GEI Consultants

Note: Comment responses in Red added by FAHA 5/31/16

455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Ph: (860) 368-5300
Fax: (860) 368-5307

Memorandum

To: Jennifer S. Kaufman, Inland Wetlands Agent, Town of Mansfield

From: Kimberly Bradley and John McGrane, GEI Consultants, Inc.

Regarding: Storrs Lodge, LLC, Town of Mansfield Inland Wetland Application Review (PN: 1605880)

Date: May 12, 2016

The Town of Mansfield Wetland Agency selected GEI Consultants, Inc. (GEI) to provide wetland consulting services in association with a pending wetland application for the above-referenced development plan.

The services include:

- Application Review- Includes review of pertinent mapping, reports, and other application materials.
- A site visit to assess the characteristics of the wetland and upland resources at the site was conducted on April 25, 2016. The site visit included Kim Bradley, Senior Wetland Scientist/Ecologist for GEI, Jennifer Kaufman, Inland Wetlands Agent for the Town of Mansfield, George Logan, PWS, CE, and Sigrun Gadwa, PWS of Rema Ecological Services, LLC, and David Zaiks of F.A. Hesketh & Associates, Inc.

Based on the application review and site visit, GEI offers the following initial comments addressing the potential of significant impact to the wetlands of all proposed regulated activities as defined by the Mansfield Inland Wetland and Watercourses Regulations:

1. A total of 4,402 square feet of direct impacts to wetlands is proposed at the wetlands crossing over an unnamed tributary to Eagleville Brook from Hunting Lodge Road to the proposed development. The crossing would serve as the main access road to the development. The location was selected as it is the location of an old woods road on a historic fill causeway, which therefore minimizes wetland impacts resulting from a wetland/stream crossing. The applicant proposes a precast arch bridge with block retaining walls which will prevent any direct impacts to the intermittent watercourse. It should be noted that arch bridges are a preferred stream crossing structure according to the Connecticut Department of Energy and Environmental Protection (CT DEEP) Inland Fisheries Division Habitat Conservation and Enhancement Program: Stream Crossing Guidelines (2008).

   It is recommended that the 6' wide sidewalk proposed on the southern portion of the road crossing be reviewed.
   One of the design goals for the project was to make it pedestrian friendly and encourage the use of the public pedestrian walkway located along Hunting Lodge Road. In order to

connect the project to the public walkway, a sidewalk system has been incorporated throughout the project including along the south side of roadway crossing. In order to minimize the footprint width at the crossing, the design of the placement of walk was modified to eliminate the 3-5 ft. grass shoulder between the walk and curb as provided elsewhere on the site and construct the walk directly alongside the curb. See Sheet SDD-1 for details.

2. In general, the storm water management design at the site takes steps to reduce impervious surface where to the extent possible through reduction of road widths, utilizing pervious pavement, installing and maximizing the use of vegetative swales, employing level spreaders, and increasing and lengthening drainage flow paths. The Engineering and Drainage Report, along with REMA Wetlands Assessment – Supplemental: Review of Storm water System report document the use of "treatment trains" which include a significant infiltration component, using below ground, low-profile infiltration units. Above-ground primary treatment in the form of bio-retention basins and vegetated swales is also utilized at each of the catchment areas. GEI agree with REMA's recommendation to seed the bottom of bioretention basins with Ernst Conservation Seeds (i.e. ERNMX-180). *We concur.*

3. The plans call for an extensive use of infiltration systems to reduce runoff and meet CT DEEP requirements for Water Quality Volume, and Groundwater Recharge Volume. The entire design is dependent on the permeability of the existing soils and groundwater levels. The Engineering and Drainage report does not document whether the applicant has performed any field investigation to determine in place permeability rates, to in turn determine if the systems will work as designed. Geotechnical borings and laboratory permeability tests, or in place permeability tests may be needed to verify whether the infiltration systems are viable. *Additional deep test pits and permeability tests have been completed in the field and the results of the tests will be available for review shortly.*

4. Accurate groundwater readings should be taken to determine year-round levels in the areas of the proposed infiltration and the BioRetention Basins. If high ground water levels are present, even just seasonally, then the infiltration will not function as designed. Also, the BioRetention Basins will not function properly if they are partially filled with groundwater. If the designed storage volume is occupied with groundwater, they will not have the capacity to store surface runoff, and may overtop the basins. *Additional groundwater measurements were taken in the field at each proposed basin location and minor revisions to the basins were completed including in some cases, the addition of an underdrain to insure they will empty completely between storm events during seasonal high groundwater periods. These changes will be incorporated onto the revised plans.*

5. Proposed BioRetention Basins do not have any type of emergency spillway in the event of over topping. If overtopping does occur, it may cause scour and erosion which could impact the wetlands. Consideration to some type of emergency spillway or non-erodible material should be evaluated to accommodate this potential failure mode. *Special Riprap (aka No. 3 Stone) emergency overflows have been added to the basin design as recommended.*

