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February 16, 2021

Mr. Paul Foley, Director of Planning and Economic Development
Planning & Economic Development
Ms. Whitney McClees, Conservation Agent and Sustainability Coordinator
Conservation Commission
Town of Fairhaven
40 Center Street
Fairhaven, MA 02719

Re: Residence by the Girls Creek
Definitive Subdivision Plan, 46 Sconticut Neck Road, Fairhaven, MA.

Dear Mr. Foley and Ms. McClees:

GCG Associates, Inc. has reviewed the following information for the Residence by the Girls Creek, Definitive Subdivision Plan, 46 Sconticut Neck Road in Fairhaven, MA with respect to Chapter 322 Subdivision of Land and Chapter 192 Wetlands related requirements.

GCG had reviewed this in 2019 for the conservation commission and this is the first review for the planning board. The stormwater design and plan as submitted is substantially different from the previous plans submitted. The change in the design places the applicant at the same point as our initial review in 2019.

Plan References:

"Residence by the Girls Creek", Definitive Subdivision Plan, in Fairhaven, MA prepared by NESRA Engineering, LLC dated 04/10/2019, Last revised 12/16/2020 consists of:

Sheet 1 - Cover Sheet
Sheet 2 – Existing Conditions Plan
Sheet 3 – Existing Boundary Plan
Sheet 4 – Demolition & Erosion Control Plan
Sheet 5 – Lotting Plan
Sheet 6 – Layout and Materials Plan
Sheet 7 – Grading Plan
Sheet 8 – Drainage and Utility Plan
Sheet 9 – BMP Access and Details
Sheet 10 – Infiltration Basin, Cross Section and Details
Sheet 11 – Roadway and Utility Layout and Profile Plan
Sheet 12 – Planting Plan
Sheet 13 – Construction Details 1 of 3

Sheet 14 – Construction Details 2 of 3
Sheet 15 – Construction Details 3 of 3

Layout and materials Plan with Ortho Photo, SK-2, prepared by NESRA, dated 04/10/2019.

Documents:

Definitive Subdivision letter prepared by NESRA dated 12/07/2020.

Stormwater Management Report and Wetland Permit Application, 46 Sconticut Neck Road, Fairhaven, MA Prepared by NESRA, dated September 2020.

Certificate of the Secretary of Energy and Environmental Affairs (EOEEA) on the Environmental Notification Form (ENF), prepared by EOEEA, Bureau of Water Resources dated 06/24/2020.

Massachusetts Department of Environmental Protection (MassDEP), ENF review letter dated 07/10/2020.

U.S. Army Corps of Engineers (USACE), Application for Department of Army Permit, prepared by 5 Wetlands (Kenneth Thomson), dated 10/04/2019.

EOEEA, Massachusetts Environment Policy Act (MEPA), ENF filing package, prepared by 5 Wetlands (Kenneth Thomson), dated 10/06/2019.

Soil Investigation Map, SK-1, prepared by NESRA, dated 12/15/2019.

Project Narrative for 46 Sconticut Neck Road Project.

Stormwater Operations and Maintenance Plan not dated; file dated 6-15-2020.

Based upon our review of the above information, we offer the following general comments and comments with respect to compliance with Town Bylaws: Chapters 192 – Wetlands; 194 - Stormwater Management, Illicit Discharge, Soil Erosion, Sediment Control By-Law; 198-31.1 – Zoning - Stormwater Management; Chapter 322, Subdivision of Land and Chapter 322.26 – Stormwater Management. The numerical section of the regulations is referenced at the beginning of each comment unless it is a general comment.

GENERAL PLAN AND DEVELOPMENT COMMENTS

The following are general comments with respect to the plans and development of the project.

1. This is a single-family residential definitive subdivision project on a two-family home occupied parcel, Assessors Map 28, Lot 24 consists of 28.14+/- acres (Tax record 28.13 acres). The project is required to meet the Town of Fairhaven Subdivision Regulations, Stormwater Management standards.
2. 194-4(A)(1)(b) - this development requires a Land Disturbance Permit with the Fairhaven Board of Public Works. Permit could be exempted per 194-4. A.3.

3. This project requires an US-EPA National Pollutant Discharge Elimination System (NPDES) permit and associated Stormwater Pollutant Prevention Plan (SWPPP) filing.
4. There is wetland resource area delineated on the property. The easterly portion of the parcel is within the flood zone. Estimated habitat of rare wildlife or priority habitat were shown on the MassGIS NHESP layer.
5. A portion of the on-site wetland resource area had been filled in year 2005 (estimated). Hence a restoration has been proposed through and USACE General Permit filing.

