

Amy Harvey

From: Sue Burke
Sent: Wednesday, April 26, 2023 11:21 AM
To: Amy Harvey; Tas Lagoo
Cc: Corey Liles; Derks, Bill
Subject: FW: UNC Health Eastowne concept plan - Stormwater Advisory Board comments
Attachments: Stormwater Advisory Board Eastowne recommendations 2023 APR 25.pdf; Stormwater Advisory Board Eastowne recommendations for 2019 SEPT 25 Council meeting.pdf; Stormwater Advisory Board Email to Town Council UNC Health Eastowne Negotiation Committee 2019 NOV 14.pdf; Memo to Council Committee - Natural Area Natural Communities on Eastowne Tract 2019-10-08 with attachments (optimized).pdf

Importance: High

hi Amy,

Attached are copies of the Stormwater Advisory Board's memo and its three attachments conveying comments to the Town Council for the UNC Health Eastowne project.

The UNC Health Eastowne project is on tonight's Council agenda. Rachel Willis will attend tonight's meeting to present comments to the Council (I think Pamela Schultz will be there also).

Can copies be provided to the Council members at their seats tonight?

I apologize for the short notice; the Board met last night to finalize and approve their comments.

Please let me know if you have any questions or if I should email the memo and attachments directly to the Mayor and Council.

Thank you,

Sue

Sue Burke, P.E., CFM
Senior Engineer
Town of Chapel Hill

(919) 969-7266
sburke@townofchapelhill.org

From: Sue Burke
Sent: Tuesday, April 25, 2023 7:38 PM
To: Amy Ryan <aryan@townofchapelhill.org>; Chad Pickens (chadp@greatoutdoorprovision.com) <chadp@greatoutdoorprovision.com>; Evan Kirk <evankirk29@gmail.com>; Janet Clarke (jlclarke@ehs.unc.edu) <jlclarke@ehs.unc.edu>; Neal Bench <nj397bench@gmail.com>; Pamela Schultz (pamela.b.schultz@gmail.com) <pamela.b.schultz@gmail.com>; Rachel Willis <r.willis.nc@gmail.com>; Shugong Wang <wangsgcn@gmail.com>
Cc: Allison Weakley <aweakley@townofchapelhill.org>; Christine Hill <chill@townofchapelhill.org>; Ernest Odei-Larbi <eodei-larbi@townofchapelhill.org>; Jason Salat <jsalat@townofchapelhill.org>; Joao Pereira <jpereira@townofchapelhill.org>; Samantha Bauer <sbauer@townofchapelhill.org>; Zach Strickland

<zstrickland@townofchapelhill.org>; Chris Roberts <croberts@townofchapelhill.org>

Subject: UNC Health Eastowne concept plan - Stormwater Advisory Board comments

hi all,

Attached are the Board's UNC Health Eastowne recommendation memo (Stormwater Advisory Board Eastowne recommendations 2023 APR 25.pdf) discussed at tonight's meeting and the three attachments referenced in the memo.

Attachments: Stormwater Advisory Board recommendations for 2019 SEPT 25 Council meeting.pdf
Stormwater Advisory Board Email to Town Council UNC Health Eastowne Negotiation Committee 2019 NOV 14.pdf

Memo to Council Committee – Natural Area & Natural Communities on Eastowne Tract 2019-10-08 with attachments.pdf

The site constraints map is included in the "Stormwater Advisory Board Email to Town Council UNC Health Eastowne Negotiation Committee 2019 NOV 14.pdf" attachment. The maps referenced in the memo ("Maps on pages 6 and 9 provide context of the Eastowne site to the other natural communities.") are contained in the "Stormwater Advisory Board Email to Town Council UNC Health Eastowne Negotiation Committee 2019 NOV 14.pdf" attachment.

Please let me know if you have any questions.

Sue

Sue Burke, P.E., CFM
Senior Engineer
Town of Chapel Hill

(919) 969-7266
sburke@townofchapelhill.org

MEMORANDUM

TO: Chapel Hill Mayor and Town Council

FROM: Chad Pickens, Chair, Stormwater Management Utility Advisory Board

SUBJECT: UNC Health Eastowne concept plan recommendations

DATE: April 25, 2023

In 2019, the Stormwater Management Utility Advisory Board (Board) had several opportunities to provide comments about the proposed UNC Health Eastowne project development agreement/master plan to the Town Council. Copies of the Board's September and November 2019 recommendations are attached.

The applicant's consultant presented the concept plan at the Board's meeting on March 7, 2023. Some additional information in this submission has been provided but a more detailed layout for the site was not included.

The Board's highest priority continues to be the preservation of the 20.5-acre tract in its natural condition. It is a unique and high-quality natural community and natural area in Chapel Hill. As noted in the 2019 Site Survey Report by the NC Natural Heritage Program, the Eastowne site:

- is part of the Dry Creek/Mt. Moriah Bottomland Forest Natural Area,
- contains significant natural community occurrences - Dry-Mesic Basic Oak Hickory Forest, and Piedmont Swamp Forest, and
- provides important linkages for wildlife to the Dry Creek floodplain and to the rest of the Dry Creek/Mt. Moriah Bottomland Natural Area, the New Hope Creek Corridor, and the conservation lands around Jordan Lake and Duke Forest.

The Dry-Mesic Basic Oak Hickory Forest is considered vulnerable to extinction at both the global and state levels; is the 17th most important of the 66 Dry-Mesic Basic Oak Hickory Forest natural communities documented statewide; and is the *only remaining undeveloped upland hardwood forest along Dry Creek*. (emphasis added)

The consultant noted that the concept plan included two road crossings through the Resource Conservation District (RCD), which have since been eliminated. The Board fully supports this revision. Further, the Board does not support locating stormwater retention facilities in the Town's RCD. These RCD encroachments need to be eliminated also.

The applicant is also proposing to add the 50-year, 24-hour storm to the Town's stormwater rate control requirements and to design the stormwater control measures to provide nitrogen and phosphorus removal. The Board supports these initiatives and the Board's previous recommendations for this site.