6. The maintenance of the storm water system, infiltration system, and network of bio retention basins should be formalized. These systems will not function as designed if sediment, overgrowth, or erosion occurs over time, and are left unmaintained. *REMA and FAHA are preparing a written Maintenance Plan as recommended and will be submitting it shortly for review and comment.*

7. The REMA Wetlands Assessment – Supplemental: Review of Storm Water System's report,

and review of the full Engineering and Drainage Report state that the required Water Quality Volume (WQV) for stormwater basin #6 (Watershed/Strom Darin System G, discharge G1) is 2750 C.F., while the provided WQV is only 395 C.F. REMA notes that proposed wetland creation/restoration area restricts the ability to increase the size of Bioretention Area #6. It is also noted that an oversized hydrodynamic separator is proposed within the system to attain 85% TSS removal. While REMA's rationale of prioritizing wetland restoration and adjacent wetland conditions that allow for discharge flow dispersal are noted, it is recommended that an alternative of increasing the size of bioretention area #6 and identifying an alternative wetland mitigation area is evaluated. *Bio-retention basin #6 has been redesigned to provide the required 2,750 c.f. of WQ storage volume as shown on Sheet GR-2 and SDD-2. The separator structure is no longer required and has been deleted from the design. These changes will be incorporated onto the revised plans.*

8. The vernal pool located in wetland WA was identified as a high value resources on the site. It is recommended that in addition to the two 2016 vernal pool evaluation surveys and associated summary reports provided by the applicant, at least one additional site visit occur in the June/July timeframe to provide an understanding of when the pool dries and evaluate if the vernal pool maintains adequate hydrology to support successful obligate amphibian reproduction. The proposed development plan includes a roadway within close vicinity to the vernal pool. The roadway is proposed in an area of historic fill, which may have historically influenced the hydrologic conditions within site wetlands, resulting in isolation of the vernal pool (WA) from the wetlands to the east (WC-1). The applicant has proposed installation of wildlife tunnels beneath the western access and circulation road connecting wetlands WA and WC to reduce some of the development impacts on amphibian populations. *Last week, REMA conducted additional field observations and will be submitting a supplemental report shortly for review and comment. They will continue to monitor the vernal pool throughout the June/July period.*

9. Silt fencing and other erosion control measures installed adjacent to vernal pools should be removed from February to June to reduce construction related impacts on vernal pool breeding activity/amphibian migration routes. Sequencing of construction activities within the vicinity of the vernal pool should take into consideration the February-June timeframe, if feasible. *If work needs to continue through the February-June period, we will modify the installation of erosion control barriers, such as introducing staggered openings and other techniques that follow CTDEEP and Army Corps guidelines to insure no impact to migration routes. Every effort will be made to schedule work around these areas during this timeframe.*

10. Upland and wetland buffers to the unnamed tributary should be considered a valuable natural mitigation measure to protect water quality and aquatic resources of watercourses. Buffers should be enhanced with native plantings and maintained throughout the proposed development. Forested cover and wetland buffers in and around the 50 (at a minimum) to the 150 foot upland review area around wetlands located directly between the proposed developed portions of the site should be maintained throughout the construction process to limit the potential for increased evapotranspiration which may result in alteration of the hydrology of the wetland due to clearing of the forest over story. The proposed limits of disturbance should be strictly adhered to. *The contract documents with the site contractor will be structured to enforce the limits of construction as shown on the plans. The buffer areas will be protected by silt fence and construction fencing prior to the start of clearing activities. In some areas hay bales will be installed to back-up the silt fence. A buffer planting plan will be developed to add appropriate additional plantings along the clearing limits to enhance the permanent vegetative buffer to the undisturbed areas abutting the development.*

11. Proposed parking on northeast portion of the development adjacent to wetlands WC2 and WC3 will require maintenance restrictions to prevent snow management practices that may result in snow melt impacts to adjacent wetlands. It is recommended that storm water management and snow removal maintenance requirements restrict the placement of snow in this parking area, and propose guardrail placement as an engineering control measure. *As recommended, a snow management and storage plan has been developed for the entire site and is attached for review and comment. The placement of snow piles will be banned from this area in the site maintenance plan.*

12. The Construction Sequence outlined on drawing NT-1 is vague. Construction sequence should clarify whether land clearing will occur in a single phase. Land disturbance and clearing should be kept to a minimum and completed in phases if possible. All disturbed areas should be re-stabilized as soon as possible and exposed, unvegetated areas should be protected from storm events. *As shown on Sheet MA-1, it is anticipated that the project will be completed in two major development phases. The southerly portion of the project including the Community Building will be completed first, followed by the northerly portion of the project. Clearing for each phase will occur as a single operation from start to finish. All required erosion control will be in place and inspected by a 3rd party inspector and town staff prior to the start of site disturbance in each phase. Re-stabilizing all disturbed areas will begin as soon as possible to minimize erosion risks.*

