

2220.00

March 27, 2018

David Sharples, Town Planner
Town Planning Office, Town of Exeter
10 Front Street
Exeter, NH 03833

Re: *Exeter Rose Farm Subdivision*
Design Review Engineering Services
Exeter, New Hampshire

Site Information:

Review No. 2

Tax Map/Lot#	Map #54, Lots 5-7 and Map# 63, Lot 205
Lot Area:	49.95 Acres
Proposed Use:	Residential Subdivision
Water:	Town
Sewer:	Town
Zoning District:	R-1, R-2, and R-4
Applicant:	Exeter Rose Farm, LLC, 953 Islington Street #23D Portsmouth, NH 03801

Application Materials Received:

- Subdivision Plan for the proposed open space development Exeter Rose Farm Subdivision last revised February 20, 2018, prepared by MSC a Division of TFMoran, Inc.
- Drainage Analysis last revised October 31, 2017, prepared by MSC a Division of TFMoran, Inc.
- Review Response Letter dated February 20, 2018, prepared by MSC a Division of TFMoran, Inc.

Dear Mr. Sharples:

Based on our review of the above information, we offer the following comments in accordance with the Town of Exeter Regulations and standard engineering practice:

General Comments

- 1. Asset Ownership:** No exception taken.
- 2. Easement Boundaries:** No exception taken.
- 3. Utility Conflicts:** Utility conflicts and crossings need to be addressed throughout the site plan. The following examples are noted:

- All utilities (proposed and existing) should be shown together on the Utility Plan Sheets (i.e. C-36 thru C-37) and the Offsite Utility Connection Sheets (C-11A thru C-11) to facilitate review of possible utility conflicts.
- The Applicant should coordinate with the Town's record drawings for the offsite utility improvements on Wadleigh, Salem, Summer, and Park Street to clarify actual utility locations.

C-00 Cover Sheet (Sheet 1 of 48)

- 4. Waivers and Permits:** No exception taken.
- 5. Locus:** Offsite improvement locations should be identified on the Locus Map.

C-04 Overall Open Space Subdivision Plan (Sheet 5 of 48)

- 6. Oak Street Extension Access:** No exception taken.
- 7. Oak Street Extension Repaving:** No exception taken.

C-06 Open Space Subdivision Plan (Sheet 7 of 48)

- 8. Norris Brook Way:** No further comment.
- 9. Lot 36:** No exception taken.

C-11 Offsite Utilities Connection Plan (Sheet 12 of 48)

- 10. Proposed Sewer:** No exception taken.
- 11. Proposed Water Pipe on Wadleigh Street:** A note should be added stating that insulation will be required at this location.
- 12. Additional Information Needed:** No exception taken.

C-18 Miscellaneous Notes (Sheet 19 of 48)

- 13. AOT Notes:** The species identified in RSA 430:53 should be provided on this site plan.

C-19 Grading and Erosion Control Plan (Sheet 20 of 48)

- 14. Lots 1, 2, 3, and 4 Grading:** The Applicant states that the limits of grading for Lots 1-4 are shown on Sheet C-10A, however they are not. The proposed grading for driveway construction on Lots 1-4 should be shown on C-19.
- 15. Existing Catch Basin:** No exception taken.
- 16. Construction Entrance:** No exception taken.

C-20 Grading and Erosion Control Plan (Sheet 21 of 48)

- 17. Proposed Sewer Pump Station Entrance:** The summary of permits and approvals on the Cover Sheet should include NHDES design review for the wastewater pumping station and collection system.

C-21 Grading and Erosion Control Plan (Sheet 22 of 48)

- 18. Slope Benching:** No further comment.
- 19. Road Stationing:** No exception taken.

C-23 Drainage Plan (Sheet 24 of 48)

20. Driveway Culverts: No further comment.

C-24 Drainage Plan (Sheet 25 of 48)

21. Road Stationing: No exception taken.

22. Existing Culvert on Oak Street Extension: The Applicant notes that a detail for the interface of the existing culvert shown on Oak Street Extension and the proposed retaining wall will be provided with future retaining wall plans.

