Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

August 9, 2017
Correspondence # ERDB 20170037

Ms. Diane Anderson
MN DNR Parks and Trails Division
500 Lafayette Road
St. Paul, MN 55155

RE: Natural Heritage Review of the proposed MN Valley State Trail - Bloomington Segment,

County	Township (N)	Range (W)	Section(s)
Hennepin	27	23	18, 5-8
Hennepin	27	24	1,22-24,27-31
Hennepin	28	23	32
Hennepin	115	21	4-9

Dear Ms. Anderson,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, rare features have been documented within the search area (for details, please visit the Rare Species Guide at http://www.dnr.state.mn.us/rsg/index.html for more information on the biology, habitat use, and conservation measures of these rare species). Please note that the following rare features may be adversely affected by the proposed project:

Ecologically Significant Areas

- The project site is within a Central Region Regionally Significant Ecological Area (RSEA) that is ranked Outstanding. The DNR Central Region (in partnership with the Metropolitan Council for the 7-county metro area), identified these ecologically significant terrestrial and wetland areas by conducting a landscape-scale assessment based on the size and shape of the ecological area, land cover within the ecological area, adjacent land cover/use, and connectivity to other ecological areas. The purpose of the data is to inform regional scale land use decisions, especially as it relates to balancing development and natural resource protection. A GIS shapefile of this data layer can be downloaded from the MN Geospatial Commons at https://gisdata.mn.gov/.

- The proposed trail goes through multiple areas identified by the Minnesota Biological Survey (MBS) as Sites of High Biodiversity Significance and one area identified as a Site of Moderate Biodiversity Significance. Sites of Biodiversity Significance have varying levels of native biodiversity and are ranked based on the relative significance of this biodiversity at a statewide level. Sites ranked as High contain very good quality occurrences of the rarest species, high quality examples of the rare native plant

communities, and/or important functional landscapes. Sites ranked as Moderate contain occurrences of rare species and/or moderately disturbed native plant communities, and/or landscapes that have a strong potential for recovery.

As currently proposed the project boundary contains the following native plant communities (listed with their conservation status rank):

- Bulrush Marsh (Northern) *S3 – vulnerable to extirpation*
- Red Oak – White Oak – (Sugar Maple) Forest *S4 - apparently secure*
- Sedge Meadow *S4 or S5 – apparently secure or secure*
- Mesic Prairie (Southern) *S2 – imperiled*
- Silver Maple – (Virginia Creeper) Floodplain Forest *S3 – vulnerable to extirpation*
- Elm – Basswood – Black Ash – (Hackberry) Forest *S3 – vulnerable to extirpation*
- Southern Terrace Forest *S1 or S2 or S3 – critically imperiled or imperiled or vulnerable*

In particular, the project proposes to clear a 30-foot corridor through floodplain forests, all of which are considered rare native plant communities in Minnesota.

Given the ecological significance of this area, disturbance within the MBS Site should be minimized to the extent feasible. Actions to minimize disturbance may include, but are not limited to, the following recommendations:

- Avoid rare native plant communities;
- Minimize width of trail;
- As much as possible, operate within already-disturbed areas;
- Do not route trails through wet swales or depressions, or sensitive rock outcrop areas;
- Bridge all stream and wetland crossings;
- Minimize vehicular disturbance in the area (allow only vehicles/equipment necessary for construction activities);
- Do not park equipment or stockpile supplies in the area;
- Do not place spoil within MBS Sites or other sensitive areas;
- Use effective erosion prevention and sediment control measures;
- Inspect and clean all equipment prior to bringing it to the site to prevent the introduction and spread of invasive species;
- Trail maintenance plans should address erodible soils;
- Revegetate disturbed soil with native species suitable to the local habitat as soon after construction as possible; and
- Use only weed-free mulches, topsoils, and seed mixes.

