



THE FRIENDS OF LAKE QUANNAPOWITT

P. O. Box 517, Wakefield, MA01880 folq@gmail.com
www.wakefield.org

June 9, 2021

Zoning Board of Appeals
Town Hall
1 Lafayette St
Wakefield MA 01880

Dear Member of the Zoning Board of Appeals:

This letter is submitted to the Zoning Board of Appeals to provide information regarding the request by Cabot, Cabot and Forbes for a special permit for 200 Quannapowitt Parkway. For the past year, the Friends of Lake Quannapowitt Board of Directors worked with CC&F on a Memorandum of Understanding addressing our concerns with the development. We have recently signed a MOU with CC&F that we hope you will give full consideration to as you hear and determine their request for permitting. A copy of the MOU will be made available to you upon request.

The MOU addresses the key issues that our organization has concerning the development plan at 200-400 Quannapowitt Parkway. We realize that our concerns are likely the ZBA's as well and that certainly your other concerns extend well beyond the scope of this memo.

The FOLQ Board of Directors supports the project because of the willingness of CC&F to make important adjustments to the development plan including limiting building height, addressing on-site conservation, adding lake water quality protections, expanding and improving the adjacent park area for lakeside visitors, and ceding to the town permanent control of parklands and wetlands now in private ownership. CC&F has agreed to long-term maintenance of public park areas adjacent to its property. In addition, CC&F is committed to contributing significant funding for the construction of off-site storm water runoff mitigation systems to achieve EPA-directed lake water quality improvements, a long-time goal of our organization and the Town.

We believe CC&F to be a developer who has the capacity and willingness to enter into a constructive relationship with the Town of Wakefield, resulting in the most positive plan within present zoning requirements. With all considerations, we feel that this plan will be in the public's best interest by protecting wetlands, improving parklands, and by making a

significant start in the long-term improvement of Lake Quannapowitt water quality desired by the community and required by government compliance regulations.

Our endorsement of the CC&F plan is focused on specific lake-related elements that are part of our mission. We did not venture into many other issues that are of vital interest to the town. We have faith that the ZBA, with citizen input, will result in optimal decisions in those areas.

If there are any questions or additional information helpful for the ZBA's proceedings, please let us know and we would be happy to respond.

Thank you for your considerable efforts on behalf of the citizens of Wakefield.

Sincerely,

Board of Directors
Friends of Lake Quannapowitt

Memorandum of Understanding

This Memorandum of Understanding (this “Agreement”) is entered into this day of May 23, 2021, by and between Cabot, Cabot & Forbes (“CC&F”), and The Friends of Lake Quannapowitt Inc., a Massachusetts non-profit corporation (“FOLQ” and together with CC&F, the “Parties”).

RECITALS

WHEREAS, CC&F has a contract to purchase certain real property comprising approximately 24 acres of land known as 200-400 Quannapowitt Parkway located predominantly within the Limited Business (“LB”) zoning district under the Zoning Bylaws applicable in the Town of Wakefield (the “Town”), Middlesex County, Massachusetts (the “Site”), which Site is more particularly described and depicted on the survey attached as **Exhibit A** hereto and incorporated herein;

WHEREAS, the Site has been identified by several of the Town’s established planning policies as a prime redevelopment site for advancing municipal housing priorities, including in the Town’s 2014 Housing Production Plan (“HPP”) which envisions the Site as part of a mixed-use “Lakeside Transit Oriented Development District,” where “land use density could be dramatically increased” by redevelopment in “mid-rise or even low high-rise building[s]” to further identified municipal housing production goals;

WHEREAS, the Site currently contains a large, approximately 220,000 square foot vacant office building which, together with extensive impervious surface parking areas, comprises approximately 10 acres of developed land that does not currently provide pre-treatment or attenuation of stormwater leaving the Site and entering the adjoining Lake Quannapowitt and other resource areas in accordance with current Massachusetts stormwater standards;

WHEREAS, the northern portion of the Site is predominantly undeveloped and contains substantial wetland areas that contribute to the condition of Lake Quannapowitt;

WHEREAS, CC&F is planning to demolish the existing building and surface parking lots in order to redevelop the Site as a mixed-use, mixed-income multifamily apartment complex containing approximately 485 residential units in two (2) three-story buildings (nearest to Lake Quannapowitt) and one (1) four-story building and adjoining four-story parking garage (nearest to Route I-95/128), a ground level restaurant/café, surface parking areas, landscaping and associated site improvements (collectively, the “Project”), all as generally depicted in the conceptual site plan attached hereto as **Exhibit B** (the “Site Plan”);

WHEREAS the Project is anticipated to advance key housing production goals under the Town’s HPP, by creating housing opportunities available to residents with a range of incomes, thereby promoting social and economic diversity and stability of individuals and families living in Wakefield;

WHEREAS, the Parties have identified environmentally-responsive design measures, best management practices, as well as recreational and landscape enhancements that can be incorporated within the Project and upon the Site to reduce the extent of impervious surface on the Site and improve the conditions of Lake Quannapowitt, the Site and its surroundings while also providing recreational opportunities to the general public, and which can be undertaken by CC&F in conjunction with the redevelopment as provided for herein;

WHEREAS, the Parties have prioritized areas of the Site for permanent protection and seek to encumber areas of the Site with legal instruments to provide for such permanent protection;

WHEREAS, CC&F: (i) has recently filed plans and materials in support of the issuance of site plan approval and special permits from

the Wakefield Zoning Board of Appeals to allow for the mixed-use Project and (ii) anticipates making additional filings for all other necessary permits and approvals required to construct the Project, including, but not limited to, those identified on **Exhibit C** attached hereto (the “Project Approvals”);

WHEREAS, the Parties previously entered into a Letter of Intent dated as of March 19, 2021 (the “LOI”) outlining the preliminary understanding as to the Parties’ respective commitments regarding the Project;

WHEREAS, this Agreement is entered into by the Parties to establish the final terms by which (i) FOLQ will support the development of the Project and (ii) CC&F will commit to specific design, construction and operational measures in connection with the Project; and

NOW, therefore, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

AGREEMENT

I. CC&F Lake Quannapowitt Water Quality Commitments:

A. Funding towards Clean Lake Committee Main Street Project.

CC&F agrees to pay the Town of Wakefield \$1,300,000.00, intended to be used by the Town of Wakefield for full or partial funding of the so-called “Main Street Project”, a priority initiative to improve water quality within Lake Quannapowitt or any other similar water quality enhancement projects identified by the Town of Wakefield’s Clean Lake Committee and authorized by the Town of Wakefield. This funding commitment may be referenced as a special condition in any special permit issued by the Zoning Board

of Appeals for the Project and is predicated on CC&F seeking and obtaining all final and unappealable Project Approvals. Such funds shall be paid in full by CC&F to the Town of Wakefield within ninety (90) days of issuance of the final building permit for the Project.

B. Project Stormwater Operations and Maintenance Program. CC&F shall include the Operations & Maintenance Plan substantially in the form set forth as **Exhibit D** (“O&M Plan”) in filing for a Notice of Intent in support of the Project with the Town of Wakefield Conservation Commission. In issuing an Order of Conditions for the Project (“OOC”), the Conservation Commission may require modifications to the O&M Plan and CC&F shall operate and maintain the Project in accordance with the approved O&M Plan pursuant to the OOC.

II. CC&F Project Design Commitments:

A. Stormwater Management Enhancements. Plans for the Project to be approved as part of the Project Approvals, including those referenced in the OOC for the Project to be approved by the Wakefield Conservation Commission, shall reflect an overall reduction in impervious surfaces as compared to existing conditions on the Site and shall include a comprehensive stormwater management plan for the Site that reflects the incorporation of new stormwater management facilities, including Best Management Practices (“BMPs”) to provide pre-treatment and attenuation of stormwater from the Project in accordance with applicable Massachusetts stormwater guidelines and standards, to improve the water quality and attenuate the flow of stormwater from the Site to Lake Quannapowitt.

B. Project Height and Rooftop Screening. Plans for the Project to be submitted with all applicable Project Approvals shall be in

general conformance with the conceptual Site Plans and ensure that the Project buildings nearest Lake Quannapowitt are no taller than three stories and that buildings nearest Route I-95/128 are no taller than four stories. CC&F shall only propose to increase grade over current ground floor elevation for purposes of storm water management as may be required in pursuit of Project Approvals. All building rooftop mechanical units associated with the Project shall be low-profile and fully screened from views from anywhere on the lake and located as far from the lakefront as is practicable on each building rooftop.

III. Lake Path Commitment:

- A. Recreational Pathway on Site. CC&F shall design, construct, and maintain a new section of lake pathway on the Site as conceptually shown on the landscape plan attached as **Exhibit E** (the “Preliminary Pathway Plan”). This lakeside path will be designed to accommodate pedestrian uses and the area adjoining the pathway will be landscaped as shown conceptually on the Preliminary Pathway Plan.
- B. Public Access. CC&F shall ensure the pathway area on the Site remains open to public use during daytime hours, subject to CC&F’s reasonable rules and regulations. CC&F shall agree to a condition of any Project Approvals that ensures this area of the Site be maintained and remain open to the public under the terms hereof. As a condition of the special permit for use of the Project on the Site, CC&F shall agree to continue to maintain the pathway area on the Site for as long as the use and operation of the Project depends on such special permit. CC&F further agrees to undertake best efforts in connection with the permitting of the Project to provide for a minimum of 10 parking spaces be available for the use by the public and visitors

alike, on a first-come, first-serve basis, at one or more locations upon the Site located within the Redevelopment Parcel.

IV. Land Transfer & Conservation Restrictions:

CC&F commits to the permanent protection as open space of those three (3) areas on the Site designated on the plan attached as **Exhibit F** as the “Woodlands Area”, “Utility Easement Area” and “Lake Path Area” (collectively, the “Protected Areas”) consisting of approximately 12.5 acres of the Site in total, from future building development. The method and manner of preservation of the Protected Areas may be effectuated in various ways, which may include by conservation restriction or easement, fee simple conveyance to the Town of Wakefield, deed restriction, or other preservation method. The method and manner of preservation may be influenced by interest and acceptance/approval of the appropriate agencies or authorities. Preservation of the Protected Areas shall also be subject to the establishment and maintenance of any essential utility or access easements, including those necessary to support the construction and operation of the Project. CC&F will undertake best efforts to convey the fee simple interest to the portion of the Site identified as the “Woodlands Area” to the Town of Wakefield Conservation Commission, provided that such conveyance does not impede the development of the Project.

V. FOLQ Support of the Project:

The FOLQ Board of Directors, agrees in consideration for the commitments by CC&F set forth herein, to publicly support the Project throughout the entirety of the permitting process until CC&F has obtained all final and unappealable Project Approvals in order to commence and complete construction of the Project. Such support shall include at least one (1) written public statement of support for the Project, on behalf of FOLQ, that may be filed in the public record in the course of review of any pending Project

Approvals. The FOLQ Board of Directors further agree to participate in Wakefield Zoning Board of Appeals and Conservation Commission meetings to express verbal support for the Project. The FOLQ Board of Directors further agree to refrain from opposition or interference of any kind (including direct or indirect involvement in supporting any appeals) during the entirety of the permitting processes for all Project Approvals. The FOLQ Board of Directors further agree to consult with CC&F prior to issuing any public statements on behalf of FOLQ in regards to the Project until its completion, which shall include statements made on social media.

VI. Miscellaneous:

- A. Termination. In the event that CC&F fails to obtain or maintain all final and effective discretionary federal, state and local permits necessary to allow for the construction and operation of the Project, in substantially the same form as described herein and shown on the plans attached hereto, upon CC&F's delivery of written notice to FOLQ, this Agreement shall be null and void.
- B. Term; Successors and Assigns. The Parties agree that in order to construct the Project, CC&F may transfer or assign all or any portion of the Site to another entity to carry out its responsibilities set forth herein, provided this Agreement shall remain binding upon any such successors or assigns for the duration of its term. Upon the completion of construction and the issuance of the final certificate of occupancy necessary for the Project, including the completion of all business subject to this agreement, this Agreement shall automatically terminate and be of no further force or effect. Notwithstanding the foregoing, the applicable requirements of the Project Approvals shall remain binding upon CC&F and its successors and assigns

for operation and maintenance of the Project pursuant to the terms of these approvals.

C. Notices. Notices, when required hereunder, shall be deemed sufficient if sent registered mail to the Parties at the following addresses:

FOLQ: Friends of Lake Quannapowitt
P.O. Box 517
Wakefield, MA 01880

with a copy to:

William Conley
83 Elm Street
Wakefield, MA 01880

Elizabeth Saul
29 Old Nahant Road
Wakefield, MA 01880

CC&F: Cabot, Cabot & Forbes
185 Dartmouth Street
Boston, MA 02116
Attn: Jay Doherty, CEO

with a copy to:

Goulston & Storrs PC
400 Atlantic Avenue
Boston, MA 02110-3333
Attn: Peter L. Tamm, Esq.

