

Board of Appeals

AGENDA

Thursday, September 15, 2022 ♦ 7:00 p.m.

- Call to Order
- Roll Call Determination of a Quorum
- Election of Officers
- > Approval of the Meeting Agenda
- Approval of the July 15, 2021 Meeting Minutes
- > Public Hearing:
- Stream Buffer Variance 2022098 Bohannon Distribution Center Relief from Article V. Stream Buffer Protection, Section 65-233 Land development requirements, to allow encroachment in the 25' impervious setback, 50' undisturbed buffer, and to fill a portion of an intermittent stream.
- > New Business: None
- > Old Business: None
- Announcements
- Board Members Comments
- > Adjourn



BOARD OF APPEALS MEETING MINUTES

City Hall 56 Malone Street Fairburn, GA. 30213 Thursday, July 15, 2021 7:00 P.M.

Thomas Cochran, Chair William Strawn, Vice-Chair Board Member Brenda Cooper Board Member Synitra Hutcherson (Absent) Board Member Eric Wallis

City Planner: City Attorney: Tarika Peeks Valerie Ross

- I. MEETING CALLED TO ORDER: Tarika Peeks called the meeting to order at 7:01 P.M. A quorum was not established until 7:13 P.M.
- II. ROLL CALL: All Board of Appeals members were present except Synitra Hutcherson.
- **III. ELECTION OF OFFICERS:** Mr. Strawn made the motion to nominate Thomas Cochran for Chair; Seconded by Ms. Cooper. **The motion carried.** Mr. Cochran made a motion to nominate William Strawn for Vice-Chair. Ms. Cooper seconded. **The motion carried.**
- **IV. AGENDA FOR MEETING: Motion and Vote:** Ms. Cooper made a motion to <u>APPROVE</u> the agenda. Mr. Strawn seconded. **The motion carried.**
- V. NEW BUSINESS: Stream Buffer Variance 2021036- Everton Commons- A request to encroach in the 25' impervious setback, which is approximately 1, 017 LF and 6,503 SF of impact to the stream [0 Brooks Drive, Parcel# 09F090400511263].

Ms. Peeks stated that applicant is proposing to develop a 78-unit multi-family residential community with a splash pad, gazebo, activity room, fitness room, and business center. The rezoning of the subject property was approved by Mayor and Council on January 27, 2020. The Georgia Historic Preservation Division is requiring a 30' undisturbed buffer between the subject property and the Fairburn Cemetery. As a result of the 30' cemetery buffer requirement, the development must shift slightly towards the west, which requires an encroachment into the 25' impervious setback. The 25' encroachment into the impervious setback is a total impact of 1,017 +/- linear feet and 6,503 square feet.

The applicant, Mr. Bo Johnston outlined the application and presented more information regarding the development. He stated that the development will be a 70-unit multi-family development. He currently works for Wendover Housing Partners and they have been in business for more than twenty years. Wendover Housing is based in Orlando Florida. Mr. Johnston stated that his organization currently has over 850 units that are between the development or construction phase. He stated that Granite Crossing is his company's closest property to the subject property, located downtown in the City of Lithonia, with 75 units and is 100 percent occupied with a waiting list. He stated that Peter Day, the Civil Engineer was available to answer any technical questions anyone may have.



Mr. William Strawn asked, how many feet of the 25' encroachment will they get into? Mr. Johnston stated that the stream buffer will be located off the main entrance, which is Washington Road. They plan to encroach differently into the stream buffer, with 25' being the most. Mr. Peter Day confirmed that stream is well into a wooded area along the property line. He stated that they will encroach 25' into the stream and will be still be at least 50' away from the stream.

Mr. Cochran asked if the variance request from April 2021, requesting a 12' encroachment into the vegetative buffer was approved? Mr. Johnston stated that the request was denied. Mr. Cochran asked if that denial would affect what is being considered, Mr. Johnston stated that it would affect the entrance into the development. Mr. Cochran asked if he could be refreshed on why the request was denied. Ms. Peeks stated that there was no reason given by the Planning Commission for denying the request.

There was no one that spoke in favor of Stream Buffer Variance 2021036- Everton Commons.

There was no one that spoke in opposition of Stream Buffer Variance 2021036- Everton Commons.

Ms. Peeks stated that the applicant has demonstrated a hardship according to the variance standards in Section 65-233 of the City of Fairburn Code of Ordinances.

Motion and Vote: Mr. Strawn made the motion to <u>APPROVE WITH CONDITIONS</u> Stream Buffer Variance 2021036- Everton Commons. Ms. Cooper seconded. **The motion carried, 3-0.**

VI. OLD BUSINESS: None

VII. ANNOUNCEMENTS/DISCUSSION: None

- **VIII. COMMENTS:** Mr. Cochran stated that he is not comfortable with the apartments being that close to the City cemetery.
 - IX. ADJOURN: Motion and Vote: Mr. Strawn made the motion to adjourn. Ms. Cooper seconded. The motion carried.

Meeting adjourned at 7:40 P.M.

Approval Signatures	
Date Approved	
Thomas Cochran, Chair	
Brandon Paulk, Recording Secretary	



TO:	Board of Appeals
FROM:	Richard Edwards, Interim Senior Planner
DATE:	Thursday, September 15, 2022
SUBJECT:	Stream Buffer Variance 2022098 – Bohannon Road Distribution Center [0 Bohannon Road, parcel ID # 09F080000300548]

APPLICANT/PETITIONER INFORMATION

Oakmont Pacolet Acquisitions, LLC 3520 Piedmont Road, Suite 100 Atlanta, GA 30305

PROPERTY INFORMATION

Address:	0 Bohannon Road, parcel ID # 09F080000300548]
Land Lot(s), and District:	Land Lot 28, 30, & 31, District 9F
Size:	Approximately 23.4 acres
Current Zoning:	M-2 (Heavy Industrial)
Overlay District:	N/A
Comprehensive Plan/Future Land Use Map	Office/Industrial

<u>INTENT</u>

The City of Fairburn Code of Ordinances requires:

Buffer and setback requirements. All land development activity subject to Article V - Stream Buffer Protection shall meet the following requirements:

- 1. An undisturbed natural vegetative buffer shall be maintained for 50 feet, measured horizontally, on both banks (as applicable) of the stream as measured from the top of the stream bank.
- 2. An additional setback shall be maintained for 25 feet, measured horizontally, beyond the undisturbed natural vegetative buffer, in which all impervious cover shall be prohibited. Grading, filling, and earthmoving shall be minimized within the setback.
- 3. No septic tanks or septic tank drainfields shall be permitted within the buffer or the setback.

The applicant is proposing to develop a 315,917 square foot, single-story warehouse with associated roads, parking, and truck courts. The buffer disturbance includes filling a portion of an intermittent stream and clearing the associated buffer. The proposed project would pipe the intermittent stream. The proposed encroachment would affect the 25-foot impervious buffer and the 50-foot natural, undisturbed buffer.

The applicant is also in the process of obtaining a stream buffer variance from the Georgia Environmental Protection Division (EPD). On August 5, 2022, the City received a public notice from Georgia EPD Watershed Protection Branch that the applicant had submitted a variance application to state environmental Law. The notice close date was September 7, 2022. Staff reached out to Brian Kent, Environmental Engineer for Georgia EPD, and he stated that they did not receive any comments from the public. Further, Mr. Kent stated that an approval document would be issued on September 8, 2022.

The applicant is requesting a stream buffer variance as follows:

1) Article V. Section 65-233(a)(2) to encroach in the 25' impervious setback, totaling 1,017 +/- linear feet and 6,503 square feet.

Stream buffer standards of considerations:

Variances from the buffer and setback requirements may be granted in accordance with the following provisions:

(1) Where a parcel was platted prior to the effective date of the ordinance from which this article was derived, and its shape, topography or other existing physical condition prevents land development consistent with this article, and the city administrator finds and determines that the requirements of this article prohibit the otherwise lawful use of the property by the owner, the city board of zoning appeals may grant a variance from the buffer and setback requirements hereunder, provided such variance require mitigation measures to offset the effects of any proposed land development on the parcel.

Findings:

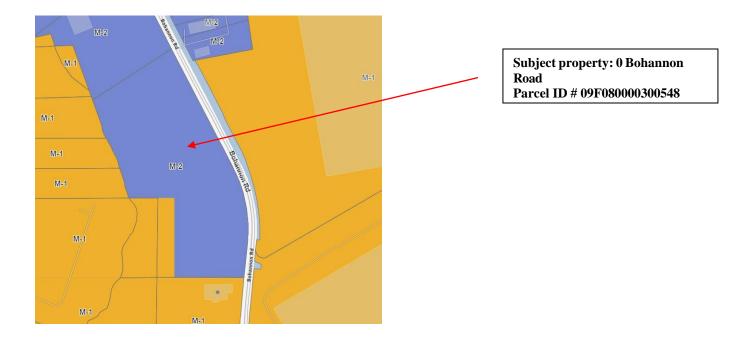
Based on Fulton County Tax Assessors information, it appears as if the subject property was platted prior to 2004.

a. When a property's shape, topography or other physical conditions existing at the time of the adoption of the ordinance from which this article is derived prevents land development unless a buffer variance is granted.

Findings:

The property's shape, topography and other physical conditions existed at the time of the adoption of the ordinance. The site is approximately 23.4 acres with road frontages on Bohannon Road. The stream buffer takes up close to 5-acres of the development and there is close to 3-acres that is separated from majority of the parcel that is not affected by the stream buffers, see image below.





Based on the shape and topography of the site, it would be impossible to construct a single-story warehouse sized 354,182 square foot given the environmental and regulatory constraints on the property. However, it appears that a 194,108 square foot warehouse could be constructed on the lot without the need for any type of stream buffer variances.

Based on these reasons, staff is of the opinion this condition has not been satisfied.

b. Unusual circumstances when strict adherence to the minimal buffer requirements in the article would create an extreme hardship.

Findings:

Staff does not find that there is an unusual hardship for this case. The applicant could build a 194,108 square foot warehouse without any stream buffer variances. The applicant wishes to build a larger structure, which would in turn encroach into the required stream buffers.

Based on these reasons, staff is of the opinion this condition has not been satisfied.

The following factors will be considered in determining whether to issue a variance:

a. The shape, size, topography, slope, soils, vegetation and other physical characteristics of the property;

Findings:

There is close to three acres of land that is isolated due to the location of the stream buffers on the lot. The proposed 23.4-acre site is developable, and the proposed hardship appears to be created through the desire for a larger warehouse.

b. The locations of all streams on the property, including along property boundaries;

Findings:

The stream is located in the western corner of the lot and encompassing nearly five acres of land and isolating another three acres of land. This leaves approximately 15.2 acres of land outside of the stream buffer.

c. The location and extent of the proposed buffer or setback intrusion;

Findings:

The proposed encroachment would have the stream being piped in the northwestern corner of the lot. Part of the building would cross of the entirety of the stream and stream buffers. Once the stream is piped, the stream buffer would no longer be enforced, as it would be designed to carry water through at a rate that is approved by the City Engineer and Georgia EPD.

d. Whether alternative designs are possible which require less intrusion or no intrusion;

Findings:

The applicant submitted a plan that showed that a 194,108 square foot warehouse could be located on the lot with no intrusions into the stream buffer

e. The long-term and construction water quality impacts of the proposed variance; and

Findings:

The applicant would be required to adhere to Best Management Practices (BMP) during the construction of the proposed facility. The City and State would be monitoring to make sure the BMPs are being adhered to throughout the process. However, any construction within the 50-foot natural, undisturbed buffer would create long-term effects and impact water quality.

The applicant is still working to address comments from the City Engineer based on the current site plan dated June 30, 2022, which includes the following items:

- 1. Only 60% of the proposed impervious area flows to a detention pond.
- 2. Only 64% of the required water quality treatment is provided.
- 3. Bioretention cells do not meet the minimum required volumes.
- 4. The plan does not show required pre-treatment for all water entering the cell.

f. Whether issuance of the variance is at least as protective of natural resources and the environment.

Findings:

Staff is of the opinion that issuance of the variance is not as protective of the natural resources and environment as the existing site condition. The site is currently undeveloped and has no impervious surface. Therefore, the development of the site would not be as protective of the natural resources and the environment as the existing conditions. However, there is an alternative site plan that would have no intrusion to the stream buffers.

RECOMMENDATION

Staff has reviewed the request relative to the variance standards in Sections 65-233 of the City of Fairburn Code of Ordinances. Based upon this review, staff recommends **DENIAL** of the request to encroach into the 75-impervious surface buffer, 50-foot natural, undisturbed buffer, and pipe the existing intermittent stream.

Should the Board of Appeals choose to approve the request, staff recommends the following conditions:

1) The subject property shall be constructed in accordance with the proposed site plan, provided by the applicant dated received June 30, 2022, by the Department of Community Development, provided all comments from the City Engineer are addressed.

ATTACHMENTS

Stream Buffer Variance Considerations Letter of Intent Site Plan



PROCEDURES AND INFORMATION FOR FILING A STREAM BUFFER VARIANCE

Applications are available at the Planning and Zoning Office, 26 West Campbellton Street, Fairburn, GA 30213 or online at <u>www.fairburn.com</u>. **Read the following instructions prior to filing and refer to the filing schedule.**

A PRE-APPLICATION MEETING IS REQUIRED PRIOR TO FILING. To schedule a meeting, please contact the Planning and Zoning Office at 770-964-2244.

STREAM BUFFER VARIANCE:

Variances from the above buffer and setback requirements may be granted in accordance with the following provisions:

Where a parcel was platted prior to the effective date of the ordinance (12/13/2004) from which this was derived, and its shape, topography or other existing physical condition prevents land development consistent with the Stream Buffer Protection article, and the City Administrator finds and determines that the requirements of the article prohibit the otherwise lawful use of the property by the owner, the Board of Appeals may grant a variance from the buffer and setback requirements hereunder, provided such variance require mitigation measures to offset the effects of any proposed land development on the parcel.

FILING REQUIREMENTS FOR ALL STREAM BUFFER VARIANCES:

- 1. <u>APPLICATION CHECKLIST:</u> See enclosed Stream Buffer Variance Application Checklist. Contact Staff at 770-964-2244 to schedule an appointment for a variance pre-application review meeting.
- 2. <u>APPLICATION FORM:</u> Variance Applications must have an original <u>NOTARIZED SIGNATURE</u> of the property owner(s) of record or a notarized statement by the appellant acting as power of attorney for the property owner. Where there are multiple owners, a notarized signature of each and all owners must be submitted with the application.
- 3. **SURVEY:** An accurate, to scale, up-to-date certified survey of the property shown with metes and bounds must be submitted with the variance application. The survey should include existing thoroughfares; existing drainage areas; existing buildings, structures and facilities; existing utilities on or adjacent to the property; and ownership, zoning and uses of all property adjacent to or within 200 feet of the property.
- 4. **LEGAL DESCRIPTION:** A legal description or survey of the subject property must be submitted with the Variance Application. Legal Descriptions or surveys must establish a point of beginning and from said point of beginning, give each dimension bounding the property, calling the directions (such as north, northeasterly, etc.) and returning to the point of beginning. The property's address must also be identified.
- 5. **WARRANTY DEED:** A copy of the warranty deed must be submitted with the Variance Application.
- 6. **LEASE AGREEMENT:** When applicable, a copy of the lease agreement between the property owner

and the applicant must be included with the Variance Application. The lease must identify the party responsible for the reclamation of the property.

- 7. **LETTER OF INTENT:** The letter of intent shall state in detail the proposed project, the variance request, and a hardship statement stating that the granting of a variance will alleviate some demonstrated and unusual hardship for which a variance is warranted.
- 8. **<u>SITE MAP/PLAN:</u>** The site plan should include the following:
 - a) Locations of all streams, wetlands, floodplain boundaries and other natural features, as determined by field survey
 - b) A description of the shape, size, topography, slope, soils, vegetation and other physical characteristics of the property
 - c) The locations of all existing and proposed structures and other impervious cover, the limits of all existing and proposed land disturbance, both inside and outside the buffer and setback. The exact area of the buffer to be affected shall be accurately and clearly indicated
 - d) A calculation of the total area and length of the proposed intrusion
- 9. **<u>MITIGATION PLAN</u>**: A proposed mitigation plan, if any, for the intrusion. If no mitigation is proposed, the request must include an explanation of why none is being proposed.
- 10. <u>ALTERNATIVE PLAN:</u> At least one alternative plan, which does not include a buffer or setback intrusion, or an explanation of why such a site plan is not possible.
- 11. **STORMWATER MANGEMENT SITE PLAN**: A stormwater management site plan is required, if applicable.

12. VARIANCE APPLICATION FEE:

\$350.00, payable by cash, check, money order or credit card (*except American Express*), plus **\$31.00** Notice of Public Hearing Sign

ALL CHECKS PAYABLE TO THE "CITY OF FAIRBURN." VARIANCE APPLICATION FEES ARE NON-REFUNDABLE.

ALL REQUESTS FOR STREAM BUFFER VARIANCE SHALL HAVE A STATEMENT OF HARDSHIP. THE FOLLOWING CONSIDERATIONS SHALL BE USED IN JUSTIFYING THE HARDSHIP.

VARIANCE CONSIDERATIONS: Stream Buffer variances will be considered only in the following cases:

- a) When a property's shape, topography or other physical conditions existing at the time of the adoption of the ordinance from which this article is derived prevents land development unless a buffer variance is granted.
- b) Unusual circumstances when strict adherence to the minimal buffer requirements in the article would create an extreme hardship.

Variances will not be considered when actions of any property owner of a given property have created conditions of a hardship on that property.

ADDITIONAL VARIANCE CONSIDERATIONS:

a) The shape, size, topography, slope, soils, vegetation and other physical characteristics of the property;

- b) The locations of all streams on the property, including along property boundaries;
- c) The location and extent of the proposed buffer or setback intrusion;
- d) Whether alternative designs are possible which require less intrusion or no intrusion;
- e) The long-term and construction water quality impacts of the proposed variance; and
- f) Whether issuance of the variance is at least as protective of natural resources and the environment.

PROCEDURES FOR FILING ALL VARIANCE APPLICATIONS:

- 1. **PRE-APPLICATION MEETING:** The property owner or applicant should schedule a preapplication meeting with the Zoning Administrator or his/her designee to discuss the request and necessary documents, fees and schedules pertinent to the request.
- 2. **APPLICATION SUBMITTAL:** The property owner or applicant shall submit a complete application to the Planning and Zoning Office.
- 3. **INITIAL STAFF REVIEW:** Completed applications will be distributed to appropriate city staff for review and comment. All staff comments will be submitted to the Planning and Zoning Office within 10-12 business days.
- 4. **RESUBMITTAL:** Upon receipt of staff comments, all comments will be consolidated into a single report for distribution to the applicant. The applicant should revise plans according to the comments received and resubmit plans to the Planning and Zoning Office.
- 5. **PUBLIC NOTICE:** The Planning and Zoning Office staff will prepare newspaper ads and property signs to assure proper notice of public hearings.
- 6. **STAFF EVALUATION:** A staff analysis report with a recommendation to Board of Appeals will be prepared.
- 7. **BOARD OF APPEALS:** The Board of Appeals shall hold a public hearing on the application and make a decision on the request. The Board of Appeals meets on the third Thursday of each month (as needed) at Fairburn City Hall, 56 Malone Street, Fairburn, GA 30213.



STRAM BUFFER VARIANCE PUBLIC HEARING INFORMATION

POSTING OF PUBLIC HEARING SIGNS:

BOARD OF APPEALS PUBLIC HEARING NOTICE SIGN: Signs posted along the frontages of Properties subject to variances that notify area residents of the Board of Appeals public hearing. Applicants are required to post the public hearing sign in a conspicuous place along the property's public street frontage, no later than 15 days before the Board of Appeals hearing. Failure to post the signs by this deadline will result in the administrative removal of the public hearing from the agenda. The sign must remain posted on-site until final action by the Board of Appeals. If the sign is mutilated and/or removed, the applicant is responsible for obtaining and reposting a new sign.

OTHER PUBLIC NOTIFICATION FOR STREAM BUFFER VARIANCES:

A published notice in a newspaper of general circulation is done by the City of Fairburn no later than 15 days prior to the public hearing. The published notice contains the time, place, purpose of the hearing and the location of the property.

PUBLIC HEARING DATES:

- > **APPLICATION DEADLINES:** See the Stream Buffer Variance Schedule.
- **BOARD OF ZONING APPEALS:** Stream Buffer Variances are decided by the Board of Appeals. The Board of Appeals holds public hearings on the third Thursday of each month at 7:00 p.m., if necessary.

IF YOU HAVE ANY QUESTIONS CONCERNING THESE VARIANCE FILING PROCEDURES, PLEASE CONTACT THE PLANNING AND ZONING OFFICE AT 770-964-2244.



APPLICATION FOR STREAM BUFFER VARIANCES

DATE July 5, 2022

ALL REQUESTS FOR A STREAM BUFFER VARIANCE SHALL HAVE A STATEMENT OF HARDSHIP. THE FOLLOWING CONSIDERATIONS SHALL BE USED IN JUSTIFYING THE HARDSHIP.

VARIANCE CONSIDERATIONS:

Does the property's shape, topography or other physical conditions existing at the time of the adoption of the ordinance from which this article is derived prevents land development unless a buffer variance is granted? Total avoidance would render over a third of the site useless. The entire site is ~23.4 acres, and the aquatic features and associated buffers are ~8.2 acres (resulting in 35% of the site as unusable area). Without the variance, a building of appropriate size that caters to the market demand for buildings cannot be developed.

Are there unusual circumstances when strict adherence to the minimal buffer requirements in the article create an extreme hardship?

As previously noted, due to the topography of the site and the location of the stream across the site, the presence of the stream and buffers creates an extreme hardship by reducing the development area of the site by 35%. The property is located within an industrial area and is adjoined by other industrial/warehouse buildings. In order to construct a building that is consistent with the surrounding land use and meets the needs of the market, encroachment into the stream and buffers is necessary. Further, due to design requirements for truck access, such as ingress/egress, road curvature, truck courts for loading/unloading, and parking there are

specific design elements required to make the development functional. The maximum building design for the site would accommodate a building over 350.000 square feet, but the building design for this site has been reduced by almost 40,000 square feet and walls are being constructed to reduce the impact to the stream and buffers. In order to completely avoid the stream and buffer, the building size would need to be reduced by an additional 121, 809 square feet, making the building too small to meet the market needs. Therefore, due to these conditions, the buffer has created an extreme hardship for development of the site.

SECTION III LEGAL DESCRIPTION OF PROPERTY (Legal description/survey must match submitted site plan.)

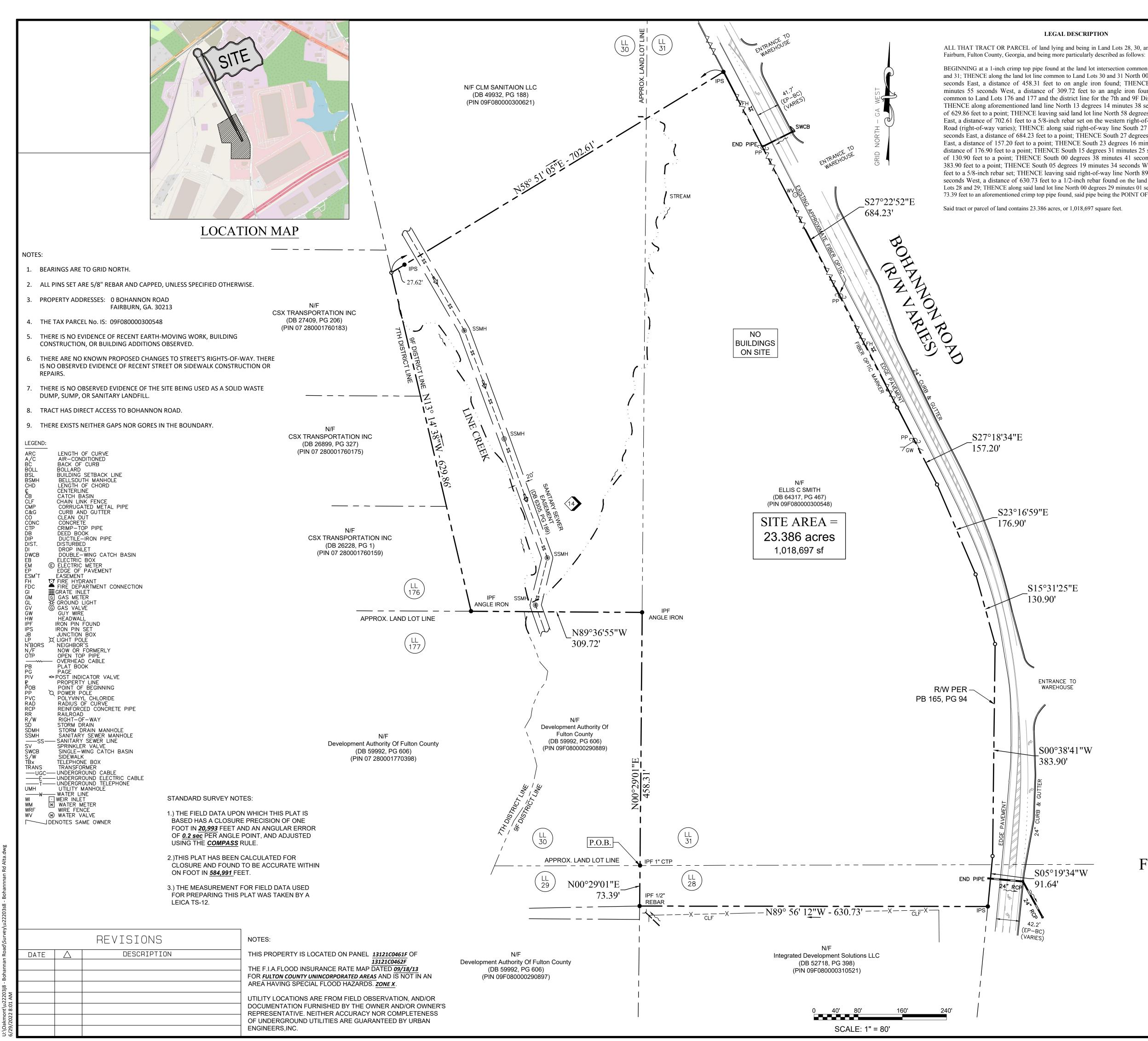
SUBDIVISION		UNIT/PHASE:	L(OT NO(S):
LAND LOT(S):	30 and 31	DISTRICT:9F	TAX ID:_	09F080000300548
PROPERTY ADDRI	ESS Between 610 and	l 625 Bohannon Road		

SECTION IV

OWNER INFORMATION А.

Owner states under an oath that he or she is the owner of the property described in the attached legal description. **[EACH OWNER'S SIGNATURE MUST BE NOTARIZED]**

Charles Smith	Sworn to and subscribed before me this	_day of
TYPE OR PRINT OWNER'S NAME		
122 Ruth Drive	20	
ADDRESS Newnan, GA 30265		
CITY, STATE & ZIP CODE	NOTARY PUBLIC	
OWNER'S SIGNATURE		
<u>(404) 394 - 6330</u>		
AREA CODE/ PHONE NUMBER smith2640@bellsouth.net		
EMAIL ADDRESS		
B. <u>APPLICANT INFORMATION</u>		
A notarized authorized applicant signature is requir	red if applicant has owner's power of attorney.	
Oakmont Pacolet Acquisitions, LLC		1
TYPE OR PRINT APPLICANT'S NAME	Sworn to and subscribed before me this	_day of
3520 Piedmont Road, Suite 100	20	
ADDRESS		
Atlanta, GA 30305		
CITY, STATE & ZIP CODE	NOTARY PUBLIC	
APPLICANT'S SIGNATURE		
OWNER'S SIGNATURE		
<u>(404)869-9990</u>		
AREA CODE/ PHONE NUMBER vaglialoro@oakmontre.com		
EMAIL ADDRESS		
C. <u>ATTORNEY/AGENT INFORMATION</u> CHECK ONE: [_] ATTORNEY [1] AGE David Huetter / United Consulting	NT	
TYPE OR PRINT ATTORNEY/AGENT NAME	SIGNATURE OF ATTORNEY/AGENT	_
625 Holcomb Bridge Road ADDRESS		
Norcross, GA 30071 CITY, STATE & ZIP CODE		
ן 678 1898 - 6440	dhuetter@unitedconsulting.com	
AREA CODE/PHONE NUMBER	EMAIL ADDRESS	_



LEGAL DESCRIPTION

ALL THAT TRACT OR PARCEL of land lying and being in Land Lots 28, 30, and 31; 9F district; City of

BEGINNING at a 1-inch crimp top pipe found at the land lot intersection common to Land Lots 28, 29, 30, and 31; THENCE along the land lot line common to Land Lots 30 and 31 North 00 degrees 29 minutes 01 seconds East, a distance of 458.31 feet to on angle iron found; THENCE North 89 degrees 36 minutes 55 seconds West, a distance of 309.72 feet to an angle iron found on the land lot line common to Land Lots 176 and 177 and the district line for the 7th and 9F District of Fulton County; THENCE along aforementioned land line North 13 degrees 14 minutes 38 seconds West, a distance of 629.86 feet to a point; THENCE leaving said land lot line North 58 degrees 51 minutes 05 seconds East, a distance of 702.61 feet to a 5/8-inch rebar set on the western right-of-way line for Bohannon Road (right-of-way varies); THENCE along said right-of-way line South 27 degrees 22 minutes 52 seconds East, a distance of 684.23 feet to a point; THENCE South 27 degrees 18 minutes 34 seconds East, a distance of 157.20 feet to a point; THENCE South 23 degrees 16 minutes 59 seconds East, a distance of 176.90 feet to a point; THENCE South 15 degrees 31 minutes 25 seconds East, a distance of 130.90 feet to a point; THENCE South 00 degrees 38 minutes 41 seconds West, a distance of 383.90 feet to a point; THENCE South 05 degrees 19 minutes 34 seconds West, a distance of 91.64 feet to a 5/8-inch rebar set; THENCE leaving said right-of-way line North 89 degrees 56 minutes 12 seconds West, a distance of 630.73 feet to a 1/2-inch rebar found on the land lot line common to Land Lots 28 and 29; THENCE along said land lot line North 00 degrees 29 minutes 01 seconds East, a distance of 73.39 feet to an aforementioned crimp top pipe found, said pipe being the POINT OF BEGINNING.

FIRST AMERICAN TITLE INSURANCE COMPANY TITLE COMMITMENT NOTES: BOHANNON ROAD - 23.386 ACRES

URBAN ENGINEERS, INC. RELIED UPON FIRST AMERICAN TITLE INSURANCE COMPANY'S ALTA COMMITMENT FOR TITLE INSURANCE; COMMITMENT NUMBER: NCS-1113557-ATL; EFFECTIVE DATE: FEBRUARY 07, 2022, AT 8:00 A.M., FOR THE PREPARATION OF THIS SURVEY. ALL EASEMENTS AND OTHER ENCUMBRANCES ARE BASED ON THAT COMMITMENT.

SCHEDULE B, PART II

EXCEPTIONS

THIS COMMITMENT DOES NOT REPUBLISH ANY COVENANT, CONDITION, RESTRICTION, OR LIMITATION CONTAINED IN ANY DOCUMENT REFERRED TO IN THIS COMMITMENT TO THE EXTENT THAT THE SPECIFIC COVENANT, CONDITION, RESTRICTION, OR LIMITATION VIOLATES STATE OR FEDERAL LAW BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, GENDER IDENTITY, HANDICAP, FAMILIAL STATUS, OR NATIONAL ORIGIN.

