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December 12, 2023, Revised: 1/9/24.

Mr. Rick Stow, Chairman
Inland Wetlands Commission
238 Danbury Road
Wilton, Connecticut 06897

RE: Old Driftway, LLC
0 Mountain Road
Wilton, Connecticut

Dear Mr. Stow and Members of the Inland Wetlands Commission,

At the request of James Lucas of 2 Indian Hill Road, I have reviewed plans and documents submitted by the applicant after December 3, 2023 for this project and have the following comments on this information.

The responses and minor changes made by the applicant do not reduce the adverse environmental impact which will occur to wetland systems along the old driftway or on the lot itself as enumerated below.

Letter by Fairfield County Engineering, LLC of 12/16/23:

1. It is irrelevant what the towns of Stamford, Greenwich and Westport do from a stormwater perspective as this project is in Wilton and thus falls under the CT DEP 2004 Storm Water Quality Manual for the design of stormwater management systems. It is the obligation of the design engineer to follow state guidelines to minimize adverse environmental impacts associated with land development.
2. As noted in the earlier review, the Coarse Particle Separator proposed by the applicant is nothing more than a standard catch basin. The TSS removal rate for a standard catch basin is 5% based upon monitoring results at the University of New Hampshire Stormwater Center. The retention galleries do not trap sediment and remove it from the stormwater. Sediment may settle out on the bottom of the gallery system but is quickly re-suspended into the runoff by subsequent rainfall events. A standard catch basin is not adequate to treat water quality from an impervious driveway as the basin does nothing to significantly reduce other pollutants such as metals, hydrocarbons, and nutrients.
3. This response states that overflow from the galleries systems will be onto the driveway surface where it will naturally follow the slope of the driveway to either Mountain Road or the wetland area having a high potential of causing black ice during winter conditions and increasing pollutant loads.

4. The citation used here is completely wrong. What the Greenwich Manual states is the following “Infiltration BMPs should not be installed in Hydrologic Soil Group D soils, as confirmed through the evaluation of methods contained in Appendix B.” The CT DEP 2004 Storm Water Quality Manual also requires the installation of Permeable Pavement in Class A or B soils only.
5. Construction equipment, oil delivery trucks, moving vans are not light vehicles and will damage permeable pavement as it is not designed for the movement of heavy vehicles. Permeable pavement lacks the structural integrity to support heavier vehicles.
6. According to a specification sheet for a 7’ x 2’ concrete box culvert from AmeriTex Pipe and Products, LLC, the weight is 2,200 pounds/lf. A standard section of box culvert is 8’ in length, thus the weight would be 17,600 pounds (8 * 2200). According to the specification for a CAT 309 CR Mini Hydraulic Excavator, the maximum lifting capacity is less than 8,000 pounds, so the statements by the applicant are not correct. Lift capacity of an excavator is a function of not only the weight of the object being lifted, but how close the weight is to the excavator. When the object being lifted is close to the excavator, it can lift more weight. As the object is moved farther from out from the actual excavator, the lifting capacity is quickly reduced. In this case, the CAT 309 mini excavator would have to lift and then swing the box culvert section to its place which reduces the amount of weight it can lift.
7. As previously noted, there are no test pits for most of the underground gallery systems so the statement by the applicant is not supported by actual data.
8. No evidence has been provided to support this statement; thus, it cannot be considered a true statement.
9. It has not been demonstrated that numerous underground gallery systems and/or catch basins can be constructed within the narrow width of the right of way, especially if rock removal is necessary. The commission requested a more detailed topographic survey be provided, but no such updated survey has been provided by the applicant.

Septic Plan revised to 12/16/23:

10. This plan is an alternative to the original submission. It is not valid in my professional opinion as there are no test holes in the proposed septic system so there is no way to know if the soils in this area meets the minimum suitability under the CT Public Health Code.
11. There is no reduction in the number of bedrooms in the house, the accessory dwelling unit, or the overall size of the proposed house and pool which would allow it to be moved farther outside the 100’ upland review area. If the accessory dwelling unit is to have a kitchen, then the two bedroom associated with it must use the multi-family requirements found in the current Technical Standards of the CT Public Health Code.

Revised plans_and_comments_from_owners_engineer (9 sheets- revised to 12/13/23):

12. According to the test hole results on page 2, three of the four test holes encountered ledge at a depth which is less than 38” which conflicts with the statement made by the applicant in the 12/16/23 response. Two of test pits are less than 24” in depth which were done in the southern portion of the old driftway.