- D. Force Majeure. CC&F shall not be considered to be in breach of this Agreement for so long as the CC&F is unable to complete any work or take any action required hereunder due to a *force majeure* event or other events beyond the reasonable control of CC&F.
- E. Default; Opportunity to Cure. Failure by either Party to perform any term or provision of this Agreement shall not constitute a default under this Agreement unless and until the defaulting Party fails to commence to cure, correct or remedy such failure within fifteen (15) days of receipt of written notice of such failure from the other Party and thereafter fails to complete such cure, correction, or remedy within sixty days of the receipt of such written notice, or, with respect to defaults that cannot reasonably be cured, corrected or remedied within such sixty-day period, within such additional period of time as is reasonably required to remedy such default, provided the defaulting Party exercises due diligence in the remedying of such default. Notwithstanding the foregoing, CC&F shall cure any monetary default hereunder within thirty (30) days following the receipt of written notice of such default from FOLQ.
- F. Limitations on Liability. The obligations of CC&F do not constitute personal obligations of their members, trustees, partners, directors, officers or shareholders, or any direct or indirect constituent entity or any of their affiliates or agents. FOLQ shall not seek recourse against any of the foregoing or any of their personal assets for satisfaction of any liability with respect to this Agreement or otherwise. The liability of CC&F is in all cases limited to their interest in the Site.
- G. Estoppels. Each Party agrees, from time to time, upon not less than twenty-one (21) days' prior written request from the other, to execute, acknowledge and deliver a statement in writing certifying (i) that this Agreement is unmodified and in full force

and effect (or if there have been modifications, setting them forth in reasonable detail); (ii) that the party delivering such statement has no defenses, offsets or counterclaims against its obligations to perform its covenants hereunder (or if there are any of the foregoing, setting them forth in reasonable detail); (iii) that there are no uncured defaults of either party under this Agreement (or, if there are any defaults, setting them forth in reasonable detail); and (iv) any other information reasonably requested by the party seeking such statement. If the Party delivering an estoppel certificate is unable to verify compliance by the other Party with certain provisions hereof despite the use of due diligence, it shall so state with specificity in the estoppel certificate, and deliver an updated estoppels certificate as to such provisions as soon thereafter as practicable. Any such statement delivered pursuant to this Section shall be in a form reasonably acceptable to, and may be relied upon by any, actual or prospective purchaser, tenant, mortgagee or other party having an interest in the Project. The undersigned authorized signatory is hereby authorized to execute and deliver any such estoppel certificate on behalf of FOLQ.

H. Governing Law. This Agreement shall be governed by the laws of the Commonwealth of Massachusetts. If any term, covenant, condition or provision of this Agreement or the application thereof to any person or circumstance shall be declared invalid or unenforceable by the final ruling of a court of competent jurisdiction having final review, then the remaining terms, covenants, conditions and provisions of this Agreement and their application to other persons or circumstances shall not be affected thereby and shall continue to be enforced and recognized as valid agreements of the Parties, and in the place of such invalid or unenforceable provision, there shall be substituted a like, but valid and enforceable provision which comports to the findings of the aforesaid court and most nearly accomplishes the original intention of the Parties. The Parties

hereby consent to jurisdiction of the courts of the Commonwealth of Massachusetts sitting in the County of Middlesex.

- I. Entire Agreement; Amendments. This Agreement sets forth the entire agreement of the Parties with respect to the subject matter hereof, and supersedes any prior agreements, discussions or understandings of the Parties and their respective agents and representatives. This Agreement may not be amended, altered or modified except by an instrument in writing and signed by the Parties hereto.
- J. Severability. The invalidity of any provision of this Agreement as determined by a court of competent jurisdiction shall in no way affect the validity of any other provision hereof. If any provision of this Agreement or its applicability to any person or circumstance shall be held invalid, the remainder thereof, or the application to other persons shall not be affected.
- K. Time is of the Essence; Cooperation. Time shall be of the essence for this Agreement and, subject to economic conditions CC&F shall diligently pursue obtaining final and effective Project Approvals in order to construct the Project. The Parties agree to work cooperatively, on a going-forward basis, to execute and deliver documents, and take such other actions, whether or not explicitly set forth herein, that may be necessary in connection with the obligations set forth in this Agreement, including but not limited to the execution and delivery of instruments and documents. FOLQ shall also work cooperatively with CC&F in all matters relating to the Project Approvals for the Project.
- L. Counterparts; Signatures. This Agreement may be executed in several counterparts and by each Party on a separate counterpart, each of which when so executed and delivered shall be an original, and all of which together shall constitute one

instrument. It is agreed that electronic signatures shall constitute originals for all purposes.

M. Amendment. This Agreement may not be amended, modified or terminated except by a written instrument executed by CC&F and FOLQ.

N. No Third-Party Beneficiaries. Notwithstanding anything to the contrary in this Agreement, the Parties do not intend for any third party to be benefitted hereby.

[Remainder of this page intentionally left blank. Signature page follows.]

EXECUTED under seal as of the date and year first above written,

Sincerely,

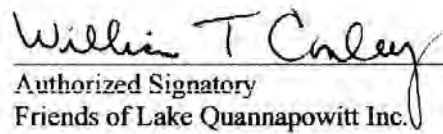
CC&F:

A handwritten signature in dark ink, appearing to read "Jay Doherty", written in a cursive style.

Jay Doherty
CEO
Cabot, Cabot & Forbes

Acknowledged & Agreed,

FOLO:

A handwritten signature in dark ink, appearing to read "William T. Conley", written in a cursive style.

Authorized Signatory
Friends of Lake Quannapowitt Inc.

LIST OF EXHIBITS:

EXHIBIT A: SITE SURVEY

EXHIBIT B: CONCEPTUAL SITE PLAN

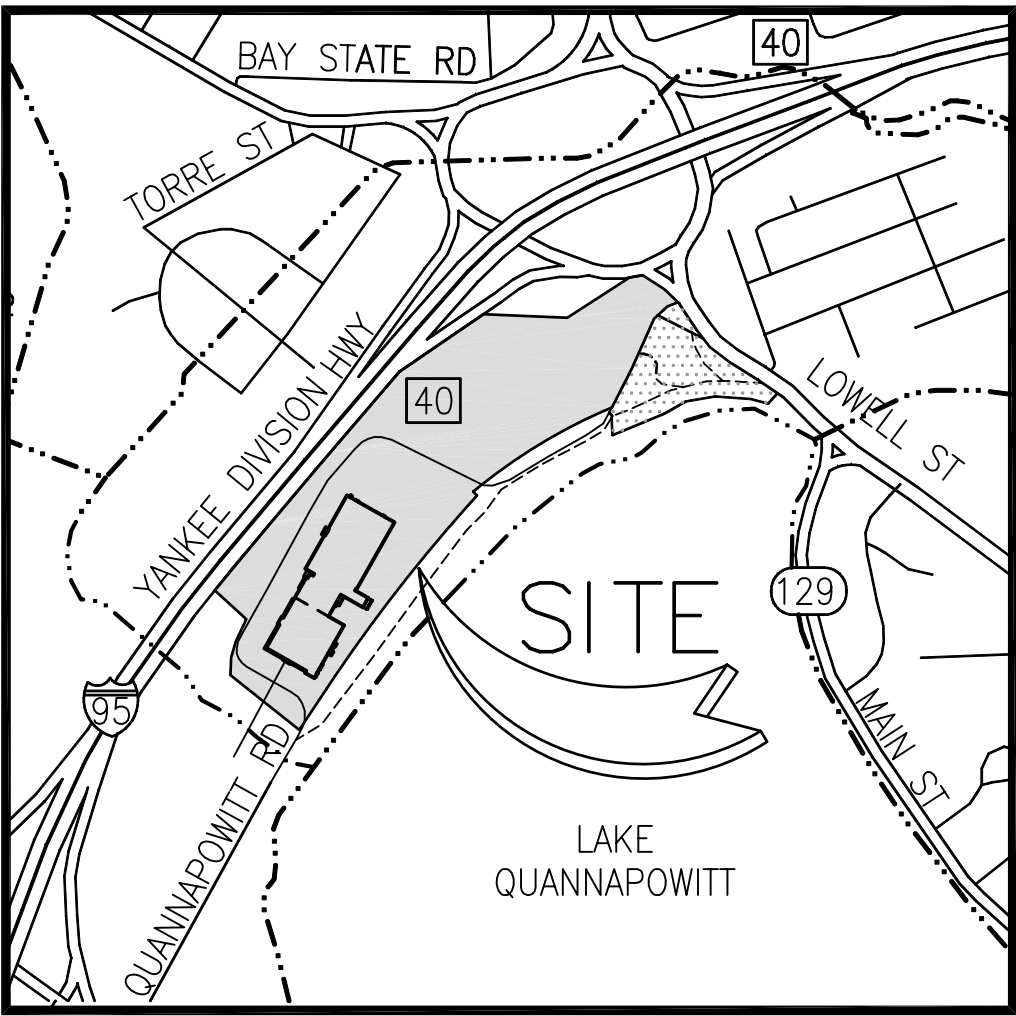
EXHIBIT C: LIST OF PROJECT APPROVALS

EXHIBIT D: STORMWATER OPERATIONS & MAINTENANCE PLAN

EXHIBIT E: PRELIMINARY PATHWAY PLAN

EXHIBIT F: PRESERVATION PLAN

EXHIBIT A: SITE SURVEY



LOCATION MAP
NOT TO SCALE

EXHIBIT A – LEGAL DESCRIPTION:

All that certain parcel of registered land with the improvements thereon, situated at: 200 Quannapowitt Parkway, in the Town of Wakefield, County of Middlesex, and Commonwealth of Massachusetts and is described as set forth in "Exhibit A" attached hereto and made a part hereof.

For Title see deed of GIP Wakefield, LLC, dated January 25, 2018, filed as Document No. 1780706, creating Certificate of Title No. 266975.

Note: Recorded Documents referred to herein are recorded with the Middlesex South District Registry of Deeds. Filed Documents referred to herein are filed with the Middlesex South District Registry District of the Land Court.

A certain parcel of land with the buildings and improvements thereon, situate in Wakefield, Middlesex County, Massachusetts, being shown as Lot 11 on a plan entitled "Plan of Land in Wakefield, MA (Middlesex County) being a subdivision of Lot 8 & 9 on LC 25969-E, Scale: 1 inch = 120 feet, Date: December 16, 1997, prepared by Beals & Thomas, Inc.," which plan is numbered 25969F, as modified and approved by the Court, filed with the Land Registration Office of the County of Middlesex.

Together with the benefit of the real property rights and easements as set forth in the following instruments:

a. The right to use the "Travelled Way", approximately shown on Land Court Plan No. 25969A, and other land, as set forth and described in deed given by the Town of Wakefield to Calvin P. Bartlett dated July 13, 1955 and filed as Document No. 296368 and recorded in Book 8519, Page 444.

b. Easement Agreement dated June 14, 1999, filed as Document No. 1109526 and recorded in Book 30286, Page 273.

The property hereon described is the same as the property described in Fidelity National Title Insurance Company Commitment No. 19-0385KC-FN effective date December 6, 2019 at end of day.

TITLE INFORMATION:

THE TITLE DESCRIPTION AND SCHEDULE B ITEMS HEREON ARE FROM FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT NO. 19-0385KC-FN WITH AN EFFECTIVE DATE: DECEMBER 6, 2019 AT END OF DAY.

FLOOD NOTE:

BASED ON EXAMINATION OF FLOOD INSURANCE RATE MAP, MAP NUMBER 25017C0314E, EFFECTIVE DATE JUNE 4, 2010, PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THE SUBJECT PROPERTY LIES WITHIN ZONE X, AREAS OF MINIMAL FLOODING (NO SHADING)

BASIS OF BEARINGS:

BEARINGS BASED ON A MAGNETIC BEARING TAKEN ALONG THE SOUTHERLY SIDELINE OF INTERSTATE 95 OF N 55° 07'20" E

ZONING INFORMATION:

THE SURVEYOR WAS NOT PROVIDED WITH ZONING INFORMATION BY THE INSURER PURSUANT TO TABLE A ITEM 6a.

PARKING INFORMATION:

506 REGULAR SPACES
7 HANDICAPPED SPACES
513 TOTAL SPACES

STATEMENT OF ENCROACHMENTS:

- A PAVEMENT ENCROACHES ONTO LAND OF THE TOWN OF WAKEFIELD
16.9' +/- X 31.0' +/-

SURVEYOR'S CERTIFICATE:

To: Waterstone Wakefield, LLC a Massachusetts limited liability company; Cabot, Cabot & Forbes, or its designee, and Fidelity National Title Insurance Company.

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2018 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 6a, 6b, 7a, 7b1, 7c, 8, 9, 13, 14, 16, 17 and 18 of Table A thereof. The field work was completed on December 18, 2019.