- If the Wetland Conservation Act (WCA) is applicable to this project, please note that Bulrush Marsh (Northern), Silver Maple – (Virginia Creeper) Floodplain Forest, and Southern Terrace Forest native plant communities, along with other wetlands within the MBS Sites of High Biodiversity Significance, may qualify as "rare natural communities" under this Act. Minnesota Rules, part 8420.0515, subpart 3 states that a wetland replacement plan for activities that modify a rare natural community must be denied if the local government unit determines that the proposed activities will permanently adversely affect the natural community. If you have any questions regarding this provision of the WCA, please contact Doug Norris, DNR Wetlands Program Coordinator, at 651-259-5125.

State-listed Species

Plants

- Kitten-tails (*Besseya bullii*), a state-listed threatened plant, has been documented in the vicinity of the proposed project on the banks of Nine Mile Creek. This species is found in savannas, prairies, and oak woodlands. Minnesota's endangered species law (Minnesota Statutes, section 84.0895) and associated rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the taking of threatened or endangered species without a permit. Given the protected status of this species we recommend that a qualified surveyor (please see enclosed list) conduct a habitat assessment and botanical survey (if suitable habitat is present) within the construction footprint of the trail. Please contact Lisa Joyal at 651-259-5109 or lisa.joyal@state.mn.us before any survey work is initiated, as you will need to discuss potential surveyors, survey protocol, and other requirements.

- Snow trillium (*Trillium nivale*), a state-listed species of special concern, has been documented a Red Oak – White Oak – (Sugar Maple) Forest in the vicinity of the proposed project. Given that the project boundary also contains this type of native plant community, suitable habitat for this species may exist within the project footprint.

Butterflies

- The regal fritillary (*Speyeria idalia*), a state-listed butterfly species of special concern, has been documented near the project area. These species are sensitive to several types of artificial and natural disturbances and are almost always absent from remnant prairies that are overgrazed or otherwise degraded. These species populations have declined historically due to widespread conversion of native prairie for agriculture and other uses. To protect this prairie obligate butterfly, construction in native prairie should be avoided.

Reptiles

- Blanding's turtles (*Emydoidea blandingii*), a state-listed threatened species, have been reported from the vicinity of the proposed project and may be encountered on site. Blanding's turtles use wetlands as well as upland areas up to and over a mile distant from wetlands. Uplands are used for nesting, basking, periods of dormancy, and traveling between wetlands. Because of the tendency to travel long distances over land, Blanding's turtles regularly travel across roads and are therefore susceptible to collisions with vehicles. Any added mortality can be detrimental to populations of Blanding's turtles, as these turtles have a low reproduction rate that depends upon a high survival rate to maintain population levels. Other factors believed to contribute to the decline of this species include wetland drainage and degradation, and the development of upland habitat.

  This project has the potential to impact this rare turtle through direct fatalities or habitat disturbance/destruction due to dewatering, excavation, fill, or other construction activities associated with the project. Actions to avoid or minimize disturbance to this state-protected turtle may include, but are not limited to, the following recommendations:

  - Avoid Type 2 & 3 wetlands,
  - To avoid any incidental takings, avoid filling or dewatering wetlands during the winter,

- Implement stringent sediment and erosion control methods,
- Use wildlife-friendly erosion control methods (see enclosed fact sheet),
- Monitor for turtles during construction and report any sightings to the DNR,
- Please refer to the first list of recommendations in the enclosed Blanding's Turtle Fact Sheet. If greater protection for turtles is desired, the second list of recommendations can be implemented as well.

The attached flyer should be given to all contractors working in the area. If Blanding's turtles are encountered on site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they should be moved by hand out of harm's way, otherwise they should be left undisturbed.

- The gopher snake (*Pituophis catenifer*), a state-listed species of special concern, and the milk snake (*Lampropeltis triangulum*) a Species in Greatest Conservation Need as identified in Minnesota's State Wildlife Action Plan, have been documented in the vicinity of the proposed project and may be encountered on site. For more information on these rare species, please visit http://dnr.state.mn.us/reptiles_amphibians/index.html. Given presence of these rare snakes, we recommend that the use of erosion control mesh, if any, be limited to wildlife-friendly materials (see enclosed fact sheet)

Aquatic Species

- Blanchard's cricket frog (*Acris blanchardi*), state-listed as endangered, has been documented in the vicinity of the project. This species inhabits shallow wetlands, lakes, streams, or rivers. They typically occupy areas along the water's edge, and prefer open areas with muddy shorelines and abundant emergent vegetation. This species remains near water during the summer, but may travel overland to find new habitat during dry spells. They emerge from winter dormancy in late April, and breeding occurs from late May to July. The tadpoles metamorphose into adults in early August and enter winter dormancy in late September. The life expectancy of this species is about four months, with only 5% of the population surviving the winter.