13. Additional details, including construction methodology and sequence/timing for the wetland crossing from Hunting Lodge Road should be provided. It is recommended that construction occur during the summer low flow period (June through September), in accordance with CT DEEP Inland Fisheries Division Habitat Conservation and Enhancement Program: Stream Crossing Guidelines (2008) to reduce the potential for impacts to wetlands and the unnamed tributary. *As recommended, a more detailed construction sequence plan is under preparation by FAHA and will be submitted for review and comment. Summer low flow conditions are really of little concern with the proposed crossing since the arch culvert will span the watercourse and no disturbance of the watercourse will be permitted during installation of the crossing.*

14. Erosion and Sediment Control Note 4 states: "The contractor is responsible for the timely installation, inspection, repair or replacement of erosion control devices to insure proper operation." It is recommended that the land owner, developer, or responsible individual (identified per Erosion and Sediment Control Note #2) ensure inspection and regular monitoring will be conducted by an individual with experience in sediment and erosion control. *As required by CTDEEP General Permit registration requirements, the owner is responsible for hiring a 3rd party expert/inspector to review the preparation of the Stormwater Control Plan prior to registration and then the installation of the devices in the field. This inspector will be retained to provide periodic inspections throughout the duration of construction of the project.*

15. It is recommended that a wetland creation/restoration construction plan be included with wetland mitigation report and/or as a component of a comprehensive landscape plan within the project application drawings. The wetland mitigation report states "Mosaic of wet meadow, shallow marsh, and scrub-shrub (about 25% total woody cover of shrubs and saplings) is the short-term target cover type." The wetland mitigation report includes appropriate planting material including shrubs/trees, herbaceous plugs and wetland seed mixes, however a plan will provide a visual depiction of the proposed mitigation design, and provide an estimate of required excavation. Elevations supporting hydrologic regimes

required by wetland vegetation communities should be identified within the mitigation design. It is noted that the grading plan (GR-2) does not indicate grading in the wetland mitigation area. *Please note that a separate report dated April 4, 2016 was prepared and submitted by REMA that includes their detailed recommendations for implementing the proposed mitigation areas. As recommended, a wetland mitigation plan to supplement this report for both areas proposed with planting details and additional grading information is under development and will be submitted shortly for review and comment.*

16. The proposed wetland creation and restoration area is in the vicinity of storm water treatment basins. The wetland mitigation should be clearly separated from the site storm water management system. In addition, the proposed mitigation area is in close vicinity to the main roadway within the development (~20 ft. at the closest approximate distance). Has the potential influence of the roadway on the mitigation area been evaluated? Have alternative wetland mitigation areas been considered? *Per this recommendation, the mitigation area has been reduced at this location to separate it more from the Bio-retention basin #6 and to provide more isolation from the vernal pool and a second area has been added to the revised plans. Also, please refer to the attachment provided to these comments responses regarding Mitigation Alternatives reviewed.*

17. The proposed timing of wetland creation and restoration site preparation is not identified within the wetland mitigation report. It is recommended due to the excavation directly adjacent to a wetland hydraulically connected to the unnamed tributary to Eagleville Brook, construction should occur during the summer low flow period (June through September), in accordance with CT DEEP Inland Fisheries Division Habitat Conservation and Enhancement Program: Stream Crossing Guidelines (2008). This timeframe would also limit issues associated with amphibian migration. *The mitigation site work at both proposed locations will be scheduled to occur during low flow and groundwater timeframes. This will be included in the Construction Sequence Plan.*

18. It is recommended that a landscape plan be developed for the site as a component of the Inland Wetland Application drawings. The plan would provide an understanding of the proposed for landscaped area within the limit of disturbance, provide detailed plan for wetland mitigation as noted above, and identify areas a native plant wetland and watercourse buffer enhancement, as proposed in the Wetlands Assessment - Supplemental: Wetland Mitigation report. *As recommended, a planting plan for a typical 100 ft. length of edging along the clearing limits in under development and will submitted for review and comment. This will be incorporated into the overall site landscape plan on the final approved drawings.*

19. According to the Town of Mansfield Inland Wetlands and Watercourses Regulations Effective February 15, 2012) Section 7.4 G, the inland wetland application shall include, at a minimum "Alternatives which would cause less or no environmental impact to wetlands or watercourses and why the alternative requested in the application was chosen; all alternatives shall be diagramed on a site plan or drawing or otherwise described to the Agency's satisfaction." The application plans and reports do not provide an evaluation of feasible and prudent alternatives for the Site. The applicant should be able to provide an evaluation of an alternative for a main access road that would not require direct impact to wetlands. *Please refer to the Attachment provided to these comment responses regarding the alternatives evaluated in the design of the project.*

