

May 26, 2020

Pembroke Planning Board
Town Hall
100 Center Street
Pembroke, MA 02359

Attn: Matthew Heins, Planning Board Assistant

**RE: Definitive Subdivision Plan Review
Old Cart Path Lane Extension
70 Old Cart Path Lane - Assessors Map D8, Lot 5b**

Dear Matthew and Board Members:

As requested, Merrill Engineers and Land Surveyors has performed a site inspection and reviewed the most recent submission for consistency with the Zoning Bylaws and the Planning Board Rules and Regulations Governing the Subdivision of Land for the above-referenced project. The information submitted to this office and reviewed is as follows:

TITLE: Old Cart Path Lane Extension

APPLICANT: Stephen Saia

OWNER: Diane Saunders & Stephen V. Saia

PLANS: Definitive Subdivision Plans, Sheets 1-11
Old Cart Path Lane Extension
Assessors Map D8, Lot 5b
Pembroke, Massachusetts
Engineer: Grady Consulting, L.L.C.
Dated: January 7, 2020
Revised: May 19, 2020

DRAINAGE
CALCULATIONS: Stormwater Report
Engineer: Grady Consulting, L.L.C.
Dated: January 7, 2020
Revised: February 9, 2020

The site is located at the westerly end of the existing Old Cart Path Lane which extends off of Orchard Drive which is located on the southerly side of High Street approximately 500 feet southeast of Mountain Avenue. The parcel is currently occupied by an existing single family dwelling and small shed. A stream and associated Riverfront Area and Bordering Vegetated Wetlands are located along the westerly side of the property. The topography of the property slopes from elevation 76 along the easterly side of the property down to elevation 56 along the westerly side of the property adjacent to the wetlands.

With the exception of the central portion of the property where the existing dwelling and other structures are located, the property is densely vegetated with mature trees. The property is located in the Residence A Zoning District and consists of a total of approximately 267,900 square feet or 6.2 acres.

The design proposes the creation of four (4) residential building lots including a lot on which the existing dwelling is located. The lots range in size from 42,856 square feet to 102,700 square feet. Access is proposed by the construction of an approximately 640 feet of roadway terminating in a cul-de-sac. Grades on the proposed roadway range from 1.4% to 1.5%. Stormwater for this project is directed by a series of catch basins and drain manholes to stormceptor water quality units and into two (2) stormwater infiltration basins.

The following report summarizes our review with respect to the Zoning Bylaws of the Town of Pembroke and the Pembroke Rules and Regulations Governing the Subdivision of Land. The format of our report shall follow the format presented in both the Zoning Bylaws and the Rules and Regulations.

Our original comments are presented below in normal text with our updated comments, if any, presented in ***bold and italic text***.

ZONING BY-LAWS

Section IV. Use and Dimensional Regulations

1. Residence District A

- D.2. "Front Yards: In this district where the way is 40 feet or more in width, no building or structures shall be erected or placed within 40' of the way line except in those instances where a setback from the way line of 40' would not be in conformance with the adjacent dwellings, in which case a lesser setback maybe permitted but not a little less than 25'.

It appears that a portion of a rear deck may be located in the front yard setback. This should be addressed by the applicant/engineer.

The plans have been revised to specify "Remove Section of Existing Deck"; however, no dimensions are provided. We recommend that either the dimensions of the deck to be removed be specified or a setback dimension from the deck to the Right-of-Way be specified.

Comment satisfactorily addressed.

RULES AND REGULATIONS GOVERNING THE SUBDIVISION OF LAND

III.B.3 CONTENTS

- a. The location of the benchmark and datum for the project should be specified on the cover sheet as required. A legend showing both existing and proposed features as well as a list of abbreviations should be presented on the plans.

The location of the benchmark and datum for the project has been added to the cover sheet as required and a legend is now presented on sheet 3 of the plans. Comment satisfactorily addressed.

- g. The location of the existing septic systems located on abutting property should be presented on the plans. The location and size of the existing watermain on Old Cart Path Lane is shown on the plan and profile sheet (sheet 4). We

recommend that the existing watermain also be shown on the Existing Conditions Plan (sheet 3) and the Grading Plan (sheet 5). The material of the watermain should also be provided. Based on Dig-safe pavement markings, it appears that gas may be present on Old Cart Path Lane adjacent to the property. If so it should be shown on the plans. The drainage system at the intersection of Old Cart Path Lane and Orchard Drive should also be presented on the plan.

The required additional information has been added to the plan. Comment satisfactorily addressed.

- i. The Planning Board signature block presented on all of the plan sheets should be updated to reflect the current year.

Comment satisfactorily addressed.