Additionally, the Board recommends that the Town consider coordinating with UNC Health to provide tours of 20.5-acre site, similar to tours conducted by Town staff in 2019. This would give Council and board/commission members who were elected/appointed since those tours occurred to familiarize themselves with the property.

By preserving the 20.5-acre property, UNC Health Care would demonstrate good stewardship of the environment, promote public health and safety, and model fiscal responsibility by proactively addressing the Jordan Lake rules. The Board continues to believe there may be grant opportunities that could assist UNC Health with permanent preservation of this site.

A copy of the 2019 staff memo to the Council committee about the natural area and natural communities on the Eastowne property is attached also. Maps on pages 6 and 9 provide context of the Eastowne site to the other natural communities.

At its April 25, 2023 meeting, the Board reviewed and approved these recommendations and approved Board members Ms. Schultz and Ms. Willis to present them to the Town Council at the Council's April 26, 2023 meeting.

Motion made by Ms. Willis; Ms. Clarke seconded the motion. It passed unanimously (4-0) in a roll call vote.

Members present: Pickens, Clarke, Willis, Wang

Members absent: Kirk, Bench

Attachments: Stormwater Advisory Board recommendations for 2019 SEPT 25 Council meeting.pdf

Stormwater Advisory Board Email to Town Council UNC Health Eastowne Negotiation Committee 2019 NOV 14.pdf

Memo to Council Committee – Natural Area & Natural Communities on Eastowne Tract 2019-10-08 with attachments.pdf

MEMORANDUM

TO: Mayor and Town Council

FROM: Pamela Schultz, Chair, Stormwater Management Utility Advisory Board

SUBJECT: Eastowne development agreement and master plan recommendations

DATE: September 25, 2019

On behalf of the Stormwater Management Utility Advisory Board (Board), I present the attached development agreement and master plan design principle recommendations to the Town Council.

The Board's highest priority is the preservation of the 20.5 acre tract in its natural condition. It is a unique and high quality natural community and natural area in Chapel Hill. As noted in the recent Site Survey Report by the NC Natural Heritage Program, it contains significant natural community occurrences and also provides important linkages for wildlife between the conservation lands around Jordan Lake and Duke Forest.

By preserving this site, UNC Health Care would demonstrate good stewardship of the environment, promote public health and safety, and model fiscal responsibility by proactively addressing the Jordan Lake rules.

The Board believes there may be grant opportunities that could assist with obtaining permanent preservation of this site.

The Board appreciates the opportunity to provide input to this process.

Attachment

STORMWATER MANAGEMENT UTILITY ADVISORY BOARD
UNC HEALTHCARE AT EASTOWNE

Recommendations for the UNC Healthcare at Eastowne development agreement and master plan from the Chapel Hill Stormwater Management Utility Advisory Board (Board). These development principles were developed and prioritized by the Board at its June 25, 2019 meeting and updated at its September 24, 2019 meeting.

1. Natural Heritage site preservation

The NC Natural Heritage Program staff completed a new assessment of the Eastowne site on August 7, 2019. The report concluded that “*This tract is worthy of protection in its natural condition, through whatever means are feasible.*” (emphasis added)

The Stormwater Management Utility Advisory Board recommends preservation of the entire 20.5 acre tract as a unique and high quality natural community and natural area, and strongly supports the NC Natural Heritage Program’s findings.

Mechanisms to provide protection include the 40% canopy preservation requirement (include all the Natural Heritage area, before preserving other areas) and dedication of the preservation area as a Dedicated Nature Preserve. This will require an easement and agreement between the property owner and the state; however, such a dedication can count toward nutrient reduction requirements, which are included as a design principle (#4 below).

2. Require “no net fill” in the Special Flood Hazard Areas (floodways and floodplains). Cut and fill must be balanced across the site and not result in an increase of the Base Flood Elevation.
3. Require compliance with the stormwater management requirements in Section 5.4 of the LUMO.
4. Require nutrient reduction of 35% from the existing development load.
5. Require Low Impact Design for the site.
 - Minimize impervious surfaces
 - Disconnect impervious surfaces
 - Reuse of rain water through rain water harvesting for all flushing
 - Target - no potable water used for irrigation
6. Preserve and maintain open vegetated channels and natural streams.
7. Encourage stream daylighting and constructed wetlands.

6/25/19: Motion made by Ms. Hoyt; Mr. Post seconded the motion. It passed unanimously (5-0).

Members present: Hoyt, Pickens, Post, Stowe, Wang

Member(s) absent: Bevington, Hearn, Klakovich, Schultz

9/24/19: Motion made by Mr. Post; Mr. Klakovich seconded the motion. It passed unanimously (8-0).

Members present: Hearn, Hoyt, Klakovich, Pickens, Post, Schultz, Stowe, Wang

Member(s) absent: Bevington

Sue Burke

From: Pamela Schultz <pamela.b.schultz@gmail.com>
Sent: Thursday, November 14, 2019 9:57 AM
To: Hongbin Gu; Pam Hemminger; Michael Parker; Rachel Schaevitz
Cc: Chad Pickens (chadp@greatoutdoorprovision.com); Karen Stegman; Mary Stowe (mary@yarnsetc.com); Pamela Schultz (pamela.b.schultz@gmail.com); Phil Post; Sally Hoyt; Shugong Wang; Stefan Klakovich; Stephan Hearn; Stephen Bevington (steve.bevington@gmail.com); Sue Burke; Maurice Jones
Subject: Eastowne Negotiation -- Constraints Map & Recommendations
Attachments: Eastowne Site Constraints Map.pdf; Stormwater Board Eastowne Recommendation Summary 2019 NOV 14.pdf

External email: Don't click links or attachments from unknown senders. To check or report forward to reportspam@townofchapelhill.org

Dear Council Committee Representatives for the Eastowne negotiations:

Thank you for your efforts on the negotiating committee. I am forwarding you two attachments on behalf of the Stormwater Advisory Board.

1 - Constraints Map. This map was requested from staff, by our board, to help us better understand the extent of environmental constraints throughout this site.

