



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 270-0675
 MassDEP File # _____
 eDEP Transaction # _____
 Reading
 City/Town

A. General Information

Please note:
 this form has
 been modified
 with added
 space to
 accommodate
 the Registry
 of Deeds
 Requirements

Important:
 When filling
 out forms on
 the
 computer,
 use only the
 tab key to
 move your
 cursor - do
 not use the
 return key.



1. From: Reading Conservation Commission
Conservation Commission

2. This issuance is for (check one):
 a. Order of Conditions b. Amended Order of Conditions

3. To: Applicant:
David Jamieson
 a. First Name b. Last Name

Jamieson Properties LLC.
 c. Organization

672 Main Street Suite 1
 d. Mailing Address

Woburn MA 01801
 e. City/Town f. State g. Zip Code

4. Property Owner (if different from applicant):

 a. First Name b. Last Name

 c. Organization

 d. Mailing Address

_____ f. State _____ g. Zip Code
 e. City/Town

5. Project Location:
364 Lowell Street Reading, MA 01867
 a. Street Address b. City/Town

Map 26 Lot 157
 c. Assessors Map/Plat Number d. Parcel/Lot Number

Latitude and Longitude, if known: 42.5327d m 71.1238d m
s s



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A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):

Middlesex South

a. County

61643

c. Book

b. Certificate Number (if registered land)

4167

d. Page

7. Dates: October 26, 2016

a. Date Notice of Intent Filed

March 8, 2017

b. Date Public Hearing Closed

March 27, 2017

c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):

See Attached.

a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

- | | | |
|---|--|---|
| a. <input checked="" type="checkbox"/> Public Water Supply | b. <input type="checkbox"/> Land Containing Shellfish | c. <input checked="" type="checkbox"/> Prevention of Pollution |
| d. <input checked="" type="checkbox"/> Private Water Supply | e. <input type="checkbox"/> Fisheries | f. <input checked="" type="checkbox"/> Protection of Wildlife Habitat |
| g. <input checked="" type="checkbox"/> Groundwater Supply | h. <input checked="" type="checkbox"/> Storm Damage Prevention | i. <input checked="" type="checkbox"/> Flood Control |

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

- a. the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.



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B. Findings (cont.)

Denied because:

- b. the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c. the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**
3. Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) 0 feet
 a. linear feet a. linear feet

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input type="checkbox"/> Bank	<u>65</u> a. linear feet	<u>65</u> b. linear feet	<u>65</u> c. linear feet	<u>65</u> d. linear feet
5. <input type="checkbox"/> Bordering Vegetated Wetland	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
6. <input type="checkbox"/> Land Under Waterbodies and Waterways	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
	_____ e. c/y dredged	_____ f. c/y dredged		
7. <input type="checkbox"/> Bordering Land Subject to Flooding	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
Cubic Feet Flood Storage	_____ e. cubic feet	_____ f. cubic feet	_____ g. cubic feet	_____ h. cubic feet
8. <input type="checkbox"/> Isolated Land Subject to Flooding	_____ a. square feet	_____ b. square feet		
Cubic Feet Flood Storage	_____ c. cubic feet	_____ d. cubic feet	_____ e. cubic feet	_____ f. cubic feet
9. <input type="checkbox"/> Riverfront Area	_____ a. total sq. feet	_____ b. total sq. feet		
Sq ft within 100 ft	_____ c. square feet	_____ d. square feet	_____ e. square feet	_____ f. square feet
Sq ft between 100-200 ft	_____ g. square feet	_____ h. square feet	_____ i. square feet	_____ j. square feet



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B. Findings (cont.)

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. <input checked="" type="checkbox"/> Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. <input type="checkbox"/> Coastal Beaches	a. square feet	b. square feet	c. <u>cu yd</u> nourishment	d. <u>cu yd</u> nourishment
14. <input type="checkbox"/> Coastal Dunes	a. square feet	b. square feet	c. <u>cu yd</u> nourishment	d. <u>cu yd</u> nourishment
15. <input type="checkbox"/> Coastal Banks	a. linear feet	b. linear feet		
16. <input type="checkbox"/> Rocky Intertidal Shores	a. square feet	b. square feet		
17. <input type="checkbox"/> Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. <input type="checkbox"/> Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. <input type="checkbox"/> Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	a. c/y dredged	b. c/y dredged		
21. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	a. square feet	b. square feet		



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B. Findings (cont.)

* #22. If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

22. Restoration/Enhancement *:

a. square feet of BVW _____

b. square feet of salt marsh _____

23. Stream Crossing(s):

a. number of new stream crossings _____

b. number of replacement stream crossings _____

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
 - a. the work is a maintenance dredging project as provided for in the Act; or
 - b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on _____ unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.



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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.
10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,
"Massachusetts Department of Environmental Protection" [or, "MassDEP"]
"File Number 270-0675"
11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.



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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. **The work associated with this Order (the "Project") is (1) is not (2) subject to the Massachusetts Stormwater Standards. If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:**

- a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.
- b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:
- i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
 - ii.* as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
 - iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;
 - iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;
 - v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.



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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: *i.*) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and *ii.*) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 18(f) through 18(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 18(f) through 18(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.



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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

- g) The responsible party shall:
 - 1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
 - 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
 - 3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

See Attachment.



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D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? Yes No
2. The Reading Conservation Commission hereby finds (check one that applies):

- a. that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

1. Municipal Ordinance or Bylaw

2. Citation

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

- b. that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

Reading General Bylaw, Section 7.1- Wetland Protection

1. Municipal Ordinance or Bylaw

2. Citation

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control:

The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):
See Attached.



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E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

Please indicate the number of members who will sign this form.

This Order must be signed by a majority of the Conservation Commission.

