

DRAFT Wetlands Resources Technical Bulletin

This guidance is intended to clarify how the Wetlands Resources Goal and Objectives of the Regional Policy Plan (RPP) are to be applied and interpreted in Cape Cod Commission Development of Regional Impact (DRI) project review. This Technical Bulletin presents specific methods by which a project can meet these goals and objectives.

Wetlands Resources Goal: To protect, preserve, or restore the quality and natural values and functions of inland and coastal wetlands and their buffers.

- **Objective WET1** – Protect wetlands and their buffers from vegetation and grade changes.
- **Objective WET2** – Protect wetlands from changes in hydrology.
- **Objective WET3** – Protect wetlands from stormwater discharges.
- **Objective WET4** – Promote the restoration of degraded wetland resource areas.

The applicability and materiality of these goals and objectives to a project will be determined on a case-by-case basis considering a number of factors including the location, context (as defined by the Placetype of the location), scale, use, and other characteristics of a project.

The Role of Cape Cod Placetypes

The RPP incorporates *a framework for regional land use policies and regulations based on local form and context* as identified through categories of Placetypes found and desired on Cape Cod.

The Placetypes are determined in two ways: some are depicted on a map adopted by the Commission as part of the Technical Guidance for review of DRIs, which may be amended from time to time as land use patterns and regional land use priorities change, and the remainder are determined using the character descriptions set forth in Section 8 of the RPP and the Technical Guidance.

The project context, as defined by the Placetype of the location, provides the lens through which the Commission will review the project under the RPP. Additional detail can be found in the Cape Cod Placetypes section of the Technical Guidance.



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Note on Application Materials, Definitions, Resources and References

Application materials should provide sufficient detail to demonstrate that the project meets the applicable Objectives, but typically include an assessment of wetland resources on the project site and in the project vicinity as detailed on page 12.

Definitions of key terms, including Wetland Resources, are presented on page 13. For the purposes of this Technical Bulletin, wetlands are defined in accordance with the Massachusetts Wetland Protection Act and include both inland and coastal wetlands.

INTRODUCTION

One out of every four acres on Cape Cod is wetland. Freshwater wetlands include red maple swamps, Atlantic white cedar swamps, bogs, marshes, and wet meadows. Coastal resource areas include salt marshes, beaches, dunes, banks, and intertidal areas. These wetland resources are important to both the environment and economy of Cape Cod. Wetlands serve important natural functions including groundwater recharge and attenuation of pollutants. They protect water quality for shellfishing and provide wildlife and fisheries habitat. They serve as an attraction for residents and visitors seeking opportunities for outdoor recreational activities, including beach recreation, bird watching, and fishing. In addition, wetlands and their buffers often contain archaeological resources.

Wetland buffers serve important functions including stormwater recharge and filtration, sedimentation and erosion control, nutrient removal, and groundwater recharge. Buffer areas also provide critical habitat for wildlife species that depend on wetlands and their buffers for foraging, breeding, and nesting. Studies indicate that buffers 100- to 300-feet wide are needed to protect surface water bodies from sedimentation and to maintain wildlife habitat, and even greater buffer widths (300 to 1,000 feet) are needed to remove 50 percent to 90 percent of man-made nutrients.

The wetland goal and objectives recognize the irreplaceable value of natural wetlands, prohibit any further wetland degradation, and promote the restoration of previously degraded wetlands as a means to improving overall wetland performance. Most Cape communities have passed local wetlands bylaws that regulate activities within wetlands or require setbacks for construction activities. Although these bylaws are generally stricter than the state Wetlands Protection Act, many still do not provide adequate protections, such as a minimum 100-foot undisturbed buffer.

SUMMARY OF METHODS

Goal: To protect, preserve, or restore the quality and natural values and functions of inland and coastal wetlands and their buffers.

