



April 25, 2021

Alan Fryer, Chair  
Zoning Board of Appeals  
Dover Town House  
P.O. Box 250  
Dover, MA 02030

**Re:** Tetra Tech Peer Review Letter 1  
**Red Robin Pastures**  
Dover, Massachusetts

Dear Mr. Chairman:

Tetra Tech (TT) has reviewed submittal materials for the above-referenced Project.

The following documents formed the basis of our review.

- Site Plans Sheet C1 – C7 for “Red Robin Pastures” dated December 18, 2020 prepared by Signature Designs Architecture (SDA)
- Landscape Plan Sheet L1, prepared by SDA December 14, 2020
- Lighting Plan Sheet L2, prepared by SDA December 14, 2020
- Transportation Impact Assessment for “Proposed Multifamily Residential Development, 63 County Street, Dover, Massachusetts prepared by Vanasse and Associates, Inc. dated December 2020.
- Storm Water Report for “Red Robin Pastures” dated April 5, 2021 prepared by Ronald Tiberi, P.E.
- Memorandum dated April 21, 2021 from the Dover Conservation Commission regarding “Wetlands and Conservation Concerns Related to Red Robin 40B”.
- Memorandum dated February 19, 2021 from Red Robin Pastures, LLC regarding “Response to Original Town Comments to Site Approval Application”.

### Summary of Findings

The plans and supporting materials were understandable and provided for a good basic understanding of major project components. The Project appears to be generally well-suited for its location given its direct frontage on Route 109 and similar uses nearby. However, the civil-related submittal materials included fundamental design issues and lacked detail typically provided and required for our review. At a minimum, we expect the Applicant to provide enough information to determine the Project, as shown, is constructible in compliance with applicable regulations and standards so the ZBA can proceed based on the expectation what is shown is achievable. What has been provided does not meet that minimum requirement.

**Plan Content and Organization** – The civil plans were difficult to understand, lacked content and the content provided was difficult to interpret. We request future submittals be more thoughtfully developed and organized to support review by the Board and the general public. We would be happy to discuss expectations with the applicant and provide examples if needed. At a minimum, we request all plans include a scale bar and not rely so heavily on colored line type so that reproduction for public review can be done in black and white format. If colored line type is required, its use should be clearly defined in a legend and consistently applied throughout the submittal. In all cases linework on the plans should match that noted in the legend.

**Stormwater Design and Documentation** – We have significant concerns regarding the viability and performance of the proposed stormwater management system. The proposed design shows a large subsurface stormwater infiltration system constructed in fill behind a proposed wall (16’ at its tallest point and

within 3 feet of the property line), immediately downgradient of a large subsurface wastewater disposal field and in an area without required supporting soil and groundwater information. In addition, modeling provided in support of the design includes several issues that when addressed will likely require the system to occupy an even larger footprint. As such, our current opinion is the stormwater system will not perform as required by Massachusetts Stormwater Handbook and substantial modification of the design and supporting documentation is required.

**Emergency Access** – The plans appear to provide reasonable access for emergency vehicles along at least two sides of the proposed building but also seem to suggest pull-outs will be provided directly off Route 109 that will required emergency vehicles to back out into the roadway. We request the applicant provide a simple figure showing how the Dover Fire Department, using its largest vehicle, will enter the site from Route 109 and travel through the site without interruption so that it isn't required to perform an awkward turnaround to access and leave the site. This information is needed to demonstrate that the proposed building and site can be safely and effectively served by Dover first responders without major modification to building design or site layout. We recommend the applicant (1) coordinate with the Dover Fire Department to identify the appropriate vehicle to use in the analysis and to determine minimum access requirements of the Department, (2) modify the site plan to accommodate identified vehicles and required access, and (3) prepare a Fire Truck Access Plan using accepted design software clearly demonstrating adequate space exists to accommodate vehicle movements without interruption. The Fire Truck Access Plan should include, at a minimum, dimensions of design vehicle, tire path and swept path of vehicle bumper.