20. According to the Town of Mansfield Inland Wetlands and Watercourses Regulations Effective February 15, 2012) Section 7.4 M, the inland wetland application shall include, at a

minimum " Submission of documentation verifying that the State of Connecticut Department of Environmental Protection's Natural Diversity Database has been checked for the presence of any state-listed species or significant natural communities on the property;" The application reports and documents do not provide any documentation of a Natural Diversity Database request submitted to CT DEEP or follow-up site specific review. It should be noted that NT-1 Erosion and Sediment Control Note 15 states: "Due to the area of proposed disturbance, this project will require a storm water permit from the CT DEEP. A copy of this permit, and the required Storm Water Pollution Prevention Plan shall be submitted to the town prior to the start of any construction." In addition to Town of Mansfield requirements, the CT DEEP storm water permit requires a Natural Diversity Database (NDDB) review. *The applicant will be filing a CTDEEP General Permit Registration for the discharge of stormwater associated with Construction Activities. This application must include a Stormwater Pollution Prevention Plan (aka a SWWPP Plan) designed specifically for this project. Because the project is greater than 15 acres, the owner must hire a 3rd party consultant to review and add certification to the application prior to submittal. This party must also inspect the installation of the erosion control as specified on the plans and in the SWWPP.*

A copy of a letter recently received from CTDEEP concerning review of the Natural Diversity Database is attached.

Attachment- Responses to GEI Comments #16 & # 19: Alternatives Analysis 5/31/16

It is the opinion of the applicant that there are no feasible and prudent alternatives to the proposed development as proposed. The following is provided to support that conclusion.

The project includes the construction of 47 two-story residential buildings with 218 dwelling units providing housing a total of 692 UCONN students along with a Community Center Building and outdoor recreational areas. There will be two 24-foot wide paved access driveways proposed. The main access drive to the development will be from Hunting Lodge Road. The second access drive from Northwood Road will be for limited emergency access and campus bus circulation. On-site parking will be constructed for 619 vehicles. Site work will be completed using conventional construction equipment and techniques. Minimal blasting or significant rock excavation is anticipated to construct the project based on soil characteristics on the property. Construction will take place over an 18-24 month period.

Every effort has been made to maintain a substantial buffer from the wetland and watercourse resources identified on the site. The proposed wetland crossing for the main driveway out to Hunting Lodge Road will be accomplished using a precast concrete arch bridge so there will be minimal unavoidable impacts to the wetlands at this location. Other than the permanent disturbance at the culvert bridge crossing totaling 4,402 s.f., there will be no other direct impacts to wetlands or watercourses on the property. Two mitigation areas are proposed to be constructed to off-set the loss of the 4,402 s.f. of wetland.

A. Wetland Mitigation Alternatives: (Comment #16)

REMA Ecological Services has recommended that the project include mitigation for the small loss of wetland resources resulting from the project. The goal is to provide a one for one replacement of at least 4,402 s.f., and if possible, locate the mitigation site(s) near the area of the proposed impact. Typically mitigation areas are located on a project site in such a way as to restore previously disturbed wetland or watercourse resources. REMA has located two such areas and has recommended a mitigation plan for both totaling more than the 4,402 s.f. goal. The first area is located just north of the main driveway crossing along the east edge of Wetland C as shown on Sheets GR-3 and IW-1. The second mitigation area is located on the east side of proposed driveway passing in the vicinity of the vernal pool along the west edge of Wetland C as shown on Sheets GR-1, SDD-2 and IW-1. Both of these areas are located in places where manmade disturbance occurred in the past involving placement of fill and excessive tree clearing and land disturbances.

Based on its field evaluations, REMA has determined that there are no other feasible and prudent locations for mitigation to be implemented on the site.

B. Development Alternatives: (Comment #19)

The property is presently zoned RAR-90. Under Article 7.G of the Zoning Regulations, uses permitted in this zone are those typically allowed in residential zones, such as one and two

family residences, group homes, agriculture, schools, churches, cemeteries, recreational uses and public infrastructure. The minimum lot size is 90,000 sf. for single family and 120,000 s.f. for two-family homes. The Mansfield Zoning and Subdivision regulations due allow for consideration of reductions in minimum lot size and frontages to account for topographic and natural resource limitations.

Developing the site as a residential subdivision would mean portions of wetlands and watercourses and abutting buffer areas would fall within these lots subjecting them potentially to the long-term impacts resulting from the use of the land in a conventional residential environment. The monitoring and enforcement of potential activities and impacts on these resources becomes difficult when they occur on individually owned residential properties. Long term lawn care and pest management would be conducted by individual homeowners and would not be part of a comprehensive land management plan as would be the case in a master plan development operated by an on-site management team.

Development of this property under a master planned residential concept as proposed allows development to occur in selected upland areas and essentially sets aside the wetland and watercourse resources with appropriate buffers from the development in undisturbed portions of the property. Long term property maintenance will be managed by an on-site professional management team and will be closely monitored and implemented in accordance with conditions of approval which can be enforced by the town under the Special Permit process.

Given the rather unique shape of the property boundaries, topographic features, limited public access points and the configuration of natural wetland and watercourse resources , the applicant believes developing this property as a master planned residential development as proposed is the most feasible and prudent alternative to the development options permitted by town regulations.