Raymond P. Shea
Registered Land Surveyor No. 33192
In the State of Massachusetts
Date of Plat or Map: 01/08/2020

NOTES:

- OWNER OF RECORD IS WATERSTONE WAKEFIELD, LLC 322 RESERVOIR STREET 2ND FLOOR NEEDHAM, MA. 02494..
- REFERENCE THESE PARCELS AS PARCEL ID NUMBER: 01-36-AM1 OF THE TOWN OF WAKEFIELD ASSESSORS MAPS.
- DEED REFERENCE IS DOCUMENT NO. 1780706 AS RECORDED AT THE MIDDLESEX COUNTY SOUTH REGISTRY OF DEEDS
- TABLE A ITEM 16- THERE IS NO OBSERVABLE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS WITHIN RECENT MONTHS.
- TABLE A ITEM 17- THERE IS NO OBSERVABLE EVIDENCE OF ANY CHANGES IN STREET RIGHT-OF-WAY LINES EITHER COMPLETED OR PROPOSED, OR EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION REPAIRS.
- THERE IS NO OBSERVABLE EVIDENCE OF ANY CEMETERY.
- THE LOCATION OF ALL UTILITIES SERVING OR EXISTING ON THE SURVEYED PROPERTY IS DEPICTED ON PLAN.
- SUBJECT PROPERTY HAS INDIRECT ACCESS TO QUANNAPOWITT PARKWAY A PUBLIC WAY VIA THE PRIVATE PORTION OF QUANNAPOWITT PARKWAY
- THE ADDRESS OF THE PROPERTY OF 200 QUANNAPOWITT PARKWAY WAS OBTAINED FROM THE TOWN OF WAKEFIELD ASSESSORS RECORDS.
- TABLE A ITEM 18 - IN THE PROCESS OF CONDUCTING THE FIELD WORK, THERE WERE NO WETLAND DELINEATION MARKERS OBSERVED.

ITEMS CORRESPONDING TO SCHEDULE B:

- Rights of others to use "Travelled Way", approximately shown on Land Court Plan No. 25969A. DOES AFFECT THE SUBJECT PROPERTY, SHOWN HEREON.
- Drainage easement as set forth in a Taking by the Commonwealth of Massachusetts dated February 14, 1944, recorded in Book 6738, Page 1. DOES AFFECT THE SUBJECT PROPERTY, SHOWN HEREON.
- Lack of access to highways taken by the Commonwealth of Massachusetts by two Takings, one dated December 13, 1949, recorded in Book 7519, Page 312, and one dated March 7, 1950, recorded in Book 7549, Page 471, and both filed as Document No. 341623. DOES AFFECT THE SUBEJCT PROPERTY, SHOWN HEREON AS PART OF INTERSTATE 95.
- Lack of access to highway taken by the Commonwealth of Massachusetts by Taking dated July 28, 1959, filed as Document No. 345526. DOES AFFECT THE SUBEJCT PROPERTY, SHOWN HEREON AS PART OF INTERSTATE 95.
- Decision by the Town of Wakefield Board of Appeals recorded in Book 21594, Page 166 and filed as Document No. 856134. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE NO DESCRIPTION AS TO THE LOCATION.
- Decision by the Town of Wakefield Board of Appeals recorded in Book 21594, Page 169 and filed as Document No. 856135. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE NO DESCRIPTION AS TO THE LOCATION.
- Order of Conditions (DEP File No. 313-242) filed as Document No. 991126. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Order of Conditions (DEP File No. 313-244) recorded in Book 25979, Page 347, filed as Document No. 992493, as affected by
 - Extension Permit dated January 5, 2000, recorded in Book 31236, Page 568 and filed as Document No. 1134137. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Order of Conditions (DEP File No. 313-0256) filed December 11, 1998 as Document No.1089381, as affected by
 - Extension Permit dated September 25, 2000 filed as Document No. 1154902;
 - Extension Permit dated May 15, 2001, filed as Document No. 1173683.DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Easement Agreement dated June 14, 1999 recorded in Book 30286, Page 273 and filed as Document No. 1109526. DOES AFFECT THE SUBJECT PROPERTY, SHOWN HEREON.
- Lease Agreement by and between the Town of Wakefield, as Lessor, and SC Wakefield 100, Inc. and SC Wakefield 200, et als, as Lessees, dated August 9, 1999, recorded in Book 31119, Page 406, see Page 410 and filed as Document No. 1130730, as affected by :
 - Assignment and Assumption of Personal Property, Service Contracts, Warranties, Leases and other Intangible Property (200 Quannapowit Parkway), from SC Wakefield 100, Inc. to GIP Wakefield, LLC, dated June 16, 2004, and filed as Document No. 1522852. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.

ITEMS CORRESPONDING TO SCHEDULE B (CONTINUED)

- Order of Conditions recorded in Book 32901, Page 260, and filed as Document No. 1171236, as affected by:
 - Extension Permit filed as Document No. 1336003 and recorded in Book 42990, Page 174. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Agreement for Judgment as to zoning recorded in Book 33322, Page 94 and filed as Document No. 1178244. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE NO DESCRIPTION AS TO WHICH SETBACK IS BEING REFERENCED.
- Decision by the Town of Wakefield Zoning Board of Appeals recorded in Book 36871, Page 209. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Decision by the Town of Wakefield Zoning Board of Appeals recorded in Book 35460, Page 258. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Decision by the Town of Wakefield Zoning Board of Appeals recorded in Book 33591, Page 260. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Assignment and Assumption of Personal Property, Service Contracts, Warranties, Leases and other Intangible Property (200 Quannapowit Parkway), from SC Wakefield 100, Inc. to GIP Wakefield, LLC, dated June 16, 2004, and filed as Document No. 1522852. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Decision of the Wakefield Board of Appeals dated December 21, 2009, filed as Document No. 1525566. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- License No. 2256 dated June 27, 1899 under Chapter 318, Acts of 1888 and Chapter 91. MAY AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE NO DOCUMENT PROVIDED.
- Decision by the Wakefield Board of Appeals, Notice of which is Dated December 23, 2011, filed as Document No. 1588683. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Order of Conditions by the Wakefield Conservation Commission (DEP File No. 313-522) dated September 19, 2013, filed as Document No. 1656601. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.
- Survey entitled "ALTA/ACSM Land Title Survey Lots 10 & 11 Wakefield, MA (Middlesex County)" dated January 22, 2004, revised May 25, 2004, prepared by Beals and Thomas, Inc. discloses the following (shown as observations 1 through 10): MAY AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE NO DOCUMENT PROVIDED.
 - Landsaped areas appear to encroach onto Quannapowitt Parkway;
 - Drainage ditches over property lines;
 - 1.5' swale and flow cross southerly boundary line of Lot 10;
 - Utilities and concrete over property lines;
 - Lack of access to Route 128;
 - Culvert over property line;
 - A portion of Quannapowitt Parkway appears to encroach onto Lot 11;
 - Drainage swale and rip rap swale over property lines;
 - Fence appears to encroach onto the premises; and
 - Overhead wires crossing from Quannapowitt Parkway onto premises.
- Reciprocal Easement Agreement and Amendment of Easement Agreement, dated February 5, 2015, filed with said Registry District as Document No. 1691907. DOES AFFECT THE SUBJECT PROPERTY, NOT PLOTTABLE BLANKET DESCRIPTION.

LEGEND	
	PROPERTY LINE
	ABUTTER LINE
	SETBACK LINE
	100 YEAR FLOOD LINE
	CURB
	BUILDING TIE LINE
	BUILDING CANOPY
	BUILDING
	CONCRETE PAD
	TREE LINE
	SEWERLINE
	WATERLINE
	UNDERGROUND ELECTRIC
	DRAINLINE
	GASLINE
	GUARD RAIL
	CHAINLINK FENCE
	OVERHEAD ELECTRIC
	REBAR/IRON PIN FOUND
	STONE BOUND FOUND
	DRILL HOLE FOUND
	SIGN
	DOUBLE SIDED SIGN
	BOLLARD
	MONITORING WELL
	MANHOLE
	UTILITY BOX
	ELECTRIC MANHOLE
	TELEPHONE MANHOLE
	SEWER MAN HOLE
	LIGHT POLE
	UTILITY POLE
	GUY WIRE
	DRAINAGE MAN HOLE
	DRAIN CATCH BASIN
	GAS VALVE
	WELL
	FIRE HYDRANT
	WATER SHUT-OFF

ALTA/NSPS LAND TITLE SURVEY
ALTA SURVEY

200 QUANNAPOWITT PARKWAY
Parcel 1-36-AM1

WAKEFIELD, MIDDLESEX COUNTY, MASSACHUSETTS
12/27/2019

Revision Date	Revision Description

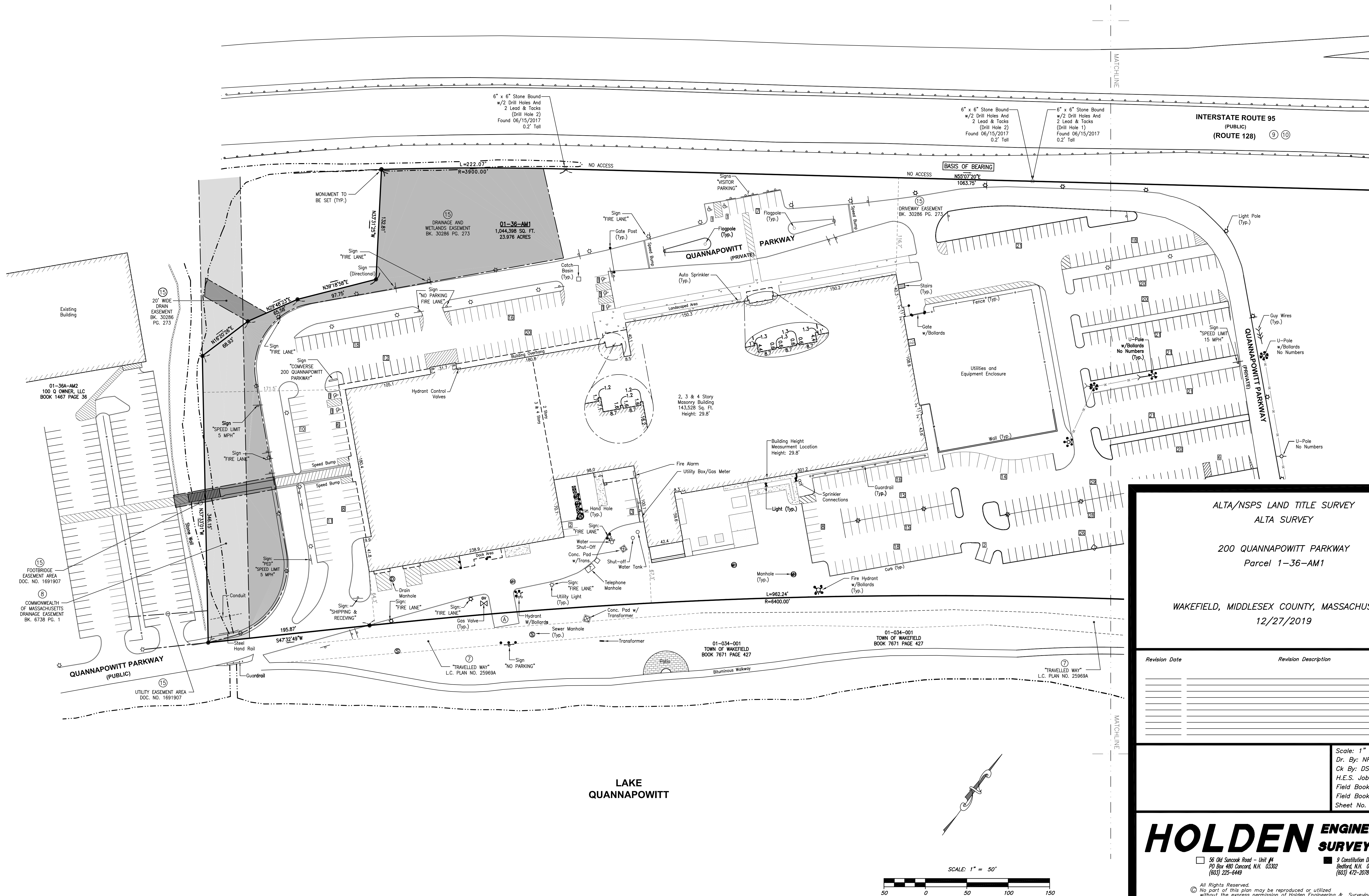
Scale: N/A
Dr. By: NRE
Ck By: DSJ
H.E.S. Job No. 1920778
Field Book No. 1266
Field Book Page No. 36-43
Sheet No. 1 of 3

HOLDEN ENGINEERING & SURVEYING, inc.

56 Old Suncok Road - Unit #4
PO Box 480 Concord, N.H. 03302
(603) 225-6449

9 Constitution Drive
Bedford, N.H. 03110
(603) 472-2078

All Rights Reserved.
No part of this plan may be reproduced or utilized without the express permission of Holden Engineering & Surveying, inc.