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

March 27, 2017
 1. Date of Issuance

SIX
 2. Number of Signers

Signatures:

[Handwritten Signature]

Rebecca Logley

Amyka Scunlon

[Handwritten Signature]

[Handwritten Signature]

[Handwritten Signature]

by hand delivery on

by certified mail, return receipt requested, on

Date

Date

March 28, 2017

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request of Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.



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G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Reading

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Reading

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

364 Lowell Street

Project Location

270-0675

MassDEP File Number

Has been recorded at the Registry of Deeds of:

County

Book

Page

for:

Property Owner

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

David Jamieson
Jamieson Properties, LLC
Lyle Estates, Subdivision
DEP# 270-0675

DOCUMENTS: The following documents are hereby incorporated into this Order. To the extent that the provisions and conditions in this Order differ from those in these documents, this Order shall control:

1. Notice of Intent for work at 364 Lowell Street Map 26, Lot 157, submitted on October 26, 2016, with attachments, by David Jamieson, Jamieson Properties, LLC, LLC, Applicant.
2. 7-sheet site plan entitled "Lyle Estate", No address, dated October 26, 2016 and last revised February 26, 2017, prepared by ASB design group, LLC, stamped & signed by Thad D. Berry P.E # 41258, including the following sheets:
 - Sheet C1, Existing Conditions
 - Sheet C2, Tree Inventory Plan
 - Sheet C3, Site Grading and Drainage Plan
 - Sheet C4, Wetland and Buffer Zone Mitigation Plan
 - Sheet C5, SWPPP and Erosion Control Details
 - Sheet C6, Site Details
 - Sheet C7, Utilities Details
3. 11-sheet supplement to site plan entitled "Lyle Estate", Definitive Subdivision No address, dated January 3, 2017, prepared by ASB design group, LLC, stamped & signed by Thad D. Berry P.E # 41258, including the following sheets:
 - Sheet C1 Cover Sheet
 - Sheet C2 Existing Conditions
 - Sheet C3 Tree Inventory Plan
 - Sheet C4 Lotting Plan
 - Sheet C5 Site Layout, Utilities, and Pavement Marking/Signage Plan
 - Sheet C6 Site grading and Drainage Plan
 - Sheet C7 Wetland and Buffer Zone Mitigation Plan
 - Sheet C8 SWPPP & Erosion Control Details
 - Sheet C9 Site Details
 - Sheet C10 Utility detail
 - Sheet C11 Headwall #1 and BVMP #1 Details
4. Drainage Report, Lyle Estate, dated October 2016, signed and stamped by Thad D. Berry P.E # 41258.
5. Waiver request letter dated October 21, 2016 and revised February 14, 2017, from Wetlands & Land Management, Inc. Bill Manuell to Reading Conservation Commission.
6. Wetland and Buffer Zone Mitigation Plan including Tree Mitigation Policy Plantings dated October 2016 and February 14, 2017 and Last revised February 23, 2017, from

David Jamieson
Jamieson Properties, LLC
Lyle Estates, Subdivision
DEP# 270-0675

Wetlands & Land Management, Inc. Bill Manuell to Reading Conservation Commission.

7. Memorandum by Conservation Administrator Chuck Tirone, Comments on the 4-lot Definitive Subdivision at 364 Lowell Street, dated February 8, 2017.
8. Revised Submittal for Lyle Estate-364 Lowell Street Response to Chuck Tirone Memorandum letter dated February 23, 2017, from Wetlands & Land Management, Inc. Bill Manuell to Reading Conservation Commission.
9. Operation and Maintenance and Plan- Construction Phase and Post Construction dated October 25 2016 and revised February 26, 2017, from Wetlands & Land Management, Inc. Bill Manuell.
10. Revised Submittal for Lyle Estate-364 Lowell Street letter dated February 14, 2017, from Wetlands & Land Management, Inc. Bill Manuell to Reading Conservation Commission.
11. Draft Decision on Site Plan Review, Lyle Estate, by Reading Community Planning and Development Commission, dated February 13, 2013.
12. Draft "Protected Habitat Area" Sign language.
13. FEMA Flood Insurance Rate Map, Middlesex County, Massachusetts, Community Panel Number 25017CO 313E, effective June 4, 2010.
14. Reading Priority Habitats and Estimated Habitats Map, dated October 1, 2008, by MA Natural Heritage and Endangered Species Program.
15. Figure 2, Town of Reading, MA, Zone II and Zone III Areas, dated July 8, 1996, by Weston and Sampson, showing Aquifer Protection District.
16. Order of Resource Area Delineation, DEP 270-0616; dated July 25, 2013, for Lyle Estate.
17. Site visit report by Reading Conservation Commission dated November 23, 2016 and December 6, 2016.
18. Memorandum from Ryan Percival, Town Engineer, to Town Planner and Staff Planner dated March 21, 2017.
19. E-mail from Ryan Percival, Town Engineer, to Chuck Tirone, Conservation Administrator and others dated March 20, 2017.

David Jamieson
Jamieson Properties, LLC
Lyle Estates, Subdivision
DEP# 270-0675

FINDINGS:

1. The site is a 2.4 acre lot with frontage on Lowell Street. The site presently occupied by an abandoned dwelling, shared gravel driveway and parking area that is part of an undeveloped street located in the center portion of the lot and running from northeast to southwest off Lowell Street. There are no landscaped areas around the existing house. The site slopes from a high of about 90' to a low of about 86' from northwest to southeast. The remainder of the lot is forested with White Pine, Oak, Cherry, Elm, Ash and Spruce. Volunteer vegetation and abandoned lawn separates the house from the wetlands and intermittent stream on the southeast side of the lot. The site is heavily influenced by historic fill around the residential lot and sounding land along the undeveloped street with a large deposit deep into the wetland system. The Bordering Vegetated Wetland (BVW) and Stream runs from the northeast to the southwest along the lot boundary shared with six (6) residential Lots on Plymouth Road before turning northwest and finally turning southwest just before it exits the site. Four large deposits of yard waste have been piled high and long over the course of many years just off the abutters property line on the southwest side of the lot taking over what little dry ground there was on the edge of the stream and over time spilling into the stream and BVW causing backup, ponding and flooding along the now leaf caked circuitous stream route. Between flag A-37 and A44 the stream opens up and flattens out, side casting from a rail road ditch has pinched off the watercourse causing the stream to back up and expand between the banks. There is a small opening between the side cast berm, after going through this the stream turns northwest and runs along the MBTA rail road tracks conveying the water under the berm to a 6 inch culvert, the stream ponding again and then flowing southwest under the MBTA tracks into Austin Preparatory School property to merge with the northern spur of the Aberjona River and enter Woburn.
2. The site plan (Document #2, "Lyle Estates") depicts the Bordering Vegetated Wetland Boundary along the southwestern edge of the lot. The applicant was issued an Order of Resource Area Delineation (ORAD) 270-0616 on July 25, 2013 but it had expired before the new application was filed. The Commission conducted site visit on December 6, 2016 to re-confirm the wetland line. The Commission confirms as accurate the "Hydric Soil Boundary" delineated by Bill Manuell, Wetlands & Land Management, Inc. by flags numbered A-1 through A-37, Eliminate A-38 and Connect A-37 to A-39 through A-42, Eliminate A-43, and Connect A-42 to A-44. Flags B-1 through B-9. The wetland flags A-36 -A44 border on potential Vernal Pool identified through a permit application at 35 Plymouth Road. Several attempts were made in 2013 and 2014 to certify the Vernal Pool but both fell short of approval with Natural Heritage Endangered Species Program. The boundary of the Potential Vernal Pool is believed to fall southeast of the Bordering Vegetated Wetland Boundary between wetland flag A-36 - A- 44.

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3. The Applicant proposes to subdivide the land into a residential subdivision to be called "Lyle Estate". The proposed subdivision will consist of four single-family house lots (Lots 1-4), a roadway parcel. The existing house will be retained on Lot 1 of the subdivision, but the driveway will be removed and a two car garage addition will be built to enter from Lyle Estates. New houses will be constructed on Lots 2 through 4, along with driveways, grading, utilities, and walkways. A 24-foot wide paved roadway without sidewalks will be constructed in the roadway parcel to include utilities, and stormwater collection system. The proposed work shown on the site plans for the individual lots may be subject to change as architectural plans and other design details are developed in the future. The plans may also be subject to change by the contractor when hired, and in the future as market forces and other factors influence timing of work. The attached conditions require further detailed construction plans to be submitted to the Commission for approval.
4. In Document # 10, a draft decision of the subdivision has been drafted on February 13, 2017 with conditions by the Community Planning and Development Commission (CPDC). The CPDC granted waivers to reduce the paved roadway width to 24' and eliminate sidewalks on the roadway. The CPDC decision also mandates a 46' outside pavement radius in the cul-de-sac turning circle.
5. Work is proposed in the Buffer Zone, including houses on Lots 1, and 2, grading, driveways, retaining walls, drainage structures, and the roadway. Most of the proposed driveway on Lot 2 and the street drainage will be conveyed into catch basins and then to a forebay and detention basin in the Buffer Zone on Lot 1. All four new houses will be equipped with infiltration systems to recharge roof runoff into the ground. A bioretention LID drainage swale will be installed on Lots 2, 3, and 4 to intercept runoff from the property. The drainage system is designed to accommodate the 2, 10, and 100 year storm within each Lot and the roadway parcel. Lot 1 will be altered to create the stormwater detention basin. The historic fill to the south will be removed as described in the Wetland and Buffer Zone Mitigation Plan (document # 6) and the wetland expanded to replicate the lost wetlands at a 1:1 ratio. Both the detention basin and the bioretention LID will convey treated runoff towards the stream and wetland. Provided that the attached Conditions are met, the proposed drainage system will meet the standards of the DEP Stormwater Management Policy.
6. Sheet C-4 of the site plan and the Wetland and Buffer Zone Mitigation Plan Including Tree Mitigation Policy (document #6) provide a planting plan and methodology to establish wetland soils, vegetation and hydrology in the wetland replication area in accordance with 310 CMR 10.55(4) and also a 25-foot wide Zone of Natural Vegetation in accordance with Section 3.D of the Reading Wetlands Protection Regulations. The Wetland and Buffer Zone Mitigation Plan Including Tree Mitigation Policy also proposes to remove Japanese Knotweed from the stream and wetland and stream channel and replace it with native wetland vegetation. This work is part of the overall mitigation plan and the commission requires invasive removal

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and 3 years of monitoring from Lowell Street to the MBTA railroad tracks as part of this project.