B. Roadway Access Alternatives: (Comment #19)

Given the topographical features of the property and practical access limitations to existing public roadways, any type of development on this property would include access roads and public utility connections basically following the layout included in the proposed project. It is the opinion of the applicant that there are no other feasible road locations on the property. See Sketch #1, attached.

The one wetland crossing proposed to gain proper and safe roadway and pedestrian access to Hunting Lodge Road occurs at a location that has been used for such access for many years based on a review of current site conditions and historical aerial photography. The remains of an old driveway at this crossing need to be upgraded to current design standards providing for a minimum 24-foot wide paved roadway along with a sidewalk to provide pedestrian access within the site and to the public walkway system installed along Hunting Lodge Road.

Crossing the wetlands using conventional pipe or box culverts was evaluated as a possible more cost effective alternate to the proposed precast arch bridge crossing. Due to the sensitive

nature of the crossing location, a conventional culvert and fill installation was deemed not to be the most prudent alternative.

Roadway access to the abutting apartment complex to the north in not feasible due to the layout of the existing housing units and parking areas within that complex. There is no feasible connection to the west due to topographic considerations and the presence of the State Forest land.

Relocating the proposed roadway access to Hunting Lodge Road further to the north would require construction of a new roadway crossing through a significant undisturbed wetland corridor. There is no evidence to suggest that such a crossing has existed in the past at this location. Undertaking such a crossing is not considered to be prudent when compared to the proposed crossing location.

Roadway access to the south can only occur by extending Northwood Drive since the project site is abutted along the southerly boundary by an existing residential subdivision. Northwood Road begins at North Eagleville Road as basically a parking lot driveway to provide access to a student apartment complex owned and operated by the University. Head-in 90-degree parking is constructed along both sides of the first 800 l.f. of roadway along with painted raised pedestrian crossings and screened dumpster locations. From there, the roadway continues as a minor town road to service the three existing residential lots at the north end of the road.

Regardless of the type of development that is constructed on the property, primary vehicular and pedestrian access to Hunting Lodge Road will be required and as such, the proposed amount of direct disturbance to wetland resources on the property is unavoidable since it is all related to the proposed roadway crossing.

In conclusion, the applicant believes that the proposed main driveway access to Hunting Lodge Road which limits direct impacts to wetland and watercourse resources to a small area of 4,402 s.f. at the existing crossing, in combination with the emergency access drive to Northwood Road, is the most feasible and prudent alternative plan for vehicular and pedestrian access to the property.

ACCESS NOT FEASIBLE

ALT. DRIVE LOCATION SIGNIFICANT NEW WETLAND DISTURBANCE

PROPOSED ALT. AT EXIST. CROSSING

ACCESS TO WEST NOT FEASIBLE

ACCESS NOT FEASIBLE

ACCESS NOT FEASIBLE

SINGLE PRINCIP ACCESS TO NORTHWOOD NOT PRUDENT

SKETCH #1
5/24/16

Zoning Data

Existing Zone: Rural Agricultural Residence 90 Zone (RAR 90)

Proposed Design Development District: Design Multiple Residence (DMR)

Density Requirement (Article 10 A.6.b):

Required: 5,000 square feet per Dwelling Unit
278 Dwelling Units x 5,000 [illegible]

Provided: Total Lot Area = 2,[illegible] square feet (19.32 acres)
Area of Wetlands = 291,172 square feet
Area of steep over 15% = 137,180 ± square feet
Net Lot Area = 1,572,[illegible]

Minimum Lot Frontage (Article 8):

Required: 300 feet minimum

Provided: Hunting Lodge Road [illegible]
Northwood Road = [illegible]

Minimum Setback from Front Lot Line (Article 8):

Required: 35 feet minimum

Provided: [illegible] feet - Hunting Lodge [illegible]
[illegible] feet - Northwood [illegible]

Minimum Setback from Side Lot Line (Article 8):

Required: 35 feet minimum

Provided: 51± feet

Minimum Setback from Rear Lot Line (Article 8):

Required: 50 feet minimum

Provided: 51+ feet

Maximum Building Height (Article 10 A.6.d):

Required: 40 feet maximum

Proposed: 32 ± feet (see Architectural Plans)

Off-Street Parking (Article 10 D.5.a):

Required: .8 per Bedroom
592 Bedrooms x .8 spaces per bedroom = 554 required parking spaces

Proposed: 558 spaces

Minimum Distance Between Structures (Article 10 A.6.f):

Required: 20 feet minimum

Proposed: 22± feet

Minimum Floor Area (Article 10 A.6.e):

Required: 475 square feet for first three rooms
125 square feet for each additional room

Proposed: Each unit = 600± square feet

Minimum Open Space / Recreational Facilities (Article 10 A.6.h):

Required: 500 square feet per Dwelling Unit
218 Dwelling Units x 500 square feet per unit = 130,800 square feet

Proposed: 175,000 ± square feet Passive/Active Recreation Area

Maximum Building Ground Coverage (Article 8):