THE POLICY WILL NOT INSURE AGAINST LOSS OR DAMAGE RESULTING FROM THE TERMS AND PROVISIONS OF ANY LEASE OR EASEMENT IDENTIFIED IN SCHEDULE A, AND WILL INCLUDE THE FOLLOWING EXCEPTIONS UNLESS CLEARED TO THE SATISFACTION OF THE COMPANY:

..NOTED;

..THIS SURVEY; ONCE FINALIZED;

1.	NONE KNOWN;	
2.	NONE KNOWN;	
3.	NONE KNOWN;	
4.	EXCEPT AS SHOWN, NONE KNOWN;	
5.	NOTED;	
6.	NOT A SURVEY ITEM;	
7.	NONE KNOWN;	
8.	NOT A SURVEY ITEM;	
9.	NOTED;	
10.	NOTED;	
11.	NOT A SURVEY ITEM;	
12.	DB 1495, PG 410 - ROADWAY EASEMENT	TOO VAGUE TO LOCATE;
13.	DB 1571, PG 446 - ROADWAY EASEMENT	TOO VAGUE TO LOCATE;
14.	DB 6305, PG 189 - SEWER EASEMENT	
15.	DB 35062, PG 425 - APPLICATION FOR CONSERVATION USE	
16.	PB Y, PG 557 - PLAT	NOTED;
17.	PB 49. PG 10 - PROPERTY OF F.D. DUFFY	NOTED:
18.	PB 68, PG 14 - GEORGIA POWER EASEMENT	DOES NOT APPLY;
19.	PB 68, PG 15 - GEORGIA POWER EASEMENT	DOES NOT APPLY;
20.	PB 160. PG 81 - SURVEY FOR WARREN SMITH	NOTED;

21. PB 165, PG 94 - SURVEY FOR WARREN SMITH. 22. ALTA/NSPS LAND TITLE SURVEY.

SURVEYOR'S CERTIFICATION:

TO: PME OAKMONT BRASELTON, LLC, a Delaware limited liability company FIRST AMERICAN TITLE INSURANCE COMPANY

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, Jointly established and adopted by ALTA and NSPS, and includes items 1, 2, 3, 4, 6(a), 6(b), 8, 9, 11, 13, 14, 16, 17, 18, 19, and 20 of Table A thereof. The field work was completed on April 19, 2022.

Date of Plat or Map: APRIL 22, 2022

John T. Newman Georgia Professional Land Surveyor # 3324

SURVEYOR CERTIFICATION (GEORGIA)

This plat is a retracement of an existing parcel or parcels of land and does not subdivide or create a new parcel or make any changes to any real property boundaries. The recording information of the documents, maps, plats, or other instruments which created the parcel o parcels are stated hereon. RECORDATION OF THIS PLAT DOES NOT IMPLY APPROVAL OF AN LOCAL JURISDICTION, AVAILABILITY OF PERMITS, COMPLIANCE WITH LOCAL REGULATIONS OR REQUIREMENTS, OR SUITABILITY FOR ANY USE OR PURPOSE OF THE LAND. Furthermore the undersigned land surveyor certifies that this plat complies with the minimum technica standards for property surveys in Georgia as set forth in the rules and regulations of the Georgia Board of Registration for Professional Engineers and Land Surveyors and as set forth in O.C.G.A. Section 15-6-67.

Mr. Thurman John T. Newman Georgia Professiona Land Surveyor # 3324

ALTA/NSPS LAND TITLE SURVEY FOR:

_ _ _ _ S05°19'34"W

OAKMONT PACOLET ACQUISITIONS, LLC FIRST AMERICAN TITLE INSURANCE COMPANY

> LAND LOTS 28, 30 & 31; 9F DISTRICT **CITY OF FAIRBURN** FULTON COUNTY, GEORGIA

URBAN ENGINEERS, INC.

1904 MONROE DRIVE, N.E. SUITE 150 ATLANTA, GEORGIA 30324 PHONE: (404) 873-5874 www.urbanengineers.net CERTIFICATE OF AUTHORIZATION #LSF-000250

SCALE: 1" = 80' DATE: 04/22/22

EXHIBIT "A"

Property Address: Bohannon Road, Fairburn, Georgia 30213

All that tract or parcel of land lying and being in Land Lots 30 and 31, District 9F of Fulton County, Georgia, and being more particularly described as follow:

TO FIND THE POINT OF BEGINNING, begin at a point formed by the intersection of the south line of land Lot 31 of said District with the Westerly right of way of Bohannon Road (having a 60 foot right of way); thence running north 1°30'06" east along the westerly right of way of Bohannon Road and following the curvature thereof a distance of 196.09 feet to a point; thence running north 04°31'19" east along the westerly right of way of Bohannon Road and following the curvature thereof a distance of 192.89 feet to a point; running thence north 05°21'13" east along the westerly right of way of Bohannon Road and following the curvature thereof a distance of 211.07 feet to a point which is the TRUE POINT Of BEGINNING; running thence north 05°21'13" east along the westerly right of way of Bohannon Road and following the curvature thereof a distance of 91.87 feet to a point; running thence north 00°27'40" east along the westerly right of way of Bohannon Road and following the curvature thereof a distance of 383.90 feet to a point; running thence north 15°42'26" west along the southwesterly right of way of Bohannon Road and following the curvature thereof a distance of 130.90 feet to a point; running thence north 23°28'00" west along the southwesterly right of way of Bohannon Road and following the curvature thereof a distance of 176.90 feet to a point; running thence north 27°29'35" west along the southwesterly right of way of Bohannon Road and following the curvature thereof a distance of 157.20 feet to a point; running thence north 27°33'53" west along the southwesterly right of way of Bohannon Road and following the curvature thereof a distance of 684.23 feet to a point and corner; thence leaving the southwesterly right of way of Bohannon Road and running south 58°40'04" west a distance of 702.61 feet to a point and corner; thence running south 13°25'39" east a distance of 629.86 feet to a point and corner; thence running south 89°47'56" east a distance of 309.72 feet to a point and corner; running thence south 00°18'00" west a distance of 532.10 feet to a point and corner; thence running north 89°30'33" east a distance of 630.73 feet to a point and corner which la the TRUE POINT OF BEGINNING.

Being the parcel of property identified as Parcel One on that certain Plat of Survey prepared for Warren Smith by Charles C. Jonas on September 18, 1987, and revised on October 31, 1988, August 10, 1989, October 16, 1989, and December 15, 1969, and recorded in Plat Book 165, page 94, Fulton County, Georgia records.

Tax ID#: 09F-0800-0030-054-8

Subject to any Easements or Restrictions of Record



ALTA Commitment for Title Insurance

ISSUED BY



First American Title Insurance Company

File No: NCS-1113557-ATL

COMMITMENT FOR TITLE INSURANCE Issued By FIRST AMERICAN TITLE INSURANCE COMPANY NOTICE

IMPORTANT-READ CAREFULLY: THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON.

COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions; and the Commitment Conditions, *First American Title Insurance Company*, a Nebraska Corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Policy Amount and the name of the Proposed Insured.

If all of the Schedule B, Part I-Requirements have not been met within six months after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

First American Title Insurance Company

Sug L Smith

Dennis J. Gilmore, President

If this jacket was created electronically, it constitutes an original document.

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by First American Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

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Greg L. Smith, Secretary

COMMITMENT CONDITIONS

1. DEFINITIONS

- (a) "Knowledge" or "Known": Actual or imputed knowledge, but not constructive notice imparted by the Public Records.
- (b) "Land": The land described in Schedule A and affixed improvements that by law constitute real property. The term "Land" does not include any property beyond the lines of the area described in Schedule A, nor any right, title, interest, estate, or easement in abutting streets, roads, avenues, alleys, lanes, ways, or waterways, but this does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.
- (c) "Mortgage": A mortgage, deed of trust, or other security instrument, including one evidenced by electronic means authorized by law.
- (d) "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.
- (e) "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.
- (f) "Proposed Policy Amount": Each dollar amount specified in Schedule A as the Proposed Policy Amount of each Policy to be issued pursuant to this Commitment.
- (g) "Public Records": Records established under state statutes at the Commitment Date for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge.
- (h) "Title": The estate or interest described in Schedule A.
- 2. If all of the Schedule B, Part I—Requirements have not been met within the time period specified in the Commitment to Issue Policy, this Commitment terminates and the Company's liability and obligation end.
- 3. The Company's liability and obligation is limited by and this Commitment is not valid without:
 - (a) the Notice;
 - (b) the Commitment to Issue Policy;
 - (c) the Commitment Conditions;
 - (d) Schedule A;
 - (e) Schedule B, Part I-Requirements;
 - (f) Schedule B, Part II—Exceptions; and
 - (g) a counter-signature by the Company or its issuing agent that may be in electronic form.

4. COMPANY'S RIGHT TO AMEND

The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company shall not be liable for any other amendment to this Commitment.

5. LIMITATIONS OF LIABILITY

- (a) The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:
 - (i) comply with the Schedule B, Part I—Requirements;
 - (ii) eliminate, with the Company's written consent, any Schedule B, Part II-Exceptions; or
 - (iii) acquire the Title or create the Mortgage covered by this Commitment.
- (b) The Company shall not be liable under Commitment Condition 5(a) if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
- (c) The Company will only have liability under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
- (d) The Company's liability shall not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Conditions 5(a)(i) through 5(a)(iii) or the Proposed Policy Amount.
- (e) The Company shall not be liable for the content of the Transaction Identification Data, if any.
- (f) In no event shall the Company be obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I—Requirements have been met to the satisfaction of the Company.
- (g) In any event, the Company's liability is limited by the terms and provisions of the Policy.

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by First American Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

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6. LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT

- (a) Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
- (b) Any claim must be based in contract and must be restricted solely to the terms and provisions of this Commitment.
- (c) Until the Policy is issued, this Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or oral, express or implied, relating to the subject matter of this Commitment.
- (d) The deletion or modification of any Schedule B, Part II—Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.
- (e) Any amendment or endorsement to this Commitment must be in writing and authenticated by a person authorized by the Company.
- (f) When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

7. IF THIS COMMITMENT HAS BEEN ISSUED BY AN ISSUING AGENT

The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for the purpose of providing closing or settlement services.

8. PRO-FORMA POLICY

The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

9. ARBITRATION

Arbitration provision intentionally removed.

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First American

Schedule A

ALTA Commitment for Title Insurance

ISSUED BY

First American Title Insurance Company

File No: NCS-1113557-ATL

Transaction Identification Data for reference only:

Issuing Agent: First American Title Insurance Company National Issuing Office: 3455 Peachtree Road NE, Suite 675, **Commercial Services** Commitment No.: NCS-1113557-ATL

Atlanta, GA 30326 Issuing Office File No.: NCS-1113557-ATL

Property Address: 23.04 acres, Bohannon Road, lots 30 and 31, District 9F, Fairburn, GA 30213 Revision No.:

SCHEDULE A

- 1. Commitment Date: February 07, 2022 at 8:00 AM
- 2. Policy to be issued:
 - ⊠ ALTA® Owner's Policy (a) Proposed Insured: Oakmont Pacolet Acquisitions, LLC, a Delaware limited liability company Proposed Policy Amount: \$6,200,000.00
 - (b)

 ALTA® Loan Policy Proposed Insured: Proposed Policy Amount: \$
 - (c)

 ALTA® Policy Proposed Insured: Proposed Policy Amount: \$
- The estate or interest in the Land described or referred to in this Commitment is Fee Simple 3.
- 4. The Title is, at the Commitment Date, vested in: Charles Mark Smith by virtue of that certain Executor's Deed from Roy E. Barnes as Executor of the Martha Louise Smith Estate, dated August 5, 2021, filed August 17, 2021, and recorded in Deed Book 64317, Page 467, Fulton County, Georgia records.
- 5. The Land is described as follows:

See Exhibit "A" attached hereto and made a part hereof

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ALTA Commitment for Title Insurance

First American Title Insurance Company

File No: NCS-1113557-ATL

Commitment No.: NCS-1113557-ATL

SCHEDULE B, PART I

Requirements

All of the following Requirements must be met:

- 1. The Proposed Insured must notify the Company in writing of the name of any party not referred to in this Commitment who will obtain an interest in the Land or who will make a loan on the Land. The Company may then make additional Requirements or Exceptions.
- 2. Pay the agreed amount for the estate or interest to be insured.
- 3. Pay the premiums, fees, and charges for the Policy to the Company.
- 4. Pay all taxes and/or assessments, levied and assessed against the Land, which are due and payable.
- 5. Documents satisfactory to the Company that convey the Title or create the Mortgage to be insured, or both, must be properly authorized, executed, delivered, and recorded in the Public Records:
 - a. Limited Warranty Deed from **Charles Mark Smith**, in a form approved by the Company, to **Oakmont Pacolet Acquisitions**, **LLC**, a **Delaware limited liability company** conveying interest in the Land.
- 6. Execution and delivery to us of an Owner's Affidavit, in context to the transaction. <u>NOTE</u>: if brokers are involved in this transaction, we will require evidence of release and satisfaction of broker's liens.
- 7. A current and accurate survey of the Land, certified to the Company, to the Proposed Insured, if we are expected to delete or modify the general survey exception.
- 8. Proof satisfactory to the Company that no improvements or repairs were made upon the Land within the 95 days preceding the filing for record of the instrument creating the interest to be insured, or in the event such improvements or repairs were made, that they are completed and that all costs incurred in connection therewith have been fully paid; that there are no easements or claims of easements which do not appear of Public Records; and that there are no parties in possession or with a right to possession of the Land.
- 9. Prior to closing, the Company must confirm whether the county recording office in which the Land is located has changed its access policies due to the COVID-19 outbreak. If recording has been restricted, specific underwriting approval is required; and, additional requirements or exceptions may be made.

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- 10. Payment, satisfaction and cancellation of or release from that certain Fieri Facias styled Midland Funding LLC assignee of Citifinancial, Inc. vs. Brenda Smith, dated July 19, 2016, filed for record August 3, 2016, and recorded in Lien <u>Book 3679, Page 471</u>, Fulton County, Georgia records, in the original sum of \$3,774.48, plus penalty and interest, if any.
- 11. Payment, satisfaction and cancellation of or release from that certain Fieri Facias styled Cavalry SPV I, LLC as assignee of Chase Bank USA, N.A. vs. Brenda Smith, dated September 20, 2016, filed for record September 21, 2016, and recorded in Lien <u>Book 3702, Page 153</u>, aforesaid records, in the original sum of \$1,573.61, plus penalty and interest, if any.
- 12. Payment, satisfaction and cancellation of or release from that certain Fieri Facias styled Charles M Smith vs. Georgia Department of Revenue, dated June 15, 2018, filed for record August 16, 2018, and recorded in Lien <u>Book 4243, Page 19</u>, aforesaid records, in the original sum of \$4,740.26, plus penalty and interest, if any.

NOTE: The Company will insure without exception for secured indebtedness which appears of record only if:

a. A current payoff letter with a per diem accrual and wiring instructions is received by the Company at or prior to closing from the record holder of the debt and funds for the payoff are paid to the Company's account for satisfaction of the amount due;

OR

b. On or before the date set for closing the Company receives a duly executed and recordable release, cancellation and satisfaction the debt, duly executed by and with a cover letter from the record holder of the debt, which unconditionally authorizes the Company to record the release upon the occurrence of closing.

13. The Georgia Commercial Real Estate Broker Lien Act applies to a sale, lease, option, loan or other transfer of commercial real estate. The Company must be provided proof, in affidavit form from the Seller and Purchaser, satisfactory to the Company, (a) of payment in full of any broker's services which have been engaged with regard to the management, sale, purchase, lease, option or other conveyance or proposed conveyance of any interest in the subject commercial real estate, together with a lien waiver or estoppel letter from any party determined by such affidavit to have a right to file a broker's lien, and (b) that no notice of lien for any such services has been received. In the event that said affidavit(s) contain any qualification with respect to any such services, proof of payment in full for all such services, together with a lien waiver or estoppel letter from such identified Broker(s) must be obtained.

NOTE: Where the possibility of a right to file a broker's lien is determined and no lien waiver or estoppel letter provided to the Company, the following exception will be included in the policy to be issued pursuant to this Commitment.

Any broker's lien, or right to a broker's lien, imposed by law.

14. Based upon information developed or received in satisfaction of the above, the Company reserves the right to impose additional conditions or to set new requirements.

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ALTA Commitment for Title Insurance

Schedule BI & BII (Cont.)

First American Title Insurance Company

File No: NCS-1113557-ATL

Commitment No.: NCS-1113557-ATL

SCHEDULE B, PART II

Exceptions

THIS COMMITMENT DOES NOT REPUBLISH ANY COVENANT, CONDITION, RESTRICTION, OR LIMITATION CONTAINED IN ANY DOCUMENT REFERRED TO IN THIS COMMITMENT TO THE EXTENT THAT THE SPECIFIC COVENANT, CONDITION, RESTRICTION, OR LIMITATION VIOLATES STATE OR FEDERAL LAW BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, GENDER IDENTITY, HANDICAP, FAMILIAL STATUS, OR NATIONAL ORIGIN.

The Policy will not insure against loss or damage resulting from the terms and provisions of any lease or easement identified in Schedule A, and will include the following Exceptions unless cleared to the satisfaction of the Company:

- 1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
- 2. Any facts, rights, interest or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
- 3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
- 4. Any encroachments, encumbrances, violations, variations, or adverse circumstances affecting Title that would be disclosed by an accurate and complete land survey of the Land or that could be ascertained by an inspection of the Land.
- 5. Any minerals or mineral rights leased, granted or retained by current or prior owners.
- 6. Taxes and assessments for the year 2022 and subsequent years, not yet due and payable, and taxes for prior years arising from reassessments or digest disputes.

As to Tax Identification Number 09F-0800-0030-054-8: The 2021 Fulton County, Georgia taxes were paid in the amount of \$1,342.39.

As to Tax Identification Number 09F-0800-0030-054-8: The 2021 City of Fairburn taxes were paid in the amount of \$473.03.

NOTE: Fulton County Ordinances provide for the priority of unpaid water and sanitation bills as liens over security encumbrances. Current water bills and sanitation bills for subject property are not available in the public records. Please inquire.

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- 7. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the Public Records or attaching subsequent to the effective date hereof but prior to the date the proposed Insured acquires for value of record the estate or interest covered by this Commitment.
- 8. Any lien or right to a lien for services, labor, material or equipment, unless such lien is shown by the Public Records at Date of Policy and not otherwise excepted from coverage herein.
- 9. No insurance is afforded as to the amount of acreage or square footage contained in the Land.
- 10. Rights of upper and lower riparian owners in and to the waters of any creek or stream that bounds or traverses the Land, free from increase, decrease or pollution.
- 11. Rights of tenants in possession, as tenants only, under unrecorded occupancy agreements.
- 12. Easement from H.O. Stephens, et. al. to Fulton County, dated October 24, 1933, filed for record November 9, 1933, and recorded in Deed <u>Book 1495, Page 410</u>, Fulton County, Georgia records.
- 13. Easement from H.O. Stephens, et. al. to Fulton County, dated October 24, 1935, filed for record December 15, 1935, and recorded in Deed <u>Book 1571, Page 446</u>, aforesaid records.
- 14. Sewer Easement from Beavers F. Smith to Fulton County, Georgia, dated June 23, 1975, filed for record July 16, 1975, and recorded in Deed Book 6305, Page 189, aforesaid records.
- 15. Application for Conservation Use Assessment of Agricultural Property from Ellis C. Smith to Board of Tax Assessors of Fulton County, dated March 4, 2003, filed for record May 30, 2003, and recorded in Deed Book 35062, Page 425, aforesaid records.
- 16. Matters as shown on that certain plat recorded in Plat Book Y, Page 557, Campbell County records.
- 17. Matters as shown on that certain plat recorded in Plat Book 49, Page 10, Fulton County records.
- 18. Matters as shown on that certain plat recorded in Plat <u>Book 68, Page 14</u>, aforesaid records.
- 19. Matters as shown on that certain plat recorded in Plat Book 68, Page 15, aforesaid records.
- 20. Matters as shown on that certain plat recorded in Plat Book 160, Page 81, aforesaid records.
- 21. Matters as shown on that certain plat recorded in Plat <u>Book 165, Page 94</u>, aforesaid records.
- 22. Matters as would be disclosed by a current and accurate survey and inspection of the Land.

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First American	ALTA Commitment for Title Insurance	
	ISSUED BY First American Title Insurance Company	
Exhibit A	File No: NCS-1113557-ATL	

Commitment File No.: NCS-1113557-ATL

ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING IN LAND LOTS 30 AND 31, DISTRICT 9F OF FULTON COUNTY, GEORGIA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOW:

TO FIND THE POINT OF BEGINNING, BEGIN AT A POINT FORMED BY THE INTERSECTION OF THE SOUTH LINE OF LAND LOT 31 OF SAID DISTRICT WITH THE WESTERLY RIGHT OF WAY OF BOHANNON ROAD (HAVING A 60 FOOT RIGHT OF WAY); THENCE RUNNING NORTH 1 DEGREES 30 MINUTES 06 SECONDS EAST ALONG THE WESTERLY RIGHT OF WAY OF BOHANNON ROAD AND FOLLOWING THE CURVATURE THEREOF A DISTANCE OF 196.09 FEET TO A POINT; THENCE RUNNING NORTH 04 DEGREES 31 MINUTES 19 SECONDS EAST ALONG THE WESTERLY RIGHT OF WAY OF BOHANNON ROAD AND FOLLOWING THE CURVATURE THEREOF A DISTANCE OF 192.89 FEET TO A POINT; RUNNING THENCE NORTH 05 DEGREES 21 MINUTES 13 SECONDS EAST ALONG THE WESTERLY RIGHT OF WAY OF BOHANNON ROAD AND FOLLOWING THE CURVATURE THEREOF A DISTANCE OF 211.07 FEET TO A POINT WHICH IS THE TRUE POINT OF BEGINNING; RUNNING THENCE NORTH 05 DEGREES 21 MINUTES 13 SECONDS EAST ALONG THE WESTERLY RIGHT OF WAY OF BOHANNON ROAD AND FOLLOWING THE CURVATURE THEREOF A DISTANCE OF 91.87 FEET TO A POINT; RUNNING THENCE NORTH 00 DEGREES 27 MINUTES 40 SECONDS EAST ALONG THE WESTERLY RIGHT OF WAY OF BOHANNON ROAD AND FOLLOWING THE CURVATURE THEREOF A DISTANCE OF 383.90 FEET TO A POINT; RUNNING THENCE NORTH 15 DEGREES 42 MINUTES 26 SECONDS WEST ALONG THE SOUTHWESTERLY RIGHT OF WAY OF BOHANNON ROAD AND FOLLOWING THE CURVATURE THEREOF A DISTANCE OF 130.90 FEET TO A POINT: RUNNING THENCE NORTH 23 DEGREES 28 MINUTES 00 SECONDS WEST ALONG THE SOUTHWESTERLY RIGHT OF WAY OF BOHANNON ROAD AND FOLLOWING THE CURVATURE THEREOF A DISTANCE OF 176.90 FEET TO A POINT; RUNNING THENCE NORTH 27 DEGREES 29 MINUTES 35 SECONDS WEST ALONG THE SOUTHWESTERLY RIGHT OF WAY OF BOHANNON ROAD AND FOLLOWING THE CURVATURE THEREOF A DISTANCE OF 157.20 FEET TO A POINT; RUNNING THENCE NORTH 27 DEGREES 33 MINUTES 53 SECONDS WEST ALONG THE SOUTHWESTERLY RIGHT OF WAY OF BOHANNON ROAD AND FOLLOWING THE CURVATURE THEREOF A DISTANCE OF 684.23 FEET TO A POINT AND CORNER, THENCE LEAVING THE SOUTHWESTERLY RIGHT OF WAY OF BOHANNON ROAD AND RUNNING SOUTH 58 DEGREES 40 MINUTES 04 SECONDS WEST A DISTANCE OF 702.61 FEET TO A POINT AND CORNER; THENCE RUNNING SOUTH 13 DEGREES 25 MINUTES 39 SECONDS EAST A DISTANCE OF 629.86 FEET TO A POINT AND CORNER; THENCE RUNNING SOUTH 89 DEGREES 47 MINUTES 56 SECONDS EAST A DISTANCE OF 309.72 FEET TO A POINT AND CORNER; RUNNING THENCE SOUTH 00 DEGREES 18 MINUTES 00 SECONDS WEST A DISTANCE OF 532.10 FEET TO A POINT AND CORNER; THENCE RUNNING NORTH 89 DEGREES 30 MINUTES 33 SECONDS EAST A DISTANCE OF 630.73 FEET TO A POINT AND CORNER WHICH LA THE TRUE POINT OF BEGINNING.

BEING THE PARCEL OF PROPERTY IDENTIFIED AS PARCEL ONE ON THAT CERTAIN PLAT OF SURVEY PREPARED FOR WARREN SMITH BY CHARLES C. JONAS ON SEPTEMBER 18, 1987, AND REVISED ON OCTOBER 31, 1988, AUGUST 10, 1989, OCTOBER 16, 1989, AND DECEMBER 15, 1969, AND RECORDED IN PLAT <u>BOOK 165, PAGE 94</u>, FULTON COUNTY, GEORGIA RECORDS.

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by First American Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

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Form 5030013 (8-7-17)	Page 9 of 9	ALTA Commitment for Title Insurance (8-1-16)
		Georgia

Deed Book 64317 Page 467 Filed and Recorded 08/17/2021 10:34:00 AM 2021-0273375 CATHELENE ROBINSON Clerk of Superior Court Fulton County, GA Participant IDs: 5705569871

Return to: Christopher M. Bethel, Esquire 2100 Powers Ferry Road SE, Suite 105 Atlanta, Georgia 30339 (770) 955-3232

Cross Reference: Warranty Deed, Fulton County Deed Book 13218, Page 158.

EXECUTOR'S DEED

STATE OF GEORGIA

THIS INDENTURE is made between **ROY E. BARNES** as Executor of the MARTHA LOUISE SMITH Estate, as party or parties of the first part, hereinafter called "Grantor" and CHARLES MARK SMITH, Party of the second part, hereinafter called "Grantee" (the words "Grantor" and "Grantee" to include their respective heirs, successors and assigns where the context requires or permits, singular or plural).

WHEREAS, MARTHA LOUISE SMITH, died a resident of Fulton County, Georgia on the 22nd day of December 2019, leaving a Last Will and Testament which has been probated in Solemn Form on the 14th day of July, 2020, in said County at the regular term of the Court of Probate thereof. (See Fulton County Probate Court Estate No. PC-2020-000703)

WHEREAS, that the said Grantor, acting under the by virtue of the power and authority contained in the Will of **MARTHA LOUISE SMITH** and under O.C.G.A. § 53-12-261, for and in consideration of the sum of TEN AND NO/100 DOLLARS (\$10.00) AND OTHER GOOD AND VALUABLE CONSIDERATION, in hand paid and the receipt of which is hereby acknowledged, has granted, bargained, sold and conveyed unto said Grantee as follows:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

THIS DEED IS GIVEN SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD. (Deed preparation only, no title exam)

TO HAVE AND TO HOLD the said tract or parcel of land, with all singular the rights, members and appurtenances thereof, to the same being, belonging, or in anywise appertaining, to the only proper use benefit and behoof of Grantee forever, in full and ample a manner as the same was held, possessed and enjoyed, by said Deceased.

PURPOSE: The purpose of this Deed is to transfer all the interest of Decedent MARTHA LOUISE SMITH, in said property to CHARLES MARK SMITH, as the sole owner in fee simple of said property.

IN WITNESS my hand and seal, this the <u> 5^{4k} </u> 2021. day of

Signed, sealed and delivered in the presence of:

Whitnes within pr NR Notary Public ANNUMBER. COUN mannunnin

aner

ROY E. BARNES Executor Aforesaid "Lease Agreement Not Applicable"



July 5, 2022

Planning and Zoning Office **City of Fairburn** 26 West Cambellton Street Fairburn, GA 30213

RE: Stream Buffer Variance Application Bohannon Road Distribution Center Bohannon Road Fairburn, Fulton County, Georgia UC Project No. OKMNT-21-GA-06002-03

To whom it may concern:

Enclosed is a stream buffer variance application (SBVA) for the vegetative buffer encroachment associated with the proposed construction of a 315,917 square foot warehouse and associated roads and parking. The buffer disturbance includes filling a portion of an intermittent stream and clearing the associated buffer for the construction of a warehouse and associated access drives, truck courts, and parking areas. The topography of the site, the shape of the parcel, the need to construct a facility that caters to the market demand for buildings, and the location of the streams across the site created a hardship and it was not possible to avoid the impacts to the stream and buffers. The only location for accessibility, visibility, and marketability is located within the area of the existing intermittent stream channel. The development has been designed to avoid impacts to the perennial stream. Avoiding all impacts to stream and buffer areas renders more than one-third of the site unavailable for construction. As shown on the included alternate concept plan, total avoidance would result in a loss of 117,350 square feet from the base plan of 315,917 square feet. A smaller structure of this size does not meet market demand for warehouse facilities in the area. A stream buffer variance would allow for the construction of a larger structure more aligned with intended site use. The attached information and drawings clearly show the proposed activity and buffer encroachment.

Please feel free to contact us if any additional information will be necessary. Your timely consideration with this matter will be greatly appreciated.