**Wastewater Disposal** – The Project will require an on-site wastewater disposal system capable of discharging 8,250 gallons per day. The submittal includes conceptual designs of two potential systems including a "Standard Title V System" and a "Presby Sanitary System". The Presby system is a proprietary system approved for general use by MassDEP as an alternative/innovative technology. The two systems are very different and given the potential interaction with the proposed stormwater management system we request the applicant base their design on a standard Title 5 system for the purposes of demonstrating project viability. In order to be considered viable, the system must demonstrate compliance with all applicable provisions of 310 CMR 15.0. At present the design does not show a reserve area, is not designed as a pressure dose system (required for systems larger than 2,000 gpd), applies a Class I effluent loading rate (0.74 gpd/sf) but identifies underlying soils as Class II which have a significantly lower loading rate. When these issues are addressed system footprint will likely expand beyond that which can be accommodated within the current plan.

**Water Supply** – The submittal includes a will serve letter from the Colonial Water Company. The ability to serve the project from a public water supply is a significant benefit and avoids risks associated with serving such a concentrated population from a private well. Based on our review of available supplies it appears the Colonial Water Company has adequate supplies to meet the proposed demands but may need to modify its current withdrawal permits to accommodate the change in its service population. It is important to note that current withdrawal limits are generally imposed by DEP based on population and an expected demand of 65 gpd/person. Although the Colonial Water Company is operating at or above allowed withdrawal limits that does not necessarily indicate a problem producing water. Adding rate payers to a small water system is a benefit as it provides additional revenue for system operations and safety improvements and distributes that burden over a larger service base. Our only significant concern related to water supply is that the Project appears to propose extension of a dead-end main which can present reliability and service challenges. We request the applicant provide information as to the length of the dead-end main and the users served as well as provide recent fire flow test data from a hydrant test near the Project.

Until the above referenced issues are addressed it is difficult to reach any substantive conclusions regarding the viability of the project from a civil engineering standpoint. That being said, we offer the following comments in the hope of clarifying expectations and providing constructive input.

## Plan Comments

### Existing Conditions Plan

The Existing Conditions Plan is very rough and lacks important information and professional endorsement. Given the nature of the Project and the extent to which it requests relief from local regulations and standards a clear understanding of existing conditions on the Project Site and the adjacent public way as well as the relative location of key features on abutting properties will be critical. We request of the Existing Conditions Plan be improved as noted below.

1. We recommend engineering plans NOT be submitted in color to avoid confusion when/if plans are copied.
2. The Existing Conditions Plan is not endorsed by a licensed land surveyor and does not include labeled property line bearings. Given the proposed project density and extent of work it is critical that the boundary shown is accurately defined by a licensed surveyor and confirmed boundary shown on the plans. Please update the plan to include at a minimum, surveyor reconciled bearing and distances for all property lines, vertical datum reference, scale bar, and endorsement by a Massachusetts licensed surveyor as to the source and reliability of information shown.
3. Plans show two lots (A and B) but no corresponding interior lot lines. If the subject parcel is comprised of multiple lots interior lot boundaries should be shown on the plans.
4. Coverage should be expanded to include at a minimum the approximate location of structures on abutting properties (or any others within 100 feet of the subject parcel), extension of contour coverage at least 10 feet onto abutting property (inferred from MassGIS LIDAR information if necessary), existing tree line and location of specimen trees (or trees greater than 24" in diameter), all utility and roadway infrastructure and topographical information for the complete width of the public right of way including descriptions. In particular, random valves and features should be removed or otherwise clearly labeled and all linework should correspond to the legend provided. All information provide should be assigned to and endorsed by qualified professional.
5. No information is provided regarding proposed demolition or anticipated methods for pre-construction erosion and sedimentation control. We recommend the applicant include this information on the existing conditions plan to prove that required perimeter controls and temporary basins fit within the available property and proposed construction footprint.
6. The plans show an extensive program of subsurface investigation which is very helpful, but results are not provided on the plans and several test pits share the same Test Pit number. We request the Applicant include test pit logs in the plans and that logs include the performance date as well as the name and qualifications of the person reporting the results. Care should be taken to ensure all elevations reference the same vertical datum and that the datum be referenceable (not assumed for Project).