- l. A proposed 6 inch watermain is shown on the westerly side of the proposed roadway terminating at the cul-de-sac. We recommend that the pipe material be specified and that the design be reviewed and approved by the Department of Public Works.

The pipe material is now specified on the plan. Comment satisfactorily addressed. We recommended that documentation be provided to the Planning Board that the design is acceptable to the Department of Public Works.

Grady Consulting LLC (GC) has provided a copy of their response letter to comments from the Department of Public Works peer review engineer. We recommend that documentation be provided to the Planning Board that the design is acceptable to the Department of Public Works.

- p. We recommend that the roadway profile presented on sheet 4 of the plan be revised to show the proposed 18 inch RCP at STA 2+35± which carry flow from stormwater basin #1 to the outlet. We also recommend that the slope of the pipes and flow arrows be presented on the profile and plan view.

The roadway profile presented on sheet 4 of the plan has been revised to show the proposed 18 inch RCP at STA 2+35± and the slope of the pipes and flow arrows have been added to the plans. Comment satisfactorily addressed.

- q. Construction details have been presented on sheets 8-11 as required by the Rules and Regulations. We offer the following comments:

- A Typical Roadway Section for a Minor Street Layout is presented on sheet 8 of the plans as required. We recommend that a Typical Roadway Section for the Cul-de-Sac also be provided.

A Typical Roadway Section for the Cul-de-Sac has been added to sheet 8 of the plans. Comment satisfactorily addressed.

- We recommend that a hydrant detail be added to the plan.

A hydrant detail has been added to sheet 11 of the plan. Comment satisfactorily addressed.

- We recommend that the detail of the overflow outlet control structure presented on sheet 10 of the plans be revised to specify that the 24 inch cover be cast into the structure and not placed on top.

The detail of the overflow outlet control structure presented on sheet 10 of the plans has been revised to specify that the 24 inch cover shall be cast into the structure and not placed on top. Comment satisfactorily addressed.

- A detail of the Rip-Rap Slope is presented on sheet 8 of the plans. We recommend that this detail be revised to show the placement of a guard rail at the uphill side of the slope between the sidewalk and the slope. The applicable dimensions as shown on the Typical Roadway Section should be shown as well. In addition, a detail of the guard rail itself should also be provided.

The detail of the Rip-Rap Slope has been revised as recommended and is now shown on sheet 11 of the plans. Comment satisfactorily addressed.

s. The following information should be specified on the plan sheets:

- Curve radius of all curbing and along the roadway.

The curve radius of all curbing has been added to the plan. Comment satisfactorily addressed.

- The type and limits of the curbing should be clearly specified.

As recommended, the type and limits of the curbing have been specified. Comment satisfactorily addressed.

- We recommend that the proposed cape cod berm be extended to the existing berm and curbing at the intersection at Orchard Drive.

The design engineer has stated that the proposed cape cod berm shall extend to the existing berm at the intersection of Orchard Drive; however, this is not clear based on the information currently shown on the design plan. We recommend that this be clearly shown on both sheets 4 and 5 of the plan.

The plan has been revised to clearly show the limits of the proposed cape cod berm. Comment satisfactorily addressed.

- The roadway centerline geometry should be provided on the plan and profile sheet.

The plans has been revised to show the roadway centerline geometry on the plan and profile sheet. Comment satisfactorily addressed.

- t. The placement of the erosion control is presented on sheet 5 of the plans and a Construction Sequence is presented on sheet 9 of the plans. The location of the stockpile locations, equipment storage locations, and temporary sedimentation basin locations should also be shown. Calculations for the sizing of the temporary sedimentation basin should also be provided. Due to the proposed disturbance, an EPA NPDES Construction General Permit and associated Stormwater Pollution Prevention Plan (SWPPP) will be required prior to Construction.

The location of the stockpile areas, equipment storage areas and temporary sedimentation basins has been shown on the plan as requested. Calculations for sizing of these temporary sedimentation basins have also been provided. We recommend that the location of the temporary sedimentation basins be reviewed and revised since it is not clear how the runoff from the disturbed areas on the westerly side of the proposed roadway will be directed into temporary sedimentation basins.

The location of the temporary sedimentation basins has been revised. Comment satisfactorily addressed.

- z. A Landscaping Sheet (sheet 7) is provided as required. This sheet does show the street trees along the roadway as necessary with additional plantings at the proposed cul-de-sac.

The design engineer has stated that a waiver is now being requested for the requirement of street trees.

- aa. A Lot Development sheet (sheet 6) showing the house size and placement, driveway location and grading has been provided. Calculations demonstrating compliance with the Lot Characterization Number has also been presented on this sheet. We recommend that the proposed grading shown on the Lot Development plan for Lot 3 and Lot 4 be revised to clearly show that the stormwater runoff from these lots will be directed away from abutting properties.