Sincerely,

UNITED CONSULTING

Michael G. Abernathy

Wetland Specialist

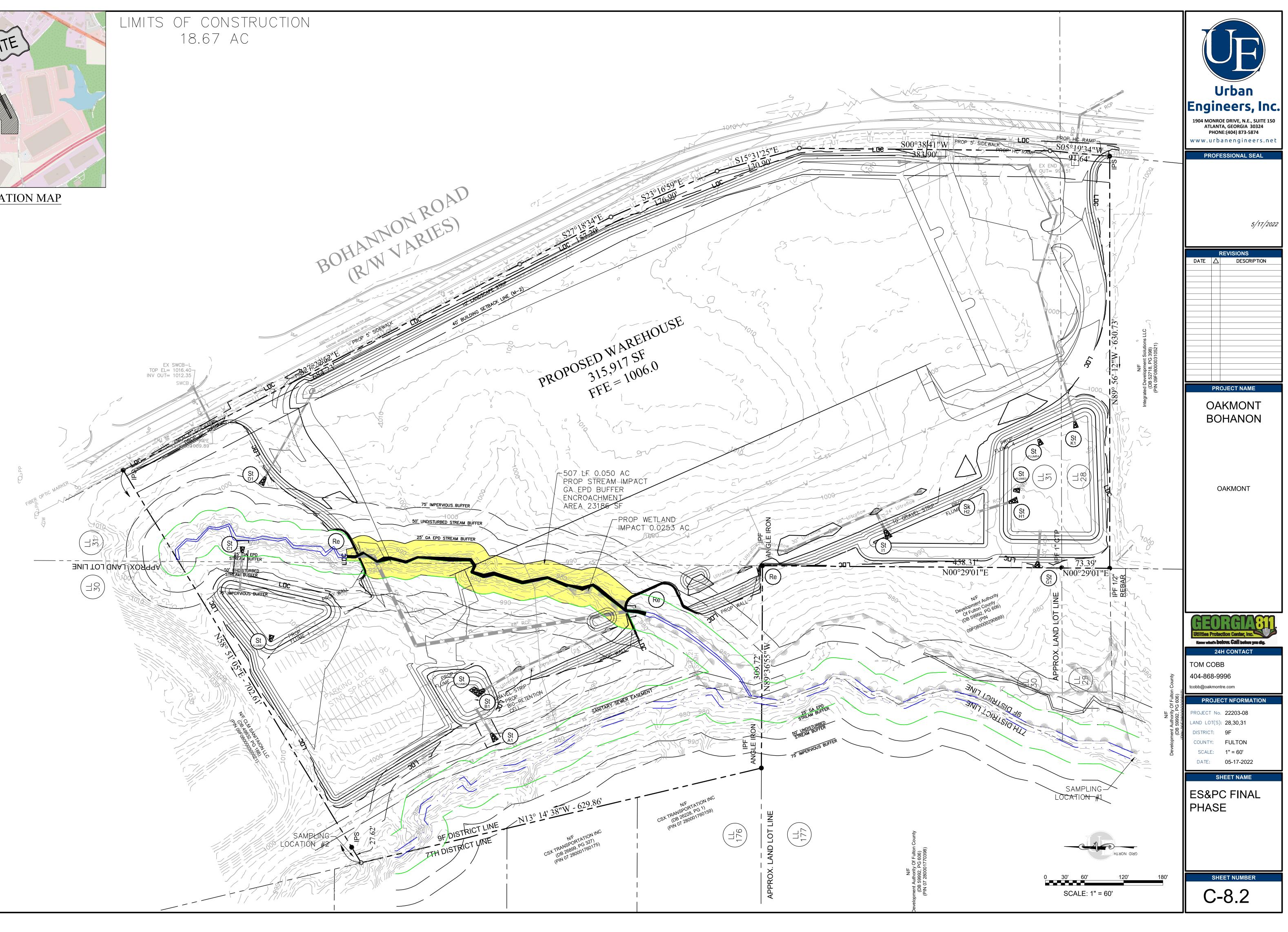
David P. Huetter

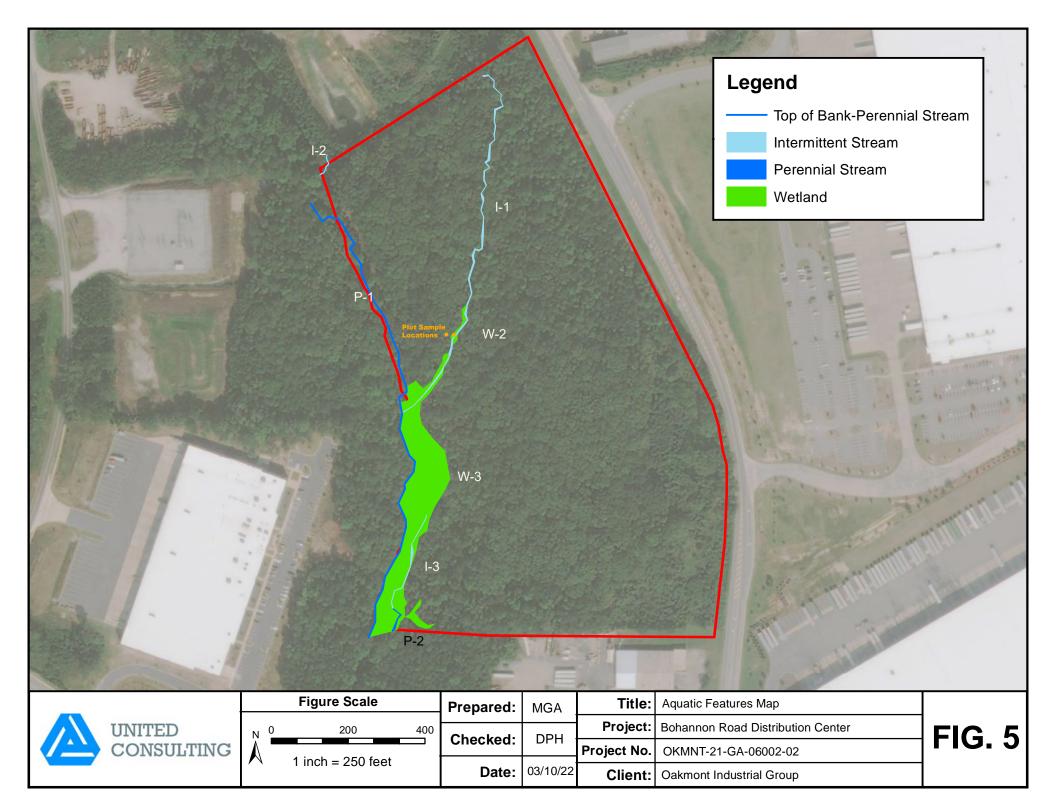
Director of Ecological Services

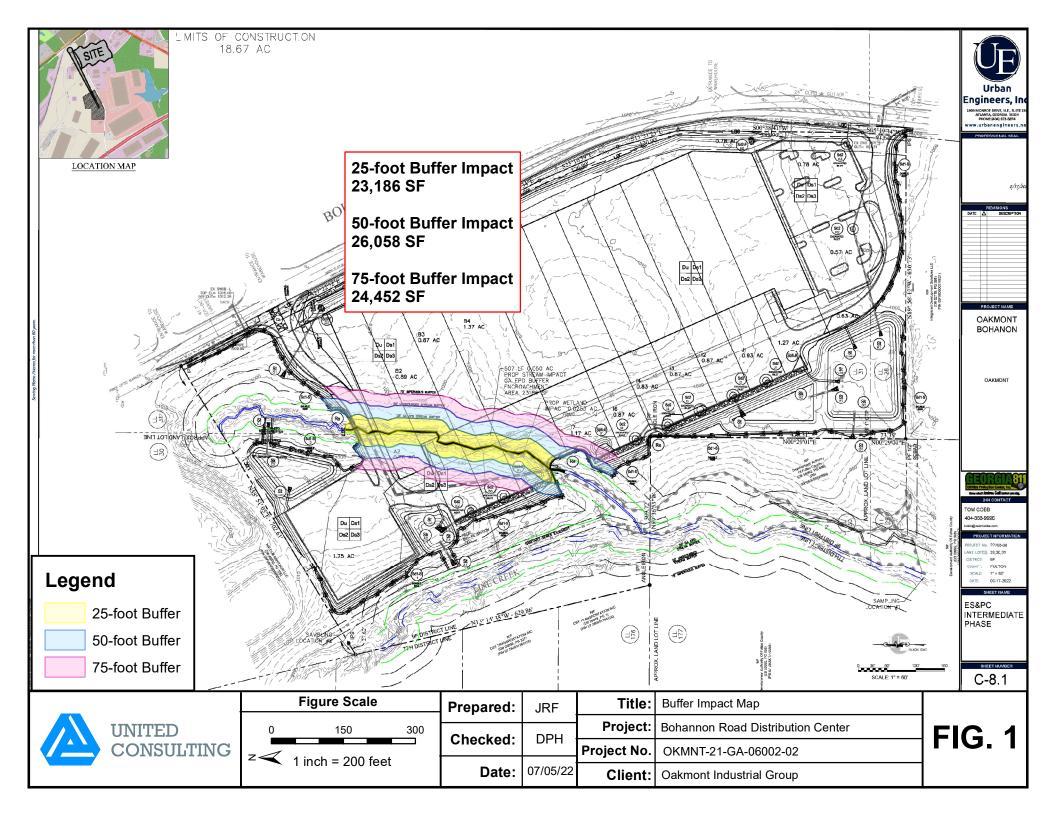
MGA/DPH/

cc: Mr. Vincent Aglialoro and Mr. Thomas Cobb – Oakmont Industrial Group United Consulting Project File (OKMNT-21-GA-06002-03) 18.67 AC











Bohannon Road Distribution Center Bohannon Road Fairburn, Fulton County, Georgia Dated: July 5, 2022

Stream Buffer Mitigation Plan

Total impacts to stream and buffer areas were not feasible given the required size of the site development. The development was designed to minimize overall impacts while allowing the development to meet the intended purpose. Impacts to the majority of wetland areas, and the higher quality stream reaches were avoided or minimized through the site layout and construction of walls. The proposed impacts include 23,186 square feet of state 25-foot stream buffer impacts, 26,058 square feet of 50-foot stream buffer, and 27,134 square feet of 75-foot stream buffer for clearing and the placement of permanent fill for site development.

The proposed stream buffer impact will not negatively effect temperature of the waters entering the remaing stream channel as the surface water in the upper reach of the stream will be diverted into underground culverts (greater than 450 feet in length) prior to discharging into the lower reach of the stream channel. Once within the stream channel, water will flow through more than 250 feet of buffered stream channel prior to leaving the Project Site.

Habitat within the impacted buffer area is not unique to the area or the Project Site, and the higher quality habitat will remain within the unimpacted areas of the stream buffers. The current buffer area to be impacted includes many invasive species such as Chinese privet and Japaese honesuckle.

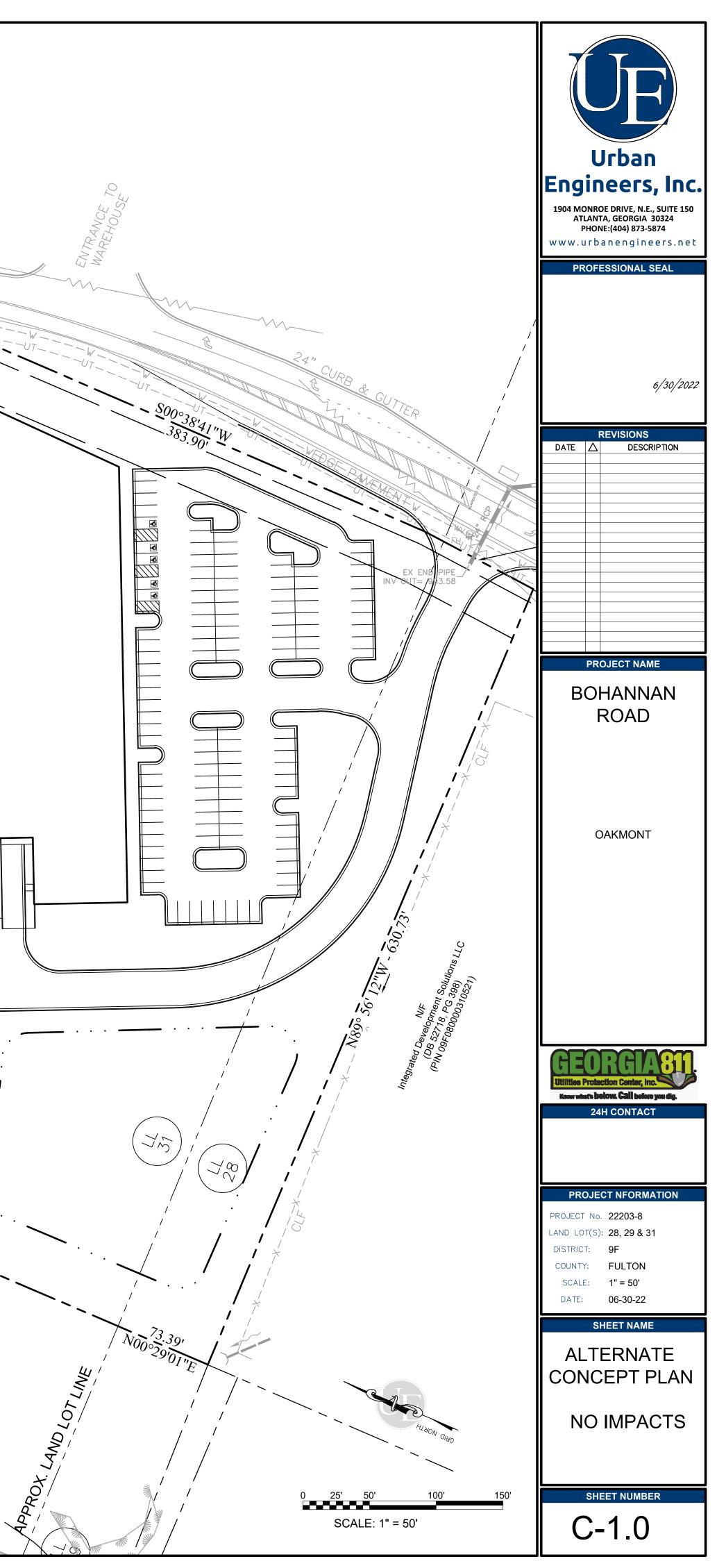
The site stormwater management facilities have been designed to reduce the total suspended solids by 80% as outlined in Section 1.3 of the Georgia Stormwater Management Manual. Please refer to the attached development plans and Hydrology Study (Item 11) for further details regarding the storm water management. Due to restrictions in treatment basin areas, target runoff reductions will not be achieved and the state will require the purchase of additional mitigation credits. An application for a stream buffer variance has been submitted to the Georgia Environmental Protection Division and is currently under review.

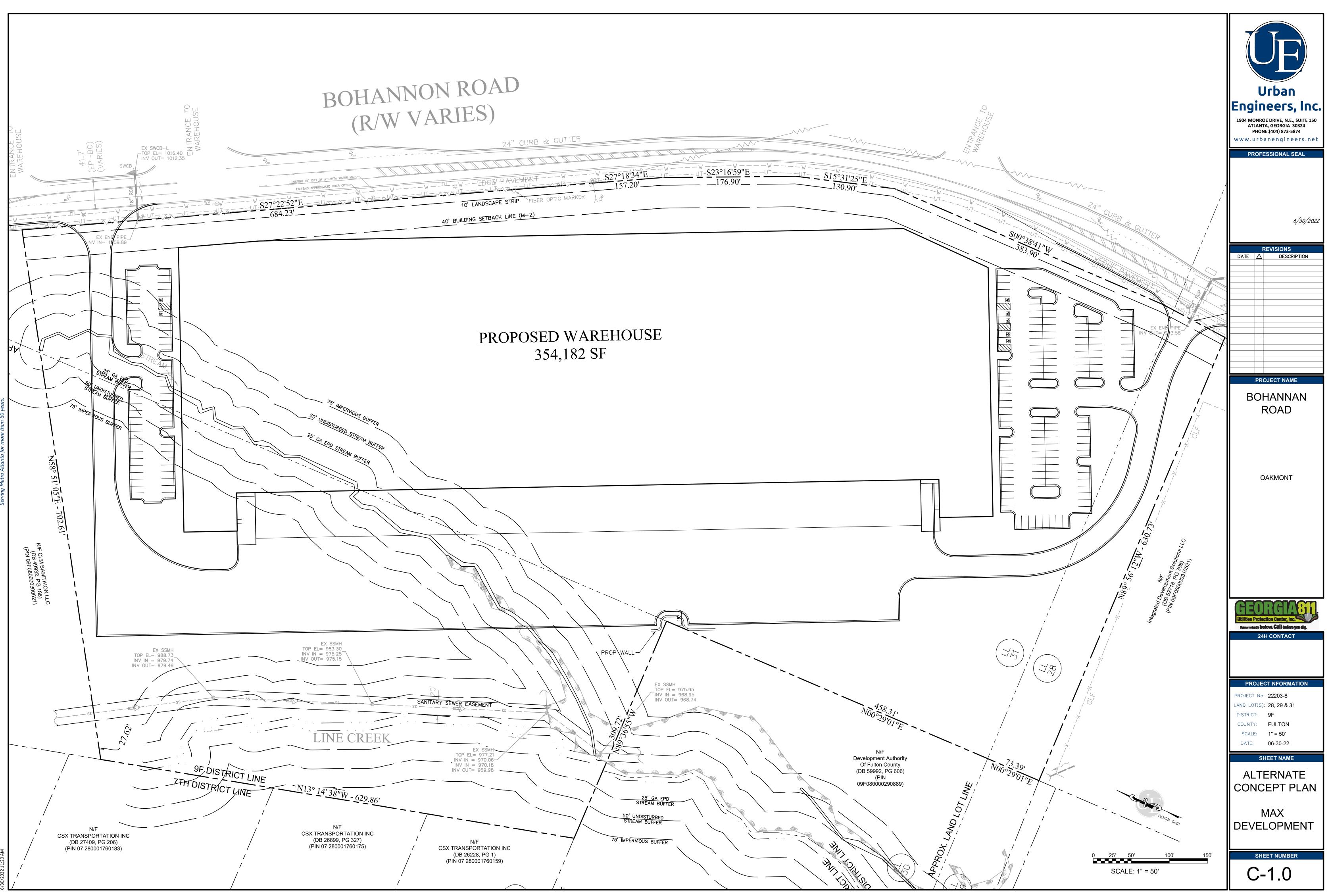
Credits will be purchased from a USACE approved mitigation bank that serves the Project Site service area to mitigate stream, wetland, and stream buffer impacts associated with the development. The USACE will require the purchase of 2,737.80 legacy stream credits and 0.16 legacy wetland credits from an approved mitigation bank for the proposed stream and wetland impacts. Additionally, methods as outlined in *Appendix B, Standard Operation Procedure, Calculations for Buffer Credits, Preservation and Restoration Activites,* were utilized to calculate additional stream credits necessary to mitigate the buffer impacts as target runoff reductions were not met. Additional stream credits required for mitigation will be 293.3. The mitigation credits have not yet been purchased, but will be purchased prior to the proposed impacts occurring.

Following completion of the grading activities, the area will be will stabilized, per the design plans. Appropriate sediment and erosion control measures will be utilized.

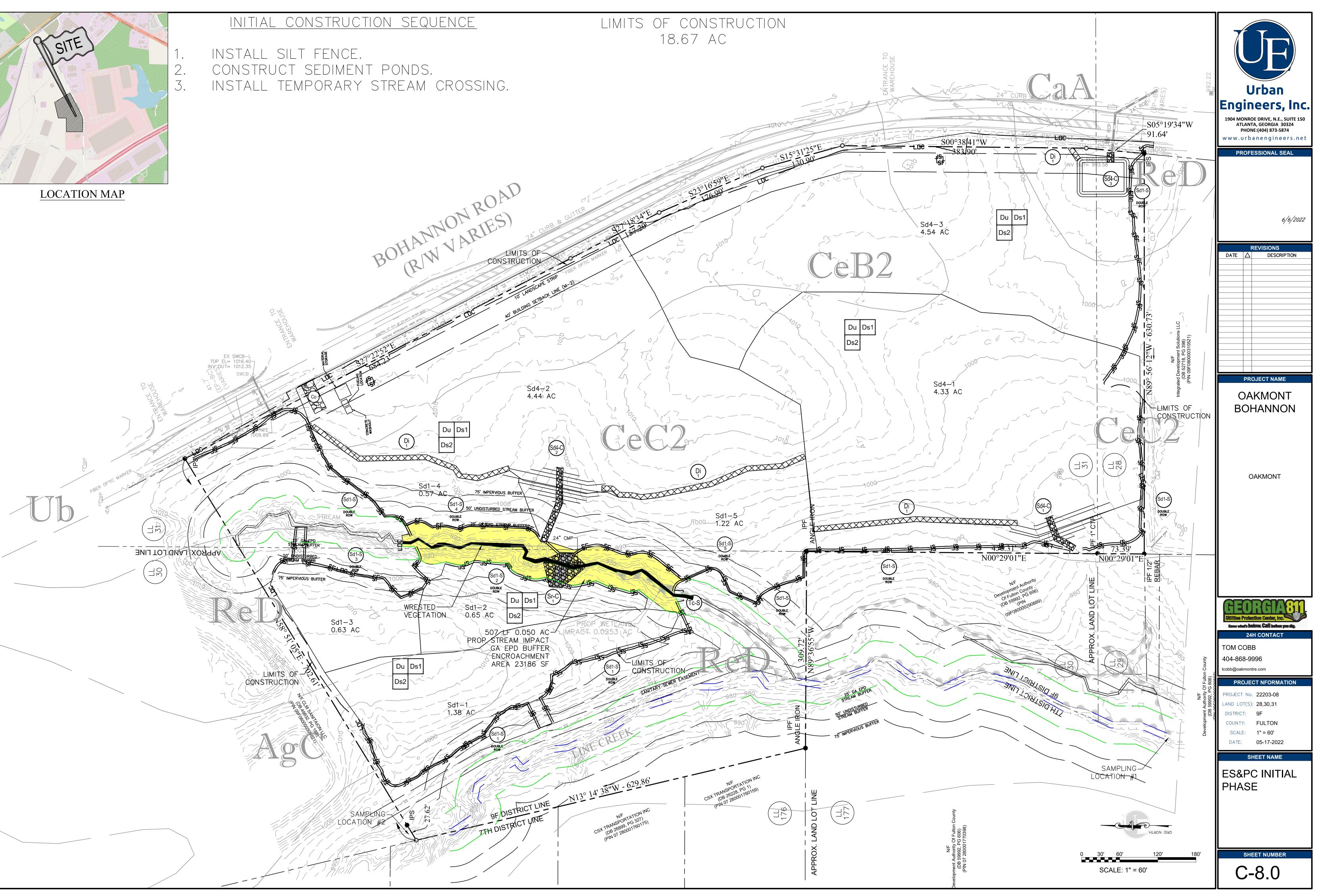


24"	CURB & GUTTER			
W - EDGW PAVE	FIBER OPTIC MARKER			$\frac{w}{w} = \frac{-S_{15}^{\circ}31'25''E_{J_{1}}^{\circ}}{130.90'}$
D' BUILDING SETBACK LINE		P	ROPOSED WA 194,108	
			PROP WALL	
SEWER EASEMENT SS = EX SSMH TOP EL= 977.21 INV IN = 970.06 INV IN = 970.18 INV OUT= 969.98 INV OUT=		EX SSM TOP EL= INV IN = INV OUT	= 975.95 = 968.95 = 968.74	NOO ²⁵⁹⁰¹ 'E N/F Development Authority Of Fulton County (DB 59992, PG 606) (PIN 09F080000290889)
	/			









LIMITS OF CONSTRUCTION 18.67 AC

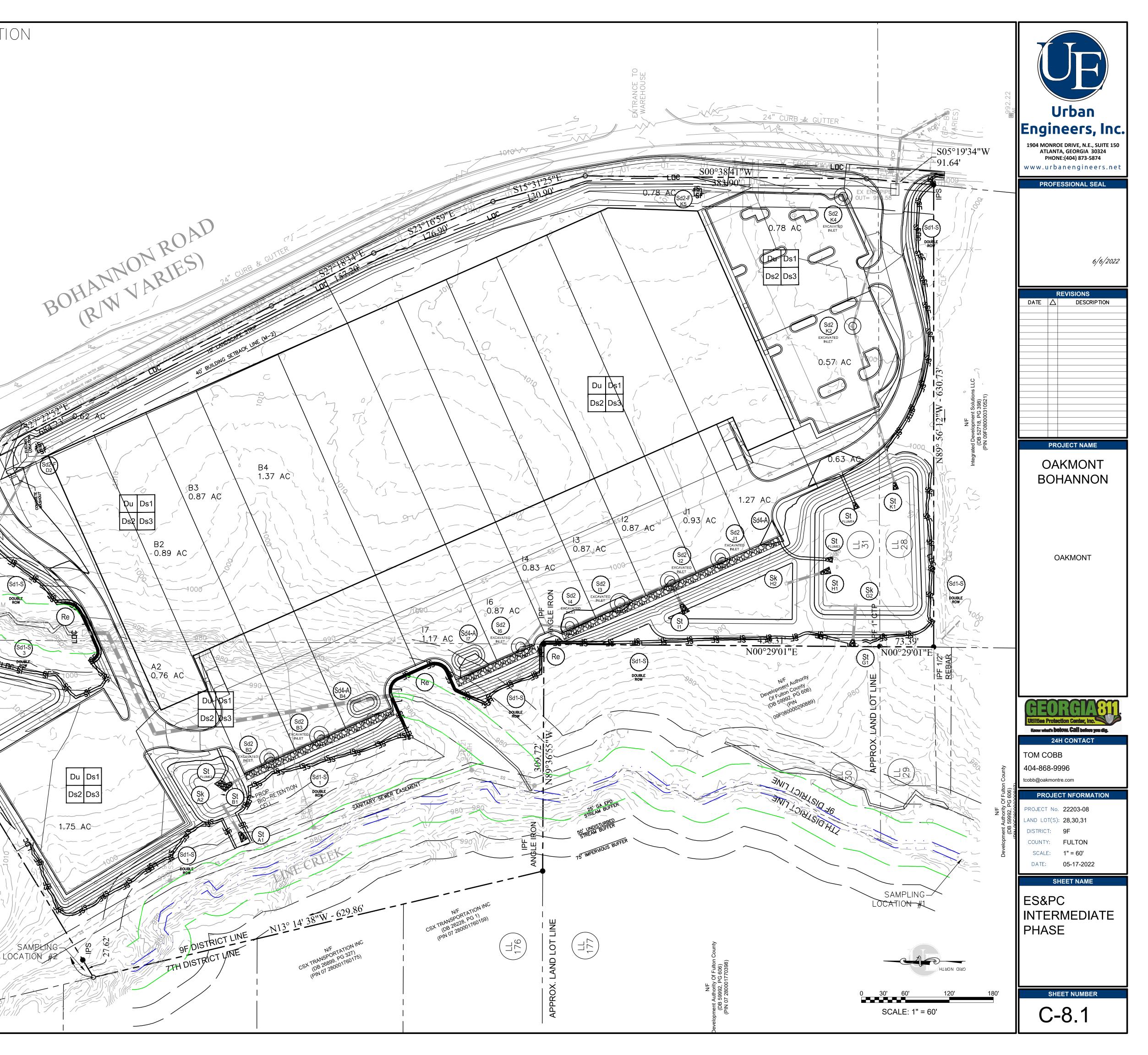
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45

(H)

APPROXILAND LOT LINE





LIMITS OF CONSTRUCTION 18.67 AC

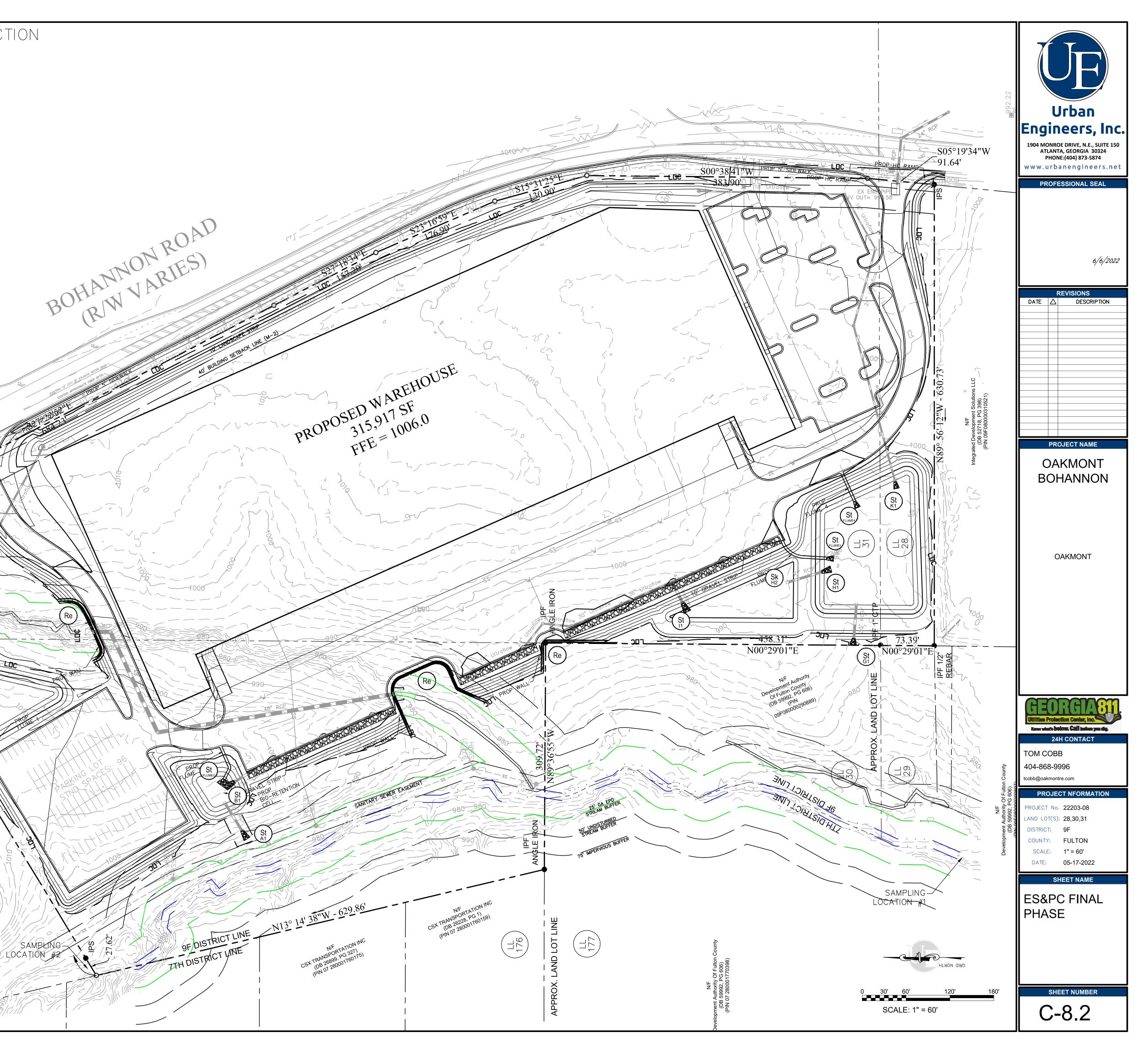
EX SWCB-L TOP EL= 1016.40 INV OUT= 1012.35

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42

(H)





EROSION CONTROL NOTES

TOTAL SITE AREA = 236.386 Ac DISTURBED AREA = 18.78 Ac

- THE PROPOSED WORK IS THE CONSTRUCTION OF A WAREHOUSE WITH ITS TRUCK COURT PRIOR TO ANY OTHER CONSTRUCTION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH ENTRY TO OR EXIT FROM THE SITE
- THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ON TO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH STONE AS CONDITIONS DEMANDS AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED.
- 4. 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 SHALL OCCUR WITHIN THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.
- 5. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCES/EXITS, ALL PERIMETER EROSION CONTROL DEVICES AND STORM WATER MANAGEMENT DEVICES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION.
- 6. OWNER AGREES TO PROVIDE AND MAINTAIN OFF-STREET PARKING ON THE SUBJECT PROPERTY DURING THE ENTIRE CONSTRUCTION PERIOD.
- 7. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES WHILE ROADWAY FRONTAGE IMPROVEMENTS ARE BEING MADE
- 8. THE CONSTRUCTION OF THE SITE WILL INITIATE WITH THE INSTALLATION OF EROSION CONTROL MEASURES SUFFICIENT TO CONTROL SEDIMENT DEPOSITS AND EROSION. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL UP STREAM GROUND WITHIN THE CONSTRUCTION AREA HAS BEEN COMPLETELY STABILIZED WITH PERMANENT VEGETATION AND ALL ROADS/DRIVEWAYS HAVE BEEN PAVED.
- 9. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED CONSISTENT WITH DOUGLAS COUNTY EROSION CONTROL ORDINANCE.
- 10. A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE WHENEVER LAND DISTURBANCE ACTIVITY IS IN PROGRESS
- 11. ALL SEWER EASEMENTS DISTURBED MUST BE DRESSED AND GRASSED TO CONTROL EROSION.
- 12. THERE ARE STATE WATERS WITHIN THE PROJECT SITE. THE RECEIVING WATERS FOR THE SITE IS an unnamed tributary to PEEKS BRANCH SHOAL CREEK.
- 13. ACCORDING TO THE F.I.R.M. (FLOOD INSURANCE RATE MAP) OF FULTON COUNTY, GEORGIA, PANEL NUMBER XXXX DATED SEPTEBMER 26, 2018, THIS PROPERTY DOES NOT HAVE A PORTION LOCATED IN A FLOOD HAZARD AREA.
- 14. THERE ARE ARE WETLANDS ON THE PROJECT SITE. A NATIONWIDE 39 HAS BEEN APPROVED BY THE ARMY CORPS TO REMOVE THE WETLAND. FLOOD PLAIN EXISTS ON SITE. 15. CRITICAL CONCERNS FOR EROSION CONTROL - DUE TO THE CLOSE PROXIMITY OF THE
- PAVEMENT & STORM DRAINAGE INFRASTRUCTURE, THE PERIMETER SEDIMENT CONTROLS NEED TO BE CHECKED DAILY.
- 16. THE SITE DOES NOT LIE WITHIN 1 LINEAR MILE OF AN IMPAIRED STREAM AS LISTED BY GEORGIA EPD.
- 17. THE PROPOSED STORMWATER FACILITY WILL TREAT STORMWATER AFTER CONSTRUCTION IS COMPLETED BY UTILIZING ONE DETENTION POND AND ONE UNDERGROUND DETENTION SYSTEM. ALONG WITH WITH PROPRIETARY DEVICES.
- 18. ALL AMENDMENTS/REVISIONS TO THE PLAN HAVING A SIGNIFICANT EFFECT ON A BMP WITH A HYDRAULIC COMPONENTS MUST BE CERTIFIED BY THE DESIGN ENGINEER.
- 19. WASTE MATERIAL SHALL NOT BE DISCHARGED INTO WATERS OF THE STATE.
- 20. WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE EXCEPT AS AUTHORIZED BY SECTION 404 PERMIT
- 21. THE E&SPC PLAN IS IN COMPLIANCE WITH WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC REGULATIONS.
- 22. ALL NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50 FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
- 23. THE DESIGN PROFESSIONAL WHO PREPARED THIS PLAN MUST INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN 7 DAYS OF INSTALLATION.
- 24. PRODUCT SPECIFIC PRACTICES:

PETROLEUM BASED PRODUCTS - CONTAINERS FOR PRODUCTS SUCH AS FUEL LUBRICANTS AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ONSITE VEHICLES AND MACHINERY DAILY INSPECTION AND REGULAR PREVENTIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER NATURAL DRAINS AND STORMWATER 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.

