APPENDIX C

QUESTIONS TO ANSWER BEFORE THE FIELD VISIT:
USING GIS OR OTHER ANALYTICAL TOOLS

(Remaining questions are answered during field checking)

Wetland scientists and other natural resources professionals use a variety of different analytical tools available to them. Among some of the more commonly used tools are:

- GRANIT Data Layers using ArcGIS, Autocad or similar software
- Terrain Navigator
- Google Earth
- GRANIT Data Mapper
- Stereoscopic Aerial Photos

Record answers on the *NH Method* Data Sheets

Question #	Feature	Get answers using GIS or other Analytical tools
1 - Ecological Integrity		
Question 1	Sources of water quality degradation in the watershed	• **Use aerial photography and watersheds** • **Draw the watershed for the wetland being studied** • Review the watershed together with the aerial photo to determine potential sources of contamination.
Question 7	Road, railroad or driveway crossings	**From Printed Individual Wetland Map or Using GIS Or Other Analytical Tools** • Identify road, railroad and driveway crossings that cross or come within 500 ft of the wetland. • Confirm road crossings with *field checking*.
Question 8	Level of human activity **in the upland** within 500 feet of the wetland edge (land disturbance, clearing, logging, trails, roads, etc.)	Use recent aerial photography as a background. • Demarcate a zone 500 ft from the wetland edge. • Determine any signs of human activity within 500 ft of the wetland, observable in the photo • Confirm with *field checking.*
Question 9	Percent of impervious surface within 500 feet of the wetland edge	• Using recent **Aerial Imagery** identify impervious surfaces within 500 ft. of the wetland. • Confirm impervious surfaces with *field checking*.
2 - Wetland-Dependent Wildlife Habitat		
Question 1	Wetland size (acres)	• Determine the size of the wetland using GIS resources (NWI, Hydric Soils, Aerial Photos) and **field checking**.
Question 4	Area of shallow, permanent open water and streams (less than 6.6 ft deep)	• Calculate the acreage of all PAB and PUB wetland vegetation classes. • Calculate stream acreage and add to acreage of PUB and PAB • Confirm with *field checking.*
Question 5	Deepwater habitat associated with the wetland (lake, pond or river) deeper than 6.6ft.	• Calculate the acreage of deepwater lakes and ponds. • Offline - Check the **NH DES List of Fourth Order and Higher Streams** to identify any 4th order or higher streams. Estimate the length of the 4th order or higher stream associated with the wetland.
Question 6	Wetland vegetation class diversity, including upland "islands" (NWI codes)	• Identify wetland vegetation classes using NWI Maps and/or aerial photography. • Confirm with *field checking.*

Question #	Feature	Get answers using GIS or other Analytical tools
Question 7	Other wetlands in close proximity to the study wetland	• Using **aerial photography and NWI wetlands/hydric soils**, determine distance to nearby wetlands from the study wetland. • Confirm with *field checking.*
Question 8	Wildlife access to other wetlands	• Use recent **Aerial Photo Imagery and NWI wetlands/hydric soils** to identify areas of apparently natural vegetation or undisturbed stream corridors between wetlands that could function as wildlife travel routes. • Confirm with *field checking.*
Question 9	Percent of wetland edge bordered by upland wildlife habitat	• Use recent **Aerial Imagery** to identify areas of apparently natural vegetation within 500 ft of the wetland edge. • Calculate the percentage of the wetland edge bordered by undisturbed upland habitat. • Confirm with *field checking.*
3 – Fish & Aquatic Life Habitat		
Question 1	Dominant land use in watershed	• Use recent **Aerial Imagery** together with recent **Land Cover** data to assess land use in the watershed of the wetland being studied. • Confirm with *field checking.*
Question 4	Acres of deepwater habitats (deeper than 6.6ft)	• Use aerial imagery and NWI data to calculate area of deepwater habitat (lakes and ponds classified as Lacustrine in NWI codes)
Question 6	Does the stream channel appear to have been recently altered?	• Using recent **Aerial Imagery,** identify any stream sections that appear straightened • Confirm with field checking.
Question 11	Rare or endangered wildlife present?	• Review the **NH Natural Heritage Bureau Town List** and select the town in question (listed in alphabetical order). See if any species that use wetlands are listed and determine their habitat type(s). Use this a guide for possible observations of rare species in those habitats.
4 – Scenic Quality		
Question 2	Public Access	• Use the **Conservation & Public Lands** data layer to determine if the wetland is on a property that has public access (public land). Public access is not specifically indicated in the Conservation &Public Lands data, so this may require further research to determine access for some conservation properties. This might include checking deeds and asking the town Conservation Commission). • Confirm this information with *field checking.*
Question 4	Open water visible	• Calculate acreage of all PAB and PUB wetland vegetation classes and any pond or lake acreage. Calculate the size of large open river areas. The question is broad: Is the open water area less than one acre, more than three acres, or somewhere in between? • Confirm with *field checking.*
5 – Educational Potential		
Question 4	Public or private property with public access	• Use the **Conservation & Public Lands** data layer together with the **Wetlands** data layer to determine if the wetland is on a property that has public access. Public access is not specifically indicated in the **GRANIT Data Mapper** so this may require checking with the town (Conservation Commission). Confirm with **field checking.**
Question 6	Number and accessibility of wetland classes accessible or potentially accessible at educational site	• Same instructions as **2 – Wetland-Dependent Wildlife Habitat**, Question 6. Determine if the number of vegetation classes are accessible at the education site. • Confirm this information with *field checking.*

