Phase II Final Report

Taunton River Watershed Project

2-15-2011

Final Report: Example Code Reform and Demonstration Projects. (All Appendices)

Horsley Witten Group, Inc.

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APPENDIX A. PROPOSED NORTON WETLAND PROTECTION BYLAW AND REGULATIONS
To see if the Town will amend its Bylaws for the purpose of adopting, ratifying, and incorporating therein the following new Bylaw, “Wetlands Protection Bylaw,” or take any other action relative thereto:

WETLANDS PROTECTION BYLAW

I. **Purpose.** The purpose of this Bylaw is to protect the wetlands, water resources, flood prone areas, and adjoining upland areas in the Town of Norton by controlling activities deemed by the Conservation Commission (hereinafter referred to as the “Commission”) likely to have a significant or cumulative effect on resource area values, including but not limited to the following: public or private water supply, groundwater supply, flood control, storm damage prevention, prevention and control of pollution, protection of fisheries, protection of wildlife habitat, water quality, pollutant removal capacity, protection of riparian ecosystems, protection of wildlife populations and species diversity, passive recreation and the function and character of resource area landscapes.

II. **Relationship to the Wetlands Protection Act.** This Bylaw is enacted pursuant to the Town’s Home Rule authority to protect the resource areas under the Wetlands Protection Act (G.L. c.131, §40, hereinafter referred to as the “Act”) to a greater degree, to protect additional resource areas beyond the Act recognized by the Town as significant, to protect all resource areas for their additional values beyond those recognized in the Act, and to impose in local regulations and permits additional standards and procedures stricter than those of the Act and the implementing regulations thereunder (310 CMR 10.00, as amended), subject, however, to the rights and benefits accorded to agricultural uses and structures of all kinds under the laws of the Commonwealth and other relevant bylaws of the Town of Norton.

III. **Rules and Regulations.** The Commission shall be authorized to promulgate Rules and Regulations (“Regulations”) to effectuate the purposes of this Bylaw at a meeting for which one week’s notice has been provided in a newspaper of general circulation in the Town. Such Regulations shall take effect upon filing with the Town Clerk. Failure by the Commission to promulgate such Regulations or a legal declaration of their invalidity by a court of law shall not act to suspend or invalidate the effect of this Bylaw. Such Regulations may include, but need not be limited to the following: requirements for permit procedures; definitions of additional terms and presumptions not inconsistent with the Bylaw; performance standard requirements; authorization for the use of a consultant fee fund; and imposition of filing and consultant fees.

IV. **Jurisdiction.** Except as permitted by the Commission or specifically exempted in Section IV of this Bylaw, no person shall commence to remove, fill, dredge, build upon, degrade, discharge into, or otherwise alter the following resource areas listed below in Sections IV.A-D. These resources shall be known collectively as the Wetland Resource Areas (and may otherwise be referred to as, the “Areas Subject
to Protection under this Bylaw”). Said Resource Areas shall be protected whether or not they border surface waters.

A. Any bordering or isolated freshwater wetland, including vegetated wetlands (marshes, wet meadows, bogs, swamps, seeps and springs); bordering or isolated lands subject to flooding or inundation by groundwater or surface water; banks (naturally occurring and beaches); reservoirs, lakes, and ponds of any size; lands under water bodies; intermittent streams, brooks and creeks; and lands under waterways;

B. Lands adjoining freshwater wetlands, out to a distance of 100 feet (defined herein as the Wetland Protection Zone);

C. Perennial rivers, streams, brooks and creeks, and lands adjoining these resource areas out to a distance of 200 feet (defined as the Riverfront Area in the Act and its implementing regulations); and

D. Vernal Pool Habitat out to a distance of 100 feet, as defined in this Bylaw, regardless of whether the pool has been certified by the Massachusetts Natural Heritage and Endangered Species Program (NHESP), or whether the pool is located within a state protected resource area.

V. Exemptions and Exceptions. The following uses and/or activities are exempt from procedures and/or standards of this Bylaw as described below:

A. Work performed for normal maintenance or improvement of land in agricultural use, as defined in 310 CMR 10.04, “Agriculture”; maintaining, repairing or replacing existing public utilities specifically exempted in the Act, subject to 310 CMR 10.02(2)(a)(2);

B. Emergency situations in compliance with 310 CMR 10.06;

C. Existing structures. The applications and permits required by this Bylaw shall not be required for existing structures or work in existence prior to the date of adoption of the Bylaw provided that:
   1. the existing structures and activities have been lawfully located in compliance with the Act;
   2. a valid permit has been issued under the Act; or
   3. an application for work under the Act has been submitted.

VI. Applications. Written application shall be filed with the Conservation Commission to perform activities affecting resource areas protected by this Bylaw. No activities shall commence without receiving and complying with a Permit issued pursuant to this Bylaw. Written Permit applications may include the Request for Determination of Applicability (RDA); Abbreviated Notice of Resource Area Delineation (ANRAD); and/or the Notice of Intent (NOI). Permits to be issued include the Determination of Applicability, Order of Resource Area Delineation (ORAD), Order of Conditions (OOC), and Extension Permits. The Commission, in an appropriate case, may at its discretion accept as the application and plans under this Bylaw any application and plans filed under the Act and its implementing Regulations.
VII. **Fees.** At the time of an application, the applicant shall pay a filing fee as specified by the Commission. The fee shall be in addition to that required by the Act and its implementing regulations. The Commission may impose reasonable fees for the purpose of employing outside consultants with scientific or legal expertise in order to aid in the review of proposed projects. The Commission may adopt rules to provide for depositing such fees in a special account, as authorized by G.L. c. 44, § 53G.

VIII. **Notice and Hearings.** Any person filing a Permit application, or other request with the Commission shall provide public notice as required by the Commission. The Commission shall conduct a public hearing on any Permit application, with written notice given at the expense of the applicant, at least five (5) business days prior to the hearing, in a newspaper of general circulation in the Town. The Commission shall commence the public hearing within 21 days from receipt of a completed Permit application. The Commission shall have authority to continue the hearing to a specific date announced at the hearing, for reasons stated at the hearing, which may include the need for additional information from the applicant or others as deemed necessary by the Commission in its discretion, based on comments and recommendations of other boards and officials. The Commission in an appropriate case may combine its hearing under this Bylaw with the hearing conducted under the Act and the implementing Regulations, as amended.

IX. **Coordination with Other Boards.** The Commission shall post meetings to consider matters under the Bylaw in accordance with the Open Meeting Law. The applicant shall provide a copy of the permit application and plans to any Town multiple-member board or officer if so requested, at the applicant’s expense. Any Town multiple-member board or officer may submit written comments to the Commission in advance of the public hearing, and such comments shall be provided to the applicant.

X. **Assessment of Impacts.** In reviewing Permit applications within the jurisdiction of this Bylaw, the Commission shall take into account the extent to which the applicant has avoided, minimized and mitigated any such impact and any additional standards of review provided within the Regulations.

A. **Overall Impacts to Resource Values.** The Commission shall take into account any loss, degradation, isolation, fragmentation, and replacement or replication of such protected resource areas elsewhere in the community and the watershed, resulting from past activities, whether permitted, unpermitted or exempt, and foreseeable future activities. In reviewing activities for those resource areas listed in Section IV.A of this Bylaw, the Commission shall presume that the associated Wetland Protection Zones are important to the protection of these resource areas because the best scientific evidence available demonstrates that activities undertaken in close proximity have a high likelihood of adverse impact, either immediately or cumulatively. These adverse impacts can include, without limitation, erosion, siltation, sedimentation, loss of groundwater recharge, poor water quality, increases in flooding, alteration of stream
morphology, significant changes in water temperature, alteration of pollutant removal capacity (including nitrates, nitrites, phosphorus, metals, salt, sediments and carbon); and loss of in-stream or riparian and upland wildlife habitat. The Commission shall presume that all vernal pools, and the associated vernal pool habitat and lands adjoining vernal pools, perform essential habitat functions. This presumption may be overcome only by a preponderance of credible evidence which, in the judgment of the Commission, demonstrates that the vernal pool habitat as defined by this Bylaw does not provide essential habitat functions. A formal evaluation shall be performed by an individual who, at a minimum, meets the qualifications of 310 CMR 10.60 and has conducted the evaluation at the appropriate time of year.

B. Impacts in Areas of Critical Environmental Concern (ACEC). In reviewing activities within an ACEC, the Commission shall presume the ACEC is important to all the resource area values listed in this Bylaw and shall work to ensure the protection of these values and the functions they provide, particularly by taking measures toward the protection and enhancement of existing native vegetative cover for the improvement and maintenance of existing water quality and quantity; protection of riparian ecosystems and riverfront areas which support the continued viability of fisheries habitat and movement, including seasonal coldwater fisheries, mammals, freshwater mussels and other invertebrates; protection of wildlife habitat and existing native vegetative and aquatic cover in order to maintain existing populations and species diversity; and preservation and maintenance of the natural vegetation and geologic features such as stone walls and agricultural relics, which preserve both the function and character of resource area landscapes.

XI. Permits. No Permit issued hereunder shall allow for any activities unless the applicant, in addition to meeting the otherwise applicable requirements of this Bylaw, has proved by a preponderance of the evidence that: (1) there is no practicable alternative to the proposed project with less adverse effects; and (2) such activities, including proposed mitigation measures will have no significant adverse impact on the areas or values protected by this Bylaw. The Commission shall regard as practicable an alternative which is reasonably available and capable of being done after taking into consideration the proposed property use, overall project purpose (e.g., residential, institutional, commercial, or industrial), logistics, existing technologies, costs of the alternatives, and overall project costs. The applicant for a Permit shall have the burden of proving by a preponderance of the evidence that the work proposed in the Permit application will not have unacceptable significant or cumulative adverse effects upon the resource area values protected by this Bylaw. Failure to provide adequate evidence to the Commission supporting this burden shall be sufficient cause for the Commission to deny a Permit or grant a Permit with conditions as further described in this Section.

A. Issuance of Permits. The Commission shall issue its Permit, in writing within 21 days of the close of the public hearing thereon. The Commission in an appropriate case may combine the decision issued under this Bylaw with the
Permit, or Certificate of Compliance (COC) issued under the Act and its implementing Regulations.

B. Conditional Permits. If a Permit is issued, the Commission shall impose conditions deemed necessary or desirable to protect said resource area values, and all activities shall be conducted in accordance with those conditions.

1. To prevent resource area loss, the Commission shall require applicants to avoid alteration wherever feasible; to minimize alteration; and, where alteration is unavoidable and has been minimized, to provide full mitigation. Projects shall not be segmented or phased to evade or defer review requirements under this Bylaw or to give the appearance of no or minimal alteration or impact to the resource areas protected by this Bylaw. The Commission may authorize or require replication of wetlands as a form of mitigation, but only with specific plans, professional design, proper safeguards, adequate security, and professional monitoring and reporting to assure success, due to the inherent complexity of replication.

2. Due to the importance of the Areas Subject to Protection under Section IV, the Commission may require compliance with design specifications, performance standards, and other measures and safeguards, including setbacks, no-disturb areas, no-build areas, and other work limits for protection of such Areas Subject to Protection, including without limitation strips of continuous, undisturbed vegetative cover, unless the applicant convinces the Commission that the area or part of it may be disturbed without harm to the values protected by the Bylaw.

3. The Commission may require a wildlife habitat study of the project area, to be paid for by the applicant, whenever it deems appropriate. The decision shall be based upon the Commission’s estimation of the importance of the habitat area considering (but not limited to) such factors as proximity to other areas suitable for wildlife, importance of wildlife “corridors” in the area, or actual, or historic presence of rare plant or animal species in the area. The work shall be performed by an individual who, at a minimum, meets the qualifications set out in the wildlife habitat section under 310 CMR 10.60.

C. Denial of Permit. The Commission may deny a Permit based on the findings or conditions listed below; provided, however, that the Commission may consider any hardship on the applicant created by reason of denial, as demonstrated at the public hearing, such as those matters set forth below in Section XI.D:

1. Where no conditions are adequate to protect said resource area values; or
2. For failure to submit necessary information and plans requested by the Commission; or
3. For failure to comply with the procedures, design specifications, performance standards, and other requirements in the Regulations associated with this Bylaw; or
4. For failure to avoid, minimize or mitigate unacceptable significant or cumulative effects upon the resource area values protected by this Bylaw.
D. Waivers to Regulations. The Commission may waive specifically identified and requested procedures, design specifications, performance standards, or other requirements set forth in its Regulations, provided that:

1. The Commission finds in writing after said public hearing that there are no reasonable conditions or alternatives that would allow the proposed activity to proceed in compliance with said Regulations; and

2. That avoidance, minimization and mitigation have been employed to the maximum extent feasible; and

3. That the Waiver is necessary to accommodate an overriding public interest or to avoid a decision that so restricts the use of the property as to constitute an unconstitutional taking without compensation.

E. Permit Validity. A Permit shall expire three (3) years from the date of issuance; or five (5) years from the date of issuance for recurring or continuous maintenance work, provided that annual notification of time and location of work is given to the Commission. Permits may be extended for one (1) or more periods up to three (3) years each, provided that a request for an extension is received in writing by the Commission at least thirty (30) days prior to the expiration date. Notwithstanding the above, a Permit may identify requirements which shall be enforceable for a stated number of years, indefinitely, or until permanent protection is in place, and shall apply to all present and future owners of the land. For good cause the Commission may revoke any Permit or other decision issued under this Bylaw after notice to the holder, the public, and town boards, pursuant to §VIII, and after a public hearing.

F. Permit Amendments. Amendments to Permits shall be handled in the manner set out in the Act and implementing Regulations, and, to the extent that the Commission promulgates Regulations in accordance with Section III of this Bylaw, the Commission’s Regulations.

G. Recording of Decision. Permits shall be recorded in the Registry of Deeds or, if the land affected is registered land, in the registry section of the land court for the district wherein the land lies, and until the holder of the permit certifies in writing to the Commission that the document has been recorded and all appeal periods have lapsed, prior to commencement of approved work. If the applicant fails to perform such recording, the Commission may record the documents itself and require the Applicant to furnish the recording fee.

XII. Definitions. The following definitions shall apply in the interpretation and implementation of this Bylaw.

The “Act” means the Wetland Protection Act (G.L. c. 131, § 40), and may also be referred to as “WPA”.

The term “agriculture” shall be defined as set forth in 310 CMR 10.04, “Agriculture”.

The term “alter” shall include, without limitation, the following activities when undertaken to, upon, within or affecting resource areas protected by this Bylaw:
A. Removal, excavation, or dredging of soil, sand, gravel, or aggregate materials of any kind;
B. Changing of preexisting drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns, or flood retention characteristics;
C. Drainage, or other disturbance of water level or water table;
D. Dumping, discharging, or filling with any material which may degrade water quality;
E. Placing of fill, or removal of material, which would alter elevation;
F. Driving of piles, erection, expansion of buildings, or structures of any kind;
G. Placing of obstructions or objects in water;
H. Destruction of plant life including cutting or trimming of trees and shrubs or clearing herbaceous plants;
I. Changing temperature, biochemical oxygen demand, or other physical, biological, or chemical characteristics of any waters;
J. Any activities, changes, or work which may cause or tend to contribute to pollution of any body of water or groundwater; and
K. Incremental activities which have, or may have, a cumulative adverse impact on the resource areas protected by this Bylaw.

The term “Area of Critical Environmental Concern” shall mean an area designated by the Secretary of Energy and Environmental Affairs pursuant to M.G.L. c. 21A, § 2 (7) and 301 CMR 12.00.

“Existing structures and activities” shall mean those lawfully approved, performed or for which a permit application has been submitted under the Act, prior to the date of adoption of the Bylaw.

“Freshwater wetland” shall mean any wet meadow, marsh, swamp, bog, area where groundwater, flowing or standing surface water, or ice provide a significant part of the supporting substrate for a plant community adapted to characteristics of saturated soil or the presence of a hydric soil. Delineations may be made by a predominance of wetland vegetation and/or presence of hydric soils and/or the largest observed volume of confined water. The Commission recognizes that soils can be slow to respond to hydrologic conditions and may allow a wetland delineation to be made without the presence of hydric soils, such as those conditions found in abandoned gravel pits. Freshwater wetlands include wetlands both bordering and isolated.

“Isolated land subject to flooding” shall mean an isolated depression or closed basin consisting of a minimum of 400 s.f., not occurring in existing lawns, gardens, landscaped areas, storm water management structures or driveways. Isolated land subject to flooding may be underlain by pervious material, which in turn may be covered by a mat of organic peat or muck. The boundary of isolated land subject to flooding is the perimeter of the largest observed or recorded volume of water confined in said area.

The term “isolated vegetated wetland” shall mean any wet meadow, marsh, swamp, bog, area where groundwater, flowing or standing surface water, or ice provide a significant part of the supporting substrate for a hydrophitic plant community or hydric soil. Isolated
vegetated wetlands may contain emergent and/or submergent plant communities and may also be referred to as “isolated wetlands”, “federal non-state wetland” or combination of terms thereof.

The term “land adjoining the vernal pool” means the terrestrial area surrounding the vernal pool that may also be referred to as the critical terrestrial habitat in the best scientific evidence available and the appropriate literature.

The term “no disturbance zone” shall mean a continuous strip of undisturbed natural vegetative cover within the Wetland Protection Zone directly adjacent to a resource area. The no disturbance zone (NDZ) means that there shall not be any alteration of natural vegetation including but not limited to, cutting or clearing vegetation, construction, stockpiling materials or dumping whether organic or inorganic.

The term “passive recreation” shall include walking; hiking; swimming; birdwatching; camping; photography; non-motorized biking and boating; and other similar activities.

The term “person” shall include any individual, group of individuals, association, partnership, corporation, company, business organization, trust, estate, the Commonwealth or political subdivision thereof to the extent subject to town bylaws, administrative agency, public or quasi-public corporation or body, this municipality, and any other legal entity, its legal representatives, agents, or assigns.

A “potential vernal pool” is a vernal pool that appears on the potential vernal pool data layer of MassGIS or the Massachusetts Aerial Photo Survey of Potential Vernal Pools (NHESP, Spring 2001), as amended.

“Pollutant removal capacity” means that ability of a resource area to remove, but not limited to, the following: nutrients, sediments, organic materials, pathogens, hydrocarbons, metals, pesticides, chlorides, trash and debris, nitrates, nitrites, phosphorus, metals, salt, sediments and carbon.

“Protection of fisheries” means protection of the capacity of an Area Subject to Protection under this Bylaw to:
   A. prevent or reduce contamination or damage to fish; and
   B. serve as their habitat and nutrient source. Fish includes all freshwater species.

“Protection of riparian ecosystems” means protection of the capacity of an Area Subject to Protection under this Bylaw to:
   A. maintain the baseflows of brooks, streams and rivers, both intermittent and perennial;
   B. maintain the native plant cover necessary for maintaining temperature and relative humidity in and around the stream, for wildlife habitat and for organic input to the stream system; and
   C. support the continued viability of fisheries habitat and movement, including seasonal coldwater fisheries, mammals, freshwater mussels and other invertebrates.
“Protection of wildlife habitat” means areas that due to their plant community composition and structure, hydrologic regime or other characteristics, provide important food, cover, shelter, nesting, aestivation, migratory or overwintering areas, or breeding areas for wildlife.

“Protection of wildlife populations and species diversity” means protection of the capacity of an Area Subject to Protection under this Bylaw to:
   A. maintain essential life functions of wildlife; and
   B. maintain wildlife corridors essential for wildlife dispersal, recruitment and genetic diversity

The term “rare species” shall include, without limitation, all vertebrate and invertebrate animals and all plant species listed as endangered, threatened, or of special concern by the Massachusetts Division of Fisheries and Wildlife, regardless whether the site in which they occur has been previously identified by the Division.

“Request for Determination of Applicability” means a written request made by any person to a conservation commission or the Department of Environmental Protection for a determination as to whether a site or work thereon is subject to this Bylaw. The request shall be submitted on DEP Form 1. Requests for resource area boundary verification shall be done using the Abbreviated Notice of Resource Area Delineation (ANRAD).

A “spring” shall mean a small stream or pool of water flowing naturally from the earth.

The term “segmentation” shall mean dividing, separating or sectioning a project or property(ies) to 1) evade or defer the review requirements of this Bylaw; 2) give the appearance of no or minimal impact to the Areas Subject to Protection under this Bylaw or 3) to avoid the appearance of exceeding resource area thresholds. Examples of segmentation include, but are not limited to, separating a larger project into smaller individually permitted phases; dividing a larger parcel into smaller lots; and submitting permit applications individually for separate assessor’s parcels that are cumulatively part of a larger project.

The term “vernal pool depression” means the area of the confined basin depression. The boundary of the vernal pool shall be the mean annual high-water mark.

“Vernal pool habitat” shall include, in addition to scientific definitions found in the regulations under the Act, a confined basin or depression not occurring in existing lawns, gardens, landscaped areas, storm water management structures or driveways which, at least in most years, holds water for a minimum of two (2) continuous months during the spring and/or summer; is free of adult fish populations; provides essential breeding habitat, and other extremely important wildlife habitat functions during non-breeding season, for a variety of amphibian species including but not limited to, wood frog (Lithobates sylvaticus) and Ambystomatid salamanders, and freshwater invertebrates (like fairy shrimp, caddisflies, amphibious snails, dragonflies and damselflies and fingernail clams); and provides important habitat for other wildlife species, regardless of whether it has been certified by the Massachusetts Natural Heritage and
Endangered Species Program (NHESP), or whether the pool is located within a state protected resource area. Vernal pool habitat extends out to a distance of 100 feet from the vernal pool depression.

The term “visual barrier” shall mean a permanent immovable barricade used to demarcate the no disturbance zone and notify owners of environmentally sensitive areas. Visual barriers shall consist of a post-and-rail fence or a split-rail fence or other approved barrier.

“WPA” means the Wetland Protection Act (G.L.c. 131, § 40), and may also be referred to as “the Act”.

“Wetland Protection Zone” (WPZ) means the area of land extending 100 feet horizontally outward from the boundary of any area specified in Section IV.A.

The term “wildlife” means all vertebrates and invertebrates listed to inhabit Massachusetts by the Division of Fisheries and Wildlife.

“Wildlife habitat” shall mean those areas subject to protection which, due to their plant community composition and structure, hydrologic regime or other characteristics, provide important food and water; cover; shelter; migratory, recruiting and dispersal; aestivation, overwintering, nesting, or breeding areas for wildlife.

Except as otherwise provided in this Bylaw or in associated Regulations of the Commission, the definitions of terms and the procedures in this Bylaw shall be as set forth in the Act and its implementing Regulations.

XIII. Security. As part of a Permit issued under this Bylaw, in addition to any security required by any other municipal or state board, agency, or official, the Commission may require that the performance and observance of the conditions imposed thereunder (including conditions requiring mitigation work) be secured wholly or in part by one or all of the methods described in the Regulations promulgated under this Bylaw.

XIV. Enforcement. No person shall remove, fill, dredge, build upon, degrade, or otherwise alter resource areas protected by this Bylaw, or cause, suffer, or allow such activity, or leave in place unauthorized fill, or otherwise fail to restore illegally altered land to its original condition, or fail to comply with a Permit or an enforcement order issued pursuant to this Bylaw.

A. Entrance to Property. The Commission, its agents, officers, and employees shall have authority to enter upon privately owned land for the purpose of performing their duties under this Bylaw and may make or cause to be made such examinations, surveys, or sampling as the Commission deems necessary, subject to the constitutions and laws of the United States and the Commonwealth.

B. Means of Enforcement. This Bylaw and any Regulations promulgated hereunder may be enforced by any available means in law or equity, including
but not limited to enforcement by criminal indictment in accordance with G.L. c.40, §21 and by noncriminal disposition in accordance with G.L. c. 40, §21D and the Town Bylaws, “Non-Criminal Disposition.”

C. Penalties/Restoration. Any person who violates any provision of this Bylaw, Rule or Regulation of the Commission, or of a permit issued hereunder may be ordered to restore the property to its original condition and take other action deemed necessary to remedy such violations, or may be fined, or both. Any person who violates any provision of this Bylaw or any rules or regulations promulgated hereunder, or permits or administrative orders issued thereunder shall be punished by a fine of not more than $300. Each day or portion thereof during which a violation continues shall constitute a separate offense, and each violation of a provision of the Bylaw or rules or regulations promulgated hereunder, or permits or administrative orders issued thereunder, shall constitute a separate offense.

D. Non-Criminal Disposition. The Conservation Commission, its agent, and any police officer of the Town may enforce this Bylaw and any rules or regulations promulgated hereunder by non-criminal disposition in accordance with G.L. c.40, §21D and the Norton Town Bylaws, “Non-criminal Disposition.” The fine for violation of this by-law shall be three hundred dollars ($300) for each offense. Each day or portion thereof during which a violation continues shall constitute a separate offense, and each violation of a provision of the Bylaw or any rules or regulations promulgated hereunder shall constitute a separate offense.

XV. Severability. The invalidity of any section or provision of this Bylaw shall not invalidate any other section or provision thereof, nor shall it invalidate any Permit, approval or determination which previously has been issued.

(CONSERVATION COMMISSION)
Section 1: General Provisions
   A. Authority
   B. Revisions to the Rules and Regulations
   C. Effective Date
   D. Severability
   E. Purpose
   F. Interests and Values
   G. Areas Subject to Protection Under the Bylaw
   H. Exemptions

Section 2: Definitions

Section 3: Application Procedures
   A. Application Forms
   B. Required Plans and Information
   C. Timing Requirements
   D. Submittal of Complete Applications
   E. Notice to Abutters
   F. Field Work and Site Inspections
   G. Issuance of Permits
   H. Return of Conservation Commission Correspondence
   I. Recording In Registry of Deeds or Land Court
   J. Pre-Construction Meetings
   K. Amendments to Permits
   L. Certificates of Compliance (COC)
   M. Partial Certificate of Compliance (PCOC)
   N. Standard Operating Procedure for Posting Bonds
   O. Use of Bond Funds
   P. Occupancy Permits

Section 4: Fees
   A. Filing Fee Schedule
   B. Legal Advertisement
   C. Consultants
   D. Re-inspections

Section 5: Project Review and Design Criteria
   A. Calculating Impacts to Resource Areas
   B. Rare Species
   C. Wetland Replication Areas
   D. Areas of Critical Environmental Concern (ACECs)
   E. Presumption of Impervious Cover
   F. Presumption of Drainage and Storm Water Management Standards
   G. Presumption on Wetland and Stream Crossings
   H. Alternatives Analysis
PROPOSED Norton Wetland Rules and Regulations

I. Segmentation and Cumulative Impacts
J. Self-Imposed Hardship
K. Limited Projects
L. Erosion and Sedimentation Control
M. Site Stabilization
N. Vegetation and Landscaping
O. Lighting
P. Docks and Boardwalks
Q. Water Withdrawals
R. Subdivision Design

Section 6: Wetland Resource Areas and Performance Standards
A. Wetland Protection Zone (WPZ)
B. Bank
C. Freshwater Wetlands
D. Lands Subject to Flooding
E. Reservoirs, Lakes and Ponds
F. Lands Under Water Bodies and Waterways (LUWW)
G. Intermittent Streams, Brooks and Creeks
H. Perennial Rivers, Streams, Brooks and Creeks
I. Vernal Pool Habitat
J. Wildlife Habitat

Section 7: Waivers

Section 8: Enforcement

Appendices:
Appendix A: Plan Submittal Requirements
Appendix B: Stream Crossing Standards
Appendix C: Fieldwork Code of Practice
Section 1: General Provisions

I. Authority
These Rules and Regulations are promulgated by the Town of Norton Conservation Commission pursuant to Chapter XXX Norton Wetlands Protection Bylaw of the Bylaws of the Town of Norton adopted on DATE, as amended (hereinafter “the bylaw”).

J. Revisions to the Rules and Regulations
These Rules and Regulations may be revised from time to time by a majority vote of a quorum of the Conservation Commission provided that after public notice, a public hearing has been held in accordance with (public hearing section) of this bylaw.

K. Effective Date
These Rules and Regulations shall be effective upon the date of adoption by the Norton Conservation Commission.

L. Severability
The invalidity of any section or provision of these Rules and Regulations shall not invalidate any other section or portion thereof, nor shall it invalidate any permit or determination that previously has been issued.

M. Purpose
The purposes of these Rules and Regulations include:

1. To provide administrative and permit review processes that facilitate the enforcement of all standards and procedures required under the Norton Wetland Protection Bylaw; and
2. To establish the performance standards, definitions and procedures, as empowered by the Norton Wetland Protection Bylaw, that shall be used by the Conservation Commission in order to protect the wetlands, water resources, flood prone areas, and adjoining buffer areas under their jurisdiction.

N. Interests and Values
Interests and values of a wetland resource area are the reasons why wetlands are important and necessitate protection. Clean and properly functioning sustainable resource areas in an environment are key elements of quality of life and security of property values in a community. A substantial component of these environmental values is embodied in wetlands adjacent our living spaces in the Town of Norton. Protection of these wetland recourse areas from damage and degradation provides value that extends to all properties in a community. Illustrations of some specific interests and values under the Norton Wetland Protection Bylaw include, but are not limited to, the following (collectively, the “resource area values protected by this bylaw”):

1. Interests and values identified in the Wetland Protection Act (MGL chapter 131, section 40; hereinafter the “Act”) and its implementing regulations (310CMR10.00) include:
   a. protection of public or private water supply;
   b. protection of ground water supply;
   c. flood control;
PROPOSED Norton Wetland Rules and Regulations

d. storm damage prevention;
e. prevention of pollution;
f. land containing shellfish;
g. protection of fisheries; and
h. protection of wildlife habitat.

2. In addition to the interests listed above, the following interests and values of a wetland resource area are necessary for water quality, aquifer recharge, wildlife habitat, and local biodiversity. Additional interests and values identified in this bylaw include:

a. protection and enhancement of existing vegetative cover for the improvement and maintenance of existing water quality;
b. protection of pollutant removal capacity (including nitrates, nitrites, phosphorus, metals, salt, sediments and carbon);
c. protection of riparian ecosystems which support the continued viability of fisheries habitat and movement, including seasonal coldwater fisheries, mammals and freshwater invertebrates;
d. protection of wildlife habitat and existing vegetative and aquatic cover in order to maintain existing populations and species diversity;
e. protection of hydrology, native vegetation, and the natural chemical, physical and biological functions of vernal pool habitat and lands adjoining vernal pools, regardless of whether they have been certified by the Massachusetts Natural Heritage and Endangered Species Program (NHESP), or whether the pool is located within a state protected resource area;
f. prevention of loss or degradation of rare species habitat including rare plant and animal species listed in the Massachusetts Endangered Species List;
g. protection of soils and natural resources supporting agriculture and aquaculture;
h. maintenance of open space areas that provide recreation values of passive recreation, education, nature study and relaxation;
i. preservation and maintenance of the natural vegetation and geologic features, stone walls, and agricultural relics that creates Norton’s rural/suburban community character;
j. preservation of wetland resource area integrity through management of storm water discharges; and
k. minimization of negative impacts from development and prevention of project segmentation.

O. Wetland Resource Areas

Said resource areas (collectively the “resource areas protected by this bylaw”) shall be protected whether or not they border surface waters.

1. The following jurisdictional areas, identified in the Wetland Protection Act (MGL chapter 131, section 40) and its implementing regulations (310CMR10.00), are subject to protection under this bylaw:
   a. banks;
   b. bordering vegetated wetland;
PROPOSED Norton Wetland Rules and Regulations

c. lands under water bodies and waterways;
d. lands subject to flooding;
e. riverfront area;
f. rare species habitat; and
g. wildlife habitat.

2. Jurisdiction of additional resources listed in this bylaw is necessary for the protection of water quality, aquifer recharge, wildlife habitat and the interests and values identified in this bylaw. Additional jurisdictional areas identified and defined in this bylaw include:
   a. freshwater wetlands;
   b. reservoirs, lakes, and ponds of any size and lands under these waterbodies;
   c. isolated land subject to flooding as defined in the Wetland Protection Bylaw;
   d. intermittent streams, brooks and creeks and lands under these waterways;
   e. lands within 100 feet of resource areas listed above in 1.G.1 a-b and 1.G.2.a-d as identified in this bylaw and referred to as the “Wetland Protection Zone”;
   f. perennial rivers, streams, brooks and creeks and lands adjoining these waterways out to a distance of 200 feet, defined as the riverfront area in the Wetland Protection Act [(MGL chapter 131, section 40 and its implementing regulations (310CMR10.00)]; and
   g. vernal pool habitat, regardless of whether they have been certified by the Massachusetts Natural Heritage and Endangered Species Program (NHESP), or whether the pool is located within a state protected resource area.

3. A public review of activities proposed or undertaken within an area subject to protection under the bylaw, which will remove, fill, dredge or alter that area, is subject to these regulations and requires the filing of a permit for the local decision-making process.

P. Exemptions
Except as provided below, the Norton Wetland Protection Bylaw is applicable to applicants who seek to develop property or otherwise conduct an activity requiring the approval of the Conservation Commission. The requirements under this Bylaw shall not apply to:

1. lawfully located structures and activities in existence prior to DATE;

2. work and activities approved under the WPA (Massachusetts General Law Chapter 131, Section 40), as amended, provided the following:
   a. a valid permit has been issued under the Act prior to the DATE adoption of these Rules and Regulations; or
   b. an application for work under WPA has been submitted prior to the DATE adoption of these Rules and Regulations;

3. certain activities exempt from WPA, including:
   a. normal maintenance or improvement of land in agricultural and aquacultural under 310 CMR 10.04; and
PROPOSED Norton Wetland Rules and Regulations

b. maintaining, repairing, or replacing, but not substantially changing or enlarging, an existing and lawfully located structure or facility used in the service of the public to provide electric, gas, water, telephone, telegraph, or other telecommunication services under 310CMR10.02(2)(a)(2), provided that:
   1. written notice has been given to the Conservation Commission prior to commencement of work; and
   2. the work conforms to any performance standards and design specifications in regulations adopted by the Commission;

c. other activities specifically exempt in the Act.

4. emergency projects necessary for the protection of the health and safety of the public, provided that the work is to be performed by or has been ordered to be performed by an agency of the Commonwealth or a political subdivision thereof; provided that:
   a. advance notice, oral or written, has been given to the Commission prior to commencement of work or within 24 hours after commencement;
   b. the Commission or its agent certifies the work as an emergency project;
   c. the work is performed only for the time and place certified by the Commission for the limited purposes necessary to abate the emergency; and
   d. within 21 days of commencement of an emergency project a permit application shall be filed with the Commission for review as provided by this bylaw.
   e. Upon failure to meet these and other requirements of the Commission, the Commission may, after notice and a public hearing, revoke or modify an emergency project approval and order restoration and mitigation measures.

5. certain minor activities in the buffer zone that are outside another resource area including:
   a. plantings of native species, excluding turf lawns;
   b. conversion of lawn to accessory uses such as decks, sheds, and patios, but not additions, garages, or swimming pools, provided the activity is located more than 50 feet from a bank; freshwater wetland; reservoir, pond or lake; and erosion control is properly installed and maintained throughout the project until the site is stabilized;
   c. conversion of impervious surfaces to vegetated surfaces, provided erosion control is properly installed and maintained throughout the project;
   d. temporary projects such as monitoring wells, percolation tests conducted pursuant to Title V, sediment sampling and surveying; and
   e. mowing of existing, lawfully created lawns.