2 - Summary Table of Recommendations. The Board wanted to clarify our recommendations that are beyond the town ordinances and provide further justification.

Best regards,
Pamela Schultz
Stormwater Management Utility Advisory Board, Chair

Stormwater Utility Management Advisory Board Recommendations for the UNC Health Care at Eastowne Development Agreement and Master Plan

November 14, 2019

The **minimum requirements** for any Development Agreement must include compliance with all applicable Town regulations such as the Land Use Management Ordinance (e.g., stormwater management, steep slopes, RCD, Jordan riparian buffer, etc.) and the Flood Damage Prevention Ordinance.

The Stormwater Advisory Board recommends **these additional requirements** that exceed the town's current regulations:

Recommendation	Justification
Natural Heritage site preservation	The Stormwater Management Utility Advisory Board recommends preservation of the entire 20.5 acre tract as a unique and high quality natural community and natural area, and also provides important linkages for wildlife between the conservation lands around Jordan Lake and Duke Forest. Preservation of this site can count toward nutrient reduction requirements (below).
Require “No net fill”	This requirement is intended to ensure flooding is not exacerbated by development in floodways and floodplains. This is beyond what is required by the current Chapel Hill floodplain management requirements.
Require 35% Nutrient Reduction	By providing stormwater treatment to meet the nutrient reduction requirements under the Jordan Lake rules, UNC Health Care would demonstrate good stewardship of the environment, promote public health and safety, and model fiscal responsibility by proactively addressing the Jordan Lake rules (Note: Effective date of the rule was delayed by the NC General Assembly).
Require Low Impact Design	Environmental protection is an important theme of the comprehensive plan and town policy. Low Impact Design (LID) techniques are conservation-oriented and help to minimize and negate the impacts of increased impervious area on the environment.
Preserve vegetated channels and natural streams	This is consistent with the Town's Strategic Goals and Objectives (2020-22). Goal 1 – Environmental Stewardship includes the objectives to <i>“Improve local waterways and conserve biological ecosystems”</i> and <i>“Invest in green infrastructure.”</i> Likewise, the Town's 2020 Comprehensive Plan contains a goal to <i>“...manage stormwater to heal local waterways and conserve biological ecosystems...”</i> . (NOC.2)
Encourage stream daylighting and constructed wetlands	This recommendation is consistent also with the Town's 2020 Comprehensive Plan contains a goal to <i>“...manage stormwater to heal local waterways and conserve biological ecosystems...”</i> .

Stormwater Utility Management Advisory Board Recommendations for the UNC Health Care at Eastowne Development Agreement and Master Plan

Submitted September 25, 2019

The NC Natural Heritage Program staff completed a new assessment of the Eastowne site on August 7, 2019. The report concluded that “*This tract is worthy of protection in its natural condition, through whatever means are feasible.*” (emphasis added)

The Stormwater Management Utility Advisory Board recommends preservation of the entire 20.5 acre tract as a unique and high quality natural community and natural area, and strongly supports the NC Natural Heritage Program’s findings.

Mechanisms to provide protection include the 40% canopy preservation requirement (include all the Natural Heritage area, before preserving other areas) and dedication of the preservation area as a Dedicated Nature Preserve. This will require an easement and agreement between the property owner and the state; however, such a dedication can count toward nutrient reduction requirements, which are included as a design principle (#4 below).

As noted in the recent Site Survey Report by the NC Natural Heritage Program, this tract contains significant natural community occurrences and also **provides important linkages** for wildlife between the conservation lands around Jordan Lake and Duke Forest.

1. Require “no net fill” in the Special Flood Hazard Areas (floodways and floodplains). Cut and fill must be balanced across the site and not result in an increase of the Base Flood Elevation.
2. Require compliance with the stormwater management requirements in Section 5.4 of the LUMO.
3. Require nutrient reduction of 35% from the existing development load.
4. Require Low Impact Design for the site.

The stormwater goals of Low Impact Design are to (1) maintain groundwater recharge and quality; (2) reduce stormwater pollutant loadings; (3) protect stream channels; and (4) prevent increased flooding. Some LID examples include:

- Minimize impervious surfaces
 - Disconnect impervious surfaces
 - Reuse of rain water through rain water harvesting for all flushing
 - Target - no potable water used for irrigation
6. Preserve and maintain open vegetated channels and natural streams.
 7. Encourage stream daylighting and constructed wetlands.

