CITY OF MARLBOROUGH

DEPARTMENT OF PUBLIC WORKS

RULES AND REGULATIONS
FOR
STORMWATER MANAGEMENT

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INDEX

MARLBOROUGH STORMWATER MANAGEMENT
RULES AND REGULATIONS

SECTION 1: PURPOSE

The purpose of these regulations is to establish minimum requirements and procedures to control the adverse effects of increased construction site and post-development stormwater runoff, decreased groundwater recharge, and non-point source pollution associated with new development and redevelopment, and land clearing activities as more specifically addressed in the Stormwater Management Ordinance Chapter 271 of The Code of the City of Marlborough.

SECTION 2: DEFINITIONS

The definitions contained herein apply to the issuance of a Stormwater Management Permit established by the City of Marlborough Stormwater Management Ordinance and implemented though these regulations. Terms not defined in this section shall be construed according to their customary and usual meaning unless the context indicates a special or technical meaning.

APPLICANT: Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision, of the Commonwealth or the Federal government to the extent permitted by law requesting a soil erosion and sedimentation control permit for proposed land-disturbance activity.

BEST MANAGEMENT PRACTICE (BMP): Structural and non-structural techniques that are recognized to be the most effective and practical means to prevent and/or reduce increases in stormwater volumes and flows, reduce point source and nonpoint source pollution, and promote stormwater quality and protection of the environment. “Structural” BMPs are devices that are engineered and constructed to provide temporary storage and treatment of stormwater runoff. “Nonstructural” BMPs use natural measures to reduce pollution levels, do not require extensive construction efforts, and/or promote pollutant reduction by eliminating the pollutant source. Nonstructural BMPs include managerial techniques that focus on the preservation and protection of natural features.

CLEARING: Any activity that removes the vegetative surface cover.

DEVELOPMENT: The modification of land to accommodate a new use, revised use, or expansion of use, usually involving construction.

EROSION: The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity, or vehicle traffic and the subsequent detachment and transportation of soil particles.

LAND DISTURBING ACTIVITY: Any activity that causes a change in the existing soil cover which includes the position or location of soil, sand, rock, gravel, or similar earth material. Land-disturbing activities include, but are not limited to clearing, clearing of trees, grubbing, grading, filling and excavation.

MASSACHUSETTS STORMWATER MANAGEMENT POLICY: The Policy issued by the Department of Environmental Protection, and as amended, that coordinates the requirements prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131 §. 40 and Massachusetts Clean Waters Act G.L. c. 21, §. 23-56. The Policy addresses stormwater impacts through implementation of performance standards to reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

MASSACHUSETTS STORMWATER HANDBOOKS (HANDBOOKS): The Stormwater Handbooks, as amended from time to time, that were produced by Massachusetts Department of Environmental Protection (MassDEP) and the Massachusetts Office of Coastal Zone Management to be used as guidance for controlling stormwater. The Handbooks consist of three volumes: Volume One: Overview of Massachusetts Stormwater Standards; and Volume: Two Technical Guide for Compliance with the Massachusetts Stormwater Management Standards; and Volume 3: Documenting Compliance with the Massachusetts Stormwater Management Standards; all published in February 2008.

MUNICIPAL STORM DRAIN SYSTEM: The municipal storm drain system is a conveyance or a system of conveyances designed or used for collecting or conveying stormwater, which is not a combined sewer, including any road with a drainage system, municipal street, catch basins, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, ditch, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the City.

NEW DEVELOPMENT: Any construction activities or land alteration resulting in total earth disturbances equal to or greater than 1 acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) on an area that has not previously been developed to include impervious cover.

OPERATION AND MAINTENANCE PLAN: A plan setting up the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a stormwater management system to insure that it continues to function as designed.

OWNER: A person with a legal or equitable interest in property.

PERSON: An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

REDEVELOPMENT: Any construction, land alteration, or improvement of impervious surfaces resulting in total earth disturbances equal to or greater than 1 acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) that does not meet the definition of new development (see above).

RUNOFF: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

SEDIMENT: Mineral or organic soil material that is transported by wind or water, from its

origin to another location; the product of erosion processes.

SEDIMENTATION: The process or act of deposition of sediment.

SITE: Any lot or parcel of land or area of property where earth-disturbing activities are, were, or will be performed where new impervious cover is created or there is improvement of existing impervious cover other than simple repaving.

SLOPE: The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.

SOIL: Any earth, sand, rock, gravel, clay or similar material.

STABILIZATION: The use, singly or in combination, of mechanical, structural, or vegetative methods, to prevent or retard erosion.

STORMWATER: Runoff, snow melt runoff, and surface water runoff and drainage.

STORMWATER MANAGEMENT PLAN: A plan showing existing and proposed features on a site. This is required as part of the application for an Erosion and Sedimentation Control Permit.

STORMWATER MANAGEMENT PERMIT: A permit issued by the City Engineer, after review of an application, plans, calculations, and other supporting documents, which is designed to protect the environment or the City from the deleterious effects of uncontrolled and untreated stormwater runoff.

WETLANDS: Areas characterized by saturated or nearly saturated soils most of the year that are located between terrestrial (land-based) and aquatic (water-based) environments, including freshwater marshes around ponds and channels (rivers and streams), common names include marshes, swamps and bogs as defined by the Massachusetts Wetlands Protection Act M.G.L., Section 40.

SECTION 3: AUTHORITY

Authority is derived from Chapter 271 (Stormwater Management), Sections 4 (Statutory Authority) and (Administration) of the Code of the City of Marlborough (City Code).

Nothing in these Rules and Regulations is intended to replace or be in derogation of the requirements of the City of Marlborough Zoning Ordinances, Subdivision Rules and Regulations, Soil Removal Ordinance, or any Rules and Regulations adopted there under.

These Stormwater Rules and Regulations may be periodically amended by the City Engineer in accordance with the procedures outlined in Chapter 271, Section 8(B) of the City of Marlborough.

SECTION 4: ADMINISTRATION

The City Engineer is designated as the Stormwater Authority under the Chapter 271 (Stormwater Management), Section H.1 (Administration) of the Code of the City of Marlborough. The City Engineer shall administer, implement, and enforce these Regulations. The City Engineer may appoint another City Department, Commission, Board, or an outside consultant as its authorized agent for the purposes of reviewing stormwater submittals, conducting inspections, and enforcement.

SECTION 5: APPLICABILITY

A. These stormwater regulations apply to all activities identified in the Code of the City of Marlborough (City Code), Chapter 271-5, Applicability.

B. These stormwater regulations do not apply to the exemptions as listed in the Code of the City of Marlborough (City Code), Chapter 271-6, Exemptions

SECTION 6: PERMIT PROCEDURES AND REQUIREMENTS

Projects requiring a Stormwater Management Permit as identified in the Code of the City of Marlborough (City Code), Chapter 271-5, Applicability, and shall be required to submit Documentation of Compliance as specified in this Section and are required to meet the performance standards as specified in these regulations.

A. Filing Application:

1. Projects Requiring Site Plan Review:

   Documentation of compliance with the Stormwater Management Ordinance, as described in the ordinance and these regulations, shall be included with the Site Plan application submitted to the Site Plan Review Committee (major projects) and/or City Engineer and Building Inspector (minor projects). Refer to the Site Plan Review and Approval Ordinance (Chapter 270, Article II § 270-2) for Site Plan Application and submission requirements.

2. Projects Requiring Definitive Subdivision Review:

   Documentation of compliance with the Stormwater Management Ordinance, as described in the ordinance and these regulations, shall be included with the Definitive Subdivision Plan application submitted to the Planning Board. Refer to the Subdivision Regulations (Chapter A676, Article III § A676-10) for Definitive Plan Application and submission requirements.

3. All Other Projects or Activities Subject to the Stormwater Management Ordinance:

   Before earth disturbing activities commence, which includes all activities as previously outlined or referenced in the ordinance and listed below:

a) which is equal to or greater than 5,000 ft^2 occurring, at least in part, within the City of Marlborough;
b) which in the sole opinion of the City Engineer has caused or will cause stormwater-related problems within the City; and
c) which does not otherwise require a permit or approval from the City.

The site owner or representative shall notify the City Engineer and schedule a pre-construction meeting. The minimum requirements, as described herewith in these regulations must be met to the maximum extent practicable.

B. Actions

1. No work requiring a Stormwater Management Permit may commence without approval of the City Engineer. The City Engineer's action, rendered in writing, shall consist of either:

   a. Approval of the Stormwater Management Permit Application based upon determination that the proposed plan will adequately protect the water resources of the community and is in compliance with the requirements set forth in these Regulations;

   b. Approval of the Stormwater Management Permit Application subject to any conditions, modifications or restrictions required by the Planning Board which will ensure that the project will adequately protect the water resources of the community and is in compliance with the requirements set forth in these Regulations; or

   c. Disapproval of the Stormwater Management Permit Application based upon a determination that the proposed plan, as submitted, does not adequately protect water resources, as set forth in these Regulations, or the application is deemed incomplete.