  Despite intensive survey efforts, the Blanchard's cricket frog is only known from a few isolated locations in the state. Their limited geographic distribution, along with their short life span, makes populations of this species very vulnerable to disturbance. Potential impacts include changes in wetland hydrology and decreases in water quality due to runoff, erosion, or pollution from fertilizers and other chemicals. Actions to minimize disturbance to this species include, but are not limited to, avoiding wetlands and aquatic habitat, limiting construction to winter months, and restricting the use of pesticides and fertilizers. Please work with Erica Hoaglund to ensure avoidance of this species.

- Several state and federally listed mussel species have been documented in the Minnesota River in the vicinity of the proposed trail and proposed bridge over Nine-mile Creek. As mussels are particularly vulnerable to deterioration in water quality, especially increased siltation, it is important that effective erosion prevention and sediment control practices be implemented and maintained near the river.

  Minnesota's endangered species law (*Minnesota Statutes*, section 84.0895) and associated rules (*Minnesota Rules*, part 6212.1800 to 6212.2300 and 6134) prohibit the taking of threatened or endangered species without a permit. **Please contact me if the project will include any disturbance to the creek bed, as a mussel survey and/or relocation may be required prior to construction.** We will need

to discuss potential surveyors, survey protocol, and other requirements before any survey work is initiated.

- Multiple state-listed fish and amphibian species has been documented in the Minnesota River and neighboring bodies of water in the vicinity of the proposed project. It is important that effective erosion and sediment control practices be implemented and maintained throughout the duration of this project. To protect spawning fish, work within the water should be avoided from April 1 to June 30.

Birds

- The proposed project is within the Lower Minnesota River Valley Important Bird Area (IBA). Important Birds Areas, identified by Audubon Minnesota in partnership with the DNR, are part of an international conservation effort aimed at conserving critical bird habitats. They are voluntary and non-regulatory, but the designation does demonstrate the biological value of this surrounding area. This particular IBA incorporates the riparian corridor and adjacent river valley and upland communities along the Minnesota River and supports an exceptional diversity of birds. The woodland and grassland areas within the IBA are important breeding habitat for the more than 100 species that nest in the area.

- Multiple state-listed song bird species have been documented in the vicinity of the project. A majority of these bird species are threatened by loss and fragmentation of mature deciduous forest and construct their nests on tree and shrub limbs. If feasible, tree & shrub removal should be avoided from May 15th through August 15th to avoid disturbance of nesting birds.

- There are multiple observations of trumpeter swans (*Cygnus buccinator*), a state-listed species of special concern, nesting in the vicinity of the proposed project. If any of the wetlands on site provide suitable habitat, swans may choose to nest in these wetlands. Construction activities that occur during the breeding season could disrupt nesting swans, if present.

Federally Protected Species

- Bald eagles (*Haliaeetus leucocephalus*) have been documented nesting in the area. These birds are federally protected under the Migratory Bird Treaty Act and under the Bald and Golden Eagle Protection Act. Both acts prohibit killing, selling, or otherwise harming these birds, their nests, or eggs. If there will be any tree removal associated with the proposed project, the trees should be inspected for nests prior to being cut down. The USFWS does issue permits for unintentional disturbance and for the taking of a tree. Please visit the USFWS website at http://www.fws.gov/midwest/eagle/ for more information regarding conservation measures, management guidelines, and permitting.

- The rusty patched bumble bee (*Bombus affinis*), a federally-listed endangered species, was documented within two and a half miles of the proposed project. The rusty patched bumble bee typically occurs in grasslands and urban gardens with flowering plants from April through October. This species nests underground in abandoned rodent cavities or in clumps of grasses. Please reference the guidance at the following website to determine if the project has the potential to impact this protected species: https://www.fws.gov/midwest/endangered/insects/rpbb/guidance.html.