7. The site plans do not indicate existing forested areas to be saved except for the Zone of Natural Vegetation on Lots 1 & 2 between the proposed hay bale line and wetland boundary where the existing forest plant community can be maintained.
8. The Town Engineer has reviewed the stormwater treatment train and the October 2016 drainage report and has not determined if it has adequate capacity to meet TSS removal from the site. If the Applicant can't meet TSS removal of 80% the Conservation Commission and Engineering Department will require installation of proprietary water quality treatment unit within the site that would achieve the desired 80% TSS removal before discharge into the stream. Final designs must be submitted for review and approval to the Conservation Commission before any building permit signoffs are given or any work can start.
9. Sediment and obstruction removal work is proposed in the Bordering Vegetated Wetland and Intermittent Stream between the Lowell Street culvert and the MBTA railroad tracks. Work is also proposed in its Buffer Zone and in stormwater management systems that will discharge into its inner Buffer Zone. Existing paved areas will be removed from the Buffer Zone, and new buildings and pavement will be added along with invasive removal and native vegetation planting in the Buffer Zone between the Lowell Street culvert and the MBTA railroad tracks. This work will be monitored by an environmental monitor, but only the Conservation Commission can give final approval and sign off for completion for this work. Three drain outfalls will be added to the Buffer Zone. The Environmental Monitor will send the Conservation Office a report with photos of all the work. Some of these new structures do not provide the minimum 35' setback from the wetlands required by Section 3.D of the Reading Wetlands Protection Regulations.
10. The primary concerns for wetlands protection in this project are habitat protection, stormwater management and site stabilization during and after construction. The applicant proposes a number of stormwater management improvements throughout the site, and installation of multi-component treatment train that include 4' deep-sump catch basins, proprietary water quality treatment units (*subject to the conditions above #8*), infiltration beds, and bioretention LID. At present, most of the site runoff is directly discharged into the Bordering Vegetated Wetland by sheet and channelized flow. Provided that the attached conditions are met, the proposed stormwater management systems should result in a significant increase in on-site recharge, a significant improvement in water quality, and no increase in the peak rate of runoff or downstream flooding at any of the discharge points. Thus the proposed stormwater management systems will meet the DEP Stormwater Management standards.
11. The Applicant estimates a 1-year construction period, with phased construction of roadways, drainage systems, utilities, and buildings. The Applicant is also committed to following a Storm Water Pollution Prevention Plan in accordance with Federal

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Clean Water requirements. The attached conditions require further detailed construction plans to be submitted to the Commission for approval.

12. The Applicant has also provided a long-term operations and maintenance plan that sets forth a routine maintenance schedule for most of the drainage and landscaping components of the project, but requires additional detail. The attached conditions require the applicant to submit a final, revised Operation and Maintenance Plan for Commission review and approval before occupancy signoffs for any building on site.
13. The quantity, complexity and variety of proposed work within the wetlands and buffer zone for this project is sufficient that this Commission requires that all work within the 100' Buffer Zone be overseen by an Environmental Monitor and final approval for completeness is given only by the Reading Conservation Commission. This Monitor shall be an environmental professional with at least 7 years' experience in wildlife habitat evaluation and wetland replication design; the Monitor's resume will be submitted to the Conservation Commission for review and approval at least 21 days prior to any groundbreaking at the site. The Monitor is responsible for ensuring that work is performed in compliance with this Order and shall be present at the site during any activities within the 100 foot Buffer Zone or Resource Area and report on each activity in writing with photos to Conservation Office and to the Conservation Commission. The Monitor is responsible for weekly updates emailed to the Conservation Office and the Conservation Commission. Final approval for any work within the 100 foot Buffer Zone covered under this Order of Conditions can only be granted by the Conservation Commission.
14. This Order applies to all areas and work that are in wetland resource areas or the 100-foot Buffer Zone, or that add storm drainage to a discharge point in said resource area or Buffer Zone.
15. The proposed work can be conditioned to protect the interests of the Wetlands Protection Act, MGL Chapter 131, Section 40 and Reading General Bylaws, Section 7.1. The Reading Conservation Commission ("the Commission") approves the proposed project subject to the following additional conditions.

LIST OF SPECIAL CONDITIONS - M.G.L. c.131, s.40:

1. At least 21 days prior to removal of "Fill Areas 1-5" behind Plymouth Road, the applicant shall submit notice to the residences for when the work will take place and the removal method proposed. The property owner permission is required for any work over the Lot line. The applicant must re-stabilize the area with native plants and post 5 signs one abutting each property on Plymouth Road as shown on sheet C-7 of the proposed Plan (document #2). The Environmental Monitor will send the Conservation Office a report with photos of all the work. Final approval for this work can only be granted by the Conservation Commission.

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2. The applicant must remove trash in the wetland, Any man-made non-biodegradable debris, by hand, via waders/kayak. The Environmental Monitor will send the Conservation Office a report with photos of all the work. Final approval for this work can only be granted by the Conservation Commission.
3. The applicant must remove debris or obstructions in watercourse, The Environmental Monitor will send the Conservation Office a report with photos of all the work. Final approval for this work can only be granted by the Conservation Commission.
4. The applicant must post Environmental Signs (as shown on Drawing C4) along the 25' BVW boundary on LOT-1 and LOT-2, also post 1 sign near each southeast-abutting property.
5. At least 21 days prior to the removal of "Roadway Siltation" area and the street outfall velocity reduction retrofitting and the start of any work on the site submit. The applicant must submit a detailed construction sequence and methodology plan showing, when, how deep to dig, what methods/equipment/techniques are used. Obtain property owner permission if required. When the work is complete the applicant must re-stabilize with native plants any bank disturbance created as part of the work in the watercourse between Lowell Street and the MBTA Culvert. The Environmental Monitor will send the Conservation Office a report with photos of all the work. Final approval for this work can only be granted by the Conservation Commission.
6. At least 21 days prior to the removal of removal of "Limit of Knotweed" area and construction of wetlands mitigation area (in this same area). The applicant must submit a detailed construction sequence and methodology plan showing, when, how to dig, what methods/equipment/techniques, downstream siltation dam, proposed conditions cross-section from edge of cul-de-sac to current wetlands including wall design and soils and plants and groundwater/surface water levels, incoming soil requirements, incoming plant requirements, during and post-construction reporting requirements, invasives requirements, re-stabilize with plants. The applicant must follow the recommendations listed in DEP's Massachusetts Inland Wetland Replication Guidelines dated March 1, 2002, completion of replication area to be determined according to this Order and Appendix 3 Replication Checklist of the DEP Guideline). As-built plan with 1' contours.
7. The applicant must improving drainage by removing debris/clogging from the Lowell Street culvert to the MBTA railroad tracks and in two downstream culverts along the watercourse, both the 15" RCP clogged culvert, install trash barrier and submit a copy of the letter requesting the MBTA cleanout the culvert under the railroad tracks to the Commission. The Environmental Monitor will send the Conservation Office a report with photos of all the work. Final approval for this work can only be granted by the Conservation Commission.