6. Certain projects to remove an exotic invasive plant listed by the Invasive Plant Atlas of New England (IPANE), provided that a Notice of Intent is filed as required under the Wetland Protection Act.
Section 2: Definitions

The definitions of terms shall be as set forth in the Act and its implementing regulations, except that the following definitions shall apply in the interpretation and implementation of this Bylaw.

The “Act” means the Wetland Protection Act (Massachusetts General Law Chapter 131, Section 40), and may also be referred to as “WPA”.

“ADT” is the Average Daily Trip rate or the vehicle trip generation rate during a 24-hour period for a weekday.

“Alter” shall include, without limitation, the following activities when undertaken to, upon, within or affecting resource areas protected by this bylaw:

1. Removal, excavation, or dredging of soil, sand, gravel, or aggregate materials of any kind;
2. Changing of preexisting drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns, or flood retention characteristics;
3. Drainage, or other disturbance of water level or water table;
4. Dumping, discharging, or filling with any material which may degrade water quality;
5. Placing of fill, or removal of material, which would alter the elevation;
6. Driving of piles, erection, expansion of buildings, or structures of any kind;
7. Placing of obstructions or objects in water;
8. Destruction of plant life including cutting or trimming of trees and shrubs or clearing herbaceous plants;
9. Changing temperature, biochemical oxygen demand, or other physical, biological, or chemical characteristics of any waters;
10. Any activities, changes, or work which may cause or tend to contribute to pollution of any body of water or groundwater; and
11. Incremental activities which have, or may have, a cumulative adverse impact on the resource areas protected by this bylaw.

“Area of Critical Environmental Concern” shall mean an area designated by the Secretary of Energy and Environmental Affairs pursuant to M.G.L. c. 21A, § 2 (7) and 301 CMR 12.00.

“Existing” shall mean structures and activities lawfully approved or performed prior to DATE of adoption of regulations.

“Freshwater wetland” shall mean any wet meadow, marsh, swamp, bog, spring, area where groundwater, flowing or standing surface water, or ice provide a significant part of the supporting substrate for a plant community adapted to characteristics of saturated soil or the presence of a hydric soil. Delineations may be made by a predominance of wetland vegetation and/or presence of hydric soils and/or the largest observed volume of confined water. The Commission recognizes that soils can be slow to respond to hydrologic conditions
and may allow a wetland delineation to be made without the presence of hydric soils, such as those conditions found in abandoned gravel pits. Freshwater wetlands include wetlands both bordering and isolated.

“IPANE” shall mean the Invasive Plant Atlas of New England (IPANE).

“Isolated land subject to flooding” shall mean an isolated depression or closed basin consisting of a minimum of 400 s.f., not occurring in existing lawns, gardens, landscaped areas, storm water management structures or driveways. Isolated land subject to flooding may be underlain by pervious material, which in turn may be covered by a mat of organic peat or muck. The boundary of isolated land subject to flooding is the perimeter of the largest observed or recorded volume of water confined in said area.

“Isolated vegetated wetland” shall mean any wet meadow, marsh, swamp, bog, area where groundwater, flowing or standing surface water, or ice provide a significant part of the supporting substrate for a hydrophitic plant community or hydric soil. Isolated vegetated wetlands may contain emergent and/or submergent plant communities and may also be referred to as “isolated wetlands”, “federal non-state wetland” or combination of terms thereof.

“Land adjoining the vernal pool” means the terrestrial area surrounding the vernal pool that may also be referred to as the critical terrestrial habitat in the best scientific evidence available and the appropriate literature.

“No disturbance zone” shall mean a continuous strip of undisturbed natural vegetative cover directly adjacent to a resource area. The no disturbance zone (NDZ) means that there shall not be any alteration of natural vegetation including, but not limited to, cutting or clearing vegetation, construction, stockpiling materials or dumping organic or inorganic.

“Person” shall include any individual, group of individuals, association, partnership, corporation, company, business organization, trust, estate, the Commonwealth or political subdivision thereof to the extent subject to town bylaws, administrative agency, public or quasi-public corporation or body, this municipality, and any other legal entity, its legal representatives, agents, or assigns.

A “potential vernal pool” is a vernal pool that appears on the potential vernal pool data layer of MassGIS or the Massachusetts Aerial Photo Survey of Potential Vernal Pools (NHESP, Spring 2001), as amended;

“Pollutant removal capacity” means that ability of a resource area to remove, but not limited to, the following: nutrients, sediments, organic materials, pathogens, hydrocarbons, metals,
PROPOSED Norton Wetland Rules and Regulations

pesticides, chlorides, trash and debris, nitrates, nitrites, phosphorus, metals, salt, sediments and carbon.

“Protection of fisheries” means protection of the capacity of an Area Subject to Protection under this bylaw to:
   1. prevent or reduce contamination or damage to fish; and
   2. serve as their habitat and nutrient source. Fish includes all indigenous freshwater species.

“Protection of riparian ecosystems” means protection of the capacity of an Area Subject to Protection under this bylaw to:
   1. maintain the baseflows of brooks, streams and rivers, both intermittent and perennial;
   2. maintain the native plant cover necessary for maintaining temperature and relative humidity in and around the stream, for wildlife habitat and for organic input to the stream system; and
   3. support the continued viability of fisheries habitat and movement, including seasonal coldwater fisheries, mammals, freshwater mussels and other invertebrates.

“Protection of wildlife habitat” means areas that due to their plant community composition and structure, hydrologic regime or other characteristics, provide important food, cover, shelter, nesting, aestivation, migratory or overwintering areas, or breeding areas for wildlife.

“Protection of wildlife populations and species diversity” means protection of the capacity of an Area Subject to Protection under this bylaw to:
   1. maintain essential life functions of wildlife; and
   2. maintain wildlife corridors essential for wildlife dispersal, recruitment and genetic diversity

“Rare species” shall include, without limitation, all vertebrate and invertebrate animals and all plant species listed as endangered, threatened, of special concern or watch list by the Massachusetts Division of Fisheries and Wildlife, regardless whether the site in which they occur has been previously identified by the Division.

“Request for Determination of Applicability” means a written request made by any person to a conservation commission or the Department of Environmental Protection for a determination as to whether a site or work thereon is subject to this bylaw. The request shall be submitted on DEP Form 1. Requests for resource area boundary verification shall be done using the Abbreviated Notice of Resource Area Delineation (ANRAD).

A “spring” shall mean a small stream or pool of water flowing naturally from the earth.
“Segmentation” shall mean dividing, separating or sectioning a project or property(ies) to 1) evade or defer the review requirements of the Norton Wetland Protection Bylaw; 2) give the appearance of no or minimal impact to the Areas Subject to Protection under the Norton Wetland Protection Bylaw or 3) to avoid the appearance of exceeding resource area thresholds. Examples of segmentation include, but are not limited to, separating a larger project into smaller individually permitted phases; dividing a larger parcel into smaller lots; and submitting permit applications individually for separate assessor’s parcels that are cumulatively part of a larger project.

“Vernal pool depression” means the area of the confined basin depression. The boundary of the vernal pool depression shall be the spring high-water mark.

“Vernal pool habitat” shall include, in addition to scientific definitions found in the regulations under the Act, a confined basin or depression not occurring in existing lawns, gardens, landscaped areas, storm water management structures or driveways which, at least in most years, holds water for a minimum of two (2) continuous months during the spring and/or summer; is free of adult fish populations; provides essential breeding habitat, and other extremely important wildlife habitat functions during non-breeding season, for a variety of amphibian species including but not limited to, wood frog (Lithobates sylvaticus) and Ambystomatid salamanders, and freshwater invertebrates (like fairy shrimp, caddisflies, amphibious snails, dragonflies and damselflies and fingernail clams); and provides important habitat for other wildlife species, regardless of whether it has been certified by the Massachusetts Natural Heritage and Endangered Species Program (NHESP), or whether the pool is located within a state protected resource area. Vernal pool habitat extends out to a distance of 100 feet from the vernal pool depression.

“Visual barrier” shall mean a permanent immovable barricade used to demarcate the no disturbance zone and notify owners of environmentally sensitive areas. Visual barriers shall consist of a post-and-rail fence or a split-rail fence or other barrier approved at the discretion of the Commission.

“WPA” means the Wetland Protection Act (Massachusetts General Law Chapter 131, Section 40), and may also be referred to as “the Act”.

“Wetland Protection Zone” (WPZ) means the area of land extending 100 feet horizontally outward from the boundary of any area specified in Section 1.G.2.f.

“Wildlife” means all vertebrates and invertebrates listed to inhabit Massachusetts by the Division of Fisheries and Wildlife.

“Wildlife habitat” shall mean those areas subject to protection which, due to their plant community composition and structure, hydrologic regime or other characteristics, provide
Section 3: Application Procedures

A. Application Forms

Applicants proposing to conduct work in an area subject to protection under the bylaw shall use the MADEP wetland permit application forms and may concurrently file under the Act. In addition, applicants shall submit the Town of Norton wetland permit application form in order to quantify impacts to the resource areas protected by the bylaw. All applications shall be filled out completely and accurately. Applications shall be submitted in general accord with the instructions provided by MADEP. The types of activities and appropriate permit applications are described below:

1. An Abbreviated Notice of Resource Area Delineation (ANRAD) shall be required to verify the accurate delineation of resource areas on the subject property. All resource areas shall be included in the application and illustrated on the submitted plan. WPA fees for an ANRAD shall be based upon the linear feet of delineation of each resource area with a maximum of $2,000.00 per resource area.

2. A Request for Determination of Applicability (RDA) may be used for activities proposed within the Wetland Protection Zone if the project:
   a. is a request to see if activities are subject to protection under the bylaw; or
   b. meets the following criteria:
      1. a minimum 50-foot undisturbed vegetative buffer is maintained between the limit of work and the wetland resource area;
      2. storm water management is provided;
      3. is not within vernal pool habitat;
      4. is not within Priority Habitat area; and
      5. erosion control is installed and maintained until all areas achieve final stabilization (if loam and seed are used, the area shall be mown a minimum of twice).

3. A Notice of Intent (NOI) shall be required for all projects proposing work:
   a. within a wetland resource area;
   b. within a Priority Habitat area; or
   c. not meeting the conditions of RDA above.

4. Request for a Certificate of Compliance (COC) shall be required to:
   a. administratively close out an Order of Conditions or
   b. demonstrate compliance with an Enforcement Order.

5. The Town of Norton Wetland Permit Application Form shall be required for all projects to quantify impacts to wetland resource areas subject to protection under the bylaw.

6. Extensions and Emergency Certificates are consistent with the Act.

The applicant’s information shall contain the first and last name, current address and phone number of the applicant and the owner (if different), and shall be required for any realty trust,
trust, or LLC etc. All applications shall contain an original signature of the applicant and owner (if different). Applicants may contact the Conservation Office with questions regarding the permit application or for copies of the required application forms at 508-285-0275 or the Conservation Commission web page at www.nortonma.org. All applications shall be submitted to the Conservation Office at 70 East Main St, Norton MA, 02766.

B. Required Plans and Information
All plans shall contain applicable information listed in Appendix A: Plan Submittal Requirements. The Conservation Commission requires that plans be stamped by a duly licensed Registered Professional Engineer or Registered Land Surveyor. This requirement may be waived by the Conservation Commission at its discretion for small projects where professional design may not be warranted. All plans and information shall be submitted which completely and accurately describe the proposed activity and proximity to wetland resource areas protected by the bylaw. Plans shall also include other Federal, State or local laws applicable to the project. For example, if a new septic system or a septic system repair is proposed in an area subject to Conservation Commission jurisdiction, plans must show compliance with the design setbacks of Title 5 of the Massachusetts Sanitary Code.

C. Timing Requirements
All permit requests shall adhere to the table below:

<table>
<thead>
<tr>
<th>Application Submittal, Amendments</th>
<th>Minimum of two (2) weeks prior to the scheduled meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Acceptance pending Completeness Review</td>
<td>Date when all required forms, fees, plans, and supporting information have been received and deemed complete by the Conservation Commission or its Agent</td>
</tr>
<tr>
<td>Supplemental information</td>
<td>Minimum of five (5) business days prior to the scheduled Public Hearing. Failure to submit within this time frame may be grounds for the Commission to continue a public hearing.</td>
</tr>
<tr>
<td>Request for Certificate of Compliance</td>
<td>Minimum of five (5) business days prior to the scheduled public meeting</td>
</tr>
<tr>
<td>Public Hearing, permit issuance, expiration and extension requests</td>
<td>Consistent with the Act</td>
</tr>
</tbody>
</table>

D. Submittal of Complete Applications
A complete application means only that the required types of information have been submitted for the Commission’s review. It does not mean that the application contains all information necessary for the Commission to determine whether the project meets performance standards of the Act or under this Bylaw or that the information is accurate or adequate. The Commission reserves the right to request additional information if public hearing discussion warrants it. An application shall not be deemed complete by the Commission Office if the submittal requirements for applications and plans are not met. Incomplete application packages may be rejected, without prejudice, by the Conservation Office. The applicant will be contacted by the Conservation Office to retrieve the incomplete application. The applicant may re-file the application package to include any previously missing information. Timeframes under the bylaw will not begin until the application package has been deemed “complete” by the Conservation Office.
One complete application package shall, at a minimum, include the following:

1. Town of Norton Wetland Application Form;
2. One (1) MADEP application form with original signatures and one (1) copy of the application;
3. Seven (7) copies of the proposed plan, signed and stamped by a Registered Professional Engineer or Registered Land Surveyor, in compliance with Appendix A: Plan Submittal Requirements;
4. A locus plan consisting of an 8.5”x11” portion of the most recent United States Geological Survey (USGS) topographic quadrangle map clearly identifying the location of proposed work;
5. A copy of the most recent Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (F.I.R.M.) clearly identifying the location of proposed work;
6. A copy of the most recent Priority Habitat map
7. Completed Affidavit of Service form
8. Certified abutters list from Assessor’s Office
9. A copy of the Abutter Notification form
10. Copies of white certified mail slips or the Certificate of Mailing
11. Completed MADEP Fee Transmittal Form (for ANRAD and NOI) with a check for the town’s portion of the fee and copy of check for State’s portion of the fee
12. In some cases, additional plans and information specific to the site and work proposed may require the following, including but not limited to:
   a. Detailed construction sequence
   b. Storm Water Management Report including the drainage calculations, TSS calculation worksheet, Operation and Maintenance Plan prepared, signed and stamped by a Registered Professional Engineer
   c. Wetlands report with replication schedule, planting plan, narrative and monitoring plan prepared by wetland scientist or botanist
   d. Wildlife habitat evaluation
   e. Storm water pollution prevention plan (SWPPP) including the erosion and sedimentation details, narrative, EPA NPDES Notice of Intent
   f. Economic alternatives analysis
   g. Color infrared, aerial photos or site photographs (if requested)
   h. A cut/fill plan (if requested)

At minimum of two (2) weeks prior to the regularly scheduled public hearing date, one (1) complete application package shall be submitted to the Norton Conservation Office, 70 East Main Street, Norton MA 02766.

Applications may be submitted through eDEP, when available; however, applications submitted to the Conservation Commission shall be made in hard copy, rather than electronic format.
E. Notice to Abutters
Notification of abutters within 100 feet of the property line for all projects shall be required. All permit applications shall include a Certified List of Abutters from the Norton Assessor’s Office. Written notification of the filing under the bylaw shall be delivered by the applicant by certified mail, return receipt requested; or certificate of mailing. The abutter notice shall be made using the Conservation Commission’s Notification to Abutters form (available from the Commission Office or the Town of Norton web site). Evidence of proper abutter notification (i.e. submittal of the green certified mail cards) shall be provided to the Conservation Commission prior to its opening of the public hearing.

F. Field Work and Site Inspections
Wetland resource area delineation shall not be done with green or yellow flags. The wetland scientist, engineer or land surveyor, upon observing a location where fill has been placed within the wetland resource area, shall document the location on the site plan and provide a written description in the wetland report.

Site inspections are conducted, at a minimum, to verify the wetland resource area delineation, to determine existing site conditions, to evaluate potential project impacts to a wetland resource area, to monitor project progress and compliance with the issued permit and to determine project completeness. Site inspections shall be conducted by the Conservation Agent or Commission’s representative and may include the Commission members. The Commission may require a continuance of the public hearing in order to complete a lengthy wetland boundary verification. The Commission may also continue the public hearing for an ANRAD application if it is filed during hunting season and evidence at the site suggests active hunting. If site conditions (i.e., 4-inches or more of snow, frozen ground, etc.) prevent a visual inspection, the Commission may at its discretion, require a continuation of the public hearing. Any public hearing continued for the aforementioned reasons shall be stated at the public hearing and a date shall be scheduled for continued discussion.

G. Issuance of Permits
The Commission may issue a permit for projects provided that the project has been designed to meet the performance standards; has avoided and minimized alterations to wetland resource areas; has mitigated alterations with a 1:1 ratio as required and the work can be conditioned to protect the interests and values of the bylaw. If the project is approved, the Commission shall issue a permit, Certificate of Compliance (COC) or Partial Certificate of Compliance (PCOC) within 21 days of the close of the public hearing. The Commission may deny a project, with or without prejudice, if wetland resource areas are not accurately delineated; performance standards have not been met; the applicant has not avoided, minimize or mitigated alterations or the project cannot be conditioned to protect the interests and values of the bylaw. Reasons for denial and/or lack of information shall be listed in the Denial Order of Conditions.

H. Return of Conservation Commission Correspondence
An applicant shall be required to reimburse the Town of Norton for mail returned by the Post Office if the applicant has supplied incorrect address information on the application, or if the mail is refused, not accepted or returned. Reimbursement amount shall be the amount of
postage on the returned letter and shall be received prior to the reissuance of the letter or continuation of discussion.

I. Recording In Registry of Deeds or Land Court
The following permits and orders issued by the Commission shall be required to be recorded by the applicant or owner in the Bristol County Registry of Deeds or the Land Court, whichever is appropriate: Orders of Conditions, Amended Orders of Conditions, Extension Permits, Certificate of Compliance, Deed Restrictions or Conservation Easements, and Enforcement Orders. Proof of recording shall be submitted to the Conservation Office by the applicant or property owner.

J. Pre-Construction Meetings
The applicant, owner, and applicable contractors shall meet for a pre-construction meeting. The purpose of the pre-construction meeting is to review the Order of Conditions of the permit approval and discuss questions, potential problems, timing, and site stabilization, etc.

K. Amendments to Permits
Applicants may propose to amend an existing permit or final approved plan if the proposal is within the scope of the original project. To avoid untimely delays, it is advisable to meet with the Conservation Agent to determine the appropriateness of filing an amendment. If the Commission determines the proposal is not within the scope of the original project a new permit shall be required for the proposed work. Proposals for an amendment to a valid permit or the approved plans shall be submitted to the Conservation Office in writing at least two (2) weeks prior to the regularly scheduled public hearing. The proposed amendment shall be described in a legal notice posted at the applicant’s expense in compliance with Section 4.B. Legal Advertisement. The applicant shall notify the abutters to the property of the amendment request in compliance with Section 3.E. Notice to Abutters. Work approved though the amendment shall not begin until the Amended permit has been recorded at the Registry of Deeds and the proof of recording has been submitted to the Conservation Commission.

L. Certificates of Compliance (COC)
The Conservation Commission may issue a Certificate of Compliance (COC) for completion of the project. All information shall be submitted to the Conservation Office at least five (5) business days prior to the regularly scheduled public hearing. The Commission shall make a decision provided the following:

2. The Request for a Certificate of Compliance (DEP Form 8A) has been submitted;
3. Two (2) As-Built Plans, signed and stamped by a Registered Professional Engineer or Registered Land Surveyor, that includes but is not limited to, all final work completed in compliance with the proposed and approved work listed in the Notice of Intent, all regrading, and Resource Areas, has been submitted;
4. A letter from the applicant, engineer, or project manager has been submitted describing compliance with the Order of Conditions (or if a Partial Certificate of Compliance (PCOC) is requested, a letter describing the remaining work to be performed and a cost estimate to perform the remaining tasks); and
5. The site inspection has been done and the Commission verifies that the work is in compliance and there are no violations of the permit requirements, Act or bylaw;

6. If the COC is requested for a subdivision, the engineer shall recalculate the impervious surface created and compare that with amount of originally proposed impervious surface listed in the Storm Water Management Report. If the final amount of impervious surface is greater than that proposed in the Storm Water calculations, the applicant shall be required to mitigate the difference.

**M. Partial Certificate of Compliance (PCOC)**

The Conservation Commission may issue a Partial Certificate of Compliance (PCOC) for substantial completion of the project. All information shall be submitted to the Conservation Office at least five (5) business days prior to the regularly scheduled public hearing. The Commission shall make a decision provided the following:

1. All items required in Section 3.L: Certificate of Compliance have been submitted;
2. A completed and signed, original W9 is submitted; and
3. The applicant posts a performance bond for the remaining work on the project in accordance with the Standard Operating Procedures of the Town Treasurer. The bond amount shall be determined by the Commission at a public hearing and directly related to market costs of completing the remaining tasks (i.e., to stabilize the site, complete the As-Built Plans and record all documents).

Upon full completion of the project, the applicant shall submit a letter stating that the project is fully completed and request a site inspection and the full Certificate of Compliance. At that time, the Conservation Commission will perform the final site inspection and confirm all work has been completed according to the Order of Conditions. Provided all work is performed according to the Order of Conditions and there are no violations, the Commission may issue the full Certificate of Compliance and submit a letter to the Town Treasurer to release the bond with appropriate interest.

**N. Standard Operating Procedure for Posting Bonds**

Upon issuance of a PCOC, the Commission shall send a letter and the submitted W-9 to the Town Treasurer citing the applicant’s name, company, DEP file number, project location, amount of the bond to be posted, and the reasons for the bond requirement. The Treasurer will accept the bond in cash to be placed in a separate account. Upon completion of the project and issuance of a full COC, the Commission shall send a letter to the Treasurer requesting that the bond be released. The Treasurer will then release the bond with interest to the person who posted the bond.

**O. Use of Bond Funds**

In the event that an applicant who has posted a bond has been unresponsive to requirements to complete said work in a reasonable timeframe, the Commission may chose to pull the bond. The Commission shall notify the applicant by certified mail specifying the timeframe for completion of remaining work. If the certified mail is returned, not accepted, refused or if the Commission does not receive a response within 21 days, the Commission may pull the bond and contract with an appropriate contractor to perform the work on the Commission’s behalf.
P. Occupancy Permits
An occupancy permit may be signed once the Certificate of Compliance has been issued or once the performance bond has been posted with the Town Treasurer, for projects that require a wetland permit under the Act or the Wetland Protection Bylaw.

Section 4: Fees

A. Filing Fee Schedule
At the time of filing a permit under the bylaw the applicant shall pay a filing fee in accordance with the following schedule. This fee is in addition to that fees required under the Act and do not include any additional costs or expenses which may be necessary under Section 3: Application Procedures or Section 4.B-D: Fees.

1. Request for a Determination of Applicability $25.00
2. Duplicate Permit for Registry Recording $25.00

B. Legal Advertisement
The applicant shall pay the cost of a legal advertisement. The Conservation Commission/Agent shall write and submit the legal notice for publication in the Sun Chronicle newspaper. A copy of the bill, determined by the Sun Chronicle newspaper, shall be submitted to the applicant, or the representative if listed in the permit application. The applicant shall submit a check for the Sun Chronicle to the Conservation Commission at the public hearing. The Conservation Commission shall not close the public hearing or issue a permit if the legal advertisement fee has not been paid.

C. Consultants
As provided by MGL Chapter 44, Section 53G previously adopted by the Conservation Commission and posted with the Town Clerk on October 21, 2003, and Section 5.D of the Norton Wetland Protection Bylaw, the Conservation Commission may impose reasonable fees for employment of outside consultants, engaged by the Commission, for specific expert services deemed necessary by the Commission to come to a final decision on an application submitted to the Commission pursuant to the requirement of the bylaw, the Act, or the Conservation Commission Act (Chapter 40 Section 8C), or any other state or municipal statues, bylaw or regulation, as they may be amended or enacted from time to time. Funds received by the Conservation Commission pursuant to these rules shall be deposited with the Town Treasurer who shall establish a special account for this purpose. Expenditures from this special account may be made at the direction of the Commission without further appropriation as provided in MGL Chapter 44, Section 54G. Expenditures from this account shall be made only in connection with the review of specific project or projects for which a consultant fee has been collected from the applicant. Specific consultant services may include but are not limited to resource area survey and delineation, analysis of resource area values, hydrogeologic and drainage analysis, impacts on municipal conservation lands and environmental or land use law.

The consultant shall be chosen by, and report only to, the Commission and/or its Agent. The Commission shall give written notice to the applicant of the selection of an outside consultant, which notice shall state the identity of the consultant, the amount of the fee to be charged to the applicant, and a request for payment of said fee in its entirety. Such notice...
shall be deemed to have been given on the date it is mailed or delivered. No such costs or expenses shall be incurred by the applicant if the application or request is withdrawn within five (5) days of the date notice is given. The consultant fee must be received in its entirety prior to the initiation of consulting services. The Commission may request additional consultant fees if necessary review requires a larger expenditure than originally anticipated or new information requires additional consultant services. Failure by the applicant to pay the consultant fee specified by the Commission within ten (10) business days of the request for payment shall be cause for the Commission to determine that the application is administratively incomplete (except in the case of an appeal) relative to the Act. The Commission shall state such in a letter to the applicant, copied to the Massachusetts Department of Environmental Protection (MADEP). No additional review or action shall be taken on the permit request until the applicant has paid the requested fee. Failure by the applicant to pay the consultant fee specified by the Commission within ten (10) business days of the request for payment shall be cause for the Commission to deny the permit application under the bylaw.

D. Re-inspections
At the discretion of the Conservation Commission, a re-inspection fee may be assessed to an applicant if the wetland resource area flags are not placed in the field as shown on the submitted plan. This re-inspection fee shall not apply if only a few flags are out of place or missing. The re-inspection fee shall apply if, due to the absence of flags, the wetland resource area boundaries cannot be accurately verified or if the site has not been flagged in the field but the flags are shown on the plan. Failure to identify the bank of a stream in the field or on the plan shall also trigger the re-inspection fee. The applicant shall be required to re-hang the wetland resource area flags in the field and submit a letter requesting a re-inspection with the appropriate fee.

If a site fails to be approved for a Certificate of Compliance, a fee may be assessed for subsequent site visits needed to issue the Certificate of Compliance as follows:

Re-inspection Fee $250.00

Section 5: Project Review, Design Criteria and Construction Methods
A. Calculating Impacts to Resource Areas
When calculating the extent of proposed disturbances to Wetland Resource Areas, the applicant shall make adequate provision for the physical construction of all proposed structures, embankments, grading, utilities and all other proposed activities. The impacted area must be clearly shown on the proposed site development plans with plan notes regarding the square feet (or cubic feet) of impact for each resource area; sedimentation and erosion controls; dewatering methods; concrete washout areas; stabilization methods, etc. Provisions for construction equipment access and work zones shall be considered as part of the altered area when calculating the amount of resource area impacted, regardless of whether it is a temporary or permanent impact. The area required for workspace will vary on a site-by-site basis.
B. Rare Species
Notwithstanding the provisions of Section 6, no project may be permitted which will have any adverse effect on habitat sites of a rare species, including without limitation, all vertebrate and invertebrate animals and all plant species listed as Endangered, Threatened, or Special Concern by the Massachusetts Division of Fisheries and Wildlife (DFW), regardless whether the site in which they occur has been previously identified by DFW.

C. Wetland Replication Areas
All Vegetated Wetlands shall be designed and constructed to meet the general conditions found in 310 CMR 10.55(4)(b) as well as the replication plan procedures found in the most current version of MADEP’s Massachusetts Inland Wetland Replication Guidelines. All replication plans shall include a detailed construction sequence; detailed engineered plan (see Appendix A); a three-year to a five-year monitoring program depending on the size of the project, including inspection reporting requirements; and methods for removing exotic, invasive plants. Certificates of Compliance may not be issued until the full monitoring program has been completed and the Commission has approved the replication area. A partial Certificate of Compliance with a performance bond, in accordance with procedures listed in Section 3. J Partial Certificate of Compliance, may be issued for the purpose of occupancy permits or financial reasons.

The Commission in appropriate circumstances may not authorize any building construction until such time that wetland replication areas required for access and utility construction have been substantially completed, inspected, and approved by the Commission. The Commission shall retain the exclusive authority to determine substantial completion of a wetland replication area and such determination resides solely within the sound discretion of the Commission.

D. Areas of Critical Environmental Concern (ACEC)
Alteration of Wetland Resource Areas within an ACEC shall be presumed significant to the interests listed in Sections I.A. and VIII.A. of the Bylaw. The Commission shall not allow projects that materially impair the resources upon which the ACEC designation was made, unless the applicant demonstrates by a preponderance of the evidence that the interests of the Bylaw and special designation characteristics of the ACEC will not be materially impaired; and that a long-term net benefit to the ACEC is provided. Norton’s ACEC areas include the Hockomock Swamp, the Canoe River Aquifer and the Three-Mile River Watershed. In reviewing activities within an ACEC, the Commission shall ensure the protection of these values and the functions they provide, particularly by taking measures toward the:

1. protection and enhancement of existing native vegetative cover for the improvement and maintenance of existing water quality and quantity;
2. protection of pollutant removal capacity (including nitrates, nitrites, phosphorus, metals, salt, sediments and carbon);
3. protection of riparian ecosystems and riverfront areas which support the continued viability of fisheries habitat and movement, including seasonal coldwater fisheries, mammals, freshwater mussels and other invertebrates;
4. protection of wildlife habitat and existing native vegetative and aquatic cover in order to maintain existing populations and species diversity; and
PROPOSED Norton Wetland Rules and Regulations

5. preservation and maintenance of the natural vegetation and geologic features such as stone walls and agricultural relics, which preserve both the function and character of resource area landscapes.

E. Presumption of Impervious Cover
Aquatic habitat degradation and reduced infiltration of water into the ground have been directly linked to the amount of imperviousness in a watershed\(^5\). The best scientific evidence available shows that greater than 10% impervious cover in a watershed will begin to degrade water quality, reduce water quantity available for groundwater, reduce stream channel stability, reduce stream biodiversity and increase potential for pollutant impacts\(^6\). Impervious cover shall be presumed to impair wetland resource areas and the interests of the bylaw. The impervious cover of the six major watersheds in Norton was evaluated in 2008. Impervious cover was found to already be greater than or approaching 10% for each of Norton’s watersheds [Rumford River (20%), Wading River (13%), Three-mile River (13%), Canoe River (13%), Mulberry Meadow Brook (8%) and Mill River (9%)]\(^7\). In addition, the Massachusetts Wellhead Protection Regulations 310CMR22.21(2)(b)(7) requires municipalities to adopt impervious surface controls in approved Zone II recharge areas of public wells, further highlighting the importance of reducing impervious cover and encouraging infiltration of storm water. In order for Norton to maintain stream channel integrity, recharge capacity for all watersheds, and the quality and quantity of biodiversity; all projects with proposed impervious cover shall be required to provide a groundwater recharge component. Groundwater recharge mitigation for impervious cover on single family lots shall be required to the extent practicable.

F. Presumption of Drainage and Storm Water Management Standards
Changes in drainage and alteration of land shall be presumed to contribute to the degradation of water quality and wetland resource areas, reduction in aquifer recharge and reduction in pollutant removal capacity. All of Norton’s major waterbodies (Winneconnet Pond, Norton Reservoir, Chartley Pond, Barrowsville Pond; and Meadowbrook Pond) and three of four major waterways (Rumford River, Wading River; and the Three-Mile River) are listed as impaired waters, meaning that they do not meet Massachusetts Surface Water Quality Standards\(^8\). Therefore, stricter standards for water quality are hereby adopted. All proposed drainage; and depending on the scope of the project, all new impervious surfaces are eligible to meet Storm Water Management Standards, as amended.

All standards described in the Storm Water Management Handbook, MADEP, February 2008 (hereinafter the “Handbook”), as amended, shall be required as written except for the following higher performance standards:

Standard 1: No change from the Handbook;

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\(^6\) ibid
\(^7\) Town of Easton GIS Department. 2008.
**PROPOSED Norton Wetland Rules and Regulations**

**Standard 2:** Storm water management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates for the 2-, 10-, 25-, 50- and 100-year storms. This standard shall apply to volume as well. Pre-construction and post-construction volume shall be evaluated and mitigated for each storm event. A table shall be submitted with the application illustrating the pre-construction and post-construction rate and volume for each of the 2-, 10-, 25-, 50- and 100-year storms;

**Standard 3:** All projects with infiltration practices shall provide a minimum 2-foot separation between seasonal high groundwater and the bottom elevation of storm water BMPs;

**Standard 4:** Storm water management systems shall be designed to remove a minimum of 88% of the average annual post-construction load of Total Suspended Solids (TSS). TSS removal rates shall be:

1. For residential, commercial, industrial, subdivision, roadway, common driveway and comprehensive permit projects: a minimum of 88%; and
2. For projects within an ACEC: a minimum of 93%.

Projects located within ACECs shall provide 44% TSS removal in pretreatment devices in addition to the one-inch rule for calculating water quality volume for projects in critical areas; and

Credit shall not be given for street sweeping in any TSS treatment train.

**Standard 5:** Land Uses with Higher Potential Pollutant Loads (LUHPPLs) include projects with greater than 300 vehicle trips per day. The vehicular trip generation shall be based on the “Average Daily Trip” (ADT) rate. If the project is a LUHPPL, snow storage areas shall be located a minimum of 100 feet from a wetland or stream, shown on all plans; and seeded with salt-tolerant ground cover.

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9 Authority is granted under the Act through 310CMR10.05(6) for the Commission to impose conditions on the “quality and quantity of discharges” provided the point source is within a resource area or buffer zone.

10 Conservation Commission analysis of the currently received storm water management proposals shows a minimum of 88% TSS removal is already being achieved for all projects; 93% for projects in an ACEC; and 90% for commercial, industrial and subdivision projects.

11 Trip generation is based upon the Institute of Traffic Engineering (ITE) Trip Generation, 1987 edition, of 10 cars per day per house/6 cars per day per apartment/condominium and is based upon the presumption that traffic generated from projects with equal to or greater than 30 houses and/or 50 apartments have the potential to produce higher potential pollutant loads.

Standard 6: Critical areas shall include the following additional Outstanding Resource Waters (ORWs):

1. Potential vernal pools
2. Wetland Resource Areas in an ACEC; and
3. Seasonal coldwater fisheries identified by Division of Fisheries and Wildlife.

Seasonal coldwater fisheries are those waterbodies and waterways containing the appropriate water temperature to sustain coldwater fisheries. Coldwater species of fish include Atlantic salmon; brook, brown and rainbow trout populations as well as lesser known fish such as longnose sucker and slimy sculpin. The presence of these fish in brooks, streams and some rivers indicate excellent water quality conditions. Examples of local seasonal coldwater fisheries are the Canoe River and the Wading River.