- The northern long-eared bat (*Myotis septentrionalis*), federally listed as threatened and state-listed as special concern, can be found throughout Minnesota. During the winter this species hibernates in caves and mines, and during the active season (approximately April-October) it roosts underneath bark, in

cavities, or in crevices of both live and dead trees. Pup rearing is during June and July. Activities that may impact this species include, but are not limited to, wind farm operation, any disturbance to hibernacula, and destruction/degradation of habitat (including tree removal).

The U.S. Fish and Wildlife Service (USFWS) has published a final 4(d) rule that identifies prohibited take. To determine whether you need to contact the USFWS, please refer to the USFWS Key to the Northern Long-Eared Bat 4(d) Rule (see links below). Please note that the NHIS does not contain any known occurrences of northern long-eared bat roosts or hibernacula within an approximate one-mile radius of the proposed project.

Environmental Review and Permitting

- Minnesota's endangered species law (Minnesota Statutes, section 84.0895) and associated rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the taking of threatened or endangered species without a permit.
- Please consult with the DNR Regional Nongame Specialist, Erica Hoaglund, at 651-259-5772 or Erica.Hoaglund@state.mn.us for further recommendations regarding the above rare animals.
- The Environmental Assessment Worksheet should address whether the proposed project has the potential to adversely affect the above rare features and, if so, it should identify specific measures that will be taken to avoid or minimize disturbance. Sufficient information should be provided so the DNR can determine whether a takings permit will be needed for any of the above protected species.
- Please include a copy of this letter in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location (noted above) and the project description provided on the NHIS Data Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. If you have not done so already, please contact your DNR Regional Environmental Assessment Ecologist to determine whether there are other natural resource concerns associated with the proposed project

(contact information available at http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html). Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

Samantha Bump
Natural Heritage Review Specialist
Samantha.Bump@state.mn.us

Enc. Blanding's Turtle Fact Sheet & Flyer
Wildlife Friendly Erosion Control
DNR List of Surveyors
Rare Species Survey Process

Links: USFWS Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities
http://www.fws.gov/midwest/endangered/mammals/nleb/KeyFinal4dNLEB.html
USFWS Key to the Northern Long-Eared Bat 4(d) Rule for Federal Actions
http://www.fws.gov/midwest/endangered/mammals/nleb/KeyFinal4dNLEBFedProjects.html
USFWS Northern Long-eared Bat Website
http://www.fws.gov/midwest/endangered/mammals/nleb/index.html
USFWS Northern Long-eared Bat Fact Sheet
http://www.fws.gov/midwest/endangered/mammals/nleb/nlebFactSheet.html

Cc: Becky Horton
Leslie Parris
Rich Baker
Doug Norris
Erica Hoaglund

NATURAL HERITAGE REVIEW: A RARE SPECIES SURVEY IS REQUESTED. NOW WHAT?

Questions? Contact Lisa Joyal, Endangered Species Review Coordinator
Lisa.Joyal@state.mn.us or 651-259-5109

Minnesota's endangered species law (*Minnesota Statutes*, section 84.0895) and associated rules (*Minnesota Rules*, part 6212.1800 to 6212.2300 and 6134) prohibit the taking of threatened or endangered species without a permit. Given the potential for the proposed project to negatively impact a state-listed threatened or endangered species, a rare species survey has been requested. The Minnesota Department of Natural Resources' Division of Ecological and Water Resources (DNR) relies upon the results of endangered and threatened species surveys to conserve these species through its conservation, management, environmental review, and permitting responsibilities. When surveys for rare species are requested as part of the environmental review process, the DNR makes every effort to coordinate closely with surveyors to ensure high quality survey results and to avoid any potential project delays due to miscommunication, inappropriate survey protocol, or misidentified threatened or endangered species.

WHAT NEEDS TO BE DONE PRIOR TO THE SURVEY?

CHOOSE A SURVEYOR

The DNR maintains a List of Surveyors (attached) that are considered qualified to conduct rare species surveys in Minnesota. Using a surveyor from this list minimizes the time needed to obtain a collection permit and the time needed to review survey proposals.