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8. At least 21 days prior to commencing any activity at the site, construction specs for "bioretention LID" areas showing: how water is conveyed to them, what soils used, how constructed, what native plants will be planted, O&M plan and who is responsible for maintaining the bioretention LID going forward.
9. The applicant must install a guardrail around the cul-de-sack to help prevent snow from being pushed into the wetland.
10. A copy of this Order, as well as construction plans, shall be on site at the start of and during any site work for contractors to use as reference. The property owner and any successor in title shall inform all contractors and subcontractors of the conditions and provisions of this Order concerning their work. This document shall be included in all construction contracts and subcontracts dealing with the work and shall supersede other contract requirements.
11. Prior to commencing any work on the site, the applicant shall obtain all other permits, variances, and approvals required by Federal, State, or Town laws and regulations and shall submit proof of such approval to the Commission.
12. At least 21 days prior to commencing any activity at the site, the names, addresses, and day and night telephone numbers of the site supervisors and contractors who will be responsible for ensuring on-site compliance with this Order shall be submitted to the Commission. During construction, the applicant shall notify the Commission within 3 working days of any change in this information.
13. At least 21 days prior to construction of any retaining wall over 4 feet in height, the Applicant shall provide two copies of structural design plans for any proposed retaining walls, stamped by a Massachusetts registered professional engineer qualified in structural design, for **approval** by the Conservation Commission. Construction of the retaining walls shall not commence until final approval under the State Building Code has been submitted to the Commission.
14. At least 21 days prior to commencing any activity at the site, the applicant shall submit a detailed construction sequence and methodology plan to the Commission for **approval**. The plan shall address all aspects of construction, including: initial site preparation; demolition, including hazardous materials removal; abandonment of existing drainage systems and utilities and protection for new systems as they are installed; changes in erosion and sedimentation controls as development proceeds; sequencing and phasing; temporary storm water management provisions; stockpiling and staging areas; hazardous material handling; parking; scheduled inspections; planting and other seasonal considerations. The plan shall include site plans locating construction activities, a time line, and other descriptions. The plan shall include methods to protect proposed bioretention LID and Wetland Mitigation areas from soil compaction, sedimentation, and clogging during construction. The plan shall

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include methods to protect trees and other vegetation to be retained from damage during construction.

15. The Commission must receive a copy of the septic abandonment affidavit and the pumping records after decommissioning the existing septic system.

16. Prior to commencing any work on the site, the Applicant shall submit revised site plans to the Commission for approval. The plan revisions shall include:
 - a. Complete design specifications for each bioretention "BMP": surface materials and elevations; depth and composition of underlying soil media layers; depth to native soils, seasonal high groundwater, and bedrock/clay; filter fabric; rims and inverts for associated catch basins, flared end sections, underdrains, outlet pipes, and sumps; and proposed plants. Calculations shall also be referenced or provided to show that each BMP area has been sized to provide storage capacity for at least the ½-inch storm. Specifications shall meet DEP design standards.
 - b. Plants proposed for the Wetland Mitigation area (Sheet C7) shall include a variety of native species that already grow in wetlands on site. A planting plan for this Wetland Restoration area shall be submitted to Conservation for approval at least 21 days prior to commencing any activity at the site. Soils to be placed in the Restoration area shall be selected, tested, compacted, constructed and graded as described in the DEP Replication Guidelines (March 2002). Measures shall be taken to prevent introduction of invasive species via soil transported to the site. All planting shall occur at the beginning or end of the growing season, for Middlesex County April 14-October 18. Fall plantings shall be completed before the first frost. The planting plan shall include at least three species of trees and three species of shrubs native to Massachusetts and adapted to grow in the soil and light conditions provided in this area. Trees and shrubs shall be spaced irregularly/clustered within the restoration area and shall be sufficient in number to create a closed forest canopy as they mature. The final restoration soil surface shall have microtopography to mimic the hummocky nature of natural wetlands. The ground between the trees and shrubs shall be stabilized with native herbaceous plants. Soils shall be prepared as needed to support healthy growth.

17. Prior to any other activity on the site, limits of work shall be visibly marked by construction fencing, tall stakes, or other effective markers around all areas where existing soils, trees and other vegetation, and topography are not to be altered throughout construction. Erosion barriers shall also be installed to protect these areas from sedimentation by up-gradient soil disturbances. Roots, branches, and trunks of trees shall be protected from damage during work. These limits of work shall be maintained throughout construction, and no work shall take place beyond these limits.

18. For areas proposed for bioretention LID, shall be marked at the beginning of work, limits of work shall be visibly marked and erosion barriers shall be set around the perimeter of each bioretention LID area to prevent soil compaction by vehicles, and

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clogging by sediments. During construction of each system. All unsuitable soils shall be removed during excavation and replaced with clean sand, gravel or bioretention soil. The bottom of each system shall be set at least two feet above the seasonal high water table, and any bedrock or clay/silt soil layers encountered during excavation. These limits of work shall be maintained throughout construction, and no work shall take place beyond these limits.

