

North Pole Estates

Review of Applicant Responses to Comments Provided by Weston & Sampson on March 5, 2020

Updated: April 29, 2020

Stormwater	
Hydrogeology	
Transportation	
Definitive Plan Review	

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<i>Stormwater</i>		
<p><u>Review Standards for Stormwater</u> We reviewed the North Pole Estates Definitive Plan pursuant and limited to the following review standards for stormwater:</p> <p>A. Identify each of the design criteria listed in Section 200-20 and provide an explanation as to whether and how the stormwater elements of the application meet each of the criteria.</p> <p>B. Provide a thorough assessment as to the submittal's conformity with the other Performance Standards identified in Section 200-17, 200-18, and 200-19 of the Stormwater Management Bylaw.</p> <p>C. Identify each of the standards of the Massachusetts Stormwater Management Standards as promulgated by the Massachusetts DEP with an explanation as to whether and how the Report and the Plan meets the applicable standards.</p>		No response required.
<u>Review Findings for Stormwater</u>		
<p>Section 200-20 We reviewed the applicants Definitive Plan submission pursuant to requirements of Section 200-20 of the Town's Bylaws and find that it to be prepared in conformance with the stormwater elements except as provided below:</p> <p>1. <i>Section 200-20(E): The applicant shall consider public safety in the design of any stormwater facilities. The banks of detention, retention, and infiltration basins shall be sloped at a gentle grade into the water as a safeguard against personal</i></p>	If a fence is required by the board, it can be incorporated.	Response is adequate.

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<p><i>injury, to encourage the growth of vegetation and to allow the alternate flooding and exposure of areas along the shore. Basins shall have a 4:1 slope to a depth two feet below the control elevation. Side slopes must be stabilized and planted with vegetation to prevent erosion and provide pollutant removal. The banks of detention and retention areas shall be designed with sinuous rather than straight shorelines so that the length of the shoreline is maximized, thus offering more space for the growth of vegetation.</i></p> <p>The proposed infiltration basin does not have outlet controls from which to measure “a depth two feet below the control elevation.” The overall depth of the basin is 4-feet as measured from the top edge of the basin to the bottom. Side slopes are 4H:1V which conform to the standard and may be sufficient to prevent safety issues associated with entrapment. The board may wish to consider fencing or other public safety measures around the basin.</p>		

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<p>Section 200-17, 200-18, and 200-19 We reviewed the applicants Definitive Plan submission pursuant to requirements of Section 200-17 to 200-19 of the Town's Bylaws and find that it to be prepared in conformance with the stormwater elements except as provided below:</p> <p>1. <i>Section 200-17: To prevent the adverse impacts of stormwater runoff, the stormwater performance standards in this Article VI must be met at new development sites.</i></p> <p>To prevent the adverse impacts of stormwater runoff, the Town requires that new developments must adhere to Massachusetts Stormwater Management Standards. Section 200-18(A) of the Town's bylaws specifies this requirement. Our comments related to the Massachusetts Stormwater Management Standards our provided below, under our findings related to Section 200-18(A).</p>	<p>No Comment.</p>	<p>No response required.</p>
<p>2. <i>Section 200-18 (A): Projects must meet the standards of the Massachusetts Stormwater Management Standards as promulgated by the Massachusetts DEP.</i></p> <p>The Massachusetts Stormwater Standards are established in Volume 3 of the Massachusetts Stormwater Handbook. There are 10 standards, which include:</p> <ul style="list-style-type: none"> • <i>Standard 1 - No new stormwater conveyances may discharge untreated stormwater to or cause erosion in wetlands or water of the Commonwealth</i> <p>Untreated stormwater is not being discharged to wetlands or waters of the Commonwealth. Much of the stormwater is being retained onsite. This standard has been met.</p>	<p>No Comment</p>	<p>No response required.</p>

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<ul style="list-style-type: none"> • <i>Standard 2 - Peak Rate Attenuation</i> Peak discharge rates have been attenuated based upon the applicant's analysis using TP-40 rainfall data, which meets the standard. Though not required by regulatory standards, we have included recommendations for additional analysis. This is discussed further herein. 	This standard has been met. No further analysis is required or warranted.	No response required.
<ul style="list-style-type: none"> • <i>Standard 3 – Recharge</i> <ul style="list-style-type: none"> ▪ Soil Evaluation – The applicant has provided an evaluation of soils and groundwater conditions within the proposed infiltration basin area by a licensed soil evaluator, and the design has been based on that evaluation. ▪ Required Recharge Volume – The applicant has computed the required recharge volume for the project. ▪ Sizing – The applicant has appropriately sized a stormwater BMP (infiltration basin) that collects the required recharge volume. ▪ 72-hour Drawdown Analysis – The applicant has demonstrated the proposed infiltration basin meets the 72-hour drawdown requirement. ▪ Capture Area Adjustment – The applicant has appropriately applied a capture area adjustment factor to the required recharge volume. ▪ Mounding Analysis – The applicant has adequately demonstrated that seasonal high ground water is not present within 4-feet below the bottom of the proposed 	No Comment.	No response required.

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infiltration basin, therefore a mounding analysis is not required.		
<ul style="list-style-type: none"> <i>Standard 4 - Required Water Quality Volume.</i> The applicant has provided calculations for required water quality volume and has designed the proposed infiltration basin with sufficient capacity to capture this volume.	No Comment.	No response required.
<ul style="list-style-type: none"> <i>Standard 5 - Land Uses with Higher Potential Pollutant Loads</i> The applicant has stated that the proposed land use is not subject to a higher potential pollutant load. We agree with that assessment.	No Comment.	No response required.
<ul style="list-style-type: none"> <i>Standard 6: Standards concerning discharges within Zone II, Interim Wellhead protection areas of public water supplies, and stormwater discharges near or to any other critical areas</i> The site is situated within a Zone II/Water Supply Protection Overlay District. The applicant has implemented the required pretreatment methods and water quality volume computation approach required for discharges to such areas.	No Comment.	No response required.
<ul style="list-style-type: none"> <i>Standard 7: Computations demonstrating that peak rate attenuation, recharge, and water quality treatment is provided to maximum extent practicable for redevelopment projects.</i> The applicant appears to have fully complied with the standards.	No Comment.	No response required.

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<ul style="list-style-type: none"> • <i>Standard 8: Development of an Erosion and Sediment Control Plan</i> <p>The applicant has shown erosion and sediment control measures on their plans and has included a comprehensive erosion and sediment control plan as part of their stormwater report.</p>	No Comment.	No response required.
<ul style="list-style-type: none"> • <i>Standard 9: Operation and Maintenance</i> <p>The applicant has provided an operation and maintenance plan for stormwater best management practices.</p>	No Comment.	No response required.
<ul style="list-style-type: none"> • <i>Standard 10: Illicit Discharge Compliance Statement</i> <p>The project does not discharge to a municipal separate storm sewer system, nevertheless the applicant states their intent to provide an illicit discharge compliance statement prior to discharge of stormwater to post-construction BMPs. The board may wish to adopt this as a condition of approval for the project.</p> <p>The Massachusetts Stormwater Handbook indicates that proponents of projects subject thereto must consider environmentally sensitive site design and low impact development (LID) techniques to manage stormwater.</p> <p>The Massachusetts Stormwater Standards list specific credits for LID that the applicant may pursue for compliance in lieu of installing dedicated stormwater management BMPs. While we do not necessarily concur with each of the assertions in Appendix I of the applicant's submission, we do understand from item 6 of Appendix I that the applicant is not seeking LID credit. We find that the</p>	No Comment.	Town consideration required.

