Wetlands Resources

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 the goal 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, including those associated with stormwater discharges.*
- ***Objective WET3*** *– 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 project's 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 contained within the RPP Data Viewer located at www.capecodcommission.org/RPPDataViewer 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.

The project context, as defined by the Placetype of the project's location, provides the lens through which the Commission will review the project under the RPP.

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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 wetlands include salt marshes, beaches, dunes, banks, and intertidal areas. All of the foregoing wetland resources are important to both the environment and economy of Cape Cod. Wetlands serve important natural functions including groundwater recharge, attenuation of pollutants, carbon capture, and protection from storms and flooding. 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 buffer widths of 300 feet or greater are needed to remove 90 percent of man-made nutrients.[1,2]

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.

[1] Environmental Law Institute, with funding from USEPA: *Planner's Guide to Wetland Buffers for Local Governments*, March 2008.
[2] Washington State Department of Ecology: *Wetland Buffers: Use and Effectiveness*, February 1992.

DEFINITIONS

Beach Nourishment: The placement of clean sediment, of a grain size compatible with existing beach nourishment, on a beach to increase its width and volume for purposes of storm damage prevention, flood control, habitat, or public recreation. The seaward edge of the nourished beach shall not be confined by any structure.

Improvement Dredging: Any dredging in an area which has not been previously dredged or which extends the original dredged width, depth, length, or otherwise alters the original boundaries of a previously dredged area for the purposes of improving navigation or flushing of an embayment or harbor.

Invasive Species: Any species introduced to an area in which it would not naturally occur and whose introduction causes or is likely to cause significant harm to the environment, economy, or human health. Invasive species compete with native plants and wildlife for resources, disrupt beneficial relationships, spread disease, cause direct mortality, and can significantly alter ecosystem function.

Maintenance Dredging: Dredging in accordance with a license or permit in any previously authorized dredged area which does not extend the originally dredged depth, width, or length.

Rare Species: Plant and animal species listed as endangered, threatened, or special concern under the Massachusetts Endangered Species Act. These species are tracked in the NHESP database. These species are either at risk, or may become at risk, of extinction. Rarity in the state, population trend, and overall threat are the main criteria used to determine extinction risk. Rare Species in Massachusetts are threatened primarily due to habitat loss or degradation.

Riverfront Area: Riverfront Area is the area of land between a river's mean annual high water line and a parallel line measured horizontally. The Riverfront Area may include or overlap other resource areas or their buffer zones. Riverfront Area is described in the Wetlands Protection Act and in 310 CMR 10.58.

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.

Vernal Pool: A vernal pool is a wildlife habitat that supports standing water for a period of time from spring into summer and which provides habitat for vernal pool species. For the purposes of DRI review, vernal pools include both those sites which have been certified by the NHESP, and those sites which have the characteristics that make them certifiable by the NHESP. Maps of certified vernal pools and potential vernal pools are available in the RPP Data Viewer.

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. All wetlands, regardless of whether bordering on other waterbodies or isolated, are protected under the RPP.

SUMMARY OF METHODS

GOAL | WETLANDS RESOURCES

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 services;
    - Water-dependent structures and uses;
    - Vista Pruning and pedestrian access paths;
    - Wetland restoration (see Objective WET3).
- 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 in the Riverfront Area does not adversely impact Wetlands
- Fertilizer and pesticide use is minimized within 300 ft of Wetlands
- Mitigation is required for any new alteration to Wetlands or their buffers and must include the permanent protection of Wetlands and buffers on- or off-site of equal or greater ecological value to the area impacted in a proportion of at least 2:1 mitigation to impact.

METHODS FOR COASTAL WETLANDS:

- Protect beaches, barrier beaches, dunes, coastal banks, salt marshes, and land under water bodies from alteration.
- Redevelopment or water-dependent development in proximity to coastal Wetlands accommodates their natural migration.
- Projects must not impact eelgrass unless no feasible alternative, there is a public benefit, and the impacts are minimized and appropriately mitigated.
- 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.
- Coastal aquaculture should be designed to have no significant adverse impacts to water quality or marine habitat.
- Restoration projects – see Objective WET3 below.

Permittable development activities within Wetlands and buffer areas do not vary by Placetype.