19. Prior to the beginning of each phase, demolition and construction, erosion and sedimentation barriers, temporary drainage structures, catch basin filters, and all other controls needed during that phase of construction shall be properly installed in accordance with the approved construction sequence and methodology plans.
20. The Conservation Administrator/Commission and or the Environmental Monitor shall be called to inspect the site preparations at the beginning of each phase of construction, and no other work shall commence until the inspection has taken place. The Environmental Monitor will send the Conservation Office a report with photos of all the work. Final approval for this work can only be granted by the Conservation Commission.
21. Prior to commencing any activity at the site, a pre-construction meeting shall take place between the contractors, the Applicant, the Environmental Monitor, and the Conservation Administrator or Commission for the purpose of reviewing the requirements of the Order of Conditions.
22. To allow wildlife movement, long sections of filter fence or haybales shall be installed in 50-foot sections, leaving a one-foot gap between them. The gap shall be protected from siltation by placing a six-foot section of fence or bales across it on the uphill side and one foot away from it, so there is an overlap of about three feet on either side:

(work area)

silt fences ----> _____

(wetland)
23. During construction, the construction sequence plan approved under Condition #13 shall be updated at least biannually and submitted to the Commission by the 10th of January and July.
24. Any stormwater control structures shall be constructed prior to paving or roofing the impervious areas that discharge into them. Vegetated stormwater control structures such as bioretention LID” areas shall be stabilized with vegetation prior to discharge of stormwater into them. The applicant shall provide temporary stormwater management structures as needed to prevent sedimentation of wetlands and clogging of drainage structures.
25. Total impervious cover shall not exceed the area shown on the approved site plans. Notwithstanding the preceding sentence, any proposal to exceed the maximum impervious area shall require plans for full mitigation of any additional stormwater

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runoff impacts and shall be considered a departure from the plans referenced in this Order.

26. The owner and all the future owners of each Lot cannot cut healthy native trees with a DBH greater than 4 inches between the foot print of the new structure and the wetland resource area, including inside the 25 foot Zone of Natural Vegetation or its 10 foot Buffer Zone. **This restriction shall survive the issuance of any Certificate of Compliance.** The deed of conveyance from the grantor to the grantee shall contain this restriction and it shall be expressed in covenants in all deeds to succeeding owners. Upon any conveyance, a copy of the deed containing this restriction shall forthwith be submitted by the grantor to the Reading Conservation Commission.
27. Foundations for all structures shall be located in conformance with the plans, including conforming to top of foundation elevations, approved by this Order. **An "as-built" plan prepared by a professional civil engineer or land surveyor, registered by the Commonwealth, shall be submitted to the Commission prior to construction of any structure on said foundations.** Certified plot plans are acceptable, however, top of foundation elevations shall be shown on the plans. Said construction shall not proceed unless written approval of the Commission or Administrator is received. Notwithstanding this paragraph, any proposed change in location shall be considered a departure from the plans described in this Order.
28. If any unforeseen problems occur during construction that could affect any of the interests of the Act or the Reading General Bylaws, upon discovery, the owner shall notify the Commission. An immediate meeting shall be held between the Commission, the Environmental Monitor, the applicant, the engineer, the contractor, and other concerned parties to determine the corrective measures to be employed. The applicant shall then act to correct the problems using the corrective measures agreed upon.
29. Any departures from or changes to the plans, specifications, or data approved in this Order shall not be acted on until approved in writing by the Commission. Where the Commission deems that a change is major or substantial, a new public hearing to amend the Order or a new Notice of Intent may be required. Any errors in the plans or information submitted by the applicant will be considered changes and the above procedure shall be followed.
30. The applicant shall be responsible for implementing measures to limit erosion in the work areas and prevent sediment from entering wetlands and drainage systems. All of the controls and best management practices specified in the SWPPP approved under this Order of Conditions must be utilized at the site. The applicant shall immediately correct any erosion problems that occur on the site. Additional controls shall be incorporated if necessary or at the request of the Conservation Administrator, the Environmental Monitor or Commission. All of the controls shall be inspected on

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a weekly basis and before/after any significant rainfall events (greater than 0.5 inches of precipitation). Records of these inspections and any required repairs shall be provided to the Conservation Administrator or Commission on a monthly basis via email ctirone@ci.reading.ma.us.

31. As soon as possible, all disturbed upland areas shall be brought to final grade, and shall be permanently stabilized by loam and seeding or other measures acceptable to the Commission. Where necessary, the loam and seeding shall be held in place with jute netting or other effective materials. Bare ground and disturbed areas that cannot be permanently revegetated within thirty 30 days after disturbance shall be temporarily stabilized by a method approved by the Commission. Temporary stabilization methods may include, but not be limited to, hydro-seeding, straw mats, jute netting, sod, or other Commission approved method. Any slopes that are too steep to be permanently stabilized with vegetation shall be stabilized with rip-rap or with terracing and retaining walls.
32. Any dewatering activities associated with the project shall make use of a stilling basin or similar device to remove sediment before the water is released. The stilling basin shall not be closer than 80' from bordering vegetated wetlands and shall consist of at least haybales, filter fence, and crushed stone. The Commission shall **approve** the stilling basin specifications prior to commencing any dewatering.
33. All stockpiled materials shall be located at least 100' from bordering vegetated wetlands. Excess earth shall be removed from the site and properly disposed of within 20 days after excavation. Topsoil shall be retained on site and applied to areas to be landscaped after grading is completed. Vegetation to be removed during construction may be composted on site and used for landscaping purposes, with the exception of invasive plants (such as Japanese Knotweed and others), which must be disposed as solid waste.
34. The Commission, Administrator, Environmental Monitor and the Design Engineer shall be notified prior to the placement of crushed stone backfill around infiltration beds and placement of soil media within "BMP bioretention" areas, and inspections shall be scheduled as these systems are installed.
35. Construction refuse and debris shall be contained within a dumpster that is covered at night and shall be disposed of promptly and properly. The Commission may require that the applicant provide documentation of such proper disposal. The construction site shall be maintained in a clean condition at all times. Concrete, paint, and other slurry shall not be dumped on open ground.
36. Equipment, materials, and fuel storage and refueling operations shall be situated in an upland area at a horizontal distance greater than 100 feet from the boundaries of wetlands.
37. The Commission or Administrator and the Environmental Monitor shall be notified prior to removal of underground storage tanks and other potential sources of hazardous wastes. All work shall be carried out in strict compliance with MGL,

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Chapter 21 E. If any releases are identified, the Commission shall be informed immediately upon discovery and shall be copied on all reports required by Chapter 21E.