Objective WET1 – Protect wetlands and their buffers from vegetation and grade changes

Methods for all Wetlands:

- Wetlands and their buffers must not be altered except in the limited circumstances identified in this Technical Bulletin and where the applicant can show that there is a public benefit, there is no feasible alternative to alteration, and that the impacts from the alteration are minimized and mitigated. Upon the required showing, the Commission may permit alterations to wetlands and buffers and approve mitigation for the following purposes:
 - Where development currently exists, provided that such proposed additional alterations either reduce impacts to or improve the functions of the wetland resources;
 - Installation of new utility lines;
 - Water-dependent structures and uses;
 - Vista pruning and pedestrian access paths.
- Provide vegetated, undisturbed buffer areas of at least 100 feet in width from the edge of coastal and inland wetlands including isolated wetlands, to protect their natural functions.
- Development activity proximate to wetlands does not change the vegetation, grade, hydrology, sun exposure, or nutrient inputs to wetland or buffer areas.

Methods for Coastal Wetlands:

- Protect beaches, barrier beaches, dunes, coastal banks, salt marshes, and land under water bodies from alteration.
- Projects must not impact eelgrass unless no feasible alternative, there is a public benefit, and the impacts are minimized and appropriately mitigated.
- Redevelopment or water-dependent development in proximity to coastal wetlands accommodates their natural migration.
- For beach nourishment projects, the design must prioritize the natural functions of coastal resources and minimize impacts.
- For maintenance dredging projects, maintain footprint and depth of existing navigation channels and basins.
- Improvement dredging is not permitted except where it accomplishes a substantial public benefit and there is no feasible alternative.
- For water-dependent projects, including aquaculture, avoid and minimize impacts to fish, shellfish, and crustaceans.
- Restoration projects – see Objective WET4 below.

Objective WET1 Areas of Emphasis by Placetype

<i>Natural Areas</i>	Permittable development activities within wetlands and buffer areas do not vary by Placetype. Development is not permitted within wetlands and buffer areas except where noted above due to the specific water-dependent activity, the presence of existing development, installation of utility lines, or vista pruning or access paths.
<i>Rural Development Areas</i>	
<i>Suburban Development Areas</i>	
<i>Historic Areas</i>	
<i>Maritime Areas</i>	
<i>Community Activity Centers</i>	
<i>Industrial Activity Centers</i>	
<i>Military and Transportation Areas</i>	

Objective WET2 – Protect wetlands from changes in hydrology

Methods

- Stormwater runoff from development activities does not alter wetland hydrology

For projects proposing water withdrawals greater than 20,000 gallons per day:

- Projects involving water withdrawals in proximity to wetlands does not adversely impact wetlands.

Objective WET3 – Protect wetlands from stormwater discharges

Methods

- Projects should direct stormwater discharges away from wetlands and their 100 foot buffers.

Objective WET4 – Promote the restoration of degraded wetland resource areas

Methods

- Restore wetlands where wetland is shown to be degraded and the proposed restoration will improve the natural wetland functions, restore native vegetation, and/or improve habitat for native species.
- For coastal resource restoration, enhance natural coastal processes, functions, and sediment movement.
- Remove structures from flood hazard areas wherever possible.
- Remove invasive species from wetland resource areas where it will improve the natural functions of the wetland.

DETAILED METHODS FOR MEETING OBJECTIVE WET1

Objective WET1: Protect wetlands and their buffers from vegetation and grade changes.

Methods Applicable to All Wetland Areas

General Prohibition on Wetlands Alteration

Due to the regional importance of protecting wetland resources, as a matter of policy, the Commission has determined that, subject to the narrow exceptions discussed below, DRIs will not be permitted to alter the vegetation, grade, or hydrology of wetland resources and 100 foot buffer areas. In practice, meeting this objective means not proposing or conducting work within wetland resource or buffer areas. Wetlands are defined according to the Massachusetts Wetlands Protection Act (see definitions at end of bulletin, and reference to 310 CMR 10.00). Prior to filing an application for DRI review, applicants proposing work on sites with wetlands present should seek a determination of the resources present and their boundaries from the local conservation commission through the appropriate process under the wetland regulations.