ALTA/NSPS LAND TITLE SURVEY
ALTA SURVEY

200 QUANNAPOWITT PARKWAY
Parcel 1-36-AM1

WAKEFIELD, MIDDLESEX COUNTY, MASSACHUSETTS
12/27/2019

Revision Date	Revision Description

Scale: 1" = 50'

Dr. By: NRE
Ck By: DSJ
H.E.S. Job No. 1920778
Field Book No. 1266
Field Book Page No. 36-43
Sheet No. 2 of 3

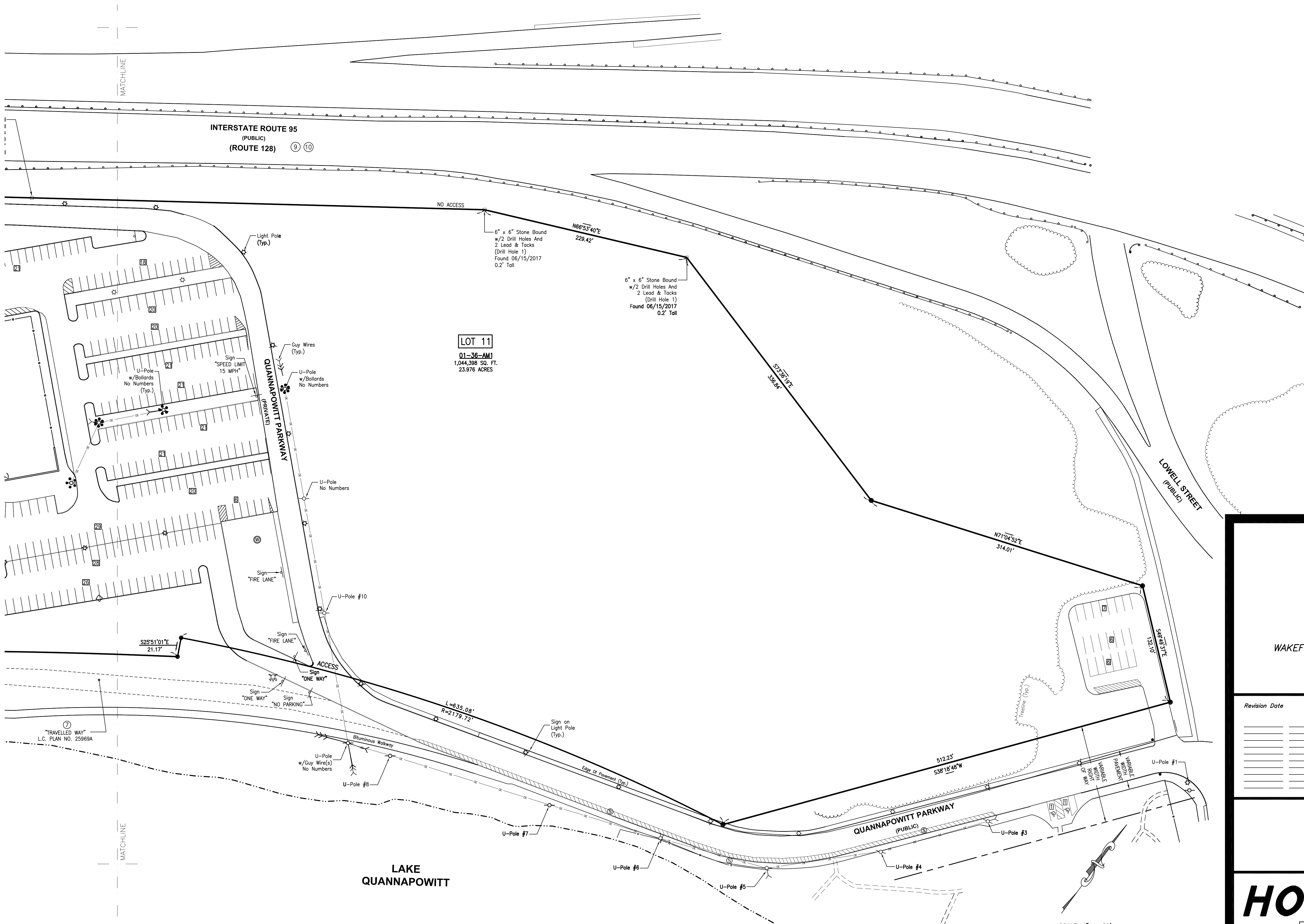
HOLDEN ENGINEERING & SURVEYING, inc.

55 Old Suncook Road - Unit #4
PO Box 480 Concord, N.H. 03302
(603) 225-6449

9 Constitution Drive
Bedford, N.H. 03110
(603) 472-2078

All Rights Reserved.
No part of this plan may be reproduced or utilized
without the express permission of Holden Engineering & Surveying, inc.

1920778_XBSE.dwg (Dwg) (CAD) Jan 20, 2020 merrindson



ALTA/NSPS LAND TITLE SURVEY
ALTA SURVEY

200 QUANNAPOWITT PARKWAY
Parcel 1-36-AM1

WAKEFIELD, MIDDLESEX COUNTY, MASSACHUSETTS
12/27/2019

Revision Date	Revision Description

Dr. By: NRE
Ck By: DSJ
H.E.S. Job No. 1920778
Field Book No. 1266
Field Book Page No. 36-43
Sheet No. 3 of 3

HOLDEN ENGINEERING & SURVEYING, inc.

55 Old Sacoak Road - Unit #4
PO Box 480 Concord, N.H. 03302
(603) 225-6449

9 Constitution Drive
Bedford, N.H. 03110
(603) 472-2078

All Rights Reserved.
No part of this plan may be reproduced or utilized
without the express permission of Holden Engineering & Surveying, inc.

1920778_1920778-ALTA.dwg (AutoCAD) Jan 20, 2020 merlindson

Proj. Created: 06/16/17

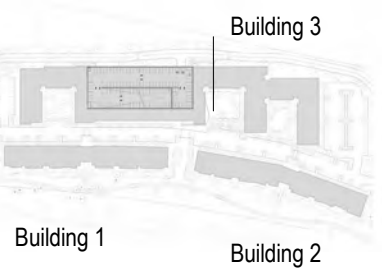
EXHIBIT B: CONCEPTUAL SITE PLAN

200 - 400
QUANNAPOWITT
PARKWAY
Wakefield, MA

CABOT, CABOT &
FORBES

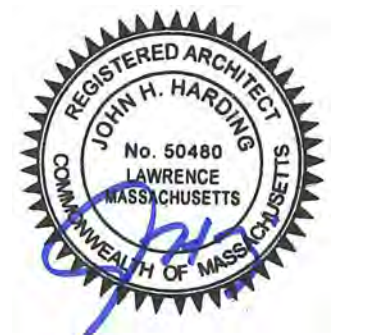
185 Dartmouth St.,
Boston, MA 02110

SITE
DEVELOPMENT
PLANS
NOT FOR
CONSTRUCTION



drawing by: AA
drawing checked by: BC
drawing scale: 1/32" = 1'-0"
drawing date: 16 March 2021
project number: 19234.00

drawing revisions:
No. Description Date
1 B3 Height Reduction 03-31-2021



Site Plan

A-080

NEIGHBORHOOD ROAD

SURFACE
PARKING LOT

LANDSCAPED COURTYARD
AT GRADE

QUANNAPOWITT PARKWAY IN
EXISTING LOCATION

BUILDING 3 IS FOUR FLOORS
ATTACHED TO THE PARKING GARAGE

PRIMARY AMENITY COURTYARD AT
GRADE

LANDSCAPED
COURTYARD AT GRADE

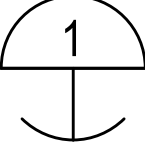
SURFACE PARKING LOT

BUILDING 3

BUILDING 1

BUILDING 2

Site Plan
1/32" = 1'-0"



BUILDING 1 IS THREE FLOORS

WALK-OUT UNITS WITH PRIVATE
PATIOS

CENTRAL PLAZA ACROSS FROM MAIN
AMENITY SPACE

MULTI-USE PUBLIC PATH

BUILDING 2 IS THREE FLOORS

WALK-OUT UNITS WITH PRIVATE
PATIOS



NOTE: APPLICATION REVISION

EXHIBIT C
LIST OF ANTICIPATED PROJECT PERMITS AND APPROVALS

AUTHORITY	PERMIT/APPROVAL
<u>LOCAL</u>	
Wakefield Building Department	Building Permits
Wakefield Conservation Commission	Orders of Conditions
Wakefield Board of Selectmen	Inflammables License
Wakefield Planning Board	Subdivision and ANR Plans
Wakefield Department of Public Works	Water, Sewer and Road Opening Permits
Wakefield Zoning Board	Site Plan / Special Permit(s)
<u>STATE</u>	
MEPA Unit - Executive Office of Environmental Affairs	ENF Certificate (<i>if necessary</i>)
Massachusetts Highway Department	Indirect Access Permit (<i>if necessary</i>)
<u>FEDERAL</u>	
US Environmental Protection Agency	National Pollution Discharge Elimination System (NPDES) – General Permit for Construction

EXHIBIT D: STORMWATER OPERATIONS & MAINTENANCE PLAN



SECTION 2.0 - OPERATION & MAINTENANCE PLAN



Introduction

In accordance with the standards set forth by the Stormwater Management Policy issued by the Massachusetts Department of Environmental Protection (MassDEP), Allen & Major Associates, Inc. has prepared the following Operations & Maintenance (O&M) Plan for the existing development at 200 Quannapowitt Parkway, Wakefield, MA.

The plan is broken down into three major sections. The first section describes construction-related erosion and sedimentation controls (Demolition & Construction Maintenance Plan). The second section describes the long-term pollution prevention measures (Long Term Pollution Prevention Plan). The third section is a post-construction operation and maintenance plan designed to address the long-term maintenance needs of the stormwater management system (Long-Term Maintenance Plan – Facilities Description).

Notification Procedures for Change of Responsibility for O&M

The Stormwater Management System (SMS) for this project is owned by Cabot, Cabot & Forbes (owner). The owner shall be legally responsible for the long-term operation and maintenance of this SMS as outlined in this Operation and Maintenance Plan.

The owner shall submit an annual summary report and the completed Operation & Maintenance Schedule & Checklist to the Conservation Commission (via email or print copy), highlighting inspection and maintenance activities including performances of BMPs. Should ownership of the SMS change, the owner will continue to be responsible until the succeeding owner shall notify the Commission that the succeeding owner has assumed such responsibility. Upon subsequent transfers, the responsibility shall continue to be that of transferring owner until the transferee owner notifies the Commission of its assumption of responsibility.

In the event the SMS will serve multiple lots/owners, such as the subdivision of the existing parcel or creation of lease areas, the owner(s) shall establish an association or other legally enforceable arrangements under which the association or a single party shall have legal responsibility for the operation and maintenance of the entire SMS. The legal instrument creating such responsibility shall be recorded with the Registry of Deeds and promptly following its recording, a copy thereof shall be furnished to the Commission.



Contact Information

Stormwater Management System Owner: Cabot, Cabot & Forbes
185 Dartmouth Street
Boston, MA 02116
Phone: 617-603-4000

Emergency Contact Information:

Allen & Major Associates, Inc. (Site Civil Engineer)	Phone: (781) 935-6889
Wakefield Department of Public Works	Phone: 781-246-6301
Wakefield Conservation Commission	Phone: 781-224-5015
Wakefield Fire Department (non-emergency line)	Phone: 781-246-6435
MassDEP Emergency Response	Phone: (888) 304-1133
Clean Harbors Inc (24-Hour Line)	Phone: (800) 645-8265

Demolition & Construction Maintenance Plan

1. Call Digsafe: 1-888-344-7233
2. Contact the Town of Wakefield at least three (3) days prior to start of demolition and/or construction activities.
3. Install Erosion Control measures as shown on the Plans prepared by A&M. The Town of Wakefield shall review the installation of straw bales and silt fencing prior to the start of any site demolition work. Install Construction fencing if determined to be necessary at the commencement of construction.
4. Install construction entrances, straw bales, and silt fence at the locations shown on the Erosion Control Plan prepared by A&M.
5. Site access shall be achieved only from the designated construction entrances.
6. Cut and clear trees in construction areas only (within the limit of work; see plans).
7. Stockpiles of materials subject to erosion shall be stabilized with erosion control matting or temporary seeding whenever practicable, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.
8. Install silt sacks and straw bales around each drain inlet prior to any demolition and or construction activities.
9. All erosion control measures shall be inspected weekly and after every rainfall event. Records of these inspections shall be kept on-site for review.



10. All erosion control measures shall be maintained, repaired, or replaced as required or at the direction of the owner's engineer or the Town of Wakefield.
11. Sediment accumulation up-gradient of the straw bales, silt fence, and stone check dams greater than 6" in depth shall be removed and disposed of in accordance with all applicable regulations.
12. If it appears that sediment is exiting the site, silt sacks shall be installed in all catch basins adjacent to the site. Sediment accumulation on all adjacent catch basin inlets shall be removed and the silt sack replaced if torn or damaged.
13. Install stone check dams on-site during construction as needed. Refer to the erosion control details. Temporary sediment basins combined with stone check dams shall be installed on-site during construction to control and collect runoff from upland areas of this site during demolition and construction activities.
14. The contractor shall comply with the Sedimentation and Erosion Control Notes as shown on the Site Development Plans and Specifications.
15. The stabilized construction entrances shall be inspected weekly and records of inspections kept. The entrances shall be maintained by adding additional clean, angular, durable stone to remove the soil from the construction vehicle's tires when exiting the site. If soil is still leaving the site via the construction vehicle tires, adjacent roadways shall be kept clean by street sweeping.
16. Dust pollution shall be controlled using on-site water trucks and/or an approved soil stabilization product.
17. During demolition and construction activities, Status Reports on compliance with this O&M Document shall be submitted weekly. The report shall document any deficiencies and corrective actions taken by the applicant.