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<p>applicant has complied with standards 3 and 4 and is, therefore, not required to achieve LID credit standards.</p>		
<p>3. <i>Section 200-18 (B):When the proposed discharge may have an impact upon a sensitive receptor, including streams, storm sewers, and/or combined sewers, the Planning Board may require an increase in these minimum requirements, based on existing stormwater system capacity and standards of other Town boards, including, but not limited to, the Board of Health and the Conservation Commission.</i></p> <p>To our knowledge, the Town has required no increase in the minimum standards. Stormwater quality treatment at the proposed development is to be primarily provided by a single infiltration basin. We find the selected best management practice to be appropriate for the proposed project. The proposed stormwater infiltration system is sized and designed in accordance with MassDEP standards; therefore, we find the applicant has satisfied this requirement.</p>	<p>No Comment.</p>	<p>No response required.</p>

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<p>Section 200-19 We reviewed the applicants Definitive Plan submission pursuant to requirements of Section 200-19 of the Town's Bylaws and find that it to be prepared in conformance with the stormwater elements except as provided below:</p> <p>4. <i>Section 200-19 (D): All stormwater management facilities shall be designed to provide an emergency overflow system and incorporate measures to provide a nonerosive velocity of flow along its length and at any outfall." Likewise, reference Section 200-20(A)(7): "Provisions shall be made for safe overflow passage, in the event of a storm which exceeds the capacity of an infiltration system.</i></p> <p>Much of the proposed development is designed to discharge into an infiltration basin as its final destination. This appears to be a result of the fact that the grading of the development has been designed so as to place end of the proposed roadway and Lots 2, 3 and 4 at elevations approximately matching current grades of what is presently an active sand quarry. As such, if this basin were to theoretically fail to allow infiltration to occur, stormwater would have no other place to go other than to fill the low-lying areas of lots 2, 3 and 4.</p> <p>Notwithstanding the issues raised above, the applicant has provided test pit data indicating that much of the project site is underlain by sand and</p>	<p>The basin has been designed with drywells located in the basin bottom to allow for infiltration during winter months. The scenario presented by the peer reviewer would be mitigated by the drywells during winter months when the rainfall events are less intense. During the remainder of the year the basin and the surrounding landscape will drain rapidly given the native material at the project site.</p> <p>No Comment.</p> <p>The onsite topsoil is a sandy loam and would be reused for the surface of the</p>	<p>Response is adequate.</p> <p>Response is adequate provided that the applicant provides notes on the plans requiring this work to be performed.</p>

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<p>gravel material, including the proposed infiltration basin. The basin is located within a low-lying area of an existing sand and gravel pit. It is our understanding that the pit has not experienced standing water in the past despite being situated in a low-lying area. Test pits indicated that there was no evidence of seasonal high groundwater within at least ten feet below the proposed elevation of the stormwater basin. Based upon the information presented for this specific site, it appears that the omission of an overflow system from the infiltration basin is an acceptable deviation from the standard. It is noted that the infiltration basin design calls for the installation of "loam and seed" in its bottom. The applicant should provide evidence that the proposed loam mix will provide for infiltration at a rate assumed by the stormwater report or shall consider an alternative surface treatment for the bottom of the basin that accomplishes this.</p>	<p>basin after proper screening. Special attention will be paid to the installation of the loam to ensure proper infiltration rates.</p>	<p>Details should be provided for Town review prior to Definitive Plan approval.</p>
<p><u>Additional Comments for Stormwater</u></p>		
<p>Additional comments related to stormwater are provided below: 5. <u>Page 3-1</u> The report indicates that TP-40 rainfall data was used for purposes of the proposed stormwater system analysis. This data source is acceptable for use based upon the current Massachusetts Stormwater Handbook. Notwithstanding its current regulatory status, this data source is outdated in comparison with other publicly available data sources including the Northeast Regional Climate Center (Cornell University) and NOAA Atlas 14. Furthermore, it is our understanding that the Massachusetts Department of Environmental Protection (MassDEP) intends to</p>	<p>All regulatory stormwater standards have been met in the design of the proposed drainage system. Given the permeability of the underlying, native material and the enclosed nature of the stormwater system, no further study is required or warranted.</p>	<p>Town consideration is required.</p>

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publish updates to its standards which will effectively retire the use of TP-40. We recommend that the applicant's engineer review these newer data sets and take them into consideration for purposes of design.		
<p>6. <u>Sheet D-2</u> The Standard Precast Concrete Catch Basin detail calls for a "LeBaron 'Snood' type or equal flip-up type hood". To the best of our knowledge this product does not exist. The applicant is asked to specify a hood that complies with MassDEP standards.</p>	A Mass DEP approved stormwater hood will be installed. Please see the cut sheet provided.	Response is adequate.
<p>7. <u>Section 360-44 (B)(3): Discharge of stormwater shall be either into an existing, adequate storm system or the nearest natural watercourse.</u> The majority of the proposed development discharges stormwater to an infiltration basin within the site, not to an existing storm system or natural watercourse; however, we find the proposed infiltration system to be acceptable for the proposed layout in the definitive plan submission. (See the review related to Section 200-19, above.) The applicant should, however, note that the allowance of this approach may be problematic for future phases development that may add impervious surface and propose vulnerabilities that are not being considered under this review.</p>	No Comment.	Town consideration is required.

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<i>Hydrogeology</i>		
<p><u>Review Standards for Hydrogeology</u> We reviewed the North Pole Estates Definitive Plan pursuant and limited to the following review standards for hydrogeology:</p> <p>A. Ensure the submittal was prepared in accordance with accepted professional practices.</p> <p>B. Ensure that all statements and conclusions related to hydrogeology in the Applicant's submittal including but not limited to the Applicant's Development Impact Statement accurately reflect the analysis and conclusions of the Hydrogeology Report.</p>		No response required.

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<p>1. The Zone II WHPA and WSPOD for the Dry Brook Wellfield, which were based on typical usage (300 gpm) and individual rated yield capacity (980 and 1,050 gpm, respectively), encompass a portion to most of the Site (Dry Brook Hill). Based on its review of the related USGS study, OTO indicates in the HAS that “the Dry Brook Hill area is important to the protection of the water quality in the Dry Brook Wells because the area contributes water to the wells under various simulated (i.e., pumping) conditions.” With this said, the HAS acknowledges the significance of the Site in protection of the South Hadley Fire District No. 2 wells, yet only addresses the potential for impact from a former underground storage tank (UST) used to store #2 fuel oil at the quarry facility, and nitrogen loading from septic systems and road salt from de-icing activities as being potential sources of contamination related to the proposed Development. The HAS does not address the potential for impacts on groundwater quality which may result from other existing activities and land use associated with the proposed Development. A list of these activities and basis for concern are provided in the 2003 Source Water Assessment and Protection Program (2003 SWAP)¹ and include: fuel and oil spillage, and hazardous substances (e.g., antifreeze, degreasing solvents) associated with the operation and maintenance</p>	<p>The HAS does not address the potential for impacts to groundwater quality which may result from household contaminants and other land uses associated with residential development because said uses are already prohibited or restricted under the Town of South Hadley’s Water Supply Protection District regulations under section 255.35. The use of such contaminants is illegal. Therefore, looking at the hypothetical impact of an illegal activity is not scientific in approach, is arbitrary and is not warranted given the current state and local environmental regulations. Furthermore, the installation of the District II well was complete subsequent to the construction and occupation of most of the existing residential properties within Aquifer Zone II districts throughout the Town of South Hadley. In recent years multiple homes have been constructed in the aquifer zone II and no such study has been required and no efforts to secure land or prohibit development of residential uses have been advanced. The scope of the HAS is appropriate based on the applicable regulation of the Zone II.</p>	<p>Response is inadequate.</p> <p>The response implies that concern over the potential for land use practices and related disposal of “household contaminants” associated with the proposed development will not occur because such activities would be considered “illegal,” and as such, not conducted by the future residents of the proposed development. This characterization implies that the future residents will be aware of the South Hadley Water Supply Protection regulations, and/or are knowledgeable of the potential for contamination to occur as part of their daily use of the onsite septic systems and possible onsite disposal of household materials. This is a naïve assumption. Rather than assume that future residents will knowingly avoid such activities, the applicant has several hydrogeologic tools it can rely on to provide projections of potential groundwater impacts and impacts on the nearby Fire District No. 2 well, regardless of the future residents activities. Town consideration required. Request that the developer provide an analytical and/or numerical model</p>

¹ The 2003 SWAP can be downloaded from the following webpage: <https://www.mass.gov/service-details/the-source-water-assessment-protection-swap-program>

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<p>of quarrying equipment throughout the quarry area; and fertilizers, herbicides, cleaners, degreasers, and biosolids residuals associated with the use of domestic wastewater disposal activities. Furthermore, at the time of the SWAP's release, contaminants currently known to be related to domestic wastewater and found locally in groundwater supplies were not identified (i.e., emerging contaminants). The potential for the presence of these potential contamination concerns and measures to deal with these contaminants needs to be addressed for the HAS to be considered adequate. It should be noted, that planning board minutes from 2019 indicate that Chicopee had proposed the installation and sampling of monitor wells at the Site. To our knowledge, no monitoring wells have been installed. Given the hydrogeologic significance of the Site to the Dry Brook Wellfield, such measures should be considered.</p>		<p>(e.g., MODFLOW w/ MODPATH) to project the fate and transport in groundwater towards the Fire District Well of typical contaminants associated with domestic wastewater such as nitrate, sodium and chloride (water softener backwash), and a selected organic compound found in household wastewater that is not generally remediated within the septic system environment (e.g., PFAS related to the use and cleaning of non-stick cookware). The model can assume a simplified approach where advective flow is the only hydrogeologic mechanism responsible for contaminant transport and dilution, and the Fire District Well is continuously pumping at a daily-average based rate. An alternative would be to have the developer conduct a "baseline" round of groundwater quality sampling, followed by regular sampling over the course of building occupancy and for up to two years following occupancy of the last dwelling. The developer would be responsible for doing a time-series analyses of the data and requested to address any contraventions at the property line closest to the Fire District Well.</p>