Development Activity Proximate to Wetlands

Development activity adjacent to wetlands and their buffers should not adversely affect the vegetation, hydrology, sun exposure, or nutrient inputs to the wetland or buffer areas. Considerations include shading from structures, overland sheet flow from stormwater over steep topography, or nutrient inputs from fertilizer application or conventional septic systems. Wherever possible, septic systems should be located in excess of 300 feet from wetlands, ponds, and coastal embayments, and fertilizer application proximate to these resources is strongly discouraged. Studies have demonstrated that buffers of 300 – 1,000 feet are needed to attenuate 50 – 90% of manmade nutrients.

Exceptions to Prohibition on Wetlands Alteration

Under the limited circumstances described below, the Commission may permit a DRI that results in otherwise prohibited alteration of wetlands and/or buffer areas.

Existing Development in Wetlands and Buffers

In some cases, a DRI may propose changes to an existing development that is located within wetland and buffer areas. In these circumstances, the Commission may allow alteration of the wetland resources if the applicant can establish that the proposed changes reduce impacts to, or improve the functions of the wetland resources. Applicants seeking to alter wetlands at preexisting development sites should submit to the Commission a narrative that: identifies the portion of the wetland and buffer area affected by the new work; describes how impacts to the resources have either been reduced or improve the wetland and buffer function; demonstrates that the proposed alteration will not increase adverse impacts to that portion of the resource areas; and describes why there is no technically demonstrated feasible construction alternative. Any proposed work on preexisting development sites within wetland and buffer areas must be

accompanied by a plan for restoration, including grading, hydrology, and native plant species (types, quantities, sizes).

In determining whether a DRI proposing work on an existing development located within wetland and buffer areas will reduce impacts to or improve functions of wetland resources, the Commission will consider the following factors: whether the extent of proposed impact exceeds the existing area of impact, whether there is an increase in impervious area, and whether (in coastal resource areas) the project is designed to accommodate the migration of coastal resources.

Utilities

Disturbance of wetlands and buffer areas for installation of new utility lines may occur where the Commission finds no feasible alternative to the proposed route for such utilities. Applicants should demonstrate that alternatives to work within the wetland area have been fully considered. In the event that utility installation in wetland areas must proceed, disturbance of wetland and buffer areas should be minimized and surface vegetation, topography, and water flow should be restored substantially to the original condition.

Water-Dependent Structures and Uses

Certain traditional uses of wetland resource areas, (especially coastal resources) may generate impacts to these resources. Recreational access, shellfishing, boating, or the Massachusetts public trust rights to fishing, fowling, and navigation, all require activity which may directly or indirectly affect wetland resources. Occasionally, projects designed to achieve a public benefit such as water quality improvement may also require alterations to wetland resources. While the goal under this RPP is to protect all wetland resources from alteration, access to the water and water-dependent structures and uses are recognized as important and often necessary, and may result in impacts to wetland resources. Wherever possible, alterations for water-dependent structures should be avoided. Where alterations cannot be avoided, a public benefit should be demonstrated, development impacts should be minimized, and applicant must show there is no feasible alternative.

Vista Pruning and Pedestrian Access Paths

Vista pruning and pedestrian access paths may be permitted within wetland buffer areas where there is no other feasible alternative location. Pruning of branches from trees may be allowed to achieve a view to open water or wetlands, but may not always result in an unobstructed view. Removal of dead or diseased trees, which can provide important wildlife habitat, is discouraged unless they pose a threat to human health or safety. Pedestrian access paths may be established or maintained in wetland buffers provided the siting and design minimizes impacts on habitat and natural functions of the resource area.

Accommodating Coastal Resource Migration

Water-dependent development activity in coastal resource areas has the potential to adversely impact the natural shifting of form and location of these resources. Wherever possible, alterations to beach, dune, coastal bank, salt marsh, and land under water bodies should be avoided. Recognizing that these resources are dynamic and change form naturally and continually, development in proximity to these resources should accommodate their natural migration through open foundations, piers, breakaway walls, and the like.