Long-Term Pollution Prevention Plan

Standard #4 from the MassDEP Stormwater Management Handbook requires that a Long-Term Pollution Prevention Plan (LTPPP) be prepared and incorporated as part of the Operation and Maintenance Plan of the Stormwater Management System. The purpose of the LTPPP is to identify potential sources of pollution that may affect the quality of stormwater discharges, and to describe the implementation of practices to reduce the pollutants in stormwater discharges. The following items describe the source control and proper procedures of the LTPPP.

- Housekeeping



The existing development has been designed to maintain a high level of water quality treatment for all stormwater discharge to the wetland areas. An Operation and Maintenance (O&M) plan has been prepared and is included in this section of the report. The owner (or its designee) is responsible for adherence to the O&M plan in a strict and complete manner.

- Storing of Materials & Water Products

The trash and waste program for the site includes exterior dumpsters. There is a trash contractor used to pick up the waste material in the dumpsters. The stormwater drainage system has water quality inlets designed to capture trash and debris.

- Vehicle Washing

Outdoor vehicle washing has the potential to result in high loads of nutrients, metals, and hydrocarbons during dry weather conditions, as the detergent-rich water used to wash the grime off the vehicle enters the stormwater drainage system. The existing development does not include any designated vehicle washing areas, nor is it expected that any vehicle washing will take place on-site.

- Spill Prevention & Response

Sources of potential spill hazards include vehicle fluids, liquid fuels, pesticides, paints, solvents, and liquid cleaning products. The majority of the spill hazards would likely occur within the buildings and would not enter the stormwater drainage system. However, there are spill hazards from vehicle fluids or liquid fuels located outside of the buildings. These exterior spill hazards have the potential to enter the stormwater drainage system and are to be addressed as follows:

1. Spill hazards of pesticides, paints, and solvents shall be remediated using the Manufacturers' recommended spill cleanup protocol.
2. Vehicle fluids and liquid fuel spill shall be remediated according to the local and state regulations governing fuel spills.
3. The owner shall have the following equipment and materials on hand to address a spill clean-up: brooms, dust pans, mops, rags, gloves, absorptive material, sand, sawdust, plastic and metal trash containers.
4. All spills shall be cleaned up immediately after discovery.
5. Spills of toxic or hazardous material shall be reported, regardless of size, to the Massachusetts Department of Environmental Protection at (888) 304-1333.



6. Should a spill occur, the pollution prevention plan will be adjusted to include measures to prevent another spill of a similar nature. A description of the spill, along with the causes and cleanup measures will be included in the updated pollution prevention plan.
- Maintenance of Lawns, Gardens, and Other Landscaped Areas

It should be recognized that this is a general guideline towards achieving high quality and well-groomed landscaped areas. The grounds staff/landscape contractor must recognize the shortcomings of a general maintenance plan such as this, and modify and/or augment it based on weekly, monthly, and yearly observations. In order to assure the highest quality conditions, the staff must also recognize and appreciate the need to be aware of the constantly changing conditions of the landscaping and be able to respond to them on a proactive basis. No trees shall be planted over the drain lines or recharge area, and that only shallow rooted plants and shrubs will be allowed.

 - Fertilizer

Maintenance practices should be aimed at reducing environmental, mechanical and pest stresses to promote healthy and vigorous growth. When necessary, pest outbreaks should be treated with the most sensitive control measure available. Synthetic chemical controls should be used only as a last resort to organic and biological control methods. Fertilizer, synthetic chemical controls and pest management applications (when necessary) shall be performed only by licensed applicators in accordance with the manufacturer's label instructions when environmental conditions are conducive to controlled product application.

Only slow-release organic fertilizers should be used in the planting and mulch areas to limit the amount of nutrients that could enter downstream resource areas. Fertilization of the planting and mulch areas will be performed within manufacturers labeling instructions and shall not exceed an NPK ration of 1:1:1 (i.e. Triple 10 fertilizer mix), considered a low nitrogen mixture. Fertilizers approved for the use under this O&M Plan are as follows:

Type:	LESCO® 28-0-12 (Lawn Fertilizer)
	MERIT® 0.2 Plus Turf Fertilizer
	MOMENTUM™ Force Weed & Feed
 - Suggested Aeration Program

In-season aeration of lawn areas is good cultural practice, and is recommended whenever feasible. It should be accomplished with a solid thin tine aeration method to reduce disruption to the use of the area. The



depth of solid tine aeration is similar to core type, but should be performed when the soil is somewhat drier for a greater overall effect.

Depending on the intensity of use, it can be expected that all landscaped lawn areas will need aeration to reduce compaction at least once per year. The first operation should occur in late May following the spring season. Methods of reducing compaction will vary based on the nature of the compaction. Compaction on newly established landscaped areas is generally limited to the top 2-3" and can be alleviated using hollow core or thin tine aeration methods.

The spring aeration should consist of two passes at opposite directions with 1/4" hollow core tines penetrating 3-5" into the soil profile. Aeration should occur when the soil is moist but not saturated. The soil cores should be shattered in place and dragged or swept back into the turf to control thatch. If desired the cores may also be removed and the area top-dressed with sand or sandy loam. If the area drains on average too slowly, the topdressing should contain a higher percentage of sand. If it is draining on average too quickly, the top dressing should contain a higher percentage of soil and organic matter.

- Landscape Maintenance Program Practices:

- Lawn

1. Mow a minimum of once a week in spring, to a height of 2" to 2 1/2" high. Mowing should be frequent enough so that no more than 1/3 of grass blade is removed at each mowing. The top growth supports the roots; the shorter the grass is cut, the less the roots will grow. Short cutting also dries out the soil and encourages weeds to germinate.
2. Mow approximately once every two weeks from July 1st to August 15th depending on lawn growth.
3. Mow on a ten-day cycle in fall, when growth is stimulated by cooler nights and increased moisture.
4. Do not remove grass clippings after mowing.
5. Keep mower blades sharp to prevent ragged cuts on grass leaves, which cause a brownish appearance and increase the chance for disease to enter a leaf.

- Shrubs

1. Mulch not more than 3" depth with shredded pine or fir bark.



2. Hand prune annually, immediately after blooming, to remove 1/3 of the above-ground biomass (older stems). Stem removals are to occur within 6" of the ground to open up shrub and maintain two-year wood (the blooming wood).
 3. Hand-prune evergreen shrubs only as needed to remove dead and damaged wood and to maintain the naturalistic form of the shrub. Never mechanically shear evergreen shrubs.
- Trees
 1. Provide aftercare of new tree plantings for the first three years.
 2. Do not fertilize trees, it artificially stimulates them (unless tree health warrants).
 3. Water once a week for the first year; twice a month for the second; once a month for the third year.
 4. Prune trees on a four-year cycle.
 - Invasive Species
 1. Inform the Conservation Commission Agent prior to the removal of invasive species proposed either through hand work or through chemical removal.
 - Storage and Use of Herbicides and Pesticides

Integrated Pest Management is the combination of all methods (of pest control) which may prevent, reduce, suppress, eliminate, or repel an insect population. The main requirements necessary to support any pest population are food, shelter and water, and any upset of the balance of these will assist in controlling a pest population. Scientific pest management is the knowledgeable use of all pest control methods (sanitation, mechanical, chemical) to benefit mankind's health, welfare, comfort, property and food. A Pest Management Professional (PMP) should be retained who is licensed with the Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs, Department of Agricultural Resources.

The site manager will be provided with approved bulletin before entering into or renewing an agreement to apply pesticides for the control of indoor household or structural pests, refer to 333 CMR 13.08.

Before beginning each application, the applicator must post a Department approved notice on all of the entrances to the treated room or area. The applicator must leave such notices posted after the application. The notice will be posted at conspicuous point(s) of access to the area treated. The location and



number of signs will be determined by the configuration of the area to be treated based on the applicator's best judgment. It is intended to give sufficient notice so that no one comes into an area being treated unaware that the applicator is working and pesticides are being applied. However, if the contracting entity does not want the signs posted, he/she may sign a Department approved waiver indicating this.

The applicator or employer will provide to any person upon their request the following information on previously conducted applications:

1. Name and phone number of pest control company;
 2. Date and time of the application;
 3. Name and license number of the applicator;
 4. Target pests; and
 5. Name and EPA Registration Number of pesticide products applied.
- Pet Waste Management
The owner's landscape crew (or designee) shall remove any obvious pet waste that has been left behind by pet owners within the development. The pet waste shall be disposed of in accordance with local and state regulations.
 - Operations and Management of Septic Systems
There are no proposed septic systems within the limits of the project.
 - Management of Deicing Chemicals and Snow
Snow will be stockpiled on site until the accumulated snow becomes a hazard to the daily operations of the site. It will be the responsibility of the snow removal contractor to properly dispose of transported snow according to MassDEP, Bureau of Resource Protection – Snow Disposal Guideline #BRPG01-01, governing the proper disposal of snow. It will be the responsibility of the snow removal contractor to follow these guidelines and all applicable laws and regulations

The owner's maintenance staff (or its designee) will be responsible for the clearing of the sidewalk and building entrances. The owner may be required to use a de-icing agent such as potassium chloride to maintain a safe walking surface. If used, the de-icing agent for the walkways and building entrances will be kept within the storage rooms located within the building. If used, de-icing agents will not be stored outside. The owner's maintenance staff will limit the application of sand.

Long-Term Maintenance Plan – Facilities Description

A maintenance log will be kept (i.e. report) summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or



maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated. The log will be made accessible to department staff and a copy provided to the department upon request.

The following is a description of the Stormwater Management System for the project site.

Stormwater Collection System – On-Site:

The stormwater collection system is a series of inlets located at low points within the limits of the paved area. All of the proposed on-site catch basins incorporate a deep sump and hooded outlet. The catch basins are connected by a closed gravity pipe network routed to an isolator row within the underground detention chambers.

Roof runoff discharges directly to the underground chambers, bioretention area, or surface infiltration basin. All remaining runoff along the perimeter of the site and within the parkway, sheet flows through vegetated filter strips equipped with a stone diaphragm before entering the wetlands and/or drainage channel.

Pretreatment BMPs: Regular maintenance of these BMPs is especially critical because they typically receive the highest concentration of suspended solids during the first flush of a storm event.

- **Deep Sump Catch Basin:**
Precast structure equipped with grated inlet and 4' sump to allow sediment to settle out.
- **Isolator Row:**
Single row of underground chambers wrapped in geotextile to filter out sediment. Equipped with overflow into remaining chambers.
- **Vegetated Filter Strip:**
Uniformly graded vegetated surfaces that receive runoff from adjacent impervious surfaces via sheet flow.

Treatment BMPs:

- **Exfiltrating Bioretention Area:**
Shallow depressions filled with sandy soil topped with a thick layer of mulch and planted with dense native vegetation. Equipped with overflow and underdrain.

Infiltration BMPs:



- **Subsurface Structures**
Underground chambers surrounded by stone used to store large volumes of stormwater and allow for infiltration into the groundwater.
- **Infiltration Basin:**
Stormwater runoff impoundments that are constructed over permeable soils.

Other Maintenance Activity:

- **Mosquito Control** - Both above ground and underground stormwater BMPs have the potential to serve as mosquito breeding areas. Good design, proper operation and maintenance, and treatment with larvicides can minimize this potential. See the supplemental information for Mosquito Control in Stormwater Management Practices, and the Operation and Maintenance Plan Schedule for inspection schedule.
- **Street Sweeping** - Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

Inspection and Maintenance Frequency and Corrective Measures

In accordance with MA DEP Stormwater Handbook: Volume 2, Chapter 2; the previously described BMPs will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments, trash, and debris. In any and all cases, operations, inspections, and maintenance activities shall utilize best practical measures to avoid and minimize impacts to wetland resource areas outside the footprint of the SMS.