2. Written Approval and Issuing a Stormwater Management Permit:

   a. The City Engineer's sign off on the Site Plan Review Permit shall constitute approval of the Stormwater Management Permit;

   b. Before a Definitive Subdivision Plan is approved, the City Engineer will document, in his written statement to the Planning Board, actions taken regarding the Stormwater Management Permit;

   c. For all other projects identified in the Code of the City of Marlborough (City Code), Chapter 271-5, Applicability, the City Engineer shall provide a letter in writing approving the Stormwater Management Permit;

   d. The City Engineer shall state in writing reasons for disapproval or recommended modifications to the plan and shall rescind such disapproval if and when the plan has been amended to conform to the rules, regulations and recommendation of the City Engineer.

C. Appeals of Action of the City Engineer

A decision of the City Engineer shall be final. Further relief of an action by the City Engineer made under these Regulations shall be reviewable in the Superior Court in a complaint filed within 60 days thereof, in accordance with M.G.L. Ch. 249 § 4.

D. Plan Changes

The permittee must notify the City Engineer in writing of any change or alteration in the stormwater management system authorized in a Stormwater Management Permit before any change or alteration is made. If the City Engineer determines that the change or alteration is significant, the City Engineer may require that an amended application be filed.

E. Entry

To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the City Engineer and his/her agents, may enter upon privately owned property for the purpose of performing their duties under the Stormwater Management Ordinance and these rules and Regulations and may make or cause to be made such examinations, surveys or sampling as the City Engineer deems reasonably necessary to determine compliance with the permit.

F. Documentation of Compliance

1. The application for a Stormwater Management Permit shall include the submittal of a Stormwater Report to the City Engineer prepared in accordance with the criteria established in these regulations. The Stormwater Report shall document compliance with each of the ten (10) Stormwater Management Standards as provided in the Massachusetts Stormwater Handbooks latest editions and shall contain sufficient information for the City Engineer to evaluate the environmental impact, effectiveness, and acceptability of the site planning process and the measures proposed by the applicant for reducing adverse impacts from stormwater runoff. The Stormwater Report shall require that construction site operators control wastes, including but not limited to, discarded building material, concrete truck wash out, chemicals, litter and sanitary wastes, These wastes may not be discharged to a resource area or drainage system. The Stormwater Report shall remain on file with the City Engineer.

2. If, in the applicant's opinion, one or more of the Stormwater Management Standards or other requirements cannot be reasonably met, the applicant shall provide a detailed explanation in the Stormwater Report. This narrative shall include reasons that the requirement or standard could not be met and a description of potential consequences if no mitigating measures are provided.

3. The Stormwater Report shall fully describe the project in narrative, drawings, and calculations. To demonstrate compliance to the City Engineer, the applicant shall submit the stormwater report consist with the criteria indicated in the Drainage Report Checklist, see Appendix A.

4. Erosion Control and Sedimentation Control Plan see Appendices for minimum requirements for this plan(s) submission.

5. Landscaping plan describing the woody and herbaceous vegetative stabilization and management techniques to be used within and adjacent to the stormwater practice, see Appendices for minimum requirements for this plan(s) submission.

6. A signed Operation & Maintenance Compliance Statement that identifies the party responsible for implementation of the Operation and Maintenance Plan and states that:

    a. The site has been inspected for erosion and appropriate steps have been taken to permanently stabilize any disturbed areas;

    b. All aspects of the stormwater BMPs have been inspected for damage, wear and malfunction, and appropriate steps have been taken to repair or replace the system or portions of the system so that the stormwater at the site may be managed properly;

    c. Future responsible parties must be notified of their continuing legal responsibility to operate and maintain the structure; and

    d. The Operation and Maintenance Plan for the stormwater BMPs is being implemented and annual reports submitted to the City Engineer.

7) Abbreviated Application for activities disturbing equal to or greater than 5,000 square feet.

The Abbreviated Application shall apply to all projects that require a Stormwater Management Permit per Section 5 of the regulations, will disturb equal to or greater than 5,000 square feet of land and whose work is not covered by any other permit as required as outlined in Section 6.A. An Abbreviated Application shall include a completed stormwater management form from the latest edition of the Massachusetts Stormwater handbooks to document compliance with applicable stormwater standards.

SECTION 7: PERFORMANCE STANDARDS

A. For compliance with Performance Standards of the Marlborough Stormwater Management Ordinance, the applicant must meet Standards 1 through 10 of the Massachusetts Department of Environmental Protection's Stormwater Management Standards and Handbooks using current Best Management Practices (BMPs).

B. Additional Design Criteria

1. Stormwater Management Design Calculations and Standards

For stormwater facility sizing criteria, the basis for hydrologic and hydraulic evaluation of development and redevelopment sites are as follows:

a. Drainage systems shall have adequate capacity to handle all storm water runoff presently flowing through the property/site, as well as to dispose of any additional runoff generated by the proposed development up to the 100-year storm event. Rainfall data used for stormwater design shall utilize the 24-hour event from the most recent and recognizable data by the State and Federal entities.

b. Calculations shall be prepared, sealed, and stamped by the Owner's Technical Representative for pre- and post-development conditions to show peak rates of runoff for the 2-, 10-, 25-, and 100-year storm events using software program-based SCS TR-55 and/or TR-20 stormwater modeling methods. Calculations and assumptions shall be clearly shown. Calculations shall be supported by soil logs and USDA NRCS soil maps. The stormwater volume to be recharged to groundwater shall be determined using the methods in the Massachusetts Stormwater Policy and MS4 Permit.

c. The minimum time of concentration for street drainage pipe sizing calculations (Rational Method) shall be five (5) minutes.

d. Proposed sites shall be designed such that water velocities in pipes and gutters shall be between two (2.5) and ten (10) feet per second, not more than five (5) feet per second on paved surfaces, and not more than four (4) feet per second in vegetated areas.

e. 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.

f. Flooding and channel erosion impacts to receiving streams due to land development projects shall be determined at each point of discharge from the development project and such determination shall include any runoff from the balance of the watershed which also contributes to that point of discharge.

g. Low Impact Development (LID) site planning and design strategies must be used to the maximum extent feasible.

h. To the extent that the project will discharge, directly or indirectly, to a water body subject to one or more pollutant-specific Total Maximum Daily Loads (TMDLs), implement structural and non-structural stormwater best management practices (BMPs) that are consistent with each such TMDL.

i. To the extent that the project will discharge, directly or indirectly, to the Assabet River Watershed subject to a phosphorus Total Maximum Daily Loads (TMDLs), implement structural and non-structural stormwater best management practices (BMPs) that are consistent with a phosphorus TMDL.

j. To the extent the project will discharge, directly or indirectly, to an impaired water body not subject to a TMDL, implement structural and non-structural stormwater BMPs optimized to remove the pollutant or pollutants responsible for the impairment.

k. To the extent the project will discharge, directly or indirectly, to an impaired water body subject to a nitrogen impairment shall optimize BMPs for nitrogen removal in new development and re-development.

l. The design of treatment and infiltration practices must follow the guidance in Volume 2 or the Massachusetts Stormwater Policy, as amended.

m. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance any federally or State approved BMP design guidance or performance standards (e.g. Massachusetts Stormwater Policy and design guidance manuals) may be used to calculate BMP performance.

2. General Drainage Design Requirements:

The following general criteria shall be employed in the design of surface water drainage systems:

a. Minimum inside pipe diameter - 12";

b. Type of pipe - Class IV, reinforced concrete (unless otherwise approved by the City Engineer);

c. Maximum distance between catch basins - 300 feet;

d. Maximum change in the direction of flow - 90 degrees;

e. Pipe ends - headwall or flared end;

f. Generally, catch basins should be placed three feet (3') before the P.C. of curb returns at intersections. Where roadway grades exceed seven percent (7%), basins should be spaced closer than the above noted 300 feet as determined by the City Engineer;

g. Manholes shall be provided at all points along the main line where changes in horizontal and vertical alignment are proposed;

h. At structures where pipe sizes increase along the main line the crown of the pipes shall match in elevation;

i. Cross-drain inverts should, where possible, enter the structure a minimum of one foot (1') above the outgoing invert;

j. Catch basins shall have 4-foot-deep sumps;

k. All discharges to the City system in excess of the pre-development rate (for all discharges unless can prove that cannot infiltrate on site as determined by the City

Engineer) at that location will require complete review of system from that point to outfall and mitigation of any and all capacity or structural issues within the City system;

l. Minimum cover over pipe shall be 4.0 feet (2.5 feet absolute minimum if approved by City Engineer);

m. Minimum slope of drainage pipe is 1.0% (0.5% absolute minimum if approved by City Engineer);

n. Maximum slope of drainage pipe is 9%;

o. Velocity of flow within the pipe not be less than 2.5 ft/sor greater than 10 ft/s.