➤ *Documents to send to the Endangered Species Review Coordinator* ➤ If you would like to choose an individual that is not on the attached list, the DNR would like to review his/her qualifications prior to any survey work. Please see the attached Surveyor Criteria document for details.

DETERMINE IF A PERMIT IS REQUIRED TO CONDUCT THE SURVEY

A permit is required to collect specimen vouchers of state-listed threatened or endangered species. All plant surveyors should have a collection permit prior to conducting any survey work. A permit is also required to survey for bats, turtles, mussels, or butterflies. Please contact Richard Baker, Endangered Species Coordinator, at Richard.Baker@state.mn.us to request a permit.

PREPARE A SURVEY PROPOSAL

- Refer to the attached Rare Species Survey Proposals and Reports for information to include in the survey proposal.
- Refer to the DNR Rare Species Guide for suitable habitat and appropriate survey periods for the target species.
- Review the rare species data spreadsheet templates for Submitting Data to the NHIS.
- For plant surveys, follow the procedures in the attached Rare Plant Guidance.
- For mussel surveys, follow the procedures in the attached Mussel Survey and Relocation Protocol.

➤ *Documents to send to the Endangered Species Review Coordinator* ➤ Please submit the survey proposal for DNR review. Please anticipate an approximate two week turnaround for DNR comments.

WHAT NEEDS TO BE DONE DURING THE SURVEY?

- For plant surveys, follow the procedures in the attached Rare Plant Guidance.
- For mussel surveys, follow the procedures in the attached Mussel Survey and Relocation Protocol.
- Identify any suitable habitat for target species within the potential project footprint.
- Survey for target species within any suitable habitat that may be impacted by the project.
- If any threatened or endangered species are found, delineate extent of population or at least extent of population within the potential project footprint. Consider flagging the population for avoidance purposes. If you are considering applying for a takings permit, conduct a count of individual plants that you are proposing to take.

WHAT NEEDS TO BE DONE AFTER THE SURVEY IS COMPLETED?

COMPLETE A REPORT ON THE RESULTS OF THE SURVEY

Refer to the attached Rare Species Survey Proposals and Reports for information to include in the survey report. The survey report should include detailed information for any state-listed species that are found during the survey.

➤ *Documents to send to the Endangered Species Review Coordinator* ➤ Please submit survey report, specimens, GIS shapefile, and spreadsheet (see templates for Submitting Data to the NHIS) for DNR review.

WHAT IF A THREATENED OR ENDANGERED SPECIES IS FOUND?

The project proposer should consider project alternatives that would avoid impacting these species. If there are any questions as to what constitutes avoidance, please contact the Endangered Species Review Coordinator.

➤ *Documents to send to the Endangered Species Review Coordinator* ➤ Please submit an avoidance plan for DNR review. The plan should identify measures that will be taken to avoid and minimize disturbance.

WHAT IF A THREATENED OR ENDANGERED SPECIES CANNOT BE AVOIDED?

The project proposer will need to apply for a takings permit. For more information on the endangered species permitting process, please visit the DNR Endangered Species Permits website or contact Rich Baker, Endangered Species Coordinator, at Richard.Baker@state.mn.us or 651-259-5073.

Environmental Review Fact Sheet Series

Endangered, Threatened, and Special Concern Species of Minnesota

Blanding's Turtle

(*Emydoidea blandingii*)

Minnesota Status:	Threatened	State Rank[1]:	S2
Federal Status:	none	Global Rank[1]:	G4