POINTS / FINISHES / SOLVENTS - ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO STORMWATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURE'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING - NO CONCRETE TRUCK WILL BE ALLOWED TO WASH OUT OR DISCHARGED SURPLUS CONCRETE OR DRUM-WASH WATER ONSITE.

FERTILIZER / 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 CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

25. SPILL CLEANUP AND CONTROL PRACTICES:

A) LOCAL STATE AND MANUFACTURE'S RECOMMENDED METHODS FOR SPILL CLEANUF WILL BE CLEARLY POSTED, AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL. B) MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE

MATERIAL STORAGE AREA. 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.

C) 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 1-800-426-2675. F) FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER(NRC)WILL BE

CONTACTED WITHIN 24 HOURS AT 1-800-426-2675. FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE

H) 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.

- 28. THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN OF 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 COUNTER MEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL
- 29. 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.
- 30. ALL CONTRACTORS FOR EROSION SEDIMENTATION AND POLLUTION CONTROL SHALL BE APPROVED BY THE AUTHORITY.
- 31. THE CONTRACTOR MUST NOTIFY THE UTILITIES PROTECTION CENTER AT 1-800-272-7411 AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF LAND-DISTURBING ACTIVITIES.
- 32. STRIPPING OF VEGETATION, RE-GRADING, AND OTHER DEVELOPMENT ACTIVITIES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO MINIMIZE EROSION.
- 33. CUT AND FILL OPERATIONS SHALL BE KEPT TO A MINIMUM.

GEORGIA EPD WILL BE CONTACTED WITHIN 24 HOURS.

34. DEVELOPMENT PLANS MUST CONFORM TO TOPOGRAPHY AND SOIL TYPE, SO AS TO CREATE THE LOWEST PRACTICABLE EROSION POTENTIAL

- 35. WHENEVER FEASIBLE, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED, AND SUPPLEMENTED.
- 36. DISTURBED AREAS AND THEIR DURATION OF EXPOSURE TO EROSIVE ELEMENTS SHALL BE KEPT TO A PRACTICABLE MINIMUM.
- 37. DISTURBED SOIL SHALL BE STABILIZED AS QUICKLY AS PRACTICABLE.
- 38. TEMPORARY VEGETATION OR MULCHING SHALL BE EMPLOYED TO PROTECT EXPOSED CRITICAL AREAS DURING DEVELOPMENT
- 39. PERMANENT VEGETATION AND STRUCTURAL EROSION CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICABLE
- 40. TO THE EXTENT NECESSARY, SEDIMENT IN RUN-OFF WATER SHALL BE TRAPPED BY THE USE OF DEBRIS BASINS, SEDIMENT BASINS, SILT TRAPS, OR SIMILAR MEASURES UNTIL THE DISTURBED AREA IS STABILIZED.
- 41. ADEQUATE PROVISIONS SHALL BE PROVIDED TO MINIMIZE DAMAGE FROM SURFACE WATER TO THE CUT FACE OF EXCAVATIONS OR THE SLOPING SURFACES OF FILLS.
- 42. CUTS AND FILLS SHALL NOT ENDANGER ADJOINING PROPERTY.
- 43. FILLS SHALL NOT ENCROACH UPON NATURAL WATERCOURSES OR CONSTRUCTED CHANNELS IN A MANNER THAT WOULD ADVERSELY AFFECT OTHER PROPERTY OWNERS.
- 44. GRADING EQUIPMENT MUST 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 AND THAT A PROPERLY TEMPORARY STREAM CROSSING IS CONSTRUCTED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
- 45. 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
- 46. NO CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A 50-FOOT BUFFER ALONG THE BANKS OF ALL STATE WATERS (AS MEASURED HORIZONTALLY FROM THE POINT WHERE VEGETATION HAS BEEN WRESTED BY NORMAL STREAM FLOW OR WAVE ACTION) UNLESS A FORMAL WAIVER HAS BEEN GRANTED BY THE AUTHORITY.
- 47. WHERE THE AUTHORITY GRANTS A WAIVER, NO CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A 25-FOOT STATE BUFFER WITHOUT FULL COMPLIANCE OF STATE REGULATIONS AND OBTAINING A VARIANCE IF APPLICABLE.
- 48. EXCEPT AS PROVIDED ABOVE, FOR REQUIRED BUFFERS ON CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A BUFFER AND A BUFFER SHALL REMAIN IN ITS NATURAL, UNDISTURBED, STATE OF VEGETATION.
- 49. BETWEEN THE TIME FINAL STABILIZATION OF THE SITE IS ACHIEVED, AND UPON THE SUBMITTAL OF A NOTICE OF TERMINATION, A BUFFER MAY BE THINNED OR TRIMMED OF VEGETATION. 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 STREAMBED.
- 50. MATERIALS ON SITE TO BE MONITORED. IF MATERIALS RELEASE ANY KIND OF POLLUTANT. COVER FOR RAIN EVENTS AND EROSION CONTROL MEASURES WILL BE PROVIDED AT THE EROSION CERTIFIED ON-SITE CONTRACTOR DISCRETION.
- 51. EROSION CONTROL CHECKLIST STATEMENTS:
- 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.
- 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
- 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.
- WASTE MATERIALS SHALL NOTE BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
- 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.
- 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.
- ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE
- 52. THIS PROJECT IS IMPACTING A WETLAND, AND HAS RECEIVED THE PERMIT TO CONDUCT SUCH ACTIVITY.

I CERTIFY UNDER PENALTY OF THE LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATION DESCRIBE HERE-IN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION.

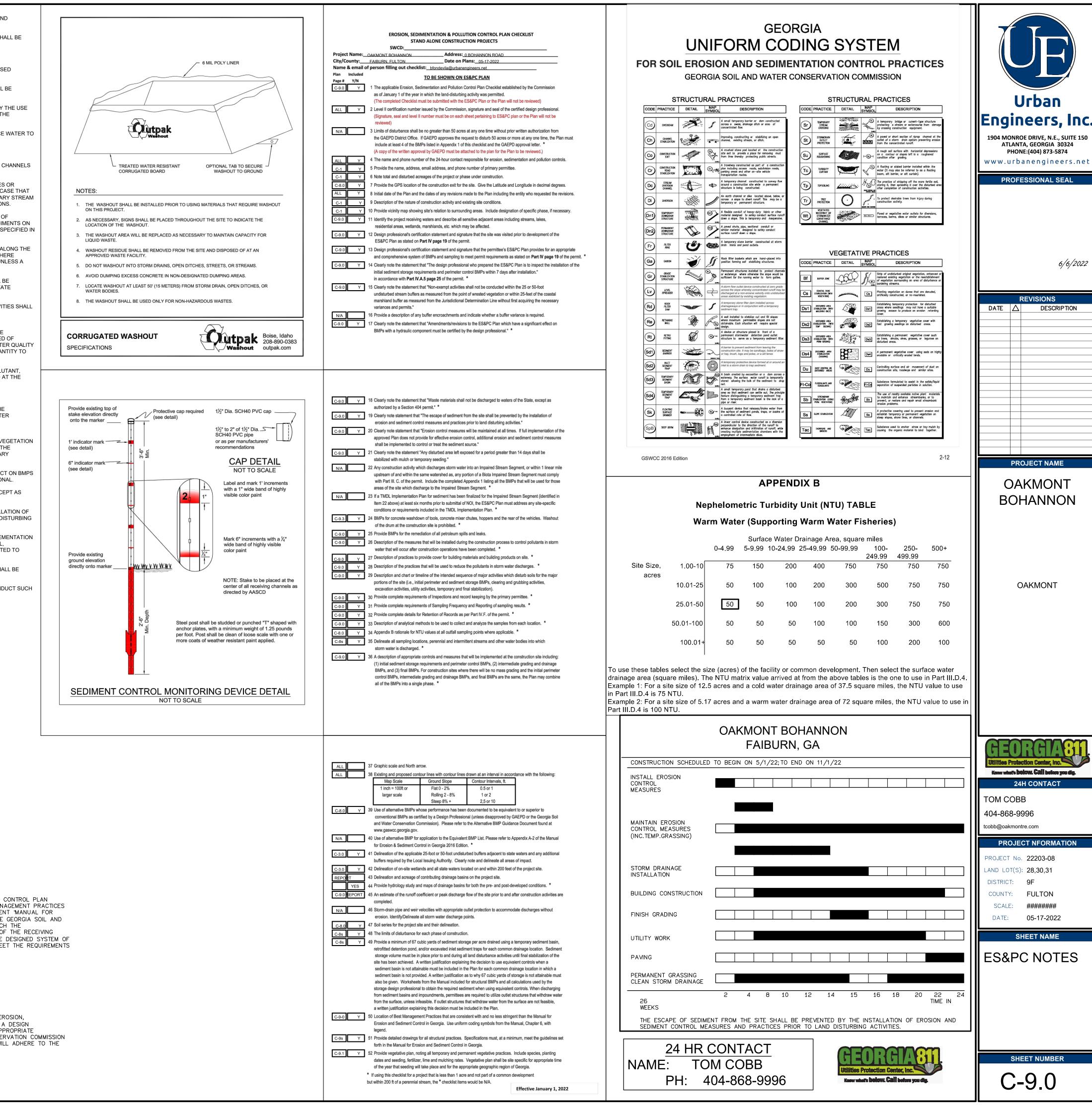
05-17-2022

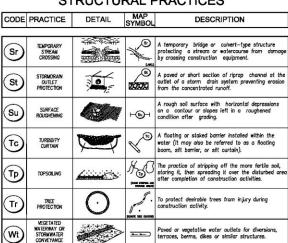
"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED 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.'

05-17-2022 DATE

"I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THAT THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN (PLAN) WAS PREPARED BY A DESIGN PROFESSIONAL. AS DEFINED BY THIS PERMIT. THAT HAS COMPLETED THE APPROPRIATE CERTIFICATION COURSE APPROVED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION IN ACCORDANCE WITH THE PROVISIONS OF O.C.G.A. 12-7-19 AND THAT I WILL ADHERE TO THE

PLAN AND COMPLY WITH ALL REQUIREMENTS OF THIS PERMIT."





CODE	FIGACINOL	DETAIL	SYMBOL	DESCRIPTION
Bf	BUFFER ZONE	-000P	J/=	Strip of undisturbed original vegetation, enhanced or restored existing vegetation or the reestablishment of vegetation surrounding an area of disturbance or bordering streams.
Cs	COASTAL DUNE STABILIZATION (WITH VEGETATION)	Journal of the second s	Cs	Planting vegetation on dunes that are denuded, artificially constructed, or re-nourished.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)		Ds1	Establishing temporary protection for disturbed areas where seedlings 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 seedings on disturbed areas.
Ds3	DISTURBED AREA Stabilization (With Perm Szeding)	The sea	Ds3	Establishing a permanent vegetative cover such as trees, shrubs, vines, grasses, or legumes on disturbed areas.
Ds4	disturbed area Stabilization (Sodding)	B	Ds4	A permanent vegetative cover using sods on highly erodable or critically eroded londs.
Du	DUST CONTROL ON DISTURBED AREAS		Du	Controlling surface and air movement of dust on construction site, roadways and similar sites.
FI-Co	FLOCOLLANTS AND COADULANTS		FI-Co	Substance formulated to assist in the solids/liquid separation of suspended particles in solution.
Sb	STREAMBANK Stabilization (USING Perm Vegetation)	***	Sb	The use of readily available native plant materials to maintain and enhance streambanks, or to prevent, or restore and repair small streambank erosion problems.
Ss	SLOPE STABILIZATION	ÆŢ	Ss	A protective covering used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.
Tac	TACKIFIERS AND BINDERS		Тас	Substance used to anchor straw or hay mulch by causing the organic material to bind together.

			Juna		лашаус г	iica, syuan	e miles		
		0-4.99	5-9.99	10-24.99	25-49.99	50-99.99	100- 249.99	250- 499.99	500+
Site Size, acres	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

Disturbed Area Stabilization (With Mulching Only) Ds1



Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

PURPOSE

To reduce runoff and erosion

- To conserve moisture
- To prevent surface compaction or crusting To control undesirable vegetation
- To modify soil temperature

To increase biological activity in the soil

REQUIREMENT FOR REGULATORY

COMPLIANCE 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

If any area will remain undisturbed for greater than six months, permanent vegetative techniques shall be employed. Refer to Ds2 -Dis-GSWCC 2016 Edition

Wildlife Plantings

Commercially available plants beneficial to wildlife species include the following:

Mast Bearing Trees

Beech, Black Cherry, Blackgum, Chestnut, Chinkapin, Hackberry, Hickory, Honey Locust, Native Oak, Persimmon, Sawtooth Oak and

All trees that produce nuts or fruits are favored by many game species. Hickory provides nuts used mainly by squirrels and bear

Shrubs and Small Trees

Bayberry, Bicolor Lespedeza, Crabapple, Dogwood, Huckleberry or Native Blueberry, Mountain Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild Plum and Blackberry. Plant in patches without tall trees to develop

stable shrub communities. All produce fruits used by many kinds of wildlife, except for lespedeza that produces seeds used by quail and songbirds. Grasses, Legumes, Vines and Temporary Cover

Bahiagrass, Bermudagrass, Grass-Legume mixtures, Partridge Pea, Annual Lespedeza, Orchardgrass (for mountains), Browntop Millet (for temporary cover), and Native grapes.

Provides herbaceous cover in clearings for a game bird brood-rearing habitat. Appropriate legumes such as vetches, clovers, and lespedeza may be mixed with grass, but they may die out after a few years.

CONSTRUCTION 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

sions and other treatment practices shall conform with the appropriate standards and specifications.

mechanical equipment.

Lime and Fertilizer 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 ermanent 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 or he 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.

It is desirable to use dolomitic limestone in the Sand Hills, Sc

Coast Flatwoods MLRAs. (See Figure 6-4.1) Agricultural lime is generally not required where only trees are planted.

Initial fertilization, nitrogen, topdressing, and maintenance fertilizer requirements for each species or combination of species are listed in Table

Lime and Fertilizer Application

When hydraulic seeding equipment is used. the initial fertilizer shall be mixed with seed. nnoculant (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

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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. Apply polyethylene film on exposed areas. Anchoring Mulch

- 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 hav mulch shall be anchored
- immediately after application. Straw or hav mulch spread with special blower-type equipment may be anchored. Tackifers, binders and hydraulic mulch with
- tackifier specifically desgined for tacking straw can be substituted for emulsified asphalt. Please refer to specification Tac-Tackifers. 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.
- 6-28

hydroseeder Finely ground limestone can be applied in the

ing companion crop species and seeding rates mulch slurry or in combination with the top dressing. because annual crops will compete with perennial species for water, nutrients, and growing space. When conventional planting is to be done, lime A high seeding rate of the companion crop may and fertilizer shall be applied uniformly in one of prevent the establishment of perennial species. the following ways: Ryegrass shall not be used in any seeding

1. Apply before land preparation so that it will be mixed with the soil during seedbed prepara-

- 2. Mix with the soil used to fill the holes, distribute in furrows.
- Broadcast after steep surfaces are scarified,
- pitted or trenched.

- A fertilizer pellet shall be placed at root depth
- in the closing hole beside each pine tree seedling.

- Plant Selection Refer to Tables 6-4.1, 6-5.2, 6-5.3 and 6-5.4

of the Natural Resources Conservation Service

before they are used.

desires of the land user.

Lovegrass.

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Plants shall be selected on the basis of species

characteristics, site and soil conditions, planne

use and maintenance of the area: time of year of

planting, method of planting; and the needs and

Some perennial species are easily established

and can be planted alone. Examples of these are

Common Bermuda, Tall Fescue, and Weeping

Other perennials, such as Bahia Grass and Seri-

cea Lespedeza, are slow to become established

and should be planted with another perennial spe-

cies. The additional species will provide quick cover

and ample soil protection until the target perennial

species become established. For example, Com-

mon seeding combinations are 1) Weeping Loveg-

rass with Sericea Lespedeza (scarified) and 2) Tall

Plant selection may also include annual compan-

ion crops. Annual companion crops should be used

only when the perennial species are not planted

during their optimum planting period. A common

Fescue with Sericea Lespedeza (unscarified).

- for approved species. Species not listed shall be
- approved by the State Resource Conservationist
 - Common Bermuda seed 70% germination, 80% purity

EXAMPLE:

Seed Quality

- PLS = 70% germination x 80% purity
- PLS = 56%

The percent of PLS helps you determine the amount of seed you need. If the seeding rate is 10 pounds PLS and the bulk seed is 56 % PLS, the bulk seeding rate is:

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mixture is Brown Top Millet with Common Bermuda

in mid-summer. Care should be taken in select-

mixtures containing perennial species due to its

The term "pure live seed" is used to express

the quality of seed and is not shown on the label.

Pure live seed, PLS, is expressed as a percent-

age of the seeds that are pure and will germi-

nate. Information on percent germination and

purity can be found on seed tags. PLS is deter-

mined by multiplying the percent of pure seed

with the percent of germination: i.e.,

(PLS = % germination x % purity)

ability to out-compete desired species chosen

for permanent perennial cover.

10 lbs. PLS/acre = 17.9 lbs/acre

You would need to plant 17.9 lbs/acre to provide

Seedbed Preparation

10 lbs/acre of pure live seed

Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used (but is strongly recommended for any seeding process, when possible). When conventional seeding is to be used, seedbed preparation will be done as follows:

Broadcast plantings

1. Tillage, at a minimum, shall adequately

	Ds2 PIEDMON	NT VEGETAT		s Ds3			SEPTEMBER	BARLEY - IN MI DATS - ALDNE RYE - IN MIX RYEGRASS, ANNU		1/2 BU, (24 LBS) 1 BU, (32 LBS) 1/2 BU, (28 LBS) 40 LB,	0.6 LB 0.7 LB 0.6 LB 0.9 LB	BAHIA, PENSACOLA, ALDNE DI BAHIA, WILMINGTON, W/DTHEI FESCUE, TALL LESPEDEZA SERICEA-UNSCAR LESPEDEZA - UNSCARIFIED REED CANARY GRASS- W/DTH	R PERENNIALS	60 LB. 30 LB. 30 LB. 75 LB. 75 LB. 30 LB.	1.4 LB 0.7 LB 0.7 LB 1.7 LB 1.7 LB 0.7 LB
MONTH	TEMPORARY SEED	RATE/ACRE	PURE LIVE SEED PER 1000 SF	PERMANENT SEED	RATE/ACRE	PURE LIVE SEED PER 1000 SF	DCTDBER	BARLEY - IN MI DATS - ALDNE RYE - IN MIX		1/2 BU. (24 LBS) 1 BU. (32 LBS) 1/2 BU. (28 LBS)	0.6 LB 0.7 LB 0.6 LB	BAHIA, PENSACOLA, ALONE DI BAHIA, VILMINGTON, W/DTHEI BERMUDA, COMMON-UNHULLED CROWNVETECH	R W∕TEMP COVER R PERENNIALS	60 LB. 30 LB. 10 LB. 15 LB.	1.4 LB 0.7 LB 0.2 LB 0.3 LB
JANUARY	Ryegrass, annual - alone	40 LB.	0.9 LB	BAHIA, PENSACOLA, ALONE OR W/TEMP COVER BAHIA, WILMINGTON, W/DTHER PERENNIALS BERMUDA, COMMON-UNHULLED W/TEMP COVER CENTIPEDE	60 LB. 30 LB. 10 LB. BLOCK SOD ONLY	1.4 LB 0.7 LB 0.2 LB		RYEGRASS, ANNU	ual - Alone	40 LB.	0.9 LB	FESCUE, TALL LESPEDEZA SERICEA-UNSCAR LESPEDEZA - UNSCARIFIED LESPEDEZA, SHRUB REED CANARY GRASS- W/DTH		30 LB. 75 LB. 75 LB. 3'x3' SPACING 30 LB.	0.7 LB 1.7 LB 1.7 LB 0.7 LB
				LESPEDEZA SERICEA-UNSCARIFIED LESPEDEZA - UNSCARIFIED LESPEDEZA, SHRUB MAIDENCANE - SPRIGS BAHIA, PENSACOLA, ALONE DR W/TEMP COVER	75 LB. 60 LB. 3'×3' SPACING 2'×3' SPACING	1.7 LB 1.4 LB ALL	NDVEMBER	BARLEY – IN MI DATS – ALDNE RYE – IN MIX RYEGRASS, ANNU		1/2 BU. (24 LBS) 1 BU. (32 LBS) 1/2 BU. (28 LBS) 40 LB.	0.6 LB 0.7 LB 0.6 LB 0.9 LB	BAHIA, PENSACOLA, ALONE DI BAHIA, WILMINGTON, W/DTHEI BERMUDA, COMMON-UNHULLED CENTIPEDE	R PERENNIALS ₩/TEMP COVER	60 LB. 30 LB. 10 LB. BLOCK SOD ONLY	1.4 LB 0.7 LB 0.2 LB
FEBRUARY	RYEGRASS, ANNUAL - ALDNE	40 LB.	0.9 LB	BAHIA, YENSHOLF, ALDRE DE WYTENF CUVER BAHIA, WILMINGTUN, W/DTHEF PERENNIALS BERMUDA, COMMON-UNHULLED W/TEMP COVER CENTIPEDE LESPEDEZA SERICEA-UNSCARIFIED LESPEDEZA - UNSCARIFIED	60 LB. 30 LB. 10 LB. BLOCK SOD ONLY 75 LB. 60 LB.	1.4 LB 0.7 LB 0.2 LB 1.7 LB 1.4 LB	DECEMBER	BARLEY - IN MI RYEGRASS, ANNU RYE - IN MIX		1/2 BU. (24 LBS) 40 LB. 1/2 BU. (28 LBS)	0.6 LB 0.9 LB 0.6 LB	LESPEDEZA SERICEA-UNSCAR LESPEDEZA - UNSCARIFIED LESPEDEZA, SHRUB BAHIA, PENSACOLA, ALDNE DI BAHIA, VILMINGTON, V/DTHEI BERMUDA, COMMON-UNHULLED	R W/TEMP COVER R PERENNIALS	75 LB. 75 LB. 3'x3' SPACING 60 LB. 30 LB. 10 LB. BLDCK SDD DNLY	1.7 LB 1.7 LB 1.4 LB 0.7 LB 0.2 LB
MARCH	LESPEDEZA, ANNUAL-IN MIX RYEGRASS, ANNUAL - ALDNE	40 LB. 40 LB.	0.2 LB 0.9 LB	LESPEDEZA, SHRUB MAIDENCANE - SPRIGS BAHIA, PENSACOLA, ALONE OR W/TEMP COVER BAHIA, WILMINGTON, W/DTHER PERENNIALS	3'x3' SPACING 2'x3' SPACING 60 LB. 30 LB.	ALL 1.4 LB 0.7 LB		R CROPS ARE	VERY COMPE	TITIVE AND WILL		CENTIPEDE LESPEDEZA SERICEA-UNSCAR LESPEDEZA - UNSCARIFIED LESPEDEZA, SHRUB	IFIED	BLUCK SUU UNLY 75 LB. 75 LB. 3'x3' SPACING	1.7 LB 1.7 LB
			0.9 LB	BERMUDA, COMMON-HULLED SEED ALONE CENTIPEDE LESPEDEZA SERICEA-SCARIFIED LESPEDEZA - SCARIFIED LOVEGRASS, WEEPING - ALONE PANIC GRASS, ATLANTIC COASTAL	10 LB. BLOCK SOD ONLY 60 LB. 60 LB. 4 LB. 20 LB.	0.2 LB	PÉRÉNNIALS IF SEÉI (2) REDUCE SEEDIN	DED TOO HEAVI	ILY. 0% WHEN DR			S			
APRIL	LESPEDEZA, ANNUAL-IN MIX LOVEGRASS, WEEPING-IN MIX MILLET, BROWNTOP - IN MIX	40 LB. 2 LB. 10 LB.	0.2 LB 0.05 LB 0.2 LB	BAHIA, PENSACOLA, ALONE OR W/TEMP COVER BAHIA, WILMINGTON, W/DTHER PERENNIALS BERMUDA, COMMON-HULLED SEED ALONE BERMUDA, SPRIGS	60 LB. 30 LB. 10 LB. 40 LB.	1.4 LB 0.7 LB 0.2 LB 0.9 LB	TYPE DF SPE	CIES YEAR		S DR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE]		
	SUDANGRASS - ALDNE	60 LB.	1.4 LB	CENTIPEDE LESPEDEZA SERICEA-SCARIFIED LESPEDEZA - SCARIFIED LOVEGRASS, VEEPING - ALONE PANIC GRASS, ATLANTIC COASTAL	BLOCK SOD ONLY 60 LB. 60 LB. 4 LB.	1.4 LB 1.4 LB 0.1 LB		SECE MAIN	IND NTENANCE 1	6-12-12 0-10-10	500165/ac 1000165/ac 400165/ac	50-100lbs/ac 1/2/ 30	2. APPLY IN S RATES ARE 3. APPLY IN 3	3 SPLIT APPLICAT	S WHEN H
	LOVEGRASS, WEEPING-IN MIX MILLET, BROWNTOP - IN MIX	2 LB. 10 LB.	0.05 LB 0.2 LB	SUNFLOWER, AZTEC, MAXIMILLIAN BAHIA, PENSACOLA, ALDNE DR W/TEMP COVER BAHIA, WILMINGTON, W/DTHER PERENNIALS	20 LB. 10 LB. 60 LB. 30 LB.	0.5 LB 0.2 LB 1.4 LB 0.7 LB	COOL SEASON (& LEGUMES			0-10-10 1	500lbs/ac 000lbs/ac 400lbs/ac	0-50lbs/ac 1/ 		:N PLANTS ARE PR GRASS SPECIES DI :N PLANTS GRDW 1 ICHES	1 Y
MAY	MILLET, PEARL - ALONE SUDANGRASS - ALONE	50 LB. 60 LB.	1.1 LB 1.4 LB	BERMUDA, COMMON-HULLED SEED ALONE BERMUDA, SPRIGS CENTIPEDE	10 LB. 40 LB. BLOCK SOD ONLY	0.2 LB 0.9 LB	GR⊡UND C⊡∨ER	SECE	ST DND NTENANCE 1	10-10-10 10-10-10 0-10-10	1300lbs/ac 1300lbs/ac 1100lbs/ac	 			
				LESPEDEZA SERICEA-SCARIFIED LESPEDEZA - UNSCARIFIED LOVEGRASS, WEEPING - ALDNE SUNFLOWER, AZTEC, MAXIMILLIAN	60 LB. 75 LB. 4 LB. 10 LB.	1.4 LB 1.7 LB 0.1 LB 0.2 LB	PINE SEEDLING	is FIRST	T		DNE 21-GRAM PI PER SEEDLING F IN THE CLOSING	LACED			
JUNE	MILLET, BROWNTOP - IN MIX MILLET, PEARL - ALONE SUDANGRASS - ALONE	10 LB. 50 LB. 60 LB.	0.2 LB 1.1 LB 1.4 LB	BAHIA, PENSACOLA, ALONE OR W/TEMP COVER BAHIA, WILMINGTON, W/DTHER PERENNIALS BERMUDA, COMMON-HULLED SEED ALONE	60 LB. 30 LB. 10 LB.	1.4 LB 0.7 LB 0.2 LB	SHRUB LESPEDEZA		NTENANCE ()-10-10	700lbs/ac 700lbs/ac 4/				
				BERMUDA, SPRIGS LESPEDEZA SERICEA-UNSCARIFIED LESPEDEZA - UNSCARIFIED	40 LB. 75 LB. 75 LB.	0.9 LB 1.7 LB 1.7 LB	TEMPORARY COVER CROPS SEEDED ALONE	FIRS	ST 1	0-10-10	500lbs/ac	30lbs/ac 5/			
JULY	MILLET, BROWNTOP - IN MIX MILLET, PEARL - ALONE SUDANGRASS - ALONE	10 LB. 50 LB. 60 LB.	0.2 LB 1.1 LB 1.4 LB	BAHIA, PENSACOLA, ALDNE DR W/TEMP COVER BAHIA, WILMINGTON, W/DTHER PERENNIALS LESPEDEZA SERICEA-UNSCARIFIED LESPEDEZA - UNSCARIFIED	60 LB. 30 LB. 75 LB. 75 LB.	1.4 LB 0.7 LB 1.7 LB 1.7 LB	WARM SEASON		ST OND NTENANCE 1	6-12-12	15001bs/ac 8001bs/ac 4001bs/ac	50-100lbs/ac 2/6/ 50/100lbs/ac 2/ 30lbs/ac			
	BARLEY - IN MIX MILLET, PEARL - ALDNE	1/2 BU. (24 LBS) 50 LB.	0.6 LB 1.1 LB	BAHIA, PENSACOLA, ALONE DR W∕TEMP CO√ER BAHIA. WILMINGTON, W∕DTHER PERENNIALS	60 LB. 30 LB.	1.4 LB 0.7 LB	WARM SEASON & LEGUMES	I SECE	ST IND NTENANCE		1500lbs/ac 1000lbs/ac	50lbs/ac 6/			

6-36

6-27 soil erosion shall be diverted to a safe outlet. Diver-

age. 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. Polyethylene film shall be secured over

When mulch is used without seeding, mulch

1. Dry straw or hay mulch and wood chips

shall be applied uniformly by hand or by

shall be applied to provide full coverage of the

banks or stockpiled soil material for tem-

porary protection. This material can be sal-

turbed Area Stabilization (With Temporary

(With Permanent Seeding), and Ds4 - Dis-

turbed Area Stabilization (With Sodding).