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<p>2. The HAS acknowledges that the areal extent of the WHPA Zone II directly increases and decreases with pumping rate at the corresponding Dry Brook Wellfield. However, given the current use of these wells within a range of 300 to 500 gpm, the smaller area is assumed to be prevalent, which also means that the contributing amount of recharge is higher from the Site (i.e., recharge from the Connecticut River is minimal). This means that the proposed Development could have much larger impacts on water quality at the wells, because it would represent a significantly greater proportion of the area of contributing recharge. As such, evaluation of impacts associated with this change and the variety of potential contaminants needs to be addressed by the HAS in order for it to be considered adequate. Given that the thickness of aquifer materials at the Site is proposed to change with the proposed Development, the impact on the recharge contribution and mechanisms should be addressed by the HAS relative to the percentage of contribution to the Dry Brook Wells. The significance of such impact at lower pumping rates need to be addressed relative to the potential for a resulting shift in the amount of groundwater that may be derived from the Connecticut River.</p>	<p>The hypothetical pumping scenarios presented above and any impacts resulting from said pumping scenarios are the purview of the District II as the licensed public water supplier. The study of such scenarios by the applicant is not required by any state or local regulation and would be arbitrary. Furthermore, the applicant has no control over the administration of the wells. Any past analysis of the well and contributing aquifer would have taken into consideration, the potential for residential development as it is not and has not been prohibited over the aquifer. No further study warranted.</p>	<p>Response is inadequate.</p> <p>The applicant addresses this comment by shifting the responsibility to address the potential for impact on Fire District No. 2 since it is their well. The purveyor has no responsibility to do such, but the applicant does. See above. Town consideration required. Since the Town is responsible for the welfare of its citizens, it is also responsible for protecting the essential services that they rely on, such as drinking water. This is assumed to be one of the reasons why the Town enacted its Water Supply Protection District. The applicant should be requested to address the potential for the proposed development to impact the Fire District Dry Brook Wells as described above.</p>
<p>3. According to the HAS, the proposed use of individual septic systems at the Development will meet the applicable Title 5 standards. It should be noted that the Title 5 standards are focused on nitrate as a contaminant of concern,</p>	<p>Title 5 provides for nitrogen standards over Aquifer Zone IIs. Said standards have been met or exceeded. Complete septic system designs and disposal works applications have</p>	<p>Response is inadequate. See responses to "1." above.</p>

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<p>and uses a generic approach which may be adequate for situations where the underlying groundwater resources are not being influenced by nearby public community supply wells which can affect the fate and transport of these contaminants. As discussed above, there are other contaminants besides nitrate (i.e., those listed in the SWAP) that the HAS needs to address as part of its assessment of the potential for the existing site conditions and proposed Development conditions to impact the Dry Brook Wells. This assessment should include projections of the long-term persistence of these contaminants and potential for travel through groundwater. In addition, the USGS study indicates that the pumping of the Dry Brook Wells does influence groundwater levels (i.e., drawdown observed at remote observation wells) in the sand and gravel aquifer unit underlying the Site (reported radius of influence of 2,300 feet). The distribution of groundwater levels measured at on-site wells by OTO as part of the HAS also corroborates that groundwater flow direction is naturally towards the Dry Brook Wells (no information regarding the status of pumping of these wells at the time of measurement is provided in the HAS). Based on these observations, OTO should be able to address the potential, and if applicable, travel time for such contaminants to reach the wellfield. Further discussion to the starting typical loading concentration of nitrate and concentration at the appropriate distance (e.g., dilution factor) relative to a resulting minimum</p>	<p>been provided to the Board of Health. Potential contaminates are prohibited or restricted within the Town of South Hadley's Water Supply Protection District regulations under section 255.35. As mentioned above, no further study is warranted.</p>	

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<p>increase at the Dry Brook Wellfield should also be addressed. Given the reliance on groundwater dilution to be a significant contributor to the in-situ decrease of nitrate and some other contaminants, a dilution factor approach should be provided. Such projections should be calculatable using simplified analytical techniques at a minimum, with a more detailed and robust approach being the use of a numerical model like the one developed by the USGS for South Hadley Fire District No. 2.</p>		

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<i>Transportation</i>		
<p><u>Review Standards for Transportation</u></p> <p>We reviewed the North Pole Estates Definitive Plan pursuant and limited to the following review standards for transportation:</p> <p>A. Ensure the submittal was prepared in accordance with accepted professional practices.</p> <p>B. Ensure the submittal appropriately assessed the adequacy of the existing and proposed roadways, the intersections of the existing and proposed roadways during and post construction—including, but not limited to, sight distances.</p> <p>C. Ensure the submittal utilized current accepted study techniques and data and is consistent with the Preliminary Plan Approval.</p>		No response required.

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<p><u>Findings by Review Standard</u></p> <p>Weston and Sampson reviewed the Traffic Impact Study for the North Pole Estates Residential Development that was prepared by McMahon Associates dated October 2019 for Chicopee Concrete Service, Inc. The study was prepared for the full development of the site which included 67 single family residences; however, as part of the definitive site plan submission the applicant is only seeking approval for a nine-lot subdivision with two full access driveways onto Hadley Street (Route 47).</p> <p>The comments below are based on the full buildout of the site as presented. Where required the comments related to only the nine-lot subdivision have been noted separately. Our review of the traffic study consisted of two parts. The first part determined if the traffic study was prepared in general compliance with both local and nationally accepted standards. The second part determined if there were any concerns with portions of the study that required additional clarification or information from the Applicant in order to determine the operational capacity and safety aspects of the proposed project.</p> <p>In addition, at the request of the Town, our review looked at the potential construction impacts associated with the proposed construction and material removal operations as these would</p>	<p>Please see the additional traffic information provided by McMahon Associates and include herewith for responses to the comments below.</p>	<p>Response is adequate.</p>

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<p>represent an increase in traffic at the existing gravel operation driveway over the current conditions.</p> <p>Under part one our review, we determined that the traffic study was prepared utilizing Massachusetts Department of Transportation Traffic Impact Assessment Guidelines and nationally accepted standards and would be acceptable for further review.</p> <p>Under part two our review determined that there were several areas where there were inconsistencies or missing information that the Applicant would need to provide for us to complete a thorough review of the traffic study to determine that the results presented are acceptable. Below is a summary of the relevant issues that need further consideration by the applicant.</p>		
<p>1. Under the Existing Traffic Volumes section, the study indicates that the morning peak hour occurs between 8:00-9:00 a.m. based on the volumes at the intersection of Sullivan Lane and Hadley Street. Sullivan Lane is a dead-end roadway with minimal traffic entering and exiting from the Sullivan Lane during this time period and consequently less traffic entering and exiting from Pearl Street. However, our review of the traffic volumes show that the peak hour at Pearl Street is between 7:30-8:30 a.m. and results in more side street traffic entering and</p>	<p>Capacity analyses have been revised to use traffic volumes for the morning and afternoon peak hours of individual intersections in the study area to provide for a conservative analysis. For the morning peak period, the peak hour for the intersection of Sullivan Lane at Hadley Street occurs between 8:00 AM and 9:00 AM, and the peak hour for the intersection of Pearl Street at Hadley Street occurs between 7:30 AM and 8:30 AM. For the afternoon</p>	<p>Response is adequate.</p>

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<p>exiting from Pearl Street, including a number of left-turns out which have a greater impact on the overall operations of the intersection. Therefore, we would request that the applicant revise the analysis to utilize the 7:30-8:30 a.m. peak hour for the analysis as it may result in greater operational constraints, especially under the future conditions when additional site-generated traffic is added to the No-Build condition.</p>	<p>peak period, the peak hour for the intersection of Sullivan Lane at Hadley Street occurs between 4:45 PM and 5:45 PM, and the peak hour for the intersection of Pearl Street at Hadley Street occurs between 4:30 PM and 5:30 PM. An updated level of service summary is attached to this document. Updating the peak hours to be intersection peak hours rather than network peak hours caused increases in delay of approximately half a second under all conditions, which is considered a minimal increase when compared to the original analysis.</p>	