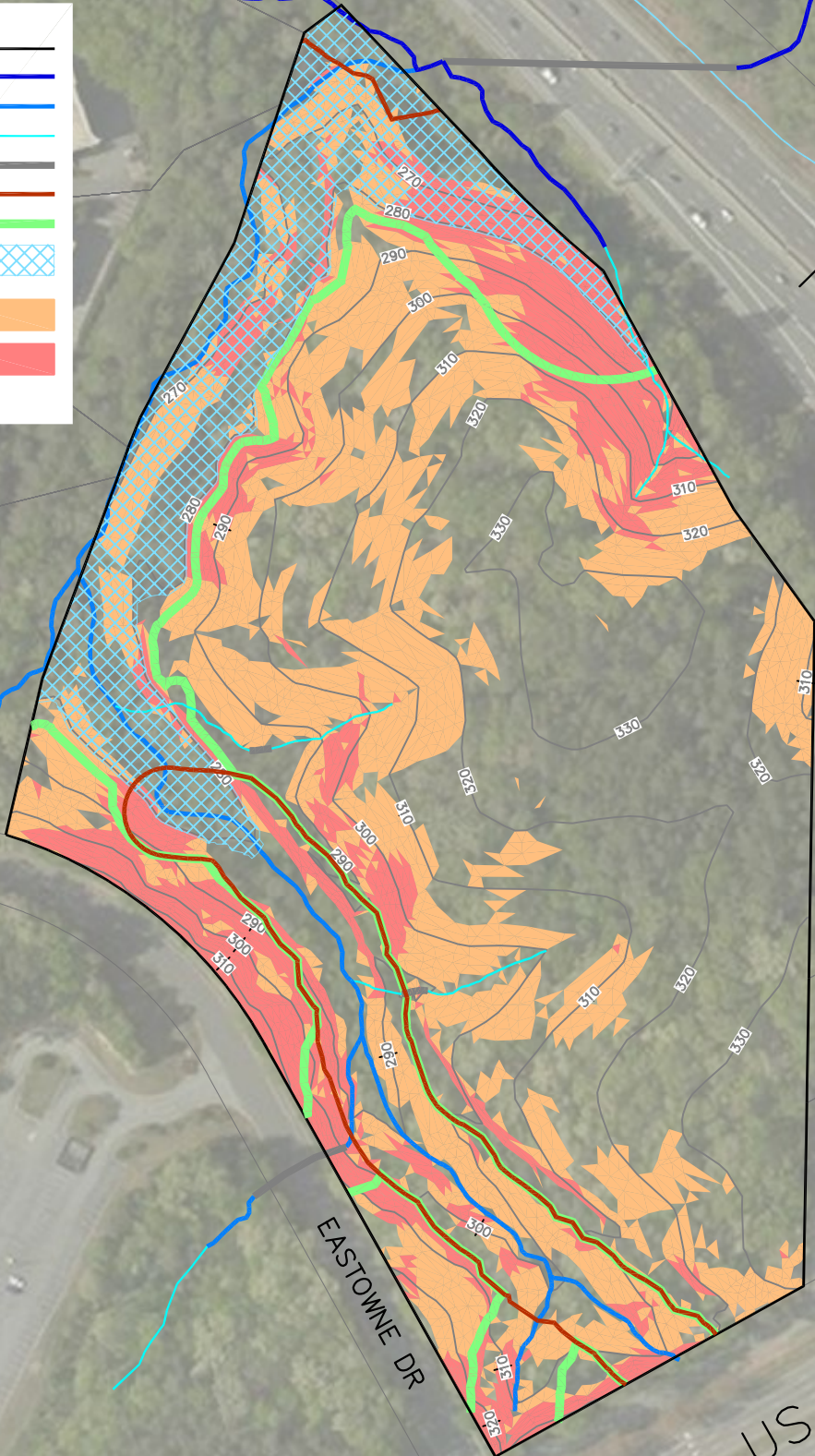
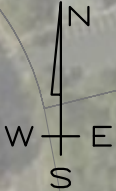
EASTOWNE NATURAL AREA SITE CONSTRAINTS MAP

PROPERTY PIN 9890-91-1209
CREATED BY TOWN OF CHAPEL HILL STORMWATER DIVISION
NOVEMBER 7, 2019

LEGEND

- PROPERTY LINE
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- EXISTING CULVERT
- JORDAN BUFFER
- RCD LINE
- 100-YEAR FLOODPLAIN (BFE 280.6)
- 15%-25% SLOPES
- >25% SLOPES

SCALE: 1" = 200'



This map was created to show potential regulatory constraints for stream buffers, floodplain, and steep slopes based on GIS data, and should be used for planning purposes only.



**PUBLIC WORKS DEPARTMENT
STORMWATER MANAGEMENT DIVISION**

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Chapel Hill, NC 27514-5705
Telephone (919) 969-7246
Fax (919) 969-7276
www.townofchapelhill.org

MEMORANDUM

DATE: October 8, 2019

TO: Eastowne Council Committee (Mayor Pam Hemminger, Michael Parker, Hongbin Gu, Rachel Schaevitz)

FROM: Allison Weakley, Stormwater Analyst *Allison Weakley*

SUBJECT: Natural Communities and Natural Area on the Eastowne Tract owned by UNC Heath Care (PIN 9890-91-1209)

This memo is to provide additional information on the ratings assigned by the North Carolina Natural Heritage Program (NCNHP) to the undeveloped Eastowne tract owned by Health Systems, LLC (UNC Health Care), as requested by the Council Committee on September 16, 2019.

The undeveloped Eastowne tract, approximately 20 acres, is part of the larger **Dry Creek/Mt. Moriah Bottomland Forest Natural Area** delineated by NCNHP, and contains the following high-quality natural communities:

- **Dry-Mesic Basic Oak Hickory (DMBOH) Forest**, and
- **Piedmont Swamp Forest**.

The Eastowne tract includes the majority of the **Dry-Mesic Basic Oak Hickory Forest** (16 acres total) that's been documented within this natural area. The NCNHP considers the occurrence of the community on the Eastowne tract to have good ecological integrity, and the **17th best occurrence out of 66 total occurrences currently tracked in the state**. (emphasis added) This importance considers various factors, including the condition, size and landscape context of the natural community.

A portion of a **Piedmont Swamp Forest** (16 acres total) tracked by the NCNHP also occurs within the Eastowne tract, and is **one of 27 high-quality occurrences documented statewide**. (emphasis added) The majority of this community is located on land owned by the Town of Chapel Hill and is under conservation easement.

See attached map that shows the Eastowne tract relative to the natural communities and natural area documented and tracked by the NCNHP that occur within the Town's jurisdiction.

Based on the Site Survey of the undeveloped Eastowne tract conducted on August 7, 2019, the NCNHP has recommended protection of this tract in its natural condition through whatever means feasible.

NATURAL AREAS

Natural Areas are areas of land or water that contain the best documented occurrences of rare species and their habitats and exemplary natural communities in North Carolina, and are important for the conservation of the state's biodiversity. The NCNHP identifies natural areas based on field surveys, often through county-wide inventories for natural areas. An [Inventory of Natural Areas and Wildlife Habitats for Orange County, NC](#) was initially completed by NCNHP in 1988, with an update in 2004 (Sather and Hall, 1988; Sorrie and Shaw 2004). The undeveloped Eastowne tract was first identified in the Orange County inventory as part of the Cedar Terrace Bottoms Natural Area, which later was merged with other nearby natural areas to form the **Dry Creek/Mt. Moriah Bottomland Forest Natural Area**. However, a comprehensive survey had not been conducted on the undeveloped Eastowne tract until the recent Site Survey by Michael Schafale (NCNHP) on August 7, 2019.