As recommend, the proposed grading at the rear for Lot 3 and Lot 4 has been revised to clearly show that the stormwater runoff from these lots will be directed away from abutting properties. Comment satisfactorily addressed.

V.B DRAINAGE

The Stormwater Management System as designed, proposes to collect the stormwater runoff from the roadway and sidewalk as well as a portion of the overland flow and direct it to Stormceptor water quality units and two (2) stormwater infiltration basins located within drainage easements on the Lot 1 and Lot 3. A Stormwater Report for this subdivision indicates that the overall stormwater management system will attenuate the

post development stormwater flows to a level not exceeding the existing conditions. We offer the following comments regarding the drainage design and analysis:

- We disagree with the easterly limit of the tributary areas for both the pre-development and post-development condition. It is our opinion that the tributary areas extend further to the east for both #37 Orchard Drive and #31 Orchard Drive.

The easterly limit of the tributary areas for both the pre-development and post-development condition has been revised to extend further towards Orchard Drive and the stormwater calculations have been revised and are acceptable. Comment satisfactorily addressed.

- The Total Suspended Solids (TSS) Removal Calculation Worksheet lists; Deep Sump and Hooded Catch Basins, Stormceptor water quality units and an Infiltration Basin as the treatment train for this project. Since the 80% removal rate includes the pre-treatment, we recommend that the calculations be revised to remove the credit for the deep sump and hooded catch basin.

The Total Suspended Solids (TSS) Removal Calculation Worksheet has been revised as recommended. Comment satisfactorily addressed.

- We recommend that the elevation of the berm at Infiltration Basin #2 be raised slightly in order to provide 1 foot freeboard above the 100 year storm event.

The elevation of the berm at Infiltration Basin #2 has been revised in to provide 1 foot freeboard above the 100 year storm event. Comment satisfactorily addressed.

- In the Operation and Maintenance Plan it appears that the “Post Construction” section is incorrectly labelled as “During Construction”. We recommend that this be reviewed and revised as necessary.

The Operation and Maintenance Plan has been revised as recommended. Comment satisfactorily addressed.

- Since Stormceptor Water Quality Units are proposed for this project, their use should be reviewed and approved by the Pembroke Department of Public Works.

The design engineer has stated that the use of the stormceptor units shall be reviewed by the Department of Public Works. We recommend that documentation be provided to the Planning Board that the use of these proprietary units is acceptable to the Department of Public Works.

Grady Consulting LLC (GC) has submitted the plan to the DPW for review and has provided a copy of their response letter to comments from the Department of Public Works peer review engineer. We recommend that documentation be provided to the Planning Board that the use of stormceptor units is acceptable to the Department of Public Works.

- We recommend that the proposed flared end section for 18 inch RCP at STA 2+35± LT be moved closer to the toe of the rip rap slope.

As recommended, the proposed flared end section for 18 inch RCP at STA 2+35± LT has been moved closer to the toe of the rip rap slope. Comment satisfactorily addressed.

It is general practice to design sites to comply with Massachusetts DEP Stormwater Management Regulations. The following section describes the 10 Standards for compliance with Stormwater Management Regulations and the status of the submittal relative to each standard.

Standard 1 – Untreated Stormwater

Additional information required.

Additional satisfactory information has been provided. This Standard has been met.

Standard 2 – Post Development Peak Discharge Rates

Additional information required.

Additional satisfactory information has been provided. This Standard has been met.

Standard 3 – Recharge to Groundwater

This Standard has been satisfactorily addressed.

Standard 4 – 80% TSS Removal

Additional information required.

Additional satisfactory information has been provided. This Standard has been met.

Standard 5 – Higher Potential Pollutant Loads

The project is not considered a source of higher pollutant loads, this standard is not applicable.

Standard 6 – Protection of Critical Areas

Based on information presented on MassGIS and the Town of Pembroke GIS web page, the project site is not in a Critical Area.

Standard 7 – Redevelopment Projects

This project is not considered a redevelopment project and consequently this standard is not applicable.

Standard 8 – Erosion/Sediment Control

Additional information required. As previously stated, the placement of the erosion control is presented on sheet 5 of the plans and a Construction Sequence is presented on sheet 9 of the plans. The location of the stockpile locations, equipment storage locations, and temporary sedimentation basin locations should also be shown. Calculations for the sizing of the temporary sedimentation basin should also be provided.

Due to the proposed disturbance, an EPA NPDES Construction General Permit and associated Stormwater Pollution Prevention Plan (SWPPP) will be required prior to Construction.