SPECIFICATIONS

Site Preparation

3 inches.

Mulching Materials

apply at the depth indicated:

vaged and re-used.

Applying Mulch

exposed area.

Mulching Without Seedina

Seeding), Ds3 - Disturbed Area Stabilization

This standard applies to graded or cleared

growing season to produce an erosion retardant

cover, but can be stabilized with a mulch cover.

applying and anchoring mulch.

terraces and sediment barriers.

1. Grade to permit the use of equipment for

Install needed erosion control measures as

Loosen compact soil to a minimum depth of

Select one of the following materials and

1. Dry straw or hay shall be applied at a depth of

2 to 4 inches providing complete soil cover-

required such as dikes, diversions, berms,

areas where seedings may not have a suitable

Disturbed Area Stabilization (With Temporary Ds2 Seeding)



The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

PURPOSE

 To reduce runoff and sediment damage of down stream resources

 To protect the soil surface from erosion To improve wildlife habitat

- To improve aesthetics

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 To improve tilth, infiltration and aeration as well as organic matter for permanent plantings

REQUIREMENT FOR REGULATORY COMPLIANCE

Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular erosion control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface. Refer to specification Ds1-Disturbed Area Stabilization (With Temporary Seeding).

CONDITIONS

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. Note: Some species of temporary vegetation are not appropriate for companion crop plantings because of their potential to out-compete the desired species (e.g annual ryegrass). Contact NRCS or the local SWCD for more information.

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 hand-seeding, 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 determined by soil test for pH. Quick acting lime should be incorporated to modify pH during the germination period. Bio stimulants should also be considered when there is less than 3% organic matter in the soil. Graded areas require lime application. Soils must be tested to determine required amounts of fertilizer and amendments. Fertilizer should be applied before land preparation and incorporated with a disk, ripper or chisel. On slopes too steep for, or inaccessible to equipment, fertilizer shall be hydraulically applied, preferably in the first pass with seed and some hydraulic mulch, then topped with the

6-29

6-30

tion establishment enhancement, and erosion control effectiveness. Select the mulching material from the following and apply as indicated:

Select a grass or grass-legume mixture suit-

able to the area and season of the year. Seed

shall be applied uniformly by hand, cyclone

seeder (slurry including seed and fertilizer).

Drill or cultipacker seeders should normally

place seed one-quarter to one-half inch deer

Appropriate depth of planting is ten times the

seed diameter. Soil should be "raked" lightly

Temporary vegetation can, in most cases, be

there is little to no erosion potential. However, the

germination and vegetation establishment. Mulch

established without the use of mulch, provided

use of mulch can often accelerate and enhance

without seeding should be considered for short

term protection. Refer to Ds1 - Disturbed Area

During times of drought, water shall be

erosion. The soil shall be thoroughly wetted to

a depth that will insure germination of the seed.

Subsequent applications should be made when

applied at a rate not causing runoff and

Stabilization (With Mulching Only).

to cover seed with soil if seeded by hand.

See Table 6-4.1

Mulching

needed.

seeder, drill, culti-packer-seeder, or hydraulic

- 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. Dry straw 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.
- When using temporary erosion control blankets or block sod, mulch is not required.
- 7. Bituminous treated roving may be applied on planted areas, 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.

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 seedina.

Straw or hay mulch will be spread uniformly

within 24 hours after seeding and/or plant-

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ing. 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.

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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:

- 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.
- 2. Synthetic tackifiers, binders or hydraulic mulch specifically designed to tack straw, 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. All tackifiers, binders or hydraulic mulch specifically designed to tack straw should be verified nontoxic through EPA 2021.0 testing. Refer to Tackifiers-Tac
- Rve 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.
- 4. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hav mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Bedding Material Mulch is used as a bedding material to conserve moisture and control weeds in nurseries, ornamental beds, around shrubs, and on bare areas on lawns.

6-39

Dust Control on Disturbed Areas



Controlling surface and air movement of dust on construction sites, roads, and demolition sites.

PURPOSE To prevent surface and air movement of dust from exposed soil surfaces.

 To reduce the presence of airborne substances that may be harmful or injurious to human health, welfare, or safety, or to animals or plant life.

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 specification Tac - Tackifiers Resins should be used according to manufacturer's recommendations.

Vegetative Cover. See specification Ds2 -**Disturbed Area Stabilization (With Temporary** Seeding). Spray-on Adhesives. These are used on miner-

al soils (not effective on muck soils). Keep traffic off these areas. Refer to specification Tac - Tackifiers.

Tillage. This practice is designed to roughen and bring clods to the surface. It is an emergency GSWCC 2016 Edition

remain in the hydroseeder longer than one hour. Hydraulic Seeding plants: and allow for the anchoring of straw Mix the seed (inoculated 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.

the same day inoculated. No inoculated seed shall

remaining required application rate.

Conventional Seeding

Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a culti-packer-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 equip-

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.

Nurserv 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.

Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% to 100% soil cover. When

consider the mulch's functional longevity, vegeta-

measure that should be used before wind ero sion 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 that 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, snowfences, burlap fences, crate walls, bales of hav 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

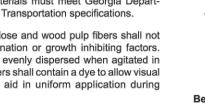
Permanent Vegetation. See specification Ds3 Disturbed Area Stabilization (With Permanent Vegetation). Existing trees and large shrubs may

afford valuable protection if left in place. Topsoiling. This entails covering the surface with less erosive soil material. See specification

Tp - Topsoiling. Stone. Cover surface with crushed stone or

coarse gravel. See specification Cr-Construction Road Stabilization.

6-55



Du

Wood cellulose and wood pulp fibers shall not

Applying Mulch





selecting a mulch, design professionals should GSWCC 2016 Edition

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

- or hav 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.
- . 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.

Inoculants All legume seed shall be inoculated with appropriate nitrogen-fixing bacteria. The inoculant

shall be a pure culture prepared specifically for the seed species and used within the dates on the container A mixing medium recommended by the manu-

facturer shall be used to bond the inoculant to

the seed. For conventional seeding, use twice

the amount of inoculant recommended by the

manufacturer. For hydraulic seeding, four

times the amount of inoculant recommended

All inoculated seed shall be protected from the

sun and high temperatures and shall be planted

by the manufacturer shall be used.

6-38

Disturbed Area Stabilization (With Permanent Ds3 Vegetation)



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.

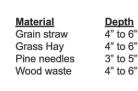
PURPOSE

- To protect the soil surface from erosion To reduce damage from sediment and
- runoff to down-stream areas
- •To improve wildlife habitat and visual resources
- To improve aesthetics

REQUIREMENT FOR REGULATORY COMPLIANCE

This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six months. This practice or sodding shall be applied immediately to all areas at final grade. Final Stabilization means that all soil listurbing activities at the site have been completed, and that 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 the GA EPD for waste disposal, 100% of the soil surface is uniformlycovered 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

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Irrigatior Irrigation will be applied at a rate that will not cause runoff.

Topdressing will be applied on all temporary and permanent (perennial) species planted alone or in mixtures with other species. Recommended rates of application are listed in Table 6-5.1.

Second Year and Maintenance Fertilization Second year fertilizer rates and maintenance fertilizer rates are listed in Table 6-5.1.

Lime Maintenance Application Apply one ton of agricultural lime every 4 to 6 years or as indicated by soil tests. Soil tests can be conducted to determine more accurate requirements, if desired.

Use and Management Mow Sericea Lespedeza only after frost to ensure that the seeds are mature. Mow between November and March.

Bermudagrass, Bahiagrass and Tall Fescue may be mowed as desired. Maintain at least 6 inches of top growth under any use and management. Moderate use of top growth is beneficial after establishment.

Exclude traffic until the plants are well established. Because of the quail nesting season, mowing should not take place between May and September.

Permanent vegetation shall consist of, planted trees, shrubs, perennial vines; or a crop of perennial vegetation appropriate for the region, such that within the growing season a 70% coverage by perennial vegetation shall be achieved. Final stabilization applies to each phase of construction. For linear construction projects on land used for agricultural or silvicultural purposes. final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use. Until this standard is satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sedimentation control measures shall not be removed.

CONDITIONS Permanent perennial vegetation is used to

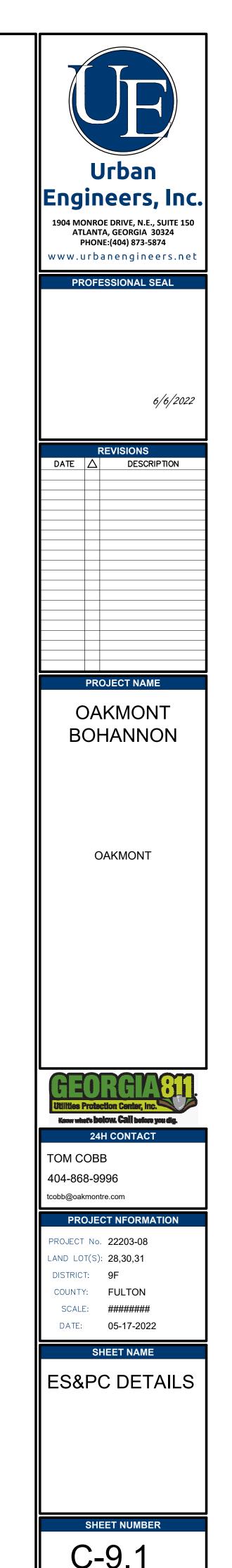
provide a protective cover for exposed areas including cuts, fills, dams, and other denuded

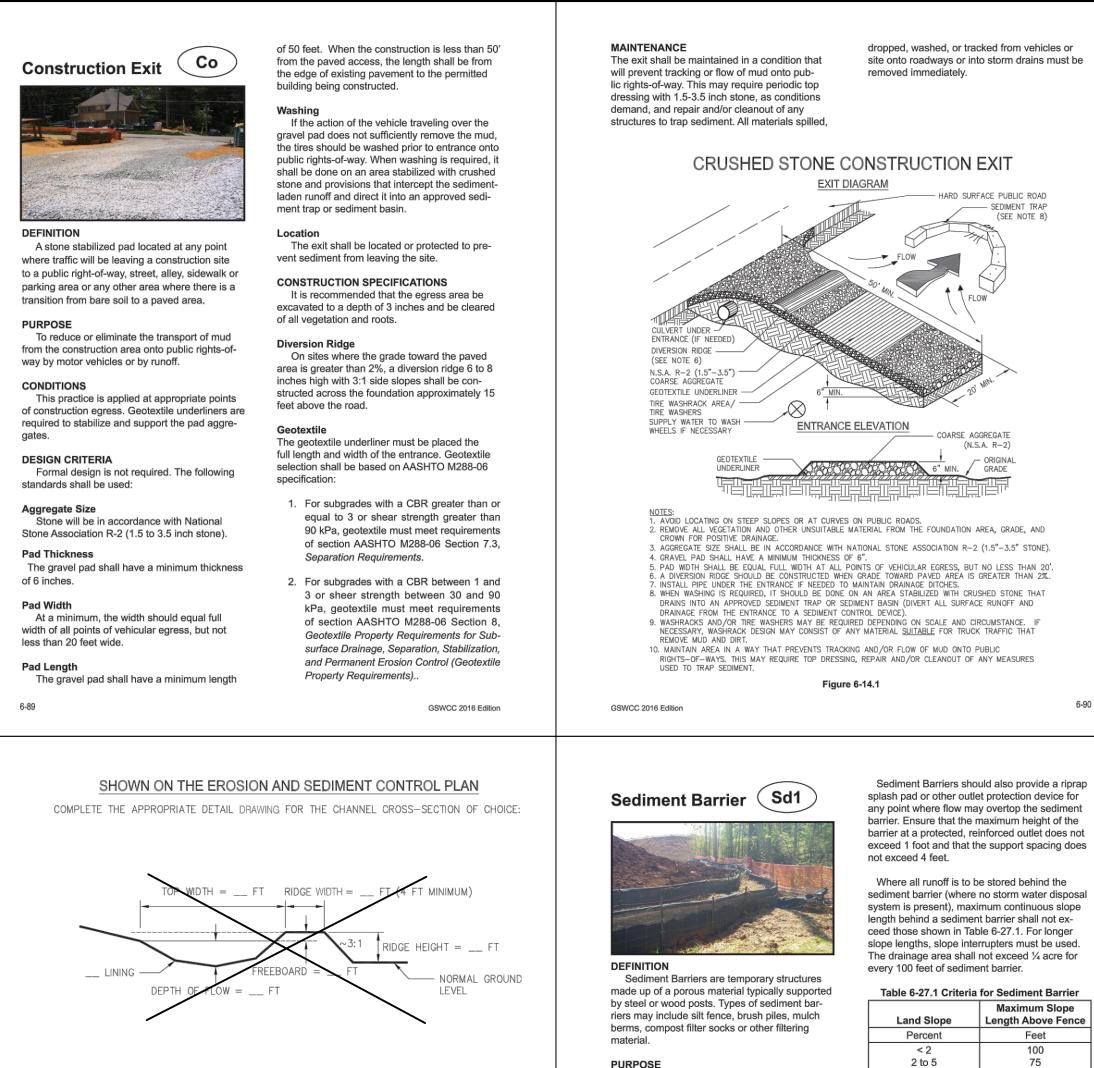
- PLANNING CONSIDERATIONS
- 1. Use conventional planting methods where possible.
- 2. When mixed plantings are done during marginal planting periods, companion crops shall
- 3. No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted no-till into stands of rye is an excellent procedure
- 4. Block sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete flumes and other structures. Refer to Specification Ds4-Disturbed Area Stabilization (With Sodding)
- 5. Irrigation should be used when the soil is dry or when summer plantings are done.
- 6. Low maintenance plants, as well as natives, should be used to ensure long-lasting erosion control. Mowing should not be performed during the
- quail nesting season (May to September). 8. Wildlife plantings should be included in

critical area plantings.

6-35

6-40





RIDGE WIDTH = $\underline{4}$ FT (4 FT MINIMUM)

RIDGE WIDTH = __ FT (4 FT MINIMUM)

FLOW = 2.5FT

DEPTH O

BOTTOM WIDTH

= <u>4</u> ft

- SIDESLOPE = <u>2</u>:1

RIDGE HEIGHT = 2 F

LEVEL

IDGE HEIGHT = ___ FT

LEVEL

- NORMAL GROUND

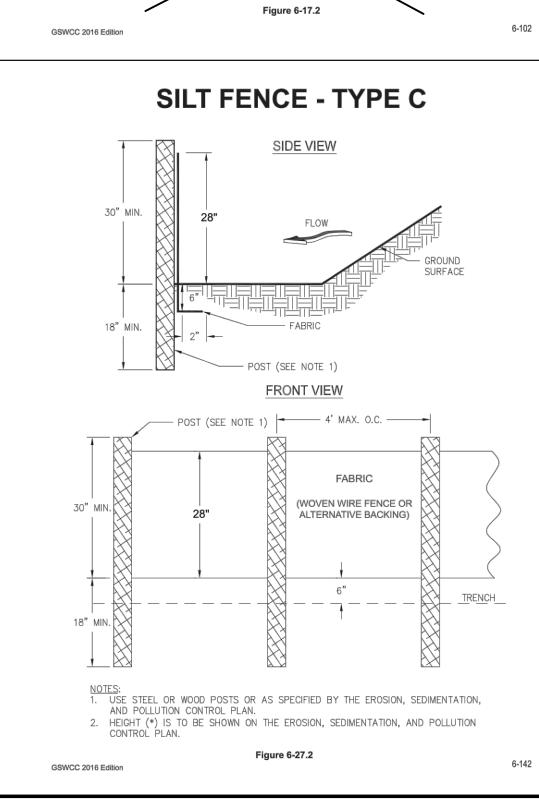


GRASS

SIDESLOPE = 2:1

LINING

SIDESLOPE =



EROSION AND SEDIMENT CONTROL TYPE B COMPOST FILTER SOCK

To minimize and prevent sediment carried

by sheet flow from leaving the site and entering

tems by slowing storm water runoff and causing

the deposition and/or filtration of sediment at the

structure. The barriers retain the soil on the dis-

are completed and vegetation is established.

Barriers should be installed where runoff can

be stored behind the barrier without damaging

structure itself. Sediment barriers shall not be

installed across streams, ditches, waterways, or

Sediment barriers are designed to retain sedi-

ment transported by sheet flow from disturbed

areas. It is important for the design professional

to take into account the profile of the product for

the submerged area behind the barrier or the

other concentrated flow areas.

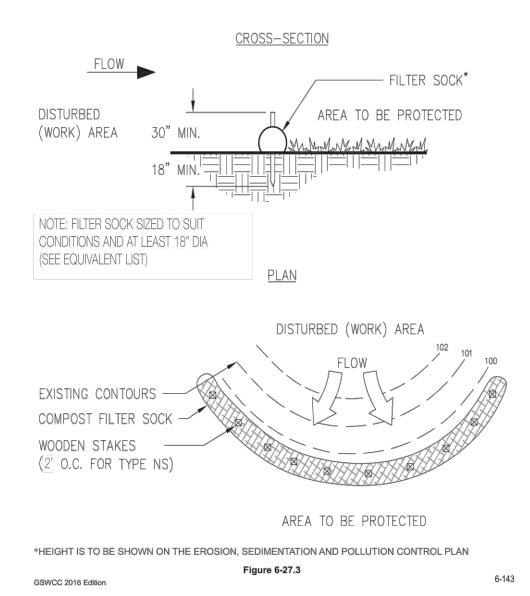
DESIGN CRITERIA

use on the site.

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CONDITIONS

natural drainage ways or storm drainage sys-



Maximum Slope Length Above Fence 2 to 5 5 to 10

10 to 20 n areas where the slope is greater than 20%, a flat area length of 10 feet between the toe of slope to the barrier should be provided.

Placement The type of sediment barrier depends on whether the area is sensitive or nonsensitive. Sensitive areas can be defined as any area that needs additional protection, these areas include but are not limited to, state waters, wetlands, or any area the design professional designates as sensitive.

When using multiple types of sediment barriers on a site in a single run, the barriers must be overlapped 18 inches or as specified by design professional. See Figure 6-27.5

CONSTRUCTION SPECIFICATIONS

Non-sensitive Areas * (Sd1-NS

Sediment barriers being used as Type NS shall have a support spacing of no greater than 6 feet on center, with each being driven into the ground a minimum of 18 inches. 6-137

Diversion

Di

DEFINITION A ridge of compacted soil, constructed above.

across or below a slope.

PURPOSE To reduce the erosion of steep, or otherwise highly erodible areas by reducing slope lengths, intercepting storm runoff and diverting it to a stable outlet at a non-erosive velocity.

CONDITIONS Diversions are applicable when:

- 1. Runoff from higher areas is or has potential for damaging property, causing erosion, contributing to pollution, flooding, interfering with or preventing the establishment of vegetation on lower areas.
- 2. Surface and/or shallow subsurface flow is damaging sloping upland.
- 3. The length of slope needs to be reduced so that soil loss will be reduced to a minimum.

This standard applies to temporary and perma nent diversions in developments involving landdisturbing activities.

DESIGN CRITERIA

Location

Diversion location shall be determined by considering outlet conditions, topography, land use, soil type, length of slope, seep planes (when seepage is a problem), and the develop ment layout. Diversions should be tailored to fit the conditions for a particular field and local soil type(s).

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Sensitive Areas* (Sd1-S

Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

*As of January 1 2016, in the existing Georgia Department of Transportation Qualified Products list #36 (QPL- 36), Type A, B, or C will fall under sensitive and non-sensitive applications. Type C

will be classified as sensitive and Type A and B as non-sensitive. Refer to Appendix A-2 and the Equivalent BMP List.

PRACTICE CLASSIFICATIONS

For silt fence Type A, B, or C, refer to Table 6-27.4.

Type A Silt Fence

This 36-inch wide filter fabric shall be used on developments where the life of the project is great than or equal to six months. Type A is classified as non-sensitive application.

Type B Silt Fence

Though only 22-inches wide. this filter fabric allows the same flow rate as Type A silt fence. Type B silt fence shall be limited to use on minor projects, such as residential home sites or small commercial developments where permanent stabilization will be achieved in less than six months. Type B is classified as non-sensitive application.

Type C Silt Fence

Type C fence is 36-inches wide with wire reinforcement or equivalent. The wire reinforcement is necessary because this fabric allows almost three times the flow rate as Type A silt fence. Type C silt fence shall be used where runoff flows or velocities are particularly high or where slopes exceed a vertical height of 10 feet. Type C is classified as sensitive application.

Filter Media Sock Specifications

Compost filter media used for sediment bar rier filler material shall be weed free and derived from a well-decomposed source of organic matter. Filter Media Sock is classified as a Type B, non-sensitive application. The compost shall be produced using an aerobic composting

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A diversion consists of two components that must be designed - the ridge and the channel.

Ridge Design The ridge shall be compacted and designed to have stable side slopes, which shall not be steeper than 2:1. The ridge shall be a minimum width of four feet at the design water elevation after settlement. Its design shall allow ten percent for settlement.

Channel Design

Land slope must be taken into consideration when choosing channel dimensions. On the steeper slopes, narrow and deep channels may be required. On the more gentle slopes, broad, shallow channels usually are applicable. The wide, shallow section will be easier to maintain Since sediment deposition is often a problem in diversions, the designed flow velocity should be kept as high as the channel lining will permit.

Table 6-17.1 indicates the storm frequency required for the design of the diversion. The required storm frequency is based on the purpose of the diversion. The storm frequency is used to determine the required channel capacity, Q (peak rate of runoff).

The channel portion of the diversion may have a parabolic or trapezoidal cross-section. Detailed information for the design of these channels is provided in the specification Wt - Stormwater Conveyance Channel.

Each diversion must have an adequate outlet. The outlet may be a constructed or natural waterway, a stabilized vegetated area or a stabilized open channel. In all cases, the outlet must discharge in such a manner as to not cause an erosion problem. Protected outlets shall be constructed and stabilized prior to construction of the diversion.

Stabilization

Channels shall be stabilized in accordance with item 5 of the construction specifications. Diversions For Roads and Utility Rights - of

A detailed design is not required for this type

of diversion. Diversions installed to divert water 6-99

process meeting CFR 503 regulations including time and temperature data. The compost shall be free of any refuse, contaminants or other materials toxic to plant growth. Non-composted products will not be accepted without applicable water quality test results. Test methods for the items below should follow US Composting Council Test Methods for the Examination of Composting and Compost guidelines for laboratory procedures:

A. pH - 5.0-8.0 in accordance with TMECC 04.11-A, "Electrometric pH Determinations for Compost*

B. Particle size – 99% passing a 2 inch (50mm) sieve and a maximum of 40% passing a 3/8 inche (9.5mm) sieve, in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification", (Note: In the field, product commonly is between 1/2 in./12.5mm and 2 in./50 mm in particle size.)

C. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.

D. Material shall be relatively free (<1% by dry weight) of inert or foreign manmade materials. E. Sock containment system for compost

filter media shall be a photodegradable or biode radable knitted mesh material and should have 1/8 in. to 3/8 in., openings.

Brush Barrier (Sd1-BB

(Only during timber clearing operations)

Brush obtained from clearing and grubbing operations may be piled in a row along the perrimeter of disturbance at the time of clearing and grubbing. Brush barriers should not be used in developed areas or locations where aesthetics are a concern.

Brush should be wind-rowed on the contour as nearly as possible and may require compaction. Construction equipment may be utilized to satisfy this requirement.

The minimum base width of the brush barrier shall be 5 feet and should be no wider 10 feet The height of the brush barrier should be between 3 and 5 feet tall.

6-138

off a road or right-of-way shall consist of a series of compacted ridges of soil running diagonally across the road at a 30° angle. Ridges are constructed by excavating a channel up-stream for this type of diversion.

The compacted ridge height shall be 8-12" above the original road surface; the channel depth shall be 8-12" below the original road surface. Channel bottoms and ridge tops shall be smooth enough to be crossed by vehicular traffic. The maximum spacing between diversions shall be as follows:

Road Grade (Percent)	Distance Between Diversions (Feet)
1	400
2	250
5	125
10	80
15	60
20	50

Stable outlets shall be provided for each diversion

CONSTRUCTION SPECIFICATIONS

- 1. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the diversion.
- 2. The diversion shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein and free of irregularities that will impede normal flow.
- 3. All fills shall be machine compacted as needed to prevent unequal settlement that would cause damage in the completed diversion.
- 4. All earth removed and not needed in construction shall be spread or disposed of so that it will not interfere with the functioning

of the diversion.

5. Diversion channel shall be stabilized in accordance with specification Ch - Channel Stabilization.

6-100

A brush barrier is a good tool to use in developing pasture in an agricultural situation to prevent sediment from leaving the site until the pasture is stabilized

If greater filtering capacity is required, a commercially available sediment barrier may be placed on the side of the brush barrier receiving the sediment-laden runoff. The lower edge of the fabric must be buried in a 6-inch deep trench immediately uphill from the barrier. The upper edge must be stapled, tied or otherwise fastened to the brush barrier. Edges of adjacent fabric pieces must overlap each other. See Figure 6-27.5.

Installation Sediment barriers should be installed along the contour.

Temporary sediment barriers shall be installed according to the following specifications as shown on the plans or as directed by the design

professional. For installation of the barriers, See Figures 6-27.1, 6-27.2, 6-27.3 and 6-27.4, respectively.

It is important to remember that not all sediment barriers need to be trenched into the ground but most taller sediment barriers do.

Post installation shall start at the center of a low point (if applicable) with the remaining posts aced no greater than 6 feet apart for Type NS sediment barriers and no greater than 4 feet apart for Type C sediment barriers. For post size requirements, see Table 6-27.2. Fasteners for wood posts are listed in Table 6-27.3. Static Slicing Method

The static slicing machine pulls a narrow blade through the ground to create a slit 12" deep, and simultaneously inserts the silt fence fabric into this slit behind the blade. The blade is designed to slightly disrupt soil upward next to the slit and to minimize horizontal compaction, thereby creating an optimum condition for compacting the soil vertically on both sides of the fabric. Compaction is achieved by rolling a tractor wheel along both sides of the slit in the ground 2 to 4 times to achieve nearly the same or greater compaction as the original undisturbed

TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN /hen a SEDIMENT BARRIER is used, show the product height in inches for each barrier being used on site 6-139 GSWCC 2016 Edition

Retaining Wall



A wall constructed of one or more of the following: concrete masonry, reinforced concrete cribbing, treated timbers, steel pilings, gabions, stone drywall, rock riprap, etc.

PURPOSE To assist in the stabilization of cut or fill slopes where stable slopes are not attainable without the use of the wall.

CONDITIONS

Use in conjunction with cut or fill slopes that, because of space limitations or unstable material, do not allow the stable slope criteria listed above, e.g. cuts into steep hillsides on small lots or cuts into hillsides behind shopping centers to provide loading space.

DESIGN CRITERIA General

The design of a retaining wall is a complicated process. Many factors must be taken into account such as: stresses and forces outside and within the wall, allowable height and minimum thickness. Other considerations are: foundation design with respect to loadings, bearing values of soils and footing dimensions. Additional design factors are safety hazards, subsurface and surface drainage and appearance.

Each situation requires a specific design that is within the capabilities of the design professional.

Consideration should be given to all of the alternative methods with regard to construction of the

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wall. Some methods are: 1. Concrete masonry

- Concrete cribbing
- Gabions
- Steel piling
- Stone drywall
- 6. Rock riprap, etc.
- 7. Treated timbers
- Geotextile wrapped-face wall
- Geotextile reinforced steep slopes

RIGINAL ROAD SURFACE

MPACTED EARTH RIDG

EXCAVATED CHANNEL

TYPICAL DIVERSION ACROSS ROAD

CROSS SECTION

Figure 6-17.1

	Table 6-17.1. Diversion De	sign Criteria		
Diversion Type	Land or Improvement Protected	Storm Frequency ¹	Freeboard	Minimum Top Width
Temporary	Construction areas Building sites	10 yrs²	0.3'	4'
Democrat	Landscaped, recreation and similar areas.	25 yrs	0.3'	4 '
Permanent	Dwellings, schools, commercial bldgs., and similar installations	50 yrs	0.5'	4'

Annotated

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soil. This vertical compaction reduces the air

spaces between soil particles, which minimizes

infiltration. Without this compaction infiltration

can saturate the soil, and water may find a path

way under the fence. When a silt fence is hold-

ing back several tons of accumulated water and

are driven 18 inches into the soil. Driving in the

posts and attaching the fabric to them completes

Trenching machines have been used for

over twenty-five years to dig a trench for burying

part of the filter fabric underground. Usually the

Post setting and fabric installation often precede

compaction, which make effective compaction

pendent technology evaluation (ASCE 2001),

tions of the trenching method with static slicing

method. The static slicing method performed

better than two lower performance levels of the

trenching method, and was as good as or better

level. The best trenching method typically re-

than the trenching method's highest performance

quired nearly triple the time and effort to achieve

esults comparable to the static slicing method.

Along all state waters and other sensitive

Sediment shall be removed once it has

accumulated to one-half the original height of

they have deteriorated to such an extent that the

effectiveness of the product is reduced (approxi-

mately six months) or the height of the product

is not maintaining 80% of its properly installed

place until disturbed areas have been perma-

the barrier shall be removed and properly dis-

posed of before the barrier is removed.

nently stabilized. All sediment accumulated at

Temporary sediment barriers shall remain in

Sediment barriers shall be replaced whenever

areas, two rows of Type S sediment barriers

be placed a minimum of 36 inches apart.

MAINTENANCE

the barrier

which compared three progressively better varia-

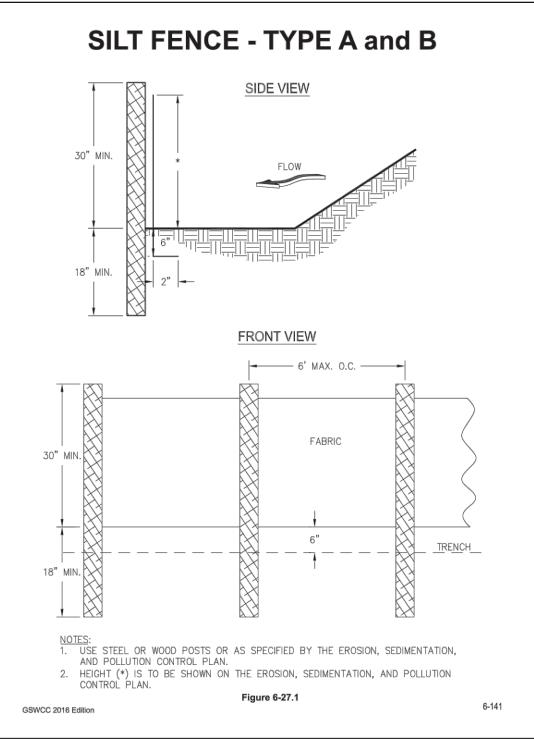
more difficult to achieve. EPA supported an inde-

ench is about 2-"6" wide with a 6" excavation.