Question #	Feature	Get answers using GIS or other Analytical tools
6 – Wetland-based recreation - NO GIS or Other DATA NEEDED		
7 – Flood Storage		
Question 1	Wetland acres, not including upland "islands".	• Calculate Wetland acreage, excluding the area of any upland island. If there are any upland islands/inclusions in the wetland area, you will need to subtract the acreage of the upland from the total wetland acreage and use this adjusted acreage in this calculation.
Question 2	Watershed acres	• Using the **topographic map** and GIS or Other tools, draw the watershed boundary and calculate acreage.
Question 7	Location within the watershed	• Determine the location of the wetland in relation to a perennial/4th order stream (refer to Section 3, Figure 3). • To determine stream order, see: **NH DES List of Fourth Order and Higher Streams** **NH Statewide Map Atlas "Fourth Order and Higher Streams**
8 – Groundwater Recharge		
Question 1	Does the wetland overlie stratified drift aquifer?	• View the **Aquifer Data Layer** and determine if the wetland overlies stratified drift aquifer
Question 2	Is the wetland in a potential public water supply area?	**Use GIS or Other Analytical Tools or use the Forest Society Website for Favorable Gravel Well Analysis:** • Using the Favorable Gravel Well maps available on GRANIT or via the Forest Society web page, locate the wetland area. • Determine if the wetland overlies or is immediately adjacent to a Favorable Gravel Well area.
Question 3	Is the wetland within a public wellhead protection area?	• Determine if the wetland is within a public wellhead protection area. To get the GIS data for wellhead protection areas, contact Pierce Rigrod, NH DES Drinking Water and Groundwater Bureau, at pierce.rigrod@des.nh.gov or 603-271-0688.)
Question 4	Percent coverage of highly permeable soils **within 100** ft of the wetland	• Using the **Soils Data Layer** with soil polygons visually determine the percent cover of highly permeable soils within 100 ft of the wetland.
Question 5	Percent coverage of the highly permeable soil types **within the wetland**	• Using the **Soils Data Layer** with all soil polygons visually determine the percent cover of highly permeable soils within the wetland itself. • Determine if the dominate soils types are on the list in Table 4 in Section 3 in the NH Method,
9 - Sediment Trapping		
Question 2	Character of outlet	• Use the **DRG Topographic** data layer to locate any outlet/s (or lack thereof). • Confirm type of outlet and restriction, if any, with ***field checking.***
Question 3	Character of water flow through the wetland	• Using recent **Aerial Photography and stream lines**, determine shape of the stream channel in the wetland • Confirm with field observation.
Question 5	Gradient of Wetland	• Using GIS, determine the highest and lowest elevation of the wetland along its longest axis. Subtract the two elevations to get the elevation difference.
Question 6	Percentage cover of persistent, sediment trapping vegetation in the wetland	• Identify NWI wetland classes and determine the wetland vegetation classes (PFO, PSS, PEM) with the most acreage. Add the acreage of these types. Confirm with ***field checking.***
10 - Nutrient Trapping/Retention/Transformation – NO DATA NEEDED FROM G RANIT DATA MAPPER		
Question 3	Percent cover of wetland vegetation classes	• Same directions as **9 - Sediment Trapping**, Question 6 above. Transfer your answer. • Confirm this information with ***field checking.***

Question #	Feature	Get answers using GIS or other Analytical tools
Question 4	Hydroperiod of wetland	• Using the NWI data layers, determine the hydroperiod codes for the NWI polygons. • Determine which hydrologic regime dominates the wetland (> 50% of NWI polygon's acreage). • Confirm this information with *field checking*.
Question 5	Wetland soils	• Use the **Hydric Soils** layer to determine the acreage of each hydric soil polygon. • Using **Appendix D in the NH Method**, determine whether the wetland is dominated (>50%) by fine textured soils, organic soils, or sands & gravels.
11 - Shoreline Anchoring		
Question 1	Gradation of vegetation types	• Same instructions as for Section 2, Wetland-Dependent Wildlife Habitat, Question 9. Determine the number of wetland classes *along the shoreline*.
Question 3	How wide is the wetland bordering the watercourse, lake or pond?	• Using aerial photography and the wetland boundary, calculate the average wetland width • Confirm this information with *field checking*.
12. Noteworthiness		
Question 1	Is wetland within 500 ft. of Highest Ranked Habitat?	• Using the **Wildlife Action Plan Highest Ranked Habitat** data, identify any highest ranked habitat (statewide significance – pink; or regional significance – green) that appears in or near the wetland.
Question 6	Connection to a state designated river?	Refer to the list of rivers in **New Hampshire Rivers Management and Protection Program** and **National Wild and Scenic Rivers Program** **Using GIS or Other Analytical Tools:** • Determine distance to the nearest state designated river, if applicable.
Question 7	Is the wetland one of just a few left in an urban setting	• Use the land use an aerial photo data layers to determine the significance of the wetland in an urban setting. Is it one of just a few left?