Agent_Submission_12.26.23:

13. The routing analysis for the relocated Cultec system on the lot uses an infiltration rate of 6"/hr, but no infiltration testing was done to determine this rate, so the routing analysis cannot be considered valid.
14. The entire relocated Cultec system will be in fill. No specifications for the type of fill and how it will be installed as been provided.
15. There are no test holes in the relocated septic area, so the Minimum Leaching System Spread cannot be determined so all the information regarding this system is not supported by field data.

Bridge Proposal (12/27/23):

16. No information including a site plan has been provided which would demonstrate how the support walls and beams for the bridge could be installed without causing adverse impacts to the wetlands and vernal pool. Based upon this lack of information, this is not a viable alternative in my professional opinion.

All my original concerns previously provided to the Inland Wetlands Commission remain unaddressed and thus the proposed development will clearly have adverse environmental impacts to the wetland systems along the old driftway and lot. All the prior comments are repeated below.

Executive Summary:

- A. The stormwater management will not function as intended. It will not result in the reduction of both the peak rate of runoff and increases of runoff volume.
- B. The stormwater management plan will not reduce non-point source pollutants generated by the impervious driveway along the Old Driftway. These pollutants will be discharged to wetlands and watercourses.
- C. The use of a Bioswale and porous asphalt are not appropriate to this site and will not function as intended. The application of these strategies is considered "Green Washing" which is the addition of LID concepts to a plan to look like an environmentally friendly plan but is not.
- D. The stormwater management plan does not comply with the CT DEP 2004 Storm Water Quality Manual and the Town of Wilton regulations.
- E. The erosion control plan does not comply with the CT DEP 2002 Guidelines for Soil Erosion and Sediment Control.
- F. The submitted plans are missing a lot of information which prevents a land use commission from fully evaluating the design of the project.
- G. The plan will have a direct and adverse physical impacts to the vernal pool on the site by the installation of multiple sections of box culvert.

Proposed Lot Development:

- 1) A lot of the proposed text on the plan is too small to read. The code practice by the Connecticut Association of Land Surveyors (CALS) requires minimum text sizes based upon the scale of the plan.
- 2) At the end of the Old Driftway, it is proposed to construct a six-bedroom single family residence, with a two-bedroom accessory dwelling (8 bedrooms in total), pool/patio, on-site sewage disposal system and stormwater detention systems within the 100' upland review area from the delineated inland wetland boundary. The proposed sewage disposal system is located approximately 40' from the wetland boundary. Due to the proximity of the sewage disposal system to the wetland boundary, a CT DEEP hydraulic analysis needs to be performed to evaluate that the 21-day travel time for bacteria and viruses will be provided in the fill to and native soil at the wetland boundary. Additionally, a nitrogen dilution analysis per the CT DEEP must be performed to show that a nitrogen concentration of 10 mg/l or less will be provided at the wetland boundary. These analyses are necessary to ensure there is no adverse environmental impact to the downgradient inland wetlands.
- 3) There is only one test pit which is in the approximate center of the primary system and based upon the shallow depth of ledge is not adequate for the design of the sewage disposal system. Additional test holes are necessary to confirm that the native soils meet the minimum suitability requirements under the Current Technical Standards for the design of on-site sewage disposal systems.
- 4) No test hole was done approximately twenty-five (25') feet downgradient of the system which is required by the Technical Standards.
- 5) The proposed cross section of the sewage disposal system does not provide extents of select fill and other information required by the Technical Standards.
- 6) No elevations are provided for the on-site sewage disposal system and all the relevant components.
- 7) No Minimum Leaching System Spread (MLSS) calculation has been provided for the primary sewage disposal system.
- 8) No information is provided as to the type of system and length of the system to be used for the primary system.
- 9) There are no deep test pits for either of the proposed stormwater management systems which are required by the CT DEP 2004 Storm Water Quality Manual "the 2004 Manual". The required vertical separation of 36" to seasonal high groundwater and/or bedrock per the 2004 Manual cannot be confirmed it will be met.
- 10) The bottom of the larger Cultec System is proposed at 539.7' which is approximate ground surface on the lower side of the system. However, the upper side of the system is located at 542.0' which means that the bottom of the system will be 2.3' into the ground with no confirmation that the required vertical separations to groundwater or bedrock will be met.
- 11) The bottom of the smaller Cultec System is proposed at 535.7' which is approximately 3.3' below the ground surface on the lower side of the system. The bottom of the upper

side of the system will be 4.3' below existing grade with no confirmation that the required vertical separations to groundwater or bedrock will be met.