Required: 25 percent

Proposed: 174,680 Sq. Ft. or 9.8 percent

Building/Unit Data

Building Type "A" (32 Total)

128 Units
512 Bedrooms

Building Type "B" (15 Total)

90 Units
180 Bedrooms

Total

Buildings = 47
Units = 218
Bedrooms = 592

Building/Unit Parking Tabulation

Required: [illegible] spaces

Proposed: 24 Handicap Accessible spaces
24 Permeable Paver spaces
410 Standard spaces

558 Total spaces

Neighborhood Community Center Parking Tabulation

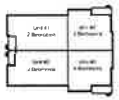
Proposed: 1 Handicap Accessible space
8 Permeable Paver Turf spaces
6 Standard spaces

15 Total spaces

Building "A"

See Architectural Plans for Specifics

3,280 ± Square Foot Footprint (including porches)
4 Units
16 Bedrooms



Building "B"

See Architectural Plans for Specifics

3,962 ± Square Foot Footprint (including porches)
4 Units
12 Bedrooms

NORTHWOOD ROAD (A TOWN ROAD)

MEADOWWOOD ROAD

GRAPHIC SCALE
(IN FEET)
1 inch = 60 ft.

THE LODGES AT STORRS

F.A. Hesketh & Associates, Inc.
6 Cromwell Brook, East Granby, CT 06026
Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects
Phone: (860) 653-6200
Fax: (860) 844-8000
e-mail: mail@fahassoc.com

No.	Date	Description

MASTER PLAN
prepared for
STORRS LODGES, LLC
HUNTING LODGE ROAD
MANSFIELD, CONNECTICUT

Date 03-18-2016 | Drawn by: MSL | Job no. 04161
Scale: 1" = 60' | Checked by: DSF | Sheet no. 1 OF 1

MA-1

© \\FAH\Shared\Jobs — www.fahassoc.com — Autodesk Exp. 4.4.1, Apr 15, 2016 — 3:43:31 PM

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

February 28, 2016

Mr. George Logan
REMA Ecological Services, LLC
164 East Center Street, Suite 8
Manchester, CT 06040
rema8@aol.com

Project: "The Lodges" at Storrs Housing Development, Hunting Lodge Rd., Mansfield, Connecticut
NDDB Determination No.: 201600729

Dear George,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed "The Lodges" at Storrs Housing Development, Hunting Lodge Rd., Mansfield, Connecticut. According to our records we have known extant populations of State Special Concern *Glyptemys insculpta* (wood turtle) in the vicinity of the project site. I have included recommended protection strategies and best management practices for this state special concern turtle.

Wood Turtle: Habitat destruction, degradation or alteration and fragmentation all threaten Wood Turtle populations. Turtles are also particularly vulnerable to any activity that consistently reduces adult survivorship. Disturbances to stream and riparian habitats and activities that change the hydrology of the stream, the physical habitat itself and water quality are all potentially detrimental activities for the Wood Turtle. Although Wood Turtles are found within forested areas, they prefer areas that do not have a fully closed canopy cover. The greatest concern during projects occurring in wood turtle habitat are turtles being run over and crushed by mechanized equipment. Reducing the frequency that motorized vehicles enter Wood Turtle habitat would be beneficial in minimizing direct mortality of adults.

Recommended Protection Strategies for turtles:

Work should occur when these turtles are active (April 1st to September 30th) and I recommend the additional strategies in order to protect these turtles:

- Silt fencing should be installed around the work area prior to construction, please avoid erosion control products that are embedded with plastic netting as these can be fatal to wildlife;

- Where possible, AVOID installing sediment and erosion control materials from late August through September and from March through mid-May. These two time periods are when amphibians and reptiles are most active, moving to and from wetlands to breed;

- After silt fencing is installed and prior to construction, a sweep of the work area should be conducted to look for turtles;

- Workers should be apprised of the possible presence of turtles, and provided a description of the species (http://www.ct.gov/dep/cwp/view.asp?a=2723&q=473472&depNav_GID=1655);

- Any turtles that are discovered should be moved, unharmed, to an area immediately outside of the fenced area, and position in the same direction that it was walking;

- No vehicles or heavy machinery should be parked in any turtle habitat;

- Work conducted during early morning and evening hours should occur with special care not to harm basking or foraging individuals; and

- All silt fencing should be removed after work is completed and soils are stable so that reptile and amphibian movement between uplands and wetlands is not restricted.

- Stockpiles of soil should be cordoned off with silt fencing so turtles do not attempt to try and nest in them.

- Use native plantings if possible. Any plantings should be composed of species native to northeastern United States and appropriate for use in riparian habitat.

If these protection strategies are followed then the proposed activities will lessen the impact on the wood turtle. I have attached fact sheets on these turtles. This determination is good for one year. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by February 28, 2017.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base. Also be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEEP for the proposed site.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

WILDLIFE IN CONNECTICUT

STATE SPECIES OF SPECIAL CONCERN

Wood Turtle

Glyptemys insculpta

Background

Wood turtles may be found throughout Connecticut, but they have become increasingly rare due to their complex habitat needs. Wood turtles also have become more scarce in Fairfield County due to the fragmentation of suitable habitat by urban development.