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<p>2. Under the Crash Summary section, the study indicates that the data reviewed was based on MassDOT data which may not include all of the relevant local data. Please clarify if the Applicant's engineer discussed local crash data with the South Hadley Police Department to determine if there is any additional local data that should be reviewed along this corridor. If not, then we recommend that Applicant's engineer reach out to the South Hadley Police Department to obtain local data and compare it to the MassDOT data.</p> <p>In addition, we would request that the crash data for the existing gravel operation driveway be reviewed since it is our understanding that it will be used during construction for material removal operations.</p> <p>Lastly, the MassDOT crash rate worksheets are mentioned, but copies have not been provided as part of the study or appendix for review. Please provide copies of the crash rate worksheets for review.</p>	<p>The South Hadley Police Department was contacted on Tuesday, March 10, 2020 in response to this comment. Per our conversation with Lieutenant David Gagne regarding potential traffic safety concerns along Hadley Street, particularly in the site vicinity, we were informed that there are no major concerns, with the exception of potential speeding complaints in the area. Lieutenant Gagne also stated that the area is not densely populated, and the roads are fairly open and currently allow for safe access from side streets and driveways. The MassDOT crash rate worksheets are attached to this letter.</p>	<p>Response is adequate.</p>

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<p>3. Under the Site-Generated section there is an error in Table 2 whereby the Weekday PM Inbound traffic is shown as 44 trips instead of 43 trips as shown in the Appendix. This also results in an incorrect total amount of trips. We do not believe this error will result in a change in the overall operational results and is noted for reference should the Applicant's engineer be required to revise the study to address other issues noted in this review.</p>	<p>No action is currently being taken on this typo as the analysis is presented as conservative and will not result in noticeable changes to the capacity analyses results.</p>	<p>Response is adequate.</p>
<p>4. Under the Trip Distribution section, a large percentage of traffic was shown going to/from the site from the south on Hadley Street (Rte 47). The study indicates that this distribution was based on a review of the 2010 Census journey to work data. Since this data is almost 10 years old please clarify if any consideration was given to reviewing existing travel patterns along Hadley Street and adjusting the volumes to show more volume to/from the site from the north along Hadley Street as seen at the intersection of Hadley Street and Pearl Street.</p>	<p>The 2010 Census Journey to Work data is the latest available data set; we used the information contained therein in conjunction with existing travel patterns and logical routes to establish the trip distribution percentages.</p>	<p>Response is adequate.</p>
<p>5. The Traffic Operational Analysis section indicates that the capacity analysis was based on the 2010 Highway Capacity Manual (HCM), however the Appendix indicates that the study was based on the 6th Edition of the Highway Capacity Manual.</p>	<p>For clarity, the Highway Capacity Manual (HCM) 6th edition was used for this study.</p>	<p>Response is adequate.</p>

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Please clarify which version of the HCM was used to prepare the Synchro Analysis.		
6. The Synchro Analysis provided in the Appendix utilizes the Peak Hour Factors (PHF) shown in the count data for the main line roadway, but a default PHF of 0.80 for the side streets under the existing conditions which does not correspond to the count data. Under the future conditions, the PHF from the count data was utilized for the main line roadway and a default PHF of 0.80 was utilized for the side streets which does not correspond to the count data. Please clarify why there is this inconsistency as MassDOT recommends using the approach PHF shown in the count data for the existing conditions and a 0.92 PHF for main line and a 0.88 PHF for side streets under the future conditions. Please explain why the values presented in the Synchro analysis were utilized.	Because Hadley Street is under the Town of South Hadley jurisdiction and not under MassDOT jurisdiction, MassDOT recommendations were not used. Existing PHFs were maintained for the build conditions because they represent a more conservative representation of traffic patterns within the site vicinity. Analyzing the intersection using a 0.92 peak hour factor per MassDOT recommendations is likely to result in better operations output with less average vehicle delay and queuing. Our study's approach of utilizing a PHF lower than 0.92 will provide a more conservative analysis.	Response is adequate.
7. Under the Sight Distance section, the Applicant's engineer failed to provide a review of the intersection sight distance at the proposed driveways as required in the MassDOT TIA guidelines. During our field review it was noted that numerous trees and grading along the roadway appear to restrict the available intersection sight distance. Therefore, we request that the Applicant's engineer provide sight line	An updated sight distance table provides recommended intersection sight distances for the 85 th percentile speeds along Hadley Street. The sight distance from the two proposed driveways looking left was remeasured in the field and determined to meet both stopping sight distance requirements and	Response is inadequate. Weston & Sampson disagrees that the sight distance obstructions can be remedied with the removal of just tall grass based on our field review. As originally requested, the Applicant should provide sight line profiles to

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p>profiles for the two proposed driveways for review. In addition, the driveway to the proposed single-family residence on Lot 8 shall also be included in the sight distance analysis for this project as it is a new access point to Hadley Street.</p> <p>For all driveway the intersection sight distances should include a proposed 2-foot-high snowbank along the edge of the paved shoulder to simulate winter conditions as required by the Planning Board as part of their April 29, 2019 Preliminary Plans approval.</p>	<p>intersection sight distance recommendations based on American Association of State Highway and Transportation Officials (AASHTO) guidelines. Sight distance at the proposed driveways looking left were primarily obstructed by tall grass, which is able to be removed during site construction as the vegetation is located within the property.</p> <p>The Lot 8 driveway is listed in the attached table as the “Gravel Operations Driveway”, as both locations appear to be served by the same existing driveway. Sight distance looking left at the gravel operations driveway satisfies both stopping sight distance (SSD) requirements and intersection sight distance (ISD) recommendations. Sight distance looking right is currently obstructed by the roadside.</p> <p>The AASHTO publication, <i>A Policy on Geometric Design</i>, defines minimum sight distances at intersections. The minimum sight distance is based on the required SSD for vehicles traveling along the main road. AASHTO also</p>	<p>identify any grading or tree removal implications</p> <p>For the gravel driveway please clarify what is meant by the statement “Sight distance looking right is currently obstructed by the roadside.”</p> <p>Also please clarify on the plans the new single-family house lot (north of Frosty Lane) is listed as Lot #8 which is a different access point from the existing gravel operation driveway. Therefore, it appears no information was provided for the new house lot as originally requested.</p>

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	<p>defined ISD which can be considered a factor of convenience. The ISD allows vehicles to enter the main street traffic flow without requiring the mainline traffic to slow to less than 70% of their speed and is referred to as ISD. According to AASHTO, "If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient time to anticipate and avoid collisions."</p> <p>As shown in the table, the current available sight distance for a vehicle exiting the gravel operations site driveway onto Hadley Street, looking to the right is measured to exceed the required SSD for vehicles traveling at speeds of 47 miles per hour, thus allowing for vehicles to safely exit the proposed site driveway.</p> <p>*The applicant provided a table in their response which is not represented here.</p>	

