO SCALE

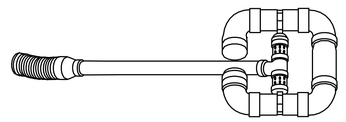
NOTES
1. THE FABRIC AND WIRE SHOULD BE SECURELY FASTENED TO POSTS AND FABRIC ENDS MUST BE OVERLAPPED A MINIMUM OF 18" OR WRAPPED TOGETHER AROUND A POST TO PROVIDE A CONTINUOUS FABRIC BARRIER AROUND THE INLET.

Sd1 **SEDIMENT BARRIER**

TEMPORARY SEDIMENT POND

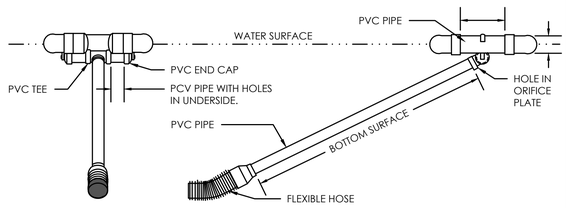
NOTE:
SKIMMER CONFIGURATION SHOWN IS TYPICAL. THE DESIGNER/ENGINEER MAY SUBMIT AN ALTERNATE SKIMMER DETAIL FOR REVIEW.

SKIMMER PERSPECTIVE



SKIMMER FRONTAL SECTION VIEW

SKIMMER SIDE SECTION VIEW



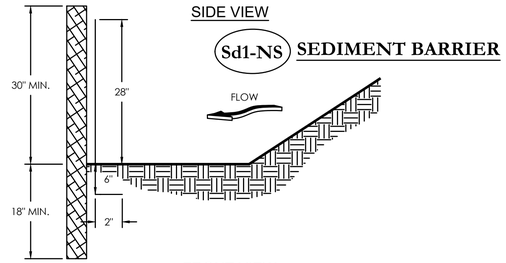
MAINTENANCE
- INSPECT FLOATING SKIMMERS TOGETHER WITH THE SEDIMENT BASIN INSPECTIONS. INSPECT THE FLOATING SURFACE SKIMMER FOR ANY STRUCTURAL DAMAGE, CLOGGING, OR EXCESSIVE SEDIMENT ACCUMULATION.
- WHILE DRAINING THE BASIN, THE TRASH GUARD OF THE SKIMMER MAY CLOG WITH DEBRIS. TYPICALLY, A FEW JERKS ON THE MAINTENANCE ROPE WILL CLEAR THE SKIMMER OF DEBRIS AND RESTORE FLOW. IF JERKING THE MAINTENANCE ROPE DOES NOT WORK, PULL THE SKIMMER TO THE EMBANKMENT WITH THE MAINTENANCE ROPE AND MANUALLY REMOVE ALL DEBRIS FROM THE TRASH GUARD. AN INTERNAL CLOG OR BLOCKAGE MAY REQUIRE THE DEVICE TO BE DISASSEMBLED AND REPAIRED.
- IF THE SKIMMER BECOMES STUCK IN THE MUD AT THE BOTTOM OF THE BASIN IT MUST BE FREED TO ALLOW FOR NORMAL OPERATION. THIS CAN TYPICALLY BE DONE BY USE OF THE MAINTENANCE ROPE.
- REMOVE SEDIMENT DEPOSITS FROM THE BASIN WHEN APPROXIMATELY ONE-THIRD OF THE STORAGE VOLUME HAS BEEN LOST TO SEDIMENT ACCUMULATION OR WHEN THE FLOATING SKIMMER CANNOT SETTLE LOW ENOUGH TO DRAIN THE ENTIRE BASIN. REMOVE OR PULL THE SKIMMER TO A SIDE EMBANKMENT USING THE MAINTENANCE ROPE AND REMOVE SEDIMENT FROM THE SKIMMER PIT.

Sk **FLOATING SURFACE SKIMER**

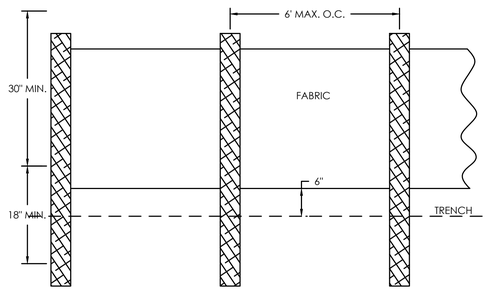
SILT FENCE - TYPE NON-SENSITIVE

SIDE VIEW

Sd1-NS **SEDIMENT BARRIER**



FRONT VIEW



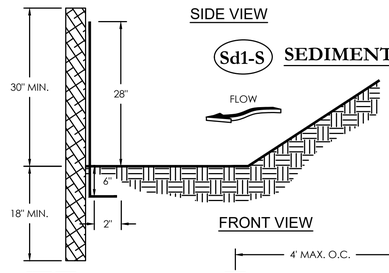
NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

MAINTENANCE
- SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER.
- SEDIMENT BARRIERS SHALL BE REPLACED WHENEVER THEY HAVE DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE PRODUCT IS REDUCED (APPROXIMATELY SIX MONTHS) OR THE HEIGHT OF THE PRODUCT IS NOT MAINTAINING 80% OF ITS PROPERLY INSTALLED HEIGHT.
- TEMPORARY SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. ALL SEDIMENT ACCUMULATED AT THE BARRIER SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE BARRIER IS REMOVED.

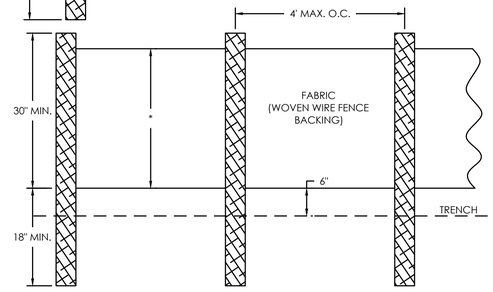
SILT FENCE - TYPE SENSITIVE

SIDE VIEW

Sd1-S **SEDIMENT BARRIER**



FRONT VIEW



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GSWCC
GEORGIA SOIL AND WATER CONSERVATION COMMISSION
ANTHONY T. ALLEN
Level II Certified Design Professional
CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

GEORGIA REGISTERED No. 32181 PROFESSIONAL ENGINEER ANTHONY TOSS ALLEN
07/12/2022

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allen ENGINEERING SERVICES

REVISIONS			
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2	7/11/22	-	-
-	-	-	-
-	-	-	-

DESIGNED	A.T.A.
DRAWN	A.T.A.
CHECKED	A.T.A.
DATE	07/12/2022
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

EROSION AND SEDIMENTATION CONTROL DETAILS

SHEET NUMBER
ES8
OF 21

DEFINITION

Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

CONDITIONS

Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, anchored, and have a continuous 90% cover or greater of the soil surface. Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months. If an area will remain undisturbed for greater than six months, permanent vegetative techniques shall be employed.

SPECIFICATIONS

MULCHING WITHOUT SEEDING
This standard applies to grades or cleared areas where seedings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

Site Preparation
1. Grade to permit the use of equipment for applying andanchoring mulch.
2. Install needed erosion control measures as requiredsuch as dikes, diversions, berms, terraces and sedimentbarriers.
3. Loosen compact soil to a minimum depth of 3 inches.

Mulching Materials
Select one of the following materials and apply at the depthindicated:
1. Dry straw or hay shall be applied at a depth of 2 to 4inches providing complete soil coverage. One advantage of this material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at adepth of 2 to 3 inches. Organic material from the clearingstage of development should remain on site, be chipped,and applied as mulch. This method of mulching can greatlyreduce erosion control costs.
3. Cutback asphalt (slow curing) shall be applied at 1200gallons per acre (or 1/4 gallon per sq.yd.).
4. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and reused.

Applying Mulch
When mulch is used without seeding, mulch shall be applied to provide full coverage of the exposed area.
1. Dry straw or hay mulch and wood chips shall be applieduniformly by hand or by mechanical equipment.
2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
3. Cutback asphalt shall be applied uniformly. Care should be taken in areas of pedestrian traffic due to problems of "tracking in" or damage to shoes, clothing, etc.
4. Apply polyethylene film on exposed areas.

Anchoring Mulch
1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special"packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart.The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application. Straw or hay mulch spread with special blower-type equipment may be anchored with emulsified asphalt (Grade AE-5 or SS-1). The asphalt emulsion shall be sprayed onto the mulch as it is ejected from the machine. Use100 gallons of emulsified asphalt and 100 gallons of water per ton of mulch. Tackifers and binders can be substituted for emulsified asphalt. Please refer to specification Tb-Tackifers and Binders. Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's specifications.
2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.
3. Polyethylene film shall be anchor trenched at the top as well as incrementally as necessary.

Ds1 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

CONCRETE WASHOUT
SIGN DETAIL
(OR EQUIVALENT)

TYPE "ABOVE GRADE"
WITH STRAW BALES

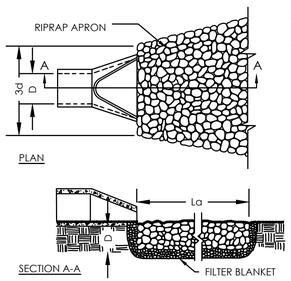
NOTES:

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.
5. MUST BE LOCATED >50 FT AWAY FROM INLETS/WATERWAYS UNLESS THERE IS NO OTHER PRACTICAL ALTERNATIVE.

CONCRETE WASHOUT

RIPRAP OUTLET PROTECTION

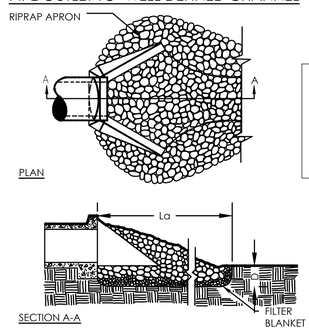
PIPE OUTLET TO FLAT AREA -- NO WELL DEFINED CHANNEL



NOTES:
1. La IS THE LENGTH OF THE RIPRAP APRON.
2. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS).
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND THE SOIL FOUNDATION.

MAINTENANCE
INSPECT RIPRAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

PIPE OUTLET TO WELL DEFINED CHANNEL



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CERTIFICATION NUMBER 0000044936
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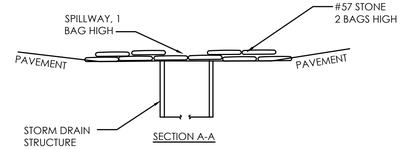
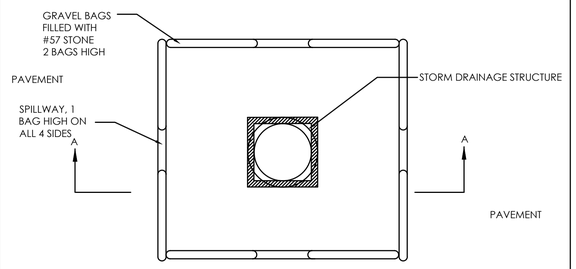
Sd2-G INLET SEDIMENT TRAP





TEMPORARY SEDIMENT TRAP Sd2-GRAVEL BAG
NOT TO SCALE

MAINTENANCE
- THE TRAP SHALL BE INSPECTED DAILY AND AFTER EACH RAIN, AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE HEIGHT OF THE TRAP. SEDIMENT SHALL BE REMOVED FROM CURB INLET PROTECTION IMMEDIATELY. FOR EXCAVATED INLET SEDIMENT TRAPS, SEDIMENT SHALL BE REMOVED WHEN ONE-HALF OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST TO SEDIMENT ACCUMULATION. SOD INLET PROTECTION SHALL BE MAINTAINED AS SPECIFIED IN DS4- DISTURBED AREA STABILIZATION (WITH SODDING).
- SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP, DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLET AGAIN.
- WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED, AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT BACK TO PROPER GRADE, THEN SMOOTHED AND COMPACTED. APPROPRIATELY STABILIZE ALL DISTURBED AROUND THE INLET.

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REVISIONS			
NO.	DATE	REQ. BY	
1	7/07/22	AAP	PT. WENT
2	7/11/22	-	-
-	-	-	-
-	-	-	-

DESIGNED	ATA
DRAWN	ATA
CHECKED	ATA
DATE	07/12/2022
JOB NO.	22-002
SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

EROSION AND SEDIMENTATION CONTROL DETAILS

SHEET NUMBER
ES9
OF 21

DEFINITION

The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

CONDITIONS

Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established.

SEEDING RATES FOR TEMPORARY SEEDING

SPECIES	RATE Per 1,000 sq. ft.	RATE Per Acre *	PLANTING DATES**
RYE	3.9 pounds	3 bu.	9/1-3/1
RYEGRASS	0.9 pounds	40 lbs.	8/15-4/1
ANNUAL LESPEDEZA	0.9 pounds	40 lbs.	1/15-3/15
WEEPING LOVEGRASS	0.1 pound	4 lbs.	2/15-6/15
SUDANGRASS	1.4 pounds	60 lbs.	3/1-8/1
BROWNTOP MILLET	0.9 pound	40 lbs.	4/1-7/15
PEARL MILLET	1.1 pounds	50 lbs.	4/1-9/1
WHEAT	4.1 pounds	3 bu.	9/15-2/1
OATS	2.9 pounds	4 bu.	9/1-12/1
BARLEY	3.3 pounds	3 bu.	9/1-11/1

* Unusual site conditions may require heavier seeding rates
** Seeding dates may need to be altered to fit temperture variations and conditions.

Ds2 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

SPECIFICATIONS

Grading and Shaping

Excessive water run-off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others.

No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

Seedbed Preparation

When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or handseeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

Lime and Fertilizer

Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate of one ton per acre. Graded areas require lime application. Soils can be tested to determine if fertilizer is needed. On reasonably fertile soils or soil material, fertilizer is not required. For soils with very low fertility, 500 to 700 pounds of 10-10-10 fertilizer or the equivalent per acre (12-16 lbs./1,000 sq. ft.) shall be applied. Fertilizer should be applied before land preparation and incorporated with a disk, ripper or chisel.

Seeding

Select a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, cultipacker seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one-quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand.

Mulching

Temporary vegetation can, in most cases, be established without the use of mulch. Mulch without seeding should be considered for short term protection. Refer to Ds1 - Disturbed Area Stabilization (With Mulching Only).

Irrigation

During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

DEFINITION

A permanent vegetation using sods on highly erodible or critic cally eroded lands.

CONDITIONS

This application is appropriate for areas which require immediate vegetative covers, drop inlets, grass swales, and waterways with intermittent flow .

CONSTRUCTION SPECIFICATIONS INSTALLATION

Soil Preparation

- Bring soil surface to final grade. Clear surface of trash, woody debris, stones and clods larger than 1". Apply sod to soil surfaces only and not frozen surfaces, or gravel type soils.
- Topsoil properly applied will help guarantee stand. Don't use topsoil recently

treated with herbicides or soil sterilants.

- Mix fertilizer into soil surface. Fertilize based on soil tests or Table 6-6.1. For fall planting of warm season species, half the fertilizer should be applied at planting and the other half in the spring.

Table 6-6.1. Fertilizer for Soil Surface Application

Fertilizer Type (lbs./acre)	Fertilizer Rate (lbs./acre)	Fertilizer Rate	Season
10-10-10	1000	.025	Fall

- Agricultural lime should be applied based on soil tests or at a rate of 1 to 2 tons per acre.

Installation

- Lay sod with tight joints and in straight lines. Don't overlap joints. Stagger joints and do not stretch sod.
- On slopes steeper than 3:1, sod should be anchored with wooden or biodegradable pins or other approved methods.
- Installed sod should be rolled or tamped to provide good contact between sod and soil.
- Irrigate sod and soil to a depth of 4" immediately after installation.
- Sod should not be cut or spread in extremely wet or dry weather.
- Irrigation should be used to supplement rainfall for a minimum of 2-3 weeks.

Ds4 DISTURBED AREA STABILIZATION (WITH SODDING)

MATERIALS

- Sod selected should be certified. Sod grown in the general area of the project is desirable.
- Sod should be machine cut and contain 3/4" ±1/4" of soil, not including shoots or thatch.
- Sod should be cut to the desired size within ±5%. Torn or uneven pads should be rejected.
- Sod should be cut and installed within 36 hours of digging.
- Avoid planting when subject to frost heave or hot weather if irrigation is not available.
- The sod type should be shown on the plans or installed according to Table 6-6.2. See Figure 6-4.1 for your Resource Area.

Table 6-6.2. Sod Planting Requirements

Grass	Varieties	Resource Area	Growing Season
Bermudagrass	Common Tifway Tifgreen Tiflawn	M-L,P,C P,C P,C P,C	Warm Weather
Bahiagrass	Pensacola	P,C	Warm Weather
Centipede	_	P,C	Warm Weather
St. Augustine	Common Bitterblue Raleigh	C	Warm Weather
Zoysia	Emerald Myer	P,C	Warm Weather
Tall Fescue	Kentucky	M-L,P	Cool Weather

MAINTENANCE

- Re-sod areas where an adequate stand of sod is not obtained.
- New sod should be mowed sparingly. Grass height should not be cut less than 2"-3" or as specified.
- Apply one ton of agricultural lime as indicated by soil test or every 4-6 years.
- Fertilize grasses in accordance with soil tests or Table 6-6.3.

Table 6-6.3. Fertilizer Requirements for Sod

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./acre)	Nitrogen Top Dressing Rate (lbs./acre)
Cool	First	6-12-12	1500	50-100
Season	Second	6-12-12	1000	-
Grasses	Maintenance	10-10-10	400	30
Warm	First	6-12-12	1500	50-100
Season	Second	6-12-12	800	50-100
Grasses	Maintenance	10-10-10	400	30

DEFINITION

Controlling surface and air movement of dust on construction sites, roads, and demolition sites.

CONDITIONS

This practice is applicable to areas subject to surface and air movement of dust where on and off-site damage may occur without treatment.

METHOD AND MATERIALS

A. TEMPORARY METHODS

Mulches. See standard Ds1 - Disturbed Area Stabilization (With Mulching Only). Synthetic resins may be used instead of asphalt to bind mulch material. Refer to standard Tb-Tackifiers and Binders. Resins such as Curasol or Terratack should be used according to manufacturer's recommendations.

Vegetative Cover. See standard Ds2 - Disturbed Area Stabilization (With Temporary Seeding).

Spray-on Adhesives. These are used on mineral soils (not effective on muck soils). Keep traffic off these areas. Refer to standard Tb-Tackifiers and Binders.

Tillage. This practice is designed to roughen and bring clods to the surface. It is an emergency measure which should be used before wind erosion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.

Irrigation. This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

Barriers. Solid board fences, snow fences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion.

Calcium Chloride. Apply at rate that will keep surface moist. May need retreatment.

B. PERMANENT METHODS

Permanent Vegetation. See standard Ds3 -Disturbed Area Stabilization (With Permanent Vegetation). Existing trees and large shrubs may afford valuable protection if left in place.

Topsoiling. This entails covering the surface with less erosive soil material. See standard Tp - Topsoiling.

Stone. Cover surface with crushed stone or coarse gravel. See standard Cr-Construction Road Stabilization

Du DUST CONTROL ON DISTURBED AREAS

DEFINITION

The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

CONDITIONS

Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

SPECIFICATIONS

Grading and Shaping

Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

Concentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

Lime Rates and Analysis

Agricultural lime is required at the rate of one to two tons per acre unless soil tests indicate otherwise. Graded areas require lime application. If lime is applied within six months of planting permanent perennial vegetation, additional lime is not required. Agricultural lime shall be within the specifications of the Georgia Department of Agriculture.

Lime spread by conventional equipment shall be "ground limestone." Ground limestone is calcitic or dolomitic limestone ground so that 90 percent of the material will pass through a 10-mesh sieve, not less than 50 percent will pass through a 50-mesh sieve and not less than 25 percent will pass through a 100-mesh sieve.

Fast-acting lime spread by hydraulic seeding equipment should be "finely ground limestone" spanning from the 180 micron size to the 5 micron size. Finely ground limestone is calcitic or dolomitic limestone ground so that 95 percent of the material will pass through a 100-mesh sieve.

Ds3 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

Dolomitic limestone shall be used for all limestone applications.

Lime and Fertilizer Application

When *hydraulic seeding* equipment is used, the initial fertilizer shall be mixed with seed, innoculant (if needed), and wood cellulose or wood pulp fiber mulch and applied in a slurry. The innoculant, if needed, shall be mixed with the seed prior to being placed into the hydraulic seeder. The slurry mixture will be agitated during application to keep the ingredients thoroughly mixed. The mixture will be spread uniformly over the area within one hour after being placed in the hydroseeder.

Finely ground limestone can be applied in the mulch slurry or in combination with the top dressing.

When *conventional planting* is to be done, lime and fertilizer shall be applied uniformly in one of the following ways:

1. Apply before land preparation so that it will be mixed with the soil during seedbed preparation.
2. Mix with the soil used to fill the holes, distribute in furrows.
3. Broadcast after steep surfaces are scarified, pitted or trenched.
4. A fertilizer pellet shall be placed at root depth in the closing hole beside each pine tree seedling.

Seedbed Preparation

Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used. When conventional seeding is to be used, seedbed preparation will be done as follows:

Broadcast plantings

1. Tillage at a minimum, shall adequately loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.
2. Tillage may be done with any suitable equipment.
3. Tillage should be done on the contour where feasible.
4. On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate hand tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used.

Individual Plants

1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
3. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Planting

Hydraulic Seeding

Mix the seed (innoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

Conventional Seeding

Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a cultipacker seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cultipacker or other suitable equipment.

No-Till Seeding

No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

Individual Plants

Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots. Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface. Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, two inches of soil shall be added and the plant shall be set in the hole.

Mulching

Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% soil cover. Select the mulching material from the following and apply as indicated:

1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Drystraw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.
4. Sericea lespedeza hay containing mature seed shall be applied at a rate of three tons per acre.
5. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or block sod, mulch is not required.
7. Bituminous treated roving may be applied on planted areas on slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch

Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. Mulch shall be applied to cover 75% of the soil surface.

Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchoring Mulch

Anchor straw or hay mulch immediately after application by one of the following methods:

1. Emulsified asphalt can be (a) sprayed uniformly onto the mulch as it is ejected from the blower machine or (b) sprayed on the mulch immediately following mulch application when straw or hay is spread by methods other than special blower equipment.

The combination of asphalt emulsion and water shall consist of a homogeneous mixture satisfactory for spraying. The mixture shall consist of 100 gallons of grade SS-1h or CSS-1h emulsified asphalt and 100 gallons of water per ton of mulch. Care shall be taken at all times to protect state waters, the public, adjacent property, pavements, curbs, sidewalks, and all other structures from asphalt discoloration.

2. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "packer disk"' or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.
3. Synthetic tackifiers or binders approved by GDOT shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. Refer to Tb - Tackifiers and Binders.
4. Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of one-quarter to one half bushel per acre.
5. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Irrigation

Irrigation shall be applied at a rate that will not cause runoff.

SEEDING RATES FOR PERMANENT SEEDING

SPECIES	RATE Per 1,000 sq. ft.	RATE Per Acre *	PLANTING DATES**
BAHIA	1.4 POUNDS	60 LBS.	1/1-12/31
BERMUDA	0.2 POUND	10 LBS.	2/15-7/1
CENTIPEDE	BLOCK SOD ONLY	BLOCK SOD ONLY	4/1-7/1
UNSCARIFIED LESPEDEZA	1.7 POUNDS	75 LBS.	1/1-12/31
WEEPING LOVEGRASS	0.1 POUND	40 LBS.	2/1-6/15
SWITCH GRASS	0.9 POUND	40 LBS.	3/15-6/1

* Unusual site conditions may require heavier seeding rates
** Seeding dates may need to be altered to fit temperature variations and conditions.

Topdressing

Topdressing will be applied on all temporary and permanent (perennial) species planted alone or in mixtures with other species.

Table 6-5.1. Fertilizer Requirements

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./acre)	Nitrogen Top Dressing Rate (lbs./acre)
Cool	First	6-12-12	1500	50-100
Season	Second	6-12-12	1000	-
Grasses	Maintenance	10-10-10	400	30
Warm	First	6-12-12	1500	50-100
Season	Second	6-12-12	800	50-100
Grasses	Maintenance	10-10-10	400	30

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

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CERTIFICATION NUMBER 0000044936
ISSUED 08/21/2007 EXPIRES 08/21/2022

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REVISIONS

NO.	DATE	REQ. BY
1	7/07/22	AAP
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-	-	-
-	-	-

DESIGNED	ATA
DRAWN	ATA
CHECKED	ATA
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SCALE	N.T.S.

PORT WENTWORTH ADVANCE AUTO PARTS
PREPARED FOR:
PEACHTREE DEVELOPMENTS AND INVESTMENTS, LLC

EROSION AND SEDIMENTATION CONTROL DETAILS

SHEET NUMBER
ES10
OF 21

"REVISED"
HYDROLOGY AND HYDRAULIC CALCULATIONS

PREPARED FOR

PEACHTREE DEVELOPMENT AND INVESTMENTS, LLC

ADVANCED AUTO PARTS

allen
ENGINEERING SERVICES

GEORGIA
REGISTERED
No. 34181
PROFESSIONAL
07/08/2022
ENGINEER
ANTHONY TOSS ALLEN

PROJECT NO. 22-002
JULY 2022

HYDROLOGIC AND HYDRAULIC REPORT FOR THE ADVANCED AUTO PARTS

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III. Appendices

Site Exhibits.....Appendix A

Pre-development Drainage Exhibit (Exhibit 'A')

Post-development Drainage Exhibit (Exhibit 'B')

Storm Inlet Drainage Exhibit (Exhibit 'C')

Background Data.....Appendix B

Rainfall Data

Runoff Curve Number Chart

Roughness Coefficient Table for Manning's "n"

Runoff Coefficient Values Chart

Regulatory Data..... Appendix C

United States Geological Survey, Topographic Location Map

United States Department of Agriculture, Web Soil Survey

Federal Emergency Management Agency, Flood Insurance Rate Map

United State Fish and Wildlife Service, National Wetlands Inventory Map

Coastal Stormwater Supplement Site Planning & Design Worksheet.....Appendix D

Coastal Stormwater Supplement Site Planning & Design Worksheet

Computer Output Reports..... Appendix E

Hydraflow Hydrographs Results

Hydraflow Storm Sewers Results

Contech Flow Based Sizing Calculations

I. HYDROLOGIC ANALYSIS

HYDROLOGIC AND HYDRAULIC REPORT
PROJECT NO. 22-002

1. PROFESSIONAL CERTIFICATION

"I, Anthony Allen, a Registered Professional Engineer in the State of Georgia, hereby certify that the design of the stormwater management system for the project known as Advanced Auto Parts, lying in the 8th G.M. District, City of Port Wentworth, Chatham County, Georgia, meets the requirements of Chapter 7, Article III of the City of Port Wentworth's Code of Ordinances, the latest edition of the coastal stormwater supplement, the Georgia Stormwater Management Manual, and any relevant local addenda. This 8th day of July, 2022.

Anthony T. Allen, P.E.

"I, Jim Bennett, hereby certify that all land clearing, construction, land development and drainage for the project known as Advanced Auto Parts, lying in the 8th G.M. District, City of Port Wentworth, Chatham County, Georgia will be done according to the approved stormwater management design plan. This 11th day of July, 2022."

Jim Bennett
(Owner/Developer)

2. SITE OVERVIEW

The proposed Advanced Auto Parts is located on Parcel 02 Savannah Gateway West, in the city of Port Wentworth, Chatham County, Georgia. The proposed site is approximately 1.450 acres and currently partially wooded and vacant. The intention of the owner is to develop an auto parts store and the related infrastructure to serve it.

3. PRE-DEVELOPMENT CONDITIONS

The existing site is approximately 1.450 acres and is currently partially wooded and vacant. The owner intends to develop an auto parts store. The site drains to the south west to an underground storm drainage system that flows into the existing Savannah Gateway West regional detention pond and ultimately outfalls to Little Hearst Branch, Black Creek and then the Savannah River. According to the most recent FEMA FIRM, this site is located in Zone X, not a special flood hazard, as determined by FEMA FIRM, Community No. 135162, Map 13051C, Panel No. 0030 G, map dated August 16, 2018. (See Quad Map, FEMA FIRM, Soils Map and Exhibit 'A' for existing runoff conditions).

3.1 CURVE NUMBERS

Curve numbers are generated according to procedures set forth in SCS TR-55. The composite curve numbers for each drainage basin are calculated using soils information from the "Web Soil Survey for Chatham County, Georgia" as prepared by the Natural Resources Conservation Service. Pre-development curve numbers were weighted based on the type and amount of soil within the basin.

Pre-Development Basin #1				
Drainage Basin Area (Acres)	**Ground Cover Type**	**Soil Type**	**Hydrologic Soil Group**	**CN**
0.58	Wood of Forest Land – Thin Stand, Poor Cover	Pooler fine sandy loam (Pn)	C/D	83
Total Area = 0.58			Weighted CN = 83	

Pre-Development Basin #2				
Drainage Basin Area (Acres)	**Ground Cover Type**	**Soil Type**	**Hydrologic Soil Group**	**CN**
0.87	Wood of Forest Land – Thin Stand, Poor Cover	Pooler fine sandy loam (Pn)	C/D	83
Total Area = 0.87			Weighted CN = 83	

3.2 TIME OF CONCENTRATION

Times of concentration were calculated according to procedures set forth in SCS TR-55. The travel times (T) for overland flow, shallow concentrated flow, and channel flow are added together for the drainage basin to get the time of concentration (T_C).

Overland Flow – Pre-Development Basin #1				
Flow Path Length (FT)	**Ground Cover Type**	**Watercourse Slope (%)**	**Manning's Friction Factor (n)**	**2YR, 24 HR Precipitation (IN)**
43	Woods – Light Underbrush	0.53	0.40	4.29

Pre-Development Basin #1 has a time of concentration of 16 minutes.

Overland Flow – Pre-Development Basin #2				
Flow Path Length (FT)	Ground Cover Type	Watercourse Slope (%)	Manning's Friction Factor (n)	2YR, 24 HR Precipitation (IN)
100	Woods – Light Underbrush	0.53	0.40	4.29

Shallow Concentrated Flow - Pre-Development Basin #2		
Flow Path Length (FT)	Ground Cover Type	Watercourse Slope (%)
32	Unpaved	0.75

Channel Flow Pre-Development Basin #2				
Flow Path Length (FT)	Chanel Slope (%)	Manning's Friction Factor (n)	Cross Sectional Area (sqft)	Wetted Perimeter (ft)
110	1.48	0.026	8	12.6

Pre-Development Basin #2 has a time of concentration of 32 minutes.

4. POST-DEVELOPMENT CONDITIONS

The post-developed site will be graded in such a way that the existing drainage patterns will not be changed. The drainage system will consist of sheet flow, shallow concentrated flow and channel flow which will be routed to and detained by the existing Savannah Gateway West regional detention pond. There will not be an increase of runoff volume from the site and the proposed development does not exceed the volume capacity allocated in the existing Savannah Gateway West regional detention pond.

(See Exhibit B for proposed runoff conditions).

4.1 CURVE NUMBERS

Curve numbers are generated according to procedures set forth in SCS TR-55. The composite curve numbers for each drainage basin are calculated using soils information from the "Web Soil Survey for Chatham County, Georgia" as prepared by the Natural Resources Conservation Service. Pre-development curve numbers were weighted based on the type and amount of soil within the basin.

Post-Development Basin #1				
Drainage Basin Area (Acres)	Ground Cover Type	Soil Type	Hydrologic Soil Group	CN
0.55	Open Space, Lawns - Good Condition	Pooler fine sandy loam (Pn)	C/D	80
0.79	Impervious, Paved, Parking Area, Roof, Pool	-	-	98

Total Area = 1.34			Weighted CN = 91	
Post-Development Basin #2				
Drainage Basin Area (Acres)	**Ground Cover Type**	**Soil Type**	**Hydrologic Soil Group**	**CN**
0.11	Open Space, Lawns - Good Condition	Pooler fine sandy loam (Pn)	C/D	80
Total Area = 0.11			Weighted CN = 80	

4.2 TIME OF CONCENTRATION

Times of concentration were calculated according to procedures set forth in SCS TR-55. The travel times (T) for overland flow, shallow concentrated flow, and channel flow are added together for the drainage basin to get the time of concentration (T_C).

Overland Flow – Post-Development Basin #1				
Flow Path Length (FT)	**Ground Cover Type**	**Watercourse Slope (%)**	**Manning's Friction Factor (n)**	**2YR, 24 HR Precipitation (IN)**
78	Bermuda Grass	1.0	0.41	4.80

Channel Flow Post-Development Basin #1				
Flow Path Length (FT)	**Chanel Slope (%)**	**Manning's Friction Factor (n)**	**Cross Sectional Area (sqft)**	**Wetted Perimeter (ft)**
392	0.5	0.015	1.77	4.71

Post-Development Basin #1 has a time of concentration of 22 minutes.

Overland Flow – Post-Development Basin #2				
Flow Path Length (FT)	**Ground Cover Type**	**Watercourse Slope (%)**	**Manning's Friction Factor (n)**	**2YR, 24 HR Precipitation (IN)**
100	Bermuda Grass	1.00	0.41	4.29

Shallow Concentrated Flow - Post-Development Basin #2		
Flow Path Length (FT)	**Ground Cover Type**	**Watercourse Slope (%)**
43	Unpaved	1.00

Post-Development Basin #1 has a time of concentration of 25 minutes.

5. SUMMARY OF PRE/POST DEVELOPMENT RUNOFF ANALYSIS

Storm Event	Pre-Development Basin #1	Pre-Development Basin #2	Post-Development Basin #1	Post-Development Basin #2	Difference Pre-Dev 1 & Post-Dev 1	Difference Pre-Dev 2 & Post-Dev 2
1	0.857 cfs	0.914 cfs	2.254 cfs	0.115 cfs	1.397 cfs	-0.799 cfs
2	1.084 cfs	1.115 cfs	2.719 cfs	0.148 cfs	1.635 cfs	-0.967 cfs
10	1.894 cfs	2.020 cfs	4.324 cfs	0.268 cfs	2.430 cfs	-1.752 cfs
25	2.488 cfs	2.654 cfs	5.479 cfs	0.358 cfs	2.991 cfs	-2.296 cfs
50	2.989 cfs	3.189 cfs	6.447 cfs	0.434 cfs	3.458 cfs	-2.755 cfs
100	3.545 cfs	3.784 cfs	7.522 cfs	0.519 cfs	3.977 cfs	-3.265 cfs

6. STORMWATER RUNOFF REDUCTION AND WATER QUALITY VOLUME

The Water Quality Volume is the treatment volume required to remove a significant percentage of the stormwater pollution load in stormwater runoff. Stormwater runoff from this site will be treated by Stormwater Management Practices which are described in the Coastal Stormwater Supplement (CSS) to the Georgia Stormwater Management Manual. The CSS requires a reduction in the stormwater volume generated by the 85th percentile storm event, which in Coastal Georgia, equates to reducing the stormwater volume generated by the 1.2 inch rainfall event. Using the CSS Site Planning and Design Worksheet the target runoff reduction volume for the site was calculated to be 3,413 Cubic Feet.

Runoff Reduction Volume Calculation	
Runoff Reduction Rainfall Event (inches)	1.2
Post-Development Site Imperviousness (%)	54%
Post-Development Site Runoff Coefficient, Rv	0.54
Target Runoff Reduction Volume, RRv (acre-feet)	0. 08
Target Runoff Reduction Volume, RRv (cubic feet)	3,413

6.1 WATER QUALITY VOLUME TREATMENT USING STORMWATER MANAGEMENT PRACTICES

A Contech CS-5 Cascade Separator will be used to treat the required runoff reduction volume. The Cascade Separator will be sized to treat the target runoff reduction volume for the site, which is 3,413 Cubic Feet.

7. AQUATIC RESOURCE PROTECTION AND ENERGY DISSIPATION

On-site vegetation and structural erosion control measures will be used to dissipate stormwater runoff and control its' velocity on the project site. All post construction stormwater runoff from the site will maintain existing drainage patterns and discharge into an existing drainage system. The stormwater discharge from this site will be detained in the existing Savannah Gateway West regional detention pond and then be released into an existing wetland. Further restricting the detention ponds orifice to restrict the release of the stormwater would cause flooding of the areas served by the detention pond and is therefore impractical. However, the residence time of the stormwater to travel through the existing detention pond and the adjacent wetlands that it discharges into should be great enough to provide the required aquatic protection.

8. CONSTRUCTION EROSION AND SEDIMENTATION CONTROL

Three phase Erosion and Sediment Control Plans have been prepared for the project to meet all Federal, State and Local regulations and requirements. These plans were developed to show the appropriate best management practices, better site design practices, green infrastructure practices and stormwater management practices to be implemented during all phases of construction. See the construction documents that were prepared for this development.

9. STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE

Routine Maintenance Activities for Permeable Pavement System	
Activity	**Schedule**
• Inspect to ensure that the permeable pavement surface is clear of sediment and debris. Remove any accumulated sediment and debris. • Check the permeable pavement system for excessive ponding and dead or dying vegetation (if applicable). Take appropriate remedial action as needed.	Monthly
• Vacuum sweep permeable pavement surface to keep the surface free of sediment.	Quarterly
• Inspect permeable pavement system for drawdown following rainfall events. Failure to drawdown within 72 hours after the end of a rainfall event may indicate permeable pavement system failure. • Inspect permeable pavement surface for deterioration or spalling. Repair or replace any damaged areas as needed.	Annually
• Rehabilitate the permeable pavement system, including the surface course and stone reservoir.	Upon System Failure

II. HYDRAULIC DESIGN

10. SITE OVERVIEW

The post-developed site will be graded in such a way that the storm water will be directed to the existing underground storm drainage system via sheet flow, shallow concentrated flow and channel flow. The storm drainage pipes were sized using area and cover parameters to generate the peak flow produced by the 25 YR, 24 HR storm event. A tail water elevation of 17.75' was assumed for the claculations.
(See Exhibit 'C' for proposed runoff basin conditions).

11. HYDRAULIC CALCULATION METHODOLOGY

Pipes were sized using the modified rational method and the Hydraflow Storm Sewers software by Autodesk. Coefficient values are listed for certain cover conditions in the "Georgia Stormwater Management Manual", Chapter 3.1.4.6, Table 3.1.4-2.

All calculations and computer printouts are attached.

APPENDIX A

SITE EXHIBITS

PRE-DEVELOPMENT BASIN #1
AREA = 0.58 ACRES

CN = 83
0.58 AC Pn (HSG C/D) -
CN = 83 (WOOD OR FOREST LAND - THIN STAND, POOR COVER

Tc = 16 min.
43 L.F. SHEET FLOW @ 0.53% -
n = 0.40 (WOODS- LIGHT UNDERBRUSH)

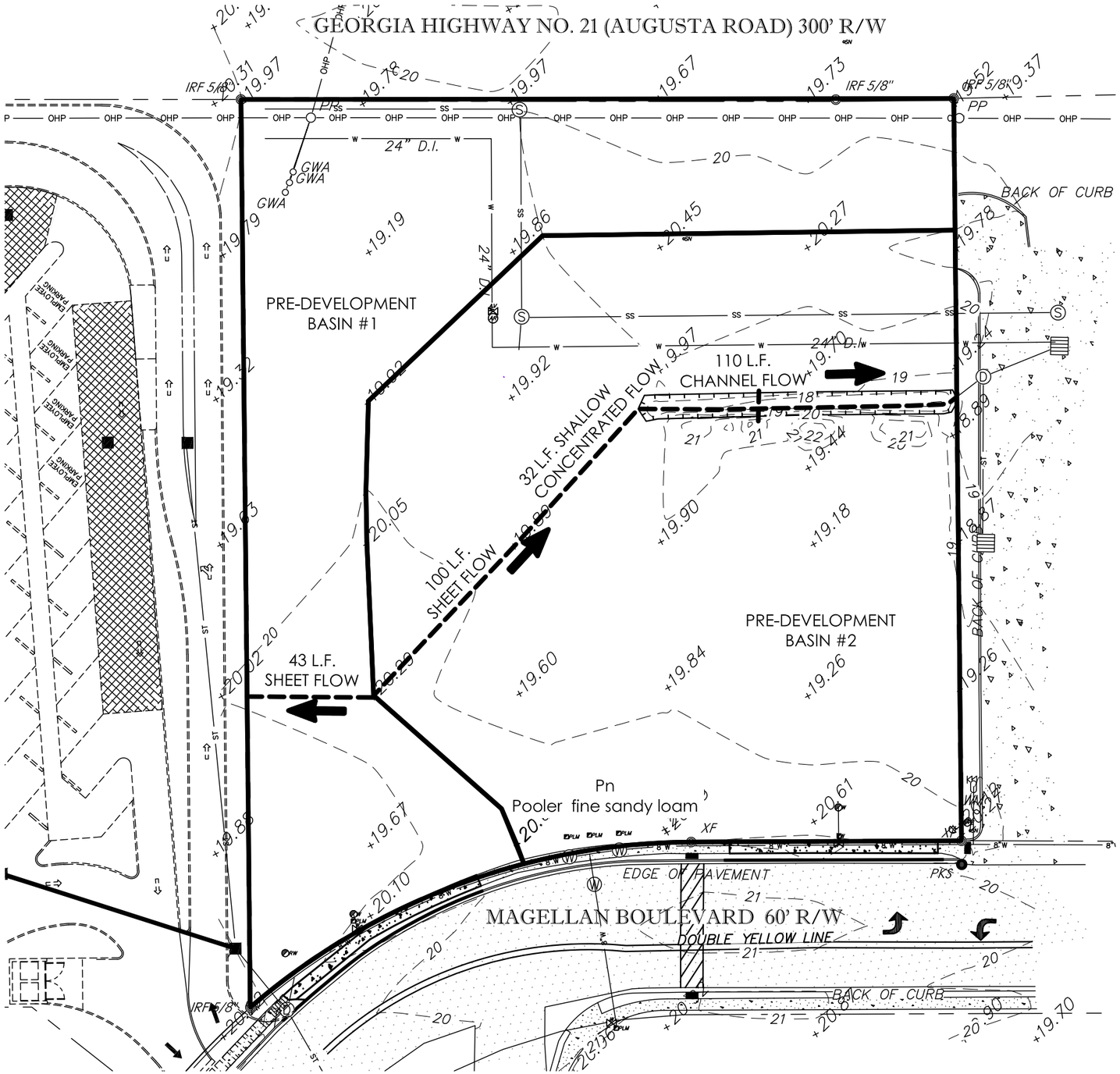
PRE-DEVELOPMENT BASIN #2
AREA = 0.87 ACRES

CN = 83
0.87 AC PnI (HSG C/D) -
CN = 83 (WOOD OR FOREST LAND - THIN STAND, POOR COVER

Tc = 32 min.
100 L.F. SHEET FLOW @ 0.52% -
n = 0.40 (WOODS- LIGHT UNDERBRUSH)

32 L.F. SHALLOW CONCENTRATED FLOW @ 0.75%

110 L.F. CHANNEL FLOW @ 1.48%



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P.O. BOX 1749 ♦ RINCON, GA 31326 ♦ PH:(912) 667-2667

EXHIBIT 'A'

PRE-DEVELOPMENT DRAINAGE EXHIBIT

8TH G.M.D.

CITY OF PORT WENTWORTH

Prepared for:

PEACHTREE DEVELOPMENT AND INVESTMENTS

40' 20' 0' 40'
GRAPHIC SCALE: 1"=40'-0"

PROJECT NO.:	22-002
DRAWN BY:	ATA
DESIGNED BY:	ATA
SURVEYED BY:	N/A
SURVEY DATE:	N/A
CHECKED BY:	ATA
SCALE:	1" = 40'
DATE:	5/23/2022

SHEET
1
OF 3

POST-DEVELOPMENT BASIN #1
AREA = 1.34 ACRES

CN = 91
0.55 AC Pn (HSG C/D)
CN = 80 (OPEN SPACE, LAWNS - GOOD CONDITION)

0.79 AC
CN = 98 (PAVED PARKING AREAS, ROADS, SIDEWALKS, ROOFS)

Tc = 22 min.
78 L.F. SHEET FLOW @ 1.0% -
n = 0.41 (BERMUDA GRASS)

392 L.F. CHANNEL FLOW @ 0.50%

POST-DEVELOPMENT BASIN #2
AREA = 0.11 ACRES

CN = 90
0.11 AC Pn (HSG C/D)
CN = 80 (OPEN SPACE, LAWNS - GOOD CONDITION)

Tc = 25 min.
100 L.F. SHEET FLOW @ 1.0% -
n = 0.41 (BERMUDA GRASS)

43 L.F. SHALLOW CONCENTRATED FLOW @ 1.0%

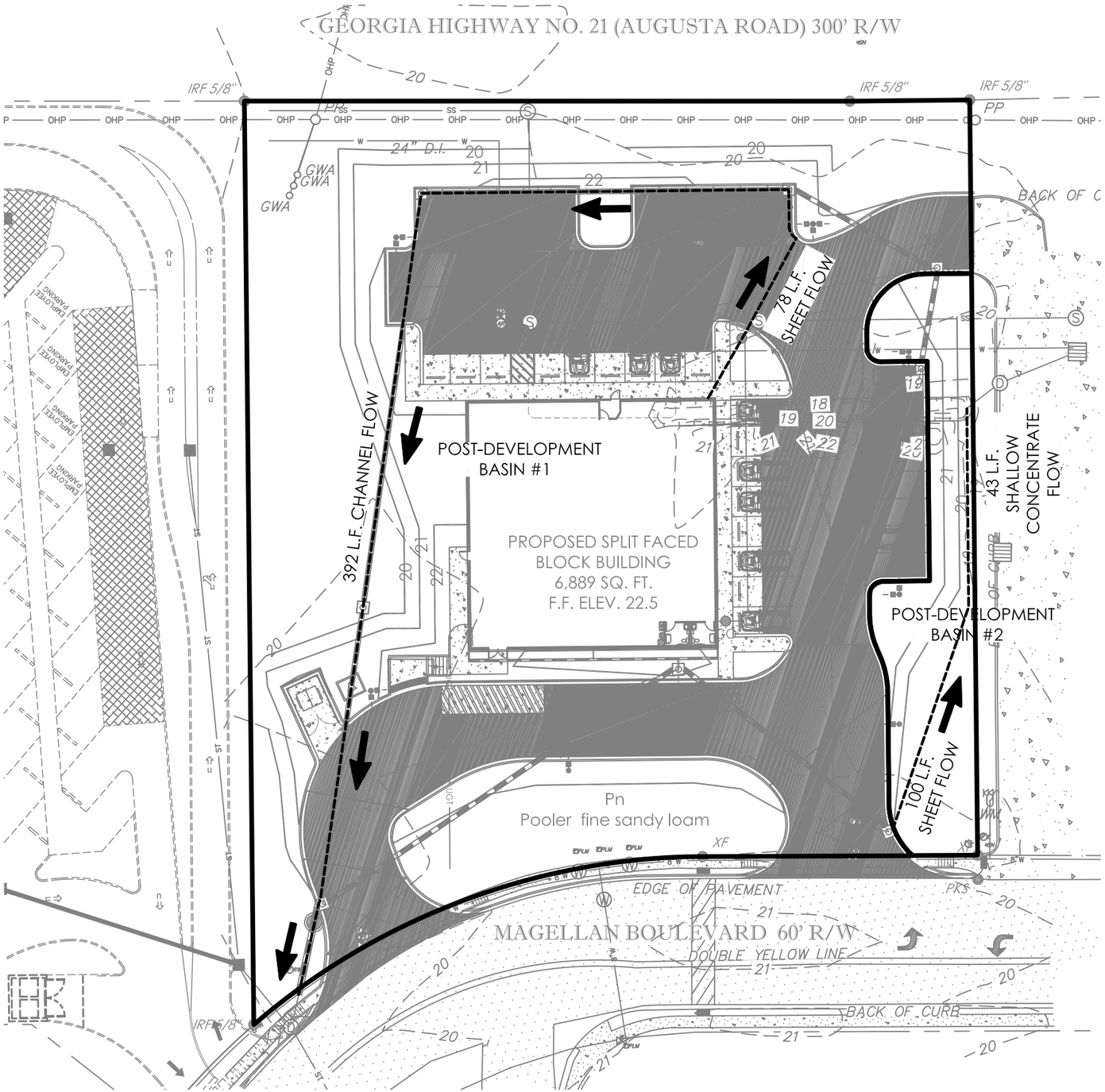

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EXHIBIT 'B'

POST-DEVELOPMENT DRAINAGE EXHIBIT

8TH G.M.D.

CITY OF PORT WENTWORTH

Prepared for:

PEACHTREE DEVELOPMENT AND INVESTMENTS

40' 20' 0' 40'
GRAPHIC SCALE: 1"=40'-0"

PROJECT NO.:	22-002
DRAWN BY:	ATA
DESIGNED BY:	ATA
SURVEYED BY:	N/A
SURVEY DATE:	N/A
CHECKED BY:	ATA
SCALE:	1" = 40'
DATE:	5/23/2022

SHEET
2
OF 3

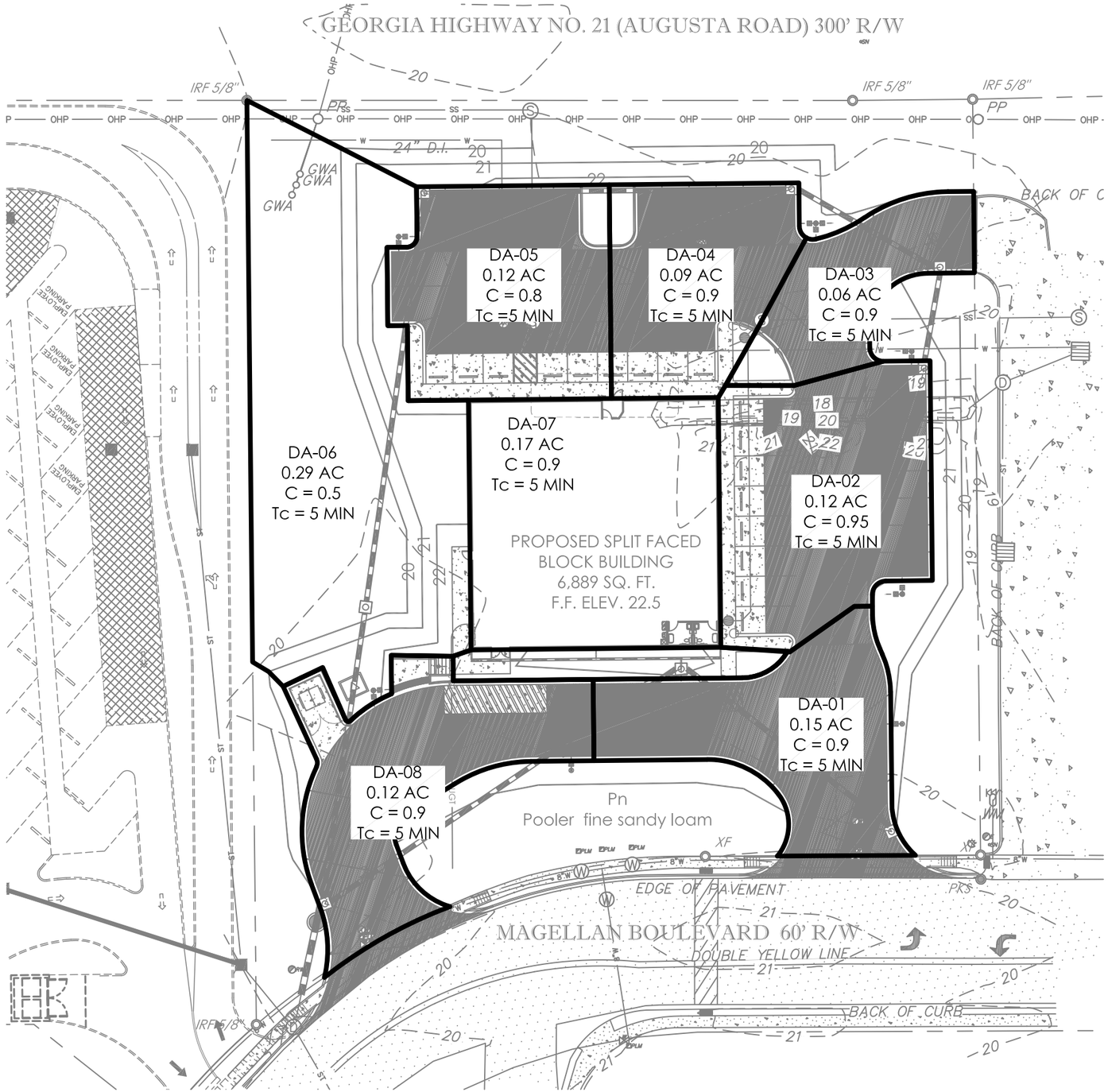

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EXHIBIT 'C'

STORM DRAIN INLET EXHIBIT

8TH G.M.D.

CITY OF PORT WENTWORTH

Prepared for:

PEACHTREE DEVELOPMENT AND INVESTMENTS

40' 20' 0' 40'

GRAPHIC SCALE: 1"=40'-0"

PROJECT NO.:	22-002
DRAWN BY:	ATA
DESIGNED BY:	ATA
SURVEYED BY:	N/A
SURVEY DATE:	N/A
CHECKED BY:	ATA
SCALE:	1" = 40'
DATE:	5/23/2022

SHEET

3

OF 3

APPENDIX B

BACKGROUND DATA

Rainfall Data for
Pt. Wentworth, Chatham County, Georgia

Storm Event (Year)	Average Rainfall (in./hr.)	Total 24-Hour Rainfall (inches)
1	0.15	3.68
2	0.18	4.29
5	0.23	5.40
10	0.27	6.41
25	0.33	7.95
50	0.39	9.25
100	0.45	10.70

* Rainfall depths were derived from NOAA Atlas 14, Volume 9, Version 2 for Latitude: 32.2358˚, Longitude: -81.1914˚, Elevation: 23.69'.

NOAA Atlas 14, Volume 9, Version 2
Location name: Port Wentworth, Georgia, USA*
Latitude: 32.1973°, Longitude: -81.1979°
Elevation: 18.81 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.543** (0.466-0.642)	**0.614** (0.526-0.726)	**0.729** (0.622-0.864)	**0.824** (0.698-0.982)	**0.956** (0.774-1.17)	**1.06** (0.832-1.31)	**1.16** (0.873-1.48)	**1.26** (0.901-1.65)	**1.40** (0.951-1.88)	**1.50** (0.988-2.05)
10-min	**0.796** (0.682-0.940)	**0.899** (0.770-1.06)	**1.07** (0.910-1.26)	**1.21** (1.02-1.44)	**1.40** (1.13-1.71)	**1.55** (1.22-1.92)	**1.70** (1.28-2.16)	**1.85** (1.32-2.42)	**2.04** (1.39-2.75)	**2.19** (1.45-3.00)
15-min	**0.970** (0.832-1.15)	**1.10** (0.939-1.30)	**1.30** (1.11-1.54)	**1.47** (1.25-1.75)	**1.71** (1.38-2.09)	**1.89** (1.49-2.35)	**2.07** (1.56-2.63)	**2.25** (1.61-2.95)	**2.49** (1.70-3.36)	**2.67** (1.77-3.66)
30-min	**1.38** (1.18-1.63)	**1.57** (1.34-1.85)	**1.87** (1.60-2.22)	**2.13** (1.80-2.53)	**2.47** (2.00-3.03)	**2.74** (2.15-3.40)	**3.00** (2.26-3.82)	**3.26** (2.33-4.27)	**3.61** (2.46-4.85)	**3.87** (2.55-5.30)
60-min	**1.77** (1.52-2.09)	**2.01** (1.73-2.38)	**2.42** (2.06-2.87)	**2.76** (2.34-3.29)	**3.25** (2.64-4.00)	**3.63** (2.87-4.53)	**4.03** (3.04-5.15)	**4.43** (3.18-5.83)	**4.99** (3.40-6.74)	**5.42** (3.58-7.43)
2-hr	**2.17** (1.87-2.55)	**2.46** (2.12-2.89)	**2.96** (2.54-3.49)	**3.40** (2.89-4.02)	**4.03** (3.30-4.93)	**4.53** (3.60-5.63)	**5.06** (3.85-6.44)	**5.61** (4.05-7.34)	**6.37** (4.38-8.56)	**6.97** (4.63-9.49)
3-hr	**2.40** (2.07-2.80)	**2.72** (2.35-3.18)	**3.29** (2.83-3.85)	**3.79** (3.24-4.47)	**4.54** (3.74-5.57)	**5.16** (4.12-6.40)	**5.81** (4.44-7.39)	**6.51** (4.72-8.51)	**7.49** (5.18-10.1)	**8.28** (5.52-11.2)
6-hr	**2.79** (2.42-3.24)	**3.19** (2.77-3.71)	**3.91** (3.38-4.56)	**4.57** (3.93-5.35)	**5.57** (4.63-6.82)	**6.41** (5.16-7.93)	**7.31** (5.63-9.27)	**8.29** (6.06-10.8)	**9.68** (6.74-12.9)	**10.8** (7.25-14.6)
12-hr	**3.20** (2.80-3.69)	**3.72** (3.25-4.29)	**4.65** (4.05-5.38)	**5.50** (4.75-6.39)	**6.79** (5.68-8.27)	**7.88** (6.37-9.69)	**9.04** (7.00-11.4)	**10.3** (7.58-13.3)	**12.1** (8.48-16.1)	**13.6** (9.16-18.1)
24-hr	**3.68** (3.24-4.22)	**4.29** (3.77-4.92)	**5.40** (4.72-6.20)	**6.41** (5.57-7.39)	**7.95** (6.69-9.63)	**9.25** (7.54-11.3)	**10.7** (8.31-13.3)	**12.2** (9.02-15.7)	**14.4** (10.1-19.0)	**16.1** (11.0-21.4)
2-day	**4.28** (3.79-4.87)	**4.93** (4.35-5.60)	**6.11** (5.38-6.97)	**7.22** (6.31-8.27)	**8.93** (7.57-10.8)	**10.4** (8.52-12.6)	**12.0** (9.40-14.9)	**13.7** (10.2-17.5)	**16.2** (11.5-21.3)	**18.2** (12.5-24.1)
3-day	**4.67** (4.15-5.29)	**5.37** (4.76-6.09)	**6.65** (5.87-7.55)	**7.83** (6.87-8.94)	**9.64** (8.20-11.6)	**11.2** (9.20-13.5)	**12.8** (10.1-15.9)	**14.7** (11.0-18.7)	**17.3** (12.3-22.6)	**19.4** (13.3-25.5)
4-day	**5.01** (4.46-5.65)	**5.75** (5.11-6.50)	**7.10** (6.28-8.04)	**8.33** (7.32-9.48)	**10.2** (8.69-12.2)	**11.8** (9.72-14.2)	**13.5** (10.7-16.7)	**15.3** (11.5-19.5)	**18.0** (12.9-23.4)	**20.1** (13.9-26.4)
7-day	**5.92** (5.29-6.64)	**6.73** (6.01-7.56)	**8.17** (7.27-9.20)	**9.47** (8.37-10.7)	**11.4** (9.76-13.5)	**13.1** (10.8-15.6)	**14.8** (11.7-18.1)	**16.7** (12.6-21.0)	**19.3** (13.9-25.0)	**21.5** (14.9-28.0)
10-day	**6.74** (6.05-7.54)	**7.61** (6.82-8.51)	**9.13** (8.14-10.2)	**10.5** (9.29-11.8)	**12.5** (10.7-14.7)	**14.2** (11.8-16.8)	**15.9** (12.7-19.4)	**17.8** (13.5-22.3)	**20.5** (14.8-26.4)	**22.6** (15.8-29.4)
20-day	**9.10** (8.21-10.1)	**10.2** (9.17-11.3)	**12.0** (10.8-13.4)	**13.6** (12.1-15.2)	**15.9** (13.6-18.4)	**17.7** (14.8-20.8)	**19.7** (15.7-23.7)	**21.7** (16.5-26.8)	**24.5** (17.7-31.1)	**26.6** (18.7-34.4)
30-day	**11.1** (10.0-12.3)	**12.4** (11.2-13.7)	**14.5** (13.1-16.1)	**16.4** (14.6-18.2)	**18.9** (16.3-21.8)	**20.9** (17.5-24.4)	**23.0** (18.4-27.5)	**25.1** (19.1-30.8)	**27.9** (20.3-35.3)	**30.1** (21.2-38.7)
45-day	**13.7** (12.4-15.0)	**15.3** (13.9-16.8)	**17.9** (16.2-19.7)	**20.0** (18.0-22.2)	**22.9** (19.7-26.1)	**25.1** (21.0-29.1)	**27.3** (21.9-32.4)	**29.5** (22.5-36.0)	**32.3** (23.5-40.6)	**34.5** (24.3-44.1)
60-day	**15.9** (14.5-17.5)	**17.8** (16.2-19.5)	**20.8** (18.8-22.9)	**23.2** (20.9-25.7)	**26.4** (22.7-29.9)	**28.7** (24.1-33.1)	**31.0** (24.9-36.6)	**33.2** (25.4-40.3)	**36.0** (26.3-45.0)	**38.1** (27.0-48.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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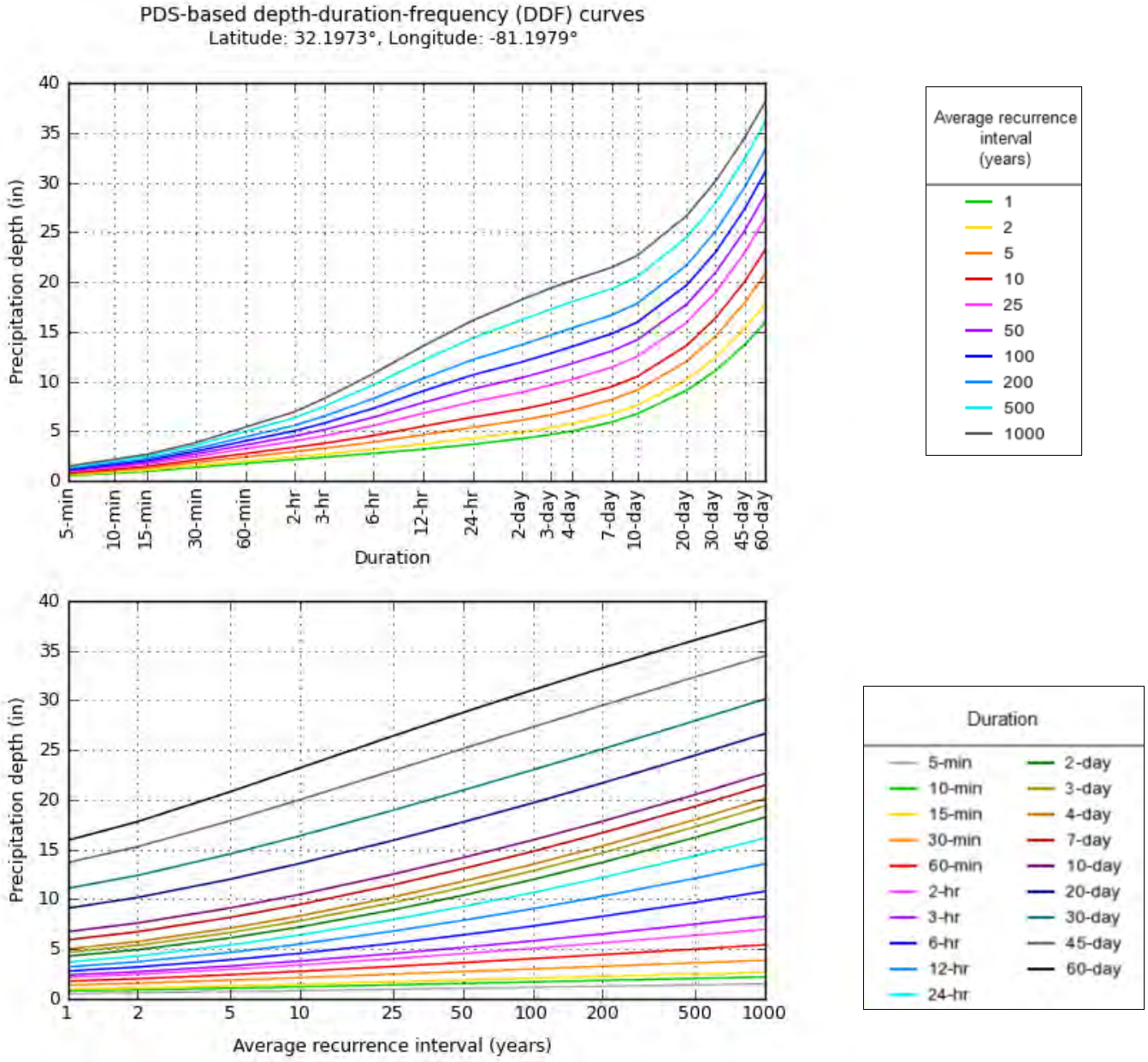
PF graphical



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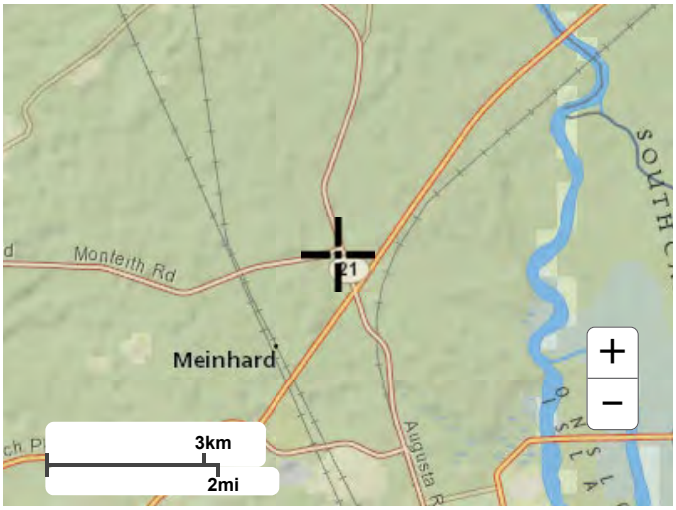

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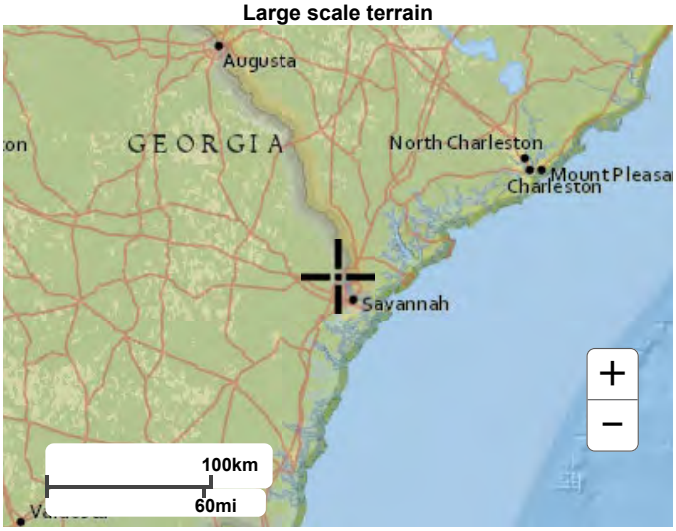

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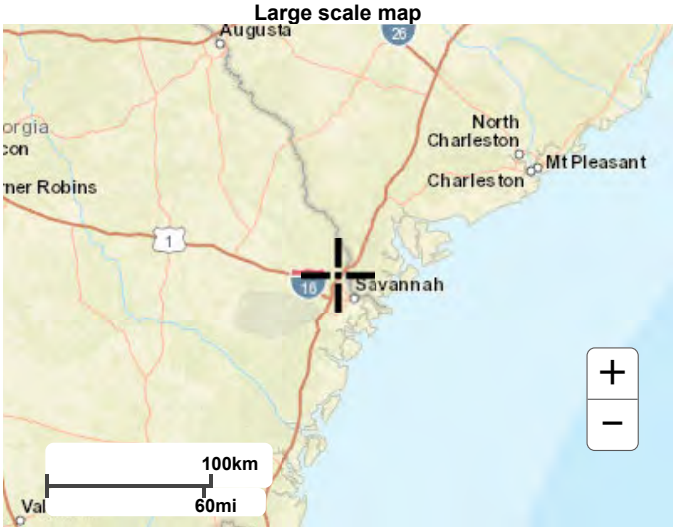

