Ian Cole LLC

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October 16, 2025

Mr. Peter Gardner, P.L.S.
Dieter & Gardner, Inc.
Land Surveying Planning Engineering
P.O. Box 335
Gales Ferry, CT 06335

RE: WETLAND EVALUATION REPORT
KINEO ESTATES SUBDIVISION
939 LONG COVE ROAD
LEDYARD, CONNECTICUT

Dear Mr. Gardner:

At Dieter & Gardner Inc's request, I completed a site investigation and prepared this letter report which details an evaluation of the on-site wetland resources and the development impacts that potentially could result from the proposed plans to construct two new single-family residential dwellings and associated appurtenances by subdividing the above referenced 48.22-acre residential parcel into four (4) separate parcels. I completed my site evaluation on October 2, 2025, and offer the following comments for consideration in evaluating the proposed project.

The inland wetland boundary was delineated in March 2024. The wetland boundary and proposed development are shown on the plans prepared by Dieter & Gardner Inc. Dated September 2025.

PROPOSED ACTIVITIES

The applicant is proposing to develop two new lots with single-family residential dwellings and associated appurtenances. Both lots would be created by subdividing the above referenced 48.22-acre residential parcel into four (4) separate parcels. Each new

proposed dwelling would be accessed by individual driveways and serviced by on-site septic and drilled wells.

The proposed subdivision would split off a lot for the existing dwelling at 939 Long Cove Road. The subdivision would also create a new 5.05-acre flag lot behind the occupied dwelling at 939 Long Cove Road parcel. The new house lot will be accessed from a narrow strip of land that would support a standard single driveway. The new driveway will need to cross a narrow flagged wetland associated with the source of an ephemeral intermittent watercourse.

The second dwelling will be constructed on a 5.75 acre flag-lot behind 961 Long Cove Road, which it will share a common driveway with. There is currently an abandoned dwelling on the proposed parcel which will be demolished and removed. The new home location will be located in close proximity to the previous dwelling. To access the homesite, the proposed development will re-construct the past wetland crossing that was removed to prevent vandalism to the abandoned home now slated to be razed. The proposal will use the existing driveway alignment and will re-install a similar culvert crossing to what previously existed.

The balance of the property will remain undeveloped and unchanged from its existing forested condition.

Prior to construction erosion and sediment control barriers installed at the limits of disturbance. These site protection measures will be maintained throughout construction and will be removed once the site is stabilized. The site erosion controls at the driveway crossing will also serve as exclusion fencing, helping prevent any migrating amphibians from entering the work zone that may utilize nearby wetlands, should construction be scheduled for the early spring months.

Clearing limits have been minimized to the extent it is practical to develop each respective lot. The site work proposed will not significantly impact on the wetlands and will preserve the bulk of the 100-foot upland review area in its existing natural undistrubed state. Details of the location and extent of the proposed regulated activities are illustrated on the subject site plans.

WETLAND and UPLAND REVIEW AREA RESOURCES

The property is wooded, dominated by a mixed hardwood forest overstory with thick patches of dense mountain laurel groves in the understory which predominately occupies the bulk of the central uplands on the property. There are several notable locations of large glacial erratic's and boulder fields concentrated in the northcentral section of the property. The on-site soils originated from several sources of parent material including glacial melt-out till and lodgment glacial till. The site is not located in an aquifer protection area. The site falls within the Thames River subregional drainage basin (CTDEEP #3000).

Two linear forested wetland systems where flagged in the vicinity of the proposed development(s). To access both development sites, each new lot will need to cross a narrow intermittent wetland corridor that flows south along the western side of the site. The hydrology regime supporting the intermittent watercourse is very ephemeral and flows are carried in a narrow, shallow, stony channel. Because of the low-gradient watercourse channel, obscured by the dense vegetation, during the dry season portions of this wetland are nearly unrecognizable as a wetland to the layperson.

A second flagged wetland system was identified east of the proposed developments. The second wetland system is found to the rear of the proposed developments and consists of a well-defined watercourse with defined bed and bank development. A narrow wetland riparian zone boarders the boulder filled watercourse. The wetland to the rear (east) of the development also flows south.

Overall, the wetlands system east of the development is seasonally flooded, with a longer hydro period compared to the wetland crossing west of the development. Wetland system #2 is located along a distinct break in slope and is confined to the stony and boulder-field conditions that characterize the wetland floor in the drainageway. The wetland community exhibits classic Red Maple swamp vegetation, including:

Trees: Red Maple, yellow birch, swamp white oak, and shagbark hickory.