Standard 7: No change from the Handbook

Standard 8: The Storm Water Pollution Prevention Plan (SWPPP) shall be submitted for review prior to close of the public hearing.

Standard 9: The owner and the applicant shall sign the Operation and Maintenance Plan with a statement declaring knowledge of the responsibility for ongoing maintenance. Proof of final inspection and cleaning shall be submitted with a Request for a Certificate of Compliance.

Standard 10: The signed Illicit Discharge Statement shall be submitted with the storm water drainage report.

Plans and Drainage Report:

1. Plans must show the storm events with elevations on the basin cross sections.
2. The drainage report shall contain a table illustrating the pre-development and post-development rates and volumes for all storm events.
3. Snowpack has higher concentrations of pollutants because it is an accumulation of pollutants (sediment, organic, nutrient, lead loads\(^{13}\), cyanide, sodium chloride, magnesium chloride, and polycyclic aromatic hydrocarbons (PAHs)\(^{14}\) over a season. Street sweeping shall be required at a minimum of twice per year and shall occur in early Spring (March) and Fall (October). This requirement shall be included in the Operation and Maintenance Plan.


4. Accurate precipitation amounts for this region shall be used for storm water management calculations. Rainfall amounts shall be taken from the Atlas of Precipitation Extremes for the Northeastern United States and Southeastern Canada known as the “Cornell data”. The following values shall be used:
   a. 2-yr storm=3.3 inches
   b. 5-yr storm=4.2 inches
   c. 10-yr storm=5.0 inches
   d. 25-yr storm=6.2 inches
   e. 50-yr storm=7.4 inches
   f. 100-yr storm=8.75 inches

G. Presumption on Wetland and Stream Crossings
The activity of filling or permanently altering a wetland or stream shall be presumed to have an impact on wetland resource areas and the Interests and Values of this bylaw. Projects that propose a wetland or stream crossing shall not impair the continuity of the stream or wetland to provide or maintain regular flow of water and passage of fish, aquatic organisms (such as but not limited to, amphibians, reptiles, invertebrates (crayfish, freshwater mussels, etc.) or mammals associated with water (weasel, mink, muskrat, fisher, otter, etc.). All wetland and stream crossing projects shall be considered eligible to meet the Stream Crossing Guidelines as provided by the Army Corps of Engineers (ACOE) January 2005). The value of the resource area and the magnitude of the project shall determine whether General Standards or Optimum Standards shall be applied. A summary of stream crossing standards is provided in Appendix B as a guide only.

H. Alternatives Analysis
For projects within wetland resource areas, the Commission shall require an alternatives analysis, separate from an alternatives analysis required under Riverfront Area provisions of 310CMR10.58. The purpose of an alternatives analysis is to locate activities so that impacts to wetland resources are avoided to the extent practicable. The applicant shall have the burden of proof to demonstrate that every effort has been made to avoid, minimize and mitigate a wetland resource area alteration. Efforts to avoid or minimize alterations may include, but not be limited to, reducing size or scale of a project. Alternatives analyses shall extend to the subject property, any property currently or previously under the same ownership, or abutting property that may reasonably provide a less environmentally damaging option. The alternatives analysis should include alternate layouts or scope of the project; and a discussion describing the impacts of these alternatives would have on the resource areas.

I. Segmentation and Cumulative Impacts
Applicants shall not segment projects to avoid compliance with the Act or with this bylaw. The applicant shall have the burden of proof to demonstrate that the project has not been

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PROPOSED Norton Wetland Rules and Regulations

segmented and that the cumulative impacts of a project do not unnecessarily alter areas subject to protection or run contrary to the interests of the bylaw. Any filing submitted for the Commission’s review shall show the full project build-out. Any project submitted piece-meal shall be considered an incomplete application. All proximate, adjoining, contiguous or abutting lots must be included if they are under the control of the same owner, entity or related entities. The Commission may request additional information in order to evaluate the cumulative impacts of a project on resource areas, including but not limited to, total riverfront area alterations on adjacent lots, operation and maintenance plans for storm water management systems, or floodplain alteration.

J. Self-Imposed Hardship

The applicant or owner is advised to prevent situations where they have created their own hardship through design that did not carefully consider all likely impacts to Wetland Resource Areas Subject to Protection under the Act or Bylaw. Proposed driveways or roads shall be designed to provide access to areas of the proposed site without relying on the possibility of future wetland crossings. This shall include those lots where the upland access has been subdivided and developed, preventing upland access to the property’s interior. The Commission shall consider these types of crossings to be self-imposed and may not grant further crossings or Wetland Resource Area alterations in subsequent permit applications for those lots. Special consideration for waivers in projects that contain self-imposed hardships shall not be granted. Projects containing Riverfront Area impacts are cumulative, regardless of the number of lots subdivided from a larger parcel and shall be designed such that self-imposed hardships are not created.

K. Limited Projects

Limited projects were so named under the Act since the option of altering resource areas in such projects would only be proposed a “limited” number of times or in “limited” circumstances. A limited project status can only be achieved if the impacts to a resource area exceed the permissible threshold or if the project cannot meet all performance standards for an impacted resource area. A limited project status does not afford the opportunity to access every portion of the site. A wetland resource area impact may be denied if it is determined that the impacts to the wetland resources outweigh the benefit of additional site development. For limited project proposals, the Conservation Commission shall require the applicant to 1) file an ANRAD for verification of wetland resource area boundaries and 2) attend a pre-application work session with the Conservation Commission and/or its Agent prior to submission of any project with the Planning Board which would result in a claim of a limited project under 310CMR10.53(3)e. The Commission may not grant approval for a project with wetland resource impacts under limited project status if the applicant has not demonstrated that every attempt has been made to avoid and minimize impacts to wetland resource areas.

L. Erosion and Sedimentation Control

Applicants shall implement best management practices that prevent erosion, control sediment movement, and stabilize exposed soils to prevent pollutants from being transported offsite or

17 The final decision regarding Rabecki (Docket #97-020) upheld the Greenfield Conservation Commission’s decision that Rabecki created a self-imposed hardship by purchasing land where he knew the previous owner had subdivided off all upland access to the property interior.

All project plans shall include erosion and sedimentation control measures show in plan view and a detail provided for each measure. For any project that disturbs one (1) or more acres, at a minimum, shall provide the following best management practices: a stabilized construction entrance, perimeter protection such as silt fence or fiber roll, catch basin inlet protection, dewatering methods, concrete washout, and the limit of work (orange poly fence). BMPs for smaller projects shall provide similar measures as applicable. Haybales shall be prohibited as an erosion control device due to the transport of invasive species seeds within the hay or straw. Nylon netting shall not be permitted as a backing for silt fence or for erosion control blankets because they are a barrier to wildlife, particularly amphibians and reptiles. The Commission may approve other documented methods of erosion control as appropriate for the individual site under review.

In addition to the erosion and sedimentation control methods, temporary storm water management practices including temporary diversion ditches, swales, traps and basins with temporary outlet structures, must be shown and details provided.

In accordance with the EPA National Pollutant Discharge Elimination System Construction General Permit (CGP), all projects which result in greater than one (1) acre of disturbance and results in a discharge to a wetland or water of the US require the preparation of a SWPPP and a Notice of Intent filing with the EPA. A copy of the project SWPPP including the EPA NOI shall be provided to the Commission prior to the close of the public hearing. In addition, copies of all inspection reports required under the CGP shall be forwarded to the Conservation Commission on a monthly basis.

M. Site Stabilization

All disturbed areas shall be immediately temporarily stabilized if they are to remain undisturbed for 14 days or longer per the EPA CGP. Temporary slope stabilization methods shall include erosion control blankets for slopes 2:1 or steeper; stabilization of areas flatter than 2:1 may include temporary loam and seed and/or straw mulch. Stabilization of exposed areas shall be provided throughout construction such that slopes are protected from slumping, and erosion of exposed surfaces is minimized to prevent sediment transport.

If temporary or final stabilization is not achieved on disturbed areas by October 1, temporary stabilization consisting of clean grain straw mulch at a rate of 2 tons per acre shall be applied to exposed areas (Or 3-inch thickness, with no bare spots or ground showing). Mulch anchoring shall consist of tackifier or netting.
N. Vegetation and Landscaping
All soils shall be amended with a compost to improve infiltration and permeability\textsuperscript{18} and be at least 4 inches deep (for water conservation) for lawns and for sideslope stabilization. Landscaping should consist of native, drought resistant planting materials to benefit local wildlife, promote groundwater recharge and minimize the necessity for irrigation or watering. Landscaping specifications shall be provided in the permit application and shall not consist of any exotic invasive plant including species of Euonymous, Japanese Barberry or any other plant listed in the Invasive Plant Atlas of New England (IPANE). A list of invasive plants can be found at the following address. \url{www.eeb.uconn.edu/invasives/ipane}.

O. Lighting
Proposed lighting shall be fully shielded with light that does not go higher than 70-75 degrees above horizontal and not greater than 1500 lumens in order to direct the light to the desired area\textsuperscript{19}, and avoid light pollution of the night sky that may impact the wetland resource area’s ability to provide wildlife habitat. Lighting specifications shall be provided with the permit application. Please refer to \url{http://www.darksky.org/me/page.do} for more information.

P. Docks and Boardwalks
Docks and boardwalks shall be raised to minimize alteration of other resource areas (such as wetland approaches or floodplain). The decking surface shall have a minimum of 25% open area to minimize shading impacts. Floating docks shall be fixed by piers utilizing a hoop roller or other approved fastening system. Maintenance of vegetation on either side of a dock or boardwalk shall not exceed one-foot in width on either side. Docks shall be of a length that does not interfere with the recreation interests of the bylaw and with the rights of the Conservation Commission as agent for the Town as owner of the Norton Reservoir, Winnecunnet Pond, Chartley Pond or Barrowsville Pond. All docks shall contain a non-corrosive metal etched plaque containing the owner’s contact information in the event of being dislodged during a storm.

Q. Water Withdrawals
1. Groundwater Withdrawals
The Town of Norton operates four groundwater wells in order to supply potable drinking water to over 95% of the population. In addition to the primary purpose of supplying drinking water, the Town is faced with the cultural demand for supplying treated water for lawn irrigation purposes. The highest demand for water (both drinking and irrigation) is at the time of year with potentially the least supply (in the summer months). Similarly, lawn care accounts for thirty-two percent (32%) of outdoor water use nation-wide\textsuperscript{20}. The Town’s system of wells, distribution lines, storage tanks and treatment facilities are not


\textsuperscript{19} Helpful Advice to Builders and Contractors. New England Light Pollution Advisory Group (NELPAG). \url{www.cfa.harvard.edu/nelpag/friends.html} or \url{www.nelpag.org}

\textsuperscript{20} Water Well-Being: The Manual. The Massachusetts Department of Food and Agriculture, Pesticide Bureau. \url{www.mass.gov/waterwellbeing}.
designed nor intended to provide the added capability of unrestricted irrigation of lawns. Water withdrawals, particularly during the growing season and during the summer, can deplete groundwater levels within the aquifer recharge zones (Water Resource Protection Zones I, II and III), which can put strains on the drinking water supply, and can directly impact the hydrology of adjacent wetlands and waterbodies\(^{21,22}\) throughout Town.

The Commission finds that water conservation measures are needed to prevent negative impacts to the water supply and Wetland Resource Areas Subject to Protection under the Bylaw. Therefore, with any irrigation well request, the Commission reserves the right to limit lawn size, require suitable vegetated buffers and/or require soil amendments as appropriate. Applications for water withdrawal shall contain a written description of the pump type, size, capacity and intake pipe diameter.

2. Surface Water Withdrawals
   a. Surface water withdrawal projects shall not limit the quantity of water available in a stream, brook, creek, reservoir, lake or pond to less than one (1) foot of depth. Intake pipes shall be permanently fixed utilizing a hoop roller or other approved fixture to prevent intake of water if the water level is less than one foot.
   b. Projects that remove water from a stream, brook, creek, reservoir, lake or pond, shall contain a wildlife screen to prevent impingement of fish using the Freshwater Intake End-of-Pipe Fish Screen Guideline, Department of Fisheries and Oceans, Canada, March 1995 (http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/water-eau/pipe/index_e.asp).
   c. In accordance with Article 12 of the October 20, 2004 Annual Town Meeting, the extraction or withdrawal of water for commercial purposes from any pond, stream, river, watercourse, surface or subsurface water into any tank vehicle or into any tank contained in or on a vehicle is strictly prohibited.

R. Subdivision Design
In order to balance the future housing or commercial needs of the Town of Norton with resource area protection, projects that subdivide a larger parcel into individual lots are strongly encouraged to incorporate a cluster development design. Subdivision projects are encouraged to minimize impervious cover, maximize retention of forest cover and maximize re-infiltration rates for the storm water management system\(^{23}\). Open space areas should contain the wetland protection zone, at a minimum, when adjacent to a headwater area or vernal pool habitat; and the 200-foot riverfront area when adjacent to a perennial stream. Upland portions of a cluster subdivision open space area should not contain greater than 50\% of the storm water management BMPs.

Section 6: Wetland Resource Areas and Performance Standards

When a proposed activity involves altering a wetland resource area, the issuing authority shall presume that such area is significant to the interests of this Bylaw. This presumption is rebuttable and may be overcome upon a clear showing that the wetland resource area does not play a role in the protection of said interests. In the event that the presumption is deemed to have been overcome, the issuing authority shall make a written determination to this effect, setting for its grounds (DEP Form 6). Section 6 is the last section to be discussed. These are the only parts that were discussed at public meetings or reviewed by the Commission.

B. Bank (naturally occurring and beaches). Reviewed on 5-10-10

1. Definition and Boundary. Consistent with WPA. The bank is the lateral confines of a river, stream, creek, reservoir, lake or pond, during all but flood stage. All rivers, streams and creeks have a left bank and a right bank. Due to fluctuating water flow, banks may have terrestrial vegetation. The WPZ extends 100 feet from the boundary of bank.

2. Interests under the bylaw. In addition to the interests of the WPA, bank is presumed significant to the interests identified in Section 1.F.2.a, c, d, f, h and j.

3. General Performance Standards. In addition to the performance standards under the WPA, where the presumption set forth is not overcome, proposed work in, on, over or within the bank; and proposed work within 100 feet of a bank shall not:
   a. change the volume or rate of flow of water;
   b. change normal flow characteristics, including but not limited to, confined or channelized flow, riffle/pool complexes, normal cut bank/sandbar formation, meandering capacity, etc.; and
   c. impede or obstruct wildlife migration.

4. Special Performance Standards. If it is determined that avoidance is not reasonably feasible, the Commission may, but is not required to, issue a waiver provided the following:
   a. bank to provide natural stream flow;
   b. Projects shall be designed such that the woody debris input, temperature control and shading of water are not significantly impaired by providing adequate vegetative buffers;
   c. Projects shall be designed such that the wildlife habitat functions, including but not limited to, mammal migration on dry banks, burrows and nests, odonate exuviae sites, and freshwater mussel beds are not impaired;
   d. Projects shall be designed such that a proposal for a crossing or placement of fill is sited in the narrowest reasonable location and meets the general or optimum Stream Crossing Standards, as determined by the Commission and described in Appendix B;
   e. Projects shall provide replication of bank characteristics; and
f. A detailed wildlife habitat evaluation may be required for all projects that propose alteration in, on, over or within a bank.(more detail in the wildlife section to be drafted).

C. Freshwater Wetlands Reviewed on 5-10-10

1. Definition and Boundary. Consistent with WPA and 310CMR10.55(2). Freshwater wetlands may be bordering or isolated. The Wetland Protection Zone extends 100 feet from the boundary of freshwater wetlands.

2. Interests under the bylaw. In addition to the interests of the WPA, freshwater wetlands are presumed significant to the interests identified in Section 1.F.2.a-k.

3. General Performance Standards. In addition to the performance standards under the WPA, where the presumption set forth is not overcome, proposed work in, on or within freshwater wetlands; and proposed work within 100 feet of freshwater wetlands shall not materially impair the:
   a. Pre-development area runoff characteristics to the wetland;
   b. adjacent vegetative buffer that is necessary for temperature and relative humidity regulation of the wetland;
   c. shall not result in a net loss of freshwater wetlands;

4. Special Performance Standards. If it is determined that avoidance is not reasonably feasible, the Commission may, but is not required to, issue a waiver provided the following:
   a. Appendix B of the Massachusetts Wildlife Habitat Guidance for Inland Wetlands (DEP, 2006) or more detailed wildlife habitat evaluation may be required for all projects that propose alteration in, on, or within a freshwater wetland .(more detail in the wildlife section to be drafted).;
   b. Proposed wetland replication complies with the Massachusetts Inland Wetland Replication Guidance (DEP, 2003);
   c. An environmental professional shall monitor the installation of a replication area and submit regular inspection reports to the Commission. Replication areas shall be monitored for not less than five years and shall include an exotic, invasive plant removal provisions. Replication areas shall contain at least 20% inorganic wildlife habitat components (i.e., boulders, standing snags, fallen logs, pools, etc.); and
   d. The Commission may develop standards for wetland crossings (to be done).

D. Lands subject to flooding or inundation by groundwater or surface water, (Bordering and Isolated).

1. Definition and Boundary.
   a. Bordering land subject to flooding (BLSF; 100-yr floodplain) definition is consistent with WPA;
b. The extent of Bordering land subject to flooding around Norton Reservoir is the 105.1-foot contour elevation\textsuperscript{24};

c. Isolated Land Subject to Flooding (ISLF) shall mean an isolated depression or closed basin consisting of a minimum of 400 s.f., not occurring in existing lawns, gardens, landscaped areas, storm water management structures or driveways. ILSF may be underlain by pervious material, which in turn may be covered by a mat of organic peat or muck. The boundary of ILSF is the perimeter of the largest observed or recorded volume of water confined in said area. The Wetland Protection Zone extends 100 feet from the boundary of ILSF.

2. **Interests under the bylaw.** In addition to the interests of the WPA, Lands subject to flooding is presumed significant to those interests identified under the Act and to the following interests identified in Section 1.F.2. c-f, h and i.

3. **General Performance Standards.** In addition to the performance standards under the WPA, projects in, or within land subject to flooding; and projects within 100 feet of isolated land subject to flooding shall not impair:
   a. Quantity of storage for flood waters on the property;
   b. Ability of water to flow unimpeded within the floodplain;
   c. Depressional storage of water or cause flood damage due to lateral displacement of water;
   d. Vernal pool habitat; and
   e. Wildlife habitat.

4. **Special Performance Standards.** If it is determined that avoidance is not reasonably feasible, the Commission may, but is not required to, issue a waiver provided the following:
   a. For BLSF:
      i. Foundation, slab and buildings in the BLSF shall utilize flood construction methods as described in the Massachusetts State Building Code;
      ii. The lowest floor joist elevation shall be at least one (1) foot above the base flood elevation;
      iii. Elevation certificates shall be required at completion of all foundation, slab and retaining wall work within a floodplain;
   b. For ILSF:
      i. ILSF that provides vernal pool habitat shall not be altered.

\textsuperscript{24} March 26, 2007 letter from Pare Corporation to Office of Dam Safety (Pare project no. 05142.00) and NOI application (DEP file no. 250-831) page 4: description.
ii. Alterations to ILSF that provides significant flood storage may require 1:1 compensation on the project site to prevent flooding on abutting properties.

E. Reservoirs, lakes, and ponds.

1. **Definition and Boundary.** The boundary of reservoirs, lakes and ponds shall be the boundary as shown on the most recent United States Geological Survey (USGS) and the water contained therein. Ponds constructed for storm water management or lined-ponds constructed for landscape purposes are not subject to protection as a pond under the bylaw. The Wetland Protection Zone extends 100 feet from the boundary of a reservoir, lake and pond.

2. **Interests under the bylaw.** Reservoirs, lakes and ponds are presumed significant to the interests identified in Section 1.F.2.c, d, f, h and i.

3. **General Performance Standards.** Where the presumption set forth in (above) is not overcome, proposed work in, on, or within a reservoir, lake or pond or within 100 feet of a reservoir, lake or pond shall not impair:
   a. the quantity and quality of the water;
   b. the capacity to provide base flow to the outlet stream;
   c. public access rights under MGL Chapter 91; and
   d. to provide important wildlife habitat functions.

4. **Special Performance Standards.** If it is determined that avoidance is not reasonably feasible, the Commission may, but is not required to, issue a waiver provided the following:
   a. A project shall take measures to minimize any impacts of temperature rise of the water;
   b. Projects shall provide substantial vegetated buffers adjacent to the reservoir, lake or pond to naturally uptake pollutants and reduce erosion and soil compaction;\(^\text{25}\);   
   c. Fertilizer, if used, shall be limited to non-phosphorus fertilizers\(^\text{26, 27}\) in order to reduce potential for eutrophication (an excess of nutrients that contributes to aquatic plant growth, particularly of invasive species, and algal blooms\(^\text{28}\));

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\(^{25}\) Shoreland Development Density and Impervious Surfaces. State of Wisconsin, Department of Natural Resources.


\(^{27}\) Effects of Lawn Fertilizer on Nutrient Concentration in Runoff from Lakeshore Lawns, Lauderdale Lakes, Wisconsin. USGS Water-Resources Report 02-4130, July 2002.

\(^{28}\) Chapter 4: Bio-Physical Impacts of Urbanization on Aquatic Ecosystems.
PROPOSED Norton Wetland Rules and Regulations

d. For projects located within 100 feet of Reservoirs, Lakes and Ponds, a wildlife habitat evaluation may be required (Refer to wildlife section-to-be written) and
e. For projects that impact water quality, the Commission may require an evaluation of the waterbody’s status on the EPA Section 303(d) list and the TMDL list and existing water quality data for projects that propose discharges in, to, into or within 100 feet of a reservoir, lake or pond. The Commission may require monitoring, mitigation through storm water management pre-treatment or both.

E. Lands under water bodies and waterways (LUWW).

1. Definition and Boundary. Consistent with WPA, LUWW be referred to as the stream bed, stream bottom, lake bed or lake bottom. Due to fluctuating water flow, LUWW typically does not have terrestrial vegetation but may have aquatic vegetation.

2. Interests under the bylaw. In addition to the interests of the WPA, land under waterbodies and waterways are presumed significant to the interests identified in Section 1.F.2.b-d, f, and h.

3. General Performance Standards. In addition to the performance standards under the WPA, where the presumption set forth in (above) is not overcome, proposed work in land under waterbodies and waterways shall not impair:
   a. water storage;
   b. circulation and natural flow of water including subsurface flowpaths;\(^{29}\)
   c. water availability in the hypoeic zone (or the region beneath and lateral to a stream bed or lake bed where shallow ground water and surface water mix);
   d. distribution of sediment grain size; and
   e. the availability of interstitial spaces for freshwater mussels, fish and aquatic macroinvertebrates.

4. Special Performance Standards. If it is determined that avoidance is not reasonably feasible, the Commission may, but is not required to, issue a waiver provided the following:
   a. Projects that remove material shall be done in a low-flow period (July-August) and shall manage erosion and siltation potential with silt curtains or other approved method; and
   b. Projects utilizing dewatering methods performed within a stream channel or waterbody shall restore the dewatering pit with similar material and interstitial spacing.

Section 7: Waivers

The Commission adopted performance standards for Wetland Resource Areas to ensure that the interests and values as listed in the Bylaw are adequately protected. However, the Commission recognizes that in certain situations, a waiver of a specific performance standard may be appropriate. The Commission may (but shall not be required to) waive strict compliance with the Rules and Regulations if the Commission finds that the proposed work will not have a significant adverse impact on interests protected by the Bylaw. Waivers are intended to be granted only in rare and unusual cases and only when, in the opinion of the Commission, strict adherence to the Rules and Regulations would create an unintended hardship to the owner. If a Waiver is granted, it shall be so noted in the Order of Conditions or applicable Wetland Permit. Waivers of Bylaw Regulations shall not result in less stringent requirements than those under the Act.

1. Projects may be eligible for a Waiver provided the following:
   a. The project can be conditioned to meet the interests of the bylaw when alteration of the Wetland Resource Area is minimized and mitigated to the maximum extent feasible; special performance standards have been met; and a long-term net benefit to the Wetland Resource Area is provided;
   b. The hardship was not created by the applicant or the applicant’s representatives; or
   c. The Wetland Resource Areas will be better protected if the project is allowed, or if the project has an overriding public benefit.

2. The applicant shall have the burden of proof of demonstrating that granting a Waiver is consistent with the intent and purpose of the Bylaw and its Rules and Regulations; and that there are no practicable alternatives. Requests for a Waiver shall be made in writing at the time of the Permit application submittal. At a minimum the request shall include a:
   a. Description of eligibility as listed in item 1; and
   b. Description of alternatives explored and an explanation of why each is unreasonable or unrealistic; and
   c. Description of mitigating measures and long-term net benefit to the Wetland Resource Area; or
   d. Evidence of an overriding public interest.

3. The Commission shall consider the request for a Waiver as part of its review of the Permit application. The Commission may impose conditions, safeguards, and limitations on time and/or activity special. The Commission shall grant, grant in part, deny in part, or deny the waiver request based upon eligibility; value of the Wetland Resource Area, impacts to the Wetland Resource Area, mitigation, and long-term net benefit proposed for the project; overriding public benefit; and all evidence and discussions provided as part of the public hearing process pursuant to the Open Meeting Law. The Commission shall issue a written finding regarding the grant of or the denial of a waiver request in the permit.

4. Failure to provide required or additional requested information by the applicant regarding the appropriateness of a waiver shall result in a denial of the waiver request.
PROPOSED Norton Wetland Rules and Regulations

5. In all cases, waivers are determined on a case-by-case basis, specific to the project location and proposal.

Section 8: Enforcement

No person shall remove, fill, dredge, build upon, degrade, or otherwise alter resource areas protected by this Bylaw, or cause, suffer, or allow such activity, or leave in place unauthorized fill, or otherwise fail to restore illegally altered land to its original condition, or fail to comply with a Permit or an enforcement order issued pursuant to the Bylaw. Each day a violation exists constitutes a separate violation.

A. Violations include, but are not limited to:
   1. Failure to obtain a Permit for work performed in an area subject to protection;
   2. Failure to comply with the conditions of a Permit;
   3. Failure to complete work described in a Permit, when such failure causes damage to the interests identified in the Bylaw;
   4. Failure to record a Permit as described in Section 3. I.

B. When it is determined that an activity is in violation of the Bylaw, these Regulations, or a Permit, the Conservation Agent may issue a cease and desist (stop work) order. The Commission or its Agent shall also issue written notice of the violation in an enforcement letter or an Enforcement Order to be ratified at the next regularly scheduled meeting. Failure of the Commission to issue a stop work order, for any reason, shall not prevent the Town of Norton from pursuing any other legal remedy at law, or in equity, to restrain violations in this Bylaw and to secure compliance with a Permit.

C. Consistent with due process, the landowner shall have the opportunity to address the Commission at a scheduled public hearing.

D. The Commission may use the enforcement measures, as listed in the Bylaw, that include, but are not limited to replication, restoration, fines of up to three-hundred dollars ($300.00) per day and/or the installation of a visual barrier.

E. The Town of Norton shall not be held liable to pay for legal services required to enforce the Act, the Bylaw or the Rules and Regulations. If legal counsel is required by the Commission, the presiding court office shall be requested to require any settlement to include the payment of the Town’s legal counsel.

Appendices:
Appendix A: Plan Submittal Requirements
Appendix B: Stream Crossing Standards
Appendix C: Fieldwork Code of Practice of the Declining Amphibian Population Task Force
**PROPOSED Norton Wetland Rules and Regulations**

**Appendix A:**

**Site Plan Description and Identification Data:**
1. The property address; map and parcel numbers; and book and page numbers
2. For subdivisions, the builder’s lot number and the new Assessor’s parcel number
3. Entire parcel boundary must be shown on an index sheet
4. The date (month, day, year), title block, legend, locus, scale of not less than 1’=40’, and north arrow
5. Location, type and elevation of benchmark used
6. The Plan Title should incorporate the project address, i.e. “septic system repair for 70 Main Street” instead of “septic system repair, lot 1, Main St.”
7. All abutting parcels with most current owner names determined by the Assessor’s Office
8. The signed professional seal, name, address and phone number of the registered professional engineer or registered land surveyor; and the name of the landscape architect and DEP Certified Soil Evaluator as appropriate
9. The name of the wetland professional and date of wetland resource area delineation
10. The property owners’ name(s) and address(es)
11. Existing and proposed easements and public utility distribution systems

**Plan Revision Dates**

Site plans for any project other than a single family house or work on a single family house, shall include an index sheet. The date of the most recently revised sheet shall be listed on the index sheet of the final approved plan and referenced in the wetland permit.

**Natural and Existing Features**
1. The location of consecutively numbered flags for all wetland resource areas (including Wetland Protection Zone and Riverfront Area) located by an on-the-ground field survey
2. All streams including bank and mean annual high water mark, even if the wetland extends further upland onto the property than the bank
3. FEMA FIRM floodplain zone, base flood elevation, panel number and date of plan
4. Existing and proposed contour elevations at not greater than 2-foot intervals (If an individual lot has been altered since the time of the original subdivision plan review, an accurate and current on-the-ground field survey of the lot shall be required)
5. Existing and proposed edge of forest cover or vegetation clearing
6. Certified and potential vernal pools
7. Estimated and Priority habitat areas
8. ACEC boundaries
9. Ledge, rock outcroppings, boulders, glacial erratics, stone walls, cartpaths, trails, clearings
10. Items listed as a special habitat types and features in the wildlife habitat in Section 6

**Site Data**
1. All existing and proposed lot lines, structures, roads, parking areas, driveways, fences, impervious surfaces, and all proposed work
2. Location of erosion controls and limits of work
3. Offset distances from wetland resource areas to limits of work and proposed structures
4. The **minimum** 25-foot no disturbance area with visual barrier location (split rail fence unless approved by the commission)
5. Elevations of bottom of foundation, top of concrete, and concrete slab
6. Lowest finished floor elevation if in floodplain

Updated 12/22/2010
7. Location of existing and proposed service facilities above and below ground, including:
   a. Sanitary sewers and pumping stations
   b. Electric, gas, and water mains, hydrants, pump houses, standpipes and building services and sizes
   c. Chemical and fuel storage tanks and containers, storage, loading and disposal areas of chemicals, hazardous substances, salt and fuels
8. All fill/replication and restoration/compensation areas with the square footage and bottom elevations labeled (with separate detail sheet per the replication section)
10. The location and description of all proposed landscaping (plant type, size, and number) demonstrating there are not any invasive plants listed by the Invasive Plant Atlas of New England (IPANE) at [www.eeb.uconn.edu/invasives/ipane](http://www.eeb.uconn.edu/invasives/ipane)
11. Vehicle trip generation based on “Average Daily Trip” (ADT) rate, if required in Section 5.E.

**Storm Water Management**

1. Snow storage areas
2. Pre-development and post-development watershed plans with time of concentration arrows
3. Storm water best management practices (BMPS), drainage pipes, headwalls, etc.
4. Location of soil borings and soil test pits for septic systems and storm water management systems
5. Soil logs for each test pit
6. Details, profile and cross-section for all BMPs (cross section of the basin with the elevation of 2, 10, 25, 50 and 100-yr storm events)
7. Construction-term storm water management (i.e. dewatering methods/detail, temporary basins)
8. If required, culverts within 0.25 miles downstream or upstream of a proposed stream crossing or wetland fill for a road or driveway shall be evaluated by the applicant

**Details** must be shown for:
1. All erosion control measures (hay bales and nylon netting backing are prohibited except as approved by the Commission)
2. Retaining walls
3. Dewatering methods

**Plan Notes** must include:
1. “The No Disturbance Zone (NDZ) is a continuous strip of undisturbed natural vegetative cover directly adjacent to a resource area. There shall not be any alteration of natural vegetation including, but not limited to, cutting or clearing vegetation, construction, stockpiling materials or dumping organic or inorganic materials. A permanent visual barrier marks the NDZ and consists of a post-and-rail fence, unless otherwise approved by the Commission. The fence shall not be removed.”
2. “All disturbed areas shall be immediately temporarily stabilized if they are to remain undisturbed for 14 days or longer per the Construction General Permit (CGP) under the Environmental Protection Agency’s (EPA) National Pollutant Discharge Elimination System (NPDES).”
3. “If temporary or final stabilization is not achieved on disturbed areas by October 1, temporary stabilization consisting of clean grain straw mulch at a rate of 2 tons per acre shall be applied to exposed areas (Or 3-inch thickness, with no bare spots or ground showing). Mulch anchoring shall consist of tackifier or netting.”

4. Amount and percentage of the lot of total impervious surface (existing and proposed)

5. Amount of resource area alteration by resource area type and amount of restoration/replication

6. Total and cumulative riverfront area calculations

7. Dewatering methods

8. Construction sequencing

Plan Color Codes
All seven (7) copies of the submitted plans shall be marked with a highlighter or Colorplot with the color code listed below:

1. Property line-black
2. Freshwater wetlands boundary and Wetland Protection Zone-green
3. Mean annual high water mark, bank, riverfront area (inner riparian and outer riparian boundaries), and edge of a reservoir, lake or pond-blue
4. Floodplain-purple
5. Impervious cover-shaded in light gray
6. Utilities-pink
7. Drainage-orange
8. Limit of work-erosion control symbol
9. Visual Barrier-fence symbol

Wetland Replication Areas
1. Plans of replication areas shall not have greater than 1-foot(one) contours
2. Seasonal high water elevation in at least two locations in the replication area
3. Cross sections and profiles of any wetland resource area alteration (except activity solely in the wetland protection zone or riverfront area)
4. All fill/replication and restoration/compensation areas with the square footage and bottom elevations labeled (with separate detail sheet per the replication section)
5. Detail of pit-and-mound topography
6. Vegetation planting plan including the common and scientific plant names, sizes, and quantities; and inorganic wildlife features (such as boulders, snags, logs) comprising a minimum of 20% of the surface area
7. Detail of soil profile for new hydric soil placement
8. Plan notes for erosion control installation and removal
9. Monitoring plan schedule

As-Built Plans
Two (2) signed and stamped As-Built plans shall be submitted with any Request for a Certificate of Compliance (COC) or Partial Certificate of Compliance (PCOC) at least five (5) business days prior to the scheduled public meeting and shall show:

1. All resource areas
2. All final grading
3. All work performed under the Order
4. The visual barrier and No Disturbance Zone
5. Floodplain with community panel number and base flood elevation; elevation certificate, if applicable
6. Elevations for rim, invert, top of concrete or slab, top of retaining wall,
7. Certification note from a soil evaluator that the soil placed for lawn contains the correct mixture of compost amendments
Appendix B:

STREAM CROSSING STANDARDS

Stream crossing standards are based on six important variables (see page 8 for common measurements). While the specifics of the regulations listed below may change over time, the crossing guidelines presented throughout this handbook remain effective for fish and wildlife.

1. TYPE OF CROSSING
   - General: Open arches or bridges are preferred over culverts
   - Optimum: Open arches or bridges required unless there is a compelling reason why culverts would provide greater environmental benefits

2. CULVERTS
   - Culverts should be embedded (sunk into stream) at least one foot for box culverts and pipe arches, or at least 25% of the pipe diameter for pipe culverts.
   - If pipe culverts cannot be embedded this deep, then they should not be used.

