



MEMORANDUM

To: Mayor and Members of the City Council

From: Reginald Goodson, City Manager
Dwan Bell, Public Utilities Director
Carl Best, Development Services Director
Jon Hawley, Grants Administrator

Date: March 4, 2026

Re: Consideration - Closeout Presentation & Proposed Ordinance Revisions,
Resilient Stormwater Ordinance Project

BACKGROUND:

On July 18, 2024, the City of Elizabeth City won \$140,000 through the Resilient Coastal Communities Program (RCCP) to update the City's outdated stormwater management ordinance. RCCP is a federally and state-funded initiative managed by the NC Division of Coastal Management. The City's project, titled the "Resilient Stormwater Ordinance Project" (RSOP), hired a stormwater engineering firm to analyze our ordinance and propose revisions to ensure regulatory compliance, support the City's expanding responsibilities for stormwater permitting, and encourage developers to follow best practices in stormwater management, including low-impact and nature-based solutions. The RSOP also included public outreach and a demonstration project for nature-based solutions.

The project was substantially completed last month. City staff and our consultant request to present the proposed ordinance revisions and, with the Council's approval, integrate them into the upcoming updates to the City's Unified Development Ordinance. We are proposing this approach, rather than adopting an ordinance amendment, to ensure these documents are fully integrated and consistent with each other.

ANALYSIS:

Our consultant, Weston and Sampson Engineers (WSE), will provide a project overview and detail the ordinance amendment. In summary, the ordinance revisions reaffirm the City's stormwater management and permitting responsibilities as an owner/operator of a Municipal Separate Storm Sewer System (MS4) under federal and state authorities, and provides new definitions and incentives for Nature-Based Solutions, Green Infrastructure, Low-Impact Development, and Resilience. It also updates and clarifies the standards to

which Stormwater Control Measures should be designed and built (NCDEQ Stormwater Design Manual).

Consistent with state and federal standards/recommendations, the revisions require developers to minimize impacts and use Nature-Based Solutions "to the maximum extent practicable." Nature-based Solutions (NBS) mimic natural systems and prevent runoff that can flood other properties and/or pollute public waters.

A developer with a small project – less than 12,000 square feet of ground disturbance – may forego using NBS with sufficient justification. For developers over that threshold, they must implement at least two NBS, which may include retaining vegetation, installing rain cisterns, using permeable pavement, and other techniques.

To encourage developers to build NBSs – and maintain them for the long-term – the revisions would also offer incentives. A project using three or more NBS would qualify as an "NBS Project," and could receive expedited reviews and a credit on the City's Stormwater Management Fees. The City Council would set the amount of the credit each year, as part of adopting the City's annual budget and fee schedule. This would allow City staff to monitor the credits' effectiveness, cost, and overall "return on investment." (Note: the Council does not need to set these credits now.)

In addition to these revisions, City staff are pleased to report the RSOP will have other benefits. Through this grant, the City and community volunteers installed a nature-based solution (a rain garden) at the Knobbs Creek Recreation Center last fall. We also produced an "NBS Explainer" video and a Best Management Practices handbook for public use, which we propose to publish following the Council's approval of these revisions.

STAFF RECOMMENDATION:

By motion, approve the proposed stormwater ordinance revisions, and authorize them to be integrated into the upcoming Unified Development Ordinance updates. (They will not take effect until the Council's formal adoption of the UDO following a public hearing.)

NOTE TO REVIEWER:

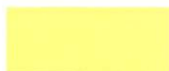
This document provides a comprehensive summary of sections illustrating how the City can incentivize and require the use of nature-based solutions (NBS) in new development and redevelopment projects.

This draft ordinance amendment provides a flexible framework that allows the City to select the desired level of regulatory demands and the types of incentives to offer. The final organization of these provisions within the Unified Development Ordinance (UDO) may influence the exact wording and applicability of specific requirements. Portions of this draft may also be incorporated into existing UDO sections, such as adding new definitions to the *Stormwater Management Ordinance, Article I, Section B (Definitions)*.

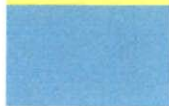
KEY:

Portions of this draft may also be incorporated into existing UDO sections through the addition of new definitions to the *Stormwater Management Ordinance, Article I, Section B (Definitions)* or similar actions.

There are two types of approaches in this document based on regulatory demands and available incentives to provide.



(1) A yellow highlight indicates language that creates a mandatory requirement within the ordinance.



(2) A blue highlight indicates language associated with enabling a “NBS Project” classification, which would provide incentives for projects that implement more than three (3) Nature-Based Solutions on-site.

Any text not highlighted applies to both: (1) the mandatory requirement to implement NBS for development and redevelopment activities involving $\geq 12,000$ square feet of land disturbance or new impervious surface, and (2) the implementation of the NBS Project type.