C-25 Drainage Plan (Sheet 26 of 48)

23. Pipe Slopes: No exception taken.

24. Invert Labels: No exception taken.

25. FES 5: No exception taken.

C-26 Plan and Profile (Sheet 27 of 48)

26. Utilities: No further comment.

27. Forest Street Tie-in: No exception taken.

28. Limits of Paving: The proposed limits of paving at Forest Street should be provided in plan view.

29. Speed Limits: No exception taken.

C-29 and 31 Plan and Profile (Sheet 30 of 48)

30. Sag Vertical Curves: No exception taken.

C-32 Sewer Profiles (Sheet 33 of 48)

31. Proposed Sewers: No exception taken.

C-33 Sewer Profiles (Sheet 34 of 48)

32. Sewer Line: No exception taken.

33. SMH-09: No exception taken.

C-35 Sewer Profiles (Sheet 36 of 48)

34. Sewer Force Main: Blow off structures should be added at the high points and the intersection of Rose Farm Lane and Forest Street (as needed).

C-36 Utility Plan (Sheet 37 of 48)

35. Road Stationing: No exception taken.

36. Water Shut Off and Cleanouts: The Applicant notes that water shutoffs and cleanouts are to be added prior to acceptance of plans. This should be provided on approved plans or as a condition of approval.

37. Additional Gate Valve: No exception taken.

38. Lots 1 & 2 Service: No exception taken.

C-37 Utility Plan (Sheet 38 of 48)

- 39. SMH-09:** No exception taken.
- 40. Norris Brook Way Intersection:** No exception taken.
- 41. Shared Drive:** No exception taken.
- 42. Lot 4:** No exception taken.

C-38 Utility Plan (Sheet 39 of 48)

- 43. Additional Gate Valve:** No exception taken.

C-40 Details (Sheet 41 of 48)

- 44. Typical Roadway Sections:** No exception taken.
- 45. Roadway Cross Sections:** The sections should delineate ROW and easement limits for future maintenance of roadway drainage swales.

C-41 Details (Sheet 42 of 48)

- 46. Proposed Box Culvert:** The Applicant notes that the following information will be provided:

- Permit Conditions
- Layout and Control Points
- Retaining Wall Interface/connection
- Footing details (size and dimensions)
- Stream diversion and erosion control plan.

This information should be provided on the final approved plans.

C-42 Details (Sheet 43 of 48)

- 47. Hydrant Detail:** No exception taken.

C-43 Details (Sheet 44 of 48)

- 48. Gravel Wetland Details:** No exception taken.
- 49. Top of Wall Elevations:** No exception taken.

C-45 Details (Sheet 46 of 48)

- 50. Preliminary Wall Section:** No exception taken.
- 51. Bioretention Detail:** No exception taken.

C-46 Details (Sheet 47 of 48)

- 52. Sewer Service:** No exception taken.
- 53. Force Main Notes:** No exception taken.

C-47 Sewer Details (Sheet 48 of 48)

- 54. Non-Shrinking Mortar:** No exception taken.

Drainage Analysis

- 55. Executive Summary:** No exception taken.

56. Drainage Analysis and Site Plan Coordination: The following items in the Drainage Analysis still differ from the Site Plan drawings and coordination between the two is necessary:

- **CB-52 – Outlet Diameter**
 - Analysis = 18” Round Culvert
 - Drawings = 12” Round Culvert
- **Pond PC2 - Invert and Pipe Length**
 - Analysis = 68’ pipe with a 23.50’ invert
 - Drawings = 71’ pipe with a 23.11 invert
- **Pond PC6 – Invert elevations, pipe length and material**
 - Analysis = 74’ length of CPP at 42.5’ invert
 - Drawings = 77’ length of HDPE at 42.75’ invert

57. Pond PC5: No exception taken.

58. Appendix G: No exception taken.

59. Pre- and Post-Drainage Plans: No exception taken.

60. Post-Drainage Plan D-4: No exception taken.

New Comments (3-20-2018)

61. General Comments:

- **P.E. Stamp:** All design sheets should be stamped by a Professional Engineer licensed in the State of New Hampshire (e.g. Sheets C-11A and C-11 are stamped by a Licensed Land surveyor).
- **Labels:** Throughout the site plan, feature labels (i.e. CB Labels/Schedules, pipe schedules, etc.) block/hide other site features on the plans. These labels should be repositioned out of the way to facilitate review.

62. Offsite Utility Connections Plan (Sheet C-11A):

- **Utility Conflicts and Coordination:** See Comment 3 above.
- **Limits of Pavement Repair:** All limits of expected pavement repair for the proposed utilities should be identified.
- **ESMH #3:** List all invert elevations to the sewer schedule (e.g. new FM invert).