HABITAT USE

Blanding's turtles need both wetland and upland habitats to complete their life cycle. The types of wetlands used include ponds, marshes, shrub swamps, bogs, and ditches and streams with slow-moving water. In Minnesota, Blanding's turtles are primarily marsh and pond inhabitants. Calm, shallow water bodies (Type 1-3 wetlands) with mud bottoms and abundant aquatic vegetation (e.g., cattails, water lilies) are preferred, and extensive marshes bordering rivers provide excellent habitat. Small temporary wetlands (those that dry up in the late summer or fall) are frequently used in spring and summer -- these fishless pools are amphibian and invertebrate breeding habitat, which provides an important food source for Blanding's turtles. Also, the warmer water of these shallower areas probably aids in the development of eggs within the female turtle. Nesting occurs in open (grassy or brushy) sandy uplands, often some distance from water bodies. Frequently, nesting occurs in traditional nesting grounds on undeveloped land. Blanding's turtles have also been known to nest successfully on residential property (especially in low density housing situations), and to utilize disturbed areas such as farm fields, gardens, under power lines, and road shoulders (especially of dirt roads). Although Blanding's turtles may travel through woodlots during their seasonal movements, shady areas (including forests and lawns with shade trees) are not used for nesting. Wetlands with deeper water are needed in times of drought, and during the winter. Blanding's turtles overwinter in the muddy bottoms of deeper marshes and ponds, or other water bodies where they are protected from freezing.

LIFE HISTORY

Individuals emerge from overwintering and begin basking in late March or early April on warm, sunny days. The increase in body temperature which occurs during basking is necessary for egg development within the female turtle. Nesting in Minnesota typically occurs during June, and females are most active in late afternoon and at dusk. Nesting can occur as much as a mile from wetlands. The nest is dug by the female in an open sandy area and 6-15 eggs are laid. The female turtle returns to the marsh within 24 hours of laying eggs. After a development period of approximately two months, hatchlings leave the nest from mid-August through early-October. Nesting females and hatchlings are often at risk of being killed while crossing roads between wetlands and nesting areas. In addition to movements associated with nesting, all ages and both sexes move between wetlands from April through November. These movements peak in June and July and again in September and October as turtles move to and from overwintering sites. In late autumn (typically November), Blanding's turtles bury themselves in the substrate (the mud at the bottom) of deeper wetlands to overwinter.

IMPACTS / THREATS / CAUSES OF DECLINE

- loss of wetland habitat through drainage or flooding (converting wetlands into ponds or lakes)
- loss of upland habitat through development or conversion to agriculture
- human disturbance, including collection for the pet trade* and road kills during seasonal movements
- increase in predator populations (skunks, raccoons, etc.) which prey on nests and young

*It is illegal to possess this threatened species.

RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS

These recommendations apply to typical construction projects and general land use within Blanding's turtle habitat, and are provided to help local governments, developers, contractors, and homeowners minimize or avoid detrimental impacts to Blanding's turtle populations. **List 1** describes minimum measures which we recommend to prevent harm to Blanding's turtles during construction or other work within Blanding's turtle habitat. **List 2** contains recommendations which offer even greater protection for Blanding's turtles populations; this list should be used *in addition to the first list* in areas which are known to be of state-wide importance to Blanding's turtles (contact the DNR's Natural Heritage and Nongame Research Program if you wish to determine if your project or home is in one of these areas), or in any other area where greater protection for Blanding's turtles is desired.

List 1. Recommendations for all areas inhabited by Blanding's turtles.	**List 2. *Additional* recommendations for areas known to be of state-wide importance to Blanding's turtles.**
GENERAL	
A flyer with an illustration of a Blanding's turtle should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.	Turtle crossing signs can be installed adjacent to road-crossing areas used by Blanding's turtles to increase public awareness and reduce road kills.
Turtles which are in imminent danger should be moved, by hand, out of harms way. Turtles which are not in imminent danger should be left undisturbed.	Workers in the area should be aware that Blanding's turtles nest in June, generally after 4pm, and should be advised to minimize disturbance if turtles are seen.
If a Blanding's turtle nests in your yard, do not disturb the nest.	If you would like to provide more protection for a Blanding's turtle nest on your property, see "Protecting Blanding's Turtle Nests" on page 3 of this fact sheet.
Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.	Construction in potential nesting areas should be limited to the period between September 15 and June 1 (this is the time when activity of adults and hatchlings in upland areas is at a minimum).
WETLANDS	
Small, vegetated temporary wetlands (Types 2 & 3) should not be dredged, deepened, filled, or converted to storm water retention basins (these wetlands provide important habitat during spring and summer).	Shallow portions of wetlands should not be disturbed during prime basking time (mid morning to mid- afternoon in May and June). A wide buffer should be left along the shore to minimize human activity near wetlands (basking Blanding's turtles are more easily disturbed than other turtle species).
Wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.	Wetlands should be protected from road, lawn, and other chemical run-off by a vegetated buffer strip at least 50' wide. This area should be left unmowed and in a natural condition.
ROADS	
Roads should be kept to minimum standards on widths and lanes (this reduces road kills by slowing traffic and reducing the distance turtles need to cross).	Tunnels should be considered in areas with concentrations of turtle crossings (more than 10 turtles per year per 100 meters of road), and in areas of lower density if the level of road use would make a safe crossing impossible for turtles. Contact your DNR Regional Nongame Specialist for further information on wildlife tunnels.
Roads should be ditched, not curbed or below grade. If curbs must be used, 4 inch high curbs at a 3:1 slope are preferred (Blanding's turtles have great difficulty climbing traditional curbs; curbs and below grade roads trap turtles on the road and can cause road kills).	Roads should be ditched, not curbed or below grade.