### Site Layout and Utilities Plan

The Site Layout and Utilities Plan provides for a basic understanding of major project components. The Project appears to be generally well-suited for its location off Route 109 and near other similarly dense residential development. However, the plan provides only basic information and lacks design detail typically provided for review. Typically, utilities are shown on a separate plan and include all information needed to confirm infrastructure installed below grade is coordinated and constructible. We request future submittals

include a specific Layout and Materials Plan showing proposed surface finishes and demonstrating that space allocated to those finishes is sufficient to accommodate the intended objective. At a minimum, we expect the Layout Plan will provide enough information to show how the site will be used and accessed by the residents and that surface improvements shown are coordinated with the construction and maintenance needs of underground infrastructure.

7. It would be helpful to have parking space dimensions and totals provided on the plan along with a comparison to the number of spaces required for the proposed use.
8. Please label proposed setbacks and provide a summary comparing proposed setbacks to those that are required under current zoning.
9. The plan shows a proposed fire system storage tank. Please provide documentation as to its intended use and operation parameters.
10. The proposed access drive layout appears to provide adequate accommodation for fire trucks to navigate through the site but should be confirmed by providing a Fire Truck Access figure showing the proposed route and confirming no obstructions are placed in the anticipated path.
11. The Plans suggest that responding fire apparatus are expected to stage at two potential locations along the front of the building that will require the apparatus to back out onto Route 109. There appears to be enough space for the fire apparatus to enter the site via its driveway from Route 109 and navigate the parking lot, but the plan appears to show a dedicated staging area off the northeast corner of the building that seems difficult to access.
12. Plans show a landscape wall along the access drive. It appears the wall is not required for grading purposes although it is labeled as a retaining wall. Please provide clarification on the purpose and intent for this wall.
13. The plan does not show parking lot light fixtures. The lighting plan suggests light fixtures will be located at the end of stalls reducing the effective stall dimension. Please show all proposed surface features on the Layout Plan.
14. We do not recommend a dedicated bus pull out as shown. It is our understanding that bus companies prefer to load from the travel lane directly to minimize the risk of bypassing vehicles. We also consider the bus turnout unnecessary given traffic is required to stop in both directions.

#### Standard Title V System Plan and Detail Sheet

The septic system design provided does not appear to meet basic standards. Correction will likely result in a much larger system footprint potentially impacting the layout of the proposed stormwater detention system.

15. No Reserve Area is shown on the plans. New septic system designs must include "a reserve area sufficient to replace the primary absorption system" and there does not appear to be adequate space for a reserve area on site. Please provide a design meeting standards.
16. The system shown is not a pressure dose system as required for systems over 2,000 gallons per day. Please provide a design meeting standards.
17. The Effluent Loading Rate noted (0.74 gpd/sf) is the incorrect loading rate for Class II soils with a percolation rate below 5 min/in. The Effluent Loading Rate for pressure dose systems in Class II soils is 0.63 gpd/sf. Please provide a design meeting standards.

18. Please provide a preliminary design for the proposed system only rather than multiple options.

#### Presby Sanitary System Plan

This plan appears to present an alternate subsurface soil absorption system. The Presby system is an approved Title 5 innovative/alternative technology and can be used provided all aspects of its DEP approval are met. Although an approved technology, it has far less performance history and as such less demonstrable reliability than traditional systems designed per the requirements of 310 CMR 15.00. In addition, the Presby system includes much more maintenance and proprietary components. We recommend the Board request the applicant to provide a traditional system meeting all requirements of 310 CMR 15.00 instead of proposing an innovative/alternative technology. If the Presby system is to be used comments 13 and 15 must be addressed.

#### Drainage and Grading Plan

The Drainage and Grading Plan is difficult to read and understand but it does contain most of the information needed to understand intended management strategy. Given the number of technical issues that need to be addressed between the septic system and the stormwater design, we question if the adequate area exists on site to meet applicable standards and design requirements.