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p>8. In addition, we request that the Applicant's engineer provide a review of both the stopping sight distance and intersection sight distance for the existing gravel operation as it was noted that this driveway will be used for material removal operations. It is assumed that this results in an increased rate of truck traffic over what utilizes this driveway under the current conditions. The Applicant shall provide a description of the anticipated increase in truck traffic required for the material removal under this first phase for review</p> <p>During our site review two vehicles were observed utilizing the existing gravel operation driveway, a triaxle dump truck making a right turn into the site and a tractor trailer dump truck making a right turn out of the site. Both of these vehicles crossed the centerline of the roadway to complete their turning maneuvers. This Therefore, we request that the Applicant's engineer provide a turning movement analysis at the existing driveway using tractor trailer dump trucks to determine if these maneuvers can be made safely from the driveway with no encroachment into the opposing travel lane.</p>	<p>Sight distance was measured for the gravel operations driveway and measurements are included in the sight distance table attached. Additional sight distance notes are included under Comment #7. Exhibit 6-15 in the Massachusetts Department of Transportation Project Development and Design Guide illustrates levels of heavy vehicle encroachment that are acceptable. The movement made by a heavy vehicle (tractor trailer or single unit truck) exiting from the gravel operations driveway to Hadley Street would be considered a movement from a local road to another local road, which is illustrated in Exhibit 6-15. Any encroachment of trucks onto the opposite direction is not expected to result in a safety concern as the driveway exceeds the stopping sight distance required by AASHTO. Vehicles on Harley Street (Route 47) will be able to see vehicles entering and exiting this driveway.</p>	<p>For the gravel driveway the sight distance may be adequate, however, will approaching vehicles expect the entering and exiting vehicle to encroach over the adjacent lane. Consideration should be given to installing warning signs in advance of the driveway to help notify drivers of the condition.</p>
<p><u>Additional Comments</u></p>		
<p>Overall the study appears to show that even with the requested changes and clarifications noted above,</p>		<p>No response required.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p>that the operations of the two proposed driveway intersections are acceptable and the operations of the existing roadway intersections are not anticipated to be adversely affected by the proposed full build out of the 67 lot subdivision. Therefore, it can be concluded that the proposed nine lot subdivisions will not have a significant operational impact on area roadways and intersections.</p>		
<p>However the Applicant still needs to provide additional information on intersection sight lines at the two proposed site driveways and both the stopping sight and intersection sight distances for the driveway to the proposed single family residence to ensure that the safety of the intersections can be maintained. Final approval of the traffic study will depend on satisfactory review of the additional information requested including the operations and safety of the existing gravel operation driveway.</p>		<p>Applicant failed to respond.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<i>Definitive Plan Review</i>		
<p><u>Review Standards for the Definitive Plan</u> We reviewed the North Pole Estates Definitive Plan pursuant and limited to the following review standards for definitive plans:</p> <ul style="list-style-type: none"> A. Ensure the submittal was prepared in accordance with accepted professional practices. B. Ensure the submittal was prepared in accordance with the South Hadley Subdivision Regulations (Chapter 360 of the Town's Bylaws). C. Ensure the submittal conforms to the South Hadley Zoning Bylaw provisions applicable to the subject property. D. Ensure the submittal reflects conformity with the conditions attached to the Preliminary Plan Decision. 		<p>No response required.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p><u>Review Findings for the Definitive Plan</u></p>		
<p>1. <u>Was the application prepared in accordance with the South Hadley Subdivision Regulations, i.e., Chapter 360 of the Town's Bylaws</u></p> <p>Generally, we find that the Definitive Plans were prepared in accordance with Chapter 360 of the Town's Bylaws; however, we did find inconsistency between the layout dimensions of the Preliminary Plan and the Definitive Plan. The Definitive Plans depict lots 1 through 9, with lots 4 and 5 containing the bulk of the land that would eventually be the remainder of the proposed 67 lots. Many of the lot lines shown for initial lots 1-9 do not coincide with any lot lines for future phases. See the hand-drawn graphic below:</p> <p>The applicant does not provide a comparison of the lot layout that was proposed for the approved preliminary plan and the lot layout that was proposed for the proposed definitive plan, but there appear to be discrepancies. The drawing above shows the approximate location of lots lines for lots 4, 5, 8 and 9. Those lines do not appear to coincide with future development lots as depicted. This calls into question the validity of lots 4, 5, 8 and 9 as they do not seem to coincide with lot lines for future development. To address this issue, we recommend that the Town request a phasing plan from the applicant that clarifies why lots 4, 5, 8 and 9 are being created as depicted. We anticipate that future phases will require either redrawing or amendment of the lot lines. This also raises a question related to the ultimate ownership of areas in lots 4 and 5 that are not part of the depicted full-build layout. We recommend that the Town ask for a clarification of this issue.</p>	<p>There is no subdivision requirement that the preliminary plan match or resemble the definitive plan and there was no intent to have lot lines from the proposed subdivision coincide with the lots shown on the schematic for "potential" future phases. Any reconfiguration of lots required for future residential use of the land would be handled in the future as necessary through the subdivision process.</p>	<p>Response is inadequate.</p> <p>The applicant's response misses the point of the initial comment, which was that the proposed redrawing of lot lines raises questions regarding the validity of lots 4, 5, 8, and 9 as well as ownership questions about the land area contained in lots 4 and 5.</p> <p>We agree that some reconfiguration of lot lines is acceptable; however, the overall project has changed from 67 to 9 lots—an 87% reduction in lots. Moreover, the proposed project area no longer corresponds to the original area of land represented in the preliminary plan. (See diagram attached at the end of this review and previously provided with the March 5, 2020 review.)</p> <p>By definition a preliminary plan is "a plan of a subdivision submitted by the applicant showing sufficient information to form a clear basis for discussion and clarification of its general contents and for the preparation of a definitive plan."</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p>2. <u>Conform to the South Hadley Zoning Bylaw provisions applicable to the subject property Agricultural Zoning Definition per Section 255-11.E</u> <i>The purpose of this district is to promote agriculture, forestry, recreation, and land conservation, as well as compatible open space and rural uses, by siting development in a manner that preserves large contiguous tracts of open space and agricultural land. The preservation of scenic vistas of open land, forestland, the Mount Holyoke Range, the Mount Tom Range, and the Connecticut River in this district is a key aspect of maintaining South Hadley's desired scenic and rural identity.</i></p> <p>In our opinion, the excavation of this site to match grade at the bottom of the extraction pit does not meet the definition of the purpose of the district. The proposed approach to grading does not promote agriculture, forestry, recreation, or land conservation. The proposed excavation appears to remove active agricultural fields, cut down a large forested area, and does not allow for recreation or land conservation. The project does not appear to site development in a manner that preserves large contiguous tracts of open space or agricultural land. We recommend that the Town ask for an evaluation of alternative approaches to grading that would better address the purpose of agricultural zoning at the project site.</p>	<p>As stated above, this comment is opinion based. A residential subdivision is allowed by right within the Agricultural zoning district and while agriculture, forestry, recreation and conservation are all wonderful pursuits, they are an alternative to the chosen use of the land and cannot be used to assess the appropriateness of the chosen land use as they are in direct conflict with the chosen by-right use. Regardless, the majority of the active roadway construction and associated site improvements takes place within previously degraded areas of active or previous excavation or pasture. Only a small portion of forested area within the parcel (2.1 acres) will be impacted to create the proposed roadway.</p> <p>Subdivision control law provides a set of design standards that need to be adhered to or waived by the Planning Board. All said design standards have been met. Once the standards have been met, it is the right of the applicant to subdivide the land as they desire and deem appropriate. No further design analysis is warranted or regulated.</p>	<p>Response is inadequate. Town consideration is required.</p> <p>While residential use is allowed by right in the agricultural zone, zoning requires preservation of the purpose of the district “agriculture, forestry, recreation, and land conservation.” The application at preliminary offered approximately 23 acres of open space. The definitive plan has removed that open space and offers none. The applicant should explore approaches to grading that would minimize removal of soil.</p>

