



January 26, 2023 (Revised February 22, 2023)

Ms. Maureen FitzGerald
Environmental Planner
Town of Waterford
15 Rope Ferry Road
Waterford, CT 06385

**Re: Peer Review of Proposed Affordable Housing Development
131 and 109R Clark Lane
Waterford, Connecticut
SLR #141.13104.00015**



Dear Ms. FitzGerald,

Per the request of the Wetland Office, SLR International Corporation (SLR) has performed a review of the materials submitted in association with the site for the above-referenced project. The proposed plan is for the development of 47 single-family homes with associated infrastructure. The following documents were provided to us for our review:

- "Application for Inland Wetland/Watercourse Permit" dated December 6, 2022, stamped received on December 6, 2022, by Planning and Development Town of Waterford, Connecticut
 - "Sitewide Inland Wetland & Watercourse Activity Reporting Form"
- "Proposed Affordable Housing Development" prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023, consisting of the following sheets:
 - Title Sheet, sheet 1 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "PROPERTY SURVEY," sheet 2 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "OVERALL SITE PLAN," sheet 3 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "SITE PLAN No. 1," sheet 4 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "SITE PLAN No. 2," sheet 5 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023

- "SITE PLAN No. 3," sheet 6 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "UTILITIES PLAN No. 1," sheet 7 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "UTILITIES PLAN No. 2," sheet 8 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "UTILITIES PLAN No. 3," sheet 9 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "LANDSCAPING PLAN No. 1," sheet 10 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "LANDSCAPING PLAN No. 2," sheet 11 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "LANDSCAPING PLAN No. 3," sheet 12 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "EROSION AND SEDIMENT CONTROL PLAN No. 1," sheet 13 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "EROSION AND SEDIMENT CONTROL PLAN No. 2," sheet 14 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "EROSION AND SEDIMENT CONTROL PLAN No. 3," sheet 15 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "DETAIL SHEET No. 1," sheet 16 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "DETAIL SHEET No. 2," sheet 17 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "DETAIL SHEET No. 3," sheet 18 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "DETAIL SHEET No. 4," sheet 19 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "DETAIL SHEET No. 5," sheet 20 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
 - "SIGHTLINE DEMONSTRATION PLAN," sheet 21 of 21, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC, dated May 14, 2022, revised February 5, 2023
- Abutting Property Owners List
 - "Alternatives Assessment" prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC

- "Storm revised Report" dated October 10, 2022, revised February 5, 2023 prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC
- "Supplemental Storm Drainage Report" dated February 05, 2023, prepared by Provost & Rovero, Inc., prepared for Kingstown Properties, LLC
- "ALTERNATE SITE PLAN No. 1" prepared by Provost & Rovero, Inc., prepared for Freehold Real Estate Management, dated November 30, 2021
- "ALTERNATE SITE PLAN No. 2"
- "ALTERNATE SITE PLAN NO. 3", prepared by Provost & Rovero, Inc., prepared for Freehold Real Estate Management, revision dated February 5, 2023
- Letter from David J. Held, PE, LS, of Provost & Rovero, Inc., to Town of Waterford Conservation Commission, dated December 5, 2022, regarding Kingstown Properties, LLC – 109R & 131 Clark Lane – Waterford, Connecticut, P&R Job No. 213009
- Letter from Joseph R. Theroux, Certified Soil Scientist, to Mr. David Held, dated December 6, 2022, regarding Wetland Delineation, Archambault Property, Clark Lane, Waterford, Connecticut
- Letter from Joseph R. Theroux, Certified Soil Scientist, to Mr. Held, dated August 11, 2022, regarding Wetland function & value and impact assessment report for the proposed site development for the Archambault property, 109R and 131 Clark Lane, Waterford, Connecticut
- Letter from Joseph R. Theroux, Certified Soil Scientist to Ms. Maureen FitzGerald, Town of Waterford Environmental Planner, dated February 3, 2023, regarding response to Carya Ecological Services, LLC and SLR International Corporation Reports.
- Letter from David J. Held, PE, LS, of Provost & Rovero, Inc., to Ms. Maureen FitzGerald, Town of Waterford Environmental Planner, dated February 6, 2023, responding to SLR International Corporation's comments, dated January 26, 2023, for the proposed site development for Archambault Property, Clark Lane, Waterford, Connecticut
- Letter from David J. Held, PE, LS, of Provost & Rovero, Inc., to Ms. FitzGerald, Town of Waterford Environmental Planner, dated February 9, 2023, responding to the Carya Ecological Services, LLC report for the proposed site development for Archambault Property, Clark Lane, Waterford, Connecticut