19. Please use consistent and clear labeling and take care to make sure line types match those noted in the legend and that all acronyms and abbreviations are defined.
20. The entire parking lot drains to a single catch basin/water quality unit. This makes the system susceptible to flooding in the event the structure is compromised and can lead to system bypasses if the structure is blocked.
21. The grading plan suggests underground infiltration systems will be constructed in areas of fill supported by retaining walls. The design will need to address how proposed retaining walls will manage hydrostatic loads from infiltrating stormwater without allowing breakout or excessive loading of the wall.
22. The applicant's response to town comments indicates a site-specific wall design has been provided. We were unable to find the design. Please provide a copy for review and confirm that the wall will have no weep holes or similar controls that will allow infiltration bypass.
23. A trench drain and drywell are proposed at the entry to the site but no calculations or test pit information has been provided documenting its performance and no pretreatment is shown prior to infiltration. Please address in subsequent designs.
24. Stormwater infiltration systems must be at least 50 feet from the wastewater subsurface disposal system and ideally the reserve area as well so that the infiltration system does not need to be relocated if the reserve area is to be used.
25. The proposed method of underground storage seems poorly suited to installations in fill. We have experience with similar systems repeatedly failing during backfilling due to lateral loading. We recommend the Board ask the applicant to consider more proven storage solutions.
26. The level spreader threshold elevation is 10 feet below the infiltration pond outlet. This suggests water will drop 10 feet into the stilling basin below with what appears to be less than 10 feet between the outlet and the discharge. Please provide the basis for the designs shown addressing how the energy of the falling water will be dissipated before encountering the spillway.

27. Please specify the "Stormwater Treatment Unit" proposed for this application and be sure model can treat volume anticipated.

#### Landscape Plan

The Landscape Plan appeared to be well thought and appropriate to the application and suggests a robust assortment and density of site landscaping. Tree sizes are specified at 3-inch caliper which is also appropriate.

28. Plans should show at least 10 feet of abutting property to ensure that as plantings installed along the project boundary grow, they will not impact abutting property.
29. Please coordinate proposed planting with underground infrastructure. In particular, it appears trees are proposed above the fire water storage tank. Landscape will also need to change as the design of subsurface disposal systems changes.
30. Please show the location and design of the proposed facility sign.
31. Please describe landscape treatment for parking aisle islands, if any.
32. Site distance triangles should be added to the landscape plan to ensure proposed plantings will not interfere with required site lines for traffic entering onto Route 109.
33. Please provide a detail of the "reinforced grass".

#### Lighting Plan

34. Parking lot light fixtures are proposed at the end of a parking stall. Please coordinate placement so that the fixtures are adequately protected from damage and placement does not reduce effective parking stall dimension.
35. The Lighting Plan suggests no lighting will be provided at the main entrance, along the driveway (except for building wall packs), in the landscaped area between the buildings or for the Dog Park or Community Garden. Please confirm that all proposed exterior lighting is shown on the plan or otherwise describe what is excluded from the analysis.

#### Storm Water Report

It is our understanding that the Stormwater Report has been submitted for initial informational purposes and should be considered draft despite its inclusion of a stamped endorsement on the cover. We appreciate having the information but expect a more accurate and thorough report will be submitted later since the draft version contains multiple typographical and grammatical errors as well as substantive errors in design that must be addressed to allow for a more thorough review. What has been submitted does not demonstrate compliance with applicable standards. Some of our concerns are noted below for the purposes of defining expectations on future submittals.

36. Please address typographical, grammatical and unit tracking errors so the documents can be more easily reviewed and understood.
37. The report references use of an 8.27 in/hour infiltration rate however none of the test pits provided were conducted in the infiltration area. Based on our review of the available information we do not believe an 8.27 inches per hour exfiltration rate is supportable and application of more reasonable rates will result in



a larger storage and infiltration volume being needed. Values and conclusions related to pre- and post-development discharge rates should not be considered accurate.