3. WIDTH
   - General: The crossing should be at least 1.2 times the bankfull width of the stream
   - Optimum: The crossing should be at least 1.2 times the bankfull width of the stream and should span the banks to allow for dry wildlife passage during at least ten months of the year.

4. OPENNESS
   - General: Openness ratio (cross-sectional area/crossing length) of at least 0.25 meters (sq m). The crossing should be wide and high relative to its length.
   - Optimum: Openness ratio of at least 0.5 m and minimum height of 4 feet. If local conditions significantly reduce wildlife passage near the crossing (e.g., steep embankments and physical barriers) then the openness ratio should be 0.75 m and the minimum height should be 6 feet.

5. SUBSTRATE
   - Natural bottom substrate should be used within the crossing and it should match the upstream and downstream substrates. The substrate and design should resist displacement during floods and maintain an appropriate bottom during normal flows.

6. DEPTH AND VELOCITY
   - At low flows, water depths and water velocities should be the same as they are in natural areas upstream and downstream of the crossing.

A Well Designed Crossing

- Large size suitable for handling flood flows
- Open-arch design considered optimum under most conditions
- Openness ratio greater than 0.5 m, suitable for most settings
- Greater than 1.2 x stream width maintains dry banks for wildlife passage
- Water depth and velocity match conditions upstream and downstream
- Natural substrates create good conditions for stream-dwelling animals

Massachusetts Stream Crossings Handbook
Follow the DAPTF Fieldwork Code of Practice!
A Code of Practice, prepared by the Declining Amphibian Populations Task Force (DAPTF) to provide guidelines for use by anyone conducting fieldwork at amphibian breeding sites or in other aquatic habitats. Observations of diseased and parasite-infected amphibians are now being frequently reported from sites all over the world. This has given rise to concerns that releasing amphibians following a period of captivity, during which time they can pick up apparent infections of novel disease agents, may cause an increased risk of mortality in wild populations. Amphibian pathogens and parasites can also be carried in a variety of ways between habitats on the hands, footwear or equipment of fieldworkers, which can spread them to novel localities containing species which have had little or no prior contact with such pathogens or parasites. Such occurrences may be implicated in some instances where amphibian populations have declined. Therefore, it is vitally important for those involved in amphibian research (and other types of wetland/pond studies including those on fish, invertebrates and plants) to take steps to minimise the spread of disease agents and parasites between study sites.

The DAPTF Fieldwork Code of Practice
1. Remove mud, snails, algae and other debris from nets, traps, boots, vehicle tyres and all other surfaces. Rinse cleaned items with sterilized (eg. boiled or treated) water before leaving each study site.
2. Boots, nets, traps etc. should then be scrubbed with 70% ethanol solution and rinsed clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland.
3. In remote locations, clean all equipment as described above (or with a bleach solution) upon return to the lab or "base camp". Elsewhere, when washing-machine facilities are available, remove nets from poles and wash with bleach on a "delicates" cycle, contained in a protective mesh laundry bag.
4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolated species, wear disposable gloves and change them between handling each animal. Dedicate sets of nets, boots, traps and other equipment to each site being visited. Clean and store them separately at the end of each field day.
5. When amphibians are collected, ensure the separation of animals from different sites and take great care to avoid indirect contact between them (e.g. via handling, reuse of containers) or with other captive animals. Isolation from unsterilized plants or soils which have been taken from other sites is also essential. Always use disinfected/disposable husbandry equipment.
6. Examine collected amphibians for the presence of diseases and parasites soon after capture. Prior to their release or the release of any progeny, amphibians should be quarantined for a period and thoroughly screened for the presence of any potential disease agents.
7. Used cleaning materials (liquids etc.) should be disposed of safely and if necessary taken back to the lab for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags.

The DAPTF Fieldwork Code of Practice has been produced by the DAPTF with valuable assistance from Begona Arano, Andrew Cunningham, Tom Langton, Jamie Reaser and Stan Sessions. For further information on this Code, or on the DAPTF, contact John Wilkinson, Biology Department, The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK. E-mail: DAPTF@open.ac.uk. Fax: +44 (0) 1908-654167
APPENDIX B. RECOMMENDED REVISIONS TO LAKEVILLE ZONING CODE AND SUBDIVISION RULES AND REGULATIONS
MEMORANDUM

TO: Lakeville Zoning Steering Committee
FROM: Nathan Kelly, Senior Planner, Horsley Witten Group, Inc.
DATE: September 23, 2010
RE: Proposed Zoning Ordinance Revisions, Town of Lakeville

The Horsley Witten Group (HW), as part of Phase 2 of Taunton River Watershed Management Plan, has developed the following recommendations for revisions to the Town of Lakeville’s Zoning Bylaw and regulations, to improve the water resource protection and management in concert with the conclusions of Phase 1 of the watershed management plan (www.horsleywitten.com/tauntonwatershed). In general, the Phase 1 report concluded that improved regulations were needed to promote low impact development (LID), and to improve wastewater and stormwater management in order to keep water local and recharge local water sources while improving water quality treatment. The specific zoning recommendations presented below are intended to address particular concerns identified by the Lakeville Zoning Steering Committee, which are:

1. Peer review of site plans by professional engineers;
2. Enforcement mechanisms for stormwater facilities;
3. Enhanced stormwater management techniques; and
4. Redevelopment permitting in lakeside housing developments.

HW has developed some recommended amendments for the following sections of the Town of Lakeville Zoning By-Laws:

- Section 6.7 Site Plan Review;
- Section 7.2 Water Resources Protection District; and
- Section 7.4.6 Specific Uses by Special Permit.

All recommendations presented below are numbered by the associated subsection in the Town of Lakeville Zoning By-Laws as appropriate. However, we have included in our recommendations below some renumbering of the sub-subsections for simplicity. The recommended text below is a combination of existing official text with our recommended changes already incorporated. Text highlighted in grey identifies commentary to the proposed amendments. A document identifying specific changes to the Zoning By-Laws text (in Microsoft Word, using the ‘track changes’ review tool) is also provided as an attachment, both in hard copy and electronically, for your use.

SITE PLAN REVIEW
6.7. SITE PLAN REVIEW

6.7.1. Purpose

The purpose of site plan review is to ensure that the design and layout of certain developments permitted as of right or by Special Permit will constitute suitable development and will not result in a detriment to the neighborhood or the environment. The site plan review shall consider the following:

1) Protection of adjacent areas against detrimental or offensive uses on the site by provision of adequate surface water drainage, buffers against light, sight, sound, dust and vibration, and preservation of light and air;
2) Convenience and safety of vehicular and pedestrian movement within the site and in relation to adjacent areas;
3) Adequacy of the methods for disposal of wastes; and
4) Protection of environmental features on the site and in adjacent areas.

6.7.2. Procedure-Business or Industrial

Applicants for a building permit for new construction or for modification of or addition to a business or industrial structure resulting in new or additional floor area of over 1,500 square feet in the aggregate shall submit six (6) copies of a site plan as described herein to the Town Clerk for Planning Board approval. Failure of the Planning Board to act within twenty-one (21) days of receipt of a site plan shall be deemed lack of opposition thereto.

The following information shall be required by the applicant for site plan review:

1) locus plan;
2) location of structures within 200 feet of property lines;
3) existing and proposed buildings, showing setbacks from property lines;
4) building elevations;
5) parking areas, driveways, and facilities for pedestrian movement including parking calculations based on current regulations;
6) utilities and lighting;
7) landscaping, including trees to be removed and retained;
8) loading and unloading facilities;
9) provisions for refuse removal;
10) drainage calculations and verification of soil types;
11) existing and projected traffic volumes from the site and effect on the local road network;
12) existing and proposed contour elevations in two (2) foot increments;
13) location of well or public drinking water supply infrastructure;
14) location of wetlands approved by the Conservation Commission;
15) proposed and existing location of signs;
16) any building over 35,000 cubic feet should be accompanied by engineered plans drawn by a certified architect as required by the Massachusetts building code;

Commentary: Standard #16 may have been drafted incorrectly, but we would like to discuss with the Town. It sounds like the intent is to get interior plans for large buildings. There are two issues to potentially address here: 1) the standard for 35,000 cubic feet is small and we suspect that the intent was to use 35,000 square feet; and 2) it is not legal to try to regulate the interior of a building through a zoning process. A viable alternative to this standard may be:

“All building with over 35,000 square feet of gross floor area shall be shown with architectural elevations that include:

a. exterior material, including trim and colors;
b. type, pitch and material of roofs;
c. size, type, and spacing of windows, doors and other openings;
d. size, location, and lighting of signs affixed to or hanging from the building; and
e. the relationship of massing, scale and height to other existing structures in the immediate vicinity with photos and drawings.”

17) all information should pertain to existing and proposed;
18) a Stormwater Management Plan consistent with Section 7.2 Water Resources Protection District;
19) a Sediment and Erosion Control Plan consistent with Section 7.2 Water Resources Protection District;

Commentary: Information required for numbers 19 and 20 represent new informational requirements. Although the informational requirements are new, they are consistent with the performance standards in the existing by-law. In other words, this is the information the Planning Board requires to ensure compliance with standards that are in effect today.

20) other information as may be necessary to determine compliance with the provisions of this By-Law.

In addition, at least ten (10) days prior to filing a site plan with the Planning Board, an applicant shall submit one copy of the site plan to each of the following boards and officers, together with a request for review and recommendation to the Planning Board pursuant to this section:
1) Police Chief
2) Fire Chief
3) Board of Health
4) Conservation Commission
5) Highway Surveyor
6) Building Department
7) Open Space Committee
8) Board of Selectmen

Said boards and officers shall review the site plan, considering the effects of the proposed use and related construction, and shall make recommendations in writing as they deem appropriate to minimize any detrimental effects of the development on nearby property or on Town Roads or other infrastructure. Failure to make any recommendations to the Planning Board within twenty-one (21) days of receiving the application shall be deemed as lack of opposition thereto.

6.7.3. Procedure-Residential

Applicants for a building permit for new construction of or for modification or addition to any residential structure which will disturb more than 3,000 square feet of ground for which filing of a Notice of Intent with the Lakeville Conservation Commission is not required shall submit three (3) copies of a site plan as described herein the Town Clerk for Planning Board approval. Failure of the Planning Board to act within twenty-one (21) days of receipt of a site plan shall be deemed lack of opposition thereto.

The following information shall be required by the applicant for site plan review:

1) locus plan;
2) location of structures within 100 feet of property lines;
3) existing and proposed buildings, showing setbacks from property lines;
4) existing and proposed contour elevations in two (2) foot increments;
5) location of well or public drinking water supply including existing and/or proposed connections;
6) location of wetlands approved by the Conservation Commission;
7) a Stormwater Management Plan consistent with Section 7.2 Water Resources Protection District;
8) a Sediment and Erosion Control Plan consistent with Section 7.2 Water Resources Protection District;

Commentary: Information required for numbers 7 and 8 represent new informational requirements. Although the informational requirements are new, they are consistent with the performance standards in the existing by-law. In other words, this is the information the Planning Board requires to ensure compliance with standards that are in effect today.
9) other information as may be necessary to determine compliance with the provisions of this By-Law.

In addition, at least ten (10) days prior to filing a site plan with the Planning Board, an applicant shall submit one copy of the site plan to each of the following boards and officers, together with a request for review and recommendation to the Planning Board pursuant to this section:

1) Police Chief
2) Fire Chief
3) Board of Health
4) Conservation Commission
5) Highway Surveyor
6) Building Department
7) Open Space Committee
8) Board of Selectmen

Said boards and officers shall review the site plan, considering the effects of the purposed use and related construction, and shall make recommendations as they deem appropriate to minimize any detrimental effects of the development on nearby property or on Town Roads or other infrastructure. Failure to make any recommendations to the Planning Board within twenty-one (21) days of receiving the application shall be deemed as lack of opposition thereto.

6.7.4. Peer Review

The applicant may be required to pay for reasonable consulting fees to provide peer review of the Site Plan application, pursuant to G.L. Chapter 44, Section 53G. Such fees shall be held by the Town in a separate account and used only for expenses associated with the review of the application by outside consultants, including by not limited to attorneys, engineers, urban designers, housing consultants, planners, and others. Any surplus remaining after the completion of such review shall be returned to the applicant.

6.7.5 Decision

Final action of the Planning Board shall consist of one of the following:

1) Approval as Submitted: Approval based on a determination that the application complies with the criteria and design performance standards set forth in this section.
2) Approval with Conditions: Approval of the application subject to any reasonable conditions, modifications, and restrictions the Planning Board may deem necessary to ensure the health, safety, and general welfare of the community.
3) Disapproval: A disapproval of the application for the reasons of violations of provisions in the Zoning By-law, or determination that the site plan(s), although proper in form, is so intrusive on the interests of the public in one or more aspects regulated by the Zoning By-law, that no reasonable terms or conditions can be devised to adequately protect the interests of the public.

6.7.6 Appeals

Appeal of the Planning Board’s final action on a site plan review application shall be made to the Zoning Board of Appeals. The Zoning Board of Appeals shall uphold, overturn, or remand the matter to the Planning Board for reconsideration, as applicable.

**WATER RESOURCE PROTECTION DISTRICT**

7.2. Water Resource Protection District (WRPD) Regulations

7.2.1. Purpose and Application

For the purpose of protecting groundwater and other water resources in the Town, there are hereby established water resource protection regulations as part of the Zoning By-Law.

7.2.2. Scope of Authority

This overlay district shall apply to all new construction, reconstruction, or expansion of existing buildings and new or expanded uses. Uses prohibited in the underlying zoning districts shall be prohibited in the WRPD. These regulations apply throughout the Town.

All uses and dimensional requirements and other provisions of this by-law applicable to land, buildings, and uses in underlying zoning districts shall remain in force and effect, except that where the water resources protection regulations impose greater or additional restrictions and requirements, such restrictions and requirements shall prevail.

7.2.3. Use Regulations

1) Prohibited Uses and Activities

Notwithstanding use regulations for a particular district, the uses listed below are prohibited. Such uses where lawfully existing, may be continued, but may not be expanded or altered without a Special Permit from the Special Permit Granting Authority (SPGA) which for the purpose of this section of the Zoning By-Law is the Planning Board.

a. Outdoor storage of the following substances: salt, snow-melting chemicals, or hazardous substances such as pesticides, herbicides, and water soluble and
volatile chemical compounds. This prohibition shall include, without limitation, outdoor storage of materials containing or coated with such chemicals susceptible to being carried into surface or groundwater (Adopted May 10, 1982).

b. Disposal, use as fill in layers or in bulk, or stockpiling of any demolition materials, waste or residue typically known as sludge, waste sludge, fly ash, or any other substance that contains hazardous chemicals or other compounds that are hazardous (Adopted Special Town Meeting Jun 11, 2001, approved by Attorney General September 19, 2001).

2) Special Permit

In addition to Section 4.1 Table of Use Regulations, the following uses shall require a Special Permit.

a. Conversion of seasonal home or non-residential building for year-round residence.

7.2.4. Performance and Design Standards for Site Plan Review Activities

Where an activity lies within the WRPD and requires Site Plan Review pursuant to Section 6.7 of the Zoning By-law, the following standards shall apply.

Commentary: In general, the purpose of this section is to move the standards for erosion and sediment control and stormwater management out of the Site Plan Review section and under the WRPD. This is more consistent with the way the courts perceive the purpose of an overlay district (to set standards) and the purpose of Site Plan Review (to provide information).

1) Sediment and Erosion Control – At a minimum the Sediment and Erosion Control Plan shall comply with the performance standards of the most recent version of the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials, dated March 1997 as amended, detailing the location, installation and maintenance of sediment and erosion controls during and after construction.

2) Stormwater Management Criteria – At a minimum the Stormwater Management Plan shall comply with the performance standards of the most recent version of Massachusetts Stormwater Management Standards (MASWMS). Consistent with MASWMS The following general performance criteria shall be applicable to all Stormwater Management Plans:

a. No Untreated Discharges – All land development and land use conversion activities shall not discharge untreated stormwater runoff directly to a
wetland, local water body, municipal drainage system, or abutting property, without treatment.

b. The use of Low Impact Development (LID) measures, as identified in the MASWMS and as allowable through local regulation, is required to the maximum extent practicable for new development in order to promote recharge, reduce runoff volumes, and minimize reliance on structural stormwater management measures. The Site Design Criteria require that the site planning process shall be documented and shall include the following steps:

   i. ID critical environmental resources;
   ii. Delineate potential building envelopes avoiding environmental resource areas and providing a buffer from regulated resources of at least twenty-five (25) feet; and
   iii. Develop methods to minimize impervious surfaces and document percent of impervious surfaces proposed on-site.

c. Annual groundwater recharge rates should be maintained by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post development site shall approximate the annual recharge from pre-development site conditions.

d. Redevelopment projects shall, to the maximum extent practicable, improve existing hydrological conditions, as specified in the MASWMS.

e. Prior to the start of land disturbance or construction activity, the Town shall require a surety bond irrevocable letter of credit, cash, or other acceptable security, when deemed appropriate. The form of the surety shall be approved by the Town Treasurer, and be in an amount deemed sufficient by the Planning Board to ensure that the work will be completed in accordance with these regulations. The bond shall be released after demonstration of the following:

   i. Adequate construction inspection;
   ii. 1 year after acceptance of construction the applicant shall submit a final inspection;
   iii. upon adequate inspection and acceptance of road, surety bond is released.

7.2.5. Performance and Design Standards for Special Permit Activities

1) Onsite Septic Systems – Onsite septic systems must be in full compliance with 310 CMR 15.000 and, where local regulations may be more stringent, compliance is required with those provisions.
2) Where lots are to be serviced by on-site drinking water wells and on-site septic systems:

   a. Wastewater flow rates shall not exceed three hundred thirty (330) gallons per day for every forty thousand (40,000) square feet of land on the site. Where nitrogen reducing technology is used for the on-site septic system, design flow calculations shall not exceed four hundred forty (440) gallons per day for every forty thousand (40,000) square feet of land. All nitrogen reducing technology must be approved by Massachusetts Department of Environmental Protection for General Use, as identified in the ‘Summary of Innovative/Alternative Technologies Approved for Use in Massachusetts and Under Review.’

   Commentary: The Town wished to develop stronger, defensible Zoning Standards to help protect surface waters, particularly the conversion or expansion of housing in the older cottage communities. The standard above helps to limit the scale of development by limiting the volume of wastewater flow in a manner similar, but stricter, than Title 5.

3) Where activities take place within a Zone C contributing area as defined by DEP, the following standards shall apply:

   a. The horizontal distance from the pond to the leaching field added to the vertical distance of the leaching field to the seasonal high ground water level shall exceed two hundred (200) feet where feasible. Where this level of separation is not feasible due to the location of existing structures or the proximity of a lot to surface water resources, the applicant shall site the leach field as far from the surface water resource as possible. Repair or replacement of failed septic systems that do not include an increase in design flow shall be exempt from this requirement.

   Commentary: This standard is designed to mitigate phosphorus loading to fresh water bodies in the Town. Phosphorus binds to soil particles as it is released from septic leach fields so requiring increased separation where possible is an effective way to keep this nutrient from ponds and lakes. This particular standard has been accepted by DEP’s Groundwater Discharge Permit program.

   b. The orientation of the leaching trenches shall be perpendicular to the direction of groundwater flow to maximize phosphorus retention. For the purposes of this ordinance, the direction of groundwater flow is presumed to be perpendicular to the edge of the nearest surface water resource unless an applicant demonstrates that the flow direction is different through the use of groundwater elevations recorded using at least three on-site wells.
Commentary: This standard is also designed to mitigate phosphorus loading to ponds and lakes in the community. By orienting the leach field perpendicular to groundwater flow, the exposure of phosphorus to soils particles is maximized and therefore increases the rate of phosphorus adsorption.

SECTION 7.4.6 SPECIFIC USES BY SPECIAL PERMIT

Conversion of seasonal home or non-residential building for year-round residence
SPGA - Board of Appeals; Residential, Business Districts

Subject to Board of Health approval, the applicant must demonstrate compliance with the State Environmental Code, Title 5.

In addition to the requirements listed in Section 7.4.2 of the Zoning By-law, the applicant shall provide a septic system design plan for the existing or proposed system that includes:

- Separation from seasonal high groundwater;
- Orientation of septic leach field to groundwater flow;
- Calculation of combined horizontal and vertical distance of leach field to seasonal high water mark of surface water body;
- Setback to onsite and adjacent drinking water wells;
- Approximate location of wastewater facilities on adjacent properties; and
- Proposed grading (2 ft contours).
6.7.1. Purpose

The purpose of site plan review is to ensure that the design and layout of certain developments permitted as of right or by Special Permit will constitute suitable development and will not result in a detriment to the neighborhood or the environment.

The site plan review shall consider the following:

1) Protection of adjacent areas against detrimental or offensive uses on the site by provision of adequate surface water drainage, buffers against light, sight, sound, dust and vibration, and preservation of light and air;
2) Convenience and safety of vehicular and pedestrian movement within the site and in relation to adjacent areas;
3) Adequacy of the methods for disposal of wastes; and
4) Protection of environmental features on the site and in adjacent areas.

6.7.1.5 Management of stormwater runoff to minimize stormwater runoff, maximize infiltration and recharge where possible and minimize pollutants in the runoff as required to meet the performance standards of the Massachusetts Department of Environmental Protection's March 1997 Stormwater Management Policy as amended;

6.7.1.6 Minimization of on-site erosion and the prevention of eroded soil from being deposited onto adjacent properties, rights-of-way, the municipal storm drainage system, wetlands or water courses during and after construction.

6.7.2 Procedure—Business or Industrial

Applicants for a building permit for new construction or for modification of or addition to a business or industrial structure resulting in new or additional floor area of over 1,500 square feet in the aggregate shall submit six (6) copies of a site plan as described herein to the Town Clerk for Planning Board approval. Failure of the Planning Board to act within twenty-one (21) days of receipt of a site plan shall be deemed lack of opposition thereto.

The following information shall be required by the applicant for site plan review:

1) Locus plan;
2) Location of structures within 200 feet of property lines;
3) Schedule of building permits and special permits
4) Schedule of utility permits
5) Schedule of telecommunications permits
6) Schedule of variances
7) Schedule of commitments to comply with agreements
8) Schedule of agreements to be executed
9) Schedule of easements
10) Schedule of development agreements
11) Schedule of permits and agreements to be executed
12) Schedule of bonds
13) Schedule of performance bonds
14) Schedule of other financial guarantees
15) Schedule of other guarantees
16) Schedule of other agreements
17) Schedule of other commitments
18) Schedule of other documents
19) Schedule of other information
20) Schedule of other data
21) Schedule of other facts.
3)existing and proposed buildings, showing setbacks from property lines;
4)building elevations;
5)parking areas, driveways, and facilities for pedestrian movement
including parking calculations based on current regulations;
6)drainage system;
7)utilities and lighting;
8)landscaping, including trees to be removed and retained;
9)loading and unloading facilities;
10)provisions for refuse removal;
11)drainage calculations and verification of soil types;
12)existing and projected traffic volumes from the site and effect on the local
road network;
13)existing and proposed contour elevations in two (2) five (5)-foot
increments;
14)location of well or public drinking water supply infrastructure;
15)location of wetlands approved by the Conservation Commission;
16)any building over 35,000 cubic feet should be accompanied by engineered
plans drawn by a certified architect as required by the Massachusetts building
code;
17)all information should pertain to existing and proposed;
18)a Stormwater Management Plan consistent with Section 7.2 Water Resources
Protection District;
19)Stormwater Management Plan detailing the Best Management Practices
that will be employed at the site such that stormwater runoff shall
meet the performance standard found in the most current version of the
Massachusetts Department of Environmental Protection’s
Stormwater Management Policy;
20)Sediment and Erosion Control Plan consistent with Section 7.2 Water
Resources Protection District, detailing the location, installation and
maintenance of sediment and erosion.
controls during and after construction. The Plan shall adhere to the standards and specifications found in the Massachusetts Erosion and Sediment Control Guidelines dated March 1997 as amended.

20) Other information as may be necessary to determine compliance with the provisions of this By-Law.

In addition, at least ten (10) days prior to filing a site plan with the Planning Board, an applicant shall submit one copy of the site plan to each of the following boards and officers, together with a request for review and recommendation to the Planning Board pursuant to this section:

1) Police Chief
2) Fire Chief
3) Board of Health
4) Conservation Commission
5) Highway Surveyor
6) Building Department
7) Open Space Committee
8) Board of Selectmen

Said boards and officers shall review the site plan, considering the effects of the proposed use and related construction, and shall make recommendations in writing as they deem appropriate to minimize any detrimental effects of the development on nearby property or on Town Roads or other infrastructure. Failure to make any recommendations to the Planning Board within twenty-one (21) days of receiving the application shall be deemed as lack of opposition thereto.

(Adopted at Special Town Meeting June 11, 2001, approved by Attorney General September 19, 2001)

6.7.3 6.7.3 Procedure-Residential

Applicants for a building permit for new construction of or for modification or addition to any residential structure which will disturb more than 3,000 square feet of ground for which filing of a Notice of Intent with the Lakeville Conservation Commission is not required shall submit three (3) copies of a site plan as described herein the Town Clerk for Planning Board approval. Failure of the Planning Board to act within twenty-one (21) days of receipt of a site plan shall be deemed lack of opposition thereto.

The following information shall be required by the applicant for site plan review:

1) Location plan;
2) Location of structures within 100 feet of property lines;
3) existing and proposed buildings, showing setbacks from property lines;
4) existing and proposed contour elevations in two (2) foot increments;
5) location of well or public drinking water supply including existing and/or proposed connections;
6) location of wetlands approved by the Conservation Commission;
7) a Stormwater Management Plan consistent with Section 7.2 Water Resources Protection District;
8) a Sediment and Erosion Control Plan consistent with Section 7.2 Water Resources Protection District;
9) all information should pertain to existing and proposed;
10) Stormwater Management Plan detailing the Best Management Practices that will be employed at the site such that stormwater runoff shall meet the performance standard found in the most current version of the Massachusetts Department of Environmental Protection’s Stormwater Management Policy;
11) Sediment and Erosion Control Plan detailing the location, installation and maintenance of sediment and erosion controls during and after construction. The Plan shall adhere to the standards and specifications found in the Massachusetts Erosion and Sediment Control Guidelines dated March 1997 as amended;
12) other information as may be necessary to determine compliance with the provisions of this By-Law.

In addition, at least ten (10) days prior to filing a site plan with the Planning Board, an applicant shall submit one copy of the site plan to each of the following boards and officers, together with a request for review and recommendation to the Planning Board pursuant to this section:

1) Police Chief
2) Fire Chief
3) Board of Health
4) Conservation Commission
5) Highway Surveyor
6) Building Department
7) Open Space Committee
8) Board of Selectmen

Said boards and officers shall review the site plan, considering the effects of the proposed use and related construction, and shall make recommendations as they deem appropriate to minimize any detrimental effects of the development on nearby property or on Town Roads or other infrastructure. Failure to make any recommendations to the Planning Board within twenty-one (21) days of receiving the application shall be deemed as lack of opposition thereto.

6.7.4. Peer Review
The applicant may be required to pay for reasonable consulting fees to provide peer review of the Site Plan application, pursuant to G.L. Chapter 44, Section 53G. Such fees shall be held by the Town in a separate account and used only for expenses associated with the review of the application by outside consultants, including by not limited to attorneys, engineers, urban designers, housing consultants, planners, and others. Any surplus remaining after the completion of such review shall be returned to the applicant.

6.7.5 Decision

Final action of the Planning Board shall consist of one of the following:

1) Approval as Submitted: Approval based on a determination that the application complies with the criteria and design performance standards set forth in this section.
2) Approval with Conditions: Approval of the application subject to any reasonable conditions, modifications, and restrictions the Planning Board may deem necessary to ensure the health, safety, and general welfare of the community.
3) Disapproval: A disapproval of the application for the reasons of violations of provisions in the Zoning By-law, or determination that the site plan(s), although proper in form, is so intrusive on the interests of the public in one or more aspects regulated by the Zoning By-law, that no reasonable terms or conditions can be devised to adequately protect the interests of the public.

6.7.6 Appeals

Appeal of the Planning Board’s final action on a site plan review application shall be made to the Zoning Board of Appeals. The Zoning Board of Appeals shall uphold, overturn, or remand the matter to the Planning Board for reconsideration, as applicable.
7.2. Water Resource Protection District (WRPD) Regulations

7.2.1. Purpose and Application

For the purpose of protecting groundwater and other water resources in the Town, there are hereby established water resource protection regulations as part of the Zoning By-Law. These regulations apply throughout the Town.

7.2.2. Scope of Authority

This overlay district shall apply to all new construction, reconstruction, or expansion of existing buildings and new or expanded uses. Uses prohibited in the underlying zoning districts shall be prohibited in the WRPD. These regulations apply throughout the Town.

All uses and dimensional requirements and other provisions of this by-law applicable to land, buildings, and uses in underlying zoning districts shall remain in force and effect, except that where the water resources protection regulations impose greater or additional restrictions and requirements, such restrictions and requirements shall prevail.

7.2.3. Use Regulations

1) Prohibited Uses and Activities

Notwithstanding use regulations for a particular district, the uses listed below are prohibited. Such uses where lawfully existing, may be continued, but may not be expanded or altered without a Special Permit from the Special Permit Granting Authority (SPGA) which for the purpose of this section of the Zoning By-Law is the Planning Board.

a. Outdoor storage of the following substances: salt, snow-melting chemicals, or hazardous substances such as pesticides, herbicides, and water soluble and volatile chemical compounds. This prohibition shall include, without limitation, outdoor storage of materials containing or coated with such chemicals susceptible to being carried into surface or groundwater. (Adopted May 10, 1982).

b. Disposal, use as fill in layers or in bulk, or stockpiling of any fly ash, or any other substance that contains hazardous chemicals or other compounds that are hazardous. (Adopted Special Town Meeting Jun 11, 2001, approved by Attorney General September 19, 2001).
2) **7.4.6 Specific Uses by Special Permit**

In addition to Section 4.1 Table of Use Regulations, the following uses shall require a Special Permit.

a. Conversion of seasonal home or non-residential building for year-round residence.

7.2.4. **Performance and Design Standards for Site Plan Review Activities**

Where an activity lies within the WRPD and requires Site Plan Review pursuant to Section 6.7 of the Zoning By-law, the following standards shall apply.

1) **Sediment and Erosion Control** – At a minimum the Sediment and Erosion Control Plan shall comply with the performance standards of the most recent version of the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials, dated March 1997 as amended, detailing the location, installation and maintenance of sediment and erosion controls during and after construction.

2) **Stormwater Management Criteria** – At a minimum the Stormwater Management Plan shall comply with the performance standards of the most recent version of Massachusetts Stormwater Management Standards (MASWMS). Consistent with MASWMS The following general performance criteria shall be applicable to all Stormwater Management Plans:

   a. **No Untreated Discharges** – All stormwater runoff generated from land development and land use conversion activities shall not discharge untreated stormwater runoff directly to a wetland, local water body, municipal drainage system, or abutting property, without adequate treatment.

   b. **The use of Low Impact Development (LID) measures**, as identified in the MASWMS and as allowable through local regulation, is required to the maximum extent practicable for new development in order to promote recharge, reduce runoff volumes, and minimize reliance on structural stormwater management measures. The Site Design Criteria require that the site planning process shall be documented and shall include the following steps:

      i. ID critical environmental resources;
      ii. Delineate potential building envelopes avoiding environmental resource areas and providing a buffer from regulated resources of at least twenty-five (25) feet; and
      iii. Develop methods to minimize impervious surfaces and document percent of impervious surfaces proposed on-site.
c. Annual groundwater recharge rates should be maintained by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post development site shall approximate the annual recharge from pre-development site conditions.

d. Redevelopment projects shall, at a minimum, reduce the total impervious cover by forty percent (40%) from existing conditions. Where site conditions prevent a reduction in impervious cover, the applicant shall implement stormwater controls for at least forty percent (40%) of the site’s impervious cover; or implement a combination of impervious cover reduction and area treated with stormwater controls that shall equal or exceed forty percent (40%) of the site’s impervious cover.

e. Prior to the start of land disturbance or construction activity, the Town shall require a surety bond irrevocable letter of credit, cash, or other acceptable security, when deemed appropriate. The form of the surety shall be approved by the Town Treasurer, and be in an amount deemed sufficient by the Planning Board to ensure that the work will be completed in accordance with these regulations. The bond shall be released after demonstration of the following:

   i. Adequate construction inspection;
   ii. 1 year after acceptance of construction the applicant shall submit a final inspection;
   iii. upon adequate inspection and acceptance of road, surety bond is released.

7.2.5. Performance and Design Standards for Special Permit Activities

1) Onsite Septic Systems – Onsite septic systems must be in full compliance with 310 CMR 15.000 and, where local regulations may be more stringent, compliance is required with those provisions.

2) Where lots are to be serviced by on-site drinking water wells and on-site septic systems:

   a. Wastewater flow rates shall not exceed three hundred thirty (330) gallons per day for every forty thousand (40,000) square feet of land on the site. Where nitrogen reducing technology is used for the on-site septic system, design flow calculations shall not exceed four hundred forty (440) gallons per day for every forty thousand (40,000) square feet of land. All nitrogen reducing technology must be approved by Massachusetts Department of Environmental Protection for General Use, as identified in the ‘Summary of Innovative/Alternative Technologies Approved for Use in Massachusetts and Under Review.’
3) Where activities take place within a Zone C contributing area as defined by DEP, the following standards shall apply:

a. The horizontal distance from the pond to the leaching field added to the vertical distance of the leaching field to the seasonal high ground water level shall exceed two hundred (200) feet where feasible. Where this level of separation is not feasible due to the location of existing structures or the proximity of a lot to surface water resources, the applicant shall site the leach field as far from the surface water resource as possible. Repair or replacement of failed septic systems that do not include an increase in design flow shall be exempt from this requirement.

b. The orientation of the leaching trenches shall be perpendicular to the direction of groundwater flow to maximize phosphorus retention. For the purposes of this ordinance, the direction of groundwater flow is presumed to be perpendicular to the edge of the nearest surface water resource unless an applicant demonstrates that the flow direction is different through the use of groundwater elevations recorded using at least three on-site wells.
Conversion of seasonal home or non-residential building for year-round residence

SPGA - Board of Appeals; Residential, Business Districts

Subject to Board of Health approval, the applicant must demonstrate compliance with the State Environmental Code, Title 5.

In addition to the requirements listed in Section 7.4.2 of the Zoning By-law, the applicant shall provide a septic system design plan for the existing or proposed system that includes:

- Separation from seasonal high groundwater;
- Orientation of septic leach field to groundwater flow;
- Calculation of combined horizontal and vertical distance of leach field to seasonal high water mark of surface water body;
- Setback to onsite and adjacent drinking water wells;
- Approximate location of wastewater facilities on adjacent properties; and
- Proposed grading (2 ft contours).