NCNHP assigns a rating for each natural area based on the potential of the natural area to have the best locations for each rare species or natural community occurrence in the state (Representative Rating), and the number and rarity of these occurrences (Collective Rating) within the natural area. A Natural Area may have an overall rating of Exceptional, Very High, High, Moderate or General.

The overall rating assigned to the **Dry Creek/Mt. Moriah Bottomland Forest Natural Area** (ca. 486 acres) is "Moderate," based on the rarity and individual ranks of the natural communities occurrences documented. This rating is relative to the rating of the more than 2,400 natural areas statewide, which may be much larger or contain a greater number of rare species or natural communities that are more rare and imperiled, and surrounded by intact landscapes (e.g., Grandfather Mountain).

The five high-quality natural communities now documented by NCNHP within the Dry Creek/Mt. Moriah Bottomland Forest Natural Area are: Piedmont Bottomland Forest (High and Typic Low Subtypes), Piedmont Semi-permanent Impoundment (Piedmont Marsh Forest), Dry-Mesic Basic Oak Hickory Forest (Piedmont Subtype), and Piedmont Swamp Forest. The latter two occur mostly or partially within the Eastowne tract, respectively, and occurrences for both the DMBOH and Piedmont Marsh Forest were added to this natural area as a result of the August 7, 2019 Site Survey by NCNHP.

NATURAL COMMUNITIES

A natural community is defined as any area with a recognizable and reoccurring assemblage of plants, animals, bacteria, and fungal species naturally associated with each other and their physical environment. NCNHP identifies and tracks high-quality, exemplary natural communities, and each occurrence is assigned an occurrence rank (EO rank) for ecological integrity that reflects the size, condition, and landscape context of the occurrence.

The Eastowne tract includes the majority of the **Dry-Mesic Basic Oak Hickory Forest (Piedmont Subtype)** occurrence (16 acres total) that's been documented within this natural area. This DMBOH Forest natural community has the following attributes:

- This community type is considered vulnerable to extinction at both the global and state levels - it is rare or uncommon (both globally and statewide) and only found only in a restricted range, or there are other factors make it vulnerable.
- The occurrence of this community on the Eastowne tract has an EO Rank = B, or good ecological integrity. (EO Rank A = excellent, EO Rank C = fair, EO Rank D = poor). An EO Rank of B is significant for a forest surrounded by high development threat.

- There are only 66 high-quality occurrences of this natural community (DMBOH) documented across the state; the occurrence on the Eastowne tract is one of three documented in Orange County, and one of 12 located within Orange, Durham, and Chatham counties. The other two occurrences of these communities in Orange County are ranked lower (EO Rank C). *See attached map showing the distribution of occurrences for the DMBOH community statewide, by EO Rank.*
- This occurrence is the 17th most important of the 66 DMBOH natural communities documented statewide, based on its condition (such as maturity, composition & structure), size, and landscape context.
- It is the only remaining undeveloped upland hardwood forest along Dry Creek, and is directly connected to Town-owned properties under conservation easement along Dry Creek.
- It is connected to the Dry Creek floodplain and to the rest of the Dry Creek/Mt. Moriah Bottomland Natural Area, the New Hope Creek Corridor, Duke Forest and Jordan Lake. This is an important wildlife corridor in the developing Triangle area that is critical for conservation of wildlife habitat and landscape connectivity. *See attached map showing this natural area and its connections to other natural areas.*

A portion of a **Piedmont Swamp Forest** (16 acres total) tracked by the NCNHP also occurs within the Eastowne tract, and is one of 27 high-quality occurrences documented statewide. The majority of this community is located on land owned by the Town of Chapel Hill and is under conservation easement. *See attached map showing the distribution of occurrences for this community statewide, by EO Rank.*

Other communities documented on the Eastowne tract by Michael Schafale (NCNHP) in the August 7, 2019 Site Survey Report include those largely imbedded within the DMBOH Forest, and include Piedmont Alluvial Forest, Piedmont Headwater Stream Forest, Basic Mesic Forest, and Successional Pine Forest. Though these communities were documented and mapped, and are all mature forests with large trees, they did not qualify as occurrences tracked by NCNHP due to their size or other factors.

CONCLUSION

Based on the Site Survey of the undeveloped Eastowne tract conducted on August 7, 2019, the NCNHP has recommended protection of this tract in its natural condition through whatever means feasible.

I hope this information is helpful to you. I am available to answer questions or provide additional information.

Attachments:

1. Summary of NCNHP Natural Area & Natural Community Ratings
 2. Maps:
 - a. Natural Communities within Dry Creek/Mt. Moriah Bottomland Natural Area (Orange County portion)
 - b. Distribution of Dry-Mesic Basic Oak-Hickory Forest Occurrences by EO Rank
 - c. Distribution of Piedmont Swamp Forest Occurrences by EO Rank
 - d. Dry Creek/Mt. Moriah Bottomland and the New Hope Creek Natural Areas
- c:** Maurice Jones, Mary Jane Nirdlinger, Ralph Karpinos, Judy Johnson, John Richardson, Becky McDonnell, Michael Sudol, Loryn Clark, Chris Roberts, Ernest Odei-Larbi

Summary of NCNHP Natural Area & Natural Community Ratings

By Allison Weakley, Town of Chapel Hill Stormwater Management Division

October 8, 2019

BACKGROUND

The [North Carolina Natural Heritage Program \(NCNHP\)](#) is charged under the [Nature Preserves Act](#) (G.S. 143B-135.250 to 135.272) with compiling and maintaining information relevant to the protection of North Carolina's most significant natural areas. Since its establishment in 1976, the NCNHP has focused on measures related to biodiversity, giving special attention to areas important for the protection of the state's native plants and animals at the population, community, and ecosystem levels of biological organization.

The NCNHP identifies and delineates natural areas important to the conservation of the state's biodiversity, and follows a standard Natural Heritage methodology designed to address plant and animal species and their habitats, and natural communities. The species and communities tracked by the NCNHP are referred to collectively as "**Elements**" of biodiversity. This standard methodology is used to define the rarity of particular Natural Heritage Elements and to delineate individual occurrences of these Elements across the landscape ("**Element Occurrences**"). In assigning priorities for conservation, NCNHP gives special emphasis to natural areas that support populations of rare species or rare or high-quality natural communities. A key product resulting from this information is the assessment of conservation priorities for the natural areas that have been identified in North Carolina.