Eelgrass

The general presumption is that work in coastal resource areas will not have direct or indirect adverse effects on eelgrass beds, including mapped historic eelgrass beds, unless an applicant can demonstrate that there is no feasible alternative location or design for the project and the project is necessary to accomplish an overriding public benefit subject to a mitigation requirement. If a project adversely affecting eelgrass is permitted, appropriate mitigation, including eelgrass restoration, will be required. Mitigation may include replanting of eelgrass following disturbance and/or planting eelgrass in a suitable off-site location. The Commission may require a planting and monitoring plan to ensure that restoration of the disturbed eelgrass bed is successful. In cases where work is permitted proximate to eelgrass beds, directional drilling should be used to avoid any direct impacts on eelgrass.

Beach Nourishment

As sea levels rise and coastal properties experience increased erosion, Cape Cod communities may seek to permit, or see more private requests to permit beach nourishment projects designed to provide protection from coastal hazards. The Massachusetts Ocean Act of 2008, the resulting Massachusetts Ocean Management Plan, and the Cape Cod Ocean Management Plan anticipated requests to permit and extract sediment from offshore ocean resources for use as hazard mitigation.

Applicants for any beach nourishment project, whether for hazard mitigation or beneficial reuse of sediments retrieved from dredging, should characterize the profile and sediment of the beach to be nourished, and demonstrate the compatibility of the grain size of the sediment source material and that of the receiving beach.

Where an applicant is seeking approval to conduct offshore sediment mining for hazard protection-type beach nourishment purposes, DRI application materials should demonstrate that site-specific wave climate and erosion rate conditions support the goal of the project.

Applicants also should provide a site monitoring plan that includes the following elements:

- A commitment to conduct seasonal beach profile surveys along the length of the project area during the first year, followed by annual beach profile surveys,
- Annual evaluation of survey data to determine whether the project is performing as designed (e.g., to re-introduce sediment to the littoral system, or to provide storm

damage protection benefits, and is not resulting in down-stream adverse impacts to coastal resources), and

- Consistency with the guidelines in *Beach Nourishment - MassDEP's Guide to Best Management Practices for Projects in Massachusetts* (March 2007).

The Commission may require submission of monitoring reports after the first year of data collection, and up to two years thereafter.

Dredging

Applicants seeking permits for maintenance dredging should provide prior permitting documentation, including permit numbers, dates of issuance and re-issuance, and documentation that clearly demonstrates the location, width, depth and length of the previously permitted project. Maintenance dredging projects should maintain the existing footprint and depth of existing navigation channels and basins. Clean sediments retrieved from dredging activities should be beneficially reused to nourish area beaches, provided there are not other resource protection conflicts.

Improvement dredging is prohibited except when necessary to accomplish a substantial public benefit and no feasible alternative exists. Improvement dredging proposed for water quality improvement should provide hydrologic/hydraulic analyses demonstrating that the proposed dredging activity will improve water quality, and may be approved where the applicant can demonstrate that there will not be adverse impacts to sensitive resources, including shellfish, finfish, and endangered species habitat.

Fish, Shellfish, Crustaceans

Development and redevelopment should be designed and constructed to minimize direct and indirect adverse impacts to fish, shellfish, crustaceans and their habitat. The construction or expansion of docks and piers is strongly discouraged in significant shellfish habitat areas, as identified and documented by the Division of Marine Fisheries and/or local shellfish officials. Previously licensed private docks and piers more than 50 percent damaged or destroyed by storms may be replaced in accordance with federal, state and local regulations. In areas identified and documented as significant shellfish habitat, replacement structures should be designed to minimize adverse impacts to these resources. As a general practice, in order to reduce cumulative adverse impacts to coastal ecosystems, community docks and piers should be constructed in lieu of individual docks on private property.

Aquaculture

Coastal aquaculture should be designed to have no significant adverse impacts to water quality or marine habitat. Temporary structures may be allowed provided that they are:

- Permitted by DEP and all other appropriate regulatory agencies
- Designed to increase the productivity of land containing shellfish or to enhance marine fisheries and supported by the Division of Marine Fisheries, and
- Determined by the Army Corp of Engineers and local Harbor master to create no significant impact to public trust rights and navigation safety.