Objective WET2 – Protect Wetlands from changes in hydrology, including those associated with stormwater discharges

METHODS

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

For projects proposing water withdrawals greater than 20,000 gallons per day or discharges greater than 10,000 gallons per day:

- Projects involving water withdrawals or discharges in proximity to Wetlands must not adversely impact Wetlands.

Objective WET3 – 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 development from Wetland resource areas wherever possible.
- Remove Invasive Species from Wetland resource areas.

DETAILED DISCUSSION OF METHODS FOR MEETING OBJECTIVE WET1

Objective WET1 *– Protect Wetlands and their buffers from vegetation and grade changes.*

METHODS APPLICABLE TO ALL WETLAND AREAS

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. Due to the regional importance of protecting Wetlands, subject to the narrow exceptions discussed below, DRIs will not be permitted to alter the vegetation, grade, or hydrology of Wetlands and 100-foot buffer areas. In practice, meeting this objective means not proposing or conducting work within Wetlands or buffer areas. Wetlands are defined according to the Massachusetts Wetlands Protection Act (see definitions at top 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 must seek a determination of the resources present and their boundaries from the local conservation commission through the appropriate process under the Wetlands Protection Act regulations and any applicable local Wetlands bylaw and regulations.

Exceptions to Prohibition on Wetlands Alteration

Under the limited circumstances described below, and where the applicant demonstrates that there is a public benefit, there is no feasible alternative to the alteration, and that the impacts from the alteration are minimized and mitigated, 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 must submit to the Commission a narrative discussing technically feasible alternatives to the proposed

alteration that were considered and rejected, and why. Applicants must also submit existing and proposed conditions civil engineering plans identifying that portion of the Wetland and buffer area affected by the new work, with an accompanying narrative describing how the proposed project will reduce impacts to or improve function of the Wetland and buffer, or, at a minimum, demonstrating that the proposed alteration will not increase adverse impacts to that portion of the Wetland resource areas. 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, Commission staff 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, assessment in the Natural Resources Inventory (NRI) of current conditions as compared to an assessment by the consulting professional biologist preparing the NRI of proposed conditions, and whether (in coastal resource areas) the project is designed to accommodate the migration of coastal resources.

INSTALLATION OF NEW UTILITY SERVICES

Disturbance of Wetlands and buffer areas for installation of new utility services 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. 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, should be avoided 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.

WETLAND RESTORATION

The restoration of degraded Wetland resource areas is strongly encouraged. Applicants may be allowed to alter Wetlands for restoration purposes if they submit an appropriate restoration plan. See Objective WET3 for methods to demonstrate compliance with the Wetland restoration objective.

Applicants must 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

To protect the important functions that Wetland buffers serve, a vegetated buffer of at least 100 feet must be maintained or restored. A functioning vegetated buffer contains dense layers of native plants and contributes to the resilience and ecological health of the adjacent Wetland. Where a healthy Wetland buffer exists, it must be protected from development impacts. Where a Wetland buffer has been altered or degraded, it should be restored.

Development activity in the Riverfront Area does not adversely impact Wetlands

Where the local conservation commission has determined that Riverfront Area as defined by the Wetlands Protection Act is present on a project site, applicants must

locate development activity outside the Riverfront Area. Applicants can overcome the presumption of significance of those portions of the Riverfront Area outside of Wetlands and the 100 ft buffers to Wetlands upon a showing that the impacts proposed are no greater than existing impacts or that development activity will have no adverse impact on the functions of the river, including its water quality or volume of flow.

Fertilizer and pesticide use is minimized within 300 ft of Wetlands

Septic systems must be located in excess of a 300 ft upgradient buffer from freshwater wetlands and ponds in order to protect water quality (see Water Resource Technical Bulletin Objective WR2). Existing septic systems within the 300 ft buffer may be replaced provided there is no increase in impacts to Wetland resources or their buffers.

Fertilizer and pesticide use proximate to Wetlands is known to contribute to water quality degradation. Studies have demonstrated that buffers in excess of 300 feet are needed to attenuate 90% of manmade nutrients, and buffers of greater widths are significant for the protection of wildlife.[3,4] Fertilizer and pesticide application within 300 ft of wetland resource areas should not occur unless a naturally vegetated buffer of at least 100 ft is maintained between the Wetland resource and the development site. Larger buffers and no fertilizer or pesticide application is preferred and encouraged.