3. New Development Stormwater Management Performance and Design Standards

   a. As described in MassDEP Stormwater Policy and regulations Stormwater management systems on New Development sites shall be designed to:

      a. Not allow new stormwater conveyances to discharge untreated stormwater in accordance with Massachusetts Stormwater Policy Standard 1;

      b. Control peak runoff rates in accordance with Massachusetts Stormwater Policy Standard 2;

      c. Recharge groundwater in accordance with Massachusetts Stormwater Policy Standard 3;

      d. Eliminate or reduce the discharge of pollutants from land uses with higher pollutant loads as defined in the Massachusetts Stormwater Policy in accordance with Massachusetts Stormwater Policy Standard 5;

      e. Protect Zone II or Interim Wellhead Protection areas of public water supplies in accordance with Massachusetts Stormwater Policy Standard 6;

      f. Implement long term maintenance practices in accordance with Massachusetts Stormwater Policy Standard 0; and

      g. Require that all stormwater management systems be designed to: (1) Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the site and/or 2) Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site and 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site.

4. Redevelopment Stormwater Management Performance and Design Standards

   a. Stormwater management systems on Redevelopment sites shall meet the following Standards to the maximum extent feasible:

      a. Massachusetts Stormwater Policy Standards 1, 2 and 3, the pretreatment and structural best management practices requirements Massachusetts Stormwater Policy Standards 5 and 6.

      b. Stormwater management systems on Redevelopment sites shall also improve existing conditions by requiring that stormwater management systems be designed to: 1) Retain the volume of runoff equivalent to, or greater than 0.80 inch multiplied by the total post- construction impervious surface area o the site and/or 2) Remove 80% of the average annual post-construction load of Total Suspended Solids (TSS)

generated from the total post-construction impervious area on the site and 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site.

c. Redevelopment activities that are exclusively limited to maintenance and improvement of existing roadways, (including widening less that a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems, and repaving projects) shall improve existing conditions where feasible and are exempt from 3.4.C.2.(a)(i through iii). Roadway widening or improvements that increase the amount of impervious area on the redevelopment site by greater than or equal to a single lane width shall meet the requirements of 3.4.C.2.(a)(i through iii).

d. Stormwater management systems on redevelopment sites may utilize offsite mitigation within the same USGS HUC12 as the redevelopment site to meet the equivalent retention or pollutant removal requirements.

5. Redevelopment Offsite Mitigation Performance and Design Standards

a. For Redevelopment projects where the Owner proposes to utilize off-site mitigation to meet the average annual pollutant removal requirements, the Owner will describe in writing why it is not technically feasible to meet the average annual pollutant removal requirements on-site, including which on-site treatment BMPs were considered and why they were deemed not feasible.

b. Off-site mitigation shall be located within the municipality and the same tributary to the maximum extent feasible. Under no circumstances will off-site mitigation be located outside the same USGS HUC12.

c. The off-site mitigation project shall be designed and constructed in a manner consistent with the requirements of the City Stormwater Ordinance and related regulations.

d. The Authorized Enforcement Agency shall, at its discretion, identify priority areas within the watershed and/or tributary area in which offsite mitigation may be completed.

e. Offsite mitigation provided at a site not owned by the municipality, requires a separate Stormwater Management Permit covering the off-site mitigation project, the terms and conditions of which, including ongoing operations and maintenance requirements, shall run with the land where the off-site mitigation is located.

f. Construction of the off-site mitigation project shall commence within 12 months of Stormwater Management Permit issuance and be completed within 12 months of commencement.

C. Discharges to Water Quality Impaired Waters

The Applicant must determine whether stormwater discharges from the proposed site will contribute, either directly or indirectly, to a 303(d) listed water body (as listed in the most recent, and approved, Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 303(d) and 305(b) of the Clean Water Act). Structural and non-structural stormwater BMPs shall be selected that will control the discharge of the pollutants of concern and ensure that the discharges will not cause an instream exceedances of applicable water quality standards. Pollutants of concern refer to the pollutant identified as causing the impairment.

D. Landscape Design

Site plans and landscape plans for all proposed projects must take appropriate steps to minimize water use for irrigation and to allow for natural recharge of groundwater. Native species and habitat-creating species shall be used in all landscape plans to the maximum extent possible as site conditions allow. Nonnative invasive species as shown on the MDAR web page (see web link below) as updated periodically, shall not be planted in the City of Marlborough under any circumstances.

(http://www.mass.gov/agr/farmproducts/docs/prohibited_plant_list.pdf

SECTION 8: ENFORCEMENT

A. Enforcement powers of the City Engineer or its authorized agent is derived from Chapter 271-11 (Enforcement) of the Code of the City of Marlborough (City Code).

B. Notices and Orders

1. The City Engineer or an authorized agent may issue a written notice of violation or enforcement order to enforce the provisions of the Stormwater Management Ordinance and these regulations, which may include requirements to:

   a) Suspend or revoke approval of any Stormwater Management Permit;
   b) Cease and desist from all or a portion of construction or land disturbing activity until there is compliance with the Ordinance and the Stormwater Management Permit;
   c) Repair, maintain, or replace the stormwater management system or portions thereof in accordance with the Operation and Maintenance Plan;
   d) Perform monitoring, analyses, and reporting; and/or
   e) Fix adverse impact resulting directly or indirectly from malfunction of the stormwater management system.

   The suspension or revocation of the Stormwater Management Permit shall not relieve the Applicant of his obligation there under except at the discretion of the City Engineer.

2. If the City Engineer determines that abatement or remediation of adverse impacts is required, the order may set forth a deadline by which such abatement or remediation must be completed. Said order may further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the City of Marlborough may, at its option, undertake such work, and the property owner shall reimburse the City of Marlborough for expenses incurred.
3. Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner shall be notified of the costs incurred by the City of Marlborough, including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the City Engineer within thirty (30) days of receipt of the notification of the costs incurred. If the amount due is not received by the expiration of the time in

which to file a protest or within thirty (30) days following a decision of the City Engineer affirming or reducing the costs, or from a final decision of a court of competent jurisdiction, the costs shall become a special assessment against the property owner and shall constitute a lien on the owner's property for the amount of said costs. Interest shall begin to accrue on any unpaid costs at the statutory rate provided in G.L. Ch. 59, § 57, after the thirty-first day at which the costs first become due.

4. Any person who purchases, inherits or otherwise acquires real estate upon which work has been done in violation of the provisions of the Stormwater Management Ordinance and these Regulations, or in violation of the approved Plans under this Section shall forthwith comply with any such Order, and restore such real estate to its condition prior to such violation, as the City Engineer deems necessary to remedy such violation.
5. Any person who violates any provision of the City of Marlborough Stormwater Management Ordinance, these Regulations, order or permit issued thereunder, may be ordered to correct the violation and/or shall be punished by a fine of not more than $300, excluding the cost of damages. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.
6. Non-Criminal Disposition. As an alternative to criminal prosecution or civil action, the City of Engineer may elect to utilize the non-criminal disposition procedure set forth in G.L. Ch. 40, §21D and the City of Marlborough Code of Ordinances Chapter 315 Article 1 §315-2. A fine of not more than $300 may be assessed. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.
7. Appeals. The decisions or orders of the City Engineer shall be final. Further relief shall be to a court of competent jurisdiction.
8. Remedies Not Exclusive. The remedies listed in this Ordinance are not exclusive of any other remedies available under any applicable federal, state or local law.

SECTION 9: CONSTRUCTION INSPECTIONS

A. Notice of Construction Commencement. The applicant must notify the City Engineer or its authorized Agent 14 days prior to the commencement of construction and hold a preconstruction meeting prior to any work beginning. In addition, the applicant must notify the City Engineer 14 days in advance of construction of critical components of any stormwater management facility.

B. Pre-Construction Review. Before commencing of construction, a Pre-Construction Meeting shall be held with the Contractor, The City Engineer, Building Commissioner, Conservation Agent, and any other City official as required, to discuss the following:
   1. Special Permit conditions issued by the Marlborough City Council
   2. Special Conditions issued as part of a determination by the Conservation Commission
   3. Planned operations at the construction site
   4. Planned BMPs during the construction phase
   5. Planned BMPs to be used to manage runoff created after development

C. At the discretion of the City Engineer, periodic inspections of the stormwater management system construction shall be conducted by qualified personnel (a City Officer, a

professional engineer, or their designee who has been approved by the City Engineer*).* All inspections shall be documented, and written reports prepared that contain the following information:

1. The date and location of the inspection;
2. Names, titles, and qualifications of personnel making the inspection;
3. Whether construction is in compliance with the approved Stormwater Management Plan;
4. Variations from the approved construction specifications; and
5. Any other variations or violations of the conditions of the approved Stormwater Management Plan.