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NOAA Atlas 14, Volume 9, Version 2
Location name: Port Wentworth, Georgia, USA*
Latitude: 32.1973°, Longitude: -81.1979°
Elevation: 18.81 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**6.52** (5.59-7.70)	**7.37** (6.31-8.71)	**8.75** (7.46-10.4)	**9.89** (8.38-11.8)	**11.5** (9.29-14.1)	**12.7** (9.98-15.8)	**13.9** (10.5-17.7)	**15.1** (10.8-19.8)	**16.7** (11.4-22.5)	**18.0** (11.9-24.6)
10-min	**4.78** (4.09-5.64)	**5.39** (4.62-6.38)	**6.40** (5.46-7.59)	**7.24** (6.13-8.62)	**8.39** (6.80-10.3)	**9.28** (7.31-11.5)	**10.2** (7.67-13.0)	**11.1** (7.91-14.5)	**12.3** (8.35-16.5)	**13.2** (8.68-18.0)
15-min	**3.88** (3.33-4.58)	**4.38** (3.76-5.18)	**5.21** (4.44-6.17)	**5.89** (4.98-7.01)	**6.83** (5.53-8.36)	**7.55** (5.94-9.38)	**8.27** (6.24-10.5)	**9.00** (6.44-11.8)	**9.96** (6.79-13.4)	**10.7** (7.06-14.7)
30-min	**2.75** (2.36-3.25)	**3.13** (2.68-3.70)	**3.75** (3.19-4.44)	**4.25** (3.60-5.06)	**4.94** (4.00-6.05)	**5.47** (4.31-6.80)	**6.00** (4.52-7.63)	**6.52** (4.66-8.54)	**7.21** (4.91-9.71)	**7.73** (5.10-10.6)
60-min	**1.77** (1.52-2.09)	**2.01** (1.73-2.38)	**2.42** (2.06-2.87)	**2.76** (2.34-3.29)	**3.25** (2.64-4.00)	**3.63** (2.87-4.53)	**4.03** (3.04-5.15)	**4.43** (3.18-5.83)	**4.99** (3.40-6.74)	**5.42** (3.58-7.43)
2-hr	**1.09** (0.936-1.27)	**1.23** (1.06-1.45)	**1.48** (1.27-1.74)	**1.70** (1.45-2.01)	**2.01** (1.65-2.47)	**2.27** (1.80-2.81)	**2.53** (1.92-3.22)	**2.80** (2.02-3.67)	**3.19** (2.19-4.28)	**3.49** (2.32-4.75)
3-hr	**0.798** (0.690-0.933)	**0.906** (0.783-1.06)	**1.09** (0.941-1.28)	**1.26** (1.08-1.49)	**1.51** (1.25-1.85)	**1.72** (1.37-2.13)	**1.94** (1.48-2.46)	**2.17** (1.57-2.83)	**2.50** (1.72-3.35)	**2.76** (1.84-3.74)
6-hr	**0.465** (0.405-0.540)	**0.533** (0.463-0.619)	**0.653** (0.565-0.761)	**0.763** (0.656-0.893)	**0.930** (0.773-1.14)	**1.07** (0.861-1.32)	**1.22** (0.940-1.55)	**1.38** (1.01-1.80)	**1.62** (1.13-2.16)	**1.80** (1.21-2.43)
12-hr	**0.265** (0.232-0.306)	**0.309** (0.270-0.356)	**0.386** (0.336-0.446)	**0.457** (0.395-0.531)	**0.564** (0.471-0.686)	**0.654** (0.529-0.804)	**0.750** (0.581-0.946)	**0.855** (0.629-1.11)	**1.00** (0.704-1.33)	**1.13** (0.760-1.51)
24-hr	**0.154** (0.135-0.176)	**0.179** (0.157-0.205)	**0.225** (0.197-0.258)	**0.267** (0.232-0.308)	**0.331** (0.279-0.401)	**0.385** (0.314-0.472)	**0.444** (0.346-0.556)	**0.508** (0.376-0.653)	**0.598** (0.422-0.790)	**0.672** (0.457-0.893)
2-day	**0.089** (0.079-0.101)	**0.103** (0.091-0.117)	**0.127** (0.112-0.145)	**0.150** (0.131-0.172)	**0.186** (0.158-0.224)	**0.216** (0.177-0.263)	**0.249** (0.196-0.311)	**0.285** (0.213-0.365)	**0.337** (0.240-0.443)	**0.380** (0.260-0.502)
3-day	**0.065** (0.058-0.073)	**0.075** (0.066-0.085)	**0.092** (0.082-0.105)	**0.109** (0.095-0.124)	**0.134** (0.114-0.160)	**0.155** (0.128-0.188)	**0.178** (0.141-0.221)	**0.204** (0.152-0.259)	**0.240** (0.171-0.313)	**0.269** (0.185-0.354)
4-day	**0.052** (0.046-0.059)	**0.060** (0.053-0.068)	**0.074** (0.065-0.084)	**0.087** (0.076-0.099)	**0.106** (0.091-0.127)	**0.123** (0.101-0.148)	**0.141** (0.111-0.174)	**0.160** (0.120-0.203)	**0.187** (0.134-0.244)	**0.210** (0.145-0.275)
7-day	**0.035** (0.031-0.040)	**0.040** (0.036-0.045)	**0.049** (0.043-0.055)	**0.056** (0.050-0.064)	**0.068** (0.058-0.080)	**0.078** (0.064-0.093)	**0.088** (0.070-0.108)	**0.099** (0.075-0.125)	**0.115** (0.083-0.149)	**0.128** (0.089-0.167)
10-day	**0.028** (0.025-0.031)	**0.032** (0.028-0.035)	**0.038** (0.034-0.043)	**0.044** (0.039-0.049)	**0.052** (0.045-0.061)	**0.059** (0.049-0.070)	**0.066** (0.053-0.081)	**0.074** (0.056-0.093)	**0.085** (0.062-0.110)	**0.094** (0.066-0.123)
20-day	**0.019** (0.017-0.021)	**0.021** (0.019-0.024)	**0.025** (0.022-0.028)	**0.028** (0.025-0.032)	**0.033** (0.028-0.038)	**0.037** (0.031-0.043)	**0.041** (0.033-0.049)	**0.045** (0.034-0.056)	**0.051** (0.037-0.065)	**0.055** (0.039-0.072)
30-day	**0.015** (0.014-0.017)	**0.017** (0.016-0.019)	**0.020** (0.018-0.022)	**0.023** (0.020-0.025)	**0.026** (0.023-0.030)	**0.029** (0.024-0.034)	**0.032** (0.026-0.038)	**0.035** (0.027-0.043)	**0.039** (0.028-0.049)	**0.042** (0.029-0.054)
45-day	**0.013** (0.012-0.014)	**0.014** (0.013-0.016)	**0.017** (0.015-0.018)	**0.019** (0.017-0.021)	**0.021** (0.018-0.024)	**0.023** (0.019-0.027)	**0.025** (0.020-0.030)	**0.027** (0.021-0.033)	**0.030** (0.022-0.038)	**0.032** (0.023-0.041)
60-day	**0.011** (0.010-0.012)	**0.012** (0.011-0.014)	**0.014** (0.013-0.016)	**0.016** (0.014-0.018)	**0.018** (0.016-0.021)	**0.020** (0.017-0.023)	**0.022** (0.017-0.025)	**0.023** (0.018-0.028)	**0.025** (0.018-0.031)	**0.026** (0.019-0.034)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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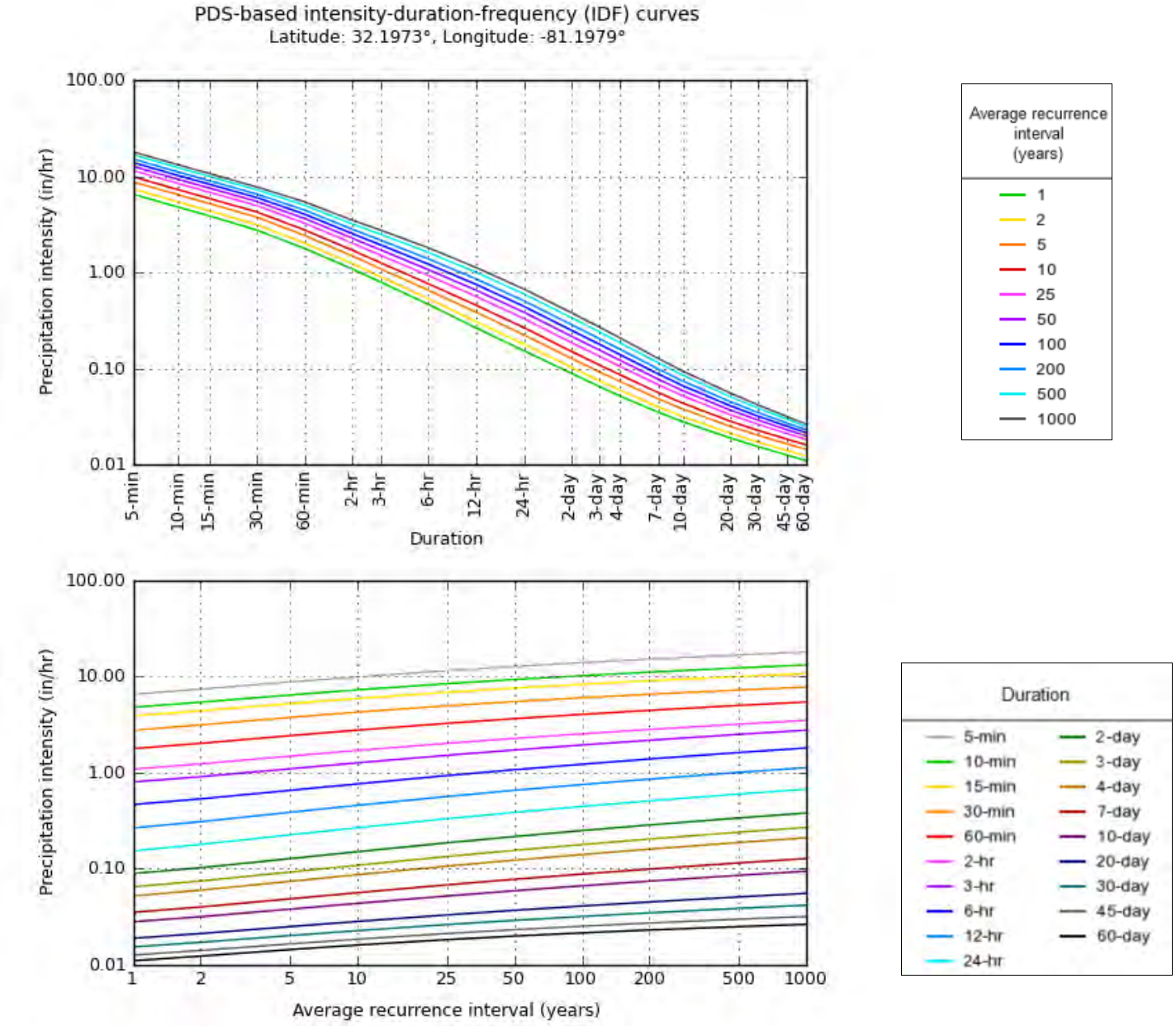
PF graphical



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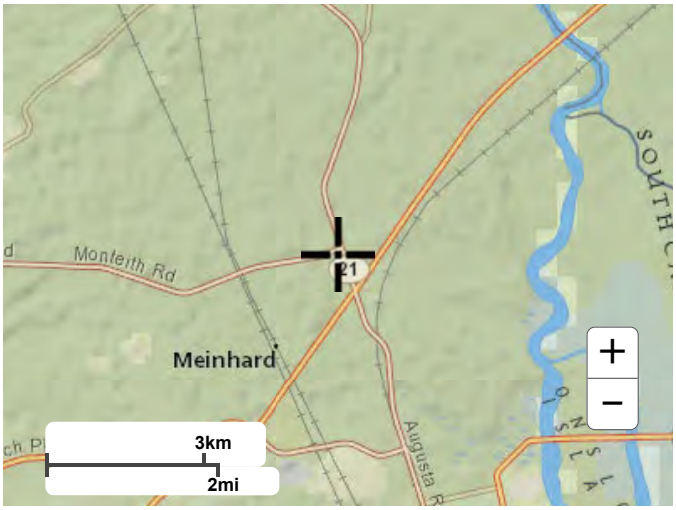
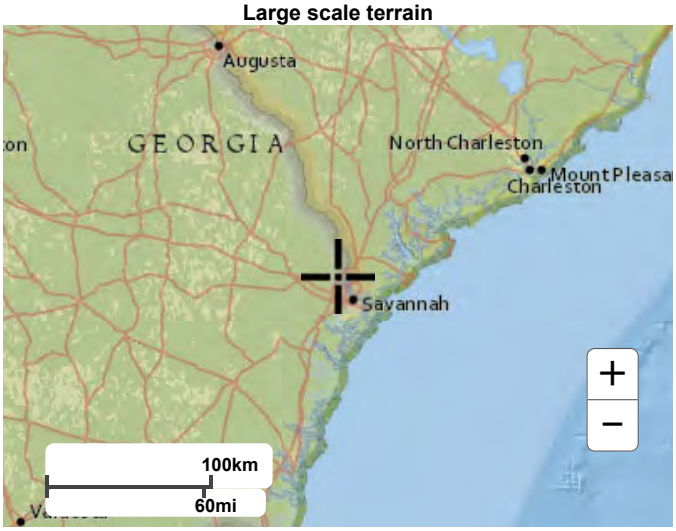
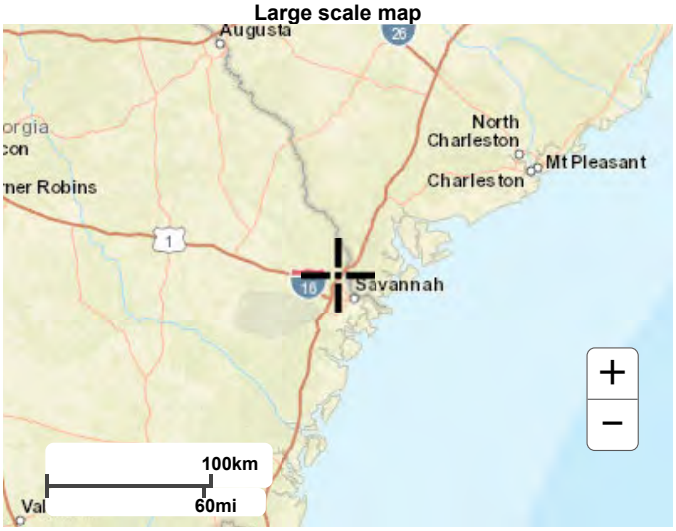
Small scale terrain



Large scale terrain



Large scale map



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Disclaimer

The following discussion will give some guidance for adjusting curve numbers for different types of impervious areas.

Connected Impervious Areas

The CNs provided in **Table 3.1.5-1** for various land cover types were developed for typical land use relationships based on specific assumed percentages of impervious area. These CN values were developed on the assumptions that:

(a) Pervious urban areas are equivalent to pasture in good hydrologic condition, and

(b) Impervious areas have a CN of 98 and are directly connected to the drainage system.

If all of the impervious area is directly connected to the drainage system, but the impervious area percentages or the pervious land use assumptions in **Table 3.1.5-1** are not applicable, use **Figure 3.1.5-3** to compute a composite CN. For example, **Table 3.1.5-1** gives a CN of 70 for a 1/2-acre lot in hydrologic soil group B, with an assumed impervious area of 25%. However, if the lot has 20% impervious area and a pervious area CN of 61, the composite CN obtained from **Figure 3.1.5-3** is 68. The CN difference between 70 and 68 reflects the difference in percent impervious area.

Unconnected Impervious Areas

Runoff from these areas is spread over a pervious area as sheet flow. To determine CN when all or part of the impervious area is not directly connected to the drainage system, (1) use **Figure 3.1.5-4** if total impervious area is less than 30% or (2) use **Figure 3.1.5-3** if the total impervious area is equal to or greater than 30%, because the absorptive capacity of the remaining pervious areas will not significantly affect runoff.

Table 3.1.5-1 Runoff Curve Numbers[1]

Cover description			Curve numbers for hydrological soil groups			
Cover type and hydrologic condition		*Average percent impervious area*[2]	A	B	C	D
Cultivated land:	without conservation treatment		72	81	88	91
	with conservation treatment		62	71	78	81
Pasture or range land:	poor condition		68	79	86	89
	good condition		39	61	74	80
Meadow:	good		30	58	71	78
Wood or forest land:	thin stand, poor cover		45	66	77	83
	good cover		25	55	70	77
Open space (laws, parks, golf courses, cemeteries, etc)[3]:	Poor condition (grass cover <50%)		68	79	86	89
	Fair condition (grass cover 50% to 75%)		49	69	79	84
	Good condition (grass cover >75%)		39	61	74	80
Impervious areas:	Paved parking lots, roofs, driveways, etc (excluding right-of-way)		98	98	98	98
Streets and roads:	Paved; curbs and storm drains (excluding right-of-way)		98	98	98	98
	Paved; open ditches (including right-of-way)		83	89	92	93
	Gravel (including right-of-way)		76	85	89	91
	Dirt (including right-of-way)		72	82	87	89
Urban Districts:	Commercial and business	85%	89	92	94	95
	Industrial	72%	81	88	91	93
Residential districts by average lot size:	1/8 acre or less (townhouses)	65%	77	85	90	92
	1/4 acre	38%	61	75	83	87
	1/3 acre	30%	57	72	81	86
	1/2 acre	25%	54	70	80	85
	1 acre	20%	51	68	79	84
	2 acres	12%	46	65	77	82
Developing urban areas and newly graded areas (pervious areas only, no vegetation)			77	86	91	94

[1]Average runoff condition, and $I_a = 0.2S$
[2]The average percent impervious area shown was used to develop the composite CNs. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. If the impervious area is not connected, the NRCS TR-55 method has an adjustment to reduce the effect.
[3]CNs shown are equivalent to those of pasture. Composite CNs may be computed for other combinations of open space cover type.

Sheet Flow

Sheet flow can be calculated using the following formula:

$$T_t = \frac{0.42(nL)^{0.8}}{60(P_2)^{0.5}(S)^{0.4}} \quad (3.1.8)$$

Where:

T_t = travel time (hr)
n = Manning roughness coefficient (see **Table 3.1.5-2**)
L = flow length (ft)
P_2 = 2-year, 24-hour rainfall
S = land slope (ft/ft)

Table 3.1.5-2 Roughness Coefficients (Manning's n) for Sheet Flow[1]

Surface description		n
Smooth surfaces (concrete, asphalt, gravel, or bare soil):		0.011
Fallow (no residue):		0.05
Cultivated soils:	Residue cover <20%	0.06
	Residue cover >20%	0.17
Grass:	Short grass prairie	0.15
	Dense grasses[2]	0.24
	Bermuda grass	0.41
Range (natural):		0.13
Woods[3]:	Light underbrush	0.40
	Dense underbrush	0.80

[1]The n values are a composite of information by Engman (1986).
[2]Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
[3]When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

Source: NRCS TR-55, TR-55, Second Edition, June 1986.

Shallow Concentrated Flow

After a maximum of 50 to 100 feet, sheet flow usually becomes shallow concentrated flow. The average velocity for this flow can be determined from **Figure 3.1.5-5**, in which average velocity is a function of water¬course slope and type of channel.

Average velocities for estimating travel time for shallow concentrated flow can be computed from using **Figure 3.1.5-5,** or the following equations. These equations can also be used for slopes less than 0.005 ft/ft.

$$\text{Unpaved: } V = 16.13(S)^{0.5} \quad (3.1.9)$$

$$\text{Paved: } V = 20.33(S)^{0.5} \quad (3.1.10)$$

Where:

V = average velocity (ft/s)
S = slope of hydraulic grade line (water-course slope, ft/ft)

After determining average velocity using **Figure 3.1.5-5** or **Equations 3.1.9** or **3.1.10**, use **Equation 3.1.7** to estimate travel time for the shallow concentrated flow segment.

Open Channels

Velocity in channels should be calculated from the Manning equation. Open channels are assumed to begin where surveyed cross section information has been obtained, where channels are visible on aerial photographs, where channels have been identified by the local municipality, or where blue lines (indicating streams) appear on United States Geological Survey (USGS) quadrangle sheets. Manning's equation or water surface profile information can be used to estimate average flow velocity.

3.1.4.6 RUNOFF COEFFICIENT (C)

The runoff coefficient (C) is the variable of the Rational Method least susceptible to precise determination and requires judgment and understanding on the part of the design engineer.

While engineering judgment will always be required in the selection of runoff coefficients, typical coefficients represent the integrated effects of many drainage basin parameters. **Table 3.1.4-2** gives the recommended runoff coefficients for the Rational Method.

It is often desirable to develop a composite runoff coefficient based on the percentage of different types of surfaces in the drainage areas. Composites can be made with the values from **Table 3.1.4-2** by using percentages of different land uses. In addition, more detailed composites can be made with coefficients for different surface types such as rooftops, asphalt, and concrete streets and sidewalks. The composite procedure can be applied to an entire drainage area or to typical "sample" blocks as a guide to the selection of reasonable values of the coefficient for an entire area.

It should be remembered that the Rational Method assumes that all land uses within a drainage area are uniformly distributed throughout the area. If it is important to locate a specific land use within the drainage area then another hydrologic method should be used where hydrographs can be generated and routed through the drainage system.

It may be that using only the impervious area from a highly impervious site (and the corresponding high C factor and shorter time of concentration) will yield a higher peak runoff value than by using the whole site. This should be checked particularly in areas where the overland portion is grassy (yielding a long t_c) to avoid underestimating peak runoff.

Table 3.1.4-2 Recommended Runoff Coefficient Values

Description of Area	Runoff Coefficients (C)	Description of Area	Runoff Coefficients (C)
Lawns		**Industrial**	
Sandy soil, flat, 2%	0.10	Light areas	0.70
Sandy soil, average, 2-7%	0.15	Heavy areas	0.80
Sandy soil, steep, >7%	0.20	**Parks, cemeteries**	**0.25**
Clay soil, flat, 2%	0.17	**Playgrounds**	0.35
Clay soil, average, 2-7%	0.22	**Railroad yard areas**	0.40
Clay soil, steep, >7%	0.35	**Streets**	
Unimproved areas (forest)	**0.15**	Asphalt and concrete	0.95
Business		Brick	0.85
Downtown areas	0.95	**Drives, walks, and roofs**	**0.95**
Neighborhood areas	0.70	**Gravel areas**	**0.50**
Residential		**Graded or no plant cover**	
Single-family areas	0.50	Sandy soil, flat, 0-5%	0.30
Multi-units, detached	0.60	Sandy soil, flat, 5-10%	0.40
Multi-units, attached	0.70	Clay soil, flat, 0-5%	0.50
Suburban	0.40	Clay soil, average, 5-10%	0.60
Apartment dwelling areas	0.70		

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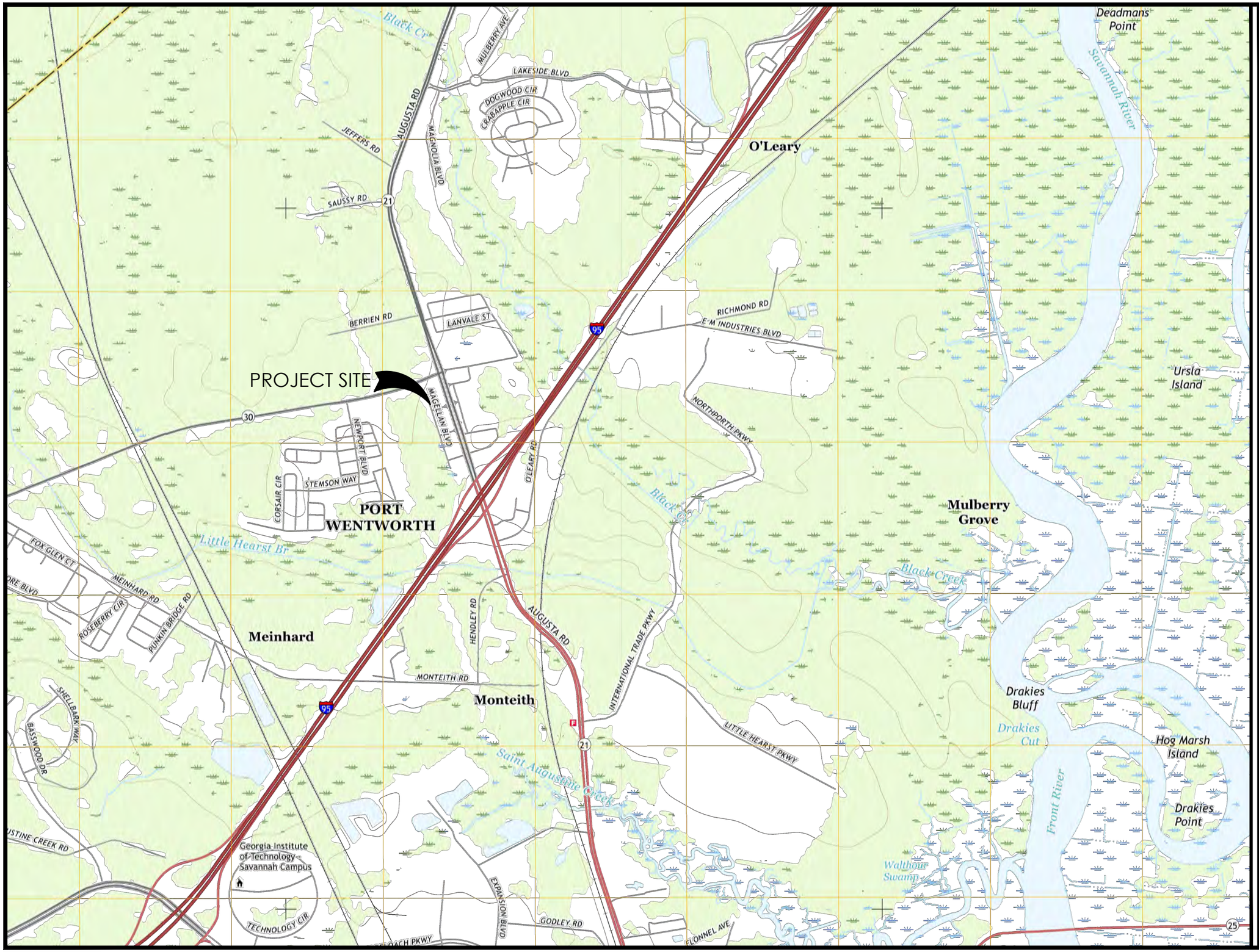
APPENDIX C

REGULATORY DATA



allen
ENGINEERING SERVICES
P.O. BOX 1749 ♦ RINCON, GA 31326 ♦ PH:(912) 667-2667

QUADRANGLE MAP
ADVANCED AUTO PARTS
PORT WENTWORTH AND
RINCON QUADS
Prepared for:
PEACHTREE DEVELOPMENT AND INVESTMENTS, LLC

2000' 1000' 0' 2000'
GRAPHIC SCALE: 1"=2000'-0"

PROJECT NO.:	22-002
DRAWN BY:	ATA
DESIGNED BY:	ATA
SURVEYED BY:	N/A
SURVEY DATE:	N/A
CHECKED BY:	ATA
SCALE:	1" = 2000'
DATE:	05/13/2022

SHEET
1
OF 1

Hydrologic Soil Group—Bryan and Chatham Counties, Georgia
(Advanced Auto Parts)

Map Scale: 1:794 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 16, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 4, 2021—Jan 18, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Pn	Pooler fine sandy loam	C/D	1.5	100.0%
Totals for Area of Interest			**1.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

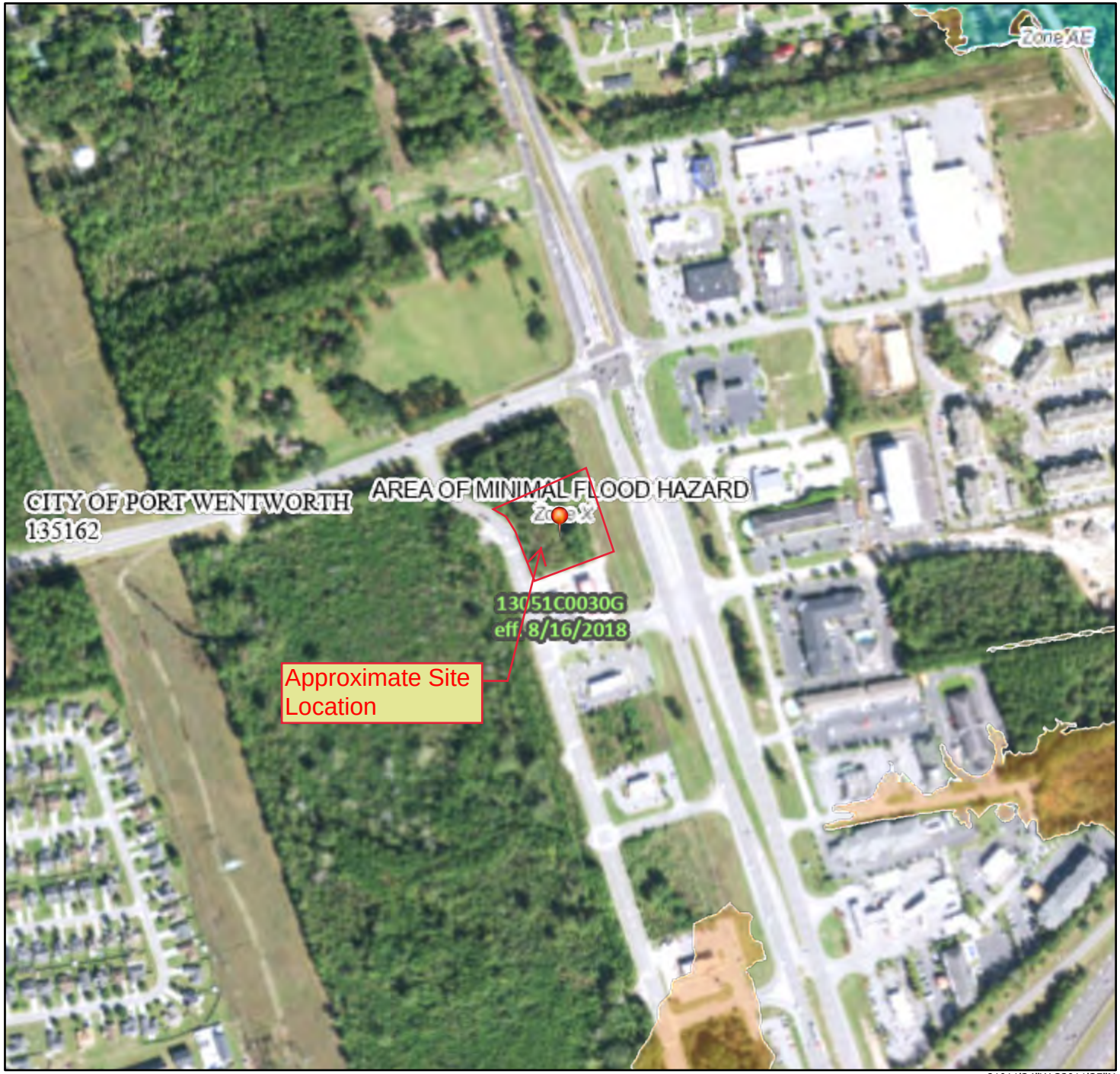
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMette

FEMA

81°12'11"W 32°12'5"N



81°11'34"W 32°11'35"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/3/2022 at 10:47 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Advanced Auto Parts

May 23, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

APPENDIX D

COASTAL STORMWATER SUPPLEMENT SITE PLANNING & DESIGN WORKSHEET

Coastal Stormwater Supplement Site Planning & Design Worksheet

Revised July 2014

Site Data

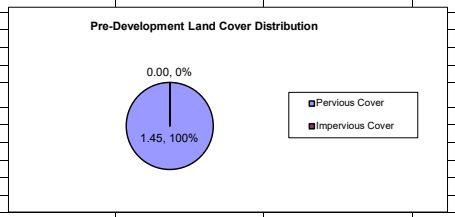
Site Name: Advanced Auto Parts

	data input cells
	calculation cells
	constant values

Step 1: Enter Site Information

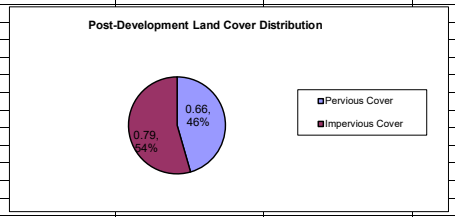
Pre-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.45	1.45
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	1.45

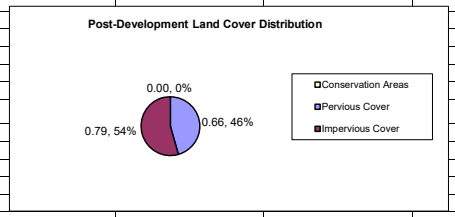


Post-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	0.66	0.66
Impervious Cover	0.00	0.00	0.00	0.79	0.79
				Total	1.45



Runoff Reduction Rainfall Event (inches)	1.2
Post-Development Site Imperviousness (%)	54%
Post-Development Site Runoff Coefficient, Rv	0.54
Target Runoff Reduction Volume, RRv (acre-feet)	0.08
Target Runoff Reduction Volume, RRv (cubic feet)	3,413

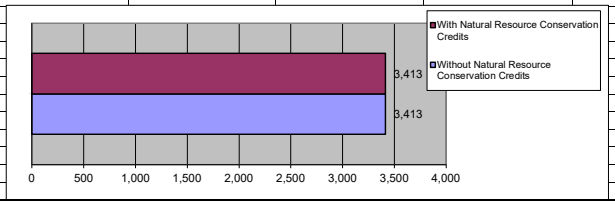


Step 2: Apply Better Site Planning Techniques

Natural Resource Conservation Credits	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Primary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Secondary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Total (acres)					0.00

Target Runoff Reduction Volume with Natural Resource Conservation Credits, RRv

Target Runoff Reduction Volume, RRv (acre-feet)	0.08
Target Runoff Reduction Volume, RRv (cubic feet)	3,413



Step 3: Apply Better Site Design Techniques

Reduced Clearing and Grading Credits

	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Undisturbed Pervious Cover (Acres)	0.0	0.0	0.0	0.0	0.00

Revised Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	0.66	0.66
Impervious Cover	0.00	0.00	0.00	0.79	0.79
				Total	1.45

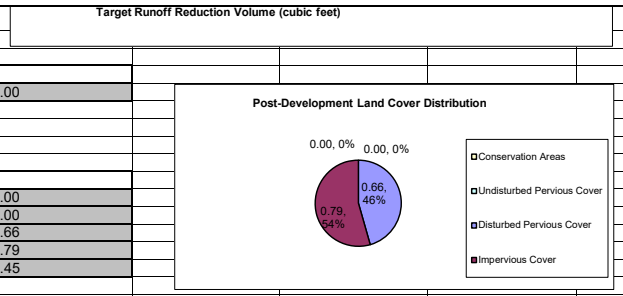
Restoration of Disturbed Pervious Surfaces

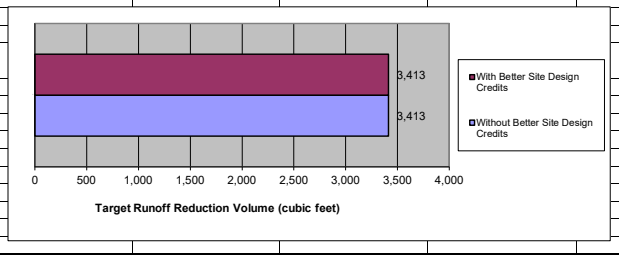
Soil Restoration (Acres)	0.0
Site Reforestation/Vegetation (Acres)	0.0
Soil Restoration w/ Site Reforestation/Revegetation (Acres)	0.0

Target Runoff Reduction Volume After Application of Better Site Design Credits, RRv

Target Runoff Reduction Volume, RRv (acre-feet)	0.08
Target Runoff Reduction Volume, RRv (cubic feet)	3,413

Note: Remainder of Better Site Design Techniques are considered to be "self-crediting."





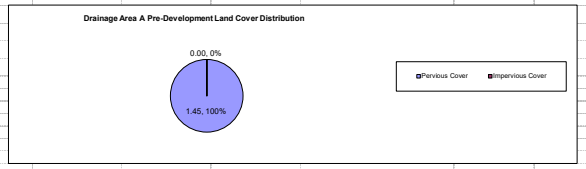
Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Drainage Area A

Drainage Area Information

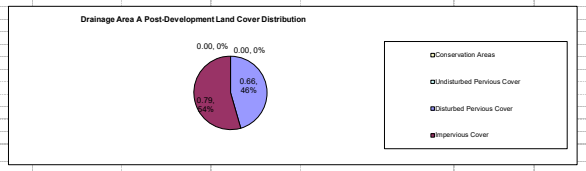
Drainage Area A Pre-Development Land Cover (acres

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.45	1.45
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	1.45



Drainage Area A Post-Development Land Cover (acres

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cove	0.00	0.00	0.00	0.66	0.66
Impervious Cover	0.00	0.00	0.00	0.79	0.79
				Total	1.45



Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

"Receiving" Low Impact Development Practices

None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	No Downstream Practice
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	No Downstream Practice
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

Treatment Only Practices

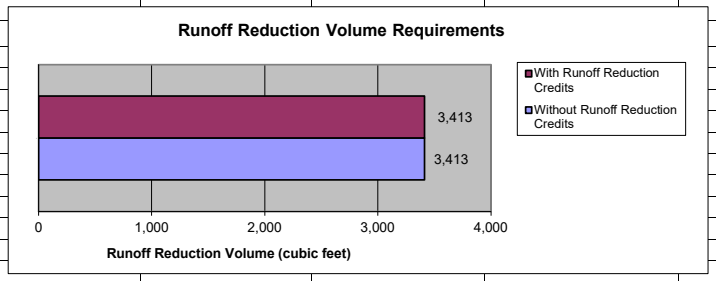
Alum Treatment System or Proprietary Device 1	1.45	0.79	3412.9	None	0.0	3412.9	0.0	3412.9	Varies	3413.0	0.0	3412.9	3412.9	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**1.45**	**0.79**									**0.0**		**3412.9**		

Coastal Stormwater Supplement Site Planning & Design Worksheet

Revised July 2014

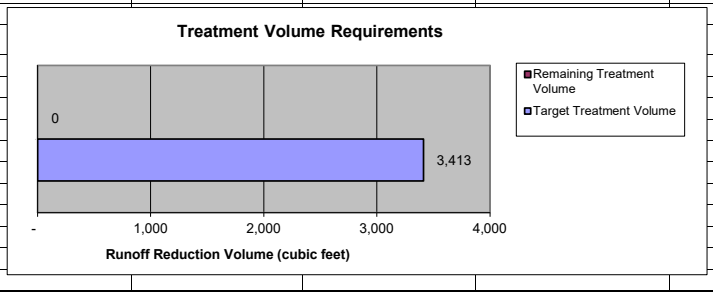
Stormwater Runoff Reduction Summary

Target Runoff Reduction and Treatment Volume, RRv (cubic feet)	3,413
Total Adjustment to Runoff Reduction Volume, RRv (cubic feet)	-
Percentage of Target Runoff Reduction Volume Achieved	0%
Runoff Reduction Volume Achieved (in)	-
Runoff Reduction Volume Remaining (cubic feet)	3,413



Note: If any of the target runoff reduction volume cannot be reduced on the development site, due to site characteristics or constraints, it should be intercepted and treated in one or more stormwater management practices that: (1) provide for at least an 80 percent reduction in TSS loads; and (2) reduce nitrogen and bacteria loads to the maximum extent practical.

Treatment Volume Achieved (cubic feet)	3,413
Treatment Volume Remaining (cubic feet)	0



Coastal Stormwater Supplement Site Planning & Design Worksheet; Revised December 2013

Site Data Summary

Site Land Cover Summary

Pre-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.45	1.45
Impervious Cover	0.00	0.00	0.00	0.00	0.00
Total					1.45

Post-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	0.66	0.66
Impervious Cover	0.00	0.00	0.00	0.79	0.79
Total					1.45

Natural Resource Conservation Credits

	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Primary Conservation Areas (acres)	0.00	0.00	0.00	0.00	0.00
Secondary Conservation Areas (acres)	0.00	0.00	0.00	0.00	0.00
Total (acres)					0.00

Reduced Clearing and Grading Credits

	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Undisturbed Pervious Cover (Acres)	0.00	0.00	0.00	0.00	0.00

Restoration of Disturbed Pervious Surfaces

Soil Restoration (Acres)	0.00
Site Reforestation/Vegetation (Acres)	0.00
Soil Restoration w/ Site Reforestation/Revegetation (Acres)	0.00

Stormwater Runoff Reduction Summary

Target Runoff Reduction and Treatment Volume, RRv (cubic feet)	3,413
Total Adjustment to Runoff Reduction Volume, RRv (cubic feet)	0
Percentage of Target Runoff Reduction Volume Achieved	0%
Runoff Reduction Volume Achieved (in)	0.00
Runoff Reduction Volume Remaining (cubic feet)	3,413
Treatment Volume Achieved (cubic feet)	3,413
Treatment Volume Remaining (cubic feet)	0

Channel and Flood Protection

	Adjusted Curve Number			Detention Required		
	1-year storm	**25-year storm**	**100-year storm**	**1-year storm**	**25-year storm**	**100-year storm**
Target Rainfall Event (in)	3.60	7.92	9.84			
D.A. A CN	90	90	90	Yes	Yes	Yes
D.A. B CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. C CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. D CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. E CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. F CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. G CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. H CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. I CN	36	#N/A	#N/A	Yes	#N/A	#N/A
D.A. J CN	36	#N/A	#N/A	Yes	#N/A	#N/A

Drainage Area A Summary

Land Cover Summary

Pre-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.45	1.45
Impervious Cover	0.00	0.00	0.00	0.00	0.00
Total					1.45

Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	0.66	0.66
Impervious Cover	0.00	0.00	0.00	0.79	0.79
Total					1.45

Drainage Area A BMP Selections

Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Storage Volume Provided by Practice (cubic feet)	Runoff Red. Volume (ft3)	Treat. Volume (ft3)	Downstream Practice
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	No Downstream Practice
None	0.00	0.00	N/A	0.0	0.0	No Downstream Practice
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	

None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
Alum Treatment System or Proprietary Device 1	1.45	0.79	3413.0	0.0	3412.9	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	
None	0.00	0.00	N/A	0.0	0.0	

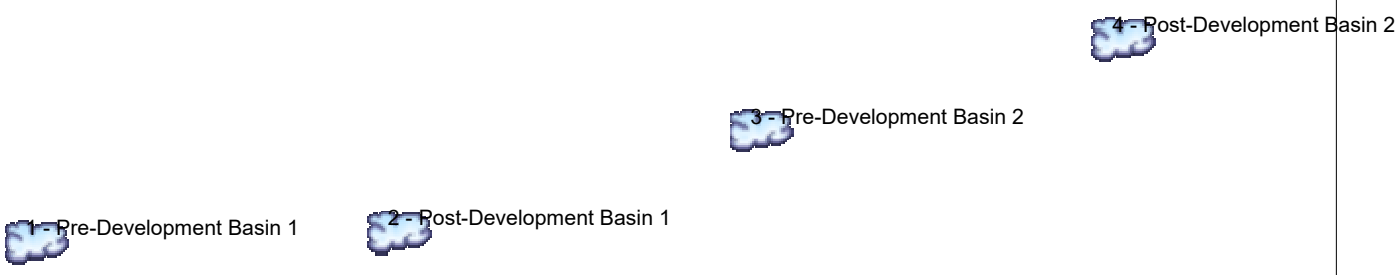
Total	1.45	0.79	3413.0	0.0	3412.9

APPENDIX E

COMPUTER OUTPUT REPORTS

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020



Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)							Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	0.857	1.084	-------	-------	1.894	2.488	2.989	3.545	Pre-Development Basin 1
2	SCS Runoff	------	2.254	2.719	-------	-------	4.324	5.479	6.447	7.522	Post-Development Basin 1
3	SCS Runoff	------	0.914	1.155	-------	-------	2.020	2.654	3.189	3.784	Pre-Development Basin 2
4	SCS Runoff	------	0.115	0.148	-------	-------	0.268	0.358	0.434	0.519	Post-Development Basin 2

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

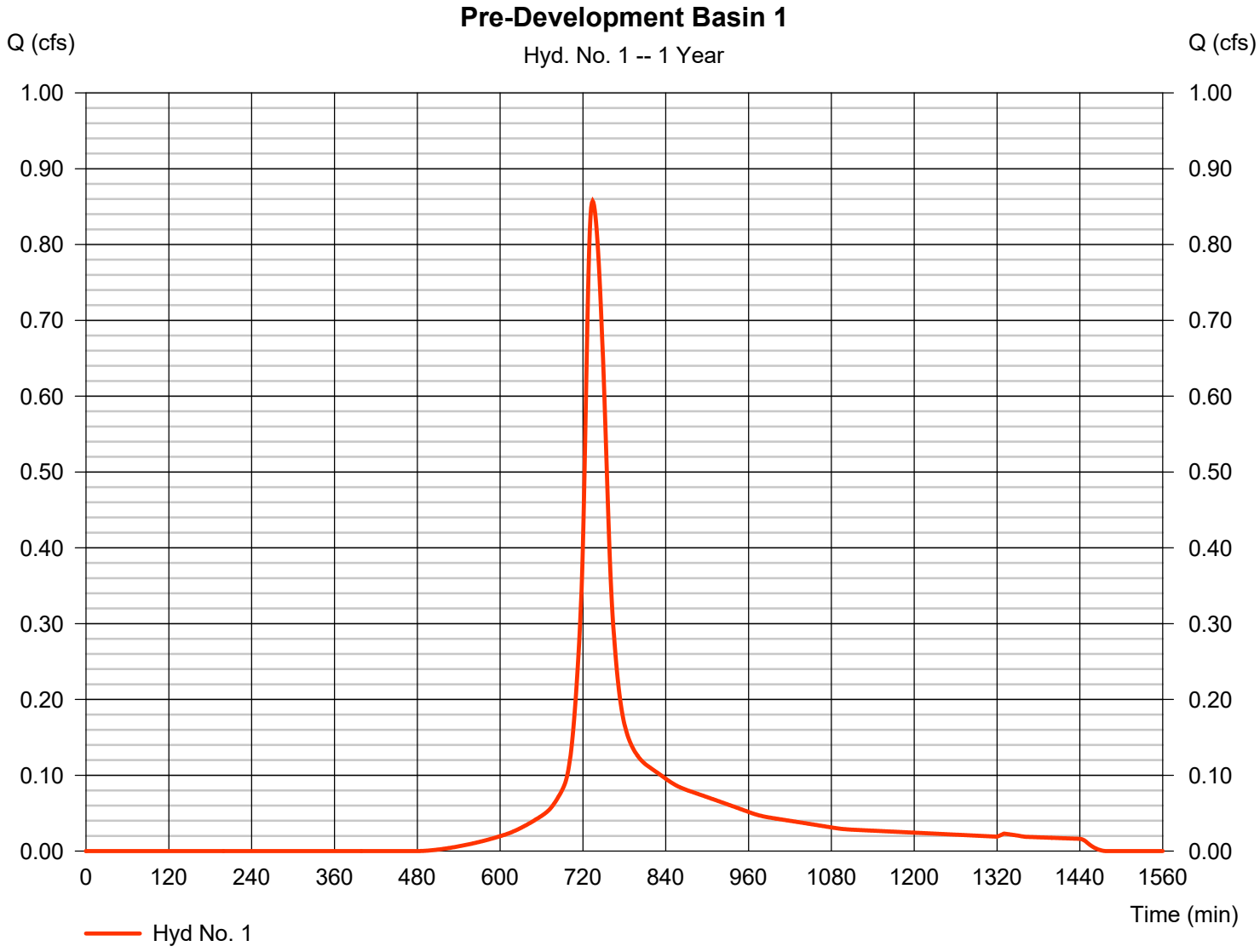
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.857	1	734	4,238	------	------	------	Pre-Development Basin 1
2	SCS Runoff	2.254	1	739	13,205	------	------	------	Post-Development Basin 1
3	SCS Runoff	0.914	1	749	6,357	------	------	------	Pre-Development Basin 2
4	SCS Runoff	0.115	1	745	712	------	------	------	Post-Development Basin 2

Hydrograph Report

Hyd. No. 1

Pre-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.857 cfs
Storm frequency	=	1 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	4,238 cuft
Drainage area	=	0.580 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.10 min
Total precip.	=	3.68 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



TR55 Tc Worksheet

Hyd. No. 1

Pre-Development Basin 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.400		0.011		0.011		
Flow length (ft)	= 43.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 4.29		0.00		0.00		
Land slope (%)	= 0.53		0.00		0.00		
Travel Time (min)	**= 16.06**	**+**	**0.00**	**+**	**0.00**	**=**	**16.06**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 16.10 min

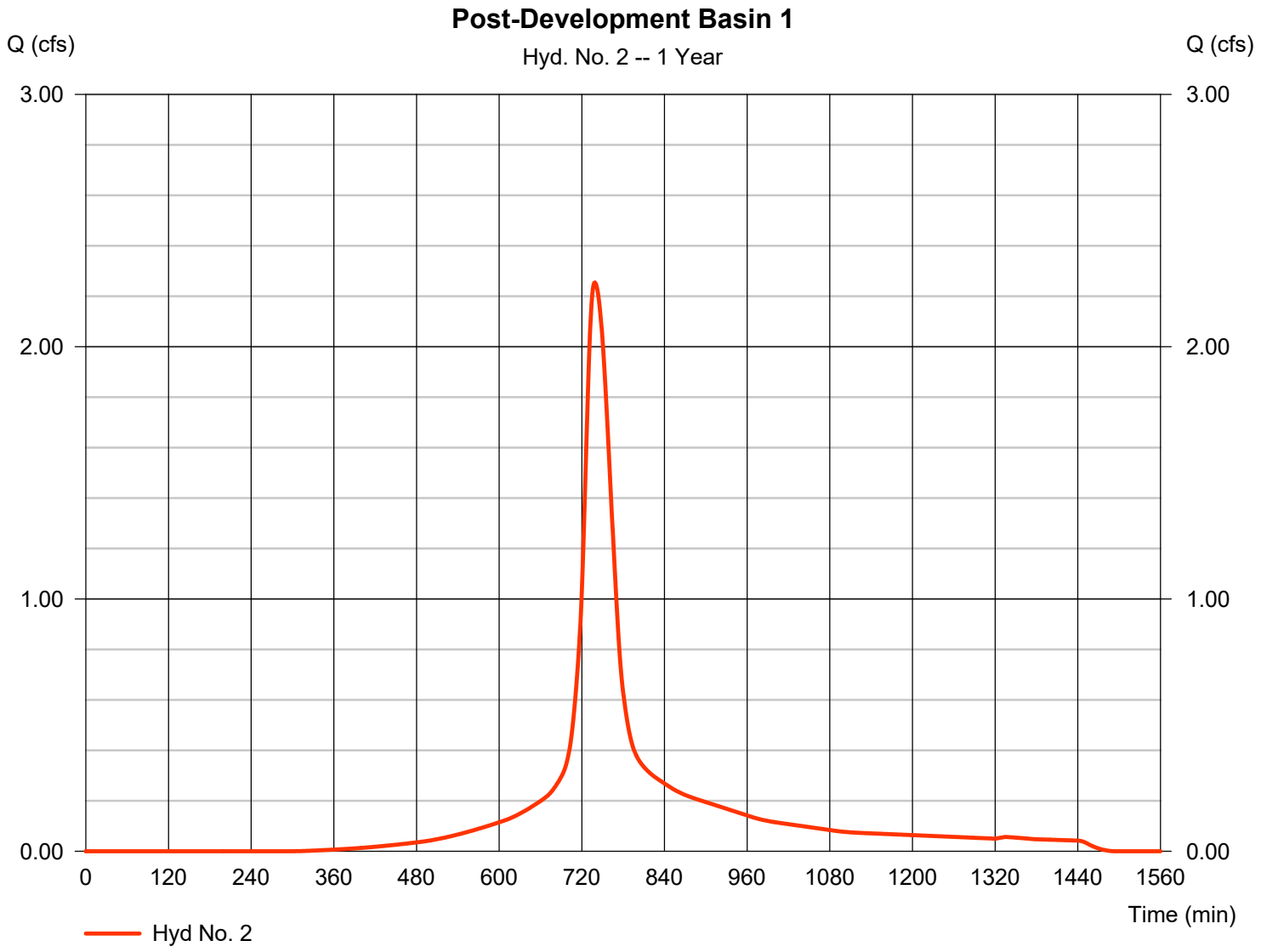
Hydrograph Report

Hyd. No. 2

Post-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.254 cfs
Storm frequency	=	1 yrs	Time to peak	=	739 min
Time interval	=	1 min	Hyd. volume	=	13,205 cuft
Drainage area	=	1.340 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	22.25 min
Total precip.	=	3.68 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

* Composite (Area/CN) = [(0.550 x 80) + (0.790 x 98)] / 1.340



TR55 Tc Worksheet

Hyd. No. 2

Post-Development Basin 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.410		0.011		0.011		
Flow length (ft)	= 78.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 4.29		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 20.46**	**+**	**0.00**	**+**	**0.00**	**=**	**20.46**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow							
X sectional flow area (sqft)	= 1.77		0.00		0.00		
Wetted perimeter (ft)	= 4.71		0.00		0.00		
Channel slope (%)	= 0.50		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=3.65						
			0.00				
					0.00		
Flow length (ft)	({0})392.0		0.0		0.0		
Travel Time (min)	**= 1.79**	**+**	**0.00**	**+**	**0.00**	**=**	**1.79**

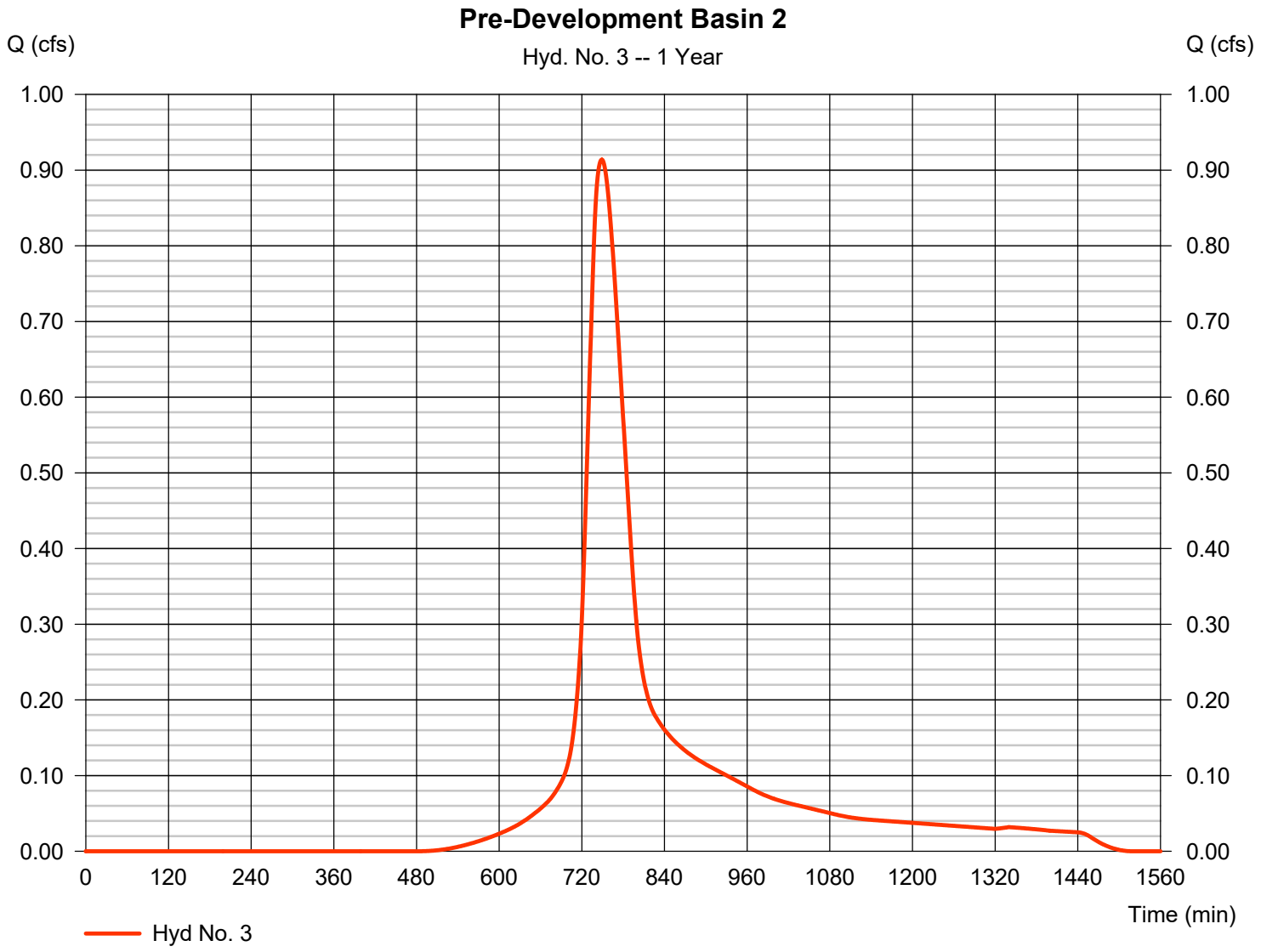
Total Travel Time, Tc ..... 22.25 min

Hydrograph Report

Hyd. No. 3

Pre-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.914 cfs
Storm frequency	=	1 yrs	Time to peak	=	749 min
Time interval	=	1 min	Hyd. volume	=	6,357 cuft
Drainage area	=	0.870 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	32.30 min
Total precip.	=	3.68 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



TR55 Tc Worksheet

Hyd. No. 3

Pre-Development Basin 2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.400		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 4.29		0.00		0.00		
Land slope (%)	= 0.53		0.00		0.00		
Travel Time (min)	**= 31.55**	**+**	**0.00**	**+**	**0.00**	**=**	**31.55**
Shallow Concentrated Flow							
Flow length (ft)	= 32.00		0.00		0.00		
Watercourse slope (%)	= 0.75		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=1.40		0.00		0.00		
Travel Time (min)	**= 0.38**	**+**	**0.00**	**+**	**0.00**	**=**	**0.38**
Channel Flow							
X sectional flow area (sqft)	= 8.00		0.00		0.00		
Wetted perimeter (ft)	= 12.60		0.00		0.00		
Channel slope (%)	= 1.48		0.00		0.00		
Manning's n-value	= 0.026		0.015		0.015		
Velocity (ft/s)	=5.14						
			0.00				
					0.00		
Flow length (ft)	({0})110.0		0.0		0.0		
Travel Time (min)	**= 0.36**	**+**	**0.00**	**+**	**0.00**	**=**	**0.36**

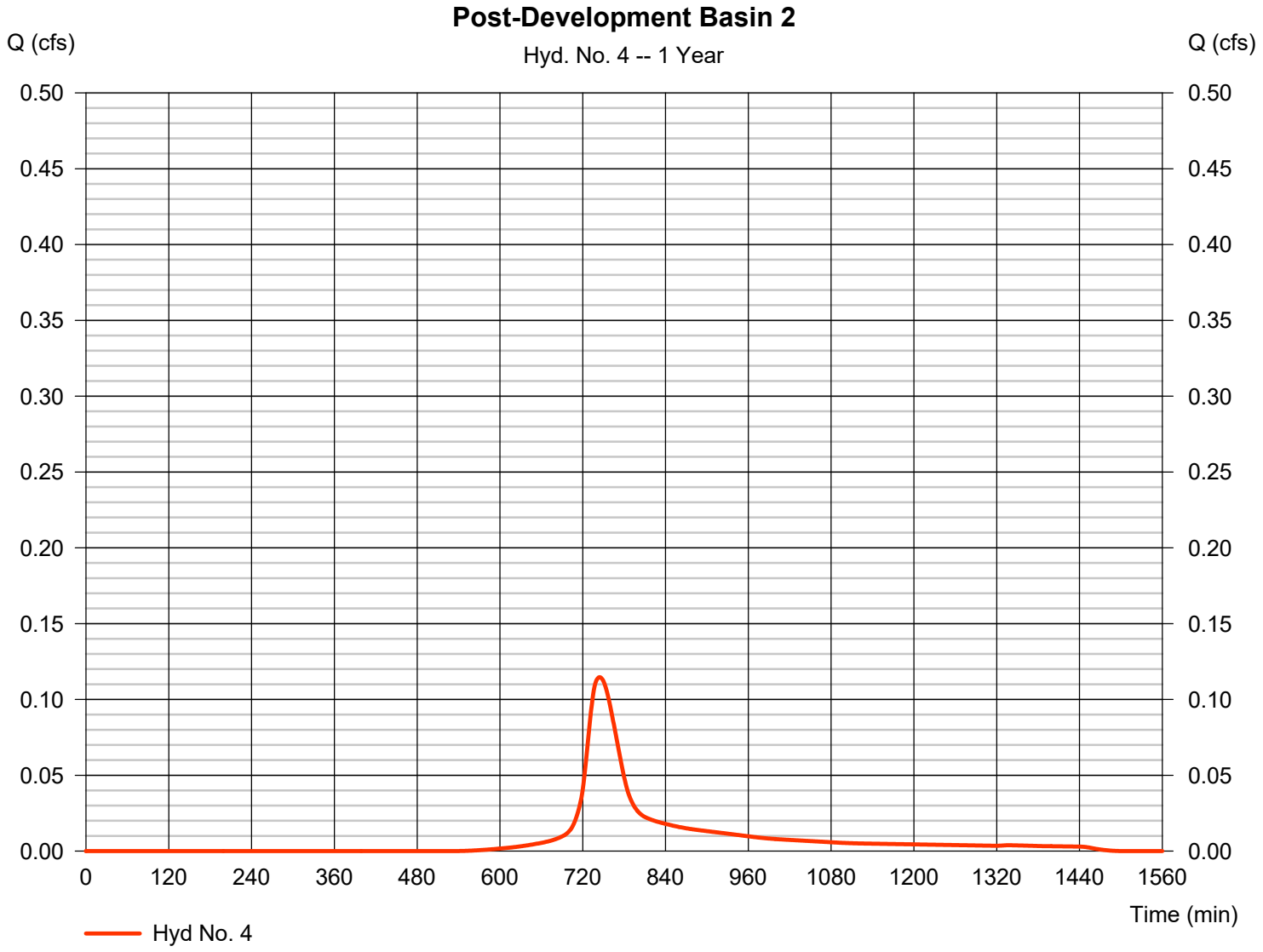
Total Travel Time, Tc ..... 32.30 min

Hydrograph Report

Hyd. No. 4

Post-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.115 cfs
Storm frequency	=	1 yrs	Time to peak	=	745 min
Time interval	=	1 min	Hyd. volume	=	712 cuft
Drainage area	=	0.110 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	25.40 min
Total precip.	=	3.68 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



TR55 Tc Worksheet

Hyd. No. 4

Post-Development Basin 2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.410		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 4.29		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 24.96**	**+**	**0.00**	**+**	**0.00**	**=**	**24.96**
Shallow Concentrated Flow							
Flow length (ft)	= 43.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=1.61		0.00		0.00		
Travel Time (min)	**= 0.44**	**+**	**0.00**	**+**	**0.00**	**=**	**0.44**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 25.40 min

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

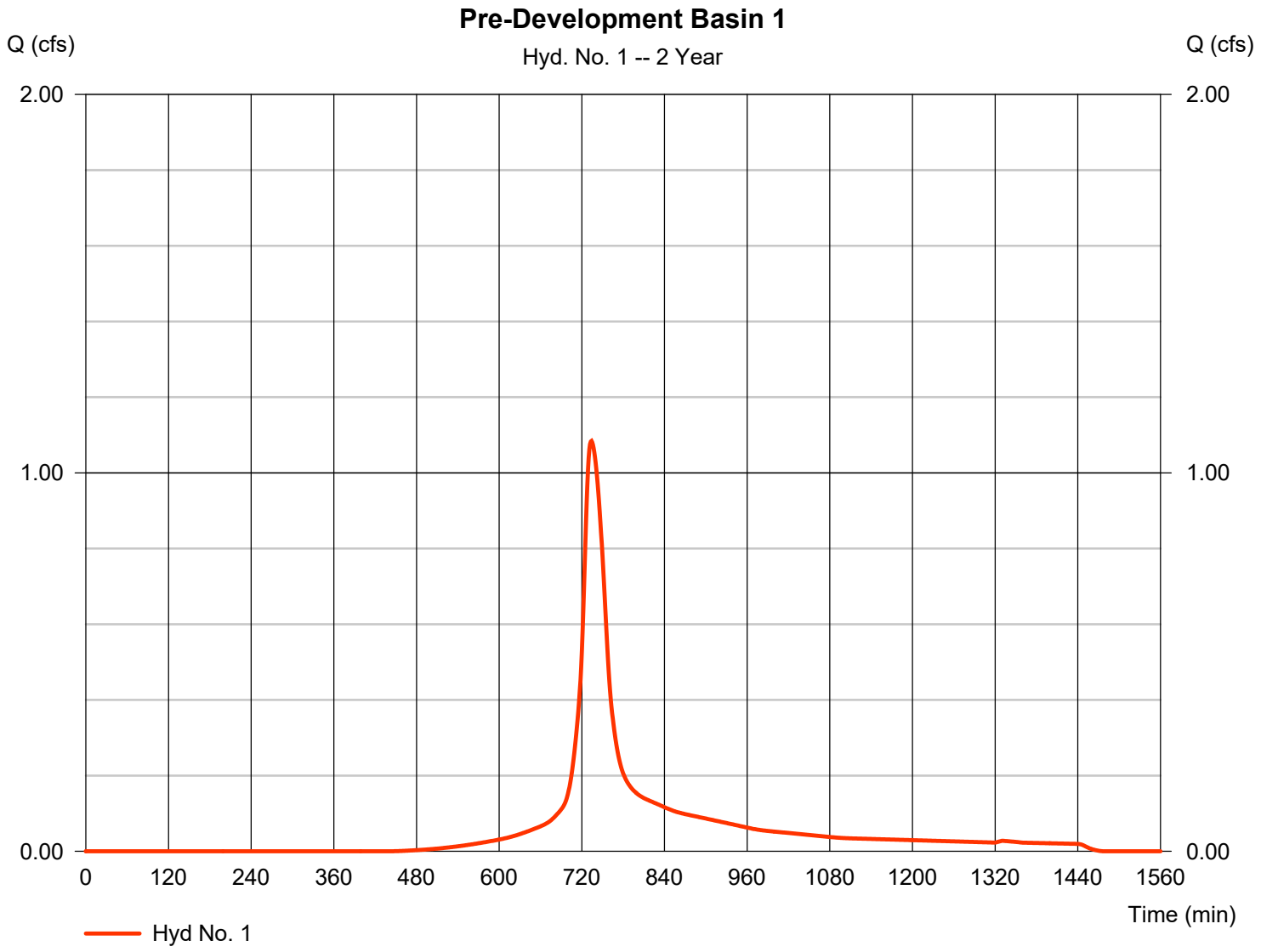
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.084	1	734	5,353	------	------	------	Pre-Development Basin 1
2	SCS Runoff	2.719	1	739	16,047	------	------	------	Post-Development Basin 1
3	SCS Runoff	1.155	1	748	8,029	------	------	------	Pre-Development Basin 2
4	SCS Runoff	0.148	1	744	913	------	------	------	Post-Development Basin 2

Hydrograph Report

Hyd. No. 1

Pre-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.084 cfs
Storm frequency	=	2 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	5,353 cuft
Drainage area	=	0.580 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.10 min
Total precip.	=	4.29 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



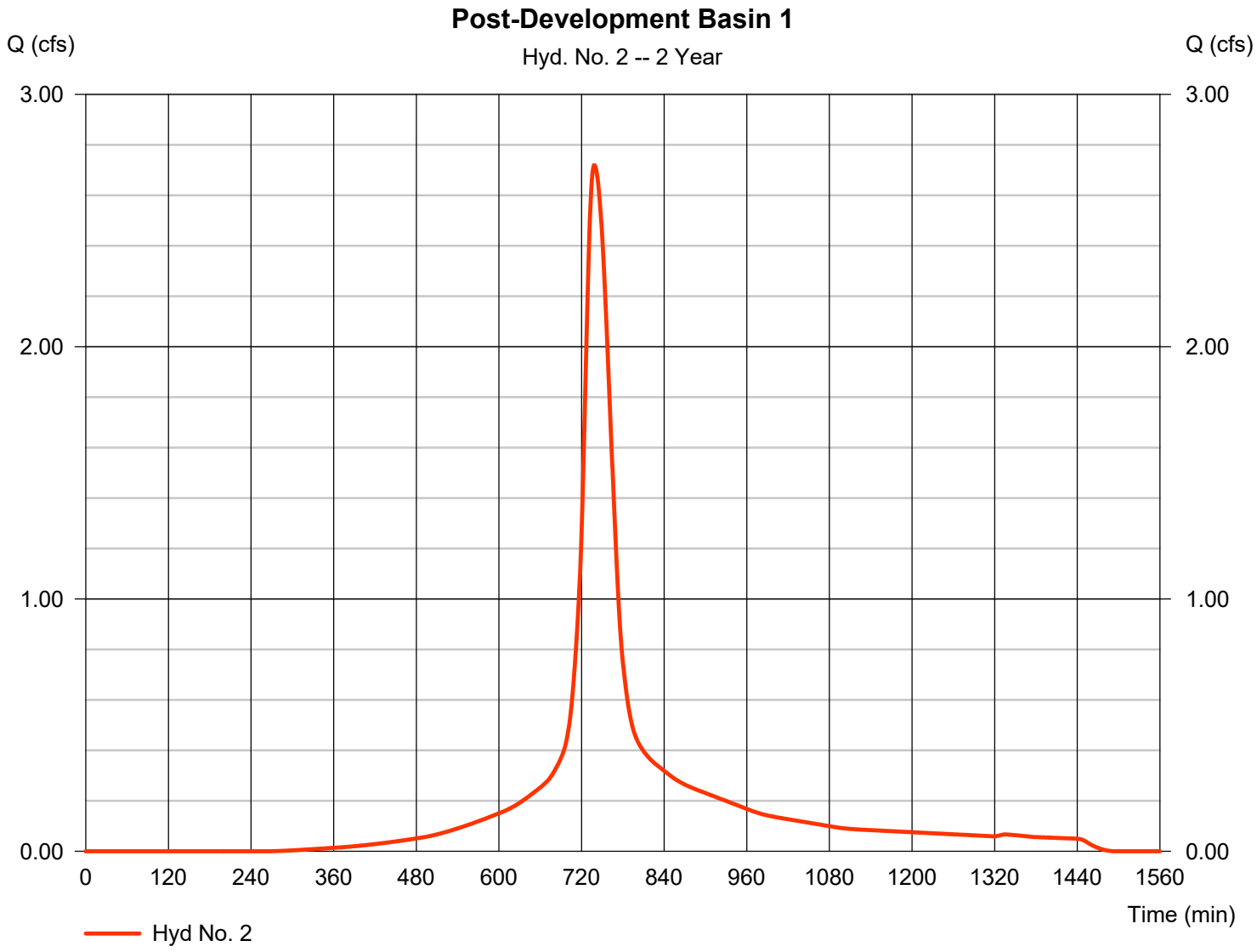
Hydrograph Report

Hyd. No. 2

Post-Development Basin 1

Hydrograph type	= SCS Runoff	Peak discharge	= 2.719 cfs
Storm frequency	= 2 yrs	Time to peak	= 739 min
Time interval	= 1 min	Hyd. volume	= 16,047 cuft
Drainage area	= 1.340 ac	Curve number	= 91*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 22.25 min
Total precip.	= 4.29 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 323