38. The owner(s) shall take all reasonable precautions to prevent the release of pollutants by ignorance, accident, or vandalism during and after work on this project. An appropriate sized spill containment kit shall be located at the site at all times and available for immediate use if needed. Any operator of equipment or contractor with a possible hazardous materials source shall be made aware of the spill kits' location and proper use. In the event that there is a discharge or spillage of fuel, oil, or other pollutants into any part of the site governed by this Order, the owner shall immediately notify the Commission, Administrator and the Environmental Monitor and shall take all necessary actions to contain and remove the pollutants from the site. This condition shall remain in perpetuity and shall not expire with the issuance of the Certificate of Compliance.
39. This Order shall apply to all successors in interest, successors in control, and successors in title ("the owner"). In conjunction with the transfer of interest, control, or title of any part of the site, the applicant shall provide the new owner a copy of this Order. The new owner shall sign a written acknowledgement that he or she has received the Order and agrees to comply with the Conditions. The applicant and/or the new owner shall submit the acknowledgement to the Commission, along with the name, address, phone number and other contact information of the new owner.
40. The Commission designates the Conservation Administrator as its administrative agent with full powers to act on its behalf in administering and enforcing this Order, except the Administrator shall not approve Plan Changes or Certificates of Compliance. In addition, if a Certificate of Compliance has not been issued, the Administrator shall not sign off on any Certificate of Occupancy unless the Commission has received all the paperwork required for a Certificate of Compliance. The Applicant shall submit a request for occupancy for each building at least 21 days before occupancy is intended, and shall arrange necessary site inspections and completion of any site work required by the Commission at the time.
41. At least 21 days prior to occupancy, the Applicant shall submit a final, revised Operation and Maintenance Plan for Commission review and approval. The plan shall include all stormwater management system components, and also all vegetation, paving, curbing, snow storage, and other site features relevant to stormwater management and site stabilization. The plan shall be consistent with DEP standards and with the Conditions of this Order.

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42. Beginning with the construction of each stormwater management system, and continuing in perpetuity thereafter, the owners of the site shall maintain the roadways, drainage systems, and other relevant site features in accordance with the following schedule:
- a. Pavement sweeping and snow plowing – Roadways, parking lots, and sidewalks shall be swept, preferably with a vacuum sweeper, in the early spring immediately after snow melt and at least three other times annually. Snow shall be managed in accordance with the DEP Snow Disposal Guidelines. Plowed snow shall not be deposited over infiltration beds or bioretention LID areas, or where it will block drainage swales or drain inlets. Sediments and debris shall be removed from snow storage areas in the early spring. Plowed snow shall not be deposited over the edge of the cul-de-sac and guard rail into the Wetland Buffer or Resource Area for any reason.
 - b. Pavement and soil stabilization – Paving and curbing shall be maintained in good condition to channel surface runoff into the storm water treatment systems. Vegetation shall be maintained in healthy condition to prevent erosion and sedimentation into the drainage systems and wetland resource areas. Retaining walls and rip-rapped slopes shall be maintained in stable condition to prevent erosion and sedimentation. These areas shall be inspected in the spring and fall, and repaired or replaced as needed.
 - c. Catch basins, Area Drains, Trench Drains - Every catch basin, area drain, and trench drain shall be inspected at least four times per year. Accumulated sediments shall be removed from sumps and floatable wastes shall be removed from the surface at least annually and more often if needed to meet DEP standards and manufacturer's recommendations. Sediments and wastes shall be disposed of in accordance with all applicable federal, state, and local laws. Any component of these structures that becomes damaged shall be repaired or replaced immediately upon discovery.
 - d. Water quality units - Water quality units shall be inspected at least four times per year. Accumulated sediments shall be removed from sumps and floatable wastes shall be removed from the surface at least annually and more often if needed to meet DEP standards. Maintenance shall also be provided in strict accordance with the manufacturer's specifications. Sediments and wastes shall be disposed of in accordance with all applicable federal, state, and local laws. Any component of a water quality unit that becomes damaged shall be repaired or replaced immediately upon discovery.

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- e. Underground Infiltration Systems – As soon as each underground infiltration system is put into use, it shall be monitored during and after at least three major storms (more than 2 inches in 24 hours) during the first two years of operation to assure that all water infiltrates the ground completely within 72 hours after each storm. Flow in associated Drain Manhole that govern overflow also be monitored during the storms to determine whether the controls are working as designed. Results shall be reported to the Conservation Commission. After the initial monitoring period, each system shall be monitored in the same way at least twice annually during and after storms. Accumulated sediments shall be removed and disposed of in accordance with all applicable federal, state, and local laws. Any sign of system failure such as surcharging, frequent overflow during smaller storms, or failure to drain after storms shall be reported to the Commission upon discovery. Any component of the system that is damaged shall be repaired or replaced immediately upon discovery.
- f. Roof drains - Roofs, gutters, and downspouts shall be inspected in the spring and fall, and shall be kept clear of materials that might clog the drainage system. Components shall be repaired or replaced if they become damaged.
- g. Bioretention Areas- Bioretention areas shall be inspected and trash shall be removed monthly. Structural damage shall be repaired. These areas shall be mulched every spring and pruned in spring or fall. Dead vegetation and invasive species shall be removed and replaced with new vegetation every spring and fall. Sediments shall be removed every spring. At least twice a year, each system shall be monitored during and after a heavy rain storm to determine whether it is meeting the intended detention, water quality, and infiltration functions. When the cation exchange capacity of the soils is exhausted or the system becomes clogged, the area shall be excavated, the bottom and sides shall be scarified, the filter fabric and soil media shall be replaced, and the surface shall be planted with new vegetation and mulch. Using smaller shrubs and plants instead of larger trees will make it easier to replace the media with clean material when needed.
- h. Drain pipes – All drain pipes shall be kept clear of sediments and debris to maintain design flow rates. Any pipe which becomes damaged shall be repaired or replaced immediately upon discovery.
- i. Reports – Written reports shall be sent to the Commission biannually by the 10th of January and the 10th of July to document all inspection, cleaning, and repair activities conducted during the reporting period and to describe any problems identified and corrections needed and/or made.

