



Illinois Department of Natural Resources

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Pat Quinn, Governor
Marc Miller, Director

November 13, 2013

Mr. Steve Gulden, Village Manager
Village of Romeoville
1050 West Romeo Road
Romeoville, IL 60446

**RE: North WWTP Ditch Stabilization, Romeoville, Will County
Endangered Species Consultation Program
EcoCAT Review #1400867**

Dear Mr. Lopez:

The Department has received from V3 Companies a submission for this project for the purposes of consultation with the Village of Romeoville pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

The proposed action entails the reconfiguration and stabilization of a channel running along the south boundary of the Village's North Waste Water Treatment Plant. Channel slopes are failing, resulting in significant erosion. As you know, this channel empties into the Romeoville Prairie Forest Preserve, which is also dedicated as the **Romeoville Prairie Illinois Nature Preserve**. That status places it on the Illinois Natural Areas Inventory (INAI) and thus subject to the consultation process.

Romeoville Prairie also provides critical habitat for the federally-listed endangered **Hine's Emerald Dragonfly**, *Somatochlora hineana*; and the federally-listed plants, **Lakeside Daisy**, *Tetaneuris herbacea*, and **Leafy Prairie Clover**, *Dalea foliosa*. In addition, the Nature Preserve provides essential habitat for the state-listed endangered **Blanding's Turtle**, *Emydoidea blandingii*, and **Spotted Turtle**, *Clemmys guttata*, as well as the state-listed threatened plants, **Slender Sandwort**, *Minuartia patula*, and the **Ear-Leaved Foxglove**, *Tomanthera auriculata*. The listed plants are part of the rare dolomite prairie ecosystem present in the Nature Preserve; while the highly calcareous ground water supplied by a surficial regional aquifer flowing from beneath Romeoville is a crucial element of this ecosystem. The ground water aquifer has been designated by the Illinois Environmental Protection Agency as a Class 3 Special Resource Ground Water (May 2010), and is protected under the *Illinois Groundwater Protection Act* [415 ILCS 55] and Title 35 *Ill. Administrative Code* Part 620.

It is critical to correctly identify the cause(s) of the bank failures in order to prescribe and implement effective permanent solutions. Doing so is important to the integrity of the Nature Preserve ecosystem because eroded materials are carried into the Nature Preserve, and the same factors contributing to bank

failure in the channel are likely to cause similar bank failures and erosion within the Nature Preserve. An incorrect choice of remedy, while solving the issues on Village property, could actually exacerbate problems further downstream within the Nature Preserve.

The channel itself likely provides aquatic habitat for the Blanding's Turtle and the Spotted Turtle, while the banks may provide habitat for crayfish whose burrows may support larvae of the Hine's Emerald Dragonfly. Reportedly, current bank vegetation is of low native plant diversity.

Both of the turtles estivate during the winter and are not active. Work prior to March 15 is less likely to risk affecting either species, but frozen soils are a poor working medium and cannot be revegetated until the growing season begins, posing a risk of erosion in the meantime. Both species will be active after March 15. However, the Blanding's Turtle is notoriously skittish, and both species may avoid the area while work is in progress. Nevertheless, spring trapping surveys are warranted to determine whether and to what extent the channel is used by listed turtle species. The results of such a survey, if positive, should prompt evaluation of whether an Incidental Take can be avoided.

The banks should be examined for evidence of crayfish burrows suitable for housing the larvae of the Hine's Emerald Dragonfly. The presence of such burrows should prompt an examination to determine whether larvae of this species are, in fact, present. If so, appropriate permits from the US Fish & Wildlife Service may be necessary if alternatives which would avoid taking larvae are not practicable. The potential for HED larvae being present rises if Class 3 Ground Water is present at or above the channel bed.

It appears the channel has a hard bottom which prevents down-cutting; such a circumstance frequently results in erosion of the bank toes where surface soils meet the resistive layer. Alternatively, influent ground water entering the channel from beneath the banks can contribute to instability in hydric soils. [The Class 3 Ground Water in this area is thought to lie just above bedrock, and still below the channel bed at this location. However, this may not be the case, and influent ground water may be a partial cause of bank instability.] Debris in the channel can re-direct flow forces against unprotected bank toes, and bank toes can also be de-stabilized by burrowing semi-aquatic animals, such as muskrats and turtles. An increase in flow volumes due to increased upstream discharges can aggravate either condition.