* Composite (Area/CN) = [(0.550 x 80) + (0.790 x 98)] / 1.340

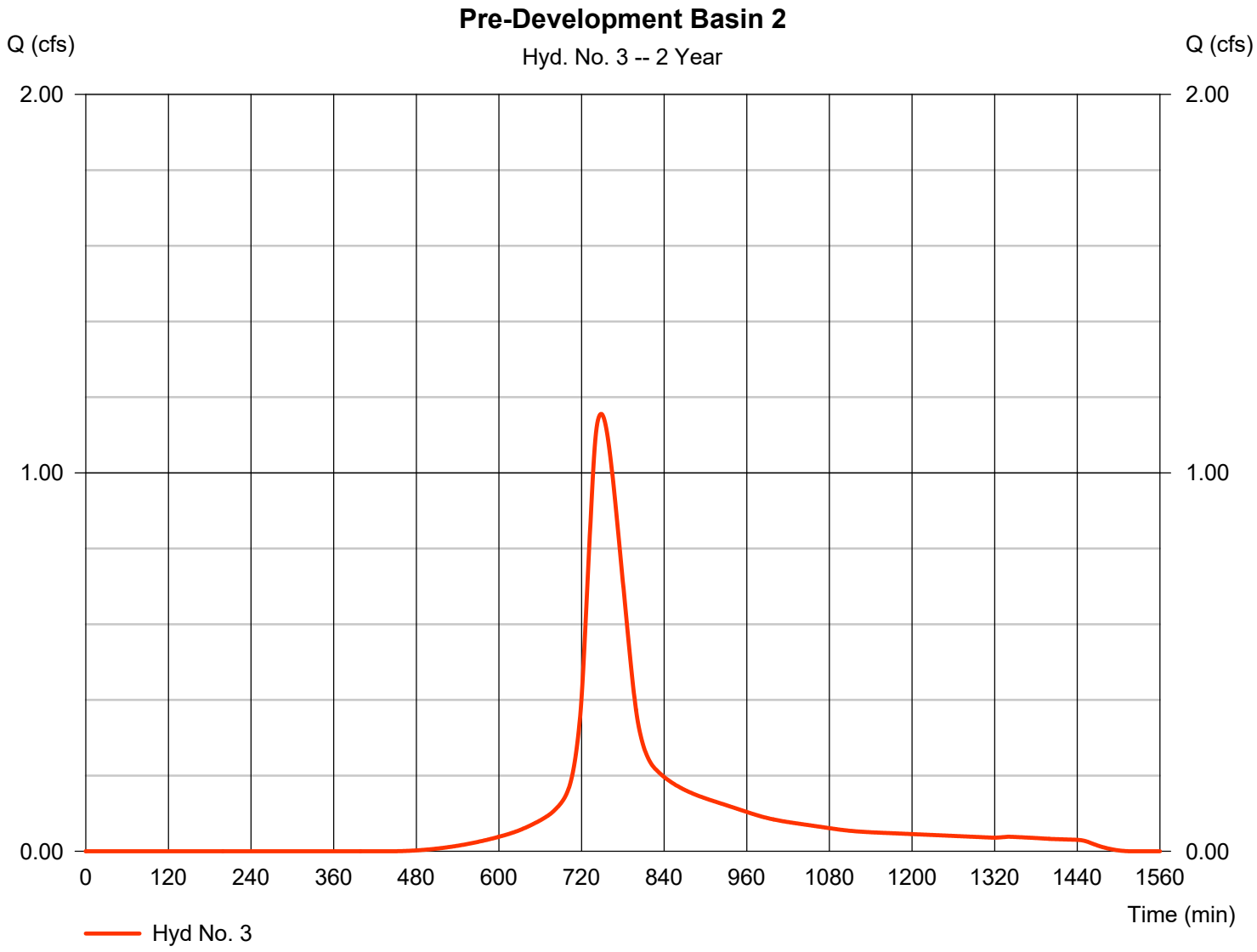


Hydrograph Report

Hyd. No. 3

Pre-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.155 cfs
Storm frequency	=	2 yrs	Time to peak	=	748 min
Time interval	=	1 min	Hyd. volume	=	8,029 cuft
Drainage area	=	0.870 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	32.30 min
Total precip.	=	4.29 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

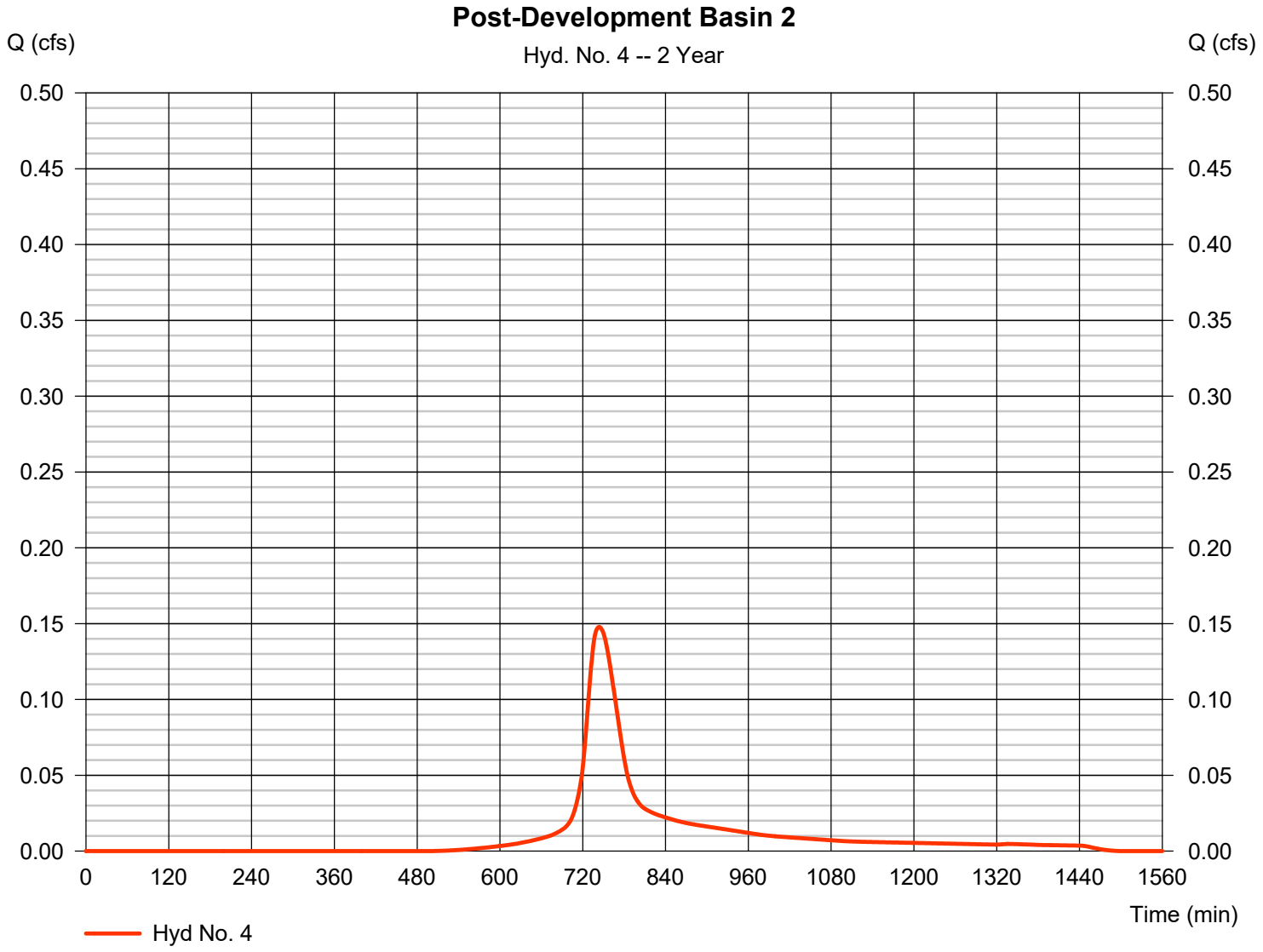


Hydrograph Report

Hyd. No. 4

Post-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.148 cfs
Storm frequency	=	2 yrs	Time to peak	=	744 min
Time interval	=	1 min	Hyd. volume	=	913 cuft
Drainage area	=	0.110 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	25.40 min
Total precip.	=	4.29 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

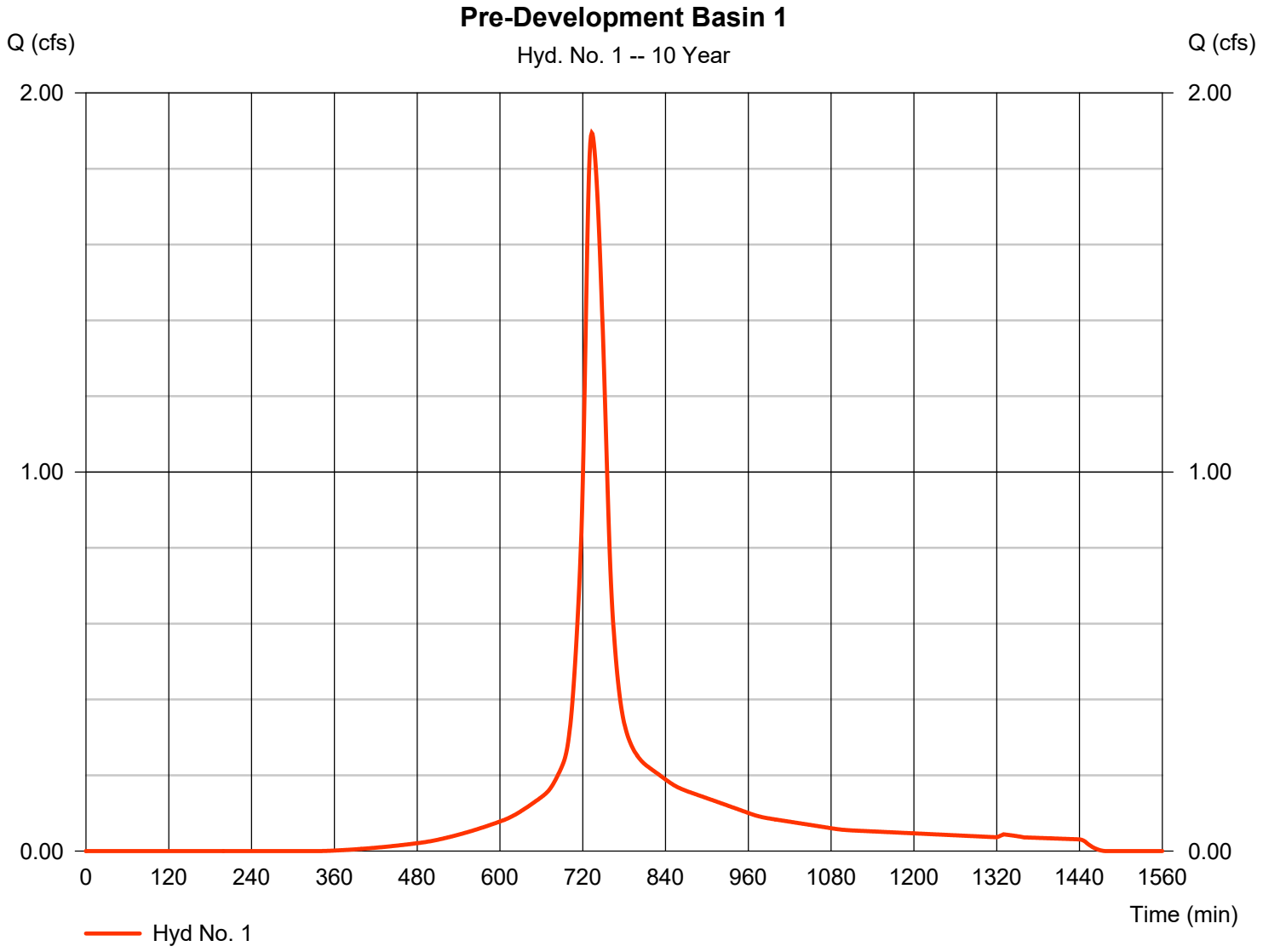
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.894	1	733	9,428	------	------	------	Pre-Development Basin 1
2	SCS Runoff	4.324	1	738	26,094	------	------	------	Post-Development Basin 1
3	SCS Runoff	2.020	1	747	14,142	------	------	------	Pre-Development Basin 2
4	SCS Runoff	0.268	1	743	1,660	------	------	------	Post-Development Basin 2

Hydrograph Report

Hyd. No. 1

Pre-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.894 cfs
Storm frequency	=	10 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	9,428 cuft
Drainage area	=	0.580 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.10 min
Total precip.	=	6.41 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



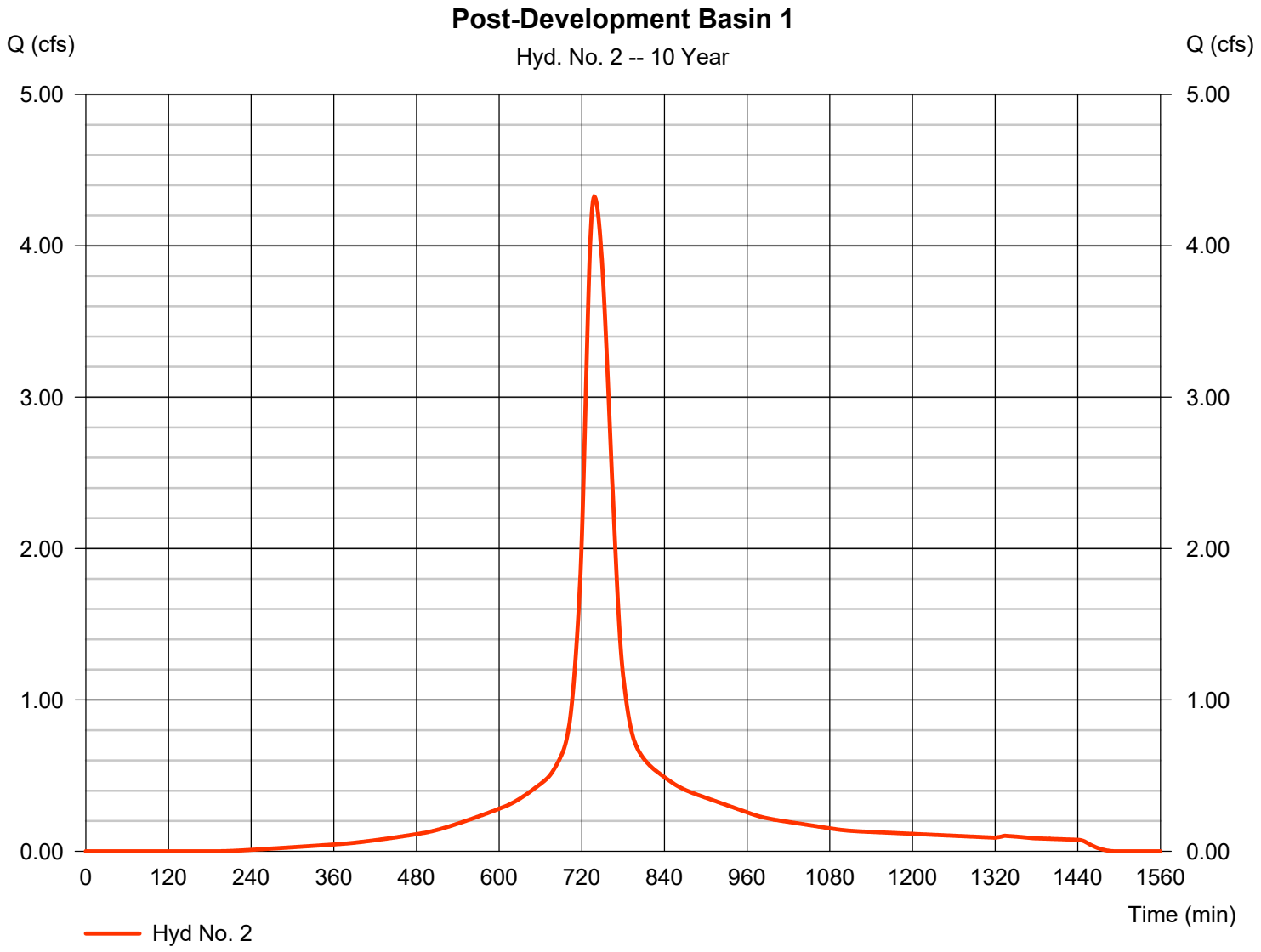
Hydrograph Report

Hyd. No. 2

Post-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.324 cfs
Storm frequency	=	10 yrs	Time to peak	=	738 min
Time interval	=	1 min	Hyd. volume	=	26,094 cuft
Drainage area	=	1.340 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	22.25 min
Total precip.	=	6.41 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

* Composite (Area/CN) = [(0.550 x 80) + (0.790 x 98)] / 1.340

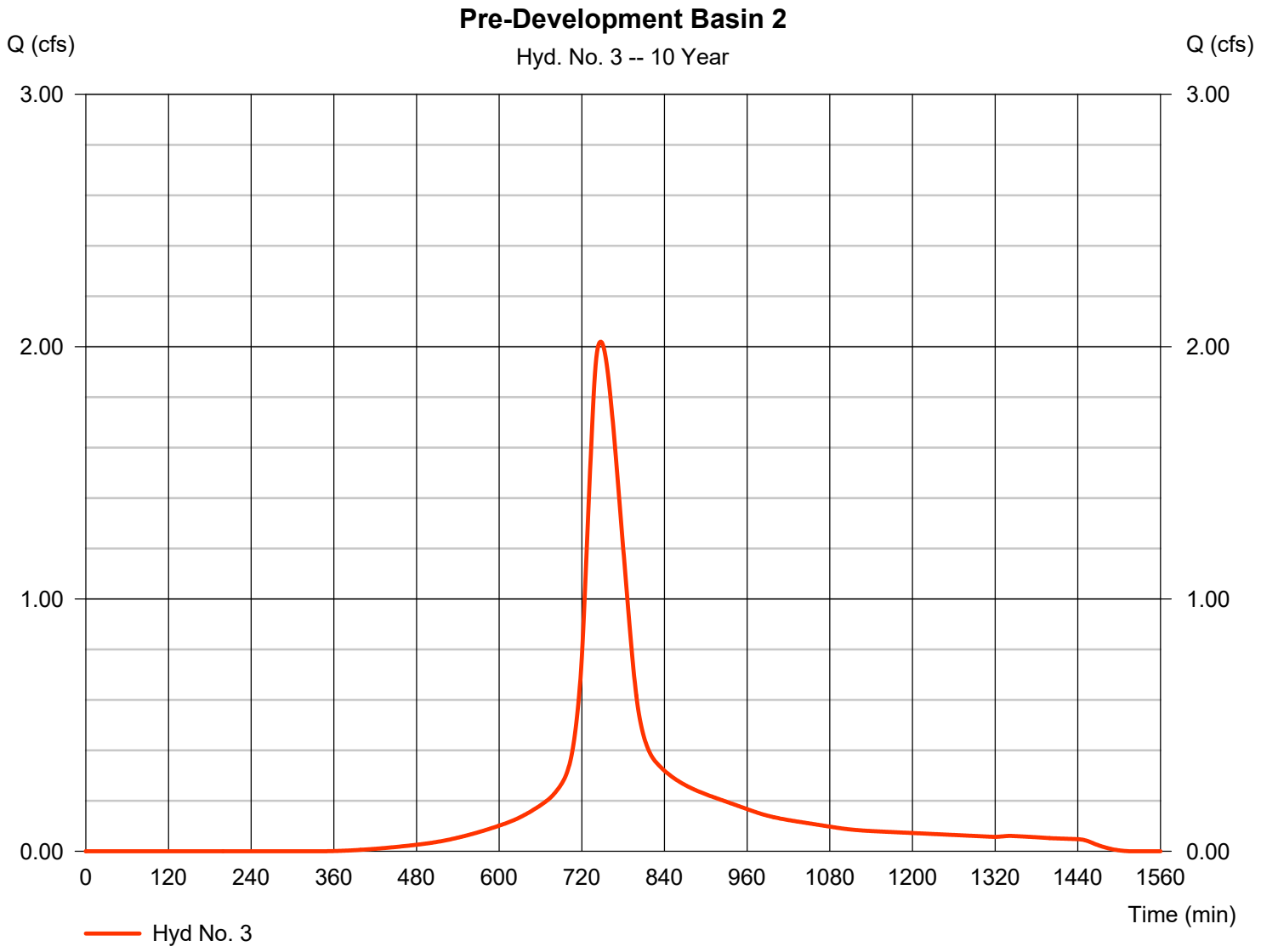


Hydrograph Report

Hyd. No. 3

Pre-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.020 cfs
Storm frequency	=	10 yrs	Time to peak	=	747 min
Time interval	=	1 min	Hyd. volume	=	14,142 cuft
Drainage area	=	0.870 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	32.30 min
Total precip.	=	6.41 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

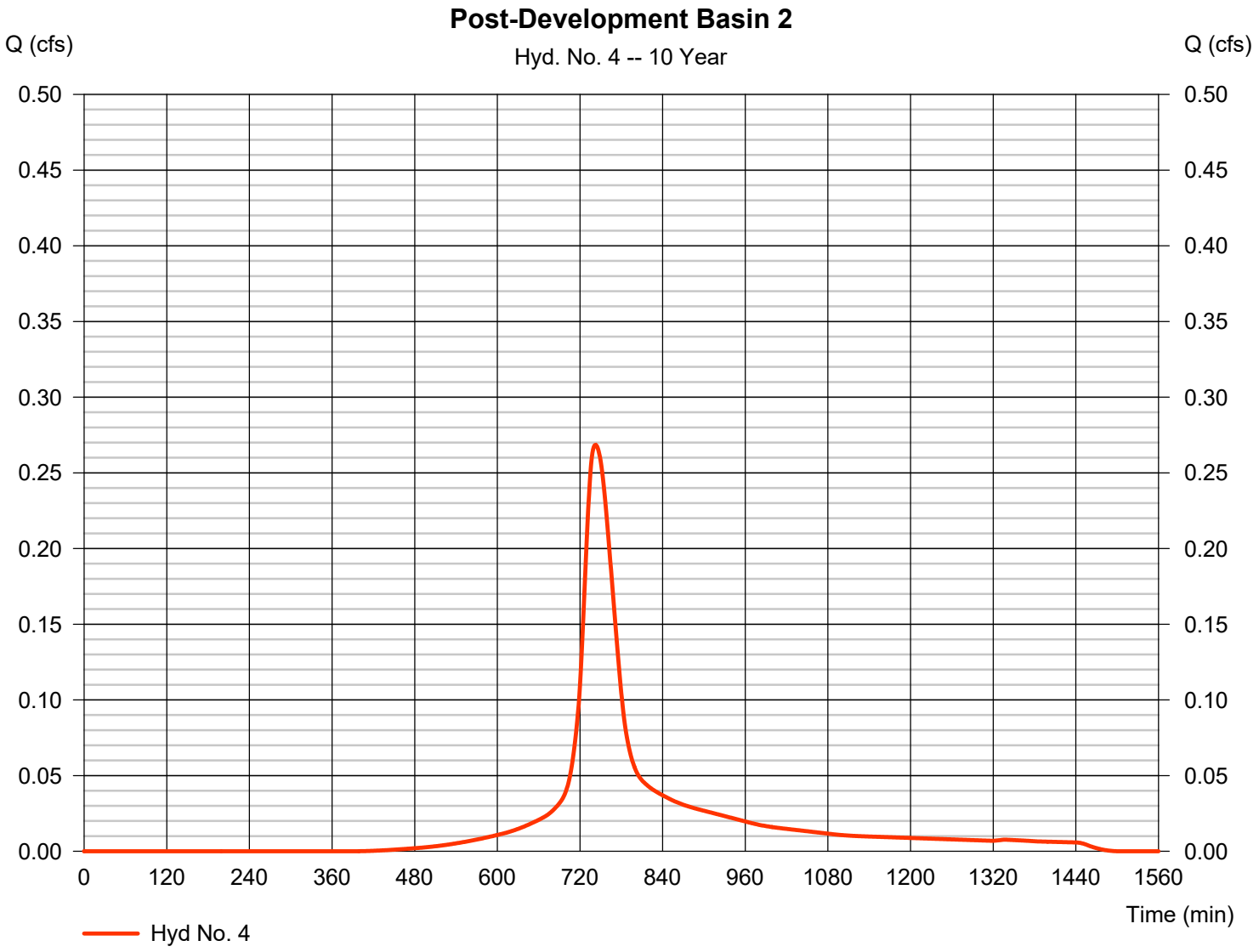


Hydrograph Report

Hyd. No. 4

Post-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.268 cfs
Storm frequency	=	10 yrs	Time to peak	=	743 min
Time interval	=	1 min	Hyd. volume	=	1,660 cuft
Drainage area	=	0.110 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	25.40 min
Total precip.	=	6.41 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

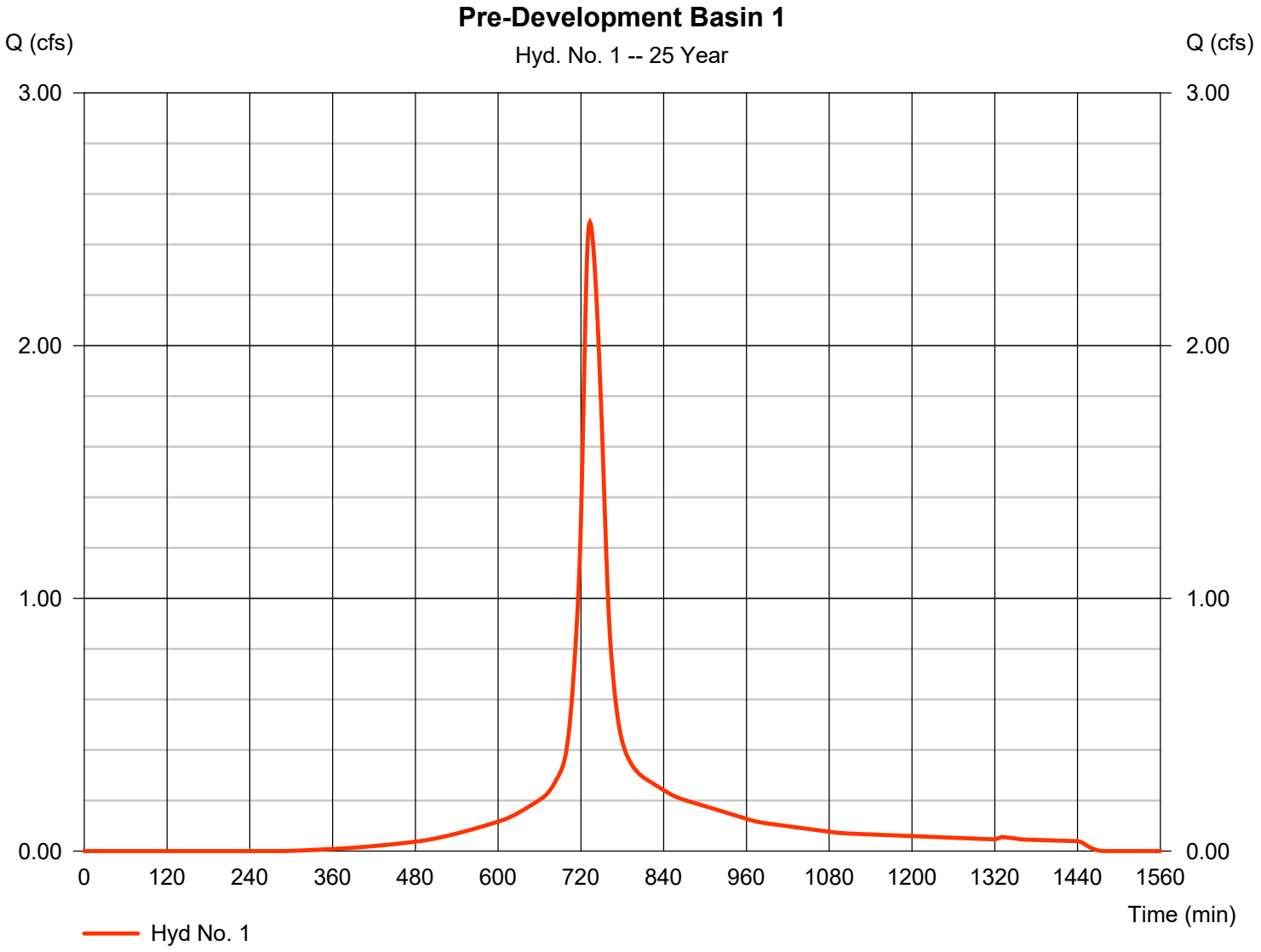
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.488	1	733	12,497	------	------	------	Pre-Development Basin 1
2	SCS Runoff	5.479	1	738	33,476	------	------	------	Post-Development Basin 1
3	SCS Runoff	2.654	1	747	18,746	------	------	------	Pre-Development Basin 2
4	SCS Runoff	0.358	1	742	2,230	------	------	------	Post-Development Basin 2

Hydrograph Report

Hyd. No. 1

Pre-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.488 cfs
Storm frequency	=	25 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	12,497 cuft
Drainage area	=	0.580 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.10 min
Total precip.	=	7.95 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



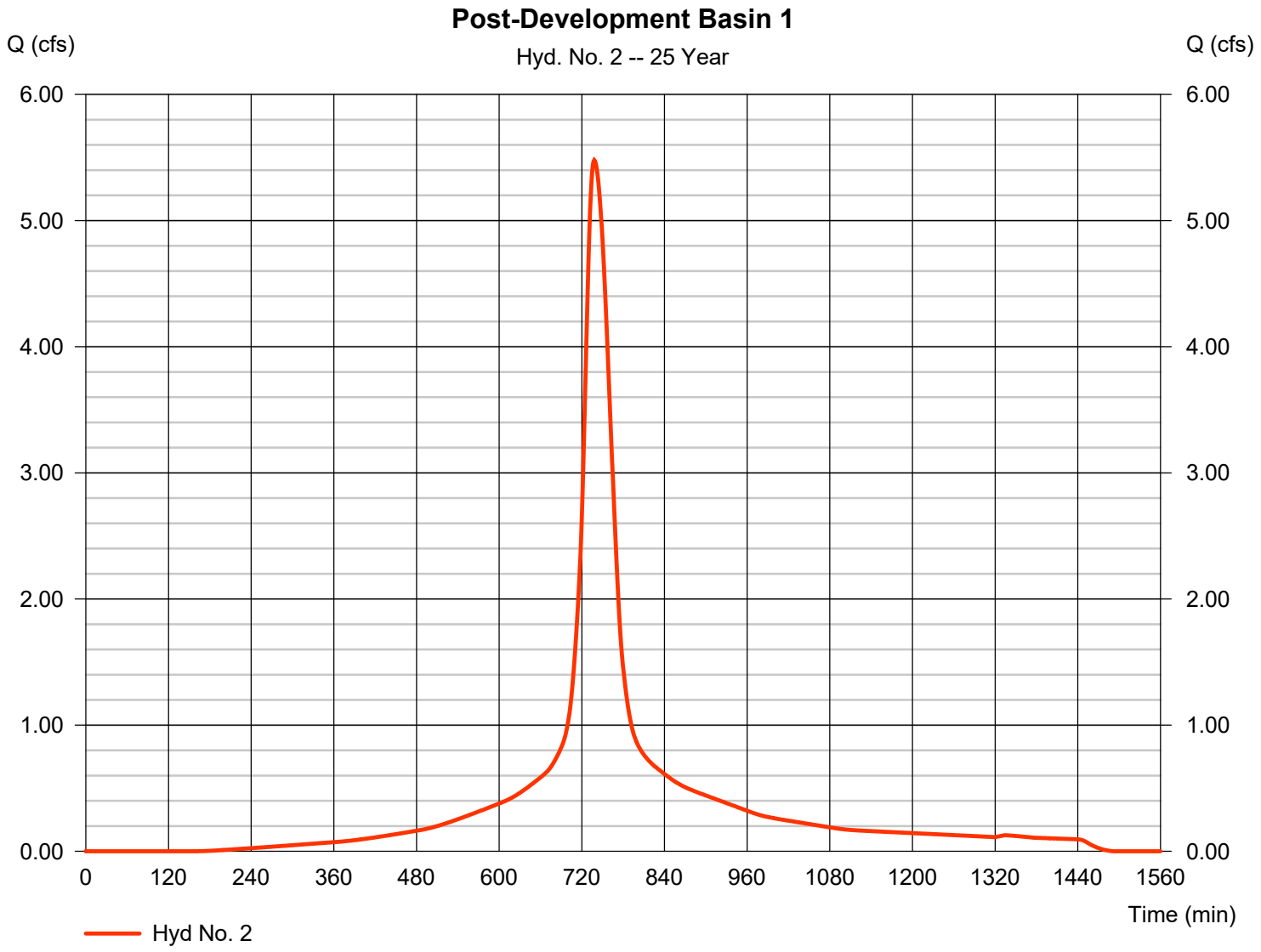
Hydrograph Report

Hyd. No. 2

Post-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.479 cfs
Storm frequency	=	25 yrs	Time to peak	=	738 min
Time interval	=	1 min	Hyd. volume	=	33,476 cuft
Drainage area	=	1.340 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	22.25 min
Total precip.	=	7.95 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

* Composite (Area/CN) = [(0.550 x 80) + (0.790 x 98)] / 1.340

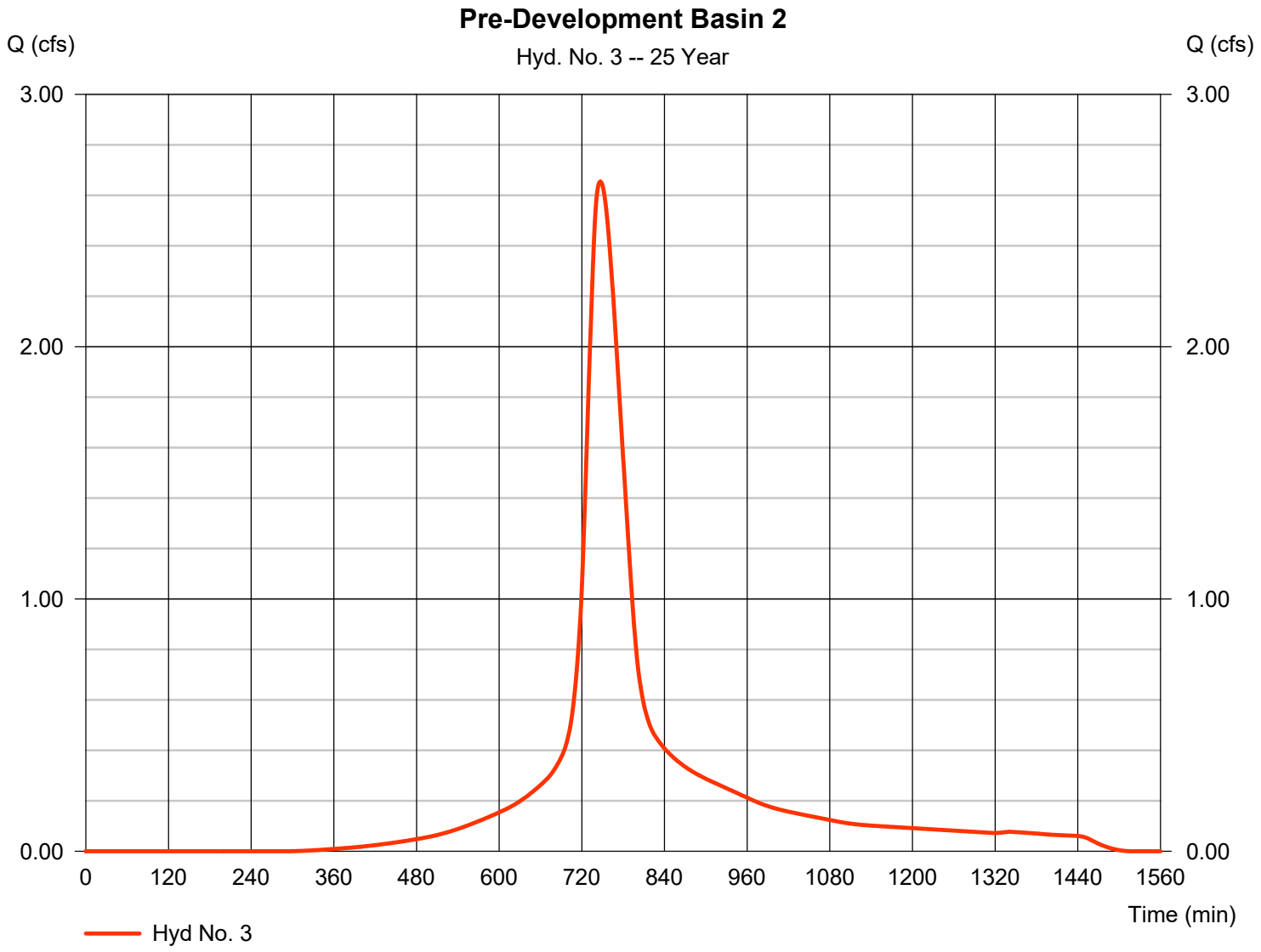


Hydrograph Report

Hyd. No. 3

Pre-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.654 cfs
Storm frequency	=	25 yrs	Time to peak	=	747 min
Time interval	=	1 min	Hyd. volume	=	18,746 cuft
Drainage area	=	0.870 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	32.30 min
Total precip.	=	7.95 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

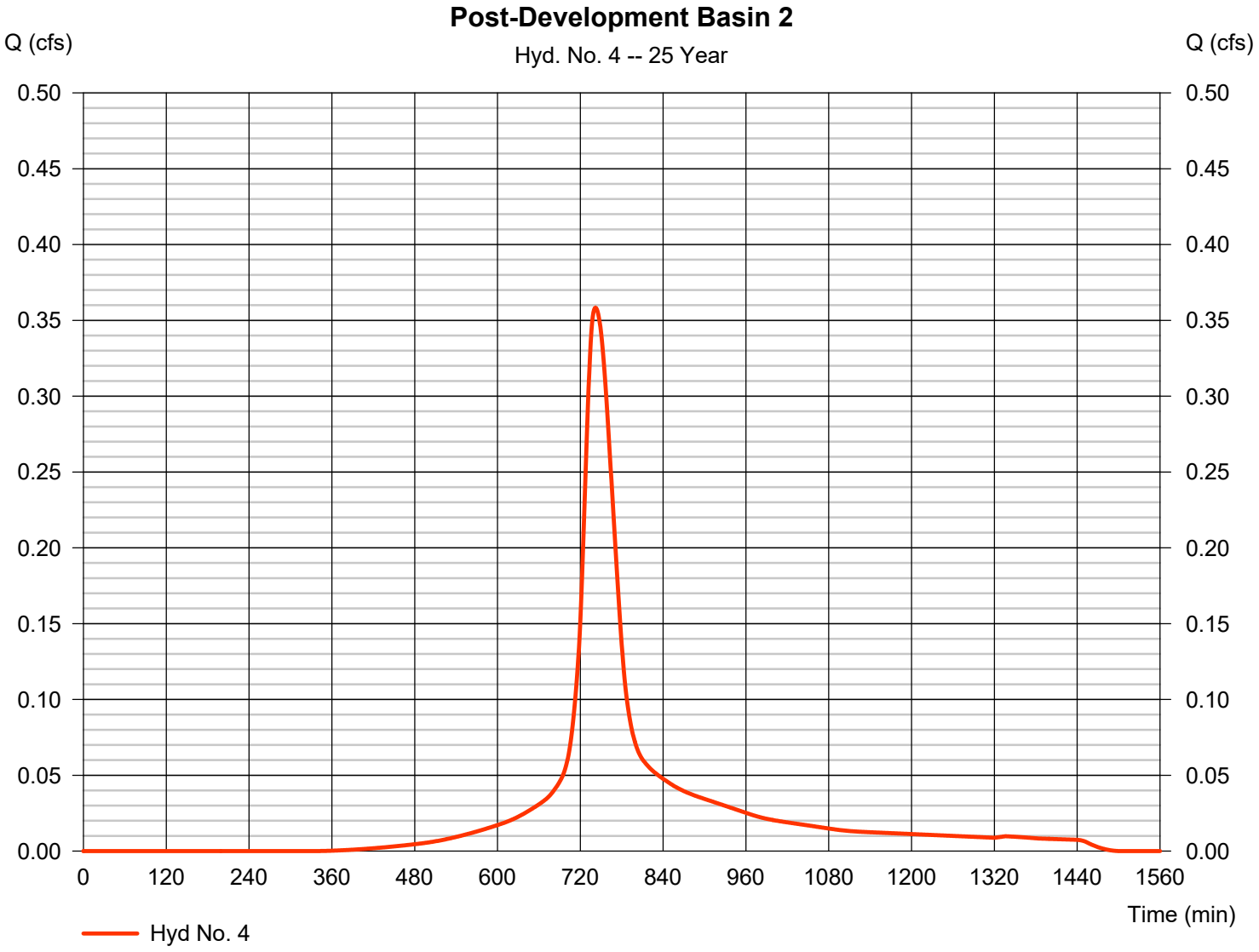


Hydrograph Report

Hyd. No. 4

Post-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.358 cfs
Storm frequency	=	25 yrs	Time to peak	=	742 min
Time interval	=	1 min	Hyd. volume	=	2,230 cuft
Drainage area	=	0.110 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	25.40 min
Total precip.	=	7.95 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

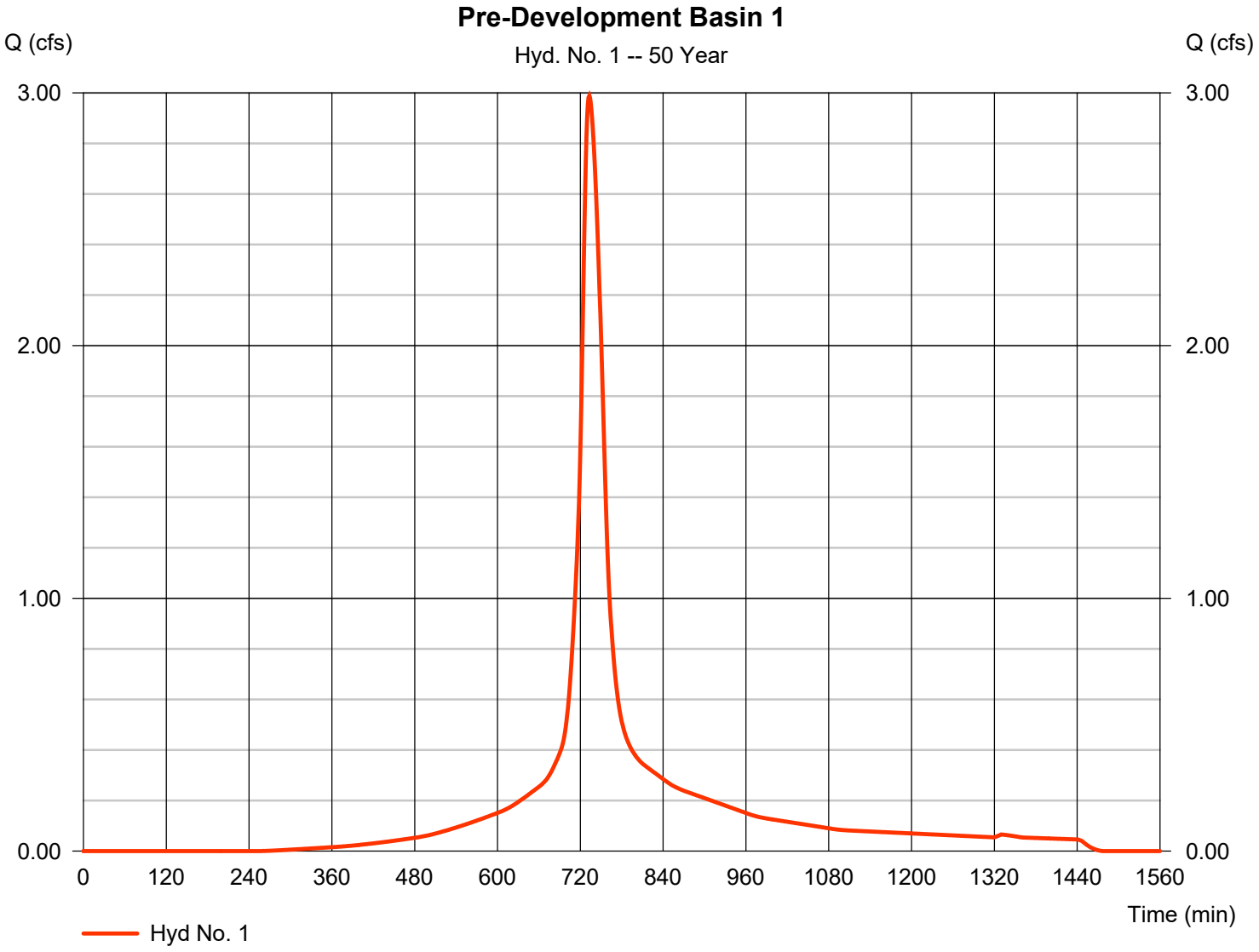
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.989	1	733	15,127	------	------	------	Pre-Development Basin 1
2	SCS Runoff	6.447	1	738	39,736	------	------	------	Post-Development Basin 1
3	SCS Runoff	3.189	1	747	22,691	------	------	------	Pre-Development Basin 2
4	SCS Runoff	0.434	1	742	2,720	------	------	------	Post-Development Basin 2

Hydrograph Report

Hyd. No. 1

Pre-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.989 cfs
Storm frequency	=	50 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	15,127 cuft
Drainage area	=	0.580 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.10 min
Total precip.	=	9.25 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



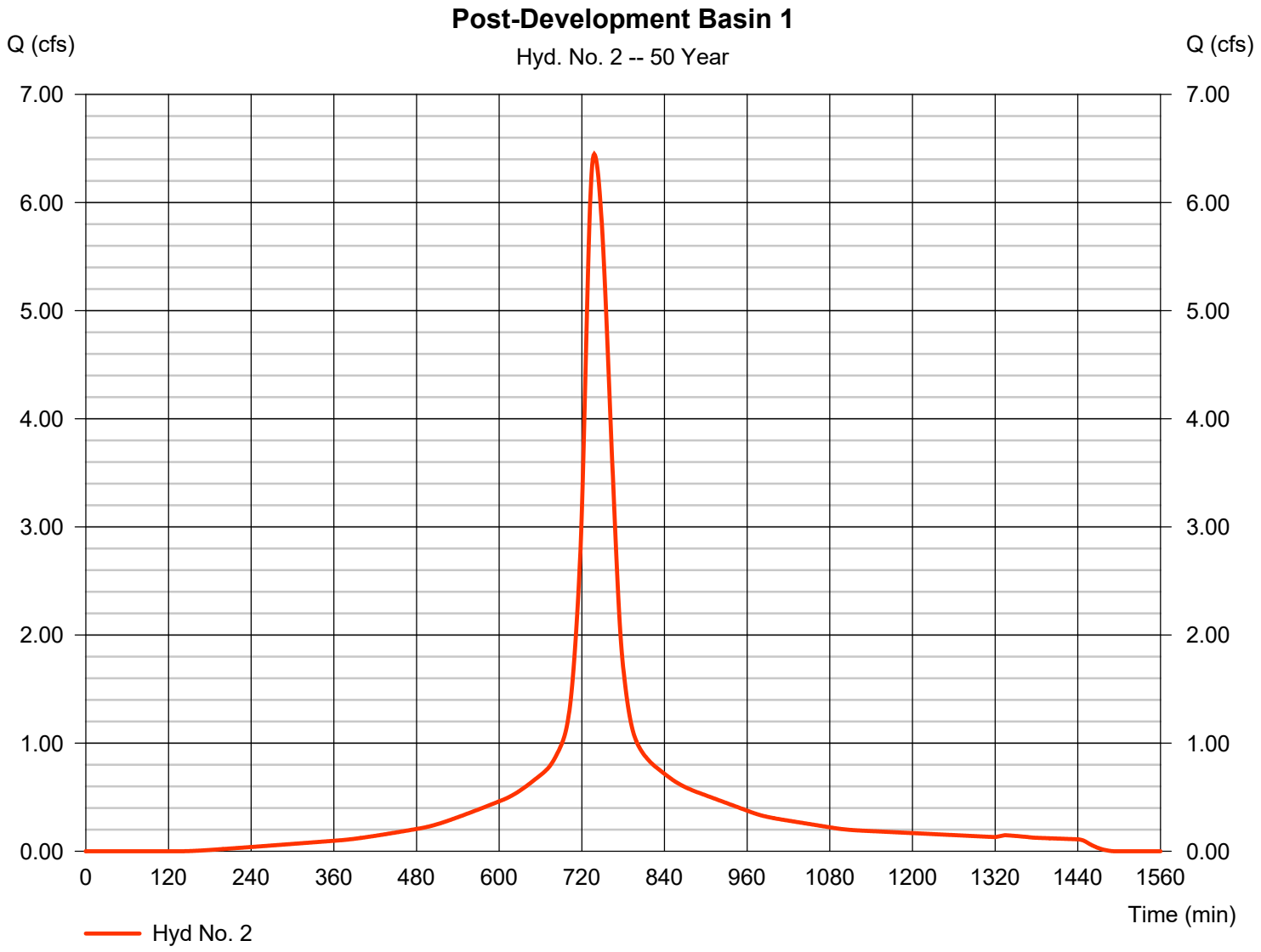
Hydrograph Report

Hyd. No. 2

Post-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.447 cfs
Storm frequency	=	50 yrs	Time to peak	=	738 min
Time interval	=	1 min	Hyd. volume	=	39,736 cuft
Drainage area	=	1.340 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	22.25 min
Total precip.	=	9.25 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

* Composite (Area/CN) = [(0.550 x 80) + (0.790 x 98)] / 1.340

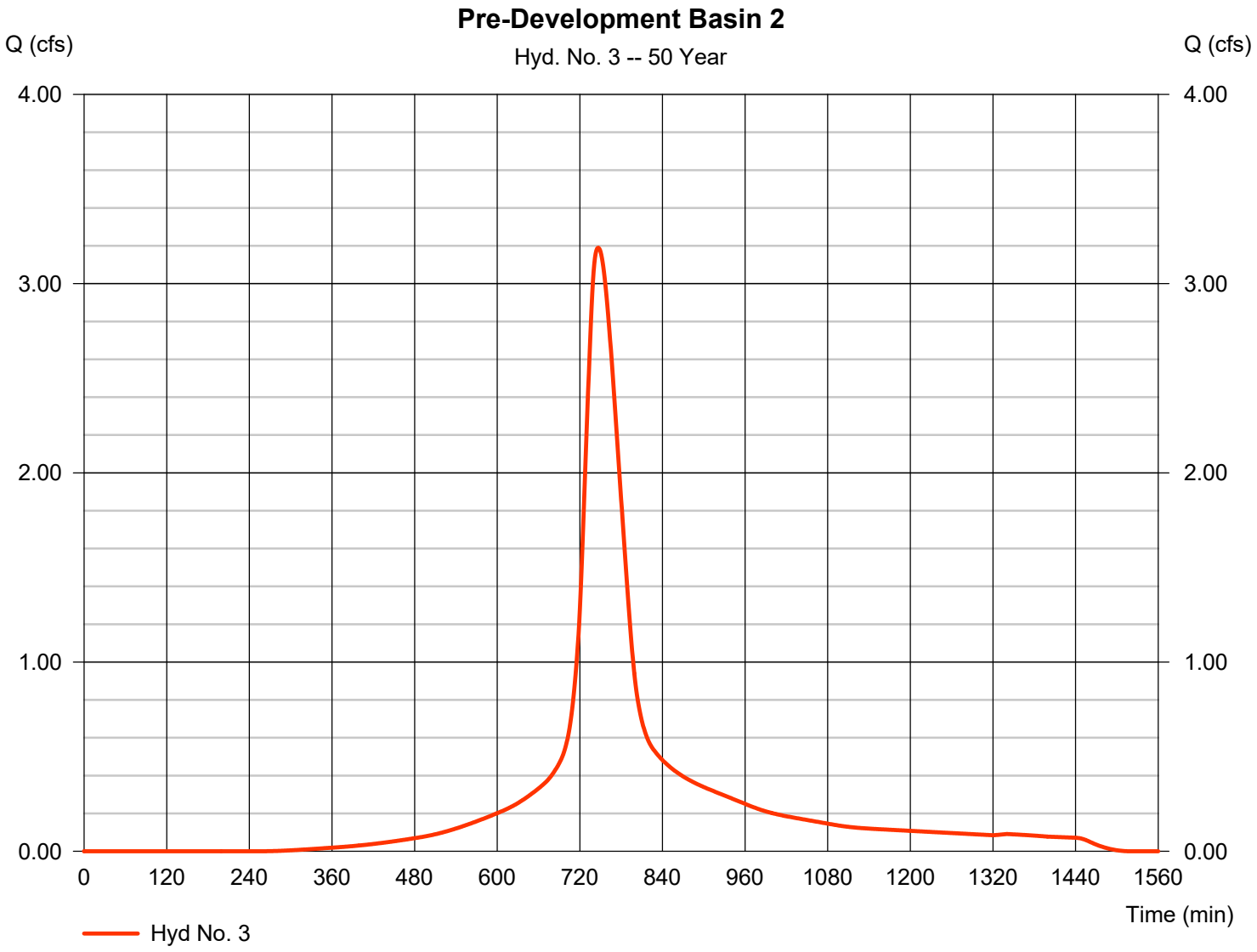


Hydrograph Report

Hyd. No. 3

Pre-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.189 cfs
Storm frequency	=	50 yrs	Time to peak	=	747 min
Time interval	=	1 min	Hyd. volume	=	22,691 cuft
Drainage area	=	0.870 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	32.30 min
Total precip.	=	9.25 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

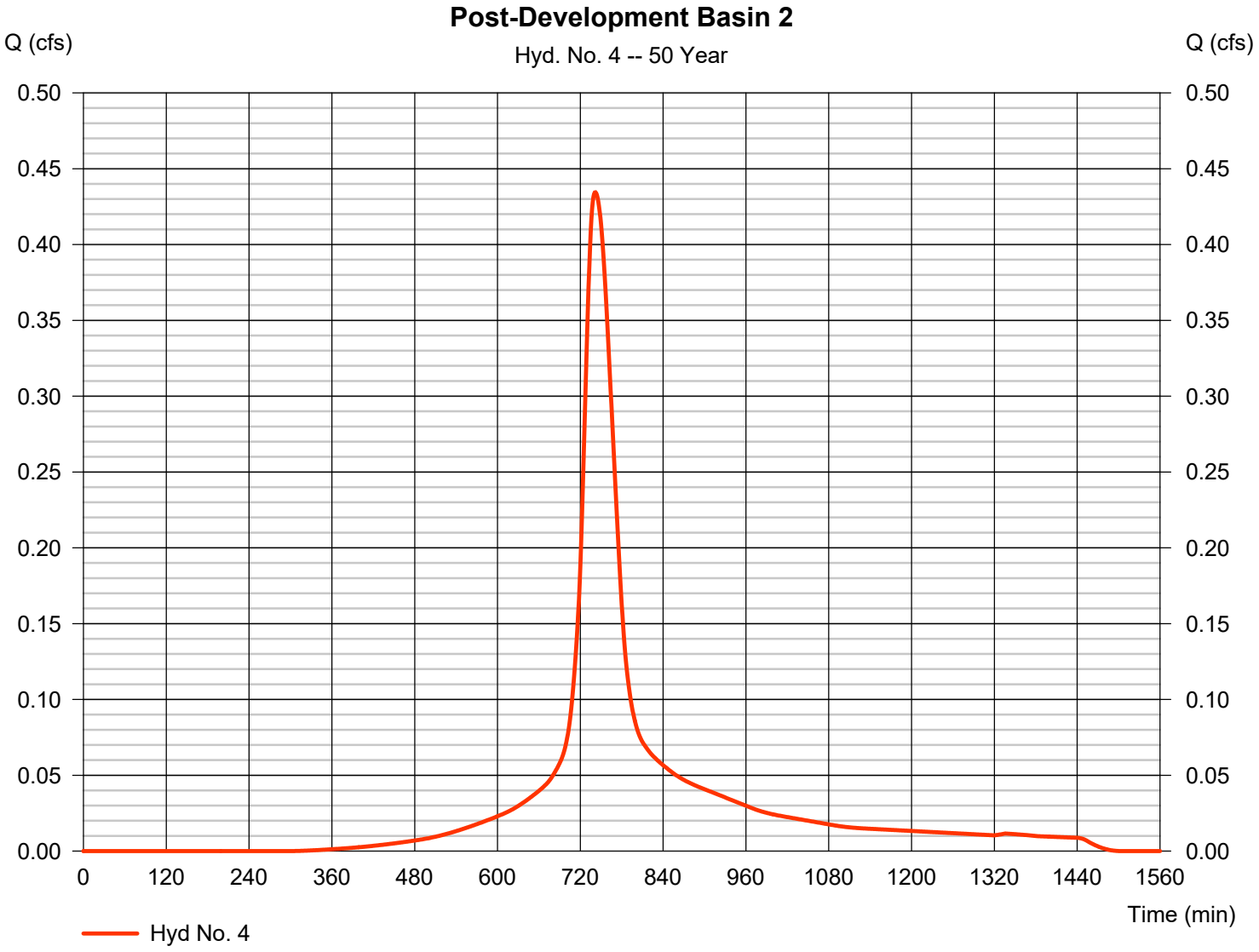


Hydrograph Report

Hyd. No. 4

Post-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.434 cfs
Storm frequency	=	50 yrs	Time to peak	=	742 min
Time interval	=	1 min	Hyd. volume	=	2,720 cuft
Drainage area	=	0.110 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	25.40 min
Total precip.	=	9.25 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

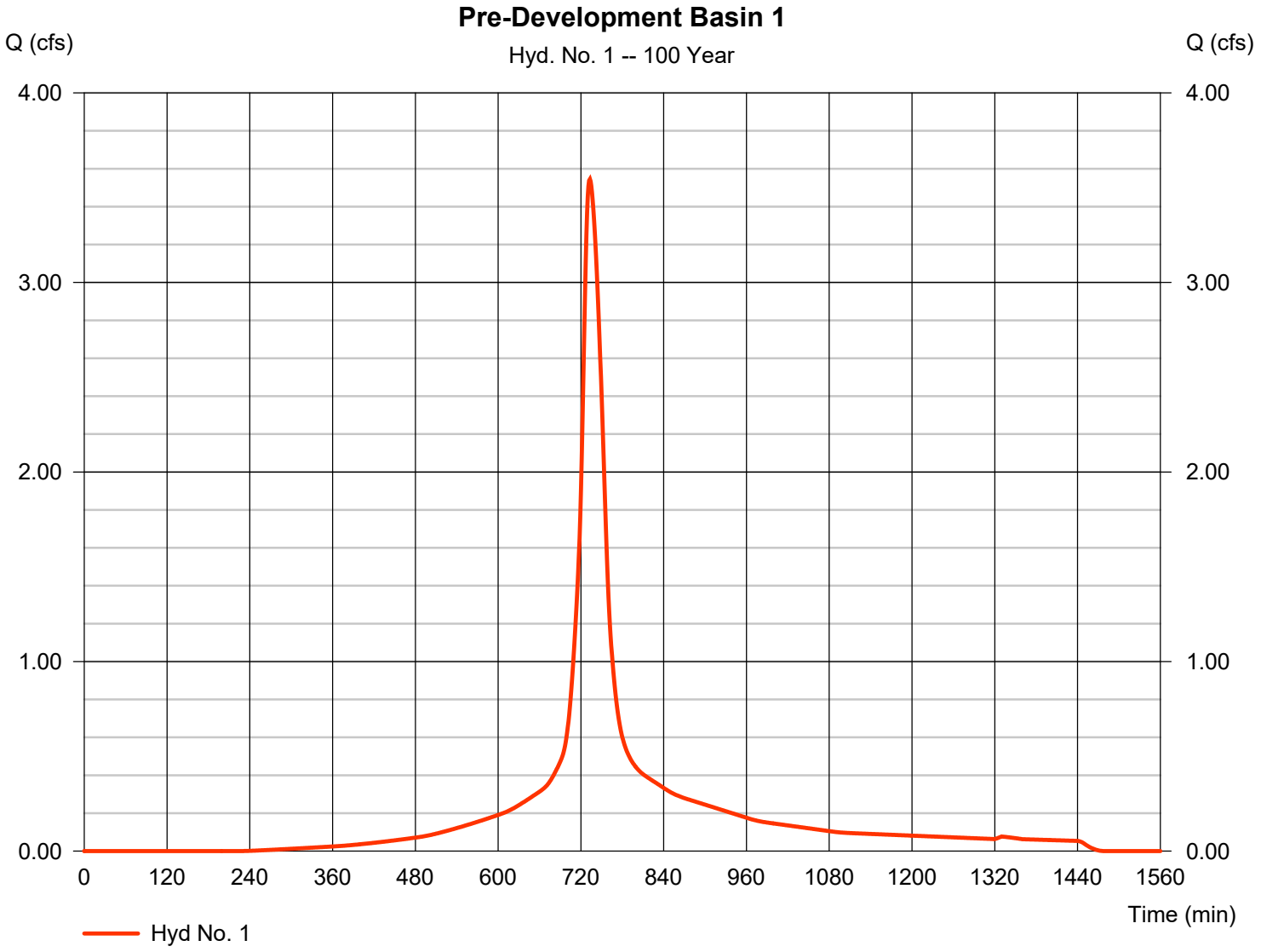
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	3.545	1	733	18,088	------	------	------	Pre-Development Basin 1
2	SCS Runoff	7.522	1	738	46,736	------	------	------	Post-Development Basin 1
3	SCS Runoff	3.784	1	746	27,131	------	------	------	Pre-Development Basin 2
4	SCS Runoff	0.519	1	741	3,274	------	------	------	Post-Development Basin 2

Hydrograph Report

Hyd. No. 1

Pre-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.545 cfs
Storm frequency	=	100 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	18,088 cuft
Drainage area	=	0.580 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.10 min
Total precip.	=	10.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



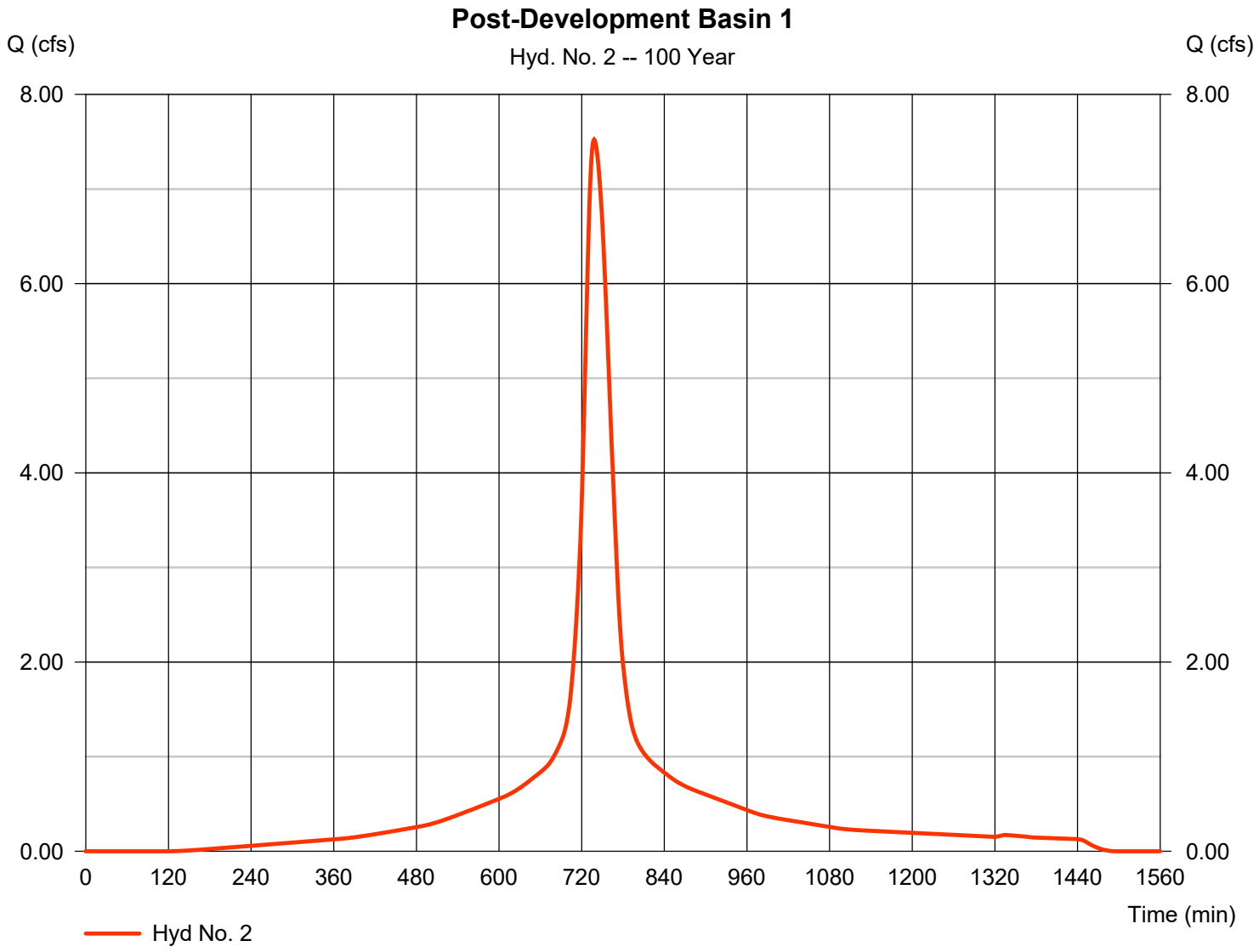
Hydrograph Report

Hyd. No. 2

Post-Development Basin 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.522 cfs
Storm frequency	=	100 yrs	Time to peak	=	738 min
Time interval	=	1 min	Hyd. volume	=	46,736 cuft
Drainage area	=	1.340 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	22.25 min
Total precip.	=	10.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

* Composite (Area/CN) = [(0.550 x 80) + (0.790 x 98)] / 1.340

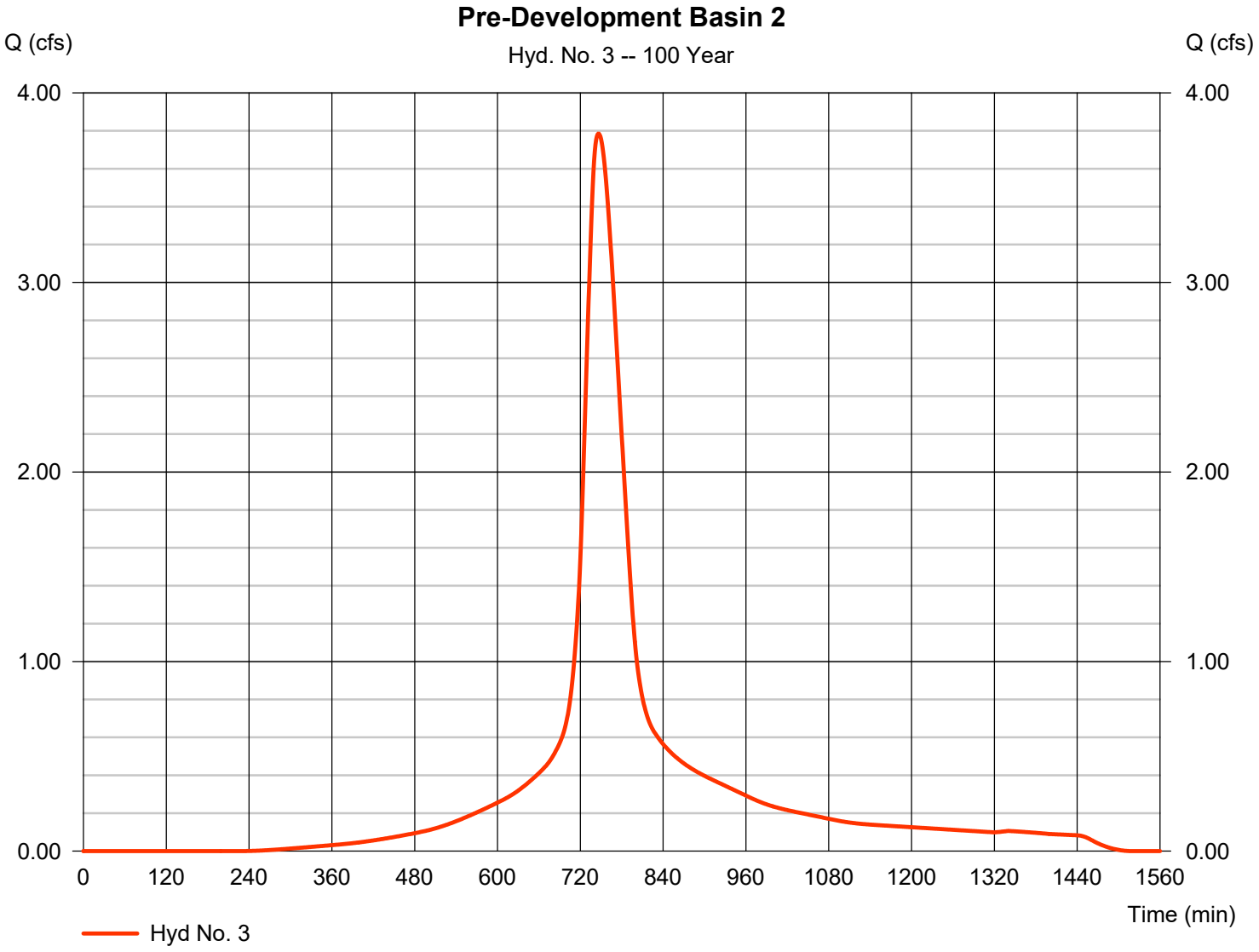


Hydrograph Report

Hyd. No. 3

Pre-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.784 cfs
Storm frequency	=	100 yrs	Time to peak	=	746 min
Time interval	=	1 min	Hyd. volume	=	27,131 cuft
Drainage area	=	0.870 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	32.30 min
Total precip.	=	10.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323

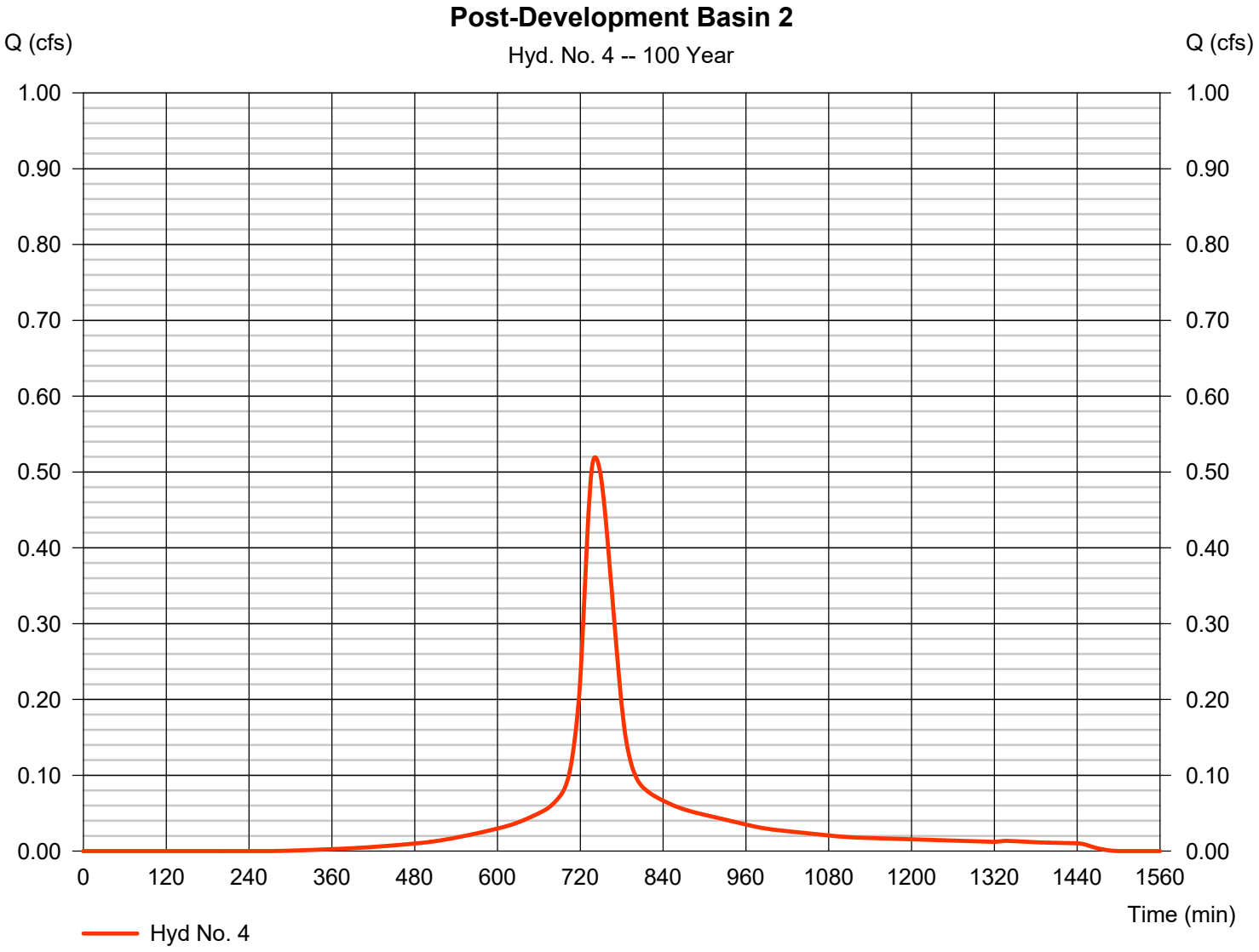


Hydrograph Report

Hyd. No. 4

Post-Development Basin 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.519 cfs
Storm frequency	=	100 yrs	Time to peak	=	741 min
Time interval	=	1 min	Hyd. volume	=	3,274 cuft
Drainage area	=	0.110 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	25.40 min
Total precip.	=	10.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	323



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	51.2637	12.6000	0.7740	--------
2	120.2653	20.2000	0.9136	--------
3	0.0000	0.0000	0.0000	--------
5	121.9171	22.7001	0.8638	--------
10	125.9155	24.0001	0.8397	--------
25	162.4312	27.7001	0.8539	--------
50	197.6749	30.4001	0.8682	--------
100	220.3055	32.0001	0.8675	--------

File name: Savannah.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	5.57	4.59	3.93	3.46	3.10	2.81	2.58	2.39	2.22	2.09	1.97	1.86
2	6.31	5.35	4.65	4.12	3.70	3.36	3.08	2.85	2.65	2.47	2.32	2.19
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.92	6.00	5.30	4.76	4.33	3.97	3.67	3.42	3.20	3.01	2.84	2.69
10	7.45	6.52	5.81	5.25	4.80	4.42	4.10	3.83	3.60	3.39	3.21	3.05
25	8.27	7.32	6.58	5.99	5.50	5.09	4.74	4.44	4.18	3.95	3.74	3.56
50	8.94	7.97	7.20	6.58	6.06	5.62	5.25	4.92	4.64	4.38	4.16	3.96
100	9.61	8.61	7.81	7.15	6.60	6.14	5.74	5.39	5.09	4.82	4.58	4.36

Tc = time in minutes. Values may exceed 60.