Subject to Board of Health approval, must demonstrate adequacy of water supply, sewage disposal, and indoor and outdoor space without overloading the capacity of land or endangering water quality. Lot size, as well as soils and topography, shall be considered, and engineering analysis may be required. Conditions and limitations may be imposed on the number of occupants and other use characteristics for the protection of the residents, the neighborhood and the environments.

(Adopted May 12, 1980)
TO: Lakeville Zoning Steering Committee
FROM: Nathan Kelly, Senior Planner, Horsley Witten Group, Inc.
DATE: September 23, 2010
RE: Proposed Subdivision Rules and Regulations Revisions, Town of Lakeville

The Horsley Witten Group (HW), as part of Phase 2 of Taunton River Watershed Management Plan, has developed the following recommendations for revisions to the Town of Lakeville’s Subdivision Rules and Regulations. These recommendations have been developed jointly with recommended amendments to the Lakeville Zoning Bylaw and regulations, which are presented in a separate memorandum, also dated September 27, 2010. These recommendations were developed to improve the water resource protection and management in concert with the conclusions of Phase 1 of the watershed management plan (www.horsleywitten.com/tauntonwatershed). In general, the Phase 1 report concluded that improved regulations were needed to promote low impact development (LID), and to improve wastewater and stormwater management in order to keep water local and recharge local water sources while improving water quality treatment. The specific subdivision rules and regulations recommendations presented below are intended to improve the stormwater management techniques in subdivisions in Lakeville. This was one of four particular concerns identified by the Lakeville Zoning Steering Committee, which are:

1. Peer review of site plans by professional engineers;
2. Enforcement mechanisms for stormwater facilities;
3. Enhanced stormwater management techniques; and
4. Redevelopment permitting in lakeside housing developments.

HW has developed a number of recommended changes to the Town of Lakeville Planning Board Subdivision Rules and Regulations. These are described in summary below. A document identifying specific changes to the Subdivision Rules and Regulations text is also provided as an attachment, both in hard copy and electronically, for your use. In that document, text highlighted in grey represents suggested additions or deletions to the existing Subdivision Rules and Regulations. Text labeled “Commentary” that is also highlighted in grey identifies commentary to the proposed amendments.

SUMMARY OF RECOMMENDED AMENDMENTS

A number of recommended revisions and additions to the Subdivision Rules and Recommendations have been developed by HW, with the overall goal of strengthening and clarifying the stormwater management requirements to reflect the current knowledge and science of stormwater best management practices. These recommendations will help ensure that new
subdivisions in Lakeville will be designed to mitigate stormwater impacts to groundwater, surface water and wetlands with improved practices and techniques. Water quality in stormwater discharges from these sites will be improved, and the volume and peak flows of discharges will be better managed to mitigate downstream impacts. Low impact development (LID) techniques will be fostered under these recommendations rather than overlooked or in some cases prohibited as they are under the current Subdivision Rules and Regulations. The specific recommendations are summarized here:

- Basic terminology has been updated so that the words “drain” and “drainage” are replaced with “stormwater” where appropriate. This reflects an evolution in stormwater management from the earlier goal of simply conveying runoff from a property as quickly as possible to managing runoff in a way that provides water quality treatment, infiltration, peak flow attenuation and volume reduction.

- An addition was made to the Purpose Section to incorporate better stormwater management into the overall goal of the Subdivision Rules and Regulations.

- Several definitions have been added, including Stormwater Management Plan, Stormwater Management Standards, Best Management Practices, and Low Impact Development.

- More detailed standards and submittal requirements were added for erosion and sedimentation control during construction and ongoing operation and maintenance of stormwater management practices once they are constructed. These requirements create consistency with the Massachusetts Stormwater Standards.
# Subdivision Rules and Regulations

## Table of Contents

### Section 1

A. Authority ...............................................................................................................4  
B. Reference .............................................................................................................4  
C. Purpose ..................................................................................................................4  

### Section II — General

A. Definitions .............................................................................................................5  
B. Approved Plan Required .....................................................................................12  
C. Source of Information Required ..........................................................................12  
D. More than One Building for Dwelling Purposes on Lot .....................................12  
E. Fees and Costs ......................................................................................................12  
F. Payment ...............................................................................................................13  

### Section III — Procedure for Submission and Approval of Plans

A. Plan Believed Not to Require Approval .................................................................13  
   1. Submission of Plan ..........................................................................................13  
   2. Contents .........................................................................................................14  
   3. Endorsement of Plan Not Requiring Approval .................................................15  
   4. Determination that Plan Requires Approval .....................................................15  
   5. Failure of Board to Act ....................................................................................16  
B. Preliminary Plan .....................................................................................................16  
   1. Submission of a Preliminary Plan ....................................................................16  
   2. Contents .........................................................................................................17  
   3. Approval .........................................................................................................18
C. Definitive Plan ................................................................. 19
   1. Submission of a Definitive Plan ........................................ 19
   2. Contents ........................................................................... 20
D. Soil Survey and Percolation Tests ........................................ 25
E. Review by Town Officials .................................................. 25
   1. Review by Board of Health as to the Suitability of the Land .... 25
   2. Review by Other Town Officials ........................................ 25
F. Public Hearing ....................................................................... 26
G. Planning Board Procedure ................................................ 27
H. Performance Guarantee ...................................................... 27
   1. Final Approval with Covenant .......................................... 28
   2. Final Approval with Bonds or Surety .................................. 28
I. Approval or Disapproval ..................................................... 28
   1. Time for Completion ....................................................... 29
   2. Endorsement ...................................................................... 30
J. Recording ............................................................................... 30
K. Release of Performance Guarantee ..................................... 31
L. As Built Plan ......................................................................... 31

SECTION IV – DESIGN AND CONSTRUCTION STANDARDS

A. General .................................................................................. 32
B. Streets and Roadways ............................................................ 34
   1. Location .............................................................................. 34
   2. Alignment ........................................................................... 34
   3. Width .................................................................................. 35
   4. Grade .................................................................................. 36
   5. Dead-End Streets .............................................................. 36
   6. Roadway Construction ....................................................... 37
   7. Curbs and Berms ............................................................... 40
8. Curb Cuts .................................................................41
9. Sidewalks........................................................................41
10. Embankments...............................................................42

C. Utilities........................................................................42
1. Excavation ....................................................................42
2. Installation ....................................................................42
3. Sewage Disposal .........................................................44
4. Extension of Utilities .....................................................44

D. Drainage and Runoff Control.................................................44
1. General Requirements .................................................44
2. Procedure ....................................................................45
3. Final Approval.............................................................47
4. Lot Drainage....................................................................47
5. Construction....................................................................47

E. Open Space.......................................................................48

F. Easements.......................................................................49

G. Monuments.....................................................................49

H. Street Signs and Names......................................................50

I. Street Lights.....................................................................50

J. Utility Poles.......................................................................51

K. Trees ...............................................................................51

L. Protection of Natural Features...........................................52

M. Maintenance of Improvements..........................................52

N. Erosion and Sedimentation...............................................53
1. General Requirements .................................................53
2. Procedure ....................................................................53

SECTION V – ADMINISTRATION

A. Variation........................................................................54
B. Reference...........................................................................................................................54
C. Building Permit...................................................................................................................54
D. Inspection Notices..............................................................................................................55
E. Validity................................................................................................................................56

FIGURE A, ROADWAY CROSS SECTION..............................................................................57
TOWN OF LAKEVILLE
RULES AND REGULATIONS OF THE PLANNING BOARD
GOVERNING THE SUBDIVISION OF LAND

SECTION I

A. Authority

Under the authority vested in the Planning Board of the Town of Lakeville by Section 81-Q of Chapter 41 of the Massachusetts General Laws, said Board hereby adopts these Rules and Regulations governing the subdivision of land in the Town of Lakeville.

B. References

The attention of all applicants submitting a plan for approval under these Rules and Regulations is directed to the provisions of the Coastal Wetlands Act (Chapter 130, Section 105), and of the Wetland Protection Act (Chapter 131, Section 40), and to all of the Massachusetts General Laws. Compliance with the requirements of the aforementioned provisions may necessitate major or minor changes in any plan submitted to the Board.

C. Purpose

These subdivision Rules and Regulations are enacted for the purpose of protecting the safety, convenience, and welfare of the inhabitants of Lakeville, put in effect by regulating the laying out and construction of ways in subdivisions providing access to the several lots therein, but which have not become public ways, and
ensuring sanitary conditions in subdivisions and in proper cases parks and open areas. The powers of the Planning Board and of the Board of Appeals under the Subdivision Control Law shall be exercised with due regard for the provision of adequate access to all of the lots in a subdivision by ways that will be safe and convenient for travel; for lessening congestion in such ways and in the adjacent public ways; for reducing danger to life and limb in the operation of motor vehicles; for securing safety in the case of fire, flood, panic and other emergencies; for ensuring compliance with the applicable zoning ordinances or by-laws; for promoting high quality, appropriate design and construction of subdivisions that are laid out to preserve the natural features of the site, to avoid areas of environmental constraints, to minimize negative impacts and alteration of natural and manmade features, and to avoid unnecessary impervious cover; for securing adequate provision for water, sewerage, drainage, underground utility services, fire, police, and other similar municipal equipment, and street lighting and other requirements where necessary in a subdivision; and for coordinating the ways in a subdivision with each other and with the public ways in Lakeville and with the ways in neighboring subdivisions. It is the intent of the Subdivision Control Law that any subdivision plan filed with the Planning Board shall receive the approval of such Board if said plan conforms to the recommendation of the Board of Health and to the reasonable Rules and Regulations of the Planning Board pertaining to subdivisions of land; provided, however, that such board may, when appropriate, waive, as provided for in Section eighty-one R, such portions of the Rules and Regulations as is deemed advisable. (Taken from Section 81-M of Chapter 41, M.G.L.)

Commentary: Added text to the purpose to encourage LID site design practices.

SECTION II – GENERAL

A. Definitions
APPLICANT

A person who applies for the approval of a plan of a subdivision. “Applicant” refers to “an owner or his agent or representative, or his assigns”. (Section 81-L of Chapter 41, M.G.L)

BASE FLOOD ELEVATION

The “Base Flood Elevation” shall be the level of flooding having a one percent chance of being equaled or exceeded in any given year, as designated on Federal Insurance Administration (FIA) maps, or, in the absence of such designation, to be determined by the Planning Board based upon the best available information regarding flood hazards, including any available United States Geologic Survey, Soil Conservation Service, and Corp of Engineers studies.

BEST MANAGEMENT PRACTICES (BMPs)

Control measures taken to mitigate changes to both the quantity and quality of stormwater runoff. BMPs are designed to reduce stormwater pollution, volume, and/or peak flows through a variety of pathways including filtration, vegetative uptake, microbial breakdown, infiltration, evapotranspiration, and detention. Acceptable BMPs and associated design criteria are found in the Massachusetts Stormwater Management Standards.
**Commentary: Consider adding definition for BMPs.**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOARD</td>
<td>The Planning Board of the Town of Lakeville.</td>
</tr>
<tr>
<td>CERTIFIED BY</td>
<td>“Certified by (or endorsed by) the Planning Board”, as applied to a plan or other instrument required or authorized by the subdivision control law to be recorded, shall mean bearing a certification or endorsement signed by a majority of members of the Planning Board. (Section 81-L of Chapter 41, M.G.L.)</td>
</tr>
<tr>
<td>DESIGNER</td>
<td>Professional Civil Engineer or Land Surveyor registered to practice in Massachusetts. All work defined as professional engineering or surveying shall be done under the direct supervision of a Registered Professional Engineer or Surveyor.</td>
</tr>
<tr>
<td>DEVELOPER</td>
<td>A person (as hereinafter defined) who develops under a plan of a subdivision approved under Section III of these Rules and Regulations.</td>
</tr>
<tr>
<td>EASEMENT</td>
<td>A right acquired by public authority or other person to use or control property for a utility or other designated public purpose.</td>
</tr>
<tr>
<td><strong>LOT</strong></td>
<td>An area of land in one ownership, with definite boundaries, used, or available for use, as the site of one or more buildings. (Section 81-L of Chapter 41, M.G.L.)</td>
</tr>
<tr>
<td><strong>LOW IMPACT DEVELOPMENT (LID)</strong></td>
<td>Low impact development is a site planning and design strategy intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small-scale practices integrated throughout the site to prevent, infiltrate and manage runoff as close to its source as possible.</td>
</tr>
<tr>
<td><strong>MONUMENT</strong></td>
<td>A permanent marker to indicate a boundary.</td>
</tr>
<tr>
<td><strong>MUNICIPAL SERVICES</strong></td>
<td>Sewers, water drains, water pipes, gas pipes, electrical lines, telephone lines, fire alarm systems, and their respective appurtenances.</td>
</tr>
<tr>
<td><strong>OWNER</strong></td>
<td>The person holding the ultimate fee simple title to a parcel, tract or lot of land, as shown by the record in the Land Registration Office, Registry of Deeds, or Registry of Probate.</td>
</tr>
<tr>
<td><strong>PERSON</strong></td>
<td>An individual, or two or more individuals, or a group or association of individuals, a partnership, trust or corporation having</td>
</tr>
</tbody>
</table>
common or undivided interests in a tract of land.

PLAN, PRELIMINARY
A plan of a proposed subdivision or re-subdivision of land prepared in accord with Section III to facilitate proper preparation of a definitive plan.

PLAN, DEFINITIVE
The plan of a subdivision as submitted (with appropriate application) to the Board for approval, to be recorded in the Registry of Deeds or filed with the Land Court when approved by the Board, and such plan when approved and recorded; all as distinguished from a preliminary plan.

PLANNING BOARD AGENT
Town employee or consultant authorized by the Planning Board to review subdivisions and administer the regulations.

RECORDED
“Recorded” shall mean recorded in the Registry of Deeds of Plymouth County, except that as affecting registered land, it shall mean filed with the Recorder of the Land Court. (Section 81-L of Chapter 41, M.G.L)

ROADWAY
The portion of a street intended for vehicular travel.
### STORMWATER MANAGEMENT PLAN

Plan describing the proposed methods and measures to prevent or minimize water quality and quantity impacts associated with a development project both during and after construction. It identifies selected LID source controls and treatment practices to address those potential impacts, the engineering design of the treatment practices, and maintenance requirements for proper performance of the selected practices.

**Commentary:** Consider adding definition for stormwater management plan.

### STORMWATER MANAGEMENT STANDARDS

The ten (10) management standards established by the Massachusetts Department of Environmental Protection, and adopted by the Town of Lakeville, to address water quality (pollutants) and water quantity (flooding, low base flow, and recharge) by requiring the implementation of a wide variety of stormwater management strategies, including low impact design techniques.

**Commentary:** The discussion at the hearing suggested inserting the “name” of each of these 10 standards. Unfortunately, upon further review, the MA Standards do not have names or titles and it was decided that inserting the full language for each of the ten standards would be too unwieldy.
<table>
<thead>
<tr>
<th><strong>STREET, DEAD-END</strong></th>
<th>A segment of a street, which only intersects another street at one end.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STREET, MAJOR</strong></td>
<td>A street which, in the opinion of the Board is being used or will be used as a thoroughfare within the Town of Lakeville or which will otherwise carry a heavy volume of traffic (generally, over fifteen hundred (1500) vehicles per day). In residential areas volume per day shall be computed at the rate of ten (10) trips per dwelling.</td>
</tr>
<tr>
<td><strong>STREET, MINOR</strong></td>
<td>A street which, in the opinion of the Board, is being or will be used primarily, to provide access to abutting lots and which will not be used for through traffic.</td>
</tr>
<tr>
<td><strong>STREET, PRIMARY</strong></td>
<td>A street which connects two existing major streets.</td>
</tr>
<tr>
<td><strong>STREET, SECONDARY</strong></td>
<td>A street intercepting one (1) or more minor streets and which, in the opinion of the Board, is used or will be used to carry a substantial volume of traffic (generally, over four hundred (400) vehicles per day) from such minor street(s) to a major street or community facility, and normally including a principal entrance street to a shopping center, industrial park, planned unit</td>
</tr>
</tbody>
</table>
development, or a large subdivision or group of subdivisions, and any principal circulation street within such subdivisions. In residential areas volume per day shall be computed at the rate of ten (10) trips per dwelling day.

**SUBDIVISION**

“Subdivision” shall mean the division of a tract of land into two or more lots and shall include re-subdivision, and, when appropriate to the context, shall relate to the process of subdivision or the land or territory subdivided; provided, however, that the division of a tract of land into two or more lots shall not be deemed to constitute a subdivision within the meaning of the subdivision control law if, at the time when it is made, every lot within the tract so divided has frontage on (a) a public way or a way which the Town Clerk certifies is maintained and used as a public way, or (b) a way shown on a plan theretofore approved and endorsed in accordance with the subdivision control law, or (c) a way in existence when the subdivision control law became effective in Lakeville, having, in the opinion of the Planning Board, sufficient width, suitable grades, and adequate construction to provide for the needs of vehicular traffic in relation to the proposed
use of the land abutting thereon or served thereby, and for the installation of municipal services to serve such land and the buildings erected or to be erected thereon. Such frontage shall be of at least such distance as is then required by zoning by-law, for erection of a building on such lot. Conveyances or other instruments adding to, taking away from, or changing the size and shape of, lots in such a manner as not to leave any lot so affected without the frontage above set forth, or the division of a tract of land on which two or more buildings were standing when the subdivision control law went into effect in Lakeville into separate lots on each of which one of such buildings remains standing, shall not constitute a subdivision. (Section 81-L of Chapter 41, M.G.L.)

SUBDIVISION CONTROL

“Subdivision control” shall mean the power of regulating the subdivision of land granted by the Subdivision Control Law, Chapter 41, Section 81-A through GG inclusive as hereinafter amended.

TOWN

Town of Lakeville

WAY

A way is synonymous with the terms road, street, highway, and avenue, and shall
denote any such line or route for passage, whether public or private.

B. **Approved Plan Required**

No person shall make a subdivision within the meaning of the Subdivision Control Law of any land within the Town, or proceed with the improvement for sale of lots in a subdivision, or the construction of ways, or preparation therefore or the installation of utilities and municipal services therein, unless and until a Definitive Plan of such subdivision has been submitted and approved by the Planning Board as hereinafter provided.

C. **Source of Information Required**

In those cases in which the land shown on the plan is abutted by land of an owner not the owner of the land as shown, the Board may require a statement from the person who prepared the plan as to the source or sources of the information about the location of boundaries. A separate form for such statement will be furnished by the Board, see Form D, Designer’s Certificate.

D. **More Than One Building for Dwelling Purposes on Lot**

Not more than one (1) building designed or available for use for dwelling purposes shall be erected or placed or converted to use as such on any lot in a subdivision or elsewhere in the Town without the consent of the Board. Such consent may be conditional upon the providing of adequate ways furnishing access to each site for such building in the same manner as otherwise required for lots within a subdivision. (Section 81-Q of Chapter 41 M.G.L.)

E. **Fees and Costs**
1. **Filing Fees.** The minimum filing fee shall be as follows:
   - Form A Subdivision - Approval not required $100.00 per lot.
   - Form B Preliminary Plan - $100.00 per plan.
   - Form C Definitive Plan $700.00 + $100.00 per lot. **
   - Form C Definitive Plan Following Submission of Form B at least 30 days Prior to that of Form C - $500.00 + $100.00 per lot **
   - Repeat Petitions - $100.00 **
   - Changes - $100.00 each
   - Engineering Review Fee - $2,000.00 + $50.00/lot min **
   - Inspection Fees - $4.00/Lineal Feet of Road

   Retainer Fee – at completion of road (Release of Covenant pursuant to Section H-1) a retainer Fee of $15.00 per lineal foot or road shall be held through Bond or Passbook with Town Treasurer until such time as the Town accepts the roadway.

   No newly constructed way shall be eligible for Town acceptance for a period of two full years from the time of Release of Covenant and shall then be presented at the next Town Meeting.
   - Site Plan Review - $1,000.00 **

   * The cost of all engineering review and subsequent fees as determined by the applicant.
   ** The cost of advertising and mailings for public notifications will be borne by the applicant.

2. **Consultant Fees.** The fees of any professional consultants engaged by the Board to evaluate and provide information on subdivisions shall be borne by the applicant pursuant to M.G.L. Chapter 44 Section 53G.

3. **Other Costs and Expenses.** Costs incurred by the Planning Board for sending notices to abutters by Certified Mail shall be borne by the applicant. All other
expenses including, without limitation, recording fees and filing fees for
documents, and costs for sampling and/or testing required by the Board or its
agent shall be paid solely by the applicant.

F. Payment

All applications shall be accompanied by a check payable to the order of the
Town of Lakeville.

SECTION III – PROCEDURE FOR SUBMISSION AND APPROVAL OF PLANS

A. Plan Believed Not to Require Approval

1. Submission of Plan. Any person who wishes to cause to be recorded in the
Registry of Deeds or to be filed with the Land Court a plan of land and who
believes that his plan does not require approval under the Subdivision Control
Law may submit his plan and five (5) contact prints thereof and two (2) copies
of a properly executed Form A Application to the Planning Board
accompanied by the necessary evidence to show that the plan does not require
approval. Said person shall file, by delivery or registered mail, a notice with
the Town Clerk stating the date of submission to the Board for such
determination accompanied by a copy of said application and describing the
land to which the plan relates sufficiently for identification. If the notice is
given by delivery, the Town Clerk shall, if requested, give written receipt
therefore. Any plan determined to not completely satisfy Section III, A-2,
Contents, may be deemed not to have been submitted. Such plan may be
returned to the applicant, and a notice of the Planning Board’s determination
sent to the Town Clerk. When brought into conformity with the requirements
of Section III, A-2, such plan may be re-submitted and will be considered
without prejudice.
2. **Contents.** Said plan shall be legibly drawn in accordance with the Rules and Regulations of the Registry of Deeds, Chapter 36, Section 13A as amended pertaining to plan size, material, lettering and related requirements. The plan scale shall preferably be forty feet (40’) to the inch or such other scale as the Board may accept and may contain the following:

*Commentary: Consider moving the required contents to a checklist at the end of the regulations.*

a) Identification of the plan by name of owner of record and location of the land in question; the numbers of Lakeville assessors’ maps on which the land is located; the scale, north point, and date; and the name, signature, and stamp of a registered land surveyor.

b) The statement “Approval Under Subdivision Control Law Not Required” and sufficient space for the date and the signatures of all members of the Board in the lower right-hand corner of the plan.

c) Zoning classification; the location of any Zoning District Boundaries that may lie within the locus of the plan; and the applicable minimum front, side, and rear lot depths as required by the Zoning By-Laws.

d) In the case of the creation of a new lot, the remaining land area and frontage of the land in the ownership of the applicant shall be shown.

e) Notice of any decisions by the Zoning Board of Appeals, including but not limited to variances and exceptions, regarding the land or any buildings thereon.
f) Names of abutters from the most recent local tax list unless the applicant has knowledge of any changes subsequent to the latest available Assessor’s records.

g) Names and status (private or public) streets and ways shown on the plan.

h) Bearings and distances of all lines of the lot or lots shown on the plan.

i) Location of all existing buildings, wells, and septic tanks.

j) Location of all bounds, brooks, fences, and walls.

k) Locus map at one thousand (1,000) feet to the inch.

l) Area of land satisfying lot area requirements.

m) All wetlands areas shall be shown.

n) Upland circle as defined 5.1.2 of the Lakeville Town By-laws.

3. **Endorsement of Plan Not Requiring Approval.** If the Board determines that the plan does not require approval, it shall without a public hearing and within fourteen (14) days of submission endorse the plan.

   The Board may add to such endorsement a statement of the reason approval is not required. The original plan shall be returned to the applicant, and the Board shall also notify the Town Clerk in writing of its action.

4. **Determination that Plan Requires Approval.** If the Board determines that the plan does require approval under the Subdivision Control Law, it shall, within
fourteen (14) days of submission of the plan, so inform the applicant in writing and return the plan. The Board shall also notify the Town Clerk in writing of its action.

5. **Failure of Board to Act.** If the Board fails to act upon a plan submitted under this section or fails to notify the Town Clerk and the person submitting the plan of its action within fourteen (14) days after its submission, it shall be deemed to have determined that approval under the Subdivision Control Law is not required, and it shall forthwith make such endorsement on said plan, and on its failure to do so forthwith, the Town Clerk shall issue a certificate to the same effect.

B. **Preliminary Plan**

1. **Submission of a Preliminary Plan.** A Preliminary Plan of a subdivision may be submitted by the applicant and two (2) prints of it shall be filed with the Planning Board, and one (1) print shall be filed with each the Conservation Commission, the Board of Health, the Highway Department, Open Space Committee, the Building Department, the Fire Department, and the Board of Selectmen. The submission of such a Preliminary Plan will enable Town agencies and owners of property abutting the subdivision to discuss and clarify the details of such subdivision before a Definitive Plan is prepared. Therefore, it is strongly recommended that a Preliminary Plan be filed in each case.

A properly executed application Form B shall be filed with the Preliminary Plans submitted to the Planning Board. The applicant shall file by delivery or registered or certified mail a notice with the Town Clerk stating the date of submission for such approval of a Preliminary Plan accompanied by a copy of a properly executed application Form B. Any plan determined not to
completely satisfy Section III, B-2, Contents, may be deemed not to have been submitted. Such plan may be returned to the applicant, and a notice of the Planning Board’s determination sent to the Town Clerk. When brought in to conformity with the requirements of Section III, B-2, Contents, such plan may be resubmitted and will be considered without prejudice.

2. Contents. The Preliminary Plan shall be drawn on tracing paper with pencil at a suitable scale, preferably forty feet (40’) to the inch. The Plan shall be designated as a “Preliminary Plan” and to form a clear basis for discussion of the details of the subdivision and for preparation of the Definitive Plan, the plan may contain the following:

Commentary: Consider moving the required contents to a checklist at the end of the regulations.

a) The subdivision name, if any, boundaries, north point, date, scale legend and title “Preliminary Plan”.

b) The locus of the land shown on the plan at a scale of no smaller than 1:25,000 with sufficient information to accurately locate the plan.

d) The names and addresses of the record owner of the land and the subdivider and the name and address of the designer, engineer or surveyor who made the plan, which shall appear in the lower right-hand corner.

d) The names of all abutters, as determined from the last assessment, unless the applicant shall have more recent knowledge of such abutters (See Form E, Certified List of Abutters).

e) The existing and proposed lines of streets, ways, easements and any public or common areas with the subdivision, in a general manner.
f) Major features of the land such as existing walls, fences, monuments, buildings, single freestanding large trees, wooded areas, outcroppings, swamps, wetlands, water bodies, steep slopes (>15%), and natural waterways, drainage ditches.

Commentary: Consider adding steep slopes to existing constraints plan to help identify the most appropriate building envelopes.

g) The proposed system of sewage disposal and water installation and drainage, including adjacent existing natural waterways in a general manner.

h) The proposed stormwater management system to meet the Massachusetts Stormwater Management Standards in a general manner, including preliminary selection and sizing of best management practices (BMPs) and low impact design (LID) techniques.

Commentary: Consider adding separate line item for stormwater to emphasize importance.

i) The approximate boundary lines of proposed lots, with approximate areas and dimensions.

j) The names, approximate locations and widths of adjacent streets, or streets approaching or within reasonable proximity of the subdivision.

k) Existing and proposed topography in a general manner.

l) The proposed names of the proposed streets and a number on each lot on each proposed street.

m) The profiles of existing grades and approximate proposed finished grades of the roadway, and drain stormwater and sewer utilities.
n) Area of adjoining land and water of the applicant not presently being subdivided.

o) The zoning classification of land shown on the plan and the location of any zoning district boundaries.

3. **Approval.** The Planning Board may give such Preliminary Plan approval, within forty-five (45) days after submission, with or without modification or suggestion, after the Board’s review with the Conservation Commission, the Board of Health, the Highway Department, the Fire Department, and the Board of Selectmen. Such approval does not constitute approval of the subdivision but facilitates the preparation of the Definitive Plan and the securance of final approval thereof. One (1) copy of the Preliminary Plan will be returned to the applicant. In the event of disapproval, the Planning Board shall state the reasons for its disapproval in accord with Section 81-U of Chapter 41. Approval shall be effective for seven (7) months from the date of plan submittal or until a Definitive Plan evolving from the Preliminary Plan is filed, whichever comes first.

C. **Definitive Plan**

1. **Submission of a Definitive Plan.** Any person who submits a Definitive Plan of a subdivision to the Planning Board for approval shall file with the Board the following (all items required in paragraphs 1 and 2 of this section shall be submitted for a Definitive Plan to be “dually submitted” in accord with the General Laws of Massachusetts):
a) An original drawing of the Definitive Plan and five (5) contact prints thereof, dark line on white background. The original drawing will be returned after approval or disapproval.

b) A properly executed application Form C, Application for Approval of a Definitive Plan, including the time within which the public utilities in the subdivision shall be provided; Form D, Designer’s Certificate; and Form E Certified List of Abutters. Approval of all plans shall be upon the condition that all ways shown thereon and public utilities required by the Board shall be completed and installed within the time so specified.

c) The appropriate filing fee as specified in Section II, E (Fees and Costs) of these Rules and Regulations.

d) The applicant shall file by delivery or registered or certified mail a notice with the Town Clerk stating the date of submission for such approval and accompanied by a copy of the completed Application for approval of Definitive Plan (Form C).

2. Contents. The Definitive Plan shall be prepared by a professional engineer and land surveyor registered in Massachusetts and shall be clearly and legibly drawn in black India ink upon tracing cloth. The plan shall be at a scale of one inch (1”) equals forty feet (40’), or such other scale as the Planning Board may accept to show details clearly and adequately, and shall include plans and profiles of each individual street at a scale of one inch (1”) equals forty feet (40’) horizontal and one inch (1”) equals four feet (4’) vertical. All elevations shall refer to the U.S.C. and G. Datum. Sheet sizes shall be twenty-four by thirty-six inches (24” x 36”) including a three quarter inch (3/4”) border. All plans shall be accompanied by a sheet showing the entire subdivision and
adjacent streets and dimensions of the lots and streets and lot numbers. The Definitive Plan shall contain the following information:

**Commentary:** Consider moving the required contents to a checklist at the end of the regulations.

a) A title, appearing in the lower right-hand corner of the plan, showing the name of the subdivision, if any; the date; scale; the names and addresses of the applicant; and the names of the designer, engineer and surveyor who made the plan.

b) North point, benchmark, and boundaries of the subdivision.

c) Location and ownership of abutting property as it appears on Form E, Certified List of Abutters unless the applicant shall have more recent knowledge of such abutters, including all abutting land owned by the applicant not presently being subdivided and all other land within five hundred feet (500’) of the boundaries of the land shown in the subdivision. Costs incurred by the Planning Board for sending notice to abutters by Certified mail shall be borne by the applicant.

d) Major features of the land, such as existing waterways, swamps, all wetlands and water bodies, natural drainage courses, wall fences, buildings, historic markers, milestones, bridges, clearly defined trails, large trees, wooded areas, outcroppings, steep slopes (>15%), and ditches which exist on or near the site at the time of survey.

**Commentary:** Consider adding steep slopes to existing constraints plan to help identify the most appropriate building envelopes.

e) Lines of existing and proposed streets, ways, lots, lot numbers, or other designation of each lot, easements, and public or common areas within the
subdivision. (The proposed names and numbers of proposed streets and lots shall be shown in pencil until they have been approved by the Planning Board.)

f) Existing wells, septic systems, and buildings on the property and within one hundred feet (100’) of the property line.

g) Sufficient data to determine the location, direction, and length of every street and way line, lot line and boundary line, and to establish these lines on the ground. This shall include the lengths and bearings of plan and boundary lines of all subdivision lot lines including lot frontage on the streets, of the boundary lines of all streets and easements, and the lengths, radii, tangents, and central angles of all curves in lot lines and street lines. All angle points, or intersections of tangents along the street lines, shall be shown, areas of lots with lot numbers and the area and frontage on public ways as set forth in Section 81-L of Chapter 41, M.G.L. of adjoining lands of the applicant not included in the subdivision will be shown.

h) Location of all permanent monuments properly identified as to whether existing or proposed.

i) Location, names and present widths of streets or private ways bounding, approaching or within reasonable proximity of the subdivision, showing both roadway widths and rights-of-way widths.

j) The zoning district classification of land shown on the plan, the location of any zoning district boundaries that lie within the locus of the plan, and the applicable minimum front, side and rear yard depths for each lot as is required by the Zoning By-laws. The existing and proposed location of the
Base Flood Elevation (see definition) if encountered within, or within 100 feet (100’) of, the subdivision.

k) Location of the line of building setback required by zoning.

l) Indication of all easements, covenants or restrictions applying to the land and their purposes, whether or not within the subdivision, including any decision on appeal or any variances or exceptions made by the Zoning Board of Appeals applicable to the subdivision of the land or any building thereon.

m) If the property that comprises the subdivision or any part or boundary thereof has been examined, approved, and confirmed by the Massachusetts Land Court, such information shall be noted on the plot with case numbers and other pertinent references to Land Court Procedure, and the same requirement shall apply to any adjoining parcels of land of the applicant.

n) Suitable space to record the action of the Planning Board and the signatures of the five (5) members of the Planning Board. Items n. thru u. may be submitted on the same sheet as the Definitive Plan or on separate sheets.

o) Proposed layout (including plans and profiles) of street construction, storm drainage, water supply and sewage disposal systems, including grades.

p) Existing roadway profiles on the exterior lines drawn in fine black line, dotted for left and dashed for right side, and proposed profile of the finished center-line drawn in fine black solid line of proposed streets at a horizontal scale of one inch (1”) equals four feet (4’) or such other scales acceptable to the Planning Board. At least two (2) bench marks are to be
shown on plans and profiles, and grade elevations at every 50 foot (50’) station except in vertical station. All existing and proposed intersections, sidewalks and probable location of driveways on lots that abut intersections, shall be shown with all proposed grade elevations calculated. Elevations are to be referred to as either mean sea level or zero equals mean low water as established by the Coast and Geodetic Survey. Gradient shall be shown by figures expressed in percent.

q) Existing and proposed topography at five foot (5’) contour intervals. The Board may require additional information on abutting land, whenever it is deemed necessary, to ensure compatibility of grades and drainage. Reference benchmarks must be identified.

r) The relative error of closure shall be acceptable to Massachusetts Land Court standards. A signed statement to this effect by the surveyor shall appear on the tracing cloth original. A copy of the traverse notes shall be furnished the Board upon request.

s) Location and results of soil, percolation, and water table tests.

t) Drainage Stormwater management design. Existing drainage characteristics of the general area of the proposed subdivision and the effect of the proposed use and any proposed stormwater drainage facilities on the existing drainage characteristics shall be included with the plan. A stormwater management drainage plan shall be prepared by a Registered Professional Engineer showing the proposed stormwater management system that meets the Massachusetts Stormwater Management Standards. The plan should show existing and proposed streets, lots, five foot (5’) contours, and other pertinent data; the drainage limits and acreage of the area tributary to each stormwater inlet and culvert, location and type of
inlets proposed; and location, size, length, invert elevations and slope of proposed stormwater pipes, drains, and culverts, structural details of inlets, manholes, pipe, headwalls, and all other stormwater BMPs, drainage structures required to complete the plan shall be attached. (The grading plan may be used provided that it includes all the information required here. See Section IV, Design Standards, Chapter D, Storm Water Management, for details on stormwater drainage standards.) A stormwater report shall also be submitted, which describes how each of the stormwater standards are met, as well as detailed sizing calculations of best management practices (BMPs) and information on the low impact design (LID) techniques implemented.