- "STANDARD DETAIL BIORETENTION ISR STORMWATER SYSTEM" prepared by University of New Hampshire Stormwater Center, dated February 21, 2020

Engineering Review Comments

The following comments and observations are made based on the review of the information provided by the applicant. Comments pertain specifically to the Stormwater Management Plan, Erosion and Sediment Control Plan, and consistency with the Town of Waterford's Wetland Regulations and applicable state guidelines. Comments regarding site plan components that may not typically have a nexus with wetlands are included because much of the site falls within the regulated upland review areas and resulting revisions may cause changes to regulated activities. **Please note** this review did not consider all the requirements and standards of the Waterford Zoning Regulations as they relate to the site plans.

Please note that the comments from SLR's letter dated January 26, 2023, have been addressed by revised documents are simply noted as "*Comment addressed.*". Additional comments or previous comments that have either not been addressed or partially addressed are **bolded**.

1. The test pits performed within the sediment basin/stormwater management area showed mottling (seasonal high groundwater) as shallow as 22" and groundwater at 45". The applicant's engineer will need to provide dewatering measures for the sediment basin in between rainfall events due to the limited potential of stormwater infiltration and the high likelihood of groundwater present within the sediment basin. The sizing calculations for the temporary sediment basin rely on the volume to be provided to the basin bottom.

Comment addressed.

2. We recommend that the upland review area (URA) line is displayed on all site plan sheets.

Comment addressed.

3. While not specifically a wetland-related issue, there are no sidewalks or walkways shown to the houses, internally in the development, or out to Clark Lane. These site amenities should be considered so that any stormwater impacts may be accounted for.

Comment addressed.

4. We recommend that the applicant consider temporary construction fence be placed along portions of the northern, western, and southern property lines to serve as barrier between existing homes and the project site.

Comment addressed. Although we suggest that the location of the temporary construction fence is shown on the site plans.

5. We recommend that the applicant's engineer consider small drainage inlets to the rear of Units 27 through 47 due to the generally level grading and potential for localized ponding. Alternatively, the plans should include more detailed grading to demonstrate flow paths behind these units.

Comment addressed.

6. An access path to the bioretention basin should be provided for future maintenance purposes.

Comment addressed.

7. Based on the test pits performed within the bioretention basin and detention basin, dewatering during construction in areas outside of the stormwater basin may be needed. Additional information and details on the potential dewatering operations should be provided.

Comment partially addressed. Additional details (ie pump settling basin) should be provided to give the contractor typical methods or items to handle dewatering during construction.

8. The applicant's engineer should comment on the suitability and effectiveness of the bioretention basin given the shallow water table and likelihood that a majority of the basin would be into the groundwater. The *2004 Connecticut Water Quality Manual* recommends that there is at least several feet of separation between the bottom of the filter and the seasonally high groundwater table.

Comment addressed.

9. The applicant's engineer should consider raising the elevation of the basin to reduce the depth of excavation into the water table.

Comment addressed.

10. We recommend that the inverts of the outlet pipes for DMH 114 and CB 109 are dropped to limit surcharging of the 6" polyvinyl chloride underdrains.

Comment addressed.

11. Immediately adjacent to the rear of Units 1 through 16, a proposed 2-foot horizontal to 1-foot vertical slope (2:1) is depicted. This area behind the units will have limited to no function without small retaining walls or other grading configurations between the units and the property line.