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- j. The Reading Conservation Commission and the Conservation Administrator shall have the right to enter the site to inspect for compliance with these conditions.
43. The request for a Certificate of Compliance required by General Condition 11 shall require a 21-day notice to the Commission. Accompanying the request for a Certificate of Compliance shall be the following:
- a. A written statement by a registered professional civil engineer certifying compliance with this Order of Conditions and its approved referenced plans and setting forth what deviations, if any, exist.
 - b. a tif. file and a two prints of as-built plans (1" = 40' or 1" = 20' scale) stamped by a registered professional civil engineer showing all structures, buildings, impervious surfaces, drainage structures, topography, and any details or distances the Commission may specify to ensure compliance with this Order.
 - c. The Registry of Deeds Book and Page number(s) of the recorded Order of Conditions, if not already submitted.

NARRATIVE FOR READING GENERAL BYLAWS, SECTION 7.1

The Reading Conservation Commission has conducted an on-site inspection, reviewed the Notice of Intent, the submitted information and the public hearing testimony, and determined that the area in which the work is proposed is significant to the following values of the Reading General Bylaws, Section 7.1:

- Flood control
- Water Pollution
- Groundwater
- Storm Damage Prevention
- Erosion control
- Wildlife
- Public or Private Water Supply

Pursuant to Reading General Bylaws, Section 7.1, all work shall conform to paragraphs 1, 2, 3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, and 17 under the General Conditions on pages 4 and 5 of this Order and all Documents, Findings and Special Conditions on pages 13 through 24 of this Order. Work shall also conform to the following Additional Conditions:

LIST OF ADDITIONAL CONDITIONS - R.G.B. Section 7.1:

A-1 Lots 1 and 2, as shown on the referenced plan (Document #2 cited herein), are and shall remain subject to the following perpetual deed restriction: "Quitclaim Deed: [Grantor's identification information] ... grant to [Grantee's identification information] ... land with the buildings thereon ..., subject to the following deed restriction: All owners of the conveyed premises, and their heirs, successors and assigns, agree to preserve and maintain in perpetuity in an unobstructed and undeveloped manner: ... the 25 foot Zone of Natural Vegetation and the stone or concrete bounds marking the 25 foot Zone of Natural Vegetation, all as required under the Order of Conditions recorded with

**David Jamieson
Jamieson Properties, LLC
Lyle Estates, Subdivision
DEP# 270-0675**

the Middlesex South District Registry of Deeds in Book _____, Page _____. This restriction shall survive the issuance of any Certificate of Compliance. The deed of conveyance from the grantor to the grantee of Lots 1 and 2 shall contain this restriction and it shall be expressed in covenants in all deeds to succeeding owners. Upon any conveyance, a copy of the deed containing this restriction shall forthwith be submitted by the grantor to the Reading Conservation Commission.”

A-2 Prior to a request for a Certificate of Compliance, permanent visible stone or concrete bounds or equivalent shall be set at least two feet into the ground at turning points and otherwise at forty foot intervals, along the 25-foot offset line from the wetlands on Lots 1 and 2. These bounds mark the Zone of Natural Vegetation and limit-of-work line, and shall be maintained in perpetuity. This Condition shall be stated in any deed or other Registry of Deeds document conveying any ownership or interest in this property. If said document cites a plan, the plan shall identify the markers "Conservation Zone of Natural Vegetation and limit-of-work line markers". This Condition shall remain in perpetuity and shall not expire with the issuance of the Certificate of Compliance.

A-3 Prior to any work governed by this Order, a performance surety (cash or certified check, tri-party agreement, bond, or letter of credit running to the Town of Reading) shall be provided in the amount of \$20,000.00 or such lesser amount as may be calculated by the Town Engineering Division. Said surety shall be satisfactory to the Town Counsel and the Commission in all respects. Said surety shall be conditioned on the satisfactory completion of all work required by this Order, shall be signed by a party or parties satisfactory to the Town Counsel and the Commission, and shall be released after a Certificate of Compliance has been issued. In the event that this Order expires, and after written notification to the party or parties of the Commission's intention, the Commission may apply the surety toward the satisfactory completion of the work required by this Order, or restoration of affected lands or properties. If the surety is forfeited, Town employees and agents may enter the site to perform such work and shall be held harmless.

A-4 Notwithstanding the previous Condition, the Commission may withhold for two calendar years 50 percent of the performance surety after the Certificate of Compliance has been issued to ensure and apply toward compliance with any continuing Conditions or restoration of affected lands or properties.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
RESEARCH REPORT
NO. 1000

Submitted by: [Name]
Date: [Date]

The following data were obtained from the experiment described above. The results are given in the table below. The values are the average of three determinations. The standard deviation is given in parentheses.

The results show that the reaction is first order with respect to the concentration of the reactant. The rate constant, k , is 0.0025 min^{-1} . The half-life of the reaction is 28 min . The activation energy of the reaction is 15 kcal/mole . The pre-exponential factor is $1.5 \times 10^5 \text{ min}^{-1}$.

The reaction is exothermic. The heat of reaction is -10 kcal/mole . The reaction is reversible. The equilibrium constant is 10 .