**Commentary:** Consider revising text to be consistent with MASWMS.

u) Location and species of proposed street trees and location of trees to be retained will be determined in the field by the Highway Superintendent.

v) Cross sections typical of each street, roadway and sidewalk to be constructed.

w) In tabular form as follows for each sheet of the subdivision plan as submitted

1) The total area which is being subdivided on each sheet.
2) The total area of lots included on each sheet.
3) The total of areas dedicated for street purposes, drainage, sewer or utility easements on each sheet.
4) The total of areas reserved for parks, open space, schools, and other public use on each sheet.
x) Upland circle as defined 5.1.2 of the Lakeville Town By-Laws. Form A or Form C shows an upland circle.

y) Erosion and Sediment Control Plan: The Erosion and Sediment Control (ESC) Plan shall be designed to ensure compliance with the Massachusetts Stormwater Management Standards, and to ensure that the Massachusetts Surface Water Quality Standards, (314 CMR 4.00) are met during construction. The ESC Plan shall show the location of and describe the Construction BMPs to be used on the site and the required maintenance, as well as other relevant information, including (as applicable):

1. Locations of the proposed limits of land disturbance on the site, with provisions that the limits must be marked with tape, signs, or orange construction fence by the developer at the site prior to commencing any land disturbance activities, and shall be inspected by the owner or authorized designated agent;

2. Location and technical description of appropriate erosion and sediment control measures proposed to be installed and inspected by the Board or its designee prior to soil disturbance in accordance with the approved plans;

3. Location and technical description of the perimeter sediment control system that shall be installed and maintained around active construction areas such as, but not limited to, borrow or stockpile areas, roadway improvements, and areas within 50 feet of a building under construction, to be inspected by the Board or its designee prior to initial disturbance;
4. Location and means of diversion of offsite runoff from highly erodible soils and steep slopes to more stable areas;

5. A Sequence of Construction for all land disturbance activities exceeding one (1) acre in size (including lot development) that requires stormwater controls to be installed and the soil stabilized, as disturbance beyond the one (1) acre continues. Mass clearing and grading for sites greater than 5 acres in size shall not be permitted without prior written approval from the Board or its Agent;

6. Location of soil stockpiles and provision to stabilize exposed soils within five (5) business days of completion of construction of a given area. Stockpile side slopes shall not be greater than 2:1 unless the applicant provides evidence acceptable to the Board that adequate measures will be taken to secure stockpiles on the site;

7. Location and description of vehicle tracking pad(s) to be constructed at all entrance/exit points of the site to reduce the amount of soil carried onto roadways and off the site;

8. Location and description of proposed dust controls to be employed on the site, minimizing soil disturbance through applying mulch and establishing vegetation, water spraying, surface roughening, and/or applying polymers, spray-on tackifiers, chlorides, and barriers;

9. A program for monitoring and maintenance of erosion and sediment control measures throughout the course of construction shall be required as part of the Operation and Maintenance Plan;
10. Provisions to ensure that temporary sediment trapping devices are not removed until permanent stabilization is established in all contributory drainage areas, as well as provisions to ensure that stabilization is established prior to converting sediment traps/basins into permanent (post-construction) stormwater management facilities.

11. Provisions to ensure that all facilities used as temporary measures shall be cleaned prior to being put into final operation and are inspected by the Superintendent of Streets or its designee, and indicating that areas to be used as post-construction infiltration practices should be protected during construction to prevent compaction.

12. A program for vegetative stabilization of exposed soil through the establishment of permanently growing vegetation.

13. The Plan must demonstrate that the area of disturbance shall be kept to a minimum and that disturbed areas remaining idle for more than 14 days shall be stabilized with hydroseeding or other appropriate stabilization measure(s).

14. The Plan must specify that permanent seeding be undertaken in the spring (from March through June) or in the late summer and early fall (from August 1st to October 15th). During the peak summer months and in the fall after October 15th, when seeding is found to be impractical, an appropriate temporary mulch or sod shall be applied.
Permanent seeding may be undertaken during the summer if plans provide for adequate mulching and irrigation;

15. The Plan must demonstrate that the phasing of construction will account for the time required for vegetation to grow in and stabilize slopes. Where roads may be constructed adjacent to any slopes, interim measures must be taken to ensure that sediment is not conveyed by these impervious surfaces to stormwater management systems;

16. The Plan must specify that all slopes steeper than 3:1, as well as perimeter dikes, sediment basins or traps, and embankments must, upon completion, be immediately stabilized with sod, seed, anchored straw mulch, or other approved stabilization measures; areas outside of the perimeter sediment control system must not be disturbed; and

17. The Plan must specify that the cut side of roads and ditches shall be stabilized immediately with rock rip-rap or other non-erodible erosion control liners, or where appropriate, vegetative measures such as sod.

z). Operation and Maintenance Plan: An Operation and Maintenance Plan (O&M Plan) is required at the time of application for the Definitive Plan Approval. The O&M Plan shall be designed to ensure compliance with the Massachusetts Stormwater Management Standards and to ensure that the Massachusetts Surface Water Quality Standards are met in all seasons and throughout the life of the system. The O&M Plan shall be conveyed to the Superintendent of Streets after construction, which will perform the ongoing maintenance of the system. The O&M Plan shall include:

1. A map showing the location of the systems and facilities including, but
not limited to, catch basins, manholes/access lids, drain pipes, and stormwater BMPs;

2. An Inspection and Maintenance Schedule for all permanent stormwater BMPs, including routine and non-routine maintenance tasks to be performed;

3. Estimated O&M budget;

4. Drainage Easement(s)

It shall be the responsibility of the developer to make any necessary agreements/easements with any abutter(s) where any aspect of the proposed stormwater management system is to be carried to the boundaries of the subdivision. Such agreements/easements shall be presented to the Board, in recordable form, prior to the approval of a definitive subdivision plan.

The recipient of subdivision approval, and any successor–in–title, shall provide and furnish the Town the perpetual right, privilege, and authority, entirely at the option of the Town, to enter upon any rights–of–way within the subdivision and upon any lot, or easements pertinent to said stormwater management system, within which said system is located, for repair and maintenance purposes of said system.

a) Drainage easements shall be provided by the property owner(s) as necessary for:

i. Access for facility inspections and maintenance;
ii. Preservation of stormwater runoff conveyance, infiltration, and treatment areas and facilities, including flood routes for the 100-year storm event; and

iii. Direct maintenance access by heavy equipment to structures requiring regular maintenance.

b) Drainage easements shall be a minimum of twenty (20’) feet in width and may be larger, as necessary, at the discretion of the Planning Board.

c) Drainage easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Board.

d) Drainage easements shall be recorded with the Plymouth County Registry of Deeds.

**Commentary:** Consider adding text for ESC and O&M Plan submittal requirements to meet Standards 8 and 9 from MASWMS. The text provided can be adjusted to better suit Lakeville if needed; for example, the following sentence from the O&M language may not be applicable: “The O&M Plan shall be conveyed to the Superintendent of Streets after construction, which will perform the ongoing maintenance of the system.”

D. **Soil Survey and Percolation Tests**

Where appropriate, the Planning Board may require at the expense of the applicant soil surveys and percolation tests to establish the suitability of the land for the proposed storm drainage installations and proposed street construction.
Such soil surveys and tests must be filed with all plans for non-residential subdivisions or multi-family residences.

E. Review by Town Officials

1. Review by Board of Health as to suitability of the land. At the time of filing of the Definitive Plan, the applicant shall also file with the Board of Health two (2) contact prints of the Definitive Plan, dark line on white background, together with such information in the nature of percolation tests and deep test holes as the Board of Health may require. The Board of Health shall within forty-five (45) days after filing of the plan report to the Planning Board in writing approval or disapproval of said plan. If the Board of Health disapproves said plan it shall make specific findings as to which, if any, of the lots shown on such plan cannot be used for building sites without injury to the public health, and include such specific findings and the reasons therefore in such report, and, where possible, shall make recommendations for the adjustment thereof.

2. Review by other Town Officials. It is the developer’s responsibility to distribute copies of the Definitive Plan to Town Officials and obtain a dated receipt of the same as follows:

   One (1) copy each to the Conservation Commission, Highway Surveyor, Fire Department, Police Department, Open Space Committee, Town Planner, and the Building Commissioner acting as the Stormwater Review Authority.

Before the Definitive Plan is approved, the Board will request written statements from the above officials with regard to the proposed improvements in the following respect:
a) Conservation Commission as to potential involvement with Chapter 131, Section 40, G.L. and the effects of the subdivision on streams, wildlife and similar considerations within the scope of the Conservation Commission.

b) Highway Surveyor as to the design of the street system, location of easements, monuments, street lights, and stormwater management drainage systems.

c) Fire Department as to location of hydrants, installation of the alarm system and emergency access.

d) Police Department as to street safety, both vehicular and pedestrian, and access for emergency vehicles.

e) Town Planner as to overall layout of streets, lots, and stormwater management drainage systems in terms of adherence to principles of good planning.

f) Building Inspector as to suitability of lots for building purposes.

F. Public Hearing

Before taking any action to approve, modify and approve or disapprove a Definitive Plan, the Board shall hold a hearing at which parties in interest shall have an opportunity to be heard, in person or by agent or attorney. Notice of the time and place of such hearing and of the subject matter, sufficient for identification shall be published in a newspaper of general circulation in the Town of Lakeville once in each of two (2) successive weeks, the first publication to be not less than fourteen (14) days before the date of the hearing and by mailing a copy of such advertisement to the applicant and to all owners of land abutting the land and all owners of land within five hundred feet (500’) of a property line of the land shown on the plan as shown on the most recent tax list.
G. Planning Board Procedure

The procedure that the Board will follow with regard to approval, disapproval, or modification of the Definitive Plan submitted by the applicant will be that as set forth in Chapter 41, Section 81-U of the General Laws, as amended. In summary, the Board, after receiving the Plan and profiles, will review the same to determine whether they are in compliance with its adopted Rules and Regulations. Before approval of the plan, the Board shall establish that the street pattern is safe and convenient, that proper provision is made for street extension and that all other purposes of the General Law are met. The Board may, as a condition of granting approval under Section 81-U, impose reasonable requirements designed to promote the health, convenience, safety and general welfare of the community and to benefit the Town. In such event, the Board shall endorse such conditions on the plan to which they relate, or set forth a separate instrument attached thereto, to which reference is made on such plan and which, shall for the purpose of the Subdivision Control Law be deemed to be a part of the plan.

H. Performance Guarantee

Before endorsement of its approval of a Definitive Plan of a subdivision by the Planning Board, the subdivider shall agree to complete the required improvements (construction of ways and its installation of municipal services) specified in Section IV for any lots in a subdivision, such construction and installation to be secured on one or in part by one and in part by the other, of the following methods which may from time to time be varied by the applicant:

1. Final Approval with Covenant. The subdivider shall file a Covenant (see Form F), executed and duly recorded by the owner of record, running with the land, whereby such ways and services as specified in Section IV not covered by
bond or deposit under “2.” hereof, shall be provided to serve any lot before such lot may be built upon or conveyed, other than by mortgage deed.

2. **Final Approval with Bonds or Surety.** The subdivider shall either file a performance bond (see Form G) or a deposit of money (see Form H) or negotiable securities (see Form I) or bank passbook (see Form J) in an amount determined by the Planning Board to be sufficient to cover the cost of all or any part of the improvements specified in Section IV not covered by a Covenant under H-1 hereof. Such bond or security, if filed or deposited, shall be approved as to form and manner of execution by the Town Counsel and as to sureties by the Town Treasurer and shall be contingent on the completion of such improvements within a reasonable time period specified by the Board. The period for completion in H-1 and H-2 may be extended by the Planning Board at the written request of the subdivider accompanied by satisfactory proof that such extension is necessary and in the public interest.

I. **Approval or Disapproval**

The action of the Board in respect to such plan shall be by vote, copies of which shall be filed with the Town Clerk and sent to the applicant. If the Board modifies or disapproves such plan, it shall state in its vote the reasons for its action. Failure of the applicant to submit revised plans and other required submittals within six (6) months of approval with modification shall automatically rescind approval of the plan. The Board shall rescind its disapproval if, within six (6) months of such disapproval, the applicant submits revised plans and other required submittals fully conforming to the Rules and Regulations of the Board and resolving the specific reasons for disapproval.

The action of the Board to approve or disapprove a definitive plan must occur within ninety (90) days after submission, except in the case of a subdivision
showing lots in a residential zone, where no preliminary plan has been submitted and acted upon or where forty-five (45) days has not elapsed since submission of such preliminary plan, the Board has one hundred thirty-five (135) days to take final action on the definitive plan.

Final approval, if granted, shall be endorsed on the original drawing of the Definitive Plan by the signatures of a majority of the Planning Board but not until the statutory twenty (20) day appeal period has elapsed following the filing of the Board’s certificate of approval or disapproval, as the case may be, with the Town Clerk and said Clerk has notified the Board that no appeal has been filed. If appeal has been made, said endorsement shall be made after the entry of a final decree of the Court sustaining the approval of such plan. Final approval shall be subject to the construction specifications contained herein and to the rules and requirements of the Planning Board. After the Definitive Plan has been approved and endorsed, the Board shall return the original to the applicant.

The Board may extend the period permitted by statute between submission of a Definitive Plan and action thereon upon written request of the applicant.

Approval of the Definitive Plan does not constitute the laying out or acceptance by the Town of streets shown on the plan.

1. **Time for Completion.** If the ways in any subdivision are not completed and the utilities aforesaid are not installed within the time so agreed to by the applicant or so required by the Board, any such bond may be enforced and any such deposit may be applied by the Planning Board for the benefit of the Town. Ways or portions thereof not completed within the time required shall thereafter be competed in accordance with the design and construction standards of the Board in effect upon the expiration of such time.
2. **Endorsement.** The endorsement of the plan approval by the Board shall be valid for a period of eight (8) years from the date of said endorsement.

At least twenty (20) days prior to endorsement, all required Covenants shall be provided to the Board’s agent along with a Designer’s Certification that title to the premises shown on said plan and appurtenances thereto including any off-site easements and rights-of-way are in the applicant’s name and are free of all encumbrances or that the encumbrances set forth will not preclude any required subdivision improvements.

No extensions will be granted that will bring the development beyond its eighth year. Beyond eight (8) years following the date of endorsement of the Definitive Plan, any undeveloped areas must conform to the current Zoning By-Laws and the Rules and Regulations.

J. **Recording**

The applicant shall file all approved Definitive Plans and the Covenant, if any, at the Registry of Deeds, and shall notify the Board in writing presenting evidence of the recording of the plan and the Covenant. The applicant shall deliver to the Board one (1) copy of the approved and recorded Definitive Plans, and a copy of an affidavit filed by the owner stating that the title to the premises shown on said plan and appurtenances thereto are in the name of the applicant and free of all encumbrances or with encumbrances as set forth.

K. **Release of Performance Guarantee**

Upon the completion of ways and the installation of municipal services in accordance with these Rules and Regulations, security for the performance of which was given by bond, deposit or covenant, or upon the performance of any
covenant with respect to any lot, the applicant may send by registered mail to the Town Clerk a written statement in duplicate that the said construction or installation in connection with which such bond, deposit or covenant has been given, has been completed in accordance with said rules and regulations, such statement to contain the address of the applicant, and said Clerk shall forthwith furnish a copy of said statement to the Planning Board. If the Planning Board determines that said construction or installation has been completed, it shall release the interest of the Town in such bond and return the bond or deposit to the person who furnished the same, or release the covenant by appropriate instrument, duly acknowledged, which may be recorded (see Form K).

If the Board determines that said construction or installation has not been completed, it shall specify to the applicant in writing the details wherein said construction and installation fails to comply with its Rules and Regulations and do so within forty-five (45) days after the receipt by said Clerk of said statement. All obligations under the bond shall cease and terminate by operation of law, any deposit shall be returned and any such covenant shall become void. In the event that said forty-five (45) day period expires without such specification, or without the release and return of the bond or return of the deposit or release of the covenant acknowledged, the Town Clerk shall issue a certificate to such effect, duly acknowledged, which may be recorded.

L. As Built Plan

The subdivider shall file with the Planning Board an as built plan on tracing cloth of completed street or streets, utilities and easements together with proper legal descriptions for initiating an article in the Town Warrant pursuant to the acceptance of the ways by the Town Meeting and shall grant a deed to the Town of the streets, utilities and easements, as contained in the plan said deed to be
recorded by the Town upon acceptance of the streets by the Town Meeting (see also Section IV, A-7 and 8, and Section IV, C-2, d).

SECTION IV – DESIGN AND CONSTRUCTION STANDARDS

A. General

1. No street or way through private property shall be recommended for acceptance by the Town unless the same be previously constructed and completed in accordance with the Standard Cross Section (see Figure A) and the following specifications.

2. Unless otherwise specified, all the work and the materials used in the work to be done shall conform to the requirements of the “Commonwealth of Massachusetts, Department of Public Works, Standard Specifications for Highways and Bridges, 1973 Edition as amended”, hereinafter referred to as the Standard Specifications, as amended and the Special Provisions included hereinafter. Appropriate illustrations are found in “Commonwealth of Massachusetts, Department of Public Works, Construction Manual Part 3, 1966 as amended”.

3. Supplementing the aforesaid Standard Specifications, certain specifications or special provisions shall apply particularly to the work to be done hereunder. References in the following specifications, unless otherwise stated, are to be aforesaid Standard Specifications, amendments or addenda. These specifications and special provisions shall take precedence and shall govern when they are stricter.
4. To facilitate reference, each paragraph in these specifications is noted with paragraph number of the particular section as contained in the Standard Specifications.

5. The context of work required is as shown upon approved plans, and is in compliance with the Standard Cross Section Plans. Stakes shall be set which will indicate the exact amount of cut or fill.

6. As each construction operation is completed, it shall be approved by the proper Town authority prior to starting work on the succeeding operation.

7. At the time the street or way or portion thereof is ready for acceptance and to facilitate acceptance by the Town of Lakeville, the developer shall have prepared and certified by a Registered Land Surveyor a “Plan of Acceptance” drawn with India ink on tracing cloth (size 18” x 24” or 24” x 36”) showing widths, lengths, bearings of all boundary lines of streets and easements and radii, tangents and central angles of all curves in street lines. It shall show that all stone bounds have been set.

A blank space (4” x 8”) shall be provided on the lower right hand corner on the plan for a title block to be filled in by the developer. The surveyor shall place a certification on the plan stating “The street (or way or portion thereof) is laid out and the bounds have been set as shown on this plan” and shall be dated, signed and the surveyor’s stamp affixed thereon. The plan shall be submitted to the Board of Selectmen.

8. The developer shall have the original plans and profiles that were submitted to the Planning Board and that are on file in the Planning Board office, corrected and certified by his Engineer to show the actual as built locations and grades
of all utilities and roadway profile and any changes authorized by the Planning Board.

B. **Streets and Roadways**

1. **Location.**

   a) All streets in the subdivision shall be designed so that, in the opinion of the Planning Board, they will provide safe vehicular travel and an attractive street layout in order to obtain the maximum safety and amenity for future residents of the subdivision, and they shall be in accord with the rules and regulations of the Board of Selectmen, and the Superintendent of Highways.

   b) The proposed streets shall conform in location, so far as practicable, to any existing plans of the Planning Board, and where required by the Planning Board, to the existing street system.

   c) Provision satisfactory to the Planning Board shall be made for the proper projection of streets or for access to adjoining property, whether or not subdivided.

   d) Reserve strips prohibiting access to streets or adjoining property shall not be permitted, except where, in the opinion of the Planning Board, such strips shall be in the public interest.

2. **Alignment.**

   a) Street jogs with centerline offsets of less than one hundred and fifty feet (150’) shall be avoided.
b) The minimum horizontal centerline radii of streets shall be as follows:
   Secondary, Major, and Primary Streets - Four Hundred Feet (400’)
   Minor Streets - One Hundred and Fifty Feet (150’)

c) Streets shall be laid out so as to intersect as nearly as possible at right angles. No street shall intersect any other street at less than sixty (60) degrees.

d) Property lines at street intersection shall be rounded or cut back to provide for a curb radius of not less than thirty feet (30’). However, when the intersection of two (2) streets varies more than ten (10) degrees from a right angle, the radius of the curve at the obtuse angle may be less and of the acute angle may be greater than thirty feet (30’) to the extent approved or required by the Planning Board.

e) Streets shall be laid out so as to intersect at intervals in a range of six hundred feet (600’) to twelve hundred feet (1200’) in length, unless otherwise specified by the Planning Board. In special instances the Planning Board may approve an easement for a future street, in lieu of actual construction of a cross street.

3. **Width.**

   a) The minimum width of any street right-of-way, including dead-end streets, shall be fifty feet (50’). The Planning Board may reduce this width to no less than forty feet (40’) where such a reduction results in a higher quality design and does not compromise the health, safety or welfare of Lakeville residents.
Commentary: Consider allowing some flexibility here for LID techniques. For example, for subdivisions less than 40 houses, ROWs can be as little as forty feet (40’).

b) When on a secondary or major street and potential volume warrants, the Board may require a greater right-of-way than that specified above and may require construction of a divided highway.

c) Major streets and such secondary streets, which in the judgment of the Planning Board may in the future be changed in character to become major streets, shall have a minimum right-of-way of sixty feet (60’).

d) When a minor street will provide the only access for lots fronting on a length in excess of five hundred feet (500’) or where, on a major street, potential volume warrants, the Planning Board may require construction of a divided roadway.

4. Grade.

a) The centerline grade for any street shall not be less than five tenth of one percent (0.5%).

b) The maximum centerline grade for streets shall be as follows:

<table>
<thead>
<tr>
<th>Type of Street</th>
<th>Maximum Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Street</td>
<td>Six Percent (6%)</td>
</tr>
<tr>
<td>Secondary Street</td>
<td>Six Percent (6%)</td>
</tr>
<tr>
<td>Primary and Major Streets</td>
<td>Four Percent (4%)</td>
</tr>
</tbody>
</table>

c) Where changes in grade exceed one percent (1%), vertical curves, as required by the Board will be provided; and where a grade is five percent (5%) or greater within one hundred and fifty feet (150’) of the intersection of street right-of-way lines, there shall be provided in a residential
subdivision a leveling area of at least seventy-five feet (75’) with a maximum grade of three percent (3%), and in all other subdivisions, a leveling area of at least two hundred feet (200’), with a maximum grade of two percent (2%); and at all other intersections there shall be a leveling area of at least fifty feet (50’).

5. **Dead-End Streets.**

a) For the purposes of this section, any proposed street which intersects solely with a dead-end street shall be deemed to be an extension of the dead-end street. Dead-end streets and their extensions, if any, shall not be longer than seven hundred and fifty feet (750’).

b) Dead-end streets shall be provided at the closed end with a turn-around having an outside roadway diameter of at least one hundred twenty (120’) feet and a property line diameter of at least one hundred forty (140’) feet unless otherwise specified by the Planning Board. If the dead-end street is not intended to connect with another street at some future point in time, the Planning Board may, at its option, require a minimum outside roadway diameter of one hundred sixty (160’) feet. A property line diameter of one hundred eighty (180’) feet and the placement of a circular landscape island with minimum radius of forty (40’) feet at the center of the turn-around.

*Cul-de-sacs shall have a minimum forty (40’) foot radius at the right-of-way line for residential streets and a minimum sixty (60’) foot radius at the right-of-way line for commercial and industrial roads.*

*Vegetated or undisturbed islands are required in cul-de-sacs and the preferred design is a cul-de-sac “tear drop” with a tapered entrance/exit*
point and a rounded tip. Turning radii at the outermost edge shall meet the minimum radii requirements but shall also be designed in a manner that considers natural topography and preserves natural amenities where possible. Therefore, where natural features such as significant trees or bedrock outcrops may be preserved within the cul-de-sac island, the applicant is encouraged to widen turning radii where necessary to preserve these features. Cul-de-sacs may also be used as vegetated depressions to treat stormwater runoff in landscaped bioretention facilities.

6. **Roadway Construction.** Numbers refer to specific sections in the Standard Specifications. The Standard Specifications should be referred to for more detailed descriptions of the work, materials, and construction methods. The roadway shall be graded and prepared for pavement as follows:

a) **101** Clearing and grubbing shall be performed to remove all stumps, brush, roots, and like material from the area of the traveled way, berms, shoulders, sidewalks, and utility trenches, but wherever feasible, existing vegetation shall be protected. Cleared materials shall be removed from the property unless otherwise approved by the Board.

b) **120** Earth excavation shall be the removal of all materials encountered within the area of the traveled way, berms, shoulders, and sidewalks down to the true surface of the subgrade or to suitable material in areas where unsuitable material exists, in preparation for foundation of roadway, sidewalks, driveways, and berms. Approved material obtained from the excavation may be used in fills as required if, in the opinion of the Planning Board, they are suitable.

c) **150** When in the opinion of the Planning Board, suitable material is not available within the limits of the roadway location to form the subgrade or
sub-base, the developer shall obtain suitable additional material from other sources in accordance with this section and as may be approved by the Planning Board.

d) **170** The subgrade surface, fifteen and one-half inches (15 and ½”) below the finished surface grade in residential streets, and seventeen and one-half inches (17 and ½”) below the finished surface grade in all streets in non-residential subdivisions shall be prepared true to the lines, grades and cross sections given and properly rolled. All soft or spongy material below the subgrade surface shall be removed to a depth determined by the Planning Board. The space thus made shall be filled with special gravel borrow, containing no stones over six inches (6”) in their largest dimension.

e) **401** The gravel sub-base or foundation shall be spread in two six inch (6”) layers on the surface of the subgrade. The first six inch (6”) layer shall be spread in conformity with requirements of Section M-1.03.0 gravel borrow Type A six inches (6”) largest dimension Standard Specifications. The second six inch (6”) layer shall be spread in conformity with requirements of Section M-1.03.0 gravel borrow Type C two inches (2”) largest dimension of the Standard Specifications.

Each layer shall be thoroughly watered, rolled and compacted true to line and grade. Any depressions that appear during and after the rolling shall be filled with additional gravel and re-rolled until the surface is true. Suitable subgrade stability fabric may be required by the Planning Board prior to gravel placement.

f) Final grading, rolling and finishing including the shaping, trimming, rolling and finishing of the surface of the sub-base prior to application of
gravel for surfacing of the roadway base courses for walks and berms shall be in accordance with this section and as directed by the Planning Board. Compaction testing and soil gradations shall be performed as required by the Planning Board.

g) Roadway pavement shall be constructed for the full length of all streets within the subdivision and shall have the curb radii required in Section IV, B-2, b above. The center line of all roadways shall coincide with the center line of the street right-of-way unless a deviation is approved by the Planning Board. The minimum widths of a roadway pavement shall be as follows:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Minimum Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major and Primary Streets</td>
<td>Thirty Feet (30’)</td>
</tr>
<tr>
<td>Secondary Streets</td>
<td>Twenty-Six Feet (26’)</td>
</tr>
<tr>
<td>Minor Streets</td>
<td>Twenty-Four Feet (24’)</td>
</tr>
<tr>
<td>Dead-end Streets</td>
<td>Twenty-Four Feet (24’)</td>
</tr>
</tbody>
</table>

h) Pavement for roadways in subdivisions shall be Class I Bituminous Concrete Pavement Type I-1. The material and construction methods for laying pavement shall conform in every way to the applicable sections of Section 400 and Section M of the Standard Specifications except that no such construction shall be undertaken before March 30th of any year nor after December 1st of any year without written permission of the Planning Board. Pavement on minor and secondary residential subdivision streets shall be laid to a finished depth of three and one-half inches (3 and ½”) and laid in two (2) courses. The base course shall be two inches (2”) and the top course shall be one and one-half inches (1 and ½”). Pavement on major and non-residential subdivision streets shall be laid to a finished depth of five and one-half inches (5 and ½”) and laid in three (3) courses. The base course shall be two inches (2”), binder course shall be two inches
(2”) and top course shall be one and one-half inches (1 and ½”). The Planning Board may require the installation of Petromat fabric or any approved equal over any areas in the base pavement that, in their opinion, require reinforcement prior to the placement of an additional course of pavement.

7. Curbs and Berms.

a) Bituminous concrete berms and curbs of six inches (6”) in height shall be provided along each side of the roadway where there are sidewalks. All other roadways without sidewalks except where granite curbs shall be provided, shall have eighteen inch (18”) flat berm, one (1) layer two and one-half inch (2 and ½”) Bituminous concrete:

at intersections along the roadway the distance of the arcs of the curves plus a straight section at each end of eight feet (8’). Granite curb shall be type SB sloped edging. (Subsection M9.04)

along each edge of a roadway where the grade exceeds five percent (5%).

on the inner side of all curves with a radius less than two hundred and fifty feet (250’). The elevation of the curb shall be seven inches (7”) higher than the gutter line.

b) In the event that the Planning Board waives curbs and berms, eighteen inch (18”) flat berms as above shall be provided along each edge of the roadway where the grade exceeds three percent (3%).

Commentary: Consider not requiring a waiver when open section road design is proposed for stormwater management rather than curb and gutter.
c) The profile of the berm is subject to Planning Board approval.

7. Curbs Cuts.

a) Driveways shall be at least ten feet (10’) wide and have a curb return at the roadway of three feet (3’) in radius.

b) Where rolled curbs or no curbs exist, the driveway flare should have a three foot (3’) radius. Driveway cuts shall not be within sixty-five feet (65’) of the intersection of the center line of intersecting streets.

c) Driveways shall slope down from the edge of the street right-of-way to the edge of the street pavement at a grade of not less than one percent (1%) but not more than eight percent (8%).

8. Sidewalks.

a) Sidewalks shall be constructed within the subdivision.

b) The sidewalks shall extend the full length of the street and shall be of the following widths:

- Along all Streets: Five feet (5’), On one side

Exception: around a cul-de-sac a sidewalk need be provided on one (1) side only, the exterior side.

c) Bituminous concrete sidewalks shall have a minimum thickness of two 1.1/2 courses each after compression.
9. **Embankments.** Outside the right-of-way embankments shall be evenly graded and pitched at a slope of not greater than 3 horizontal to 1 vertical in fill. Where cuts are made in ledge, other slopes may be determined with the approval of the Planning Board. Where terrain necessitates greater slopes, retaining walls, terracing, fencing, or rip-rap may be used either alone or in combination to provide safety and freedom from maintenance, but must be done in accordance with plans filed with and approved by the Planning Board.

When embankments are built in such a way as to require approval by the Planning Board, the developer must furnish to the Town duly recorded access easements free of encumbrances for maintenance of the slopes, terraces or retaining walls. All such slopes shall be grassed in accordance with the specifications for the area between the roadway and sidewalk or roadway and boundary of the right-of-way.

C. **Utilities**

1. **Excavation.** Excavation for structures, including foundation for drains and water pipes, walls and other structures shall be made to the depth as indicated on the Definitive Plan or established by the Highway Surveyor.

2. **Installation.** All **stormwater drain**, sewer, gas and water pipes, underground utilities, and other structures shall be installed upon the completion of roadway subgrade and before the placing of the sub-base, gravel base course, sidewalks or pavement.

   a) **Water Facilities-Installation.** Water mains, with hydrants, valves and other fittings, shall be constructed and installed within the subdivision as necessary to provide to all lots therein adequate water supply for domestic and fire protection use. Proper connections shall be made with existing public water systems. Where property adjacent to the subdivision is not
subdivided, provision shall be made for proper projections of the systems by continuing appropriate water mains to the exterior boundaries of the subdivision, at such size and grade as will allow for the projections, except that the installation of water mains for these projections will not be required where their location is outside paved areas.

b) Water Supply. Potable water of quality and quantity acceptable to the Board of Health for domestic use, and fire protection water with a minimum open hydrant flow of 500 gallons per minute shall be provided in each subdivision, at minimum residual pressure of 20 pounds per square inch. Water lines shall be at least 6-inch diameter cement-lined cast iron, 150-pound class or equivalent, and shall be furnished with adequate valves and appurtenances to the specifications of the Town. Whenever possible, water pipes shall be extended and connected to form a loop, if need be using easements across lots. Where no municipal water supply is available within a reasonable distance of the subdivision, the Board will not approve a subdivision plan unless adequate groundwater supply is available at the site, in the opinion of the Planning Board acting with the advice of the Board of Health.

c) Gas mains shall be installed if gas connection is available unless said installation is specifically waived by the Planning Board.

d) Telephone lines shall be installed in underground conduits in conformity with Section 390 of the Standard Specifications. Electric lines shall be installed underground in accord with the regulations of the Massachusetts Electric Company. Cable television lines, when provided, shall also be installed underground.
3. On-site sewage disposal facilities shall be installed and constructed in conformity with the rules, regulations and requirements of the Board of Health. On-site septic tanks and leaching fields may be located in the front side or rear yard of the building(s) served, with the front yard preferred. Due consideration should be given to surface and sub-surface soil conditions, drainage and topography in the location of such on-site facilities, and in no instance can any portion of the sewage disposal facilities be located closer than twenty feet (20’) to a property line.

4. Where adjacent property is not subdivided or where all the property of the applicant is not being subdivided at the same time, provision shall be made for the extension of the utility system by continuing the mains the full length of streets and to the exterior limits of the subdivision, at such grade and size which will, in the opinion of the Planning Board, permit their proper extension at a later date.

**Commentary:** The following text is provided as a proposed revision of the Drainage and Runoff Control section (Section IV.D) of the Town of Lakeville Planning Board Subdivision Regulations. We have tried to add clear, specific standards to help both developers and town officials determine project compliance with updated stormwater standards. The section has been revised to include recommendations/requirements from the Massachusetts Stormwater Management Standards (MASWMS).

### D. Drainage and Runoff Control Stormwater Management

1. **General Requirements.** Approval of subdivision plans may be denied until the Planning Board is assured that either the proposed subdivision will not result in significant increase in the rate and volume of storm water runoff over natural or existing conditions or that adequate provisions will be taken to maintain the volume and rate of runoff at its natural or existing level meet the Massachusetts Stormwater Management Standards (MASWMS) as stated in the Massachusetts Stormwater Handbook. The objective of this regulation is
to maintain existing groundwater recharge at the site and prevent stormwater discharges from creating water quality (pollutants) and quantity (erosion and flooding) problems in the Town. Stormwater discharges from the integrity of natural drainage patterns, in order to provide adequate storm water drainage, prevent flooding, and avoid alteration of existing stream channels.

Commentary: The changes in this section reflect the evolution of managing runoff from a site. In the past, the main focus was solely on conveying stormwater runoff away from the site, while preventing downstream flooding issues. Currently, projects should consider recharge and water quality issues as well as storage.