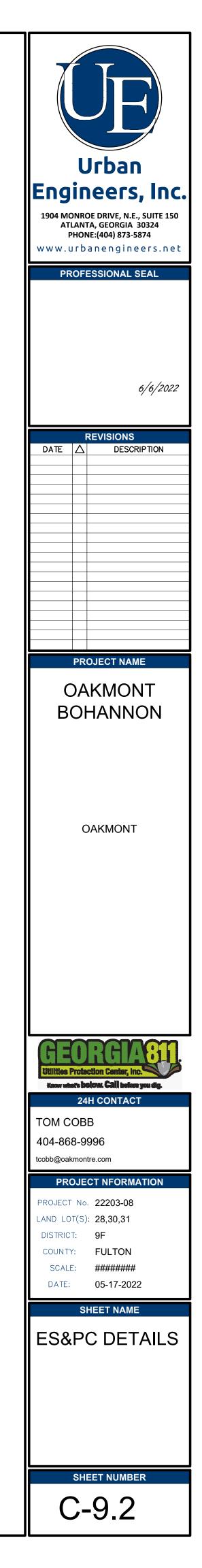
the installation

Trenching Method

sediment, it needs to be supported by posts that



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turbed 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. PURPOSE

To collect and store sediment from uphill sites cleared and or graded during construction. Intended for use on small tributary areas with no unusual drainage features. Effective against coarse sediment, but not against silt or clay particles that remain suspended.

CONDITIONS

Temporary sediment traps are constructed early in the construction process at locations that will require minimal clearing and grading. Natural draws or swells are favorable locations to build the traps. They should be easily accessible for frequent maintenance and inspections. Temporary sediment traps shall never be placed in live streams.

DESIGN CRITERIA Design and construction shall comply with

laws, ordinances, rules and regulations on the local, state and federal level.

The total drainage area of a temporary sediment trap is up to 5 acres, depending on type of construction

The height of a temporary sediment trap embankment shall not exceed 5.5 feet as measured from the downstream toe of slope to the top of the berm. Top width of an embankment shall be GSWCC 2016 Edition

Maximum pond depth of a sediment trap is 4 feet as measured from the bottom of the trap to the invert of the emergency spillway. Slopes shall not exceed 2:1 (H:V) for excavated areas and for compacted embankments. Side slopes should be (3:1) or flatter allowing people and equipment to safely negotiate slopes or to enter the sediment trap.

The length to width ratio must be greater than (2:1) (L:W) for the principal flowpaths in order to maximize residence time of stormwater within the sediment trap. Baffles may be required to prevent short-circuiting of the flow.

A typical baffle design uses 4'x8' sheets of exterior grade plywood 1/2 inch thick, mounted on 4"x4" hardwood posts.

Volume Minimum volume of a temporary sediment trap shall be 67 cubic yards per acre for the total drainage area. The volume shall be measured at an elevation equivalent to the spillway invert.

Volume of a temporary sediment trap in heavily disturbed areas should be 134 cubic yards per acre for the total drainage area. This includes an upper area with a minimum of 67 cubic yards per acre drained, which is dewatered using one of the outlet design methods provided, and a lower wet zone for sediment storage and settling.

The volume should be calculated from existing and proposed contours, or by measured cross sections. An approximate method for calculating the volume of traps using a natural draw is:

- V = 0.4 x A x D V = Sediment storage volume (below invert
- of emergency spillway) A = Surface area (at level of emerency
- D = Maximum depth (from emergency
- spillway invert)

The cleanout volume for a temporary sediment trap is 1/3 of the total storage volume. Cleanout volume shall be calculated and marked with a stake at the outlet of the trap.

REFERENCE:

City of Knoxville BMP Manual Best Management

Practices, Knoxville, TN, May 2003

Overflow (Sd4-A)

An overflow temporary sediment trap is limited to small areas less than 1 acre, typically with gentle slopes (1 or 2 percent) and without major grading operations. The maximum life span of an overflow trap is 6 months. If water enters the trap with very low velocities, the same amount of water will be slowly displaced and leave the other end of the sediment trap. Silt fence, straw bale barriers or grass filter strips are used to "polish" the overflow water as it leaves the sediment trap. See Figure 6-30.1

Combination Straw Bale and Silt Fence Outlet (Sd4-B)

The combination outlet uses straw bales and silt fence to dewater the sediment trap. Proper installation and staking of the straw bales, and wire backing on the silt fence are required for the materials to resist 1 foot or more of ponded water. The combination straw bale and silt fence outlet is limited to 1 acre total drainage area, and has a life span of less than 1 year. This type of outlet requires frequent maintenance and adjustments to ensure the released stormwater is free from sediment. See Figure 6-30.2

Rock Outlet (Sd4-C)

The rock outlet relies on filtering through layers of aggregate, rock or riprap material to dewater the sediment trap. It is the sturdiest of the sediment trap designs and generally requires less maintenance. It can be used for drainage area up to 5 acres and has a life span of 1 year See Figure 6-30.3

Emergency Spillway

The emergency overflow outlet of a temporary sediment trap must be stabilized with rock, geotextile, vegetation, or another suitable material that is resistant to erosion. It must be installed to

safely convey stormwater runoff for the 10-year

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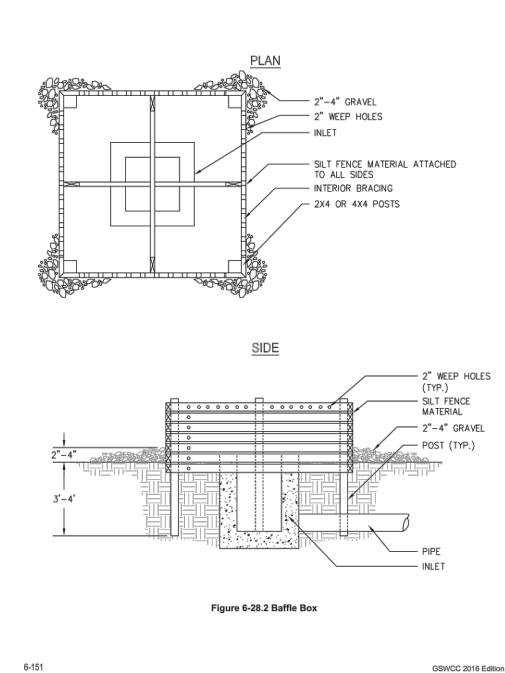
storm event.

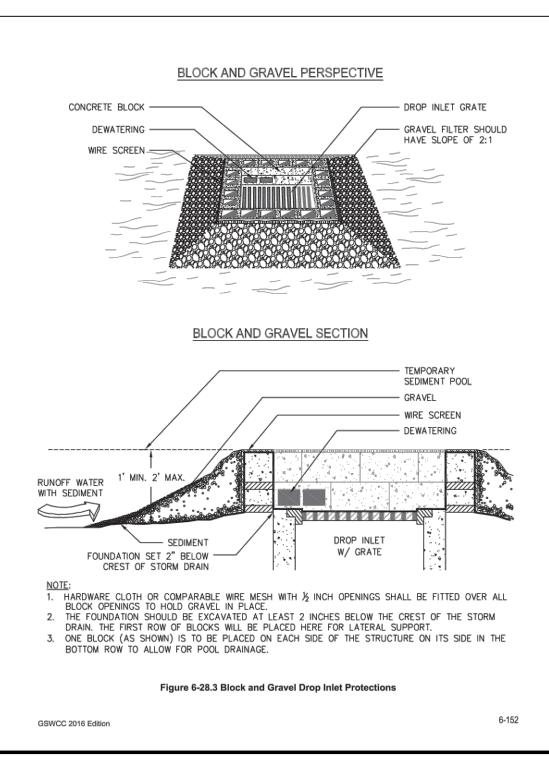
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	SD4 CALCULATIONS									
BASIN #	DRAINAGE AREA (AC)	REQUIRED VOLUME (CY)	REQUIRED VOLUME (CF)	AVAILABLE VOLUME (CF)	CLEANOUT VOLUME REQUIRED (CY)	CLEANOUT VOLUME REQUIRED (CF)	TOP ELEVATION	BOTTOM ELEVATION	POND DEPTH	CLEANOUT ELEVATION
SD4-1	3.4	227.8	6150.6	13835	74.8	2020	992	988	4	989.20
Sd4-2	4.47	299.49	8086.23	11912	98.34	2655	1004	998	6	1000.50
Sd4-3	4.54	304.18	8212.86	9696	99.88	2697	995	991	4	991.80
B4	1.34	89.78	2424.06	3080	29.48	796	1000	996	4	997.50
17	1.17	78.39	2116.53	3080	25.74	695	1000	996	4	997.50

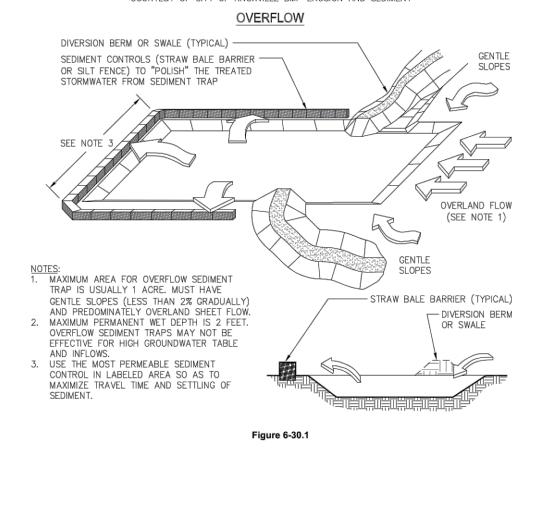
6-185

	SD2 EXCAVATED INLET									
DRAINAGE AREA	A	В	С	D	E	F	G	Н	I	L
B2	0.89	59.63	1610.01	3	2	536.67	CIRCLE	NA	NA	13.07
B3	0.87	58.29	1573.83	3	2	524.61	CIRCLE	NA	NA	12.93
D2	0.62	41.54	1121.58	3	2	373.86	CIRCLE	NA	NA	10.91
12	0.87	58.29	1573.83	3	2	524.61	CIRCLE	NA	NA	12.93
13	0.87	58.29	1573.83	3	2	524.61	CIRCLE	NA	NA	12.93
14	0.83	55.61	1501.47	3	2	500.49	CIRCLE	NA	NA	12.63
16	0.87	58.29	1573.83	3	2	524.61	CIRCLE	NA	NA	12.93
J1	0.93	62.31	1682.37	3	2	560.79	CIRCLE	NA	NA	13.36
K2	0.57	38.19	1031.13	3	2	343.71	CIRCLE	NA	NA	10.46
К4	0.78	52.26	1411.02	3	2	470.34	CIRCLE	NA	NA	12.24
К5	0.78	52.26	1411.02	3	2	470.34	CIRCLE	NA	NA	12.24





TEMPORARY SEDIMENT TRAP COURTESY OF CITY OF KNOXVILLE BMP EROSION AND SEDIMENT





Inlet Sediment Trap (Sd2



A temporary protective device formed at or around an inlet to a storm drain to trap sediment.

PURPOSE To prevent sediment from entering a storm drainage systems prior to permanent stabilization of the disturbed area draining to the inlet.

CONDITIONS

All storm drain drop inlets that receive runoff from disturbed areas.

DESIGN CRITERIA Through testing there are two differen

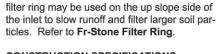
categories (high retention and high flow) supported. In areas where BMPs are being used on paved surfaces, or safety is a concern, the potentially negative effects of ponding should be taken into account. In such cases, a high flow BMP is preferred.

On unpaved areas where ponding will not cause a safety hazard, high retention shall be taken into account. If high retention is not used in this situation a rationale shall be given on the plan and an unpaved application should apply.

Sediment traps must be self-draining unless they are otherwise protected in an approved fashion that will not present a safety hazard. The drainage area entering the inlet sediment trap shall be no greater than one acre.

If runoff may bypass the protected inlet, a temporary dike should be constructed on the down slope side of the structure. Also, a stone

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CONSTRUCTION SPECIFICATIONS Excavated Inlet Sediment Trap

An excavation may be created around the inlet sediment trap to provide additional sediment storage. The trap shall be sized to provide a minimum storage capacity calculated at the rate of 67 cubic yards per acre of drainage area. A minimum depth of 1.5 feet for sediment storage should be provided. Side slopes shall not be steeper than 2:1.

Sediment traps may be constructed on natural ground surface, on an excavated surface, or on machine compacted fill, provided they have a non-erodible outlet.

Filter Fabric with (Sd2 - F) Supporting Frame

This method of inlet protection is applicable where the inlet drains a relatively flat area (slope no greater than 5%) and shall not apply to inlets receiving concentrated flows, such as in street or highway medians. As shown in Figure 6-28.1, Type S silt fence supported by steel posts should be used. The stakes shall be spaced evenly around the perimeter of the inlet a maximum (3 feet apart, and securely driven into the ground, approximately 18 inches deep. The fabric shall be 36 inches tall and entrenched 12 inches and backfilled with crushed stone or compacted soil. Fabric and wire shall be securely fastened to the posts, and fabric ends must be overlapped a minimum of 18 inches or wrapped together around a post to provide a continuous fabric barrier around the inlet.

For inlets receiving runoff with a higher volume or velocity, a baffle box inlet sediment trap should be used. As shown in Figure 6-28.2, the baffle box shall be constructed of 2" x 4" boards spaced a maximum of 1 inch apart or of plywood with weep holes 2 inches in diameter. The weep holes shall be placed approximately 6 inches on center vertically and horizontally. Gravel shall be placed outside the box, all around the inlet, to a depth of 2 to 4 inches. The entire box is wrapped 6-147

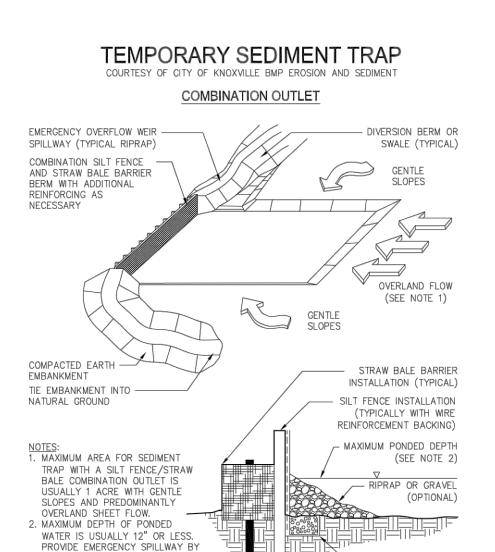


Figure 6-30.2

in Type C filter fabric that shall be entrenched 12 inches and backfilled.

CONSTRUCTING RIPRAP CHANNEL

AS NECESSARY.

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Block and Gravel Sd2 -Bg Drop Inlet Protection

This method of inlet protection is applicable where heavy flows are expected and where an overflow capacity is necessary to prevent excessive ponding around the structure. As shown in Figure 6-28.3, one block is placed on each side of the structure on its side in the bottom row to allow pool drainage. The foundation should be excavated at least 2 inches below the crest of the storm drain. The bottom row of blocks is placed against the edge of the storm drain for lateral support and to avoid washouts when overflow occurs. If needed, lateral support may be given to subsequent rows by placing 2" x 4" wood studs through block openings. Hardware cloth or comparable wire mesh with 1/2 inch openings shall be fitted over all block openings to hold gravel in place. Clean gravel should be placed 2 inches below the top of the block on a 2:1 slope or flatter and smoothed to an even grade. DOT #57 washed stone is recommended.

Gravel drop Inlet Protection (Sd2-G)

This method of inlet protection is applicable where heavy concentrated flows are expected. As shown in Figure 6-28.4, stone and gravel are used to trap sediment. The slope toward the inlet shall be no steeper than 3:1. A minimum 1 foot wide level stone area shall be left between the structure and around the inlet to prevent gravel from entering the inlet. On the slope toward the inlet, stone 3 inches in diameter and larger should be used. On the slope away from the inlet, 1/2 to 3/4 inch gravel (#57 washed stone) should be used at a minimum thickness of 1 foot. (Sd2-S)

Sod Inlet Protection

This method of inlet protection is applicable only at the time of permanent seeding, to protect the inlet from sediment and mulch material until permanent vegetation has become established. As shown in Figure 6-28.5, the sod shall be placed to form a turf mat covering the soil for

6-148

adjacent strip ends are not aligned. (Sd2-P) Curb Inlet Protection Once pavement has been installed, a curb

a distance of 4 feet from each side of the inlet

structure. Sod strips shall be staggered so that

inlet filter shall be installed on inlets receiving runoff from disturbed areas. This method of inlet protection shall be removed if a safety hazard is

- ANCHOR TRENCH

FOR SILT FENCE

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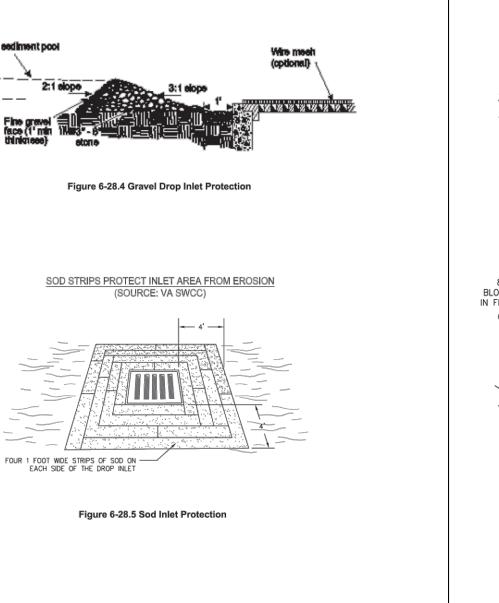
One method of curb inlet protection uses "pigs-in-a-blanket"- 8-inch concrete blocks wrapped in filter fabric. See Figure 6-28.6. Another method uses gravel bags constructed by wrapping DOT #57 stone with filter fabric, wire, plastic mesh, or equivalent material.

A gap of approximately 4 inches shall be left between the inlet filter and the inlet to allow for overflow and prevent hazardous ponding in the roadway. Proper installation and maintenance are crucial due to possible ponding in the roadway, resulting in a hazardous condition. Several other methods are available to prevent the entry of sediment into storm drain in-

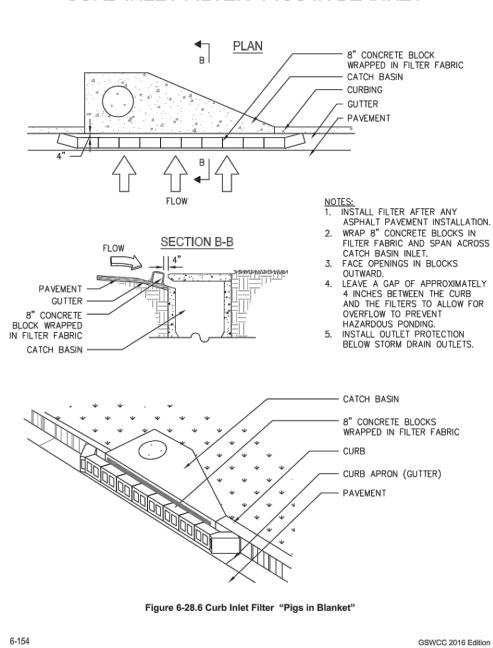
Figure 6-28.7 shows one of these alternative methods.

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.

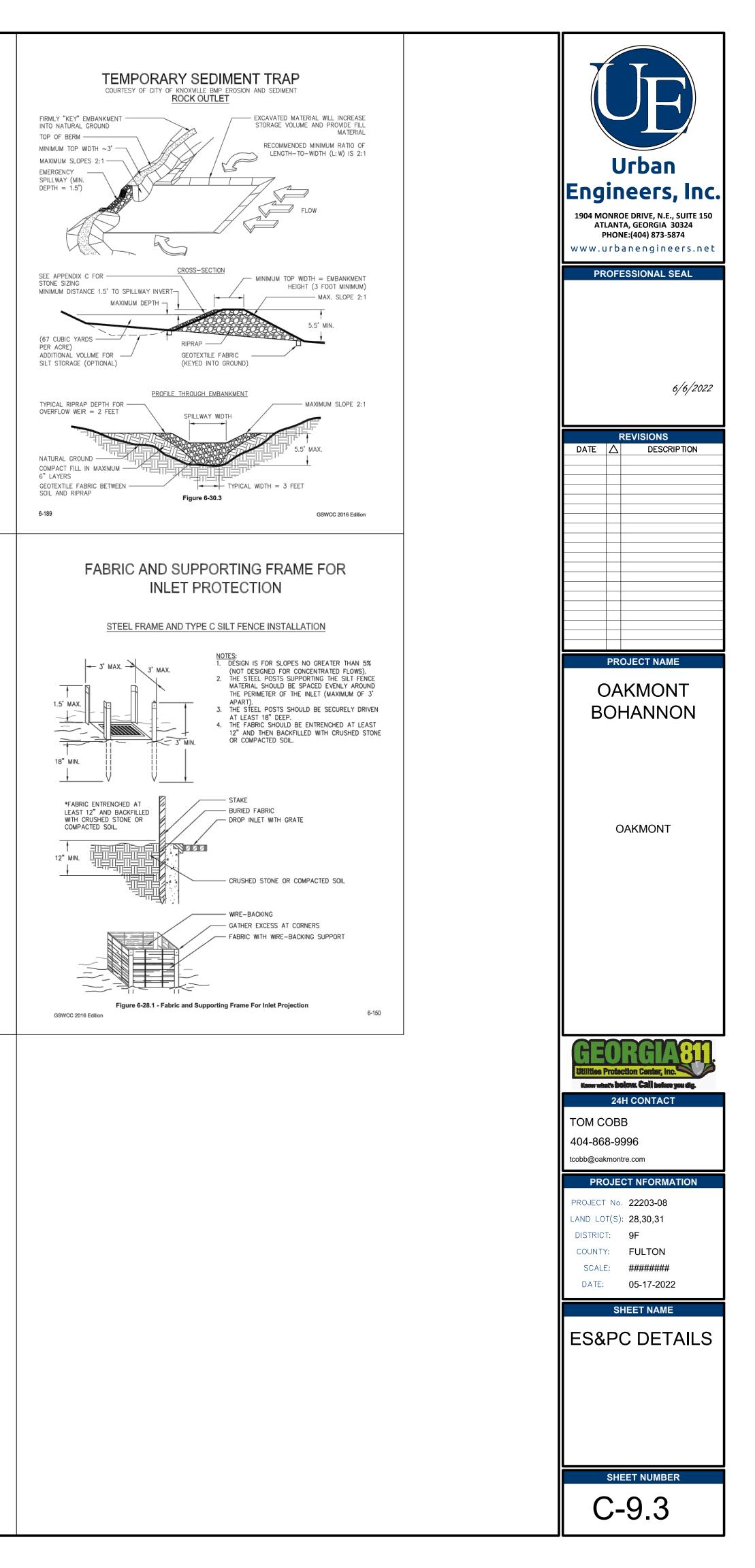
When the contributing drainage area has been permanently stabilized, all materials and any sediment shall be removed, and either salvaged or disposed of properly. The disturbed area shall be brought to proper grade, then smoothed and compacted. Appropriately stabilize all disturbed areas around the inlet. GSWCC 2016 Edition



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CURB INLET FILTER "PIGS IN BLANKET"





Paved and/or riprapped channel sections, placed below storm drain outlets.

PURPOSE

To reduce velocity of flow before entering receiving channels below storm drain outlets.

CONDITIONS

This standard applies to all storm drain outlets, road culverts, paved channel outlets, etc., discharging into natural or constructed channels. Analysis and/or treatment will extend from the end of the conduit, channel or structure to the point of entry into an existing stream or publicly maintained drainage system.

DESIGN CRITERIA

Structurally lined aprons at the outlets of pipes and paved channel sections shall be designed according to the following criteria:

Capacity

Peak stormflow from the 25-year, 24-hour frequency storm or the storm specified in Title 12-7-1 of the Official Code of Georgia Annotated or the design discharge of the water conveyance structure, whichever is greater.

Tailwater Depth

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The depth of tailwater immediately below the pipe outlet must be determined for the design capacity of the pipe. Manning's Equation may be used to determine tailwater depth. If the tailwater depth is less than half the diameter of the outlet pipe, it shall be classified as a Minimum Tailwater Condition. If the tailwater depth is greater than half the pipe diameter, it shall be classified as a

Maximum Tailwater Condition. Pipes that outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition.

Apron Length and Thickness The apron length and d_{so}, stone median size, shall be determined from the curves according to tailwater conditions:

Minimum Tailwater- Use Figure 6-34.1

Maximum Tailwater- Use Figure 6-34.2 Maximum Stone Size = 1.5 x d_{so}

Apron Thickness = 1.5 x dmax

Apron Width

If the pipe discharges directly into a well-defined channel, 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). If the pipe discharges onto a flat area with no defined channel, the width of the apron shall be determined as follows:

- a. The upstream end of the apron, adjacent to the pipe, shall have a width three times the diameter of the outlet pipe.
- b. For a Minimum Tailwater Condition, the downstream end of the apron shall have a width equal to the pipe diameter plus the length of the apron. Refer to Figure 6-34.1.
- c. For a Maximum Tailwater Condition, the down stream end shall have a width equal to the pipe diameter plus 0.4 times the length of the apron. Refer to Figure 6-34.2.

Bottom Grade

The apron shall be constructed with no slope along its length (0.0% grade). The invert elevation of the downstream end of the apron shall be equal to the elevation of the invert of the receiving channel. There shall be no overfall at the end

If the pipe discharges into a well-defined channel, the side slopes of the channel shall not

Alignment The apron shall be located so that there are no bends in the horizontal alignment.

- Geotextile Geotextiles should be used as a separator
- between the graded stone, the soil base, and the abutments. The geotextile will prevent the migration of soil particles from the subgrade into the graded stone. The geotextile shall be specified in accordance with AASHTO M288-06 Section 8. Geotextile Property Requirements. The geotextile should be placed immediately adjacent to the subgrade without any voids.

Materials

The apron may be lined with riprap, grouted riprap, or concrete. The median sized stone for riprap, d_{so}, shall be determined from the curves, Figures 6-34.1 and 6-34.2, according to the tailwater condition. The gradation, guality and placement of riprap shall conform to Appendix C.

Refer to Figure 6-34.4, for alternative structures to achieving energy dissipation at an outlet. For information regarding the selection and design of these alternative energy dissipators, refer to:

FHWA Standard (REF. Hydraulic Design of Energy Dissipators for Culverts and Channels; HEC No. 14, FHWA, Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

CONSTRUCTION SPECIFICATIONS

- 1. Ensure that the subgrade for the filter and riprap follows the required lines and grades shown in the plan. Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.
- 2. The riprap and gravel filter must conform to the specified grading limits shown on the
- 3. Geotextile must meet design requirements and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter fabric over the damaged area. All connecting joints should overlap a

minimum of 1 ft. If the damage is extensive, replace the entire filter fabric.

- 4. Riprap may be placed by equipment, but take care to avoid damaging the filter. 5. The minimum thickness of the riprap should
- be 1.5 times the maximum stone diameter. Construct the apron on zero grade with no overfall at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.
- 7. Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.
- 8. Immediately after construction, stabilize all disturbed areas with vegetation.
- 9. Stone quality Select stone for riprap from field stone or quarry stone. The stone should be hard, angular, and highly weather-resistant. The specific gravity of the individual stones should be at least 2.5.
- 10. Filter Install a filter to prevent soil movement through the openings in the riprap. The filter should consist of a graded gravel layer or a synthetic filter cloth. See Appendix C; p. C-1.

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.

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of the apron. Side Slope

be steeper than 2:1.

St RIP RAP TABLE Q 100 PIPE SIZE do + La Width 2 D50 (FT) Velocity100 (FPS) do Width 1 (FT) Area (SF) Structure Dmax (FT) La Length (FT D Thickness (FT (CFS) Minimum 7.33 36.54 A1 30 0.5 16 1.13 7.5 18.5 208 0.75 Minimum B1 36 0.5 7.27 28.62 20 1.13 9 23 320 0.75 0.4 5.73 12.20 120 Minimum C1 24 12 0.90 6 14 0.60 Minimum D1 24 0.4 3.11 1.22 6 0.90 6 8 42 0.60 Minimum G1 30 0.6 8.99 35.32 20 1.35 7.5 22.5 300 0.90 132 Minimum H1 30 0.5 5.28 24.19 12 1.13 7.5 14.5 0.75 Minimum 42 0.8 10.06 53.15 22 1.80 10.5 25.5 396 1.20 11 Minimum K1 24 0.6 10.1 13.28 12 1.35 6 14 120 0.90 Minimum FLUME 1 18 0.5 25.15 19.62 16 1.13 4.5 17.5 176 0.75 Minimum FLUME 2 18 0.5 17.75 8.52 9 1.13 4.5 10.5 67.5 0.75 Minimum FLUME 3 18 0.5 22.6 14.24 11 1.13 4.5 12.5 93.5 0.75 Minimum 7.06 9 FLUME 4 18 0.5 16.81 1.13 4.5 10.5 67.5 0.75

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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 skim-
mer 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 re-
paired.

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 pul the skimmer to a side embankment using the maintenance rope and remove sediment from the skimmer pit.

Flexible Coupling Figure 6-31.2. Skimmer Components

and stop flow through the skimmer. It is also recommended to have a second valved discharge pipe to enable lowering of the water surface within the basin if desired to take flow rate measurements at various depths without waiting

- iv. A water supply along with an associated pump and piping is needed to fill the cali -brated basin. A calibrated ruler shall be mounted on the side of the basin to al low depth to be read. This calibrated ruler must not be moved, repositioned, jarred, or tampered with once the first reading of each replicate has been taken.
- b. Test Set-Up i. The test basin shall be watertight with at least one discharge pipe at least as large as the pipe that connects to the floating skimmer head. The discharge pipe shall have an accessible valve to control flow.
- ii. The skimmer is attached to the discharge connectors as directed by the client. The connection must be watertight so that all drainage is through the floating skimmer eadworks/inlet.
- c.Test Operation and Data Collection: i. With the valve on the discharge pipe closed, and the skimmer to be tested in place, fill the test basin with water to the maximum desired depth. Filling should proceed slowly enough to allow all air within the skimmer assembly to bleed completely
- ii. Once the basin is filled to the desired still and record the depth on the ruler mounted to the sidewall.
- valve and start timing.
- iv. As the water is discharged from the test basin through the floating skimmer, periodi cally record depth and associated time. GSWCC 2016 Edition

d. Test Data: i. Record and tabulate water surface elevation as a function of time. ii. From the change in surface elevation with time, compute the flow rate and report it at

the average of the associated elevations.

Addendum B: Selecting a Skimmer It is a straight forward process to choose the skimmer that best matches the required "timeto-drain" specified for a project. The volume (or dimensions) of the sediment pond, trap, or basin must be known, as well as, the number of days to drain the basin. With this information, a drawdown rate calculation is made for each product and sized using the product-specific flow rates determined in accordance with Addendum A.