Plan Sheet 1 – Cover

1. Identify property Zoning District on plan, the parcel is in Single Residence Districts (RA). Multiple sheets were identified as (RC) district.

Plan Sheet 2 – Existing Conditions Plan

1. 322-14(C)(6) – existing Zoning District should be RA.
2. 322-14(C)(7), (12), & (20) – (7), The Plan should show all wetland resource areas, NHESP boundary and location of the FIRM flood boundary. Show base flood elevation (elevation 13) as required by 322-14(C)(20) or stated that the subject parcel is outside of the regulated zone or district. (12), show lot line and boundary lines, the existing property boundary as shown did not include the southeast portion of the parcel (approximately 22.13+/- acres, where to be proposed to donate to the Town. Since the donated parcel would transfer all rights as well as liabilities. The Town should require a suitable form of identifying the donating parcels, in a form of plan, map or legal parcel descriptions, acceptable by the Town and Conservation Commission.
3. 322-14(C)(16) – show present streets within 300' of the property boundary, showing both roadway and right-of-way widths. Sconticut Neck Road, Marilaine place and Timothy Street appear to be in the vicinity.
4. Show existing hydrant on Sconticut Neck Road across from project site.

Plan Sheet 3 – Existing Boundary Plan

1. 322-14(C)(12) – The southeast existing lot line and boundary lines are not shown. See Sheet 2 comment 2 above. Correct Zoning District to RA.

Plan Sheet 4 – Demolition and Erosion Control Plan

1. The two trees to be removed at the proposed street intersection are town trees. Applicant should follow public tree removal procedures with the Town Tree Warden.

Plan Sheet 5 – Lotting Plan

1. Correct RC Zoning District to RA.
2. 322-14(C) (6 & 11) – Mete and bound, lot closures calculations for the proposed Right-of-Ways, Easements, and Lots should be submitted to show meeting zoning requirements. Closures calculations should include the right-of-way. Lot 11 mete and

bound and property boundary not provided. Lots and right-of-way closures calculations should be certified by the project surveyor.

3. 322-14(C)(12) – Street numbers should be shown enclosed in squares, when available.
4. 322-14(C)(15) – At least two permanent concrete or granite monuments must be placed on site and shown in the plans prior to construction. Vertical Benchmarks (TBM) may be provided.
5. 332-15(E)(1) or (2) – add non-buildable lot note.
6. 322-15(G) – Street Design should comply of Appendix C. Proposed cul-de-sac transitional curve to turn around circle right-of-way radius should be 30 feet (Appendix C drawing # C-13), 25' proposed.
7. 332-26(D) – BMP Common Lot should be conveyed to the Town at the time of Street Acceptance.
8. Lot 9 (wetland restoration parcel) should not be transferred to the Town prior to the 5-year monitoring period completed and satisfied by the Conservation Commission.

Plan Sheet 6 – Layout and Materials Plan

1. 322-14(C)(9) – show subdivision monument and/or subdivision entrance sign, if any.
2. 322-14(C)(15) - install and show two permanent monuments (tie to NAD 1983 and NAVD 1988.) prior to start of construction.
3. 322-15(G) – Proposed cul-de-sac pavement does not meet the dimensions shown on Appendix C drawing # C-13. The Residential Cul-de-Sac Detail requires 24' wide pavement at the end of the center island with 20' wide pavement on two sides. The plan proposed uniform 24' wide pavement. The proposed pavement width should comply of Appendix C. Proposed cul-de-sac transitional curve to turn around circle right-of-way radius should be 30 feet (Appendix C drawing # C-13), 25' proposed. Show cul-de-sac, transitional curve, and center island sloped granite curb radius.
4. 322-16(B), Table A – show sight distance.
5. 322-17(A) – Sidewalk should be designed per Appendix C. The applicant has requested a waiver to install one side sidewalk only. The proposed street serves 8 lots and 6 of the lots have access to the proposed sidewalk. The cul-de-sac street is less than 500 feet in length with low traffic trips, approximately 80 trips per day average. The one side sidewalk should not have any adverse impact to the residents. However, the sidewalk as shown should have a wheelchair ramp equipped at the cul-de-sac end.
6. The proposed access path to the basin width varies from 14' to 20' back to 15'. This access path is for BMP maintenance and services only, GCG recommends relocating the fence gate to soil test pit #3 location, narrowing the access path to 10' wide with widening at the turns and create a T-turn (parking/loading) area outside the gate between test pit #3 and wetland flags WF-B-7 & 8. MHS does call for 15' wide unimpeded vehicular access around the entire basin perimeter. The recommended 10 feet wide access path is capable for heavy equipment passage and reasonable to minimize wetland crossing width.