Shrubs: Highbush blueberry, spicebush, sweet pepperbush, Japanese barberry, winterberry, honeysuckle, multiflora rose, Asiatic bittersweet.

Herbaceous: Tussock sedge, sphagnum moss, sensitive fern, cinnamon fern, skunk cabbage, false hellebore, and jewelweed.

The above is not an exhaustive list, but a sample of commonly encountered vegetation that characterizes the on-site wetland community. Representative photos of the site are attached below.

SOIL SURVEY

The soils identified on-site are a refinement of the Natural Resources Conservation Service (NRCS) Websoil Soil Survey.

Wetland Soils

The wetlands soils in Wetland #2 are classified as (3) Ridgebury, Leicester, and Whitman fine sandy loams. The poorly drained soils along the wetland boundary belong to the Ridgebury and Leicester soil series. Ridgebury and Leicester soils are found within drainageways and depressions on glacial till landscapes. Ridgebury and Leicester soils have a seasonal high-water table at a depth of about 6 inches. Very poorly drained Whitman soils are found in the lowest lying areas within the interior of the wetlands where the water table is at the surface thought most of the growing season.

A typical soil profile along the wetland boundary consists of approximately 2"-0" of intermediately decomposed organic material (Oi), followed by 0"-6" of a thick dark topsoil horizon (A), underlain by 6-18" of a wet weakly developed grayish subsoil horizon (Bg) with common redoximorphic features (Common medium distinct strong brown mottles, masses) ranging from fine sandy loam to very fine sandy loam. This subsoil is underlain by a saturated sandy loam to fine sandy loam gray substratum (2Cg).

Upland Soils

The portions of the uplands within the areas suitable for development are mapped and classified as moderately well-drained Sutton soil series. These moderately well-drained soils range from sandy loam to very fine sandy loam. A high seasonal water table can be a limiting factor for development in Sutton soils. Additionally, the soils on the higher elevations on the property where the development is slated the soils are classified and mapped as well-drained Charlton and Canton fine sandy loams. Generally these upland soils are well suited for development with little limitations.

WETLAND FUNCTIONS AND VALUES ANALYSIS

The assessment of wetlands and watercourses functions and values is based on the US Army Corps of Engineers' (USACE) *The Highway Methodology Workbook, A Descriptive Approach* (1995) methodology, and on best professional judgment.

The functions and values of the wetland corridor is summarized in Table 1. The *Highway Methodology* recognizes 13 separate wetland functions and values. The degree to which a wetland provides each of these functions is determined by one or more of the following factors: landscape position, substrate, hydrology, vegetation, history of disturbance, and size. Each wetland may provide one or more of the listed functions at significant levels. The determining factors that affect the level of function provided by a wetland can often be broken into two categories. The effectiveness of a wetland to provide a specified function is generally dependent on factors within the wetland whereas the opportunity to provide a function is often influenced by the wetland's position in the landscape as well as adjacent land uses. For example, a depressed wetland with a restricted outlet may be considered highly effective in trapping sediment due to the long residence time of runoff water passing through the system. If this wetland is located in gently sloping woodland, however, there is no significant source of sediment in the runoff therefore the wetland is considered to have a small opportunity of providing this function.

Wetland Functions and Values	Groundwater Recharge/Discharge	Sediment/Shoreline Stabilization	Floodflow Alteration	Fish & Shellfish Habitat	Sediment/Toxicant/ Pathogen Retention	Nutrient Removal/Attenuation	Production Export	Wildlife Habitat	Recreation	Educational/Scientific Value	Uniqueness/Heritage	Visual Quality/Aesthetics	Listed Species Habitat
WETLAND #1 Front IWC	P	U	U	U	S	S	S	S	U	U	U	U	U
WETLAND #2 Rear IWC	P	U	U	U	S	S	S	P	U	U	U	U	U

Suitability
P = principal function
S = secondary function
U = function unlikely to be provided at a significant level
N/A = not applicable or unknown

Table:1 Wetland Functions and Values

The wetland system(s) provides groundwater discharge at the principal level. The water course is an expression of discharge and helps maintain downstream baseflows. The wetlands in the front of the parcel that will be crossed with the driveway entrances have functions and values that are limited due to the narrow confines of the wetland, prolific growth of invasive species reducing the ecological integrity, lack of open water, lack of deep organic soils or thick topsoil to provide residency and retention of water, pollutants and sediments and private ownership of the site. The upper edge of the wetlands and the upland review area closest to the development are not as highly functioning in comparison to the interior / downgradient portion of the wetland and where the watercourse hydrology is more persistent throughout the year and there are pockets of organic soils accompanied by a diversity of wetland vegetation; it is within this interior downstream wetland zone the system is more sensitive and includes the more beneficial part of the overall wetland system.