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, water-dependent projects, or Wetland restoration. 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. Mitigation must be provided where new Wetland or buffer alteration is proposed, though not for restoration projects. For Wetland restoration, see Objective WET3.

Where the Commission may allow new alteration to Wetlands or buffers for non-water-dependent projects, mitigation must be in a proportion of at least 2:1 mitigation to

[3] Environmental Law Institute: *Planner's Guide to Wetland Buffers for Local Governments*, March 2008. Funded by USEPA.
[4] Washington State Department of Ecology: *Wetland Buffers: Use and Effectiveness*, February 1992.

impact. Mitigation must 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 must provide:

- Narrative discussing technically feasible alternatives to the proposed alteration that were considered and rejected, and why.
- Plan identifying that portion of the Wetland and buffer area affected by the new work.
- Narrative discussing how the proposed alteration minimizes impacts to or improves the functions of Wetlands, buffers, and the beneficial functions that they provide.
- Restoration plan including grading, hydrology, and the types, quantities, and sizes of native plant species to be used in the restoration.
- 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. Wetland mitigation areas must include Wetland habitat of equal or greater ecological value to the Wetlands impacted. May be waived for most water-dependent projects, except where eelgrass or salt marsh 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 BioMap Core Habitats, Critical Natural Landscapes, or Local or Regional Components, mapped Rare Species habitat, Vernal Pools, Important Bird Areas, habitats or Key sites identified in the State Wildlife Action Plan.

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

METHODS FOR COASTAL WETLANDS

Protect coastal resource areas from alteration

Like inland, freshwater Wetlands, beaches, barrier beaches, dunes, coastal banks, salt marshes, and land under water bodies must be protected from alteration. Specific considerations and methods to address necessary alterations within coastal Wetland resource areas follow.

Most projects located in proximity to coastal resource areas are also located within the floodplain or future floodplain. Where this is the case, projects should also address the requirements of the Coastal Resiliency goal, objectives, and Technical Bulletin. The RPP discourages, limits, or prohibits new development, and further regulates redevelopment in the floodplain, depending on which type of coastal hazard area is present within the coastal zone subject to flood inundation.

Redevelopment or water-dependent development in proximity to coastal Wetlands accommodates their natural 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, redevelopment or water-dependent development in proximity to coastal wetlands must accommodate their natural migration through open foundations, piers, breakaway walls, and the like.

Projects must not impact eelgrass unless no feasible alternative, there is a public benefit, and the impacts are minimized and appropriately mitigated

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.

For Beach Nourishment projects, the design must prioritize the natural functions of coastal resources and minimize impacts

As sea levels rise and coastal properties experience increased erosion, Cape Cod communities may seek to permit, or receive more private requests to permit Beach Nourishment projects designed to provide protection from coastal hazards.

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.

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.

For Maintenance Dredging projects, maintain footprint and depth of existing navigation channels and basins

Maintenance Dredging is generally considered dredging within previously permitted channels at the permitted widths and depths to allow for safe passage of current users. 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 not permitted except where it accomplishes a substantial public benefit and there is no feasible alternative

Improvement Dredging is generally considered dredging new channels that have not been dredged previously or expanding the depth, width, or length of existing permitted channels. 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.

For water dependent projects, including aquaculture, avoid and minimize impacts to fish, shellfish, and 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.

Coastal aquaculture should be designed to have no significant adverse impacts to water quality or marine habitat

Temporary aquaculture structures may be allowed provided that they are:

- Permitted by MassDEP 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 Corps of Engineers and local Harbor master to create no significant impact to public trust rights and navigation safety.

DETAILED DISCUSSION OF METHODS FOR MEETING OBJECTIVE WET2

Objective WET2 *– Protect Wetlands from changes in hydrology, including those associated with stormwater discharges.*

Projects should direct stormwater discharges away from Wetlands and their 100 foot buffers

Precipitation 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.

Projects involving water withdrawals or discharges in proximity to Wetlands do not adversely impact Wetlands

Development activities may indirectly impact Wetlands through changes in hydrogeology. In situations where a project proposes new groundwater withdrawals exceeding 20,000 gallons/day or discharges exceeding 10,000 gallons per day in proximity to Wetlands, the applicant must demonstrate that the withdrawal or discharge will have no adverse effect on surface water levels and Wetland habitat.