Precip. file name: H:\Hydrology\Port Wentworth.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	3.68	4.29	0.00	5.35	6.41	7.95	9.25	10.70
SCS 6-Hr	0.00	1.80	0.00	0.00	2.60	0.00	0.00	4.00
Huff-1st	0.00	1.55	0.00	2.75	4.00	5.38	6.50	8.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	1.75	0.00	2.80	3.90	5.25	6.00	7.10

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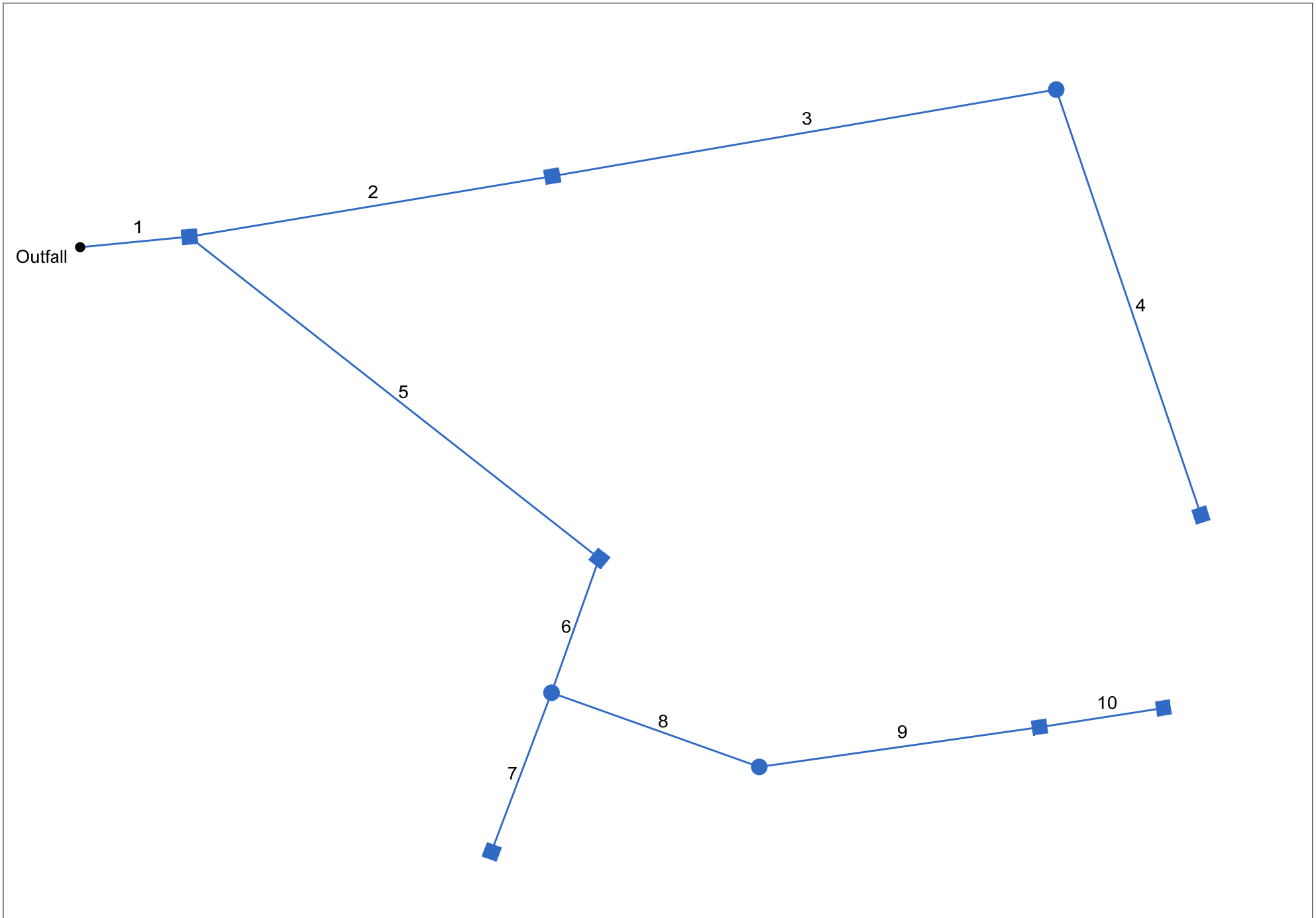
Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Advanced Auto Parts Revised.stm	Number of lines: 10	Date: 7/11/2022

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1		Grate	19.50	Rect	4.00	4.00	24	Cir	13.65	18 18	Cir Cir	14.15 14.15
2		Grate	19.10	Rect	4.00	4.00	18	Cir	14.65	18	Cir	14.65
3		Grate	21.20	Cir	4.00	4.00	18	Cir	15.62	18	Cir	17.23
4		Grate	21.20	Rect	4.00	4.00	18	Cir	17.85			
5		Combination	21.50	Rect	4.00	4.00	18	Cir	15.55	18	Cir	15.55
6		Manhole	21.25	Cir	4.00	4.00	18	Cir	15.75	18 18	Cir Cir	15.75 15.75
7		Combination	19.50	Rect	4.00	4.00	18	Cir	16.00			
8		Manhole	22.50	Cir	4.00	4.00	18	Cir	16.30	18	Cir	16.30
9		Combination	21.00	Rect	4.00	4.00	18	Cir	16.84	12x18	Ellip	16.84
10		Combination	19.90	Rect	4.00	4.00	12x18	Ellip	16.93			

Project File: Advanced Auto Parts Revised.stm | Number of Structures: 10 | Run Date: 7/12/2022

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1		7.16	24	Cir	29.764	13.50	13.65	0.504	17.75*	17.78*	0.09	17.87	End	Grate
2		2.70	18	Cir	100.000	14.15	14.65	0.500	17.87*	17.94*	0.02	17.95	1	Grate
3		1.63	18	Cir	139.000	14.65	15.62	0.698	17.95*	17.99*	0.02	18.01	2	Grate
4		0.93	18	Cir	123.000	17.23	17.85	0.504	18.01	18.21	n/a	18.21 j	3	Grate
5		4.30	18	Cir	142.000	14.15	15.55	0.986	17.87*	18.11*	0.13	18.24	1	Combination
6		2.89	18	Cir	39.000	15.55	15.75	0.513	18.24*	18.27*	0.04	18.31	5	Manhole
7		1.55	18	Cir	50.000	15.75	16.00	0.500	18.31*	18.32*	0.01	18.33	6	Combination
8		1.68	18	Cir	60.000	15.75	16.30	0.917	18.31*	18.33*	0.01	18.33	6	Manhole
9		1.80	18	Cir	77.000	16.30	16.84	0.701	18.33	18.34	0.01	18.35	8	Combination
10		0.62	12x18	Ell	34.000	16.84	16.93	0.265	18.36*	18.37*	0.00	18.37	9	Combination

Project File: Advanced Auto Parts Revised.stm

Number of lines: 10

Run Date: 7/12/2022

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1		1.24	0.00	1.24	0.00	Grate	0.0	0.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.013	0.22	7.90	0.22	7.90	0.0	Off
2		1.67	0.00	1.67	0.00	Grate	0.0	0.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.013	0.25	9.72	0.25	9.72	0.0	Off
3		1.10	0.00	1.10	0.00	Grate	0.0	0.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.013	0.21	7.27	0.21	7.27	0.0	Off
4		0.93	0.00	0.93	0.00	Grate	0.0	0.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.013	0.19	6.43	0.19	6.43	0.0	Off
5		1.76	0.00	1.76	0.00	Comb	4.0	4.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.013	0.20	7.11	0.20	7.11	0.0	1
6		0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
7		1.55	0.00	1.55	0.00	Comb	4.0	4.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.013	0.19	6.52	0.19	6.52	0.0	Off
8		0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	6
9		1.31	0.00	1.31	0.00	Comb	4.0	4.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.013	0.18	5.79	0.18	5.79	0.0	Off
10		0.62	0.00	0.62	0.00	Comb	4.0	4.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.013	0.13	3.41	0.13	3.41	0.0	Off

Project File: Advanced Auto Parts Revised.stm | Number of lines: 10 | Run Date: 7/12/2022

NOTES: Inlet N-Values = 0.016; Intensity = 55.10 / (Inlet time + 5.10) ^ 0.68; Return period = 25 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

MyReport

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	Energy Loss (ft)
1	3.14	3.14	Sag	0.20	0.50	0.90	16.06	0.95	0.050	0.020	....	-5.543	2.00	2.00	Outfall	0.12	955636.00	17.83	17.86	0.030
2	1.77	1.77	Sag	0.20	0.50	0.90	7.43	0.62	0.050	0.020	....	-3.974	1.50	1.50	1	0.29	955734.62	17.91	17.97	0.066
3	1.77	1.77	Sag	0.20	0.50	0.90	8.77	0.48	0.050	0.020	....	-0.336	1.50	1.50	2	0.12	955871.57	17.97	18.00	0.034
4	0.33	0.33	Sag	0.20	0.50	0.90	7.46	0.36	0.050	0.020	....	81.220	0.78	0.36**	3	0.09	955910.87	18.13	18.34	0.000
5	1.77	1.77	1	0.20	0.50	0.90	10.43	0.79	0.050	0.020	4.00	43.893	1.50	1.50	1	0.17	955747.36	17.96	18.20	0.238
6	1.77	1.77	n/a	0.20	0.50	0.90	7.52	0.65	....	....	....	70.970	1.50	1.50	5	0.00	955734.46	18.28	18.31	0.029
7	1.77	1.77	Sag	0.20	0.50	0.90	7.43	0.47	0.050	0.020	4.00	1.226	1.50	1.50	6	0.15	955716.91	18.32	18.33	0.011
8	1.77	1.77	6	0.20	0.50	0.90	10.05	0.49	....	....	....	-89.475	1.50	1.50	6	0.00	955790.90	18.32	18.34	0.015
9	1.77	1.77	Sag	0.20	0.50	0.90	8.79	0.50	0.050	0.020	4.00	-27.976	1.50	1.50	8	0.12	955867.12	18.35	18.36	0.023
10	1.18	1.18	Sag	0.20	0.50	0.90	3.10	0.32	0.050	0.020	4.00	-0.804	1.00	1.00	9	0.06	955900.71	18.37	18.37	0.004

Project File: Advanced Auto Parts Revised.stm | Number of lines: 10 | Date: 7/12/2022

NOTES: ** Critical depth

MyReport

Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)	Inlet Depth (ft)	Inlet Eff (%)
7.16	0.100	0.100	2.00	2.00	2.00	19.50	19.50	0.22	Sag	7.90	2.00	17.75	17.78	17.87	....	....	0.11	1.24	0.22	100
2.70	0.066	0.066	2.00	2.00	2.00	19.50	19.10	0.25	Sag	9.72	2.00	17.87	17.94	17.95	....	....	0.15	1.67	0.25	100
1.63	0.024	0.024	2.00	2.00	2.00	19.10	21.20	0.21	Sag	7.27	2.00	17.95	17.99	18.01	....	....	0.10	1.10	0.21	100
0.93	0.000	0.000	2.00	2.00	2.00	21.20	21.20	0.19	Sag	6.43	2.00	18.01	18.21 j	18.21	18.00	17.97	0.08	0.93	0.19	100
4.30	0.168	0.168	2.00	2.00	2.00	19.50	21.50	0.20	Sag	7.11	2.00	17.87	18.11	18.24	....	....	0.15	1.76	0.20	100
2.89	0.076	0.076	....	....	....	21.50	21.25	....	....	....	....	18.24	18.27	18.31	....	....	0.00	0.00	....	....
1.55	0.022	0.022	2.00	2.00	2.00	21.25	19.50	0.19	Sag	6.52	2.00	18.31	18.32	18.33	....	....	0.14	1.55	0.19	100
1.68	0.026	0.026	....	....	....	21.25	22.50	....	....	....	....	18.31	18.33	18.33	....	....	0.00	0.00	....	....
1.80	0.029	0.029	2.00	2.00	2.00	22.50	21.00	0.18	Sag	5.79	2.00	18.33	18.34	18.35	....	....	0.11	1.31	0.18	100
0.62	0.011	0.011	2.00	2.00	2.00	21.00	19.90	0.13	Sag	3.41	2.00	18.36	18.37	18.37	....	....	0.05	0.62	0.13	100

Project File: Advanced Auto Parts Revised.stm | Number of lines: 10 | Date: 7/12/2022

NOTES: ** Critical depth

MyReport

Inlet ID	Inlet Loc	(ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP	Cost CMP	Cost PVC	Line ID	
	Sag		5.0	8.09	11.49	13.50	13.65	....	....	0.00	0.00	1.11	Grate	0.00	1,418	1,276	1,205		
	Sag		5.0	8.38	11.49	14.15	14.65	....	....	0.00	0.00	0.50	Grate	0.00	4,120	3,708	3,502		
	Sag		5.0	9.21	11.49	14.65	15.62	....	....	0.00	0.00	1.49	Grate	0.00	5,680	5,112	4,828		
	Sag		5.0	11.49	11.49	17.23	17.85	73.80	2.01	0.09	0.13	1.00 z	Grate	0.00	4,036	3,632	3,431		
	Sag		5.0	9.42	11.49	14.15	15.55	....	....	0.00	0.00	1.43	Comb.	0.00	5,800	5,220	4,930		
	Sag		0.0	9.53	0.00	15.55	15.75	....	....	0.00	0.00	1.00	MH	0.00	1,680	1,512	1,428		
	Sag		5.0	11.49	11.49	15.75	16.00	....	....	0.00	0.00	1.00	Comb.	0.00	1,996	1,796	1,697		
	Sag		0.0	10.02	0.00	15.75	16.30	....	....	0.00	0.00	0.53	MH	0.00	2,618	2,356	2,225		
	Sag		5.0	10.73	11.49	16.30	16.84	....	....	0.00	0.00	0.50	Comb.	0.00	3,238	2,914	2,752		
	Sag		5.0	11.49	11.49	16.84	16.93	....	....	0.00	0.00	1.00	Comb.	0.00	1,061	955	902		

Project File: Advanced Auto Parts Revised.stm | Number of lines: 10 | Date: 7/12/2022

NOTES: Intensity = 55.10 / (Inlet time + 5.10) ^ 0.68 -- Return period = 25 Yrs. ; ** Critical depth

MyReport

Line Length (ft)	Line Size (in)	Line Slope (%)	Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA
29.764	24	0.50	Cir	0.0	....	0.013	0.09	800586.69	0.17	0.00	1.24	0.00	24	0.90	24	0.00	0.00	0.00	11.9	....	1.12	0.89
100.000	18	0.50	Cir	0.0	....	0.013	0.02	800603.22	0.87	0.00	1.67	0.00	18	0.50	18	0.00	0.00	0.00	11.0	....	0.50	0.32
139.000	18	0.70	Cir	0.0	....	0.013	0.02	800627.01	2.10	0.00	1.10	0.00	18	0.80	18	0.00	0.00	0.00	8.9	....	0.21	0.18
123.000	18	0.50	Cir	0.0	....	0.013	n/a	800510.45	3.89	0.00	0.93	0.00	18	0.90	18	0.00	0.00	0.00	5.0	....	0.09	0.08
142.000	18	0.99	Cir	0.0	....	0.013	0.13	800498.58	0.86	0.00	1.76	0.00	18	0.90	18	0.00	0.00	0.00	8.4	4.0	0.50	0.46
39.000	18	0.51	Cir	....	....	0.013	0.04	800461.78	0.22	....	....	....	18	0.00	0	0.00	0.00	0.00	8.2	....	0.33	0.30
50.000	18	0.50	Cir	0.0	....	0.013	0.01	800414.96	0.95	0.00	1.55	0.00	18	0.90	18	0.00	0.00	0.00	5.0	4.0	0.15	0.14
60.000	18	0.92	Cir	....	....	0.013	0.01	800441.41	0.95	....	....	....	18	0.00	18	0.00	0.00	0.00	7.3	....	0.18	0.17
77.000	18	0.70	Cir	0.0	....	0.013	0.01	800452.30	1.19	0.00	1.31	0.00	18	0.95	18	0.00	0.00	0.00	6.1	4.0	0.18	0.17
34.000	12 x 18	0.26	Ell	0.0	....	0.013	0.00	800457.58	1.08	0.00	0.62	0.00	12	0.90	18	0.00	0.00	0.00	5.0	4.0	0.06	0.05

Project File: Advanced Auto Parts Revised.stm | Number of lines: 10 | Date: 7/12/2022

NOTES: ** Critical depth

MyReport

Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)	Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
7.16	2.28	2.28	0.08	0.08	2.28	4.00	3.85	93.49
2.70	1.53	1.53	0.04	0.04	1.53	3.85	2.95	176.68
1.63	0.92	0.92	0.01	0.01	0.92	2.95	4.08	245.58
0.93	1.93	1.01	0.13	0.13	2.86	2.47	1.85	75.93
4.30	2.43	2.43	0.09	0.09	2.43	3.85	4.45	250.89
2.89	1.63	1.63	0.04	0.04	1.63	4.45	4.00	68.91
1.55	0.88	0.88	0.01	0.01	0.88	4.00	2.00	88.34
1.68	0.95	0.95	0.01	0.01	0.95	4.00	4.70	106.01
1.80	1.02	1.02	0.02	0.02	1.02	4.70	2.66	136.04
0.62	0.53	0.53	0.00	0.00	0.53	3.16	1.97	40.06

Project File: Advanced Auto Parts Revised.stm | Number of lines: 10 | Date: 7/12/2022

NOTES: ** Critical depth

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1		User																		5.00
2		User																		5.00
3		User																		5.00
4		User																		5.00
5		User																		5.00
6		User																		0.00
7		User																		5.00
8		User																		0.00
9		User																		5.00
10		User																		5.00

Project File: Advanced Auto Parts Revised.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 10 | Date: 7/12/2022

Hydraulic Grade Line Computations

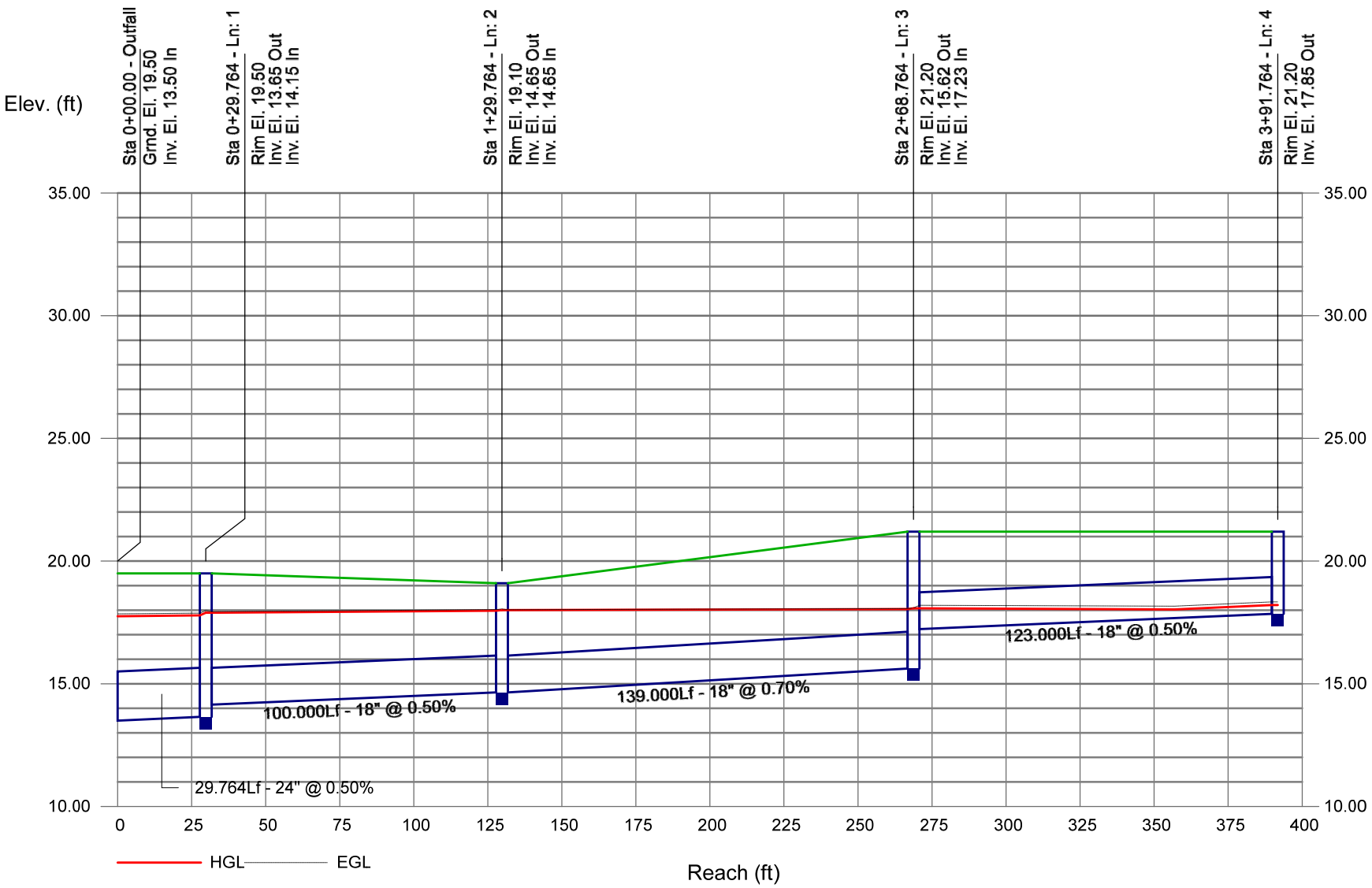
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	24	7.16	13.50	17.75	2.00	3.14	2.28	0.08	17.83	0.100	29.764	13.65	17.78	2.00	3.14	2.28	0.08	17.86	0.100	0.100	0.030	1.11	0.09
2	18	2.70	14.15	17.87	1.50	1.77	1.53	0.04	17.91	0.066	100.000	14.65	17.94	1.50	1.77	1.53	0.04	17.97	0.066	0.066	0.066	0.50	0.02
3	18	1.63	14.65	17.95	1.50	1.77	0.92	0.01	17.97	0.024	139.000	15.62	17.99	1.50	1.77	0.92	0.01	18.00	0.024	0.024	0.034	1.49	0.02
4	18	0.93	17.23	18.01	0.78	0.33	1.01	0.13	18.13	0.000	123.000	17.85	18.21 j	0.36**	0.33	2.86	0.13	18.34	0.000	0.000	n/a	1.00	0.13
5	18	4.30	14.15	17.87	1.50	1.77	2.43	0.09	17.96	0.168	142.000	15.55	18.11	1.50	1.77	2.43	0.09	18.20	0.167	0.168	0.238	1.43	0.13
6	18	2.89	15.55	18.24	1.50	1.77	1.63	0.04	18.28	0.076	39.000	15.75	18.27	1.50	1.77	1.63	0.04	18.31	0.076	0.076	0.029	1.00	0.04
7	18	1.55	15.75	18.31	1.50	1.77	0.88	0.01	18.32	0.022	50.000	16.00	18.32	1.50	1.77	0.88	0.01	18.33	0.022	0.022	0.011	1.00	0.01
8	18	1.68	15.75	18.31	1.50	1.77	0.95	0.01	18.32	0.026	60.000	16.30	18.33	1.50	1.77	0.95	0.01	18.34	0.026	0.026	0.015	0.53	0.01
9	18	1.80	16.30	18.33	1.50	1.77	1.02	0.02	18.35	0.029	77.000	16.84	18.34	1.50	1.77	1.02	0.02	18.36	0.029	0.029	0.023	0.50	0.01
10	12 18 e	0.62	16.84	18.36	1.00	1.18	0.53	0.00	18.37	0.011	34.000	16.93	18.37	1.00	1.18	0.53	0.00	18.37	0.011	0.011	0.004	1.00	0.00

Project File: Advanced Auto Parts Revised.stm | Number of lines: 10 | Run Date: 7/12/2022

Notes: ; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

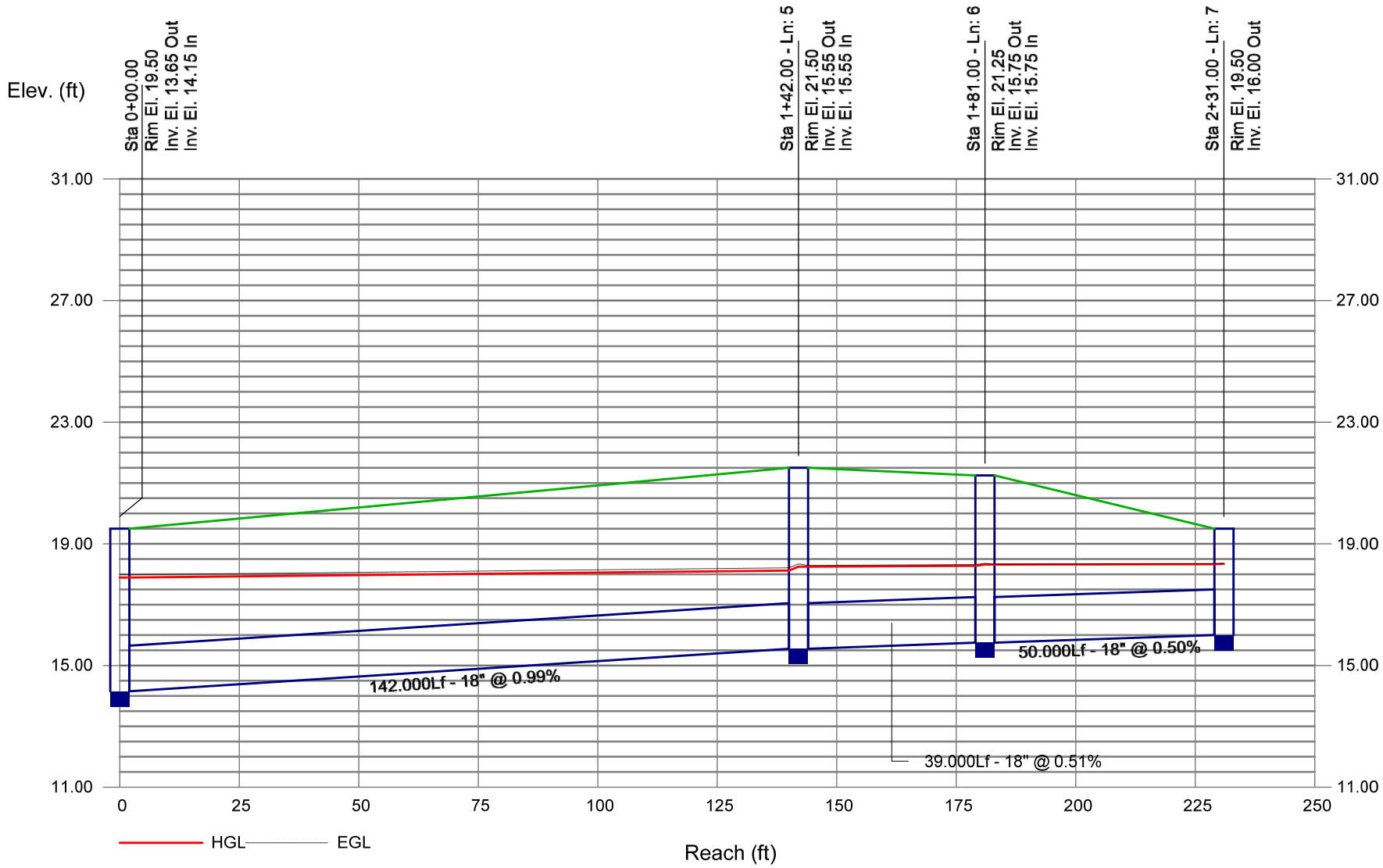
Storm Sewer Profile

Proj. file: Advanced Auto Parts Revised.stm



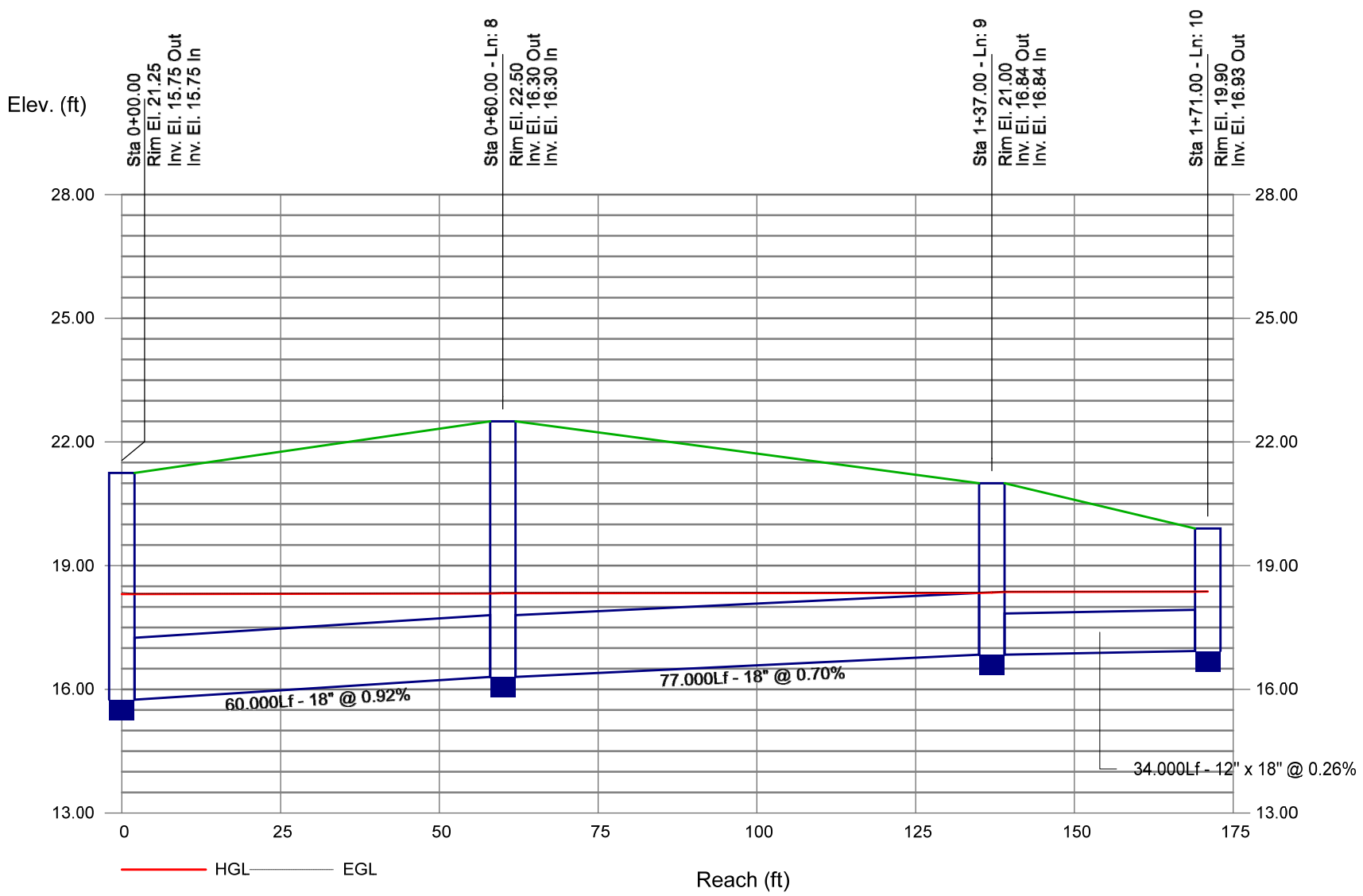
Storm Sewer Profile

Proj. file: Advanced Auto Parts Revised.stm



Storm Sewer Profile

Proj. file: Advanced Auto Parts Revised.stm



CONTECH®
ENGINEERED SOLUTIONS

Project Name: Advanced Auto Parts
Date: 5/23/2022 Flow-Based Sizing Per GSWMM
Structure: WQ
Designed By: PSC

SITE CHARACTERISTIC INPUT

Design Storm, P (inches)	1.20	GSWMM Vol 2. Sec. 3.1.7.1
Total Area, A_T (acres)	1.45	
Impervious Area, A_I (acres)	0.69	

WQv & WQq CALCULATIONS

Percent Impervious Cover, I	48%	
Volumetric Runoff Coefficient, Rv	0.48	GSWMM Vol 2. Sec. 3.1.7.1 - Equation 3.1.19
Water Quality Volume, Qwv (in)	0.574	
Water Quality Volume, Wqv (ac-ft)	0.07	GSWMM Vol 2. Sec. 3.1.7.1 - Equation 3.1.20
Water Quality Volume, Wqv (cf)	3,020.89	
Composite Curve Number, CN	92.3	CN = 1000/(10 + 5P +10WQv - 10(WQv^2 + 1.25WQvP)^1/2)
S = 1000/CN -10, (inches)	0.83	
Ia = 0.2S, (inches)	0.17	
*Ia/P =	0.138	
*Time of Concentration, tc (min)	6	GSWMM Vol 2. Sec. 3.1.7.2
*Use these numbers to determine qu in GSM Fig. 2.1.5-6		
Unit Peak Discharge, qu (cfs/sqmi/in)	1000	
Water Quality Peak Discharge, WQq (cfs)	1.30	GSWMM Vol 2. Sec. 3.1.7.2 - $Q_{WQ} = q_U * A * Q_{WV}$

2nd Reading Zoning Map Amendment Application submitted by the City of Port Wentworth, for PIN #'s 70913 01013 (18 Gulfstream Road), 70913 01012 (60 Clifton Boulevard), 70913 01007 (84 Clifton Boulevard), 70913 01010 (Gulfstream Road), 70913 01008 (34 Gulfstream Road), 70913 01011 (116 Gulfstream Road), 70913 01001 (120 Gulfstream Road), 70914 01001B (120 Gulfstream Road), 70914 01001A (Gulfstream Road), 70970A02004 (Gulfstream Road), 70970A02006 (20 Mincey Boulevard), 70970A02007 (24 Mincey Boulevard), 70970A02003 (32 Mincey Boulevard), 70914 01003 (46 Mincey Boulevard), 70914 01004 (60 Mincey Boulevard), and 70970A01002 (190 Gulfstream Road) to zone the properties P-I-2 (Planned Industrial) for the purpose of establishing City of Port Wentworth Zoning Districts.

Issue/Item: 2nd Reading Zoning Map Amendment Application submitted by the City of Port Wentworth, for PIN #'s 70913 01013 (18 Gulfstream Road), 70913 01012 (60 Clifton Boulevard), 70913 01007 (84 Clifton Boulevard), 70913 01010 (Gulfstream Road), 70913 01008 (34 Gulfstream Road), 70913 01011 (116 Gulfstream Road), 70913 01001 (120 Gulfstream Road), 70914 01001B (120 Gulfstream Road), 70914 01001A (Gulfstream Road), 70970A02004 (Gulfstream Road), 70970A02006 (20 Mincey Boulevard), 70970A02007 (24 Mincey Boulevard), 70970A02003 (32 Mincey Boulevard), 70914 01003 (46 Mincey Boulevard), 70914 01004 (60 Mincey Boulevard), and 70970A01002 (190 Gulfstream Road) to zone the properties P-I-2 (Planned Industrial) for the purpose of establishing City of Port Wentworth Zoning Districts.

Background: These parcels was annexed by the City of Port Wentworth in 2014 and was never assigned City of Port Wentworth zoning.

Facts and Findings:

Funding: N/A

Recommendation: The Planning Commission will hear this item on July 11, 2022 at 6:30 PM. **/ UPDATE THE PLANNING COMMISSION VOTED 3-2 TO APPROVE THIS APPLICATION.**

ATTACHMENTS:

- Annexation Gulfstream Rd Rezoning - map numbered (PDF)
- Annexation Gulfstream Rd Rezoning - Map Number Key (PDF)

- Annexation Gulfstream Rd Rezoning - APO Master List (PDF)

Annexation Gulfstream Rd Rezoning

Property Boundaries (Parcels)

1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

SAGIS

Annexation Gulfstream Rd Rezoning Map Key

Map #	PIN #	Address	Owner	Estimated Acreage	Current Zoning	Proposed Zoning
1	70913 01013	18 Gulfstream Rd	Clifton Landfill Inc	8.66	PUD-IN	P-I-2
2	70913 01012	60 Clifton Blvd	Brasstown Chili LLC	2	PUD-IN	P-I-2
3	70913 01007	84 Clifton Blvd	Savannah Regional Industrial Landfill In Republic Services Property Tax	120.52	PDR-IL	P-I-2
4	70913 01010	Gulfstream Rd	Clifton Landfill Inc	55.38	M	P-I-2
5	70913 01008	34 Gulfstream Rd	Sapp Capital Management LLC	2.9	M	P-I-2
6	70913 01011	116 Gulfstream Rd	116 Gulfstream Road LLC	10.02	M	P-I-2
7	70913 01001	120 Gulfstream Rd	Georgia Power Company	17.25	PDR-L	P-I-2
8	70914 01001B	120 Gulfstream Rd	Georgia Power Company	8	PDR-L	P-I-2
9	70914 01001A	Gulfstream Rd	Georgia Power Company	8	M	P-I-2
10	70970A02004	Gulfstream Rd	Williams Brothers Trucking Inc	3	PUD-IN	P-I-2
11	70970A02006	20 Mincey Blvd	Mincey Investments, LLC	1.02	PUD-IN	P-I-2
12	70970A02007	24 Mincey Blvd	Davenport & Smith Daniel & Jack	0.8	PUD-IN	P-I-2
13	70970A02003	32 Mincey Blvd	IG Mincey LLC	3.99	PUD-IN	P-I-2
14	70914 01003	46 Mincey Blvd	Gim Corporation	3.01	PUD-IN	P-I-2
15	70914 01004	60 Mincey Blvd	Sloan Theresa Joyce	2	PDR-IL	P-I-2
16	70970A01002	190 Gulfstream Rd	Duke Realty Limited Partnership ATTN: VP, Property Management	9.99	PUD-IN	P-I-2

PIN	Owner	Mailing_Address	Mailing_City	Mailing_State	Mailing_Zip
70913 01007	SAVANNAH REGIONAL INDUSTRIAL LANDFILL IN	PO BOX 29246	PHOENIX	AZ	85038
70913 01008	SAPP CAPITAL MANAGEMENT LLC	34 GULFSTREAM ROAD	PORT WENTWORTH	GA	31407
70913 01010	CLIFTON LANDFILL INC	PO BOX 7003	SAVANNAH	GA	31418
70913 01011	116 GULFSTREAM ROAD LLC	9 CEDAR VIEW DR	SAVANNAH	GA	31410
70913 01012	BRASSTOWN CHILI LLC	315 COMMERCIAL DR STE B-7	SAVANNAH	GA	31406
70913 01013	CLIFTON LANDFILL INC	PO BOX 7003	SAVANNAH	GA	31418
70914 01001A	GEORGIA POWER COMPANY	241 RALPH MCGILL BLVD NE TAX DEPT. BIN 10120	ATLANTA	GA	30308
70914 01001B	GEORGIA POWER COMPANY	241 RALPH MCGILL BLVD NE TAX DEPT. BIN 10120	ATLANTA	GA	30308
70914 01004	SLOAN THERESA JOYCE	103 LAKE TOMACHEECHEE DRIVE	RINCON	GA	31326
70970A02004	WILLIAMS BROTHERS TRUCKING INC	PO BOX 188	HAZELHURST	GA	31539
70970A02006	MINCEY INVESTMENTS, LLC	10 BRADLEY PINES DR	SAVANNAH	GA	31410
70970A02007	DAVENPORT & SMITH DANIEL & JACK	PO BOX 7207	GARDEN CITY	GA	31418
10970A03003	DUKE REALTY LIMITED PARTNERSHIP	PO BOX 40509	INDIANAPOLIS	IN	46240
20912 01001	MAYOR & ALDERMEN OF SAVANNAH	PO BOX 1027	SAVANNAH	GA	31412
20912 01002	MAYOR & ALDERMEN OF SAVANNAH	PO BOX 1027	SAVANNAH	GA	31412
20970A04001	SOUTHERN REGION INDUSTRIAL REALTY INC	C/O NORFOLK SOUTHERN TAX DEPT 650 W PEACHTREE ST.	ATLANTA	GA	30308
60892 01001	BOASSO AMERICA CORPORATION	1208 E KENNEDY BLVD SUITE 132	TAMPA	FL	33602
60892 01002	BOASSO AMERICA CORPORATION	1208 E KENNEDY BLVD SUITE 132	TAMPA	FL	33602
60892 01025	COMMERCE COURT INDUSTRIAL LLC	C/O CRITERION GROUP, LLC, 28-18 STEINWAY	LONG ISLAND CITY	NY	11103
60892 01026	COMMERCE COURT INDUSTRIAL LLC	C/O CRITERION GROUP, LLC, 28-18 STEINWAY	LONG ISLAND CITY	NY	11103
60892 01029	CENTERPOINT GARDEN CITY LLC	1808 SWIFT DRIVE SUITE A	OAK BROOK	II	60523
70970A01002	DUKE REALTY LIMITED PARTNERSHIP	PO BOX 40509	INDIANAPOLIS	IN	46240
70970A02003	IG MINCEY LLC	261 FIFTH AVENUE SUITE 1501	NEW YORK	NY	10016
20970 01001	STATE OF GEORGIA	C/O COASTAL STATE PRISON POST OFFICE BOX 7150	GARDEN CITY	GA	31418
70913 01001	GEORGIA POWER COMPANY	241 RALPH MCGILL BLVD NE TAX DEPT. BIN 10120	ATLANTA	GA	30308
70914 01003	GIM CORPORATION	C/O C JAMES MCCALLER JR 115 W OGLETHORPE AVE	SAVANNAH	GA	31401
10916 01001	WAREHOUSE RENTALS LLC	PO BOX 126	VALDOSTA	GA	31601

City Council
7224 GA Highway 21
Port Wentworth, GA 31407

SUBMITTED

Meeting: 07/28/22 07:00 PM
Department: Development Services
Category: Ordinance
Prepared By: Melanie Ellis
Department Head: Brian Harvey

AGENDA ITEM (ID # 2706)

DOC ID: 2706

1st Reading Zoning Map Amendment Application submitted by Chad Zittrouer, Kern & Co., LLC., on behalf of Buck Island, LLC., & BEP Land Investors, LLC., for PIN # 70906 04011 (Rice Hope Road) to Rezone from M-P-O (Master Plan Overlay) to P-I-1 (Planned Industrial) Zoning District for the purpose of a warehouse development (Rice Hope Commerce Center)

Issue/Item: 1st Reading Zoning Map Amendment Application submitted by Chad Zittrouer, Kern & Co., LLC., on behalf of Buck Island, LLC., & BEP Land Investors, LLC., for PIN # 70906 04011 (Rice Hope Road) to Rezone from M-P-O (Master Plan Overlay) to P-I-1 (Planned Industrial) Zoning District for the purpose of a warehouse development (Rice Hope Commerce Center).

Background: The subject property is currently vacant woodland. There are no buildings or structures on the subject property.

Facts and Findings: The proposed development consists of 961,000 SF of warehouse space, associated auto parking, trailer parking, drainage, utility, access and infrastructure improvements. The DRI is under review by the Georgia Department of Community Affairs. The DIA is under currently review by City engineers Thomas & Hutton.

Funding: N/A

Recommendation: The Planning Commission will hear this application on Monday, July 11, 2022 at 6:30 P.M. **/ UPDATE: THE APPLICANT ASKED THIS APPLICATION TO BE TABLED UNTIL THE SEPTEMBER 2022 PLANNING COMMISSION AND CITY COUNCIL MEETINGS.**

ATTACHMENTS:

- ZMA 7-0906-04-011 Rice Hope Commerce Center MPO TO PI1 JULY 2022 - Application (PDF)
- ZMA 7-0906-04-011 Rice Hope Commerce Center MPO TO PI1 JULY 2022 - Timeline (DOCX)
- ZMA 7-0906-04-011 Rice Hope Commerce Center MPO TO PI1 JULY 2022 - Table Email (PDF)

220247

APPLICATION TO AMEND THE ZONING MAP OF PORT WENTWORTH, GEORGIA

Applicant: Kern & Co., LLC - Chad Zittrouer Phone # 912-354-8400

Mailing Address: P O Box 15179 - Savannah, GA 31416

Property Owner: Buck Island, LLC and BEP Land Investors, LLC Phone #

Use back if more than one owner

Owner Address: Buck Island, LLC - 3071 Slate Mills Road - Sperryville, VA 22740
BEP Land Investors, LLC - 7715 Chatham Road - Chevy Chase, MD 20815

RECEIVED
APR 29 2022
BY:

PIN #('s): 7-0906-04-011 # of Acres 184.93

Zoning Classification: Present M-P-O Requested P-I-1

Use of Property: Present Vacant - Planned Residential Requested Warehouse-Distribution

_____ If the requested changed is to extend an existing adjacent zoning district to include this property, explain below why the proposed change should be made.

_X_ If the requested changed is not to extend an adjacent zoning district, explain below why this property should be placed in a different zoning district than all adjoining properties. (How does it differ from adjoining properties and why should it be subject to different restrictions than those applying to adjoining properties?)

See attached Proposed Amendment to Zoning Map Narrative.

Attach the following documents:

1. Written legal description of the property (e.g. copy of deed) – full metes and bounds description rather than plat reference.
2. Name, PIN #, property address and mailing address of property owners withing 250 feet of this property.
3. Plat showing property lines with lengths and bearings, adjoining streets, locations of existing buildings, north arrow and scale. Submit fifteen (15) copies of in 11" x 17", one 1 copy in 8.5" x 11", and a PDF on a flash drive.
4. Site Plan of proposed use of property. Submit fifteen (15) copies in 11" x 17", one 1 copy in 8.5" x 11", and a PDF on a flash drive.
5. Disclosure of Campaign Contributions and Gifts form.
6. Disclosure of Financial Interests form
7. If property owner and applicant are not the same, Authorization by Property Owner form or Authorizations of Attorney form.
8. Filing fee of $356.00 + $50.00 per acre + $50.00 Administrative Fee, payable to the City of Port Wentworth.

APPLICATION MUST BE FILED 45 BUSINESS DAYS PRIOR TO THE PLANNING COMMISSION MEETING AT WHICH THEY ARE TO BE CONSIDERED.

I hereby authorize the staff of the City of Port Wentworth to inspect the premises of the above described property and to post this property with the duly required notices. I hereby depose and say that all statements herein and attached statements submitted are true and correct to the best of my knowledge and belief.

Sworn to and subscribed before me this 27th day of April, 2022

Signature of Applicant

Amanda E Lewis
Notary Public

AMANDA E LEWIS NOTARY PUBLIC CHATHAM COUNTY GEORGIA EXPIRES August 15, 2025

Buck Island, LLC

AUTHORIZATION OF PROPERTY OWNER

Application for Rezoning or Variance

I swear that I am the owner of the property which is the subject matter of the attached application, as is shown in the records of Port Wentworth, Georgia.

I authorize the person named below to act as applicant in the pursuit of a variance or for the rezoning of this property.

Name of Applicant: Kern & Co., LLC - Chad Zittrouer

Address: P O Box 15179 - Savannah, GA 31416

Telephone Number: 912-354-8400

BUCK Island LLC

BY: Paul F. L

Signature of Owner

Personally appeared before me

PAUL F. LARNER

who swears that the information contained in this authorization is true and correct to the best of his or her knowledge and belief.

Carole R Smith

Notary Public

4/28/2022

Date

CAROLE R SMITH NOTARY PUBLIC SOUTH CAROLINA MY COMMISSION EXPIRES APR 25 2026

Buck Island, LLC

DISCLOSURE OF CAMPAIGN CONTRIBUTIONS

(Required by Title 36, Chapter 67A, Official Code of Georgia Annotated)

Reference: Application filed on _____, 20_____, to rezone real property described as follows:

Withing the two years preceding the above filing date, the applicant has made campaign contributions aggregating $250.00 or more to each member of the City Council of the City of Port Wentworth who will consider the application and is listed below. List (1) the name and official position of the local government official and (2) the dollar amount, description and date of each campaign contribution.

I hereby depose and say that all statements herein are true, correct and complete to the best of my knowledge and belief.

Sworn to and subscribed before me this 24th day of April, 2022

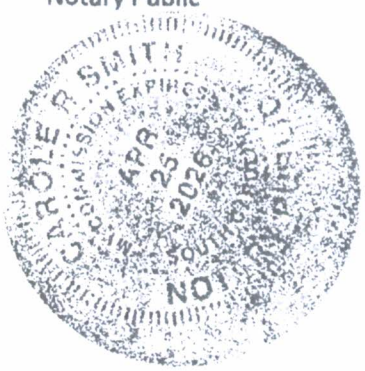
Carole R. Smith

Notary Public

CAROLE R. SMITH
MY COMMISSION EXPIRES
APR 25 2026
SOUTH CAROLINA
NOTARY PUBLIC

Paul F. Lowe

Signature of ~~Applicant~~ Owner



BEP Land Investors, LLC

AUTHORIZATION OF PROPERTY OWNER

Application for Rezoning or Variance

I swear that I am the owner of the property which is the subject matter of the attached application, as is shown in the records of Port Wentworth, Georgia.

I authorize the person named below to act as applicant in the pursuit of a variance or for the rezoning of this property.

Name of Applicant: Kern & Co., LLC - Chad Zittrouer

Address: P O Box 15179 - Savannah, GA 31416

Telephone Number: 912-354-8400

By: BEP Land Investors, LLC

Signature of Owner

Personally appeared before me

who swears that the information contained in this authorization is true and correct to the best of his or her knowledge and belief.

Carole R. Smith

Notary Public

4/27/22

Date

CAROLE R SMITH NOTARY PUBLIC SOUTH CAROLINA MY COMMISSION EXPIRES APR 25 2026

DISCLOSURE OF CAMPAIGN CONTRIBUTIONS

(Required by Title 36, Chapter 67A, Official Code of Georgia Annotated)

Reference: Application filed on _____, 20_____, to rezone real property described as follows:

Withing the two years preceding the above filing date, the applicant has made campaign contributions aggregating $250.00 or more to each member of the City Council of the City of Port Wentworth who will consider the application and is listed below. List (1) the name and official position of the local government official and (2) the dollar amount, description and date of each campaign contribution.

I hereby depose and say that all statements herein are true, correct and complete to the best of my knowledge and belief.

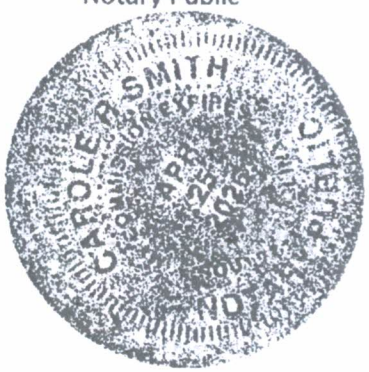
By: BEP Land Investors, LLC

Sworn to and subscribed before me this 25th day of April, 2022

Signature of ~~Applicant~~ Owner

Carole R. Smith

Notary Public



Adjacent Property Owners

Pin #	Current Owner	Current Owner's Mailing Address
70906 04064	Buck Island, LLC & BEP Land Investors, LLC	100 Lakeside Blvd., Port Wentworth, GA 31407
70906 03017	Braz & Motta Carlos R & Jennifer	149 Barrenton Rd., Pooler, GA 31322
70906 03018	Foster Herbert	8164 Old Highway 21, Port Wentworth, GA 31407
70906 03020	Mazza James D & Sylvia	457 Cypress Point Rd., Springfield, GA 31329
70906 03005	Graham Floyd L	P.O. Box 3931, Savannah, GA 31414
70906 04091	BEP RH Tract 2 LLC c/o Highbrook Investors	100 Lakeside Blvd., Port Wentworth, GA 31407
70906 04001	Matthews Staci S	3 Annes Log Ct, Pooler, GA 31322
70906 03023	Stewart Harry Jack	502 Rice Hope Plantation Rd., Port Wentworth, GA 31407
70906 03024	Stewart Christopher P & Christine L	504 Rice Hope Plantation Rd., Port Wentworth, GA 31407
70906 03006Z	Stewart Paul Sr	508 Rice Hope Plantation Rd., Port Wentworth, GA 31407
70906 03006Y	Stewart Paul Sr	508 Rice Hope Plantation Rd., Port Wentworth, GA 31407
70906 04012	Hill John E	8547 Heatherwood Dr., Savannah, GA 31406

EXHIBIT A-1

All that tract or parcel of land lying and being in the 8th Georgia Militia District, City of Port Wentworth, Chatham County, Georgia, and being more particularly described as follows:

Commence at the intersection of the easterly right of way line of Old Augusta Road (50' R\W), and the southerly line of Rice Hope Road, said Rice Hope Road being a private access easement and private road 30 feet in width; thence along the southerly line of Rice Hope Road S 83°23'23" E, a distance of 677.61 feet to a point; thence S 83°22'09" E a distance of 287.88' to a point; thence leave the aforesaid line of Rice Hope Road N 06°41'27" E a distance of 30.20' to a point on the northerly line of Rice Hope Road; thence along the aforesaid line of Rice Hope Road S 83°20'02" E a distance of 463.24' to a point; thence S 78°01'37" E a distance of 334.85' to a point thence S 63°17'49" E a distance of 177.72 to a point; thence S 67°33'59" E a distance of 46.32' to a point; thence S 57°34'31" E a distance of 394.98' to the Point of Beginning; thence leave the aforesaid line of Rice Hope Road N 06°33'01" E a distance of 1668.24' to a point; thence S 71°49'11" E a distance of 11.96' to a point; thence S 06°09'51" W a distance of 39.95' to a point; thence S 02°29'35" W a distance of 51.84' to a point; thence S 20°02'11" W a distance of 56.39' to a point; thence S 04°12'35" W a distance of 57.87' to a point; thence S 28°11'33" E a distance of 54.52' to a point; thence S 47°18'34" E a distance of 38.50 to a point; thence S 75°30'03" E a distance of 30.20' to a point; thence S 81°40'10" E a distance of 31.80' to a point; thence S 86°37'34" E a distance of 35.94' to a point; thence S 65°37'13" E a distance of 35.86' to a point; thence S 31°41'16" E a distance of 47.16' to a point; thence S 52°36'16' E a distance of 40.58' to a point; thence S 88°28'18" E a distance of 43.61' to a point; thence N 88°02'12" E a distance of 46.15' to a point; thence N 31°29'51" E a distance of 16.90' to a point; thence N 64°16'38" W a distance of 31.12' to a point; thence N 81°27'58" W a distance of 21.76 to a point; thence N 38°22'33" W a distance of 31.07' to a point; thence N 37°26'26" W a distance of 27.05' to a point; thence N 52°30'25" W a distance of 25.61' to a point; thence N 10°49'10" W a distance of 33.36' to a point; thence N 21°14'29" E a distance of 31.66' to a point; thence N 39°11'00" W a distance of 34.67' to a point; thence N 21°01'00" W a distance of 38.04' to a point; thence N 52°38'11" E a distance of 44.03' to a point; thence N 67°22'48" E a distance of 35.84' to a point; thence S 85°56'50" E a distance of 30.18' to a point; thence S 59°14'05" E a distance of 35.29' to a point; thence S 49°10'47" E a distance of 26.43' to a point; thence S 60°14'26" E a distance of 13.63' to a point; thence S 25°01'32" E a distance of 39.29' to a point; thence S 69°29'29" E a distance of 37.64' to a point; thence S 66°29'03" E a distance of 32.69' to a point; thence S 48°57'22" E a distance of 36.41' to a point; thence S 63°09'48" E a distance of 33.58' to a point; thence N 54°49'51" E a distance of 30.48' to a point; thence N 74°05'34" E a distance of 14.93' to a point on the westerly line of a 100' Savannah Electric and Power Company and City of Savannah Water Main Easement; thence along the aforesaid easement line N 08°06'02" E a distance of 421.08' to a point; thence leave the aforesaid easement line N 88°26'41" W a distance of 7.09' to a point; thence N 82°03'58" W a distance of 28.19' to a point; thence N 14°11'42" W a distance of 24.59' to a point; thence N 79°01'12" W a distance of 36.16' to a point; thence N 69°44'52" W a distance of 24.54' to a point; thence N 62°06'07" W a distance of 38.62' to a point; thence N 74°52'53" W a distance of 30.60' to a point; thence N 41°23'19" W a distance of 28.87' to a point; thence N 01°51'36" E a distance of 29.79' to a point; thence N 36°25'16" E a distance of 36.39' to a point; thence N 35°31'38" E a distance of 49.86' to a point; thence N 26°59'23" W a distance of 40.07' to a point; thence N 54°56'56" W a distance of 28.70' to a point; thence N 59°57'17" W a distance of 45.11' to a point; thence N 70°10'49" W a distance of 43.03' to a point; thence N 03°39'01" W a distance of 29.31' to a point; thence N 01°07'56" E a distance of 32.03' to a point; thence N 36°20'51" W a distance of 30.80' to a point; thence N 77°12'42" W a distance of 43.93' to a point; thence S 85°29'24" W a distance of 27.37' to a point; thence S 69°03'09" W a distance of 40.05 to a point; thence S 69°25'27" W a distance of 31.97' to a point; thence N 86°45'55" W a distance of 31.28' to a point; thence N 54°40'07" W a distance of 49.23' to a point; thence N 36°04'27" W a distance of 18.38' to a point; thence N

52°15'19" W a distance of 29.91' to a point; thence N 60°19'54" W a distance of 30.93' to a point; thence N 16°35'25" W a distance of 17.11' to a point; thence N 06°29'03" W a distance of 27.44' to a point; thence N 02°49'48" E a distance of 23.39' to a point; thence N 47°27'04" W a distance of 27.28' to a point; thence N 44°04'51" W a distance of 35.35' to a point; thence N 64°20'01" W a distance of 34.96' to a point; thence N 36°31'21" W a distance of 22.86' to a point; thence N 58°19'31" E a distance of 25.34' to a point; thence N 04°43'15" E a distance of 28.55' to a point; thence N 49°59'05" W a distance of 45.22' to a point; thence S 72°31'54" W a distance of 30.37' to a point; thence N 79°39'19" W a distance of 37.92' to a point; thence N 82°19'34" W a distance of 31.82' to a point; thence N 81°43'22" W a distance of 26.90' to a point; thence N 20°46'27" W a distance of 25.55 to a point; thence N 42°04'02" E a distance of 17.63' to a point; thence N 14°18'22" E a distance of 28.37' to a point; thence N 55°59'29 E a distance of 31.68' to a point; thence N 19°55'50" E a distance of 19.59' to a point; thence N 59°43'37" W a distance of 42.98' to a point; thence N 33°02'17" W a distance of 15.28' to a point on the Effingham County-Chatham County line; thence along the aforesaid county line S 77°35'55" E a distance of 4801.71' to a point; thence leave the aforesaid county line S 33°06'18" W a distance of 1227.80' to a point; thence N 81°12'09" W a distance of 435.33' to a point; thence S 33°07'51" W a distance of 856.14' to a point on the southerly line of Rice Hope Road; thence along the aforesaid line of Rice Hope Road S 81°52'06" W a distance of 1140.35' to a point; thence leave the aforesaid line of Rice Hope Read N 07°09'35" E a distance of 30.31' to a point on the northerly line of Rice Hope Road; thence leave the aforesaid line of Rice Hope Road N 07°00'01" E a distance of 1449.03' to a point; thence S 86°18'43" W a distance of 458.89' to a point; thence S 07°00'18" W a distance of 1449.11' to a point on the northerly line of Rice Hope Road; thence along the aforesaid line of Rice Hope Road S 86°20'18" W a distance of 702.49' to a point; thence N 82°36'07" W a distance of 341.98' to a point; thence N 64°55'09" W a distance of 396.23' to a point; thence N 57°35'20" W a distance of 160.18' to the Point of Beginning, having on approximate area of 8,055,574 Square Feet, or 184.93 Acres. The foregoing property is identified as PIN# 70906 04011 by the Chatham County Tax Assessor's Office.

CITY OF PORT WENTWORTH
(912) 964-4379

REC#: 00353515 5/05/2022 3:14 PM
OPER: ME TERM: 011
REF#: CK 1915

TRAN: 112.0000 BLDG PERMIT
220247 9,652.50CR
BUCK ISLAND,LLC
7-0906-04-011
DEV-ZMA 9,652.50CR

TENDERED: 9,652.50 CHECK
APPLIED: 9,652.50-

CHANGE: 0.00

WWW.CITYOFPORTWENTWORTH.COM

Project Timeline

Project Number: 220247

Project Name: 7-0906-04-011 Rice Hope Commerce Center / ZMA Application

Applicant / Engineer: Chad Zittrouer, Kern & Co

Owner: Buck Island, LLC / BEP Land Investors, LLC

City Review Engineer: Thomas & Hutton

- 4/29/2022 – application received complete
- 5/5/2022 – send DIA to Thomas & Hutton for review.
- 5/11/2022 – Chad requested to be placed on the July 2022 meetings
- 6/2/2022 – 1st review letter received for DIA from T&H. Chad copied on email.
- 7/5/2022 – Emailed Chad about not receiving the additional DRI form
- 7/11/2022 – received an email from Chad Zittrouer requesting to table this application to the September 2022 meetings.

From: Chad Zittrouer
To: Melanie Ellis; Brian Harvey
Cc: Brett Bennett
Subject: Rice Hope Commerce Center
Date: Monday, July 11, 2022 3:05:59 PM

Please accept this request to table to rezoning application for the above referenced property to September 12, 2022 for planning commission and September 22, 2022 for city council.

Thanks,

Chad Zittrouer

Sent from my iPhone

ESTD 1946
THOMAS & HUTTON

50 PARK OF COMMERCE WAY
SAVANNAH, GA 31405 | 912.234.5300
THOMASANDHUTTON.COM

June 2, 2022

Mr. Brian Harvey
Director of Development Services
City of Port Wentworth
305 South Coastal Highway
Port Wentworth, GA 31407

Re: Rice Hope Commerce Center ZMA
7-0906-04-011
Port Wentworth, Georgia
Development Impact Assessment Review
J-25412.0033

Dear Brian:

We have received the Zoning Map Amendment Development Impact Assessment for the referenced project submittal. The following information was included in the submittal package:

- One (1) copy of the Port Wentworth Zoning Map Amendment Application
- One (1) copy of a written legal description of the property
- One (1) copy of a list of adjacent property owners
- One (1) copy of a property plat
- One (1) copy of a proposed development site plan
- One (1) copy of a Disclosure of Campaign Contributions & Gifts Form
- One (1) copy of signed property owner agreements
- One (1) copy of a Development Impact Assessment (DIA) prepared by Kern & Company, dated April 22, 2022
- One (1) copy of Development of Regional Impact (DRI) Initial

This Zoning Map Amendment Development Impact Assessment review was completed based on our interpretation of the latest City of Port Wentworth zoning ordinance and development regulations. Thomas & Hutton's review was performed in an effort to assess if the Development Impact Assessment for the proposed rezoning is in conformance with Appendix B, Article V, Section 5.2 of the City of Port Wentworth Code of Ordinances. Our review shall not be interpreted as a detailed technical analysis of the design or for verification of technical sufficiency for elements of design. Under no circumstances shall our review and comments

related to submitted documents relieve the Applicant's Design Professional of their professional obligations and professional standards of care. As such, all materials submitted by the Applicant's Design Professional shall be the sole responsibility of the Applicant's Design Professional. Thomas & Hutton shall not accept any responsibility for any liability due to design and construction, in whole or in part, for any aspect of the design and construction of design documents. Review and approval of the submitted Development Impact Assessment does not alleviate the Applicant or the Applicant's Agent of the need for approval from the City for a specific site development upon the property or properties in question.

We have reviewed the submittal package and offer the comments noted below for consideration.

Zoning Map Amendment (ZMA) Application Comments

1. Please provide a copy of receipts showing paid filing fees, as per Zoning Map Amendment Application Form, as well as, Appendix B, Article XIV of the Port Wentworth Code of Ordinances.

2. Please provide a Disclosure of Financial Interests Form, as per Zoning Map Amendment Application Form.

Development Impact Assessment (DIA) Comments

I. Executive Summary: No comments.

II. Introduction, Project Description, Objective, Environmental Setting: No comments.

III. Project Impacts & Mitigation Alternatives:

A. Fiscal: No comments.

B. Community Facilities:

1. Water Supply & Distribution:

a. The daily water consumption rate of warehouses is 10 GPD per 1,000 square feet, as per Section 3.5.4, Exhibit 2 of the Port Wentworth CDM. Current water supply calculations appear to utilize a daily water consumption rate of 3 GPD per 1,000 square feet. Please provide clarification or revise.

b. Please include fire flow calculations, as per Appendix B, Article V, Section 5.2, Development Impact Assessment Format subsection of the Port Wentworth Code of Ordinances.

2. Wastewater Collection & Treatment:

   a. The wastewater collection & treatment materials provided appear to utilize a daily water consumption rate lower than the amount specified in the Port Wentworth CDM, similar to Comment (a) from the Water Supply & Distribution section above. Please provide clarification or revise, as necessary.

   b. Please note that Water/Wastewater Availability Form is required for Specific Development Plan review submittal, as per Section 3.5.2, of the Port Wentworth CDM.

3. Solid Waste: Please provide assumptions used to determine the annual solid waste generated by the site will be less than 1,922 tons annually.

4. Stormwater Management: Applicant has provided an adequate narrative of future stormwater management measures to be taken. Please acknowledge that full stormwater requirements will be implemented and submitted with the Specific Development Plan, as per Section 3.7 of the Port Wentworth CDM.

5. Stormwater Quality: Applicant has provided an adequate narrative of stormwater quality measures to be taken. Please note full calculations will be required with the submittal of the Specific Development Plan, as per Section 3.7 of the Port Wentworth CDM.

6. Schools: No comments.

7. Parks & Recreation: No comments.

8. Public Safety (Police & Fire): No comments.

9. Traffic Impact Study:

   a. Existing Traffic Conditions: Please provide accident data for intersections adjacent to site, as per Appendix B, Article V, Section 5.2, Traffic Impact Study Format subsection of the Port Wentworth Code of Ordinances.

C. Environmental Quality:

1. Noise:

   a. Study: Applicant has identified the noise ordinance specifications for new development. Please provide a noise study, including existing ambient noise levels and estimated noise level data for the proposed development, as per Appendix B, Article V, Section 5.2, Development

Impact Assessment Format subsection of the Port Wentworth Code of Ordinances.

b. Required Improvements: If noise study finds that noise levels exceed ordinance specifications, please provide a detailed proposal for noise-reduction measurements, as per Appendix B, Article V, Section 5.2, Development Impact Assessment Format subsection of the Port Wentworth Code of Ordinances.

2. Jurisdictional & Non-Jurisdictional Wetlands: Please provide narrative discussion of wetlands impacts and mitigation measures as per Appendix B, Article V, Section 5.2, Subsection Development Impact Assessment Format of the Port Wentworth Code of Ordinances.

3. Floodplains: No comments.

4. Waters of the State: No comments.

5. Historic Resources: No comments.

D. Comprehensive Plan: No comments.

E. Proposed Operation Plan: No comments.

Preliminary Plan Sheet Comments

1. Please indicate the location of all proposed stormwater detention facilities discussed in the Stormwater Quality section of the submitted DIA. Currently, only stormwater detention ponds could be located using the materials within the submittal package.