63. Offsite Utility Connections Plan (Sheet C-11):

- **Utility Conflicts and Coordination:** See Comment 3 above.
- **Temporary Water Service:** The Applicant shall provide Temporary Water Service while replacing the existing water main. Coordination requirements and sequence notes should be identified on Sheets C-11A and C-11.
- **R.O.W.:** The proposed water main should be installed within Town’s R.O.W. or in a secured easement deeded to the Town.
- **Subsurface Investigations:** Where the proposed water mains are to be installed outside of the existing water main trench, test pits or borings are recommended to identify subsurface conditions (i.e. ledge locations, groundwater levels, etc.).

- **Park Street:** As shown, the proposed water main is identified as being installed underneath the existing sewer main on Park Street. This approach is not recommended. A waiver from NHDES is required if this design is pursued.
- **Connection Type:** The proposed connection method to the existing water system should be identified.
- **Profile:** The existing sewer profile should be included on the Watermain Replacement Profile.

64. Drainage Plan (Sheet C-25):

- **FES 5 Pipe:** The two 12" HDPE pipes for FES 5 are stated to have a slope of 0.50 ft/ft. However, based on the inverts shown and pipe length the slope should be 0.04 ft/ft. Please correct.
- **Driveways:** Expected driveway locations should be shown on the Drainage Plan where swale culverts will be necessary. A detail stating the minimum coverage needed over these culverts should also be provided.
- **Drain Alignment:** The drain pipe between CB-3 and CB-3A is shown outside of the roadway and should be realigned away from the curb and within the limits of the road.
- **CB-3 Labels:** The labels for inlet pipes at CB-3 do not correspond with respective invert elevations and should be corrected.
- **PUGU Easement:** Identify the PUGU easement lines.

65. Sewer Profiles (Sheet C-35):

- **Other Utility Profiles:** The profiles for the other utilities (e.g. water, gas, PUGU, etc.) should be shown on the profile.
- **Stationing:** The stationing shown on the sewer profile appears to be incorrect. For example, SMH 24 is stated as being at approximately STA 601+00 on Sheet C-37 while the Profile shows SMH 24 at STA 607+00. Coordination between the two sheets is needed.
- **PUGU and PG:** The PUGU and PG utilities to the proposed sewer pumping stations should be shown on the profile.

66. Utility Plan (Sheet C-37):

- **Utility Conflict:** The services for the sewer pumping station (PG and PUGU) appear to conflict at STA 418+00.
- **Additional SMH:** An extra SMH (SMH-09) is shown on the plans and should be removed.
- **Proposed Force Main:** The proposed force main is shown connecting to the proposed wet well and should be shown at the pumping station.

67. Utility Plan (Sheet C-38):

- **Cul-de-sac Utilities:** The proposed utilities are shown running through the cul-de-sac where large trees are proposed. This is not recommended due to potential utility maintenance issues. Realignment of the utilities around the cul-de-sac, away from large tree roots and within the roadway would provide easier access for the Town. Alternatively, the current utility layout may be acceptable if smaller plantings with shallow root systems were proposed instead of the larger trees.

68. Rose Farm Cross Sections (Sheet C-39):

- **Utilities:** All proposed and existing utilities should be shown on the Cross Section Sheets to facilitate review.

69. Details (Sheet C-55):

- **11' x 5'9" Split Box Culvert:** Clarification is needed as to how the Stream Channel material will stay in place during periods of high flows. Sedimentation baffles may be needed or anticipated flow velocities should be identified to verify suitability with the proposed invert material.

70. Details (Sheet C-60):

- **Pumping Station Information:** A basis of design should be provided for the pumping station review (i.e. peak hour flows, wet well sizing calcs, etc.).
- **Bollards:** The proposed bollards should be relocated from the end of the driveway and placed in front of the generator pad to facilitate snow removal and protection from plowing.
- **Generator Pad:** The 4'x4' generator pad does not match the dimensions required for the proposed generator on Sheet C-62. Coordination is needed.

71. Details (Sheet C-61):

- **Drop Inlet:** A drop inlet may be needed for the proposed wet well in order to prevent air vortexing within the pump system and/or to facilitate wet well monitoring. The Applicant should provide additional details to verify the basis for the drop inlet structure.
- **Floor Drain:** A "P" trap should be installed on the pumping station's floor drain pipe to prevent odorous/dangerous gases from entering the pumping station.

Please contact us if you have any questions.

Very truly yours,

UNDERWOOD ENGINEERS, INC.

Benjamin T. Dreyer, P.E.
Project Manager

Erik B. Nichols, E.I.T
Project Engineer

BTD/EBN

Encl.