Supplemental Information

- Operation & Maintenance Plan Schedule
- Massachusetts Stormwater Handbook, Chapter 5, Miscellaneous Stormwater Topics, Mosquito Control in Stormwater Management Practices.
- MassDEP Bureau of Water Resources Snow Disposal Guidance
- Stormtech Isolator Row O&M Manual

OPERATION AND MAINTENANCE PLAN SCHEDULE

Date: March 16, 2021



Project: 200 Quannapowitt Parkway
Project Address: 200 Quannapowitt Parkway Wakefield, MA

Responsible for O&M Plan: Cabot, Cabot & Forbes
Address: 185 Dartmouth Street Boston, MA

All information within table is derived from Massachusetts Stormwater Handbook: Volume 2, Chapter 2

BMP CATEGORY	BMP OR MAINTENANCE ACTIVITY	SCHEDULE/FREQUENCY	NOTES	ESTIMATED ANNUAL MAINTENANCE COST	INSPECTION PERFORMED	
					DATE:	BY:
STRUCTURAL PRETREATMENT BMPs	DEEP SUMP CATCH BASIN	Four times per year (quarterly).	Inspect and clean catch basin units whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin.	\$1,000		
	VEGETATED FILTER STRIPS	Inspect every six months during the first year and annually thereafter. Mow and remove sediment as needed.	Inspect the vegetation for signs of erosion, bare spots, and overall health. Regularly mow the grass. Remove sediment from the toe of slope or level spreader and reseed bare spots.	\$250		
TREATMENT BMPs	BIORETENTION AREA & RAIN GARDEN	Remove trash monthly. Remove and replace dead vegetation, prune and mulch annually.	Inspect & remove trash, Mulch, Remove dead vegetation, Replace dead vegetation, Prune, Replace entire media & all vegetation.	\$3,000		
INFILTRATION BMPs	INFILTRATION BASIN	Inspect after every major storm during first 3 months of operation and twice a year thereafter. Clean pretreatment devices twice a year and after every major storm.	Inspect to ensure proper functioning. Mow the buffer area, side slopes, and basin bottom if grassed floor; rake if stone bottom; remove trash and debris; remove grass clippings and accumulated organic matter. Inspect and clean pretreatment devices.	\$1,500		
	SUBSURFACE STRUCTURES	Inspect structure inlets at least twice a year. Remove debris that may clog the system as needed.	Because subsurface structures are installed underground, they are extremely difficult to maintain. Remove any debris that might clog the system.	\$500		
OTHER MAINTENANCE ACTIVITY	MISQUITO CONTROL	Inspect BMPs as needed to ensure the system's drainage time is less than the maximum 72 hour period.	Massachusetts stormwater handbook requires all stormwater practices that are designed to drain do so within 72 hours to reduce the number of mosquitos that mature to adults since the aquatic stage of a mosquito is 7-10 days.	\$100		
	SNOW STORAGE	Clear and remove snow to approved storage locations as necessary to ensure systems are working properly and are protected from meltwater pollutants.	Carefully select snow disposal sites before winter. Avoid dumping removed snow over catch basins, or in detention ponds, sediment forebays, rivers, wetlands, and flood plains. It is also prohibited to dump snow in the bioretention basins or gravel swales.	\$500		
	STREET SWEEPING	Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.	Sweep, power broom or vacuum paved areas. Submit information that confirms that all street sweepings have been completed in accordance with state and local requirements	\$2,000		

Chapter 5 Miscellaneous Stormwater Topics

Mosquito Control in Stormwater Management Practices

Both aboveground and underground stormwater BMPs have the potential to serve as mosquito breeding areas. Good design, proper operation and maintenance and treatment with larvicides can minimize this potential.

EPA recommends that stormwater treatment practices dewater within 3 days (72 hours) to reduce the number of mosquitoes that mature to adults, since the aquatic stage of many mosquito species is 7 to 10 days. Massachusetts has had a 72-hour dewatering rule in its Stormwater Management Standards since 1996. The 2008 technical specifications for BMPs set forth in Volume 2, Chapter 2 of the Massachusetts Stormwater Handbook also concur with this practice by requiring that all stormwater practices designed to drain do so within 72 hours.

Some stormwater practices are designed to include permanent wet pools. These practices – if maintained properly – can limit mosquito breeding by providing habitat for mosquito predators. Additional measures that can be taken to reduce mosquito populations include increasing water circulation, attracting mosquito predators by adding suitable habitat, and applying larvicides.

The Massachusetts State Reclamation and Mosquito Control Board (SRMCB), through the Massachusetts Mosquito Control Districts, can undertake further mosquito control actions specifically for the purpose of mosquito control pursuant to Massachusetts General Law Chapter 252. The Mosquito Control Board, <http://www.mass.gov/agr/mosquito/>, describes mosquito control methods and is in the process of developing guidance documents that describe Best Management Practices for mosquito control projects.

The SRMCB and Mosquito Control Districts are not responsible for operating and maintaining stormwater BMPs to reduce mosquito populations. The owners of property that construct the stormwater BMPs or municipalities that “accept” them through local subdivision approval are responsible for their maintenance.¹ The SRMCB is composed of officials from MassDEP, Department of Agricultural Resources, and Department of Conservation and Recreation. The nine (9) Mosquito Control Districts overseen by the SRMCB are located throughout Massachusetts, covering 176 municipalities.

Construction Period Best Management Practices for Mosquito Control

To minimize mosquito breeding during construction, it is essential that the following actions be taken to minimize the creation of standing pools by taking the following actions:

- **Minimize Land Disturbance:** Minimizing land disturbance reduces the likelihood of mosquito breeding by reducing silt in runoff that will cause construction period controls to clog and retain standing pools of water for more than 72 hours.
- **Catch Basin inlets:** Inspect and refresh filter fabric, hay bales, filter socks or stone dams on a regular basis to ensure that any stormwater ponded at the inlet drains within 8 hours after precipitation stops. Shorter periods may be necessary to avoid hydroplaning in roads

¹ MassDEP and MassHighway understand that the numerous stormwater BMPs along state highways pose a unique challenge. To address this challenge, the 2004 MassHighway Stormwater Handbook will provide additional information on appropriate operation and maintenance practices for mosquito control when the Handbook is revised to reflect the 2008 changes to the Stormwater Management Standards..

caused by water ponded at the catch basin inlet. Treat catch basin sumps with larvicides such as *Bacillus sphaericus* (*Bs*) using a licensed pesticide applicator.

- **Check Dams:** If temporary check dams are used during the construction period to lag peak rate of runoff or pond runoff for exfiltration, inspect and repair the check dams on a regular basis to ensure that any stormwater ponded behind the check dam drains within 72 hours.
- **Design construction period sediment traps** to dewater within 72 hours after precipitation. Because these traps are subject to high silt loads and tend to clog, treat them with the larvicide *Bs* after it rains from June through October, until the first frost occurs.
- **Construction period open conveyances:** When temporary manmade ditches are used for channelizing construction period runoff, inspect them on a regular basis to remove any accumulated sediment to restore flow capacity to the temporary ditch.
- **Revegetating Disturbed Surfaces:** Revegetating disturbed surfaces reduces sediment in runoff that will cause construction period controls to clog and retain standing pools of water for greater than 72 hours.
- **Sediment fences/hay bale barriers:** When inspections find standing pools of water beyond the 24-hour period after a storm, take action to restore barrier to its normal function.

Post-Construction Stormwater Treatment Practices

- Mosquito control begins with the environmentally sensitive site design. Environmentally sensitive site design that minimizes impervious surfaces reduces the amount of stormwater runoff. Disconnecting runoff using the LID Site Design credits outlined in the Massachusetts Stormwater Handbook reduces the amount of stormwater that must be conveyed to a treatment practice. Utilizing green roofs minimizes runoff from smaller storms. Storage media must be designed to dewater within 72 hours after precipitation.
- Mosquito control continues with the selection of structural stormwater BMPs that are unlikely to become breeding grounds for mosquitoes, such as:
 - **Bioretention Areas/Rain Gardens/Sand Filter:** These practices tend not to result in mosquito breeding. If any level spreaders, weirs or sediment forebays are used as part of the design, inspect them and correct them as necessary to prevent standing pools of water for more than 72 hours.
 - **Infiltration Trenches:** This practice tends not to result in mosquito breeding. If any level spreaders, weirs, or sediment forebays are used as part of the design, inspect them and correct them as necessary to prevent standing pools of water for more than 72 hours.
- Another mosquito control strategy is to select BMPs that can become habitats for mosquito predators, such as:
 - **Constructed Stormwater Wetlands:** Habitat features can be incorporated in constructed stormwater wetlands to attract dragonflies, amphibians, turtles, birds, bats, and other natural predators of mosquitoes.
 - **Wet Basins:** Wet basins can be designed to incorporate fish habitat features, such as deep pools. Introduce fish in consultation with Massachusetts Division of Fisheries and Wildlife. Vegetation within wet basins designed as fish habitat must be properly managed to ensure that vegetation does not overtake the habitat. Proper design to ensure that no low circulation or “dead” zones are created may reduce the potential for mosquito breeding. Introducing bubblers may increase water circulation in the wet basin.

Effective mosquito controls require proponents to design structural BMPs to prevent ponding and facilitate maintenance and, if necessary, the application of larvicides. Examples of such design practices include the following:

- **Basins:** Provide perimeter access around wet basins, extended dry detention basins and dry detention basins for both larviciding and routine maintenance. Control vegetation to ensure that access pathways stay open.
- **BMPs without a permanent pool of water:** All structural BMPs that do not rely on a permanent pool of water must drain and completely dewater within 72 hours after precipitation. This includes dry detention basins, extended dry detention basins, infiltration basins, and dry water quality swales. Use underdrains at extended dry detention basins to drain the small pools that form due to accumulation of silts. Wallace indicates that extended dry extended detention basins may breed more mosquitoes than wet basins. It is, therefore, imperative to design outlets from extended dry detention basins to completely dewater within the 72-hour period.
- **Energy Dissipators and Flow Spreaders:** Currier and Moeller, 2000 indicate that shallow recesses in energy dissipators and flow spreaders trap water where mosquitoes breed. Set the riprap in grout to reduce the shallow recesses and minimize mosquito breeding.
- **Outlet control structures:** Debris trapped in small orifices or on trash racks of outlet control structures such as multiple stage outlet risers may clog the orifices or the trash rack, causing a standing pool of water. Optimize the orifice size or trash rack mesh size to provide required peak rate attenuation/water quality detention/retention time while minimizing clogging.
- **Rain Barrels and Cisterns:** Seal lids to reduce the likelihood of mosquitoes laying eggs in standing water. Install mosquito netting over inlets. The cistern system should be designed to ensure that all collected water is drained into it within 72 hours.
- **Subsurface Structures, Deep Sump Catch Basins, Oil Grit Separators, and Leaching Catch Basins:** Seal all manhole covers to reduce likelihood of mosquitoes laying eggs in standing water. Install mosquito netting over the outlet (CALTRANS 2004).

The Operation and Maintenance Plan should provide for mosquito prevention and control.

- **Check dams:** Inspect permanent check dams on the schedule set forth in the O&M Plan. Inspect check dams 72 hours after storms for standing water ponding behind the dam. Take corrective action if standing water is found.
- **Cisterns:** Apply *Bs* larvicide in the cistern if any evidence of mosquitoes is found. The Operation and Maintenance Plan shall specify how often larvicides should be applied to waters in the cistern.
- **Water quality swales:** Remove and properly dispose of any accumulated sediment as scheduled in the Operation and Maintenance Plan.
- **Larvicide Treatment:** The Operation and Maintenance Plan must include measures to minimize mosquito breeding, including larviciding.
- The party identified in the Operation and Maintenance Plan as responsible for maintenance shall see that larvicides are applied as necessary to the following stormwater treatment practices: catch basins, oil/grit separators, wet basins, wet water quality swales, dry extended detention basins, infiltration basins, and constructed stormwater wetlands. The Operation and Maintenance Plan must ensure that all larvicides are applied by a licensed pesticide applicator and in compliance with all pesticide label requirements.
- The Operation and Maintenance Plan should identify the appropriate larvicide and the time and method of application. For example, *Bacillus sphaericus* (*Bs*), the preferred

larvicide for stormwater BMPs, should be hand-broadcast.² Alternatively, Altosid, a Methopren product, may be used. Because some practices are designed to dewater between storms, such as dry extended detention and infiltration basins, the Operation and Maintenance Plan should provide that larviciding must be conducted during or immediately after wet weather, when the detention or infiltration basin has a standing pool of water, unless a product is used that can withstand extended dry periods.