2. Please indicate the location of any noise reduction measures, if applicable, as per Appendix B, Article V, Section 5.2, Development Impact Assessment Format subsection of the Port Wentworth Code of Ordinances.

3. Please include topographical survey data, as stated in the Preliminary Site Plan requirements in Appendix B, Article V, Section 5.2, Development Impact Assessment Format subsection. A U.S. Geological Survey was located within the submittal package but appears to be missing labels or a legend that would distinguish elevation data.

4. Please include soils data, as stated in the Preliminary Site Plan requirements in Appendix B, Article V, Section 5.2, Development Impact Assessment Format. A U.S. Geological Survey was located within the submittal package but appears to be missing labels or a legend that would distinguish soil data.

Please note that full development standards and requirements must be submitted with the Specific Development Plan for the site. Thank you for your attention to this project. If there are any questions or comments, please feel free to call us at (912) 234–5300.

Sincerely,

THOMAS & HUTTON

Dana Scheetz

Developments of Regional Impact

DEVELOPMENT OF REGIONAL IMPACT
Initial DRI Information

This form is to be completed by the city or county government to provide basic project information that will allow the RDC to determine if the project appears to meet or exceed applicable DRI thresholds. Refer to both the Rules for the DRI Process and the DRI Tiers and Thresholds for more information.

Local Government Information

Submitting Local Government:	City of Port Wentworth
Individual completing form:	to be completed by the City of Port Wentworth
Telephone:	to be completed by the City of Port Wentworth
E-mail:	to be completed by the City of Port Wentworth

*Note: The local government representative completing this form is responsible for the accuracy of the information contained herein. If a project is to be located in more than one jurisdiction and, in total, the project meets or exceeds a DRI threshold, the local government in which the largest portion of the project is to be located is responsible for initiating the DRI review process.

Proposed Project Information

Name of Proposed Project:	Rice Hope Commerce Center
Location (Street Address, GPS Coordinates, or Legal Land Lot Description):	Rice Hope Plantation Road - 32 D 13' 49" N 81 D 11' 03" W
Brief Description of Project:	Approximately 961,000 SF Warehouse Development with associated infrastructure improvements

Development Type:

(●) (not selected)	( ) Hotels	( ) Wastewater Treatment Facilities
( ) Office	( ) Mixed Use	( ) Petroleum Storage Facilities
( ) Commercial	( ) Airports	( ) Water Supply Intakes/Reservoirs
( ) Wholesale & Distribution	( ) Attractions & Recreational Facilities	( ) Intermodal Terminals
( ) Hospitals and Health Care Facilities	( ) Post-Secondary Schools	( ) Truck Stops
( ) Housing	( ) Waste Handling Facilities	( ) Any other development types
(X) Industrial	( ) Quarries, Asphalt & Cement Plants	

If other development type, describe:

Project Size (# of units, floor area, etc.):	Approximately 961,000 SF Warehouse/Distribution
Developer:	Greenland Developers, Inc.
Mailing Address:	P O Box 1628
Address 2:	
	City: Springfield State: GA Zip: 31329
Telephone:	912-661-1086
Email:	brett@greenland-developers.com
Is property owner different from developer/applicant?	(not selected) (X) Yes ( ) No
If yes, property owner:	Buck Island, LLC & BEP Land Investors, LLC
Is the proposed project entirely located within your local government's jurisdiction?	(not selected) (X) Yes ( ) No
If no, in what additional jurisdictions is the project located?	
Is the current proposal a continuation or expansion of a previous DRI?	(not selected) ( ) Yes (X) No
If yes, provide the following information:	Project Name: Project ID:
The initial action being requested of the local government for this project:	[X] Rezoning [ ] Variance [ ] Connect Sewer [ ] Connect Water [ ] Permit [ ] Other
Is this project a phase or part of a larger overall project?	(not selected) (X) Yes ( ) No
If yes, what percent of the overall project does this project/phase represent?	Approximately 25%
Estimated Project Completion Dates:	This project/phase: 2024 Overall project: 2024

Submit Application | Save without Submitting | Cancel

Back to Top

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LINE TABLE		
LINE	BEARING	LENGTH
L1	S 71°49'11" E	11.98'
L2	S 06°09'51" W	39.95'
L3	S 02°29'35" W	51.84'
L4	S 20°02'11" W	56.39'
L5	S 04°12'35" W	57.87'
L6	S 28°11'33" E	54.52'
L7	S 47°18'34" E	38.50'
L8	S 75°30'03" E	30.20'
L9	S 81°40'10" E	31.80'
L10	S 86°37'34" E	35.94'
L11	S 65°37'13" E	35.86'
L12	S 31°41'16" E	47.16'
L13	S 52°36'16" E	40.58'
L14	S 88°28'18" E	43.61'
L15	N 88°02'12" E	46.15'
L16	N 31°29'51" E	16.90'
L17	N 64°16'38" W	31.12'
L18	N 81°27'58" W	21.76'
L19	N 38°22'33" W	31.07'
L20	N 37°26'26" W	27.05'
L21	N 52°30'25" W	25.61'
L22	N 10°49'10" W	33.36'
L23	N 21°14'29" E	31.66'
L24	N 39°11'00" W	34.67'
L25	N 21°01'00" W	38.04'
L26	N 52°38'11" E	44.03'
L27	N 67°22'48" E	35.84'
L28	S 85°56'50" E	30.18'
L29	S 59°14'05" E	35.29'
L30	S 49°10'47" E	26.43'
L31	S 60°14'26" E	13.63'
L32	S 25°01'32" E	39.29'
L33	S 69°29'29" E	37.64'
L34	S 66°29'03" E	32.69'
L35	S 48°57'22" E	36.41'
L36	S 63°09'48" E	33.58'
L37	N 54°49'51" E	30.48'
L38	N 74°05'34" E	14.93'
L39	N 88°26'41" W	7.09'
L40	N 82°03'58" W	28.19'
L41	N 14°11'42" W	24.59'
L42	N 79°01'12" W	36.16'
L43	N 69°44'52" W	24.54'
L44	N 62°06'07" W	38.62'
L45	N 74°52'53" W	30.60'
L46	N 41°23'19" W	28.87'
L47	N 01°51'36" E	29.79'
L48	N 36°25'16" E	36.39'
L49	N 35°31'38" E	49.86'
L50	N 26°59'23" W	40.07'
L51	N 54°56'56" W	28.70'
L52	N 59°57'17" W	45.11'
L53	N 70°10'49" W	43.03'
L54	N 03°39'01" W	29.31'
L55	N 01°07'56" E	32.03'
L56	N 36°20'51" W	30.80'
L57	N 77°12'42" W	43.93'
L58	S 85°29'24" W	27.37'
L59	S 69°03'09" W	40.05'
L60	S 69°25'27" W	31.97'
L61	N 86°45'55" W	31.28'
L62	N 54°40'07" W	49.23'
L63	N 36°04'27" W	18.38'
L64	N 52°15'19" W	29.91'
L65	N 60°19'54" W	30.93'
L66	N 16°35'25" W	17.11'
L67	N 06°29'03" W	27.44'
L68	N 02°49'48" E	23.39'
L69	N 47°27'04" W	27.28'
L70	N 44°04'51" W	35.35'
L71	N 64°20'01" W	34.96'
L72	N 36°31'21" W	22.86'
L73	N 58°19'31" E	25.34'
L74	N 04°43'15" E	28.55'
L75	N 49°59'05" W	45.22'
L76	S 72°31'54" W	30.37'
L77	N 79°39'19" W	37.92'
L78	N 82°19'34" W	31.82'
L79	N 81°43'22" W	26.90'
L80	N 20°46'27" W	25.55'
L81	N 42°04'02" E	17.63'
L82	N 14°18'22" E	28.37'
L83	N 55°59'29" E	31.68'
L84	N 19°55'50" E	19.59'
L85	N 59°43'37" W	42.98'
L86	N 33°02'17" W	15.28'
L87	N 07°09'35" E	30.31'

NOTE:
LINE LABELS ARE NUMBERED CONSECUTIVELY. SOME LABELS HAVE BEEN OMITTED FOR CLARITY AND LEGIBILITY.

REMAINING PORTION OF TRACT B

PORTION OF TRACT B
184.93 Acres

N/F DUFFIN

N/F V.STEELE

N/F MAZZA

N/F POWELL

N/F GRAHAM

N/F HARRELL

N/F HILL

N/F HARRY JACK STEWART

N/F PAUL T. STEWART SR.

TRACT C OF THE REMAINING PORTION OF THE JULIAN F. CHISHOLM TRACT

Effingham County
Chatham County

S77°35'55"E 4801.71'

GRID NORTH

BFE (ZONE AE) = 9.0 (NAVD 88)
BFE (NAVD 88) = 8.0
ZONE X

N06°32'01"E 1668.24'

N06°20'02"E 421.08'

S86°18'43"W 458.89'

S07°20'18"W 1449.11'

N07°20'02"E 1449.03'

S33°46'18"W 1127.40'

N81°12'09"W 435.33'

S33°17'17"W 856.14'

S81°52'06"W 140.35'

N82°36'07"W 341.98'

S86°20'18"W 702.49'

N63°25'29"W 396.23'

N82°53'20"W 360.18'

RICE HOPE ROAD
(PRIVATE ROAD)
30' ACCESS EASEMENT

P.O.B.
PORTION OF
TRACT B

SEE INSET BELOW

RICE HOPE ROAD
(PRIVATE ROAD)
30' ACCESS EASEMENT

RICE HOPE ROAD
(PRIVATE ROAD)
30' ACCESS EASEMENT

100' SAVANNAH ELECTRIC & POWER COMPANY EASEMENT & CITY OF SAVANNAH WATER MAIN EASEMENT

30' UTILITY EASEMENT
(CENTERED ON POWERLINE)

30' UTILITY EASEMENT
(CENTERED ON POWERLINE)

INSET
NOT TO SCALE

P.O.C.

OLD AUGUSTA ROAD
50' R/W

S83°23'22"E 677.61'
S83°22'09"E 287.58'
S83°20'05"E 463.24'
S78°07'37"E 334.85'
S57°24'31"E 394.58'

LINE TABLE		
LINE	BEARING	LENGTH
L1	N 06°41'27" E	30.20'
L2	S 63°17'49" E	177.72'
L3	S 67°33'59" E	46.32'

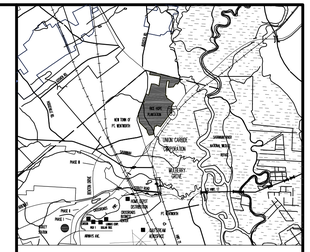
P.O.B.
PORTION OF
TRACT B

LEGEND

FRESHWATER WETLAND IMPACTS

- PRESERVED JURISDICTIONAL FRESHWATER WETLANDS
- NON-JURISDICTIONAL WETLANDS
- PROPOSED UNDISTURBED FRESHWATER WETLAND BUFFERS
- FRESHWATER WETLAND ENHANCEMENT
- FRESHWATER WETLAND IMPACT (ROADWAY CROSSING)
- FRESHWATER WETLAND IMPACT (GENERAL FILL)
- FRESHWATER WETLAND IMPACT (LAGOON EXCAVATION)

NOTE:
THIS EXHIBIT DRAWING WAS PREPARED FROM A COMPILATION OF PREVIOUS SURVEYS AND SHOULD NOT BE CONSIDERED A BOUNDARY SURVEY OF THE PROPERTY SHOWN.



VICINITY MAP (NOT TO SCALE)

THIS DOCUMENT AND ALL REPRODUCIBLE COPIES OF THIS DOCUMENT ARE THE PROPERTY OF THOMAS & HUTTON ENGINEERING COMPANY. REPRODUCTION OF THIS DOCUMENT IS NOT PERMITTED WITHOUT WRITTEN CONSENT OF THOMAS & HUTTON ENGINEERING CO. UNLESS THIS DOCUMENT BECOMES A MATTER OF PUBLIC RECORD. ALTERATIONS TO THIS DOCUMENT ARE NOT PERMITTED.

ACREAGE SCHEDULE

UPLANDS	120.985 ACRES
100' CITY OF SAVANNAH/ SEPCO EASEMENT	6.203 ACRES
ACCESS EASEMENT	0.792 ACRES
WETLAND BUFFER	9.939 ACRES
JURISDICTIONAL WETLAND IMPACTS	6.708 ACRES
ISOLATED WETLAND IMPACTS	0.645 ACRES
WETLAND ENHACEMENT	2.637 ACRES
PRESERVED WETLAND	37.021 ACRES
TOTALS	184.930 ACRES

NO.	REVISION	BY	DATE
1	GENERAL REVISIONS	JRW	11/27/07

AN EXHIBIT OF

A PORTION OF TRACT B BEING A PORTION OF THE JULIAN F. CHISHOLM TRACT AND BEING A PORTION OF RICE HOPE PLANTATION

8th G.M.D.
CITY OF PORT WENTWORTH
CHATHAM COUNTY, GEORGIA

PREPARED FOR:
RICE HOPE DEVELOPMENT, INC.

THOMAS & HUTTON ENGINEERING CO.
50 PARK OF COMMERCE WAY, P.O. BOX 2727
SAVANNAH, GA 31405 / (912) 234-5300
www.thomas-hutton.com

200 0 100 200 400
SCALE: 1 INCH = 200 FEET

SCALE	1" = 200'
FILE	J-20147
FIELD DATE	N/A
EXHIBIT DATE	11/12/07
DRAWN BY	J.R.W.
REVIEWED BY	T.R.L.
APPROVED BY	W.C.P.
PARTY CHIEF	A.S.

LEGEND

USE IS CONTROLLED BY STREET CLASSIFICATION OF THE MPO ORDINANCE*

- TOWN CENTER
- SCHOOL
- MULTI-FAMILY
- ACTIVE AMENITY PARK
- EXISTING FRONT LOADED LOTS
- EXISTING LOTS TO BE COVERTED TO FRONT LOADED
- FRONT LOADED DEVELOPMENT
- EXISTING LOTS REAR LOADED ONLY

FRONT LOADED PRODUCT AS DEPICTED ON THE APPROVED GENERAL DEVELOPMENT PLAN VOTED ON BY PORT WENTWORTH CITY COUNCIL IN OCTOBER, 2003

* PROPERTIES MARKED WITH AN * ARE NOT OWNED BY BEP AND THE LAND USES SHOWN ARE ASSUMED FROM EITHER THE CURRENT USE ON THE PROPERTY OR THE ORIGINAL LAND USE SHOWN ON THE 2003 GENERAL DEVELOPMENT PLAN.

MULTI FAMILY

100,800 SF
480' x 210'

280,000 SF
1,000' x 280'

130,200 SF
420' x 310'

450,000 SF
1,250' x 360'

EXISTING RICE HOPE PLANTATION ROAD (DIRT)

EXISTING RICE HOPE PLANTATION ROAD (DIRT)

MULBERRY

MULTI FAMILY

MULBERRY BLVD.

MARKET BLVD.

TOWN CENTER

* SCHOOL

PRESERVED WETLANDS (TYP.)

ACTIVE AMENITY PARK

LAKESIDE BLVD.

LAKESIDE

WELCOME CENTER

INTERSTATE 95

LAKE

OPEN PACE

PARKSIDE BLVD.

OPEN SPACE

PARKSIDE

HIGHWAY 21

BLACK CREEK

* MULTI FAMILY

PLANNED / FUTURE CITY OF SAVANNAH WATER RESERVOIR

- TOWN BOULEVARD
- NEIGHBORHOOD BOULEVARD
- AVENUE
- FRONTAGE STREET
- MAJOR STREET
- MINOR STREET
- ROAD
- LANE
- EXISTING RICE HOPE PLANTATION ROAD (DIRT)

APPROVED BY THE PORT WENTWORTH PLANNING COMMISSION

PLANNING COMMISSION CHAIRPERSON _____ DATE _____

APPROVED BY THE MAYOR AND ALDERMEN, CITY OF PORT WENTWORTH

MAYOR _____ DATE _____

COUNCIL MEMBER _____ DATE _____

COUNCIL MEMBER _____ DATE _____

COUNCIL MEMBER _____ DATE _____

COUNCIL MEMBER _____ DATE _____

COUNCIL MEMBER _____ DATE _____

COUNCIL MEMBER _____ DATE _____

NOTES

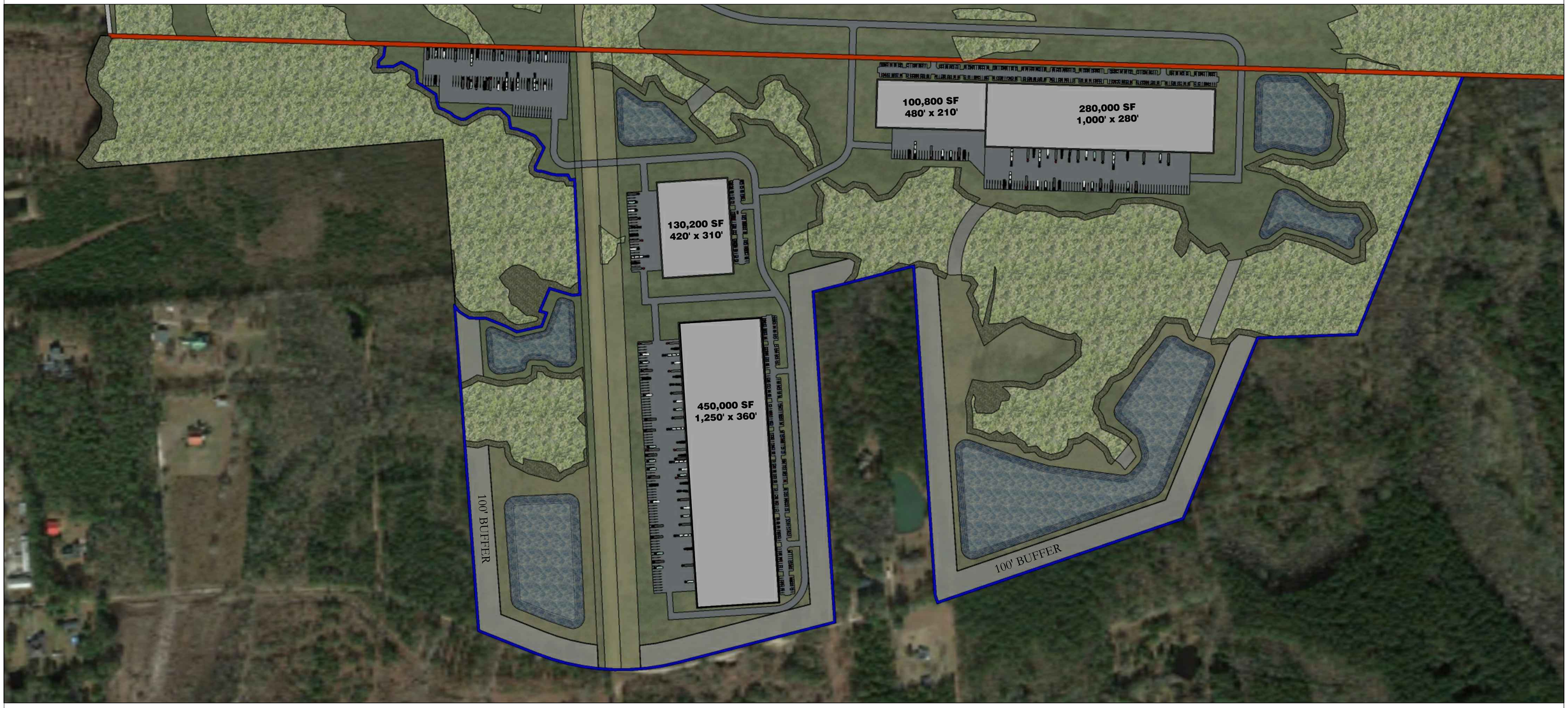
1) PER APPROVED DRI, THE TOTAL ALLOWED NUMBER OF UNITS FOR ENTIRE MASTER PLAN IS 3,000 D.U. AND 1,000,000 S.F. OF TOWN CENTER
2) LOT SIZE IS CONTROLLED BY STREET CLASSIFICATION OF THE MPO ORDINANCE*.
3) LOT USE IS CONTROLLED BY THE STREET CLASSIFICATION OF THE MPO ORDINANCE*.
4) BUILDING SIDE AND REAR SETBACKS ARE CONTROLLED BY CITY OF PORT WENTWORTH FIRE CODE.
5) STREET LAYOUT IS FOR ILLUSTRATION ONLY AND MAY VARY IN ACCORDANCE WITH THE THE MPO ORDINANCE*.
6) MINOR STREET LOT COVERAGE SHALL BE 80% MAXIMUM. ALL OTHER LOT COVERAGE IS AS LISTED IN THE MPO ORDINANCE*.
7) BLOCK LENGTHS MAY BE UP TO 1,600 LINEAR FEET.
8) OPEN SPACE AND LAKES ARE FOR ILLUSTRATION PURPOSES ONLY AND FINAL SIZE AND LOCATION SHALL COMPLY WITH THE MPO ORDINANCE*.

* MPO ORDINANCE - OCTOBER 20, 2003

CONCEPT PLAN OF
RICE HOPE COMMERCE CENTER
PORT WENTWORTH, GA

APRIL 25, 2022

KC PROJECT # 210163.000



GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

Kern & Co., LLC
Consulting Engineers • Land Surveyors • Land Planners
Architects • Landscape Architects • Environmental Scientist
7 Mall Court (31406) • P.O. Box 15179 • Savannah, Georgia 31416
Phone: (912) 354-8400 Fax: (912) 356-1865 Email: info@kernengineering.com

Wed, 27 Apr 2022 - 8:55am cstinnett
DRAWING PATH: G:\2021\210163.000\dwg\Old Augusta-Design 4.1.22.dwg

DEVELOPMENT IMPACT ASSESSMENT

RICE HOPE COMMERCE CENTER

RICE HOPE PLANTATION ROAD
PORT WENTWORTH, GA

PROJECT NO. 210163.010

PREPARED BY:

KERN & CO., LLC.
P.O. BOX 15179
7 MALL COURT
SAVANNAH, GA 31406
(912)-354-8400
FAX (912)-356-1865

April 22, 2022

I. *Executive Summary-*

The subject property is a portion of the original Rice Hope MPO which was adopted by the City of Port Wentworth Mayor and Council on October 30, 2003 (Exhibit A) and the amended master plan adopted on November 24, 2015 (Exhibit B). The subject property is 184.93 acres. The proposed development would re-route an approximately 1,500 remaining residential units from utilizing the existing access via Mulberry Ave, Market Boulevard and Lakeside Boulevard and re-route the proposed development North via a new roadway in Effingham County which connects to Old Augusta Rd.

II. *Introduction, Project Description, Objective, Environmental Setting-*

The proposed development consists of 961,000 SF of warehouse space associated auto parking, trailer parking, drainage, utility, access and infrastructure improvements. The property is currently unoccupied. The subject property is mixture of timber acreage, wetland areas, cleared areas, and areas which have been utilized as a borrow source for adjacent developments.

III. *Project Impacts and Mitigation Alternatives-*

A. Fiscal-

The estimated value of this project at the proposed 2025 completion date is $76,880,000.

-Annual Projected Taxes (Based upon $76,880,000 Valuation)

Port Wentworth	County	School Board
$127,928	$354,970	$580,629

B. Community Facilities-

1. Water Supply and Distribution- The development intends to connect to existing City of Port Wentworth Water Supply System. Improvements will be the responsibility of the owner/developer.

   Estimate: 961,000 SF Total

Office: 28,830 SF @ 15 GPD / 200 SF =	2,162 GPD
Warehouse: 932,170 SF @ 3 GPD / 1000 SF =	2,797 GPD
Total:	4,959 GPD

   The estimated demand for this site will be 4,959 GPD.

2. Wastewater Collection and Treatment- The development intends to connect to existing City of Port Wentworth Sanitary Sewer Collection System utilizing a pumping station and force main. Improvements will be the responsibility of the owner/developer.

   Estimate: 961,000 SF Total

Office: 28,830 SF @ 15 GPD / 200 SF =	2,162 GPD
Warehouse: 932,170 SF @ 3 GPD / 1000 SF =	2,797 GPD
Total:	4,959 GPD

   The estimated demand for this site will be 4,959 GPD.

3. Solid Waste- No amount of hazardous waste will be generated by the development. Each individual facility shall incorporate hazardous waste guidelines into their operation plan. OSHA, EPD as well as other state and federal regulations shall be utilized for the preparation of these guidelines. The amount of non-recycled solid waste generated annually from the site is projected to be less than 1,922 tons. Additional waste such as pallets, cardboard, etc. shall be recycled. Each individual facility shall have on-site dumpsters and recycling containers.

4. Stormwater Management- The parcel drains directly into Knoxboro Creek, a tributary of the Savannah River. Post-development run-off rates will be required to meet Pre-development run-off rates and comply will all local, state and federal stormwater regulations. There will be a series of detention ponds, swales and additional stormwater infrastructure incorporated into the development as shown on the general development site plan. The design and construction of all stormwater infrastructure shall be in conformance with the City of Port Wentworth ordinances, policies, codes and guidelines and will be shown in detail in the specific development plan.

5. Stormwater Quality- The City of Port Wentworth requires compliance with the Georgia Coastal Stormwater Supplement, the development will meet the requirements utilizing grassed swales, grassed channels, stormwater ponds and additional BMP's listed in the Coastal Stormwater Supplement to address water quality and shall comply with the best management practices described in the City of Port Wentworth's stormwater ordinance.

6. Schools - The development of this project will have minimal direct impact on the local school system. However, an estimated 50 employees will reside in Chatham County with approximately 50% of those families having children attending public school.

7. Park and Recreation- The development of this project will not have an impact on the local parks and recreation facilities.

8. Public Safety (Police and Fire)- The development of this project should have minimal impact on the police and fire departments. The truck court areas will have secure fencing and be well lit. In addition, all gates will have knox box features for emergency vehicle access and each of the buildings will have an ESFR fire system.

9. Traffic Impact Study-

   See Attached Exhibit C

C. Environmental Quality

1. Noise- The noise ordinance identifies the maximum receiving sound level limit to 55 dBA.

2. Jurisdictional and Non-Jurisdictional Wetlands- Jurisdictional letters of approval and wetland permitting has been provided from the United States Army Corps of Engineers. See attached Exhibit D.

3. Floodplain- Based on my observation these properties are located .in Federal Emergency Management Agency, Insurance Rate Map Number 13051C0030G, Dated 8/16/18, Base Flood Elevation: 14', NAVD 88. See attached Exhibit E.

4. Water of the State- Tidal impacted state waters do not exist on site. In addition, the GADNR utilizes a "Field Guide for Determining the Presence of State Waters that Require a Buffer". Utilizing the field guide, there was no presence of wrested vegetation requiring a buffer within the proposed development area. Based upon this determination, the only proposed state waters impacts are the jurisdictional wetland impacts which we acknowledge, the required permits to be obtained prior to development.

5. Historic Resources- No evidence of historical site observed.

D. Comprehensive Plan- The proposed development complies with the City of Port Wentworth's Comprehensive Plan. The proposed plan supports minimizing usage of water and wastewater with the proposed zoning to P-I-1 (warehouse distribution has one of the lower user rates per acre of development compared to other commercial or residential uses). The comprehensive plan identifies greenspace preservation to ensure adequate land area is available for stormwater infiltration. Based upon our site plan with the anticipated wetlands preservation, in excess of 50% of our development will be greenspace preservation area.

E. Proposed Operating Plan- The proposed operating plan has not been defined at this time as we await results of the zoning application. However, the intent of the facility is to provide multiple warehouse distribution facilities which will operate under individual operating plans, these plans will ensure compliance with all federal, state and local regulations. The individual operating plans will also include but not limited to safety protocols and OSHA compliance. The proposed operating hours will be dictated by the individual

tenants and their operation needs. Generally, the tenants serving the Georgia Port Authority operate during the same hours as the port. In addition, the property owner's association of the overall development will have an operating plan which will include maintenance of roadways, stormwater infrastructure, detention basins, etc. in addition to typical landscape/lawn maintenance.

ORDINANCE NO. 03-22

An ORDINANCE for the purpose of amending Article V "Zoned Districts", Section 5.2 "Definition of Zoning Districts", "MPO Master Plan Overlay" of the Zoning Ordinance of the City of Port Wentworth.

AMENDED: Deleting entirely Article V "Zoned Districts", Section 5.2 "Definition of Zoning Districts", "MPO Master Plan Overlay"

REPLACING WITH: Article V "Zoned Districts", Section 5.2 "Definition of Zoning Districts", "MPO Master Plan Overlay" as follows:

MPO Master Plan Overlay

The purpose of this district shall be to assure continuity of development with the Port Wentworth Master Plan, as envisioned by the Port Wentworth citizens and City Council. This overlay district shall provide for review of all developments within this district.

(1.) INTENT. The intent of this section in establishing the overlay districts is to promote orderly development which implements the urban design concepts of the City of Port Wentworth Master Plan; promote human-scale development and mixed but compatible land uses; promote economic development of the city, promote high quality development; minimize safety hazards to vehicles and pedestrians; and enhance the quality of life for Port Wentworth's citizens.

(1.1) Definition of Districts. These districts shall be collectively referred to as the Master Plan Design Districts, as amended, and defined as specified below.

A. Phase 1 -- The area bordered by Highway 21 to the east, Highway 30 to the south, the western Norfolk Southern rail line to the west, and the Chatham/Effingham County line to the north.

B. Phase 2 -- The area bordered by Highway 21 to the west, the Chatham/Effingham County line to the north, Interstate 95 to the east, and the intersection of Highway 21 and Interstate 95 to the south.

C. Phase 3 -- The area bordered by Phase 1 to the north (Norfolk Southern rail line and Highway 30), the Chatham/Effingham County line to the east, Highway 30/Meinhard Road to the south, and Interstate 95 to the east.

(1.2) Additional Definitions. These definitions are supplemental to and/or supercede definitions of the existing Port Wentworth Zoning Ordinance, Article III, and Article XV, Section 2.

A. *Arborist* – A person who has been trained in the business of diagnosing, treating, pruning, and tree removal. A certified arborist shall be certified by the International Society of Arboriculture.

B. *Carport* – A roofed structure providing space for the parking of motor vehicles and enclosed on not more than three sides.

C. *Cartway* – The area of a street intended for vehicular travel, commonly referred to as traffic lane.

D. *Critical Root Zone (CRZ)* – The area containing the roots of a tree that must be protected for tree survival.

E. *Diameter Breast Height (DBH)* – The total diameter, in inches, of a trunk or trunks, in the case of trees with multiple trunks, measure four and one-half feet (4 ½') above existing grade.

F. *Garage, Private Residential* – A structure that is accessory to a residential building and that is used for the parking and storage of vehicles owned and operated by the residents thereof and that is not a separate commercial enterprise available to the general public.

G. *Grand Tree* – A tree twenty-four inches (24") or greater DBH, excluding conifers.

H. *Protected Tree* – A tree eight inches (8") or greater DBH, excluding conifers.

I. *Specimen Tree* – A tree that is of significant size for that species as determined by an arborist, landscape architect, forester or other tree professional.

J. *Setback* – The distance between the principle building and any lot line.

K. *Traditional Neighborhood Development (TND)* – A comprehensive planning system resembling development patterns dominant in the early 20th century. Features include a wide variety of housing types to promote diverse neighborhoods and mixed land uses to allow educational, civic and office buildings, and retail establishments within walking distance of private homes. The transportation network is an interconnected system of streets and paths designed to be suitable for pedestrians and bicycles as well as automobiles. Equal attention is given to the public and private spaces creating a balanced community that services a wide range of homes and business owners. The addition of civic buildings and the reservation of open space in a TND enhance community identity and value.

L. Yard – The open space on a lot situated between the principal building on the lot and the lot line. In measuring a yard for determining the width of a side yard, the depth of a front yard, or the depth of a rear yard, the minimum horizontal distance between the lot line or sidewalk and principal building shall be used, excluding stoops, exterior stairs, and windows.

   a Yard, Front – Area between the principal building and front lot line
   b. Yard, Perimeter – A yard which surrounds the principal building on all four sides
   c. Yard, Rear – Area between the principal building and the rear lot line.
   d. Yard, Side – Area between the principal building and the side lot line.

(2.) General Considerations

(2.1) Background. The City of Port Wentworth is undergoing a revitalization effort to reverse the trends of declining population that have occurred over the past ten years. The current heart of Port Wentworth is being impacted by activities of the neighboring Georgia Ports Authority, related private sector industries, and other impacts that are unsuitable for a residential area. These activities have resulted in acquisition of private homes and increased truck traffic on South Coastal Highway, which was once the city's commercial center. The City of Port Wentworth offers little to new businesses, other than industrial uses, or residents in the proximity of the core city. For this reason, the City is looking at the areas addressed through this overlay district as the focus of future development for Port Wentworth. These areas are largely undeveloped, with the exception of small pockets of residential development. Current expansion of water and sewer infrastructure will help foster development in this area.

(2.2) Guiding Principles. In order to foster growth that will lead to the type of community desired by the citizens of Port Wentworth, the City is preparing a master plan for development. This master plan is being developed based on the principles of traditional neighborhood development (TND). Over the past several decades, traditional zoning has promoted segregated land uses, excessive minimum lot sizes, and disconnected street patterns. These characteristics have largely contributed to traffic congestion, excessive reliance on automobile ownership, social inequity, and inefficient land use. Through the use of TND principles, the master plan will result in a community of connected neighborhoods with a distinct town center, rather than a series of isolated subdivisions and strip shopping centers. Certain areas will encourage residential units above retail shops, while other areas will allow a neighborhood store in close proximity to single-family housing. Neighborhoods will be connected through a grid street pattern and a multi-purpose trail system.

(2.3) Application Procedure. Projects in the Master Plan Design Districts that require subdivision must first prepare a master plan to be reviewed by the City. **All master plans require review and approval by the Port Wentworth Planning Commission and City Council.** The Port Wentworth Planning Commission has primary responsibility for review of proposed projects in the Master Plan Design Districts. It is strongly recommended that the property owners or developers submit the master plan of the proposed project to the Port Wentworth Planning Commission for informal staff review prior to their submittal of the final Master Plan and application. Staff is available to meet with property owners or developers. Conceptual designs may take the form of dimensioned sketches, or may be more refined. However, the graphics should enable staff to determine if there are obvious conflicts with applicable codes and regulations.

Standard applications for zoning changes, ground disturbance permits, sign permits, and building permits shall be utilized for proposed projects in the Master Plan Design Districts. All applications within the boundaries of these districts shall clearly state that the project is located within the (appropriate name) Master Plan Design Districts. Procedures mandated in the City of Port Wentworth Zoning Ordinance, City of Port Wentworth Subdivision Ordinance, Section 5, and the Standard Building Code (SBCC) shall be followed.

(2.3.1) Approval - Approval by the Mayor and Council of the City of Port Wentworth of the Master Plan for a parcel submitted by an applicant shall establish the basic right of use and design for that parcel. Subsequent submittals of site plans, preliminary plats, and final plats shall be reviewed on the basis of consistency with the Master Plan. Street layout and location may vary from the approved Master Plan provided that street types comply with Section 3.

(2.4) Determination of applicable code requirements. Whenever a conflict exists between the requirements of the Master Plan Overlay District and any other section of the City of Port Wentworth Zoning and Subdivision Ordinance, the requirements of the Master Plan Overlay District apply.

(2.5) Reserved.

(2.6) Uses.

a. Neighborhood Multi-Family Residential: Applies to a building of multiple dwelling units that is architecturally similar to a single family residential structure in scale and character.

b. Neighborhood commercial: Applies to commercial and office spaces intended to serve local neighborhoods and designed to promote pedestrian activity. Drive-through windows are prohibited.

c. Community commercial: Applies to commercial and office intended to serve the community of Port Wentworth and the region of Chatham County and surrounding counties.

d. Auto-oriented commercial: Applies to commercial or office spaces in freestanding buildings, with accommodations for automobiles such as drive-through windows.

e. Accessory uses: Any use that is permitted in the district shall be permitted as an accessory use.

f. Assisted living facilities: Facilities used for the primary use of senior citizens, designed to provide independent living quarters with meals, personal care, and supervision of self-administered medication.

g. Bed and Breakfast: Overnight accommodations and a morning meal in a dwelling unit provided to transients where meals are available only to guests. The homeowner shall reside on site.

h. Live-work Units: A multi-story building located on an individual fee simple parcel designed to accommodate a single small office or a single retail use on the ground floor with residential units above.

i. Multi-family residential: A building of multiple dwelling units that includes off street parking, onsite open space and onsite recreation facilities. Stairways may be enclosed or located on the exterior of the building, provided that exterior may not serve more than two floors above street or sidewalk level.

j. Public/Institutional: Buildings for public or institutional use, including churches, libraries, etc., shall be featured at prominent sites, such as major intersections or facing a park.

k. Multi-use retail/residential: A multi story building designed to accommodate offices or businesses on the ground floor and residential above. Offices or retail space may extend to upper floors provided the top floor(s) remain residential.

l. Home professional office: A home occupation consisting of the office of a practitioner who is licensed by the State of Georgia.

3. Site Development Standards

(3.1) Master Plan Design District

3.1.1 Use. Use shall be based on preliminary design work of the Phase 1 Master Plan shown in Appendix A.

3.1.2 Streets.

(A) Street Network shall be organized in a grid pattern consistent with the Phase I Master Plan and shall promote orderly development which implements the urban design concepts of the City of Port Wentworth Master Plan; promote human-scale development and mixed but compatible land uses; promote economic development of the city; promote high quality development; minimize safety hazards to vehicles and pedestrians; and enhance quality of life for Port Wentworth's citizens. Street layout should show consideration of natural features such as trees and wetlands; drainage requirements; traffic calming measures; addition or relocation of public spaces; and utility location. Street layout shall be subject to review and approval pursuant to Section 5 of the City of Port Wentworth Subdivision Ordinance.

(B) Block lengths. Any block exceeding 600 feet in length shall include a public ROW for pedestrian access, located approximately mid-block. This access must include a trail or sidewalk of no less than 5 feet in width.

(C) Ownership. All streets shall be public as accepted by the City of Port Wentworth. No gates or other limited access devices shall be allowed on public streets.

3.1.3 Street Classifications

(A) Frontage Street. A multilane street paralleling Highway 21 to provide access to property without placing excessive curb cuts along a major highway. Designed to move traffic efficiently. No on-street parking.

(B) Court. A street providing access to property off a frontage road. These streets will allow for auto-oriented building types. Designed to move traffic efficiently, but at slower speeds than a frontage street. ~~No~~ On-street parking.

(C) Town Boulevard. A large, multilane street with a central, planted median of grand canopy trees and formal landscaping intended to provide access and connectivity. Designed to move traffic efficiently. No on-street parking.

(D) Neighborhood Boulevard. A large, multilane street with a central, planted median of grand canopy trees and formal landscaping intended to be a prominent neighborhood street with large, majestic homes set back from the street. A generous sidewalk encourages pedestrian activity, although this street does not necessarily facilitate street activity. Designed for low vehicular speed, no striped cartway. On-street parking.

(E) Avenue. A prominent street terminating its axis at a civic building or monument. This street is the center of activity and has a vibrant street life. Buildings are built to the sidewalks with common walls. Wide sidewalks, street trees, and street furniture provide a friendly pedestrian atmosphere. On-street parking.

(F) Major Street. This street allows common wall buildings built close to the sidewalk, including row houses and live-work units with higher lot coverage areas. Sidewalks are lined with shade trees to encourage pedestrian activity. On-street parking, no striped cartway.

(G) Minor Street. This is primarily a single-family street. Cartways are narrow to slow traffic and cartways not striped. Cars may have to yield to one another if a car is parallel parked on the street. These streets should have minimal traffic flow and be safe enough for children to ride their bikes in the street. May allow on-street parking, but not formally striped spaces.

(H) Drive. Provides a transition from the neighborhood to natural areas. Lies adjacent to wetlands and lakes and therefore have lower density land uses and lower lot coverage areas. No striped cartway.

(I) Road. Roads provide connection between neighborhoods, primarily through wetland areas. Roads will generally have open drainage and no direct building type association. No on-street parking.

(J) Lane. Lanes provide access to the rear of properties otherwise abutting on a street. Lanes include residential gravel or other improved surface lanes behind houses and paved service lanes behind commercial structures. No parking.

3.1.4 Street Specifications. All figures indicate minimum requirements. Right-of-Way (ROW) – Utilities may be placed within the ROW if space is sufficient. If space is inadequate, a utility corridor is required.

	ROW (Min.)	Pavement Width (Min.)	Sidewalk (Min.)	On-street parking	Bike Lane	Tree Yard (Min.)	Other
Frontage Street	60'	24'	5'/4", concrete	No	Required	NA	
Court	60'	24'	5'/4", concrete	Permitted	Permitted	NA	
Town Boulevard	80'	24' each side of median	5'/4", concrete	No	Required	6'	Median Required
Neighborhood Boulevard	60'	24'each side of median	5'/4", concrete	Permitted	Permitted	6'	Median Required
Avenue	60'	24'	5'/4", concrete	Permitted	Required	4'	
Major Street	60'	24'	5'/4", concrete	Permitted	Permitted	6'	
Minor Street	50'	24'	5'/4", concrete	Permitted	Permitted	4'	
Drive	50'	24'	5'/4", concrete	Permitted	Permitted	6'	
Road	60'	24'	5'/4", concrete	No	Required	6'	
Lane	18'	10'	N	No	N	N	

Additional Notes: 1) When provided, bike lanes shall be in addition to the minimum pavement width. Bike lanes are a separate feature from pedestrian sidewalks and multipurpose trails and shall be constructed as such in accordance with guidelines developed by the American Association of State Highway and Transportation Officials (AASHTO). 2) Pavement width shall be measured back of curb to back of curb, where curbs exist. 3.) Medians may be included on any road which does not already have a median requirement. 4.) Streets may be one-way around parks, civic sites, roundabouts, or small blocks.

3.1.5 Building Specifications.

3.1.5.1 Setback. Setbacks shall be appropriate to provide human-scale proportions along the streetscape. Single-family detached structures shall be built close enough to sidewalk to encourage interaction with pedestrians on the sidewalk. Front porches and stoops may encroach into the setback. Setback or build-to distances will be determined by street classification, as indicated in Section 3.1.11.

3.1.5.2 Orientation. All buildings shall be oriented to the street with the primary entrance facing the street and directly accessible from the sidewalk. Double frontage lots should be avoided.

3.1.5.3 Massing. In general, building width shall not exceed building depth for single story structures.

3.1.5.4 Lot coverage. Maximum lot coverage indicates the maximum allowable impervious coverage on a lot, including building footprint of the primary structure and accessory structures, concrete driveways and paths, parking lots, etc. The use of pervious surfaces for parking facilities and other pervious materials is encouraged. Lot coverage requirements are indicated in Section 3.1.11.

3.1.5.5 Accessory Buildings. Accessory buildings, such as apartments above garages, shall be allowed pending that accessory buildings are placed behind the primary structure and in proper scale.

a. Private Residential Garages/Carports with lane access – The garage or carport shall be placed behind the primary structure on the lot, with the vehicular entrance oriented to the lane.

b. Private Residential Garages/Carports without lane access – If a lane is not present, the vehicular entrance may be oriented to the front of the lot, provided that the front of the garage or carport does not extend beyond the front façade of the house.

3.1.5.6 Materials.

a. Metal paneling must be approved and may cover no more than 20% of a building facing the street.

b. Wood, brick, stone, hard coat stucco, and fiber-cement siding, planks or shingles (such as Hardie Siding Products), and vinyl siding certified by the Vinyl Siding Institute with a thickness of .040" or greater.

c. All other vinyl siding that is not certified by the Vinyl Siding Institute and having a thickness of less that .040" is not approved.

3.1.5.7 Reserved

3.1.6 Lot size. Lot size shall be determined by street classification. In general, lot sizes should promote pedestrian activity and accessibility. Refer to Section 3.1.11

3.1.7 Improvements.

3.1.7.1 Sidewalks. All streets shall have sidewalks where adjacent property is developed. In all other locations, sidewalks are required on at least one side of the street. Requirements

may be reduced for roads adjacent to or crossing wetland areas or lakes.

3.1.7.2 Street trees shall be selected to provide shade over the sidewalks. Street trees shall be planted in a tree yard of a minimum width as set forth in Section 3.1.4 along all sidewalks in predominately residential streets. Pedestrian paths shall be placed through the tree yard at a frequency to avoid foot traffic through landscaped areas. Continuous tree yards may be eliminated and 3'x3' planted areas may be placed in lieu thereof.

3.1.7.3 Streetlights. Streetlights shall be installed in residential areas at a distance to provide safety to the neighborhood. Streetlights shall be installed in retail areas to provide illumination to encourage evening activity along the street.

3.1.7.4 Parks. The developer shall set aside land for park space for public use. Parks shall be maintained by the owner, unless dedicated and accepted by the City of Port Wentworth.

3.1.8 Signs. Signs should be constructed in a manner consistent with the character, scale, design and materials of the associated built structure. These regulations are in addition to the requirements of the Port Wentworth Code, Chapter 19.1.

3.1.9 Access.

3.1.9.1 Pedestrian.

a. All commercial uses shall have a public entrance facing the public street and be directly accessible from the street and sidewalk.

b. Parking lots shall provide a raised path (i.e. speed bump) of adequate width for pedestrian access from the parking lot to the building entrance. This path shall be clearly marked to indicate pedestrian right-of-way.

c. Any block exceeding 600 feet in length shall include a public ROW for pedestrian access, located approximately mid-block. This access must include a trail or sidewalk of no less than *5* ~~6~~ feet in width.

3.1.9.2 Vehicular.

a. Vehicular access shall be from a lane along the rear of the property, except where not feasible because of natural or other constraints. Frontage street access shall be from court streets. Drives entering property directly from a court may be no closer than 150 feet.

b. Adjacent parking lots shall have internal vehicular access.

3.1.10 Parking.

(1) Space requirements. Parking requirements may be reduced from current regulations as indicated in Section 4.10 of the existing Port Wentworth Zoning Ordinance. Shared parking is encouraged.

(2) Arrangement. Parking lot arrangement shall facilitate safe traffic movement and prohibit motorists from driving haphazardly across the lot. Adjacent parking lots shall be connected with an internal drive which provides access between the lots without necessitating the motorist to travel onto the street.

(3) Landscaping. Surface parking lots of over 20 spaces shall include shade trees which provide a minimum canopy coverage of 30%. Canopy coverage for newly planted trees should be estimated at a point in the future (approximately 10 years) to accommodate growth and allow for adequate tree spacing. Tree areas within the interior of the parking lot shall be a minimum of 100 square feet.

(4) On-street parking. On-street parking that is directly in front of a lot shall count toward fulfilling the parking requirement of that lot. One parking space credit shall be given for every space in front of the lot that is over 50% of the length of the parking space.

3.1.11 Development attributes.

	Lot Size	Lot Coverage	Height	Front Yard Setback	Uses
Frontage	Not to exceed grid on Master Plan	Maximum 90%	Maximum 35'	0-15'	Neighborhood, Community, & Auto-oriented Commercial; Neighborhood Multi-Family Residential; Multi-family; office; hotel/motel; assisted living center; multi-use retail residential
Court	Not to exceed grid on Master Plan	Maximum 90%	Maximum 35'	0-15'	Neighborhood, Community, & Auto-oriented Commercial; Neighborhood Multi-Family Residential; Multi-family; office; hotel/motel; assisted living center; multi-use retail residential
Town Boulevard	Carries standards of intersecting streets.				
Neighborhood Boulevard	Maximum 125' x 125'	Maximum 40%	Maximum 35'	10-35'	Single-family residential; neighborhood multi-family; neighborhood commercial; bed & breakfast inns; assisted living center; community commercial
Avenue	Not to exceed grid on Master Plan	Maximum 100%	Maximum 35'	0'	Neighborhood commercial; bed & breakfast inns; assisted living center; community commercial; multi-use retail residential
Major Street	Maximum width – 75' Maximum depth – 125'	Maximum 80%	Maximum 35'	0-15'	Single-family residential; neighborhood multi-family; home occupations; live-work units; neighborhood commercial; bed & breakfast inns; hotels; assisted living centers
Minor Street	Maximum width – 75' Maximum depth – 125'	Maximum 40%	Maximum 35'	0-35'	Single-family residential; home occupations; neighborhood multi-family residential; neighborhood commercial; live-work units
Drive	Maximum width – 125' Maximum depth – 150'	Maximum 30%	Maximum 35'	10-35'	Single-family residential; home occupations; neighborhood multi-family residential; live-work units
Road	Carries standards of intersecting streets.				
Lane	Not applicable.				

4. Natural Resources.

4.1 Wetlands

4.1.1 Delineation

4.1.1.1 Phase I Master Plan Design District. Wetlands in this district have been delineated and surveyed. The City of Port Wentworth will hold a master permit ('master permit') from the U.S. Army Corps of Engineers which encompasses all wetlands in this district. Any activity which may potentially affect wetlands, including but not limited to land clearing, silviculture, building activities, etc., must be approved in writing by the City.

4.1.1.2 Phases II and III Master Plan Design Districts. Property must be surveyed for wetlands prior to any land disturbing activities. A permit must be obtained from the U.S. Army Corps of Engineers for the entire parcel before subdivision.

4.1.2 Buffers. A minimum of a 25 foot vegetative strip shall remain in perpetuity along the banks or edges of all jurisdictional wetlands. No structures or impervious surface shall be allowed within the buffer except for multi-purpose trails using impervious material or elevated boardwalks.

4.1.2 Construction activities. All wetlands and wetland buffers must be clearly flagged in the field and marked with a continuous barrier such as flagging tape to visibly indicate the location of wetlands and wetland buffers. No impacts from construction or other areas may occur within this area.

4.1.4 Timber activities.

4.1.4.1 Phase I Master Plan Design District. No trees or other vegetation may be removed from delineated wetlands without a permit from the U.S. Corps of Engineers.

4.1.4.2 Phases II and III Master Plan Design District. No trees or other vegetation may be removed from wetlands without a permit from the U.S. Corps of Engineers.

4.2 Trees

4.2.1 Exemptions. The requirements set forth in this section 4.2 of the Overlay District shall apply to all real property, subject to the following exemptions:

1. Residential properties that are in existence prior to the adoption of this overlay district on November 9, 2000.

2. Commercial timber operations in existence prior to the adoption of this overlay district on November 9, 2000. A 50' buffer of existing trees shall be required adjacent to all public right-of-ways.

3. Wetland mitigation, the mitigation of wetlands pursuant to an approved plan from the U.S. Army Corps of Engineers, shall be exempt.

4. Commercial timber operation exemption: trees grown for sale by commercial nurseries are exempt.

4.2.2 Tree Survey. A tree survey is required for all non-exempt properties before any cutting may be performed. Properties which are proposed for development may not be cleared of trees or other vegetation more than thirty (30) days prior to the start of construction. All harvesting activities must comply with the city's soil erosion and sedimentation ordinance.

4.2.2.1 Identification. A tree survey overlay on the plat that locates all grand trees and specimen trees identified by DBH and species. Dead or diseased trees shall be identified. All tree surveys for subdivisions involving the construction of road or drainage easements shall be performed by a licensed, registered arborist and shall have an accuracy of plus or minus three feet (+/- 3').

a. Limits of areas proposed to be clear-cut for proposed structures, improvements, right-of-ways and easements. Clear cutting beyond the limits as shown on the plat or site plan shall not be permitted.

b. A tree protection plan shall be prepared indicating how trees are to be protected during development in accordance with this overlay district, Section 4.2.2.

4.2.3 Tree Removal Restrictions.

4.2.3.1 Protection of grand trees and specimen trees. The removal, relocation, destruction or abuse in any manner of any grand tree or specimen tree is prohibited on any parcel of non-exempt land. For subdivisions, the division of property so that a lot would place a grand or specimen tree at or near the center of a lot in a location that would require the removal of said tree for construction shall be prohibited.

4.2.3.2 Protected trees prior to development. Where a building permit or subdivision approval has not been issued, the removal, relocation, destruction or abuse in any manner of more than twenty-five percent (25%) of the protected trees (8" or greater DBH) on any one (1) parcel of non-exempt land within any five (5) year period shall be prohibited. The total number of protected trees existing on any one parcel shall not be reduced below a total number equal to fifteen (15) protected trees per acre.

4.2.3.3 Protected trees during development. For parcels of land proposed for development, a minimum number of protected trees on the entire parcel equal to fifteen (15) protected trees per acre shall be saved. For parcels containing less than fifteen (15) protected trees per acre, the total number of protected trees required to be saved shall be equal to the total number or protected trees existing on the parcel. Grand trees and specimen trees to be saved may be used to calculate the total number of protected trees to be saved.

4.2.3.4 Utilities. These requirements shall not restrict the ability of the City of Port Wentworth, public utilities and electrical

suppliers from maintaining safe clearance around utility lines.

4.2.3.5 Easements. The area of existing utility and drainage easements may be subtracted from the total site area for the purpose of calculating the number of protected trees required to be saved.

4.2.4 Tree protection requirements.

4.2.4.1 Protective barricades required. Protective barricades shall be placed around all protected trees, specimen trees and grand trees located in development areas, designated to protect the critical root zone (CRZ). Barricades shall be placed prior to the start of development activities, and shall remain in place until development activities are complete or construction in accordance with standards set forth in this Section commences. The area within the protective barricade shall remain free of all building materials, dirt or other construction debris, vehicles and development activities. Barricades shall be erected at a minimum distance from the base of protected trees and grand trees according to the following standards:

1. For Protected Trees Ten Inches (10") or Less DBH. Protective barricades shall be placed a minimum distance of ten feet (10') from the base of each protected tree; and

2. For Protected Trees Greater than Ten Inches (10") DBH and Grand Trees. Protective barricades shall provide a diameter of protection around the tree equal in feet to the diameter breast height of the tree (i.e., a 24" diameter tree would require a 24' diameter protective barricade).

4.2.4.2 Construction within the protective barricade. Changes in grade or construction of impervious surface or utilities within the required protected barricade shall be permitted subject to the following guidelines:

1. The City, prior to beginning construction, must approve the changes in grade or construction within protected zones. Plans must be submitted which illustrate in detail protective measures necessary to protect the trees.

2. A minimum setback, to be determined using the following guidelines, shall be maintained between impervious surfaces and the bases of all protected and grand trees, except where the City finds that a proposed encroachment of an impervious surface will not adversely affect a tree, or that special construction methods and tree care will reduce the potential adversity affecting a tree.

3. Trees of eight inches (8") to fifteen inches (15") DBH: a minimum clearance of six feet (6') is required.

4. Trees of sixteen inches (16") to twenty-three inches (23") DBH: a minimum clearance of nine feet (9') is required.

5. Grand Trees: a minimum clearance of twelve feet is required, plus an additional one foot (1') of clearance for every three DBH inches (3") in excess of twenty-four (24) (i.e., a tree having a DBH of thirty-six inches (36") must have a minimum clearance of sixteen feet (16') between its base and any impervious surface).

4.2.4.3 Roots within the protective barricade. All roots outside the protective barricade to be removed during development shall be severed clean and a two-inch (2") layer of mulch shall be applied over the surface of exposed roots during development. Alternative methods to severing roots should be actively pursued.

4.2.4.4 Pruning. All pruning of protected trees and grand trees shall be done by a qualified tree service during development according to the National Arborists Association, Pruning Standards for Shade Trees.

5. Exceptions to the Master Plan Overlay District

Property currently zoned R-A will be allowed to continue or initiate a new residential use only on a lot of record as of March 1, 2001 provided that the property meets all zoning conditions and health department approval for septic tank installation, if public sewer is not readily available. Readily available is defined to be public sewer service within 1000 feet of the property boundary, not the building footprint.

6. Severability.

The invalidity or unenforceability, for any reason, of any part of this ordinance will not prejudice or affect the validity or enforceability of the remainder hereof.

APPROVED BY MAYOR AND COUNCIL OF THE CITY OF PORT WENTWORTH THIS 30th DAY OF October, 2003.

1st Reading: 10-30-03

2nd Reading: 10-30-03

ATTEST:

Mayor Tim Holbrook

Clerk of Council

LEGEND

USE IS CONTROLLED BY STREET CLASSIFICATION OF THE MPO ORDINANCE*

- TOWN CENTER
- SCHOOL
- MULTI-FAMILY
- ACTIVE AMENITY PARK
- EXISTING FRONT LOADED LOTS
- EXISTING LOTS TO BE COVERTED TO FRONT LOADED
- FRONT LOADED DEVELOPMENT
- EXISTING LOTS REAR LOADED ONLY

FRONT LOADED PRODUCT AS DEPICTED ON THE APPROVED GENERAL DEVELOPMENT PLAN VOTED ON BY PORT WENTWORTH CITY COUNCIL IN OCTOBER, 2003

* PROPERTIES MARKED WITH AN * ARE NOT OWNED BY BEP AND THE LAND USES SHOWN ARE ASSUMED FROM EITHER THE CURRENT USE ON THE PROPERTY OR THE ORIGINAL LAND USE SHOWN ON THE 2003 GENERAL DEVELOPMENT PLAN.

MULTI FAMILY

LAKE

EXISTING RICE HOPE PLANTATION ROAD (DIRT)

EXISTING RICE HOPE PLANTATION ROAD (DIRT)

MULBERRY

MULTI FAMILY

MULBERRY BLVD.

MARKET BLVD.

TOWN CENTER

SCHOOL

PRESERVED WETLANDS (TYP.)

LAKESIDE

ACTIVE AMENITY PARK

LAKESIDE BLVD.

LAKE

OPEN SPACE

WELCOME CENTER

INTERSTATE 95

PARKSIDE BLVD.

OPEN SPACE

PARKSIDE

HIGHWAY 21

BLACK CREEK

* MULTI FAMILY

PLANNED / FUTURE CITY OF SAVANNAH WATER RESERVOIR

- TOWN BOULEVARD
- NEIGHBORHOOD BOULEVARD
- AVENUE
- FRONTAGE STREET
- MAJOR STREET
- MINOR STREET
- ROAD
- LANE
- EXISTING RICE HOPE PLANTATION ROAD (DIRT)

APPROVED BY THE PORT WENTWORTH PLANNING COMMISSION

PLANNING COMMISSION CHAIRPERSON — DATE 11/24/2015

APPROVED BY THE MAYOR AND ALDERMEN, CITY OF PORT WENTWORTH

	DATE
MAYOR	
COUNCIL MEMBER	11/24/15
COUNCIE MEMBER	11/24/15
COUNCIL MEMBER	11/24/15
COUNCIL MEMBER	11-25-15
COUNCIL MEMBER	12-1-2015
COUNCIL MEMBER	12-22-2015

NOTES

1) PER APPROVED DRI, THE TOTAL ALLOWED NUMBER OF UNITS FOR ENTIRE MASTER PLAN IS 4500 D.U. AND 1,000,000 S.F. OF TOWN CENTER
2) LOT SIZE IS CONTROLLED BY STREET CLASSIFICATION OF THE MPO ORDINANCE*.
3) LOT USE IS CONTROLLED BY THE STREET CLASSIFICATION OF THE MPO ORDINANCE*.
4) BUILDING SIDE AND REAR SETBACKS ARE CONTROLLED BY CITY OF PORT WENTWORTH FIRE CODE.
5) STREET LAYOUT IS FOR ILLUSTRATION ONLY AND MAY VARY IN ACCORDANCE WITH THE THE MPO ORDINANCE*.
6) MINOR STREET LOT COVERAGE SHALL BE 80% MAXIMUM. ALL OTHER LOT COVERAGE IS AS LISTED IN THE MPO ORDINANCE*.
7) BLOCK LENGTHS MAY BE UP TO 1,600 LINEAR FEET.
8) OPEN SPACE AND LAKES ARE FOR ILLUSTRATION PURPOSES ONLY AND FINAL SIZE AND LOCATION SHALL COMPLY WITH THE MPO ORDINANCE*.

* MPO ORDINANCE - OCTOBER 20, 2003

BEP RICE HOPE LLC

SPERRYVILLE, VIRGINIA

GRAPHIC SCALE

300 0 150 300 600 1200

North

MASTER PLAN

(GENERAL DEVELOPMENT PLAN)

RICE HOPE
MPO - PHASE II

PORT WENTWORTH, GEORGIA

NOVEMBER 2015

THOMAS & HUTTON

Engineering | Surveying | Planning | GIS | Consulting

TRAFFIC ANALYSIS

RICE HOPE COMMERCE CENTER

RICE HOPE PLANTATION ROAD
PORT WENTWORTH, GA

PROJECT NO. 210163.010

PREPARED BY:

KERN & CO., LLC.
P.O. BOX 15179
7 MALL COURT
SAVANNAH, GA 31406
(912)-354-8400
FAX (912)-356-1865

April 25, 2022

I. *Executive Summary* -

The proposed warehouse/distribution development would re-route an approximately 1,500 remaining residential units from utilizing the existing access via Mulberry Ave, Market Boulevard and Lakeside Boulevard and re-route the proposed development North via a new roadway in Effingham County which connects to Old Augusta Rd.

II. *Existing Conditions* -

Existing Traffic Counts along GA Hwy 21 have been provided at the intersections of Lakeside Boulevard and Market Boulevard. This is the existing route the currently zoned residential property would utilize. Also included in the existing conditions is the data from the 2004 traffic report that indicates the total traffic counts at full build-out based upon the current zoning. (Exhibit A)

III. *Trip Generation* –

The trip generation document provided provide a summary of 5 distinct scenarios:

A. Rice Hope Commerce Center –
   Analysis of the trips generated by the proposed development.

B. Old Augusta Intersection –
   Analysis of the trips generated that will access the intersection.

C. BEP Residential -
   Analysis of the estimated trips generated by the approximate 1,500 residential units remaining within the subject property.

D. Rice Hope Full Build-Out
   Data from the 2004 Traffic Study which showed the total trips generated by the overall Rice Hope Development.

E. Rice Hope – 2021 Counts
   Trip Counts which were obtained in 2021 along Hwy 21 at Market Blvd and Lakeside Blvd.

IV. *Old Augusta Intersection improvements/analysis* –

Plan view and analysis summary of the left turn lanes and intersection improvements per the GADOT standards. GADOT standards and requirements attached as Exhibit B.

RICE HOPE COMMERCE CENTER

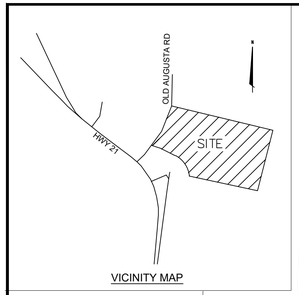
Trip Generation

Land Use	Intensity		Daily Trips	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
RICE HOPE COMMERCE CTR									
Warehousing [150]	961,000	SF	1557	139	107	32	142	40	102
Truck Trips			526	19	10	9	29	15	14
Passenger Cars			1030	120	97	23	113	25	88
OLD AUGUSTA INTERSECTION									
Warehousing [150]	4,282,500	SF	6805	538	414	124	540	151	389
Truck Trips			2328	86	45	41	128	67	62
Passenger Cars			4477	452	369	83	412	84	327
BEP - Residential Units	1,500		13178	948	730	218	1178	330	848
Rice Hope - Full Build-Out			39375	2497	883	1614	3780	2075	1705

*Data from 2004 Study - 2,200 SFD, 630 Apartments, 1,650 Condo/Townhome, 750,000 SF Shopping Ctr, 250,000 SF Office (I/C 20% Internal Capture)

Rice Hope - 2021 Counts				452	176	276	690	421	269

(Market Blvd + Lakeside Blvd)



VICINITY MAP

GRID NORTH
GA EAST ZONE, NAD 83

330'

100'

TYPE "2" TURN ARROW - (TYP).

DEDICATED LEFT TURN LANE

300'

2'
12'
12'
12'
2'

STOP SIGN
24" WHITE STOP BAR

R73.5'

STOP SIGN
24" WHITE STOP BAR

SOLID WHITE

SINGLE DASHED WHITE

STRIPED MEDIAN - YELLOW

RAISED CONCRETE ISLAND

TYPE "2" TURN ARROW - (TYP).

STRIPED CENTER LANE - YELLOW
ONE SOLID
ONE DASHED

Trip Summary - (PM Peak)
Southbound left turn

15% In-Bound Trucks - 10
40% In-Bound Passenger - 140

Storage Depth = Vehicles
Trips/Hour x 2 min / 60 min/hour

150 x 2 /60 = 5 vehicles

Storage Depth of 375' exceeds 5 vehicles stacking requirement.

Trip Summary - (PM Peak)
Westbound left turn

85% Out-Bound Trucks - 53
60% Out-Bound Passenger - 196

Storage Depth = Vehicles
Trips/Hour x 2 min / 60 min/hour

249 x 2 /60 = 8 vehicles

Strorage depth of 400' exceeds 8 vehicle stacking requirement.

225'

DECELERATION LANE

TYPE "2" TURN ARROW - (TYP).

100'

SITE DATA:

PROJECT AREA: 104.1 AC

AREA OF DISTURBANCE: 23.26 AC

ZONING: I-1

P.I.N.: 478-002

PROJECT ADDRESS: OLD AUGUSTA ROAD

PROJECT CITY: RINCON, GA

DISTRICT NUMBER: 9TH G.M.

LOT NUMBER: -

OWNER NAME: GREENLAND DEVELOPERS, INC.

CONTACT: BRETT BENNETT

OWNER ADDRESS: P O BOX 1628

OWNER CITY: SPRINGFIELD, GA 31329

TELEPHONE NO.: 912-661-1086

DATE OF SURVEY: 00/00/04

GOVERNING AGENCY: ???

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

UTILITIES PROTECTION CENTER

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Fri, 04 Feb 2022 - 7:42:pm wmartin
DRAWING PATH: G:\2021\210163.000\dwg\Old Augusta II BLDG 1-(2-3-22).dwg

Kern & Co., LLC
Consulting Engineers • Land Surveyors • Land Planners
Architects • Landscape Architects • Environmental Scientist
7 Mall Court (31406) P.O. Box 15179 (31416) Savannah, Georgia (912) 354-6400
319 Walnut Street Suite A Statesboro, Georgia 30458 Phone: (912) 225-5353

STAMP:

GEORGIA REGISTERED PROFESSIONAL ENGINEER
No. 32295
PROFESSIONAL
2/3/22
CHADWICK R. ZITTROUER

STAMP:

ORIGINAL RELEASED FOR CONSTRUCTION DATE:

NO	DATE	REVISION

PLANS OF NORTHGATE INDUSTRIAL DEVELOPMENT AT OLD AUGUSTA ROAD

DRAWING TITLE:

STRIPING & SIGNAGE PLAN I

SCALE:	1" = 60'
PROJECT NO:	210163.000
DATE:	2/3/22
DRAWN BY:	???
CHECKED BY:	???

☐ NOT FOR CONSTRUCTION
☐ RELEASED FOR CONSTRUCTION
DATE: _____ BY: _____

SHEET NO: C-1

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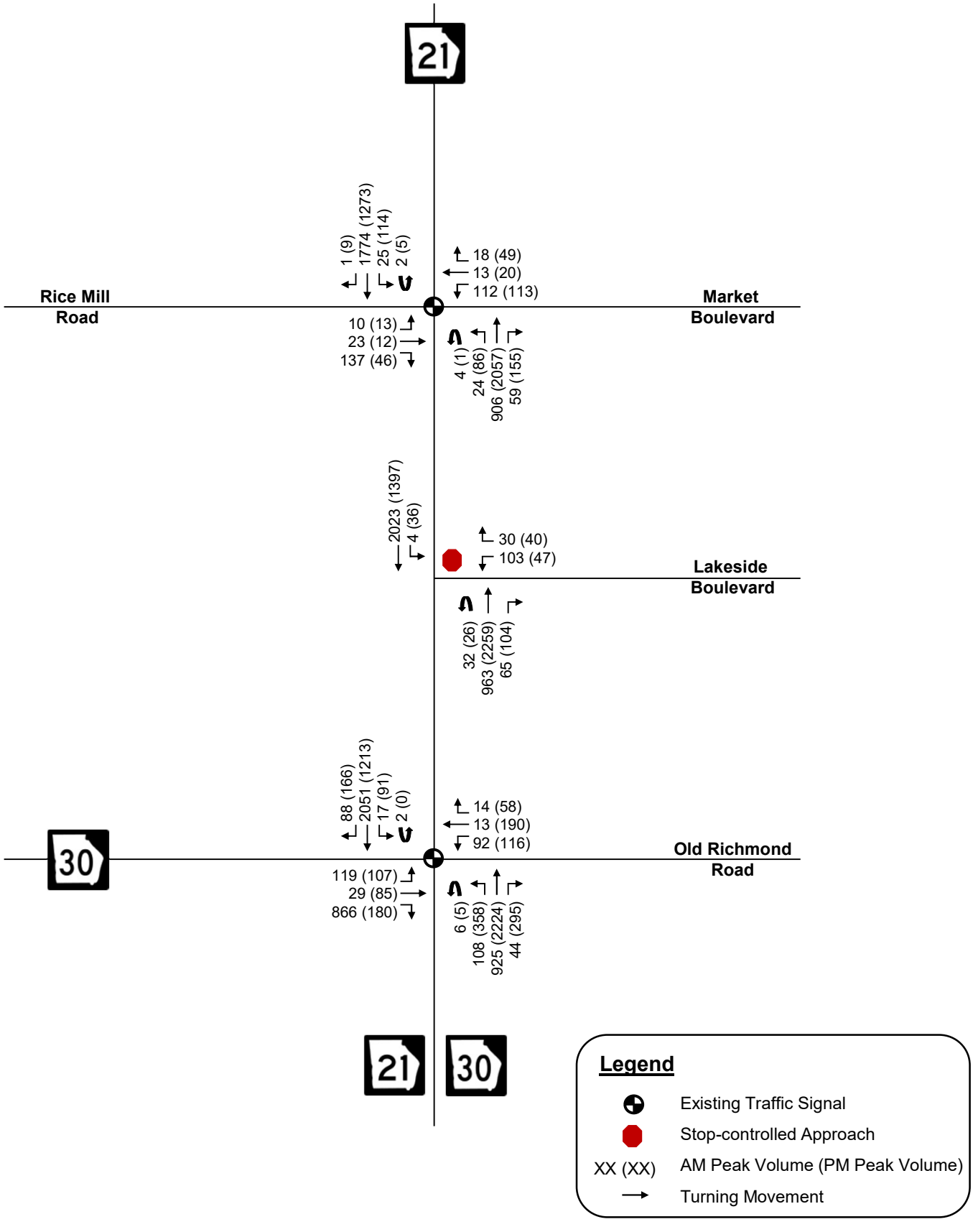


Kimley»Horn		**2021 Existing Balanced Peak Hour Traffic Volumes**	**Figure 3.3**

PROJECTED TRAFFIC VOLUMES

Trips generated by the entire development were estimated using the standard methodology and equations in the Institute of Transportation Engineers, Trip Generation, 7th Edition, 2003. Land use quantities reflect the latest development plan, but may change in the future. Table 1 shows the trip generation for the site. Weekday rates are measured.