Range

Wood turtles can be found across the northeastern United States into parts of Canada. They range from Nova Scotia through New England, south into northern Virginia, and west through the Great Lakes region into Minnesota.

© PAUL J FUSCO

Description

The scientific name of the wood turtle, *Glyptemys insculpta*, refers to the deeply sculptured or chiseled pattern found on the carapace (top shell). This part of the shell is dark brown or black and may have an array of faint yellow lines radiating from the center of each chiseled, pyramid-like segment due to tannins and minerals accumulating between ridges. These segments of the carapace, as well as those of the plastron (bottom shell), are called scutes. The carapace also is keeled, with a noticeable ridge running from front to back. The plastron is yellow with large dark blotches in the outer corners of each scute. The black or dark brown head and upper limbs are contrasted by brighter pigments ranging from red and orange to a pale yellow on the throat and limb undersides. Orange hues are most typical for New England's wood turtles. The hind feet are only slightly webbed, and the tail is long and thick at the base. Adults weigh approximately 1.5 to 2.5 pounds and reach a length of 5 to 9 inches.

Habitat and Diet

Wood turtles use aquatic and terrestrial habitats at different times of the year. Their habitats include rivers and large streams, riparian forests (adjacent to rivers), wetlands, hayfields, and other early successional habitats. Terrestrial habitat that is usually within 1,000 feet of a suitable stream or river is most likely used. Preferred stream conditions include moderate flow, sandy or gravelly bottoms, and muddy banks.

Wood turtles are omnivorous and opportunistic. They are not picky eaters and will readily consume slugs, worms, tadpoles, insects, algae, wild fruits, leaves, grass, moss, and carrion.

Life History

From late spring to early fall, wood turtles can be found roaming their aquatic or terrestrial habitats. However, once temperatures drop in autumn, the turtles retreat to rivers and large streams for hibernation. The winter

is spent underwater, often tucked away below undercut riverbanks within exposed tree roots. Dissolved oxygen is extracted from the water, allowing the turtle to remain submerged entirely until the arrival of spring. Once warmer weather sets in, the turtles will become increasingly more active, eventually leaving the water to begin foraging for food and searching for mates. Travel up or down stream is most likely, as turtles seldom stray very far from their riparian habitats.

Females nest in spring to early summer, depositing anywhere from 4 to 12 eggs into a nest dug out of soft soil, typically in sandy deposits along stream banks or other areas of loose soil. The eggs hatch in late summer or fall and the young turtles may either emerge or remain in the nest for winter hibernation. As soon as the young turtles hatch, they are on their own and receive no care from the adults.

Turtle eggs and hatchlings are heavily preyed upon by a wide variety of predators, ranging from raccoons to birds and snakes. High rates of nest predation and hatchling mortality, paired with the lengthy amount of time it takes for wood turtles to reach sexual maturity, present a challenge to maintaining sustainable populations. Wood turtles live upwards of 40 to 60 years, possibly more.

Conservation Concerns

Loss and fragmentation of habitat are the greatest threats to wood turtles. Many remaining populations in Connecticut are low in numbers and isolated from one another by human-dominated landscapes. Turtles forced to venture farther and farther from appropriate habitat to find mates and nesting sites are more likely to be run over by cars, attacked by predators, or collected by people as pets.

Other sources of mortality include entanglements in litter and debris left behind by people, as well as strikes from mowing equipment used to maintain hayfields and other early successional habitats.