For water withdrawals, the applicant must 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.

Disposal of large volumes of water, as in treated wastewater disposal fields or injection wells, could have adverse effects on nearby Wetland resources. Excavation for mineral resources, sand, and gravel, or extensive drilling for geothermal projects could alter groundwater flow volumes or direction, possibly impacting nearby Wetland resources.

Applicants proposing projects that introduce changes that could impact the behavior of the aquifer must provide hydrogeological analyses that demonstrate the project will not adversely impact Wetland resource hydrology.

More detail on managing water withdrawals and discharges to maintain hydrologic balance may be found in the Water Resources Technical Bulletin, Objective WR5.

DETAILED DISCUSSION OF METHODS FOR MEETING OBJECTIVE WET3

Objective WET3 *– Promote the restoration of degraded Wetland resource areas.*

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.

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

Measures to restore altered or degraded inland Wetlands, including non-structural bank stabilization, revegetation, and restoration of natural hydrology are encouraged. Cranberry bogs where cultivation has ceased are excellent opportunities for Wetland restoration.

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).

For coastal resource restoration, enhance natural coastal processes, functions, and sediment movement

Measures to restore altered or degraded coastal Wetlands, including revegetation and restoration of tidal flushing are encouraged. Salt marsh restoration techniques including thin layer sediment placement, ditch remediation, runnels, and marsh habitat mounds may be allowed on salt marshes where there is evidence of restoration success.

Remove development from Wetland resource areas wherever possible

Removing development within sensitive or significant habitats, including mapped estimated or priority habitat or BioMap habitats and landscapes as identified by the Natural Heritage and Endangered Species Program, is encouraged. Removing development from Wetlands and their buffers should help restore essential functions of Wetlands including recharging groundwater, flood control, pollutant filtration, and wildlife habitat.

Remove Invasive Species from Wetland resource areas

Invasive Species pose a threat to the health and function of Cape Cod's Wetlands. A current listing of invasive plant species can be found on the web at https://www.mass.gov/info-details/massachusetts-prohibited-plant-list. Additional information on invasive plants in Massachusetts can be found on the Massachusetts Invasive Plant Advisory Group's webpage here: www.massnrc.org/mipag/invasive.htm.

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. Where chemical treatment is proposed, the applicant should address the available best practice methods for controlling the Invasive Species present on the site, and discuss the merits and drawbacks of the different methods with regard to impacts to Wetlands, aquatic species, and water quality.

GENERAL APPLICATION REQUIREMENTS

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

Definitions of key terms, including Wetlands, are presented on page WET-5. 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.

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

- Site plan showing delineation of all Wetland resources and the 100 ft buffer to those delineations and determination of the resources present and their boundaries from the local conservation commission through the appropriate process under the Wetland regulations.
- Applications for Developments of Regional Impact that propose to alter undeveloped areas should include a natural resources inventory (NRI) as detailed in the Wildlife and Plant Habitat Technical Bulletin. The NRI should identify the presence and location of Wetlands and their buffers, and serve as a guide for the layout of the development.

If development is proposed within Wetland resource areas or buffers:

- Provide a narrative discussing technically feasible alternatives to the proposed alteration that were considered and rejected, and why.
- Plan identifying that portion of the Wetland and buffer area affected by the new work.
- Narrative discussing how the proposed alteration minimizes impacts to or improves the functions of Wetlands, buffers, and the beneficial functions that they provide.
- Restoration plan including grading, hydrology, and the types, quantities, and sizes of native plant species to be used in the restoration.
- Narrative discussing the public benefits that derive from the project.
- Proposed mitigation identifying preserved Wetlands and 100 ft buffers, located on- or off-site, in an amount equal to or greater than twice the area of impact, and of equal or greater ecological value. Where Beach Nourishment or other coastal

alterations are proposed, cross sections of proposed beach or dune profiles should be provided.

REFERENCES

The Protecting Wetlands in Massachusetts webpage has many resources, accessed July 2025. Protecting Wetlands in Massachusetts | Mass.gov

The DEP Wetlands Information webpage has many resources, accessed July 2025. Wetlands Information | Mass.gov

See also the Regional Policy Plan Data Viewer.