38. Discharge from a point source should not be considered the same as sheet flow over a larger area. Runoff to the rear of the site is predominantly by sheet flow across the complete length of project boundary whereas under proposed conditions the discharge is concentrated over a much smaller area. Documentation should address this change and substantiate how off locus property is not impacted by the proposed changes in discharge.
39. When performing hydrocad analysis, modeling should follow the specific guidance for modeling infiltration included in the Stormwater Handbook. In particular, infiltration should only be calculated over system bottom area and use static infiltration rates. It appears the analysis model uses “wetted area” and an infiltration rate that varies with water depth. Require changes are likely to increase system size.
40. Report should demonstrate clearly how required pre-treatment of pavement runoff prior to infiltration is provided.
41. The required water quality volume was not calculated properly. Please address and describe how the required volume is provided.
42. The site is not a redevelopment site and LID measures are not accurately referenced. Most notably the project will not “minimize disturbance to existing trees and shrubs” as the site will be nearly completely cleared of vegetative cover.
43. Please provide a plan demonstrating how construction period erosion and sedimentation controls will be installed and maintained.
44. Checklist noting proposed LID measures is inaccurate. The project (1) can't possibly be considered to minimize disturbance of trees and shrubs since 100% of the will be disturbed and (2)) does not reduce impervious coverage. Please review and address in future submittals.

### **Traffic Report**

The Traffic Report was professionally prepared, well organized and addressed traffic related project impacts in a manner consistent with applicable guidance and expectations. We concur with the report's fundamental conclusion that the project will result in a negligible impact on nearby intersection function and that the Project driveway is at a location providing adequate site distance in each direction. We offer the following comments and recommendations

45. Figure 5 – Trip Distribution appears shows “222” passing the site entrance heading east which we believe is a typographical error and can be ignored. The Figure is understandable as shown and edits are not required.
46. The Traffic Report includes an offer to prepare a Traffic Signal Warrants Analysis for the Route 109/Walpole Street intersection. We recommend the ZBA accept the offer and ask that the applicant perform the analysis and provide a summary report. The report will provide additional information in support of its eventual decision and can be valuable information available for general use by the Town
47. We request that sight distance triangles be shown on at least the Project Site Layout Plan along with a note specifying that it must be maintained as necessary to ensure minimum required sight distances are met.

48. We recommend the ZBA include a condition requiring implementation of the Transportation Demand Management (TDM) measures listed in the Traffic Report in any Comprehensive Permit approval.

#### Conservation Commission Comments

As part of our review, a Tetra Tech wetland scientist conducted a site visit to review the location of the wetland line noted on the plans and to perform a reconnaissance of the potential vernal pool located to the rear of the property. Neither of these actions are considered delineations as that responsibility should remain with the applicant and should be documented through processes included in the Massachusetts Wetland Regulations 310 CMR 10.00. Based on our field visit, the wetland line noted on the plan appears to be accurate. The wetland is fairly well-defined by topography and is not likely to vary significantly from that shown on the plans. Its actual boundary must be approved by the Dover Conservation Commission per Massachusetts Wetland Regulations. Our scientist also inspected the area identified as a “potential vernal pool” and determined it would meet MassWildlife's Natural Heritage & Endangered Species Program (NHESP) vernal pool certification requirements.

#### Construction Management Plan

49. The documentation submitted does not include any information on construction staging or temporary controls to manage runoff during construction. We recommend the ZBA request the Applicant to provide a Construction Management Plan clearly describing how construction on such a limited site will be accomplished without risk to abutters or the use of the Route 109 right of way. At a minimum, the CMP should show the proposed building footprint and limit of excavation, construction trailers, contractor parking, construction dumpsters, emergency access, material/soil stockpile areas, delivery/turnaround area, crane staging area (if applicable) and construction period erosion and sedimentation controls meeting requirements of the USEPA NPDES Construction General Permit.

These comments are offered as guides for use during the Town's review and additional comments are likely to be generated as additional or revised documentation is submitted. If you have any questions or comments, please feel free to contact me at (508) 786-2230.

Very truly yours,



Sean P. Reardon, P.E.  
Vice President

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