SECTION X. NATURE-BASED SOLUTIONS FOR STORMWATER BENEFITS

X-1 PURPOSE AND INTENT

This section promotes the use of nature-based solutions (NBS) to manage stormwater runoff. NBS are planning and design approaches that use natural systems, or mimic natural processes, to address environmental challenges like stormwater management, flooding, and heat. Green infrastructure (GI) and low impact development (LID) are two types of strategies that may include the use of NBS. These approaches provide effective, resilient, and cost-efficient alternatives or complements to traditional gray infrastructure. All practices must comply with the requirements set forth in the Appendix VI of the UDO (Stormwater Management Ordinance), which shall govern in the event of any conflict.

X-2 DEFINITIONS AND REFERENCES

- (A) The definitions provided herein shall govern the interpretation of terms related to nature-based solutions within this ordinance.

- (1) **Nature-based Solutions (NBS):** strategies that protect, sustainably manage, and restore natural or modified ecosystems to address societal challenges such as climate change, disaster risk, public health, and water security, while simultaneously providing ecological and biodiversity benefits.
 - (2) **Green Infrastructure (GI):** refers to an interconnected network of natural and semi-natural areas, features, and green spaces that provide ecosystem services, including stormwater management, air and water purification, and climate regulation, often integrated into urban environments.
 - (3) **Low Impact Development (LID):** an approach to land development or redevelopment that emphasizes conservation and use of on-site natural features to protect water quality by managing stormwater runoff close to its source using distributed, small-scale controls that mimic natural hydrology.
 - (4) **Resilience:** the capacity of individuals, communities, infrastructure, and ecosystems to anticipate, prepare for, respond to, and recover rapidly from disruptive events such as natural disasters, climate change impacts, or other shocks and stresses.
- (B) The North Carolina Department of Environmental Quality (NC DEQ) recommends specific stormwater control measures (SCMs) that are considered nature-based solutions (NBS) because they are designed to mimic natural hydrologic processes, enhance infiltration, support vegetation, and improve water quality while providing co-benefits such as wildlife habitat, temperature regulation, and landscape resilience. These SCMs are detailed within the NC DEQ's *Stormwater Design Manual*. While the NC DEQ recognizes a broader range of SCMs, the types listed under X-3 (B) specifically leverage natural systems and processes to manage stormwater in a sustainable and ecologically beneficial way. When implemented appropriately, they reduce runoff volume, promote groundwater recharge, and protect receiving waters in a manner consistent with natural systems. Design of all SCMs should follow the standards and recommendations provided in the NC DEQ's *Stormwater Design Manual*.
- (C) In addition to the structural practices identified as NBS stormwater control measures (SCMs) in the NC DEQ *Stormwater Design Manual*, LID strategies are classified as NBS by incorporating non-structural and landscape-based approaches that enhance the natural capacity to manage stormwater. These strategies include tree plantings and soil restoration improve infiltration, evapotranspiration, and pollutant removal while supporting biodiversity and climate resilience. Floodplain reconnection and stream buffer preservation help restore natural hydrology, reduce downstream flooding, and protect water quality by allowing floodwaters to spread out and infiltrate. While not exhaustive, these examples highlight the range of practices that can be employed to reduce impacts from development and better align land use with ecological function.

X-3 SUBMISSION REQUIREMENTS

- (A) All new development and redevelopment projects subject to stormwater management requirements under this ordinance shall utilize NBS to the maximum extent practicable, considering site-specific conditions such as soil permeability, topography, existing vegetation, and proximity to utilities. [EH1] Applicants that elect not to do so shall provide a justification demonstrating the basis for their decision in accordance with Section X-4. [EH2]
- (B) Acceptable NBS practices include, but are not limited to:
- (1) Infiltration systems;