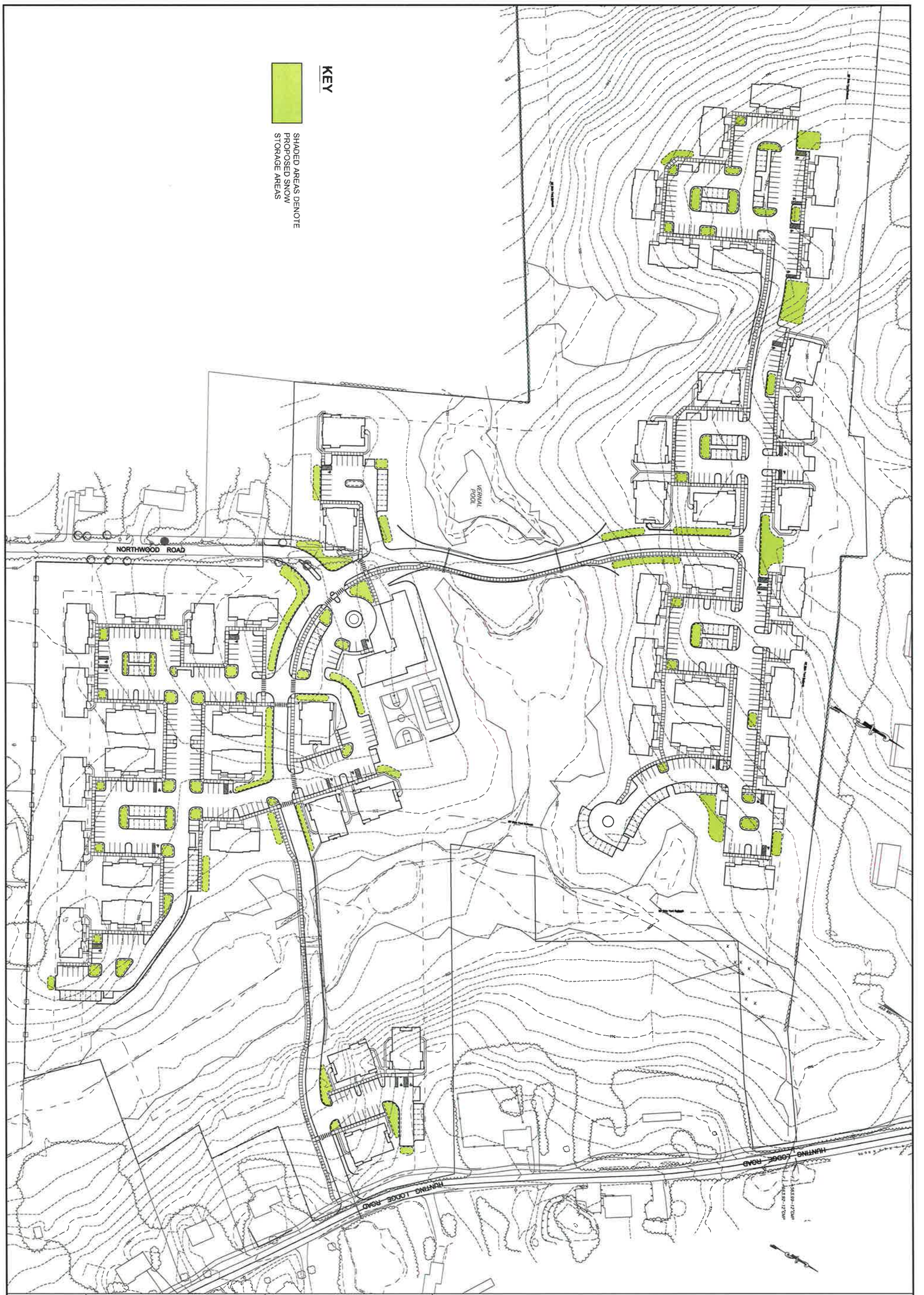
The wood turtle is imperiled throughout a large portion of its range and was placed under international trade regulatory protection through the Convention on International Trade in Endangered Species (CITES) in 1992. Wood turtles also have been included on the International Union for Conservation of Nature's (IUCN) Red List as a vulnerable species since 1996. They are listed as a species of special concern in Connecticut and protected by the Connecticut Endangered Species Act.

How You Can Help

- *Conserve riparian habitat. Maintaining a buffer strip of natural vegetation (minimum of 100 feet) along the banks of streams and rivers will protect wood turtle habitat and also help improve the water quality of the stream system. Stream banks that are manicured (cleared of natural shrubby and herbaceous vegetation) or armored by rip rap or stone walls will not be used by wood turtles or most other wildlife species.*
- *Do not litter. Wood turtles and other wildlife may accidentally ingest or become entangled in garbage and die.*
- *Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.*
- *Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.*
- *As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females. They should* ***not*** *be collected but can be helped on their way. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side in the direction they are headed. Never relocate a turtle to another area that is far from where you found it.*
- *Learn more about turtles and their conservation concerns, and educate others.*
- *If you see a wood turtle, leave it in the wild, take a photograph, record the location where it was seen, and contact the Connecticut Department of Environmental Protection (DEP) Wildlife Division at dep.wildlife@ct.gov, or call 860-424-3011 to report your observation.*

State of Connecticut
Department of Environmental Protection
Bureau of Natural Resources
Wildlife Division
www.ct.gov/dep

4/2011



SS-1

SNOW STORAGE PLAN
PREPARED FOR
STORRS LODGES, LLC
HUNTING LODGE ROAD
MANSFIELD, CONNECTICUT

Date: 05-31-2016	Drawn by: KLL	Job no: 04161
Scale: 1" = 70'	Checked by: DSZ	Sheet no: 1 OF 1

Revisions:

No.	Date	Description

THE LODGES AT STORRS

FAH F. A. Hesketh & Associates, Inc.
6 Creamery Brook, East Granby, CT 06026
Civil & Traffic Engineers · Surveyors · Planners · Landscape Architects
Phone (860) 653-8000
Fax (860) 844-9600
e-mail mail@fahesketh.com

G:\2004\04161\2016-05-31-Town Comments\L00ls103.dwg, Snow Storage, Jun. 01, 2016 – 10:43:14 AM