There are more than 80 programs in the United States, Canada and Latin America that use natural heritage methodology to conserve biodiversity, and most states in the United States have a natural heritage program.

EXPLANATION OF TERMS

A [NCNHP Natural Area](#) is an area of land or water that is important for the conservation of the natural biodiversity of North Carolina. These natural areas are irreplaceable as laboratories for scientific research, as reservoirs of natural materials for uses that may not now be known, as habitats for plant and animal species and biotic communities, as living museums where people may observe natural biotic and environmental systems and the interdependence of all forms of life, and as reminders of the vital dependence of the health of the human community on the health of the other natural communities (G.S. 143B-135.252(a)).

As of July 2019, there are more than 2,400 terrestrial and aquatic natural areas that have been identified and documented by the NCNHP statewide. These natural areas are identified through field investigations, and each is assigned a conservation priority based on Elements, Element Ranks, Element Occurrences (EOs) and the ranks of those EOs the natural area contains.

Elements are plants, animals, exemplary or unique natural communities, and animal assemblages that are important to the conservation of the state's biodiversity. Each Element is assigned a **Global Rank (or G Rank)** that refers to global rarity and is a measure of imperilment for that element (G1= Critically imperiled, G2=Imperiled, G3=Vulnerable, G4=Apparently secure, G5=Secure). Each Element is also assigned a **State Rank (or S Rank)** that is a measure of relative imperilment within the State of North Carolina (S1= Critically imperiled, S2=Imperiled, S3=Vulnerable, S4=Apparently secure, S5=Secure). G Ranks and S Ranks are based on a variety of factors, such as abundance, distribution, and threats.

Element Occurrences (EOs) are individual occurrences of Elements across the landscape; EOs are assigned an **EO Rank**, which indicates its viability/ecological integrity (A=Excellent, B=Good, C=Fair, D=Poor, and E=Extant, surviving but viability not assessed). EO Ranks consider the condition, size and landscape context for an individual element occurrence of a rare species or natural community.

A “**natural community**” is defined as any area with a recognizable and reoccurring assemblage of plants, animals, bacteria, and fungal species naturally associated with each other and their physical environment. More than 340 natural community types have been described in North Carolina. The NCNHP documents the best examples of these natural communities throughout the state with site reports, element occurrence records and map. A classification of all natural communities was developed by NCNHP staff and was first published in 1990 ([Schafale and Weakley 1990](#)); an updated classification guide was updated in 2012 ([Schafale 2012](#)), and a complete classification update is underway ([Schafale, in prep.](#)).

NATURAL AREA RATING SYSTEM

Natural Areas are rated to establish conservation priorities for the state. NCNHP assigns a rating for each natural area based on the potential of the natural area to have the best locations for each rare species or natural community occurrence in the state (Representative Rating), and the number and rarity of these occurrences (Collective Rating) within the natural area.

Each natural area is assigned two values, a Representation Rating (R1-R5) and a Collective Value Rating (C1-C5), with R1 (Exceptional) or C1 (Exceptional) indicating the highest rating values, respectively.

- **Representational (R) Rating** evaluates the potential for a natural area to contribute to a collection of the best locations for each tracked element in the state, and rates the natural area on its importance in protecting the best occurrences in the state.
- **Collective (C) Rating** evaluates the conservation value of a natural area based on the number and rarity of the elements it contains, weighted in terms of both global and statewide imperilment of the element. A natural area is scored by summing the weighted scores of all elements in the natural area.

The two indices measure different and complementary qualities of each natural area, and the ultimate rating for a natural area is the highest value of the two ratings. In other words, a Natural Area is assigned have an overall rating of Exceptional, Very High, High, Moderate or General based on the individual R and C Ratings for the site.

In order to assign conservation priority for each natural area, the two rating systems (described above) use Elements, Element Ranks (e.g., G Rank), Element Occurrences (EOs), and EO Ranks to assign conservation priority. Thus each overall natural area rating is relative to the rating of other natural areas statewide, based on the number of and quality, rarity and imperilment of the rare species or natural communities documented within each natural area.

NCNHP data are updated quarterly, and ratings for natural areas are comprehensively assessed every year. The last NCNHP data update was July 2019, and the next update is expected in October 2019.

For more information, visit the NCNHP website at www.ncnhp.org.

