

July 8, 2024

Town of Arlington, Massachusetts Conservation Commission
C/O Mr. Charles Tirone, Chair
730 Mass Ave. Annex
Arlington, MA 02

VIA EMAIL

**RE: Thorndike Place, Dorothy Road, Arlington, Massachusetts – Summary of Key Issues
in Response to BSC Letter Dated June 10, 2024**

Dear Chairman Tirone and Commission Members,


This letter transmits a table summarizing several key issues identified through our reviews of information presented by BSC Group on behalf of Arlington Land Realty, LLC (collectively referred to herein as “the Applicant”). The critical issues presented in the table pertain to the Applicant’s calculations and assessments of the following:

- Estimated Seasonal High Groundwater (ESHGW)
- Groundwater Mounding Due to Proposed Stormwater Infiltration

Most importantly, the table highlights how the Applicant is misinterpreting guidelines within the Massachusetts Stormwater Handbook (MSH) relating to conducting their groundwater mounding analysis. The misinterpretation leads to an analysis that fails to properly evaluate the potential for adverse hydraulic effects due to groundwater mounding. This position has been confirmed by senior stormwater compliance representatives at MassDEP, who—as shown through documented communications—agree that the Applicant’s current analysis is inappropriately designed.

To ensure the Applicant’s stormwater design demonstrably complies with the Stormwater Standards and adheres to the guidelines set forth within the MSH, the issues summarized in this letter must be addressed.

Sincerely,

A handwritten signature in black ink, appearing to be 'SH' with a large loop and a crossbar.

Scott W. Horsley
Water Resources Consultant



Michael Mobile, Ph.D., CGWP
President – McDonald Morrissey Associates, LLC

Attachments:

- A) Table 1 - Summary of Issues in Response to BSC Letter Dated June 10, 2024

MAM/SWH

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Table 1 - Summary of Issues in Response to BSC Letter Dated June 10, 2024

Index	Issue	Description	Non-Compliance Aspect	Key Reference Document(s)
1	Est. Seasonal High Groundwater (ESHGW) Information/data basis	<ul style="list-style-type: none"> Applicant's proposed ESHGW elevation is unreliable and inconsistent with the Mass. Stormwater Handbook definition (Vol. 3, Ch. 1, p. 12). No reliable redoximorphic features were observed/reported at the proposed location of the large stormwater infiltration area (INF-1). Applicant's groundwater level measurements missed recent high conditions, as evidenced by groundwater measured at El. 4.4 feet (approx.) in abutter's monitoring well on Dorothy Road during 3/29/24. <p>Bottom Line: upward adjustment to Applicant's currently proposed ESHGW condition is warranted.</p>	Mass. Stormwater Handbook (Vol. 3, Ch. 1.)	<p>Horsley letter - May 16, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/70437/638542142240130000</p>
2	ESHGW Erroneous Frimpter adjustment attempt	<ul style="list-style-type: none"> Applicant's previous attempt at applying "Frimpter" upward adjustments to measured water levels was shown to be erroneous. When corrected, the results of a "Frimpter" adjustment no longer supported Applicant's claim that a 4-foot ESHGW elevation is reliable. Rather than correcting their calculations and continuing to use the same approach (i.e., Frimpter), Applicant is now claiming/suggesting an adjustment is no longer necessary. <p>Bottom Line: upward adjustment to Applicant's currently proposed ESHGW condition is warranted.</p>	Mass. Stormwater Handbook (Vol. 3, Ch. 1.)	<p>MMA letter - March 29, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/69439/638476657294300000</p> <p>MMA update - May 16, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/70435/638542142234370000</p> <p>Horsley letter - May 16, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/70437/638542142240130000</p>
3	ESHGW Acceptable vertical separation(s)	<ul style="list-style-type: none"> Applicant's proposed ESHGW condition is unreliable and does not conform with recommended MassDEP methods. Any upward adjustment to the ESHGW would require modification(s) to Applicant's proposed stormwater design. <p>Bottom Line: following establishment of a reliable and representative ESHGW condition, Applicant should demonstrate how the required minimum vertical offset is being provided for all proposed stormwater infiltration systems.</p>	Mass. Stormwater Handbook (Vol. 1, Ch. 1.)	<p>MMA letter - March 29, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/69439/638476657294300000</p> <p>MMA update - May 16, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/70435/638542142234370000</p> <p>Horsley letter - May 16, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/70437/638542142240130000</p>
4	Groundwater Mounding Approach and design	<ul style="list-style-type: none"> Applicant is misinterpreting guidance provided within the Mass. Stormwater Handbook relative to conducting a stormwater-focused groundwater mounding analysis. Applicant continues to limit their modeling to the Required Recharge Volume even though they plan to infiltrate significantly greater volumes during storm events. Applicant's analysis of their proposed design does not take into account severe groundwater mounding during storm events (or any associated reductions in stormwater infiltration rates). Not representing such reductions in HydroCAD, as is the case relative to Applicant's current analysis (i.e., their HydroCAD simulations assume unimpacted, free infiltration/drainage), renders assessments of compliance with Stormwater Standard 2 non-conservative and invalid. <p>Bottom Line: this position has been confirmed through communications with senior stormwater compliance representatives at MassDEP. As reinforced by MassDEP, Applicant should be using the total volume and duration of infiltration predicted for the largest storm that the proposed system is designed to attenuate (i.e., the 100-year, 24-hour storm) as input to their groundwater mounding calculations.</p>	<p>Stormwater Standard 2</p> <p>Mass. Stormwater Handbook (Vol. 3, Ch. 1.)</p>	<p>Horsley letter - May 16, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/70437/638542142240130000</p> <p>MMA letter - April 26, 2024 Link: https://arlington.novusagenda.com/agendapublic/AttachmentViewer.aspx?AttachmentID=211938&ItemID=17989</p> <p>MMA presentation - May 2, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/70129/638512982819900000</p>
5	Groundwater Mounding Acceptable mounding predictions	<ul style="list-style-type: none"> Severe groundwater mounding during storm events may reduce infiltration rates, which will likely translate to increased rates of system overflow. <p>Bottom Line: to illustrate the proposed system will meet pre-to-post runoff rate requirements under Stormwater Standard 2, Applicant should provide a physically representative analysis that complies with MassDEP expectations and shows:</p> <ol style="list-style-type: none"> groundwater mounding during storm events will not impact infiltration rates (i.e., will not reach the proposed stormwater infiltration system bottoms), and/or the effect of groundwater mounding will not reduce infiltration rates to the point where post-development runoff rates exceed pre-development runoff rates. 	<p>Stormwater Standard 2</p> <p>Mass. Stormwater Handbook (Vol. 3, Ch. 1.)</p>	<p>Horsley letter - May 16, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/70437/638542142240130000</p> <p>MMA letter - April 26, 2024 Link: https://arlington.novusagenda.com/agendapublic/AttachmentViewer.aspx?AttachmentID=211938&ItemID=17989</p> <p>MMA presentation - May 2, 2024 Link: https://www.arlingtonma.gov/home/showpublisheddocument/70129/638512982819900000</p>