

VIA EMAIL

July 6, 2011
File No. 17.0028435.00

Mr. David Garvey
Garvey & Company, Ltd.
P.O. Box 935
Durham, New Hampshire 03824

Re: Proposed Wetland Crossings
Tax Map 9, Lots 1 and 11, Evans Road
Madbury, New Hampshire

Dear Mr. Garvey:

Per your request, this letter has been provided in support of the proposed wetland crossings that have been designed on the above-referenced properties to provide driveway access to proposed residential developments. This information is being provided in accordance with Article IX: Wet Area Conservation Overlay District of the Madbury Zoning Ordinance, Section 4: Permitted and Prohibited Uses, (C) Limited and Regulated Uses. The proposed wetland crossing on Lot 11 is identified on the attached plan titled *Evans Subdivision Wetland Crossing West, Sheet 1 of 1* prepared by American Engineering Consultants, Corp. dated April 2011. The proposed wetland crossing on Lot 1 is identified on the attached plan titled *Wetlands Crossing Evans Road, Drawing No. 1* prepared by American Engineering Consultants, Corp. dated May 22, 2011.

GZA GeoEnvironmental, Inc. (GZA) performed a wetland delineation in accordance with the United States Army Corps of Engineers' "Wetlands Delineation Manual" using the Routine Determinations Method, and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual, on the referenced property on March 28, 2011. GZA also conducted a High Intensity Soil Survey at the referenced property on April 14, 15, and 16, 2011 using the standards and criteria presented in the Society of Soil Scientists of Northern New England's Special Publication No. 1, "High Intensity Soil Maps for New Hampshire Standards," dated April 2008.

GZA classified wetlands on the property in accordance with the *Classification of Wetlands and Deepwater Habitats of the United States*, December 1979, United States Department of the Interior, Fish and Wildlife Service, FWS/OBS-79/31. The wetland crossing on Lot 1 passes through forested wetlands classified as palustrine broad-leaved deciduous, needle-leaved evergreen forested system that is seasonally flooded or saturated (PFO1/4E). Plants in and around the wetlands include, but are not limited to, cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), poison ivy (*Toxicodendron radicans*), bristly dewberry (*Rubus hispida*), teaberry (*Gaultheria procumbens*), partridgeberry (*Mitchella repens*), winterberry holly (*Ilex verticillata*), buckthorn (*Rhamnus frangula*), red maple (*Acer rubrum*), quaking aspen (*Populus tremula*), white ash (*Fraxinus americana*), green ash (*Fraxinus pennsylvanica*), and white pine (*Pinus strobus*). The wetlands crossing on Lot 11 passes through forested and emergent wetlands classified as a combination of palustrine broad-leaved deciduous, needle-leaved evergreen forested system that is seasonally flooded or saturated (PFO1E) and palustrine emergent persistent wetland that is seasonally flooded or saturated (PEM1E). Plant species include, but are not limited to, cinnamon fern, sensitive fern, bristly dewberry, teaberry, partridgeberry, winterberry holly, highbush blueberry, maleberry (*Lyonia ligustrina*), blue beech (*Carpinus caroliniana*), hop hornbeam (*Ostrya virginiana*), red maple, white ash, green ash, red oak (*Quercus rubra*), black birch (*Betula lenta*), sheep laurel (*Kalmia angustifolia*), American beech (*Fagus grandifolia*), white pine, and eastern hemlock (*Tsuga canadensis*).





The wetlands receive hydrology from a high water table and overland flow from surrounding uplands. The drainage of the wetland system generally flows from the west to the east across the property. An evaluation of the topography indicates that water would flow from west to east under the proposed crossing on Lot 11 and then proceed in a southeasterly direction under Evans Road. Similarly, water would flow from west to east under the proposed crossing on Lot 1 and then proceed in a southeasterly direction. These wetlands likely contribute hydrology to an unnamed tributary to Gerrish Brook that is located to the south of the subject properties.

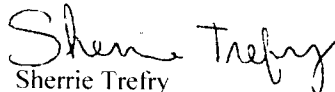
The wetland systems to be impacted are large in comparison to the proposed impact areas required for the two wetlands crossings. Wetlands crossings have been designed at the narrowest portion of the wetland systems to minimize impacts. These wetlands do not exhibit characteristics of intermittent streams and do not provide habitat for fish and/or shellfish or sediment/shoreline stabilization that would be compromised by fragmentation and vegetation removal. The proposed driveway on Lot 1 appears to be in the shortest and least impacting location required to gain access to the buildable area. Therefore, proposed impacts should not significantly impact the functions and values of these wetland systems provided that there is sufficient hydrologic conductivity between the wetlands. The engineered design plans for the wetland crossings include 28-foot 15-inch corrugated PVC culverts to maintain hydrologic connectivity. These wetlands will still be able to provide flood protection and storm water storage, recharge of ground water supply, augmentation of stream flow during dry periods, and wetland wildlife habitat after the wetland crossings are installed.


The wetlands to be impacted on Lot 1 are forested and the wetlands to be impacted on Lot 11 are predominantly emergent. These wetland types are common in this area and include typical wetland species. The proposed design includes Best Management Practices (BMPs) such as silt fence and hay bales to prevent erosion and sedimentation during construction. GZA concludes that the proposed project will not adversely impact the adjacent wetland areas provided that BMPs are installed and maintained appropriately. The proposed project is consistent with the intent of the overlay district which is to prevent the pollution of surface water and ground water,


Please do not hesitate to contact the undersigned if you have any questions.

Very truly yours,

GZA, GEOENVIRONMENTAL, INC.


Sherrie Trefry
Assistant Project Manager


James H. Long, CSS, CWS
Senior Technical Specialist
Project Manager


Lawrence Morse
Consultant/Reviewer

JHL/SLT/LEM:erc

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Attachments: Evans Subdivision Wetland Crossing West, Sheet 1 of 1
Wetlands Crossing Evans Road, Drawing No. 1