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- (2) Bioretention cells;
 - (3) Wet ponds;
 - (4) Stormwater wetlands;
 - (5) Permeable pavement;
 - (6) Rainwater harvesting;
 - (7) Green roofs;
 - (8) Disconnected impervious surfaces;
 - (9) Treatment swales;
 - (10) Dry ponds;
 - (11) Tree plantings and soil restoration; and
 - (12) Floodplain reconnection and stream buffer preservation.
- (C) During the site plan review process, alongside the plan requirements detailed in Appendix V Section A-6-15 of the *Stormwater Management Ordinance*, applicants must demonstrate that NBS were thoroughly considered in the design of stormwater management systems. Appendix V Section A-6-13 of the *Stormwater Management Ordinance* details minimum runoff control requirements. The development must mimic the pre-developed hydrologic conditions as defined in Appendix V Section A-6-18 of the *Stormwater Management Ordinance*.
- (D) For development and redevelopment activities that are $\geq 12,000$ sq ft [EH3] disturbance OR new impervious surfaces, property owners or responsible parties must utilize two of the following techniques in accordance with the NC DEQ *Stormwater Design Manual*. [If a property owner or responsible party for any development and redevelopment activity, regardless of size, utilizes three (3) or more of these techniques, the activity would be classified as an “NBS Project” and may qualify for incentives under Section X-4. [EH4]
- (1) Retention of 50% of vegetated area, including open space or green space, existing landscaping, or forested land;
 - (2) Installation of one of the following NBS:
 - (i) Infiltration systems;
 - (ii) Bioretention cells;
 - (iii) Wet ponds;
 - (iv) Stormwater wetlands;
 - (v) Green roofs;
 - (vi) Disconnected impervious surfaces;
 - (vii) Treatment swales;
 - (viii) Dry ponds;
 - (3) Installation of one rain cistern per lot or three rain barrels per lot;
 - (4) Use of permeable pavement for all private driveways, private roads, sidewalks, and parking areas;
 - (5) No native trees greater than 6 inches DBH are removed unless replaced with native trees of the same or greater DBH, in accordance with the standards set forth in this ordinance;
 - (6) All buffers in the riparian buffer zone or the flood protection zone, whichever is greater, to be 100 feet, beyond the 30 feet minimum established in Article 12-1.6.

- (7) Use of treated wastewater (reclaimed/recycled) water in accordance with state and local laws; and/or
- (8) Use of innovative NBS not listed under Section X-3(B) subject to the approval of the city.

X-4 REVIEW PROCESS [EH5]

(A) For any development and redevelopment projects achieving classification as an NBS Project, the Stormwater Administrator [EH6] shall reduce the stormwater management fee if stipulated in the fee schedule duly adopted by the applicable governing board. [EH7] The credit structure shall be the following:

- (1) A base credit of up to fifty percent (50%) [EH8] for maintaining NBS Project status in accordance with all performance and maintenance requirements; and
- (2) An additional credit of five percent (5%) for each NBS practice added that exceeds the minimum three required techniques to be classified as a NBS Project, not to exceed a total combined credit of thirty percent (30%).

(B) Upon collaboration with the Planning Commission, the Stormwater Administrator may develop and apply an expedited review schedule for development or redevelopment projects achieving classification as NBS projects. Such a review schedule will depend upon the continued availability of the city's resources to conduct expedited reviews. [EH9]

(C) Applicants who are not required to implement NBS per the development and redevelopment threshold established in Section X-D and who elect not to incorporate NBS, shall provide clear justification demonstrating site constraints or other factors that render NBS infeasible. [EH10]

(D) All SCMs, including NBS, must meet the performance standards established by the NC DEQ, as outlined in the most recent *Stormwater Design Manual* and relevant state rules. These standards ensure that SCMs effectively reduce runoff volume, remove pollutants, attenuate peak flows, and support natural hydrologic function. Property owners are responsible for maintaining long-term performance and must demonstrate compliance through design submittals, annual inspections, and maintenance documentation.

X-5 MAINTENANCE AND LONG-TERM PERFORMANCE

- (A) All NBS must be maintained to ensure continued function as designed. Routine inspections and maintenance are required to be performed by the property owner or responsible party to prevent system failure, protect water quality, and support long-term stormwater and resilience goals for the city.
- (B) A Stormwater Practices Operations and Maintenance (O&M) Plan shall be submitted for all applicable nature-based solutions and must include site-specific tasks, schedules, responsible parties, and performance expectations. The plan shall address seasonal needs, vegetation management, sediment removal, and the prevention of erosion.
- (C) Long-term performance shall be ensured through legal instruments such as recorded maintenance agreements, conservation easements, or deed restrictions, which remain in effect regardless of property ownership changes. These mechanisms must be enforceable by the permitting authority.
- (D) Maintenance records shall be kept by the property owner or responsible party and made available upon request. Failure to perform required maintenance may result in enforcement actions as outlined in Article V.

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- (E) Practices that fail to meet performance objectives due to lack of maintenance must be restored or replaced in accordance with the original approved plans. Where applicable, replanting, soil restoration, and structural repairs must occur promptly to avoid degradation of downstream conditions. Failure to restore or replace deficient practices within sixty (60) days of written notification shall constitute non-compliance and may result in code-enforcement actions, including fines of up to five hundred dollars (\$500) per day until compliance is achieved. [EH11]
- (F) Ongoing engagement with local partners and community groups is encouraged to support shared maintenance responsibilities, especially for practices located in common areas or within public easements. Applicants are encouraged to work with adjacent landowners or similar use projects to develop O&M plans.