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<p>3. <u>Water Supply Protection District Section 255-35(1)(b)</u> <i>Upon completion of earth removal operations, all altered areas shall be restored with topsoil and vegetative plantings.</i></p> <p>The applicant is quoted in the minutes of the November 18, 2019 meeting as saying "...replanting of individual lots would be up to the individual owners and street trees would be planted as required." At a minimum, we recommend that the current limits of the gravel operation be required to adhere to the topsoil and revegetation requirements of 255-35(1)(b). If part of the responsibility is passed from the applicant to future owners, we recommend that the Town reserve the option or review and approving proposed covenants to ensure they meet the Town's needs.</p>	<p>No Comment.</p>	<p>Applicant failed to respond. Town consideration is required.</p>
<p>4. <i>Of particular interest regarding Outcome/Result #3 (i.e., in relation Section 255-35(1)(b)) above, the Town expects the Peer Reviewer to advise on the following questions:</i></p> <p>a. <i>Whether the plans depict earth removal that is "incidental to and in connection with" development of site improvements necessary for the proposed North Pole Estates subdivision (per Section 255-84A(2) of the South Hadley Zoning Bylaw).</i></p> <p>b. <i>Could changes in the proposed grade of the proposed street "Frosty Lane" as depicted in the Definitive Plan reasonably reduce the scope of the proposed Earth Removal while also conforming to the requirements for a roadway's maximum and minimum grades as specified in the South Hadley Subdivision Regulations?</i></p>	<p>The proposed roadway has been designed based on multiple factors including but not limited to roadway grade. A discussion of those factors has already taken place at a previous Planning Board meeting. The proposed roadway and drainage system has been designed twice so far based on comment from the Planning Board. The South Hadley Subdivision Regulations do not require an alternatives analysis and all required roadway design standards have been met. No design waivers have been requested.</p>	<p>Applicant failed to respond. Town consideration is required.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p><i>c. Does the proposed extent of earth removal appear to go beyond what is necessary to install the necessary proposed "site improvements for" North Pole Estates?</i></p> <p>In answer to item 4b above, we believe that there are alternatives to the proposed grade of "Frosty Lane" that could reduce the scope of the proposed earth removal. Maximum allowable grades for Type A subdivision roads are 9 percent, and the proposed roadway is below this maximum in all locations.</p> <p>We are unable to provide comment for Items 4a and 4c without additional information. These topics were discussed at our site visit with the applicant's engineer on February 24, 2020. It is our understanding that the applicant's intent in re-grading the site is to create a smooth transition from Hadley Street into the grades at or near the bottom of the current sand and gravel extraction pit. This approach will result in the export of a significant quantity of material. While we recognize that this is one way to create a gently sloping site, we recognize that there may be other methods of evening the grade including use a cut-and-fill approach with the material on the site or importing material to the site. An example of one such alternative could involve filling in a portion of the low-lying sand pit area to the west by utilizing material excavated for the construction of Frosty Lane and/or the grading of lots closest to Hadley Street. The feasibility of this or other alternate approaches may be contingent upon other design factors, but these have not been identified by the applicant. We find that the applicant's proposed approach may not comply with the spirit or requirements of the Town's Agricultural</p>	<p>No comment – This comment is not based in regulation or procedural requirements and therefore further action is not warranted.</p>	<p>Applicant failed to respond. Town consideration is required.</p> <p>Without a clear commitment, plan, and schedule from the developer for decommissioning of the Frosty Lane "temporary cul-de-sac," we do not believe it is plausible or technically reasonable for the Planning Board to make a determination for the appropriateness of the developer's proposal. We would recommend a permanent road or a binding commitment to decommission the temporary road and make it permanent.</p> <p>Additionally, to extend Frosty Lane, the developer will probably need to excavate a large volume of soil to effect proper grading.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p>Zone, Section 255-11, which overlays the proposed project site. (See Definitive Plan Review Item 2, above.) We recommend that the Town require the applicant to provide an evaluation of the current design approach relative to other alternatives to help the town determine whether the current design approach strikes an acceptable balance between project feasibility and the interests of the Town's Agricultural Zone.</p>		
<p>5. <u>Reflect conformity with the conditions attached to the Preliminary Plan Decision</u></p> <p>Below we provide a listing of preliminary plan conditions and our findings related to them.</p> <p>a. <i>Conformance to Regulations. The applicant shall conform to all applicable provisions of the Subdivision Regulations of the Town of South Hadley (including but not limited to, use of the Town's application form or an exact reproduction of said form), unless the Planning Board expressly waives any such provision as a condition of a Definitive Plan approval. The Planning Board, at this time, has not approved any waivers applicable to the Definitive Plan submittal.</i></p> <p>It is unclear why the site plan has changed from the Preliminary approval. We recommend that the Town ask the applicant for clarification on this issue.</p>	<p>The applicant chose to pursue a smaller subdivision project at this time. The hypothetical future buildout was changed to allow for a layout that was more desirable to the applicant. This question has no bearing on the current application.</p>	<p>Response is inadequate. Town consideration required.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p><i>b. Riverfront Delineation. The Riverfront Boundary is shown as "approximate." The applicant needs to have a formal delineation undertaken to ensure that no work is undertaken which would impact the Riverfront jurisdiction.</i></p> <p>The plans submitted dated January 20, 2020 show the riverfront boundary as "approximate." It appears no formal delineation was provided, and this condition was not satisfied. We recommend that the Town request clarification on the applicant's intent.</p>	<p>The entire MAHW line of the Connecticut River was delineated and determined through two Determinations of Applicability. Said DAs are valid and the flagging and corresponding Riverfront shown on the current plans is accurate and not approximate. Any reference to approximate will be removed from the plan prior to final set being issued.</p>	<p>Response is inadequate. Town consideration required.</p> <p>Item 4.b. was a condition of approval at the preliminary stage of review and should be met during the definitive plan stage of review. As noted above, the proposed project area no longer corresponds to the original area of land represented in the preliminary plan. (See diagram attached at the end of this review and previously provided with the March 5, 2020 review.)</p>
<p><i>c. Limit on Grading. Limit grading of area in proximity to the Riverfront Boundary (as it is eventually delineated) and the other wetland areas to ensure that destabilization of trees and drainage systems don't have the long-term effect of damaging the Riverfront or wetland Resource areas.</i></p> <p>The only areas shown on the grading and erosion and sediment control plans are in the area of the roadway. Proposed grading for the entire site should be shown to fully understand and evaluate how future phases of the subdivision will impact wetlands, groundwater, stormwater, and the river. We recommend that the Town request clarification on the applicant's intent.</p>	<p>All proposed grading for the project is shown. Please note that only 4 houses are proposed under the current application. No further information is required or warranted.</p>	<p>Response is inadequate. Town consideration required.</p> <p>This requirement was based on the approved preliminary application. The applicant has made several intimations regarding future development. They sought and received a preliminary approval for 67 lots on the site. This was requested in order to fully understand the intended grading of the site for all future development.</p>
<p><i>d. Topography. The topography depicted on the Preliminary Plan appears to be generalized and interpolated. Due to the amount of grading anticipated, the topography must be verified.</i></p> <p>It is not clear whether this issue has been resolved. To our knowledge, the need for the extent of grading</p>	<p>A complete topographic plan at the contour intervals requested has been provided by our PLS. This item was resolved after the waiver was rejected.</p>	<p>Town consideration required.</p> <p>Section 360-21(B)(9) of the Town's Subdivision Regulations requires the need for a topographic plan with predevelopment and postdevelopment</p>

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<p>at the proposed project site has yet to be evaluated by the applicant. We recommend that the Town require a direct response to this concern prior to approval.</p>		<p>topography so that the volume of earth to be removed can be measured. The Preliminary Plan review reiterated a requirement for verification of the predevelopment topography. We understand from the applicant's testimony at a recent hearing that excavation of the sand and gravel pit has been ongoing resulting in approximately 7 feet of material removed from the bottom of the pit. The topography submitted in January does not appear to reflect this change from the Preliminary Plan topography and does not provide for a way to determine the effect of continued quarrying. To be clear, we recommend reverification of the survey to ensure accuracy of predevelopment topography and to allow for proper calculation of material to be removed between predevelopment and postdevelopment conditions in accordance with section 360-21(B)(9). Assuming excavation will continue, we recommend that the applicant documents the volume removed after surveying is conducted.</p>

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<p>e. <i>Groundwater Elevation. Verification of the “historical seasonal high groundwater” to ensure that the finished elevations will allow sufficient space for Stormwater detention, septic tanks, and building foundations not to be within 5 feet of the “seasonal high groundwater.”</i></p> <p>Our findings and recommendations are provided under the hydrogeological review.</p>	No comment.	Refer to hydrogeologic review.
<p>f. <i>Traffic Analysis. Traffic analysis to include a determination of impact on the existing traffic patterns and flows on Hadley Street, Sullivan Lane, and Pearl Street. This analysis should include a sight distance analysis—particularly for peak periods and taking into consideration winter conditions.</i></p> <p>Our findings and recommendations are provided under the transportation review.</p>	No comment.	Refer to traffic review.
<p>g. <i>Construction Staging/Operation Planning. A plan for ensuring that construction equipment and operations do not adversely impact the groundwater supply. This should include an Operations & Maintenance Plan and Emergency Response Plan that establishes a specific location for maintenance of equipment and their storage when they are not in use on the site.</i></p> <p>The Definitive Subdivision Plan for North Pole Estates does not appear to show construction staging or operations and, therefore, we are unable to review them for adequacy of groundwater protection. The applicant’s Operation and Maintenance Plan makes reference to an “equipment location” but does not appear to indicate a proposed location or to provide for facilities such solid waste disposal and</p>	Due to the dynamic nature of the construction operation, the applicant will discuss the proposed staging area options at the next public hearing.	<p>The response is inadequate. Town consideration required.</p> <p>The applicant’s proposed remedy would deny the Planning Board review and consideration in advance of the Planning Board Hearing.</p>