Table 1. Trip Generation

ITE TRIP GENERATION – RICE HOPE PLANTATION WEEKDAY RATES						
LAND USE CODE	LAND USE	24 HOUR	AM PEAK IN	AM PEAK OUT	PM PEAK IN	PM PEAK OUT
210	2,220 Single-Family Detached Homes	18,013	391	1173	1100	646
220	630 Apartments	3,937	62	250	237	127
230	1650 Condominiums/ Townhouses	6,955	83	404	401	198
820	750,000 SF Shopping Center	25,161	320	204	1136	1231
710	250,000 SF General Office	2,701	344	47	61	298
TOTALS		56,767	1200	2078	2935	2500

Source: Institute of Transportation Engineers, Trip Generation, 7th Edition, 2003

Commercial areas often attract a portion of their trips from traffic passing the site on the way to an ultimate destination. These trips may not add new traffic to the adjacent street system. ITE studies indicate that the average "pass-by trip percentage" for shopping centers (ITE Land Use 820) is 34%.

Other trips are classified as "diverted trips." Diverted trips are trips that are attracted from the traffic volume on roadways within the vicinity of the generator but that require a diversion from that roadway to another roadway to gain access to the site. Diverted link trips add traffic to streets adjacent to a site, but may not add traffic to the area's major travel routes. Both "pass-by" trips and "diverted" trips may be part of a multiple-stop chain of trips.

With the mixture of commercial, office, and residential areas within the community, many of the trips generated will be captured within the development. These "internally

captured" trips would not add to the volumes on Hwy 21. Internal capture rates depend on a number of factors. A key premise is that internal capture will increase with an increase in proximity, density, and number of complementary land uses within a multi-use development.

For this study, reasonable assumptions may be that 30% of the trips associated with the shopping center are "pass-by" trips. The internal capture rate is estimated at approximately 20%. Adjustments to the trip generation figures are shown in Table 2.

Table 2. Pass-by and Capture Adjustments

TRIP GENERATION ADJUSTMENTS					
LAND USE	24 HOUR	AM PEAK IN	AM PEAK OUT	PM PEAK IN	PM PEAK OUT
Residential	28,905	536	1,827	1,738	971
Retail (reduced by 30% to account for pass by trips)	17,613	224	143	795	862
Office	2,701	344	47	61	298
Sub-Total	49,219	1,104	2,017	2,594	2,131
Total new external trips (reduced by 20% to account for capture)	**39,375**	**883**	**1,614**	**2,075**	**1,705**

The development is estimated to generate approximately 39,000 new trips per day. Peak hour trips are estimated at approximately 2,500 (880 entering; 1,600 exiting) in the morning and 3,780 (2,075 entering; 1,705 exiting) in the afternoon.

Traffic volume data from 1997 to 2002 is available from GDOT (included in the Appendix). This data was used to estimate the current peak hour and daily volumes at the project entrances. The 2004 base year volumes are shown in **Figure 2**.

Traffic counts and patterns were evaluated to determine the directional distribution of site-generated traffic. Currently, a great majority of the traffic heads south toward Savannah in the morning and north in the afternoon. The assumed directional distribution percentages for the site-generated traffic are shown in **Figure 3**.

The site-generated trips were calculated based on the trip generation shown in Tables 1 and 2, and the distributions shown in Figure 3. Results are shown on **Figure 4.**

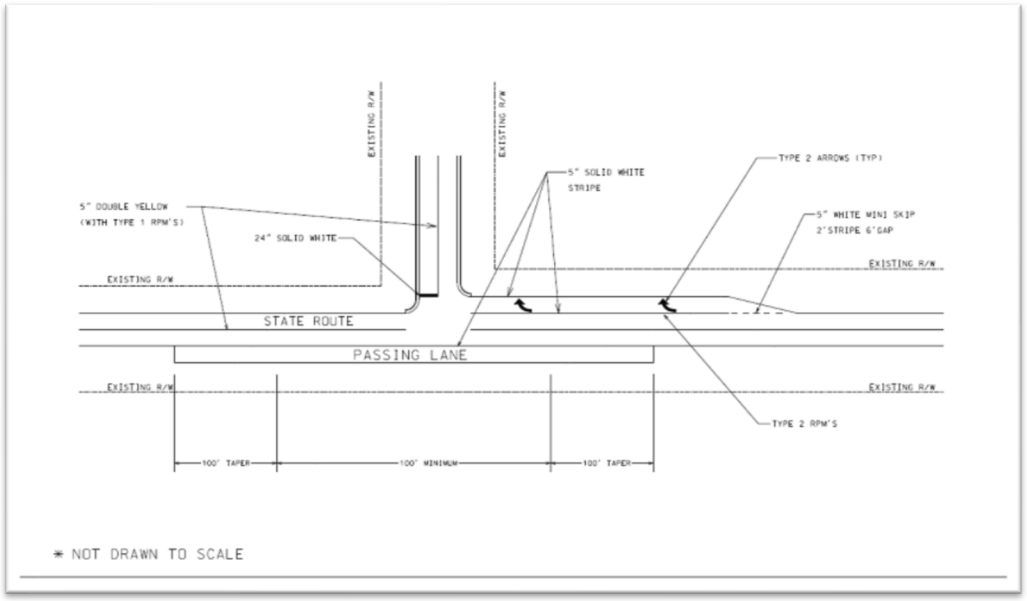


Figure 4-7 Right Hand Passing Lane

In the event the District Traffic Engineer determines that field conditions or other factors indicate that it would be in the best interest of the Department to waive the left turn lane requirement, the District Traffic Engineer must document the recommendations using the form in **Appendix F**. The recommendations shall be approved by the District Traffic Engineer and be attached to the Permit. The District Traffic Engineer may also require the addition of a Left Turn lane, even when the conditions in Table 4-7 are not met, if roadway geometry or field conditions indicate that the safety of the traveling public would be improved. The recommendation must be documented and approved by the District Traffic Engineer for inclusion with the Permit.

4.9.2 Right Turn Lane Lengths

This section provides the design guidelines that should be used to establish the lengths of turn lanes if they are required under the provisions of the previous section.

Under ideal conditions, turn lanes should provide a full-width lane that is long enough to allow for vehicles to decelerate from the operating speed to a full stop in addition to the length of full-width lane that is needed to store vehicles waiting to turn.

Table 4-8 contains guidelines for lengths of tapers (optional) and full-width turn lanes. The taper length in Table 4-8 applies to deceleration right turn lanes only. Guidelines for left turn tapers and lengths are given in Section 4.9.4.

SPEED (MPH)	FULL WIDTH STORAGE, FT.	TAPER, FT.
25	50	50
30	75	50
35	100	50
40	150	50
45	175	100
50	225	100
55	250	100
60	300	100
65	350	100

Table 4-8 Minimum Right Turn Deceleration Lengths

When traffic studies are conducted, the length of full-width lane needed for storage should be determined. If the length of full-width storage is greater than the length of full-width storage shown in Table 4-8, the longer length should be provided.

At signalized intersections, the amount of storage for both right and left turns can be based on the number of vehicles arriving during 1.5 signal cycles.

For unsignalized intersections, left turn storage should accommodate vehicles arriving during a two-minute period. Minimal storage is required for right turn lanes utilizing yield control at unsignalized intersections.

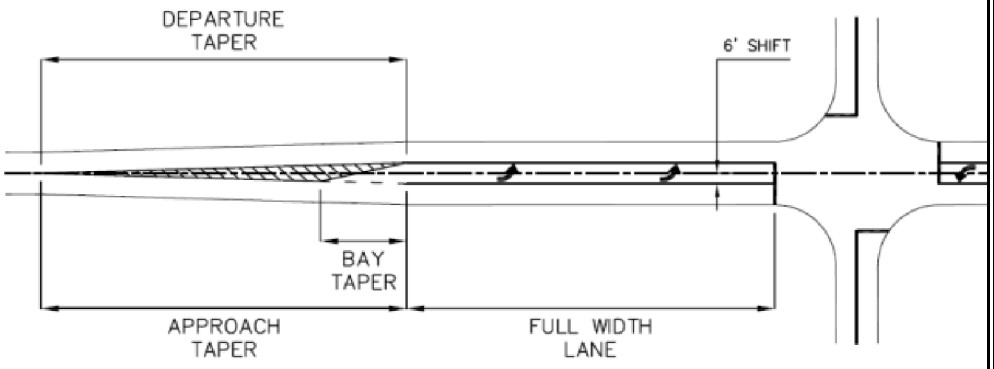
4.9.3 Acceleration Lanes

Acceleration lanes are generally not provided on low speed highways. Acceleration lanes may be required at locations where grade, sight distance or traffic is such that the Department determines they are needed. When operating speeds on the highway are 55 MPH and above, full-width acceleration lanes designed to meet the AASHTO minimum length should be considered.

4.9.4 Left Turn Lane Design

The design of left turn lanes should consider the intended function and the characteristics of the highway. In many cases, it is necessary to widen the existing roadway to introduce the left turn lane. In most cases vehicles approaching the turn lane are shifted to the right (especially when using symmetrical widening). The left turning traffic is then shifted back into the lane. Through traffic is returned to its original lane beyond the intersection. When the highway has a median that is at least 20 feet wide, the left turn lane can typically be developed out of the median, avoiding the need for transitions.

The basic design elements of left turn lanes are illustrated in Table 4-9. This example shows symmetrical widening, which basically requires the through traffic on each side to shift by one half of the lane width. Some circumstances may dictate that all widening be achieved on one side, which requires a full lane shift for through traffic on the side where the additional width is developed. Table 4-9 provides guidelines for selecting the proper length of approach taper. When shifts are not 6' or 12', use table 4-9 bay taper.



POSTED SPEED LIMIT, MPH	APPROACH AND DEPARTURE TAPER, FT.		BAY TAPER, FT.	FULL WIDTH STORAGE, FT
	6' Shift	12' Shift		
25	65	130	50	85
30	90	180	50	135
35	125	250	50	160
40	160	320	50	210
45	270	540	100	235
50	300	600	100	285
55	330	660	100	310
60	360	720	100	360
65	390	780	100	410

Table 4-9 Minimum Design Elements of Left Turn Lanes

The example shown in Table 4-9 has straight-line tapers. These are acceptable but other designs may also be used, including the following: partial tangent tapers, symmetrical reverse curve, and asymmetrical reverse curve. See latest edition of AASHTO Green Book for details.

The required length of full-width storage shall be based on storage length and a deceleration length that allows vehicles to safely decelerate without a possible conflict with another vehicle (Refer to Construction Detail M-3A).This should be determined in the traffic study. The amount of storage is dependent on the type of traffic control in effect. For signalized intersections, the storage should be sufficient to accommodate the number of vehicles arriving during 1.5 signal cycles, using peak hour volumes. At stop-controlled intersections, the storage is typically based on the number of vehicles arriving during a two-minute period within the peak hour.

Warehousing
(150)

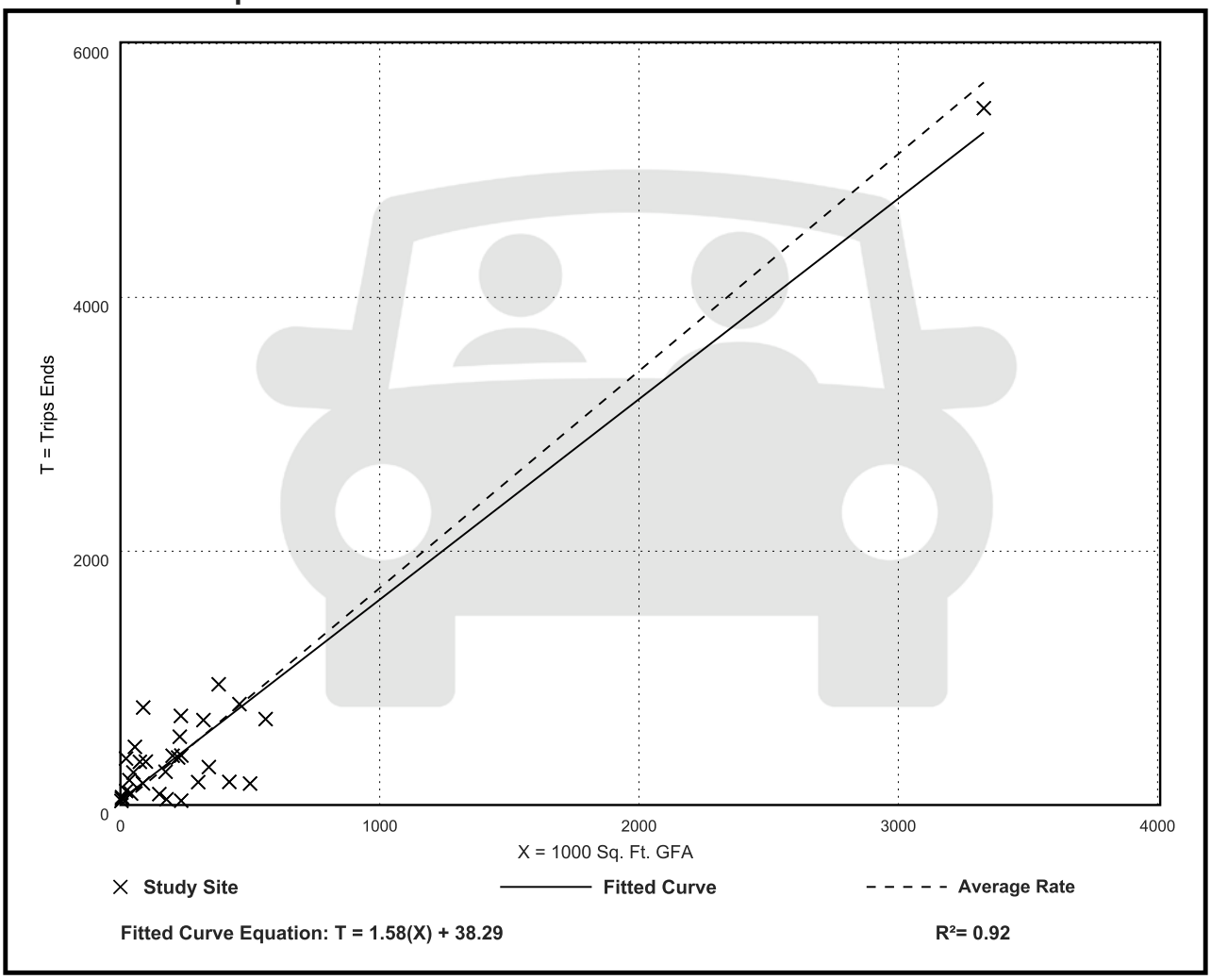
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 31
Avg. 1000 Sq. Ft. GFA: 292
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.71	0.15 - 16.93	1.48

Data Plot and Equation



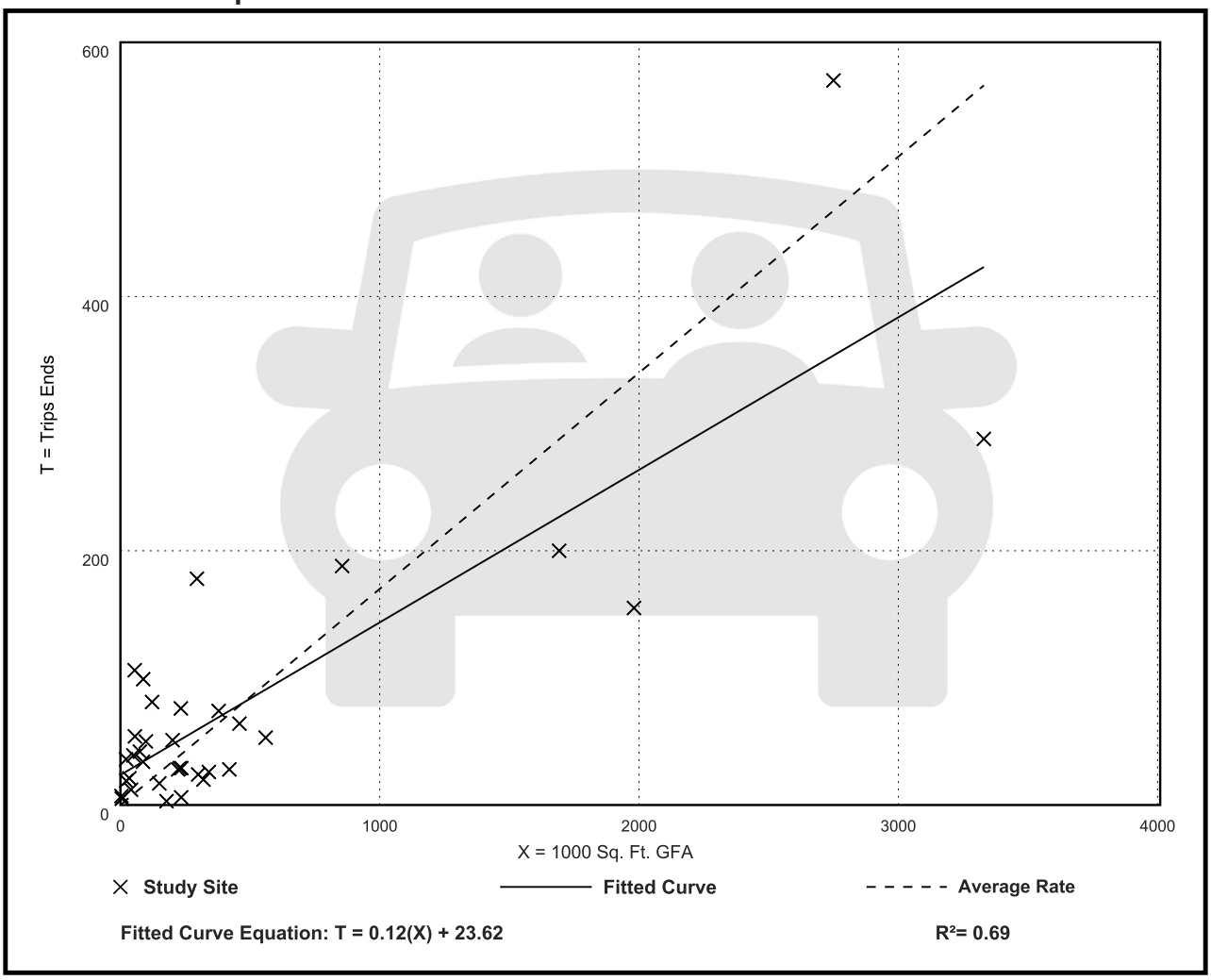
Warehousing
(150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 36
Avg. 1000 Sq. Ft. GFA: 448
Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.19

Data Plot and Equation



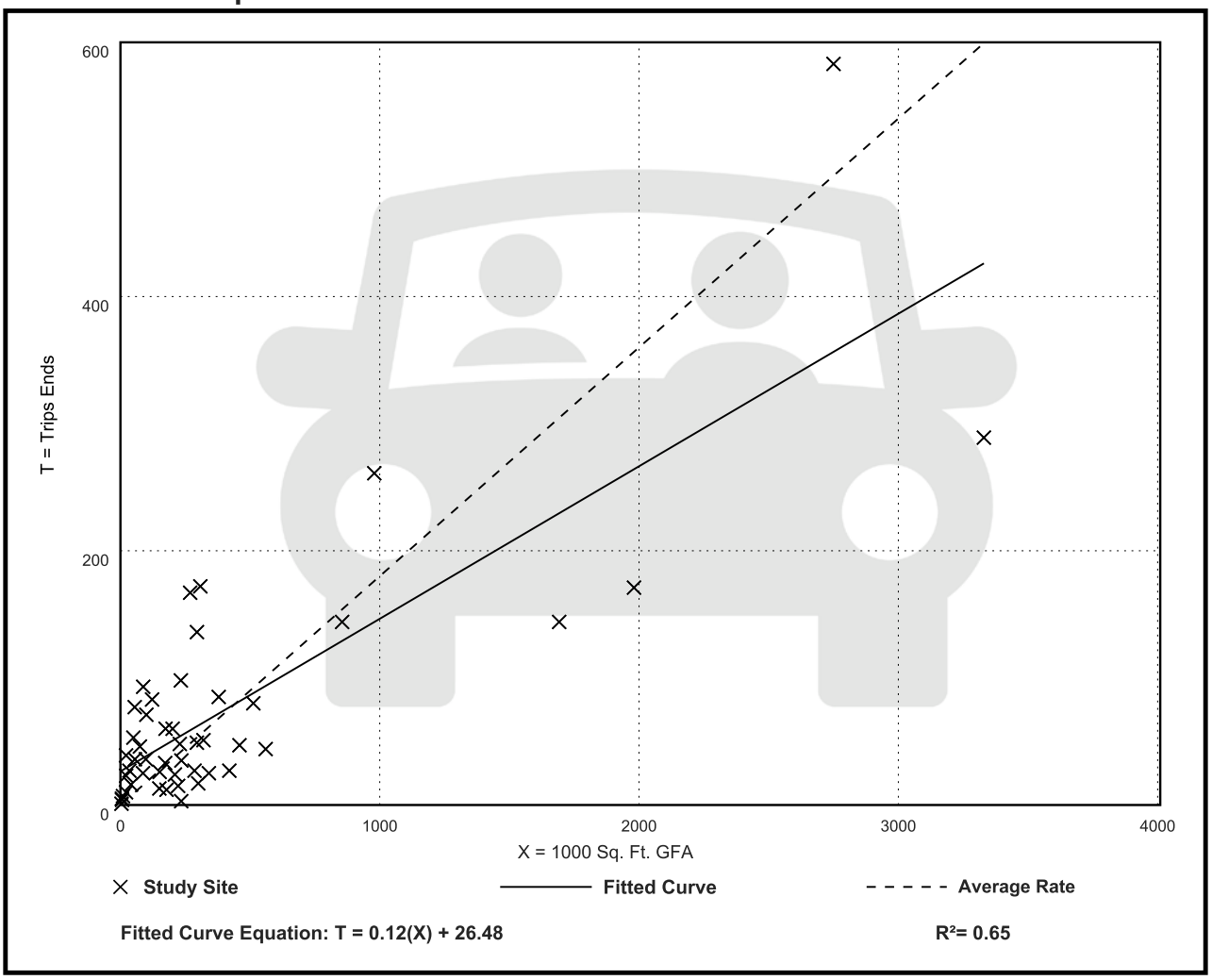
Warehousing
(150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 49
Avg. 1000 Sq. Ft. GFA: 400
Directional Distribution: 28% entering, 72% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.18	0.01 - 1.80	0.18

Data Plot and Equation



Warehousing
(150)

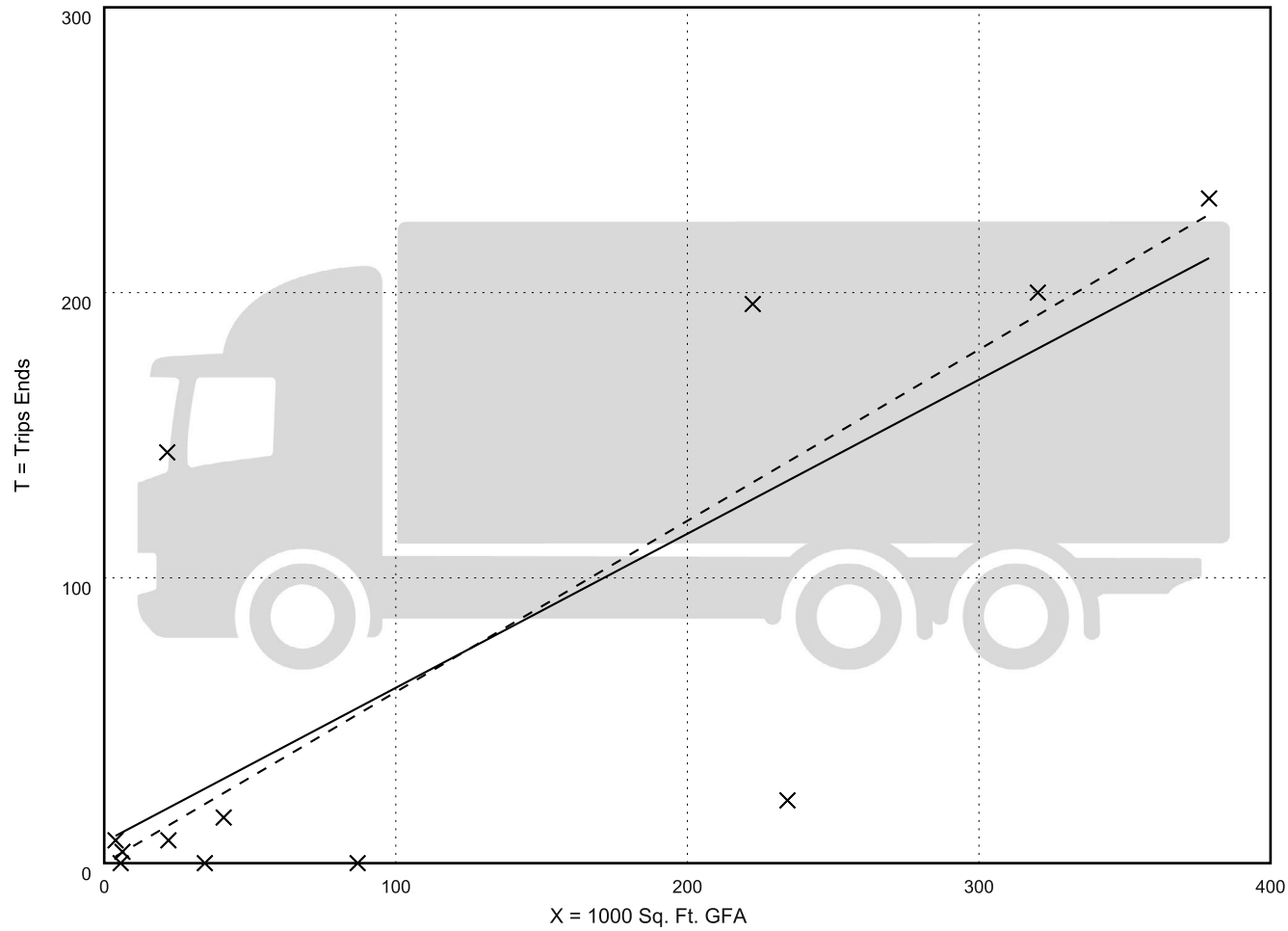
Truck Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 12
Avg. 1000 Sq. Ft. GFA: 115
Directional Distribution: 50% entering, 50% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.60	0.00 - 6.66	0.86

Data Plot and Equation



Fitted Curve Equation: T = 0.54(X) + 7.47

R^2= 0.61

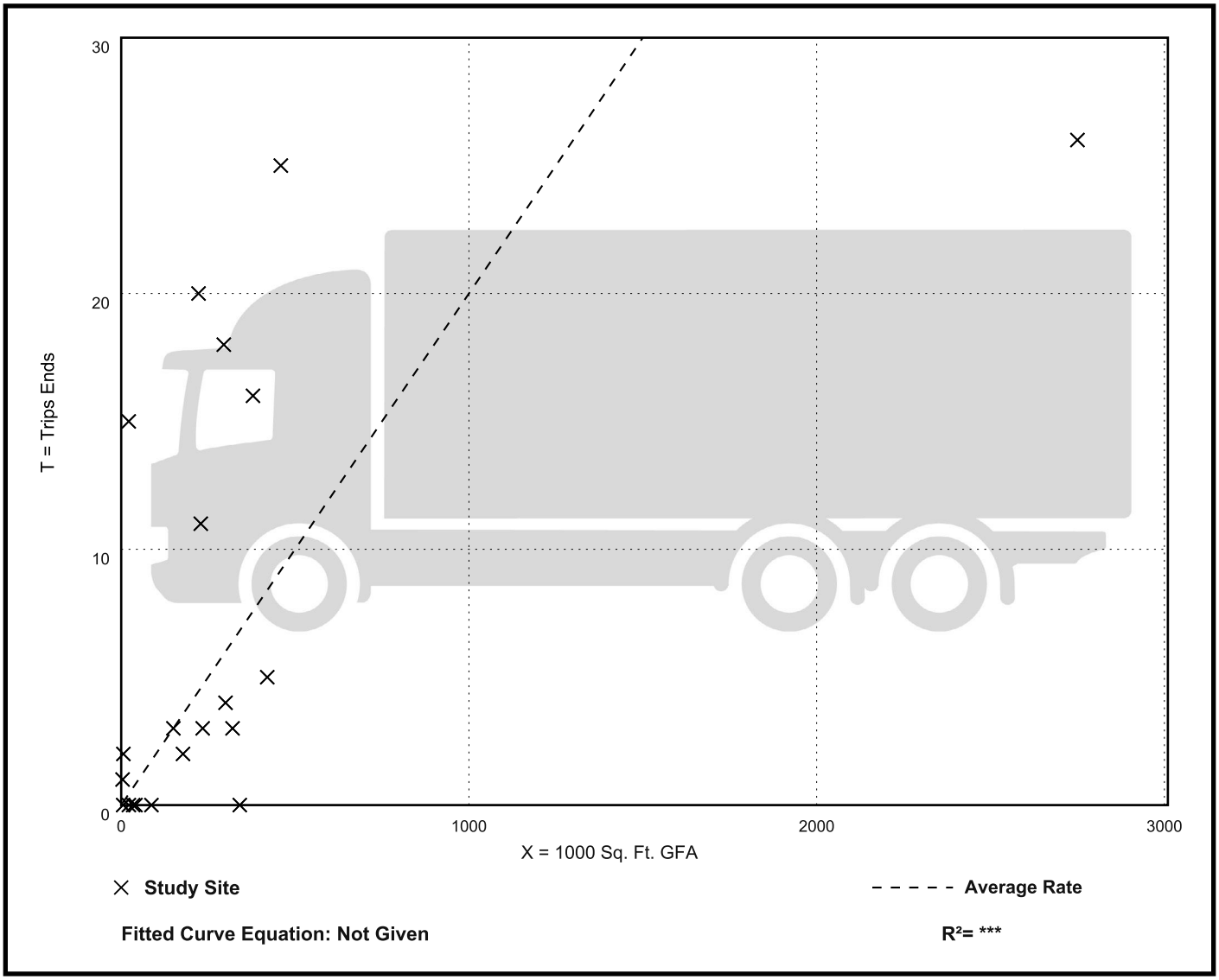
Warehousing
(150)

Truck Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 21
Avg. 1000 Sq. Ft. GFA: 309
Directional Distribution: 52% entering, 48% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.02	0.00 - 0.69	0.05

Data Plot and Equation



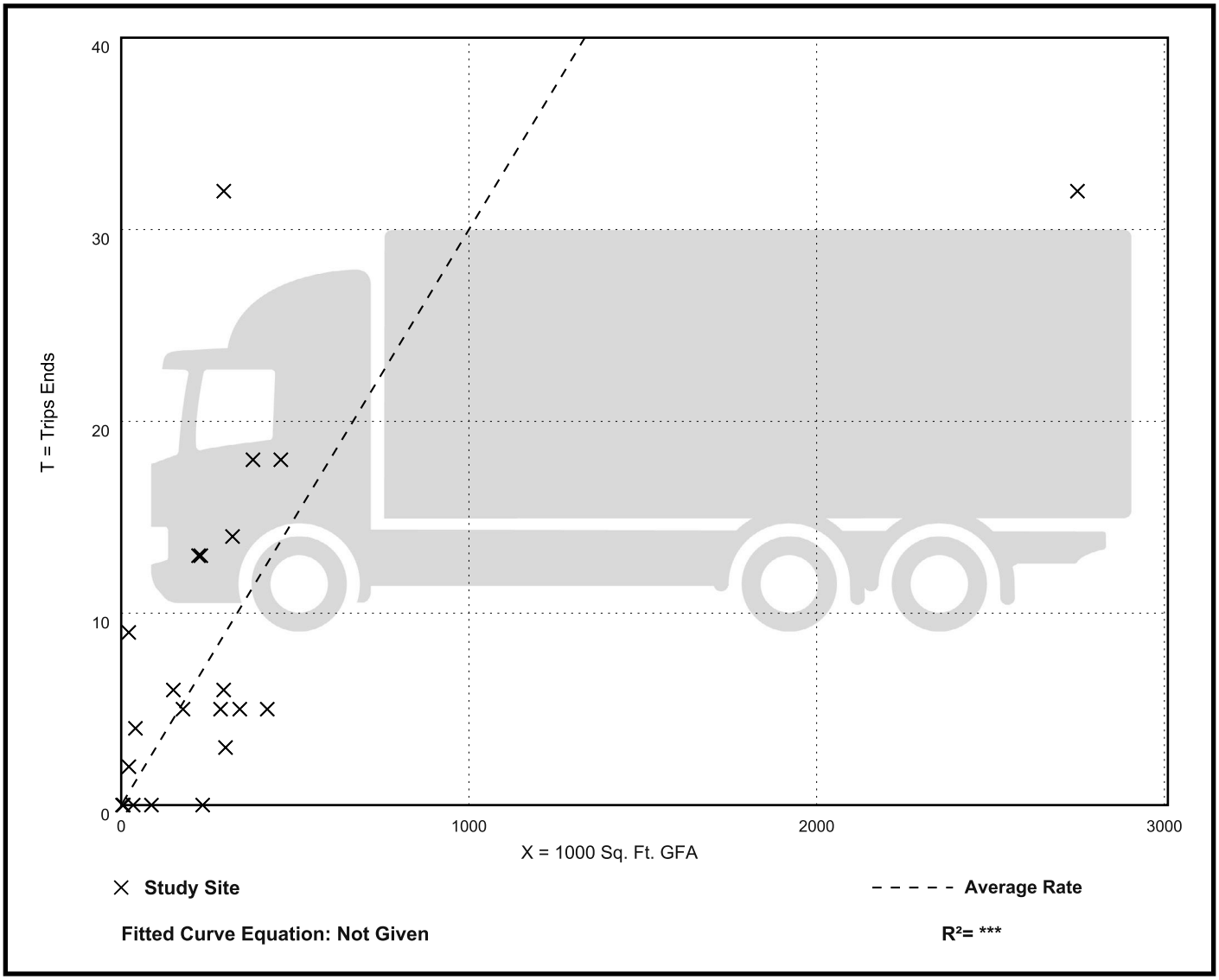
Warehousing
(150)

Truck Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 23
Avg. 1000 Sq. Ft. GFA: 308
Directional Distribution: 52% entering, 48% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.03	0.00 - 0.42	0.03

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ***

Single-Family Detached Housing
(210)

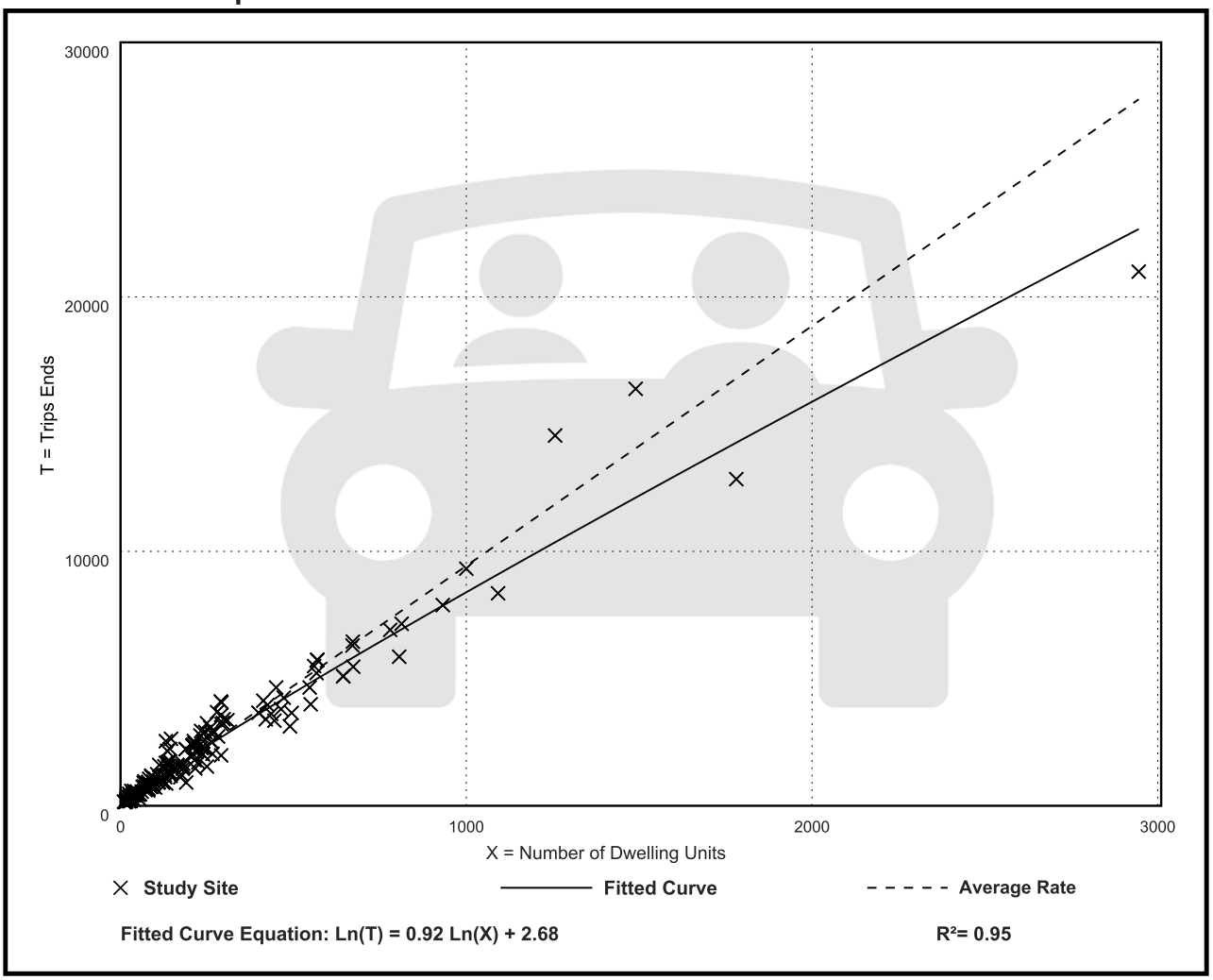
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 174
Avg. Num. of Dwelling Units: 246
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.68

R^2= 0.95

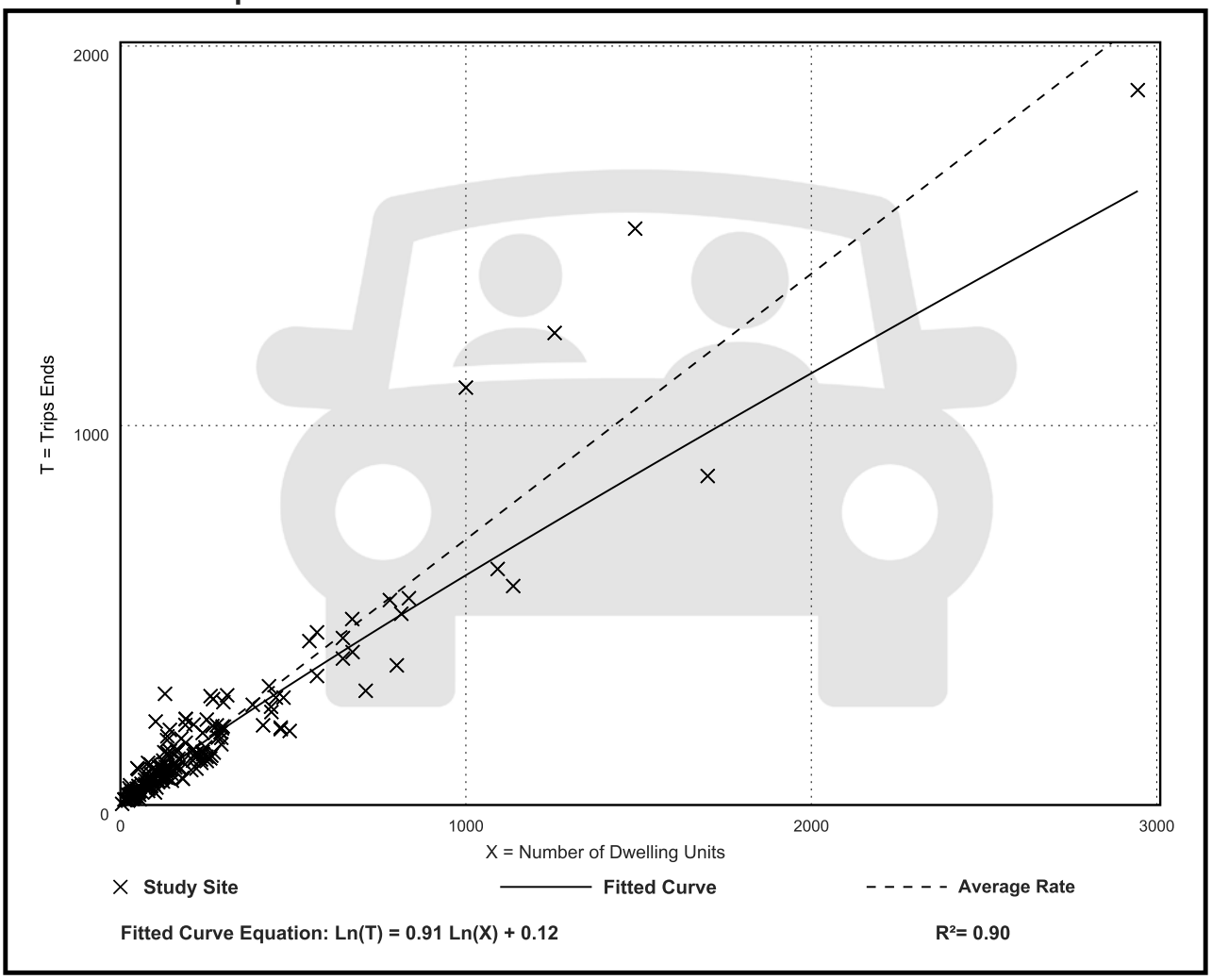
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 192
Avg. Num. of Dwelling Units: 226
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



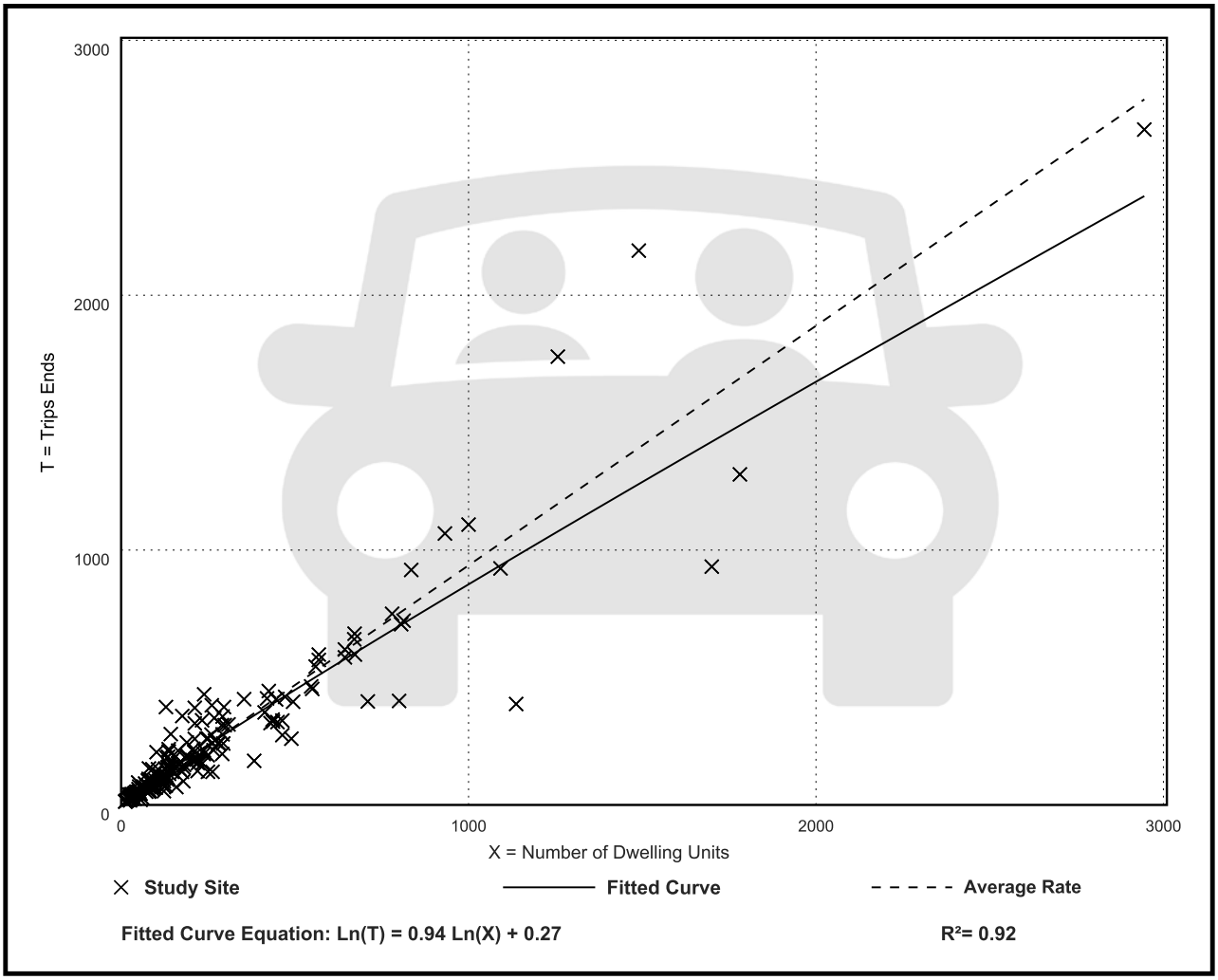
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 208
Avg. Num. of Dwelling Units: 248
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 W. OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3604

October 18, 2019

Regulatory Division
SAS-2003-07880

Mr. Scott DeCain
BEP Rice Hope, LLC
4800 Hampden Lane, Suite 200
Bethesda, Maryland 20814

Dear Mr. DeCain:

I refer to your letter of August 26, 2019, requesting modification of Department of the Army permit number SAS-2003-07880. This permit authorized the construction of a mixed use development. The project site is located within the Rice Hope development, adjacent to and east Georgia Highway 21, in Port Wentworth, Chatham County, Georgia (Latitude 32.2130, Longitude -81.1919).

In accordance with your request, I am hereby authorizing the following modifications to Department of the Army permit number SAS-2003-07880:

AUTHORIZED MODIFICATION: The completion date for work authorized under Department of the Army permit number SAS-2003-07880 is extended from September 30, 2019, to September 30, 2024.

This permit modification is subject to the terms and conditions of the original permit. You will not depart from the approved location or plans without obtaining prior approval from the Department of the Army.

This authorization does not convey any property rights, either in real estate or material, or any exclusive privileges. It does not authorize any injury to property, invasion of rights, or any infringement of federal, state, local laws, or regulations; nor does it obviate the requirement to obtain State or local assent required by law for the activity described herein. It does not affect your liability for any damages that may be caused by the work.

If this permit modification is agreeable to you, sign both the original and duplicate copies. Please retain the original for your records and return the signed duplicate to this office. Please be advised that this permit modification is valid only if the signed duplicate copy is received in our office within 60 days from the date of this letter. If we do not receive the signed duplicate copy from you within the 60-day timeframe, this permit modification will automatically expire.

If you object to this decision due to certain terms and conditions therein, you may request that the permit be modified under our regulations at Title 33 Code of Federal Regulations (C.F.R.) § Part 331. Enclosed you will find a Notification of Appeal Process (NAP) Fact Sheet and Request for Appeal (RFA) Form. To request that the permit be modified you must complete Section II of the enclosed form and return the form to the District Engineer at the address shown above.

In order for an RFA to be accepted, the U.S. Army Corps of Engineers must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. § Part 331.5, and that it has been received by the District Engineer within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by this deadline.

It is not necessary to submit an RFA form to the District Office if you do not object to the permit decision.

A copy of this letter is being provided to the following parties: Mr. Joel Price, Sligh Environmental Consultants, Inc., 31 Park of Commerce Way, Suite 200B, Savannah, Georgia 31405.

Thank you in advance for completing our on-line Customer Survey Form located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. We value your comments and appreciate your taking the time to complete a survey each time you have interaction with our office.

If you have any questions, please call me at (912) 652-5550.

WISE.SARAH.ELIZABETH.1281640590

Digitally signed by WISE.SARAH.ELIZABETH.1281640590
Date: 2019.10.18 12:19:27 -04'00'

For Daniel H. Hibner, P.M.P.
Colonel, U.S. Army
Commanding

Enclosure

Permittee hereby accepts the terms and conditions of this instrument.

(Permittee)

11/7/2019
(Date)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To request the transfer of this permit and the associated liabilities with compliance with its terms and conditions, the permittee and transferee must sign and date below.

_____
(PERMITTEE-Printed Name)

_____ _____
(PERMITTEE-Signature) (DATE)

_____
(TRANSFERREE-Printed Name)

_____ _____
(TRANSFERREE-Signature) (DATE)

By signature below, the U.S. Army Corps of Engineers hereby validates the transfer of the permit from the permittee named above to the transferee named above.

_____ _____
Issued for and in behalf of: (DATE)
Daniel H. Hibner, P.M.P.
Colonel, U.S. Army
Commanding

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: BEP Rice Hope, LLC; Mr. Scott DeCain	File Number: SAS-2003-07880	Date: October 18, 2019
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
X	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 C.F.R. § Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. The division engineer must receive this form within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

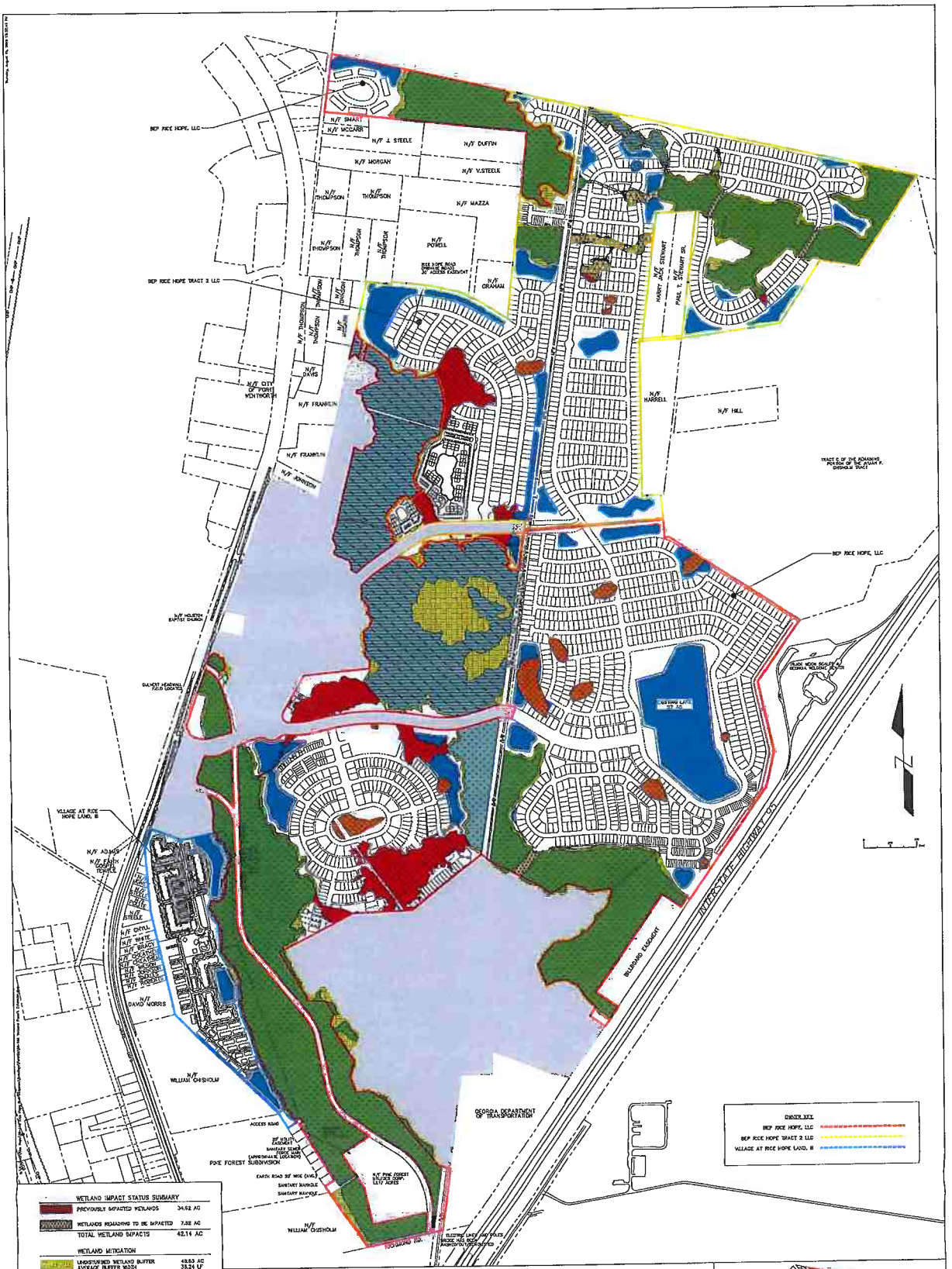
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: Sarah Wise U.S. Army Corps of Engineers, Savannah District 100 W. Oglethorpe Avenue Savannah, Georgia 31401 (912) 652-5550	If you only have questions regarding the appeal process you may also contact: District Commander U.S. Army Corps of Engineers, Savannah District 100 W. Oglethorpe Avenue Savannah, Georgia 31401

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:



WETLAND IMPACT STATUS SUMMARY

PREVIOUSLY IMPACTED WETLANDS	34.62 AC
WETLANDS REMAINING TO BE IMPACTED	7.52 AC
TOTAL WETLAND IMPACTS	42.14 AC

WETLAND MITIGATION

UNDISTURBED WETLAND BUFFER AVERAGE BUFFER WIDTH	48.63 AC 38.24 LF
FRESHWATER WETLAND PRESERVATION	205.47 AC
FRESHWATER WETLAND ENHANCEMENT	101.38 AC

404 JURISDICTIONAL WETLANDS IMPACTED

W3	0.22 AC	W6	1.31 AC
W4	0.03 AC	W10	0.53 AC
W5	0.05 AC	W11	2.08 AC
W9	1.49 AC	W14	0.19 AC
W7	20.92 AC		

TOTAL WETLANDS IMPACTED 34.62 AC

404 JURISDICTIONAL WETLANDS TO BE IMPACTED

W3	3.39 AC
W9	1.09 AC
W14	3.11 AC

TOTAL WETLANDS REMAINING TO BE IMPACTED 7.52 AC

404 JURISDICTIONAL WETLANDS PRESERVED

W1	23.74 AC	W5	48.06 AC
W2	3.91 AC	W13	8.53 AC
W4	0.03 AC	W14	33.06 AC
W8	88.82 AC		

TOTAL WETLANDS PRESERVED 205.47 AC

404 JURISDICTIONAL WETLANDS ENHANCED

W4	30.54 AC	W14	2.84 AC
W7	68.18 AC		

TOTAL WETLANDS ENHANCED 101.38 AC

NON-JURISDICTIONAL WETLANDS – 12.58 AC

NON-JURISDICTIONAL WETLANDS PREVIOUSLY IMPACTED (10.01 ACRES)

NON-JURISDICTIONAL WETLANDS REMAINING TO BE IMPACTED (0.57 ACRES)

OWNER & ADDRESS	JURISDICTIONAL WETLANDS		NON-JURISDICTIONAL WETLANDS	
	PREVIOUSLY IMPACTED	REMAINING TO BE IMPACTED	PREVIOUSLY IMPACTED	REMAINING TO BE IMPACTED
BEP RICE HOPE LLC. (ATTN: PAUL LARKIN) 3071 SLATE MILLS ROAD SPOKEVILLE, VA 22740	24.63	1.85	10.57	0.10
BEP RICE HOPE TRACT 2, LLC (ATTN: PAUL LARKIN) 3071 SLATE MILLS ROAD SPOKEVILLE, VA 22740	8.99	5.48	1.34	0.48
VILLAGE AT RICE HOPE LAND, III 1230 PEACHTREE STREET, SUITE 1150 ATLANTA, GA 30309	0.00	0.00	0.00	0.00
TOTAL:	34.62	7.32	12.01	0.57

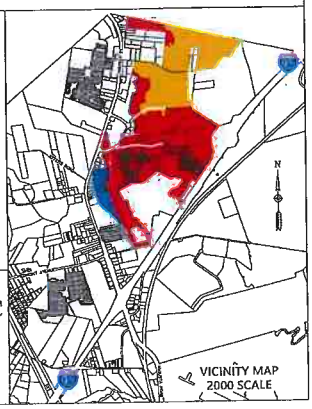
RICE HOPE WETLAND PERMIT EXTENSION PLAN

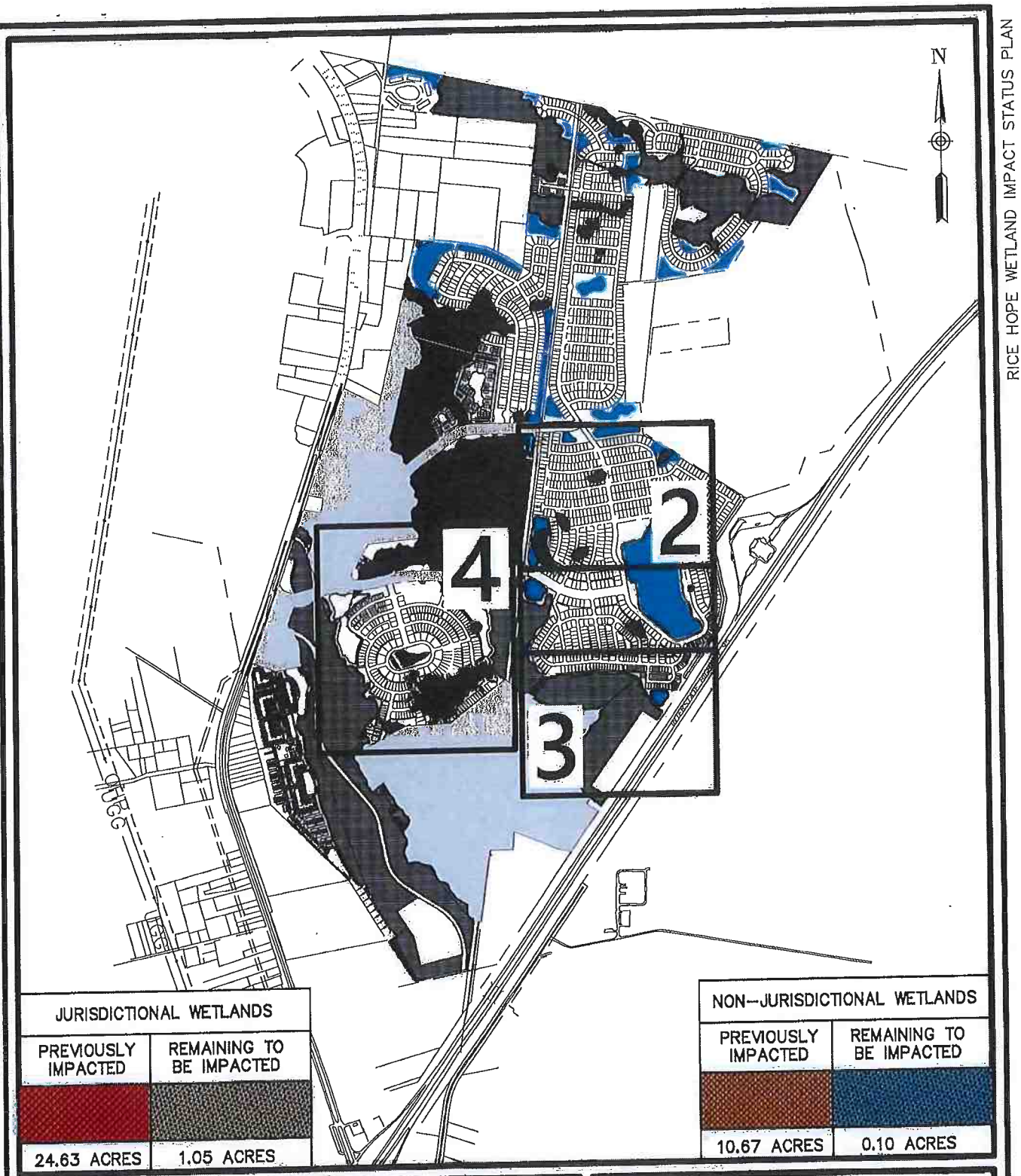
PREPARED FOR:
BEP RICE HOPE, LLC

PREPARED BY:
Pittman Engineering

AUGUST 14, 2019

Pittman Engineering Co., LLC
2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com





JURISDICTIONAL WETLANDS	
PREVIOUSLY IMPACTED	REMAINING TO BE IMPACTED
24.63 ACRES	1.05 ACRES

NON-JURISDICTIONAL WETLANDS	
PREVIOUSLY IMPACTED	REMAINING TO BE IMPACTED
10.67 ACRES	0.10 ACRES

RICE HOPE
WETLAND IMPACT STATUS PLAN
VICINITY MAP

OWNER: BEP RICE HOPE, LLC
LOCATION: PORT WENTWORTH, GEORGIA 31407
DATE: 8/15/19
PROJECT NUMBER: 18-168
SHEET 1 OF 4
SCALE: 1"=2000'

Pittman Engineering Co., LLC
2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

RICE HOPE WETLAND IMPACT STATUS PLAN

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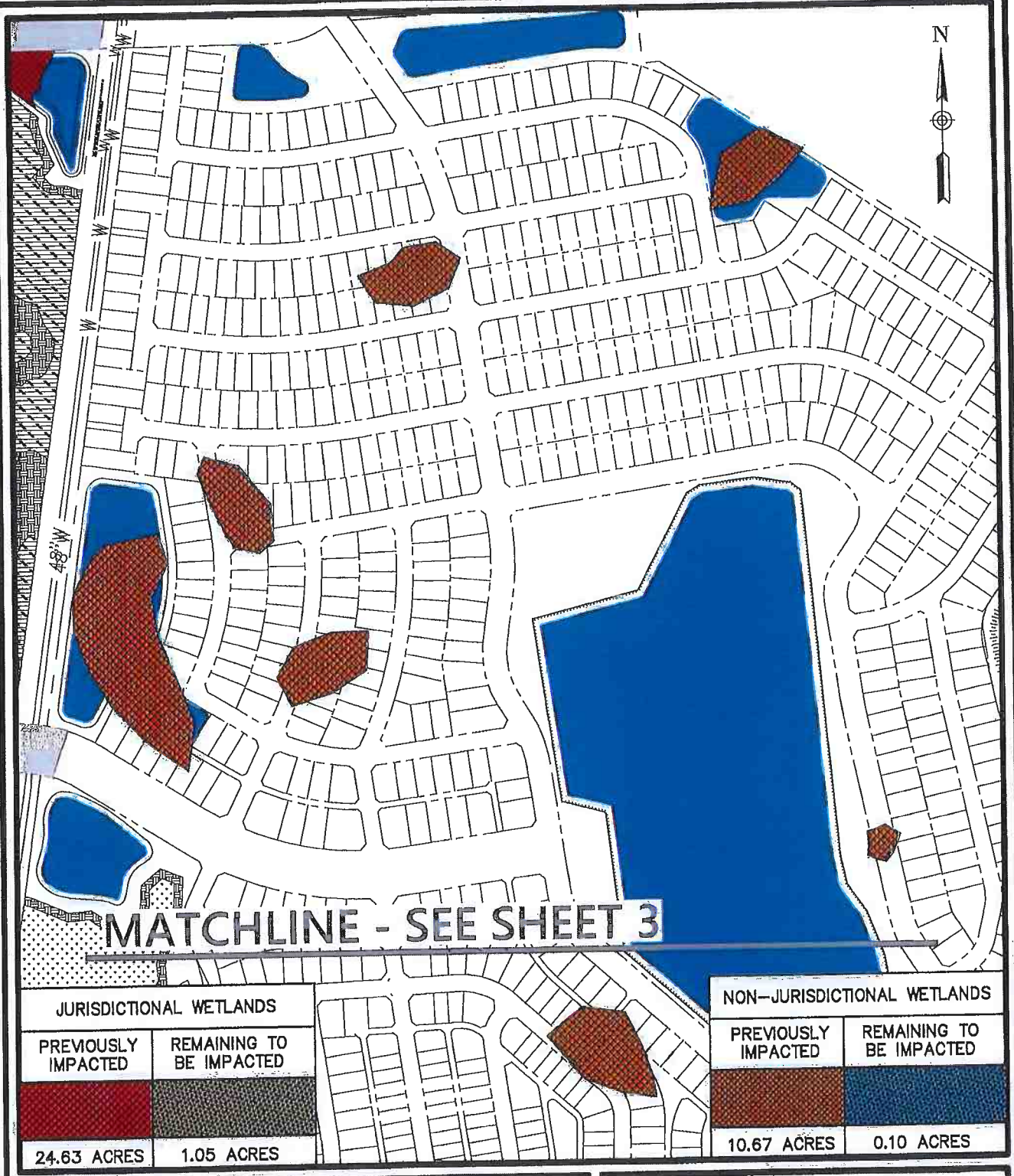

JURISDICTIONAL WETLANDS	
PREVIOUSLY IMPACTED	REMAINING TO BE IMPACTED
24.63 ACRES	1.05 ACRES

NON-JURISDICTIONAL WETLANDS	
PREVIOUSLY IMPACTED	REMAINING TO BE IMPACTED
10.67 ACRES	0.10 ACRES

RICE HOPE
WETLAND IMPACT STATUS PLAN
PLAN VIEW

OWNER: BEP RICE HOPE, LLC
LOCATION: PORT WENTWORTH, GEORGIA 31407
DATE: 8/15/19
PROJECT NUMBER: 18-168

SHEET 2 OF 4
SCALE: 1"=400'

Pittman Engineering Co., LLC
2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

RICE HOPE WETLAND IMPACT STATUS PLAN

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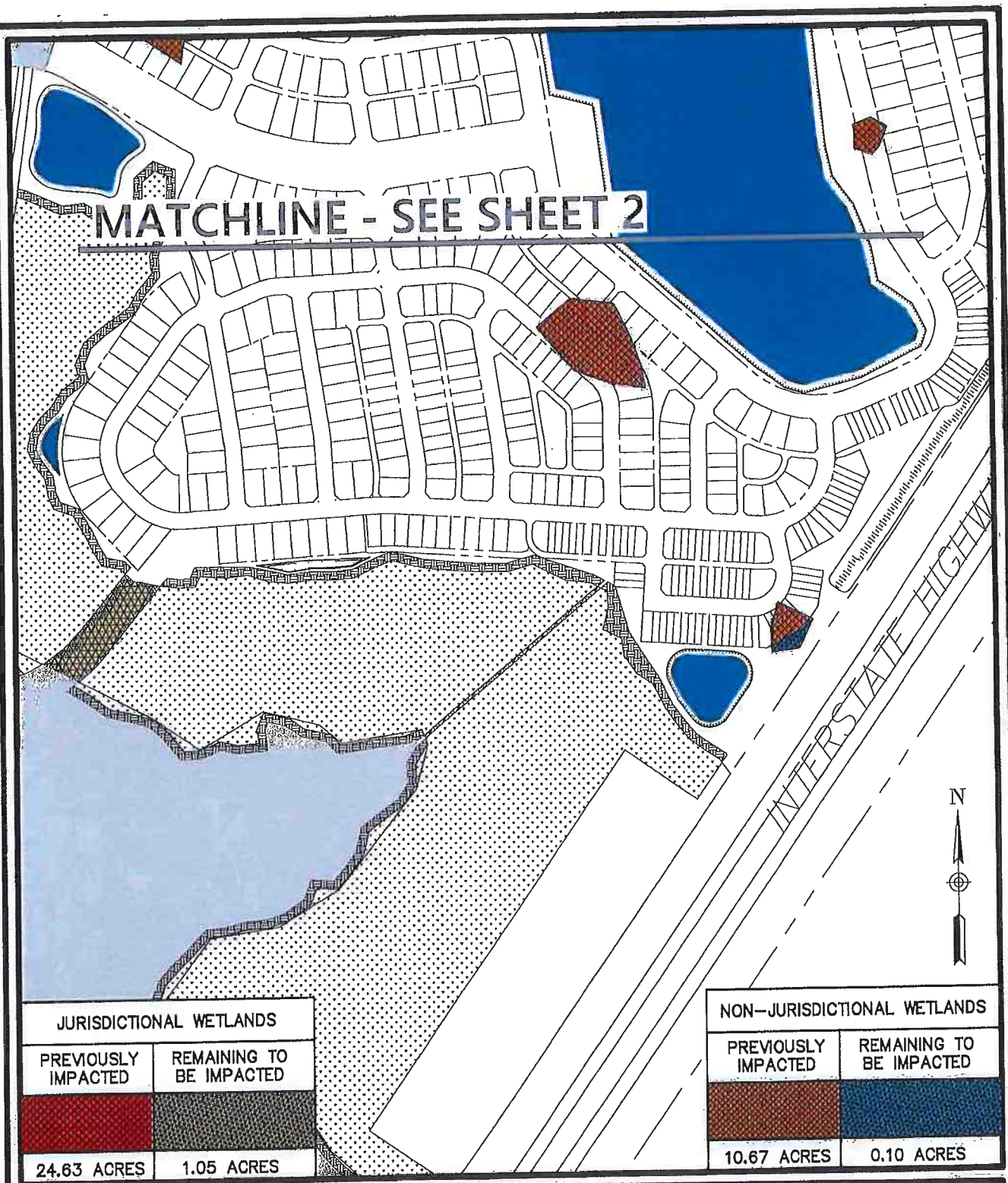

RICE HOPE WETLAND IMPACT STATUS PLAN

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RICE HOPE
WETLAND IMPACT STATUS PLAN
PLAN VIEW

OWNER: BEP RICE HOPE, LLC
LOCATION: PORT WENTWORTH, GEORGIA 31407
DATE: 8/15/19
PROJECT NUMBER: 18-168
SHEET 3 OF 4
SCALE: 1"=400'