Mitigation for Wetland or Buffer Impacts

As detailed in this Technical Bulletin, wetland and buffer alteration is generally not permitted, with the limited exceptions noted herein for redevelopment, utility installation, or water-dependent projects. In rare instances the Commission may allow wetland and buffer alteration, but only where wetland resource values are not degraded, there is an overriding public benefit, and the impacts are minimized and mitigated.

Where the Commission may allow wetland alteration for non-water-dependent projects, mitigation provided should be at least 2:1 mitigation to impact, and possibly greater. Mitigation may include the permanent protection of wetlands and/or buffers, which could be on-site or off-site. Wetlands offered as mitigation should be of equal or greater habitat value to those being impacted, i.e. they should be of high quality, free of invasive species, not serving as stormwater management structures. Similarly, wetland buffers offered as mitigation should be naturally vegetated, free of invasive species (or will be incorporated into an invasive species management plan) and are not serving some other development-related purpose.

To allow the Commission to consider potential impacts to wetlands or wetland buffers, the Applicant should provide:

- Narrative discussing alternatives to the proposed alteration that were considered and discarded, and why,
- Narrative discussing how the proposed alteration minimizes impacts to wetlands, buffers, and the beneficial functions that they provide
- Narrative discussing the public benefits that derive from the project
- Proposed mitigation identifying preserved wetlands, 100 ft buffers, located on- or off-site, and in an amount equal to or greater than twice the area of impact. May be waived for most water dependent projects, except where eelgrass may be impacted.
- For wetland buffers, mitigation may also include protection of habitat areas that have an equal or greater habitat value than the wetland buffer affected. Examples of high value habitats include areas identified by the NHESP BioMap2 Core or Critical Natural Landscapes, mapped rare species habitat, vernal pools, Important Bird Areas, areas noted on the State Wildlife Action Plan as high value (Tier 1) or Key sites.

Taken together, the analysis must demonstrate that, with the proposed mitigation, the project will not degrade wetland resource values.

DETAILED METHODS FOR MEETING OBJECTIVE WET2

Objective WET2: Protect wetlands from changes in hydrology.

Stormwater management should not result in discharge of stormwater to wetland resource areas or within 100 feet of wetlands in order to protect the natural hydrology and water quality within the wetland resource area.

In situations where a project proposes new groundwater withdrawals exceeding 20,000 gallons/day in proximity to wetlands, the applicant should demonstrate that the withdrawal will have no adverse effect on surface water levels and wetland habitat. The applicant should provide hydrogeologic characterizations in sufficient detail to demonstrate that wetland and vernal pool resources are sufficiently separated from the drawdown cone around the well, or are protected by a confining layer of sediment such that the impacts of water level drawdown on the wetland are non-existent or negligible. Water withdrawals should have no impact on water levels in wetlands or surface water bodies which may be connected to and fed by groundwater. (see requirements of Water Resources Objective WR5)

DETAILED METHODS FOR MEETING OBJECTIVE WET3

Objective WET3: Protect wetlands from stormwater discharges.

Rainfall contributes to the natural hydrology of wetlands, flowing over land or entering wetlands from streams and rivers. Stormwater runoff from the built environment typically contains nutrients and pollutants which may have adverse impacts on wetlands. Thus, stormwater management should not result in discharge of stormwater to wetland resource areas or within 100 feet of wetlands in order to protect the natural hydrology and water quality within the wetland resource area. More detail on meeting stormwater management objectives may be found in the Water Resources Technical Bulletin, Objective WR4.

DETAILED METHODS FOR MEETING OBJECTIVE WET4

Objective WET4: Promote the restoration of degraded wetland resource areas.