Plan Sheet 7 – Grading Plan

1. Verify grading along proposed right-of-way and Lot 24A (54 Sconticut Neck Road) boundary. There appears to be a missing contour elevation 42 to close the existing 42 contour line in Lot 24A.

2. Lot 5 contour elevation 32 appears to drain toward to the cul-de-sac, not agreeing with the watershed plan.
3. Slope lot 6 driveway toward the north side of dwelling and utilize front and side yards for vegetated filter strip treatment. As shown, lot 6 driveway surface runoff drains directly to the wetland.
4. Cul-de-sac pavement should have a minimum of 2% cross slope and a minimum of 1% along the gutter line to prevent water ponding. (As shown, the cross slope at the catch basins has cross slope of 0.4%)
5. Proposed Lot 6 driveway is approximately 8' from the BVW, GCG recommends adding a wood railing fence or similar divide along the southside of driveway to provide a physical separation to the wetland, (prevent mowing and snow dumping onto the wetland).
6. Show Lot 9 wetland restoration parcel finish grade to match original wetland surface. The proposed contours do not represent the original wetland grade.

Plan Sheet 8 – Utility Plan

1. Identify catch basin, drainage manhole and sewer manhole by number or by station.
2. Show "Flowable Fill" within Sconticut Neck Road layout, as required by the Sewer/Wastewater Division's Contractor Rules and Regulations. Specifications and requirements for sewer system work.
3. Provide hydrant flow test to assure sufficient fire flow for the proposed water and hydrant system.
4. Proposed hydrant location subject to Fairhaven Fire Chief approval.
5. The proposed water main would create an approximately 500' dead end water line. Board of Public Works may require an addition hydrant at the end of water main or looping the system. Public Works approval is required.
6. 322-26. F. (3) - Verify catch basin grate inlet capacity to meet 322-26. F. (3). Catch basin grates at Station 2+25+/-R. and Station 4+50+/-R. appear to be under capacity, double grate may be required, provide calculations. GCG recommends utilize 5' diameter catch basin structure for double grate frame. Verify the proposed 6' diameter at station 4+50+/-R.
7. The proposed drainage system consists of 12", 18" and 24" drainpipes with matching inverts. GCG recommends matching the pipe crown with varies pipe sizes in the structure to prevent backflow to the smaller size pipe and provide a minimum of 0.1 feet drop within the structure with same size pipes diameter to compensate hydraulic loss within the structure.
8. 322-26. F. (7) – Specify Class IV RCP where having less than 4 feet of cover within right-of-way.
9. Verify Infiltration Basin outlet FES invert, plan shown 20.50, HydroCAD used 20.00, show pipe slope on plan.
10. Wetland Crossings - USACE General Permit (GP) for the Commonwealth of Massachusetts Section IV.19.e. - requires hydraulic and ecological connectivity at the wetland crossing which specified a minimum of 2-feet high and 3-feet wide culvert or span opening for ecologic passage. The proposed dual 12" RCP outlets are already extended to the wetland, the finish grade (36 contour) on top of the access path is 2 feet above the wetland, the west side 1.5 horizontal to 1 vertical side slope is also within the wetland area (additional wetland filling required). Furthermore, USACE's required box culvert would raise the access path addition 2'+/- feet in height. Lot 7 driveway as

proposed is approximately 34' from the BVW with no qualified surface runoff treatment. GCG recommends considering replacing the remaining wetland in Lot 7 (approximately additional 650 s.f.) with loam and seed and maintain the existing grade to provide additional vegetated separation to BVW, (reconfigure Lot 7 to meet disconnected impervious area, MSH, Vol. 3, Ch.1, Pg. 50, requirements or provide treatments). Install the fence along the westerly lot line, to separate the lot to the BVW. Reduce the access path to 10' width and relocate eastward next to Lot 7 property line, lower the access path grade to match existing wetland with 12" gravel base and 2" loam and seed to allow hydraulic connection sheet flow without any culvert. This would eliminate the ecological connectivity concern and isolate wetland to the westside of the access path. Provide the necessary wetland replication at the wetland restoration area. (Lot 9, Lot 10, and Lot 11 would eventually transfer to the Town of Fairhaven. There is sufficient area to replicate any additional wetland fill.)