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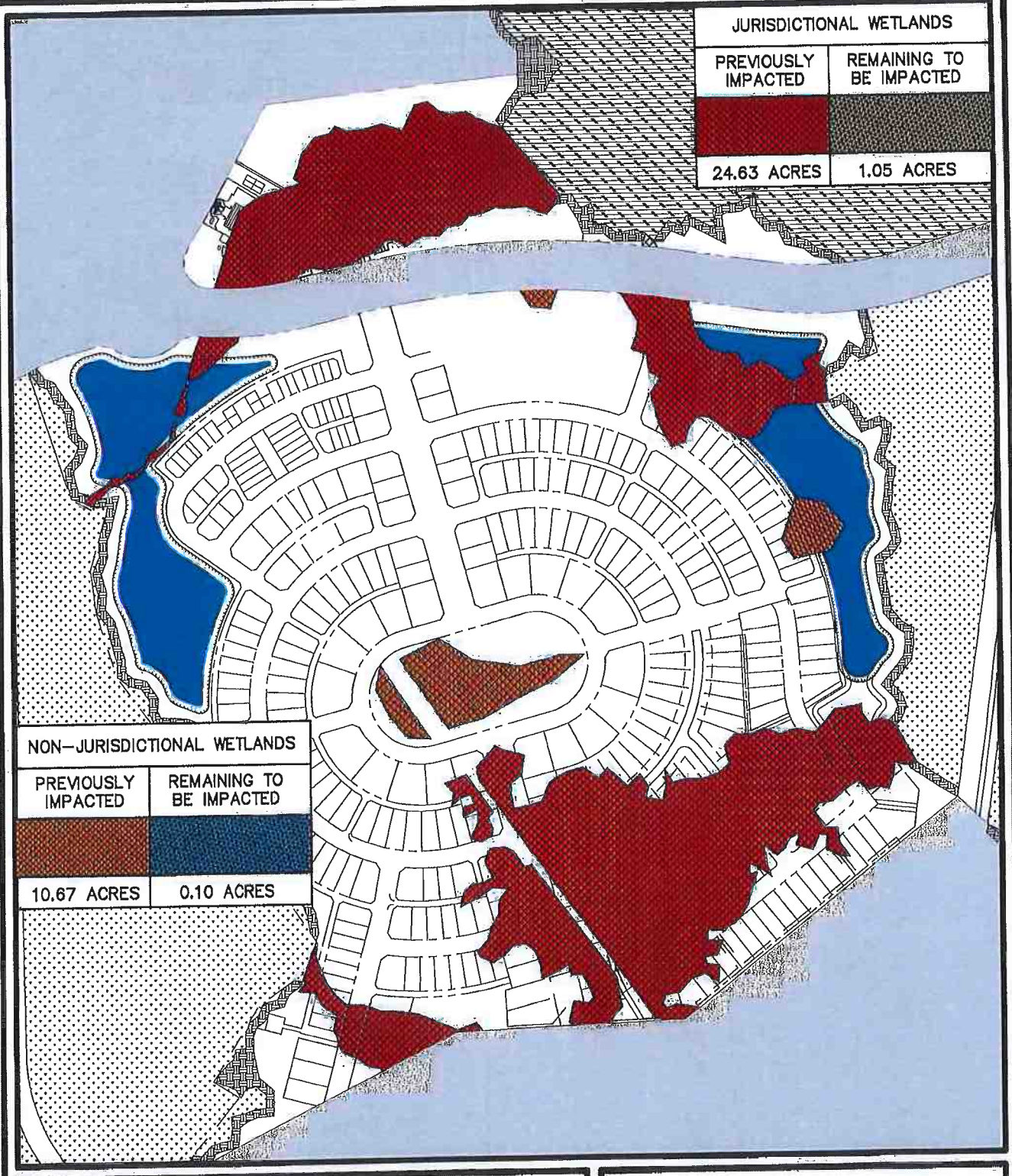

RICE HOPE WETLAND IMPACT STATUS PLAN

RICE HOPE
WETLAND IMPACT STATUS PLAN
PLAN VIEW

OWNER: BEP RICE HOPE, LLC
LOCATION: PORT WENTWORTH, GEORGIA 31407
DATE: 8/15/19
PROJECT NUMBER: 18-168

SHEET 4 OF 4
SCALE: 1"=400'

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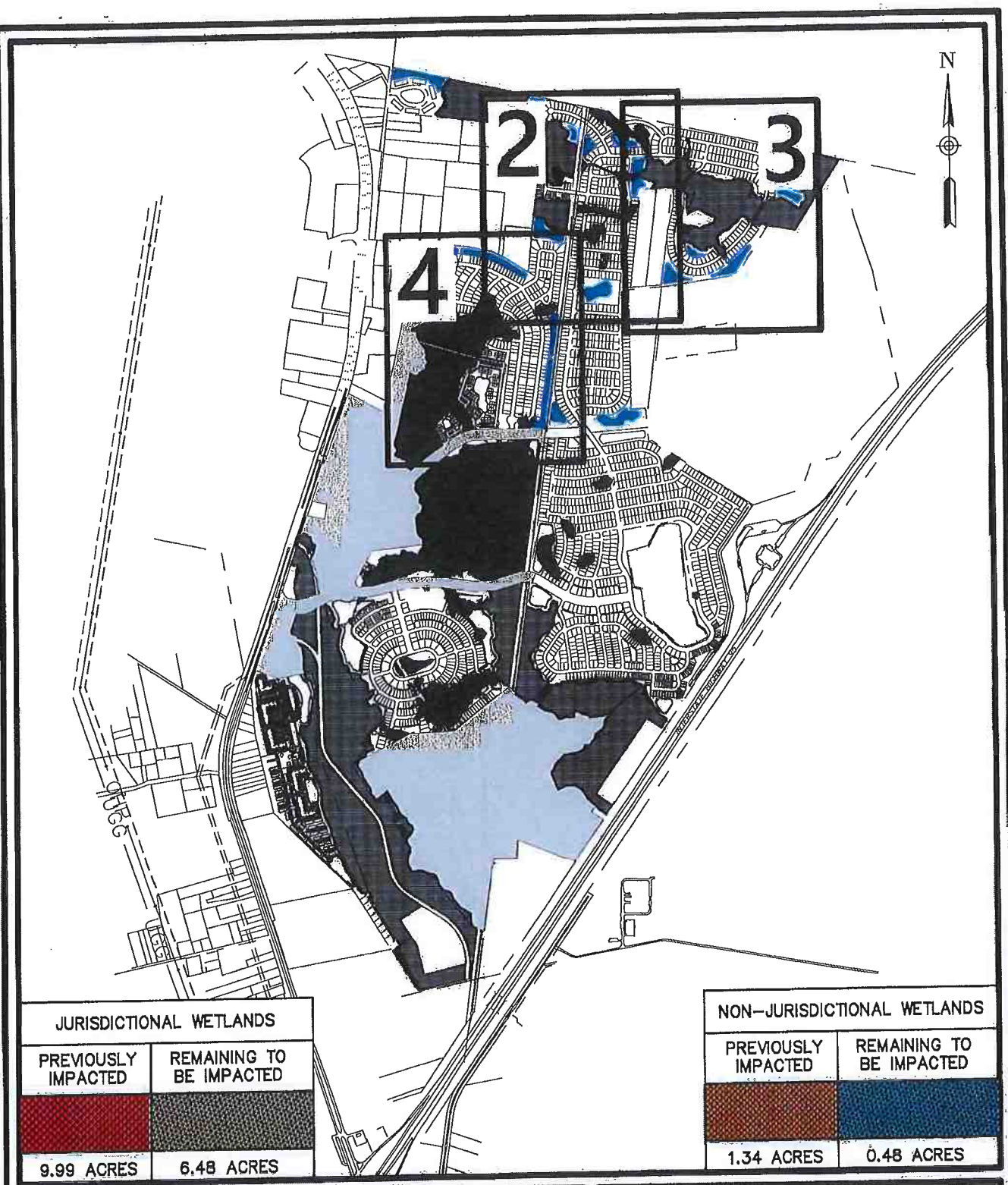

RICE HOPE
WETLAND IMPACT STATUS PLAN
VICINITY MAP

OWNER: BEP RICE HOPE TRACT 2, LLC
LOCATION: PORT WENTWORTH, GEORGIA 31407
DATE: 8/15/19
PROJECT NUMBER: 18-168

SHEET 1 OF 4
SCALE: 1"=2000'

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RICE HOPE WETLAND IMPACT STATUS PLAN

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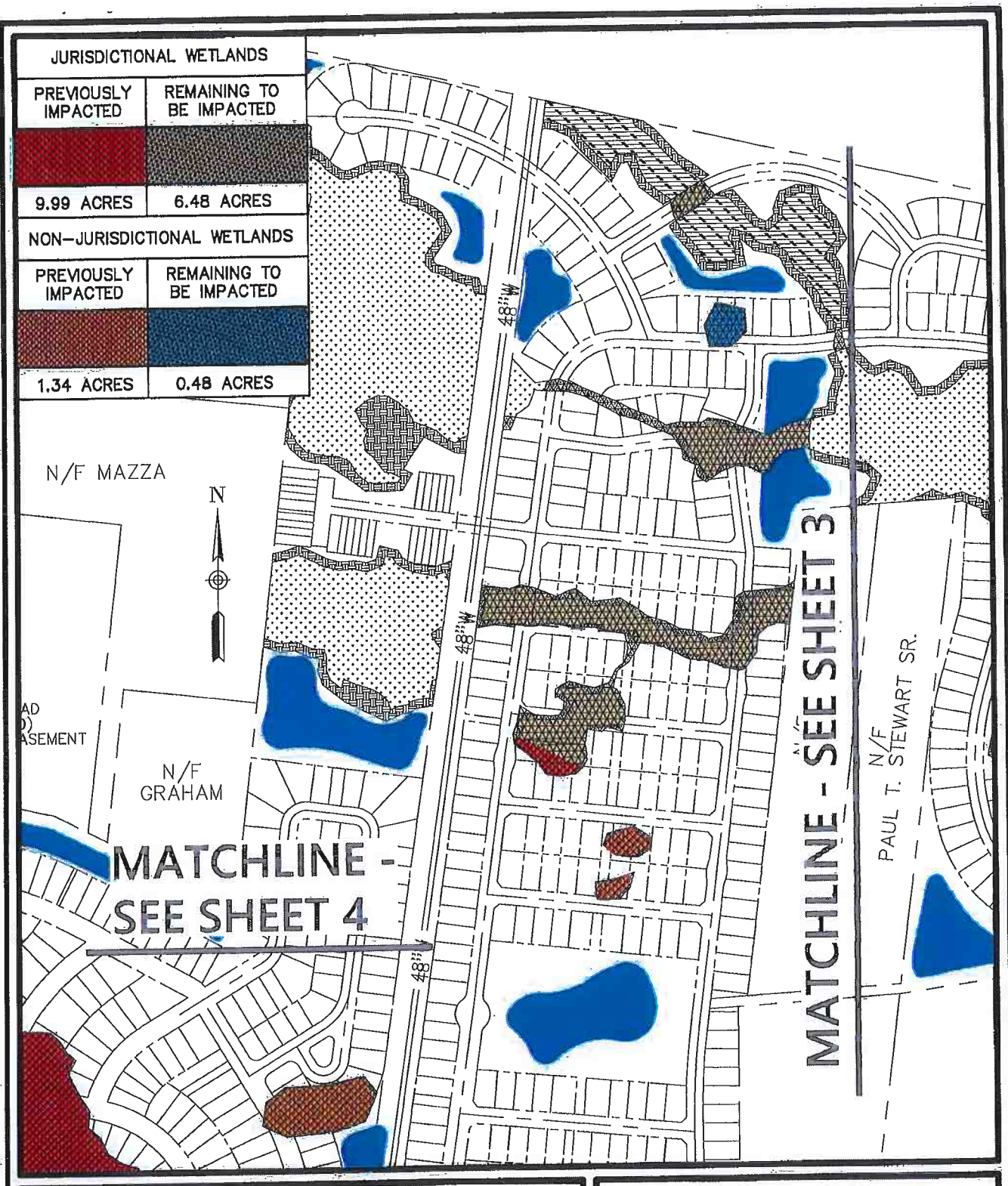

RICE HOPE WETLAND IMPACT STATUS PLAN

RICE HOPE
WETLAND IMPACT STATUS PLAN
PLAN VIEW

OWNER: BEP RICE HOPE TRACT 2, LLC
LOCATION: PORT WENTWORTH, GEORGIA 31407
DATE: 8/15/19
PROJECT NUMBER: 18-168

SHEET 2 OF 4
SCALE: 1"=400'

Pittman Engineering Co., LLC
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Richmond Hill, GA 31324
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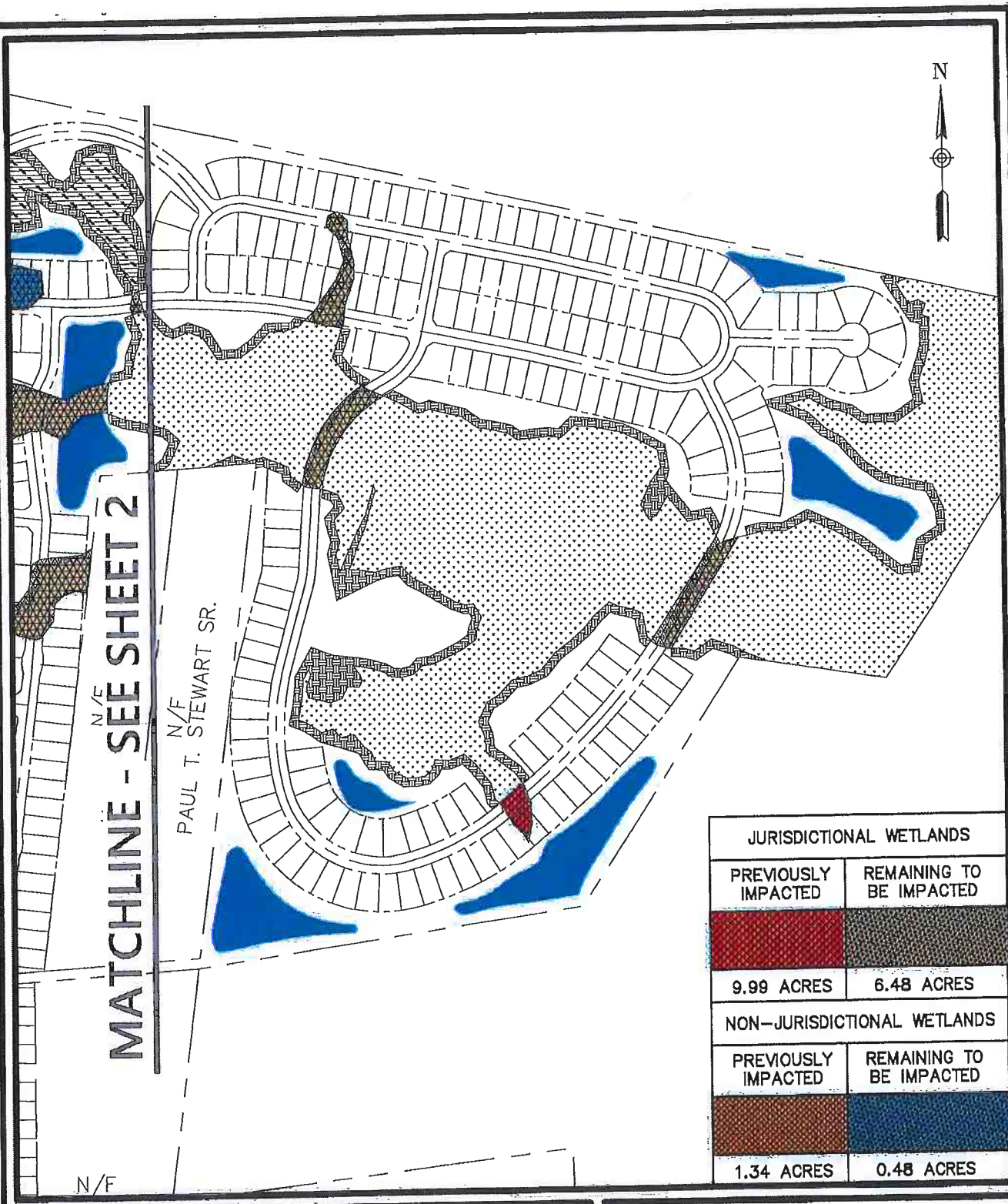
www.PittmanEngineeringCo.com

S:\Projects\Rice Hope\18-168 Rice Hope Due Diligence\Drawings\Permits\18-168 BEP2 Wetland Permit (Plan Views).dwg



RICE HOPE
WETLAND IMPACT STATUS PLAN
PLAN VIEW

OWNER: BEP RICE HOPE TRACT 2, LLC
LOCATION: PORT WENTWORTH, GEORGIA 31407
DATE: 8/15/19
PROJECT NUMBER: 18-168

SHEET 3 OF 4
SCALE: 1"=400'

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RICE HOPE WETLAND IMPACT STATUS PLAN

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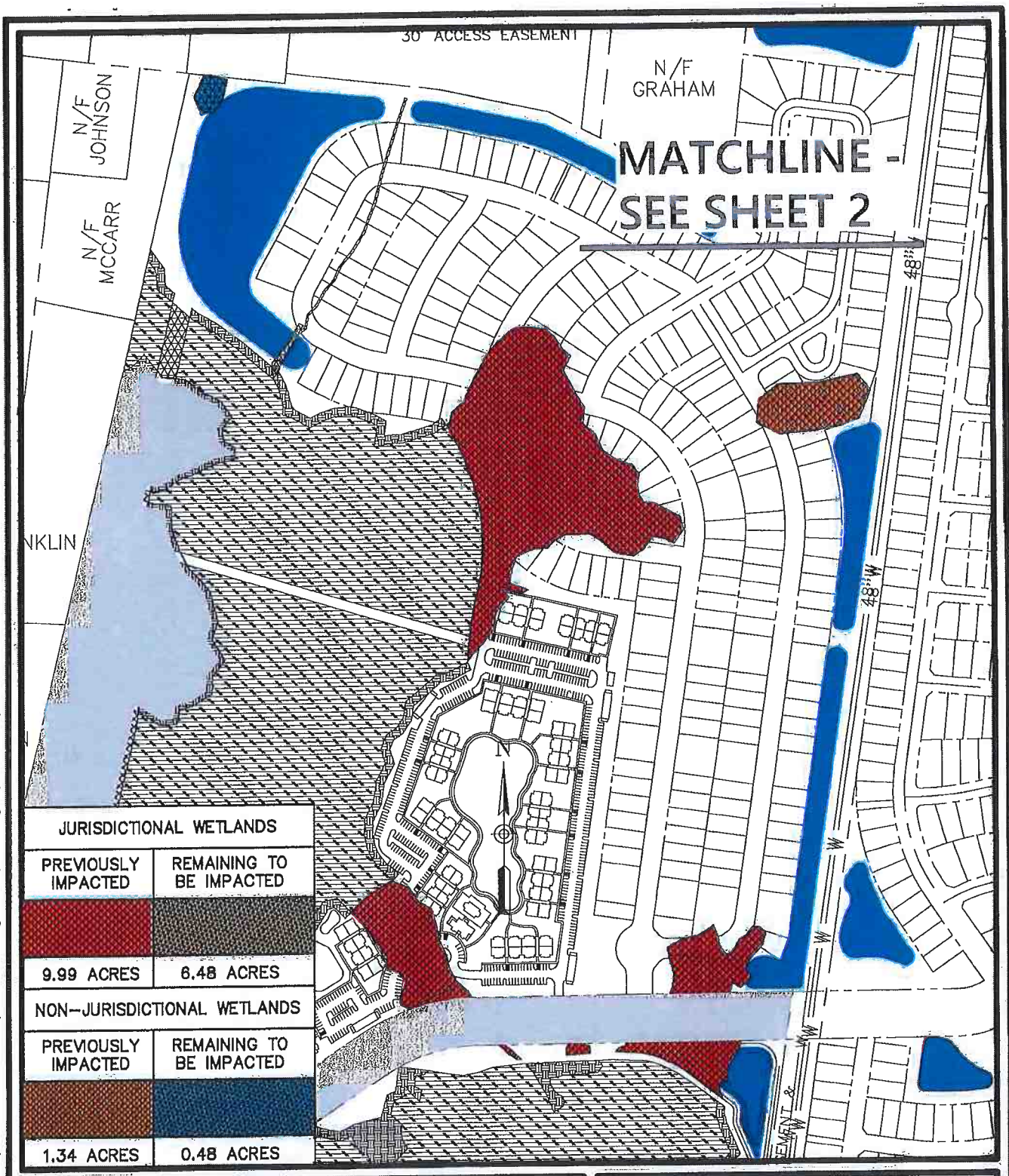

RICE HOPE
WETLAND IMPACT STATUS PLAN
PLAN VIEW

OWNER: BEP RICE HOPE TRACT 2, LLC
LOCATION: PORT WENTWORTH, GEORGIA 31407
DATE: 8/15/19
PROJECT NUMBER: 18-168
SHEET 4 OF 4
SCALE: 1"=400'

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RICE HOPE WETLAND IMPACT STATUS PLAN

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DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
100 W. OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640

REPLY TO
ATTENTION OF:

OCTOBER 07 2014

Regulatory Division
SAS-2003-07880

Mr. Paul Larner
BEP Rice Hope, LLC
3071 Slates Mills Road
Sperryville, Virginia 22740

Dear Mr. Larner:

I refer to your letter of January 17, 2014, requesting modification of Department of the Army permit number SAS-2003-07880. The request was submitted by Mr. Joel Price of Sligh Environmental Consultants, Inc., on behalf of multiple owners of the previous tract known as "Rice Hope Plantation." This permit, and subsequent modifications, authorized impacts to 72.10 acres of jurisdictional wetland and 27 acres of isolated, non-jurisdictional wetland to facilitate the construction of a mixed use development. The project site is located within the Rice Hope development, adjacent to and east of Georgia Highway 21, in Port Wentworth, Chatham County, Georgia (Latitude 32.2130, Longitude -81.1919).

In accordance with the request, I am hereby authorizing the following modification to the above mentioned Department of the Army permit:

AUTHORIZED MODIFICATIONS:

a. The portion of the permit labeled "BEP Rice Hope, LLC", as depicted on the exhibits entitled "Rice Hope Wetland Impact Status Plan, Port Wentworth, Georgia, Prepared for BEP Rice Hope, LLC" dated May 23, 2014, has been transferred from Sivica Communities to BEP Rice Hope, LLC. Based on these exhibits, 1.02 acres of jurisdictional wetland and 3.74 acres of non-jurisdictional wetland remain to be impacted.

b. The completion date for work authorized under Department of the Army permit number SAS-2003-07880 is extended from September 30, 2014, to September 30, 2019.

c. Within 90 days of issuance of the modification, the Permittee shall perform a one time pass through on portions of the mitigation site identified on the exhibit "Pine-Sweetgum Thinning Exhibit, Rice Hope, Chatham County, Georgia," (enclosed) dated

May 29, 2014, to thin pine and sweetgum. Both species shall be thinned via hand crews, girdling and/or a basal chemical application as outlined in the letters dated June 13, 2014, and August 21, 2014 (enclosed).

d. Within 30 days of completion of the one time pass through, the Permittee shall provide written notification documenting the completion of the thinning activities. The notification shall include photographs taken at designated photo-stations which will be established in the field.

e. Within one year of completion of the one time pass through, the Permittee shall submit a monitoring report documenting the success of the above treatments. The report shall include which treatment was applied and on what area, when the treatment was applied and pre and post treatment photographs taken from the same designated photo-stations. At that time, the Corps may request a site visit to ensure compliance with the modification. Please note, should the girdling and/or chemical basal application fail, the Permittee shall submit an adaptive management plan to address the failure.

f. Within 90 days of issuance of the modification, the Permittee shall remove any obstructions of the culverts to restore hydrologic passage to neighboring wetlands.

g. Modify the previously permitted jurisdictional impacts to include the removal of 0.89 acres of fill in Wetland 9 associated with Road Crossing 21 as identified on the drawing entitled "Rice Hope Plantation, Proposed Activity, Freshwater Wetland Management Plan," (enclosed) dated November 20, 2003.

This Permit Modification is subject to the terms and conditions of the original permit. You will not depart from the approved location or plans without obtaining prior approval from the Department of the Army.

This authorization does not convey any property rights, either in real estate or material, or any exclusive privileges. It does not authorize any injury to property, invasion of rights, or any infringement of federal, state, local laws, or regulations; nor does it obviate the requirement to obtain State or local assent required by law for the activity described herein. It does not affect your liability for any damages that may be caused by the work.

If this modification is agreeable, sign both the original and duplicate copy. Please retain the original for your records and return the signed duplicate to this office.

If you object to this decision due to certain terms and conditions therein, you may request that the permit be modified under our regulations at Title 33 Code of Federal

Regulations (33 CFR) Part 331. Enclosed you will find a Notification of Appeal Process (NAP) Fact Sheet and Request for Appeal (RFA) Form. To request that the permit be modified you must complete Section II of the enclosed form and return the form to the District Engineer at the address shown above.

In order for an RFA to be accepted, the U.S. Army Corps of Engineers must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the District Engineer within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by this deadline.

It is not necessary to submit an RFA form to the District Office if you do not object to the permit decision.

A copy of this letter is being provided to the following party: Mr. Joel Price, Sligh Environmental Consultants, Inc., 31 Park of Commerce Way, Suite 200B, Savannah, Georgia 31405.

Thank you in advance for completing our on-line Customer Survey Form located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. We value your comments and appreciate your taking the time to complete a survey each time you have interaction with our office.

If you have any questions, please contact Ms. Sarah Wise, Regulatory Specialist, Coastal Branch, at 912-652-5550.

for Thomas J. Tickner
Colonel, U.S. Army
Commanding

Enclosure

Permittee hereby accepts the terms and conditions of this instrument.

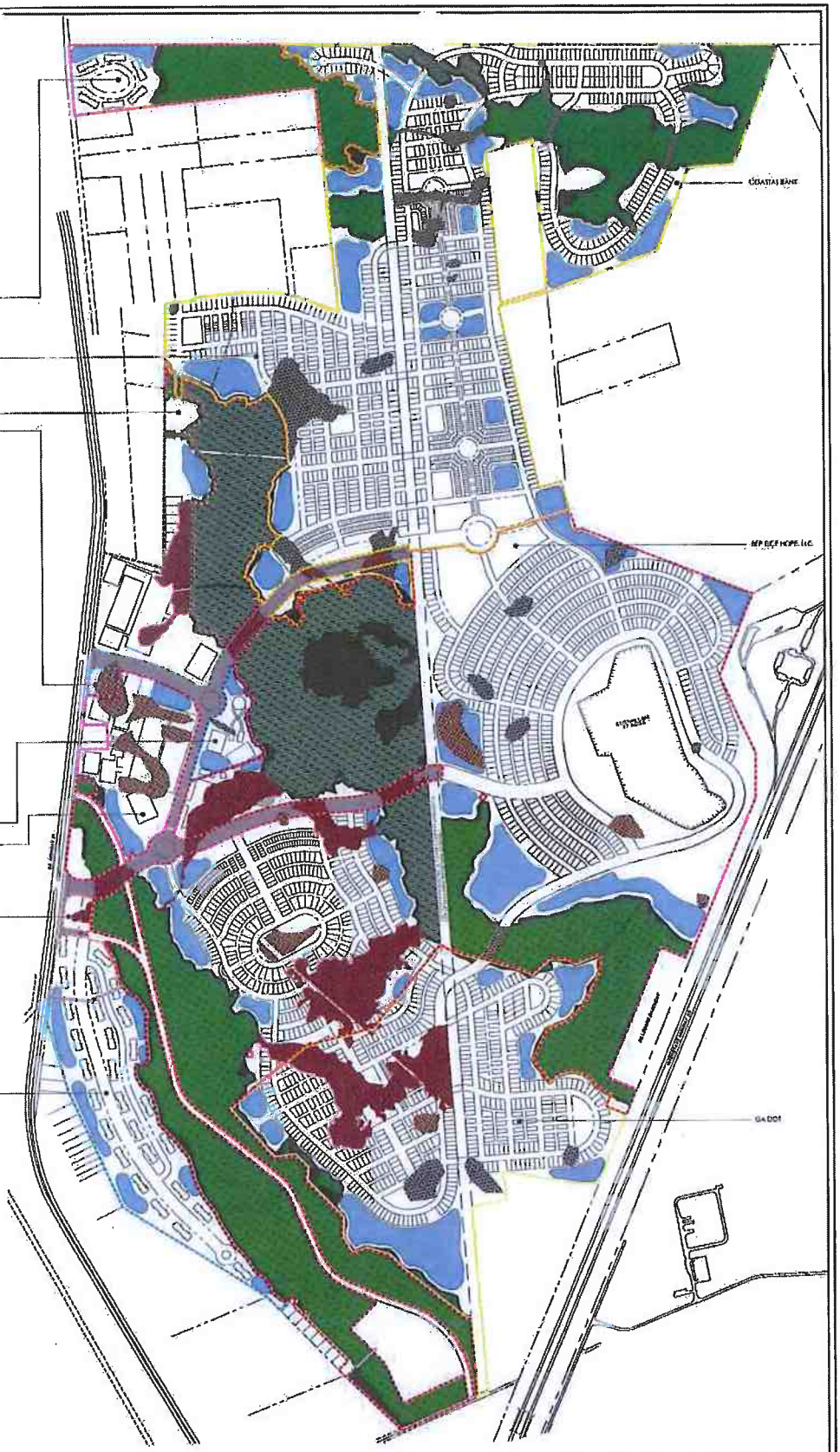
_____ _____

(Permittee) (Date)

RICE HOPE
WETLAND IMPACT STATUS PLAN

PREPARED FOR:
BEP RICE HOPE, LLC

PREPARED BY:
THOMAS & HUTTON
SAVANNAH, GEORGIA
MAY 28, 2014
REVISED: JUNE 11, 2014
J - 24526.0000



OWNER KEY

- BEP RICE HOPE, LLC
- COASTAL BANK
- PUBLIX SUPER MARKETS, INC.
- WALGREEN CO.
- SCCPSS
- GREENLAND DEVELOPERS, INC.
- ANDREWS COMMERCIAL REAL ESTATE
- VILLAGE AT RICE HOPE LAND, III
- GA DOT
- RIGHT OF WAY

GRAPHIC SCALE

SYMBOL	DESCRIPTION	
	TOTAL TRACT ACREAGE	1340.69 AC.
	TOTAL 404 JURISDICTIONAL WETLAND ACREAGE	376.55 AC.

WETLAND IMPACT STATUS SUMMARY

	PREVIOUSLY IMPACTED WETLANDS	54.51 AC.
	WETLANDS REMAINING TO BE IMPACTED	17.70 AC.
	TOTAL WETLAND IMPACTS	72.10 AC.

WETLAND MITIGATION

	ENHANCED WETLAND BUFFER	10.83 AC.
	AVERAGE BUFFER WIDTH	35.34 LF.
	FRESHWATER WETLAND PRESERVATION	206.47 AC.
	FRESHWATER WETLAND ENHANCEMENT	101.36 AC.

404 JURISDICTIONAL WETLANDS IMPACTED

W 4	4.89 AC.	W 8	14.27 AC.
W 5	0.01 AC.	W 10	0.28 AC.
W 6	0.03 AC.	W 11	2.50 AC.
W 7	27.13 AC.	W 13	6.13 AC.

TOTAL WETLANDS IMPACTED 54.51 AC.

404 JURISDICTIONAL WETLANDS TO BE IMPACTED

W 3	3.97 AC.	W 9	0.80 AC.
W 4	0.50 AC.	W 9	1.04 AC.
W 5	0.06 AC.	W 14	3.14 AC.
W 7	1.40 AC.		

TOTAL WETLANDS REMAINING TO BE IMPACTED 17.70 AC.

404 JURISDICTIONAL WETLANDS PRESERVED

W 1	108.76 AC.	W 8	49.87 AC.
W 2	3.91 AC.	W 12	0.03 AC.
W 4	2.95 AC.	W 14	33.97 AC.
W 5	99.85 AC.		

TOTAL WETLANDS PRESERVED 206.47 AC.

404 JURISDICTIONAL WETLANDS ENHANCED

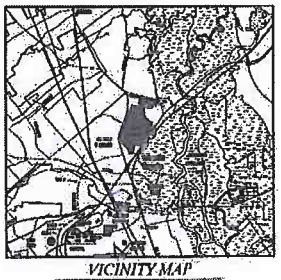
W 4	39.80 AC.	W 7	60.16 AC.
W 14	1.40 AC.		

TOTAL WETLANDS ENHANCED 101.36 AC.

NON-JURISDICTIONAL WETLANDS - 26.27 AC.

- NON-JURISDICTIONAL WETLANDS PREVIOUSLY IMPACTED (16.01 ACRES)
- NON-JURISDICTIONAL WETLANDS REMAINING TO BE IMPACTED (10.26 ACRES)

Owner	Address	Jurisdictional Wetlands		Non-Jurisdictional Wetlands	
		Previously Impacted	Remaining to be Impacted	Previously Impacted	Remaining to be Impacted
Andrews Commercial Real Estate	324 Gulfstream Road Savannah, GA 31407	2.6	0.00	9.0	0
BEP Rice Hope LLC	3071 Main Hill Road Innsville, VA 22842	24.7	2.01	7.5	5.74
Coastal Bank	15 West Oglethorpe Street, Savannah, GA 31401	0.0	15.74	0.0	0.00
GA DOT	600 West Peachtree Street NW Atlanta, GA 30308	0.0	0.00	0.0	4.26
Greenland Developers Inc	1000 Old Mission Road Hinesville, GA 31313	0.0	0.00	0.0	0.11
Publix Super Markets, Inc	PO Box 407 Lakeland, FL 33802-0407	0.15	0.00	0.0	0.00
SCCPSS	208 Bull Street, Savannah, GA 31401	0.0	0.00	7.3	0.00
Village at Rice Hope Land, II	1230 Peachtree Street Suite 1100, Atlanta, GA 30309	0.0	0.00	0.0	0.00
Right of Way	n/a	7.3	0.00	0.3	0.00
Walgreen Co	PO Box 901 Deerfield IL 60015	0.0	0.00	1.0	0.00
	Total	54.51	17.70	16.01	10.26



VICINITY MAP

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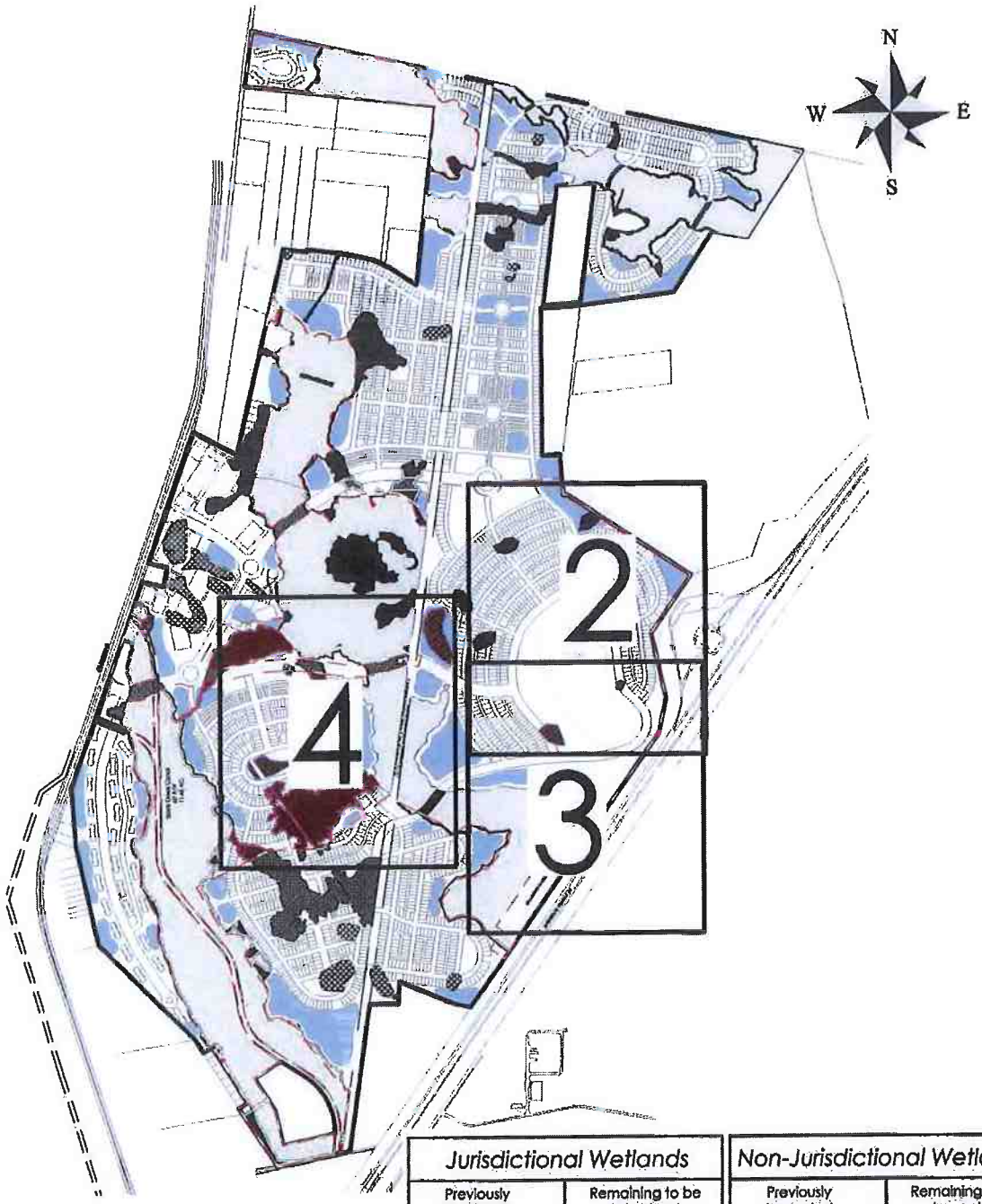

Jurisdictional Wetlands		Non-Jurisdictional Wetlands	
Previously Impacted	Remaining to be Impacted	Previously Impacted	Remaining to be Impacted
24.7 Acres	1.02 Acres	7.0 Acres	3.74 Acres

Rice Hope

PROPOSED ACTIVITY:

Wetland Impact Status Plan

Owner:

BEP Rice Hope, LLC

LOCATION: Port Wentworth, Georgia
DATE: May 23, 2014
JOB NUMBER: J - 24526

SHEET: 1 of 4
SCALE: 1" = 2000'

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting

50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300

www.thomasandhutton.com

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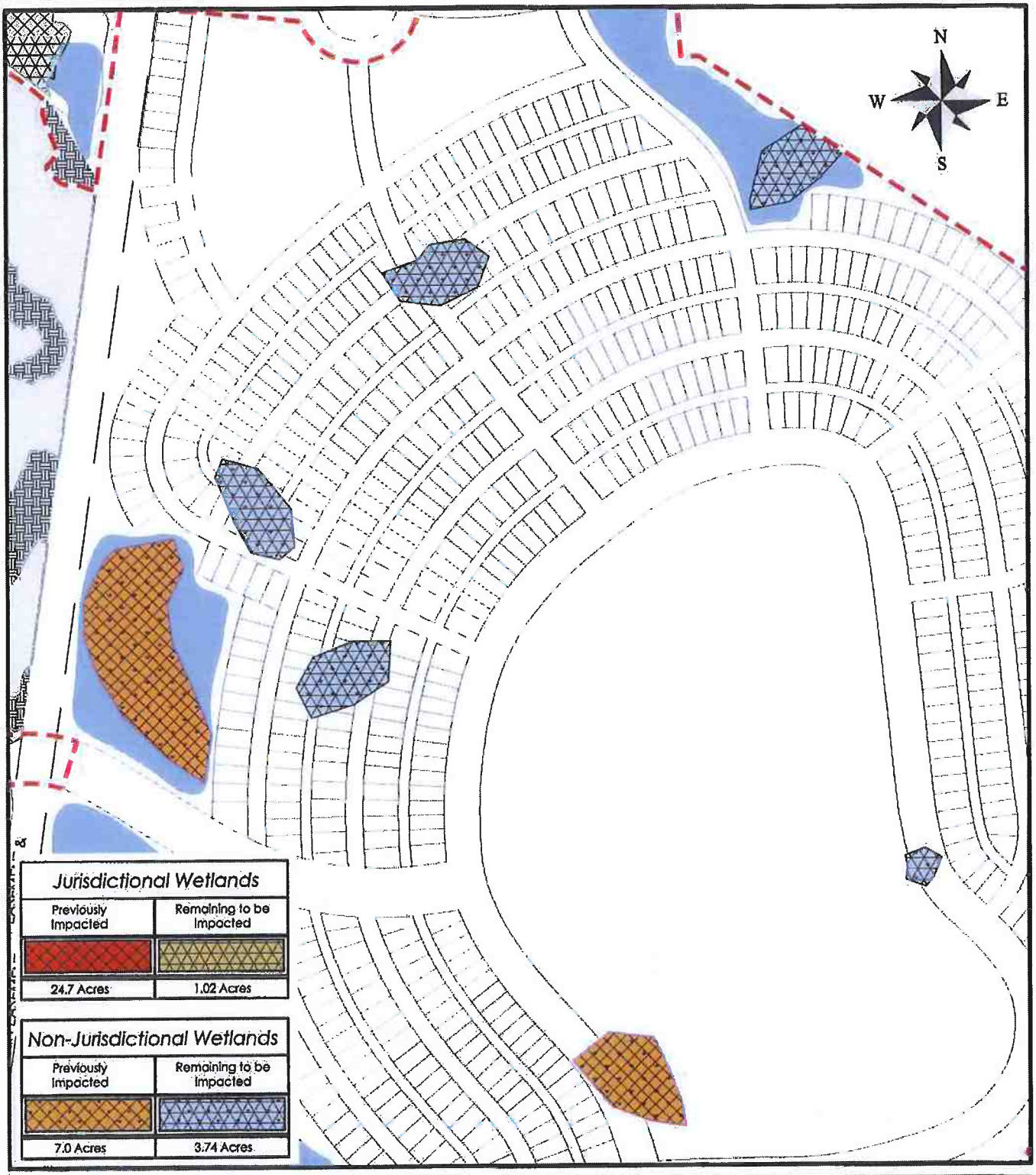

Rice Hope

PROPOSED ACTIVITY:

Wetland Impact Status Plan

Owner:

BEP Rice Hope, LLC

LOCATION: Port Wentworth, Georgia
DATE: May 23, 2014
JOB NUMBER: J - 24526

SHEET: 2 of 4
SCALE: 1" = 400'

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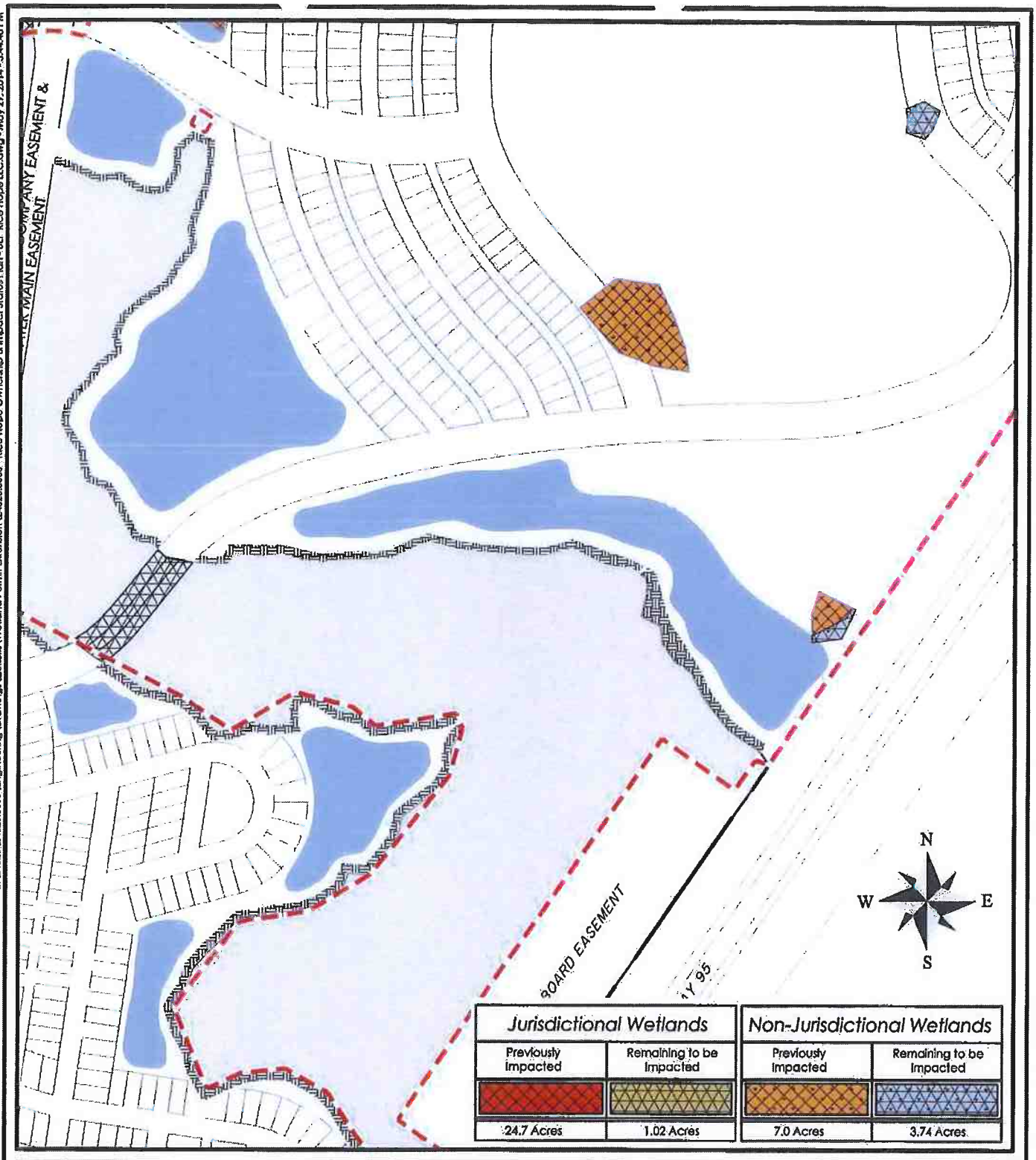

Rice Hope

PROPOSED ACTIVITY:

Wetland Impact Status Plan

Owner:

BEP Rice Hope, LLC

LOCATION: Port Wentworth, Georgia
DATE: May 23, 2014
JOB NUMBER: J - 24526

SHEET: 3 of 4
SCALE: 1" = 400'

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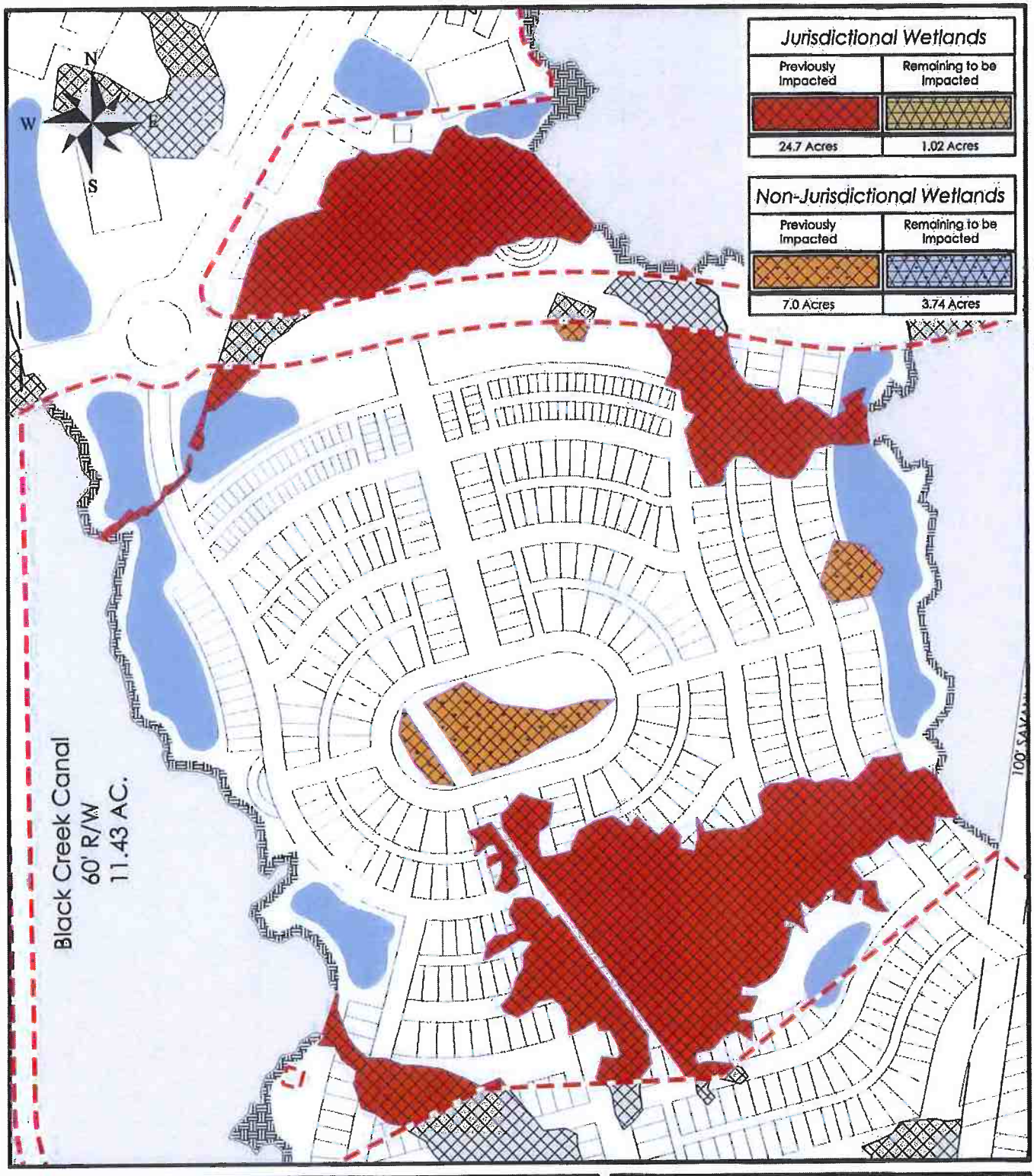


Rice Hope

PROPOSED ACTIVITY:

Wetland Impact Status Plan

Owner:

BEP Rice Hope, LLC

LOCATION: Port Wentworth, Georgia
DATE: May 23, 2014
JOB NUMBER: J - 24526

SHEET: 4 of 4
SCALE: 1" = 400'

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting

50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300

www.thomasandhutton.com

sligh environmental consultants, inc

August 20, 2014

U.S. Army Corps of Engineers
Regulatory Branch, Southern Section
Attention: Ms. Sarah Wise
100 West Oglethorpe Avenue
Savannah, Georgia 31401-3640

Subject: **Rice Hope**
USACE Permit No. 200307880
Chatham County, Georgia

Dear Ms. Wise:

As per our conversation, Sligh Environmental Consultants, Inc. (SECI) is pleased to provide you with additional information on the proposals we briefly discussed concerning the wetland credit purchase and the proposed use of a basal chemical application to control the sweetgum.

In further review of the Rice Hope Master Plan, it was noted that a large road crossing (Road Crossing #21) was no longer needed to complete the development (See attached Sheet 12 of 18). The road crossing provided connection to the southern portion of the property which is now owned by GDOT and no longer part of the Rice Hope development. The permitted road crossing is 0.89-acre and would equate to 6.8 wetland credits based on the current SOP worksheets (See Attached SOP worksheet). This permitted crossing is downstream from the area represented by "Plot 3" in the wetland preservation area. The applicant is proposing to give up this permitted road crossing and preserve this area with restrictive covenants in order to forgo the purchase of the 5.3 wetland credits proposed in our June 13, 2014 letter.

A forester completed a site assessment on the areas proposed for the pine and sweetgum removal. He noted that there may be other methods the applicants could use to control the sweetgum other than just cutting the trees down. He stated that we could use a basal chemical application during the late fall or winter to control the larger sweetgums. The low volume basal chemical application is made to the bark of the individual plants to control that speicies. The herbicide penetrates the bark into the cambium layer where the herbicide enters the roots and stems for complete control. The herbicide will kill the tree during the winter and the tree will not sprout back in the spring. Therefore, if this method is utilized, the trees would be treated this fall or winter and would not sprout back next spring. This method would be used on the larger sweetgums and would be a more permanent control of the sweetgums as opposed to cutting the trees down. The smaller sweetgums and all the pines would still be cut down and left in place. The herbicides that would be used may include Garlon 4 Ultra or Pathfinder II. Both of these herbicides use a plant-derived methylated seed oil which provides a cleaner environmental profile. Both of these herbicides are safe for use in wetlands and will not affect the other trees or plants near the point of application. We propose that the applicant has the basal chemical application as an option for use along with the cutting of trees. We would also like the ability to girdle the larger pines to prevent damage to desirable species. The girdling of the pines would allow the pines to continue standing which will provide habitat for birds and other wildlife.

We appreciate your attention to this important project. Upon your review of this information, should you have any questions or comments, or if you require any additional information, please do not hesitate to contact us at (912) 232-0451.

Sincerely,

Joel Price
Senior Project Manager
Sligh Environmental Consultants, Inc.

cc: Mr. Murray Marshall

RECEIVED
AUG 21 2014
BY: CESAS-RD

31 PARK OF COMMERCE WAY / SUITE 200B / SAVANNAH, GA 31405 / T 912.232.0451 / F 912.232.0453

sligh environmental consultants, inc

June 13, 2014

U.S. Army Corps of Engineers
Regulatory Branch, Southern Section
Attention: Ms. Sarah Wise
100 West Oglethorpe Avenue
Savannah, Georgia 31401-3640

Subject: **Rice Hope**
USACE Permit No. 200307880
Chatham County, Georgia

Dear Ms. Wise:

Sligh Environmental Consultants, Inc. (SECI), on behalf of various property owners at Rice Hope, is pleased to provide you with the following responses to the questions you raised in your May 8, 2014 letter concerning the requested extension of the Rice Hope USACE Permit. As you are aware, the Rice Hope Permit was issued on July 7, 2004 and is scheduled to expire on June 30, 2014. SECI submitted a request for permit extension on January 17, 2014, and well within the time frame as outlined in General Condition 1 of the Permit, to allow additional time to complete the authorized development activity. As per our conversation and due to the size of the Rice Hope development, we would like to request a 10 year extension to the permit instead of the five year originally requested. The following responses are associated with the questions the USACE raised concerning our requested time extension, and we are pleased to have the opportunity to provide you with this requested information in support of the permit time extension. The following includes the specific questions you raised in bold, and the response that should fully address all outstanding issues.

The following comments are associated with the mitigation plan:

(1) A one time pass through of the entire mitigation site to remove pine and sweetgum by qualified contractors capable of removing the identified species.

As per conversations with your office on May 8, 2014 and May 15, 2014, there are areas within the enhancement area where pine and sweetgum are the dominant species. As per direction from your office, SECI has delineated and GPS located the pine sweetgum areas in the field. Based on our field measurements, there are approximately 55.7-acres of the wetland enhancement dominated by the pine and sweetgum. In an effort to reduce the pine and sweetgum within the wetland enhancement area, the applicant proposes to utilize hand crews to cut the pine and sweetgum trees down and leave them lying in place. The hand crews will utilize chainsaws and brush cutters to fell the trees. Based on previous site preparation activities on this site almost 6 years ago, the felled small trees will decompose rapidly and aid in the overall restoration of the native soil within the wetland area.

Other alternative methods to remove the pine and sweetgum could include mechanical equipment such as mechanical timber harvesting equipment or heavy articulating rotary tree cutter machine. The mechanical methods could be more cost effective, but this mechanical treatment will not be selective and will damage many of the desirable species that are indigenous to this wetland area. Additionally, if the felled trees are to be removed from the enhancement area, there is no way to complete this activity without causing severe damage to the desirable trees that are to remain. Tree removal will require the creation of skid trails where mechanical equipment will drag the felled trees from the site to the adjacent upland which causes soil compaction and rutting in addition to severe damage to the desirable tree species that are to remain. Based on these alternatives, the most environmental sensitive method to complete the pine and sweetgum removal is utilizing hand crews to cut the trees and let them lie in place. Since the pines and sweetgum are both native trees, the applicant is proposing to complete a heavy thinning of these species and not a complete removal every pine and sweetgum within the enhancement area. The heavy thinning will reduce the competition to the preferred trees, and will allow the preferred species to grow and shade out any future

regenerating pioneer/unwanted species. The applicant is proposing to complete the thinning operations within one year of the issuance of the permit modification.

(2) Removal of any obstructions of the culverts to restore hydrologic passage to neighboring wetlands.

The applicant will hire a contractor to remove any obstructions from the pipes including silt fencing, silt, and vegetation. The applicant is proposing to complete this task within six months of the issuance of the permit modification.

(3) Completed Savannah District Standard Operating Procedure wetland credit calculation worksheets for Plot 3 (and the area it represents) that differentiate between the existing condition and the anticipated condition approved in the mitigation plan. To offset the difference of wetland credits generated and wetland credits initially anticipated, please provide a mitigation credit purchase analysis in accordance with the Savannah District Regulatory Guidelines to Evaluate Proposed Mitigation Bank Credit Purchases in the State of Georgia.

Attached are the completed Savannah District Standard Operating Procedure (SOP) worksheets for the area surrounding Plot 3. The worksheets reflect that the difference between the existing condition and the anticipated condition is 0.8 due to the lack of the vegetative component in this mitigation area. After a GIS review of the area and limited ground truthing, it was determined that the area represented by Plot 3 is approximately 6.6-acres. Therefore, the applicant is proposing to purchase 5.3 wetland credits from the AA Shaw Mitigation Bank since this bank is the only bank in the service area with sufficient number of wetland credits. This credit purchase will be made within 30 days of the issuance of the permit modification.

The following comments are associated with the permit transfer:

(1) The names and addresses of each parcel owner within the permit area.

The names and address for the main property owners are listed below. Individual homeowners are not included.

Andrews Commercial Real Estate
124 Grays Creek Drive
Savannah, Georgia 31410

Coastal Bank
Attn: Mr. Dave Mandel
18 West Bryan Street
Savannah, Georiga 31401

Greenland Developers, Inc.
5829 Clyo Kildare Road
Newington, Georgia 30446

Savannah-Chatham County Public School System
208 Bull Street
Savannah, Georgia 31401

Walgreen Co
Post Office Box 901
Deerfield, Illinois 60015

BEP Rice Hope LLC
Attn: Mr. Paul Larner
3071 Slates Mills Road
Sperryville, Virginia 22740

GDOT
Attn: Mr. David Griffin, P.E.
600 West Peachtree Street, NW Second Floor
Atlanta, Georgia 31401

Publix Super Markets, Inc.
Post Office Box 407
Lakeland, Florida 33082.0407

Village at Rice Hope Land,III
1250 Peachtree Street, Suite 1150
Atlanta, Georgia 30309

(2) An overall map that identifies each parcel, the owner of the parcel, authorized impacts that have been completed within the parcel and the authorized impacts that remain to be completed.

See the attached "Rice Hope Wetland Impact Status Plan" exhibit that clearly identifies each parcel, the owner, and the completed and remaining authorized impacts.

(3) An individual map for each parcel that identifies the authorized impacts that have been completed within each parcel and the authorized impacts that remain to be completed.

See the attached exhibits for each of the property owners listed above.

(4) Proposed signed transfer page for each property owner.

We have attached the blank signature pages that are being sent to each of the property owners for signature. The signed signature will be forwarded to you upon our receipt. We anticipate having all signatures within two weeks from the date of this letter.

(5) The property deed for each parcel.

Please see attached the property deed for each of the parcels listed above.

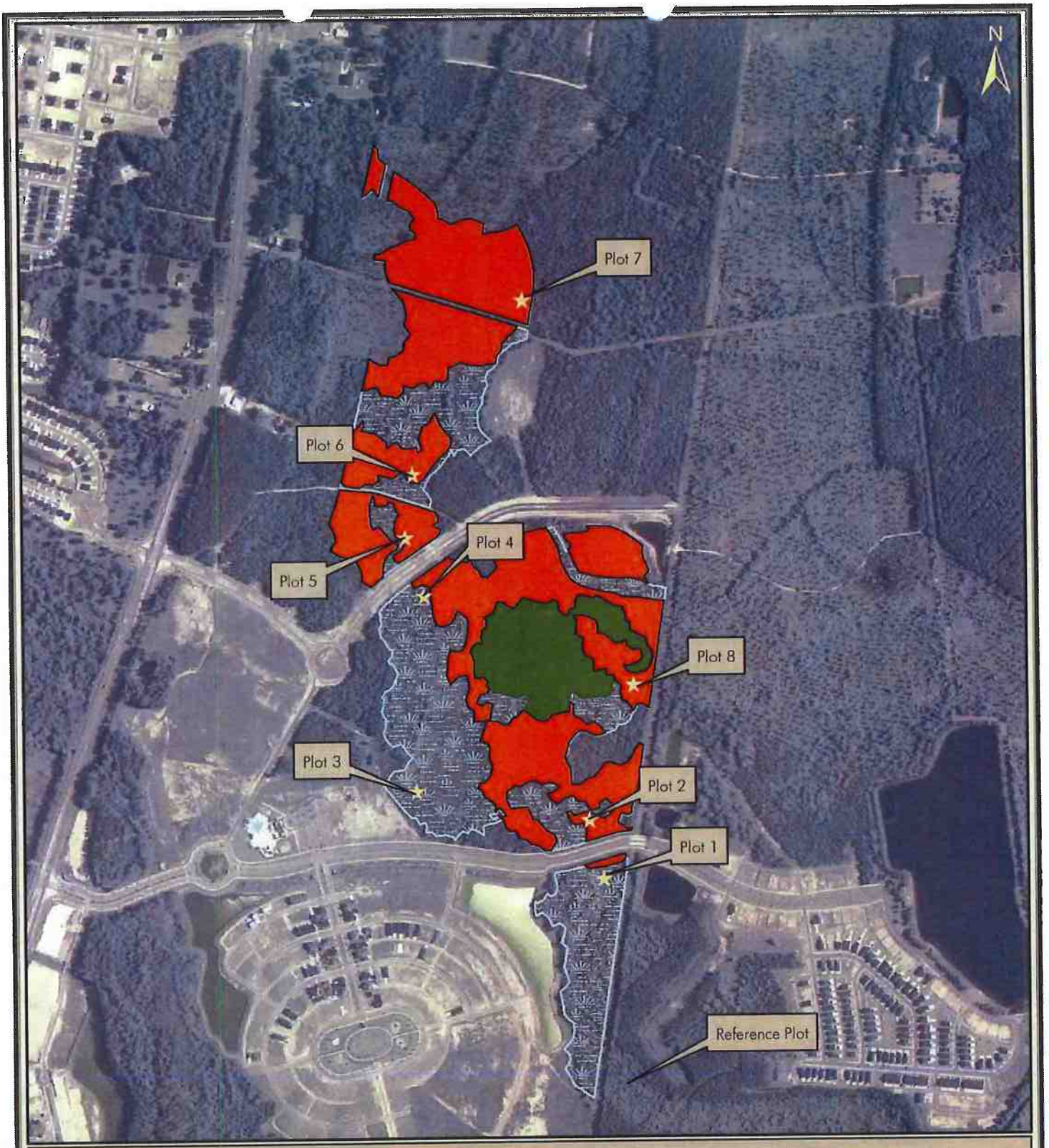
We appreciate your attention to this important project. Upon your review of this information, should you have any questions or comments, or if you require any additional information, please do not hesitate to contact us at (912) 232-0451.

Sincerely,

Joel Price
Senior Project Manager
Sligh Environmental Consultants, Inc.

Enclosures

cc: Mr. Murray Marshall



Pine - Sweetgum Areas - 55.7-Acres | Wetland Enhancement Area | Plot Center | Preserved Upland

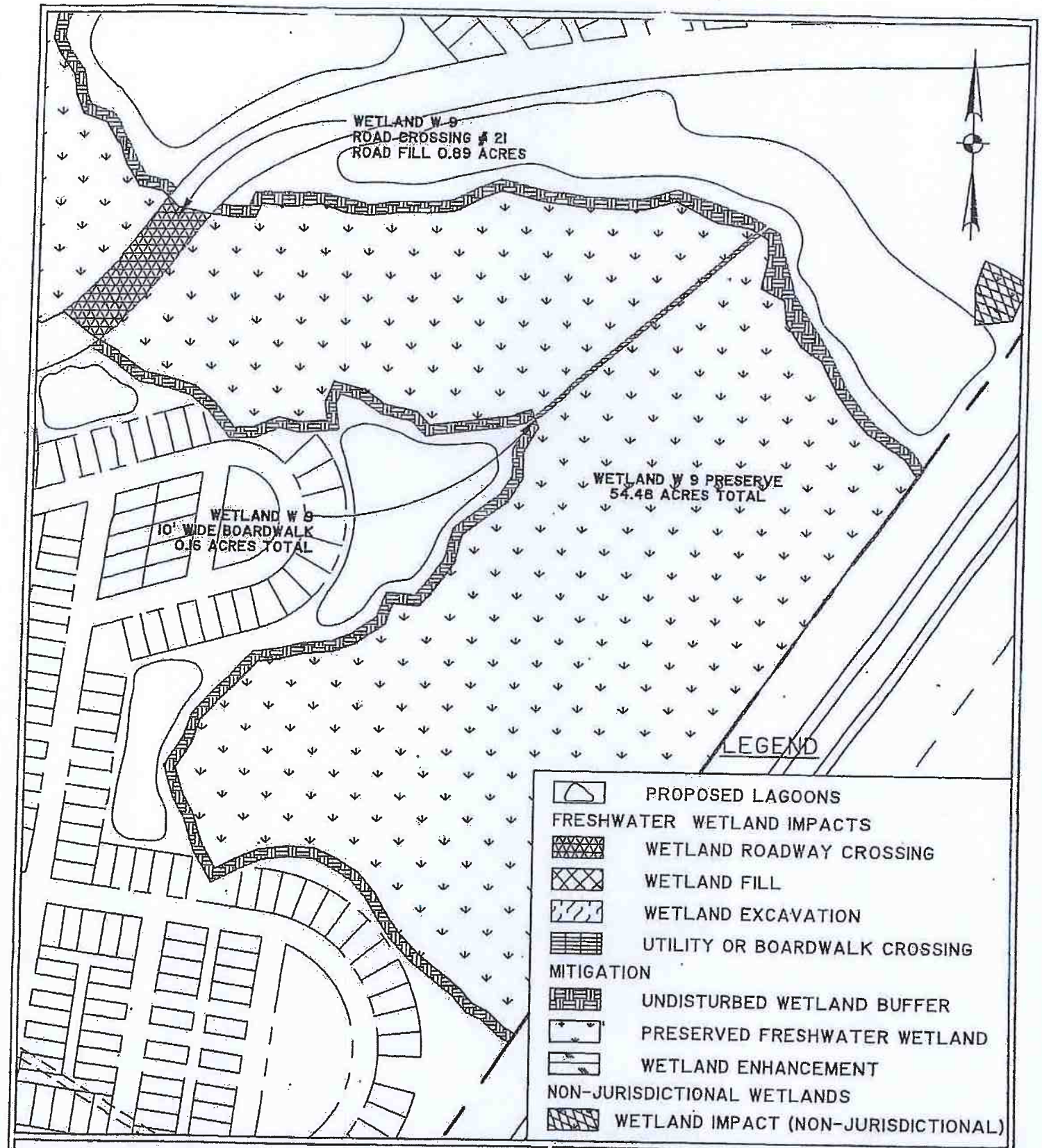
Prepared By

sligh environmental consultants, inc.
31 Park of Commerce Way, Suite 2008
Savannah, Georgia 31405
phone (912) 232-0451
fax (912) 232-0453

Pine - Sweetgum Thinning Exhibit
Rice Hope
Chatham County, Georgia

800 Feet
1 inch = 800 feet

Exhibit Date: May 29, 2014
Drawn By: DJP
Reviewed By: SFS
Job Number : 01-13-063



RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03
SHEET: 12 OF 18
LOCATION: PORT WENTWORTH, GA
SCALE: 1"=300'

THOMAS & HUTTON ENGINEERING CO.
50 PARK OF COMMERCE WAY
POST OFFICE BOX 2727
SAVANNAH, GA. 31402-2727 (912)234-5300
CHARLESTON, SC • MYRTLE BEACH, SC

DEPARTMENT OF THE ARMY PERMIT

PERMITTEE: Sivica Communities
Attention: Dave Odum
1105 Sanctuary Parkway
Alpharetta, Georgia 30004

PERMIT NUMBER: 200307880

ISSUING OFFICE:

Savannah District
US Army Corps of Engineers
Post Office Box 889
Savannah, Georgia 31402-0889

NOTE: The term "you" and its derivatives used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate District or Division office of the US Army Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

PROJECT DESCRIPTION: To develop 1,340.69 acres of currently undeveloped land for use as a mixed use development with integrated residential, commercial and recreational areas. A total of 72.10 acres of jurisdictional wetland will be impacted for the following purposes: construction of road crossings and installation of utilities (11.31 acres); general development, including a town center, town park, recreational areas, commercial areas, residential and multifamily areas (57.93 acres); construction of stormwater lagoons (2.26 acres); and construction of elevated boardwalk crossing (0.60 acre). In addition to the jurisdictional wetland impacts, the project will impact an estimated 27 acres of isolated non-jurisdictional wetlands for general development as described above. In total, approximately 99.10 acres of wetlands will be impacted by the project. The permittee is also authorized to conduct work in jurisdictional wetlands in accordance with the approved mitigation plan.

PROJECT LOCATION: The project site encompasses 1,340.69 acres located adjacent to and east of Georgia Highway 21 and west of Interstate 95 in Chatham County, Georgia. The project area is located within the City Limits of Port Wentworth and is approximately 13 miles northwest of the city of Savannah, eight miles southeast of Rincon, and six miles northeast of Pooler.

RECEIVED BY OP-F
ON 7 July 2004
JAB
Check #5288

PERMIT CONDITIONS:

General Conditions.

1. The time limit for completing the work authorized by this Individual Permit ends on June 30, 2014. If you find that you need more time to complete the authorized activity, you must submit a request for your permit extension at least one month prior to the above date.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned Water Quality Certification has been issued for your project, you must comply with conditions specified in the certification as Special Conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions.