- 12) The note for the smaller Cultec System states that it will be used for pool drain and water softener discharge. Based upon my experience, the discharge from a water softener must be directed to its own infiltration system and not combined with another stormwater.
- 13) No outlet control structure is provided for either underground detention system so it is not clear how zero increase in the peak rate of runoff will be achieved.
- 14) The construction entrance is shown at thirty (30') feet, which is less than the minimum fifty (50') length required by the CT DEP 2002 Guidelines for Soil Erosion and Sediment Control.
- 15) The applicant is proposing a coarse particle separator as part of the stormwater management system on the lot. Based upon the detail provided, this is a standard catch basin with a hooded outlet.
- 16) No elevations have been provided for the proposed house, pool, and patio.

Right of Way Plans (6 sheets):

- 17) The profiles of the proposed improvements to the Old Driftway do not meet the standard civil engineering scales. The standard scale for a profile is 1" = 40' (horizontal) and 1" = 4' (vertical). The profiles submitted by the applicant cannot be read at the scales provided.
- 18) No stationing is provided on the plan view of the proposed driveway so it cannot be related to the profile of the proposed driveway.
- 19) There are nine (9) underground gallery systems shown under the proposed driveway. Starting at the southern end of the Old Driftway, I will number these system one through nine.
 - a. The bottom of system #1 is shown to be at 573.5' which is 5.5' below existing grade. Based upon test holes #3 (43" to ledge) and #4 (20" to ledge), this system is not in compliance with the 2004 Manual requirement of providing a three (3') foot vertical separation to bedrock.
 - b. The bottom of system #2 is shown to be at 578.5' which is 3.5' below existing grade. Based upon test hole #2 (24" to ledge), this is not in compliance with the 2004 Manual requirement of providing a three (3') foot vertical separation to bedrock.
 - c. The bottom of system #3 is shown to be at 580.5' which is 3.6' below existing grade. Based upon test hole #2 (24" to ledge), this is not in compliance with the 2004 Manual requirement of providing a three (3') foot vertical separation to bedrock.
 - d. The bottom of system #4 is shown to be at 580.5' which is 5.5' below existing grade. Based upon test hole #2 (24" to ledge), this is not in compliance with the 2004 Manual requirement of providing a three (3') foot vertical separation to bedrock.
 - e. The bottom of systems #5 and #6 are shown to be at 576.5' which are at or just below the existing ground surface (cannot be determined from reading the plan). There is no deep test hole in the vicinity of these two systems so it cannot be

- determined if the required three (3') foot vertical separation to bedrock per the 2004 Manual is being provided.
- f. The bottom of system #7 is shown to be at 572.5' which is 6.5' below existing grade. There is no deep test hole in the vicinity of these two systems so it cannot be determined if the required three (3') foot vertical separation to bedrock per the 2004 Manual is being provided.
 - g. The bottom of system #8 is shown to be at 567.5' which is between 1.5' and 4.5' above the existing grade. There is no deep test hole in the vicinity of these two systems so it cannot be determined if the required three (3') foot vertical separation to bedrock per the 2004 Manual is being provided. Additionally, there is no information as to the type and amount of fill which will be placed for this system.
 - h. The bottom of system #9 is shown to be at 555.5' which is 4.5' below existing grade. There is no deep test hole in the vicinity of these two systems so it cannot be determined if the required three (3') foot vertical separation to bedrock per the 2004 Manual is being provided.
- 20) No outlet control structures are provided for any of the underground gallery systems. As noted above many of the gallery systems are in bedrock so no infiltration will occur.
- 21) The applicant proposes the use of porous asphalt before, over and after the proposed series of box culverts across the vernal pool. The 2004 Manual requires that porous asphalt be in Class A or Class B soils. No soil data has been provided in these areas. Wetland soils are Class D, so on that basis alone it is wrong to use porous asphalt in this area. Based upon the limited soil data provided, the porous asphalt will fail as proposed.
- 22) It is stated on Sheet 1 of 6 that all ledge and rock within two (2') feet of the bottom of the elevation of any concrete gallery or aggregate base under the porous asphalt will be removed, as necessary. Per the 2004 Manual, a three (3') foot vertical separation is required so there will be substantial blasting of the ledge along the alignment of the driveway to meet this requirement.
- 23) No information has been provided about the type of material which will be used to replace the removed ledge rock.
- 24) In many locations, the width of the right of way of the Old Driftway measure just over 10'. It is simply not possible to construct a ten (10') foot wide driveway without impacting the properties adjacent to the right of way.
- 25) A series of 7' x 1.5' concrete box culverts are proposed to cross the vernal pool. It is not clear from the plans how many of these box culverts are being proposed for this crossing.
- 26) There is no information as to how the angle points between sections of box culvert will be addressed.
- 27) Box culvert must have a cut off wall on the inlet side of them which is not shown on the applicant's plan. A cut off wall is a vertical concrete wall below the invert of the box culvert which extends down to an impermeable soil layer to prevent water from going under the box culvert.
- 28) Concrete headwalls are required on both sides of the box culvert. None are shown on the applicant's plan.
- 29) The bottom of the box culvert must be set on a stone base which is a minimum of 12" thick and must be located on top of a soil layer which can support the weight of the