Figure 6-31.3, shows a typical spreadsheet set up to make this calculation. This spreadsheet lets the user input the pond dimensions and depth, as well as the time-to-drain requirement, and then calculates the time in hours that it would take for each skimmer size (and orifice size) to completely drain the pond.

As different style skimmers are made from a wide variety of parts, including different diameter pipe components in the same device, it is generally agreed that the skimmer size is defined by the "rigid tube" diameter connecting the floating/ intake components to the (larger) flexible coupling and outlet pipe.

When a FLOATING SURFACE SKIMMER is used, show the following information along with each sediment pond, trap or basin being used on the site: 1. Pond, trap or basin size, length* (top and bottom) width* (top and bottom) and depth = 2. Time to Drain (hrs) = _

TO BE SHOWN ON THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

- 3. Skimmer Dimensions (orifice and head size)**
- 4. Manufacturer's name
- Addendum A: Procedure for Measurement of Floating Pond Skimmer Flow Rate This procedure is for evaluating the flow rate of a floating pond skimmer vs. pond depth, including details for setting up a performance test that can be used for design characteriza-

tion as well as quality assurance to determine product conformance to project specifications.

- Procedure
- a. Apparatus/Facility i. Testing is performed in a calibrated basin

Floating "Headworks" Supporting Inlet

(i.e. it has a known surface area at any

ii. The basin shall be at least 40-ft long x

iii. The basin shall be outfitted with discharge

that of the pipe joining to the floating skimmer head. The discharge pipe

pipe having a diameter no smaller than

shall have a valve that can be controlled

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from the outside of the basin to initiate

known depth.)

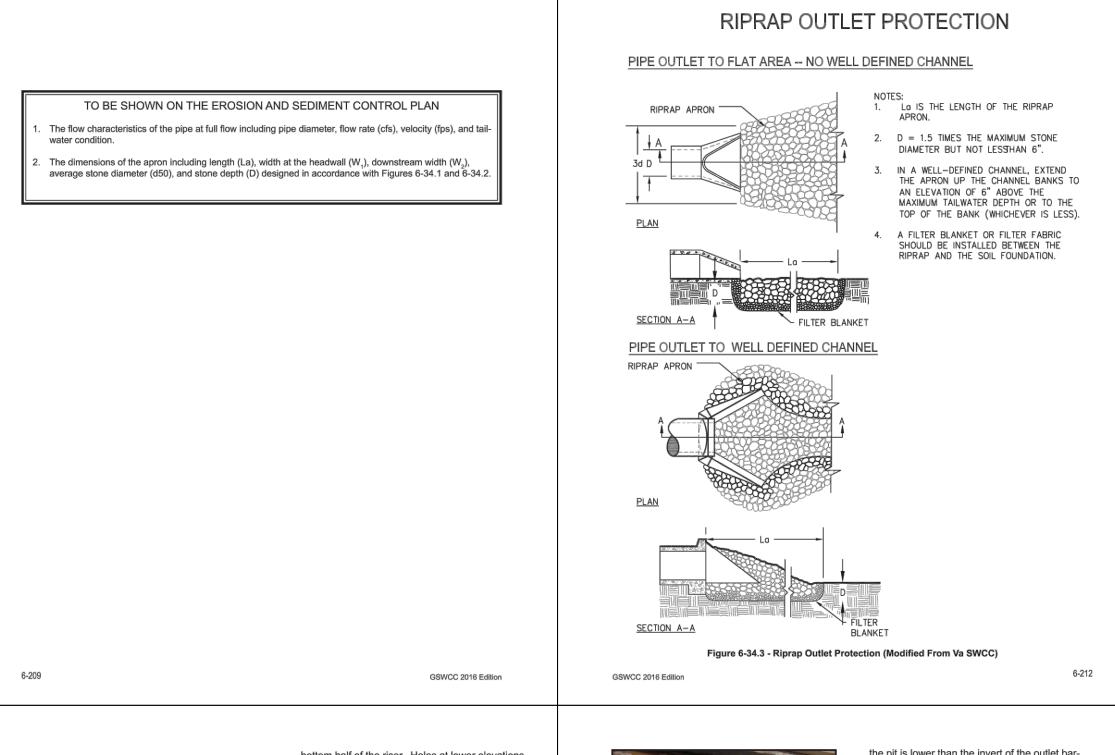
6-ft wide x 4-ft deep.

for drainage exclusively through the skimmer.

- pipe prior to pond filling using reducers/
- depth, allow the water surface to become

*feet. ** inche

- during filling.
- iii. Simultaneously open the discharge pipe



Floating Surface Sk Skimmer



A floating surface skimmer is a buoyant device that releases/drains water from the surface of sediment ponds, traps or basins at a controlled rate of flow. It "skims", or dewaters, from the water surface where sediment concentrations are at a minimum in the water column instead of draining from the bottom where sediment concentrations are their highest, and drains to a riser or the backside of a dam.

Floating surface skimmers release a low rate of flow, draining the basin slowly at a nearly constant rate. The inlet of the skimmer device is sized according to the basin volume and designed to drain the basin in a fixed amount of time. Traditional sediment basin outlet designs use a perforated riser for dewatering, which allows water to leave the basin from all depths.

PURPOSE

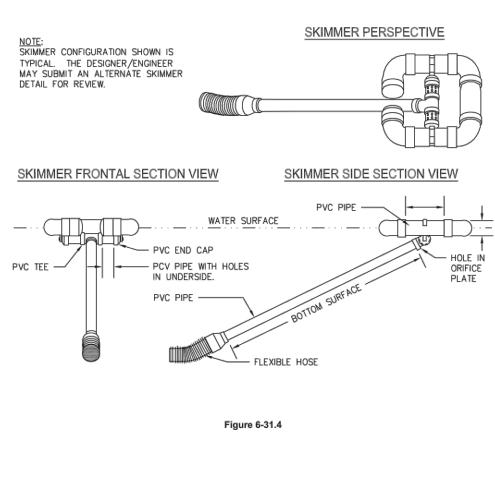
 To discharge clearer water from the surface of a sediment pond, trap or basin at a relatively uniform rate, rather than the more turbid and sediment-laden water from lower depths that is discharged through a traditional perforated riser.

To reduce the retention time associated with meeting a desired water quality standard for discharge from a sediment pond, trap or

CONDITIONS

The current principal spillway of most sediment basins is a vertical riser pipe. Water discharges through 1/2 inch perforated holes in the

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bottom half of the riser. Holes at lower elevations discharge water that has a high turbidity value. The bottom half of the riser is typically covered with 2 feet of 1/2- to 3/4-inch gravel. Over time, the gravel filter surrounding the riser is coated with sediment that traps and detains water in the basin. This reduces the storage capacity for incoming runoff. Sediment in the trapped water is re-suspended with each new inflow, and never has the opportunity to settle to the bottom.

DESIGN CRITERIA A surface skimmer (Sk) replaces the riser pipe

as the principal spillway, but DOES NOT REPLACE THE EMERCENCY OVERFLOW SPILLWAY. The skimmer only drains the basin from the crest of the emergency overflow spillway down to the bottom. Its flow capacity is too small to accommodate extreme storm events that exceed the available storage capacity, so an emergency spillway is required.

When rainfall events occur, the water level in the basin rises. Under the influence of gravity, sediment settles slowly toward the bottom, leaving clearer water at the surface. The skimmer floats at the surface as the water surface rises and discharges the cleaner water at a relatively uniform rate. By draining from the surface a skimmer can immediately begin removing relatively clear water from the pond, trap or basir and thereby reduce the retention time to obtain similarly clear discharge using traditional outlets.

Product Designs One end of a rigid tube is connected to the barrel of the discharge system via a flexible coupling. The other end of the tube floats at the water surface. The flexible coupling allows the rigid tube to articulate as the water level changes. A screen at the inlet prevents floating trash from entering the tube. Each product (and each product size) has a unique design, including the associated hydraulics that are affected by the floatation, inlet, and connecting tube/coupling designs chosen. The discharge rate is dependent on the specific product design and can only be determined through product-specific testing as discussed in Addendum A.

Dewatering Rates. Skimmers come in several sizes to accommo-

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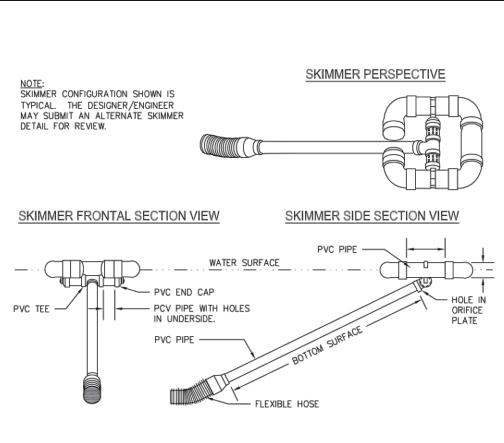




Figure 6-31.1. Floating skimmer of a different design.

date a range of flows. The plans shall indicate a volume to be drained in a specified time period. A skimmer is then selected to satisfy this requirement. Addendum B presents a typical skimmer selection table based on product-specific testing in accordance with Addendum A.

Floatation Requirements

Floating surface skimmers that sink or completely suspend under the water surface are not acceptable. A portion of the skimmer must be visible above the water surface at all times. The location of the floating "headworks" relative to the water surface, and the size and location of vents and inlets, must be the same as when the product was tested for flow rates. This should be ver fied and documented as inherent to the product design during flow testing.

Trash Guard & Maintenance Rope

All Floating surface skimmer designs include a trash guard and maintenance rope in order to prevent and remove blockage from floating debris. Trash guards prevent larger debris from entering the skimmer that may cause internal blockage. The maintenance rope is used to remove trash and debris that accumulates on the outside of the trash guard. Ensure the maintenance rope is floatable.

Skimmer Pit

Excavate a shallow pit filled with riprap under the floating surface skimmer to account for sediment that accumulates on the sediment basin bottom around the skimmer. The pit allows the skimmer to completely drain the basin. At a minimum, the pit has dimensions of 4ft x 4ft with a minimum depth of 2 ft. Ensure the bottom of GSWCC 2016 Edition

the pit is lower than the invert of the outlet barrel from the riser. Floating Skimmers that have a footed design that prevents the device from lodging in accumulated sediment do not require a skimmer pit.

CONSTRUCTION SPECIFICATIONS Materials

Use floating surface skimmers made of PVC (Schedule 40 or greater) or other appropriate materials.

Quality Assurance Each skimmer must have documented identi-

fication, including but not limited to the following: · Manufacturer's name and location.

- · Manufacturer's telephone number and fax
- number. Manufacturer's e-mail and web address
- Skimmer name, model, and/or serial number.
- Skimmer dimensions. · Certification that the skimmer meets the
- physical and performance criteria of this specification.

Installation Install the device according to the manufacturer's instructions.

Additional Information

A shut-off valve to facilitate skimmer maintenance or emergency regulation of the flow discharge rate, installed at the discharge end of the barrel as it exits the embankment is recommended. (Normal skimmer operation is to be based on the "full open" valve setting.) A storm drain outlet protection device shall be installed at the barrel discharge point.

MAINTENANCE

Inspect Floating Skimmers together with the Sediment Basin inspections. Inspect the floating surface skimmer for any structural damage, clogging, or excessive sediment accumula-

While draining the basin, the trash guard of the skimmer may clog with debris. Typically, a 6-192

		SK A2	
Calculate Skimmer Size			
Basin Volume in Cubic Feet	15,836	Cu.Ft	
Days to Drain*	2	Days	
*In NC assume 3 days to drain			
		SK C2	
Calculate Skimmer Size			
Basin Volume in Cubic Feet	71,559	Cu.Ft	
Days to Drain*	2	Days	
*In NC assume 3 days to drain			
		SK G2	
Calculate Skimmer Size			
Basin Volume in Cubic Feet	174,061	Cu.Ft	
Days to Drain*	2	Days	
*In NC assume 3 days to drain			
		SK H2	
Calculate Skimmer Size			
Basin Volume in Cubic Feet	26,057	Cu.Ft	
Days to Drain*	2	Days	
*In NC assume 3 days to drain			

6-194

1904 MO ATL P W W W . U	Urban Urban buck of the state o
	6/6/2022 REVISIONS
DATE	REVISIONS DESCRIPTION
	PROJECT NAME
	DAKMONT
	OHANNON
	OAKMONT
Know wha	rotection Center, Inc. rotection Center, Inc. rotection Center, Inc. rotection Center, Inc. rotection Center, Inc. rotection Center, Inc. rotection Center, Inc.
TOM CO	
404-868	3-9996 montre.com
PROJECT	-
SCALE	
DATE:	05-17-2022
	SHEET NAME
ES&	PC DETAILS
	SHEET NUMBER
 C	C-9.4

	Skimmer Size	3.0	Inch
	Orifice Radius	1.4	Inch[es]
	Orifice Diameter	2.7	Inch[es]
	Skimmer Size	6.0	Inch
	Orifice Radius	2.5	Inch[es]
	Orifice Diameter	5.0	Inch[es]
	Skimmer Size	8.0	Inch
	Orifice Radius	3.7	Inch[es]
	Orifice Diameter	7.5	Inch[es]
	Skimmer Size	4.0	Inch
	Orifice Radius	1.6	Inch[es]
	Orifice Diameter	3.2	Inch[es]

Turbidity Curtain Тс

nstallations are warranted.

Formal design is not required but the follow-

Depending upon the installation conditions

see Construction Specifications), curtain mate-

rial may be comprised of suitable impermeable

materials such as heavy polyethylene film, or

suitable permeable materials such as canvas

loating Turbidity Curtains Tc-F 🤇 Tc-F

water such as rivers and lakes.

water elevation.

Staked Turbidity Curtains Tc-S

Typical installations include large bodies of

Typical installations include shallow inunda-

tions where construction is required. It may be

realigned or restored. In this case the barrier

possible and extend 2 feet above the normal

Whenever possible, place barrier approxi-

mately 25 feet outside of the affected construc-

tion area for large water bodies. Installations less

than 25 feet from the work are allowed, however

ate sedimentation. Curtain depth should reach

a depth within 5 feet of the bottom for floating

installations. If the body of water has significant

velocity or current, place the barrier parallel to

In smaller streams the barrier should be

Installation dimensions and methods shall

be fitted to the conditions, permitted activity and

silt dispersion exceed the allowances the

construction methods. In no instance shall the

filling permit has authorized. The permittee is

reminded to be a good steward of our resources

GSWCC 2016 Edition

by minimizing the migration and sedimentation

regardless of permits obtained.

StreamStats

placed close to the construction area.

the flow and ensure the curtain is permeable.

narrower confinements promote proportion-

CONSTRUCTION SPECIFICATIONS

used to protect a small stream while it is being

should extend to the bottom of the streambed.

The height should be limited to 5 feet whenever

Tc-S

ng guidelines have been established:

DESIGN CRITERIA



A floating or staked barrier installed within the water. (It may also be referred to as a floating boom, silt barrier or silt curtain).

PURPOSE

Turbidity curtains are installed to minimize turbidity and silt migration from work occurring within the water or as a supplement to perimeter control BMPs at the water's edge. Silt or turbidity is confined to the area within the boundary created by the installation, such that suspended particles drop out of the water column over time.

CONDITIONS

By its nature, a turbidity curtain encourages a controlled deposition of silt or sediment. A turbidity curtain is only allowed as a primary device when required permitting has been obtained for the site that approves the filling of State or U.S. waters. The unauthorized storing of sediment in waters of the State is strictly prohibited.

The installation of a Tc as a supplemental BMP that in no way represents perimeter control, is allowed provided the stream, river or "water" substrate or bottom will not be altered in any manner by the installation.

The owner, operator and design professional are cautioned that State or LIA water buffer and variance requirements may apply to bank and shoreline installations.

PLANNING CONSIDERATIONS Careful assessment of the depth, flow or current of water and nature of construction is needed in order to determine if floating or staked

6-219

5/17/22, 10:58 AM

StreamStats Report

Region ID: GA

Workspace ID: GA20220517144031586000 Clicked Point (Latitude, Longitude): 33.54570, -84.59419 Time: 2022-05-17 10:40:54 -0400



Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.042	square miles
LC06IMP	Percentage of impervious area determined from NLCD 2006 impervious dataset	24.02	percent
PCTREG1	Percentage of drainage area located in Region 1 - Piedmont / Ridge and Valley	100	percent
PCTREG2	Percentage of drainage area located in Region 2 - Blue Ridge	0	percent
PCTREG3	Percentage of drainage area located in Region 3 - Sandhills	0	percent

COMPREHENSIVE MONITORING PROGRAM FOR OAKMONT BOHANNAN

https://streamstats.usgs.gov/ss/

In accordance with the requirements of NPDES General Permit for Stand Alone Construction Projects, GAR100001, which are shown below, a ensive monitoring program is required for every land disturbing activity that is greater than 1.0 acres. This plan is developed to ascertain water imples at certain interval, assuring the state that the site is limiting the impact on the surrounding areas The project site is located in Braselton, Ga. The current proposed construction is an industrial warehouse with truck court and trailer storage. Site Water Descripti The project disturbs 18.67 acres of a 23.39 acres site. The site water discharges into an unnamed tributary to Line Creek Sampling Locations wo sampling locations are proposed for the proposed construction. One to the south of the site just after the proposed pond, and the second is located north of the site before our site disturbance can affect the stream. 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 non 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 no outer a subscription of the s USGS topographic map from where the stormwater(s) enters 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.

(2). Samples should be well mixed before transferring to a secondary containe (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

Barriers shall be either staked or floating depending upon current, tides, water depth and other variables. When staked barriers are used in stream relocations or widening, the curtain shall be permeable, weighted at the bottom and not be trenched in.

MAINTENANCE

For installations that permit the placement of fill within the water body, maintenance consists of removing the Turbidity Curtain when it is no longer required. If the deposition exceeds the allowances of the filling permit, careful removal of the sediment is required and shall be performed in a manner that is consistent with all other applicable permits.

If the installation is made as a supplemental BMP, the Tc should be removed after final stabilization of the contributing drainage area and perimeter control removal has occurred.

6-220

5/17/22, 10:58 AM StreamStats Paramete Code Parameter Description Value Unit Percentage of drainage area located in Region 4 - Coastal 0 PCTREG4 percent Plains Percentage of drainage area located in Region 5 - Lower 0 PCTREG5 percent Tifton Uplands BASIN SLOPE = 1.5% Peak-Flow Statistics Parameters [Region 1 rural under 1 sqmi 2014 5030] Parameter Code Parameter Name Value Units Min Limit Max Limit 0.042 square miles 0.1 DRNAREA Drainage Area Percent Impervious NLCD2006 24.02 percent 0 47.9 LC06IMP Peak-Flow Statistics Disclaimers [Region 1 rural under 1 sqmi 2014 5030] One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Peak-Flow Statistics Flow Report [Region 1 rural under 1 sqmi 2014 5030] Statistic Valu 50-percent AEP flood 35.9 ft^3/s 20-percent AEP flood 47 ft^3/s 10-percent AEP flood 53.2 ft^3/s 4-percent AEP flood 59.5 ft^3/s 63.3 ft^3/s 2-percent AEP flood

67.3

70.2

78.6

ft^3/s

ft^3/s

ft^3/s

2/3

Peak-Flow Statistics Citations

1-percent AEP flood

0.5-percent AEP flood

0.2-percent AEP flood

Feaster, T.D., Gotvald, A.J., and Weaver, J.C.,2014, Methods for estimating the magnitude and frequency of floods for urban and small, rural streams in Georgia, South Carolina, and North Carolina, 2011 (ver. 1.1, March 2014): U.S. Geological Survey Scientific Investigations Report 2014-5030, 104 p. (http://pubs.usgs.gov/sir/2014/5030/)

https://streamstats.usgs.gov/ss/

1/3

(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 (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 ormwater 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 (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 The particular of the sectors, submitted shift makes in the sector and subscription of the sectors, subscription and the sectors and the secto the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization sures 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, ocations, 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

Temporary Stream Crossing



Sr

DEFINITION A temporary structure installed across a flowing stream or watercourse for use by construction equipment.

PURPOSE

This standard provides a means for construction vehicles to cross streams or watercourses without moving sediment into streams, damaging the streambed or channel, or causing flooding.

CONDITIONS

Temporary stream crossings should not be used on streams with drainage areas greater than one square mile, unless specifically designed to accommodate the additional drainage area by the design professional. A certification statement and signature shall accompany the

Structures may include bridges, round pipes or pipe arches.

Temporary stream crossings should be in place for less than one year and should not be used by the general public.

DESIGN CRITERIA

6-201

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Size The structure shall be large enough to convey the full bank flow of the stream, typically flows produced by a 2-year, 24-hour frequency storm, without appreciably altering the stream flow characteristic.

The temporary stream crossing shall be perpendicular to the stream. Where approach conditions dictate, the crossing may vary 15% from the perpendicular.

Overflow Protection Structures shall be protected from washout during periods of peak discharges by diverting water around the structures. Methods to be nsidered for washout protection may include levation of bridges above adjacent flood plain lands, crowning of fills over pipes, or by the use f diversions, dikes or island type structures. wo types of stream crossings that may be used are bridges and culverts. Frequency and intended use, stream channel conditions, overflow areas, potential flood damage, and surface runoff control should be considered when selecting the type of temporary stream crossing to be used.

Temporary Bridge Crossing (Sr-B)

A temporary access bridge causes the least erosion of the stream channel crossing when the bridge is installed and removed. It also provides the least obstruction to flow and fish migration. Provided that the bridge is properly designed and appropriate materials are used, a temporary access bridge will be long-lasting and will require little maintenance. However, it is generally the most expensive crossing to design and construct, creating the greatest safety hazard if not adequately designed, installed and maintained.

Temporary Culvert Crossing (Sr-C)

A temporary access culvert can control erosion effectively, but can cause erosion when it is installed and removed. It is the most common stream crossing. A temporary culvert can be easily constructed and enables heavy equipment loads to be used. However, culverts create the greatest obstruction to flood flows and are subject to blockage and washout.

Table 6-33.1 shall be used to determine the culvert size necessary to safely convey streamflow.

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Table 6-33.1. Corrugated Metal Pipe (CMP) **Diameters For Temporary Stream Crossings** * Average Slope of Watershed rainage Area 1% 4% 8% 16% (Acres) 1-25 24 24 30 30 26-50 51-100 24 30 30 36 36 36 42 48 101-150 30 42 48 48 151-200 36 42 48 54 201-250 36 48 54 54 251-300 36 48 54 60 301-350 42 48 60 60

601-640 48 60 72 72 Assumptions for determining the table: USDA-NRCS Peak Discharge Method; CN = 65; Rainfall depth (average for Georgia) = 3.7" for 2-year frequency. Pipe diameters shown in the table are in inches. Please note that the required pipe size is based

42 54 60 60

42 54 60 72

42 54 60 72

48 60 60 72

48 60 60 72

on cross-sectional area of the pipe; e.g. if a 24 inch pipe is prescribed by Table 33.1, two 12 inch pipes could not be substituted because less flow area is provided.

CONSTRUCTION SPECIFICATIONS

All Crossings

GSWCC 2016 Edition

351-400

401-450

451-500

501-550

551-600

- Clearing of the stream bed and banks shall be kept to a minimum. 2. All surface water from the construction site
- shall be diverted onto undisturbed areas adjoining the stream. Line unstable stream banks with riprap or otherwise appropriately stabilize them.
- 3. The structure shall be removed as soon as it is no longer necessary for project construc-
- 4. Upon removal of the structure, the stream shall immediately be restored to its original cross-section and properly stabilized.

Temporary Bridge Crossing (Sr-B)

- 1. The temporary bridge shall be constructed at or above bank elevation to prevent the entrapment of floating materials and debris. 2. Abutments shall be placed parallel to and on stable banks.
- 3. Bridges shall be constructed to span the entire channel. If the channel width exceeds eight feet (as measured from the tops of the banks), a footing, pier or bridge support may be constructed within the waterway.
- 4. Bridges shall be securely anchored at only one end using steel cable or chain. This will prevent channel obstruction in the event that floodwaters float the bridge. Large trees, large boulders, or driven steel anchors can serve as anchors.
- Temporary Culvert Crossing (Sr-C) 1. The invert elevation of the culvert shall be installed on the natural streambed grade.
- The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe of the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.
- The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used, they shall be separated by a minimum of 12 inches of compacted aggregate fill.

MAINTENANCE

The structure shall be inspected after every rainfall and at least once a week, whether it has rained or not, and all damages repaired immediately. The structure shall be removed immediately after construction is finished, and the streambed and banks must be stabilized. Refer to specification Bf - Buffer Zone.

6-202

5/17/22, 10:58 AM

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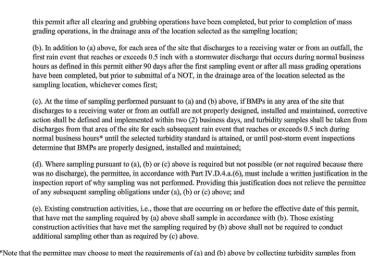
StreamStats

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Application Version: 4.8.1

StreamStats Services Version: 1.2.22 NSS Services Version: 2.1.2



Inspections a. Permittee requirements.

https://streamstats.usgs.gov/ss/

(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 nonworking 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.

ny rain event that reaches or exceeds 0.5 inch and allows for sampling at any time of the day or week.

(3). Certified personnel (provided by the primary permittee) shall inspect the following at least once every seven (7) calendar days and within 24 ours 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 r 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 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 (a): Centred personned (provided of the primary perimeter) shart inspect at reast once per homm during the term of this perimeter, and a Notice of Termination has been submitted the areas of the site that have undergoon 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

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. E. 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 a cordance 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 VL 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; b. The name(s) of the certified personnel
 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 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 VL Mountain District - Atlanta Satellite Georgia Environmental Protection Division 4244 International Parkway, Suite 114 Atlanta, GA 30354-3906 (404) 362-2671 F. Retention of Records.

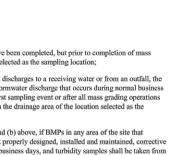
(6). A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, 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

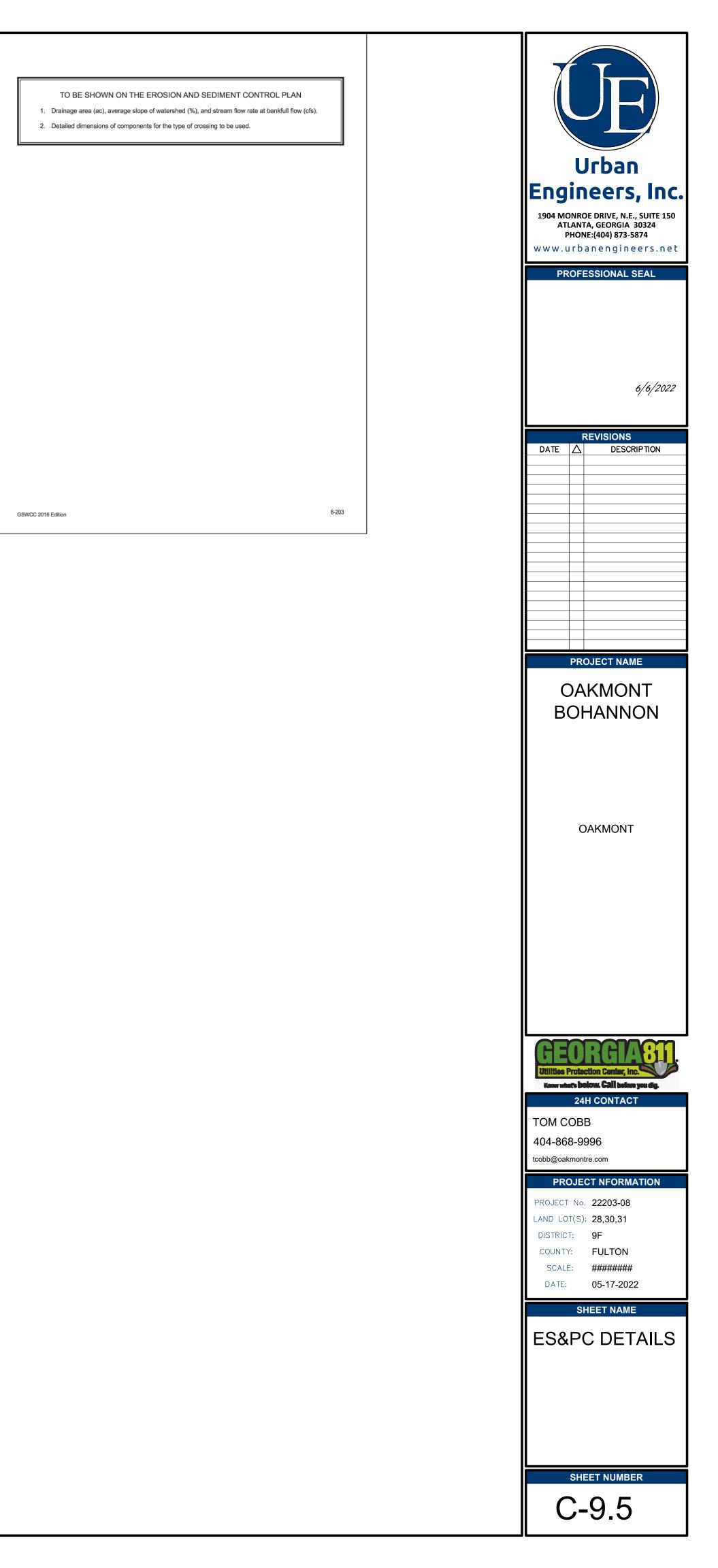
available at a designated alternate location until the entire site or that portion of a construction site that has been phased has undergone final

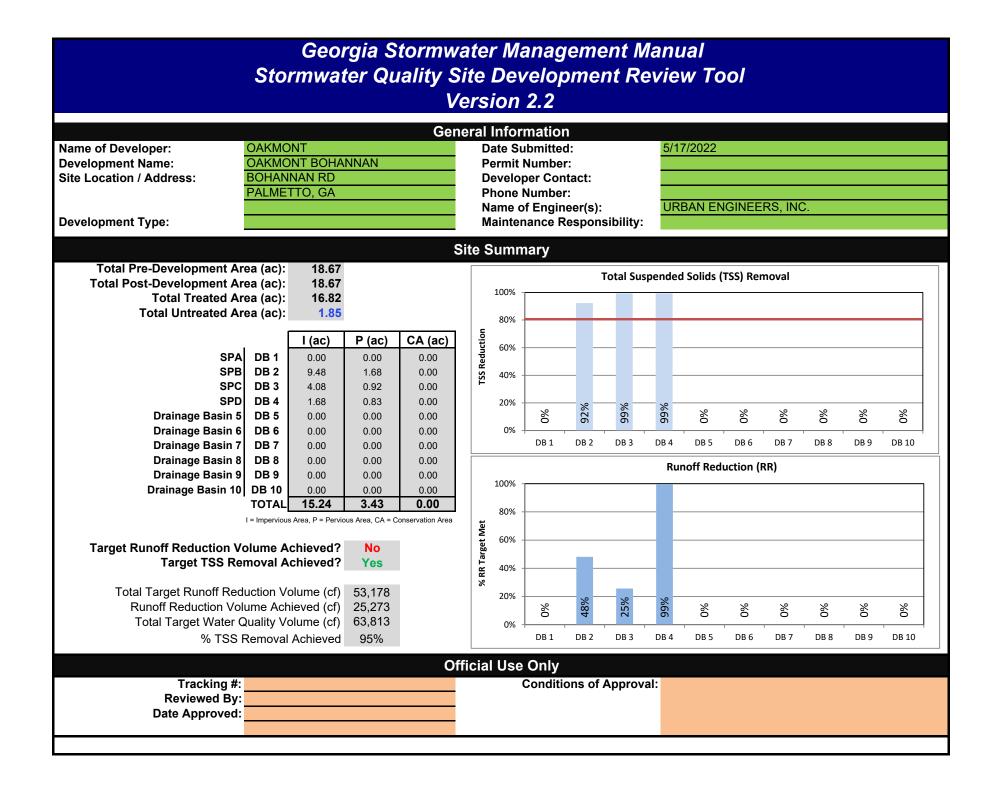
1. The primary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI: a. A copy of all Notices of Intent submitted to EPD:

 a. 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 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 mitted 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.