IMPACT ASSESSMENT

To access each respective building lot will require crossing the wetlands that span across the front (western side of the site) portion of the parcel. There is no less impactful way to access the site then the two selected crossing points. Both crossing sites have relatively level topography and are narrow in nature. Construction of both driveways will be short duration (days) of construction due to the ease of construction. The ease of construction and short duration of construction will reduce the overall risk of sedimentation or hydraulic disruption to the on-site intermittent watercourse.

The northerly crossing will use a 15” pipe to cross the ephemeral wetland creating a permanent disturbance of less than 800 SF. The culvert will maintain the existing flow dynamics and function of the intermittent watercourse. The nominal wetland fill will not

change the overall character of the wetlands and watercourses in a negative or adverse way. Post development the watercourse will still maintain the same capacity to convey stormwater and seasonal groundwater runoff.

The southerly crossing will override the existing driveway alignment and will rebuild a previous crossing that was removed. Similarly to the northerly wetland crossing a 15" drainage pipe will convey flows under the driveway. The wetlands at the southerly crossing are very narrow and will only result in a minimal disturbance of 400 SF. Because of the limited disturbances associated with the driveway crossings and the fact there is no loss of wetland functionality; no physical mitigation is proposed, as it would be counterproductive to clear established forested areas to install plantings, and vegetation communities at both proposed crossings sites have a high concentration of invasive species that would be problematic to either eradicate and would likely outcompete or greatly impact any proposed plantings over time.

Due to the extents of the wetlands and limited uplands available on-site requires unavoidable activities within the 100-foot upland review area. Activities in the upland review area generally include only those activities to construct the driveway entrances. The bulk of the development(s) falls outside the 100-foot upland review area.

Stormwater runoff and grading has been designed to promote sheet flow and infiltration into the ground. There will be no substantial changes to hydrology or watershed of the wetland feature. There will be no changes in the wetland vegetation community or overall species composition of the wetlands as a result of the proposed development(s). The applicant will mitigate construction related impacts by implementing standard construction Best Management Practices (BMPs) and conforming to permit conditions.

The proposed activities are not likely to have a significant effect on the environment for the following reasons:

1. There is minor filling of an inland wetland and/or watercourse to facilitate two driveway crossings, one of which is at a location where a driveway previously crossed the wetlands and was removed.

2. The project will not substantially change the natural channel or negatively inhibit the natural dynamics of the wetland system.

3. The proposed activities within the uplands will not diminish the capacity of the wetland. The wetland will provide the same wetland functions and values post development.

4. The erosion and sediment controls will protect the environment from the proposed activities and if appropriately installed, monitored and maintained will not likely cause or have the potential to cause substantial turbidity, siltation or sedimentation in a wetland or watercourse.

5. No activities will cause a substantial diminution of flow of a natural watercourse or groundwater levels of the regulated area.

6. The site development will have health department approval and is unlikely to cause or have the potential to cause pollution of the wetland.

7. The wetland features are not unique, nor do they provide demonstrable scientific or educational value.

In considering feasible and prudent alternatives, the current proposal respects the integrity of the environment, has minimal wetland impact, and implements best management practices that will protect the adjacent resource areas. There are no less impactful ways to access the properties and therefore, the proposal is the most feasible and prudent alternative for the development of this property, giving due consideration to balancing the protection of the inland wetlands and watercourses while fostering reasonable development and use of the site.

In my professional opinion there will be no significant adverse impacts resulting from the development of the project as currently proposed. The activities required to facilitate the development will not result in any loss of function to wetlands and watercourses. Post development the wetlands and watercourses will still have the same ability to perform the existing functions currently provided. Furthermore, the regulated activities depicted on the subject site development plans are materially and substantially similar in comparison to previous development and uses that occupied this parcel. As a result, environmental effects will be minor, temporary, and highly localized.

Please do not hesitate to contact me at itcole@gmail.com or (860) 514-5642 if you have any questions or need any additional information.

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Sincerely,

Ian T. Cole
Professional Registered Soil Scientist
Professional Wetland Scientist #2006