ROADS cont.	
Culverts between wetland areas, or between wetland areas and nesting areas, should be 36 inches or greater in diameter, and elliptical or flat-bottomed.	Road placement should avoid separating wetlands from adjacent upland nesting sites, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details).
Wetland crossings should be bridged, or include raised roadways with culverts which are 36 in or greater in diameter and flat-bottomed or elliptical (raised roadways discourage turtles from leaving the wetland to bask on roads).	Road placement should avoid bisecting wetlands, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details). This is especially important for roads with more than 2 lanes.
Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.	Roads crossing streams should be bridged.
UTILITIES	
Utility access and maintenance roads should be kept to a minimum (this reduces road-kill potential).	
Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.	
LANDSCAPING AND VEGETATION MANAGEMENT	
Terrain should be left with as much natural contour as possible.	As much natural landscape as possible should be preserved (installation of sod or wood chips, paving, and planting of trees within nesting habitat can make that habitat unusable to nesting Blanding's turtles).
Graded areas should be revegetated with native grasses and forbs (some non-natives form dense patches through which it is difficult for turtles to travel).	Open space should include some areas at higher elevations for nesting. These areas should be retained in native vegetation, and should be connected to wetlands by a wide corridor of native vegetation.
Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).	Ditches and utility access roads should not be mowed or managed through use of chemicals. If vegetation management is required, it should be done mechanically, as infrequently as possible, and fall through spring (mowing can kill turtles present during mowing, and makes it easier for predators to locate turtles crossing roads).

Protecting Blanding's Turtle Nests: Most predation on turtle nests occurs within 48 hours after the eggs are laid. After this time, the scent is gone from the nest and it is more difficult for predators to locate the nest. Nests more than a week old probably do not need additional protection, unless they are in a particularly vulnerable spot, such as a yard where pets may disturb the nest. Turtle nests can be protected from predators and other disturbance by covering them with a piece of wire fencing (such as chicken wire), secured to the ground with stakes or rocks. The piece of fencing should measure at least 2 ft. x 2 ft., and should be of medium sized mesh (openings should be about 2 in. x 2 in.). It is ***very important*** that the fencing be **removed <u>before August 1st</u>** so the young turtles can escape from the nest when they hatch!

REFERENCES

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Oldfield, B., and J. J. Moriarty. 1994. Amphibians and Reptiles Native to Minnesota. University of Minnesota Press, Minneapolis, 237 pp.

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CAUTION

BLANDING'S TURTLES

MAY BE ENCOUNTERED IN THIS AREA

The unique and rare Blanding's turtle has been found in this area. Blanding's turtles are state-listed as Threatened and are protected under Minnesota Statute 84.095, Protection of Threatened and Endangered Species. Please be careful of turtles on roads and in construction sites. For additional information on turtles, or to report a Blanding's turtle sighting, contact the DNR Nongame Specialist nearest you: Bemidji (218-308-2641); Grand Rapids (218-327-4518); New Ulm (507-359-6033); Rochester (507-206-2820); or St. Paul (651-259-5772).