D. Erosion Control Inspection

1. To ensure erosion control practices are in accord with the filed Erosion and Sediment Control Plan, Erosion Control Inspections will be conducted by the site owner or an authorized representative at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater from the start of construction until the site is permanently stabilized. Inspection frequency may be reduced to at least once a month if the site is determined by the City Engineer to be temporarily stabilized, such that runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or the ground is frozen). The permittee is required to notify the City Engineer of any change in inspection frequency, including termination of inspections due to site stabilization.
2. The inspection form will include:
    a. Name, date, and signature of qualified inspector;
    b. Weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;
    c. Location(s) of discharges of sediment or other pollutants from the site;
    d. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location, and/or location(s) where additional BMPs are needed that did not exist at prior inspection; and
    e. Corrective action required including any changes to the Erosion and Sediment Control Plan necessary and implementation dates.

    If a project requires a Stormwater Pollution Prevention Plan (SWPPP) per the NPDES General Permit for Storm Water Discharges From Construction Activities (Construction General Permit), then the permittee is required to submit all Inspection Reports to the City Engineer. If the Inspection Reports meet the requirements of Section 3.10 of the Construction General Permit, it will be considered equivalent to the Erosion Control Inspection as described above.

E. The City Engineer or its designee shall inspect the project site at the following stages, at a minimum:

1. Initial Site Inspection: prior to approval of any plan;

2. Stormwater Management System Inspection: An inspection will be made of the completed stormwater management system, prior to backfilling of any underground drainage or stormwater conveyance structures.

3. Final Inspection

   a. After the stormwater management system has been constructed, all applicants are required to submit actual "as built" plans for any stormwater management facilities or practices after final construction is completed and must be certified by a Professional Engineer.

   b. The City Engineer or an authorized agent shall inspect the system to confirm its "as-built" features. This inspector shall also evaluate the effectiveness of the system in an actual storm. If the inspector finds the system to be adequate he shall so report to the City Engineer before a Certificate of Completion is issued.

F. Inadequacy of System

1. If the system is found to be inadequate by virtue of physical evidence of operational failure, even though it was built in accordance with the Stormwater Management Plan, it shall be corrected by the applicant before the Certificate of Completion is released.
2. If the City Engineer determines that there is a failure to comply with the plan, the property owner shall be notified in writing of the nature of the violation and the required corrective actions. A Stop Work Order shall be issued until any violations are corrected and all work previously completed has received approval by the City Engineer.

SECTION 10: CERTIFICATE OF COMPLETION

A. Upon completion, the Applicant is responsible for certifying that the completed project is in accordance with the approved plans and specifications by submitting as-built plans to the City Engineer and shall provide regular inspections sufficient to adequately document compliance.

B. The City Engineer will issue a letter certifying completion upon receipt and approval of the As-Built Plans, final inspection and reports and/or upon otherwise determining that all work of the stormwater permit has been satisfactorily completed in conformance with these rules and regulations.

SECTION 11: PERPETUAL INSPECTION AND MAINTENANCE

A. Maintenance Responsibility

1. The City of Marlborough will not accept ownership of stormwater BMPs located outside of city owned streets, and the maintenance of such facilities shall remain the permanent responsibility of the applicant or his successors and/or assigns. The owner of the property on which work has been done pursuant to these Regulations for private stormwater management facilities, or any other person or agent in control

of such property, shall maintain in good condition and promptly repair and restore all grade surfaces, walls, drains, dams and structures, vegetation, erosion and sedimentation controls, and other protective devices. Such repairs or restoration and maintenance shall be in accordance with an approved Operation and Maintenance Plan (O&M) as required in Section 6.F.6 of these rules and regulations.

B. Maintenance Inspections

1. Stormwater management facilities and practices included in an O&M Plan must undergo ongoing inspections to document maintenance and repair needs and ensure compliance with the requirements of the agreement, the Plan, and these Regulations.

2. A Maintenance Agreement between the owner and the City Engineer shall be executed for privately-owned stormwater management systems that specify the Responsible Party for conducting long term inspections.

3. At a minimum, inspections shall occur once during the first year of operation and annually thereafter. Some BMPs may require more frequent inspection, as specified in the O&M Plan.

4. Inspection reports shall be submitted annually, by June 1st of each year, to the City Engineer for all stormwater management systems. Inspection reports for stormwater management systems shall include, at a minimum:

    a. The date of inspection;
    b. Name and signature of inspector;
    c. The condition of:
        i. Pretreatment devices;
        ii. Vegetation or filter media;
        iii. Fences or other safety devices;
        iv. Spillways, valves, or other control structures;
        v. Embankments, slopes, and safety benches;
        vi. Reservoir or treatment areas;
        vii. Inlet and outlet channels and structures;
        viii. Underground drainage;
        ix. Sediment and debris accumulation in storage and forebay areas (including catch basins);
        x. Any nonstructural practices;
        xi. Any other item that could affect the proper function of the stormwater management system;
        xii. Description of the need for maintenance.

5. Right-of-Entry for Inspection

    The terms of the Maintenance Agreement shall provide for the City Engineer or its designee to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. The City Engineer, its agents, officers, and employees shall have authority to enter upon privately owned land for the purpose of performing their duties under these Regulations and may make or cause to be made such examinations, surveys, or sampling as the City Engineer deems necessary, subject to the constitutions and laws of the United States and the Commonwealth.

6. Records of Inspection and Maintenance, Repair, Replacement and Disposal Activities

   Parties responsible for the operation and maintenance of a stormwater management facility shall provide records of all inspection and maintenance, repair, replacement and disposal activities, and shall retain the records for at least five years. These records shall be made available to the City Engineer during inspection of the facility and at other reasonable times upon request. For disposal, the record must indicate the type of material, quantity or material, and disposal location.

7. Failure to Maintain

   a. All stormwater BMPs shall be operated and maintained in accordance with the design plans and the Operation and Maintenance Plan approved by the City Engineer.

   b. The responsible party shall:

      i. maintain an operation and maintenance log for the last three years, including inspections, repairs, replacement and disposal (for disposal, the log shall indicate the type of material and the disposal location);
      ii. make this log available to the City Engineer upon request; and
      iii. allow the City Engineer or his agents to enter and inspect the premises to evaluate and ensure that the responsibility party complies with the Operation and Maintenance Plan requirements for each BMP.

8. If a Responsible Party fails or refuses to meet the requirements of the Maintenance Agreement, the City Engineer, after 30 days written notice (except, that in the event the violation constitutes an immediate danger to public health or public safety, 24 hours notice shall be sufficient), may correct a violation of the design standards or maintenance requirements by performing the necessary work to place the facility or practice in proper working condition. The City Engineer may assess the owner(s) of the facility for the cost of repair work, which shall be a lien on the property.

9. After notification is provided to the person responsible for carrying out the maintenance plan of any deficiencies discovered from an inspection of a stormwater management system, the person responsible for carrying out the maintenance plan shall have 30 days or other time frame mutually agreed to between the City Engineer and the person responsible for carrying out the maintenance plan to correct the deficiencies. The City Engineer shall then conduct a subsequent inspection to ensure completion of repairs.

APPENDIX – A

DRAINAGE REPORT CHECKLIST

DRAINAGE REPORT CHECKLIST

Owner's Name: _____ **Engineer's Name:** _____

Site Address: _____ **Date:** _____

The following checklist is not all-inclusive, but is generally representative of the requirements of the Marlborough Site Plan Review and Approval Ordinance (SPR&A) and the Planning Board's Rules and Regulations (S/D R&R). In all cases, you should use the checklist in conjunction with the SPR&A and S/D R&R as appropriate.

All reports shall be bound and include the following information:

Report Cover

- ☐ Project title/development name
- ☐ Site address
- ☐ Site map and parcel
- ☐ Owner's name, address, and telephone number
- ☐ Developer's name, address, fax and telephone number
- ☐ Engineer's and Surveyor's names, address, fax and telephone number
- ☐ Date of report (with latest revision date(s))
- ☐ Engineer's stamp

Pre- and Post-development Plans

- ☐ Pre- and post-development plans on 24"x36" sheets
- ☐ Clearly show all pre and post subcatchment areas
- ☐ Show all ultimate point source discharge locations for each subcatchment area
- ☐ Show all Tc paths with lengths and slopes for each subcatchment area
- ☐ Plans should show enough topographic information outside of the site to show pre and post discharge impacts

Summary

- ☐ Description of project
- ☐ Locus map
- ☐ Soil Conservation Service maps
- ☐ Description of existing conditions/use
- ☐ Description of proposed conditions/use
- ☐ Flow Summary table showing changes in pre and post-development flows for the 2, 10, 25, and 100-year storm events-Post-development flows shall not exceed pre-development flows

Pre-Development Conditions

- ☐ Pre-development drainage conditions (describe in report and coordinate with pre-development plans)
- ☐ Describe all existing subcatchment areas
- ☐ Describe (and label on plan) impervious and pervious areas within each subcatchment
- ☐ Provide CN number calculations
- ☐ Provide Tc calculations
- ☐ Provide flow calculations for the 2, 10, 25, and 100-year storm events
- ☐ Provide hydrographs showing time-stage relationship (peak flow, peak hour)
- ☐ Test Pit Data (locations shall be shown on pre- and post-construction plans)
- ☐ Groundwater elevations
- ☐ Percolation test results (without percolation test results, conservative assumptions will need to be made based on soil type. Assumptions to be verified during construction.)