REFERENCES

- California Department of Transportation, 2004, BMP Retrofit Pilot Program, Final Report, Report ID CTSW – RT – 1 – 050,
http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/_pdfs/new_technology/CTSW-RT-01-050.pdf#xml=http://dap1.dot.ca.gov/cgi-bin/texis/webinator/search/pdfhi.txt?query=mosquito&db=db&pr=www&prox=page&rorder=500&rprox=500&rdfreq=500&rwfreq=500&rlead=500&sufs=0&order=r&cq=&id=4673373b7
Appendix E: Vector Monitoring and Abatement,
http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/_pdfs/new_technology/
California Department of Transportation, 2001, Final Vector Report, Caltrans BMP Retrofit Project Sites, Districts 7 and 11,
http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/_pdfs/new_technology/CTSW-RT-01-050/AppendixE/01_FinalVectorReport.pdf
Currier, Brian, and Moeller, Glenn, Lessons Learned: The CALTRANS Storm Water Best Management Practice Retrofit Pilot Study, prepared by the California State University Sacramento and University of California Davis for the California Department of Transportation,
<http://www.owp.csus.edu/research/papers/papers/PP015.pdf>
Massachusetts Department of Environmental Protection, 2001, West Nile Virus, Application of Pesticides to Wetland Resource Areas and Buffer Zones and Public Water systems, Guideline No. BRPG01-02, <http://www.mass.gov/dep/water/wnvpolicy.doc>
O'Meara, G.F., 2003, Mosquitoes Associated With Stormwater Detention/Retention Areas, ENY627, University of Florida, Institute of Food and Agricultural Sciences Extension,
<http://edis.ifas.ufl.edu/mg338>
Taylor, Scott M., and Currier, Brian, 1999, A Wet Pond as a Storm Water Runoff BMP – Case Study, presented at Department of Environmental Resources Engineering, Humboldt State University, Arcata, California <http://www.owp.csus.edu/research/papers/papers/PP004.pdf>
U.S. EPA, 2005, Stormwater Structures and Mosquitoes, EPA 833-F-05-003,
http://www.epa.gov/npdes/pubs/sw_wnv.pdf
U.S. EPA, 2003, Do Stormwater Retention Ponds Contribute to Mosquito Problems, Nonpoint source News-Notes, Issue No. 71, <http://notes.tetratex.com/newsnotes.nsf/0/143f7fa99c3ea25485256d0100618bc9?OpenDocument>
Virginia Department of Conservation and Recreation, 2003, Vector Control, Mosquitoes and Stormwater Management, Stormwater Management Technical Bulletin No. 8,
http://www.dcr.virginia.gov/soil_&_water/documents/tecbltn8.pdf
Wallace, John R., Stormwater Management and Mosquito Ecology, Stormwater Magazine, March/April 2007, http://www.gradingandexcavation.com/sw_0703_management.html

² *Bacillus thuringiensis israelensis* or *Bti* is usually applied by helicopter to wetlands and floodplains

Roads and Stormwater BMPs

In general, the stormwater BMPs used for land development projects can also be used for new roadways and roadway improvement projects. However, for improvement of existing roads, there are often constraints that limit the choice of BMP. These constraints derive from the linear configuration of the road, the limited area within the existing right-of-way, the structural and safety requirements attendant to good roadway design, and the long-term maintainability of the roadway drainage systems. The MassHighway Handbook provides strategies for dealing with the constraints associated with providing stormwater BMPs for roadway redevelopment projects.

Roadway design can minimize impacts caused by stormwater. Reducing roadway width reduces the total and peak volume of runoff. Designing a road with country drainage (no road shoulders or curbs) disconnects roadway runoff. Disconnection of roadway runoff is eligible for the Low Impact Site Design Credit provided the drainage is disconnected in accordance with specifications outlined in Volume 3.

Like other parties, municipalities that work within wetlands jurisdictional areas and adjacent buffer zones must design and implement structural stormwater best management practices in accordance with the Stormwater Management Standards and the Stormwater Management Handbook. In addition, in municipalities and areas where state agencies operate stormwater systems, the DPWs (or other town or state agencies) must meet the “good housekeeping” requirement of the municipality’s or agency’s MS4 permit.

MassHighway has taken stormwater management one step further by working with MassDEP to develop the MassHighway Storm Water Handbook for Highways and Bridges. The purpose of the MassHighway Handbook is to provide guidance for persons involved in the design, permitting, review and implementation of state highway projects, especially those involving existing roadways where physical constraints often limit the stormwater management options available. These constraints, like those common to redevelopment sites, may make it difficult to comply precisely with the requirements of the Stormwater Management Standards and the Massachusetts Stormwater Handbook.³ In response to these constraints, MassDEP and MHD developed specific design, permitting, review and implementation practices that meet the unique challenges of providing environmental protection for existing state roads. The information in the MassHighway Handbook may also aid in the planning and design of projects to build new highways and to add lanes to existing highways, since they may face similar difficulties in meeting the requirements of the Stormwater Management Standards.

Although it is very useful, the MassHighway Handbook does not allow MassHighway projects to proceed without individual review and approval by the issuing authority when subject to the Wetlands Protection Act Regulations, 310 CMR 10.00, or the 401 Water Quality Certification Regulations, 314 CMR 9.00. For example, MassHighway must provide a Conservation Commission with a project-specific Operation and Maintenance Plan in accordance with Standard 9 that documents how the project’s post-construction BMPs will be operated and maintained.⁴

³ The 2004 MassHighway Handbook outlines standardized methods for dealing with these constraints as they apply to highway redevelopment projects. MassDEP and MassHighway intend to work together to provide guidance for add a lane projects when the 2004 Handbook is revised to reflect the 2008 changes to the Stormwater Management Standards.

⁴ The general permit for municipal separate storm sewer systems (the MS4 Permit) requires MassHighway to develop and implement procedures for the proper operation and maintenance of stormwater BMPs. To

Some municipalities have asked if the MassHighway Handbook governs municipal road projects. The answer is no.⁵ The MassHighway Handbook was developed in response to the unique problems and challenges arising out of the management of the state highway system. Like other project proponents, cities and towns planning road or other projects in areas subject to jurisdiction under the Wetlands Protection Act must design and implement LID, non-structural and structural best management practices in accordance with the Stormwater Management Standards and the Massachusetts Stormwater Handbook.

avoid duplication of effort, MassHighway may be able rely on the same procedures to fulfill the operation and maintenance requirements of Standard 9 and the MS 4 Permit.

⁵ Although the MassHighway Handbook does not govern municipal road projects, cities and towns may find some of the information presented in the Handbook useful.



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

Massachusetts Department of Environmental Protection Bureau of Water Resources Snow Disposal Guidance

Effective Date: December 23, 2019

Applicability: Applies to all federal, state, regional and local agencies, as well as to private businesses.

Supersedes: Bureau of Resource Protection (BRP) Snow Disposal Guideline No. BRPG97-1 issued December 12, 1997 and BRPG01-01 issued March 8, 2001; Bureau of Water Resources (BWR) snow disposal guidance issued December 21, 2015 and December 12, 2018.

Approved by: Kathleen Baskin, Assistant Commissioner, Bureau of Water Resources

PURPOSE: To provide guidelines to all government agencies and private businesses regarding snow disposal site selection, site preparation and maintenance, and emergency snow disposal options that are protective of wetlands, drinking water, and water bodies, and are acceptable to the Massachusetts Department of Environmental Protection (MassDEP), Bureau of Water Resources.

APPLICABILITY: These Guidelines are issued by MassDEP's Bureau of Water Resources on behalf of all Bureau Programs (including Drinking Water Supply, Wetlands and Waterways, Wastewater Management, and Watershed Planning and Permitting). They apply to all federal agencies, state agencies, state authorities, municipal agencies and private businesses disposing of snow in the Commonwealth of Massachusetts.

INTRODUCTION

Finding a place to dispose of collected snow poses a challenge to municipalities and businesses as they clear roads, parking lots, bridges, and sidewalks. While MassDEP is aware of the threats to public safety caused by snow, collected snow that is contaminated with road salt, sand, litter, and automotive pollutants such as oil also threatens public health and the environment.

As snow melts, road salt, sand, litter, and other pollutants are transported into surface water or through the soil where they may eventually reach the groundwater. Road salt and other pollutants can contaminate water supplies and are toxic to aquatic life at certain levels. Sand washed into

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

waterbodies can create sand bars or fill in wetlands and ponds, impacting aquatic life, causing flooding, and affecting our use of these resources.

There are several steps that communities can take to minimize the impacts of snow disposal on public health and the environment. These steps will help communities avoid the costs of a contaminated water supply, degraded waterbodies, and flooding. Everything that occurs on the land has the potential to impact the Commonwealth's water resources. Given the authority of local government over the use of the land, municipal officials and staff have a critically important role to play in protecting our water resources.

The purpose of these guidelines is to help federal agencies, state agencies, state authorities, municipalities and businesses select, prepare, and maintain appropriate snow disposal sites before the snow begins to accumulate through the winter. Following these guidelines and obtaining the necessary approvals may also help municipalities in cases when seeking reimbursement for snow disposal costs from the Federal Emergency Management Agency is possible.

RECOMMENDED GUIDELINES

These snow disposal guidelines address: (1) site selection; (2) site preparation and maintenance; and (3) emergency snow disposal.

1. SITE SELECTION

The key to selecting effective snow disposal sites is to locate them adjacent to or on pervious surfaces in upland areas or upland locations on impervious surfaces away from water resources and drinking water wells. At these locations, the snow meltwater can filter into the soil, leaving behind sand and debris which can be removed in the spring. The following conditions should be followed:

- Within water supply Zone A and Zone II, avoid storage or disposal of snow and ice containing deicing chemicals that has been collected from streets located outside these zones. Municipalities may have a water supply protection land use control that prohibits the disposal of snow and ice containing deicing chemicals from outside the Zone A and Zone II, subject to the Massachusetts Drinking Water Regulations at 310 CMR 22.20C and 310 CMR 22.21(2).
- Avoid storage or disposal of snow or ice in Interim Wellhead Protection Areas (IWPA) of public water supply wells, and within 75 feet of a private well, where road salt may contaminate water supplies.
- Avoid dumping snow into any waterbody, including rivers, the ocean, reservoirs, ponds, or wetlands. In addition to water quality impacts and flooding, snow disposed of in open water can cause navigational hazards when it freezes into ice blocks.
- Avoid dumping snow on MassDEP-designated high and medium-yield aquifers where it may contaminate groundwater.
- Avoid dumping snow in sanitary landfills and gravel pits. Snow meltwater will create more contaminated leachate in landfills posing a greater risk to groundwater, and in gravel pits, there is little opportunity for pollutants to be filtered out of the meltwater because groundwater is close to the land surface.

- Avoid disposing of snow on top of storm drain catch basins or in stormwater drainage systems including detention basins, swales or ditches. Snow combined with sand and debris may block a stormwater drainage system, causing localized flooding. A high volume of sand, sediment, and litter released from melting snow also may be quickly transported through the system into surface water.

Recommended Site Selection Procedures

It is important that the municipal Department of Public Works or Highway Department, Conservation Commission, and Board of Health work together to select appropriate snow disposal sites. The following steps should be taken:

- Estimate how much snow disposal capacity may be needed for the season so that an adequate number of disposal sites can be selected and prepared.
- Identify sites that could potentially be used for snow disposal, such as municipal open space (e.g., parking lots or parks).
- Select sites located in upland locations that are not likely to impact sensitive environmental resources first.
- If more storage space is still needed, prioritize the sites with the least environmental impact (using the site selection criteria, and local or MassGIS maps as a guide).

Snow Disposal Mapping Assistance

MassDEP has an online mapping tool to assist in identifying possible locations to potentially dispose of snow. MassDEP encourages municipalities to use this tool to identify possible snow disposal options. The tool identifies wetland resource areas, public drinking water supplies and other sensitive locations where snow should not be disposed. The tool may be accessed through the Internet at the following web address:

<https://maps.env.state.ma.us/dep/arcgis/js/templates/PSF/>.

2. SITE PREPARATION AND MAINTENANCE

In addition to carefully selecting disposal sites before the winter begins, it is important to prepare and maintain these sites to maximize their effectiveness. The following maintenance measures should be undertaken for all snow disposal sites:

- A silt fence or equivalent barrier should be placed securely on the downgradient side of the snow disposal site.
- Wherever possible maintain a 50-foot vegetated buffer between the disposal site and adjacent waterbodies to filter pollutants from the meltwater.
- Clear debris from the site prior to using the site for snow disposal.
- Clear debris from the site and properly dispose of it at the end of the snow season, and no later than May 15.

3. SNOW DISPOSAL APPROVALS

Proper snow disposal may be undertaken through one of the following approval procedures:

- Routine snow disposal – Minimal, if any, administrative review is required in these cases when upland and pervious snow disposal locations or upland locations on impervious surfaces that have functioning and maintained stormwater management systems have been identified, mapped, and used for snow disposal following ordinary snowfalls. Use of upland and pervious snow disposal sites avoids wetland resource areas and allows snow meltwater to recharge groundwater and will help filter pollutants, sand, and other debris. This process will address the majority of snow removal efforts until an entity exhausts all available upland snow disposal sites. The location and mapping of snow disposal sites will help facilitate each entity's routine snow management efforts.
- Emergency Certifications – If an entity demonstrates that there is no remaining capacity at upland snow disposal locations, local conservation commissions may issue an Emergency Certification under the Massachusetts Wetlands Protection regulations to authorize snow disposal in buffer zones to wetlands, certain open water areas, and certain wetland resource areas (i.e. within flood plains). Emergency Certifications can only be issued at the request of a public agency or by order of a public agency for the protection of the health or safety of citizens, and are limited to those activities necessary to abate the emergency. See 310 CMR 10.06(1)-(4). Use the following guidelines in these emergency situations:
 - Dispose of snow in open water with adequate flow and mixing to prevent ice dams from forming.
 - Do not dispose of snow in salt marshes, vegetated wetlands, certified vernal pools, shellfish beds, mudflats, drinking water reservoirs and their tributaries, Zone IIs or IWPA's of public water supply wells, Outstanding Resource Waters, or Areas of Critical Environmental Concern.
 - Do not dispose of snow where trucks may cause shoreline damage or erosion.
 - Consult with the municipal Conservation Commission to ensure that snow disposal in open water complies with local ordinances and bylaws.
- Severe Weather Emergency Declarations – In the event of a large-scale severe weather event, MassDEP may issue a broader Emergency Declaration under the Wetlands Protection Act which allows federal agencies, state agencies, state authorities, municipalities, and businesses greater flexibility in snow disposal practices. Emergency Declarations typically authorize greater snow disposal options while protecting especially sensitive resources such as public drinking water supplies, vernal pools, land containing shellfish, FEMA designated floodways, coastal dunes, and salt marsh. In the event of severe winter storm emergencies, the snow disposal site maps created by municipalities will enable MassDEP and the Massachusetts Emergency Management Agency (MEMA) in helping communities identify appropriate snow disposal locations.