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<p>containment, hazardous materials storage, equipment refueling, or equipment washing. We recommend that the Town require the applicant address this item prior to approval.</p>		
<p><i>h. Vegetative Maintenance. Mature trees can benefit the environment and homeowners in many ways. Accordingly, the developer should seek to minimize removal of trees from the site as one of the approaches to managing erosion. The phasing plan for the development needs to include a phasing plan for tree cutting to prevent destabilization of the extreme slopes throughout the entire site, and to prevent the proposed stormwater basins from being overwhelmed during the construction phase.</i></p> <p>The applicant's materials do not appear to address phasing, vegetation maintenance, minimization of tree removal, or management of erosion on steep slopes. We recommend that the Town require the applicant address this item prior to approval.</p>	<p>Please see construction phase O & M included in the Stormwater Report. Also, please note that a SWPPP will be required prior to the start of construction that will detail construction phase, erosion controls prior to and during the construction project.</p>	<p>Response is inadequate.</p> <p>It is unclear how the referenced document addresses the condition of approval. The Stormwater Drainage Report dated October 24, 2019, revised January 20, 2020 by R. Levesque Associates, Inc. was reviewed for specific information regarding this condition. The document was searched for key words such as "tree", "removal", "phasing", "cutting", "destabilization", "slope", "stormwater" and no direct reference to how this condition was to be satisfied was found.</p>
<p><i>i. Revegetation Plan. The site has been subject to a significant amount of disturbance and the proposed Preliminary Plan suggests significant additional disturbance (such as removal of most of the sites' vegetation and top soil, excavation of most of the site, etc.) will be part of the development of this subdivision. The disturbance could result in long term degradation of the site including "steep" slopes which could render lots effectively unbuildable. Therefore, to ensure that the site remains stabilized, the applicant needs to provide a plan</i></p>	<p>Once the affected areas are loamed and seeded adjacent to the proposed roadway, there will be individual lot owners or builders that will build upon and loam and landscape each lot as construction progresses.</p>	<p>Response is inadequate and fails to respond to the comment.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p><i>for restoration of the gravel pit, including grading, replacement of topsoil, and re-vegetation along with a time schedule for implementation. This timetable must provide that revegetation occurs as part of the process of constructing the infrastructure as well as post construction. Therefore, the applicant is to include with the Definitive Plan submittal, a plan including narrative description for the revegetation during both phases of the project: 1) interim phase which details restoration/landscaping during construction and 2) final phase, post construction. The post infrastructure construction phase must incorporate the street trees and other landscape planting required under the Subdivision Regulations.</i></p> <p>A timetable is submitted that indicates the task of "Landscape, Loam and Seed Affected Areas" will take two weeks. We did not find any further detail on how this condition will be met. We recommend that the Town request clarification on the applicant's intent.</p>		
<p><i>7. Fill Material. Details on how any fill material will be verified that it is not contaminated.</i></p> <p>We did not find a discussion on how this condition will be met. We recommend that the Town request clarification on the applicant's intent.</p>	<p>The proponent has contracted with an LSP and all earthwork will be conducted with guidance or direct oversight by the LSP as required by law. There is no known contamination or any indication thereof within the area of proposed work.</p>	<p>The response is inadequate.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p>8. <i>Buyer Notification. The Water Supply Protection District has unique restrictions applicable to all property owners (particularly important for single-family homeowners) which do not apply to all properties in South Hadley. Adherence to these restrictions (such as on pesticides, fertilizers, application of materials to melt ice, etc.) is particularly important to protect the water quality in a Water Supply Resource Areas Zone II. Accordingly, the applicant is to provide details on how lot purchasers will be informed that they are in a Zone II area.</i></p> <p>We did not find any further detail on how this condition will be met. We recommend that the Town request clarification on the applicant's intent.</p>	<p>The applicant feels that this requirement is unnecessary as the Water Supply Protection District regulations restrict or prohibit said noxious uses.</p>	<p>The response is inadequate and fails to respond to the comment.</p> <p>Please also refer to hydrogeologic review.</p>
<p>9. <i>Hydrogeological Assessment Study. The purpose of the Water Supply Protection District is to promote the health, safety and welfare of the community by protecting and preserving the surface and groundwater resources of the Town and the region from any use of land or buildings which may reduce the quality and quantity of its water resources. As such, excavation of a substantial amount of material and construction of a substantial number of houses in the Zone II could have an adverse impact on the health and safety of the residents and impede the ability of the District to continue to supply public water. Therefore, a Hydrogeological Assessment Study demonstrating that the proposed development will not have an adverse impact on the District 2 Public Water Supply, health and safety is to be provided by the applicant.</i></p>	<p>No Comment.</p>	<p>Refer to hydrogeologic review.</p>

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<p>Comments are provided under the hydrogeologic review section of this letter report.</p>		
<p><i>10. Earth Removal Details. Details on the earth removal, particularly any proposed crushing operation to be carried out on site.</i></p> <p>We found a limited discussion of earth removal on page 21 of 30. None of the practices listed discuss proposed crushing on the site. We found no further detail on how this condition will be met. We recommend that the Town request clarification on the applicant's intent.</p>	<p>Based on the extensive excavation that has taken place within or directly adjacent to the project site, no crushing or blasting will be required to accommodate the proposed subdivision road. Screening, excavation and trucking are the only anticipated activities necessary to excavate for the roadway and home sites.</p>	<p>Response is inadequate. This condition requires details on earth removal, not just crushing operations. Details on earth removal remain a condition of approval.</p> <p>Past activity does not necessarily determine future need. The applicant should be required to detail how this need will be addressed in the event that crushing or blasting are required. As crushing and blasting are potentially dangerous and disruptive, the applicant's responses should account for nearby land use as many of which are residential. Alternatively, the Town may wish to prohibit crushing and blasting at this site.</p>
<p><i>11. Pavement. The Planning Board is supportive of minimizing the extent of pavement to be provided in this subdivision. Further, South Hadley's Stormwater Management Bylaw and policies in the Master Plan encourage minimizing impervious surfaces and use of Low Impact Development approaches. Given the important significance of the Zone II of the Dry Brook Hill Water Supply, such approaches are more significant in this area and are encouraged to be incorporated into the Definitive Plan.</i></p>	<p>The roadway has been designed based on subdivision roadway design standards. The amount of impervious surface for the roadway is dictated in said standards.</p>	<p>Response is inadequate and fails to address the comment. The design standards cited are not so specific as to dictate extent of pavement at the proposed North Pole Estates.</p> <p>The applicant did not address low impact development (LID). The proposed plan includes a single infiltration basin. LID requires consideration of a variety of nonstructural controls with</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p>Comments are provided under the stormwater review section of this letter report.</p>		<p>decentralized structural controls as a last option.</p>
<p><i>12. Prior Contamination. The site has been traveled over, for decades, by trucks and heavy equipment. It has been used at times as a shooting range. Accordingly, the Definitive Plan submittal needs to address how the applicant plans to test the site for the presence of contaminants and mitigate any such contaminants found to be on the site.</i></p> <p>Our review of the applicant materials provided found no testing the site for the presence of contaminants or how any such contaminates would be mitigated. The Operation and Maintenance plan identifies how potential site contamination related to construction would be addressed and does not discuss testing or mitigation of previous contamination. We did not find any further detail on how this condition will be met. We recommend that the Town request clarification on the applicant's intent.</p>	<p>No known contamination exists within the project site. The applicant has contracted with an LSP for any eventuality that may arise.</p>	<p>Response is inadequate and fails to address the comment.</p> <p>The preliminary plan requirement is for a testing protocol and an approach to mitigation to address contamination that may be found.</p>

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<p>13. <i>Special Permitting for particular lots. As proposed, lots 13 through 28 are in proximity to either Buffer Zone or Riverfront which are significant environmental resources. The applicant is encouraged to avoid these areas to lessen the potential impact on these resource areas. If the Definitive Plan includes creation of these or other lots within the same or similar proximity to these areas, as stated in the Conservation Commission's letter, lots will require special permitting by the Conservation Commission due to the proposed lots proximity to either Buffer Zone or Riverfront Area:</i></p> <p><i>a. Proposed lots 19 thru 28 along the northern boundary of the site are within Buffer Zone and as such will require the filing of a Notice of Intent for any work on those lots.</i></p> <p><i>b. A formal delineation of the Riverfront Resource Area will be required relative to proposed lots 13 thru 19 are proximal to an area notes on the plan as "200' Riverfront Area Approximate". Additional permitting through the Conservation Commission is likely to be required for the resulting lots.</i></p> <p><i>c. The Conservation Commission plans to review each proposed lot as specific development plans are generated to consider the extent to which building activities are jurisdictional to the Commission based on bylaws in place at the time of development.</i></p> <p><i>d. where a proposed lot includes a portion of a Resource Area, the applicant is encouraged to depict building footprints for each lot to indicate that there is reasonable area in which</i></p>	<p>No Comment.</p>	<p>Applicant failed to respond.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p><i>to locate residential buildings thereon without request either a variance from the Zoning Bylaw or a waiver from the Wetland Bylaw. Again, the applicant is encouraged to consult with the Conservation Commission regarding the Wetlands Bylaw prior to submittal of a Definitive Plan.</i></p> <p>Definitive plans submitted do not identify any lot locations beyond initial lots 1-9. Because the Preliminary plan is considerably different than Definitive plans submitted, it is impossible to determine if any of the above information will be satisfied. We did not find any further detail on how this condition will be met. We recommend that the Town request clarification on the applicant's intent.</p>		
<p><i>14. Peer Review Anticipated. Based on the plans submitted and the input provided to date, the applicant should anticipate that the Town will likely seek to have peer reviews conducted on at least the following aspects of the Definitive Plan: Riverfront Resource Area delineation; Stormwater Management Plan; Hydrogeologic Assessment Study; Operation, Management, and Emergency Response; and Traffic Impact.</i></p> <p>We have no comments related to this condition.</p>	No Comment.	No response required.
<p><i>15. Waivers. The only waivers requested in the Preliminary Plan submittal were regarding the scales for the Plan and Profiles. The Board has allowed the Preliminary Plans to be reviewed and conditionally approved using the scales shown on the plans as submitted. As such, the Planning Board has granted the waiver regarding the scales for the plans and profiles</i></p>	No Comment.	Town consideration required.