DRAINAGE REPORT CHECKLIST

Post-Development Conditions

- ☐ Post-development drainage conditions (describe in report and coordinate with post-development plans)
- ☐ Describe all future subcatchment areas
- ☐ Describe (and label on plan) impervious and pervious areas within each subcatchment
- ☐ Provide CN number calculations
- ☐ Provide Tc calculations
- ☐ Provide flow calculations for the 2, 10, 25, and 100-year storm events
- ☐ Provide hydrographs showing time-stage relationship (peak flow, peak hour)

Detention Basins

- ☐ Description of basin (details, method of construction, sizing etc.)
- ☐ Provide flow calculations for the 2, 10, 25, and 100-year storm events-clearly indicate total flow into and out of basin
- ☐ Provide hydrographs showing time-stage relationship inside basin (peak flow, peak elevation, peak hour)
- ☐ Outfall structure detail showing all outfall elevations
- ☐ Recommend outfall structure with a low flow discharge and grated top
- ☐ Provide for 1 foot of freeboard
- ☐ Where necessary basin is to be designed and inspected by a Licensed Professional Geotechnical Engineer and stamped certification of proper design and inspection shall be provided to the City Engineer after installation and prior to as-builts being approved
- ☐ Detention basin sections showing all storm event elevations
- ☐ Emergency overflow spillway made of rip rap
- ☐ Basin inlet and outlet shall have flared end with rip rap apron
- ☐ Basin side slopes no steeper than 3:1
- ☐ Impervious core material keyed into existing subgrade within berm
- ☐ Provide concrete anti-seepage collar in basin berm around discharge pipe
- ☐ 10 foot wide level access around basin to provide for maintenance of the entire basin
- ☐ Enclose basin with gated fence (6' high)
- ☐ Verify groundwater elevations do not impact operation of basin
- ☐ All infiltration areas must be excavated and inspected by Conservation Commission or City Engineer. 24-hr notice for inspection must be provided.
- ☐ Provide calculations for sediment removal showing adequate removal prior to infiltration
- ☐ Provide no fewer than four inspection ports for any underground detention infiltration system
- ☐ Provide access for maintenance of entire system

Hydraulic Calculations

- ☐ Hydraulic calculations shall be based on the 25-year storm event
- ☐ Provide a hydraulic summary table

Stormwater Management

- ☐ Completed Stormwater Management Form from the latest edition of the Massachusetts Department of Environmental Protection Stormwater Management Policy
- ☐ Summary of pre and post-development flows
- ☐ Infiltration flows from recharge structures cannot be subtracted from post-development flow calculations
- ☐ Provide water quality volume calculations (supported by SCS soil data)
- ☐ Describe Best Management Practice method proposed to improve water quality
- ☐ Provide TSS removal calculations (required and provided)
- ☐ Provide oil separation
- ☐ Provide recharge to groundwater volume calculations (required and provided)
- ☐ Recharge roof drains and provide calculations
- ☐ All subsurface structures shall be accessible for maintenance

DRAINAGE REPORT CHECKLIST

- ☐ All recharge rates shall be supported by actual percolation test results

Operation and maintenance section

- ☐ All drainage structures shall be inspected after every major storm including rainfall in excess of 2" or precipitation with high winds
- ☐ Remove debris from drainage structures and property that could inhibit proper function
- ☐ Inspection reports shall be filed for each inspection and recorded in log
- ☐ Inspection reports shall be filed with the Conservation Commission and City Engineer yearly for compliance
- ☐ All drainage structures shall be cleaned as required to remove debris and sediment
- ☐ Parking lots shall be swept as required to remove debris and sediment
- ☐ Detention/infiltration structures which fail to drain in 72 hours need to be assessed by a professional engineer for cause of problem and to propose corrective action. Corrective action must be implemented as soon as practicable
- ☐ Any hydrocarbons observed in drainage structures will be removed and disposed of in accordance with local, state, and federal laws
- ☐ During fall & spring remove accumulated leaves from catch basin and other drainage system elements
- ☐ Inspect all drainage system elements a minimum of twice a year
- ☐ Remove all accumulated sediment in catch basins, detention basins, vegetated swales, flared ends, and other areas as necessary and not less than annually
- ☐ When excessive sediment is encountered in catch basin sumps, drain pipe must also be inspected and cleaned as necessary
- ☐ Mow grass slopes and detention basins and remove cuttings at least twice a year

General Drainage Requirements

- ☐ Catch basins shall have 4 foot deep sumps
- ☐ All discharges to the City system in excess of the pre development rate (for all discharges unless can prove that cannot infiltrate on site as determined by the City engineer) at that location will require complete review of system from that point to outfall and mitigation of any and all capacity or structural issues within the City system.
- ☐ Drainage pipes shall be RCP (unless otherwise approved by the City Engineer) dual wall HDPE may be used with cover between 3' & 9'
- ☐ All drainage pipes shall be 12 inches in diameter (minimum)
- ☐ Minimum cover over pipe shall be 3.0 feet (2.0 feet absolute minimum if approved by City Engineer for valid reasons and accompanied by codes)
- ☐ Minimum slope of drainage pipe is 1.0% (0.5% absolute minimum if approved by City Engineer for valid reasons)
- ☐ Maximum slope of drainage pipe is 9%
- ☐ Velocity of flow within the pipe not be less than 2.5 ft/s or greater than 10 ft/s

Details

- ☐ Detention basin and underground detention/infiltration section showing bottom elevation, invert elevations, 100-year storm event elevation, 1' freeboard, top of basin elevation, outlet structure elevations, etc…
- ☐ Outlet structure detail
- ☐ Catch basin detail
- ☐ Trench detail

APPENDIX – B

SITE PLAN CHECKLIST

SITE PLAN CHECKLIST

Development: _____ **Site Address:** _____

Engineer's Name: _____ **Date:** _____

The following checklist is not all-inclusive, but is generally representative of the requirements of the Marlborough Site Plan Review and Approval Ordinance (SPR&A). In all cases, you should use the checklist in conjunction with the SPR&A.

General Plan Requirements

- ☐ Four sets of plans shall be submitted
- ☐ Electronic pdf plans shall also be submitted
- ☐ Minimum sheet size shall be 24" x 36" unless otherwise approved prior to submission
- ☐ Set shall be comprised of separate sheets as listed below unless otherwise approved by the Site Plan Review Committee at the pre-application scoping session
- ☐ All plans shall be stamped by Commonwealth of Massachusetts-registered Professional Engineer, Professional Land Surveyor, and/or Professional Landscape Architect
- ☐ All plans oriented so that north arrow points generally to the top of the sheet
- ☐ All plans shall have a title block comprised of the following:
  - ☐ Project Title
  - ☐ Sheet Title
  - ☐ Sheet Number
  - ☐ Registrant Stamp (PE, PLS, LA)
  - ☐ Engineers name, address, fax and telephone number
  - ☐ Graphical scale at 1" = 40' or less
  - ☐ Plan Issue Date
  - ☐ Plan Revision Date(s)
- ☐ Traffic Impact and Access Study (TIAS) to be submitted with application (if required as appropriate)
- ☐ Storm Water Management Report to be submitted with application (if required)
- ☐ Sewer Connection/Extension Permitting (if required)
  - ☐ MEPA waiver West Plant (if required)

Cover Sheet

- ☐ Title Block
- ☐ Project name / title
- ☐ Street number and/or lot number (for new buildings, engineering will assign a street number prior to approval)
- ☐ Assessor's map and parcel number(s)
- ☐ Name and address of property owner
- ☐ Name, address, telephone and fax number of engineer
- ☐ Name, address, telephone and fax number of the developer
- ☐ Revision Date Block
- ☐ Zoning District
- ☐ Zoning Requirements Table-"Required vs. Provided"
  - ☐ Lot Size
  - ☐ Lot Frontage
  - ☐ Side Yard Setback
  - ☐ Front Yard Setback
  - ☐ Rear Yard Setback
  - ☐ Building Height
  - ☐ Lot Coverage
  - ☐ Distance from Residential District
  - ☐ Parking Spaces
    - ☐ Compact Parking Spaces
    - ☐ Handicap Parking Spaces
  - ☐ Parking Lot Setback