The location of the stockpile areas, equipment storage areas and temporary sedimentation basins has been shown on the plan as requested. Calculations for sizing of these temporary sedimentation basins has also been provided. We recommend that the location of the temporary sedimentation basins be reviewed and revised since it is not clear how the runoff from the disturbed areas on the westerly side of the proposed roadway will be directed into temporary sedimentation basins.

Additional satisfactory information has been provided. This Standard has been met.

Standard 9 – Operation and Maintenance Plan

Additional information required.

Additional satisfactory information has been provided. This Standard has been met.

Standard 10 – Illicit Discharges

Additional information required. In order to meet this standard, an “Illicit Discharge Compliance Statement” meeting the requirements specified in the Stormwater Management Regulations should be submitted.

The design engineer has stated that an “Illicit Discharge Compliance Statement” meeting the requirements specified in the Stormwater Management Regulations will be submitted; however, as of the date of this report it has not been submitted. Additional information required.

A acceptable “Illicit Discharge Compliance Statement” has been submitted. This Standard has been met.

V.C. WATER PIPES

A proposed 6 inch watermain is shown on the westerly side of the proposed roadway terminating at the cul-de-sac. We recommend that the pipe material be specified and that the design be reviewed and approved by the Department of Public Works. Typically the Department requires that the watermain be looped.

The pipe material is now specified on the plan. Comment satisfactorily addressed. We recommended that documentation be provided to the Planning Board that the design is acceptable to the Department of Public Works.

Grady Consulting LLC (GC) has provided a copy of their response letter to comments from the Department of Public Works peer review engineer. We recommend that documentation be provided to the Planning Board that the design is acceptable to the Department of Public Works.

V.D. SIDEWALKS

Sidewalks are proposed on both side of the street for this subdivision and terminate with accessible ramps at the limit of the subject property. A sidewalk is located on the southerly side of Old Cart Path Lane approximately 150 feet away from the subject property. We recommend that the possibility of extending the proposed sidewalk to meet the existing sidewalk be considered. It should be noted that the Right of Way for the existing Old Cart Path Lane is only 40 feet.

The plan has been revised to provide only one sidewalk and the applicant is now requesting a waiver for the requirement of sidewalks on both sides of the street. As shown on the plan, the sidewalk is being proposed on the northerly side of Old Cart Path Lane. We recommend that the location of the sidewalk be revised since the existing sidewalk on Old Cart Path Lane is on the southerly side of the street. We also recommend that the proposed contours for the existing section of Old Cart Path Lane be shown to indicate the construction of the berm and sidewalk.

The location of the sidewalk has been revised to the southerly side of the street as recommended. Comment satisfactorily addressed.

V.J. STREET TREES

A Landscaping Plan has been provided. The size of trees have been specified in tabular form along with the number of each type of tree. The plan also shows the cul-de-sac island as a "Landscaped Island" but no other information on the type of plantings for the island are shown. The Planning Board should determine whether this plan as submitted is satisfactory.

The design engineer has stated that a waiver is now being requested for the requirement of street trees.

The Plans have been revised to add street trees as discussed at the May 18, 2020 Planning Board Public Hearing and presented in the Subdivision Rules and Regulations. Comment satisfactorily addressed.

V.L. STREET LIGHTS

No street lights are proposed as part of this project.

ADDITIONAL COMMENTS

1. Due to the proximity of the wetlands and other resource areas, an Order of Conditions approving the project will be required from the Pembroke Conservation Commission.

Grady Consulting LLC (GC) has stated that a Notice of Intent has been filed with the Conservation Commission.

2. The plans should be reviewed by the Pembroke Fire Department relative to access and fire protection.

Grady Consulting LLC (GC) has stated that the plans have been submitted to the Pembroke Fire Department.

The Plans have been revised to specify the orientation of the steamer connection for the fire hydrant at the cul-de-sac as discussed at the May 18, 2020 Planning Board Public Hearing. This should be reviewed and confirmed by the Pembroke Fire Department.

3. Due to the proposed disturbance an EPA NPDES Construction General Permit and associated Stormwater Pollution Prevention Plan (SWPPP) will be required prior to Construction.

Grady Consulting LLC (GC) has stated that a an EPA NPDES Construction General Permit and associated Stormwater Pollution Prevention Plan (SWPPP) will be submitted prior to Construction.

4. The design of the proposed septic systems will need to be reviewed and approved by the Pembroke Board of Health.

Grady Consulting LLC (GC) has stated that the plans have been submitted to the Board of Health for review.

We would be happy to discuss these comments with the design engineer and or the applicant at their earliest convenience. Should you have any questions or need additional information, please do not hesitate to contact this office.

Very truly yours,

MERRILL ENGINEERS AND LAND SURVEYORS



Peter G. Palmieri, P.E.
Director of Engineering

cc: Grady Consulting LLC
Pembroke Department of Public Works