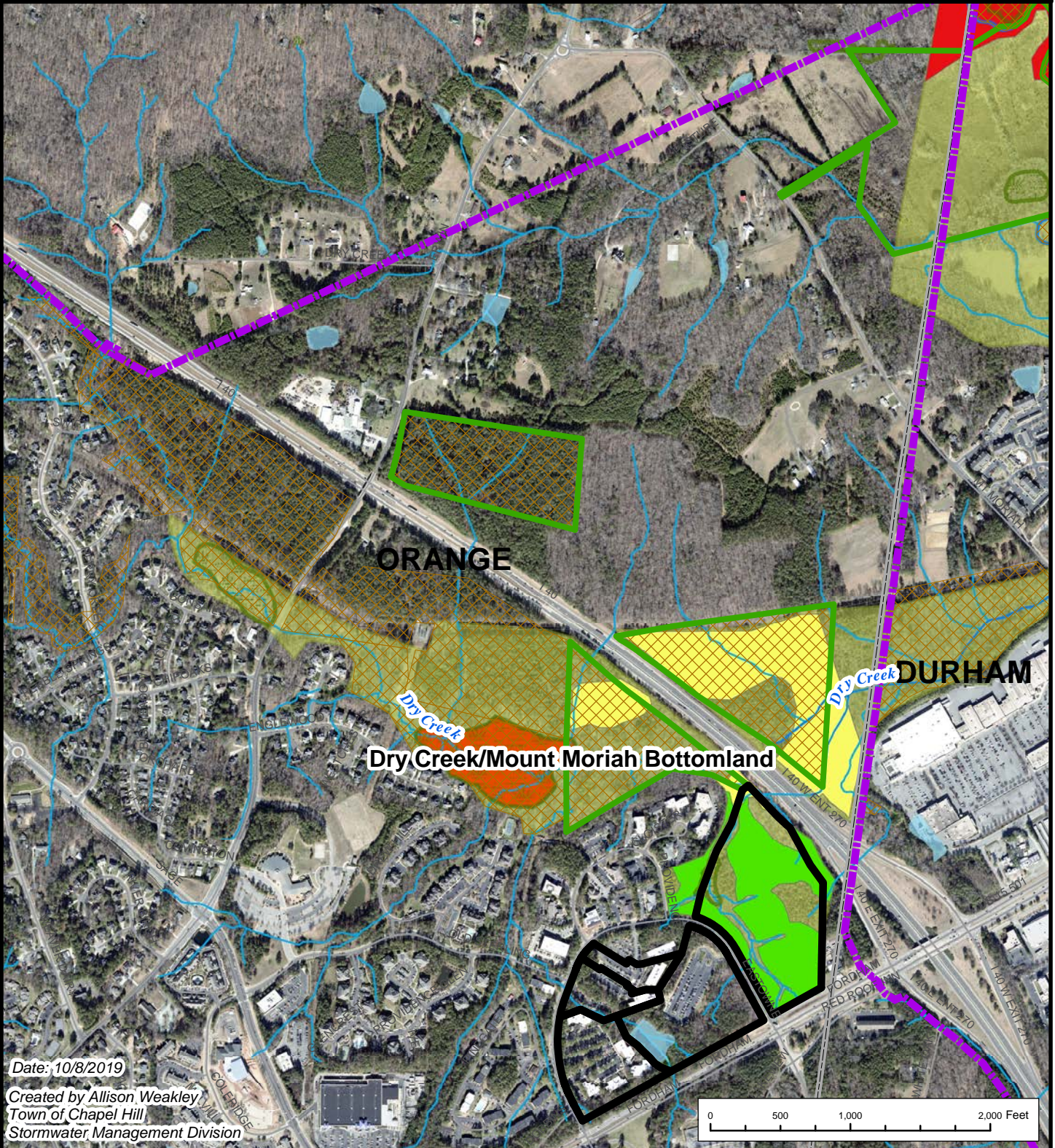
Natural Communities within Dry Creek/Mt. Moriah Bottomland Natural Area (Orange County portion)

County Boundaries	Eastowne Tracts	NCNHP Natural Communities (August 2019 update)
Chapel Hill Zoning Jurisdiction	Managed Areas	Dry-Mesic Basic Oak-Hickory Forest (Piedmont Subtype)
Streams	Conservation Easement	Piedmont Swamp Forest
Non-regulated Waterbody	Local Government Ownership	Piedmont/Mountain Semipermanent Impoundment (Piedmont Marsh Subtype)
Lake/Pond	NCNHP Natural Areas	Piedmont Bottomland Forest (High Subtype)
Large Stream/River	Moderate	Piedmont Bottomland Forest (Typic Low Subtype)
Swamp/Marsh		