If increased flow volume is a strong factor contributing to de-stabilization, the Village may wish to explore its options pursuant to the *Illinois Drainage Code* [70 ILCS 605] to seek remedies or damages from upstream parties contributing increased flow volumes. Increasing the quantity of flow in a channel is prohibited without acquiring a flowage easement from downstream land owners. However, the provisions of the *Drainage Code* are enforceable only through civil action in the circuit courts.

Establishing a stable slope angle and armoring the toe are suitable solutions where erosive forces attack the slope toe, regardless whether the cause is increased flow, a resistive channel bed, influent ground water, or a combination of those forces. But, in a straight channel such as this, it is possible, even probable, that erosive velocities will be transmitted unabated to downstream reaches without protection, exacerbating downstream instability. Given that the downstream area is within a dedicated Nature Preserve, this possible outcome must be avoided. The best means of doing so is to slow the velocity of the flow in the channel, even - and especially - under high flow conditions.

The Department recommends, in addition to the proposed bank grading and toe protection, a series of weirs and riffles intended to both slow the channel velocity and concentrate erosive forces in the channel's center. The ends of the weirs should extend well up the channel banks, perhaps even to the top of the bank, and the associated riffle areas should contain a significant number of large rocks and boulders intended to slow high flows and increase in-channel turbulence, thus dissipating erosive energy.

The Department has not been provided information about the slope of the channel over the run proposed for work, nor data about flow velocities at different discharge volumes, so the Department is unable to recommend a given number of weir structures or suggest their spacing.

Such weirs are elements that could be added after bank stabilization is completed if monitoring shows that toe protection alone is inadequate to control erosion along the channel. However, such monitoring should extend to reaches within the Nature Preserve to determine whether erosion within the Preserve has been accelerated as a result of the upstream stabilization measures.

It may be best to plan the work to occur in the late summer when water elevations are likely to be lowest and optimal conditions for soil handling and re-establishing vegetation exist, especially if it appears there is a low probability listed species may be occupy or use the work area. Screening the work area with properly installed silt fence may prevent turtles from accessing the work area from land, but there seems to be no practical way to exclude them from the channel if human activities do not deter them.

Revegetation is crucial to project success and stability; coir or jute mats applied after seeding will promote germination while minimizing hazards to wildlife associated with landscape netting.

To summarize recommendations:

- (1) *The Village should coordinate with the Forest Preserve District of Will County and the Illinois Nature Preserves Commission as to whether existing conditions and proposed remedies extend into or will affect the Nature Preserve;*
- (2) *April trapping surveys in the channel should be undertaken to determine the presence of the Blanding's Turtle and the Spotted Turtle, or their presence should be assumed;*
- (3) *Bank surveys should be performed to identify crayfish burrows which may house the larvae of the Hine's Emerald Dragonfly. Burrows should be examined to determine whether such larvae are present, or their presence should be assumed;*
- (4) *If state-listed or federally-listed endangered species are present, the Village should seek appropriate permits from the Department and the Fish & Wildlife Service, or select alternatives (such as upstream flow abatement) which will not result in taking listed species;*
- (5) *The Village should conduct the work under favorable soil and climatic conditions in the summer and fall;*
- (6) *The Village should establish stable bank slopes, install toe protection, and establish native vegetation using advanced erosion control techniques, such as coir mats, to maximize stabilization success;*
- (7) *The Village should reduce channel flow velocities through the installation of one or more weir and riffle combinations across the channel bed;*

(8) The Village should screen all work areas with properly installed silt fence for the purpose of excluding wildlife to the extent feasible.

Consultation on the part of the Department is closed, unless the Village desires additional information or advice related to this proposal. In accordance with 17 Ill. Adm. Code 1075.40(h), the Village should notify the Department of its decision regarding these recommendations, whether it will:

- Proceed with the action as originally proposed;
- Require the action to be modified per Department recommendations (please specify which measures if not all will be required); or
- Forgo the action.

This consultation is valid for two years unless new information becomes available which was not previously considered; or the proposed action is modified; or additional species, essential habitats, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review primarily reflects the information existing in the Illinois Natural Heritage Database at the time of this consultation, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments.

If additional protected resources are encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations. Also, note that termination does not imply IDNR's authorization or endorsement of the proposed action. Please contact me if you have questions regarding this review.

Sincerely,



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cc: Scott Brejcha, V3 Companies