culverts as well as the driveway material. This will require an unknown, but substantial amount of excavation of the wetland soils in the vernal pool.

- 30) No plans have been provided to show how excavation and/or filling within the vernal pool will be done without causing siltation of the adjacent wetland areas and potential dewatering of the wetland.
- 31) The detail for the porous pavement only consists of crushed stone and will not provide any water quality treatment of non-point source pollutant from the driveway. The non-point source pollutants of concern are metals and hydrocarbons from the movement of vehicles on the driveway.
- 32) The proposed standard catch basins with a 24" deep sump and hooded outlet will provide little to no removal of TSS (total suspended solids)
- 33) No information has been provided regarding the direct impacts to wetland and watercourses within the Old Driftway as well as on the proposed lot area. Additionally, no information has been provided for how much area within the 100' upland review area will be impacted by this proposal.
- 34) Over forty trees will be removed within the limits of the Old Driftway. Many of them are located very close to the limit of the right of way and thus the excavation to remove the stumps will cause disturbance to the adjacent properties, where no easements exist to allow this work to be done.
- 35) No plan has been provided which shows how many trees will be removed within the lot area proposed for development.
- 36) The applicant is proposed a short bioswale along a portion of the western side of the proposed driveway. The detail for the Bioswale shows an underdrain which will be located at some unknown depth below the top of the soil media. Where will the underdrain discharge to?
- 37) The detail for the Bioswale calls out "permeable soil." No specifications have been provided for this soil mixture.
- 38) A note on sheet 1 of 6 states that the porous asphalt will be placed immediately after the installation of the box culverts. This means that the porous asphalt will be subject to the movement and weight of construction equipment such as loaded dump trucks, excavators, concrete trucks, lumber trucks, and other vehicles. The movement of such vehicles over the porous asphalt will cause a total failure of the porous asphalt system as porous asphalt does not have the structural integrity to support heavy weights.
- 39) How will the siltation fence barriers be installed across the vernal pool which is a ponded condition?
- 40) The construction narrative is overly simplistic for a project which has a high probability of adverse environmental impacts. The narrative does not conform to the form and content for narratives found in the CT DEP 2002 Guidelines for Soil Erosion and Sediment Control.

Drainage Report:

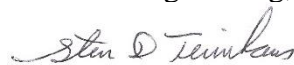
- 41) No sizing computations have been provided for the sizing of the Bioswale which must be adequate to convey the runoff from a ten-year rainfall event.
- 42) The watershed mapping does not include off-site areas which currently drain onto the Old Driftway. How will the off-site runoff be handled?