2. Procedure. (May be modified by the Planning Board to suit the problems and needs of a particular subdivision.)

a) A stormwater report describing how each of the ten stormwater standards from the MASWMS is met shall be submitted along with all necessary supporting data and calculations. Pre- and post-development drainage area maps that include design study points, soils, and times of concentration shall be included. The NRCS models TR-55 and TR-20 (or approved equivalent) should be used for determining the required storage and outlet structures for attenuating the peak flows from the design storms. Applicants shall also show how they have utilized LID techniques to the maximum extent practicable. An estimate of the present rate and volume of runoff, as well as an estimate of the rate and volume of runoff that would occur from the proposed subdivision, shall both be submitted along with supporting data. The runoff calculations shall be developed using the “Modified Soil Cover Complex Method” described in Guidelines for Soil and Water Conservation in Urbanizing Areas of Massachusetts, Appendix B, published by the Soil Conservation Service. These calculations shall be on the basis of runoff produced from a 100-year storm event. In calculating runoff and drainage requirements, the developer shall consider the impact of septic systems on the ability of the soil to absorb additional
storm water, as well as any upstream runoff which may impact on the subdivision.

**Commentary:** We recommend revising this section as shown above to require the relevant data and calculations to demonstrate to the Board that all of the standards have been met by the proposed project.

b) The developer shall meet the required standards by using the approved best management practices, and associated design criteria, in the MASWMS. In order to control the rate and volume of storm water runoff from the development site, the developer may elect to do so through any method which can be demonstrated to control the required amount of runoff, to the satisfaction of the Planning Board or the Board’s agent. In each instance, the method or methods elected shall be suitable to the site and subject to the approval of the Planning Board.

**Commentary:** This section should be revised to specifically reference the approved best management practices (BMPs) and associated design criteria in the MASWMS.

c) The system may make use of gutters, inlets, culverts, catch basins, manholes, subsurface piping, surface channels, natural waterways, and detention basins, open or stone-filled. The Board will not approve any design or component which in its opinion does not meet the standards of engineering practice, will not function without frequent maintenance, or is unsuited to the character of the subdivision.

**Commentary:** This section is not necessary if the above revisions are incorporated.

d) If a curb-and-gutter system is proposed, the design of pipes shall be such as to provide for a flow of water at speeds between two (2) and twelve (12) feet per second; the minimum grade shall be not less than 0.4 percent for pipes twelve inches (12”) and less in diameter, and 0.25
percent as absolute minimum; the minimum pipe diameter shall be twelve inches (12”), except that smaller ten-inch (10”) pipe may be used to connect a single catch basin across the street or to divert runoff from small storm events to off-line BMPs; catch basins shall have a four foot (4’) two and one half feet (2.5’) sump below invert; and all drop manholes or inlets with a drop of six feet (6’) or more shall be provided with a splash pad. Catch basins or inlets, if necessary, shall be spaced along both sides of a street at approximately 400 feet intervals, and located at all low points and corner roundings at street junctions.

**Commentary:** This section should be revised to allow flexibility for LID open-section roadways and smaller pipe sizes for off-line stormwater BMPs (e.g., bioretention sized to treat only the first inch of runoff).

e) Streets shall be graded to provide for expeditious runoff of water, except that settling basins or other means of removing pollutants shall be used in draining large parking areas or streets subject to heavy traffic or other sources of pollutants. Roof drains shall not be connected to the drainage system, but shall be managed on each lot to the maximum extent practicable. No industrial or domestic waste shall be discharged to or allowed to enter storm drains.

**Commentary:** This section should be revised to reflect the more recent shift from moving stormwater away from a site as quickly as possible – years of research have shown that this method creates downstream water quality and quantity problems. The idea of LID is to incorporate small-scale BMPs throughout a site near the source of runoff to slow down runoff, remove pollutants, recharge groundwater, and greatly reduce flooding and erosion. In addition, roof drains should not be connected to the drainage system, but should be addressed on each lot with drywells, rain gardens, or directed to pervious areas.

f) Storm drains and retention basins shall be designed based on a twenty-five year frequency storm, and cross culverts shall be based on a twenty-five year frequency storm. All storm water shall pass through an oil
separator manhole prior to outfall. The manhole shall have convenient access. Prior to discharge, all storm water shall pass through a sedimentation basis capable of removing 80 percent of the waterborne sediment. All storm water shall be conveyed in ditches or storm drain lines to storm water detention retention basins capable of recharging the ten-year event, or to permanent streams. Permanent easements and provisions for vehicular access shall be provided along the entire length of the stormwater management system ditches and storm drain lines. No increase in storm water runoff over pre-development conditions will be permitted for up to the twenty-five year event. Evidence of this shall be submitted to the Planning Board in the form of calculations for pre-development versus post-development for all channels leaving the site, and any other design points required by the Board.

Commentary: This section should be revised as shown to be consistent with the MASWMS as already stated above.

g) The basis for hydrologic and hydraulic evaluation of subdivision sites are as follows:

1. Impervious cover is measured from the site plan and includes any material or structure on or above the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation: paved parking lots, sidewalks, roof tops, driveways, patios, and paved, gravel, and compacted dirt surfaced roads. Alternative surfaces (e.g., porous pavement, grass pavers, etc.) are encouraged for low-traffic sidewalks and driveways, and these areas may be removed from the total impervious area calculations when designing the stormwater system for recharge and water quality criteria only. General design guidance is included in the MASWMS, but there is not one set of required design criteria since alternative
paving technology is still evolving and improving. Thus, the applicant shall submit specifications for any proposed alternative surfaces, which shall be reviewed by the Board on a case-by-case basis.

2. Off-site areas draining to the site shall be included in the hydrologic and hydraulic analyses.

3. The models TR-55 and TR-20 (or approved equivalent) shall be used for sizing stormwater practices.

4. The length of sheet flow used in the TR-55 method for time of concentration calculations is limited to no more than 100 feet for pre-development conditions and 50 feet for post-development conditions.

5. For purposes of computing runoff, all pervious lands in the site prior to development shall be assumed to be in good condition regardless of conditions existing at the time of computation.

6. The Rational Method will be used for drainage conveyance calculations needed to size components of the selected drainage conveyance system.

7. The specified design storms shall be defined as 24-hour, Type III distribution design storm events using the rainfall amounts specified for Plymouth County in the Hydrology Handbook for Conservation Commissioners.

Subdivisions shall apply these stormwater management criteria to the land development as a whole. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations.

Commentary: This section should be added to ensure consistency in submitted calculations.

3. Final Approval. Where runoff detention features are required, A proposed development shall in no case receive final approval until the site has been
inspected by the Planning Board or the Board’s agent to ensure that detention facilities the stormwater management system has been installed as proposed in the Definitive Plan.

4. Lot Drainage. Lots shall be prepared and graded in such a manner that development of one shall not cause detrimental drainage on another; if provision is necessary to carry drainage to or across a lot, an easement or drainage right-of-way of a minimum width of twenty feet (20’) and proper side slope shall be provided. Storm drainage shall be designed in accord with the specifications of the Board. Where required by the Planning Board or the Board of Health, the applicant shall furnish evidence that adequate provision has been made for the proper drainage of surface and underground waters from any lot or lots. Storm water shall not discharge overland across lot lines. Drainage conveyances and easements shall be provided to convey stormwater to the nearest permanent stream or municipal drainage system.

5. Construction. Stormwater Drainage facilities shall be provided as indicated on the plan and in conformity with the requirements of Sections 200, 220, and 230 of the Standard Specifications.

Commentary: The relevant specifications should be reviewed for consistency with these revisions.

The standard depth of catch basins shall be four feet (4’) two and one-half feet (2 and ½’) below the invert of the outlet. Manholes shall be constructed to the required depth at each junction point and as shown on the plan. Pipe culvert and pipe drains shall be in conformity with the requirements of Section 230 for installation of pipes.

Commentary: Deep-sump catch basins used as a pretreatment measure require a 4-foot sump below the invert of the outlet – this section should be revised to allow for this practice.
All drain pipes except sub-drains shall be reinforced concrete pipe and shall be installed according to the size as shown on the plans. No backfilling of pipes shall be done until the installation has been inspected by the Planning Board’s Agent. All drainage trenches shall be filled with clean gravel borrow in accordance with Section 150.

Commentary: Consider allowing flexibility with the pipe material - HDPE pipes can offer flexibility and cost savings, without reducing performance.

Where sub-drains are required they shall be constructed in conformance with Section 260 of the Standard Specifications (Mass. DPW specs). Such sub-drains may be required by the Board following clearing and grubbing operations. No drainage pipes from roof drains, driveway drains, or other on-lot sources shall be connected to the street drainage system without the explicit approval of the Planning Board. Cast iron manhole covers and catch basin grates shall be as manufactured by or equivalent to E.L. LeBaron Foundry Model No.’s LK-110 for manholes, L.F. 248-2 for catch basins or for catch basins at the end of or on 5% gradient roads No. LK-120A (Cascade Grate).

E. Open Space

Before approval of a plan the Planning Board may also, in proper cases, require the plan to show a park or parks, suitably located for playground or recreation purposes or for providing light and air and protecting natural hydrology. The park or parks shall not be unreasonable in area in relation to the land being subdivided and to the prospective uses of land. The Planning Board may by appropriate endorsement on the plan, require that no building be erected upon such park or parks without its approval for a period of three (3) years. Pedestrian ways, hike ways, or bridle paths of not less than fifteen feet (15’) in width may be requested where deemed desirable to provide circulation or access to schools, playgrounds,
parks, shops, transportation, open spaces and/or community facilities. Each area reserved for such purpose shall be of suitable area, dimensions, topography and natural character for the purposes of a park and/or playground. The area or areas shall be so located as to serve adequately all parts of the subdivision as approved by the Planning Board. The Planning Board may require that the area or areas reserved shall be located and laid out so as to be used in conjunction with similar areas of adjoining subdivisions or of probable subdivisions. Unless otherwise specifically approved by the Planning Board, the total amount of area to be reserved for park and/or playground purposes shall be no less than five percent (5%) of the gross area of the subdivision with a minimum of one acre when ten or more lots. Any land so reserved shall be included in the stormwater management system or completely protected during construction to protect the natural hydrology, depending on the ultimate purpose of the open space graded to dispose properly of surface water. The reserved land shall be left in condition for the purpose intended, as required by the Planning Board.

Commentary: Consider encouraging the preservation of natural open space that is completely protected during construction, particularly areas contiguous with buffers to jurisdictional wetlands.

F. Easements

1. Where utilities cross lots or are centered on rear or side lot lines, easements shall be provided of a width of at least twenty feet (20’).

2. Where a subdivision is traversed by a water course, drainage way, channel or stream, the Planning Board may require a storm water easement or drainage right-of-way of adequate width and proper side slope to conform substantially to the lines of such water course, drainage way, channel or stream and to provide for construction or other necessary purposes.
3. Access easements to park and conservation land shall be provided, if required by the Planning Board, and shall be at least twenty feet (20’) wide.

4. General, access, drainage, or utility easements shall not be included in the lot area.

G. Monuments

1. Monuments shall be installed on street lines at all points of curvature, at all points of change in direction, at each point where the lot line intersects the street right-of-way, and at all other points where, in the opinion of the Planning Board, Permanent monuments are necessary.

2. Monuments shall be a standard permanent granite or reinforced concrete marker of not less than three feet (3’) in length and not less than five inches (5”) in width and breadth and shall have a three-eighth inch (3/8”) drill hole in the center of the top surface. Said monuments shall be installed at the time of final grading with the top flush with top final graded surface. At each point where the lot line intersects the street right-of-way shall be a pipe or steel rod three feet (3’) in length.

3. The placement and accurate location of these markers shall be certified by a registered land surveyor and properly located on the street acceptance plans.

H. Street Signs and Names

1. Street signs shall be installed at each intersection to conform to the standard established by the Highway Surveyor.
2. Street names shall be approved by the Planning Board to prevent duplication and to provide names in keeping with the character of the Town.

3. From the time of rough grading until such time as each street is accepted by the Town as a public way, the sign posts at the intersection of such street with any other street shall have affixed thereto a sign designating such street as a private way.

I. Street Lights

1. Street lights shall be installed to conform to the type and style in general use in the Town of Lakeville unless otherwise specified by the Planning Board.

2. Street lights shall not be nearer than twenty-five feet (25’) from the intersection of two (2) streets, measured from the intersection of the tangents of the intersecting street curb lines; and shall be placed in back of sidewalks wherever possible.

3. Street lights shall be installed in accord with the procedure required by the Board of Selectmen and the applicable utility company.

J. Utility Poles

Utility poles, hydrants, and street shade trees shall not be nearer than twenty-five feet (25’) from the intersection of two (2) streets, measured from the intersection of the tangents of the intersecting street curb lines; and shall be placed in back of sidewalks wherever possible.

K. Trees
1. Where reasonable deciduous street trees shall be planted on each side of each street in a subdivision, except where the Definitive Plan showed trees to be retained which are healthy and adequate. Such trees shall be located outside of the right-of-way as shown in the Profile and Standard Cross Sections Schedules A and B, approximately at forty foot (40’) intervals, and shall be at least twelve feet (12’) in height, two inches (2”) in caliper measured four feet (4’) about the approved grade, and shall be planted each in at least one-half (½) cubic yard of topsoil unless otherwise required by the Tree Warden.

2. The developer shall plant other trees as needed to provide at least one (1) area of shade to each lot.

3. All deciduous street trees shall be clear of any branches from the approved grade level to a point seven feet (7’) above ground level.

4. The developer will be liable for all trees so planted as to their erectness and good health for one (1) year after planting.

5. No evergreen trees such as pine, fir, spruce or hemlock are to be planted on an easterly or southerly side of a road, street or way.

6. All cut bankings that tend to wash or erode must be planted with a low growing evergreen shrub such as laurel, mugho pine or juniper, and seeded with a deep rooted perennial grass to prevent erosion.

L. Protection of Natural Features

Due regard shall be shown for all natural features, such as mature large trees, wooded areas, water courses, scenic points, historic spots, and similar community assets, which, if preserved, will add attractiveness and value to the subdivision.
Outside of street right-of-ways, no trees over a twenty-four inch (24") caliper measured at four feet (4’) above the existing grade shall be removed or have the grade level surrounding the trunk altered by more than six inches (6”) without approval of the Planning Board.

M. Maintenance of Improvements

For the purpose of protecting the safety, convenience and welfare of the Town’s inhabitants; for the provision of adequate access to all of the lots in a subdivision by ways that will be safe and convenient for travel; for reducing the danger to life and limb in the operation of motor vehicles; for securing safety in the case of fire, flood, panic and other emergencies; under the authority of Chapter 41, Section 81-M as amended, the applicant or his successor shall provide for the proper maintenance and repair of improvements under this Section of the Rules and Regulations during the construction and for the period of twenty-four (24) months after the completion of the construction of said improvements or until the Town votes to accept such improvements, whichever comes first. Such maintenance shall include snow removal beginning from the time of occupancy of an individual owner or tenant other than the developer.

N. Erosion and Sedimentation

1. General Requirements. These requirements may be waived. However, in a subdivision with excessive slope or a subdivision which abuts or includes a stream(s), wetlands or pond(s), or where major earth work is anticipated, an erosion and sedimentation analysis shall be presumed necessary unless a waiver is received. Approval of a subdivision plan may be denied until the existing average annual erosion and the expected average annual erosion during and after construction is determined. The developer may be required to submit an erosion and sediment control plan, if based on the analysis of
erosion potential the Board determines that sedimentation will have an impact on nearby wetlands, streams, ponds, and other water bodies. An Erosion and Sediment Control Plan shall be provided in accordance with Standard 8 of the MASWMS.

2. Procedure. (May be modified by the Planning Board to suit problems and needs of a particular subdivision.)

a) Using the methods described in Guidelines for Soil and Water Conservation in Urbanizing Areas of Massachusetts, Appendix J, published by the Soil Conservation Service, the developer shall use the Universal Soil Loss Equation to estimate the present annual soil loss from the site, as well as the estimated annual soil loss from the site while under construction and after construction is completed.

b) The developer shall submit as part of the Definitive Plan a soil erosion and sedimentation control plan, if the Board determines that erosion due to development activity will be excessive or significant to wetlands, streams, ponds, or other water bodies. This plan shall consist of a drawing certified by a registered civil engineer, identifying appropriate control measures and their location. Also, the drawing shall show all natural drainage ways and water bodies in and adjacent to the proposed subdivision. The drawing shall be at a scale of one inch (1”) equals forty feet (40’), and show the existing and proposed topography at five-foot (5’) contour intervals.

e) If erosion and sedimentation control measures are required, they shall be adequate to retain all erosion within the subdivision and away from nearby water systems, both during and after construction. A timetable outlining anticipated construction activity and associated erosion and sedimentation...
control measures shall be submitted to the Board. All work shall be subject to periodic inspection by the Board or Board’s agents.

a) At a minimum, the Erosion and Sediment Control Plan shall comply with the performance standards of the most recent version of the *Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials* published by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA), as well as the following:

1. Measures shall be taken to control erosion within the project area.

2. The removal of existing trees and ground cover is to be kept at a minimum.

3. Wetland areas and surface waters shall be protected from sedimentation.

4. Sediment in runoff water shall be trapped and retained within the project area. All temporary sediment trapping devices shall be designed to retain 1 inch of runoff from the contributing drainage area.

5. All construction site measures shall be designed to accommodate (safely convey without creating erosive conditions) the 10-year, 24-hour return frequency storm event.

*Commentary: Consider revising the above section to meet Standard 8 of the MASWMS and effectively address ESC issues during construction.*

SECTION V – ADMINISTRATION

70
A. Variation

Strict compliance with the requirements of these rules and regulations may be waived when, in the judgment of the Planning Board such action is in the public interest and not inconsistent with the Subdivision Control Law.

B. Reference

For matters not covered by these rules and regulations, reference is made to Section 81-K to 81-GG, inclusive, of Chapter 41 of the General Laws.

C. Building Permit

1. No building shall be erected within a subdivision without written permission from the Planning Board by release of covenant, bond, or securities resulting from the fulfillment of developed obligations.

2. The Building Inspector shall not issue any permit for the erection of a building until he is first satisfied that the lot on which the building is to be erected is not within a subdivision or that a way furnishing the access to such lot as required by the subdivision control law is shown on a plan recorded or entitled to be recorded under Chapter 41 Section 81-X, as amended and that any condition endorsed thereon limiting the right to erect or maintain buildings on such lot have been satisfied or waived by the Board, and in the event that more than one building for dwelling purposes be erected or placed or converted to use as such on any lot, that the Building Inspector is satisfied that consent has been obtained from the Planning Board in accord with Section II-D of these Rules and Regulations, Chapter 41 Section 81-Y, and amendments thereto.
D. Inspection Notices

The subdivider shall notify the Highway Surveyor and the Engineer designated by the Board at least 48 hours prior to the time at which each one of the required inspections should take place. The subdivider shall provide safe and convenient access to all parts of work for inspection by the Highway Surveyor and by the Board’s engineer, members or agents. No work shall be approved that has been covered before the required inspection.

To assure compliance, the following procedure must be followed:

1. The developer must notify the Highway Surveyor and the engineer designated by the Board in writing of the start of construction.

2. The developer must notify the Highway Surveyor and the engineer designated by the Board when underground utilities and drainage are installed in order that inspection may be carried out before any backfilling is done.

3. The subgrade must be approved by the Highway Surveyor and the engineer designated by the Board before the application of the gravel base course.

4. The gravel base course must be approved by the Highway Surveyor and the engineer designated by the Board before the application of bituminous concrete (street or sidewalk).

5. The developer must notify the Highway Surveyor and the engineer designated by the Board at the start of each application of bituminous concrete on the street and sidewalk and of placement of curbing.
6. The developer must keep the Highway Surveyor and the engineer designated by the Board informed when materials and other items of work are ready for inspection such as the installation of bounds, loam and seeding, and general cleanup.

7. Occupancy permits will not be issued until street signs have been erected.

E. Validity

If, in any respect, any provision of these Rules and Regulations in whole or in part, shall prove to be invalid for any reason, such invalidity shall only affect the part of such provision which shall be invalid and in all other respects these Rules and Regulations shall stand as if such invalid provision of these Rules and Regulations shall be invalidated, impaired, or affected thereby.
APPENDIX C. LID PARKING LOT DESIGN AND TEACHING TOOL AT BRIDGEWATER STATE UNIVERSITY, BRIDGEWATER – SUPPORTING INFORMATION
**Stormtech Isolator Row Manifold Detail**

**Detail View A-A**

**Underground Recharge Chamber Schedule**

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**Stormtech General Notes**

1. Stormtech Isolators are designed for installation by contractors. See Stormtech’s installation instructions for details.

2. The cover should be at least as thick as the maximum cover of the chambers. For instability, the cover should be at least as thick as the maximum cover of the chambers.

3. The cover should be at least as thick as the maximum cover of the chambers. For instability, the cover should be at least as thick as the maximum cover of the chambers.

4. The cover should be at least as thick as the maximum cover of the chambers. For instability, the cover should be at least as thick as the maximum cover of the chambers.

5. The cover should be at least as thick as the maximum cover of the chambers. For instability, the cover should be at least as thick as the maximum cover of the chambers.

**Stormtech Technical Details**

**URC1 Pavement**

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**URC2 Pavement**

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**Sub Total:** $1,684,745

**Estimated Bid Price:** $1,685,000

**Owner Contingency:** 30% $506,000

**Estimated Construction Budget:** $2,191,000

**Notes:**
Contingency is provided based on 75% design plans reflecting the fact that uncertainty exists between this stage and construction stage drawings. Final construction estimates will be dependent on factors resolved at the construction bidding stage.
APPENDIX D. MILL RIVER PARK AND RIVERWALK AT CITY HALL, TAUNTON - SUPPORTING INFORMATION
August 19, 2009

Mr. Brian Marques, Chair
City of Taunton Conservation Commission
City Hall
15 Summer Street
Taunton, MA 02780

Re: Taunton River Watershed Plan – Potential Demonstration Project
Intersection of Summer Street and Spring Street, Taunton, Massachusetts

Dear Mr. Marques and Members of the Conservation Commission:

On behalf of our client, Bridgewater State College, we are requesting your consideration and assistance to cooperate in the design of a potential demonstration stormwater management and habitat enhancement project at the above referenced location. The Horsley Witten Group, Inc. (HW) has been retained by Bridgewater State College and a multi-agency/organization Steering Committee to develop a two-phased watershed planning project within the Taunton River Watershed. The first phase of the project was finished late last year and involved an evaluation of existing conditions and an assessment of future strategies for protecting drinking water supplies, and environmental quality through effective wastewater, stormwater, and habitat management.

The current phase of the plan has two major components, one involving the identification of a series of demonstration projects within the watershed that can help restore or protect environmental resources and a second consisting of an assessment of local ordinances and regulations to identify and recommend changes to potential impediments to environmentally sensitive growth and development. It is for the first component that we are contacting you and your Commission membership.

We have been in contact with Ms. Michele Restino, your Conservation Agent, to see if she knew of any candidate project locations that might be appropriate as demonstration sites. On Thursday, July 9th, we met with Ms. Restino to review the parking lot behind City Hall that drains directly to the Mill River (see Attached Figure). Our discussions involved a potential project that would include managing and treating stormwater runoff from the up-gradient parking lot, enhancing the vegetative buffer between the parking lot and the river, and developing an invasive species management plan for the area. We understand that the site is also being considered for a new Skate Park as well as to accommodate a possible river path system. We
believe that all of these potential uses and/or management measures can be accommodated at this location and are compatible.

HW’s role and scope of work for this phase of the watershed planning effort includes identifying potential demonstration sites as well as developing conceptual design plans to a sufficient level to apply for relevant permits and to seek implementation funding through grant opportunities (i.e., designed to the 75% level). We are currently in the process of identifying up to 20 potential demonstration sites across the watershed and will be evaluating and prioritizing candidate sites over the next two months so as to present a list of preferred projects to our Steering Committee sometime in mid- to late September for their consent. Once directed to do so, we will be developing conceptual designs for up to six projects throughout the watershed.

Therefore, there is no need for the City or anyone else to help fund this current work. We simply seek your approval to proceed with the collection of existing information and your cooperation to provide access to the site, assist with coordination with other projects in the area, and to provide comments and feedback on the conceptual design if this project is one of the six sites chosen for the 75% design stage. If you have any questions regarding the specifics of this proposal, we would be happy to discuss these either through Ms. Restino, or directly before the Commission at an upcoming regularly scheduled public hearing. If you are in agreement with this proposal, and can let us know whether or not you are in a position to support this site as a candidate for a watershed demonstration project, we would appreciate hearing from you. Please feel free to contact me if you have questions or need further clarification.

Sincerely

THE HORSLEY WITTEN GROUP, INC.

Richard A. Claytor, Jr., P.E.
Principal Engineer
August 19, 2009

Mr. Brian Marques, Chair
City of Taunton Conservation Commission
City Hall
15 Summer Street
Taunton, MA 02780

Re: Taunton River Watershed Plan – Potential Demonstration Project
Boyden Wildlife Refuge, Cohannet Street, Taunton, Massachusetts

Dear Mr. Marques and Members of the Conservation Commission:

On behalf of our client, Bridgewater State College, we are requesting your consideration and assistance to cooperate in the design of a potential demonstration stormwater management and habitat enhancement project at the above referenced location. The Horsley Witten Group, Inc. (HW) has been retained by Bridgewater State College and a multi-agency/organization Steering Committee to develop a two-phased watershed planning project within the Taunton River Watershed. The first phase of the project was finished late last year and involved an evaluation of existing conditions and an assessment of future strategies for protecting drinking water supplies, and environmental quality through effective wastewater, stormwater, and habitat management.

The current phase of the plan has two major components, one involving the identification of a series of demonstration projects within the watershed that can help restore or protect environmental resources and a second consisting of an assessment of local ordinances and regulations to identify and recommend changes to potential impediments to environmentally sensitive growth and development. It is for the first component that we are contacting you and your Commission membership.

We have been in contact with Ms. Michele Restino, your Conservation Agent, to see if she knew of any candidate project locations that might be appropriate as demonstration sites. On Thursday, July 9th, we met with Ms. Restino to review the steep bank along the Three Mile River (see Attached Figure). Our discussions involved a potential project that would include stabilizing the steep bank above the river and managing runoff from the top of the bank.

HW’s role and scope of work for this phase of the watershed planning effort includes identifying potential demonstration sites as well as developing conceptual design plans to a sufficient level to apply for relevant permits and to seek implementation funding through grant opportunities.
(i.e., designed to the 75% level). We are currently in the process of identifying up to 20 potential demonstration sites across the watershed and will be evaluating and prioritizing candidate sites over the next two months so as to present a list of preferred projects to our Steering Committee sometime in mid- to late September for their consent. Once directed to do so, we will be developing conceptual designs for up to six projects throughout the watershed.

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Sincerely

THE HORSLEY WITTEN GROUP, INC.

Richard A. Claytor, Jr., P.E.
Principal Engineer
NOTICE OF INTENT
AUGUST 26, 2010

DRAWING LIST
C-1 COVER SHEET
C-2 EXISTING CONDITIONS PLAN
C-3 GRADING AND DRAINAGE PLAN
C-4 EROSION CONTROL & SLOPE PROTECTION DETAILS
C-5 STORMWATER DETAILS
C-6 BIOTRETENTION DETAILS
L-1 INVASIVE SPECIES MANAGEMENT PLAN
L-2 PLANTING PLAN – BUFFER AREAS
L-3 PLANTING PLAN – BIOTRETENTION AREA

GENERAL NOTES
1. DRAWING ORIIGINATION NUMBERS ARE BASED ON A SURVEY DATUM PREPARED BY HARRISON AND WHITNEY CONSULTANTS DATED APRIL 2, 2009
2. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE utility COMPANY AND acquire PERMITTING INFORMATION AND TERRITORIES AT LEAST 30 DAYS PRIOR TO ANY CONSTRUCTION WORK. THE CONTRACTOR MUST PROVIDE 48 HOURS NOTICE TO ALL ATTENDEES PRIOR TO THE START OF THE MEETING
3. APPROPRIATE WARNING SIGNS, WARNING BARRIERS, AND/or FLAGging SHALL BE PROVIDED TO REGULATE TRAFFIC. CONSTRUCTION TRAFFIC LANES SHALL BE IMPLEMENTED AND MARKED ACCORDING TO THE MASS DEPARTMENT OF TRANSPORTATION, THE VARIOUS INFRUSTRUCUTURAL CONTROL DEPARTMENTS AND THE LOCAL AUTHORITY
4. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL PERMITTING INFORMATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL PERMITTING INFORMATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION

CONSULTANTS
LANDSCAPE ARCHITECT
BROWN, RIVIERA & GARRISON
59 VINE STREET, WOBURN, MA
PHONE: (781) 932-8885
FAX: 781-384-8078

CIVIL ENGINEER
PESKITT, WOODS & TURNER
8 EASTON AVENUE
BURLINGTON, MA 01803
PHONE: (781) 281-5777
FAX: 781-281-5592

CIVIL ENGINEER
CONSULTANT WILSHIRE
3434 SHERMAN AVENUE
SHARON, MA 02067
PHONE: (781) 851-2500
FAX: 781-851-2501

SURVEY
SHANNON AND HANLEY CONSULTANTS
135 EAGLE STREET, MARLBOROUGH, MA 01752
PHONE: (508) 481-4700
FAX: 508-481-4710

DRAFT - NOT FOR CONSTRUCTION
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<td>7.00 in</td>
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<td>68.00 in</td>
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Notes:
- FES - Flared End Section
- IN - Inlet
- HDPE - High-Density Polyethylene
**Bioretention Material Specifications**

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<tr>
<th>Material</th>
<th>Specification</th>
<th>Notes</th>
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| **Bioretention Soil** | Filter Media to contain:  
\[85-88\% sand\]  
\[8-12\% soil fines (< 2\% clay)\]  
\[3-5\% organic matter\]  | USDA soil types loamy sand or sandy loam. Volume of filter media based on 110% of plan volume to account for settling or compaction. Organic matter shall be well aged (6-12 months), well aerated, leaf compost or approved equivalent. |
| **Mulch Layer**   | Fine shredded hardwood mulch. Well Aged (6 months minimum).  
A 2 to 3 inch layer on the surface of the filter bed. Mix half into soil filter media. |                                                                                           |
| **Filter Fabric** | Non-woven geotextile fabric with flow rate of > 110 gallon/minutes/square foot.  
Class "C" apparent opening size (ASTM-D-4751) grab tensile strength (ASTM-D-4632) burst strength (ASTM-D-4833) | For use over underdrains (extend 1 foot - 1.5 feet each side) and side walls of bioretention excavation. |
| **Pea Gravel**    | 3/8" washed stone | For use between the Bioretention Soil and the approved subgrade/underdrain gravel. |
| **Gravel**        | Underdrain Jacket  
AASHTO M-43  
Washed, clean and free of all fines. | Underdrain  
4" rigid schedule 40 PVC pipe, with 3/8" perforations @ 6" o.c. meeting ASTM D 1785 or AASHTO M-278 (Or equivalent corrugated HDPE if shown in drawings).  
Perforated pipe for length of bioretention cell, and non-perforated pipe as needed to connect with storm drain system. T's and Y's as needed depending on underdrain configuration. |
| **Underdrain Cleanouts** | Non perforated schedule 40 PVC pipe, PVC elbow, cap, and all associated fittings | Extend cleanout pipes to surface with vented caps at Ts and Ys. |
| **Erosion Control Blanket** | Woven, 100% biodegradable jute fiber 7.70 lbs/1000 sqft.  
Bionet S150BN or approved equivalent | To be used on 3:1 side slopes of bioretention area. |
| **Plant Material** | All plant material shall conform, in all respects, to the guidelines of the "American Standard for Nursery Stock", latest edition  
Plant species and quantities as specified in the Drawings. | Grass Seed  
New England Conservation/Wildlife/Mix or approved equivalent  
Application rate 25 lbs/ acres or per seed manufacturer's requirements. |

**PERMITTING PLANS**

**BIORETENTION DETAILS**

**Notes:**  
1. Distal Stone Depth must be = or > Thickness of underdrain pipe + stone above  
2. Stone above 0.17 3" of stone above minus 1" into pea gravel layer  
3. Bottom elevation = Surface of shredded organic layer (see detail)  
4. Total Underdrain thickness 0.33
Riverside Plant List

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<td>Cephalanthus occidentalis</td>
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<td>24&quot; O.C.</td>
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</tr>
<tr>
<td>PP</td>
<td>Pachysandra procumbens</td>
<td>Allegany Pachysandra #1</td>
<td>18&quot; O.C.</td>
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</tr>
<tr>
<td>PVHM</td>
<td>Panicum virgatum 'Heavy Metal'</td>
<td>Heavy Metal Switch Grass #2</td>
<td>30&quot; O.C.</td>
<td></td>
</tr>
<tr>
<td>PVS</td>
<td>Panicum virgatum 'Shenandoah'</td>
<td>Shenandoah Switch Grass #2</td>
<td>36&quot; O.C.</td>
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</tr>
<tr>
<td>PAF</td>
<td>Polystichum arcostichoides</td>
<td>Christmas dagger fern #1</td>
<td>18&quot; O.C.</td>
<td></td>
</tr>
<tr>
<td>RHG193</td>
<td>Rudbeckia fulgida 'Goldsturm'</td>
<td>Black-Eyed Susan #1</td>
<td>18&quot; O.C.</td>
<td></td>
</tr>
<tr>
<td>SR151</td>
<td>Solidago rugosa 'Fireworks'</td>
<td>Fireworks Wrinkleleaf Goldenrod #1</td>
<td>18&quot; O.C.</td>
<td></td>
</tr>
<tr>
<td>TIC</td>
<td>Tiarella cordifolia</td>
<td>Heartleaf Foamflower #1</td>
<td>18&quot; O.C.</td>
<td></td>
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<tr>
<td>VV</td>
<td>Veronicastrum virginicum</td>
<td>Culver's Root #2</td>
<td>18&quot; O.C.</td>
<td></td>
</tr>
</tbody>
</table>

Note: Trees, shrubs, and ground covers should be mounted in a way that does not interfere with drainage.
Bioretention Plant List