11. 322-14. D. (8) – A single streetlight (Town of Fairhaven standard) has been proposed at the end of the cul-de-sac. Specify make and model of streetlight to be installed.

Plan Sheet 9 – BMP Access Plan and Details.

1. Proposed wetland crossing does not meet the USACE's ecological connectivity requirements. See wetland cross comment above (Sheet 8, item 10.)
2. GCG recommends replacing the top 2" of gravel access road with loam and seed, utilizing the vegetation to prevent fine material washed onto the wetland during heavy storm event. A permeable grass paver could be used to provide structural component for stability of the access road.
3. Identify contour elevation 22.5 within the infiltration basin and forebays.

Plan Sheet 10 – Infiltration Basin, Cross Section and Details.

1. The northerly corner of infiltration basin is within the 50' wetland setback, (peak basin pond elevation at 25.44 per HydroCAD report during the 100-year storm event). GCG recommends reshaping the basin to be outside the 50' setback.
2. Utilize rip-rap protection at forebays and infiltration basin weirs.
3. Relocate outlet control structure (OCS) rim= 25.15 to embankment close to the access path and 25 contour line.
4. Provide outlet control structure details, (specify precast DMH structure, diameter, opening dimensions, etc.) and (frame and grate make and model number). A standard 36" x 36" heavy duty grate weight 554 pounds per East Jordan Iron Works, could be difficult for DPW maintenance personal to handle as shown. GCG recommends utilizing grate(s) with manageable weight without heavy equipment.
5. Emergency spillway/weir side slope should be 3H:1V minimum.

Plan Sheet 11 – Roadway and utility layout and Profile Plan.

1. Water main and sewer line should have a minimum 10 feet horizontal separation. This is a new construction, there is no reason for having 6' separation as shown on the plan.
2. Water main should be 8" CLDI with a minimum of 5-feet cover, hydrant connection with 6" CLDI.

3. Sewer pipe should have a minimum of 4-feet cover without insulation. This subdivision proposed individual dwelling sewer pump system, submit system detail to BPW sewer/wastewater division for approval.
4. 322-14. C.(22)(b) – show existing left and right sidelines per regulation.
5. 322-14. C.(22)(c) – show finish grade elevation at 50' station and at 25' station within vertical curve.
6. 322-14. C.(22)(d) – show all drainage pipe invert, slopes, capacity, and velocity.
7. 322-14. C.(22)(g) – requires profile scales to be horizontal one-inch equals 40 feet; vertical one inch equals four inches. The proposed 1" = 20' horizontal scale and 1" = 3' vertical is acceptable. However, with the required information listed above, the profile could be crowded.
8. Show catch basin, drainage manhole and sewer manhole rim elevation.
9. Drainage pipes with different sizes diameter should have matching pipe crowns in the manhole. Same pipe diameter should have a minimum 0.1' invert drop in the manhole to compensate hydraulic loss within the structure.

Plan Sheet 12 – Planting Plan.

1. Verify and provide intersection sight distance.

Plan Sheet 13 – Construction Details.

1. Pavement detail - requires a 3" processed gravel layer between the hot mix asphalt pavement and 12" bank run gravel base. (See Typical Cross-Section Residential Lane with Berm (10 Homes or Less), Appendix C – Street Design Drawing No. C-7).

Plan Sheet 14 – Construction Details.

1. Provide concrete driveway apron detail – specify transition at walkway crossing with minimum width and maximum slope to meet ADA requirements.
2. Curb ramp at Sconticut Neck Road transition curb should match existing curb material type and grade. (Existing curb has less than 4" reveal).

Plan Sheet 15 – Construction Details.

1. Use Appendix C, Drawing C-7 (with green strip) for roadway cross-section, modify with single side sidewalk waiver.
2. Although Appendix-C, Drawing C-7 shows water and sewer main with 6' horizontal separation, MassDEP requires a minimum 10' when possible. GCG recommends providing minimum 10' separation between the two mains.

Stormwater Management Report and Wetland Permit Application.

This definitive subdivision plan had been significantly modified from the preliminary subdivision plan reviewed on September 17, 2019. The preliminary subdivision plan was based on 26' x 32' dwelling footprint and 20' wide driveway with two sides sidewalk. The calculated post-development impervious areas were higher than the proposed building footprint and considered conservative. This definitive subdivision plan is based on building footprint of 28' x 36' with a 24'

x 24’ attached garages, except for Lot 7 with 28’ x 48’ and 24’ x 24’ garages. An increase of 195% building footprint in comparison with the preliminary plan. Paved driveways have also been widened from 20’ to 24’, there is reduction from the one side sidewalk (with waiver requested). In addition, the proposed constructed wetland has been replaced by an infiltration basin. The extent of the changes should warrant a new post-development watershed plan (last POST watershed plan was dated 11/13/2018) with calculations to verify the actual impervious area within each sub-catchment.