We have no objection to the proposed slope in the rear of Units 1 through 16 from an engineering perspective.

12. An inlet protection detail is shown, but no locations or callouts for inlet protection are displayed on the Erosion & Sedimentation Control Plans.

Comment addressed.

13. The finished floor elevations of the proposed units should be provided.

Comment addressed.

14. The applicant should provide additional information regarding trash and recycling disposal for the development.

Comment addressed.

15. The applicant's engineer should confirm whether any of the existing upgradient homes are served by a septic system.

Comment addressed.

16. We recommend that a roadway profile or spot grades are provided to clarify the high and low spots of the roadway.

Comment addressed.

17. The drainage analysis utilizes fair condition for the land cover types – grass cover, woods, and woods/grass combination – for a significant portion of the existing and proposed watersheds. We recommend that the applicant review whether the fair condition designation is most appropriate instead of good condition given the existing and proposed land coverage.

Comment addressed.

18. The applicant's engineer should confirm that the roof drains for the homes are included in the pipe computations. There are notes that the roof drains are to connect to the drainage system, although the plans should depict how they are to connect to the drainage system.

Comment partially addressed. We would recommend that roof drains connect into storm drainage structures instead of teeing into storm drainage pipe.

19. We recommend that the pipe capacity be included in the pipe computations in the Storm Drainage Report.

Comment addressed. We agree with the applicant's engineer assessment of the hydraulic gradient line for the proposed storm drainage system.

20. The 24" detention basin outlet pipe lacks the capacity to transmit the discharge from the basin for the 100-year storm.

Comment addressed.

21. The Storm Drainage Report states that the flow velocity from the level spreader for the 100-year storm is 1.78 feet per second; we recommend that the supporting design computations be provided.

Comment addressed.

22. Watersheds P-1 and P-2 are mislabeled in the stormwater routing diagram in the Storm Drainage Report.

Comment addressed.

23. The length, slope, and invert of the primary outlet (24" round culvert) for Pond Report 6P: Detention Basin in the Storm Drainage Report does not match the site plans.

Comment addressed.

Wetland Science Review Comments

The 16.06-acre site is comprised of two parcels, one is 4.33 acres, and the other is 11.73 acres. The site is L-shaped with a narrow piece of land approximately 180-feet wide, trending north/south and paralleling Clark Lane, and a wider area extending east at the southern portion of the property behind the Clark Lane Middle School. Surface water drains to the southeast extent of the site and flows south via Fenger Brook for approximately 1.4 miles, then west toward Jordan Mill Pond via an unnamed watercourse for approximately 1.3 miles. From Jordan Mill Pond, Jordan Brook flows south for approximately 2 miles to its confluence with Long Island Sound. The confluence with Long Island Sound is approximately 3 miles south of the subject property. The property is currently undeveloped and wooded, although early successional vegetation and stone walls suggest previous use as farmland or pasture.

Wetland systems occupy approximately 6 acres of the 16-acre parcel, and these systems are comprised of Palustrine broad-leaved deciduous forest and scrub-shrub wetlands. In addition to the onsite wetlands, a forested Palustrine riparian wetland associated with Fenger Brook abuts the site to the east. Although off site, the upland review area to this wetland extends onto the subject property. The 500-year floodplain to Fenger Brook is located off site to the southeast. The property directly abuts the city of New London. The Wetland Delineation Report and Wetland Impact Assessment submitted with the application detail the

wetland as contributing to most wetland functions and values and being supported by poorly drained glacial till soils, which is consistent with Natural Resource Conservation Service (NRCS) mapping for the property.

Please note that redundant comments of the engineering comments have been omitted for brevity:

1. Wetland boundary – The wetland system extends off site to the east. Some of the offsite wetland boundary is noted. However, the line is not contiguous. The wetland boundary located east of the proposed detention basin conflicts between onsite and offsite areas. Please correct the wetland boundary to understand the scope of work proposed within regulated areas.