- ☐ Parking Lot Perimeter Planting
- ☐ Parking Lot Interior Planting
- ☐ Landscaping Requirements

☐ Locus Map (Show all roads and available building information within 1000 feet)
☐ Site Plan Review Committee signature block (7 lines)
☐ Plan Index with latest revision date of each plan

Existing Conditions Plan

☐ Name of Surveyor
☐ Date of survey
☐ Property lines with bearings and distances
☐ Monuments
☐ Easements with bearings and distances
☐ Name of all abutters
☐ Street names
☐ Plan survey datum shall be the North American Vertical Datum of 1988 (NAVD 1988) and this reference shall be shown on the plans.
☐ Benchmark locations minimum of two within 200 feet of the site shown on the plans.
☐ Existing Buildings and Structures
- ☐ Area of building
- ☐ Number of stories
- ☐ Principal use
- ☐ Setbacks from property lines
- ☐ Floor elevations
- ☐ Door locations with sill elevations

☐ Existing Topography:
- ☐ Contours at 2' intervals (1' contours or additional spot grades if site is flat)
- ☐ Overhead and underground utilities including but not limited to water, sewer, drainage, electric, telephone, cable TV, gas, septic systems, detention structures, wells
- ☐ Existing parking/paved areas including pavement type (parking, walkways, etc.)
- ☐ Adequate utility information outside the site to verify proposed utility connections
- ☐ All utility pipe types, sizes, lengths, and slopes
- ☐ All utility structure information including rim and invert elevations
- ☐ All existing easements within 50 feet of property line-Identify any utility within the easement
- ☐ All existing utility easements with bearings and distances
- ☐ Existing pavement markings within site and on connecting roads
- ☐ Existing features such as walls, curbing, landscaping, trees, walks, fences, trees over 12” caliper, lighting, signs, loading areas, dumpster locations, etc…

☐ Wetlands, floodplain, water protection district delineation including offsets and buffer zones
☐ Test pit locations including groundwater depths
☐ Historic buildings within 250 feet

Construction/Layout Plan (show appropriate information from Existing Conditions Plan)

☐ Proposed Buildings and Structures
- ☐ Area of building or additions
- ☐ Number of stories
- ☐ Principal use
- ☐ Floor elevations
- ☐ Door locations with sill elevations
- ☐ Setback dimensions from property lines

☐ Proposed Topography including but not limited to:
- ☐ Proposed contours at 2’ intervals
- ☐ Parking lot setbacks to property line
- ☐ Parking lot grades shall not exceed 5% or be less than 0.5%
- ☐ Parking spaces (delineated and dimensioned)

- ☐ Handicap parking
- ☐ Handicap access
- ☐ Wheelchair ramps
- ☐ Sidewalks
- ☐ Pavement type(s)
- ☐ Curb type(s) and limits
- ☐ Granite curb at entrance to layout line
- ☐ Lighting
- ☐ Signs (include sign schedule)
- ☐ Pavement markings
- ☐ Loading areas
- ☐ Walls
- ☐ Fences
- ☐ Landscape areas
- ☐ Dumpster(s)

☐ Critical dimensions including aisle widths, parking stall dimensions, curb radius etc…
☐ Grading at entrance-show spot grades if required
☐ Emergency Vehicle Access
☐ Truck Access (WB-50 unless otherwise approved by City Engineer)
☐ Snow Storage Area
☐
☐ Show limit of work within City right-of-way-sawcut
☐ Construction notes including the following notes:

- ☐ The contractor shall be properly licensed and bonded with the City prior to construction
- ☐ Any minor modifications (as determined by the City Engineer) to the information shown on the approved site plans shall be submitted to the City Engineer as a Minor Plan Revision for approval prior to the work being performed.
- ☐ Any work and material to be placed within the City right-of-way shall conform to the City of Marlborough requirements
- ☐ All handicap parking, ramps, and access shall conform to ADA & MAAB requirements
- ☐ All erosion control measures shall be in place prior to construction. Erosion Control shall conform to the City of Marlborough Conservation Commission requirements as stated in the Order of Conditions. (refer to Erosion Control Plan if part of submission)
- ☐ All pavement markings and signs shall conform to MUTCD requirements
- ☐ The contractor shall obtain a Street Opening Permit prior to any construction within the City right-of-way

Utility and Grading Plan (show appropriate info. from Existing Conditions and Construction Plan)

☐ All proposed utilities including but not limited to Water, Sewer, Drainage, Electric, Telephone, Cable TV, Gas, Lighting, Septic Systems, Detention Structures

- ☐ Adequate utility information outside the site to verify proposed utility connections
- ☐ All utility pipe types, sizes, lengths, and slopes
- ☐ All utility structure information including rim and invert elevations
- ☐ All water services, hydrants, gates, shutoffs, tees
- ☐ Utilities shall be underground if possible
- ☐ All transformer locations
- ☐ Required utility easements with bearings and distances
- ☐ Minimize utility crossings (show locations of crossings and verify clearance)(provide pipe sleeves or concrete encasement as appropriate)
- ☐ 5' horizontal separation between all utilities (10’ between water and sewer)

☐ See Recommended Force Main Requirements if force main is proposed
☐ Sewer Connection/Extension Permitting (if any of the following apply)

- ☐ Proposed site generates industrial waste
- ☐ Proposed flows exceed 15,000 gallons/day
- ☐ Pump Station
- ☐ Extension of sewer main

☐ Sewer system

- ☐ Show and label service connections for each building.
- ☐ Services shall be min. 6" diameter.
- ☐ Minimum pipe slope shall be 1%. (0.5% absolute minimum if approved by City Engineer for valid reasons)
- ☐ Maximum pipe slope shall be 9%.

☐ Water main loop for large site (as determined by Site Plan Review Committee)

☐ Water system
- ☐ Water extension approval from City Council & Mayor as appropriate
- ☐ Show and label service connections for each building.
- ☐ Services shall be HDPE or copper and ¾ inch diameter size min.
- ☐ All intersections are gated three ways.
- ☐ Hydrants with anchor tee and gates included located every 500' min.
- ☐ Mainline gates every 1000' min.
- ☐ Fire protection sized for use-Provide calculations if required

☐ Foundation Drain (if used)
- ☐ Minimum drain size shall be 6" diameter with a backwater trap
- ☐ Show overflow outfall
- ☐ Preferred discharge is to an infiltration system.
- ☐ Discharge to detention basin or other outfall shall be above the 100 year storm event elevation.

☐ Provide stationing for all roadways and sewer or drain cross country runs (typ.)

☐ Provide profile for all roadways and sewer or drain cross country runs (typ.)

☐ Sections through detention basin(s)

☐ Include the following notes:
- ☐ The contractor shall be properly licensed and bonded with the City prior to construction
- ☐ The contractor shall obtain a Street Opening Permit prior to any construction within the City right-of-way
- ☐ All water and sewer materials and construction shall conform to the City of Marlborough requirements (see Street Opening Permit)
- ☐ All water and sewer construction shall be inspected by the City Of Marlborough before being backfilled
- ☐ The City shall be notified at least 24 hours prior to the required inspections
- ☐ The contractor shall obtain a Trenching Permit prior to any trenching on public or private property

☐ See Drainage Report Checklist for drainage and detention basin requirements

Landscape Plan (show appropriate information from Existing Conditions and Construction Plan)

☐ Proposed landscaping per Buffer and Parking Lot Planting Zoning Requirements

☐ Plant and tree legend with proposed species

☐ Indicate areas to be loamed and seeded

☐ Proposed irrigation (on-site wells to be used unless otherwise approved)

☐ Verify sight distances at entrances

Erosion Control Plan (show appropriate information from Existing Conditions and Construction Plan)

☐ Haybales or haybale/silt fence combination

☐ Anti-tracking area at all construction entrances

☐ Protect existing and proposed drainage structures with haybales and or silt sacks

☐ Include the following notes:
- ☐ All erosion control measures shall be in place prior to construction and shall conform to the City of Marlborough Conservation Commission requirements as stated in the Order of Conditions.