Georgia Stormwater Management Manual Stormwater Quality Site Development Review Tool, v2.2 Runoff Reduction and TSS Removal Efficiencies

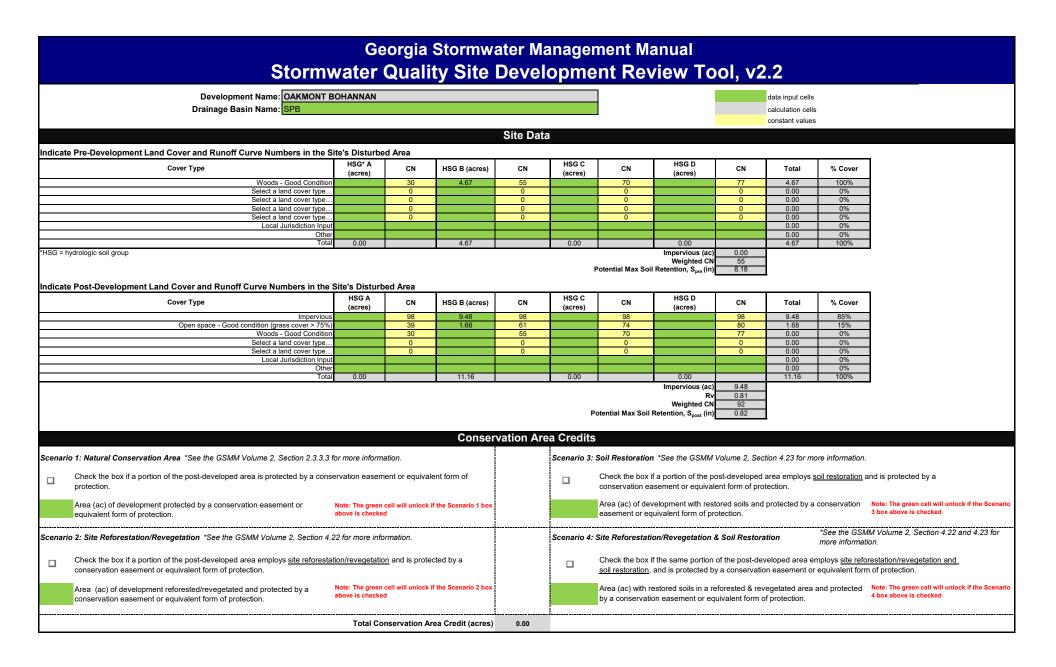
data input cells		constant values								
	Runoff Reduction %	Effective TSS Removal %	Runoff Reduction Method	Drainage Area Restrictions	Units	Min/Max				
Bioretention Basin (w/ underdrain)	50%	85%	Storage	5	acres	Max				
Bioretention Basin (w/ upturned underdrain)	75%	85%	Storage	5	acres	Max				
Bioretention Basin (w/o underdrain)	100%	100%	Storage	5	acres	Max				
Bioslope (A & B hydrologic soils)	50%	85%	Storage							
Bioslope (C & D hydrologic soils)	25%	85%	Storage							
Downspout Disconnect (A & B hydrologic soils)	50%	80%	Convey	2500	ft ²	Max				
Downspout Disconnect (C & D hydrologic soils)	25%	80%	Convey	2500	ft ²	Max				
Dry Detention Basin	0%	60%	Storage	75	acres	Max				
Dry Extended Detention Basin	0%	60%	Storage							
Dry Well	100%	100%	Storage	2500	ft ²	Max				
Enhanced Dry Swale (w/ underdrain)	50%	80%	Storage	5	acres	Max				
Enhanced Dry Swale (w/o underdrain)	100%	100%	Storage	5	acres	Max				
Enhanced Wet Swale	0%	80%	Storage	5	acres	Max				
Grass Channel (A & B hydrologic soils)	25%	50%	Convey	5	acres	Max				
Grass Channel (C & D hydrologic soils)	10%	50%	Convey	5	acres	Max				
Gravity (oil-grit) Separator	0%	40%	Convey	5	acres	Max				
Green Roof	60%	80%	Storage		40103					
Infiltration Trench	100%	100%	Storage	5	acres	Max				
Multi-Purpose Detention Basin	0%	100 /0	Storage		40103					
Organic Filter	0%	80%	Storage	10	 acres	 Max				
Permeable Paver System (w/ underdrain)	50%	80%	Storage		40103					
Permeable Paver System (w/ underdrain)	75%	80%	Storage							
Permeable Paver System (w/ upturned underdrain)	100%	100%	Storage							
Pervious Concrete (w/ underdrain)	50%	80%	ě – – – – – – – – – – – – – – – – – – –							
			Storage							
Pervious Concrete (w/ upturned underdrain)	75%	80%	Storage							
Pervious Concrete (w/o underdrain)	100%	100%	Storage							
Porous Asphalt (w/ underdrain)	50%	50%	Storage							
Porous Asphalt (w/ upturned underdrain)	75%	50%	Storage							
Porous Asphalt (w/o underdrain)	100%	100%	Storage							
Porous Asphalt (OGFC, PEM)	0%	50%	Convey							
Proprietary System										
Rainwater Harvesting	00/	0.00%	Storage	50						
Regenerative Stormwater Conveyance	0%	80%	Storage	50	acres	Max				
Sand Filter	0%	80%	Storage	10	acres	Max				
Site Reforestation/Revegetation	0%	0%	Convey							
Soil Restoration (can be used to remediate C & D soils)	0%	0%	Convey							
Stormwater Planter / Tree Box	50%	80%	Storage	2500	ft ²	Max				
Stormwater Pond	0%	80%	Storage	10-25	acres	Min				
Stormwater Wetlands – Level 1	0%	80%	Convey	5	acres	Min				
Stormwater Wetlands – Level 2	0%	85%	Convey	5	acres	Min				
Submerged Gravel Wetlands	0%	80%	Convey	5	acres	Min				
Underground Detention	0%	0%	Convey							
Vegetated Filter Strip (A & B hydrologic soils)	50%	60%	Convey							
Vegetated Filter Strip (C & D hydrologic soils)	25%	60%	Convey							
Downstream Defender 4ft		50%								
downstream Defender 6ft		50%								
[User Input 3]										
Toon where I										

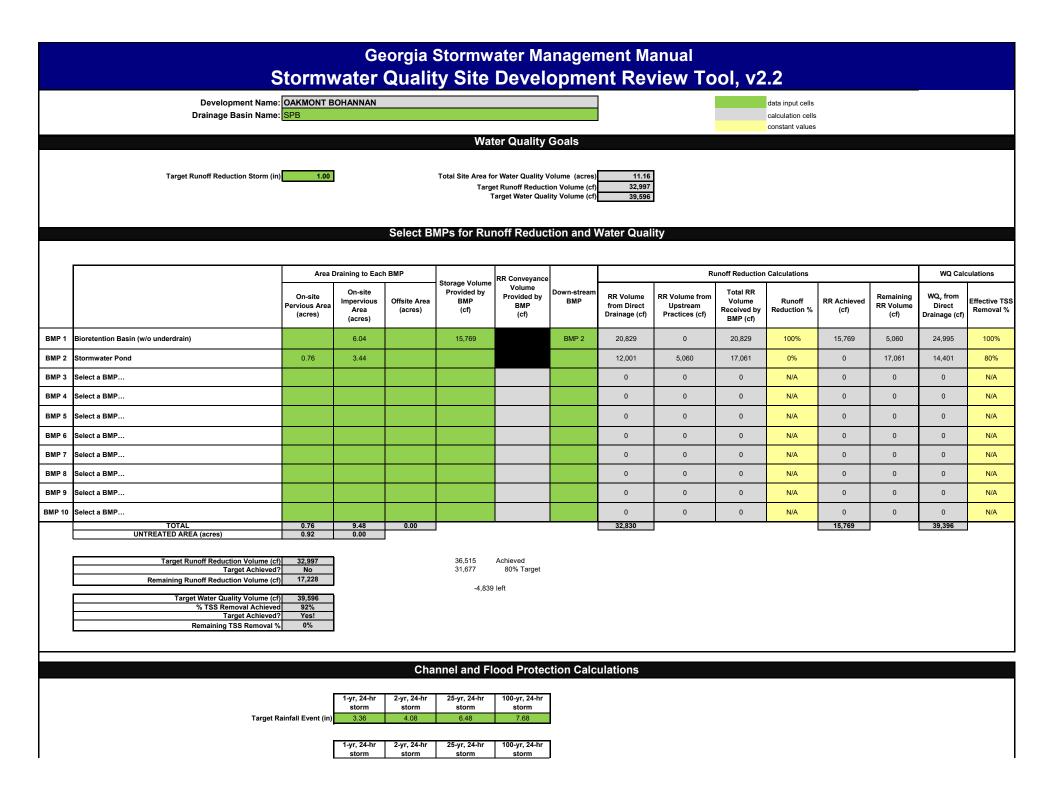
Stormv			Stormw t <mark>y Site</mark>					ool, v	2.2		
Development Name: OAKMONT	BOHANNAN					1			data input cells	5	
Drainage Basin Name: SPA									calculation cell		
						_			constant value	s	
				Site Dat	a						
ndicate Pre-Development Land Cover and Runoff Curve Numbers in the	Site's Distur	ned Area									
Cover Type	HSG* A	CN	HSG B (acres)	CN	HSG C	CN	HSG D	CN	Total	% Cover]
	(acres)		. ,		(acres)		(acres)				
Woods - Good Condition Select a land cover type		30 0	4.45	55 0		70		77	4.45 0.00	100%	1
Select a land cover type Select a land cover type		0		0		0		0	0.00	0%	1
Select a land cover type		0		0		0		0	0.00	0%	1
Select a land cover type		0		0		0		0	0.00	0%	1
Local Jurisdiction Input Other									0.00	0%	4
Total	0.00		4.45		0.00		0.00		4.45	100%	1
ISG = hydrologic soil group Weighted CN 55 Potential Max Soil Retention, S _{pre} (in) 8.18								-			
Cover Type	HSG A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover	
Impervious	5	98	0.00	98		98		98	0.00	0%	
Open space - Good condition (grass cover > 75%))	39 30		61 55		74 70		80 77	0.00	0% 0%	
Woods - Good Condition Select a land cover type		30 0		0		0		0	0.00	0%	
Select a land cover type		0 0		0		0		0	0.00	0%	
Local Jurisdiction Input	t								0.00	0%	
Other									0.00	0%	
Total	0.00		0.00		0.00		0.00 Impervious (ac) 0.00	0.00	0%	1
			Conser	vation Ar	Po ea Credits		Weighted CN Retention, S _{post} (in	0.00			
			0011301	Valion Ai		,					
cenario 1: Natural Conservation Area *See the GSMM Volume 2, Section 2.3.3.	3 for more info	mation.			Scenario 3:	Soil Restoratio	n *See the GSM	M Volume 2, S	Section 4.23 for	more informatio	n.
Check the box if a portion of the post-developed area is protected by a comprotection.	servation ease	ment or equiva	alent form of		Check the box if a portion of the post-developed area employs <u>soil restoration</u> and is protected by a conservation easement or equivalent form of protection.						
Area (ac) of development protected by a conservation easement or equivalent form of protection.				velopment with re quivalent form of p		nd protected by	a conservation	Note: The green cell will unlock if the Scen 3 box above is checked			
cenario 2: Site Reforestation/Revegetation *See the GSMM Volume 2, Section		Scenario 4:	Site Reforestat	ion/Revegetatio	n & Soil Rest	oration	*See the GSN more informat	IM Volume 2, Section 4.22 and 4.23 t ion.			
Check the box if a portion of the post-developed area employs site reforest conservation easement or equivalent form of protection.	ation/revegetat	<u>ion</u> and is prot	ected by a				if the same portio and is protected				orestation/revegetation and m of protection.
Area (ac) of development reforested/revegetated and protected by a conservation easement or equivalent form of protection.	Note: The green above is checke		f the Scenario 2 box				restored soils in a on easement or e			a and protected	Note: The green cell will unlock if the Scer 4 box above is checked
	Total Co	servation Ar	ea Credit (acres)	0.00							
		iseivation Ar	ea creuit (acres)	0.00							

	Georgia Stormwater Management Manual Stormwater Quality Site Development Review Tool, v2.2														
	Development Name: OAKMONT BOHANNAN data input cells Drainage Basin Name: SPA calculation cells constant values constant values														
	Water Quality Goals														
	Target Runoff Reduction Storm (in) 1.00 Total Site Area for Water Quality Volume (acres) - Target Runoff Reduction Volume (cf) - - Target Water Quality Volume (cf) -														
	Select BMPs for Runoff Reduction and Water Quality														
			Draining to Eac On-site	n BMP	Storage Volume Provided by	RR Conveyance Volume	Down-stream			unoff Reduction	Calculations	I	1		culations
		On-site Pervious Area (acres)	Impervious Area (acres)	Offsite Area (acres)	BMP (cf)	Provided by BMP (cf)	BMP	RR Volume from Direct Drainage (cf)	RR Volume from Upstream Practices (cf)	Volume Received by BMP (cf)	Runoff Reduction %	RR Achieved (cf)	Remaining RR Volume (cf)	WQ _v from Direct Drainage (cf)	Effective TSS Removal %
BMP 1	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 2	Select a BMP							0	0	0	N/A	0	0	0	N/A
BMP 3	Select a BMP							0	0	0	N/A	0	0	0	N/A
BMP 4	Select a BMP							0	0	0	N/A	0	0	0	N/A
BMP 5	Select a BMP							0	0	0	N/A	0	0	0	N/A
BMP 6	Select a BMP							0	0	0	N/A	0	0	0	N/A
BMP 7	Select a BMP							0	0	0	N/A	0	0	0	N/A
BMP 8	Select a BMP							0	0	0	N/A	0	0	0	N/A
BMP 9	Select a BMP							0	0	0	N/A	0	0	0	N/A
BMP 10	Select a BMP TOTAL	0.00	0.00	0.00				0	0	0	N/A	0 0	0	0 0	N/A
	UNTREATED AREA (acres)	0.00	0.00	0.00	1								1		1
	Target Runoff Reduction Volume (cf) 0 0 Achieved Target Achieved? N/A 0 80% Target Remaining Runoff Reduction Volume (cf) 0 0 0 left														
	Target Water Quality Volume (cf % TSS Removal Achieved Target Achieved? Remaining TSS Removal %	1 0% ? No													

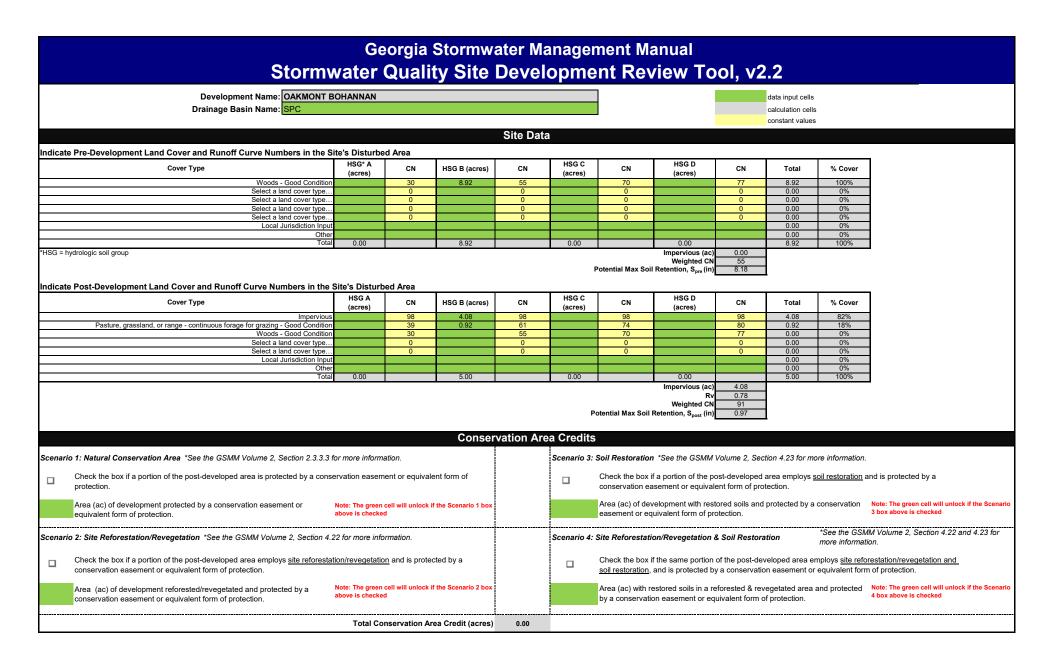
Channel and Flood Protection Calculations

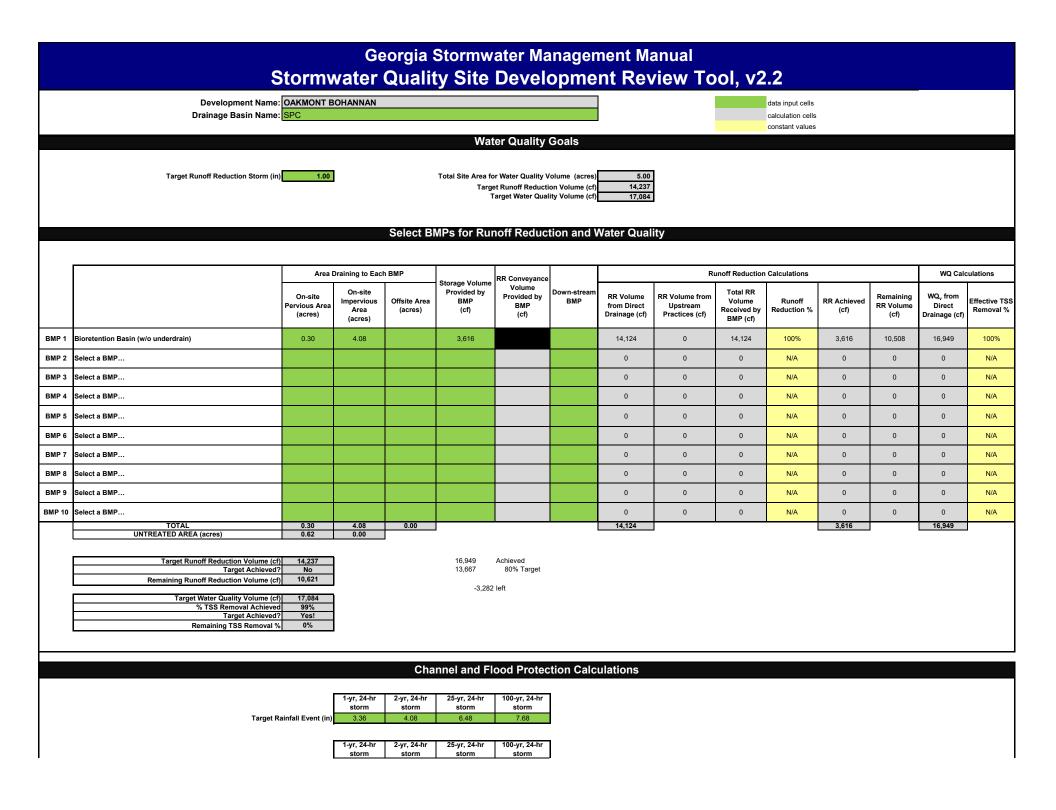
Stormw	Georgia Stormwater Management Manual Stormwater Quality Site Development Review Tool, v2.2						
Development Name: OAKMONT B Drainage Basin Name: SPA	OHANNAN					data input cells calculation cells constant values	
Target Rainfall Event (in)	1-yr, 24-hr storm 3.36	2-yr, 24-hr storm 4.08	25-yr, 24-hr storm 6.48	100-yr, 24-hr storm 7.68			
Pre-Development Runoff Volume (in) Post Development Runoff Volume (in) with no BMPs Post-Development Runoff Volume (in) with BMPs Adjusted CN	1-yr, 24-hr storm 0.30 0.00 0.00 0	2-yr, 24-hr storm 0.56 0.00 0.00 0	25-yr, 24-hr storm 1.80 0.00 0.00 0	100-yr, 24-hr storm 2.57 0.00 0.00 0			
*See Stormwater Management Standards to Determine Detention Requirements.				Comments			
				Comments			



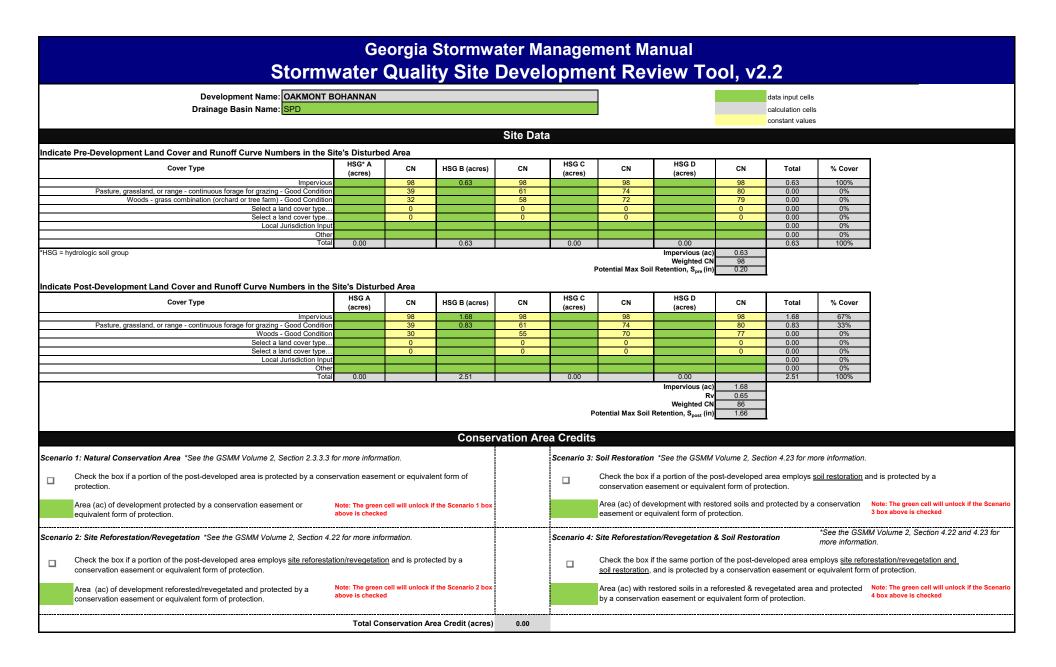


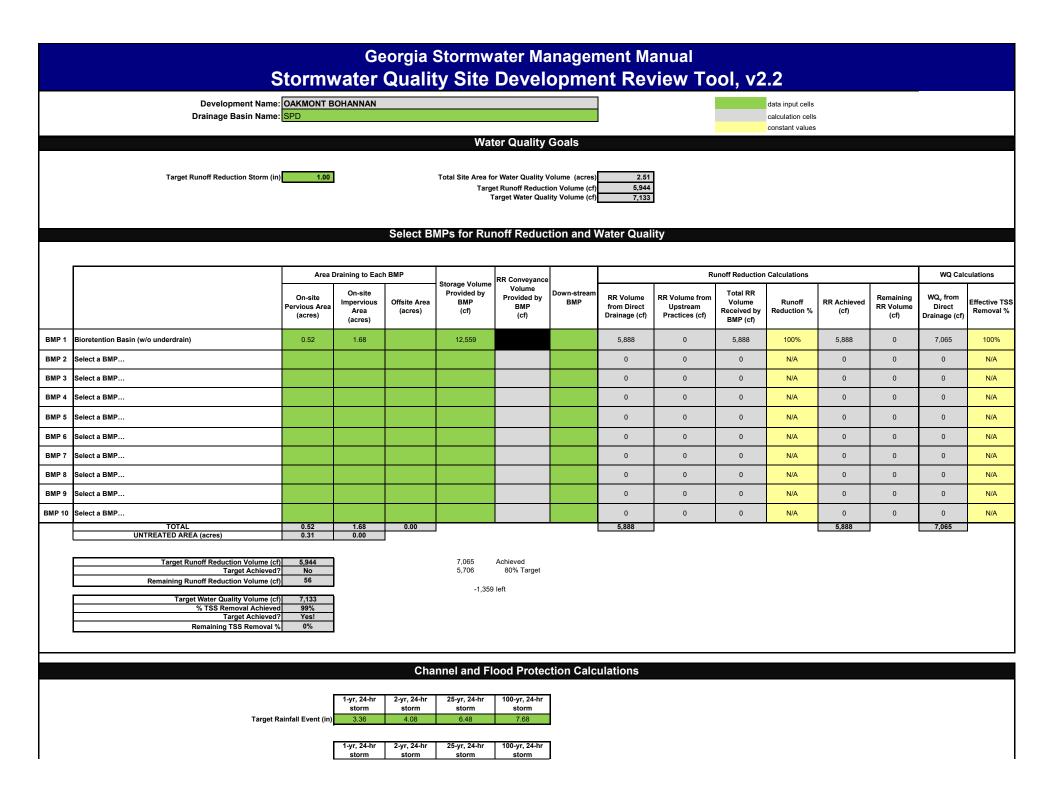
			ement Manual nent Review Tool, v2.2
Development Name: OAKMONT BOHANNAI Drainage Basin Name: SPB	N		data input cells calculation cells constant values
Pre-Development Runoff Volume (in) 0.30 Post Development Runoff Volume (in) with no BMPs 2.54 Post-Development Runoff Volume (in) with BMPs 2.16 Adjusted CN 88 *See Stormwater Management Standards to Determine Detention Requirements.	0.56 1.80 3.24 5.59 2.85 5.20 88 89	2.57 6.78 6.39 89	
		Comments	



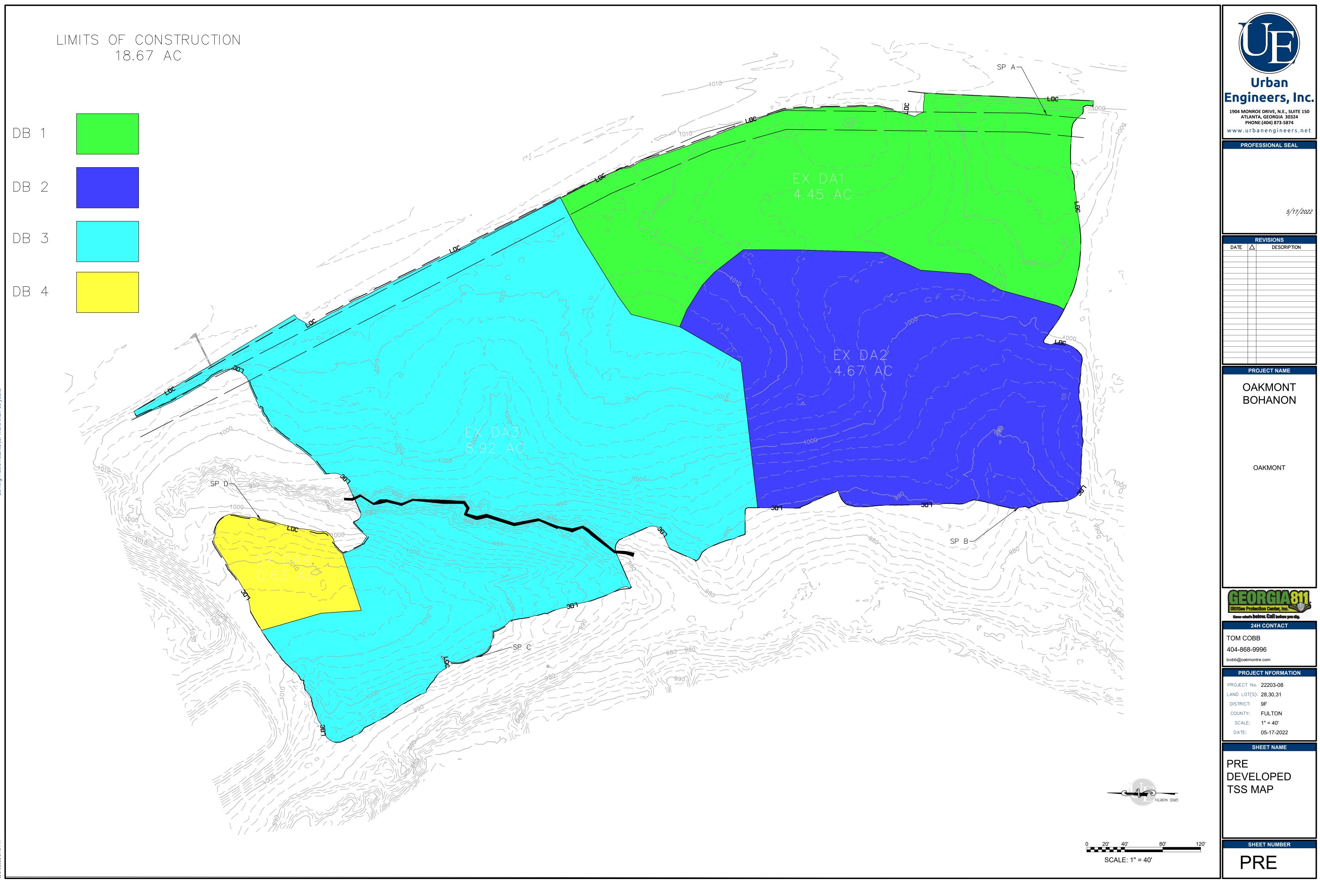


Stormwa				gement Manual ment Review Tool, v2.2
Development Name: OAKMONT BOH Drainage Basin Name: SPC	HANNAN			data input cells calculation cells constant values
Pre-Development Runoff Volume (in) Post Development Runoff Volume (in) with no BMPs Post-Development Runoff Volume (in) with BMPs Adjusted CN *See Stormwater Management Standards to Determine Detention Requirements.	0.30 0.56 2.43 3.11 2.23 2.91 89 89	1.80 5.45 5.25 89	2.57 6.63 6.43 89	
			Comments	





Georgia Stormwater Manageme Stormwater Quality Site Developmen	
Development Name: OAKMONT BOHANNAN Drainage Basin Name: <mark>SPD</mark>	data input cells calculation cells constant values
Pre-Development Runoff Volume (in) 3.13 3.84 6.24 7.44 Post Development Runoff Volume (in) with no BMPs 1.96 2.60 4.84 5.99 Post-Development Runoff Volume (in) with BMPs 1.31 1.95 4.19 5.35 Adjusted CN 77 78 80 80	
Comments	



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