If upland disposal sites have been exhausted, the Emergency Declaration issued by MassDEP allows for snow disposal near water bodies. In these situations, a buffer of at

least 50 feet, preferably vegetated, should still be maintained between the site and the waterbody. Furthermore, it is essential that the other guidelines for preparing and maintaining snow disposal sites be followed to minimize the threat to adjacent waterbodies.

Under extraordinary conditions, when all land-based snow disposal options are exhausted, the Emergency Declaration issued by MassDEP may allow disposal of snow in certain waterbodies under certain conditions. *A federal agency, state agency, state authority, municipality or business seeking to dispose of snow in a waterbody should take the following steps:*

- Call the emergency contact phone number [(888) 304-1133] and notify the MEMA of the municipality's intent.
- MEMA will ask for some information about where the requested disposal will take place.
- MEMA will confirm that the disposal is consistent with MassDEP's Severe Weather Emergency Declaration and these guidelines and is therefore approved.

During declared statewide snow emergency events, MassDEP's website will also highlight the emergency contact phone number [(888) 304-1133] for authorizations and inquiries. For further non-emergency information about this Guidance you may contact your MassDEP Regional Office Service Center:

Northeast Regional Office, Wilmington, 978-694-3246

Southeast Regional Office, Lakeville, 508-946-2714

Central Regional Office, Worcester, 508-792-7650

Western Regional Office, Springfield, 413-755-2114



Isolator[™] Row O&M Manual
StormTech[®] Chamber System for Stormwater Management

1.0 The Isolator™ Row

1.1 INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a patent pending technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.



Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

1.2 THE ISOLATOR™ ROW

The Isolator Row is a row of StormTech chambers, either SC-740 or SC-310 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated side-walls allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

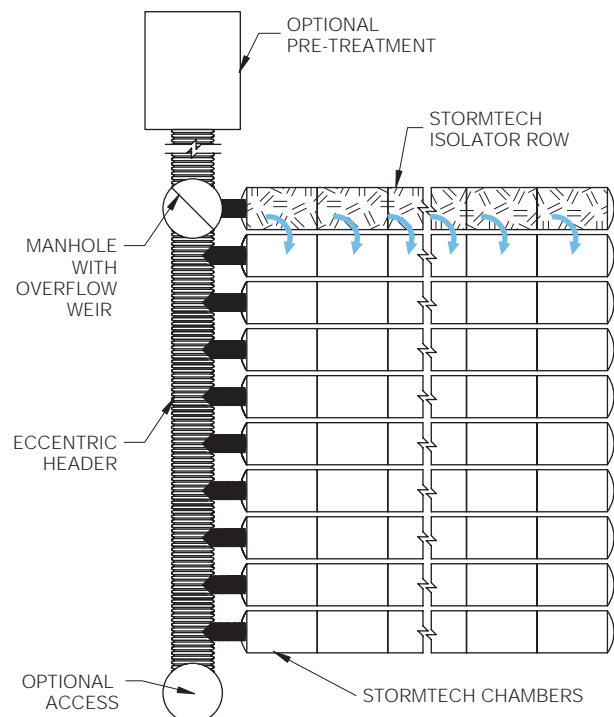
Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber.

The Isolator Row is typically designed to capture the “first flush” and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

StormTech Isolator Row with Overflow Spillway (not to scale)



2.0 Isolator Row Inspection/Maintenance

2.1 INSPECTION

The frequency of Inspection and Maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

2.2 MAINTENANCE

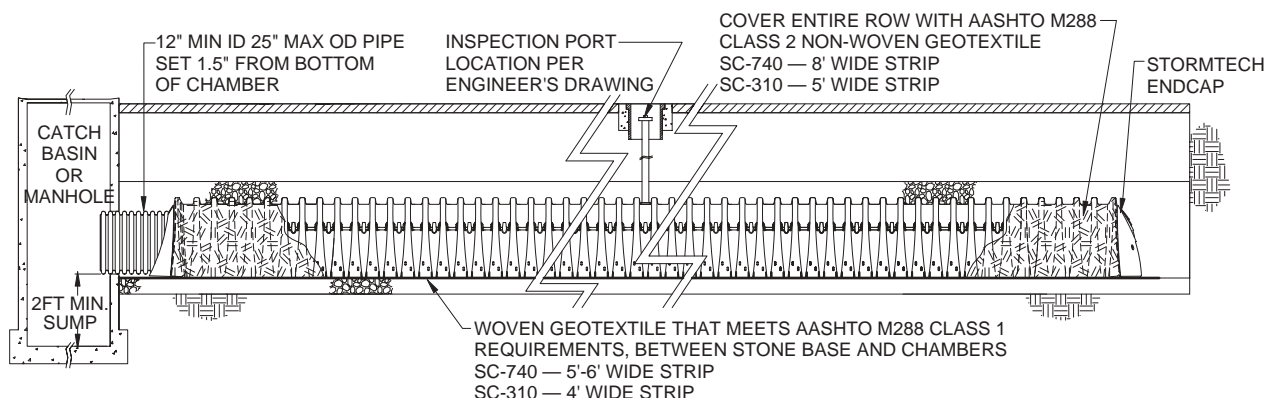
The Isolator Row was designed to reduce the cost of periodic maintenance. By “isolating” sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.



Examples of culvert cleaning nozzles appropriate for Isolator Row maintenance. (These are not StormTech products.)

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45° are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)



3.0 Isolator Row Step By Step Maintenance Procedures

Step 1) Inspect Isolator Row for sediment

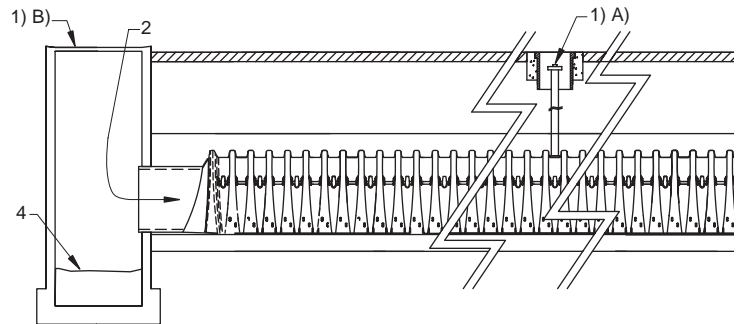
A) Inspection ports (if present)

- Remove lid from floor box frame
- Remove cap from inspection riser
- Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.
- If sediment is at, or above, 3 inch depth proceed to Step 2. If not proceed to step 3.

B) All Isolator Rows

- Remove cover from manhole at upstream end of Isolator Row
- Using a flashlight, inspect down Isolator Row through outlet pipe
 - Mirrors on poles or cameras may be used to avoid a confined space entry
 - Follow OSHA regulations for confined space entry if entering manhole
- If sediment is at or above the lower row of sidewall holes (approximately 3 inches) proceed to Step 2. If not proceed to Step 3.

StormTech Isolator Row (not to scale)



Step 2) Clean out Isolator Row using the JetVac process

- A fixed culvert cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- Apply multiple passes of JetVac until backflush water is clean
- Vacuum manhole sump as required

Step 3) Replace all caps, lids and covers, record observations and actions

Step 4) Inspect & clean catch basins and manholes upstream of the StormTech system

Sample Maintenance Log

Date	Stadia Rod Readings		Sediment Depth (1) - (2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/01	6.3 ft.	none		New installation. Fixed point is CI frame at grade	djm
9/24/01		6.2	0.1 ft.	Some grit felt	sm
6/20/03		5.8	0.5 ft.	Mucky feel, debris visible in manhole and in Isolator row, maintenance due	rv
7/7/03	6.3 ft.		0	System jetted and vacuumed	djm



Subsurface Stormwater ManagementSM

20 Beaver Road, Suite 104 | Wethersfield | Connecticut | 06109
860.529.8188 | 888.892.2694 | fax 866.328.8401 | www.stormtech.com

StormTech products are covered by one or more of the following patents: U.S. Patents: 5,401,459; 5,511,903; 5,716,163; 5,588,778; 5,839,844; Canadian Patents: 2,158,418 Other U.S. and Foreign Patents Pending Printed in U.S.A.

© Copyright. All rights reserved. StormTech LLC, 2004

S090104-1

EXHIBIT E: PRELIMINARY PATHWAY PLAN

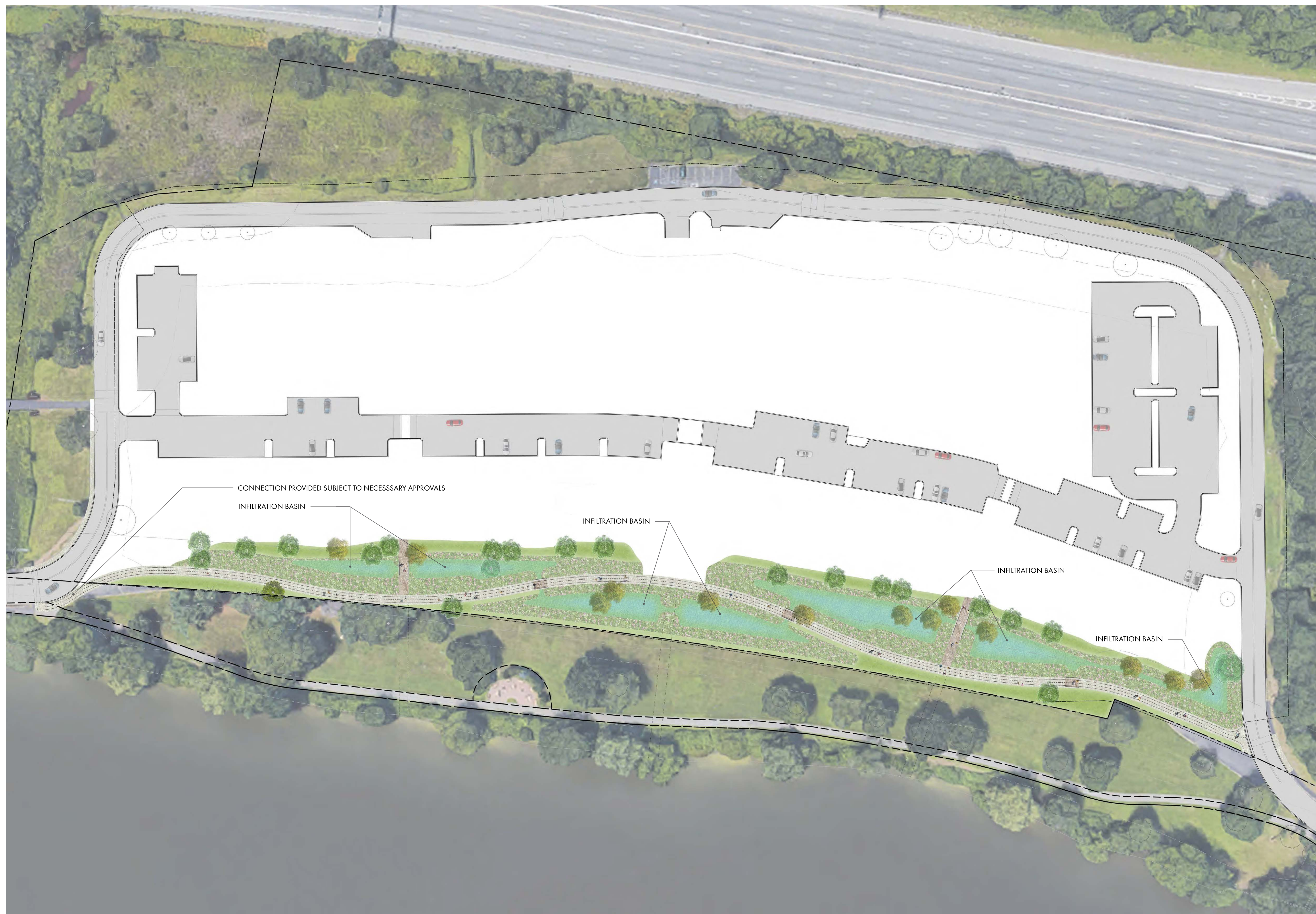


EXHIBIT F: PRESERVATION PLAN