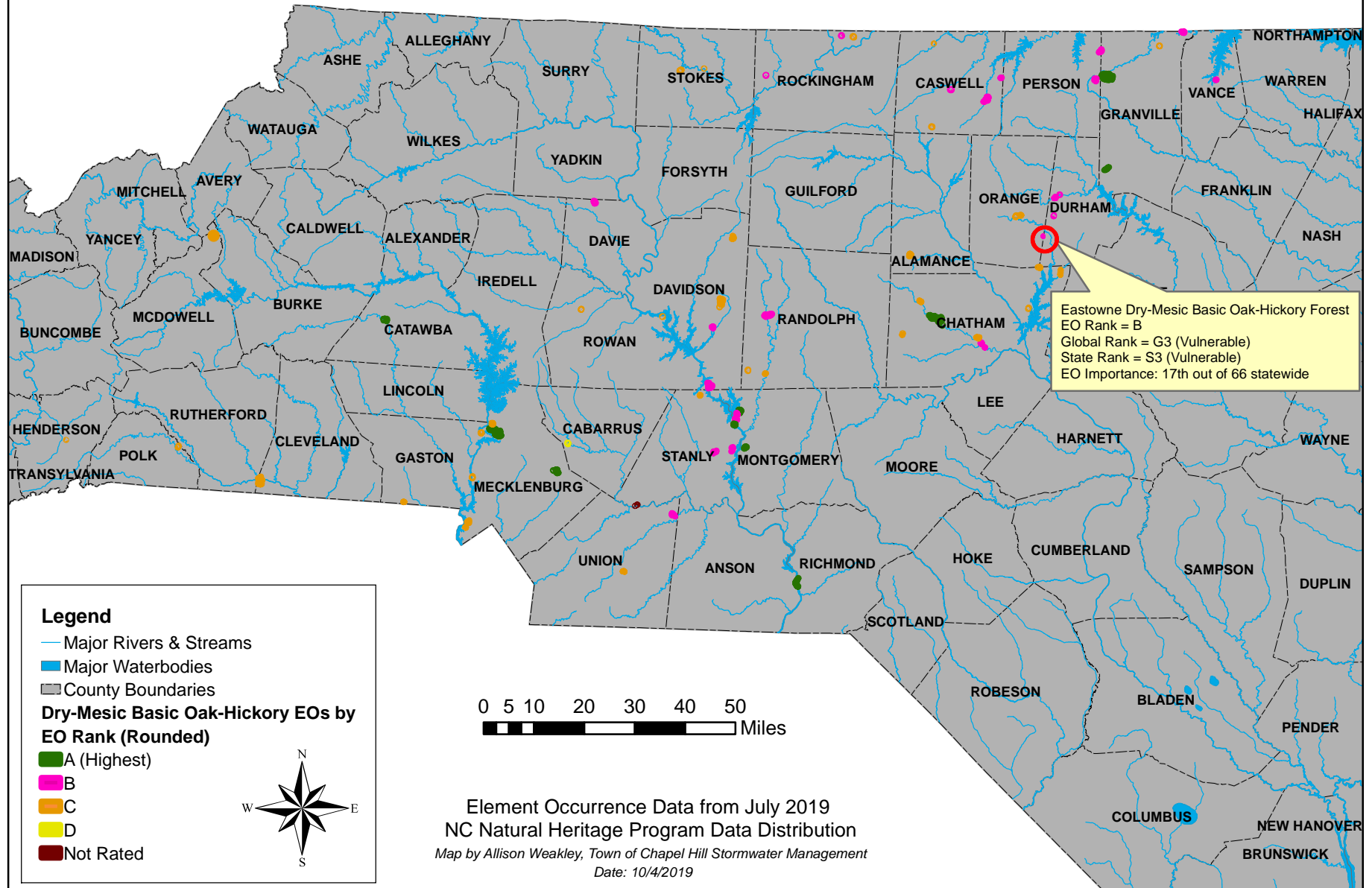
1 inch = 1,000 feet



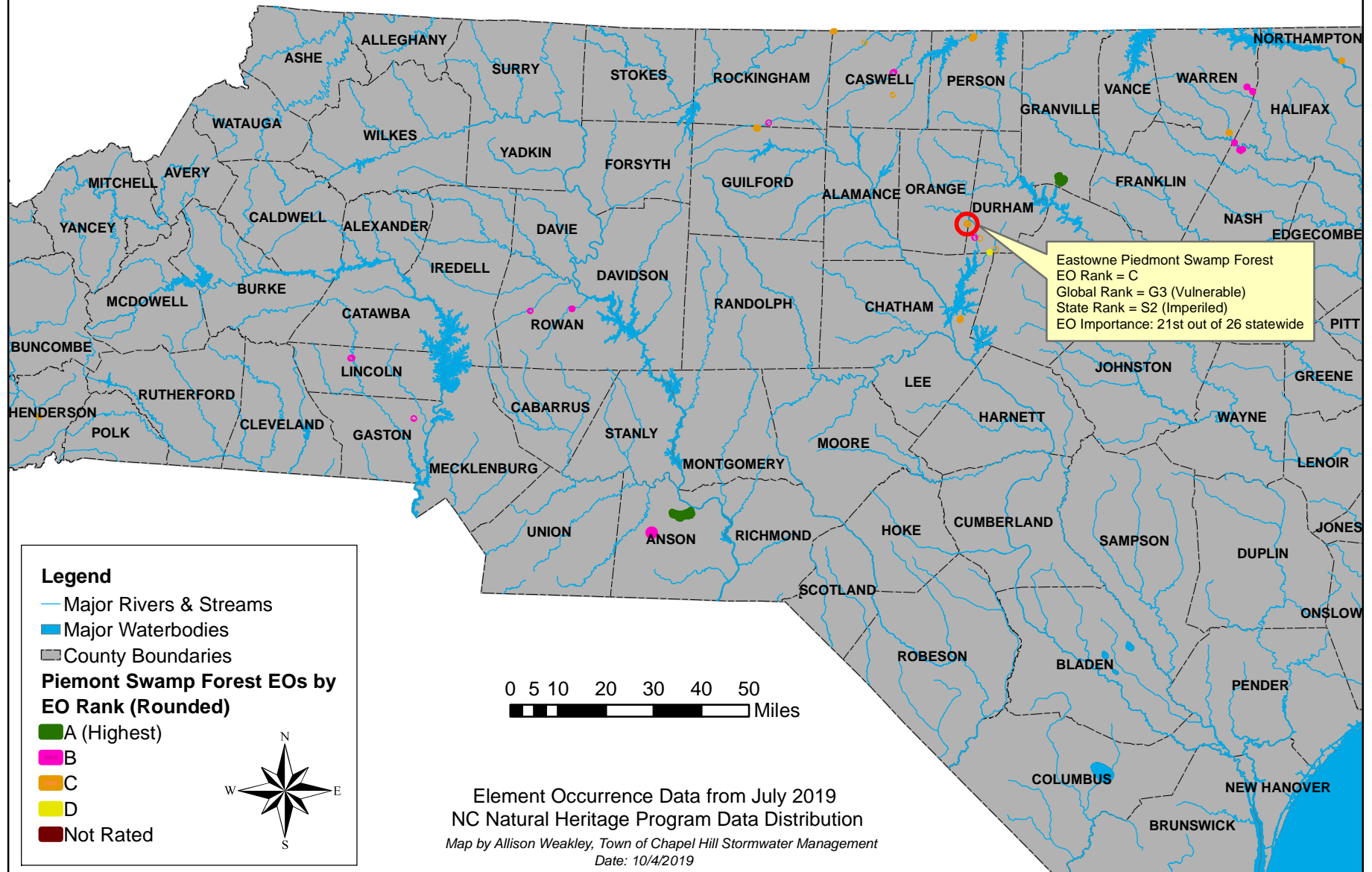
Natural Areas, Managed Areas and Natural Communities data from July 2019 NC Natural Heritage Program data distribution unless otherwise noted



Distribution of Dry-Mesic Basic Oak-Hickory Forest (Piedmont Subtype) Element Occurrences by EO Rank



Distribution of Piedmont Swamp Forest Element Occurrences by EO Rank



Dry Creek/Mt. Moriah Bottomland and New Hope Creek Natural Areas

- | | | |
|---------------------------------|----------------------------|----------------------------|
| County Boundaries | Managed Areas | NCNHP Natural Areas |
| Chapel Hill Zoning Jurisdiction | Registered Heritage Area | Exceptional |
| Streams | Conservation Easement | Very High |
| Large Stream/River | Federal Ownership | High |
| Lake/Pond | Local Government Ownership | Moderate |
| Swamp/Marsh | Private | General |
| | | Unranked |

*Natural Areas and Managed Areas data from July 2019 NC Natural Heritage Program data distribution

**Streams and waterbodies data from TOCH GIS Oct 2019



1 inch = 2,000 feet