<table>
<thead>
<tr>
<th>Key</th>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Size</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA 6</td>
<td>Acer rubrum</td>
<td>'Autumn Flame'</td>
<td>Swamp Maple</td>
<td>2.5&quot;-3&quot; cal.</td>
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<tr>
<td>CSAF 10</td>
<td>Cornus sericea</td>
<td>'Arctic Fire'</td>
<td>Red Twig Dogwood</td>
<td>3' - 4' h.</td>
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<tr>
<td>FM 19</td>
<td>Fothergilla major</td>
<td>'Mt. Airy'</td>
<td>Mount Airy Fothergilla</td>
<td>#3 As Shown</td>
</tr>
<tr>
<td>IG 7</td>
<td>Ilex glabra</td>
<td>Inkberry</td>
<td>#3 As Shown</td>
<td></td>
</tr>
<tr>
<td>LB 6</td>
<td>Lindera benzoin</td>
<td>Spice Bush</td>
<td>#3 As Shown</td>
<td></td>
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<tr>
<td>CVM92</td>
<td>Coreopsis verticillata</td>
<td>'Moonbeam'</td>
<td>Moonbeam Coreopsis</td>
<td>#2 18&quot; O.C.</td>
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<tr>
<td>EDLJ 96</td>
<td>Eupatorium dubium</td>
<td>'Little Joe'</td>
<td>Little Joe Pye Weed</td>
<td>#1 18&quot; O.C.</td>
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<tr>
<td>HHB 77</td>
<td>Heliopsis helianthoides</td>
<td>'Ballerina'</td>
<td>Ballerina False Sunflower</td>
<td>#1 24&quot; O.C.</td>
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<tr>
<td>IVE 107</td>
<td>Iris versicolor</td>
<td>Blue Flag</td>
<td>#1 18&quot; O.C.</td>
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<tr>
<td>JE 107</td>
<td>Juncus effusus</td>
<td>Soft Rush</td>
<td>#1 18&quot; O.C.</td>
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<tr>
<td>LS 137</td>
<td>Liatris spicata</td>
<td>Blazing Star</td>
<td>#1 18&quot; O.C.</td>
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<tr>
<td>LC 96</td>
<td>Lobelia cardinalis</td>
<td>Cardinal Flower</td>
<td>#1 18&quot; O.C.</td>
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<tr>
<td>LSP 89</td>
<td>Lobelia siphilitica</td>
<td>Blue Cardinal Flower</td>
<td>#1 18&quot; O.C.</td>
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<tr>
<td>PVHM 61</td>
<td>Panicum virgatum</td>
<td>'Heavy Metal'</td>
<td>Switch Grass</td>
<td>#2 30&quot; O.C.</td>
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<tr>
<td>PVS 34</td>
<td>Panicum virgatum</td>
<td>'Shenandoah'</td>
<td>Switch Grass</td>
<td>#2 30&quot; O.C.</td>
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<tr>
<td>RHG169</td>
<td>Rudbeckia fulgida</td>
<td>'Goldsturm'</td>
<td>Black-Eyed Susan</td>
<td>#1 18&quot; O.C.</td>
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<tr>
<td>SR89</td>
<td>Solidago rugosa</td>
<td>'Fireworks'</td>
<td>Fireworks Goldenrod</td>
<td>#1 18&quot; O.C.</td>
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<tr>
<td>VV 92</td>
<td>Veronicastrum virginicum</td>
<td>Culver's Root</td>
<td>#2 18&quot; O.C.</td>
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PERMITTING PLANS
08-03-2016

PLANTING PLAN
BIORETENTION AREA

PLANTING SPACING DETAILS

MOWED GRASS MIX
NEW ENGLAND CONSERVATION MIX
<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>ESTIMATED QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>TOTAL AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>STRAWBALES &amp; SILT FENCE FOR EROSION CONTROL</td>
<td>1,000</td>
<td>LINEAR FOOT</td>
<td>$10.00</td>
<td>$10,000</td>
</tr>
<tr>
<td>2.0</td>
<td>BIORETENTION FACILITY</td>
<td>3,000</td>
<td>SQUARE FOOT</td>
<td>$27.50</td>
<td>$82,500</td>
</tr>
<tr>
<td>3.0</td>
<td>8&quot; HDPE DRAINAGE PIPE</td>
<td>120</td>
<td>LINEAR FOOT</td>
<td>$30.00</td>
<td>$3,600</td>
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<tr>
<td>4.0</td>
<td>18&quot; HDPE DRAINAGE PIPE</td>
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<td>5.0</td>
<td>18&quot; HDPE FLARED END SECTION</td>
<td>1</td>
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<tr>
<td>6.0</td>
<td>EROSION CONTROL MAT FOR REINFORCED SWALES</td>
<td>350</td>
<td>SQUARE YARD</td>
<td>$16.00</td>
<td>$5,600</td>
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<tr>
<td>7.0</td>
<td>PAVED DRAINAGE FLUME</td>
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<td>EACH</td>
<td>$600.00</td>
<td>$1,200</td>
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<td>8.0</td>
<td>SIDEWALK BRIDGE DRAINAGE INLET</td>
<td>3</td>
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<td>$1,400.00</td>
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<td>9.0</td>
<td>RIPRAP OUTFALLS</td>
<td>3</td>
<td>EACH</td>
<td>$2,000.00</td>
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<tr>
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<td>SEDIMENT FOREBAY</td>
<td>300</td>
<td>SQUARE FOOT</td>
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<tr>
<td>11.0</td>
<td>SWALE EXCAVATION</td>
<td>120</td>
<td>CUBIC YARD</td>
<td>$13.00</td>
<td>$1,560</td>
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<tr>
<td>12.0</td>
<td>LOAM &amp; SEED FOR SWALES</td>
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<td>SQUARE YARD</td>
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<td>13.0</td>
<td>RIPRAP OVERFLOW SPILLWAY</td>
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<td>14.0</td>
<td>PLANTINGS (EXCL. BIORETENTION FACILITY, BUT INCL. BUFFER RESTORATION AND AREA BETWEEN RIVERWALK AND BIORETENTION)</td>
<td>N/A</td>
<td>EACH</td>
<td>N/A</td>
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<td>15.0</td>
<td>PLANTING SOIL AT TREES (ASSUME 4.7 CU. YDS/TREE X 19 TREES)</td>
<td>89</td>
<td>CUBIC YARD</td>
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<td>16.0</td>
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<td>PLANTING SOIL AT PLANTING BEDS (ASSUME 12&quot; DEPTH)</td>
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<td>CUBIC YARD</td>
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<td>SEEDING OF LAWN AREAS</td>
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<td>SQUARE YARD</td>
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<td>$6,950</td>
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<td>19.0</td>
<td>SHREDDED PINE BARK MULCH (3&quot; DEPTH FOR TREES AND BEDS, ASSUME .30 CYDS/TREE)</td>
<td>58</td>
<td>CUBIC YARD</td>
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<td>20.0</td>
<td>MOBILIZATION/DEMOBILIZATION</td>
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<td>SILT SOCK</td>
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<td>22.0</td>
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<tr>
<td>23.0</td>
<td>PERMANENT SLOPE STABILIZATION</td>
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<tr>
<td>24.0</td>
<td>COIR ROLL INSTALLATION</td>
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<td>LINEAR FOOT</td>
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<td>$5,500</td>
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<tr>
<td>25.0</td>
<td>RESET RIPRAP</td>
<td>700</td>
<td>SQUARE FOOT</td>
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<td>26.0</td>
<td>CONTRACTOR INSPECTIONS</td>
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<td>LINER REMOVAL AND DISPOSAL</td>
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<td>LUMP SUM</td>
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<tr>
<td></td>
<td>EROSION/SEDIMENT CONTROL</td>
<td></td>
<td>LUMP SUM</td>
<td>$10,000.00</td>
<td>$10,000</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------</td>
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<td>1</td>
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</table>

**SUB TOTAL** $310,400

**ESTIMATED BID PRICE** $311,000

Owner Contingency 20% $63,000

**ESTIMATED CONSTRUCTION BUDGET** $374,000

**NOTES:**

THE CONTINGENCY IS PROVIDED FOR VARIABILITY IN THE BIDDING CLIMATE, PROJECT CHANGES BEFORE BIDDING AND CHANGE ORDERS DUE TO UNFORSEEN CONDITIONS, BASED ON PLANS ADVANCED TO THE CONSTRUCTION DOCUMENT STAGE.
APPENDIX E. INNOVATIVE WASTEWATER DISPOSAL AT TED WILLIAMS PARK, LAKEVILLE - SUPPORTING INFORMATION
FLOW FOR 3000 GALLON PER DAY SITE
SEPTIC TANK
1ST COMPARTMENT 200% OF TOTAL DAILY FLOW:
2 X 3000 GPD: 6,000 GPD
2ND COMPARTMENT 100% OF TOTAL DAILY FLOW:
1 X 3000 GPD: 3,000 GPD
TOTAL TANK CAPACITY REQUIRED: 9,000 GPD
USE TWO COMPARTMENT 11,000 GALLON SEPTIC TANK
SOIL ABSORPTION SYSTEM
LEACHING SYSTEM DESIGN CRITERIA
SOIL DESCRIPTION SYSTEM
DESIGN PERCOLATION RATE: 6 MIN./IN.
SOIL CLASS: I
LONG TERM ACCEPTANCE RATE (LTAR): 0.35 GPD/S.F.
TOTAL AREA REQUIRED: 8,572 S.F.
TOTAL LINEAR FEET OF DRIP TUBING REQUIRED: 4,286 L.F.
TOTAL AREA PROPOSED:
TOTAL AREA: (135' x 74'): 9,990 S.F.
TOTAL LINEAR FEET OF DRIP TUBING PROVIDED: 4,320 L.F.
TOTAL ALLOWABLE FLOW: 3,496 GPD
USE 135'L X 74'W DRIP DISPOSAL AREA
LEACHING SYSTEM DESIGN CRITERIA
TREATMENT SYSTEM DESIGN CRITERIA
SCHEDULE OF ELEVATIONS
IN V. EL.
TOP OF FOUNDATION
BUILDING SERVICE
GREASE TRAP SERVICE
3,000 GALLON SEPTIC TANK
GREASE TRAP TOP
GREASE TRAP - INLET
GREASE TRAP - OUTLET
GREASE TRAP BOTTOM TANK
SEPTIC TANK TOP
SEPTIC TANK INLET (BUILDING)
SEPTIC TANK INLET (GREASE TRAP)
SEPTIC TANK OUTLET
BOTTOM TANK
11,000 GALLON SEPTIC TANK
TANK VOLUME (CU. FT.)
PORTION OF TANK IN WATER AT SEASONAL HIGH GW (EL.=4.0')
EQUIVALENT WEIGHT OF WATER DISPLACED (LB.)
SOIL COVER VOLUME (CU. FT.)
WEIGHT OF SOIL COVER, (LB.)
TANK WEIGHT (LB.)
TOTAL BALLAST (TANK + SOIL) (LB.)
BALLAST REQUIRED (BUOYANCY FORCE - TOTAL BALLAST) (LB.)
CONCRETE BALLAST REQUIRED (CU. FT.)
BALLAST NOT REQUIRED
6,000 GALLON SEPTIC TANK
TANK VOLUME (CU. FT.)
PORTION OF TANK IN WATER AT SEASONAL HIGH GW (EL.=4.0')
EQUIVALENT WEIGHT OF WATER DISPLACED (LB.)
SOIL COVER VOLUME (CU. FT.)
WEIGHT OF SOIL COVER, (LB.)
TANK WEIGHT (LB.)
TOTAL BALLAST (TANK + SOIL) (LB.)
BALLAST REQUIRED (BUOYANCY FORCE - TOTAL BALLAST) (LB.)
CONCRETE BALLAST REQUIRED (CU. FT.)
BALLAST NOT REQUIRED
BUOYANCY CALCULATIONS
DESCRIPTION NUMBER UNITS TYPE OF ESTABLISHMENT FLOW RATE (GPD) DESIGN FLOW (GPD) KITCHEN WASTE (GAL)
FUNCTION HALL 200 SEATS
FUNCTION HALL 15 3,000
FOR GREASE TRAP SIZING
200 SEATS RESTAURANT, KITCHEN FLOW 15 3,000
WASTEWATER DESIGN FLOW CALCULATION

GRAVITY DRAIN SYSTEM TO A PRIMARY TREATMENT PLANT

0123 4 of 3 WASTEWATER SITE PLAN

15.5'

PUMP STATION

3,000 GALLON GREASE TRAP
TANK VOLUME (CU. FT.)
PORTION OF TANK IN WATER AT SEASONAL HIGH GW (EL.=4.0')
EQUIVALENT WEIGHT OF WATER DISPLACED (LB.)
SOIL COVER VOLUME (CU. FT.)
WEIGHT OF SOIL COVER, (LB.)
TANK WEIGHT (LB.)
TOTAL BALLAST (TANK + SOIL) (LB.)
BALLAST REQUIRED (BUOYANCY FORCE - TOTAL BALLAST) (LB.)
CONCRETE BALLAST REQUIRED (CU. FT.)
BALLAST NOT REQUIRED
11,000 GALLON SEPTIC TANK
TANK VOLUME (CU. FT.)
PORTION OF TANK IN WATER AT SEASONAL HIGH GW (EL.=4.0')
EQUIVALENT WEIGHT OF WATER DISPLACED (LB.)
SOIL COVER VOLUME (CU. FT.)
WEIGHT OF SOIL COVER, (LB.)
TANK WEIGHT (LB.)
TOTAL BALLAST (TANK + SOIL) (LB.)
BALLAST REQUIRED (BUOYANCY FORCE - TOTAL BALLAST) (LB.)
CONCRETE BALLAST REQUIRED (CU. FT.)
BALLAST NOT REQUIRED
6,000 GALLON SEPTIC TANK
TANK VOLUME (CU. FT.)
PORTION OF TANK IN WATER AT SEASONAL HIGH GW (EL.=4.0')
EQUIVALENT WEIGHT OF WATER DISPLACED (LB.)
SOIL COVER VOLUME (CU. FT.)
WEIGHT OF SOIL COVER, (LB.)
TANK WEIGHT (LB.)
TOTAL BALLAST (TANK + SOIL) (LB.)
BALLAST REQUIRED (BUOYANCY FORCE - TOTAL BALLAST) (LB.)
CONCRETE BALLAST REQUIRED (CU. FT.)
BALLAST NOT REQUIRED

A0 SIZE CAD FILE,drafter by 776-44823-83, Checked by Ray Miller, 5/13/94, for use by B & H Construction, Inc., by W.B. Brown, Jr. 6/13/94.
TAUNTON RIVER WATERSHED PLAN - COMMISSARY BUILDING TED WILLIAMS PARK  
LAKEVILLE, MA  
DRIP IRRIGATION SYSTEM - 3,000 GPD  
75% DESIGN PLANS  
CONSTRUCTION COST ESTIMATE  
8/16/2010

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>ESTIMATED QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>TOTAL AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>SEPTIC TANK INSTALLED (11,000 GALLON TWO COMPARTMENT TANK)</td>
<td>11,000</td>
<td>GAL</td>
<td>$1.95</td>
<td>$21,450</td>
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<tr>
<td>2.0</td>
<td>GREASE TRAP INSTALLED (3,000 GALLON TANK)</td>
<td>3,000</td>
<td>GAL</td>
<td>$1.95</td>
<td>$5,850</td>
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<tr>
<td>3.0</td>
<td>SYSTEM PIPING INSTALLED (4&quot; Sch 40 PVC)</td>
<td>210</td>
<td>FT</td>
<td>$60.00</td>
<td>$12,600</td>
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<tr>
<td>4.0</td>
<td>FORCemain (FOUR 1&quot; SUPPLY AND ONE 1&quot; RETURN Sch 40 PVC)</td>
<td>590</td>
<td>FT</td>
<td>$15.00</td>
<td>$8,850</td>
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<tr>
<td>5.0</td>
<td>DRIP DISPOSAL PUMP CHAMBER (6,000 GALLON TANK)</td>
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<td>GAL</td>
<td>$1.95</td>
<td>$11,700</td>
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<tr>
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<td>7.0</td>
<td>DRIP DISPOSAL SYSTEM INSTALLATION (PUMP SYSTEM, HYDRAULIC UNIT, DRIP TUBING)</td>
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<td>LS</td>
<td>$5,250.00</td>
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<tr>
<td>8.0</td>
<td>ELECTRICAL (DRIP DISPOSAL SYSTEM PUMPS AND CONTROL PANEL)</td>
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<td>40%</td>
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<td>ABANDON EXISTING SEPTIC COMPONENTS</td>
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<tr>
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SUB TOTAL $104,700

ESTIMATED BID PRICE $105,000
Owner Contingency 30% $32,000

ESTIMATED CONSTRUCTION BUDGET $137,000

NOTES:

CONTESTENCY IS PROVIDED BASED ON 75% DESIGN PLANS REFLECTING THE FACT THAT UNCERTAINTY EXISTS BETWEEN THIS STAGE AND CONSTRUCTION STAGE DRAWINGS. FINAL CONSTRUCTION ESTIMATES WILL BE DEPENDANT ON FACTORS RESOLVED AT THE CONSTRUCTION BIDDING STAGE.
APPENDIX F. LID DRIVEWAY RETROFIT AT OCEAN SPRAY PROCESSING FACILITY, MIDDLEBORO - SUPPORTING INFORMATION
MEMORANDUM

TO: Pauline Jeong, Sustainability Manager, Ocean Spray Cranberries  
    Robert Mullennix, Environmental Health and Safety Manager, Ocean Spray Cranberries  
    Mark Rapoza, Technical Services Manager, Middleboro Plant, Ocean Spray Cranberries

FROM: Richard A. Claytor, Jr., P.E., Principal Engineer  
      Ellie Baker, Project Manager

DATE: December 17, 2009

RE: Demonstration Projects at Ocean Spray Cranberries – Middleboro Processing Plant  
    Taunton River Watershed Management Plan

As you know, staff of the Horsley Witten Group, Inc (HW) and the Nature Conservancy (TNC) met with you back in late September of this year in your Headquarters office to discuss the goals of the Taunton River Watershed Management project and to see if Ocean Spray Cranberries might be interested in participating as one of our watershed demonstration projects. We then met again in late October and participated in a tour of the Middleboro Processing Plant grounds to review potential project options for demonstration of so-called low impact development (LID) stormwater management measures at the Middleboro Processing Plant. We also discussed the possibility of capturing rooftop rainfall for re-use as make-up coolant water. We later met directly with Mr. Rapoza in early November to review some drainage plans of the plant and view the plant rooftop and roof drainage system. Based on these meetings and tours, HW agreed to develop a list of potential projects and locations for further consideration by Ocean Spray Cranberries. This memorandum serves to present you with that list of potential projects.

We have identified five separate potential LID locations on the plant with a variety of drainage characteristics and one rooftop capture/re-use location (see attached figure). Sites were identified based on current drainage patterns and the potential to offer improved stormwater management for the contributing drainage area. The LID stormwater management approach is designed to capture and manage runoff from relatively small areas and uses a natural approach to treat, and where feasible, infiltrate stormwater into the underlying soils. Each of the five identified locations employs a basic strategy of collecting roadway and/or parking lot runoff and providing water quality treatment in one of three LID practices: a vegetative swale, a bioretention system (also sometimes referred to as a rain garden), or a constructed wetland. The
vegetative swales would consist of an organic-rich soil supporting a range of herbaceous and woody vegetation, and depending on the groundwater elevations, may or may not have an underdrain pipe system. Bioretention is an alternative stormwater management practice that uses a soil matrix and landscaping to filter stormwater pollutants and, where possible, infiltrate into the underlying soils. The constructed wetland practice supports a shallow permanent pool of water and a range of emergent vegetation (see photos below).

**Potential Demonstration Sites**

The general concept and approximate size of the project for each of the five sites are presented below.

**Site 1:** This area drains a large parking lot that appears to be underutilized employee parking and that currently flows to one of two catchbasins. The proposed concept would be to reconfigure...
the drainage so that it would first flow into a bioretention facility and overflow in the catchbasins. The design might require the removal or reconfiguration of a few to several parking spaces and occupy an area of approximately 1,200 to 1,400 square feet.

Site 1: Bioretention Area Within Center of Parking Lot

Site 2: This site drains a portion of the entrance road and adjacent impervious area that is serving as an existing storage area for cranberry crates. An existing grass swale of approximately 475 feet drains this area. The concept would be to convert this turf grass to a mix of herbaceous and woody vegetation and add organic soil, thus allowing for longer stormwater residence time and more effective stormwater treatment.

Site 2: Grass Swale at Entrance Driveway

Site 3: This area drains runoff from the loading dock and rooftop near the main entrance. We propose to convert the existing grass swale to a vegetated swale with a mix of herbaceous and woody species and other aquatic features (such as boulders and small pool areas). The length of the swale would be approximately 200 feet.
Site 4: This area drains runoff from the parking lot in front of the main entrance. The existing grass swale could be modified to utilize a bioretention soil matrix to support a mix of trees, shrubs and perennials. The approximate surface area of the facility could be as much as 3,000 square feet.

Site 5: This area drains runoff from the driveway and adjacent overflow parking lot. The area appears to be wet with shallow depth to groundwater. The concept would be to design this as a constructed wetland with a shallow permanent pool and mix of emergent wetland vegetation.
Additional Project Site and Concept

In addition, we discussed the possibility of using rainfall from the rooftop drainage system as make-up water for one or more of the cooling systems or for some other non-potable use. HW reviewed the mechanical drawings for a portion of the facility’s roof (Receiving Facility, dated 11/17/8?). This rooftop precipitation is collected in a series of risers that discharge to the existing storm drain system to the southwest corner approximately 9 feet below grade.

Based on the current piping arrangement, it would be difficult to capture this water and direct it to a storage facility, and would require pumping in order to direct the water to another location for re-use. However, it is our understanding that in the near future, this rooftop and drainage system may be completely overhauled at which time it might be cost effective to direct water to a large holding tank for re-use. There is a relatively level grass area immediately adjacent to the
existing refrigerated building (far southeast corner) that might serve as an ideal location for either an above ground, or below ground storage tank.

Next Steps: Site and Project Selection

Based on our initial assessment of the Middleboro Processing Plant, it seems that there are several options for the installation of one or more LID demonstration projects in the near-term. Depending on the schedule for roof replacement work and whether or not the existing drainage system is contemplated for overhaul, it seems possible that a rainfall re-use project would be feasible in the longer-term.

Please review the attached map and this memo and let us know if you are interested in pursuing any of these potential projects further. We would like to move forward with one of the five demonstration projects listed above, or possibly two if they are located adjacent to one another. At this time, we do not believe that the roof runoff re-use project would fit within our current scope of work and budget within the Taunton River Watershed Management Plan project, but would be happy to explore this project with you further in addition the selected demonstration project.

If you have any questions or you would like more information on the various stormwater management options, please do not hesitate to contact Rich Claytor at 508-833-6600 or Ellie Baker at 978-499-0601. We hope to be in a position to move forward with the initial design process before February 1, 2010. We look forward hearing your project selection in the meantime. Thank you again for meeting with us, conducting the tours of your facility and in your interest in this project.
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<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>ESTIMATED QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
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SUB TOTAL $118,317
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<td>ESTIMATED CONSTRUCTION BUDGET</td>
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**NOTES:**

Contingency is provided based on 75% design plans reflecting the fact that uncertainty exists between this stage and construction stage drawings. Construction estimates will be dependent on factors resolved at the construction bidding stage.
APPENDIX G. LID DRIVEWAY RETROFIT AND TEACHING TOOL AT BRISTOL COUNTY AGRICULTURAL HIGH SCHOOL, DIGHTON - SUPPORTING INFORMATION
MEMORANDUM

TO:       Krista Paynton, Superintendent/Director
          Bristol County Agricultural High School
          135 Center Street
          Dighton, MA 02715

FROM:    Richard A. Claytor, Jr., P.E., Principal Engineer
          Ellie Baker, Project Manager

DATE:    December 4, 2009

RE:      Demonstration Projects at Bristol County Agricultural High School
          Taunton River Watershed Management Plan

As you know, Ellie Baker and I visited the Bristol County Agricultural High School on
November 3, 2009 and met with you, the Principal, several teachers and a group of students to
identify potential project sites for low impact development (LID) measures on campus. As you
may recall, we spoke with the teachers and students about the potential to use the project as a
teaching tool, and the potential for students to monitor the plantings and possibly become a
supplier to others for native plants that are appropriate for these systems, but not necessarily
currently commercially available.

We identified five separate potential LID locations on campus with a variety of drainage
characteristics (see attached figure). Sites were identified based on current drainage patterns and
the potential to offer an improved stormwater management option. The LID stormwater
management approach is designed to capture and manage runoff from relatively small areas and
uses a natural approach to treat, and where feasible, infiltrate stormwater into the underlying
soils. Each of the five identified locations employs a similar basic strategy, which is to collect
runoff from the surface in a vegetated channel and then draining to a bioretention system (or rain
garden). Bioretention is an alternative stormwater management practice that uses a soil matrix
and landscaping to filter stormwater pollutants and, where possible, infiltrate into the underlying
soils (see photo). The proposed design concept, approximate size of the project and approximate
construction costs for each of the five sites are as follows:
Site 1: This area drains rooftop from the main campus building (Gilbert Hall) and the adjacent parking area to the rear. We propose to design a bioretention area with an overflow to the lower parking area.
   - Drainage area to be managed: 0.22 acres.
   - Bioretention surface area: 290 square feet.
   - Planning level cost estimate: $8,700

Site 2: This area drains a portion of the access road, buildings and farm equipment repair building. We propose to design a vegetated swale that leads to a bioretention facility, which would then overflow to the field below.
   - Drainage area to be managed: 1.89 acres.
   - Swale Length: 140 feet;
   - Bioretention surface area: 1,360 square feet.
   - Planning level cost estimate: $44,500

Site 3: This area drains runoff from the parking lot and rooftop from the greenhouse. We propose to design a vegetated swale that leads to a bioretention facility, which would then overflow to the field below.
   - Drainage area to be managed: 0.48 acres.
   - Swale Length: 35 feet;
   - Bioretention surface area: 320 square feet.
   - Planning level cost estimate: $11,500

Site 4: This area drains runoff from the large animal facility and the driveway in front of the small animal facility. We propose to design a swale that leads to a bioretention facility, which would then overflow back into the drainage gutter along the driveway edge.
   - Drainage area to be managed: 0.48 acres.
   - Swale Length: 25 feet;
   - Bioretention surface area: 330 square feet.
   - Planning level construction cost estimate: $11,000

Site 5: This area drains runoff from the driveway, the riding arena and the adjacent areas. We propose to design a swale that leads to a bioretention facility, which would then overflow into the existing drainage system.
   - Drainage area to be managed: 0.96 acres.
   - Swale Length: 80 feet;
   - Bioretention surface area: 500 square feet.
   - Planning level construction cost estimate: $20,500

Based on our initial assessment of the relative costs versus the size of the area treated for each location, as well as our project budget, we believe it makes the most economic sense to pursue sites 2 and 3. However, if you and the other school officials believe that any of the other sites would be a better selection (and are feasible and might offer different educational opportunities) please let us know and we would be happy to discuss this with you.
Please review the attached map and this memo and let us know if you agree with our recommendation to pursue these 2 preferred locations, or if you would like us to concentrate our efforts on another location. If you have any questions, please do not hesitate to contact me at 508-833-6600 or Ellie Baker at 978-499-0601. We look forward to hearing from you. We hope to reach a final selection by the New Year, or sooner if possible, so that we can move forward with any necessary survey and test pits as soon as possible.
Location Plan for Alternative LID Practices
Bristol County Agricultural High School

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<th>AREA</th>
<th>SQUARE FEET</th>
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Bioretention Material Specifications

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<tr>
<th>Material</th>
<th>Specification</th>
<th>Notes</th>
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<tr>
<td>Bioretention</td>
<td>Soil</td>
<td>Filter Media to contain:</td>
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<tr>
<td></td>
<td></td>
<td>85-88% sand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8-12% soil fines (&lt; 2% clay)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-5% organic matter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>USDA soil types loamy sand or sandy loam.</td>
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<tr>
<td></td>
<td></td>
<td>Volume of filter media based on 110% of plan volume to account for settling or compaction. Organic matter shall be well aged (6-12 months), well aerated, leaf compost or approved equivalent.</td>
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<tr>
<td>Mulch Layer</td>
<td>Fine shredded hardwood mulch. Well Aged (6 months minimum).</td>
<td>A 2 to 3 inch layer on the surface of the filter bed. Mix half into soil filter media.</td>
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<tr>
<td>Filter Fabric</td>
<td>Non-woven geotextile fabric with flow rate of &gt; 110 gallon/minute/square foot.</td>
<td>Class &quot;C&quot; apparent opening size (ASTM-D-4751)</td>
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<td></td>
<td></td>
<td>Tensile strength (ASTM-D-4632)</td>
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<tr>
<td></td>
<td></td>
<td>Burst strength (ASTM-D-4833)</td>
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<td></td>
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<td>For use over underdrains (extend 1 foot - 1.5 feet each side) and side walls of bioretention excavation.</td>
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<tr>
<td>Pea Gravel</td>
<td>3/8&quot; washed stone</td>
<td>For use between the Bioretention Soil and the approved subgrade/underdrain gravel.</td>
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<tr>
<td>Underdrain</td>
<td>AASHTO M-43 Washed, clean and free of all fines.</td>
<td>4&quot; rigid schedule 40 PVC pipe, with 3/8&quot; perforations @ 6&quot; o.c. meeting ASTMD 1785 or AASHTO M-278 (Or equivalent corrugated HDPE if shown in drawings). Perforated pipe for length of bioretention cell, and non-perforated pipe as needed to connect with storm drain system. T's and Y's as needed depending on underdrain configuration.</td>
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<td>Non perforated schedule 40 PVC pipe, PVC elbow, cap, and all associated fittings</td>
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<td>Erosion Control</td>
<td>Blanket</td>
<td>Woven, 100% biodegradable jute fiber 7.70 lbs/1000 sqft. Bionet S150BN or approved equivalent.</td>
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<td></td>
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<td>To be used on 3:1 side slopes of bioretention area.</td>
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<td>Plant Material</td>
<td>All plant material shall conform, in all respects, to the guidelines of the &quot;American Standard for Nursery Stock&quot;, latest edition</td>
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<td></td>
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<td>Plant species and quantities as specified in the Drawings.</td>
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<td>Grass Seed</td>
<td>New England Conservation/Wildlife/Mix or approved equivalent</td>
<td>Application rate 25 lbs/ acres or per seed manufacturer's requirements.</td>
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BIORETENTION SCHEDULE:

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<th>No.</th>
<th>Bottom Surface Area (sf)</th>
<th>Lowest Top Elevation of Berm (ft)</th>
<th>Design Freeboard (ft)</th>
<th>OVF Crest (ft)</th>
<th>Ponding Depth (ft)</th>
<th>Bottom Elev. (ft)</th>
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Abbreviations: SA = Bottom Surface Area
OVF = Overflow

Notes:
1. Bottom elevation = Surface of shredded organic layer (see detail)
2. See pipe schedule for outlet pipe size
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<th>ITEM NUMBER</th>
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<td>6.0</td>
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**SUB TOTAL** $100,350

**ESTIMATED BID PRICE** $101,000
Owner Contingency 30% $31,000

**ESTIMATED CONSTRUCTION BUDGET** $132,000

**NOTES:**
CONTINGENCY IS PROVIDED BASED ON 75% DESIGN PLANS REFLECTING THE FACT THAT UNCERTAINTY EXISTS BETWEEN THIS STAGE AND CONSTRUCTION STAGE DRAWINGS. FINAL CONSTRUCTION ESTIMATES WILL BE DEPENDANT ON FACTORS RESOLVED AT THE CONSTRUCTION BIDDING STAGE.
APPENDIX H.  LID PARKING LOT RETROFIT AT BELMONT STREET SOCCER FIELDS, EAST BRIDGEWATER - SUPPORTING INFORMATION
TAUNTON RIVER WATERSHED PLAN
EAST BRIDGEWATER YOUTH SOCCER FACILITY
DEMONSTRATION PROJECT
75% DESIGN PLANS
SEPTEMBER 10, 2010
Table 1. Materials Specifications for Constructed Wetlands

<table>
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<th>Parameter</th>
<th>Specification</th>
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<td>Plating Anti-Plugging</td>
<td>Soil Media See Below n/a See Below</td>
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<td>Subgrade Soil</td>
<td>Well-compacted, fine-grained, stable soil.</td>
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<tr>
<td>Geomembrane Liner</td>
<td>Ultraviolet resistant, HDPE impermeable liner from Environmental Protection, Inc. or an approved vendor.</td>
</tr>
<tr>
<td>Outlet Pipe</td>
<td>Non-perforated PVC pipe and all associated fittings</td>
</tr>
</tbody>
</table>

Table 2. Constructed Wetlands Schedule

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>71.50</td>
<td>72.30</td>
<td>71.80</td>
<td>70.80</td>
<td>70.80</td>
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<td>71.67</td>
<td>72.00</td>
<td>71.67</td>
<td>73.00</td>
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<td>71.00</td>
<td>71.67</td>
<td>71.76</td>
<td>72.08</td>
<td>72.94</td>
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</tbody>
</table>

Notes:
1. The Contractor shall be responsible for the proper installation and maintenance of all equipment and facilities specified herein. The contractor shall be responsible for any deviations from the specifications that may arise during the construction process.
<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>ESTIMATED QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>TOTAL AMOUNT</th>
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<tbody>
<tr>
<td>1.0</td>
<td>MOBILIZATION/DEMOBILIZATION</td>
<td>1</td>
<td>EACH</td>
<td>$2,000.00</td>
<td>$2,000</td>
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<tr>
<td>2.0</td>
<td>SILT SOCK FOR EROSION CONTROL</td>
<td>2,650</td>
<td>LINEAR FOOT</td>
<td>$12.00</td>
<td>$31,800</td>
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<tr>
<td>3.0</td>
<td>EARTH EXCAVATION FOR SWALES</td>
<td>490</td>
<td>CUBIC YARD</td>
<td>$25.00</td>
<td>$12,250</td>
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<tr>
<td>4.0</td>
<td>SEDIMENT FOREBAYS</td>
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<td>SQUARE FOOT</td>
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<td>$15,240</td>
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<tr>
<td>5.0</td>
<td>CONSTRUCTED WETLAND AREA 1</td>
<td>320</td>
<td>SQUARE FOOT</td>
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<tr>
<td>6.0</td>
<td>CONSTRUCTED WETLAND AREA 2</td>
<td>1,980</td>
<td>SQUARE FOOT</td>
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<tr>
<td>7.0</td>
<td>CONSTRUCTED WETLAND AREA 3</td>
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<td>SQUARE FOOT</td>
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<tr>
<td>8.0</td>
<td>CONSTRUCTED WETLAND AREA 4</td>
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<td>CONSTRUCTED WETLAND AREA 5</td>
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<tr>
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<tr>
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<td>$4,800</td>
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<tr>
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<tr>
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<td>RIP RAP SPILLWAY</td>
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<td>17.0</td>
<td>GRAVEL PARKING - 8&quot; DENSE GRADED CRUSHED STONE</td>
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<td>PAVED ENTRANCE ROADWAY - 1.5&quot; BITUMINOUS CONCRETE BASE COURSE</td>
<td>29</td>
<td>TON</td>
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<td>$2,610</td>
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<td>TON</td>
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<td>$2,610</td>
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<td>20.0</td>
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<td>TON</td>
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<td>$3,465</td>
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<tr>
<td>21.0</td>
<td>REMOVE EXISTING GRAVEL</td>
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<td>CUBIC YARD</td>
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<tr>
<td>22.0</td>
<td>PRECAST CONCRETE PARKING BUMPERS INSTALLED</td>
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<td>EACH</td>
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<tr>
<td>23.0</td>
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<td>24.0</td>
<td>DEWATERING PROVISIONS</td>
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<td>EACH</td>
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<td>LOAM (4&quot; THICK SPREAD)</td>
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**SUB TOTAL** $446,491
<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>ESTIMATED BID PRICE</td>
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<td>Owner Contingency</td>
<td>30%</td>
</tr>
<tr>
<td>ESTIMATED CONSTRUCTION BUDGET</td>
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</table>

**NOTES:**

Contingency is provided based on 75% design plans reflecting the fact that uncertainty exists between this stage and construction stage drawings. Final construction estimates will be dependant on factors resolved at the construction bidding stage.