Comment partially addressed. Northeast of the proposed detention basin and wetland boundary line extends north from a wetland finger. This line is not connected to any other feature. SLR recommends tying this line back to a contiguous wetland boundary.

2. The wetland impact assessment documents habitat for reptiles and amphibians but does not provide specifics. Was vernal pool activity noted in the wetland complex during the May 2021 delineation or March 2022 impact assessment fieldwork? Given the potential for turtle habitat, a conservation protection plan is warranted during construction. These conservation measures involve exclusionary fencing, wildlife sweeps, and contractor education.

Comment partially addressed. The extension of silt fence is noted but additional protections would be required to provide the full suite of conservation measures.

3. If vernal pool activity was noted in the wetland complex, SLR recommends incorporating design measures to prevent the use of the stormwater basin as a “decoy pool.”

Comment addressed.

4. A native planting plan for the proposed detention basin and bioretention basin would increase the ecological integrity of this area and bolster the buffer between the proposed housing and wetland system.

Comment partially addressed. The addition of more native woody shrubs around the perimeter of the basin as well as between the wetland boundary and limit of disturbance will bolster the ecological value of this area. The inclusion of an annual monitoring plan will ensure plant propagation in these sensitive interface areas.

5. The proposed detention basin will lie at elevation 90.0 NAVD, which is the approximate wetland elevation. Maximizing the benefits of this hydrology to create a wetland habitat in the basin would improve the water quality benefits through bioassimilation as well as provide aesthetic and habitat values.

Comment addressed.

6. The level spreader outlet from the basin directly abuts the wetland boundary. It will be difficult to construct this feature without encroaching in the wetland. SLR recommends the consideration of a minimum of a 10' buffer here to avoid direct impacts.

Comment addressed.

7. Permanent demarcation of the wetland boundary and conservation areas with signage is recommended. The proposed houses are near the wetland boundary, and this nexus often presents conflict through encroachment, vegetation clearing, dumping, etc. if not properly managed with signage and outreach.

Comment noted. The applicant noted willingness to demarcate the limit of disturbance with permanent signage.

8. Undisturbed wetland buffers are noted on the permit application as a mitigating measure. It is unclear if that is true without a full depiction of the wetland boundary off site and the clear depiction of the upland review area on each plan sheet. Please also note that permanent features of the stormwater management system are located directly on the wetland boundary in the southeastern portion of the property.

Comment noted.

9. Test pits provided in the plan set detail a water table within 2 feet of the ground surface in three of the four test pits. Given the excavation of this area, to create the temporary and permanent basin, SLR recommends a discussion on measures to manage water in this area over the short-term construction phase, related to potential issues with sedimentation and erosion control, and long-term with respect to water quality.

Comment addressed.

10. Please provide the methods for snow removal and products that will be used to deice the impervious surfaces.

Comment addressed.

11. Are the dwellings going to be managed as apartments or will they be individually owned? Education on nexus to protected wetland resources will assist on minimizing conflicts with stewardship in the short and long term.

Comment addressed.

12. Of the 16 acres in the project area, 8 acres will be developed and 8 acres will be provided as conservation easement. Information on how this easement will be held will allow direction on property stewardship. Management of invasive vines on canopy trees would assist in maintaining woodland canopy in undisturbed portions of the site.

Comment noted. The applicant acknowledged willingness to complete invasive species removal.

13. A walking trail is proposed around the detention and bioretention basins, but was there consideration of increasing the trail to the southeastern portion of the site? Wetlands are a factor here, but increasing the recreational and educational value of the wetland may benefit the community. Given the depth of the proposed basin, a walking path around the perimeter may present safety issues.

Comment noted.

Thank you for the opportunity to assist you.

Sincerely,

SLR International Corporation



Ryan McEvoy, PE
Principal Civil Engineer



Megan B. Raymond, MS, PWS, CFM
Principal Scientist, Wetlands & Waterways Lead

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