DESCRIPTION: The Blanding's turtle is a medium to large turtle (5 to 10 inches) with a black or dark blue, dome-shaped shell with muted yellow spots and bars. The bottom of the shell is hinged across the front third, enabling the turtle to pull the front edge of the lower shell firmly against the top shell to provide additional protection when threatened. The head, legs, and tail are dark brown or blue-gray with small dots of light brown or yellow. A distinctive field mark is the bright yellow chin and neck.

BLANDING'S TURTLES DO NOT MAKE GOOD PETS
IT IS ILLEGAL TO KEEP THIS THREATENED SPECIES IN CAPTIVITY

SUMMARY OF RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS TO BLANDING'S TURTLE POPULATIONS

(see Blanding's Turtle Fact Sheet for full recommendations)

- This flyer should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.
- Turtles that are in imminent danger should be moved, by hand, out of harm's way. Turtles that are not in imminent danger should be left undisturbed to continue their travel among wetlands and/or nest sites.
- If a Blanding's turtle nests in your yard, do not disturb the nest and do not allow pets near the nest.
- Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.
- Small, vegetated temporary wetlands should not be dredged, deepened, or filled.
- All wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.
- Roads should be kept to minimum standards on widths and lanes.
- Roads should be ditched, not curbed or below grade. If curbs must be used, 4" high curbs at a 3:1 slope are preferred.
- Culverts under roads crossing wetland areas, between wetland areas, or between wetland and nesting areas should be at least 36 in. diameter and flat-bottomed or elliptical.
- Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.
- Utility access and maintenance roads should be kept to a minimum.
- Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.
- Terrain should be left with as much natural contour as possible.
- Graded areas should be revegetated with native grasses and forbs.
- Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).

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Preventing Entanglement by Erosion Control Blanket

Plastic mesh netting is a common component in erosion control blanket. It is utilized to hold loose fibrous materials in place (EG straw) until vegetation is established. Erosion control blanket is being utilized extensively and is effective for reducing soil erosion, benefitting both soil health and water quality. Unfortunately there is a negative aspect of the plastic mesh component: It is increasingly being documented that its interaction with reptiles and amphibians can be fatal (Barton and Kinkead, 2005; Kapfer and Paloski, 2011). Mowing machinery is also susceptible to damage due to the long lasting plastic mesh.

Potential Problems:

- Plastic netting remains a hazard long after other components have decomposed.
- Plastic mesh netting can result in entanglement and death of a variety of small animals. The most vulnerable group of animals are the reptiles and amphibians (snakes, frogs, toads, salamanders, turtles). Ducklings, small mammals, and fish have also been observed entangled in the netting.
- Road maintenance machinery can snag the plastic mesh and pull up long lengths into machinery, thus binding up machinery and causing damage and/or loss of time cleaning it out.

Suggested Alternatives:

- Do not use in known locations of reptiles or amphibians that are listed as Threatened or Endangered species.
- Limit use of blanket containing welded plastic mesh to areas away from where reptiles or amphibians are likely (near wetlands, lakes, watercourses, or rock outcrops) or habitat transition zones (prairie – woodland edges, rocky outcrop – woodland edges, steep rocky slopes, etc.)
- Select products with biodegradable netting (preferably made from natural fibers, though varieties of biodegradable polyesters also exist on the market). Biodegradable products will degrade under a variety of moisture and light conditions.
- DO NOT use products that require UV-light to degrade (also called “photodegradable”) as they do not degrade properly when shaded by vegetation.

Solution: Most categories of erosion control blanket and sediment control logs are available in natural net options.

- Specify ‘Natural Netting’ for rolled erosion control products, per MnDOT Spec 3885. See Table 3885-1.
- Specify ‘Natural Netting’ for sediment control logs, per MnDOT Spec 3897

The plastic mesh component of erosion control blanket becomes a net for entrapment.

Literature Referenced

Barton, C. and K. Kinkead. 2005. Do erosion control and snakes mesh? Soil and Water Conservation Society 60:33A-35A.
Kapfer, J.M., and R.A. Paloski. 2011. On the threat to snakes of mesh deployed for erosion control and wildlife exclusion. Herpetological Conservation and Biology 6:1-9.