☐ Delineate all stockpile areas

☐ Provide safety fencing around stockpiles over 10' in height or otherwise restrict site access

Detail Sheets (typical details)

☐ Pavement Section Detail

☐ Sidewalk Detail

☐ Curb Detail

☐ Driveway Detail

☐ Wheel Chair Ramp Detail

☐ Concrete Pad Detail

SITE PLAN CHECKLIST

- ☐ Silt Sack Detail
- ☐ Catch Basin Detail*
- ☐ Drainage Manhole with Stair Detail*
- ☐ Culvert section Detail
- ☐ Drain Trench Detail (12" ½" minus gravel backfill envelope-5 feet cover min.)
- ☐ Water Trench Details (12" sand envelope – 5 feet cover min.)
- ☐ Sewer Trench Details (12" ¾ - inch stone envelope)
- ☐ Sewer Manhole Detail (26" cover)
- ☐ 5' inside Diameter Sewer Manhole with stairs Detail*
- ☐ Detention Basin Sections (show section on plan-See also Drainage Report Checklist)
  - ☐ City Engineer to determine if detention basin is to to be designed and inspected by a Licensed Professional Geotechnical Engineer. If so, a stamped certification of proper design and inspection shall be provided to the City Engineer after installation and prior to as-builts being approved.
  - ☐ Show Fence with access gate (Outside 10' level area) around detention basin (typ.)(6' high)
  - ☐ Show 10 foot wide level access around basin to provide for maintenance of the entire basin
  - ☐ Provide groundwater elevations
  - ☐ Show providing for 1 foot of freeboard.
  - ☐ Provide concrete seepage collar in basin berm around discharge pipe
  - ☐ Impervious core material keyed into existing subgrade within berm
  - ☐ Basin side slopes no steeper than 3:1
  - ☐ Detention basin sections from inlet to outlet showing all storm event elevations
  - ☐ Emergency overflow spillway made of rip rap
  - ☐ Basin inlet and outlet shall have flared end with rip rap apron
- ☐ Outfall Structure Detail
  - ☐ All outfall elevations
  - ☐ Show a low flow discharge and grated top
  - ☐ Provide a trash rack in front of inlet
  - ☐ Discharge shall have flared end with rip rap apron
- ☐ Miscellaneous Detention Basin Details
- ☐ Flared End Detail
- ☐ Rip Rap Detail
- ☐ Haybale/Silt Fence Detail
- ☐ Light Pole Foundation Detail
- ☐ Retaining Wall Details
  - ☐ Note: walls over 4' in height shall be designed and inspected by licensed structural engineer and stamped certification of proper design and inspection shall be provided to the City Engineer after installation and prior to as-builts being approved.
- ☐ Tree/Shrub Planting Detail
- ☐ Sign Detail
- ☐ Fence Detail
- ☐ Flowable Fill Trench
- ☐ Pavement Marking Details
- ☐ Handicap Parking/Compact Parking Signs
- ☐ Water service (note: Curb stops open right w/drip).
- ☐ Utility Crossing detail.
- ☐ Hydrant Detail anchor tee with gate (Mueller-open right)
- ☐ Tapping Sleeve and gate (open right)
- ☐ Thrust Block Detail
- ☐ Light Pole Foundation Detail

*All structures shall be raised min 2 course max. using red clay brick and sealed mortar (typ.)

APPENDIX – C

RESIDENTIAL SITE PLAN CHECKLIST

RESIDENTIAL SITE PLAN CHECK LIST

Owner's Name: _____ **Engineer's Name:** _____

Site Address: _____ **Date:** _____

The following checklist is not all-inclusive, but is generally representative of the requirements of the Marlborough Site Plan Review and Approval Ordinance (SPR&A) and the Planning Board's Rules and Regulations (S/D R&R). In all cases, you should use the checklist in conjunction with the SPR&A and the S/D R&R as appropriate.

All residential site plans shall clearly show the following information at 40 scale or less:

General Plan Information

- ☐ Property address and/or lot number
- ☐ Property map and parcel
- ☐ Property owner's name, address, and telephone number
- ☐ Engineer's name, address, fax and telephone number
- ☐ Developer's name, address, fax and telephone number
- ☐ Plan shall be stamped by a Registered Professional Engineer
- ☐ North arrow
- ☐ Graphical scale
- ☐ Date of original drawing
- ☐ Revision block
- ☐ Zoning District (identify if property is zoned as Open Space)
- ☐ Zoning table with "required vs. provided" requirements for front, side, rear yard setbacks, lot coverage-clearly identify if any variances are required
- ☐ Dimension all property lines with bearings and distances
- ☐ Plan survey datum shall be the North American Vertical Datum of 1988 (NAVD 1988) and this reference shall be shown on the plan.
- ☐ Show proposed building with floor and sill elevations
- ☐ Proposed house number (obtain from Engineering as part of plan submittal)
- ☐ Show/dimension all property line setbacks
- ☐ List all abutters
- ☐ Show all existing easements within 50 feet of property line-Identify any utility within the easement
- ☐ Sewer Connection/Extension Permitting (if required)
  - ☐ MEPA waiver West Plant (if required)
- ☐ Marlborough Scenic Roads Act Permitting (if required per M.G.L C.40 §15C)

Existing and Proposed Features

- ☐ Label all roads
- ☐ Label and show sidewalks
- ☐ Show all major features on the property such as, but not limited to, buildings, walls, existing utilities, trees, structures, etc…
- ☐ Show existing contours for the entire property.
- ☐ Show existing wetlands, floodplains, buffer zones etc and appropriate setbacks..
- ☐ Show proposed contours (not exceed 2:1) at 2 foot intervals
- ☐ Areas in 2:1 cut areas shall conform to the City's subdrain requirements

Driveways

- ☐ All driveways shall be paved and labeled on plan
- ☐ All sidewalks at driveways shall conform to AAB requirements
- ☐ Driveways shall be as close to perpendicular as possible to street for a distance equal to front yard setback
- ☐ Driveways shall be at least 15 feet away from hydrant
- ☐ Driveways shall be at least 75 feet from the centerline of an intersection (centerline to centerline)
- ☐ Driveways shall be at least 5 feet away from property line

- ☐ Show elevation at centerline of street
- ☐ Show driveway elevation at gutter line
- ☐ Show driveway elevation at back of walk
- ☐ Show driveway elevation at layout line
- ☐ Show driveway elevation at a point 15 feet behind layout line
- ☐ Show driveway elevation at a point 40 back from layout line
- ☐ Show driveway elevation at end of driveway
- ☐ Proposed grade between gutter line and back of walk shall be +3/16"/ft (+1.56%) pitched toward road
- ☐ Proposed grade between back of walk and layout line shall be +3% pitched toward road
- ☐ Proposed grade between layout line to a point 15 feet behind layout line shall not exceed 3% (+ or -)
- ☐ Proposed grade between 15 feet behind the layout line and 40 feet behind the layout line shall not exceed 12% (+ or -)
- ☐ Proposed grade beyond 40 feet shall not exceed 15% (+ or -)
- ☐ Driveways shall be final paved to the elevations shown on the approved site plan prior to the submittal of as-built plans

Utilities

- ☐ Show all utilities including but not limited to water, sewer, gas, drainage, perimeter drain, electric, telephone, cable TV etc…
- ☐ Avoid crossing utility lines
- ☐ Unless approved by Engineering, 10 feet horizontal separation shall be provided between water and sewer services
- ☐ All utilities shall be separated by at least 5 feet horizontal separation
- ☐ The plan shall include 3"x3" approval block for water and sewer inspection sign offs
- ☐ ***The contractor shall be responsible for obtaining the sign off for the water and sewer inspections in the 3"x3" approval block on the approved site plan at the time of inspection (sign offs will be required with as-built submittal)***

Water Services

- ☐ Label water service
- ☐ Water service shall be HDPE or copper
- ☐ Minimum service size shall be 3/4 inch
- ☐ Minimum cover over water service shall be 5 feet
- ☐ All water services shall have a curb stop installed on the owner's side of the property line
- ☐ Swing ties to shut off valves should be obtained prior to backfilling (swing ties will be required on the as-built plan)

Sewer Service

- ☐ Label sewer service
- ☐ Minimum sewer service size shall be 6" PVC
- ☐ Show all pipe type, lengths, and slopes on plan
- ☐ Minimum pipe slope shall be 1%
- ☐ Maximum pipe slope shall be 9%
- ☐ Show all pipe inverts including but not limited to inverts at the house, cleanouts, manholes, and connection to stub or main
- ☐ Provide and label at least one cleanout at the house
- ☐ Maximum length of service without a cleanout or manhole structure shall be 100 feet
- ☐ Maximum vertical drop within a cleanout or manhole shall be 5 feet
- ☐ Show ground or rim elevation at all structures including cleanouts.
- ☐ Show manhole rim and invert information upstream and downstream of proposed connection
- ☐ Show the pipe type, length, slope, and invert elevation of the existing main being connected to
- ☐ Swing ties to and inverts of all manholes, cleanouts, and connection to City main should be obtained prior to backfill (swing ties and as-built inverts will be required on the as-built plan)
- ☐ See *Recommended Force Main Requirements* if a force main is proposed
- ☐ Sewer Connection/Extension Permitting (if any of the following apply)
  - ☐ Proposed site generates industrial waste

- ☐ Proposed flows exceed 15,000 gallons/day
- ☐ Pump Station
- ☐ Extension of sewer main

Foundation Drain

- ☐ Minimum drain size shall be 4" Plastic with a backwater trap
- ☐ Preferred discharge is to a dry well with a daylighted discharge
  - o Discharge to wetland or detention basin must be above 100-yr storm
  - o Discharge to the City drainage system must be accompanied by a Drain Release form

Gas

- ☐ Gas service (or at least a stub to the property line) shall be provided if gas is available in the street

Electric, Telephone, Cable TV

- ☐ Services should be underground wherever feasible

If field conditions require changes to approved site plan, the changes should be shown on a revised site plan and submitted to Engineering for approval prior to construction-As built plans that differ from the approved site plan may be rejected.