1. The permittee shall insure full implementation of the mitigation plan, as modified in 2004. This mitigation plan includes the following: restoration and/or enhancement of 102.60 acres of jurisdictional pine plantation wetland, preservation of 224.33 acres of bottomland hardwood wetlands, 48.53 acres of adjacent upland buffer, and the installation of interpretive trails and signage within the preserved wetland areas. The entire mitigation area defined above is on-site and would be protected via a restrictive covenant as approved by the USACE.

2. Prior to the commencement of work in jurisdictional waters of the United States, all property identified as requiring perpetual protection in the permit and/or mitigation plan, shall be owned by the permit holder, and protected by a restrictive covenant. A draft Declaration of Covenants and Restrictions with exhibits shall be prepared by an attorney for the permit holder and forwarded to the USACE Savannah District, Office of Counsel, for written approval. All restrictive covenants should be drafted utilizing the latest version of the USACE Savannah District's model document entitled, "Declaration of Covenants and Restrictions with Instructions." The model document is located on the Department of the Army, Corps of Engineers, Savannah District web site at www.sas.usace.army.mil/ . Select the yellow box titled, "Permit Info." Scroll down to find the model draft Declaration of Covenants and Restrictions with Instructions. Upon written approval by Office of Counsel, the restrictive covenant will be recorded in the land records Office of the Clerk of the Superior Court in the county in which the land lies. A copy of the recorded restrictive covenant, showing book and page numbers of its recorded location, shall be provided to Office of Counsel.

3. The permittee shall comply with all conditions included in the attached Section 401 Water Quality Certification.

4. The permittee shall remain solely responsible for insuring permit compliance within the entire 1,340-acre project area. Furthermore, the permittee shall remain solely responsible for any unauthorized impacts to any of the natural and/or restored wetlands located within the entire 1,340-acre project area. In other words, the permittee shall be solely responsible for permit compliance and for any unauthorized wetland impacts, regardless of property ownership.

5. Prior to any work being conducted within 50 feet of Black Creek, the permittee shall coordinate with and obtain all necessary approvals from Chatham County and the City of Port Wentworth.

6. The permittee shall locate, outline, design, construct, and operate the work in accordance with the minimal requirements of the Georgia Erosion and Sedimentation Control Act of 1975, as amended.

7. The permittee shall insure that the project's master drainage plan is designed and implemented to avoid inadvertent drainage of wetlands and inadvertent water diversion resulting in a reduction of hydrology in wetlands. The permittee shall also insure that secondary road ditches and/or small after-project drainage ditches do not inadvertently impact wetlands.

8. Changes in the layout of facilities and infrastructure on upland portions of the project site do not require modification of this permit, and the permittee is not required to coordinate such changes with this office. Minor changes in the footprint of authorized wetland impacts may be authorized under this permit, provided: the proposed minor change would result in no additional impact to the specific wetland area (i.e., swapping of wetland impact acreage from one permitted wetland fill site to another is not considered a minor change); and the permittee submits a change request and obtains prior written concurrence from this office. Any proposed change to the project that would result in additional impacts to wetlands would require formal

modification of the permit.

9. Prior to any direct withdrawal of ground water from within the project area, the permittee is required to obtain the necessary water withdrawal permit from the GAEPD, Water Resources Management Branch.

10. The permittee will insure that the project complies with all rules, regulations, and/or requirements of the Federal Emergency Management Agency (FEMA) with regard to flood plains and floodways.

11. The permittee shall obtain any fill material from a high ground borrow area that is free of contaminants and pollutants.

12. The permittee shall accomplish all work in accordance with the plans and drawings enclosed hereto which are incorporated in and made a part of this permit:

a. Site Location Map

b. Project Maps, Sheets 2, 4, 5, 6, and 10-18 of 18, November 20, 2003

c. Project Maps, Sheets 1, 3, and 7-9 of 18, November 20, 2003 – revised February 12, 2004

d. Wetland Mitigation Plan (revised), 2004

FURTHER INFORMATION:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344).

2. Limits of this Authorization.

a. This permit does not obviate the need to obtain other federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision. Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7, or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order which requires you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate.

d. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the US Army Corps of Engineers will normally give favorable consideration to a request for an extension of time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

(PERMITTEE) 6/30/04 (DATE)

This permit becomes effective when the federal official, designated to act for the Secretary of the Army, has signed below.

7/7/04 (DATE)

Issued for and in behalf of:
Mark S. Held
Colonel, US Army
District Engineer

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) (DATE)

Regulatory Branch

CERTIFICATION OF COMPLIANCE

WITH

DEPARTMENT OF THE ARMY PERMIT

PERMIT NUMBER: 200307880

PERMITTEE: Sivica Communities
Attention: Dave Odum
1105 Sanctuary Parkway
Alpharetta, Georgia 30004

Within 30 days of completion of the activity authorized by this permit, sign this certification and return it to the following address:

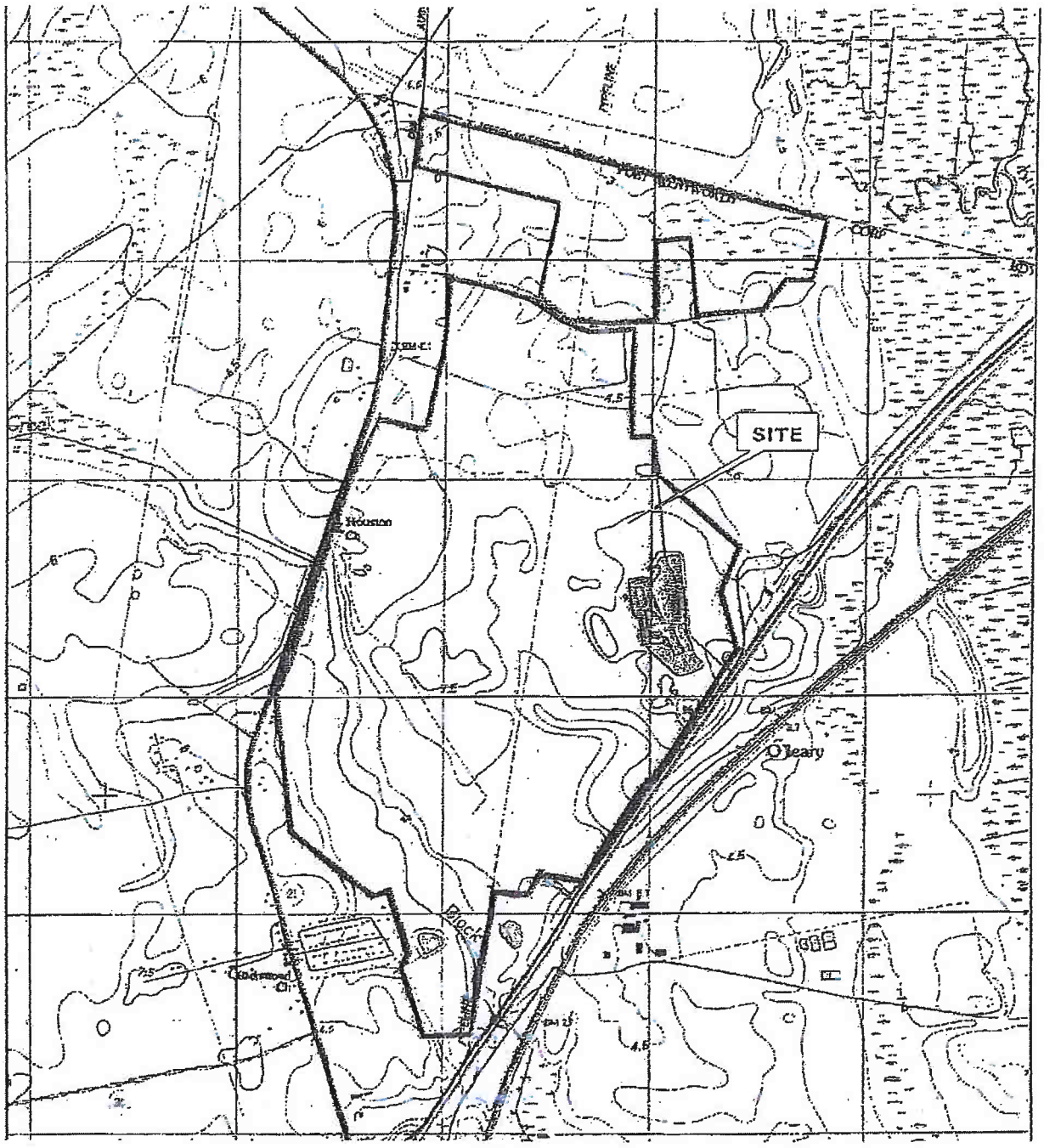
Commander
US Army Engineer District, Savannah
Attention: Regulatory Branch
P.O. Box 889
Savannah, Georgia 31402-0889

Please note that your permitted activity is subject to compliance inspection by an US Army Corps of Engineers' representative. If you fail to comply with the permit conditions it may be subject to suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit.

_____

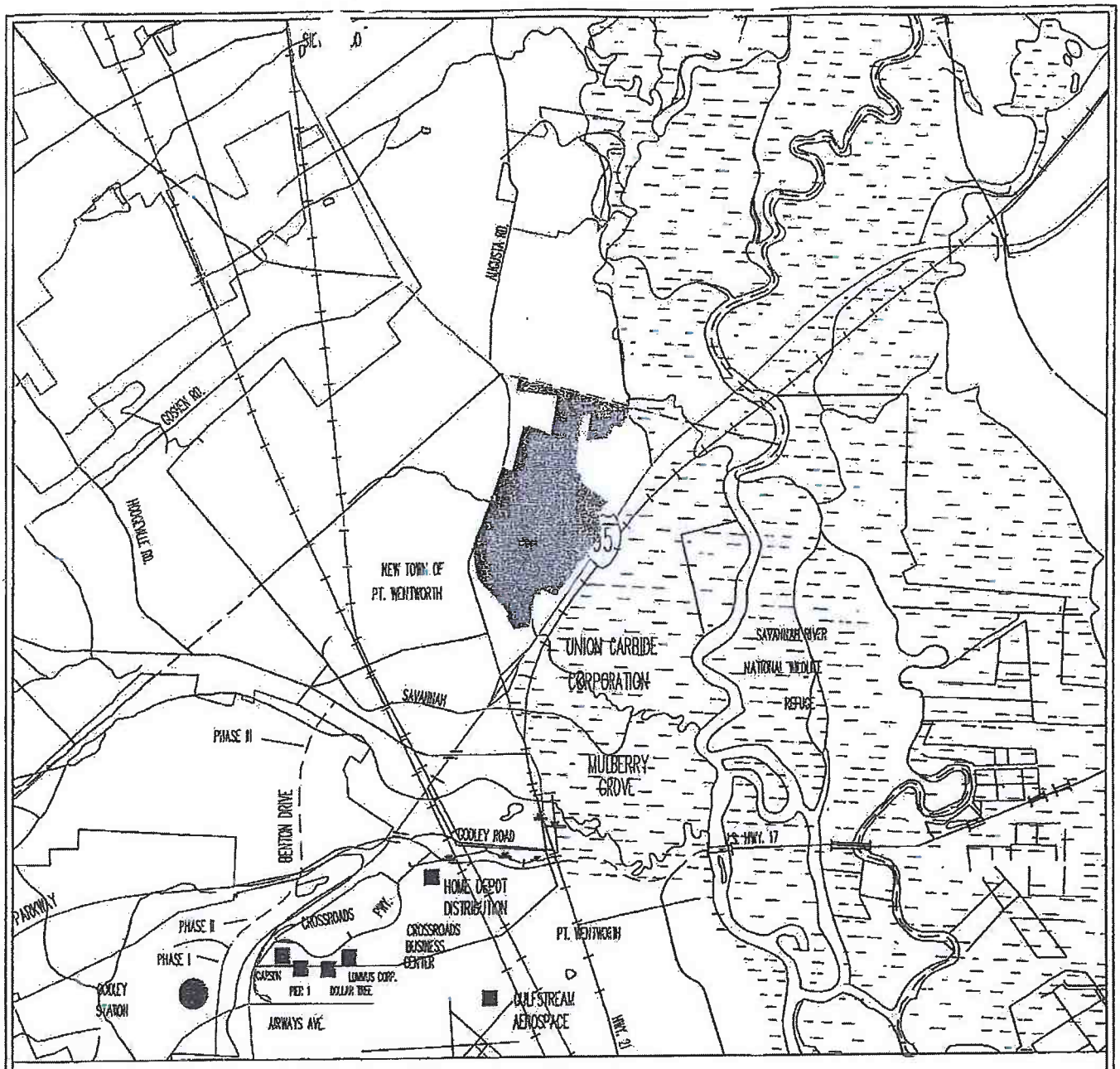
Signature of Permittee/Date



Not to Scale

Figure 1
U.S. Geological Survey
Port Wentworth Quadrangle
Rice Hope Plantation
Chatham County, Georgia

sligh environmental consultants, inc.
49 Park of Commerce Way, Suite 203
Savannah, Georgia 31405
p. (912) 232-0451
f. (912) 232-0453



RICE HOPE PLANTATION

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 REVISED: 2/12/04 SHEET: 1 OF 18
LOCATION: PORT WENTWORTH, GA SCALE:NTS

THOMAS & HUTTON ENGINEERING CO.
50 PARK OF COMMERCE WAY
POST OFFICE BOX 2727
SAVANNAH, GA. 31402-2727 (912)234-5300

CHARLESTON, SC • MYRTLE BEACH, SC

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03
LOCATION: PORT WENTWORTH, GA

SHEET: 2 OF 18
SCALE: 1"=2000'

THOMAS & HUTTON ENGINEERING CO.
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POST OFFICE BOX 2727
SAVANNAH, GA. 31402-2727 (912)234-5300

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LEGEND

SYMBOL	DESCRIPTON	
	TOTAL TRACT ACREAGE	1340.69 AC.
	TOTAL 404 JURISDICTIONAL WETLAND ACREAGE	399.03 AC.

WETLAND IMPACTS

	ROAD CROSSING W/UTILITIES	11.31 AC.
	GENERAL FILL	57.93 AC.
	LAGOON EXCAVATION	2.26 AC.
	BOARDWALK CROSSING	0.60 AC.
	TOTAL WETLAND IMPACTS	72.10 AC.

WETLAND MITIGATION

	UNDISTURBED WETLAND BUFFER AVERAGE BUFFER WIDTH	48.53 AC. 34.84 LF.
	FRESHWATER WETLAND PRESERVATION	224.33 AC.
	FRESHWATER WETLAND ENHANCEMENT	102.60 AC.

404 JURISDICTIONAL WETLANDS IMPACTED

W 3	3.57 AC.	W 9	1.05 AC.
W 4	12.85 AC.	W 10	0.25 AC.
W 5	0.06 AC.	W 11	2.28 AC.
W 6	2.31 AC.	W 12	5.10 AC.
W 7	26.52 AC.	W 14	3.14 AC.
W 8	14.97 AC.		
TOTAL WETLANDS IMPACTED			72.10 AC.

404 JURISDICTIONAL WETLANDS PRESERVED

W 1	23.74 AC.	W 9	54.48 AC.
W 2	3.91 AC.	W 13	0.03 AC.
W 4	0.03 AC.	W 14	33.07 AC.
W 8	109.07 AC.		
TOTAL WETLANDS PRESERVED			224.33 AC.

404 JURISDICTIONAL WETLANDS ENHANCED

W 4	31.16 AC.	W 7	68.80 AC.
W 14	2.64 AC.		
TOTAL WETLANDS ENHANCED			102.60 AC.

NON-JURISDICTIONAL WETLANDS

	NON-JURISDICTIONAL WETLANDS TO BE IMPACTED (APPROXIMATELY 27 ACRES)

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 REVISED: 2/12/04 SHEET: 3 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: NTS

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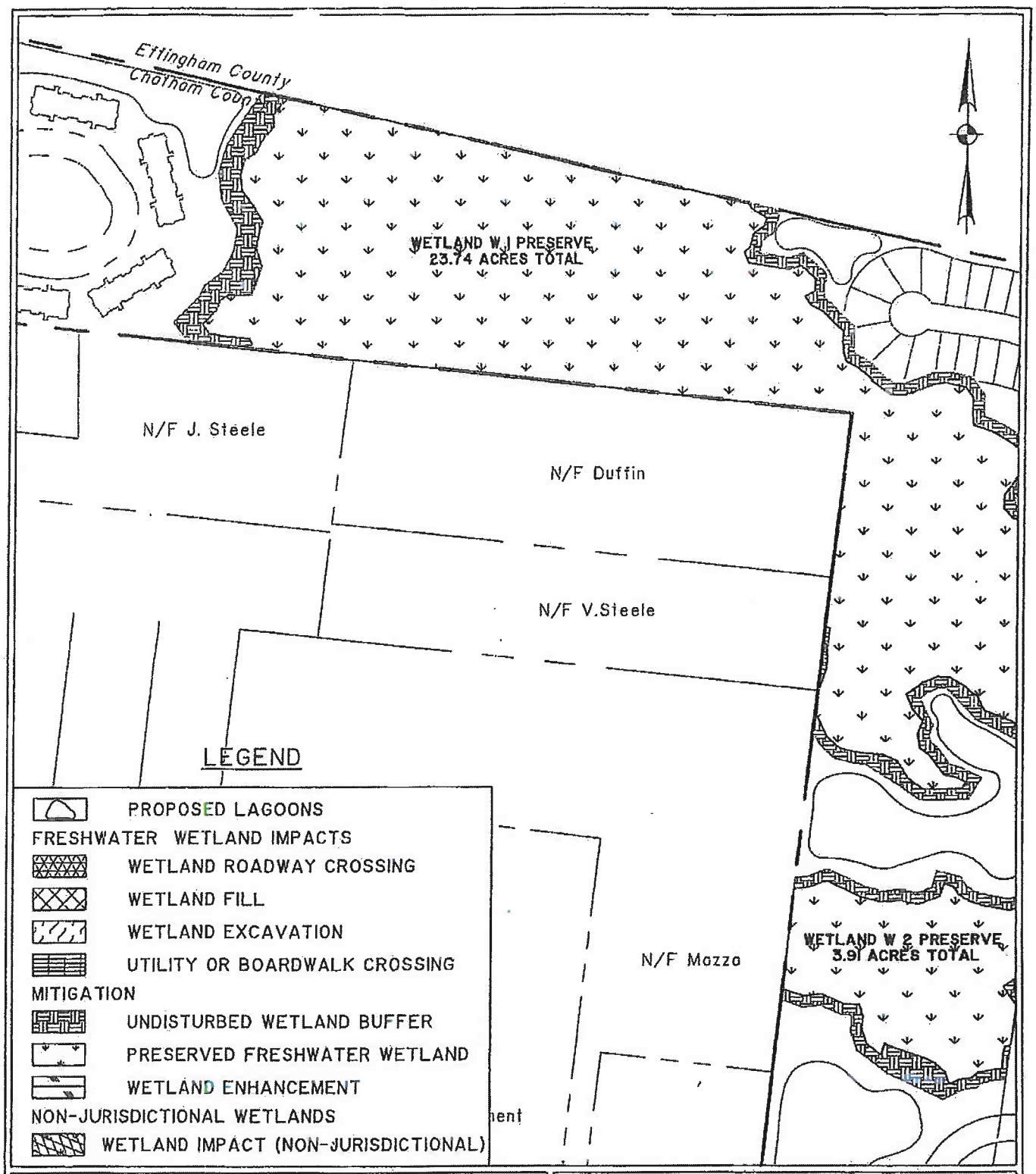

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 SHEET: 4 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: 1"=300'

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50 PARK OF COMMERCE WAY
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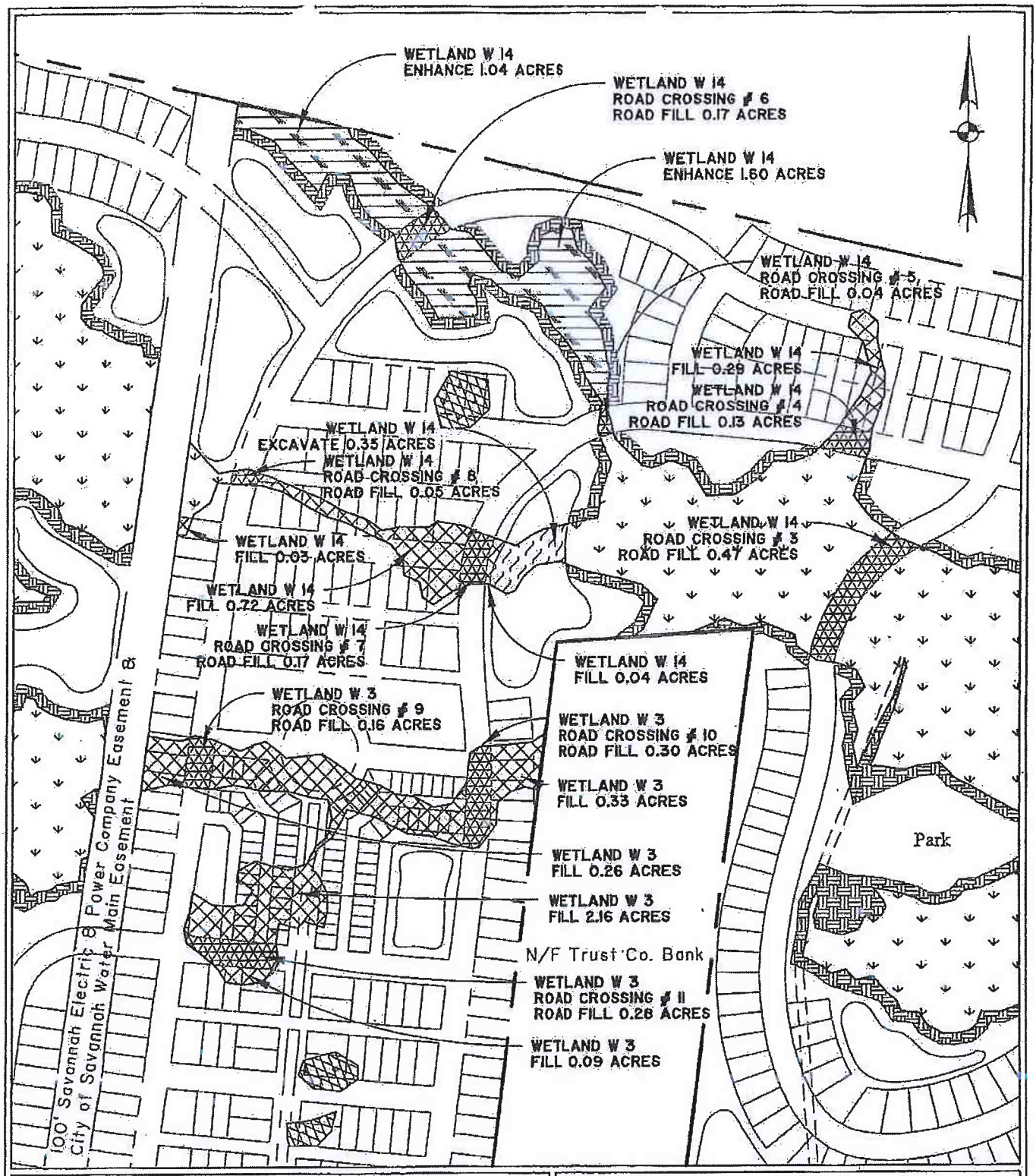

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 SHEET: 5 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: 1"=300'

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50 PARK OF COMMERCE WAY
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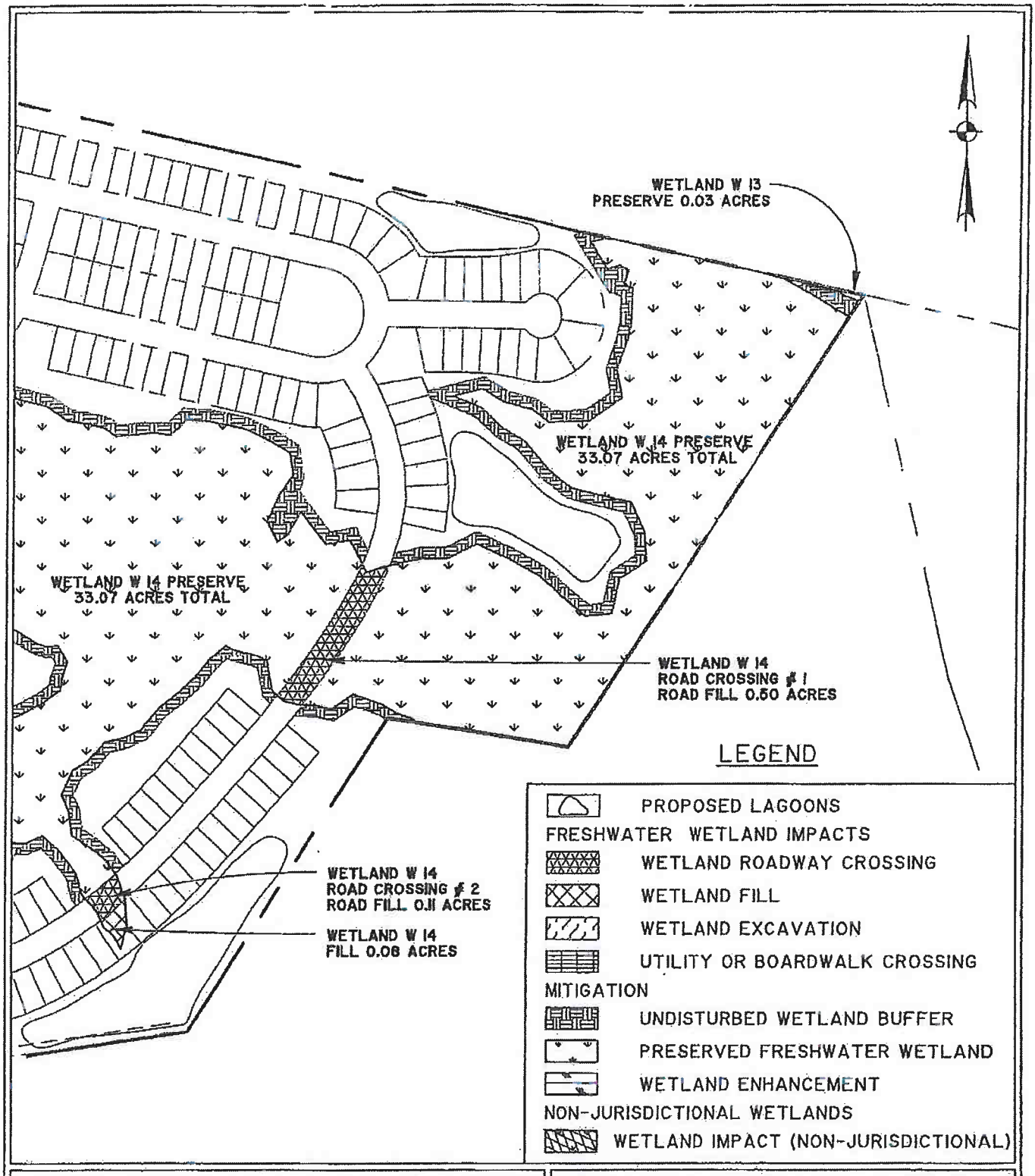

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 SHEET: 6 OF 18
LOCATION: PORT WENTWORTH, GA SCALE:1"=300'

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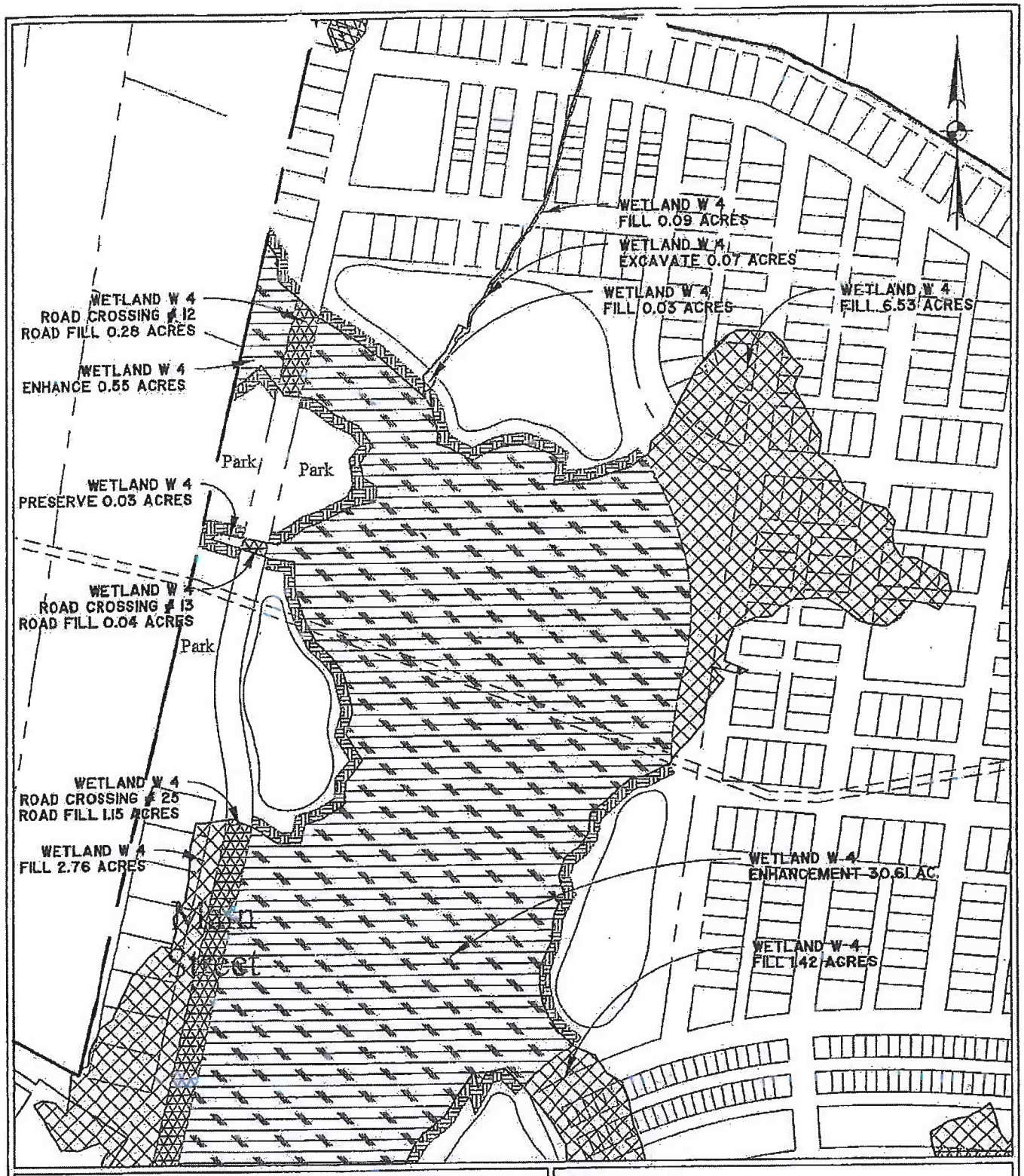

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 REVISED: 2/12/04 SHEET: 7 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: 1"=300'

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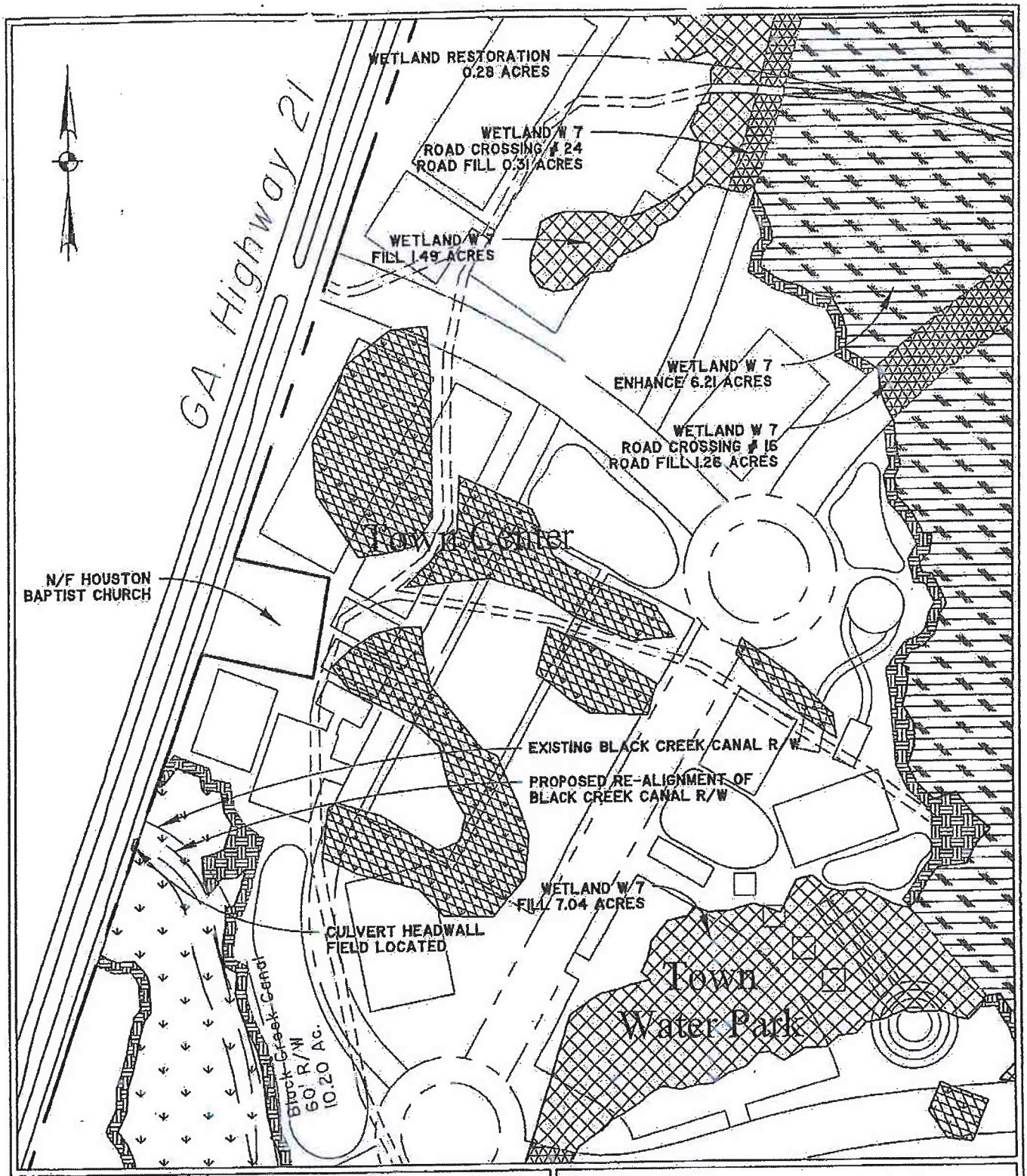

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 REVISED: 2/12/04 SHEET: 8 OF 18
LOCATION: PORT WENTWORTH, GA SCALE:1"=300'

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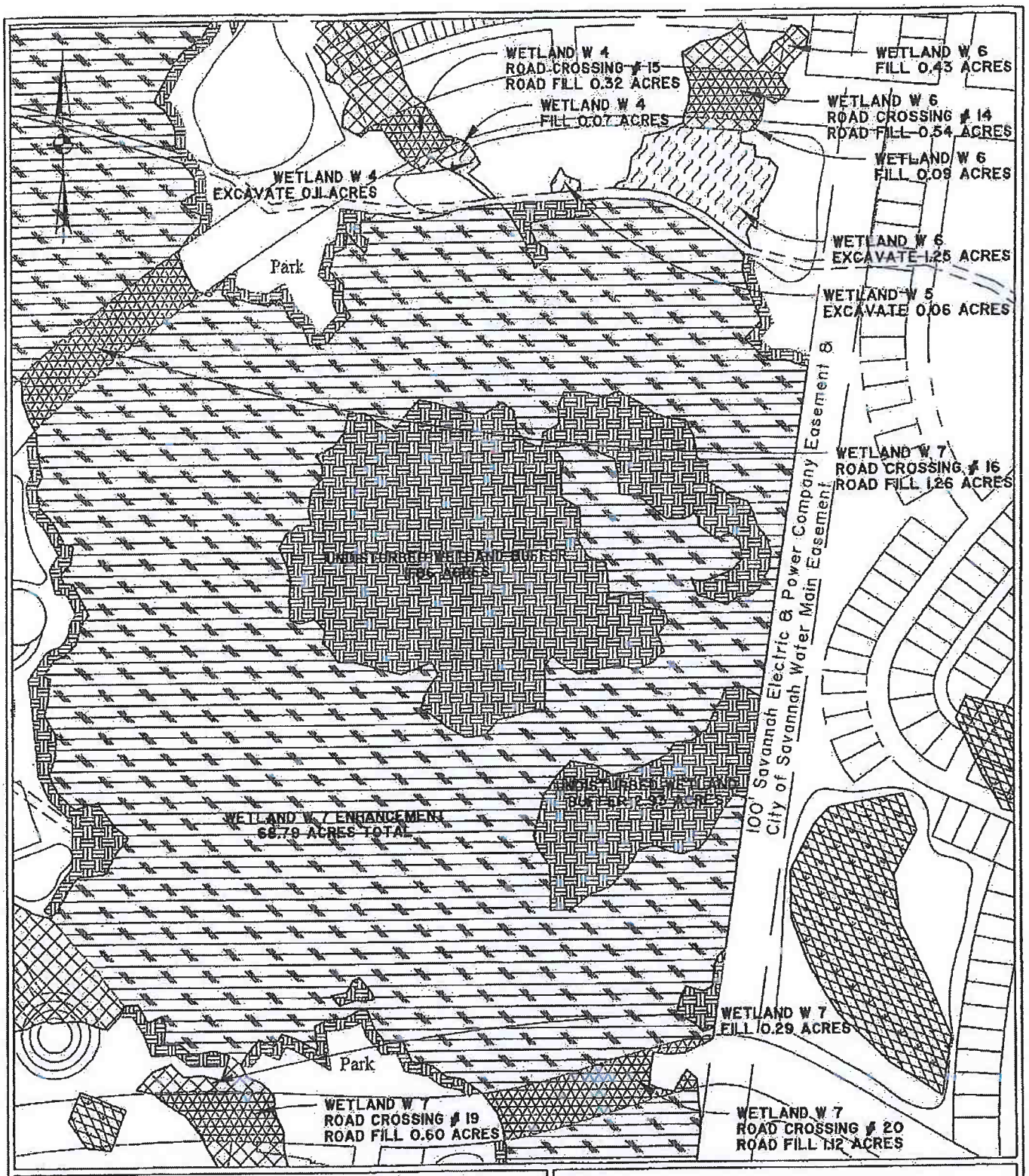

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 REVISED: 2/12/04 SHEET: 9 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: 1"=300'

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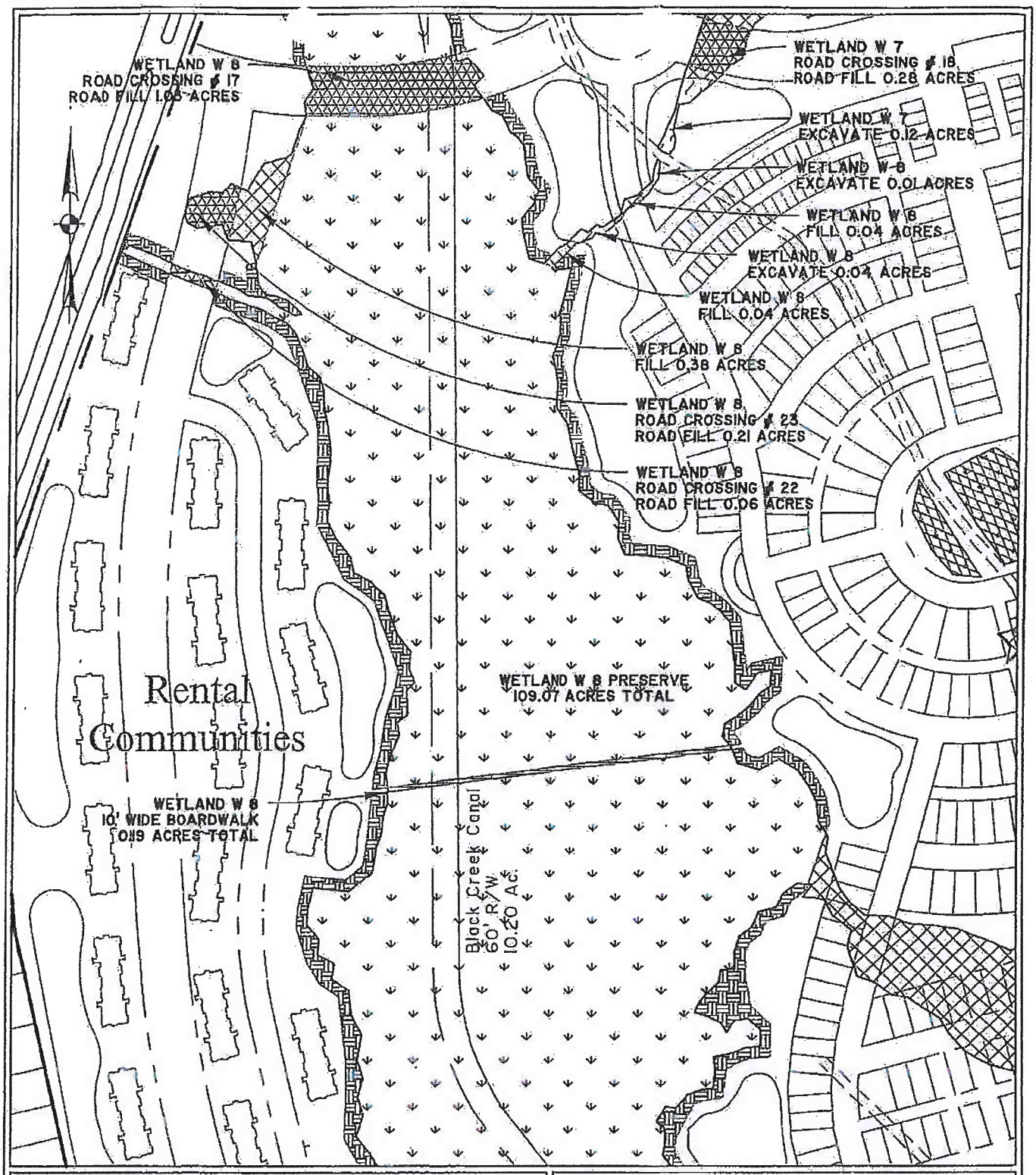

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 SHEET: 10 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: 1"=300'

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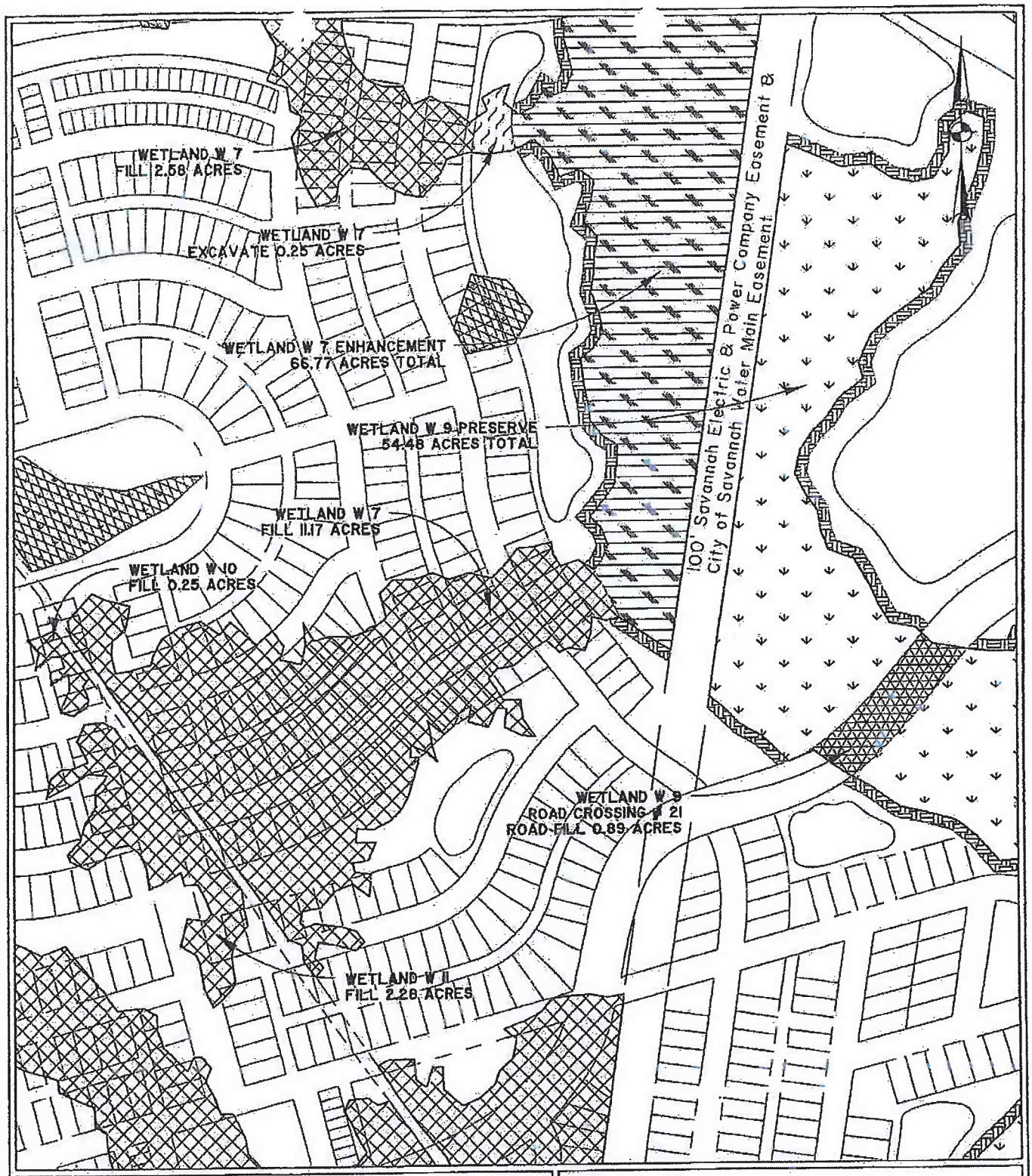

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03
LOCATION: PORT WENTWORTH, GA

SHEET: 11 OF 18
SCALE: 1"=300'

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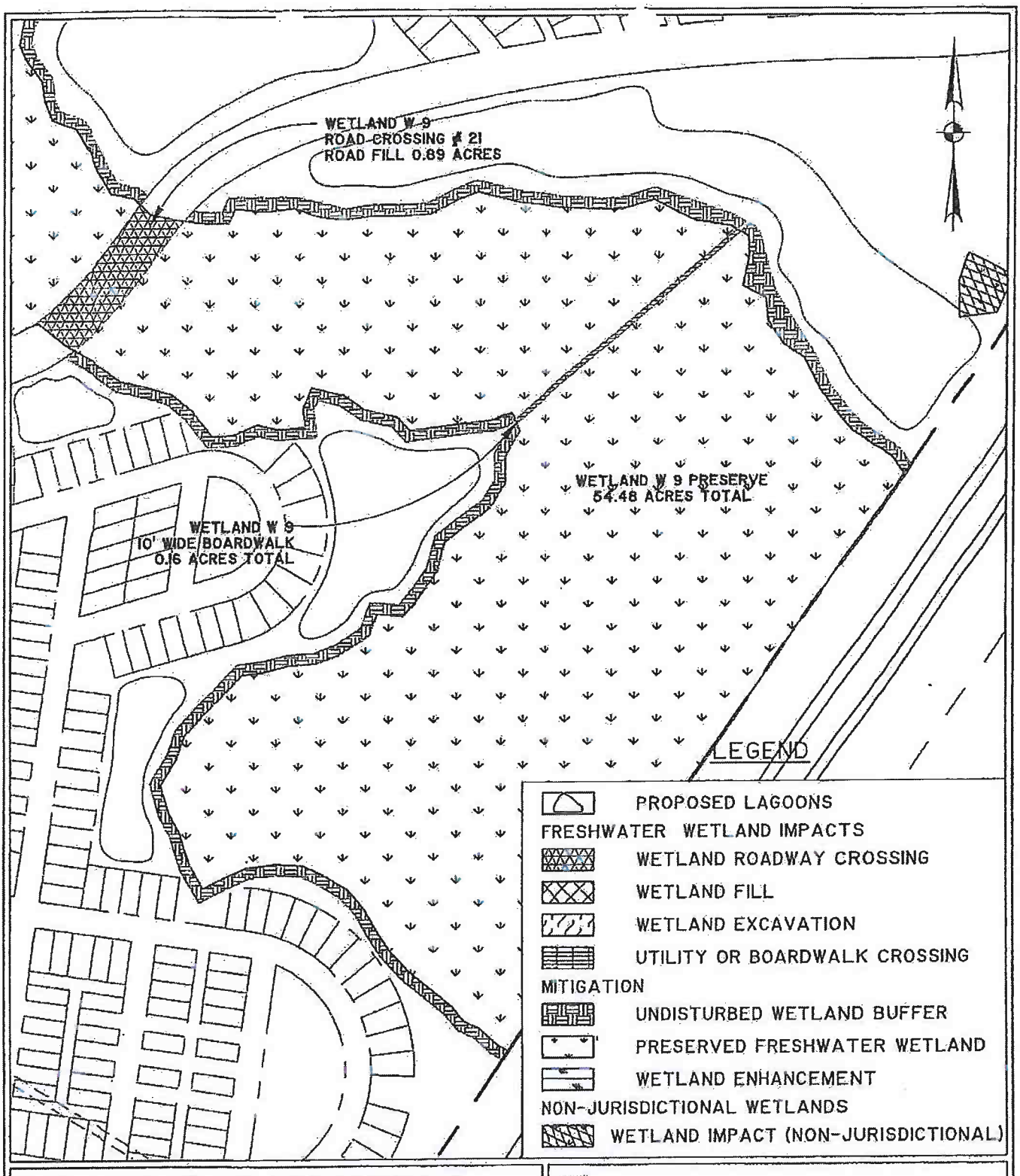

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 SHEET: 12 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: 1"=300'

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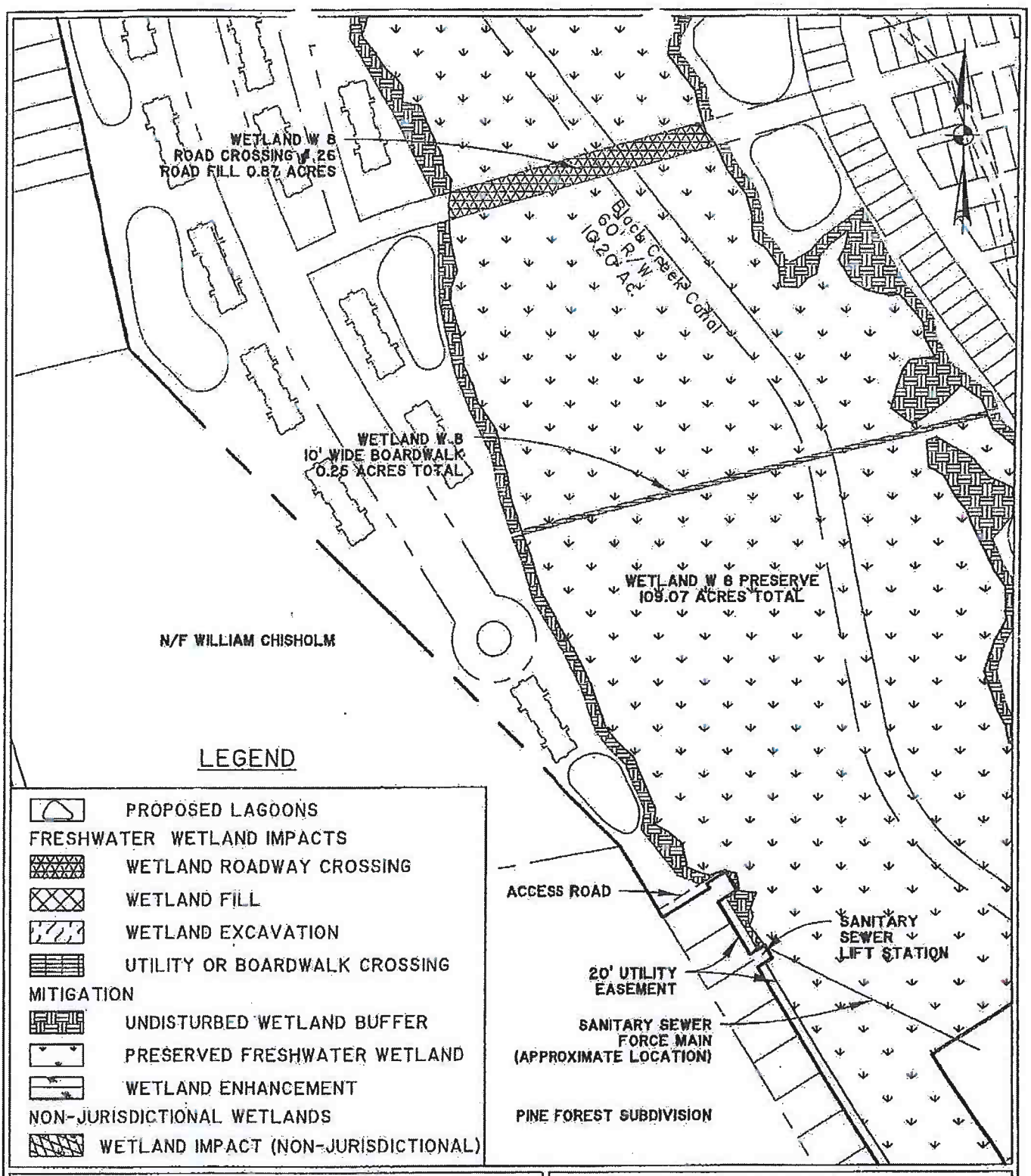

LEGEND

- PROPOSED LAGOONS

FRESHWATER WETLAND IMPACTS

- WETLAND ROADWAY CROSSING
- WETLAND FILL
- WETLAND EXCAVATION
- UTILITY OR BOARDWALK CROSSING

MITIGATION

- UNDISTURBED WETLAND BUFFER
- PRESERVED FRESHWATER WETLAND
- WETLAND ENHANCEMENT

NON-JURISDICTIONAL WETLANDS

- WETLAND IMPACT (NON-JURISDICTIONAL)

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03 SHEET: 13 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: 1"=300'

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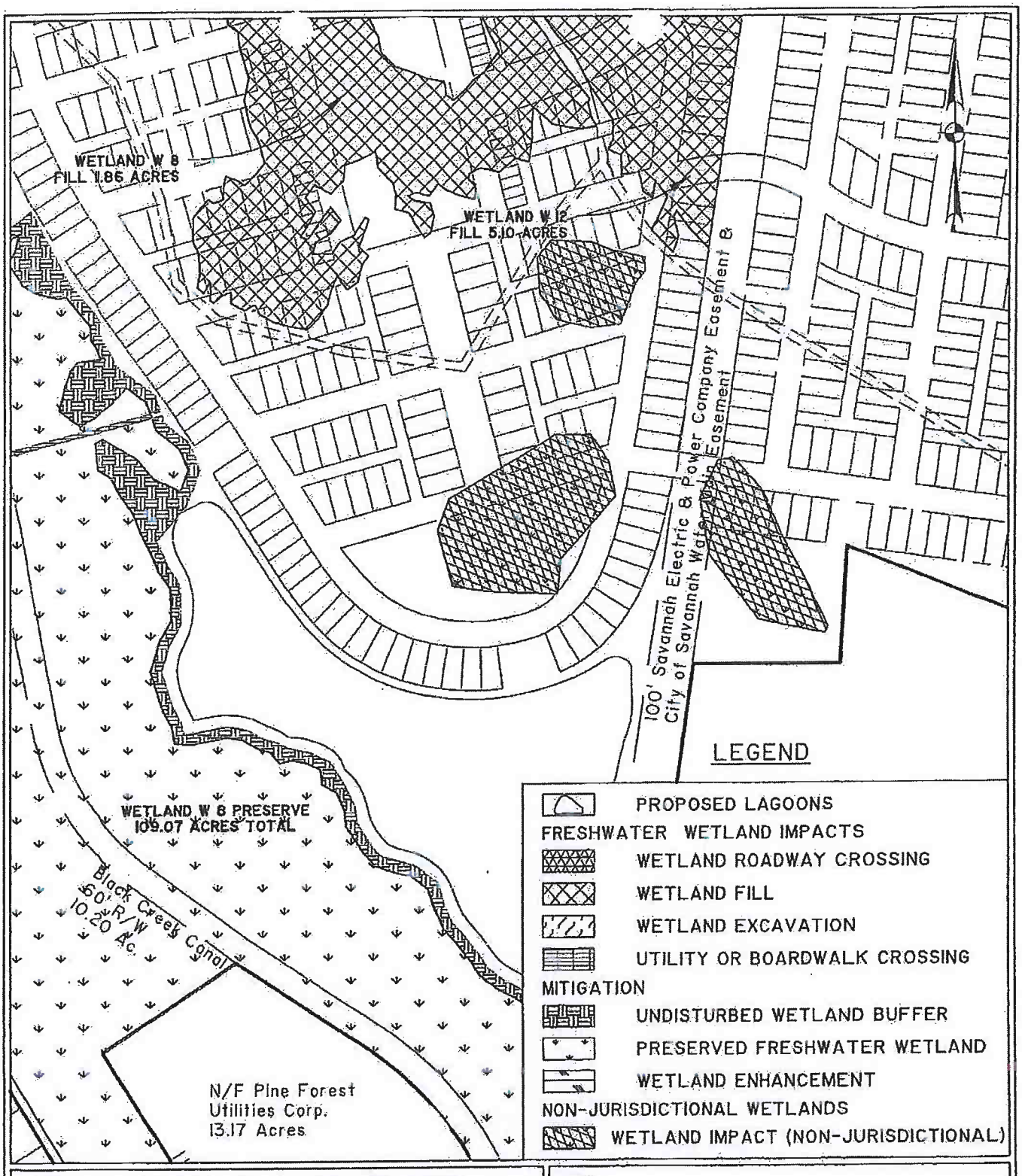


RICE HOPE PLANTATION

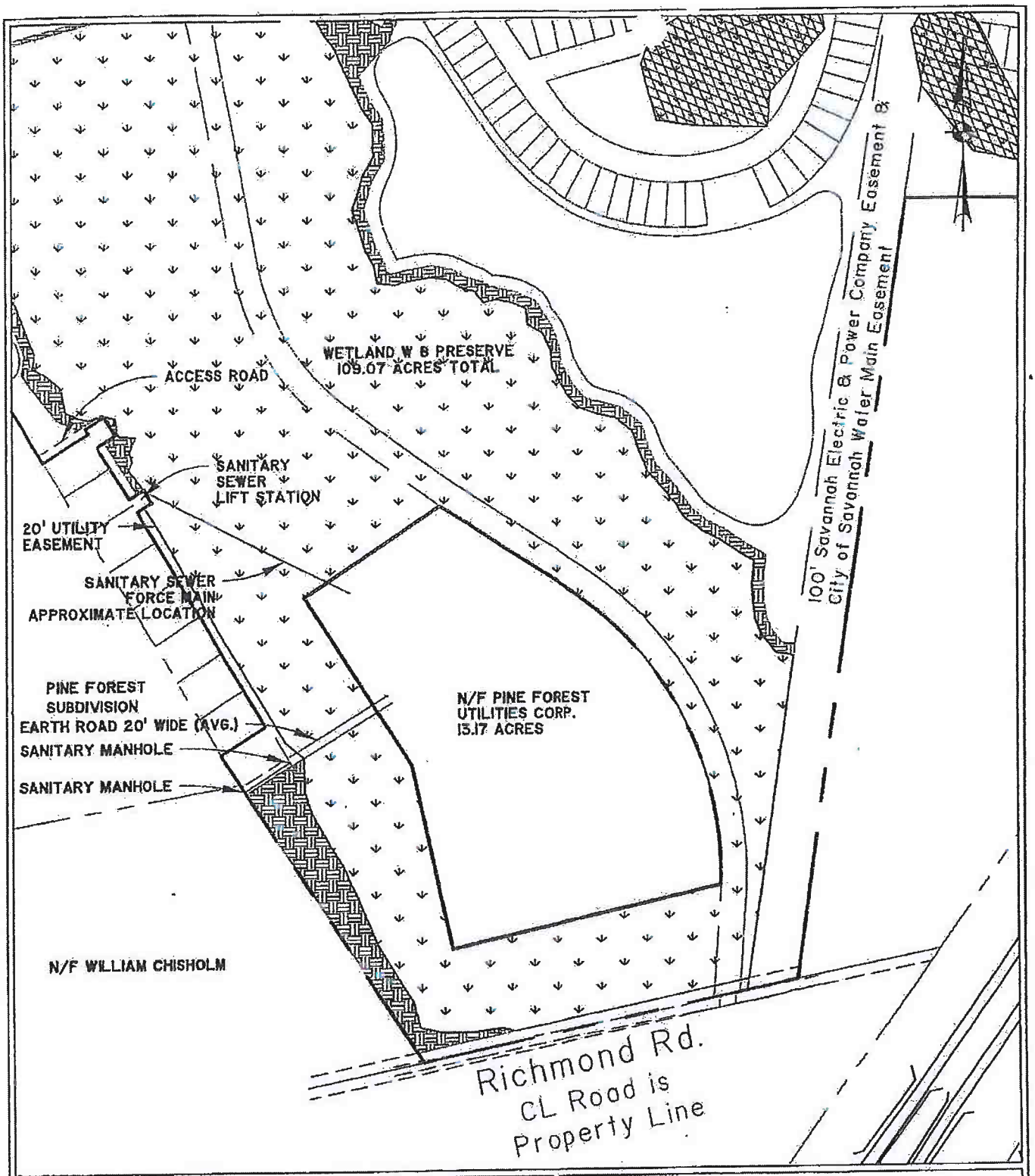
PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03
LOCATION: PORT WENTWORTH, GA

SHEET: 14 OF 18
SCALE: 1"=300'

THOMAS & HUTTON ENGINEERING CO.
50 PARK OF COMMERCE WAY
POST OFFICE BOX 2727
SAVANNAH, GA. 31402-2727 (912)234-5300
CHARLESTON, SC • MYRTLE BEACH, SC



RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITIES

DATE: 11/20/03
LOCATION: PORT WENTWORTH, GA

SHEET: 15 OF 18
SCALE: 1"=300'

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50 PARK OF COMMERCE WAY
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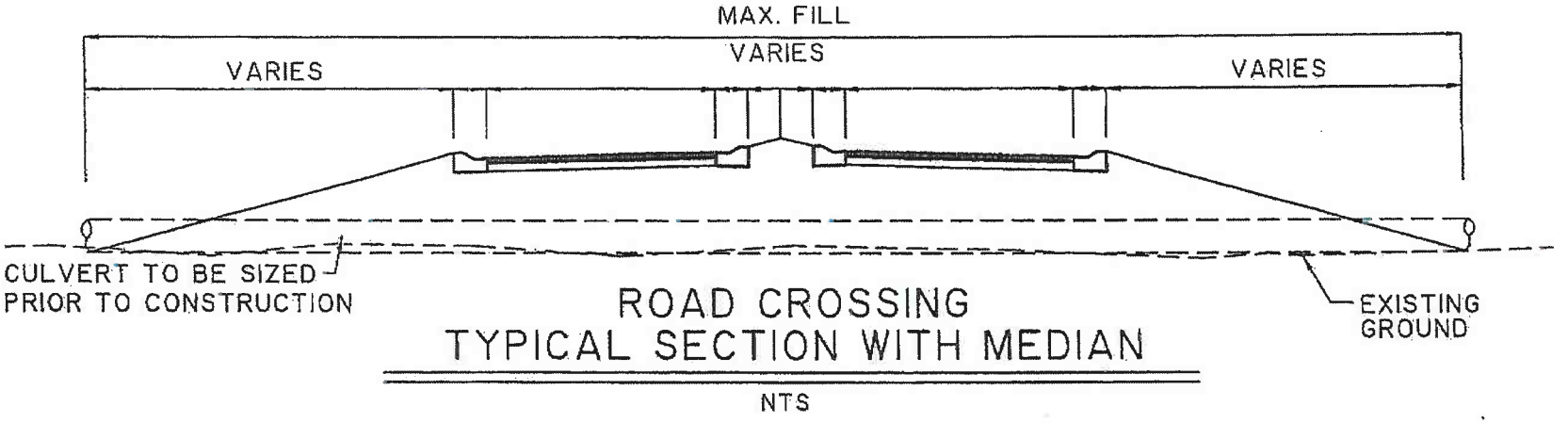
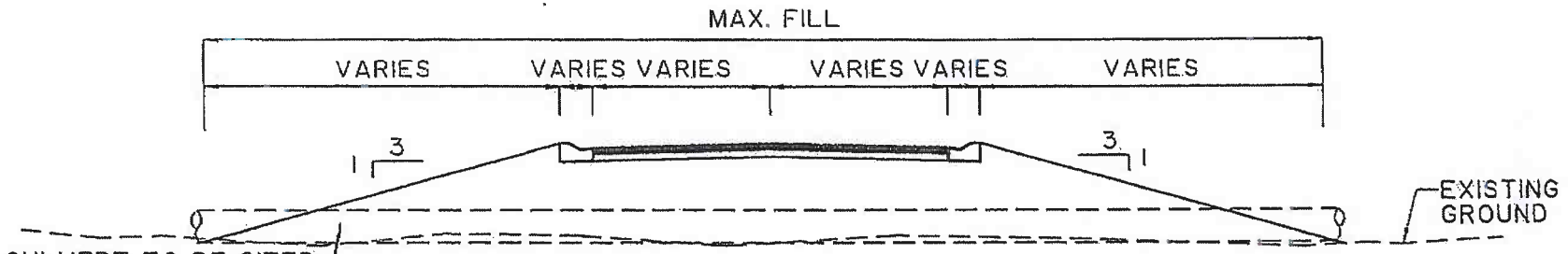


ROAD CROSSING
TYPICAL SECTION WITH MEDIAN

NTS



ROAD CROSSING
TYPICAL SECTION WITHOUT MEDIAN

NTS

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITITES

DATE: 11/20/03 SHEET: 16 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: NTS

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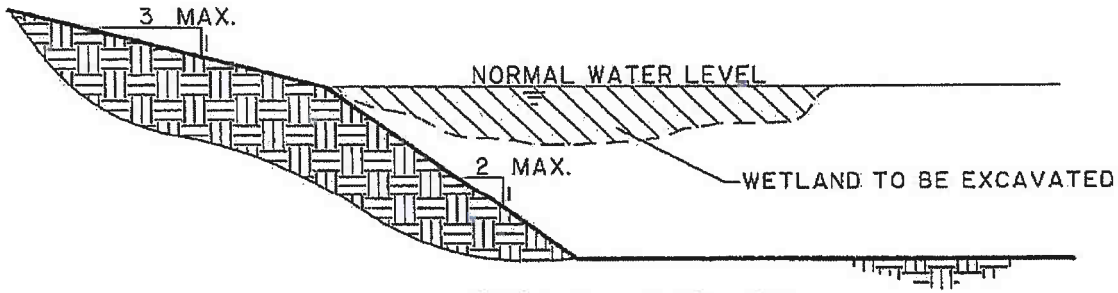
50 PARK OF COMMERCE WAY
POST OFFICE BOX 2727
SAVANNAH, GA. 31402-2727 (912)234-5300

CHARLESTON, SC • MYRTLE BEACH, SC

THOMAS & HUTTON ENGINEERING CO.

TYPICAL WETLAND
FILL SECTION

NTS



TYPICAL WETLAND
EXCAVATION SECTION

NTS

NOTE:
DETAILS REPRESENT GENERAL LIMITATIONS CONCERNING WIDTH AND HEIGHT ABOVE M.H.W.. THE ACTUAL CONSTRUCTION DETAIL MAY VARY.

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITITES

DATE: 11/20/03 SHEET: 17 OF 18
LOCATION: PORT WENTWORTH, GA SCALE: NTS

THOMAS & HUTTON ENGINEERING CO.
50 PARK OF COMMERCE WAY
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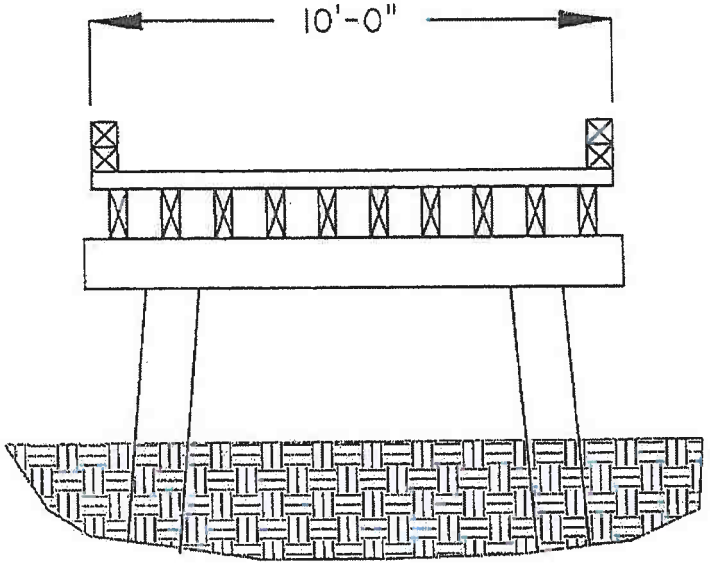

BOARDWALK DETAIL

NTS

RICE HOPE PLANTATION

PROPOSED ACTIVITY:
FRESHWATER WETLAND MANAGEMENT PLAN

CLIENT:
SIVICA COMMUNITITES

DATE: 11/20/03
LOCATION: PORT WENTWORTH, GA

SHEET: 18 OF 18
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CHARLESTON, SC • MYRTLE BEACH, SC

000 FT

000 FT

RICE HOPE PLANTATION RD

14

14

95

ZONE AE

Knoxboro Creek

City of Port Wentworth 135162

Chatham County Unincorporated Areas 130030

LAKESIDE BLVD

FLAT ROCK TRC

SANDY SHOALS PASS

CLEARWATER CIR

LAKESIDE DR

MOONLIGHT TR

95

13

13

N

Map Projection:
NAD 1983 StatePlane Georgia East FIPS 1001 Feet; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 1,000 feet

0 1,000 2,000

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

CHATHAM COUNTY, GEORGIA
and Incorporated Areas

PANEL 035 OF 455

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
CHATHAM COUNTY	130030	0035	G
PORT WENTWORTH, CITY OF	135162	0035	G

VERSION NUMBER
2.3.2.1

MAP NUMBER
13051C0035G

MAP REVISED
AUGUST 16, 2018

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.