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p><i>for the Preliminary Plan. HOWEVER, this waiver does NOT extend to the Definitive Plan. Therefore the Planning Board's conditional approval of the Preliminary Plan do not convey any waiver applicable to the Definitive Plan submittal.</i></p> <p>We have conducted a review in accordance with our contract with the Town, which includes specific standards for review. Our review does not address waivers. We recommend that the Town confirm that no further review is required under this item.</p>		
<p><i>16. Peer Review. The comments from the Peer Review Letter submitted by Berkshire Design dated April 29, 2019 are to be addressed and resolved in the Definitive Plan submittal.</i></p> <p><i>a. Lots 9-18 do not appear accessible due to proposed steep grades.</i></p> <p>Lot 9-18 on the Preliminary plan cannot be compared with those on the Definitive plan. Preliminary plans show the entire subdivision layout with topography and lot 9-18 have significant slope along the frontage of the lots. Definitive plan design elements of roadway design, roadway location, stormwater design, and subdivision layout only show the initial 9 lots proposed. Lot 9 on the Preliminary plan is in a different location than on the Definitive plan. The Definitive plan has no lots beyond #9 labeled. We recommend that the Town request clarification on the applicant's intent.</p>	<p>No Comment – already addressed.</p>	<p>Response is inadequate.</p> <p>The overall project has changed from 67 to 9 lots—an 87% reduction in lots. Moreover, the proposed project area no longer corresponds to the original area of land represented in the preliminary plan. (See diagram attached at the end of this review and previously provided with the March 5, 2020 review.)</p> <p>By definition a preliminary plan is “a plan of a subdivision submitted by the applicant showing sufficient information to form a clear basis for discussion and clarification of its general contents and for the preparation of a definitive plan.”</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p><i>b. The proposed drainage easement "to be acquired" on the lots N/F Peter Edge is not labeled as to width and appears to be very narrow. The project cannot function as designed without the easement and the easement should be wide enough to install and maintain the storm drainage pipes.</i></p> <p>The Preliminary plans cannot be compared with the Definitive plans to determine if this has been satisfied. Preliminary plans show an underdetermined width storm drain easement. Definitive plans submitted vary significantly in design and no direct comparison can be made. Definitive plans do not show a drainage easement in the area shown fronting on Hadley Street. We recommend that the Town request clarification on the applicant's intent.</p>	<p>The definitive plan is different than the preliminary and has no bearing on the definitive review.</p>	<p>Response is inadequate and fails to address the comment.</p> <p>By definition, a preliminary plan is linked to a definitive plan. Specifically a preliminary plan is "a plan of a subdivision submitted by the applicant showing sufficient information to form a clear basis for discussion and clarification of its general contents and for the preparation of a definitive plan."</p>
<p><i>c. The proposed project will require extensive clearing and excavation of over 50 feet in some areas. A phasing plan should be provided that assure adequate loam and plantings are provided to stabilize the site.</i></p> <p>We did not find a detailed phasing plan that assures adequate loam and plantings would be provided to stabilize the site. We did not find any further detail on how this condition will be met. We recommend that the Town request clarification on the applicant's intent.</p>	<p>Please see construction phase O&M.</p>	<p>Response is inadequate and fails to address the comment.</p> <p>It is unclear which document the applicant is referencing as a response. There is a plan titled Operation and Maintenance Plan and Hazardous Material Management Plan dated January 21, 2020. The applicant has also referred to an O&M portion of the Stormwater Report. Regardless, neither document provides a phasing plan for the excavation of materials.</p>
<p><i>17. Roadway Maintenance. The proposed roadway is to be maintained by the developer until such times as the roadway becomes a public road (this is not to be interrupted as committing the Town to ever accepting the roadway as a public</i></p>	<p>The proponent is prepared to discuss roadway maintenance at the next public hearing. We would expect that this item be handled as a condition of approval.</p>	<p>The response is inadequate and fails to respond to the comment. Town consideration required.</p>

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p><i>road). This maintenance task includes, but is not limited to, maintaining the safe roadway surface, snow removal, etc. Maintaining access of a roadway free of snow and ice in a Zone II Water Supply Recharge Area requires special considerations. Accordingly, the Definitive Plan submittal needs to provide a plan for maintaining the proposed roadway consistent with DEP requirements, best practices given the environmental conditions, and Section 255-35E and Section 255-35F of the Zoning Bylaw with particular attention to 255-35E(8) regarding stockpiling of snow and 255-35F(2) regarding minimal use of sodium chloride for ice control.</i></p> <p>Page 13 of the Hydrogeological Assessment Study briefly discusses the proposed roadways. We did not find any further detail on how this condition will be met. We recommend that the Town request clarification on the applicant's intent.</p>		<p>The applicant's proposed remedy would deny the Planning Board review and consideration in advance of the Planning Board Hearing.</p>

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<p>18. <i>Department Comments. Review of the Preliminary Plan by the Town Departments generated comments/reviews from the following departments:</i></p> <ul style="list-style-type: none"> a) <i>April 29, 2019 email from Mark Aiken, Fire District #2 – Water Superintendent</i> b) <i>April 29, 2019 Letter from the Conservation Commission</i> c) <i>April 24, 2019 email from Fire District #2 Fire Chief Scott Brady</i> d) <i>April 24, 2019 email from Police Chief Jennifer Gunderson</i> e) <i>April 18, 2019 Letter from the Fire District #2 – Board of Water Commissioners</i> f) <i>April 29, 2019 Letter from Berkshire Design transmitting their Peer Review</i> <p>Comments from most of the departments are of a nature that they should, to the extent possible, be addressed and resolved during the course of preparing the Definitive Plan prior to Planning Board action on any such Definitive Plan.</p>	No Comment.	The response is inadequate. Town consideration required.
<p>19. <i>Application Materials and Revisions Incorporated. All application materials (including subsequent revisions thereto) submitted to, and received by the Planning Board as part of the applicant’s “Form B – Application for Approval of a Preliminary Plan” received by the Town Clerk on March 28, 2019 are hereby incorporated into and made part of this Decision. Furthermore, related materials are also hereby incorporated into and made part of this Decision. Said application and related materials specifically include, but are not limited to, the following...</i></p>	No Comment.	No response required

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
We have no comments related to this condition.		
<u>Additional Comments</u>		
59 of 131 indicates that 23 acres of “open space” will be provided along the Connecticut River. This area is not shown as open space on any of the plan sheets. Is this area the 200’ riverbank setback? That area should not qualify as open space. Where is the 23 acres located?	No open space is proposed at this time.	Response is inadequate. The preliminary plans proposed to provide 23 acres of open space for the development. Planning Board approved a preliminary plan with an understanding there would be 23 acres of open space. Open space is a defining element of Agricultural Zoning in South Hadley.
61 of 131 indicates “landscaping will be consistent with that of other single-family homes.” What does that mean? What “other” single-family homes?	This comment means that the homeowner will choose the extent of lawn areas and landscaping they feel is appropriate at the time of construction of their home.	Response is inadequate. Town consideration required. Under normal development circumstances this response may be considered adequate, but this site is complicated, as it is in a water supply district and has been heavily excavated and disturbed. Landscaping is one important way to try to remediate the site and return some of it to a natural vegetated state. The proposed development is in a DEP delineated Zone II of a public water supply and in the 2003 Report, DEP noted that the sand and gravel pit and residential developments were potential threats to the public water supply.
Preliminary plans have basic details regarding entire site construction. They show approximate lot locations, the location of all proposed future	No Comment- Not applicable.	Response is inadequate and fails to address the comment.

Weston & Sampson Review Comments	Applicant Responses	Weston & Sampson Comments on Adequacy of Response
<p>roadways and proposed stormwater management for the entirety of the property. The Definitive plan submission is significantly different. No specific details are shown for the property and the initial lots 1-9 that are shown are not the same as the Preliminary plans. It is impossible to determine how the changes of Definitive plan lots 1-9 relate to future development plans as the design will have to change in order to accommodate the considerably different layout proposed.</p>		
<p>A member of the public questioned how many trees would be removed.at the November 18, 2019 minutes and the applicant states "...he would quantify the amount of proposed clearing." To our knowledge, this information has yet to be provided by the applicant.</p>	<p>Approx 2.1 acres of the wooded area on site will be removed. Limited replanting will occur as part of the residential development.</p>	<p>Town consideration required. This response addresses the question from the public, identifying 2.1 acres of trees would be removed. The applicant does not identify where that area, or areas, amounting to 2.1 acres are located. The Planning Board should consider requiring that the applicant identify where these areas are on the site. The applicant's response poses an additional concern in noting that "Limited replanting will occur as part of the residential development." The Planning Board has made it clear through their discussion and the preliminary approval conditions that site remediation is important and has requested the applicant to provide detailed information on how that will be accomplished.</p>