APPENDIX – D

AS-BUILT PLAN CHECKLIST

AS-BUILT PLAN CHECKLIST

Development: _____ **Site Address:** _____

Engineer's/Surveyor's Name: _____ **Date:** _____

The following checklist is not all-inclusive, but is generally representative of the requirements of the Marlborough Site Plan Review and Approval Ordinance (SPR&A) and the Planning Board's Rules and Regulations (S/D R&R). In all cases, you should use the checklist in conjunction with the SPR&A and S/D R&R as appropriate.

The as-built plan should clearly show all of the information shown on the approved site plan and should verify that the site conforms to the requirements of the approved site plan.

Provide some or all of the following sheets as required to clearly show as-built conditions-plans shall be the same as the approved site plan:

- ☐ All sheets printed on Mylar – draft version can be submitted on paper for review
- ☐ Cover Sheet
- ☐ Layout Plan
- ☐ Grading Plan
- ☐ Utility Plan
- ☐ Utility Tie Plan
- ☐ As built electronic files in AutoCAD format compatible with the most current version use by the City of Marlborough

All plans should show:

- ☐ Project title/development name
- ☐ Site address
- ☐ Site Map and Parcel
- ☐ Owner's name, address, and telephone number
- ☐ Developer's name, address, fax and telephone number
- ☐ Engineer's and Surveyor's names, address, fax and telephone number
- ☐ Date(s) of as-built survey
- ☐ North arrow
- ☐ Graphical scale
- ☐ Survey Datum and electronic files shall also be in North American Vertical Datum of 1988 (NAVD 1988) and this reference shall be shown on the plans.
- ☐ Engineer's and Surveyor's Stamp

Cover Sheet:

- ☐ Project zone
- ☐ Zoning "required vs. actual" table showing all as-built site, building, parking, and landscaping requirements
- ☐ Locus map showing all buildings within 1000 feet with scale and north arrow
- ☐ Date of Plan
- ☐ Surveyors certification stating the following: I hereby certify that the information shown on this/these plan(s) accurately depicts field conditions based on an as-built survey by (*name of as-built surveyor*) performed on (*date of as-built survey*)
- ☐ Engineer's certification stating the following: I hereby certify that the as-built information shown on this plan is in conformance with the approved site plans dated (date of latest approved site plan)
- ☐ Engineer's certification stating the following: I hereby certify that all accessibility and handicap parking conform to the latest Americans with Disabilities Act (ADA) and the Massachusetts Architectural Access Board (MAAB) requirements

Layout Plan:

- ☐ Property line information-bearings, distances, bounds, etc…
- ☐ Label building and provide building information (number of stories, square footage, proposed use, etc…)
- ☐ Dimension building setbacks per zoning
- ☐ First floor elevation
- ☐ Sill elevations
- ☐ Parking setbacks per zoning
- ☐ Label all as-built improvements including but not limited to curb, sidewalks, ramps, parking lot, retaining walls, fences, guard rail, landscaping, etc…
- ☐ Provide critical dimensions (lane widths, parking stall widths and depths (typical), curb radius, entrance width, width of sidewalk, etc…)
- ☐ Provide driveway spot grades per zoning requirements
- ☐ Driveway requirements per Site Plan Checklist
- ☐ Pavement markings
- ☐ Handicap access ramps
- ☐ Existing topography

Grading Plan:

- ☐ 2’ contours clearly labeled
- ☐ Include spot grades as required to show site elevations-especially if site is flat
- ☐ Label critical slopes
- ☐ Benchmark locations minimum of two within 200 feet of the site shown on the plans.
- ☐ Retaining wall elevations

Utility Plan:

- ☐ Show all utilities including but not limited to water, sewer, drainage, gas, electric, telephone, detention basins, etc…
- ☐ Label all utility structures including but not limited to manholes, catch basins, gates, valves, shutoffs, detention basin structures, etc…
- ☐ Rim elevations
- ☐ Invert elevations
- ☐ Pipe types
- ☐ Pipe lengths
- ☐ Pipe slopes

Tie Plan:

- ☐ Show ties to all utility structures including but not limited to manholes, catch basins, gates, valves, shutoffs, etc…

Engineering approval will not be granted if the information described above is not shown on the as-built plans.

Certificates of Occupancy will not be approved unless all of the requirements stated above are completed at the time of the as-built plan submittal.

See the Site Plan Review Checklist for required Site Plan information

APPENDIX – E

RESIDENTIAL AS-BUILT PLAN CHECKLIST

RESIDENTIAL AS-BUILT PLAN CHECKLIST

Owner's Name: _____ **Site Address:** _____

Engineer's/Surveyor's Name: _____ **Date:** _____

The following checklist is not all-inclusive, but is generally representative of the requirements of the Marlborough Site Plan Review and Approval Ordinance (SPR&A) and the Planning Board's Rules and Regulations (S/D R&R). In all cases, you should use the checklist in conjunction with the current SPR&A and S/D R&R as appropriate.

The as-built plan should clearly show all of the information shown on the approved site plan and should verify that the site conforms to the requirements of the approved site plan.

- ☐ Project title/development name
- ☐ Site address
- ☐ Site Map and Parcel
- ☐ Owner's name, address, and telephone number
- ☐ Developer's name, address, fax and telephone number
- ☐ Engineer's and Surveyor's names, address, fax and telephone number
- ☐ Date(s) of as-built survey
- ☐ North arrow
- ☐ Graphical scale
- ☐ Plan survey datum shall be the North American Vertical Datum of 1988 (NAVD 1988) and this reference shall be shown on the plans.
- ☐ Engineer's and Surveyor's Stamp
- ☐ Project zone
- ☐ Zoning "required vs. actual" table showing all as-built site, building, parking, and landscaping requirements
- ☐ Date of Plan
- ☐ Surveyors certification stating the following: I hereby certify that the information shown on this/these plan(s) accurately depicts field conditions based on an as-built survey by (*name of as-built surveyor*) performed on (*date of as-built survey*)
- ☐ Engineer's certification stating the following: I hereby certify that the as-built information shown on this plan is in conformance with the approved site plans dated (date of latest approved site plan). Any deviation from the approved site plan must be approved by the City in writing prior to work being completed.
- ☐ Property line information-bearings, distances, bounds, etc…
- ☐ Label building and provide building information (number of stories, square footage, proposed use, etc…)
- ☐ Dimension building setbacks per zoning
- ☐ First floor elevation/Sill elevations
- ☐ Graphical scale drawing with dimensions of the foundation is to be provided
- ☐ Label all as-built improvements including but not limited to curb, sidewalks, ramps, parking lot, retaining walls, fences, guard rail, landscaping, etc…
- ☐ Provide critical dimensions (lane widths, parking stall widths and depths (typical), curb radius, entrance width, width of sidewalk, etc…)
- ☐ Provide driveway spot grades per zoning requirements
- ☐ Existing topography
- ☐ 2' contours clearly labeled
- ☐ Include spot grades if site is flat
- ☐ Label critical slopesProvide driveway elevations as required within the Site Plan Checklist including but not limited too gutter line, back of walk, layout line, 15' from layout line, 15' to 40' from layout line and beyond 40' of layout line
- ☐ Benchmark locations minimum of two within 200 feet of the site shown on the plans
- ☐ Retaining wall elevations
- ☐ Show all utilities including but not limited to water, sewer, drainage, gas, electric, telephone, detention basins, etc…
- ☐ Label all utility structures including but not limited to manholes, catch basins, gates, valves, shutoffs, detention basin structures, etc…
- ☐ Rim elevations
- ☐ Invert elevations
- ☐ Pipe types
- ☐ Pipe lengths

- ☐ Pipe slopes
- ☐ Show ties to all utility structures including but not limited to manholes, catch basins, gates, valves, shutoffs, etc…

Engineering approval will not be granted if the information described above is not shown on the as-built plans.

Certificates of Occupancy will not be approved unless all of the requirements stated above are completed at the time of the as-built plan submittal.