- 43) No assessment of non-point source pollutant loads from the paved surface of the proposed driveway has been prepared as well as an assessment of how the proposed stormwater management system will reduce the non-point source pollutant loads.
- 44) Simply providing the Water Quality Volume (WQV) within the stone layer of the porous asphalt and the underground galleries does not meet the requirements of the 2004 Manual which requires that the WQV is “captured and treated”. This standard has not been met.
- 45) Similarly, the Groundwater Recharge Volume (GRV) must be infiltrated to meet this requirement. It has not been demonstrated that the GRV will be infiltrated on the site and thus the GRV is being met.
- 46) For the Road Basin watershed, the routing analysis for the 24” gallery system calls out a 6” outlet pipe at the top of the gallery system. Where will this outlet pipe discharge to?
- 47) As it has not been demonstrated that any infiltration will occur under the gallery system, you cannot consider the storage volume below the invert of the 6” outlet pipe as available storage because it will always be full of water, thus the routing analysis is not valid rendering the reductions of the peak rate of runoff invalid.
- 48) For the Road Basin watershed, the routing analysis for the first 12” gallery system calls out a 6” outlet pipe at the top of the gallery system. Where will this outlet pipe discharge to?
- 49) As it has not been demonstrated that any infiltration will occur under the gallery system, you cannot consider the storage volume below the invert of the 6” outlet pipe as available storage because it will always be full of water, thus the routing analysis is not valid rendering the reductions of the peak rate of runoff invalid.
- 50) For the Road Basin watershed, the routing analysis for the second 12” gallery system calls out a 6” outlet pipe at the top of the gallery system. Where will this outlet pipe discharge to?
- 51) As it has not been demonstrated that any infiltration will occur under the gallery system, you cannot consider the storage volume below the invert of the 6” outlet pipe as available storage because it will always be full of water, thus the routing analysis is not valid rendering the reductions of the peak rate of runoff invalid.
- 52) For the Wetland Basin watershed, the routing analysis for the first 12” gallery system calls out a 6” outlet pipe at the top of the gallery system. Where will this outlet pipe discharge to?
- 53) As it has not been demonstrated that any infiltration will occur under the gallery system, you cannot consider the storage volume below the invert of the 6” outlet pipe as available storage because it will always be full of water, thus the routing analysis is not valid rendering the reductions of the peak rate of runoff invalid.
- 54) For the Wetland Basin watershed, the routing analysis for the second 12” gallery system calls out a 6” outlet pipe at the top of the gallery system. Where will this outlet pipe discharge to?
- 55) As it has not been demonstrated that any infiltration will occur under the gallery system, you cannot consider the storage volume below the invert of the 6” outlet pipe as available storage because it will always be full of water, thus the routing analysis is not valid rendering the reductions of the peak rate of runoff invalid.
- 56) For the Wetland Basin watershed, the routing analysis for the aggregate layer under the porous asphalt calls out a broad crested weir 15” above the bottom of the aggregate. Where will this outlet system discharge to?

- 57) As it has not been demonstrated that any infiltration will occur under the gallery system, you cannot consider the storage volume below the invert of the 6" outlet pipe as available storage because it will always be full of water, thus the routing analysis is not valid rendering the reductions of the peak rate of runoff invalid.
- 58) For the North Basin watershed, the routing analysis for the first 12" gallery system calls out a 6" outlet pipe at the top of the gallery system. Where will this outlet pipe discharge to?
- 59) As it has not been demonstrated that any infiltration will occur under the gallery system, you cannot consider the storage volume below the invert of the 6" outlet pipe as available storage because it will always be full of water, thus the routing analysis is not valid rendering the reductions of the peak rate of runoff invalid.
- 60) For the North Basin watershed, the routing analysis for the first 24" gallery system calls out a 6" outlet pipe at the top of the gallery system. Where will this outlet pipe discharge to?
- 61) As it has not been demonstrated that any infiltration will occur under the gallery system, you cannot consider the storage volume below the invert of the 6" outlet pipe as available storage because it will always be full of water, thus the routing analysis is not valid rendering the reductions of the peak rate of runoff invalid.
- 62) For the North Basin watershed, the routing analysis for the second 24" gallery system calls out a 6" outlet pipe at the top of the gallery system. Where will this outlet pipe discharge to?
- 63) As it has not been demonstrated that any infiltration will occur under the gallery system, you cannot consider the storage volume below the invert of the 6" outlet pipe as available storage because it will always be full of water, thus the routing analysis is not valid rendering the reductions of the peak rate of runoff invalid.
- 64) No stormwater analysis was prepared for the potential development of the lot at the end of the Old Driftway.
- 65) The applicant submitted an alternative of a 100' long bridge in lieu of the currently proposed box culverts. As the entire length of the vernal pool crossing is approximately 140', how will a 100' long bridge eliminates the adverse impact to the vernal pool?
- 66) How would the eastern abutment for the alternative bridge be installed, if you cannot physically cross the vernal pool?

Please contact my office if you have any questions concerning this information.

Respectfully submitted,
Trinkaus Engineering, LLC



Steven D. Trinkaus, PE