Infiltration Calculations: There are discrepancy with the exfiltration rate used in the drainage calculations. Stormwater Management report, Section – 1, stated the site consists of Hydrologic Soil Group (HSG) ‘C’ soil, with infiltration rate 0.17 inches per hours. Section 4.2 stated that the Rhode Island’s 5-3 Table Design Infiltration Rate shows a 2.41 in/hr. design infiltration rate (exfiltration rate for Loamy Sand, HSG ‘A’ soil). Both infiltration rates were based on the Rawls, Brakensiek and Saxton, 1982, Hydrologic Soil Properties classified by Soil Texture chart, commonly referenced by Masschusetts Stormwater Handbook and Rhode Island Stormwater Design and Installation Standards Manual. Furthermore, section 4.3 referenced saturated hydraulic conductivity testing was performed on site with 5.5 in/hr. infiltration rate, a HSG ‘A’ soil infiltration rate, which contradicts the USDA Web Soil Survey report. GCG recommends performing additional soil testing to verify the site soil classification. The soil investigation report should be certified by a Massachusetts licensed Soil Evaluator. The Saturated Hydraulic Conductivity test pit location should be shown on the plan. There are two test pits (TP #1 and TP#2) nearby the proposed infiltration basin, both test pits show very fine sandy loam at the top 3’ to 3.5’ below surface, with loamy fine underneath. However, both test pit found redox (evident of seasonal high groundwater) at the fine sand layer. Hence, additional soil testing is recommended. At a minimum, two saturated hydraulic conductivity test and two deep hole tests should be performed within the infiltration basin location.

Total impervious area was based on the preliminary subdivision, and significantly increased in this submission. GCG recommends an updated post-development watershed plan and recalculate the 65% rule accordingly.

HydroCAD model, sub-catchment 6S and 7S have been revised from the preliminary subdivision plan, the area drains to the infiltration basin should be modeled with infiltration basin pond surface as impervious (CN 98) per Appendix A.C.(j)[4]. As presented these two sub-catchments bypassed the infiltration basin.

Stormwater Operations and Maintenance Plan.

1. Sediment forebays should be inspected monthly and cleaned four times per year. The stated once a year cleaning is for constructed wetland forebay application.

2. Infiltration basin buffer area, basin bottom and side slopes should be mowed at a minimum twice per year. Remove grass clippings and accumulated organic matter from basin.

Additional requirements:

1. 322-14(D)(5) – Provide documents to establish homeowners' association to maintain street and infrastructure until and unless the street is accepted by the Town.
2. 322-14(D)(7) – Construction cost estimate is required. Estimates should be based on MassDOT Standard Specifications for Highways and Bridges, provide quantity item numbers, unit price, total amount for cost of completion of project. Costs adjusted to account for prevailing wages, adjusted to add an inflation/safety factor of 20%, engineering inspection, material testing, legal and other soft costs. Estimate shall be certified by the project's registered professional engineer.

Additional Wetland requirements.

The USACE General Permit Application stated requiring wetland scientist to oversee the wetland restoration and establish an Invasive Species Control Plan (ISCP) and 5-year wetland monitoring process. GCG recommends requiring the applicant to provide guaranty (by bond or any other forms acceptable by the Commission) for all the specified labors, material, and related professional services for the wetland monitoring and ISCP for up to 5-year, with satisfaction and approved by the Commission prior to transferring Lot 9 to the Commission.

The remaining wetland in Lot 7 is too close to the driveway. GCG recommends relocating the wetland to the westside of the access road. Addition details per sheet 8 comment #10.

Review Summary

The general drainage design concept is acceptable. The site is unusual with site soil being identified as HSG 'C', poorly drain with high seasonal ground water table, and with a rapid infiltration rate. Therefore, GCG is recommending additional soil testing to support the exfiltration rate and ESHGW at the proposed infiltration basin location. GCG recommends drainpipe with different size diameter have matching crown elevation to avoid backflow to the smaller size pipe. Hence, causing sedimentation and higher maintenance. Applicant should provide additional data to support the revised impervious area meeting the drainage calculations.

If you have any questions, please call.

Respectfully submitted,
GCG ASSOCIATES, INC.

Michael J. Carter

Michael J. Carter, P.E.
Project Manager