Wetland Restoration

The RPP encourages restoration of degraded natural habitats and natural communities. Centuries of development activity have adversely impacted many of our coastal and inland wetlands. Development activity has encroached on wetlands or their buffers, streams have been restricted or impounded, coastal erosion management has altered the natural flow of sediment along beaches and across salt marshes. Measures to restore altered or degraded inland and coastal wetlands, including nonstructural bank stabilization, revegetation, and restoration of tidal flushing are encouraged. Thin Layer Sediment Deposition may be allowed on salt marshes where there is evidence of restoration success. Cranberry bogs where cultivation has ceased are excellent opportunities for wetland restoration. Removing development within sensitive or

significant habitats, including mapped estimated or priority habitat or BioMap2 habitats as identified by the Natural Heritage and Endangered Species Program, is encouraged. Restoration projects should demonstrate that the proposed work will improve the natural functions of the wetland or buffer area and improve habitat for native plant and wildlife species.

In agricultural areas where full restoration of wetlands and buffer areas may not be practical, management practices that improve water quality and conserve water are encouraged. The Natural Resources Conservation Service has recommendations for farmers that address these interests. (see reference below)

Significant portions of the floodplain on Cape Cod are developed. With sea level rise and changes in our climate bringing increased flooding, acting on opportunities to remove development from coastal floodplains is encouraged. The removal of development in V-Zones or of FEMA-designated repetitive-loss properties is particularly encouraged.

Invasive species pose a threat to the health and function of Cape Cod's wetlands. The current list of species classified as invasive in Massachusetts is provided in the Wildlife and Plant Habitat Technical Bulletin. The Commission may allow the alteration of wetlands in order to address invasive species invasions where the unwanted plants can be removed without adversely impacting native species and natural wetland functions. Applicants seeking to restore wetlands or buffers impacted by invasive species should provide a management plan as detailed in the Wildlife and Plant Habitat Technical Bulletin, a detailed site plan and narrative describing the proposed restoration, including species to be removed, methods for removal, and a plan for restoration, including grading, hydrology, and native plant species (types, quantities, sizes). The chemical treatment of invasive species in wetlands is discouraged but may be permitted only where an alternate method would result in adverse impacts to wetland resources.

APPLICATION MATERIALS

Applicants should provide the following materials to address consistency with the Wetland Resources Goal and Objectives.

- Site plan showing delineation of all wetland resources and the 100 ft buffer to those delineations.
- If development is proposed within wetland resource areas or buffers, plans detailing the development proposed should be provided, including site plans of existing and proposed conditions, and planting plan for restoration of the site.
- Narrative discussing the alternatives considered, and plans of the alternatives, as appropriate.
- Where beach nourishment or other coastal alterations are proposed, cross sections of proposed beach or dune profiles should be provided.

DEFINITIONS

Wetland – An inland area of 500 square feet or greater including wet meadows, marshes, swamps, bogs, and areas of flowing or standing water, such as rivers, streams, ponds, and lakes, or a coastal area including beaches, dunes, barrier beaches, coastal banks, intertidal areas, salt marshes, and land under the ocean. Wetlands may border water bodies or may be isolated. Wetlands are generally described in the Wetlands Protection Act and delineated in accordance with the boundary delineation methods set forth in the relevant sections of 310 CMR 10.00. These include 310 CMR 10.25(2), 10.27(2), 10.28(2), 10.29(2), 10.30(2), 10.31(2), 10.32(2), 10.33(2), 10.34(2), 10.35(2), 10.55(2) with the exception of the –bordering requirement, and 10.56(2).

Vista Pruning – trimming or removal of selected branches from trees to provide a view to the water, a wetland, or other vista. Vista pruning which may be allowed within wetland buffers will not necessarily provide an unobstructed view.

Invasive species – List of species determined by Massachusetts Department of Agricultural Resources as noxious weeds. Please insert link here

REFERENCES

Farming in Wetland Resource Areas – A Guide to Agriculture and the Massachusetts Wetlands Protection Act

https://www.harvard.ma.us/sites/harvardma/files/uploads/farming_in_wl_ra.pdf

See also the Regional Policy Plan Data Viewer